Bivalve Biology - Glossary

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A

Aberrant: (L ab = from; erro = wonder) deviating from the usual type of its group; abnormal; wandering; straying; different

Accessory plate: An extra, small, horny plate over the hinge area or siphons.

Adapical: Toward shell apex along axis or slightly oblique to it.

Adductor: (L ad = to; ducere = to lead) A muscle that draws a structure towards the medial line. The major muscles (usually two in number) of the bivalves, which are used to close the shell.

Adductor scar: A small, circular impression on the inside of the valve marking the attachment point of an adductor muscle.

Annulated: Marked with rings.

Annulation or **Annular ring**: A growth increment in a tubular shell marked by regular constrictions (e.g., caecum).

Anterior: (L ante = before) situated in front, in lower animals relatively nearer the head; At or towards the front or head end of a shell.

Anterior extremity or **margin:** Front or head end of animal or shell. In gastropod shells it is the front or head end of the animal, i.e. the opposite end of the apex of the shell; in bivalves the anterior margin is on the opposite side of the ligament, i.e. where the foot protrudes.

Apex, Apexes or **Apices:** (L apex = the tip, summit) the tip of the spire of a gastropod and generally consists of the embryonic shell. First-formed tip of the shell. The beginning or summit of the shell. The beginning or summit or the gastropod spire. The top or earliest formed part of shell-tip of the protoconch in univalves-the umbos, beaks or prodissoconch in bivalves. In gastropods, the tip of the spire; in tusk shells, the small, open hind end.

Apical: At the apex, point or tip.

Apophysis: Long, slender extension of the interior of the valve, projecting from just under the umbones of pholad bivalves (shipworms) where the foot retractor muscles attach.

Aquatic: (L aqua = water) pertaining to living in, growing in or adapted to the water

Aragonite: A mineral composed, like calcite, of calcium carbonate, but differing from calcite in certain characters of crystallization, density, and cleavage.

Articulated: (L articulatus = jointed) the union forming a joint as the interlocking teeth of the hinge plate in bivalves

Asymmetrical: (Gr a = priv.; syn = with; metron = measure) not even on both sides of an axis, bilaterally uneven, lack of symmetry

Attachment scar: Any impression left on a molluscan shell by the attachment of a soft part (e.g., mantle, muscle, or foot).

Auricle: On scallops, the wings to either side of the hinge (see also wings)

B

Band: A strip of shell material differentiated by color or construction from the shell on either side of it.

Banding: Color marking in continuous stripes.

Bead: A small, more or less hemispherical protuberance resembling a bead. Beads are smaller than nodules.

Beak: (L beccus = a beak) the rounded or pointed extremity (umbo) of a bivalve shell at which it began to grow. (oldest part of the valve)

Benthos: Refers to those organisms that live on the ocean floor and beaches. Also refers to the sea bottom itself.

Bifid: Referring to the hinge teeth: Divided into two parts by a groove.

Bilateral symmetry, bilaterally symmetrical: having the right and left sides symmetrical

Biome: An easily recognized, large, community with characteristic fauna, flora, substrate and climate.

Bivalve: (L bi = two; valva = door) any mollusc having two valves or shells that are hinged together, as in mussels and clams.

Branchiae: (Gr Branchia = gills) gills; respiratory organs for breathing the oxygen dissolved in water.

Branchial: (GR branchia = gills) The ventral or inhalant aperture. Used to take in food particles and oxygen and to release fertilized eggs.

Buccal: (L bucca = the cheek) pertaining to the mouth or cheek.

Buttress: A shell-strengthening structure--e.g., a support for part of the hinge in bivalves.

Byssal gap: a small opening or notch on the ventral margin for the passage of the byssus

Byssal thread: In mussels and some scallops, one of the organic threads secreted by the byssal gland and used for temporary attachment to a substrate.

Byssus: (Gr Byssos = a fine flax) The fine fibers, or bundle of silky threads secreted by a gland found in the foot of some bivalves by which they attach themselves permanently to rocks or other solid objects.

C

Calcareous: (L calyx = lime) composed of, containing, or by the nature of limestone or calcium carbonate; a shelly substance.

Calcified: With the conchiolin matrix partially or entirely reinforced by calcium carbonate intercalations.

Cancelate sculpture: The pattern formed on the shell exterior by radial ribs crossing concentric sculpture.

Cardinal teeth: Hinge teeth immediately below the umbo. (see hinge teeth)

Cementation: Permanent fixation to the substrate by a sessile bivalve.

