

A KEY TO THE LAND SNAILS OF THE FLATFORD AREA, SUFFOLK

By J. E. MORTON AND J. MACHIN

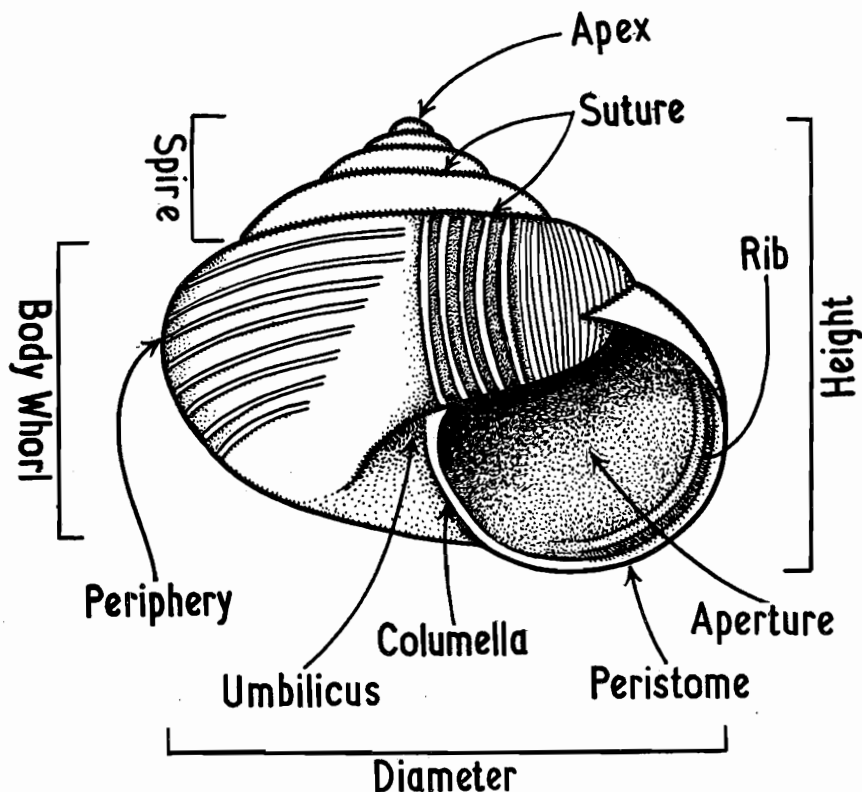
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THE Field Centre and its surroundings at Flatford Mill lie away from the East Anglian chalk, on quaternary drifts and alluvium; they are thus poorer in land-snails than the richest and classic localities such as Boxhill and the woods of Kent and Surrey. Nevertheless, a well-planted area with such a diversity of habitats is bound to provide a good species list, and the present records at the Centre show 39 species of shelled land molluscs, that is to say, exclusive of slugs. Land snails are an important group to ecologists, but unfortunately the student beginning field work has initial difficulties with the existing reference works. The object of this simple Key is therefore to provide recognition characters and outline drawings of all those species of land snails that have already been taken, or may be expected to turn up from time to time, in the area worked from Flatford Mill. The slugs are already well introduced in the excellent Synopsis by Quick (1949).

Far from by-passing the standard work of Ellis (1926), we have tried to provide the beginner with an easier introduction to a book that he will find indispensable, and page references to the 1926 edition are given with each species, e.g. (E 72) *Assiminea grayana*. The preceding italic figures refer to the numbered drawings in Plates 1-4 which illustrate this Key. Other rich stores of information are the detailed treatise of Taylor (1894-1907) and more recently the ecological paper of Boycott (1934), and the papers on ecology and systematics by Ellis (1941), Quick (1943) and Stratton (1956).

Given living or dead vegetation and some slight moisture, most land habitats support snails. Few of the species mentioned in the Key are very uncommon, or restricted to East Anglian localities; and the fauna includes examples of every British family of pulmonate snails. Several important absentees include the Roman Snail, *Helix pomatia*, closely tied to calcareous soil in or near beech woods, and *Zonitoides excavatus*, the one notable British calcifuge, confined mainly to acid heaths. The two British land operculate prosobranchs *Acme fusca* and *Pomatias elegans* are also, as calciphiles, absent here; but the prosobranchs are represented by the maritime *Assiminea grayana*, found with the pulmonate *Ovatella myosotis* in saltings.

The Figures 1, 2 and 3 are intended to suggest the way the terrestrial habitat is divided into sites, each occupied by a distinctive faunule of snails. Typical species lists are given for each type of locality: these may be found useful, so long as they do not encourage the rigid parcelling up of the environment into exclusive "micro-habitats". The whole range of habitats is a continuous one, and there are a few species at least that can occur in nearly all of them. Nevertheless the list of the total faunule for each place has a predictable character



A hypothetical land pulmonate shell, to explain the principal terms used in description. The sculpture includes spiral and axial ribs and transverse growth striae.

and is a revealing index of environmental conditions. None of the species shown is an obligate calciphile, though a few, such as *Carychium minimum* are listed by Boycott (1934) among those preferring calcareous soils. *Discus rotundatus*, *Oxychilus cellarius*, *Cochlicopa lubrica* and *Hygromia striolata* are very wide in their range. On the other hand, one must go to very particular habitats at Flatford to collect, for example, *Helicella virgata*, *Zonitoides nitidus* or *Ovatella myosotis*.

One or two species are included in the Key which have not yet been taken at Flatford but which, with further collecting, there seems good reason to expect. They include *Monacha granulata*, *Columella edentula* and *Acanthinula aculeata*, all widely distributed but rather local in occurrence. *Oxychilus draparnaldi* is probably absent at Flatford; it has been included with its congeners in order to give a complete Key to the four species of a genus not easy for the beginner.

The characters of the animal have been included where necessary for

identification; but dissections have been avoided in all but two cases, namely with the Cepaea and Succineae where they are sometimes necessary to confirm a specific designation. Immature forms are frequently confusing and these have been separately figured where they differ strikingly from the adults.

Nomenclature follows Ellis (1951), except that *Ovatella* replaces *Phytia*. Other differences from Ellis (1926) are the loss of the more familiar names *Theba* and *Ashfordia*, in favour of *Monacha*, the use of *Oxychilus draparnaldi* for *O. lucidus*, and of *Clausilia bidentata* for English "rugosa" properly found only on the continent.

