Shell pages

These supplementary notes are designed to be used in conjunction with the recording sheets

Liverpool Bay Marine Recording Partnership

Additional help identifying difficult shells and those not covered by the recording sheets

Designed for recording from beaches between Fleetwood and Colwyn Bay
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Why are some shells black?

It is not oil pollution, or pollution of any sort, it is quite natural

There is a lot of iron oxide, or rust, on sand grains, that comes from the rocks they were made from. That is why most beaches are sandy coloured. There are also millions of bacteria living in the sand.

If oxygenated water cannot get down to the lower layers of sand, perhaps because the sand-grains are very small or there is a lot of mud too, then strange things happen!

The bacteria feed on the organic matter that is abundant in all beach sand. They use up all the oxygen and die. They are replaced by other bacteria that can continue to feed on the organic matter but without needing oxygen. These are called anaerobic bacteria and they produce a substance called Hydrogen sulphide as they feed. This chemical reacts with the rust on the sand grains to produce iron sulphide and this dissolves into the water. It is black in colour. So the deeply buried sand grains go black.

Any shells that become deeply buried will also be turned black by a deposit of iron sulphide from the water that surrounds them.

So any black shell you find has been dead for some time.

So what happens to the blackened shells if they are washed on to the surface of the sand? The black iron sulphide meets the oxygen and turns back into rust so a shell that became covered with black iron sulphide may end up quite orange in colour, and often after only a few days.
Another general point of interest

What drills holes in shells?

The holes are made by a snail

Dog Whelks, Sting Winkles and Necklace Shells feed on other molluscs, especially bivalves.

Like all snails they have a rasping tongue. They place their lips against the other mollusc’s shell and rasp away with their tongue until a hole is made in the shell of the other mollusc. They can sometime make acid to help eat away the lime in the other shell.

Once the hole is made they put their tongue in further and rasp away at the body and remove it bit by bit to swallow.
Snails

• The following few pages deal with some snails that are difficult to distinguish from similar species
Necklace Shells

These two species are very, very, similar. Any shells over 15mm will be the **Large Necklace Shell**.

For smaller necklace shells, if they are fresh shiny shells, the form of the necklace can be used but note that the necklace may vanish with wear or burial and not all Alder’s Necklace have a multi-stranded necklace.

Alder’s Necklace Shell

- Sharper triangular shaped top of shell
- Hole here long in shape = Alder’s Necklace Shell

**LEFT** One row of marks on big whorl, a single stranded necklace = **Large Necklace Shell**.

**RIGHT** Several rows of marks i.e. several strands of necklace = **Alder’s Necklace Shell**

Large Necklace Shell

- Flatter triangular shaped top of shell
- Hole here rounder in shape = Large Necklace Shell

**Note:** If your Necklace Shell will not fit inside this circle, 15 mm, it is a **Large Necklace Shell**

*Polinices pulchellus*  
*L. catena*
Necklace Shell Eggs

These look like strips of flexible, grey, sand-impregnated jelly when they are fresh but are brown when dry, as above right.

Each hole or pit marks the site of an egg

They are often beached as fragments but if present as a small but whole coil it will be Alder’s Necklace Shell or if a semi-circle, as all illustrated above it will be the Large Necklace Shell
**Winkles**

**Flat Periwinkle**

Easy to identify due to having no point at the end and having a thick shell.

(There are two species of Flat Winkle but they cannot be told apart by the shell)

**The shells are very thick compared with Large Necklace Shells** that also have no pointy top but have a prominent hole near the mouth

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**Rough Winkle**

Lip curves to meets axis of shell at about 90 degrees

**Periwinkle**

Lip straight and does not meet axis of shell at about 90 degrees

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Note: If your Rough Winkle or Periwinkle will not fit inside this circle, 16 mm, it is a Periwinkle

Flat Periwinkle *Littorina obtusata*, with *Littorina mariae* also at Colwyn Bay and possibly elsewhere

Periwinkle *Littorina littorea*

Rough Winkle (see next page) *Littorina saxatilis* and possibly *Littorina nigrolineata*
Note It is recommended not to try and identify winkles that are less than 7 mm high as the two species can converge in appearance. The Rough Periwinkle is particularly variable in shape and shell texture.

