

Studies on Cardiidae. 5.<sup>1</sup>

The taxa introduced by E. Fischer-Piette in 1977 in his "Révision des Cardiidae"

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As part of our study concerning the recent Cardiidae we discuss the taxa introduced by E. Fischer-Piette in his "Révision des Cardiidae". We here comment upon all newly introduced taxa and on some of the species illustrated.

Key words: Bivalvia, Cardiidae, Fischer-Piette, systematics.

PREFACE

In 1977 Edouard Fischer-Piette (1899-1988) published his "Révision des Cardiidae". The paper treated 160 species, of which nine were proposed as new. One new genus was proposed, *Decussicardium*. It later proved to be one of his last publications, with only a few to follow. Fischer-Piette left, after his death in 1988, a total of more than 300 published papers on various subjects (Backhuys, 1990). His major field of interest was that of the marine Bivalvia, on which he published several papers.

As stated by Fischer-Piette himself, the family Cardiidae was largely neglected in the literature for a long time, the latest publication dealing with the family as a whole being that of Tryon (1872). Fischer-Piette's revision, although clearly meant to be the 'final' work on the subject, is neither complete nor perfect enough to serve that purpose. The author had no extensive knowledge of Cardiidae systematics and no overall insight on intra-generic relationships. The systematics used by Fischer-Piette, neither being conform any generally accepted system nor showing any sign of consistency, can only euphemistically be called unorthodox.

To make Fischer-Piette's work more useful, we decided to comment upon all newly introduced taxa, of which we were able to study the types during our visit to the Muséum National d'Histoire Naturelle, Paris, in 1988, and to comment upon some specimens illustrated under an incorrect name.

We hereunder treat the taxa in numerical sequence, using Fischer-Piette's original reference numbers. We decided only to figure those species which were illustrated by Fischer-Piette as rather poor quality drawings and some others when comparison with related taxa proved to be necessary. All other species were illustrated well enough in the original diagnosis.

The following abbreviations are used: BM(NH) - British Museum (Natural History), London, Great Britain; MHNP - Muséum National d'Histoire Naturelle,

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Paris, France; NNM - Nationaal Natuurhistorisch Museum, Leiden, The Netherlands; NMW - National Museum of Wales, Cardiff, Wales, Great Britain.

## SYSTEMATIC PART

### 6. *Microcardium williami* Fischer-Piette

*Microcardium williami* Fischer-Piette, 1977, was unnecessarily introduced as a nomen novum for *Protocardia panamensis* Dall, 1908. *Protocardia panamensis* is neither a primary homonym of *Cardium panamensis* Sowerby in Broderip & Sowerby (1833: 85) nor a secondary homonym, as the former must be considered a *Microcardium* and the latter a *Trachycardium*. *Microcardium williami* should thus be considered a junior synonym of *Microcardium panamense* (Dall, 1908)

### 22. *Laevicardium soyeri* Fischer-Piette

*Laevicardium soyeri* was based by Fischer-Piette (1977: 19-20, pl. 1 figs. 4-7) upon a series of four specimens: the holotype, from Corsica, and three paratypes without provenance. The type-material of *Cardium unicolor* Sowerby, 1834, is very similar to that of *Laevicardium soyeri*, as we could verify during our stay in the BM(NH) and we are convinced that it is the same species. We figure both the holotype of *Laevicardium soyeri* (fig. 1) and a syntype of *Cardium unicolor* (fig. 2), the latter shell which we hereby select as lectotype, measuring  $45 \times 37.5 \times 28$  mm and having 49 ribs.

### 24. *Laevicardium interrogatorium* Fischer-Piette

Described by Fischer-Piette (1977: 21, pl. 2 fig. 1) on a specimen from the Jousseau collection. The type locality is California, but Fischer-Piette already expressed his doubts about this locality. As indicated by Kafanov (1980: 309), *Laevicardium interrogatorium* Fischer-Piette, 1977, is a junior synonym of *Cardium californiense* Deshayes, 1839, and should be placed in *Keenocardium* Kafanov, 1974, a subgenus of *Clinocardium* Keen, 1936. *Cardium californiense*, despite its name, is a northern species and does not occur in California, which casts doubt upon the type locality of *Laevicardium interrogatorium*.