Cephalic: (Gr Kephale = head) of, pertaining to, on, in, or near the head

Cephalopoda: (Gr Kaphale = head; pous = foot) One of the seven classes of molluscs. (Squids, octopus, Argonaut, Spirula.)

Chiton: (Gr Chiton = tunic) the coat-of-mail shells (Polyplacophora) They possess a shell made up of eight shell plates.

Chondrophore: An internal shelf near the hinge to which the internal ligament attaches in certain bivalves.

Cilium (pl. **Cilia):** (L cilium = eyelid) A hair-like extension from the cell surface and capable of rhythmic movement. Used to designate the filaments on the mantle, in the gills, etc.

Coelom: (Gr Koilos = a hollow) body cavity, that space between the viscera and the body wall.

Comarginal: parallel with the margin

Community: A group of different species living within the same environment.

Compressed: high and narrow in cross-section, flattened laterally

Concentric sculpture: Centering around the umbo and parallel to the shell margin.

Conchiolin: (L concha = shell) proteinaceous organic compound forming the periostracum of a shell, and also forms the organic matrix for calcareous parts of the shell.

Conchologist: One who collects shells; a student of conchology.

Conchology: (L concha = shell) The study of marine, fresh-water and land-shells; the arrangement and description of molluscs based upon a study of the hard parts only. Now generally replaced by Malacology.

Cord(s): Coarse, rounded spiral or transverse linear sculpture on the shell surface; smaller than costae.

Cordate: Heart shaped.

Corrugated: Folded or ridged; broadly and heavily sculptured.

Costa (pl. **costae):** Large, cordlike ridge that runs longitudinally, spirally, or concentrically on a shell rib. Line of ornament similar to, but of greater prominence than, a cord.

Costate: Rib-like sculpture, which is strongly ridged.

Crassate: Coarse and solid.

Crenate, Crenulate or **Crenulated:** Finely notched, scalloped, wrinkled or delicately corrugated around the margin. Describing edge of the inner margins of some bivalve shells, or the outer lip margin of gastropod shells.

Crenules: Small notches or beads.

Crop: (AS cropp = craw) a widened part of the esophagus where food may be temporarily stored before being passed on to the stomach

Crystalline style: The enzyme-rich rod that projects into the stomach and releases digestive enzymes as it is slowly dissolved.

Ctenidium (pl. **ctenidia):** (Gr Kteis = comb) a gill-comb. Molluscan gill ; one of the respiratory organs found in molluscs.

Cusp: Point of a tooth. A prominence, or point; temporary ridges of sand perpendicular to the shoreline.

Cuticle: An outer layer of cells; the precursor of the calcified shell. See Epidermis.

D

Decussate or **Decussated:** Sculpture crossings at acute angles. Having a latticed surface ornamentation formed by the intersection of fine ribs, not necessarily at right angles. See also Cancellate.

Deltoidal: More or less triangular.

Dentate: Sculptured, with teeth or short ridges. Having conspicuous projections along a margin in gastropod shells. See Denticles.

Denticles: Small teeth. Small projections around the margin of a gastropod aperture or the margin of a bivalve valve, especially near the hinge. (Not to be confused with true interlocking hinge teeth.)

Denticulate(d): Sculptured with small nodules or points. Having denticles. Toothed.

Dentition: Tooth structure: referring in bivalves to the hinge teeth, in gastropods usually to the elements of the radula.

Depressed: Low in proportion to diameter.

Detritus: (L detritus = a rubbing away) a mass of disintegrated material composed of bits of sea weed and other organic wastes found on the ocean floor

Deviate: (L de = from; via = away) To turn aside from the straight or regular coarse.

Dioecious: (Gr Di = two; oikos = house) having the male and female present in different individuals. (an individual is either male or female but never both). Opposed to monoecious.

Distal: (L di = apart; sto = stand) relatively remote from the center of the body or point of attachment. Away from the center of origin, the farthest part from an object.

Diameter: A measure of the shell around the valve margins.

Dimyarian: Where the two adductor muscles are of approximately equal size.

Dorsal: (L dorsum = the back) referring to the back edge or top of a bivalve, in the region of the hinge.

E

Ectoderm: in triploblastic (three-layered) animals, this is the outer body layer. It forms the skin, nervous system, etc

Ectoparasite: A parasite living on the outside of another organism (think of a flea living on a dog)

Egg capsule: A protective structure enclosing an individual egg or a cluster of eggs.