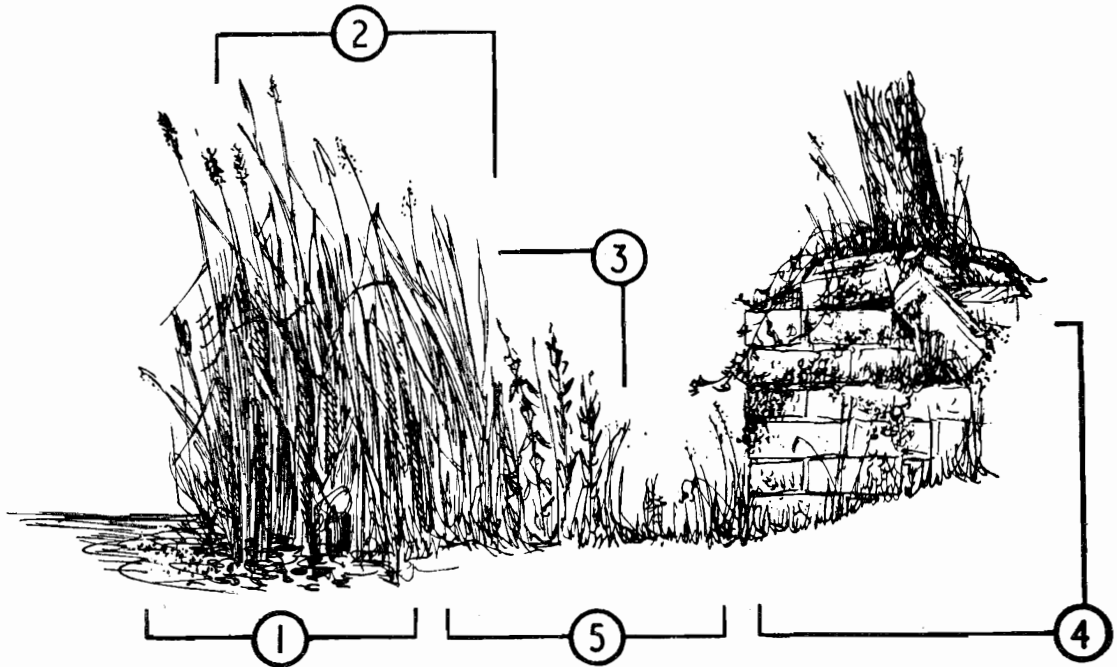


FIG. 1

1. At bases of rushes and sedges at the edge of water: *Zonitoides nitidus*, *Succinea putris*, *Carychium minimum*, *Vallonia costata*, *Hygromia hispida* (*Lymnea palustris*, an aquatic snail living in this zone).
2. On reeds, grasses and other tall vegetation at the edge of the water: *Succinea putris*, *Monacha cantiana*, *Cepaea hortensis*, *Arianta arbustorum*, *Hygromia hispida*, *Hygromia striolata*.
3. On foliage of nettles, tall grass, willow herbs, large umbellifers, as on roadsides: *Monacha cantiana*, *Cepaea nemoralis*, *Cepaea hortensis*, *Hygromia striolata*, *Hygromia hispida*, *Helicella virgata*.
4. Under stones and in cracks on old brick walls: *Discus rotundatus*, *Oxychilus cellarius*, *Oxychilus helveticus*, *Oxychilus alliarius*, *Marpessa bidentata*, *Clausilia rugosa*, *Balea perversa*, *Cochlicopa lubrica*, *Ena obscura*, *Azeea goodalli*, *Euconulus fulvus*, *Lauria cylindracea*, *Pupilla muscorum*, *Vitrea crystallina*, *Helix aspersa*, *Hygromia striolata*.
5. In damp grass of periodically flooded water meadows: *Carychium minimum*, *Succinea putris*, *Vertigo pygmaea*, *Vallonia pulchella*, *Vallonia costata*, *Vitrina pellucida*, *Retinella radiatula*, *Retinella nitidula*, *Zonitoides nitidus*, *Cochlicopa lubrica*, *Hygromia striolata*, *Hygromia hispida*.

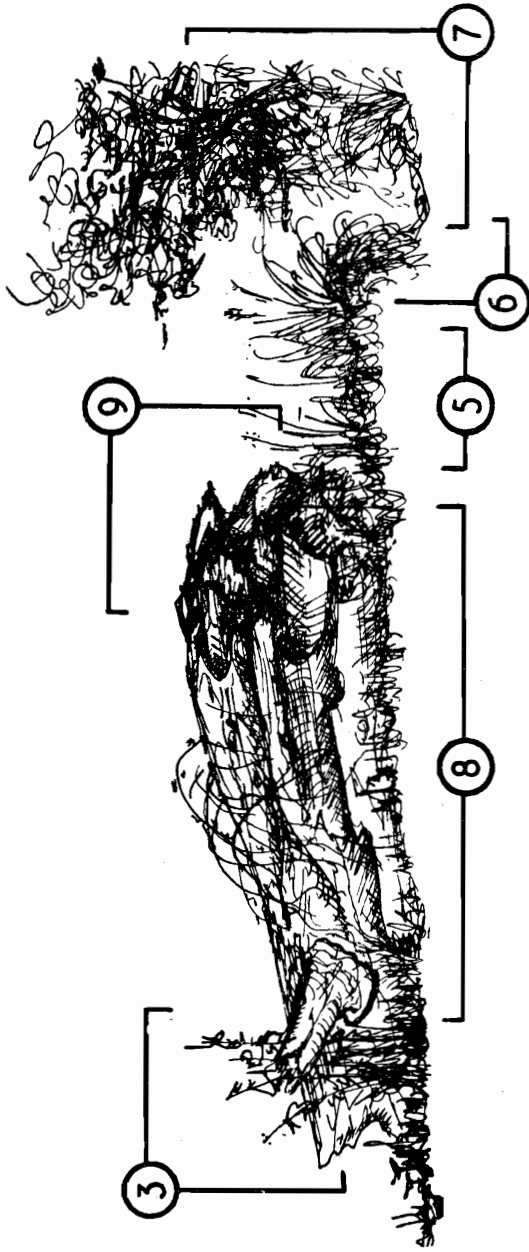


FIG. 2

3. (As in Fig. 1)