### 29. *Laevicardium nemo* Fischer-Piette

A name introduced by Fischer-Piette (1977: 24, pl. 2 fig. 2) for a poorly preserved right valve without provenance. It was compared with *Laevicardium clarionense* (Hertlein & Strong, 1947), with which it is, in our opinion, not closely related, because it is smaller, has a more oblique shell and a much finer crenulated inner margin. The state of preservation of the shell suggests that it is a fossil. The comparatively conspicuous rib sculpture and rounded outline of the shell suggest a closer relationship with the European *Laevicardium* species, viz. *L. oblongum* (Gmelin, 1791) and *L. crassum* (Gmelin, 1791). We consider *Laevicardium nemo* Fischer-Piette, 1977, a nomen dubium.

35. *Laevicardium tertium* Fischer-Piette

Validly proposed as a nomen novum for *Cardium fragile* Sowerby (1840: fig. 68) (non Forskål, 1775; nec Röding, 1798; nec Brocchi, 1814; nec Melleville, 1843; nec Reeve, 1845; nec Haren-Noman, 1881; nec Coen, 1917). The type illustration suggests that it belongs in the genus *Fulvia* Gray, 1853. During our visit to the BM(NH) we were not able to trace the type of *Cardium fragile*. Ms K. Way [BM(NH)] told us that the whereabouts of the Stainforth collection, from which the species was described, are unknown and that it is highly probable that the type is lost. *Cardium fragile* Sowerby, 1841, must therefore be considered a nomen dubium.

49. *Laevicardium (Vepricardium) rudentis* Fischer-Piette

Proposed by Fischer-Piette (1977: 41, pl. 3 figs. 1-2) on material (holotype and a paratype) collected off West Africa, most probably Mauritania. As we discussed before (Voskuil & Onverwagt, 1989: 52), the type material appears fossil, and clearly belongs to *Orthocardium* Tremlett, 1950, an extinct subgenus of *Vepricardium* Iredale, 1929. As we do not have sufficient knowledge of this fossil group, it is impossible for us to judge the validity of *Vepricardium (Orthocardium) rudentis* (Fischer-Piette, 1977) at the moment.

