

WHICH OF THE TWO COMMON BRITISH SPECIES OF
"VIVIPARUS" MONTFORT, 1810, SHOULD BE NAMED
"VIVIPARUS VIVIPARUS" (LINNAEUS) (= "HELIX VIVIPARA"
LINNAEUS, 1758) ?

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(A summary prepared at the request of the Secretary to the International Commission on Zoological Nomenclature of the above author's paper entitled "The Names of the two common Species of *Viviparus*" published in 1955 (*Proc. malac. Soc. Lond.* 31 : 163—174, Pl. 8)

Plate 1

(Commission Reference : Z.N.(S.) 857)

Foreword

For more than 150 years this question has been in dispute, some authors applying Linnaeus' name to one species and some to the other, and to try to end the confusion that this causes two well-known malacologists, one a Swiss and the other a German, have recently applied to the International Commission on Zoological Nomenclature for an authoritative decision on this controversial point. The Swiss applicant, however, hopes that the Commission will decide that the narrower of the two species should be regarded as the true *Helix vivipara* of Linnaeus, whereas the German authority, on the contrary, trusts that they will decide that Linnaeus' specific name should be used for the more ventricose species. In view of this conflict of opinion, Mr. Francis Hemming, knowing that I had personally studied this question and published a paper dealing with the names of both these species of *Viviparus* in 1955*, has requested me to supply him with the following summary of the relevant parts of my paper, for him to publish in the *Bulletin*, in order that the Commissioners may also have before them the views of an English malacologist.

I

Evidence that Linnaeus based his "*Helix vivipara*" on the
narrower British species

The two best-known species of *Viviparus*† that are found throughout a large part of Europe are easily distinguishable from each other by their shells alone. They were clearly separated by Martin Lister, who described their chief differences on pages 263—265 of his *Exercitatio Anatomica altera* published in 1695, and also figured both species in his larger *Historiae sive Synopsis methodicae Conchyliarum* (1685—1697). Linnaeus was familiar with

* References to this and other relevant literature will be found on pp. 63—66.

† A genus of fresh-water operculate Gastropods that has also been known as *Paludina* (see Addendum II).

these works of Lister, and cited them in 1758, when he named the narrower species *Helix vivipara* in his *Systema Naturae*, ed. 10, vol. 1, p. 772, describing it and numbering the species "603". That it was the narrower species and not the more ventricose one that he so named seems to be proved by the following facts—

(1) The two specimens of *Helix vivipara* in the Linnaean collection in London that are marked "603" by Linnaeus himself both belong to the narrower species. (The larger of them is shown on the accompanying plate.)

(2) Linnaeus' original description of his *Helix vivipara* (loc. cit.) begins: "*H. testa imperforata subovata obtusa . . .*". This agrees well with the typical form of the narrower species, but is completely at variance with the more ventricose species, which is always conspicuously perforate with an acute apex. Thus Linnaeus cannot have intended to include in his species this other form already separated by Lister.

(3) After describing his species Linnaeus cites his *Fauna Svecica* (1746), 1312, in which he stated that it was abundant in a river not very far from Upsala, and the narrower species still occurs in this river, whereas the more ventricose species is not known from that part of Sweden.

(4) Linnaeus then cites figures of what he believed to be his species in five other works. The oldest of these figures, dating from 1678, is so badly drawn that it cannot be identified; in some respects it resembles one species, in others it agrees with the other species, while in still other features it differs from them both. In the remaining four cases, however, the figures he cites always depict the narrower species, and when a figure of the more ventricose species is also given in the same work Linnaeus omits to cite it, which suggests that he thought this form was distinct from his *H. vivipara* though probably he had not seen it himself. Thus, the figure that he cites from Swammerdam's work (1738), though poor, evidently represents a fully grown shell of the narrower species* and not of the more ventricose one. The first figure on plate 5 of Gualtieri's *Index Testarum Conchyliarum* (1742), which Linnaeus also cites, clearly depicts an immature specimen of the same narrow species, whereas the second figure on the same plate, which he does not cite, is more like the ventricose species, although Gualtieri himself did not separate them specifically. In his reference to Lister's *Historiae sive Synopsis methodicae Conchyliarum* (1685—1697) Linnaeus cites his unmistakable figure of the narrower species, plate 126, fig. 26, but not that of the more ventricose species, plate 6, fig. 5, on the *Tabulae Anatomicae* in the same work; while in his reference to the same author's *Exercitatio Anatomica altera* (1695) he cites the description of the narrower species beginning on page 17, but not that of the more ventricose

