

VIII. GLOSSARY

Abaxial. Directed away from the shell axis (i.e., the central line or central column of a coiled gastropod shell) outward.

Acroloxid. A common-name adjective referring to a member of the family Acroloxiidae.

Acute. Sharp at the end.

Ampullariid. A common-name adjective referring to a member of the family Ampullariidae.

Ancylid. A common-name adjective referring to a member of the family Ancylidae.

Ancyliform. Limpet-shaped; patelliform; shaped like an obtuse cone (see Fig. 778).

Angular, angulate. Having an angle (or having the tendency to form an angle), rather than a round contour.

Angulation. Edge along which two surfaces in different planes meet at an angle.

ANSP. Abbreviation, usually associated with museum specimen catalogue numbers, for Academy of Natural Sciences of Philadelphia.

Aperture. The opening or "mouth" of a snail shell through which the head-foot protrudes when the snail is active.

Attenuate. Slender; elongated; long and narrow.

Auctorum (abbr. *auct.*). Of authors.

Auger-shaped. Shaped like an auger, i.e., with a flattened base terminating in a sharp, pointed twist.

Axial. Parallel to the axis or columella of a shell, i.e., transverse to the direction of the shell's spiral coil.

Base. The part of the shell opposite the apex. When a shell is held with the apex directed upward, the base is the "bottom" part of the shell. In regard to the natural position of the shell as carried by the snail, the "base" is the anterior end.

Bithyniid. A common-name adjective referring to a member of the family Bithyniidae.

Body whorl. The last complete whorl or volution of a spiral snail shell, measured from the outer lip back to a point immediately above the outer lip. It is normally the largest whorl of the shell, and is called the body whorl because it encloses the greatest part of the snail's body.

Callus. A layer of calcareous material on a shell secreted by the snail's mantle.

- Campanulate.** Flared at the end; bell-shaped.
- Canaliculate.** Bearing a channel or groove.
- Carina** (pl. *carinae*). A sharp spiral edge, ridge or "keel" on the outer shell surface.
- Carinate.** Having one or more sharp spiral edges, ridges or keels on the outer shell surface.
- Central tooth.** The median or rachidian tooth of a transverse row of radular teeth. It is flanked by lateral teeth (see Fig. 784).
- Channeled.** Bearing a channel or groove.
- Clavate.** Club-shaped; growing gradually thicker toward one end.
- Cleaver-like.** Shaped like a butcher's cleaver, i.e., like a short, flat, broad cutting instrument.
- Color bands.** Revolving spiral stripes of a darker hue or different color from the ground or background color which occur on some species of gastropod shells.
- Columella.** The internal column around which the whorls revolve; the axis of a spiral shell.
- Columellar lip.** The apertural margin at the columellar region of a coiled gastropod shell.
- Compressed.** Refers to the spire of a gastropod shell which is relatively flattened, i.e., is not elongated.
- Concentric.** Having the same center, e.g., the nucleus, and expanding outward in parallel (i.e., equidistant) lines, as in the lines of growth of an operculum (Fig. 780c).
- Continental Divide.** The highland which divides the North American continent into two very large drainage regions, one in which the streams flow generally eastward into the Gulf of Mexico, Atlantic Ocean, Hudson Bay and the Arctic Ocean, and the other in which the streams flow generally westward into the Great Basin, the Gulf of California, the Pacific Ocean and the Bering Sea.
- Corneous.** Horn-like.
- Costa** (pl. *costae*). A transverse rib or rounded ridge of considerable size on the surface of a shell.
- Costate.** Refers to a shell in which the surface is sculptured with heavy, regular transverse ridges or ribs.
- Crassate.** Gross; thick; coarse; neither thin nor fine.
- Crepidulaform.** Shaped like *Crepidula*, i.e., limpet-like with a small, coiled apex.
- Ctenidium.** The characteristic respiratory appendage or gill of mollusks.
- Cusp.** The cutting blade or blades projecting from each tooth of the molluscan radula.
- Cylindrical.** Shaped like a cylinder; round in cross-section with nearly parallel sides.

