

## Lippen are not lips, and other nomenclatural confusions

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**Abstract:** The article discusses five ambiguities associated with terms used in malacology. (1) Different malacologists have opposite interpretations of “proximal” and “distal” when applied to the reproductive tract. (2) In stylommatophorans, “spermatheca” has mostly switched its meaning from one organ to another but still not for everyone. (3) The use of “recent” to mean still living should be avoided because of confusion with “Recent”, an obsolete synonym of Holocene, and with the everyday meaning of not long past. (4) “Continental” to mean non-marine is a misleading translation from the French. (5) The thickened band inside the aperture of some gastropods, called a “Lippe” in German, should not be translated into English as a “lip”; the lip is the edge of the aperture.

**Keywords:** continental mollusc, distal, lip, malacology, mistranslation, Mollusca, proximal, recent, spermatheca

**Zusammenfassung:** Der Artikel diskutiert fünf missverständliche Begriffe, die in englischsprachigen malakologischen Artikeln verwendet werden. (1) Verschiedene Malakologen haben gegensätzliche Ansichten zur Verwendung von „proximal“ und „distal“ für Abschnitte des Reproduktionstraktes. (2) Bei Stylommatophora hat „Spermatheca“ in der Anwendung weitgehend von einem Organ auf ein anderes gewechselt, jedoch nicht für alle Malakologen. (3) Die Verwendung von „recent“ für noch lebende Arten sollte wegen seiner potentiellen Verwechslung mit „Recent“, einem veralteten Synonym von Holozän, und wegen der umgangssprachlichen Verwendung für die jüngere Vergangenheit vermieden werden. (4) „Continental“ in der Bedeutung von Binnen- ist eine missverständliche Übersetzung aus dem Französischen. (5) Die Verdickung auf der Innenseite der Schalenmündung von Schnecken, in deutscher Sprache „Lippe“ genannt, sollte nicht als „lip“ übersetzt werden; dies ist die englische Bezeichnung für den Mündungsrand.

### Introduction

Malacologists are very careful to research and use the correct Latin names of taxa, but some non-taxonomic nomenclatural issues also deserve attention. Misunderstandings are most likely when authors and readers are not even aware that words have alternative interpretations, so here I highlight five sources of ambiguity, four already recognised yet often overlooked or ignored and the last apparently unreported.

### Proximal and distal

The most problematic case is that parts of the reproductive tract called proximal by some malacologists are called distal by others (LONG 1999a, b, REISE 2007). One school of thought holds that nearer to the genital pore is further from the centre of the body and therefore distal, and that parts topologically distant from the pore along the reproductive tract are therefore proximal. Other malacologists consider the genital pore as a point of attachment or an origin in some sense (although embryologically the reproductive system has more than one origin) so that parts further from it are more distal. One practical advantage of the second viewpoint is that parts of the genitalia that evert through the genital pore during mating unambiguously retain the same distal-proximal labelling.

To assess the support for each viewpoint, I examined articles on gastropods published in the *Journal of Molluscan Studies* over the ten years 2012-2021, finding 37 that used “proximal” or “distal” with regard to the reproductive tract. I judged that in 27 articles “distal” signified nearer to the genital pore, in eight the opposite, and in two I was not sure. Moreover, four articles that took the genital pore as distal evidently used a different point of reference for component parts, thereby reversing the polarity. Although confusing, it is perhaps reasonable to describe the bursa copulatrix as at the distal end of its duct, and similarly for other branches off the main reproductive tract. But, for instance, HERBERT & al. (2015)

called parts of the vagina nearer its join to the atrium more proximal even though they considered this direction more distal at the level of the whole reproductive tract: that seems callously bewildering. A different inconsistency arose when PRÉVOT & al. (2015) described the findings of another article but neither mentioned that this used an opposite orientation of distal to their own nor reversed the terms to ensure compatibility. In most articles I needed to check against the illustrations to be sure what the authors meant by proximal or distal since only about seven articles of the sample explicitly defined their usage of these terms. Presumably authors want their writing to be understood, so it must be that most do not realise that the terms are open to misinterpretation unless the reference point is specified.

Clearly such a definition is imperative in every paper where these terms are used for internal anatomy, yet even then it is easy for casual readers to be misled or confused. Perhaps it would be better to abandon the terms except for external organs like tentacles and for radula teeth. For genitalia, another possibility is to use “upper” (i. e. upstream, towards the gonad) versus “lower”, as is sometimes used for the parts of the atrium in *Arion*, but rarely in other contexts. However, is it then clear how these terms should apply to the bursa duct, which takes up sperm and spermatophores to be digested in the bursa copulatrix? Maybe better would be “inner” and “outer”, but these are not in current use.

### Spermatheca

Less liable to cause misunderstanding are the two different meanings of “spermatheca”. It has been a widespread term for the bursa copulatrix of gastropods (e. g. KERNEY & CAMERON 1979). But now we know that in pulmonates this organ digests sperm, whereas in non-molluscan animals “spermatheca” is used for sperm-storage organs. So in current literature on stylommatophoran gastropods the meaning of “spermatheca” has mostly been transferred to an inconspicuous sperm-storage organ near the end of the hermaphroditic duct. This follows LIND (1973), replacing the earlier name “receptaculum seminis” (e. g. RIGBY 1965).

