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THE OHIO STATE UNIVERSITY

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Mr. R. V. Melville, Secretary  
International Commission on Zoological Nomenclature  
British Museum of Natural History  
Cromwell Road  
London, SW 7  
ENGLAND

Dear Mr. Melville:

In the process of compiling the enclosed paper on the endangered species of Alabama, I have spent a great deal of time searching out and studying the literature on the Pleuroceridae. After careful investigation of the matter, I am convinced that the type-species by monotypy of the gastropod genus Pleurocera, the only "originally included species" available for designation as type-species under the International Code of Zoological Nomenclature, is Pleurocera verrucosa Rafinesque, 1820.

I therefore strongly object to the proposal (Bull. Zool. Nom., 33 (pt. 2), p. 65 ff.) to set aside this type-species and substitute Pleurocera acuta Rafinesque, 1831, which is currently recognized as belonging to a different generic group, as the officially sanctioned type-species of Pleurocera.

If our system of zoological nomenclature is to be durable and flexible enough to continue to describe the changing taxonomic concepts of the biological relationships among animal populations, then it is essential that that nomenclatorial system be based on an internally consistent, objective, workable Code. The system of generic names based on type-species, using the Law of Priority, appears to me to be an admirable attempt to do just this.

Every time the Code is deliberately weakened by the ICZN's exercise of its Plenary Powers to preserve a name or combination which is in violation of the Law of Priority, the Code's value is weakened and another "monkey wrench" is thrown into the system of zoological nomenclature. The change of a currently-accepted name which is in error will cause confusion to some who have been following the erroneous usage; but the use of the Plenary Powers to officially endorse the error will ultimately cause even more confusion to future workers.

The perpetuation of the error of excluding Pleurocera verrucosa Rafinesque, 1820, from the genus Pleurocera, of which it is the legitimate type-species, would surely be a gross abuse of the Plenary Powers of the Commission.

There has never been any argument about the identifiability of Rafinesque's species verrucosa. It is widely accepted and in common use in malacological literature. The problem is that Tryon (Proc. Acad. Nat. Sci. Phila. for 1863: 306-321) used the generic name Pleurocera as a subgenus of Io Lea, 1831, for a group of species which did not include the type-species, verrucosa. In 1865 (Amer. Jl. Conch., 1: 97-135) Tryon repeated the earlier nomenclatorial error and this time expressly excluded verrucosa from the group he called Pleurocera!

In 1912, Hannibal (Proc. Malc. Soc. London, 10: 169) correctly pointed out that the genus Pleurocera must be dated from 1820, with the first described species, verrucosa, as the monotype (i.e., type-species by monotypy). Even though, under the Code as it stands today, this designation was "clearly unnecessary" (Melville, 1976, Bull. Zool. Nom., 33: 106), most subsequent workers in the field continued to use Pleurocera for the acuta/canaliculata group, excluding verrucosa from it.

In 1917, Pilsbry (Nautilus, 30: 110) reiterated the correctness of Hannibal's recognition that verrucosa is the legitimate type-species of Pleurocera. According to Melville (Bull. Zool. Nom., 33: 107), Pilsbry later changed his opinion and argued in favor of retaining Tryon's [erroneous] usage because "usage favored P. acuta and...most workers had ignored Hannibal's paper."

Acting for the ICZN, Stiles "collected various expressions of opinion from specialists to the effect that P. verrucosa must be the type under the Code" in 1928 (Bull. Zool. Nom., 33: 107). Thus, in 1928, there were specialists who recognized verrucosa, not acuta, as the legitimate type-species of Pleurocera.

In 1951, Hemming (Bull. Zool. Nom., 2: 6-17) again collected opinions and literature showing that despite the evidence presented by Hannibal (1912) Pilsbry (1917), and others, most malacologists were continuing to follow Tryon's erroneous usage of Pleurocera for the acuta/canaliculata group, placing verrucosa in a completely different genus. However, Dr. Harald A. Rehder, stating that the views expressed in his memorandum also represented the views of Dr. Paul Bartsch and Dr. J.P.E. Morrison, very eloquently argued the case for retaining Pleurocera with verrucosa as the type. He observed, "The original generic diagnosis by Rafinesque (Amer. Monthly Mag. 3 (5) 355, Sept. 1818) is sufficiently broad and general to cover both P. verrucosa Rafinesque and acuta Rafinesque. Walker's principal argument (Occ. Papers Mus. Zool. Mus. Univ. Michigan, No. 38, 1917) is therefore based on a faulty premise."