6. In grass on the banks of streams and ditches: *Succinea patris*, *Retinella radiatula*, *Vallonia pulchella*, *Vallonia costata*, *Vitrina pellucida*.
7. At the base of ground layer in hedgerows and overgrown ditches: *Discus rotundatus*, *Hygromia striolata*, *Hygromia hispida*, *Cochlicopa lubrica*, *Eua obscura*, *Azeca goodalli*, *Acanthinula aculeata*, *Helix aspersa*, *Cepaea nemoralis*, *Cepaea hortensis*, *Monacha cantiana*, *Arianta arbustorum*, *Oxychilus cellarius*, *Oxychilus helveticus*, *Oxychilus alliaris*, *Vallonia costata*.
8. Beneath and in cavities of crumbing and decaying logs: *Oxychilus cellarius*, *Oxychilus helveticus*, *Oxychilus alliaris*, *Discus rotundatus*, *Eua obscura*, *Azeca goodalli*, *Eucomulus fulvus*, *Carychium minimum*, *Clausilia bidentata*, *Marpessa laminata*, *Retinella nitidula*, *Cochlicopa lubrica*, *Hygromia striolata*, *Hygromia hispida*.
9. On decayed stumps covered with moss and fungi: *Oxychilus helveticus*, *Oxychilus alliaris*, *Oxychilus cellarius*, *Hygromia hispida*, *Vitrina pellucida*, *Eucomulus fulvus*, *Discus rotundatus*.

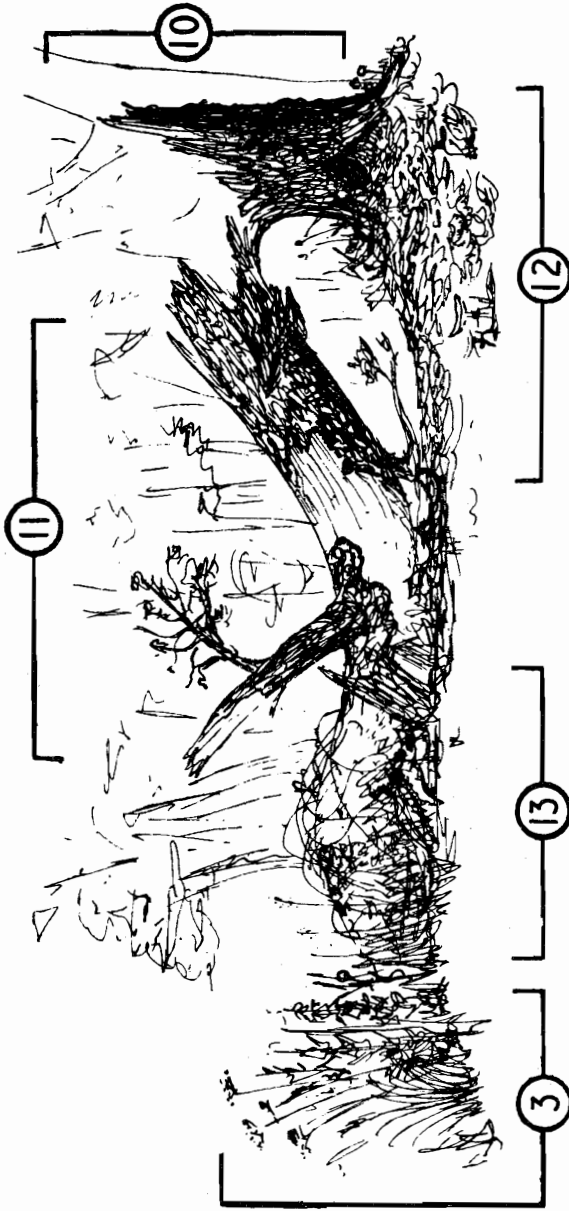


FIG. 3

3. (As in Fig. 1)
10. On cut or fallen stumps or branches, in crevices and under bark: *Carychium minimum*, *Azeca goodalli*, *Cochlicopa lubrica*, *Discus rotundatus*, *Hygromia hispida*, *Oxychilus alltarius*, *Oxychilus helveticus*, *Oxychilus cellarius*, *Marpessa laminata*, *Clausilia bidentata*, *Balea perversa*.
11. On branches near the ground: *Balea perversa*, *Marpessa laminata*, *Clausilia bidentata*, *Discus rotundatus*.
12. Drier leaf and twig debris: *Discus rotundatus*, *Hygromia striolata*, *Hygromia hispida*, *Eva obscura*, *Cepaea nemoralis*, *Cepaea hortensis*, *Retinella nitidula*.
13. Moss, fallen leaves and damp vegetation of woodland ground layer: *Carychium minimum*, *Azeca goodalli*, *Cochlicopa lubrica*, *Punctum pygmaeum*, *Retinella radiatula*, *Retinella pura*, *Retinella nitidula*.

Figs. 1-3 Schematic representation of snail habitats (1-13).

The following are not depicted in the diagrams:

14. In cultivated gardens, especially in overgrown and waste places: *Hygromia striolata*, *Hygromia hispida*, *Monacha cantiana*, *Helix aspersa*, *Cepaea hortensis*, *Oxychilus draparnaldi*, *Oxychilus cellarius*, *Discus rotundatus*, *Retinella nitidula*, *Cochlicopa lubrica*.
15. In dry places on grass, other vegetation and stones, especially near the seashore: *Helicella virgata*, *Helicella caperata*, *Helicella itala*, *Monacha cantiana*, *Helix aspersa*, *Cepaea hortensis*.
16. Under salt marsh vegetation fringing estuaries and saltings: *Ovatella myosotis*, *Assiminea grayana*.

