

PSEUDOCARDIA CONRAD, 1866, A DISREGARDED NAME IN CARDITIDAE

A. MYRA KEEN

STANFORD UNIVERSITY,
STANFORD, CALIFORNIA

Timothy Conrad, although a respected and knowledgeable paleontologist of the last century, was at times criticized by other authors for carelessness in some of his publications.* His enigmatic proposal of the generic name *Pseudocardia*, in an article on new taxa of Recent and fossil mollusks, is an example. Between a paragraph on the family Cyprinidae and one on Mytilidae, Conrad (1866, p. 103) had this:

CARDITIDAE.

PSEUDOCARDIA, Conrad.

C. Smidti, Horn, *C. Hungaricum*, H., *C. Mageri*, H., *C. Hauei*, H., *C. apertum*, Munster, *C. conjugens*, Partch., *V. Neocomiensis*, D'Orb., *V. quadrata*, D'Orb., *V. tenuicostata*, Zittel, *V. Dupiniana*, D'Orb., *V. constantii*, D'Orb., *V. cottaldina*, D'Orb., *V. dubia*, Sowerby. A genus which became extinct in the upper Cretaceous Period.

No specific name was given in full. Nor was there any description of the genus *Pseudocardia* — only the statement that it was of Cretaceous age. One might logically assume the "C." names to be intended as species in *Cardita*, but no such Cretaceous species have yet been identified by authors. Another interpretation will be discussed below. The "V." names can all be recognized under *Venericardia*, a carditid genus, in the literature on the European Cretaceous. Some authors at that time used the names *Cardita* and *Venericardia* interchangeably.

Three years later Conrad supplied (1869a, p. 246) a clue to his concept of *Pseudocardia*. First he pointed out that the name might prove to be preoccupied by *Pseudocardium* Gabb, 1866, which had priority, and if so he proposed *Vetocardia* as a replacement. Then he gave a few lines of description, although he still cited no specific name completely. His statement, ". . . the genus is evidently nearly related to *Astarte*, though d'Orbigny refers it to *Venericardia*", lends

support to that interpretation of the "V." names in his list.

Stoliczka (1871, p. 283), discussing *Pseudocardia*, commented: "Conrad called some of the Cretaceous species at first *Pseudocardia*, for which he subsequently substituted *Vetocardia*, as the type of which *Venericardia dupiniana* d'Orb. can fairly be taken." Most later workers have accepted this as a valid type designation. Cox (1946, p. 37, note), for example, wrote: "Stoliczka selected *Venericardia dupiniana* d'Orbigny as type," and Eames (1951, p. 342) said: "*Pseudocardia* Conrad, 1866 . . . type species: *Venericardia dupiniana* d'Orbigny, Cretaceous; Stoliczka, 1871." According to Article 69 (a)(iii) of the ICZN Code, ". . . an author is considered to have designated one of the originally included nominal species as type-species if he states that it is the type, for whatever reason, right or wrong, and if it is clear that he himself accepts it as the type-species." This provision in the Code would seem to be definitive for fixing *V. dupiniana* as type, either by Stoliczka's designation or by Cox' later acceptance of it.

The late André Chavan, reviser of the *Carditacea* for the "Treatise on Invertebrate Paleontology" (Chavan in Moore, 1969), did not, however, accept Stoliczka's designation as valid, for he regarded it as made in an ambiguous or qualified manner, rejectable under Article 67 (c) of the Code. He also did not accept the designations by Cox and by Eames, considering that they merely reflected Stoliczka's "somewhat casual mention of *Venericardia dupiniana*" (*ibid.*, p. N-553). Instead, Chavan read the "C." names as *Cardium* and selected as type the first nominal species, which he characterized as, "presumed to be an erroneous citation of *Cardium schmidtii* Hörnes." He may well have been correct in surmising that the "Horn" of Conrad's "C." list might be a misspelling of "Hörn." [i.e., Hörnes]. In 1851 Moriz Hörnes had begun a large monograph on the fossil mollusks of the Vienna Basin, and by 1861 he had gotten up to the genus *Cardium*. Among the 30 species of this genus that he discussed, the

*A brief account of Conrad's life and a perceptive explanation for the apparent carelessness is given by Ellen J. Moore (1962, pp. 25-27).

six "C." names listed by Conrad can be recognized, (with a few minor spelling errors) as Hörnes' numbers 16, 17, 19, 22, 26, and 30 (in that order). Even if, however, Stoliczka's designation were invalid, Chavan's choice would be ill-advised, for Hörnes' species is a late-Tertiary form, which would make that selection contravene the single requisite of Conrad's original proposal: that *Pseudocardia* is a Cretaceous genus. Chavan in 1951 (p. 112) designated *Cardita dupiniana* as the type species of a new nominal taxon, *Ludbrookia*. This usage he continued in the "Treatise," only making the concession, in the face of protests by colleagues, that *Pseudocardia* might be relegated to the status of "genus dubium." (Chavan, 1969, p. N-558).