Rehder noted further that the early European workers considered Pleurocera Raf. a genus of doubtful position, and the name Ceriphasia Swainson came to be adopted for the acuta/canaliculata group. Gill, in 1863, equated Pleurocera with Goniobasis Lea. Tryon, in 1863, according to Rehder, was the first worker to apply Pleurocera Raf. to the canaliculata Say group (the same as the acuta Raf. group), and he was generally followed by all subsequent writers except Hannibal (1912) and Pilsbry (1917), "both of whom used Pleurocera correctly."

Rehder stated:

"It is my opinion that we should adhere to the rules in this case, and that Pleurocera should stand, with verrucosa Rafinesque as type:--

(1) I am in favor of suspending the rules only in exceptional cases, where, for instance, the names cover large or world-wide groups with a long nomenclatorial history, or where the groups in question play an important role outside of the purely taxonomic field, in medicine (parasitology) for instance, or economic geology (stratigraphy, oil geology, etc.).

(2) The genera concerned here are relatively small and restricted. If we follow the rules, Pleurocera will replace Angitrema Haldeman, a group of about ten species inhabiting a small circumscribed area from southern Indiana and Illinois through Kentucky and Tennessee to the northern part of Alabama.

(3) The whole subfamily is sadly in need of revision, and, when this is done, its classification will be considerably altered, and changes in the names of genera and their limits will have to be made anyway. One of the members of our staff is undertaking this problem now. There are several other valid names of Rafinesque, not now generally accepted, which will have to be used for certain groups in this subfamily.

(4) We can, I believe, arrive at a greater stability in nomenclature by keeping exceptions to the rules at a minimum. Suspensions set a precedent and I am afraid that, if any leniency in this respect is shown, a flood of requests for suspension to the rules will ensue which, if accepted, will result in greater uncertainty and confusion than stability in nomenclature.

We must remember that our personal preferences and habits as far as the use of certain names goes, should play little part in this question, for there are generations still to come who will not know these prejudices."

Despite the arguments so clearly put forth by Rehder, Bartsch, and Morrison, Hemming proposed to officially sanction the erroneous Tryonian usage over the objections of those who believed the Rules should be strictly applied.

In 1954, Morrison (Proc. USNM, 103: 357-394) presented the results of his extensive anatomical and taxonomic studies of the "melanian" snails of the world, including the North American pleurocerid snails. He documented the reasons for the generic nomenclature he used, based on his studies and the Law of Priority, and was very careful to follow the Code in applying the oldest available name to each genus he recognized.

In the case of Pleurocera, Morrison again pointed out that it became monotypic in 1820 with the valid publication by Rafinesque of Pleurocera verrucosa, and reiterated that "Tryon in 1864 and 1873 did not include the genotype in his usage, so his usage was biologically and nomenclatorially wrong."

In 1960 you (Melville, Bull. Zool. Nom., 17: 170-174) again reviewed the case of Pleurocera and again pointed out that the Rules, if strictly applied, would designate verrucosa, not acuta, as the type-species of Pleurocera. Even though Dr. Morrison again recommended that this course be taken, the opinion of most malacologists who wrote to the ICZN favored maintaining acuta as the type-species, and another proposal to exercise the Plenary Powers to suppress verrucosa in favor of acuta as the type-species was made.

In the present proposal (Melville, Bull. Zool. Nom., 33), the same recommendation is made on essentially the same evidence.

The arguments which have been advanced in favor of using the Plenary Powers to suppress verrucosa and to designate acuta as the type species of Pleurocera are basically three:

First, it is claimed that P. verrucosa Rafinesque, 1820, does not fall within the limits of one or more of Rafinesque's generic descriptions of the genus Pleurocera, and therefore under Opinion 46 of the ICZN should be excluded from the genus of which it is the type-species by monotypy.

This is a subjective judgment. From an objective viewpoint, Rafinesque evidently considered that verrucosa fell within the limits of his genus Pleurocera as he conceived of it in 1820, since he listed verrucosa as a Pleurocera and since for 11 years it was the only described species in that genus.

At the Sixth Meeting of the International Commission on Zoological Nomenclature in Paris during July, 1948 (Bull. Zool. Nom., 4: 159-160), it was pointed out in discussion that of all the Opinions rendered by the Commission, Opinion 46, more than any other, had given rise to confusion and difficulty.