* I omitted to explain in my paper that I include in what I term the narrower species one or two forms found mainly in the south of Europe, with somewhat similar narrow shells, which may prove to be distinct species when more is known of their anatomy.

species on pages 263—265. Linnaeus also cites plate 2 of this work, on which, in addition to two figures of the anatomy of the narrow species, there are two of that of the very different snail *Lymnoea stagnalis*, and a fifth one, of the shell only, of the ventricose species. But the explanation of this plate clearly shows that it was intended to represent three distinct species, and the contention that this citation proves that Linnaeus was making the bad mistake of uniting them all seems to be quite unjustifiable*. Linnaeus cites no other works in his synonymy and accordingly there seems to be no good evidence that he intended his *Helix vivipara* to include the ventricose species as well as the narrower one, which was undoubtedly the species he had before him in 1758. Surely the International Rules do not allow a name to be transferred from the species to which it was given by its original author to another species to which the only undoubted syntypes do not belong, which does not agree with the author's description, is not known to occur in the district in which the author indicated that it was common, and the previously published figures of which he avoids citing in its synonymy.

II

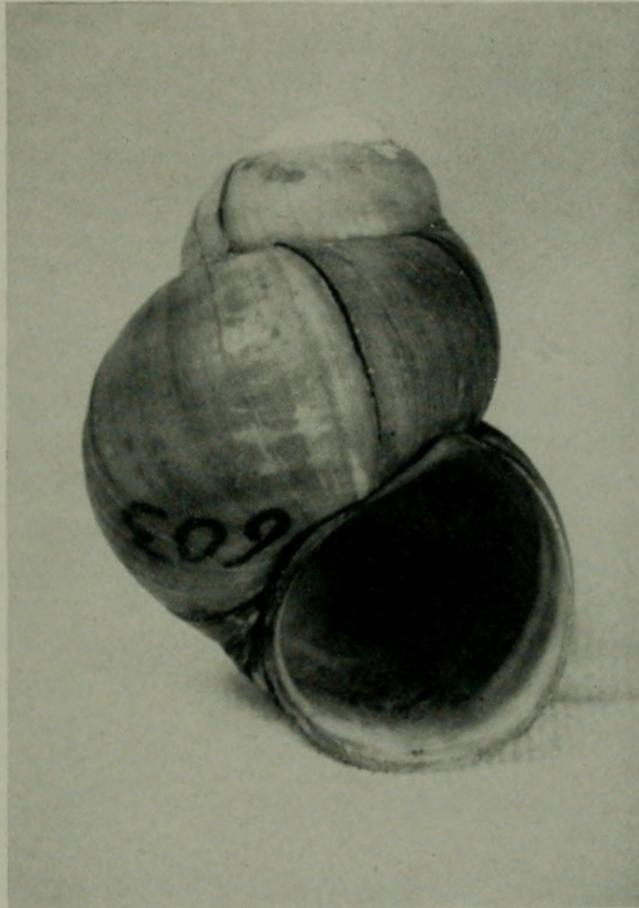
The name "*Helix vivipara*" would not be available for the more ventricose species even if Linnaeus had included it therein

The historical facts mentioned above can easily be verified by any malacologist who has access to the ancient books containing them and can understand the Latin in which most of these works are written. Nevertheless a few of my friends still maintain that Linnaeus' citations show that he included the ventricose as well as the narrow species in his *Helix vivipara*, which they therefore think is composite; and they further suppose that in 1774 Müller separated the two components, and restricted Linnaeus' name to the more ventricose one, for which it must therefore be used, although the type specimens of Linnaeus' species belong to the other. A study of Müller's work does not support this view. Müller, who changed the name to *Nerita vivipara*, definitely cited in his synonymy thereof Linnaeus' *Helix vivipara*, quoting the latter's diagnosis—"testa imperforata, subovata, obtusa", etc., and citing also the same undoubted figures of the narrower species that Linnaeus cited; thus he certainly did not restrict the nominal species to the other more ventricose, perforate, acutely pointed form. But, unlike Linnaeus, Müller also cites one or two figures of this latter form, and changed the diagnosis so that it might include both forms; indeed his detailed description suggests that he was more familiar with the ventricose species than with the narrower, often imperforate one. Thus Müller, not Linnaeus, evidently confused the two species that Lister had separated 80 years before, and included them both in his

