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A shell by any other name would be mislabeled – adventures in nomenclature

David Campbell

ABSTRACT

Finding the right name for a specimen involves two major issues. First, there is the question of nomenclature – what names are appropriate designations for species? Is the name legally proposed or not? Is it spelled correctly? Secondly, there is the question of systematics – are these two forms different enough to deserve recognition as separate species, genera, etc.?

Working through nomenclatural issues involves a lot of library work. Fortunately, much is now available online (notably in the *Biodiversity Heritage Library*: www.biodiversitylibrary.org and *AnimalBase*: www.animalbase.uni-goettingen.de/zooweb/servlet/AnimalBase/search), though there are still works that are unavailable online or only offered as a poor-quality scan. On the other hand, much online information is inaccurate, as data quantity has often been a much higher priority than data quality. Many sources copy each other, making it quite difficult to tell what are genuine independent opinions, as well as making it hard to get to the root of a problem and correct it.

In the course of my research, I have encountered a number of convoluted nomenclatural problems. Major catalogs are helpful, but can contain errors, either inadvertent or through biases of the compilers. It is critical to look up the original reference, but later citations may also be essential, such as for subsequent designations of types. The following give some examples of the complex issues that arise.

Melania reinwardtii: spelling and existence.

Köhler & Glaubrecht (2003) note that Reeve listed *Melania reirvardii* de Haan & Adams and *Melanoides reenivardii* de Haan & Adams. Brot (1870) respelled them *reirwardii* and *reinwardii* but couldn't find an original citation. Köhler & Glaubrecht (2003) were unable to locate types or a description matching either name. Specimen labels now in the collection at the Paleontological Research Institution add the spellings *Reenwardi* and *remivastii*. It seems de Haan named a couple of species *reinwardtii* (a cnidarian and an insect, 15 years apart), but no cerithioidean with that epithet has yet been traced, and it may be a manuscript name. Reinwardt was a botanist and a significant source of specimens and an inspiration to other authors, as several phyla have species named for him. Judging by the spelling problems, few malacologists had heard of him, however.

Limnaea adelinae: spelling, existence, age, and identity.

Cossmann (1921) cited *Limnaea adelinae* Forbes, 1847 as a Recent member of the genus *Adelina* (including both a misspelling error and incorrectly citing a fossil species as Recent). *Index Animalium* cites *Limneus adelina* Forbes,

1847. Examination of Forbes (1847) complicates the picture further. The text claims that they found *Adelina elegans* Cantraine, 1841, but didn't think that it deserved a separate genus from *Limnaea* (misspelled as *Limneus*.) Rather than calling the species *L. elegans*, however, they seem to have demoted the genus to species level and repeatedly called it *L. adelina* (Fig. 1). Whether to regard this as a new species name or not is debated. A name and illustration are enough to validate a species name from 1847, but the text strongly indicates that was not the intent. Two added complications arise. Forbes' material was collected from Turkey, whereas Cantraine wasn't certain where his specimen came from but thought it to be Italian, so one could argue that the locality makes a difference. Secondly, *Adelina* is a junior homonym. It was replaced by *Adelinella* Wenz, 1922, but Mienis (2013) argues that it is a subjective synonym of *Corymbina* Bukowski, 1892.

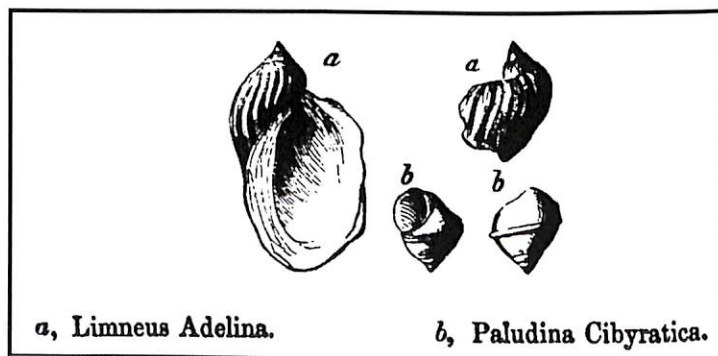


Fig. 1. From Forbes (1847).