Decollate. Cut off, i.e., as with the shell of some snails where the top several whorls of the spire break off or erode away.

Depauperate. Condition in which an individual, colony or race exhibits the outward manifestation of disease, accident or malnutrition, or a reaction to adverse environment. See depauperization.

Depauperization. The outward manifestation of disease, accident or malnutrition, or a reaction to inimical environment. It affects individual mollusks fairly frequently, but also it sometimes involves whole colonies and races. Symptoms of depauperization are dwarfing, lack of nacreous material (in certain bivalves), loose coiling and simplification of shell characters (Goodrich, 1939a).

Depressed. Flattened dorso-ventrally or postero-anteriorly, as the spire of a shell.

Elongate. Lengthened; extending length-wise; especially higher than wide.

Entire. Refers to the lip or peritreme of a shell that forms a continuous circle or oval, i.e., it is not broken by a space where it meets the parietal wall of the body whorl.

Fissure. A narrow slit.

Fusiform. Spindle-shaped, i.e., with a relatively thick middle and tapered to a point at each end.

Geniculate. Having a joint or bend.

Gibbous. Very convex or swollen; tumid.

Gradate. Arranged in steps, as a spire with shouldered whorls.

Growth lines. Minute lines on the outer shell surface indicating minor rest periods during growth. Not to be confused with the major "rest marks" or varices, caused by prolonged growth arrest (as during winter).

Heliciform. Shaped like *Helix*, i.e., with the characteristic shape of the majority of land snails, which have a somewhat depressed spire and whorls that increase regularly in diameter.

Hydrobiid. A common-name adjective referring to a member of the family Hydrobiidae.

Hyaline. Glassy; glossy and translucent or nearly transparent.

Imperforate. Refers to a spiral gastropod shell which has no opening or external cavity at its base. In such a case, the inner sides of the coiled whorls are appressed, leaving no cavity, or, if they are not appressed and a cavity is formed, then its opening is completely covered by a callus or the reflected columellar apertural lip.

Incised. Grooved; engraved.

Inflated. Refers to snail shells or individual whorls which are bulbous or swollen in appearance.

Labrum. The outer part of the apertural lip of a coiled gastropod shell, as opposed to the parietal or umbilical lip and the basal (anterior) lip.

Lateral teeth. The teeth on each side of the central or rachidian tooth in a transverse row of radular teeth (see Fig. 784).

Lira (pl. *lirae*). A ridge, specifically a spiral ridge on the outer surface of a snail shell.

Lirate. Refers to a shell with spiral ridges on its external surface.

Longitudinal. Refers to shell sculpturing that is at right angles to the spiral direction of the shell's coil; transverse.

Lymnaeid. A common-name adjective referring to a member of the family Lymnaeidae.

Malleated. Dented as if hit by a hammer.

Marginal teeth. The longitudinal rows of teeth at each edge of the molluscan radula.

MCZ. Abbreviation, usually associated with museum specimen catalogue numbers, for Museum of Comparative Zoology (Harvard University).

Median cusp. The middle cusp of a molluscan radular tooth, generally flanked by smaller lateral cusps.

Median tooth. The central or rachidian tooth of a transverse row of radular teeth. It is flanked by lateral teeth (see Fig. 784).

Micromelaniid. A common-name adjective referring to a member of the family Micromelaniidae.

Multispiral. Refers to an operculum in which there are numerous, very slowly enlarging spirals, coils or whorls (Fig. 780a).

Neritid. A common-name adjective referring to a member of the family Neritidae.

Neritiform. Shaped like *Nerita*, i.e., subglobose or hemispherical, with few rapidly enlarging whorls, very reduced spire, and a heavily calloused and expanded parietal apertural margin (Fig. 779).

