THE CONCHOLOGISTS' NEWSLETTER

No. 10 Compiled by: P. E. Negus, [redacted]

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The new compiler, P. E. Negus, offers apologies for the delay in issuing material included in this number. The previous compiler, Michael Goodchild, who so successfully established the Newsletter, was not able to deal with correspondence and material submitted to him owing to ill health.

"PAPERS FOR STUDENTS"

By now you will have received the first four of the above papers. The idea behind this series is to help all those who are at the beginning of their studies of the Mollusca and it is hoped that they will be more widely used than by our own members both junior and senior. Indeed as an aid to students on field courses, to schools working on field projects, etc., they may have considerable value.

They are circulated free of charge to all full members of the Society to date resident in the British Isles. They will be free to all junior members, as and when they join, subject to any further decisions of the Council which may modify the conditions when the cost of the total number of papers issued exceeds the value of the subscription paid in the first year. For further copies, the prices, including postage, will be as follows:-

No. 1	"Introducing Junior Membership"	Free
No. 2	"Collecting Non-marine Mollusca"	6d.
No. 3	"A Key to Land Snails of Great Britain"	2/-
No. 4	"A Short Glossary of Molluscan Terms"	2/-

Paper No. 4 has been specially difficult to prepare. Most of us will agree with the meaning given to most of the terms. Many will disagree with either the definition or application and use of others. All will have feelings that many terms have been omitted which should have been included, and some will feel that the inclusion of a number of terms is unnecessary. No glossary will be completely acceptable to all; the aim is to make it as widely acceptable as possible.

Therefore if any members of the Society have views on these points please let me know. All replies will be collated and submitted for consideration. For purposes of filing please write your list of additions, subtractions, corrections on a separate sheet.

It is hoped that before the end of the year more papers will be available. No. 5 "The Care of the Collection" is already written; a paper on collecting Marine Mollusca has a writer and so has one on holocene fossil mollusca. The following are projected, "How to Determine your shells" which should cover the availability of literature and public collections. One has also been promised on the interesting work of collecting and studying Crag Mollusca.

We shall appreciate suggestions from our members for the titles (and possibly the writers) of further papers needed. Naturally no guarantee can be given that all suggestions will be adopted.

We shall be glad if you will make these papers as widely known as possible. The Society has agreed to cover the cost of production but we do hope to recover something from the sale of papers.

H. E. J. Biggs

REARING SNAILS FROM THE EGG

There are various reasons why the conchologist tries to rear snails, apart from that of studying their life histories. The genetics of polymorphic species such as Cepea hortensis can only be studied by means of breeding

experiments. Young snails often look very different from the adults, so it is of great assistance in field work to be able to recognise them. If a species is scarce, breeding provides a means of obtaining a good cabinet series without endangering a local population, and sometimes interesting varieties may turn up; also, to have 100 or so snails of known age is very convenient if one is investigating their anatomy and development.

THE EGGS. Sometimes snails are found in the act of egg-laying in the field. This is a great time-saver, as they can be placed in an observation nest at once. The eggs are usually laid in a compact mass in a cavity just below the soil surface, and these conditions have to be imitated. A 2-inch-deep glass specimen tube is one quarter filled with the local soil of the same moisture content as that next to the eggs, and lightly pressed down with a finger. The egg mass is then gently rolled into the tube (preferably with a teaspoon, a most useful piece of collecting equipment) and covered with a tuft of damp moss, surface litter, or a little more soil. A number is attached to the tube, corresponding to an entry in the notebook, and thereafter the firmly corked tube should be kept upright and shaded from the sun. The eggs can be inspected daily through the glass. Eggs laid by captive snails in boxes should be treated in the same way.