* The reason why Linnaeus indicated which species he meant by citing the page on which his description of it began, instead of the numbers of the figures of it on the plate, may have been because the figures were numbered 1 and 2 in the text and in the explanation of the plate, but 1 and 4, by mistake, on the plate itself, so that to cite only the description would avoid ambiguity. But, in any case, to say that a species is figured on a certain plate does not imply that every single figure on the plate depicts that species.

N. vivipara. It is true that Müller thought that some white shells with brilliant red bands which he received from Italy and Saxony belonged to a distinct species, which he named *N. fasciata*, and that these unusual specimens are now thought to have been merely worn polished examples of a variety of the narrow species. But he certainly did not include the typical form of the narrow species that Linnaeus named *H. vivipara* in his *N. fasciata*, but in his enlarged *N. vivipara*, the composite nature of which was therefore not affected.

In 1791 Gmelin confused the narrower and the more ventricose species under his *Helix vivipara*, copying Müller, though he placed the composite species in *Helix* instead of in *Nerita*; but in 1801 Draparnaud definitely separated them again and removed them to *Cyclostoma*. Unfortunately, however, he gave the name *C. vivipara* to the more ventricose species, having probably been misled by Müller's description, and gave a new name, *C. achatinum*, to the narrower species, the true *H. vivipara* of Linnaeus. This error of applying Linnaeus' name to the wrong species was repeated by several subsequent authors during the first half of the nineteenth century, but not by all of them, even in France. It is still made, however, by many German authors, who maintain, I think wrongly, that there is some good evidence that Linnaeus erroneously included in his *Helix vivipara* the ventricose species, as well as the narrower one on which it is certain that he mainly, if not exclusively, based his nominal species, and as he did not actually state himself that the numbered original specimens of the narrower species in his collection were type specimens, they say that it was open to the first reviser to restrict Linnaeus' nominal species to either component. Therefore they have maintained that as the first reviser restricted it to the more ventricose species and gave the other a different name, it is the ventricose species that must be regarded as Linnaeus' *Helix vivipara* and no later different typification is valid. This would mean using Linnaeus' name for a species to which his only known original specimens do not belong, which does not possess the characters he said distinguished it, and which is not found where he said his species was common; and surely this would be absurd! Yet it might perhaps have been possible to construe *Opinion* 6 and Article 31 of the International Rules as supporting this view, assuming that Linnaeus' nominal species were really a composite one. But within the last few years *Opinion* 6 has been revoked and Article 31 has been re-written, and the Copenhagen Decisions seem to have made it clear (on p. 74) that such typification by elimination is invalid in dividing a composite nominal species, but in such a case the original name should be retained for the component containing the type of the species, or the syntypes if no single specimen was originally designated as the type (as in this case). Now the only undoubted syntypes of Linnaeus' *Helix vivipara* are the two numbered shells in his collection in London, and these have been stated to be the types of his species by Hanley in 1855, by Taylor in 1918, and by Kennard and Woodward in February 1920. As none of these authors seems, however, to have singled out one of these two shells as the lectotype of the species, I so designated the larger of the two in 1955, the one depicted in the accompanying figure. It appears to me, therefore, that even if it had been



“ *Helix vivipara* ” Linnaeus, 1758

Lectotype (x2) selected by Watson (H.), 1955 (*Proc. malac. Soc. Lond.* **31** : 171)

(The above is the larger of the two specimens, each numbered “ 603 ” by Linnaeus himself, in his collection now belonging to the Linnean Society of London)



possible to prove that Linnaeus intended to include in his *Helix vivipara* the more ventricose species, already separated by Lister from the narrower one that agrees with Linnaeus' description and to which both of his numbered syntypes belong, the revised International Rules would still require Linnaeus' name to be retained for this latter narrower species.