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KEY

1. Conical, with angled periphery, and with transparent operculum; height a little more than diameter; glossy yellowish brown to almost black. Salt marshes and shore line (5)(E72) **Assiminea grayana**
Not conical, and without an operculum. Mostly in fully terrestrial habits (but *Ovatella myosotis* is maritime) 2
2. Elongate shells of much greater height than diameter 3
Globose or depressed shells, height never greater than diameter and sometimes much less 16
3. Minute and delicate, not above 2 mm. high, with aperture toothed 4
Larger, ovoid to fusiform, or long and tapered; variously brown or horn-coloured 5
4. Colourless and transparent, aperture with three slight denticles in the adult (2)(E97) **Carychium minimum**
Chestnut brown, aperture with four or five denticles in the adult (3)(E144) **Vertigo pygmaea**
5. Sinistrally coiled, relatively very narrow with tapered spire, aperture terminal or to the left (CLAUSILIIDAE) 6
Dextrally coiled ovoid or cylindrical or fusiform 8

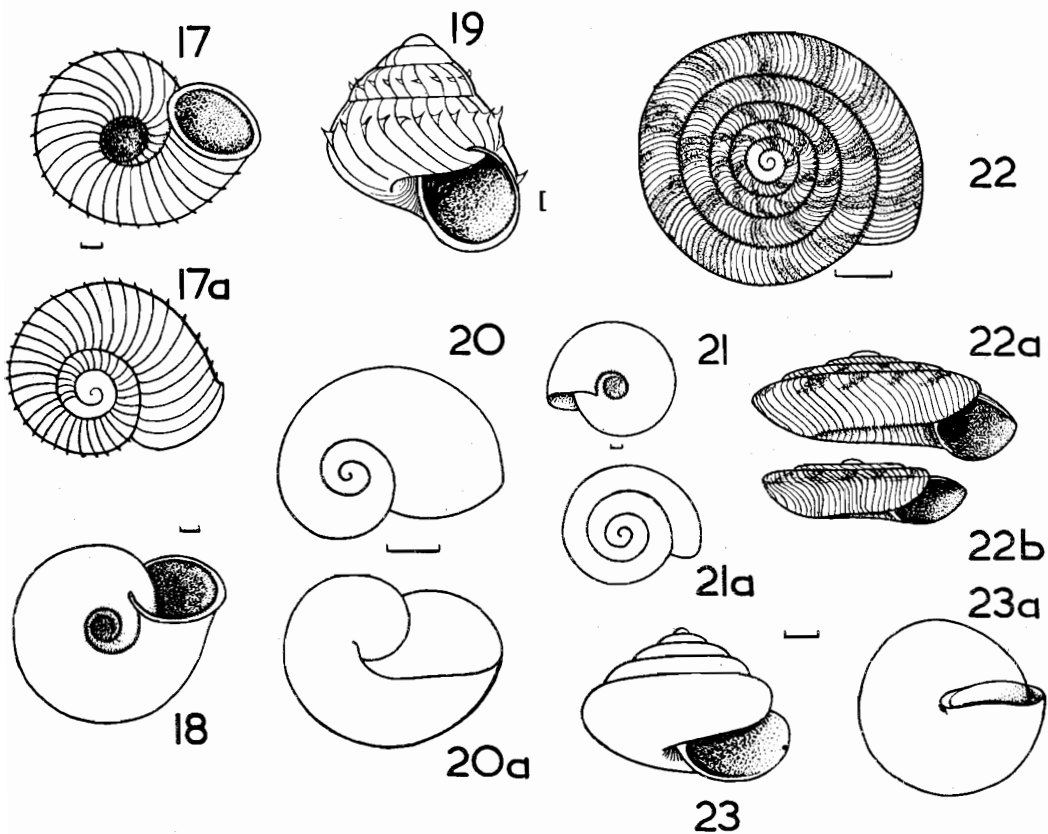


PLATE 2. 17, 17a. *Vallonia costata*; 18. *Vallonia pulchella*; 19. *Acanthimula aculeata*; 20, 20a. *Vitrina pellucida*; 21, 21a. *Punctum pygmaeum*; 22, 22a, 22b. *Discus rotundatus*; 23, 23a. *Euconulus fulvus*.

(Natural size shown by scale lines)