Nodule. A small knot, lump or irregularly shaped mass, such as the projections occurring on the shell surface of some freshwater snails.

Nomen dubium (pl. *nomina dubia*). A dubious name; one that cannot be applied with certainty to any known taxon.

Nomen nudum (pl. *nomina nuda*). A newly introduced species name without sufficient description to justify its acceptance in the zoological literature.

Nomen oblitum (pl. *nomina oblita*). A forgotten name. A name that has not been used as a senior synonym in the primary zoological literature for more than 50 years. Such a name has no validity in zoological nomenclature.

Nuchal lobe. One of the two right and left lobes at the anterior head-foot margin on either side of the mouth.

Nucleus. The first-formed (earliest) part of beginning of a shell or operculum (e.g., see Fig. 780d).

- Oblique.** Slanting; greater or less than a right angle; neither parallel with nor perpendicular to.
- Obsolete.** Obscure; indistinct; very rudimentary.
- Obtuse.** Blunt or rounded at the end, not acute or pointed.
- Operculum** (pl. opercula). A corneous or calcareous plate borne on the dorsal posterior foot of proboscaphid snails which closes the aperture when the snail withdraws into its shell (Fig. 772).
- Oval, ovate.** In the shape of the longitudinal section of a hen's egg, i.e., oblong and curvilinear, with one end narrower than the other.
- Ovoviviparus.** Condition in which the young snails are formed within an egg, but hatch while still inside the mother snail, from which they emerge as young crawling snails.
- Pagoda-like.** Shaped like a pagoda, i.e., with a tapering, tower-like, storied, carinate shell spire (see Fig. 443).
- Patelliform.** Limpet-shaped; ancyliiform; shaped like an obtuse cone (see Fig. 778).
- Parietal.** Pertains to the inside wall of the shell aperture.
- Paucispiral.** Refers to an operculum in which there are few rapidly enlarging spirals, coils or whorls (Fig. 780b).
- Perforate.** Refers to a spiral gastropod shell which has a very narrow perforation at its base, formed where the inner sides of the coiled whorls do not join.
- Periostracum.** The thin proteinaceous external layer covering most mollusk shells.
- Periphery.** The edges of a shell as seen in outline.
- Peritreme.** The peristome, apertural "lip" or apertural margin of a gastropod shell (does not include the parietal wall in shells without an entire (continuous) apertural margin).
- Physid.** A common-name adjective referring to a member of the family Physidae.
- Physoid.** Shaped like the shell of a member of the family Physidae, i.e., sinistral and with a raised spire.
- Planispiral.** Coiled in one plane (Fig. 777).
- Planorbid.** A common-name adjective referring to a member of the family Planorbidae.
- Pleurocerid.** A common-name adjective referring to a member of the family Pleuroceridae.
- Plica** (pl. plicae). A transverse or "vertical" ridge or "rib" on the outer shell surface.
- Plicate.** Bearing plicae, which are transverse or "vertical" ribs on a shell.
- Plicate-striate.** Refers to a shell having longitudinal (transverse) folds or ribs on its surface that are crossed by raised spiral lines.

Pomatiopsid. A common-name adjective referring to a member of the family Pomatiopsidae.

Ponderous. Very heavy; very thick.

Pseudobranch. A “false” or secondarily derived gill; a vascularized, fleshy outgrowth near the opening to the pulmonary cavity (pneumostone) of aquatic pulmonate snails which aids in respiration (see Fig. 773a). Not a true ctenidium.

Pyriform. Pear-shaped, i.e., large and round at one end and tapering at the other end.

Radula (pl. radulae). A rasp-like structure in the anterior end of the digestive tract of all mollusks except pelecypods which is used to scrape off food during feeding. The radula consists typically of a number of longitudinal and transverse rows of minute sharp “teeth”, each with one or more cutting blades or “cusps”.

Revolving lines. A term sometimes used for spiral striae; occasionally also called “spirals”.