Periwinkles are usually grey (but can be red, yellow, or banded in all these colours). Rough Winkles are usually whitish (but can be grey, red yellow, brown, or banded).

Periwinkles regularly grow to 25 mm high. Rough Winkles are typically 12 mm or less but can grow to 16 mm high.

Periwinkles are often seen on the strandline. Rough Periwinkles are rare on the strandline.

Look out for

*Littorina nigrolineata*

Raised parts much wider than grooves.

Can be various colours but black grooves common in this species.

Currently not recorded east of the Ormes in our area.

By comparison Rough Winkles *Littorina saxatilis* have smooth shells or grooves and ridges similar in width or ridges very sharp topped.

The *tenebrosa* form of the Rough Winkle is thin shelled and most have this characteristic pattern.

Found in quiet estuarine conditions.
Edible Whelk has prominent ridges (arrowed), and fine ridges between them and often regular raised longitudinal ridges (as inset).

Red Whelk has no prominent ridges, only the fine ones, and no regular raised longitudinal ridges.

Whelk egg batches are very common. If each egg capsule is 10 mm or less it will be the Common Whelk but look out for any with giant egg capsules about 15mm as they will be from the Red Whelk.

Look out for the rare Slender Spindle Shell
Dog Whelks *Nucella lapillus* and young shells of Edible Whelk *Buccinum undatum*

Dog Whelks are very variable and the thick shells are tough and last a long time and can get very worn. Dog Whelks have thick shells with a thick lip (arrowed).

In Dog Whelks whorl (A) is less than half the width of whorl (B).

If your whelk is larger than this line it is probably NOT a Dog Whelk but still check other characters as giant Dog Whelks do occur occasionally.

Young Whelks have thin shells with a thin lip (arrowed).

In Common and Red Whelks whorl (A) is half or more the width of whorl (B).
The Laver Spire Shell often called Hydrobia, based on part of its scientific name, is a super abundant little mollusc in all of our estuaries. It has been joined recently by a similar snail, the Dun Sentinel, that used to be found only in south east England but appeared a few years ago in the Mersey and is now common in Mersey and Dee estuaries. (It is a terrestrial snail that lives at the edge of saltmarsh but its shell will disperse)

The Laver Spire Shell is a taller narrower shell than the Dun Sentinel. Compare the angles where the green lines join. The problems are with young Laver Spire Shells, such as the one arrowed, which have shorter shells. Their mouths are a little taller than wide compared with the mouths of equivalent sized Dun Sentinels (example arrowed) which are more or less as wide as high. However it is recommended that you do not attempt to identify a shell smaller than this line which is 3 mm.
Vagrants from the Dunes and Saltmarsh

Often at the top of the beach you meet a shell that came from the dunes, or saltmarsh. These are not marine species, so not comprehensively dealt with here, and a book on terrestrial species is required. Most species are very small and/or fragile and do not survive long on the beach. A few larger and tougher species are shown here.

### Dune species

- **Cornu aspersum** (Common Garden Snail) (up to 3.5 cms)
- **Cepaea nemoralis** (Brown-lipped Snail) (up to 2.5 cms)
- **Candidula intersecta** (Wrinkled Snail) (up to 1 cm)
- **Cernuella virgata** (Striped Snail) (up to 1.5 cm)
- **Cochlicella acuta** (Pointed Snail) (up to 2 cm)
- **Trochulus hispidus** (Hairy Snail) (up to 1 cm)
- **Leucophytia bidentata** (Two-toothed White Snail) (up to 6 mm)
- **Myosotella myosotis** (Mouse-eared Snail) (up to 1 cm)
- **Assiminaea grayana** (Dun Sentinel) (up to 8 mm)

### Saltmarsh species

The species shown here are semi-aquatic and their shells can be common in runnels where saltmarsh and beach abut.
Bivalves

- The following pages deal with groups of Bivalves that are difficult to distinguish from similar species
Oysters

The **Common Oyster** is found in Liverpool Bay. **Common** and **Foreign Oyster** shells are also frequent where there are, or were, seaside piers. These are the left-overs from snacks, as oysters were a very popular food about 100 years ago. People have also tried growing Foreign Oysters at various places in the Irish Sea.