Elevated: Raised up; high in proportion to diameter.

Elongate: Extended; considerably longer in one dimension than another.

Emarginate: With margin, or edge, of shell cut into by a notch or notches or gently indented.

Epidermis: The outermost layer of the molluscan body, not associated with the shell; cuticle; integument or skin. (Often erroneously applied to the periostracum, the outer layer of the shell.)

Epifauna: Animals that normally live exposed, above the substratum surface; may be with or without attachment.

Equilateral: Anterior and posterior ends of the valve are the same size and shape and the umbones are centered.

Equivalve: Each valve of the shell being of the same shape and size.

Escutcheon: An oval shaped area on the shell exterior near the hinge and extending posteriorly form the umbones.

Esophagus: (Gr Oisophagos = the gullet) A membranous tube or canal through which masticated food or drink passes from the pharynx to the stomach

Exhalent: (L ex = out; halo = breathe) having the quality of exhaling or evaporating.

Exhalent siphon: a short outlet formed of a fold of mantle through which water and other wastes are expelled.

External ligament: The part of the hinge ligament visible when the valves are closed.

F

Feces: (L faex = dregs) the alimentary refuse ejected from the anus

Filter feeder: Any animal that obtains nourishment by filtering suspended particulate food from water (suspension feeder) or by ingesting sediment to digest the organic matter that accumulates on the particles of sand (deposit feeder).

Flange: An erect, projecting flattened ridge.

Foliaceous: Leaf-like, flattened, projecting like tiles.

Foot: The muscular locomotory, undersurface of the body of a mollusc upon which the animal rests or moves. In bivalves, the contraction and expansion of this organ is used in the burrowing, locomotion, or for anchoring the animal. The presence of a creeping or muscular foot is one of the characteristics that distinguish molluscs from other organisms.

Fossette: A pit shaped chondrophore.

Frilled: With a series of crowded, fine, wavy or pleated, sharp, often scaly ridges.

G

Gaping: Incapable of closing completely.

Gastropoda: (Gr Gaster = stomach; pous = foot) A class of molluscs. Scientific term for molluscs that have undergone torsion. The name refers to the fact that these creatures seem to creep upon their bellies. In fact in gastropods the stomach is situated well above the region of the foot.

Gill: (ME gile = a gill) or Ctenidium. A large sheet-like organ used for breathing the air dissolved in the water. In bivalves they also play the role of food collecting. The respiratory organ of molluscs.

Globose: Roughly spherical in outline.

Globular: Globe or sphere-shaped, like a ball.

Gonad: (Gr Gonos = seed) A generative tissue that eventually becomes a testis or ovary.

Gonoduct: an oviduct or seminal duct.

Granular: Bearing granules as surface sculpture.

Granulate, Granulated or **Granulose:** Finely beaded or noduled. Having a rough surface of grain like elevations.

Granule: A pustular surface structure.

Groove: An elongate and fairly uniform depression in the shell or soft parts of a mollusk.

Growth lines/rings: Concentric sculpture on each valve which mark the successive positions of the shell margin due to growth-stages and rest periods.

Growth stages: Exaggerated growth lines indicating a cessation of growth.

H

Head: In general, the area of a molluscan body that bears the sense organs and the mouth (or proboscis). A usually distinct structure located at the animal's front end, containing the mouth, eyes, and sensory tentacles; absent in bivalves.

Height: The measure of the shell through the umbones and perpendicular to the adductor muscles.

Hemocyte(s): Molluscan blood cells, primarily phagocytic cells generally analogous to mammalian white blood cells.

Hemolymph: (Gr haima = blood) Molluscan blood.

Hermaphrodite: (Gr Myth = Hermaphrodites, having a fabled son of Hermes and Aphrodite) Having the sexes united in the same individual The animal is both male and female.

Heterodont: Having differentiated cardinal and lateral teeth.

Heteromyarian: Where the two adductor muscles are unequal in size.

Hinge: A horny ligament, located internally, externally or partially internally, near the umbones, that holds the valves slightly opened when the animal is feeding or relaxed

Hinge plate: The in-folded dorsal margin of a valve below the umbo.

Hinge teeth: Small projections of the hinge plate that align the valves so that they close correctly. (See cardinal teeth and lateral teeth)

Holotype: (Gr Holos = whole) The original type. The single specimen upon which a species is based

I

Impressed: Indented. Pushed down, either as a line or an area.