"In further discussion it was agreed that the section of Opinion 46 requiring that a species to be eligible for selection as a type species must be 'recognized from' or 'come under' the original generic description was not only in contradiction with the later provision (that 'the first species published in connection with the genus becomes ipso facto the type') but also offended against the principle...that the Règles should be based as far as possible on objective nomenclatorial facts and that their application should be independent of the subjective taxonomic views of individual workers. The first of the provisions in Opinion 46 had been found unworkable in practice. By far the best course therefore

would be to delete the first part of the decision in Opinion 46, which, through the subjective character of the rule so laid down, was incapable of securing stability in the nomenclature of the genera concerned. Once this had been done, the remaining portion of the decision in Opinion 46, namely that the first species to be cited in connection with a genus originally established without any clearly specified included species was to be accepted as the type species would constitute a rule that was clear, objective and easy to operate.

"The Commission agreed:--

(1) to recommend that words should be inserted in the Règles to make it clear that, where, prior to 1st January 1931, a generic name was published for a genus established (a) with an indication, definition or description (b) with no nominal species distinctly referred to it, the first nominal species to be subsequently so referred to it by the same or another author is to be deemed to have been an originally included species and that species automatically becomes the type species of the genus in question;

(2) to cancel the decisions embodied in Opinion 46, other than the decision proposed in (1) above to be incorporated in the Règles."

The second argument put forth in the case of Pleurocera is that to go back to the use of verrucosa as the type-species would "upset things" and would "cause confusion." Dr. Rehder has very capably answered this objection, as quoted above. As a member of one of the "generations still to come" when Rehder's letter was published in 1951 and Morrison's monograph was published in 1954, I find it quite incomprehensible that there is still any argument that "personal preferences and habits as far as the use of certain names" should be sanctioned over the many clear demonstrations of the legitimacy of verrucosa as the type-species in this case.

Certainly Rafinesque will never win any popularity contests for his work as a taxonomist. However, his writings are an established part of the literature of American natural history, not only in malacology, but also in other branches of botany and zoology. In most cases, those taxonomists in other fields who have honestly and sincerely delved into Rafinesque's writings, carefully studying his descriptions and figures, have frequently been able to recognize the taxa he described, and have given him credit for them.

The noted ichthyologist David Starr Jordan, in 1878 (Rept. Ohio Geol. Surv., 4: 740) made the following comments on Rafinesque's Ichthyologia Ohiensis:

"This singular work has been for several reasons a stumbling block in the progress of the study of American Ichthyology. This has been

partly owing to errors of observation on the part of the author, partly to the admixture of statements derived from memory, imagination, or hearsay with statements of fact, and, finally, in no slight degree to the fact that Rafinesque's accounts were taken from the living fishes, and hence were not to be readily interpreted by workers in the closet with preserved specimens.

"The difficulty of obtaining the volume, and the fact that several writers of authority, especially the French and English, have set the bad example of ignoring Rafinesque's works altogether, because in their limited knowledge of the local fauna, they have be[en] unable readily to determine his species, have also helped to cause confusion."

In the same work, Jordan also notes that Rafinesque's work was well summed up by Professor Agassiz (*Amer. J. Sci. & Arts*, 1854: 354):

"Nothing is to be more regretted for the progress of natural history in this country than that Rafinesque did not put up somewhere a collection of all the genera and species he had established, with well-authenticated labels, or that his contemporaries did not follow in his steps, or at least preserve the tradition of his doings, instead of decrying him and appealing to foreign authority against him. Tracing his course as a naturalist during his residence in this country, it is plain that he alarmed those with whom he had intercourse, by his innovations, and that they preferred to lean upon the authority of the great naturalist of the age, then residing in Europe, who, however, knew little of the special history of this country, than to trust a somewhat hasty man who was living among them, and who had collected a vast amount of information from all parts of the States, upon a variety of objects then entirely new to science. From what I can learn of Rafinesque, I am satisfied that he was a better man than he appeared. His misfortune was his prurient desire for novelties and his rashness in publishing them, and yet both in Europe and America he has anticipated most of his contemporaries in the discovery of new genera and species in those departments of science which he has cultivated most perseveringly, and it is but justice to restore them to him, whenever it can be done."

Taxonomists in ichthyology, botany, and many other fields have grappled with Rafinesque's descriptions in their specialties and have long ago given him recognition for the many forms he originally described.

It is unfortunate that so few malacologists have as yet undertaken the tedious, time-consuming, frustrating, and unappreciated task of studying Rafinesque's writings in this field. The majority of malacologists have largely ignored most of Rafinesque's writings. They have also chosen to ignore the conclusions of those few scholars who did undertake the careful study of Rafinesque's descriptions.

Rafinesque's writings are not always easily interpreted. His illustrations are few and generally are caricatures of the taxa he describes. Nevertheless, his early descriptions do have priority over virtually all other published descriptions of North American freshwater mollusks except those described by Say in 1817 and by Lamarck in 1819.