The shells are very tough and can last for years. Shells that are orange or black have been buried in the sand for a long time then washed out by the waves.

**Common Oyster Ostrea edulis**

**Foreign Oyster Crassostrea species**

Beware confusion with **Saddle Oysters** which have small thin shells rarely more than this length (see next page) **PURPLE**

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An example of an oyster where the scar (arrowed) has been changed in colour by burial and re-exposure. Shells with BLACK muscle scars may be very difficult to identify.

![Common Oyster Shell](image)

Muscle scar

![Foreign Oyster Shell](image)

**Shell long and the muscle scar on the inside is very dark PURPLE**

**Common Oyster**

Shell often rounded and **if it has not been buried and changed colour**, the muscle scar on the inside is pale.

**Top view**

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Saddle Oysters
are identified by the muscle scars

Despite only having 2 obvious scars this looks most like ‘A’ i.e. Anomia ephippium

From Tebble 1966, British Bivalve Seashells
Mussels

Mussels are easy to identify. Almost all Mussel Shells you will find are Edible Mussels

If the shell is thick and blue the mussel that made it probably lived on the shore so it needed a strong shell for protection and grew slowly. If the shell is thin and brown it will probably have lived offshore, or in a big pool where it was always covered by water. It did not need a strong shell for protection and grew quickly. There are often attractive dark lines on these thinner mussel shells.

Horse Mussel (An uncommon shell)

It can grow much bigger than the Common Mussel, but size cannot be used to identify them.

In the Horse Mussel there is an extra bit of shell under the ‘beak’ at the narrow end. Sometimes the beak is not right at the end of the shell.

The Common Mussel does not have an extra bit of shell under the beak, which is always at the tip of the shell.

Common Mussel Mytilus edulis
Horse Mussel Modiolus modiolus

A young Horse Mussel found attached to a Hydroid roll. They have horny bristles on the shell that leave stumps when worn off. (Arrow) but beware confusion with irregularly arranged stumps left by attachment byssus threads of both mussel species as on shell to right which was found attached to a dead mussel shell.
Cockles

There are two species of Cockle. They are easy to identify. Around Liverpool Bay the Prickly Cockle grows bigger than the Common Cockle, as in the photograph, but size cannot be used to identify them. Shells of the Common Cockle are usually more numerous than those of the Prickly Cockle, but the Prickly Cockle is not a rare species.

Prickly Cockle

There are wide grooves between the raised bits, and there are prickles, or marks where the prickles have worn off, along the raised bits.

Common Cockle

There are only narrow grooves between the raised bits. The raised bits are knobbly, but there are never prickles or marks where prickles have worn off along the raised bits.
Look out for the Lagoon Cockle *Cerastoderma glaucum*. As yet no specimens seen by author for our area, but quite likely to occur in brackish water.

**Lagoon Cockle**
- Internal grooves extend into middle of shell
- Purple or brown colour extends into middle of shell
- No brown flexible ligament visible in flat view of paired valves
- Quite sharp edged ridges
- Shell generally much thinner than comparably sized Common Cockle

**Common Cockle**
- Internal grooves do not extend into centre of shell
- Purple or brown restricted to edge of shell
- Brown flexible ligament visible in flat view of paired valves
- Rounded ridges
- Beware young Common Cockles, under 2cms, which have thin shells with internal grooves and often internal colour like Lagoon Cockles. Recognise young cockles by size and by only having one major growth ring

Old cockle to show position of A & B shown on young cockle.
Scallops are uncommon. The species is usually the **Variegated Scallop**

- **Variegated Scallop**
  - One “ear” and lots of narrow raised bits.
  - The top part of the shell by the “ear” is more triangular than in the Queen or Great Scallop.