Why would Conrad have bracketed the Tertiary *Cardium* species with the very different Venericardias he was placing in *Pseudocardia*? May it not be that, obviously having studied Hörnes' work, Conrad had sensed that there was here among the *Cardiums* an unrecognized generic taxon and that he had started to propose a name for it, selecting from among Hörnes' 30 species six that were to be included in the new group? Surely he would have headed such a paragraph "Cardiidae," for it is hard to believe that as astute a paleontologist as he would have allocated species of Tertiary *Cardiidae* into his new unit of Cretaceous *Carditidae* — surely not the Conrad who was at that very period, by virtue of his detailed knowledge of molluscan morphology and geological succession, successfully challenging Gabb's stratigraphic conclusions on a part of the California Cretaceous. The cardiid unit was indeed a good candidate for generic recognition, and it actually was given a name a few years later: *Lymnocardium* Stoliczka, 1870. Stoliczka designated as type species *Cardium haueri* Hörnes, which had been one of the names in Conrad's "C." list. If this conjecture about Conrad's intention is correct, then he must have decided subsequently not to propose the cardiid unit and have deleted any discussion he had prepared. But the list of species did not get crossed out, and a typesetter may have been the one who incorporated it in an adjacent paragraph. Evidently Conrad did not notice this in the proofs, if proofs there were, but his carelessness shows up by his not having detected the error after

publication and by not having called attention to it either in his next note on *Pseudocardia/Vetocardia* or later.

There was no ICZN Code with its clear definition of homonymy in Conrad's day. Under the provisions of the modern Code, *Pseudocardia* is available. Although he had proposed *Vetocardia* only tentatively, Conrad seems soon to have decided to abandon *Pseudocardia*. He set the stage for confusion in a second discussion of *Vetocardia* (1869b, p. 48). Here he elaborated on the description, repeating a part of the earlier one but adding details on the hinge of the opposite valve from a specimen he had just received. He identified the new find as his earlier-named species *Astarte crenalirata* Conrad, 1860, which he now allocated to *Vetocardia*. Again he characterized the genus as known only in Cretaceous strata. Later (1872, p. 52) he added yet another complication by emending *Vetocardia* to *Vetericardia* because of a supposed error. Such emendation is not allowable under the present ICZN Code, for Article 32 (a)(ii) requires that any error be detectable in the original proposal. Conrad, not having indicated his reason for choice of the name, would have had no evidence to prove that he had made a mistake in his spelling.

Stephenson (1941, p. 175), not realizing that the reference he was citing (Conrad, 1869b) was not Conrad's first proposal (1869a) of the generic name *Vetocardia*, designated *Astarte crenalirata* as type-species of *Vetericardia* (= *Vetocardia*). He was unaware that this species was not in Conrad's original list. For the taxon Stephenson was trying to recognize, which is indeed a distinct unit morphologically, Chavan supplied another name, *Vetericardiella* (Chavan in Moore, 1969, p. N-552).

Confusion has continued, and the unneeded generic name *Ludbrookia* is finding its way into the literature on Cretaceous carditids (e.g., Scott, 1977) because of its seemingly legitimate use in the "Treatise."

Even at the time the "Treatise" revision appeared, there was available another assessment of carditid taxonomy, a compilation done independently by H. E. Vokes (1967, p. 257). Here Vokes listed *Pseudocardia* Conrad as the valid name for a carditid unit, with *Vetocardia*, *Vetericardia*, and *Ludbrookia* as synonyms.

One may well ask what action now would best promote nomenclatural stability. Chavan was unwilling to petition the ICZN for suppression of *Pseudocardia*. Under the present rules, it is not a homonym of *Pseudocardium*, differing by more than one letter, and it also differs by the necessary one letter from *Pseudocardita* Oppenheim, 1918, a group in Cardiacea. Although *Pseudocardia* has not been used for the last century as a generic name, it does not qualify as a *nomen oblitum* (forgotten name), nor do the two satellites *Vetocardia* and *Vetericardia*, for authors have been aware of them, and all have been senior to the junior synonym *Ludbrookia* much less than the required 50 years. Suppressing the three in favor of *Ludbrookia* would be an easy way out of the dilemma, but that course might be less than acceptable to the ICZN Commission. In the matter of the type-species of *Lucina* (Opinion 1095, Nov. 1977), the Commission rejected an attempt to give legal status to another of Chavan's taxonomic usages. Their ruling made clear that mere convenience does not justify use of the plenary powers when the basic issue involves a misapplication of the provisions of the Code.

The following synonymy therefore is suggested here for the names discussed. It is congruent with the published recommendations of Vokes (1967).

Family CARDITIDAE

- PSEUDOCARDIA* Conrad, 1866 (Apr.) [type species, *Venericardia dupiniana* Orbigny, 1843 (plate expl.) = *Cardita dupiniana* Orbigny, 1844 (text); SD Stoliczka, 1871 (accepted by Cox, 1946)] [= *Vetocardia* Conrad, 1869 (*nom. van.*); *Vetericardia* Conrad, 1872 (*nom. van.*); *Ludbrookia* Chavan, 1951 (obj.; OD)]. [Not to be confused with *Pseudocardium* Gabb, 1866 (Mactracea) nor with *Pseudocardita* Oppenheim, 1918 (Cardiacea)].
- VETERICARDIELLA* Chavan in Moore, 1969 [type species, *Astarte crenalirata* Conrad, 1860; OD]. [= "*Vetericardia* Conrad" of Stephenson, 1941, not of Conrad, 1872].

Superfamily CARDIACEA Family LYMNOCARDIIDAE

- LYMNOCARDIUM* Stoliczka, 1870 [type species, *Cardium haueri* Hornes, 1861; OD].
- PSEUDOCARDITA* Oppenheim, 1918 [type species, *Cardium bukowskii* Oppenheim, 1918; SD Keen, 1937].

Superfamily MACTRACEA

Family MACTRIDAE

- PSEUDOCARDIUM* Gabb, 1866 (Feb.). [type species, *Cardium gabbii* Rémond, 1863 (= *Mulinia densata* Conrad, 1857); M].

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