Bocourtia: locality and taxonomy.

Hubendick (1951), in his haste to lump as much of the Lymnaeidae as possible, quoted Rochebrune (1882) "... il serait impossible de ne pas les considérer comme faisant partie du genre *Limnaea* et dans le voisinage du *L. palustris*..." [it would be impossible to not consider them as making a part of the genus *Limnaea* and in the neighborhood of *L. palustris*] as proof that *Bocourtia* is just a synonym of *Limnaea*. The use of "serait" [would be] suggests a further phrase along the lines of "if it weren't for...", and in fact Rochebrune asserted that the anatomy was highly divergent from lymnaeids. Hubendick had some excuse, however, as

Rochebrune failed to actually describe any of the anatomical differences. Ancey (1905) recognized that they were stylommatophoran land snails from Ecuador, not freshwater snails from Bangkok. The genus has been overlooked in most work on land snails.

Anadontina and *Crenodonta*: what are they?

Schlüter (1838) named several new genera and species. No descriptions are given, only localities, so the new species are generally invalid. Many of his genera, however, are based on previously-described species and thus valid, notably *Babylonia*. Two of his unionid genera have caused confusion. *Anadontina* is based on *Unio anadontina* Lamarck, from North America, which Schlüter renamed *Anadontina turgida* to avoid tautonymy. Although modern zoological (but not botanical) rules allow the genus name and specific epithet to be identical (e.g., *Mercenaria mercenaria*), some earlier authors, including Schlüter, created new names for species if they created a new genus name identical to the existing specific epithet. Ironically, it wasn't actually a case of tautonymy, as he misspelled *Unio anodontina* (by modern rules, Lamarck had the gender wrong). Given the name and the listed locality, *Anadontina* has been cited as a junior synonym of edentulous [ed: toothless] North American genera; however, Lamarck's species had incorrect locality data and is a junior synonym of his correctly-located *Unio marginalis* (1819) from India (both names were published in the same publication and have the same date, but the first subsequent author (first reviser) to synonymize the names designated *U. marginalis* as the senior synonym). Today, Lamarck's species is widely cited as *Lamellidens marginalis*. Although *Lamellidens* Simpson (1900) is much later than *Anadontina*, it is used by hundreds of papers, whereas *Anadontina* has only appeared in synonymies and similar compilations, so it can be suppressed (Article 23.9). The case of the species name is more complex. Nomenclature of freshwater mollusks for much of the 1800's was dominated by Isaac Lea, and his legacy strongly influenced later workers as well. Lea often suppressed names published by other workers (particularly Rafinesque), although Lamarck was acceptable. Thus, *Unio testudinarius* and *U. truncatus* (both Spengler, 1793) have been synonymized with *U. marginalis*. Simpson (1900, p. 855; 1914, p. 1167), following Lea's example, states "I use Lamarck's name for this species because the *U. testudinarius* and *truncatus* were only briefly and imperfectly described, and never figured, their habitats being given as Greenland." Spengler, however, correctly reported them as from "near Tranquebar," in India, and the brief Latin description was supplemented by a discussion in Danish far longer than most other early mussel descriptions (including those of Lamarck). The species had been incorrectly reported from Greenland before Spengler's time. Type specimens were

available, though not figured until 1913. A few workers have recently used *testudinarius* as the name for this species, so it can only be suppressed by the ICZN.

Crenodonta, Schlüter's other usable unionid genus, has been used in the past for *Amblema*, as *plicata* Say is the first included species. The first selection of a type species was by Herrmannsen (1852), who selected *Unio securis* "Deshayes" (actually Lea, 1829), as the type of *Crenodonta*. *Unio securis* Lea is a subjective synonym of *Obliquaria* (*Ellipsaria*) *ellipsaria* Rafinesque, 1820, the type of *Ellipsaria*. Thus, *Crenodonta* is actually a subjective synonym of *Ellipsaria* Rafinesque, 1820, rather than of *Amblema* Rafinesque, 1820.