The third argument which has been proffered in favor of using the Plenary Powers to designate acuta Raf., 1831, as the type-species of Pleurocera is that Pleurocera has been so universally used for so many years to refer to the acuta-group (which is not now generally regarded as congeneric with the verrucosa-group) that it would change a nomenclatorially-linked generic concept of long standing.

Viewing the evidence objectively, it is obvious that Rafinesque's concept of his genus Pleurocera was broad enough to include both verrucosa and acuta. Since his time, concepts of generic boundaries among the pleurocerids have changed many times. As Dr. Rehder pointed out in 1951 (see above), the whole subfamily is sadly in need of revision, and several other valid names of Rafinesque, not now generally accepted, will have to be used for certain groups in it. Even today, after Morrison's 1954 revision of the family, it is probable that no two specialists working in the group are in full agreement as to the generic grouping which best reflects the current information on the taxonomic affinities of the various species. There is still considerable disagreement on the delineation of species, as well as genera. Dr. William J. Clench has spent several years preparing a catalogue of pleurocerid names, which should be published soon. This will be a monumental step toward establishing a solid foundation for the nomenclature of the group. I hope that my continuing studies in this group of gastropods will bring forth new evidence which will provide a better understanding of their taxonomic relationships.

In my training as a scientist, I have been taught that even the most widely held concepts, hypotheses, theories, and even "natural laws" are subject to testing. If, when tested, they prove to be in error, they must be rejected or modified. One does not invoke any Plenary Powers to change the facts in order to preserve a widely accepted but erroneous belief. Rather, a scientist is expected to modify his concepts to fit the evidence at hand.

The three proposals which have been made to preserve the erroneous usage of acuta as the type-species of Pleurocera, in spite of the repeated efforts of several taxonomists over some seven decades to correct this invalid designation, make it appear that in the field of zoological nomenclature decisions are to be made on the basis of majority rule, not on the basis of objective evidence. Surely this is not the best way to achieve a truly workable, solidly-based nomenclature in zoology! Nor is it a way to gain respect for the Code.

The proposal to place the generic name Lithasia Haldeman, 1840, on the Official List of Generic Names in Zoology appears to be unnecessary, since

Lithasia's type-species by monotypy, geniculata Haldeman, 1840, is generally considered to be congeneric with Pleurocera verrucosa Rafinesque, 1820, the legitimate type-species by monotypy of the genus Pleurocera Rafinesque, 1820. Lithasia, therefore, is a junior synonym of Pleurocera.

Dr. George M. Davis (Federal Register, 42: 2507, enclosed) has "recognized a cline of intergradation" and has accordingly placed verrucosa Rafinesque, 1820, geniculata Haldeman, 1840, and armigera Say, 1821 [= Ellipstoma gibbosa Rafinesque, 1818], and other species all into the same genus with Fusus fluvialis Say, 1825. Davis refers to this combined genus by the name Io Lea, 1831, whose type-species by monotypy is Io fusiformis Lea, 1831 [= Fusus fluvialis Say, 1825].

In the Alabama paper (Stein, 1976, enclosed), I gave the erroneous date Pleurocera (Ellipstoma) gibbosa (Rafinesque, 1820). Actually, Ellipstoma gibbosa was described in 1818, a few months after the first description of Pleurocera, according to the Binney and Tryon reprint of Rafinesque's works.

Pleurocera in 1818 was described without any described species; but Ellipstoma included three species described in the second 1818 paper: E. gibbosa, E. zonalisa, and E. rugosa. Hannibal (1912: 168) designated E. gibbosa Raf. as the type-species of Ellipstoma. Morrison (1954: 363) has correctly pointed out that the original description of E. gibbosa ("4 spires, a large knob behind the outward lip. From the Ohio and Wabash, length half an inch.") can refer only to the species later described as Melania armigera Say, 1825. The specimen Rafinesque had in hand evidently was a young individual.

If a genus dates from the time of its first description, and not from the time when the first recognizable species was placed in it, or from the time when a type-species was first designated for it, then Pleurocera Rafinesque, dated from 1818, should stand.

If Pleurocera verrucosa and Ellipstoma gibbosa prove to be congeneric, and if a generic name does not date from the time it was first used when that usage does not include a described species, then it appears to me that Ellipstoma would have priority over Pleurocera.

If it can be demonstrated that fluvialis Say, 1825, the type-species of Io Lea, 1831, is congeneric with verrucosa Raf. and/or gibbosa Raf. (= armigera Say), then it appears to me that the name Io must be considered a junior synonym of Pleurocera and/or Ellipstoma.

Sincerely,

Carol B. Stein, Ph.D.  
Curator of Gastropods

CBS/ds  
Enclosures