Snails will usually lay eggs in captivity if one is patient enough. A specimen of Helicella virgata from Tripoli waited 18 months for a mate from the same locality before laying, but usually the wait is only a few weeks or days. Adult or sub-mature specimens are put into jam jars containing an inch or two of damp soil, preferably mixed with crushed chalk, and covered with a perforated lid. Food is most conveniently provided by slices of potato and cabbage, skewered on a stick for easy removal. Rolled oats are unsuitable for use in jars, as they soon decay and are difficult to remove. If the soil dries out too much a little water is poured in and allowed to percolate through the soil, but as this is easily overdone it is wise to set the limit at two teaspoonfuls. Provided the soil is not too deep the eggs can be seen through the bottom, lying on the glass, and can be inspected every day. With luck, the nest will be formed at the side and the whole operation can be watched. It usually takes place at night, and is a lengthy process. The snail must be removed as soon as it has closed the nest. It is unwise to keep more than one species or 2 or 3 individuals in the same jar.

Eggs are best kept in the dark at ordinary room temperature, except those of tropical species, such as the Achatina, whose eggs have just hatched in my greenhouse at day temperatures of 85 Farenheit.

HATCHING. Hatching generally takes place in from 15 to 21 days, but some species take longer. The babies eat their eggshells, and this unpromising diet lasts them about 5 days, during which they remain in the nest. Then they dig their way to the surface and are seen crawling about the soil and glass. They should be left where they are for a few days, as they sometimes like to return to the nest to rest. If they are in corked tubes it is advisable to replace the cork with a plug of cotton wool. At this stage they will eat a little finely shredded cabbage dusted with rolled oats.

THE INFANTS. Baby snails are very sensitive, and in captivity have 3 main enemies: dryness, excess wetness, and mould. Of these the wetness is the most dangerous, causing drops of condensation to form, in which the babies are trapped and drowned. Most of my earlier attempts at rearing failed through this cause. The best safeguard is adequate ventilation, but this can lead to an almost equally dangerous drought. It is essential, therefore, to provide conditions of uniform humidity without excess wetness, and for this there is nothing to beat the transparent plastic sandwich box. A convenient size is one 7" x 4½" x 1½" deep. A hole about 1" wide is cut out of the centre of the lid with a hot poker, and the rough edges smoothed with a file; then, by means of a modern glue such as "Bostik", a piece of perforated zinc is fitted over the hole. The perforations are quite wide enough to allow the escape of a baby snail, but they never attempt to get out as they hate walking on the zinc. A thin layer of damp soil is placed on the bottom of the box, sprinkled with crushed chalk, and pressed down. On this is placed a piece of tender cabbage leaf, concave side downwards, and a little powdered rolled oats dusted over the leaf. A box set up like this stays healthy for a month at 60°F.

The next problem is the transference of the baby snails to the box. They are too fragile to handle, but if the uncorked tube is laid in the box they

will all crawl out in a few days and the tube can be removed. If they have hatched in a jar they should be all right for a few weeks if fed carefully, but sooner or later will have to be moved. For this, a squirrel hair paint brush and a teaspoon are used, in the same way as a dustpan and broom. Great care must be exercised! Another method is to replace the top of the jar with a piece of cardboard with a hole in it, and invert another jar containing a few leafy twigs on top. In a few days they will all have crawled up into the leaves, which can be picked off and placed in the rearing box.

Mould is avoided by good ventilation and the removal of any uneaten food every two days, but it is better to avoid over-feeding. Experience is the only guide in this. Sometimes the soil becomes infested with springtails, mites, or small white worms. These are harmless, but indicate dirty conditions, so the babies should be moved to a clean box and the dirty one washed out with hot water.

FOOD. For most snails the best diet is a mixture of rolled oats and fresh green leaves. Lettuce "goes off" too quickly, and cabbage, though excellent, sometimes gives rise to unpleasant smells. The best thing is to give them a mixture of leaves, the most popular being hollyhocks, clover, dahlia, hogweed and enchanter's nightshade. Soft young leaves should be avoided as they tend to shrivel up, enclosing the babies in a fatal grip. An occasional change of diet keeps them feeding well. They love hay in any form, e.g. dead herbaceous stems, grass hay, and leaves of elm, sycamore, etc., collected, washed, and dried as they fall in the autumn. These materials need to be dampened before use, and should be removed when the snails appear to lose interest. Small woodland snails usually eat leafmould, but welcome a tuft of moss or lichen. The average snail tends to be rather omnivorous, appreciating a little animal food in the form of a very small amount of dried shrimp fish food, mixed into the rolled oats.