III

Adverse effects which would follow the acceptance of the more ventricose species as that named "*Helix viviparus*" by Linnaeus

In cases to which the strict application of the Rules would cause changes in commonly used names that would produce confusion rather than uniformity, the International Commission have power to suspend their application. I should therefore point out that, had the Rules required it, to transfer the name *Viviparus viviparus* (Linnaeus) from the narrower to the more ventricose species would be likely to cause wide-spread confusion in most countries excepting Germany. Linnaeus' name has been commonly used for the narrower species for generations in Scandinavia, as might have been expected; and in both England and France it has been in general use for this species, and not for the more ventricose one, for at least a century, as in the well-known works of Forbes and Hanley (1850), Moquin-Tandon (1856), and Jeffreys (1862), as well as by later authors. In the most recent standard and other important works on the fresh-water Gastropoda of the countries in which the two species occur we find that it is used for the narrower species—as the Swiss applicant to the Commission advocates—in England: Kennard and Woodward (1920 and 1926), Ellis (1926 and 1951), Boycott (1936), and Kennard (1941); in France: Germain (1931); in Belgium: Adam (1947); in Holland: van Benthem-Jutting (1927 and 1947), Dorsman and Wilde (1929), and Spaink (1955); in Denmark: Mendahl-Barth (1949); in Sweden: Hubendick (1947); in Esthonia: Krausp (1936); in Russia: Shadin (1952); and in India: Prashad (1928). Only in Germany and in one or two neighbouring countries do we seem to find recent writers who use Linnaeus' name for the more ventricose species, such as Geyer (1927), Franz (1932 and 1936), Boettger (1931, 1932, 1939, and 1955), Erhmann (1933), and Zilch (1955) in Germany—although Franz said that it was questionable whether the more ventricose species was known to Linnaeus; Mermod (1930) in Switzerland; and Ložec (1956) in Czechoslovakia on page 268 of his valuable book, but he has corrected this on pp. 339—340 (although I had not seen all of these works when I wrote my paper).

The use of Linnaeus' name for the ventricose species would also cause confusion because, unless the Commission were to rule otherwise, it might necessitate the use of the name *V. fasciatus* (Müller) for the narrower species, the true *V. viviparus* of Linnaeus; and for the last 30 years this name of Müller has been commonly used in England and some other countries for the ventricose species, instead of the name *V. contectus* (Millet, 1813), owing to the supposed

“ plesiotype ” of Müller’s *Nerita fasciata* in Copenhagen belonging to this ventricose species.

Thirdly the use of Linnaeus’ name for the ventricose species would cause confusion about the type of the genus *Viviparus* Montfort, 1810, because de Montfort clearly designated Linnaeus’ *Helix vivipara* as the type species of his genus, but equally clearly showed by his description and figures that he meant the narrower species and not the ventricose one that Draparnaud had mistaken for that of Linnaeus.

Conclusion

My researches have thus convinced me :—

(i) that Linnaeus’ *Helix vivipara* was undoubtedly founded on the narrower species of *Viviparus*, and there seems to be no good evidence that he intended also to include in it the more ventricose species already separated from it by Lister, the published figures of which he appears to have avoided citing ;

(ii) that even if he had erroneously included the more ventricose form in his nominal species, the revised Rules would necessitate Linnaeus’ name being restricted to the narrower species, not simply because it alone agrees with Linnaeus’ original description, but also because to this species belong the only two numbered syntypes of his *Helix vivipara* in the Linnaean collection, the larger of which (shown in the accompanying figure) has been chosen as the lectotype of his species ;

(iii) that if the Rules did require the name *V. viviparus* (Linnaeus) to be transferred from the narrower to the more ventricose species this would cause wide-spread confusion except in Germany, mainly because for very many years it has been the narrower species that has been known as *V. viviparus* (Linnaeus) in most other countries.

But of course it is for the International Commission to judge this question, and I should not have presumed to present this summary of my own views and the main facts on which they are based had I not been requested to do so by its Secretary.

ADDENDUM 1

On the question of the correct name for the more ventricose of the two British species currently placed in the genus “ *Viviparus* ” Montfort, 1810

Since writing the preceding abstract I have been asked by Mr. Francis Hemming to supplement it by a summary of my views on the correct name to

use for the more ventricose of our two species of *Viviparus*, a problem I also dealt with in my paper published in 1955.