58. *Laevicardium (Trachycardium) philippinense* (Deshayes) Shirley

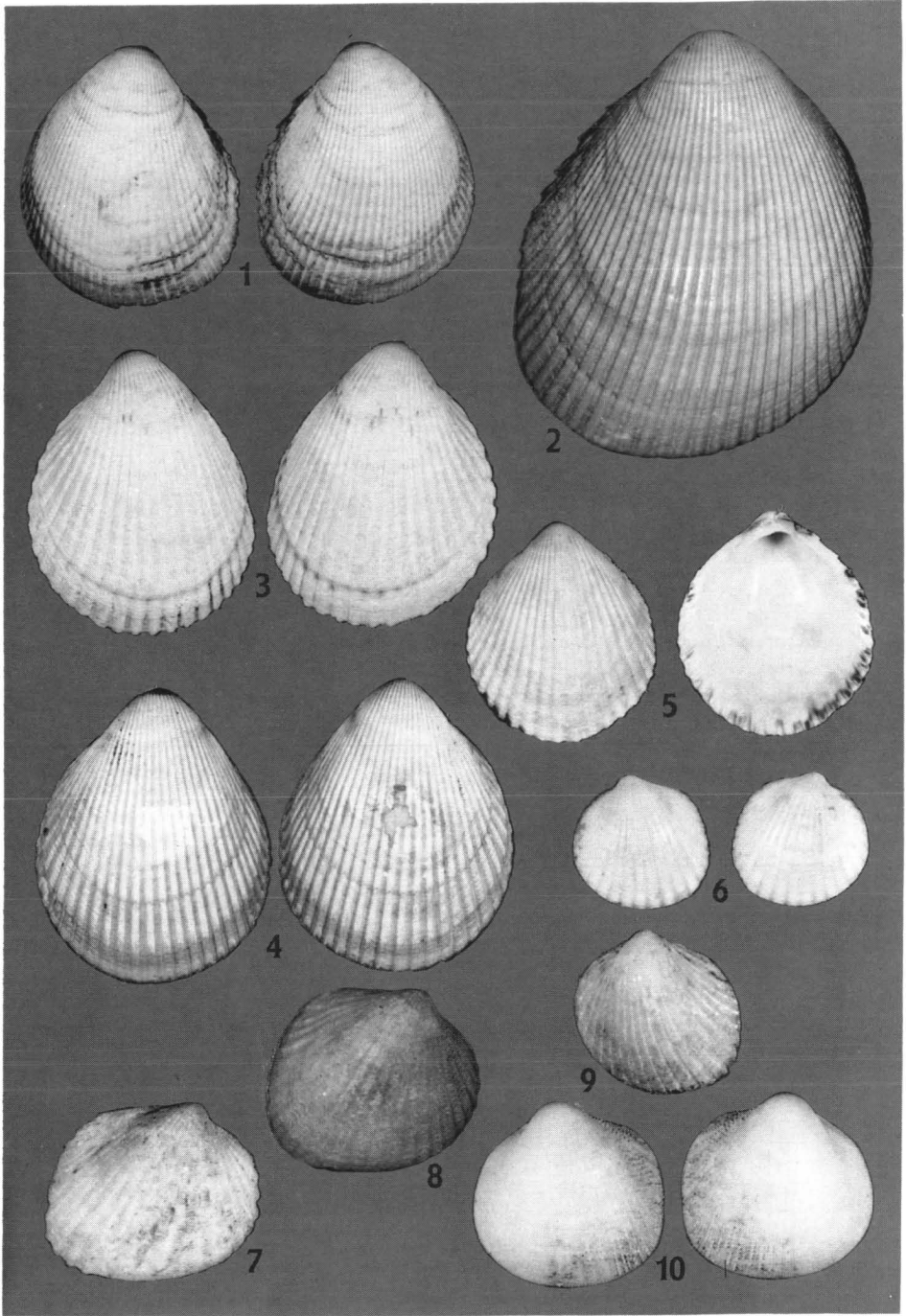
The specimen illustrated under this name by Fischer-Piette (1977: pl. 3 fig. 4 and pl. 4 fig. 1) clearly belongs to *Trachycardium orbita* (Broderip & Sowerby, 1833), which he also described under no. 38 on page 34. Deshayes never described a *Cardium philippinense* and the name should be attributed to Shirley (1912: 95), as done correctly by Fischer-Piette. Although this species is more common in the central Pacific Ocean, it is distributed also in the Central Indo-West Pacific, which might be the reason for recognizing *C. philippinense* as a distinct species.

63. *Laevicardium (Trachycardium) senticosum* Sowerby

Although Fischer-Piette indicated to be quite certain about his identification of the species in his description of *Laevicardium senticosum*, he clearly made an incorrect identification. The specimen illustrated under this name (pl. 4 fig. 3 and pl. 5 fig. 1) belongs to *Trachycardium quadragenarium* (Conrad, 1837), the type species of *Dallocardia* Stewart, 1930. This species is more northern in origin and can attain much larger dimensions than *Cardium senticosum* Sowerby in Broderip & Sowerby, 1833, a species which can also be assigned to *Dallocardia*.

64. *Laevicardium (Trachycardium) thielei* Fischer-Piette

Fischer-Piette (1977: 55) correctly proposed this name as a nomen novum for *Cardium radula* Thiele & Jaekel, 1931 (non Deshayes in Bory de St. Vincent, 1832; nec Broderip & Sowerby, 1829). Although he was correct about *Cardium radula* Thiele & Jaekel (1931: 227, pl. 9 fig. 99) not being available, he overlooked the fact that both *Cardium exochum* Melvill, 1906, and *Cardium infantile* Nomura & Zinbo, 1934, are senior



synonyms of the same species. Its correct generic placement is in the genus *Afrocardium* Tomlin, 1931. Thus *Laevicardium thielei* Fischer-Piette, 1977, is a junior synonym of *Afrocardium exochum* (Melvill, 1906).