LIME. It is astonishing how much chalk a snail family can consume in one week. Common chalk from a roadside pit is best, but limestone chippings, old mortar, or crushed oyster shells will do at a pinch. They take it as a powder sprinkled on the food, but prefer it in small lumps the size of peas, scattered on the soil. Without a good supply they cannot make strong shells, a factor of some importance when handling them.

LATER TREATMENT. The babies should be all right in their plastic boxes for a month, by which time they will need larger quarters. A very serviceable vivarium can be constructed from wood. A good size is 1 ft. long x 6" wide, with a glass top sloping down from a 6" back to a 4" front. The ends are better if square, as this allows several to be stacked on top of each other to save space. The slope of the glass throws off condensation, which soaks into the wood. The glass rests on narrow quarter-round beading, and must fit snugly to prevent accidents. Two 1" holes bored in the front to admit air are covered with perforated zinc, tacked to the inside to avoid the formation of hiding-holes from which the inhabitants are difficult to extract. The wood needs to be at least $\frac{1}{4}$" thick, as it must resist decay without the aid of any paint or preservatives.

A vivarium of this type should be set up in the same way as the plastic boxes, with damp soil, chalk, leaves, etc., but with a greater depth of soil to hold moisture. The snails are transferred to the box with a teaspoon, and examined and fed at least twice a week until they have grown to a size at which they seem better able to take care of themselves; after which they can be neglected for a week at a time if necessary. However, if they are growing very quickly they may need daily attention. Uneaten food must be removed before it decays, for although snails love dead vegetation they are soon upset by mouldy food, and begin to die off.

Wooden boxes dry out more quickly than plastic ones, so an occasional spraying with tap water, (unless heavily chlorinated), is desirable. However, there is much to be learned about this, and one should consider the natural habitat. For instance, all my attempts at rearing Theba pisana failed, until I discovered a clutch of young ones thriving in a bone-dry box in which a number of adults were aestivating, an obvious case of a species having a low optimum humidity. It reminded me of a colony of Helicella itala I once knew, living on heavily grazed turf around rabbit burrows. When myxomatosis destroyed the rabbits the grass grew up tall, and in the more humid conditions the italas all died out.

Whatever snails are kept, it is a good idea to give them a good supply of

leaves, dead or alive, as this, paradoxically, gives them more "space". They do not worry much about the volume of the box, but they do need a large surface to crawl on, which the leaves provide. Also, they help to maintain a moist atmosphere, and it saves having to change the soil too often.

GROWTH. The rate of growth varies with both species and individuals. For example, a young achatina of mine has grown less than one whorl in a year, whereas 40 Helicella obvia have come from the egg to nearly full growth in half that time. As is usual in any population, some individuals grow faster or slower, maturing at different ages, but the very slow ones are mostly "runts" and never make much progress, a few dying each month until about 15 or 20 per cent of the family have perished. Ideally, snails should be kept growing as steadily as possible, as occasional short spurts of growth under artificial conditions lead to lumpy, distorted shells and small ultimate size. To achieve even growth takes practice, but there are some useful hints to be gleaned from their behaviour. Snails, like many animals get "bored", and respond by going to sleep. Even when fresh food and a sprinkle of water are given, they scarcely move. The remedy is to remove them to another box. It can be identical with the one they have just left, but provided they have some fresh soil as well, they will take on a new lease of life.

Boredom, however, should not be confused with aestivation. This seems to be the result of high temperatures, and even if awakened by a cold shower they soon seal themselves up again. Mostly they aestivate on the sides and top of the box, but sometimes they bury themselves in the soil. The best guide as to whether they are truly aestivating is to find out whether their sleep coincides with the dry season in their country of origin; thus I find that Mediterranean snails sleep for 2 to 3 months in our summer, and Kenyan snails sleep in our winter, regardless of the degrees of temperature and humidity. It is best to let them have their own way, perhaps giving them a showerbath once every 2 or 3 weeks until they wake up properly.