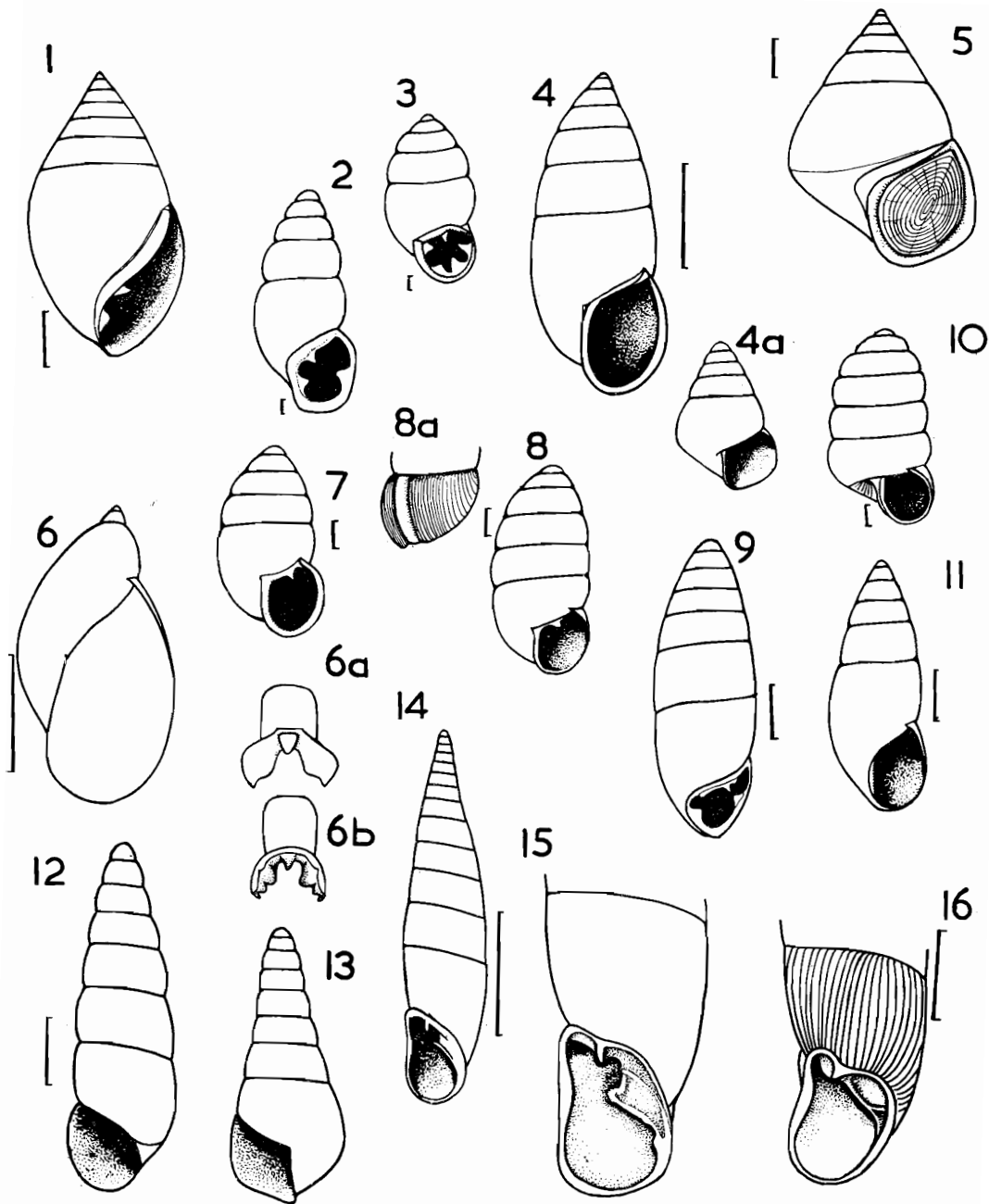


PLATE 1. 1. *Ovatella myosotis*; 2. *Carychium minimum*; 3. *Vertigo pygmaea*; 4. *Ena obscura*; 5. *Assimineia grayana*; 6. *Succinea putris*, 6a. *Succinea pfeifferi* (jaw); 6b. *Succinea putris* (jaw); 7. *Lauria cylindracea*; 8, 8a. *Pupilla muscorum*; 9. *Azeca goodalli*; 10. *Columella edentula*; 11. *Cochlicopa lubrica*; 12. *Balea perversa*; 13. *Marpessa laminata* (young); 14. *Marpessa laminata*; 15. *Marpessa laminata* (body whorl and aperture); 16. *Clausilia bidentata* (body whorl and aperture).

(Natural size shown by scale lines)

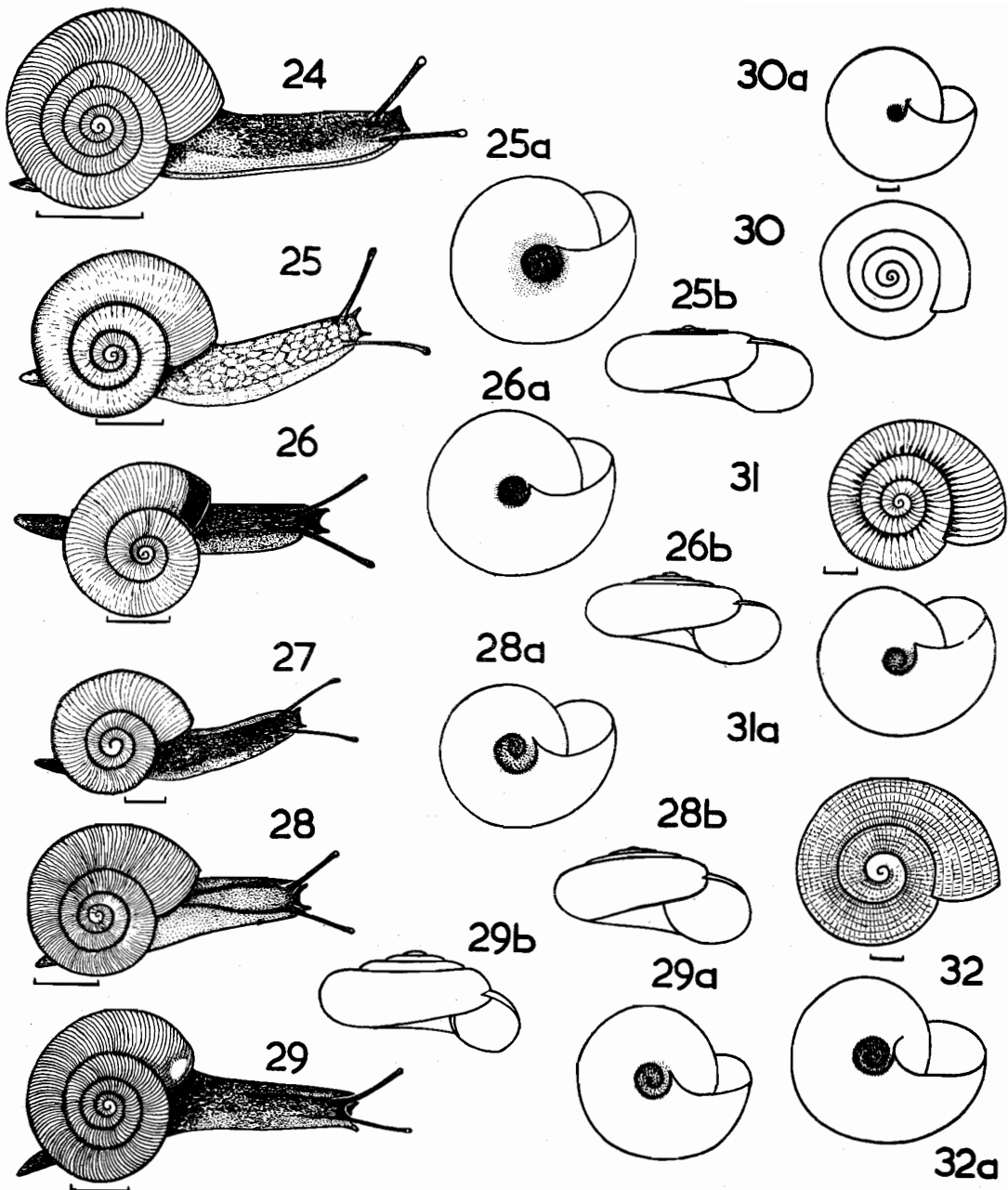


PLATE. 3. 24. *Oxychilus draparnaldi*; 25, 25a, 25b. *Oxychilus cellarius*; 26, 26a, 26b. *Oxychilus helveticus*; 27. *Oxychilus alarius*; 28, 28a, 28b. *Retinella nitidula*; 29, 29a, 29b. *Zonitoides nitidus*; 30, 30a. *Vitrea crystallina*; 31, 31a *Retinella radiatula*; 32, 32a. *Retinella pura*.