(I) As I have pointed out, this ventricose species was separated from the narrower one by Lister in 1695, but was not cited by Linnaeus when he named the narrow species *Helix vivipara* in 1758; and Müller in 1774 and Gmelin in 1791 confused the two species in such a way that Draparnaud, when he separated them again in 1801 mistook this ventricose species for Linnaeus' *H. vivipara* and called it *Cyclostoma viviparum*, naming the narrower species *C. achatinum*, although it is this latter form and not the other that has the characters that Linnaeus said his species possessed.

In 1810 Montfort did not copy Draparnaud's mistake, but Millet did in 1813 and also called the narrow species (the true *H. vivipara* Linnaeus) *Cyclostoma achatinum*. He changed the name of the ventricose species, however, to *C. contectum*, explaining that he thought the name *C. viviparum* was unsuitable for one of the species only as both were equally viviparous. He evidently named the species *contectum* because of its well developed periostracum, which in the narrower species is so thin and easily worn off that Millet thought it was absent. His full descriptions of the two species and admirable summary of the differences between them make it certain that his *C. contectum* was the well-known ventricose species, as nearly all authors have agreed, and if at one time Germain doubted this he seems to have soon changed his opinion again. Thus *Viviparus contectus* (Millet, 1813) appears to be the oldest valid name for the more ventricose species, and this specific name has been widely used for it, not only by Jeffreys (1862) and nearly all subsequent English authors except Kennard and Woodward (1926) and Ellis (1926 and 1951), but also by Moquin-Tandon (1856) and his successors in France, by van Benthem-Jutting (1927 and 1947) and Dorsman and Wilde (1929) in Holland, by Mörch (1864) in Denmark, by Westlerlund (1871) in Sweden, by Shadin (1952) in Russia and by Kobelt (1877—1909) in Germany among Continental writers. All later names, accordingly, seem to be inadmissible for this species, such as *Viviparus crystallinus* (Gray, 1821) and *V. listeri* (Forbes and Hanley, 1850), proposed for the normal form of the species, *V. inflatus* (Villa in Porro, 1838) and *V. lacustris* (Beck, 1847) proposed for large specimens, and many others, although some of these later names may be rightly applied to certain of the varieties or subspecies of *V. contectus*.

(II) In 1920, however, Kennard and Woodward stated that "plesiotypes" of *Nerita fasciata* Müller (1774), which they had seen from Müller's collection in Copenhagen, belonged to this ventricose species, and thereafter this older specific name was applied by these authors to the ventricose species instead of Millet's name, and since then Ellis (1926 and 1951) in England, Germain (1931) in France, Hubendick (1947) in Sweden, and Mendahl-Barth (1949) in Denmark have all done the same. Yet during the fifty years that followed the publication

of Müller's work many vicissitudes befell his collection, and there is no evidence that the supposed plesiotypes now in it were there in 1774 and were the shells on which Müller founded his species. On the contrary, that Müller did not find his *N. fasciata* on these shells is proved by the fact that, while these specimens have the usual characters of rather small eroded examples of *V. contectus*, with a conspicuous perforation, rather faint bands, and rounded whorls and aperture (see figs. 5 and 6 of my paper), Müller described his *N. fasciata* as being white shells with brilliant red bands, as I have said, and a less round aperture and smaller perforation than in what he called *N. vivipara*. He said that his specimens of this brightly banded species were sent to him by Bassi from Italy and by Schröter from Saxony, and Schröter's figure of the shell that he said he sent to Müller—from Hamburg—contrasts with the supposed plesiotypes (see my fig. 1), and agrees with Müller's description in showing that his *N. fasciata* was almost certainly founded on worn polished specimens of the narrow species, the true *H. vivipara* of Linnaeus, using the name in a wide sense. But Müller's *N. fasciata* was not identical with the typical Swedish form of *V. viviparus* (Linnaeus) in which the bands are rather faint (see my figures of the lectotype). It has been suggested that the Italian specimens on which it is likely that Müller mainly founded his species probably belonged to the southern form that has usually been called *V. pyramidalis* (Christ. & Jan, 1832), though as this name is said to be preoccupied it is now sometimes known as *V. ater* (Crist & Jan, 1832). This is a narrow form differing but little from *V. viviparus* (Linnaeus) in its shell, but probably a distinct species. The two figures that Müller cites under his *Nerita fasciata* (Gault. *Test.*, t.5, f.M, and Gin, *Op. post.*, t.1, f.6), while clearly differing from the ventricose species, *V. contectus* (Millet), resemble this southern form more closely than they do the typical *V. viviparus*. The single shell from Hamburg may possibly have been brought there from Italy, but was perhaps more probably a polished example of another race, such as that named *V. penthica* by Servain, as Professor Boettger believes. It will, however, be impossible to judge from these ancient figures of Gaultieri (1742), Ginnani (1757), and Schröter (1779), and Müller's brief description, exactly which of the narrow forms it was that Müller named *N. fasciata* until the discovery of undoubtedly original specimens on which he founded his species, if any still exist. If the International Commission were to decide that this southern narrow form has the best claim to be regarded as Müller's *N. fasciata*, this name would be much more appropriate for it than *V. ater*, seeing that it is usually far from being black. But as the authors of the recent standard works in England, France and Scandinavia have erroneously applied the name *V. fasciata* (Müller) to the ventricose species, and those in Germany and one or two neighbouring countries to the normal form of the narrower species, the Commission may well think that it would best save confusion in the future if this disputed name were placed in the *Official Index of Rejected Specific Names*, for if any particular usage of the name was upheld, this would increase confusion among those who are accustomed to the contrary usage. With a name like *vivipara* Linnaeus the case is different, as the numbered type shells leave no doubt exactly which form the author meant.