No matter how fast the snails grow they do not usually mature until their second season, often at a set time. For example Helicella virgata matures in the autumn, but (as far as my observations show) Eobania vermiculata matures in the spring. They may reach full growth, but the thickening of the peristome seems to be delayed until the appropriate season.

WARNING. When rearing foreign species, always burn the old food and sterilize the soil. You don't want to introduce an alien which may become a pest, like the rabbit in Australia.

M. R. Block

THE BRITISH SPECIES OF CARDIUM

In the introduction to his treatment of the family Cardiidae, Jeffreys (1863, vol. II, p. 265) declares, "the Cockles are easily characterised and cannot be well confounded with any other family" unlike the families with which he has previously dealt that tax "the discriminative powers of the systematist to an extent which makes conchological nature almost faint under the task." On p. 290 (loc. cit.) he emphasises the variability of Cardium edule, no two individuals of which, so he says, can be confused. In these two statements he demonstrates the difficulties of identifying species of Cardium, showing, as they do, immense variation within the framework of a strong family likeness.

There are at present some 200 species of the family Cardiidae in the world, and these are distributed among 11 genera (Stratton, 1962). Winckworth (1932) recognises 10 British species, all of which he places in the genus Cardium, subdivided into 4 subgenera, as in the following list.

Cardium L.1758

S.g. Acanthocardia Gray 1851

aculeatum L.1758

echinatum L.1758

tuberculatum L.1758

S.g. Parvicardium Monterosato 1884

minimum Philippi 1836

(Winckworth refers British specimens to a subspecies C. minimum suediense Reeve 1845, stating that C. minimum sensu strictu is confined to the Mediterranean region. However, he recognises five different ways in which the trinomial may be used judging by its appearance in his list, and the references in his introductory statements (loc. cit. pp. 215-216). (1) for physiological races (2) for polymorphic species (3) for ecological races (4) for clines, and (5) for geographical races, although the generally accepted use for the subspecific category is that for the geographical - and ecological insofar as the two must be sometimes synonomous - race alone (see remarks of Pain 1961, and Mayr, Linsley and Usinger, 1953, pp. 30-32). At least some of Winckworth's "subspecies" are clines, as in mentioning the convenience of distinguishing the British from the Mediterranean representatives of certain species he states that they "would almost undoubtedly prove one continuously varying species through Biscayan, Portuguese and Spanish forms." In these circumstances it is difficult to know without further study in what sense he is using suediense and on what taxonomic characters this "subspecies" is based. Jeffreys (loc. cit. p. 294) considered C. suediense Reeve, C. loveni Thompson and C. suecicum Loven were all synonyms of C. minimum Philippi. Philippi (1836) based his description on a single recent valve and (at least in the matter of size) a number of fossil examples. Reeve (1845 loc. cit.) gives a very brief and generalised description of the Swedish Cockle, C. suediense, stating it is not much unlike the figure of an odd valve discovered by Philippi at Palermo adding that "his description by no means agrees with the northern species under consideration." The only difference to be noted in the actual descriptions is that Reeve's form had fewer ribs (28) as compared with Philippi's specimens which had 30-32: such a range is known to occur in other species of Cardium.

papillosum Poli 1795. A Sarnian species.

ovale Sowerby 1840

scabrum Philippi 1844

exiguum Gmelin 1791

S.g. Cerastoderma Poli 1795

edule edule L.1758

(This is evidently Winckworth's designation for the typical form of the species)

edule lamarcki Reeve 1845

(C. lamarcki is given specific status by Petersen (1958)
See the following key and appendix)

edule beltica Reeve 1845

(Winckworth equates this with a form found by Mr. Ball in a brackish lake on Great South Arran, Eire ("Ball's variety" in Forbes and Hanley 1853 vol. II, p. 21), separating it from C. lamarcki, although Forbes and Hanley (loc. cit. pp. 18-19) consider it a synonym. As described by Mr. Ball they were evidently juvenile specimens and were found creeping in the algal vegetation, a habit and habitat recorded as typical of young C. lamarcki by Petersen (loc. cit.) who also considers C. beltica the same as C. lamarcki. There seems no other evidence for continuing to recognise it as a taxonomically distinct form.)