However, many stylommatophorans lack the specific sperm-storage structure that was termed a spermatheca (BEESE & al. 2009), and in non-stylommatophorans the diverse structures involved in sperm storage have not been renamed with this term. In these other gastropod orders there is thus no ambiguity, and the usage of “spermatheca” and “spermathecal duct” for the bursa copulatrix and its duct persists (e. g. BENINGER & al. 2016), although probably it is declining. The old terminology still continues to appear also in a minority of publications on stylommatophorans (e. g. SCHILEYKO & FEHÉR 2017, GOODWARD & al. 2017, MEJÍA & al. 2018), perhaps especially in North America under the continuing influence of PILSBRY (1939-1948). Although I sympathise if you consider LIND’s (1973) hijacking of the occupied term “spermatheca” to be unnecessary and even injudicious, it would make sense now to standardise on “bursa copulatrix”.

### Recent and recent

My third example concerns the use of “recent species” to mean ones still living (e. g. ROSENBERG 2014, DE MATTIA & al. 2018). Although widespread in biology, this usage does not match how we normally use this adjective: we do not use it to distinguish people that are still alive or buildings that are still standing. Moreover, in everyday language “recent” explicitly does not mean only of the present: not all recent fashions are current fashion.

I suspect that the meaning of “living” became accepted in technical writing because geologists have used “Recent” as a synonym of Holocene, which includes the present. The two usages have been conventionally distinguished by the capital R for the geological age. Thus Recent species are not recent species if they have become extinct in the last 11,700 years – all too frequent an occurrence for the faunas of some oceanic islands. But the meanings are close enough in other contexts to become subliminally confounded, and also mixed up with the everyday meaning in English. Are even the authors always sure which meaning they intend? To add to the confusion, not all authors and editors follow the capitalisation convention, so even a reader who knows the rule is well advised not to rely on it. For instance, SALVADOR & CUNHA (2016) capitalised Recent, but they used it as an opposite to fossil, not as a synonym of Holocene: it should have been lower case. Actually, since the 1960s geologists have officially frowned on using Recent instead of Holocene (COHEE 1968, GIBBARD & VAN KOLFSCHOTEN

2005), but we should still avoid the persisting ambiguity by using the several normal-language alternatives to “recent” in the sense of not extinct, such as “living”, “extant” or “present-day”. Conversely, the liability for misinterpretation makes it inadvisable to describe a species or fauna as recent if the intended meaning is the everyday one. Awkward though it is, one had better say “living or recently extinct” and define “recently” somewhat quantitatively.

The situation is different for German “rezent”: unlike for “recent” in English dictionaries, the Duden explicitly acknowledges its use to mean presently living. This false friend might have contributed to the confusion, but it is not just German speakers that are using “recent” in this sense in English.

### Continental for non-marine

A discussion last year on MolluscaList (initiated by CARL C. CHRISTENSEN: <https://www.listserv.dfn.de/sympa/arc/molluscalist/2021-11/msg00006.html>) complained that the term “continental” was increasingly being used as a synonym for “non-marine”. It is blatantly inappropriate and confusing because of course most marine species occur around the coasts of continents, and non-marine species occur on oceanic (i. e. non-continental) islands like Hawaii. Presumably the term derives from “mollusques continentaux” in French, for which the same criticisms apply except that the French have used the phrase in this sense extensively and consistently for at least 140 years (e. g. TOURNOUËR 1875), so in their language there is probably no ambiguity. Its use in English no doubt received a boost from the CLECOM project (CheckList of European COntinental Mollusca), founded in 1986, but it is noteworthy that already the title of its first checklist replaced “continental” with “non-marine” (FALKNER & al. 2001). We should do the same.

### Lippe and lip

The preceding examples act as an introduction to the bugbear that originally inspired me to put pen to paper, the erroneous usage of “lip” especially by German speakers writing in English. In malacological publications written by native speakers of English “lip” consistently refers to the edge of the aperture (e. g. ELLIS 1926, PILSBRY 1939-1948, FRETTER & GRAHAM 1962, KERNEY & CAMERON 1979). This matches its usage in analogous contexts such as for the rim of a vase or edge of a precipice. When a snail shell stops growing the lip becomes less thin and delicate and may often flare outwards. Distinct from this is a thickened band running parallel to the margin but just inside the aperture, particularly marked along the basal margin in species such as *Trochulus hispidus* (LINNAEUS 1758). Sometimes additional such bands lie further within the shell, corresponding to positions of the aperture when growth paused earlier in ontogeny (FRETTER & GRAHAM 1962; e. g. in *Elona quimperiana* (A. FÉRUSAC 1822)). Native English speakers have mostly termed such a thickening a “rib” (e. g. ELLIS 1926, PILSBRY 1939-1948, FRETTER & GRAHAM 1962, KERNEY & CAMERON 1979). “Rib” is also used for ridges on the outside of the shell, but this is not usually a source of confusion.

The problem arises because in German the thickened band inside the aperture is called a “Lippe”; this term is not used to describe the edge itself (e. g. EHRMANN 1933, WIESE 2014). So German speakers writing in English may mistakenly write “lip” when they mean “rib”. This generates some confusing or apparently nonsensical descriptions, like “shell without a lip”. One prominent book likely to spread the error is WELTER-SCHULTES’s (2012) masterwork (although he generally wrote “lip inside”, making the meaning clearer). The same mistake is apparent in two books translated from Czech (PFLEGER & CHATFIELD 1983, HORSÁK & al. 2013). Some works use “lip” inconsistently both for the rib and the true lip (e. g. HORSÁK & al. 2013, NEUBERT & al. 2015). “Inner lip” is not a satisfactory way to distinguish the rib (e. g. NORDSIECK 2014) because exactly this term is used by others to refer to the parietal part of the aperture margin (ELLIS 1926, NEUBAUER & al. 2011).

Of course I am not so arrogant as to suggest that other languages modify their own vocabulary to conform with English. Furthermore, English is now an international scientific language that no longer belongs exclusively to native anglophones. But it would be better for all if you would please take care not inadvertently to muddy meanings in English by importing inappropriate foreign words when English has its own!

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