- **Queen Scallop**
  - Two “ears” and lots of narrow raised bits.
  - Top part of shell by ears a much flatter triangle than in the Variegated Scallop.

- **Great Scallop**
  - Two “ears” and a few broad raised bits.

(If you find Great Scallops, they are probably the left-overs of a meal or the remains of a natural seafood platter.)

**Variegated Scallop** *Chlamys varia*; **Queen Scallop** *Aequipecten opercularis*; **Great Scallop** *Pecten maximus*
Razor Shells

To identify Razor Shells they must first be put into one of 4 categories

• Curved Razors
  - Even curve along top and bottom edge

• Straight Razors
  - Straight along top and bottom edges apart from a curve near one end in one species

• Bean Razor
  - Recognisable by having the hinge that joins the two shells together when it is alive (arrowed H) near the middle rather than at the very far end. The shells also taper towards one rounded end.

Bean Razor
Pharus legumen

Razor Shells that are shorter than this line make the 4th category “Small Razors”
Straight Razor Shells

Pod Razor Shell *Ensis siliqua*

A similar species *Ensis minor* seems to be currently restricted to the east coast, but so was the American Razor until its recent arrival on our shores so *E. minor* could appear too. It is very difficult to tell from Pod Razor. A paired valve looked end on at the end away from the hinge is not smoothly oval. 'K' as opposed to 'J' of Pod Razor. Any suspect specimens should be retained for more detailed examination. (*E. minor* said to grow only to 150mm as opposed to 200 of Pod Razor)

Illustration s from
Von Cosel (paper in) *Basteria* 2009 Vol. 73 pages 9-56

Grooved Razor Shell *Solen marginatus*

Uncommon shell. Usually found worn
Curved Razor Shells

Common Razor Shell *Ensis ensis*

Note: A shell longer than this line will be one of the other Curved Razors (see next page)

Other Curved Razors (see following pages)

Shell does not taper from the posterior end to the front end

Shell tapers from the posterior end to the front end
In 2011 a local conchologist realised that the alien American Razor, that was believed to live only on the east of England, was now established on our shores.

Look for the pallial line, where the body attached inside the shell at the opposite end to the hinge. This line can be difficult to see on wet shells.

American Razor
*Ensis directus*

The length to width ratio of the mature shell
Less than 6.5
Sword Razor *Ensis arcuatus*

Length to width ratio of the mature shell

More than 6.5

In 2011 all Sword Razors collected from local beaches were worn, i.e. not freshly dead. All fresh Curved Razors were the American Razor suggesting at least a partial take-over by the new alien.
Small Razor Shells

Young shells of the Razors on the previous pages look more or less like miniature versions of the adult shell.

Young of curved type razors particularly difficult to identify.

Common Razor look for tapered end.

Sword and American Razors - if the pallial line cannot be seen then you cannot name the shell.

When identifying small Bean Razors look out for the rare **Transparent Razor**, which has the hinge at one end.

Magnified view of inside of shells showing hinge and line along which the body is attached to the shell (arrow) which also differs between the two.

**Small shells of American Razor (top) and Pod Razor Shell (bottom)**

**Transparent Razor** *Cultellus pellucidus*

**Bean Razor** *Pharus legumen*
**Otter Shell**

- Thin flaky brown covering
- Flat bottom edge

**Sand Gaper**

- Only bits of flaky brown material, if any
- Curved bottom edge, but shells can become distorted as the animal grows

**Blunt Gapers** are easy to identify

The front end of the shell looks cut off

In both Otters and Gapers, if you close an empty pair of shells together they do not join all the way round.

Use this page if your shell will not fit inside this circle.

These strange looking things are the outside parts of the feeding tubes of a Blunt gaper.

Once the flaky layer has worn off, shells of the Otter are less obviously different from the Sand Gaper.

**Otter Shell** *Lutraria lutraria*; **Sand Gaper** *Mya arenaria*
More on **Otters** & **Sand Gapers**

Look inside the shells at the hinge area. That is where the two shells are joined together in life, and shortly after death. The hinges of the two valves may be different.