ADDENDUM 2

On the generic names " *Viviparus* ", " *Vivipara* " and " *Paludina* "

Mr. Francis Hemming has also asked me to express my views on the best generic name to employ for these snails, as it has lately been suggested that we should prefer the name *Paludina* rather than *Viviparus* or *Vivipara*; and in view of this suggestion the International Commission will naturally want to consider this question before deciding to add to the *Official List* the name *Viviparus viviparus* or *V. contectus*, in case perhaps it should be *Paludina vivipara* or *P. contecta*.

(I) For the following reasons I think that the generic name *Viviparus* is preferable to *Paludina*. (1) *Viviparus* Montfort was published in 1810 and thus has about two years priority over *Paludina* Lamarck, which seems to have been first published in Latin by Férussac in 1812 (although in each case the French equivalent—*Vivipare* or *Paludine*—appears to have been published earlier. (2) So far as I know the name *Viviparus* had not been previously given to any other animal. (3) Although Montfort's work seems to be scarce, I have not read any convincing reason why it should not be regarded as a valid publication from the point of view of nomenclature. (4) *Viviparus* (frequently amended to *Vivipara*) and *Paludina* have both been widely used since their dates of publication, but while *Paludina* was more often employed during the nineteenth century, during the last 30 or 40 years *Viviparus* and not *Paludina* has been always used in the standard works dealing with the fresh-water snails of England, France, Belgium, Holland, Switzerland, Germany, Denmark, Sweden, Russia, and Czechoslovakia, and as this current usage accords with the Rules and causes no confusion, I see no good reason for changing it.

(II) But I should be opposed to the name *Paludina* being now placed on the *Official Index of Rejected and Invalid Generic Names*. It has been so much used for these snails in the past that it would seem better for it to be left in reserve to be used again at any time in the future, in case further research in the literature should reveal any serious objections to the continued use of the name *Viviparus*, or further anatomical research should show unexpectedly that the type species of *Viviparus* and of *Paludina* ought to be placed in separate genera or subgenera; for the view that these type species are undoubtedly identical has been too readily accepted. Montfort himself in 1810 clearly designated *Helix vivipara* Linnaeus as the type species of his genus *Viviparus*, in which he included no other named species. He said that he had collected it himself in the Rhine near Zwammerdam in Holland, and by his drawing of the shell and his description stating that it had no umbilicus and angularly united lips he showed that he meant the narrow species, and that he was not adopting the usage of Draparnaud who, having been misled by the way in which Müller confused the species, called the ventricose one *Cyclostoma viviparum* (Linnaeus) and named the narrower one *C. achatinum*. But other