S.g. Laevicardium Swainson 1840

crassum Gmelin 1791

Only one of all the above species can be considered abundant in Britain and that is the Common Edible Cockle, Cardium edule edule. C. crassum is

fairly common and the rest of occasional occurrence (Johnston 1899, p. 1).

Key to the shells of British species

Note: Cockles vary greatly in shape within a species, and there is some variation of shape between juvenile and adult stages, the latter usually becoming produced posteriorly with age. Processes on ribs are generally more pointed on posterior, flattened on anterior, and tend to become squamose on ventral margins of maturing shell: they become worn down in both living and dead specimens making determination more difficult. The proportion of rib width to furrow width of which use is made in the diagrams is an unvarying and diagnostic feature in juveniles and adults alike.

1 Ribs obvious.....2

- Ribs faint, 40 - 42 in number, with no processes: inside margin fluted in middle and towards sides. L. 50-75 mm. Cardium crassum Gmelin (all round coasts)

2 Adults more than 1" (25 mm.) long.....3

- Adults less than 1" (25 mm.) long.....7

3 Ribs traversed by scales.....4

- Ribs with spines or tubercles.....5

4 Scales on shell centre well-spaced and straight: posterior ribs well developed: ligament long and conspicuous: ribs 24 - 28: inside fluted only towards margins. L. 25 - 50 mm. C. edule L. (all round coasts)

- Scales on shell centre close-set and rather flexuous: posterior ribs scarcely developed: ligament short and not conspicuous: ribs possibly fewer than in C. edule, the posterior ones being obscured: inside fluted only towards margins. L. 25 - 50 mm. C. lamarcki Reeve + (possibly all round coast: usually in estuaries or brackish lakes: see appendix)

5 Ribs crested with tubercles which are not obviously joined at their bases though a low sunken keel may sometimes be present: ribs 21 - 22: coarse flexuous striations in broad furrows between the ribs: shell very heavy and with slight gloss: inside fluted throughout, except in very heavy specimens: colour yellowish with darker concentric zones. L. 50 - 75 mm. C. tuberculatum L. (S.W. England and Ireland)

- Ribs crested with spines which are very obviously joined at their bases by a fine raised keel.....6

6 Fairly coarse flexuous striations between the ribs: ribs 18 - 20: shell rather heavy and with no gloss: cardinal teeth in left valve approx. same size: inside fluted except in region of muscle scars: colour yellowish white: L. 50 - 65 mm. C. echinatum L. (all round coasts)

- Fine rather even and usually straight striations between the ribs: ribs 20 - 22: shell very light in weight and glossy: posterior cardinal tooth in left valve smaller than anterior one: inside fluted except in region of muscle scars: colour yellowish with reddish tinges. L. 75-100 mm. (S.W. England and Ireland) C. aculeatum L.

7 More than 23 ribs.....8

- Less than 23 ribs with sharp off-centre keel usually crested with some small tubercles, especially on the anterior side: ribs 20 - 22: very strong ridge from umbones to posterior ventral margin: inside fluted only towards margins: yellowish brown and usually with well developed brown periostracum: L. approx. 12 mm. C. exiguum Gmelin +
(most parts of coast)

8 Processes on all ribs.....9

- Processes absent from central ribs and rather sparse on other ribs: 25 - 26 ribs, the posterior ones with short prickles, the anterior ones with curved transverse plates: inside fluted well beyond margins: yellowish white usually variegated posteriorly: L. 7 - 12 mm.
(all round coast) C. ovale Sowerby

9 Processes equally developed on posterior and anterior ribs: 28 - 32 ribs covered with very closely placed minute arched scales, sometimes in double rows: inside fluted throughout: always milk white: L. 6 - 9 mm.
(rare: mainly West coasts of British Isles) C. minimum Phil.