(Natural size shown by scale lines)

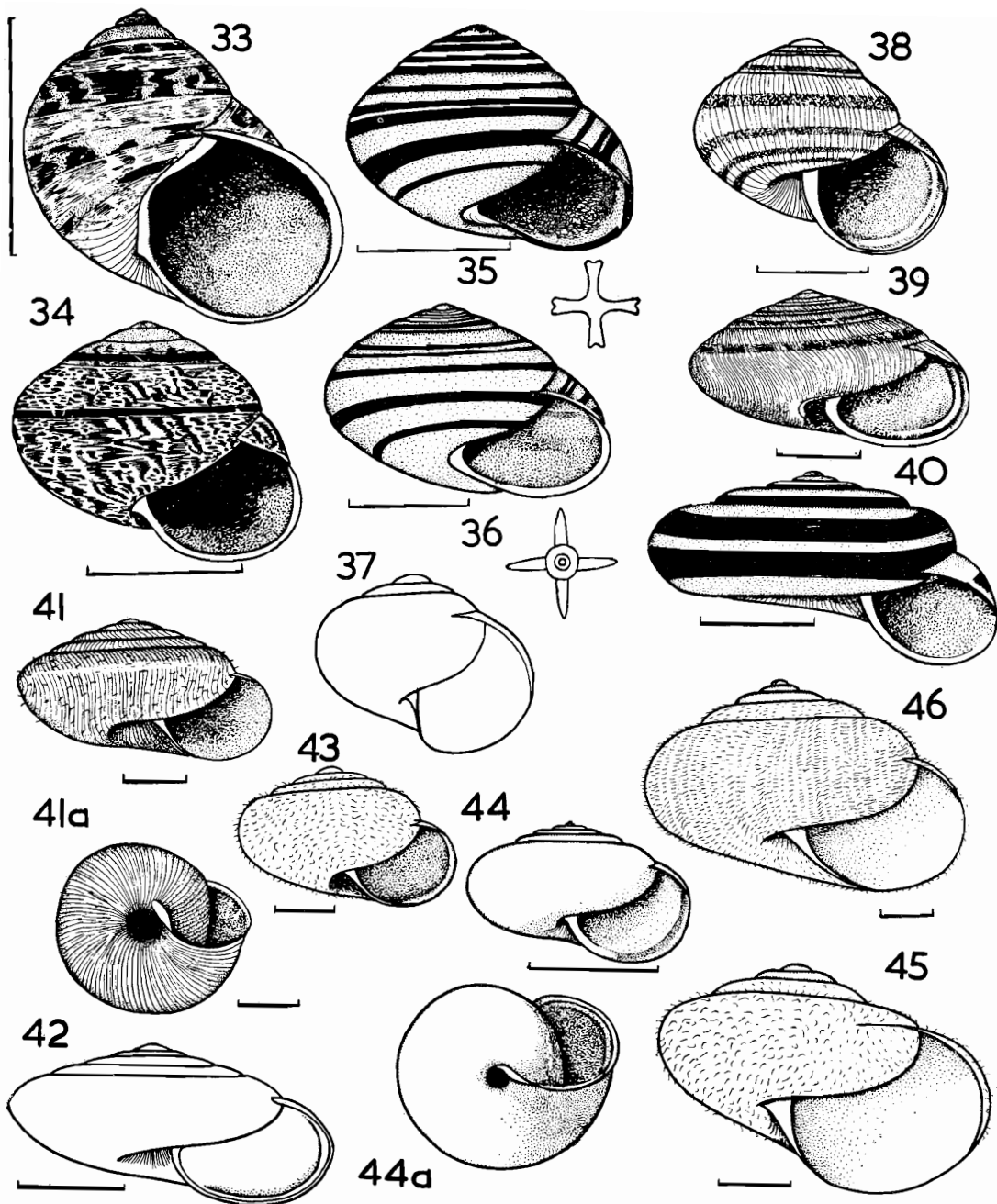


PLATE 4. 33. *Helix aspersa*; 34. *Arianta arbustorum*; 35. *Cepaea nemoralis* (with dart in T.S.)
 36. *Cepaea hortensis* (with dart in T.S.); 37. *Cepaea hortensis* (young); 38. *Helicella virgata*; 39. *Helicella caperata*; 40. *Helicella itala*; 41, 41a. *Hygromia striolata* (small form); 42. *Hygromia striolata*
 (large Kent and Surrey form); 43. *Hygromia hispida*; 44, 44a. *Monacha cantiana*; 45. *Monacha cantiana* (young); 46. *Monacha granulata*.

(Natural size shown by scale lines)