French authors, such as Millet and Lamarck, unfortunately followed Draparnaud, giving his new name to the narrow species, the original *H. vivipara* of Linnaeus; and although Millet, as we have seen, changed the name of the ventricose species to *C. contectum*, Lamarck (1822) continued to call it *vivipara* Linnaeus, but placed it in *Paludina*; his description and his citation of Draparnaud's pl. 1, fig. 16 leave no doubt, however, that it was the ventricose species that he meant. He placed this species first among the seven that he included in *Paludina*, and in 1823 Children in his paper on "Lamarck's genera of Shells" selected this species as the type of the genus, but naturally followed Lamarck in calling it "*Paludina vivipara* (Helx vivipara Linn.)" The fact that Children in his translation of the description of the species stated that it had rotundate turgid whorls and very marked sutures, and figured it as having a well-developed umbilicus confirms the fact that it was the ventricose species that he was selecting as the type of *Paludina* and certainly not the narrower imperforate species that Montfort designated as the type of *Viviparus* and Children would have followed Lamarck in calling *P. achatina*. Montfort and Children both make it so clear that they were selecting the two different species as the types of *Viviparus* and *Paludina* respectively that it would seem absurd to suppose that the species they were selecting were the same merely because these authors took opposite sides in the dispute as to which was to be regarded as the true *H. vivipara* of Linnaeus, Montfort applying the name to the narrower species that he designated the type of *Viviparus*—the usage that most of us have long adopted—and Children following Draparnaud and Lamarck in applying this same name of Linnaeus to the more ventricose species, as most French authors then did and most German authors still do.

I do not know of any earlier selection of the type of *Paludina* than Children's, and any later selection of the other species (that Lamarck called *P. achatina*) would therefore be invalid. Indeed the selection of this narrower species as the type would probably be invalid in any case, as it does not appear to be one of the only three species that Férussac definitely included in "*Paludina* Lam." when he first published the genus in 1812. He called his first species "*vivipara*" without saying whose *vivipara* he meant, but as he ascribed the genus to Lamarck he probably meant the ventricose species that he and Draparnaud called by this name and Millet renamed *C. contectum* in the following year, and not the narrower species that these old French authors all called *achatina*. Secondly, Férussac said that his specimens were large and superb, and on the average *V. contectus* is slightly larger as well as more inflated than the true *V. vivipara* of Linnaeus. Thirdly, Férussac's specimens were from a calcareous fresh-water deposit, apparently of Holocene or Upper Pleistocene age, occurring between the rivers Lot and Garonne, and therefore in a part of France where the ventricose species, *V. contectus*, is common, according to Germain, who states that the narrower species is more frequently found in the northern parts of France than it is further south and west, and therefore not so remote from where Montfort collected it in Holland and from the type locality of this species in Sweden. These facts show that, so far as one can judge without seeing Férussac's specimens or others from exactly

the same deposit, the ventricose species selected as the type by Children—the *P. vivipara* of Lamarck—was included by Férussac among the original named species of *Paludina*, whereas the narrower species—the *P. achatina* of Draparnaud and Lamarck—probably was not ; for both of the other two species that Férussac included in *Paludina* were very much smaller forms, and certainly one of them belongs to quite a different genus and probably both do. It is, however, of little practical importance to decide which is the type species of *Paludina* until it is considered that the rival claimants should be placed in separate genera or subgenera, and the two species seem to be so nearly related that this contingency appears to be too remote to worry about at present.

(III) Numerous authors from 1813 onwards have corrected the original spelling of *Viviparus* to *Vivipara* to make the word feminine, for it is evident that to imply that a male animal can be viviparous is to commit an absurd mistake, and according to the Rules when it is evident that an author or his printer has made an inadvertent mistake the error should be corrected. It is true that this emendation has been adopted less often lately than it used to be, but *Vivipara* was still used instead of *Viviparus* by Geyer in 1927, by Mermod in 1930, and by Germain in 1931, in their well-known works on German, Swiss and French snails. It is also true that as the only species Montfort mentioned as belonging to his genus he named *V. fluviorum*, this fails to indicate whether he regarded the generic name *Viviparus* as a masculine substantive of the second declension, or as a feminine one in -us of the third declension, although it has been invariably treated as masculine. In following the majority of recent authors who use the name *Viviparus* and regard it as masculine I do not wish to presume to express any opinion of my own about this matter ; but I hope the Commission may consult their Classical advisers about the correct ending and gender of this name, and whether the many authors who have substituted *Vivipara* for *Viviparus* have been rightly correcting an evident error.

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