The valve of a Sand Gaper without the shelf can be distinguished from valves of an Otter Shell by looking at the chondrophore pit, the depression where the ligament that held the shells together in life fitted in.

The angle that an imaginary line drawn down the middle of this pit joins with an imaginary line drawn along the shell edge differs.

**Small Otters & Gapers** are dealt with on page 40 and very small ones on page 47.

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One of the valves of a Sand (and Blunt) Gaper has a very conspicuous shelf.

Both valves of Otter Shells have a similar hinge area.

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About 45 degree angle

Much less than 45 degree angle
Piddocks

The books often suggest that Piddocks live in a burrow they have bored into a rock throughout their life. In our area they also bore into the stiff clay and peat that were laid down just after the ice age when the sea level was lower and are now found submerged by the sea. As these get eroded by the waves the shells are released. The shells are often broken but the bits are very distinctive.

White Piddock *Barnea candida* (see also next page)
Oval Piddock *Zirfaea crispata*

White Piddock has a very long, thin and fragile shell
Oval Piddock has a shorter thicker shell

The shell most likely to be confused with the Oval Piddock is the Blunt Gaper. The two are very different when complete, but broken fragments may be less obvious.
American Piddock

A newly arrived alien
Current records from Wirral and North Wales

White Piddock for comparison

American Piddock *Petricola pholadiformis*
White Piddock *Barnea candida*

The **American Piddock** has a normal external hinge (arrow left) and small internal teeth (arrow right). Paired valves are common.

The **White Piddock** has a very strange and feeble hinge area and unusual internal hinge teeth. Paired valves are never found as they separate very soon after death and by the time the shells have washed out of the stiff mud or peat where they burrow, they are not joined together.

Shorter end with finer grooves

More raised lines

Paired valves are common
Pink Tellins

Usually pink, but they can also be white or yellow. Unlike many of the species of shells we find, these actually live in the beach, rather than just offshore.

The Thin Tellin and Baltic Tellin are always common

The Bean-like Tellin is only common sometimes

The Baltic Tellin B is rounder, fatter, thicker shelled, and less shiny than the Thin Tellin T.
more on **Tellins** (you will probably need to use a magnifier)

Bean-like **Tellin**
- Has fine striations on outside of one valve.

**Bean-like Tellin**
Looking at the outside of the shell. If the sharpest end of the shell points left when the beak is at the top you will see striations if you look at it with a hand-lens.

**Thin Tellin**
- Outside of both valves lack striations.

**Thin Tellin**
Looking at the outside of the shell. If the sharpest end of the shell points to the left when the beak is at the top and you look at it with a hand lens it will be shiny and the same as the other valve.
The hinge area of Tellin shells has small central teeth, but weak lateral teeth, if any, and there is no conspicuous spoon-shaped depression, called a chondrophore, where the internal ligament fits into in life.

Even more on **Tellins** (a good hand lens will probably be needed to see these features)

*Baltic Tellin* has no lateral teeth on either valve

*Thin Tellin* has teeth or bulges lateral to the central teeth, but only on one of their two valves. Unfortunately the valve lacking teeth in the **Bean-like Tellin** is also the one lacking the striations.
Shells with a Sunset Pattern

The pattern of bands on the shell that give this the common name of Sunset Shell can be absent.

**Faroe Sunset Shell**
- Fine sharp grooves on shell
- Brown outer layer often present

**The Donax-like Tellin**, which is rare as a beached shell, has less prominent grooves, no ridge and never a brown outer layer.

**Faroe Sunset Shell Gari fervensis**
- Brown outer layer often present

**Donax-like Tellin Moerella donacina**
- Fine sharp grooves on shell

**Sharp ridge**

**The Donax-like Tellin** never grows as big as the **Sunset Shell** so any shell longer than this line should be the Sunset Shell.
Carpet Shells
note the carpet pattern often missing in worn shells

Rather square shells.