- 6 (CLAUSILIIDAE) Widest at the base, with a thin peristome and apertural denticle small and single, or altogether lacking; whorls 6-8; 8-9 mm. x 2-2.5 mm. Found generally away from the ground on bark and in crevices and walls. (12)(E184) **Balea perversa***
Swollen to greatest width some distance above the base, with peristome thickened and reflected and aperture more contracted, with more than one denticle. Whorls 12-18 7
7. Aperture narrowed above like the spout of a jug; teeth include two low folds on the columella; glossy brown with strong close-set growth striae. 13 mm. x 2.5 mm. (16)(E186 as *C. rugosa*) **Clausilia bidentata**
Aperture less narrowed at its upper angle; columella with a very strong flange; semi-transparent with very delicate striae. 18 mm. x 4 mm. (13, 14, 15)(E190) **Marpessa laminata**
8. Shell hardly containing the animal, oval, transparent and fragile, with the last whorl rapidly enlarging and the aperture length thus at least half the height of the shell, its lip thin and sharp (SUCCINEIDAE) 9
Animal easily contained by the shell 10
9. (SUCCINEIDAE) Larger, 17 mm. x 10 mm., with four whorls, more inflated and aperture broader; fine striations; animal light in colour. Jaw as in 6b (6, 6b)(E139) **Succinea putris**
Smaller, 10 mm. x 6 mm., three whorls, less inflated and aperture narrower; rather coarse striations; animal dark and speckled. Jaw as in 6a (6a)(E137) **Succinea Pfeifferi**
10. Shell stoutly cylindrical, small, not above 4 mm. high (PUPILLIDAE) 11
Shell tapered or fusiform, larger, more than 6 mm. high 13
11. (PUPILLIDAE) Shell with peristome simple and sharp and without denticles (10)(E154) **Columella edentula**
Shell with peristome thickened and with one denticle, in the adult 12
12. A strong white external rib behind the peristome; diameter of the last whorl one third the height of the shell (8, 8a)(E156) **Pupilla muscorum**
No rib behind the peristome; diameter of last whorl 5/13 the height of the shell (7)(E157) **Lauria cylindracea**
13. Shell thin but strong, shining and extremely glossy (STENOGRYRIDAE) 14
Shell neither shining nor transparent 15
14. (STENOGRYRIDAE) Aperture contracted, with 3 teeth (9)(E167) **Azeca goodalli**
Aperture oval, without teeth (11)(E166) **Cochlicopa lubrica**
15. Aperture weakly toothed, shell thin but robust, yellowish brown and ovoid, peristome sharp. In salt marsh (1)(E96) **Ovatella myosotis**
Aperture without teeth, peristome white and reflected in the adult,† shell often obscured by encrusting earth. Fully terrestrial (4, 4a)(E169) **Ena obscura**

* Young *Clausilia bidentata* and *Marpessa laminata* are widest at the base and lack teeth.

† Young *Ena obscura* are conical, with a thin sharp peristome (4a).

16. Minute, never greater than 2.5 mm. diameter, sometimes less* 17
 Diameter greater than 2.5 mm. 20
17. Height equal to diameter (2 mm.), trochoid, with prominent transverse ridges bearing periostracal spines (19)(E164) **Acanthinula aculeata** 18
 Height less than diameter, depressed 18
18. Circular aperture with continuous reflected peristome; yellowish white and planorboid up to 2.5 mm. in diameter (**Vallonia**) 19
 Aperture without thickened peristome; shell smooth and minute, only 1.5 mm. diameter (21, 21a)(E170) **Punctum pygmaeum** 19
19. With prominent regularly spaced periostracal ribs (17, 17a)(E161) **Vallonia costata**
 Smooth or with fine transverse striae (18)(E162) **Vallonia pulchella**
20. With strong, curved, transverse ribs; flat discoid shell with an angled periphery, patterned above with radial reddish brown streaks(22, 22a, b)(E171) **Discus rotundatus**
 Lacking strong transverse ribs or above colour pattern 21
21. Whorls few (3-4) and rapidly enlarging, aperture more than half as wide as total diameter; shell very thin and fragile, not fully containing the animal (VITRINIDAE) (20, 20a)(E248) **Vitrina pellucida**
 More whorls, less rapidly enlarging, aperture width never more than half the total diameter, shell less fragile and fully containing the animal 22
22. Shell small (2.5 mm. height, 3.5 mm. diameter) top-shaped, brownish, umbilicus closed or scarcely perceptible, uniform brown (23, 23a)(E238) **Euconulus fulvus**
 Without all the above characters together 23
23. Shell depressed, height not more than half the diameter; thin and translucent when empty, without patterned colouring or periostracal hairs, peristome never thickened or reflected and periphery never angled; usually less than 10 mm. diameter (most ZONITIDAE) 24
 Shell turbinate, globular or depressed, height at least slightly more and usually much more, than half diameter (or if less than half diameter, as in *Helicella itala*, then shell opaque chalky white, usually banded), frequently with either patterned colouring or periostracal hairs, peristome frequently thickened and reflected in adult and periphery sometimes angular; usually more than 10 mm. diameter (HELICIDAE) 32
24. Shell only 3 mm. in diameter, 1.5 mm. high, pale transparent greenish white, shining; umbilicus very narrow (30, 30a)(E247) **Vitrea crystallina**
 Shell larger, at least 4 mm. diameter, horny brown, shining or waxy, umbilicus wider 25
25. Shell with a highly polished lustre as of varnish, sculpture of very fine striae, appearing smooth to the naked eye.† (**Oxychilus**) 26
 Shell lacking a high polish (when dry) or if glossy having the dull lustre of wax; rather smooth, or irregularly striate as in *Zonitoides nitidus* 29

* Avoid young forms, especially *Discus rotundatus*, which is distinguished by an angled periphery, flat top and convexity below (22b).

† The species of *Oxychilus* and *Retinella* are difficult for the beginner. Recognition depends much on the characters of the animal (see Plates) though we may avoid here features only determinable by dissection. Examine a good series of as many living specimens as possible, and refer to each separate character cited, before settling on identification.