#### 69. *Laevicardium (Trachycardium) couvrili* Fischer-Piette

Fischer-Piette (1977: 57, pl. 5 fig. 2) introduced this species on a single specimen, dredged at a depth of 20 m off Gabon in 1964. As indicated before (Voskuil & Onverwagt, 1989: 52), we doubt this provenance. *Laevicardium couvrili* is very close to the Indo-Pacific *Trachycardium impolitum* (Sowerby, 1833), which has about the same number of ribs and the peculiar wedge-shaped shell, which is also found in *Laevicardium couvrili* Fischer-Piette and in *Trachycardium dampierense* (Wilson & Stevenson, 1977), from Western Australia. An additional argument for *L. couvrili* being of Indo-Pacific origin is that there are no other records known from off Gabon, of which country the marine molluscan fauna is reasonably well known. *Laevicardium couvrili* Fischer-Piette, 1977, should also be assigned to the genus *Trachycardium* Mörch, 1853. We figure the holotype of *Laevicardium couvrili* (fig. 3), a syntype of *Cardium impolitum* (fig. 4) (measuring 48 × 38 × 29.5 mm, with 38 ribs, which we hereby select as lectotype), and a specimen of *Trachycardium dampierense* (fig. 5).

#### 71. *Laevicardium (Trachycardium) gaillardi* Fischer-Piette

This species was introduced by Fischer-Piette (1977: 58, pl. 6 figs. 1-2) on a specimen from 'New Zealand'. Powell (1979: 412-413) recognizes only two Recent Cardiidae from New Zealand, viz. *Nemocardium pulchellum* (Gray in Dieffenbach, 1843) and *Corculum inexpectatum* (Crozier, 1966), and two more (1958: 76-77) from the Kermadec Islands, viz. *Trachycardium sorenseni* Powell, 1958, and *Nemocardium probatum* (Iredale, 1927) [= *Nemocardium bechei* (Reeve, 1847)]. For that reason, we consider the type locality of *Laevicardium gaillardi* doubtful. On the other hand, we do not know any senior name for the species under discussion. Therefore *Laevicardium gaillardi* must, for the time being, be considered a valid species in the genus *Trachycardium* Mörch, 1853.

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- ← Figs. 1-9. 1, *Laevicardium soyeri* Fischer-Piette, 1977, holotype, Corsica (MHNP). 2, *Cardium unicolor* Sowerby, 1841, lectotype, Ticao, Philippines [BM(NH) 1991.041/1]. 3, *Laevicardium couvrili* Fischer-Piette, 1977, holotype, coast of Gabon, depth 20 m (MHNP). 4, *Cardium impolitum* Sowerby, 1841, lectotype, China [BM(NH) 1991.042/1, Cuming colln.]. 5, *Trachycardium dampierense* (Wilson & Stevenson, 1977), Australia, Western Australia, Dampier, low tide, 1987 (R. Voskuil colln. 985). 6, *Cardium (Cerastoderma) iranjanense* Fischer-Piette, 1977, holotype, Madagascar, island near Nossi-Bé, Nosy-Iranja, leg. M. Plante, 1970 (MHNP). 7, *Cardium levisulcatum* E.A. Smith, 1903, lectotype, Maldives Islands [BM(NH) colln. 1903.9.14.44/1]. 8, *Parvicardium erugatum* (Tate, 1889), Australia, Western Australia, Dampier, off Black Beach, on sandbar (R. Voskuil colln. 1430). 9, *Corculum auri* Fischer-Piette, 1977, holotype, Gulf of Guinée, Gold Coast [Ghana?], 1°31'W-4°36'30"N, depth 50 m, Calypso Sta. 25 (MHNP). 10, *Nemocardium (Microcardium) gilchristi* (Sowerby, 1894), South Africa, Algoa Bay, depth 15 fms (Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels, Dautzenberg colln.) Actual length of the various specimens is as follows: (1) 42 mm, (2) 42 mm, (3) 46 mm, (4) 48 mm, (5) 24 mm, (6) 4.5 mm, (7) 14 mm, (8) 13 mm, (9) 5 mm, (10) 14 mm.