Banded Carpet Shell Tapes rhomboides
Pullet Carpet Shell Venerupis senegalensis
and hole dwelling (saxatilis) form

Possible shape confusion with Sand Gapers
• Hinge teeth very different (see Gaper pages)
• Gapers (Left) thin shelled with a sharp edge, compared to the thicker shelled Carpet Shells (Right)

Young Sand Gaper Mya arenaria
**Pullet Carpet Shell** has fine longitudinal striations (worn away in very beach-rolled shells) and less obvious in the *saxatilis* form below and young shells about 2 cms where the ridges and grooves are comparatively widely spaced.

- **Banded Carpet Shell** (which is rare) has a smooth shiny shell without any longitudinal ridges.
Smooth Whitish Bivalves

The bivalve shells on the next few sheets are not easy to identify. You will need your magnifying glass to look at the hinge area of the shell, where the two shells of the animal were joined together in life, and shortly after death.

There are several categories, Start by looking at their size

- **Group 1** are shells which cannot be fitted inside this 3cm circle
  
  Start at page 38

- **Group 2** are shells that can be fitted inside that larger 3cm circle but not inside this 1 cm circle
  
  Start at page 47

(Note that really small white bivalves which will fit inside the smaller circle, which is 1 cm wide, are considered too difficult to identify.)
**Group 1** from the previous page = Larger **Smooth Whitish Bivalves** needs to be further subdivided into:-

• Shells that are more or less as high as they are wide and have both ends of the shell looking more or less the same [Group 1A (go to page 39)]

![Shells images]

• Shells that are definitely wider than they are high or have one end obviously a very different shape to the other, see below, and page 45 also worth consulting

- **Sand Gaper** has a rough shell
- **Otter Shell** is smooth, thin and quite fragile
- **Blunt Gaper** with its characteristically shaped truncated end
- **Sunset Shell** see page 34 for details. The hinge area of the shell is quite unlike Otters or Gapers (see pages). There are small pointed teeth in the central area.
**Artemis Shells** are very rounded and thick

Beware possible confusion with the **Striped Venus** which has one side of the shell very different from the other but could be confused with the very rounded **Artemis Shells**

The characteristic very rounded appearance of the Artemis Shells

- Striped Venus *Chamelea gallina*
- Rayed Artemis *Dosinia exoleta*
- Smooth Artemis *Dosinia lupinus*

Venus Shell (above) has a shallow pallial sinus compared with the Artemis (below) (arrowed)

Rayed Artemis has this bit of the shell raised up

Smooth Artemis does not have this bit of the shell raised up
Possible confusion between Artemis Shells and young Icelandic Cyprine Shells

Pallial line, (the shiny bit inside the lip of shell deeply indented in Artemis not in the Cyprine but may be difficult to see in very worn shells)

The hinge teeth are different, but may be worn away

Artemis Shells

Curved gap in Artemis

The hinge teeth are different, but may be worn away

Triangular gap in Cyprine

Striped Venus also added above. Note it has a moderately deep pallial sinus (see previous page)
more on **Group 1A** from page 37

Larger smooth white bivalves that are more or less as high as they are wide and have both ends of the shell looking similar

**Rayed Trough Shell** (white rayless form)

**Spisula Shells** (see next page)

**Peppery Furrow Shell**

(Thin sharp edged shell.)  
A thin wall (arrowed) between the upper and lower parts of the hinge teeth when freshly dead. No grooves on hinge teeth  

Thick blunt-edged shells, heavier than equivalent-sized Rayed Trough Shell  

The strong lateral teeth have ridges inside and sometimes on the outside too (look in area of arrows)  

**Note** Even when they are very small shells, the ridges on the teeth of Spisula are present  

(Flat shell, rough surface) two valves may not join perfectly together  

No lateral teeth, but a long narrow groove (arrowed) on one valve. Prominent ligament holding area, arrowed C.
Spisula hinge teeth

One valve has teeth that are useful for identification, but they can be worn away. Teeth on the other valve are not useful.