26. Shell large, up to 15 mm. in diameter, dark fawn, or paler brown, with 6-7 whorls, animal deep slate blue (24)(E246, as *O. lucidus*)
Oxychilus draparnaldi 27
 Shell smaller, never above 10 mm. in diameter
27. Shell pale yellowish horn or clay-coloured, cloudy to opaque whitish round the umbilicus, spire very depressed, shell almost flat on top, suture somewhat channelled or impressed; diameter up to 10 mm., height 5 mm.; 5-6 whorls; animal light grey (25, 25a, b)(E245) **Oxychilus cellarius**
 Shell deeper reddish brown, with less opacity round umbilicus, spire very low but shell not quite flattened above, and suture not channelled; animal dark bluish to black, smells of garlic when irritated, more strongly in *Oxychilus allarius* 28
28. Shell larger, up to 9-10 mm. diameter, with 5 whorls, umbilicus rather narrow, less than 1/6 the shell diameter; mantle with a wide black border showing through the lip of the shell, "tail" usually projecting considerably behind the shell when crawling (26, 26a, b)(E244) **Oxychilus helveticus**
 Shell smaller, not more than 6.5 mm. diameter, 4-4½ whorls, umbilicus relatively wider, more than 1/6 shell diameter, mantle without a wide black border, and "tail" only slightly projecting behind when crawling (27)(E244)
Oxychilus allarius
29. Shell with 3½ to 5 whorls the last increasing fairly rapidly in size (**Retinella**) 30
 Shell with 5 whorls, the last not noticeably increasing in size; shell deep rich brown and rather shining, diameter 8 mm., height 4 mm., with rather strong, irregular or wrinkled transverse striae; umbilicus wide, disclosing several whorls from beneath. Animal deep blue-black, with a red-brown spot on the mantle edge, the shell appearing dark chocolate brown with the animal contained(29, 29a, b)(E240) **Zonitoides nitidus**
30. Shell with strong regular transverse striae best marked towards the suture, umbilicus narrow and deep, diameter 4 mm., height 2 mm., whorls 4 (31, 31a)(E241) **Retinella radiatula** 31
 Shell with only fine transverse striae, umbilicus wider
31. Shell larger, 8 mm. diameter, 4 mm. height, whorls 4-5 with a dull waxen gloss, horny brown with thick periostracum, sculpture of fine regular transverse striae, animal grey or black (28, 28a, b)(E243) **Retinella nitidula**
 Shell smaller, 4 mm. diameter, 2 mm. height, whorls 3½-4, rather glossy semi-transparent, white or horny brown, very thin, sculpture of very fine transverse and spiral striae; animal white or pale yellow, mantle whitish with black spots (32, 32a)(E242) **Retinella pura**
32. (HELICIDAE) With fine periostracal hairs 33
 Without periostracal hairs 36
33. Shell fragile and very feebly calcified, colourless and transparent* with the umbilicus small and sometimes partly covered by the peristome. 34
 Shell more robust, though often thin, with the umbilicus larger and fully open. 35

* May be marked in life by the pigmentation of the animal within.

34. Short periostracal hairs very dense forming a soft down
(E213, as *Ashfordia granulata*) **Monacha granulata**
Periostracal hairs rather more sparse. (E206, as *Theba cantiana*)
Monacha cantiana (young)
(Compare Nos. 45 and 46 (Plate 4) for relative proportions of the aperture in these two forms.)
35. Shell rather depressed with whorls slightly angled at the periphery, dark reddish brown to paler, with fine transverse striae, and periostracal hairs sparse, becoming lost; peristome sharp, without internal rib (later to become reflected and acquire a rib). (41, 41a)(E210 as *Trichia striolata*)
Hygromia striolata (young)
Shell more globose with the whorls nearly rounded in cross section, yellowish brown to translucent greyish white, epidermal hairs retained; peristome scarcely reflected, but with a weak internal rib. (43)(E208 as *Trichia hispida*)
Hygromia hispida
36. Umbilicus remains fully open, though sometimes narrow; shell generally small, below 18 mm. diameter. 37
Umbilicus wholly obscured or reduced to a narrow chink by reflection of the peristome; shell larger, above 18 mm. diameter. 42
37. Immature, shell more or less globular, very thin and fragile, with very large aperture, the peristome sharp and simple; umbilicus narrow; with the colour patterns of their adults. (37, of *Cepaea hortensis*)
Cepaea, Helix or Arianta (young)
Shell without the above characters together 38
38. Shell without patterned colouring, brown, horny or translucent when empty. 39
Shell opaque chalky white to ashen brown, usually with one or more dark bands or variously brown marked, especially above the periphery; occasionally plain-coloured. (**Helicella**) 40
39. Larger, up to 19 mm. diameter, spire depressed and whorls rounded, shell pale and translucent, often reddish brown towards the aperture, occasionally with a white peripheral band, the colours of the animal (brown with lead-coloured or black speckles and blotches) showing through; peristome reflected, with white internal rib; umbilicus small.
(44, 44a)(E206 as *Theba cantiana*) **Monacha cantiana** (adult)
Smaller, not above 13 mm. diameter, with whorls angled at the periphery, deep reddish brown to paler, with fine transverse striae; peristome reflected, with white internal rib; umbilicus wide. (42)(E210 as *Trichia striolata*)
Hygromia striolata* (adult)
40. Shell very depressed, almost flat above the periphery; glossy white or fawn; generally with one continuous band above the periphery, one or more smaller ones below; umbilicus extremely wide so that several whorls disclosed from beneath; aperture with or without a weak internal rib. (40)(E194)
Helicella itala
Shell top-shaped with spire raised and conical, with prominent transverse striae, colour bands variable, often interrupted or even absent; umbilicus not excessively wide; aperture with a strong internal rib in adult. 41

* *Hygromia striolata*. This species varies widely. No. 42 illustrates the large flatter, more typical form, found in Kent and Surrey (up to 13 mm. diameter); No. 41 is of the smaller relatively more globose form found at Flatford, here shown slightly before maturity.

41. Shell chalky white with angled periphery; rather sharp rugged striae and with colour pattern extremely variable, bands being often interrupted, fused or obliterated; umbilicus moderately wide. (39)(E201)
Helicilla caperata
 Shell slightly glossy with rounded periphery; finer transverse striae often irregularly spaced or concentrated in groups, and umbilicus narrow. (38)(E196)
Helicella virgata
42. Ground colour always uniform, yellow, pink or brown, but never speckled or variegated; usually 1-5 dark bands, which may at times be quite lacking. (Cepaea) 43
 Ground colour speckled or variegated in brown and yellow, with band pattern often obscured or disrupted. 44
43. Thickened peristome in adult white. (35)(E225) ***Cepaea hortensis****
 Thickened peristome in adult black or brown. (36)(E228) ***Cepaea nemoralis****
44. Shell somewhat glossy with a single dark peripheral band which is at times lacking; ground colour handsomely speckled with brown and yellow; occasionally almost uniform honey-coloured with few or no dark markings; thickened white peristome in adult; diameter never more than 23 mm. (34)(E220) ***Arianta arbustorum*†**
 Shell (when dry) dull brown or buff with a rough surface, 1-5 dark bands, generally interrupted by lighter patches or sometimes zig-zags crossing them; peristome in adult white and reflected; diameter up to 35 mm. (33)(E235) ***Helix aspersa*†**

* The separation of these two species is at times a matter of extreme difficulty. The distinction in the peristome colour sometimes fails and the only character invariably reliable seems to be the appearance of the dart in cross section (see Plate 4).

† These species are subject to extreme variation in pattern and intensity of colouring.