- Processes more developed on posterior of shell.....10

10 Ribs with close-set vaulted scales: 24 - 28 ribs: inside fluted only near margin: usually milk white: L.10 - 12 mm. C. scabrum Phil.
(local: most parts of coast)

- Ribs with conical tubercles: 25 - 26 ribs: inside fluted beyond margins: yellowish: 12 mm. C. papillosum Phili
(Channel Isles, but odd valves may be found in extreme S.W. England)

+Petersen (loc. cit.) draws attention to juvenile smooth-shelled forms of C. exiguum and C. lamarcki which can be confused: they are distinguishable by the more oblique outline of C. exiguum and its longer thinner ligament.

Comparison of C. lamarcki Reeve with C. edule L.

Reeve (1845) originally described his species from material collected at Kingsbridge, Devon, as follows:-

"shell transversely ovate, sub-cordate, rather thin, ventricose, posteriorly obliquely produced; radiately ribbed; ribs 22 or 23 in number, rather broad, obtuse, indistinct upon the posterior area; transversely striated in a wavy manner; whitish variegated with blue and rusty brown, umbones livid brown, interior livid brown, especially towards the posterior side."

Early conchologists considered this an extreme variety of C. edule and intermediate forms were said to exist between the two species, the shell of C. lamarcki becoming longer (more produced posteriorly) thinner, (with lighter shell), more ventricose (the valves more swollen) and with a proportionately smaller ligament as lower salinity and more sheltered conditions dominated environment in higher reaches of estuaries.

Winckworth (loc. cit.) lists it as a subspecies of C. edule presumably considering it an ecological race (see discussion of his treatment of subspecies under C. minimum above).

Petersen (loc. cit.) treats it as a full species, separating it by the length of the ligament which is smaller than in C. edule. Taking the x-axis as the greatest breadth of the shell (i.e. across the beaks, or umbones) and the y-axis as the length of the ligament, the two species plotted on a graph may be separated by the line $x = 3.5y + 2$, e.g. a shell about 10 mm. broad will have a ligament 2.5 - 3 mm. long in C. edule whereas a specimen of C. lamarcki with a breadth of 10 mm. will have a ligament only 1 - 2 mm. long. Petersen says the following characters are more variable but act as an additional guide:-

C. edule L.	C. lamarcki Reeve
1. Ribs in middle part of shell flat and provided with small scales some distance from one another.	1a. Ribs in middle part of shell sharp and with small triangular closely placed scales, formed from periostracum.
2. Ribs on posterior of shell fairly well developed and therefore a wavy line around siphon area.	2a. Ribs on posterior of shell scarcely developed and therefore almost straight lines around siphon area.
3. Periostracum little developed.	3a. Periostracum thick and covering about 75% of the shell.
*4. Colour usually whitish and shape more circular (Petersen).	*4a. Colour usually with livid bands or areas and shape produced posteriorly (Reeve, F. and R. and Jeffreys).
5. Never found climbing in vegetation.	5a. Often climbing in vegetation or using byssus.

Diagnostic features of the shells of Cardium

C. aculeatum (75 x 70mm.)

C. echinatum (55 x 50mm.)

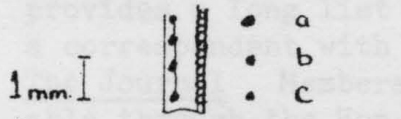
C. tuberculatum (70 x 65mm.)