Incised: Sculptured with one or more sharply cut grooves.

Incremental lines: Faint concentric growth lines.

Incrustation: An irregular deposit on the shell surface.

Incurved: Term used to indicate that a structure curves in upon itself, as do the umbones of certain bivalves, or the spines or lamellae of certain bivalves and gastropods.

Indigenous: Referring to organisms that are native to a particular region, not having been introduced.

Inequilateral: The posterior and anterior ends of the shell being different in size and shape.

Inequivalve: One valve of the shell being larger, flatter or otherwise different from the other.

Infauna/infaunal: Sessile and mobile animals that spend part or all of their lives buried beneath the substratum. Many bivalves are infaunal. Compare with semi-infaunal

Inflated: Applied to rotund shells of thin structure; swollen, increased unduly, distended.

Inflected or Inflexed: Turned inward, in the same direction.

Inhalant: (L in = in; halo = breath) to breathe in

Inhalant siphon: a tube like fold of the mantle along which water, containing oxygen and food particles is drawn into the mantle cavity.

Intercostal: Placed or occurring between the ribs.

Intermediate ribs: Secondary sculpture, smaller than the primary ribs.

Internal ligament: The portion of the ligament not visible when the valves are closed.

Intertidal: The area between the high water mark and the low water mark (See Littoral zone).

Invasive/Introduced species: Organisms that have been intentionally or accidentally placed into a region where they did not naturally develop as a species and where their natural predators and/or prey do not exist.

Iridescent: Colors resulting from light refraction, not pigmentation.

J

K

Kingdom: The highest taxonomic grouping in the hierarchy.

L

Labial Palps: (L. labium = lip palpare = to feel) Paired ciliated triangular flaps on either side of the mouth in bivalves.

Lamellar gills/Lamellae: (L. lamella = small plate) Enlarged, flattened plate-like gills (ctenidia) that form the feeding organs of most bivalves.

Lamellibranchia: Alternative name for Bivalvia; Bivalvia preferred.

Larva: The youngest stage of a mollusk after it hatches from the egg.

Larval shell: Shell of a molluscan larva before it undergoes metamorphosis, usually set off by a change of sculpture.

Lateral: (L latus = the side) pertaining to the side.

Lateral teeth: interlocking teeth of bivalves, not functioning as a hinge but serving to prevent valves from sliding upon each other when closed.

Left valve: Left valve of the shell where the dorsal edge or hinge is facing up and the anterior end is directed forward (away).

Length: In bivalves, the greatest horizontal dimension parallel to a line bisecting the adductor scars.

Littoral zone: The marginal shore area covered by the tide (see intertidal zone) and includes the splash zone where only spray form waves reaches.

Lower littoral zone: Range of the littoral zone that remains submerged except during low spring tides.

Middle littoral zone: Range of the littoral zone submerged by most high tides and exposed during most low tides.

Upper littoral zone: Range of the littoral zone submerged only during the high spring tides.

Lunules: The heart shaped impression on the dorsal midline of the shell just anterior of the umbones. Usually found on the Venus (Family-Veneridae) clams.

M

Malacologist: One who studies the mollusc animal along with the shell.

Malacology: (Gr malos = soft-bodied logia=to speak) The study of molluscs (clams and snail) based on soft anatomy. The branch of zoology that deals with molluscs, the animal within the shell.

Malacozoology: The study of living mollusks in relation to their animate and inanimate environment.

Mantle: (L mantellum = a cloak, mantle) A soft, fleshy sheet of tissue that surrounds the molluscs' body and lines the inner surface of the shell. It secretes the materials that form the shell from the marginal glands and provides the periostracum. The presence of a mantle is one of the characteristics that distinguish molluscs from other organisms.

Mantle cavity: The space between the mantle and the visceral mass.

Mantle line: The line on the dorsal surface of a cowry shell and some bellerophontids where the mantle lobes meet.

Mantle scar: A broad area of attachment caused by the mantle edge too wide to be called a pallial line.

Margin: Extreme edge of valve of bivalve shell; also the thickened periphery of base of some gastropods, notably cowries; sometimes used as equivalent to edge.

Median: Along the central line or axis.

Metamorphosis: The period in the life cycle of a bivalve where the organism transitions from a swimming larva to a sessile juvenile. Also referred to as setting.

Monomyarian: Having only one, large adductor muscle to close the valves.

Muscle scar: Slight depression on the inner surface of the valve of a bivalve shell where a muscle is attached; in limpets, the scar left by the margin of the mantle and the foot retractor muscles. See also Accessory Scar; Adductor scar.