Herrmannsen: Types and spelling.

As alluded to above, Herrmannsen designated type species for many mollusk genera. His *Indicis Generum Malacozoorum* (1846-1852) (Fig. 2) sought to list all higher taxa in the Mollusca (as then understood), starting with Aristotle. Often he designates a type species, not necessarily by modern rules nor following any previous designation, but sometimes it is the first designation. He also sought to improve the Latin by changing the spelling of many genera, rarely drastically (*Stenelasma* for *Lastena*). Despite its importance, it has not been consistently used by subsequent authors. For example, Ortmann and Walker (1922) cited Herrmannsen's type designation for *Rotundaria* (unfortunately not the earliest) but ignored others, such as for *Obovaria*.

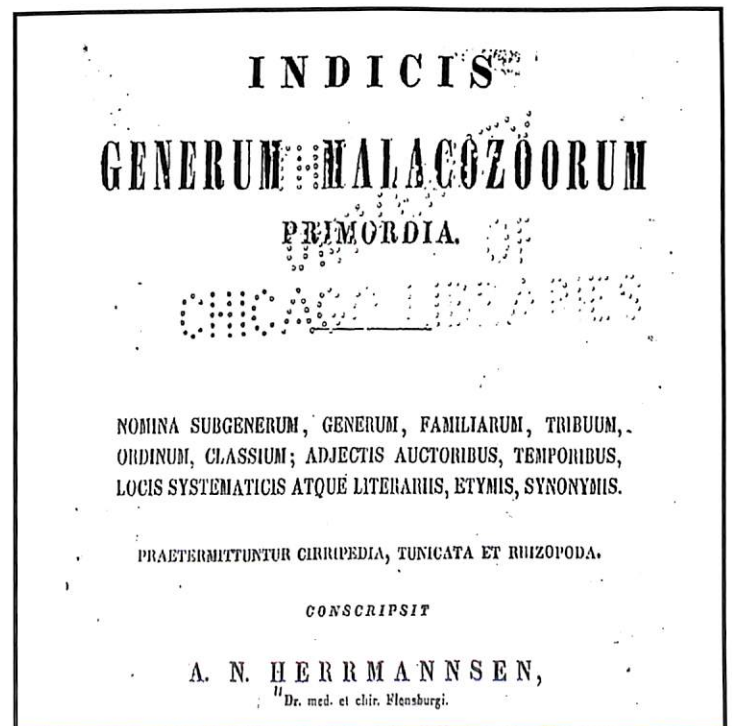


Fig. 2. Herrmannsen's *Indicis Generum Malacozoorum* (1846-1852).

Ens: automation has problems.

The genus *Ens* appeared in several online taxonomic compilations as a genus of Lymnaeidae. Information about the name was generally vague, with responsibility given to some other database. Eventually I tracked down an erroneous entry of *Pectinidens*, and that database was corrected, but the spurious name still appears in some places. Incorrect or insubstantial data (such as a name with no content) are widely copied between websites, highlighting the need for and lack of checking by taxonomists.

Smith, 1875a, b: Manual publishing can have problems, too.

Smith (1875a) described a new *Carinifex*, while in the immediately following article (1875b) he described a new species of *Alaba* (*Diala*) (now *Carinifex newberryi* and *Mainwaringia leithii*). The figures, but not the captions, were swapped (Fig. 3), with the curious result of a high-spired, operculate planorbis and a hyperstrophic sinistral littorinid. The second paper also illustrates the unhelpful practice of using a subgenus as if it were a genus. The text explicitly calls *Diala* a subgenus of *Alaba*, but uses *Diala* as if it were a full genus. It's important to read the whole article to check for such issues.