C. minimum (5 x 5mm.)

C. papillosum (12 x 12mm.)

C. ovale (10 x 9mm.)

C. scabrum (12 x 10mm.)

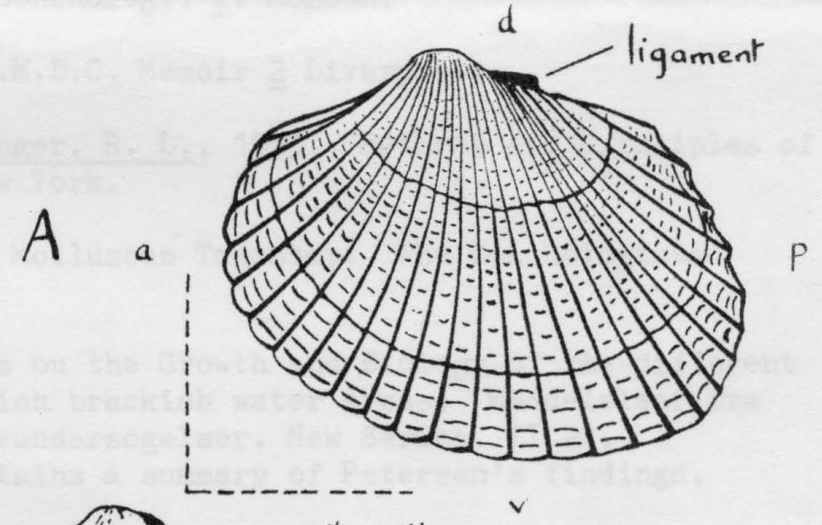


C. exiguum (12 x 10mm.)

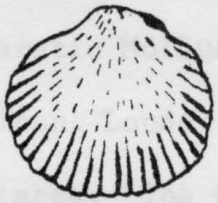
Diagrams of portions of ribs from ventral margins of shell centre showing width of furrows relative to ribs, and processes in certain Cardium species

a, b and c represent typical processes from anterior, middle & posterior of shell respectively.

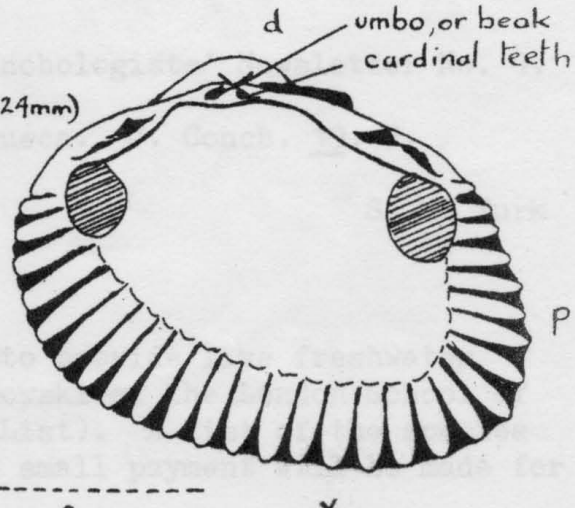
Size of specimens used for diagrams is given in brackets.



ribs with very narrow separating furrows.



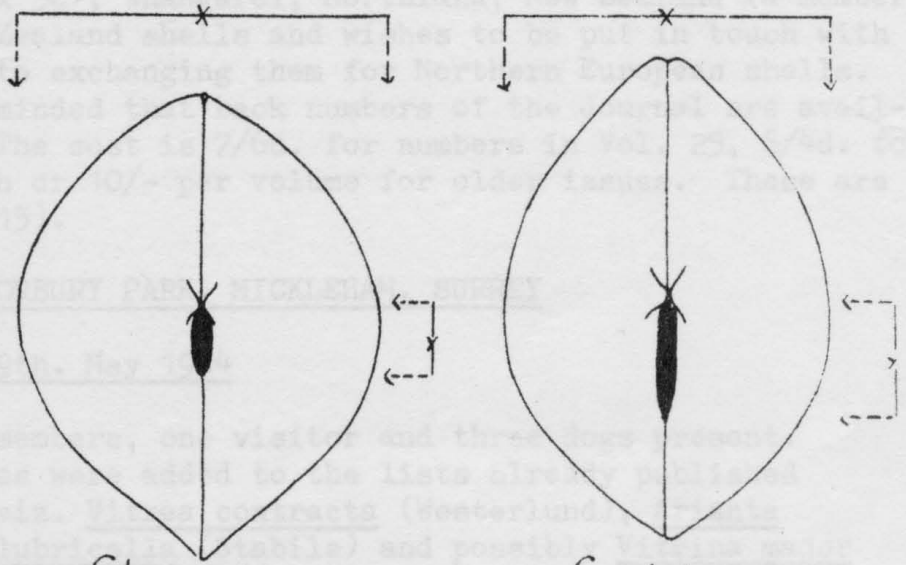
C. edule, juvenile (25 x 24mm) showing round shape