**Useful valve** has External ligament to left of teeth
- Internal ligament to left of teeth
- If internal ligament worn away then the chondrophore where it fitted enlarges to the left
- Important teeth shown

**Not useful valve** has External ligament to right of teeth
- Internal ligament to right of teeth
- If internal ligament worn away (as in example shown) the chondrophore where it fitted enlarges to the right
- Teeth on this valve are not useful to separate species

This space receives the teeth from the other valve when the 2 valves come together. Do not confuse it with the chondrophore pit.
Separating the three **Spisulas** using the teeth shown on the previous page

**Thick Trough Shell** *Spisula solida*; **Elliptical Trough Shell** *Spisula elliptica*; **Cut Trough Shell** *Spisula subtruncata*

Look at the very middle of the hinge plate

There are a set of teeth that join together

If distance A and B are similar it is the **Thick Trough Shell**. A common species

**Cut Trough Shell**

A chunky little bivalve up to 2.5 cms across

In the other two Spisulas the central joined teeth extend more or less to the bottom of the hinge plate, i.e. no measurement ‘B’

Inside the shell are scars. Look for a line which marks where the edge of the body was attached. The line has an indentation in it called the pallial sinus, (where the siphons fit when the animal retreats into its shell). Draw an imaginary line “W” across the maximum width of the shell. Draw another line “P” at 90 degrees to it, touching the end of the pallial sinus. Now look where line “P” intersects the lateral hinge tooth. If it is nearer to the central teeth than the far end it is either the **Thick Trough** or the **Elliptical Trough (Photo “E”)**

If nearer the far end of the lateral tooth than to the central teeth it is the **Cut Trough (Photo “C”)**

(This character also works, but not quite so well, for the valve without the distinctive central teeth e.g. Photo C)
**Additional notes**

A shell more than 3cms wide will be a **Thick Trough Shell**

**Cut Trough Shells** are the most triangular of the three and many local specimens have one end extended so are the most asymmetrical of the three, also the most tubby, seen end on.

**Elliptical Trough Shells** are rare as beached specimens. (The other two are common, Cut Trough may be abundant)
More on smaller Gapers and Otters

As in larger Gapers, there is a shelf on one valve in both species.

Key to symbols
S = Sand Gaper    B = Blunt Gaper
O = Otter

Otter Shell *Lutraria lutraria*; Sand Gaper *Mya arenaria*; Blunt Gaper *Mya truncata*

The other valve in small gapers has the tooth hidden away under the edge and is only visible if the shell is tipped up.

The valves of young and old Otters have similar hinge areas.
Small Whitish Bivalves Group 2 from page 37

This is certainly the most difficult general group of bivalves to identify. A few species are featured here for the first time in this guide, but the small shells of many other species must also be considered. A good had lens is needed to look at details of the hinge, where the two valves are joined together in life, and shortly after death.

They are separated initially along the same lines as the Large Whitish Bivalves:

• Shells that are more or less as high as they are wide Group 2A

• Shells that are about twice or more as wide as high Group 2B (go to page 51)

(note that if the shells are 4 or more times as wide as high they will be small Razor shells and are dealt with on page 18)
more on **Group 2A** from page 46

Shells that are more or less as high as they are wide and with both ends of the shell looking similar

**Step 1** Turn back to page 41 and look at the hinge.

Does it have an intermediate wall (as in the **Rayed Trough Shell** or ridges on the teeth (as in the **Spisula Shells**) If so, you can identify it using the features on pages 41 - 43

**Step 2** If it does not look like a Rayed Trough Shell or any of the other shells on page 41 - 43, turn back to pages 33. If the hinge is quite small with teeth, but no large central ligament holding pit then it is probably a **Tellin** and you can try and identify it using the pictures on pages 31 - 33 & 48. If it does not look like a Tellin try Step 3 next

**Step 3** Does the hinge in your shell look like these below? If so, turn to page 49

Very large spoon-shaped depression where the internal ligament fits in life. This is called the chondrophore. Other teeth, if present, are small.
More on small **Tellins**

The feature of the **Baltic Tellin** being rounder shelled and fatter than the **Thin Tellin** and **Bean-like Tellin** which was discussed on page 31 also works for smaller white versions of those species. Really small shells of Baltic Tellin, under 1cm across, may be quite thin but still have the rounded shape width /height ration just over 1, compared with that for the Thin Tellin of almost 1.5. and Bean-like Tellin of almost 2

**Baltic Tellin**

**Thin Tellin**

**Bean-like Tellin**
White Furrow Shell

White Furrow Shells are very abundant offshore and every now and then beach in large numbers, but are present as ones and twos most of the time. Peppery Furrow Shells live buried on the shore, as well as offshore.