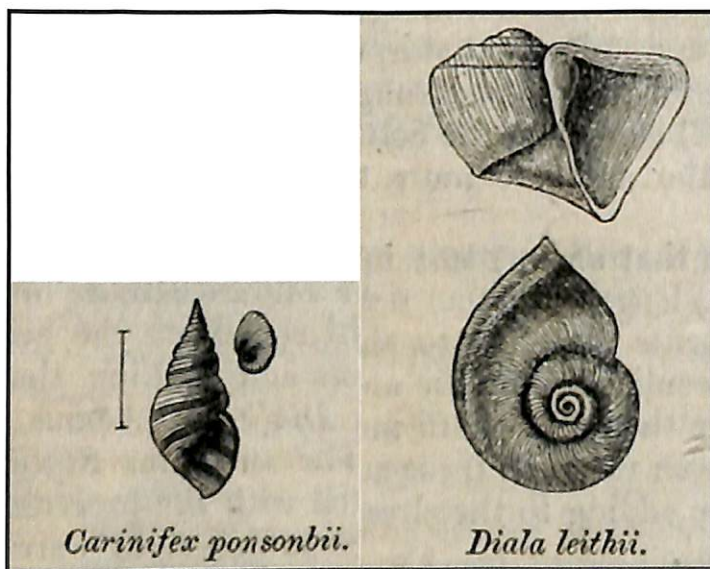


Fig. 3. Smith (1875a) swapped labels between his new *Carinifex ponsonbii* and *Alaba* (*Diala*) *leithii*.

Catascopia: why you should do all this.

Meier-Brook and Bargues (2002) noted that the North American species assigned to *Stagnicola* (like the illustrated "*S.*" *exilis* in Fig. 4) were genetically different from most European species with similar shells, including the type of *Stagnicola*, and created *Catascopia*, distinguished only on molecular grounds. It is an objective synonym of



Fig. 4. *Stagnicola* (or *Catascopia*, or *Ladislavella*, or *Polyrhytis*, or...) *exilis* (I. Lea, 1834), 18 mm, the flat-whorled pond snail, has a wide distribution but an uncertain taxonomy. Photo by author

Walterlymnaea Starobogatov and Budnikova, 1976, and a subjective synonym of several other names. *Ladislavella* Dybowski, 1913, is the oldest name based on extant species, but *Polyrhytis* Meek, 1876, based on a fossil, is earlier.

Acknowledgements

Claudio Fanelli tracked down references on *Bocourtia*. Interlibrary loan provided many key sources.

References Cited

- Ancey, C. F. 1905.** Notes critiques et synonymique. *Journal de Conchyliologie*, 53 (=4th sér., tome 7): 310-327.
- Brot, A. 1870.** Catalogue of the Recent species of the family Melanidae[sic]. *American Journal of Conchology* 6: 271-325.
- Cossmann, M. 1921.** *Essais de Paléoconchologie Comparée*. v. 12. Self-pub., Paris. p. 1-349, pls. A-D, 1-4.

Forbes, E. 1847. On the geology of Lycia and its borders. Ch. XIV in Spratt, T. A. B. & E. Forbes, *Travels in Lycia, Milyas, and the Cibyrtis*, vol. 2. John Van Voorst, London. p. 164-209.

Herrmannsen, A. N. 1846-1852. *Indicis Generum Malacozoorum Primordia. Nomina Subgenerum, Generum, Familiarum, Tribuum, Ordinum, Classium; Adjectis Auctoribus, Temporibus, Locis Systematicis, Atque Literariis, Etymis, Synonymis. Praetermittuntur Cirripedia, Tunicata et Rhizopoda.* Theodori Fischer, Cassel. 2 vols. + Supplementa et Corrigenda.

Hubendick, B. 1951. Recent Lymnaeidae. Their variation, morphology, taxonomy, nomenclature, and distribution. *Kungliga Svenska Vetenskapsakademiens Handlingar*, series 4, 3(1): 1-223, pls. 1-5.