fluting near margin only

C. edule A exterior view of left valve
(42 x 35mm) B interior view of right valve

a = anterior p = posterior d = dorsal v = ventral



C. lamarcki C. edule

Lower two diagrams after Petersen (1918)

6. Not tolerant of salinity below 20 per mille.

6a. Tolerates salinity from approx. 25 to about 5 per mille.

*Colour and shape not considered taxonomic characters by Petersen.

The material on which Petersen's work was based came from localities where the species were intermingled on the same substratum at the mouths of two estuaries on the Kattegat coast of Jutland.

References

Forbes, E. and Hanley, S., 1853. British Mollusca. 2. London.

Jeffreys, J. G., 1863. British Conchology. 2. London.

Johnstone, J., 1899. Cardium. L.M.B.C. Memoir 2 Liverpool.

Mayr, E., Linsley, E. G. and Usinger, R. L., 1953. Methods and Principles of Systematic Zoology. New York.

Pain, T., 1961. Introduction to Molluscan Taxonomy. The Conchologists' Newsletter No. 2.

Petersen, G. Hopner, 1958. Notes on the Growth and Biology of the different Cardium species in Danish brackish water areas. Meddelelser fra Danmarks Fiskeri-og Havundersogelser. New Series. II 22. Nature, 181 p. 356 contains a summary of Petersen's findings.

Philippi, R. A., 1836. The Enumeratic Molluscorum Siciliae. Breslau.

Reeve, L. A., March 1845 Conch. Icon. London.

Stratton, L. W., 1962. The Cardiacea. The Conchologists' Newsletter No. 4.

Winckworth, R., 1932. The British Marine Mollusca. J. Conch. 19. 7.

S. M. Turk

NOTES

Fieldwork Members doing fieldwork are asked to provide live freshwater gastropods for scientific study by Dr. S. Markowski of the London School of Hygiene and Tropical Medicine (see Membership List). A list of the species required is available from Dr. Markowski and a small payment will be made for specimens received.

Requests for Correspondents

1. Mrs. Joan Burnes and other members of the Taru Conchology Club, Crowdy Head, via Harrington, North Coast, New South Wales, Australia wish to exchange shells with conchologists in other parts of the world. They have available a large assortment of rock and trawled marine shells from Australia and New Zealand.

2. Mr. I. T. Guest, [redacted] New Zealand (a member) provides a long list of New Zealand shells and wishes to be put in touch with a correspondent with a view to exchanging them for Northern European shells.

The Journal Members are reminded that back numbers of the Journal are available through the Hon. Sec. The cost is 7/6d. for numbers in Vol. 25, 6/4d. for those in Vol. 24 and 1/- each or 10/- per volume for older issues. These are in print back to Vol. 15 (1915).

FIELD MEETING AT NORBURY PARK, MICKLEHAM, SURREY

9th. May 1964

Leader, A. E. Ellis; 8 members, one visitor and three dogs present. Three or possibly four species were added to the lists already published (J. Conch. 21:325, 23:167), viz. Vitrea contracta (Westerlund), Arianta arbustorum (L.), Cochlicopa lubricella (Stabile) and possibly Vitrina major (Ferussac). The reason for the doubt about the last is that only dead shells were found, so the record cannot be confirmed by dissection. A visit should be made earlier in the year, now that the precise locus is known. V. major was found four miles away in 1957 (J. Conch. 24:235).