Rimate. Refers to a coiled gastropod shell that has at its base a narrow “umbilical” opening that is partially closed by the expansion of the anterior columellar lip.

Rounded. Having a more or less evenly curved contour, in contrast to being angular.

Scalar. Pertaining to or like a flight of steps, i.e., a shell with elevated spire formed of right-angular whorls.

Scalariform. Shell form, usually pathologically produced, in which the whorls are disjoined or tend to become so.

Sculpture. The natural surface markings, other than those of color, usually found on snail shells, and often furnishing identifying marks for species recognition.

Sensu lato (abbr. *s.lat.* or *s.l.*). In the broad sense.

Sensu stricto (abbr. *s.str.* or *s.s.*). In the strict sense.

Shouldered. Refers to the appearance (in outline) of the posterior outer peripheral part of a whorl that is sharply rounded in contrast to the more even curvature of the rest of the shell (Fig. 776c).

Sic. Thus (to indicate exact transcription).

Sinuous. Wavy or S-shaped.

Spade-shaped. Shaped like a spade, i.e., like a broad, flat blade tapering rapidly at one end.

Spatulate. Shaped like a spatula, i.e., broad and oblong at one end, tapering rapidly near the center, and continuing as a narrower elongation at the other end.

Spindle-shaped. Fusiform; shaped like a spindle, i.e., with a relatively thick middle and tapered to a point at both ends.

Spiral. Winding, coiling or circling around a central axis; winding around a fixed point and continually receding from it; the form of the shell of most snails.

Spiral sculpture. Surface markings of a snail shell which pass continuously around the whorls more or less parallel to the suture.

Spire. The whorls of a snail shell, excepting the last or body whorl. The spire is measured as the distance (parallel to the columella) from the suture where the apertural lip meets the body whorl to the shell apex.

Stria (pl. striae). A slight superficial spiral groove or furrow on the outer shell surface, or a fine spiral threadlike line or streak. Commonly used also, in a less precise sense, for raised spiral ridges on the shell surface.

Striate. Refers to a shell having spiral incised lines on its surface. Also used, less precisely, to describe shells with spiral raised lines, or for shells covered with fine transverse lines.

Subglobose. Nearly globular or spherical in shape.

Succiniform. *Succinea*-like, i.e., with a thin and fragile shell, which has a large oval aperture and body whorl and a small spire.

Suture. The line on the shell surface where two adjoining whorls meet.

Taxon (pl. taxa). Any taxonomic group, e.g., a race, subspecies, species, genus, family, order, etc.

Thiarid. A common-name adjective referring to a member of the family Thiaridae.

Transverse. At right angles to the spiral direction of the whorls; parallel to the columella or axis of the shell; in the same direction as (i.e., parallel to) the growth lines of a snail shell.

Truncatelloid. A common-name adjective referring to a member of the superfamily Truncatelloidea.

Tuberculate. Covered with tubercles or rounded knobs.

Tubercle. A nodule or small eminence, such as a solid elevation occurring on the shell surface of some gastropods.

Tumid. Swollen or enlarged.

Turbinate, turbiniform. Shaped like a turban; refers to a shell in which the whorls decrease rapidly in diameter and taper broadly from a circular base to the apex.

Umbilicate. Refers to a spiral gastropod shell which has an opening or cavity at its base, and more specifically to one in which the opening is more than a very narrow perforation. This cavity is formed in those shells in which the inner sides of the coiled whorls do not join.

UMMZ. Abbreviation, usually associated with museum specimen catalogue numbers, for the University of Michigan Museum of Zoology (sometimes incorrectly cited as MZUM).

USNM. Abbreviation, usually associated with museum specimen catalogue numbers, for the United States National Museum (National Museum of Natural History).

Valvatid. A common-name adjective referring to a member of the family Valvatidae.

Viviparid. A common-name adjective referring to a member of the family Viviparidae.

Whorl (spelled "whirl" in early literature). One complete turn or coil of a spiral gastropod shell.