Köhler, F. & M. Glaubrecht. 2003. Morphology, reproductive biology and molecular genetics of ovoviparous freshwater gastropods (Cerithioidea, Pachychilidae) from the Philippines, with description of a new genus *Jagora*. *Zoologica Scripta* 32(1): 35-59.

Meier-Brook, C. and M. D. Barges. 2002. *Catascopia*, a new genus for three Nearctic and one Palearctic stagnicoline species (Gastropoda: Lymnaeidae). *Folia Malacologia*, 10(2): 83-84.

Mienis, H. K. 2013. On the identity of the taxa *Soluta persoluta* and *Semisoluta subsoluta* described by Coen, 1949 (Mollusca, Gastropoda). *Triton*, 28: 27-28.

Ortmann, A.E. and B. Walker. 1922. On the nomenclature of certain North American naiades. *Occasional Papers of the Museum of Zoology*, University of Michigan, 112: 1-75.

Rochebrune, A. T. 1881. Supplément aux documents sur la faune malacologique de la Cochinchine et du Cambodge. *Bulletin de la Société Philomathique de Paris* (7) 6: 99-118. Paris.

Schlüter, F. 1838. *Kurzgefasstes systematisches Verzeichniss meiner Conchyliensammlung nebst Andeutung aller bis jetzt von mir bei Halle gefundenen Land- und Flussconchylien. Zur Erleichterung des Tausches für Freunde der Conchyliologie Halle*, vii+40 pp.

Simpson, C. T. 1900. Synopsis of the naiades, or pearly fresh-water mussels. *Proceedings of the United States National Museum* 22: 501-1044.

Simpson, C. T. 1914. *A Descriptive Catalogue of the Naiades, or Pearly Fresh-water Mussels*. Parts I-III. Bryant Walker, Detroit, Michigan.

Smith, E.A. 1875a. Description of a new species of *Carinifex* from California. *Proceedings of the Zoological Society of London*, 1875, 536-537.

Smith, E.A. 1875b. Remarks on the genus *Alaba*, with the description of a new species. *Proceedings of the Zoological Society of London*, 1875, 537-540.

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Editor's note: like many shell collectors I have been both fascinated and frustrated by taxonomy and systematics. Taxonomy is often confused with or incorrectly used interchangeably with systematics; they are very different, but could be thought of as two sides of a single coin. I am as far from expert as one can get, but with liberal use of Wikipedia.com and other sources (thanks Bruce), here is a simplified overview.

Taxonomy: the scientific description, identification, nomenclature, and classification of organisms.

Systematics: the study of the diversification of living forms, past and present, and relationships among living things through time. These are often represented as evolutionary trees (cladograms, phylogenetic trees, phylogenies).

Thus taxonomy concerns itself with the proper labeling of the specimen in the drawer while systematics concerns itself with the relationship of that specimen to others.

The oft-cited **ICZN** (International Commission on Zoological Nomenclature) is, "Responsible for providing and regulating the system that ensures every animal has a unique and universally accepted scientific name." (www.iczn.org) This august body is there to ensure the nomenclatural rules are followed and to settle technical naming disputes, NOT to determine if a particular organism should be classified as a species, subspecies, or form; or placed in this or that genus or family. The myriad of new genera and subspecies for Conidae and Cypraeidae reflect different authors' views of the relationships (systematics) within these families, not ICZN determinations.

And now to **homonyms** and **synonyms**. There can be only one correct scientific name for an organism. Multiple names are either homonyms (if they are the identical name given by different authors or at different times to a 'single' organism) or synonyms (if they are different names given to a 'single' organism). A synonym is objective if the name is provided for a single organism with a specific type. Or it is subjective if the name is applied to organisms with different types (i.e., we thought they were two species, but then determined they are forms of a single species, so the junior name is a subjective synonym). Homonyms are either primary (same species name in the same genus) or secondary (the name is moved to a genus where another species already has that taxon). Usually the senior (oldest) name is deemed correct, but there are exceptions (here is where the ICZN comes in). This is a very simple explanation ignoring any number of exceptions and intricacies, but it is a start.