Peppery Furrow Shell

Note, these are not shiny shells and usually have brown areas and lines.

Look at the inside of the shell. There are no lateral teeth at the places you would expect them in White Furrow Shells. If the ligament pit (labelled C) expands to the right there will be a groove (labelled G) on the side to its left.

White Furrow Shell Abra alba; Peppery Furrow Shell Scrobicularia plana

Note, these are quite fragile, shiny and pure white.

Look at the inside of the shell. If the ligament pit (labelled C) expands to the right there will be teeth in the form of bulges on either side (Labelled T).

If the ligament pit expands to the left there will be no teeth.
If the hinge teeth still look nothing like any of the alternatives, are they like this?

Common Nut Shell *Nucula nucleus*; Banded Wedge Shell *Donax vittatus*

The Banded Wedge Shell is the only other shell you will meet which has a finely grooved edge and top. The shell is clearly wider than high and the hinge only has central teeth.

In life the shell is covered with a flaky brown layer but this soon gets worn away after death.

Grooved edge

Row of Separate teeth

Finely grooved top
more on **Group 2B** from page 46

Shells that are twice or more as wide as they are high.

Return to pages 45 to look at distinguishing most Small Gapers and Otters and shells like them.

This page looks at species that might be confused with the Otter.

The next page looks at possible problems with Gaper shells about 1 cm shell length.

The Banded Wedge Shell is sometimes white. It has a finely grooved edge and polished shell inside and out.

If the shell is very shiny and smooth then it might be the rare **Prismatic Furrow Shell**.

Not very shiny, and rough lined, young **Otter Shell** for comparison.

The shiny **Bean-like Tellin**, with one end elongated, belongs on this page too. See pages 31 – 33 for more details.

[Images of shells]
Very small Sand Gapers and Blunt Gapers are very similar. The Blunt Gaper (labelled B) usually has one end that looks a bit “dunched”. The lines on both Gapers are very obvious.

Very small Otter Shells have more transparent and smoother shells than gapers and the lines are much less conspicuous.

**Sand Gaper**

A character for real Small Gaper enthusiasts!

Look inside the shell and find the pallial line which is where the body joins to it in life. There is a big indentation (labelled F) to accommodate the feeding siphons. If this joins (labelled J) the rest of the line just at the end it is a Sand Gaper if it joins earlier on, it is the Blunt Gaper.
These shells are not likely to be confused with other species and they are very rare on our beaches.

Slipper Limpet
Crepidula fornicata

Smooth Cockle
Laevicardium crassum

Pelican’s Foot (young)
Apporhais pespelican

When young it does not have the characteristic Pelican’s Foot extension.
It is worth examining the rolls of beached Hydroids for shells to which they are attached. The shells come from off-shore deposits where the hydroids grow.

Fragile shells that would not normally survive the journey can arrive on the beach in this way.

(Encrusting shells such as saddle oysters can come ashore on hard plastic items)

A Barrel Shell *Actaeon tornatilis* 7mm long found in a hydroid roll carried ashore at Prestatyn in 2010.
If you want to develop your interest in beached shells, e.g. Want to find someone to help you name all the really small shells, you may want to consider joining the Conchological Society. [http://www.conchsoc.org/](http://www.conchsoc.org/). They are steadily developing on-line keys.

The British Shell Collector’s Club also has many enthusiastic beach recording members but currently no on-line resources. [http://www.britishshellclub.org.uk/pages/club.htm](http://www.britishshellclub.org.uk/pages/club.htm)

There are on-line descriptions of all UK marine bivalves at [http://naturalhistory.museumwales.ac.uk/britishbivalves/home.php](http://naturalhistory.museumwales.ac.uk/britishbivalves/home.php)