Myophore: An extension of the shell's interior in pholad bivalves (shipworms) to which the foot retractor muscles attach (see also apophysis).

N

Nacre: (Fr nacre = mother-of-pearl) The pearly or iridescent substance that lines the interior of some mollusc shells.

Nacreous: With a layer of nacre, or mother-of-pearl.

Nearshore: The part of a beach made up of the submerged area from the low-tide line seaward. Also called the Subtidal zone.

Neck: Another name for the fused siphons of a bivalve.

Nephridium: (Gr nephros = a kidney) one of the tubular renal organs of the molluscs.

Nephridiopore: the duct through which liquid wastes drain from the nephridium.

Niche: The role or function of a species within an ecosystem in the case of most bivalves: filter feeding, herbivorous infauna.

Nodule: A rounded protuberance on the shell sculpture; larger than a bead.

Nodose, Nodulose or **Nodular:** Bearing rounded protuberances on the shell; sculptured with small tubercules, knobs, nodes or projections.

Nymph: A thickened projection along the hinge margin that supports an external ligament or reinforces the normal hinge structure.

O

Opisthogyrate: In bivalves, having the beaks pointed backward, or posteriorly; opposite of prosogyrate.

Orbicular: Circular or rounded.

Order: A group of related superfamilies.

Ornament: Surface sculpture standing out in relief on shell surface.

Orthogyrate: Having the umbones pointed toward each other.

Osphradium: (Gr Osphraddion = strong scent) An olfactory organ of some molluscs. A collection of elongated sensory cells over each gill.

P

Pallets: Found only in the wood boring, pholadid bivalves (shipworms), these are the calcareous, feather-like extensions secreted by the distal end of the siphon and used to close the burrow.

Pallial muscle: A muscle that controls the mantle and whose attachment forms the pallial line.

Pallial sinus: A "C" shaped bend in the attachment scar of the mantle signifying where the siphons are retracted into the shell.

Pallium: The mantle.

Palps: (pl. **palpi)** (L palpare = to feel) Ciliated structures that surround the mouth. Food is sorted here and moved towards the mouth.

Pedal gape: The space between the valves through which the foot exits.

Pediveliger: A late stage of larval development in bivalves where the velum is present and the foot has begun to develop. Generally indicative of a larvae nearing metamorphosis.

Pelagic: (Gr Pelagos = the open sea) Pertaining to or living in the open sea far from land.

Pelecypoda: (Gr Pelekys = axe; pous = foot) Another term for Bivalves. Molluscs bearing a two valved shell that is hinged along one edge.

Pericardial sac: The organ that holds the circulatory heart.

Periostracum: (Gr peri = around; ostracukon = shell) The outer skin or horny covering on the exterior of many shells. May be thin and transparent or thick, fibrous or hairy.

Planar: Of, relating to, or situated in a plane; flat, a planar surface.

Planktotrophic: Refers to planktonic larval development where the larvae feed on microorganisms and development time in the plankton is long.

Plica: (pl. **plicae)** Fold or ridge on the columella, a less conspicuous feature than columella fold but the two terms are more or less interchangeable.

Plicate: Folded or twisted or bearing plaits. Folded or plaited. Bearing plicae; also occasionally used here as equivalent to crenulate.

Plication(s): A raised ridge, fold, or plait, especially on the columella of a gastropod shell.

Porcellaineous: Polished; surface and texture as in porcelain.

Posterior: The rear or tail end of an animal.

Prismatic layer: The thick, calcium carbonate, middle layer of the valve.

Prodissoconch: The rudimentary or embryonic shell of a bivalve.

Prosogyrate: Having the umbones pointed anteriorly.

Q

R

Radial lines: Rib-like, external shell sculpting originating at the umbones and extending to the ventral shell margin.

Radiating: Spreading in various directions

Resilifer: A projecting spoon-like chondrophore.

Resilium: The internal part of the hinge ligament.

Reticulate: Lines, riblets, threads or grooves crossing each other like a net.

Rib: An elongate sculptural element of a shell, raised above the surrounding surface. A fine rib is a riblet, and a very fine rib is a thread.

Riblet: A small rib, but coarser than a thread.

Right Valve: Right half of the shell when the dorsal edge or hinge is facing up the anterior end is directed forward (away).