85. *Papyridea (Papyridea) hiulca* Reeve

Although Fischer-Piette correctly assigned *Cardium hiulcum* Reeve, 1845, to *Papyridea*, he illustrated (pl. 9 figs. 1-2) two specimens of the Indo-Pacific *Afrocardium richardi* (Audouin, 1827) under this name. *Papyridea hiulca* is a senior synonym of *Papyridea mantaensis* Olsson, 1961, as we could verify while studying syntypes of the former in the collection of BM(NH). The species is distributed in the eastern Pacific.

96. *Cardium (Cerastoderma) iranjanense* Fischer-Piette

Fischer-Piette described *Cardium iranjanense* (1977: 96-97, fig. 9) on material collected in 1970 at Nosy-Iranja, Madagascar. The type material consists of a complete specimen, the holotype, and three paratypes, all loose valves. *Cardium iranjanense* is a junior synonym of *Cardium erugatum* Tate, 1889. *Cardium levisulcatum* E.A. Smith, 1903), described from the Maldive Islands, is another junior synonym. We figure both the holotype of *C. iranjanense* (fig. 6), a syntype of *C. levisulcatum* (fig. 7) (a right valve with a length of 15 mm, which we hereby select as lectotype), and a specimen of *Cardium erugatum* Tate, 1889, from Western Australia (fig. 8). Its correct generic assignment is in the genus *Parvicardium* Monterosato, 1884.

99. *Decussicardium* Fischer-Piette

*Decussicardium* is the only taxon on the generic level introduced by Fischer-Piette (1977: 94), with *Cardium gilchristi* Sowerby, 1894, as type species by monotypy. Although validly introduced, it is rather puzzling why this taxon was proposed. Fischer-Piette gave no reasons nor even indicated that he saw specimens of the type species. *Cardium gilchristi* (fig. 10), is very close to several other small species currently assigned to *Microcardium* Thiele, 1934 (type species *Cardium peramabile* Dall, 1881). As there are no relevant differences between the type species of *Microcardium* and *Decussicardium*, we consider the latter a junior synonym of the former.

102. *Cardium (Cerastoderma) lavrani* Fischer-Piette

We cite Kilburn & Rippey (1982: 216-217): "Fischer-Piette (1977: 118) rejected *Cardium turtoni* Sowerby (1894: 377) as a synonym of the European *Parvicardium papillosum* (Poli, 1795), yet described the very same species under the name *Cardium (Cerastoderma) lavrani* (1977: 98, pl. 10, fig. 2), based on beachworn valves. *P. turtoni* differs from *P. papillosum* in the shape of the tubercles borne on the ribs; these tubercles are wider, more triangular and more flat-topped, with more constricted bases." We agree with Kilburn & Rippey but there is an additional problem. Fischer-Piette selected as holotype a composition of two loose valves. As it is impossible to select a holotype consisting of two specimens (ICZN art. 73a), we consider these two valves syntypes, at the same time selecting the right valve, of which the hinge contains the significant characters of the genus, as lectotype, leaving the left valve and the remaining former paratypes as paralectotypes.

136. *Corculum (Trigoniocardia) auri* Fischer-Piette

This nominal taxon was introduced by Fischer-Piette (1977: 136-137, fig. 10) after two valves collected off Ghana, 1°31'W-4°36'30"N, at 50 m, by the Calypso in 1956. When we visited the Paris museum we found that *Corculum auri* Fischer-Piette, 1977, was based on juveniles of *Parvicardium papillosum* (Poli, 1795), a very common species along the West African coasts. We figure the holotype (fig. 9).

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