Rugae: folds; wrinkles; ridges in the ornament of a shell

S

Scaphopoda: (Gr Scaphe = boat; podos = foot) Tusk or tooth shells this class of molluscs possess an one-piece tapering, curved shell open at both ends and an elongated foot adapted for burrowing.

Scar: A marking on the interior of a valve that indicates the attachment point of a muscle or the mantle.

Sculpture: the decoration (in terms of ridges, ribs, striae, etc) on the surface of a shell; a pattern of raised or depressed markings on the shell's surface. Synonymous with ornament.

Semi-infaunal: lying partially buried in sediment, sand or mud. Some bivalves are semi-infaunal. Compare with infaunal

Sessile: Fixed to the substrate and usually incapable of movement.

Set: The period of metamorphosis where a swimming larval bivalve transitions to a sessile juvenile.

Shell: (AS scell = shell) A hard rigid, calcareous or chitinous structure encasing an animal, or covering some part of it. Some molluscs have an internal shell.

Shelly: Composed of calcium carbonate rather than concholin (see periostracum) giving the shell a chalky texture.

Sinus/Pallial sinus: A "C" shaped bend in the attachment scar of the mantle signifying where the siphons are retracted into the shell.

Siphon: (Gr Siphon = siphon) A prolongation or fold of the mantle conveying water into or out of the mantle cavity of most molluscs.

Socket: A recess for the reception of a tooth, whether lateral or cardinal, or chondrophore from the opposite valve

Species: A group of potentially interbreeding organisms that is reproductively isolated from all others.

Stria (pl. **striae):** Narrow and shallow incised groove.

Striate: Marked with striae.

Subcentral: just beneath the center

Substrate: Any base for attachment or burrowing.

Suprabranchial chamber: The space within the mantle cavity that contain the ctenidium.

Surf zone: The area affected by wave action, extending form the high-water mark to the point where waves break.

Symmetrical: (Gr syn = with; metron = measure) Equal-sided, well balanced, having similar parts arranged in regular reverse order on both sides.

T

Taxodont Dentition: A long row of many, small, uniform teeth along the hinge line, anterior and posterior of the umbones. Usually found in *Nuculid, Nuculanid* and *Glycymeridid* clams.

Tentacles: The long, thin projections from the mantle of scallops that are sensitive to stimuli (also called a cirrus [pl. cirri]).

Terrestrial: (L terra = the earth) living in and existing on the earth. Having its habitat on the ground as in land snails as opposed to aquatic (water dwelling) or arboreal (living in trees).

Thread: A very fine sculptural element of a shell, raised above the surrounding surface. Finer than a rib.

Trochophore: The first larval form of a mollusc, roughly ovoid in shape with a "crown" of cilia on the anterior end, bands of cilia around the body, precedes the veliger form.

Truncate: Cut off at the end, blunt; applied to the square-ended appearance of certain bivalve shells.

Tubercle(s): Elevated knob-like projections or protrusion; larger than pustule.

Type species: (L typus = strike) The species used by the author of a genus to characterize that particular genus.

U

Umbilicate: Navel-like; with depressed cavity. Having an umbilicus.

Umbo (pl. **umbones):** The oldest, first formed part of the valve, also called a "beak" due to its shape, found above the hinge. The first part formed in a bivalve around which “radial” growth has proceeded.

Umbonal ridge: An angled or rounded ridge beginning at the umbones and extending to the posterior end of a shell.

Undulate: Having a wavy surface.

Univalve: A mollusk consisting of a single spirally coiled shell.

V

Valve: (L valva = a leaf of a door) One of the separate portions of a shell of a mollusc. In bivalves, one of the two portions into which the shell is divided, the two valves usually joined by a hinge. In chitons, one of the eight plates comprising the shell. Hence *Univalve*; one a single piece shell *Bivalve*; a two-pieced shell. *Multivalve*: more than two shell plates as in the chitons.

Veliger: (L veliger = snail-bearing) a larval mollusc in the stage of development where it has developed ciliated swimming membrane or membranes.

Velum: Ciliated mantle flap by which a molluscan larva swims.

Ventral: (L venter = the belly) Of, pertaining to, or situated on, the lower side of a dorsiventral organism; on the edge remote from the hinge in a bivalve; the ventral margin is opposite the umbones. Opposite to dorsal.

Vermiform: Like a worm in shape.

Visceral mass: The internal organs and soft body parts of the bivalve.

W

Wing: On scallops, the flattened projection located at one or both ends of the hinge line (see also auricle).

X

Y

Z