

# Lexical Approach to Cardiacea

RECORDS, ANNOTATED AND ILLUSTRATED

Jorgen Hylleberg

3

Fossil and  
living cockles,  
mainly in the  
families  
Cardiidae  
and  
Lymnocardiiidae



*Cardium muticum*  
Reeve  
= *japonicum* Dler  
(ol.m)  
Yokohama  
Rei. Culteret 1890



*Cardium muticum*  
(Dumyris 84) Par.  
Kronprinz Rudolf don.  
Japan 1875 I. 908.  
Pracek det.

*Fulvia mutica* (Reeve) from  
the museums of natural history  
in Brussels, Belgium (left) and  
Vienna, Austria (right)

N-Z

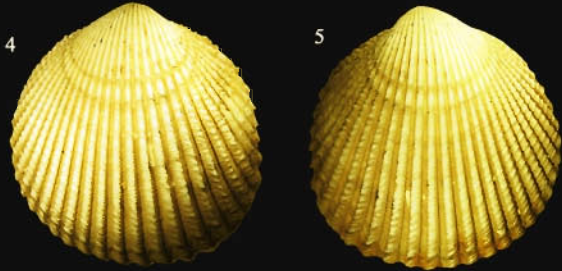
Tropical Marine Mollusc Programme (TMMP) sponsored by DANIDA

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*Vasticardium pectiniforme* (Born, 1780)



1-5: from Phuket Thailand



6-10: Syntypes *sine loc.* Born collection Wien, Austria. Anterior slope enlarged.



11: Syntype *sine loc.* Born collection Wien, Austria. 12: Andaman Sea. 13: South China Sea.  
Variation of internal ribbing ranging from pronounced to almost smooth

Tropical Marine Mollusc Programme (TMMP)

# Lexical approach to **CARDIACEA**

## Records of taxa

Illustrated and annotated records of living and fossil shells,  
with emphasis on the families Cardiidae and Lymnocardiidæ  
(Mollusca: Bivalvia)

Jorgen Hylleberg

## Part 3: N-Z



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## RECORDS N – Z

naganoensis – natella

- naganoensis** Hayami, 1959. – Unknown species. >> Regarding *Cardium naganoensis*: Cardiidae. Lower Liassic. RECORDS. ••1960 ZR: *Cardium naganoensis* Hayami, 1960 sp. nov. Lias, Higashinagano, Japan. ••1973 Keen: *Cardium naganoensis* Hayami, 1959. *Incertae sedis*.
- nahali** (subspecies). – See under *caspia nahali* Tadjalli-Pour, 1977.
- nalivkini** Kolesnikov, 1929. – Changed combination: *Cerastoderma nalivkini* (Kolesnikov, 1929). Cardiidae. Fossil. RECORDS. ••1929 ZR: *Cardium nalivkini* Kolesnikov, 1929 sp. n. Sarmatian. ••1977 Popov: *Cerastoderma nalivkini*. ••1987 Taktakishvili: *Cardium nalivkini*.
- nalivkini** Vassoevich, 1930. – *Didacna nalivkini* Vassoevich, 1930. Lymnocoardiidae. Fossil. RECORDS. ••1930 ZR: *Didacna nalivkini* Vassoevich, 1930 sp. n. fossil. ••1989 Mikhailetsku: *Didacna nalivkini* Wass.
- nalivkini morosa** Kolesnikov, 1929 (variety). – Upgraded. Combination to be revised: “*Cardium nalivkini morosa* Kolesnikov, 1929. Cardiidae. Sarmatian. RECORDS. ••1929 ZR: *Cardium nalivkini* var. *morosa* Kolesnikov, 1929 nov. Sarmatian.
- nanpeizanense** – Combination to be revised: “*Cardium nanpeizanense*. Cardiidae. Pleistocene. RECORDS. ••1933 ZR: *Cardium (Trachycardium) nanpeizanense* Pleistocene [Ref. Nomura 1933].
- naphtalanicum** Alizade. – *Raricardium naphtalanicum* (Alizade). Cardiacea. Neogene. RECORDS. ••1986 Neveeskaya et al.: *Raricardium naphtalanicum* (Alizade) comb. nov. ••1987 ZR: *Raricardium naphtalanicum* (Alizade) comb. nov. Ref. to Neveeskaya et al. p. 191.
- napoleonense** Winchell, 1862. – Combination to be revised: “*Cardium napoleonense* Winchell, 1862. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium napoleonense* Winchell, 1862; p. 419.
- nargiavagica** Neveeskaja, 1986. – *Prosodacna nargiavagica* Neveeskaja, 1986. Lymnocoardiidae. Upper Miocene. TYPE LOCALITY. Azerbaijan. RECORDS. ••1986 Neveeskaya et al., p. 190, fig.: *Prosodacna (Zamphiridacna?) nargiavagica* Neveeskaja, 1986 sp. nov. ••1987 ZR: *Prosodacna (Zamphiridacna?) nargiavagica* Neveeskaja, 1986 sp. nov. Azerbaijan, Upper Miocene. Ref. to Neveeskaya et al. p. 190.
- nargiavagicum** Ebersin. – Changed combination: *Nargicardium nargiavagicum* (Ebersin). Lymnocoardiidae. Pliocene. RECORDS. ••1958 ZR: *Limnocardium (Nargicardium) nargiavagicum* Ebersin, 1958 sp. nov. Azerbaijan. Pliocene of the Ponto Caspian basin, Russia. Subgenotype of (*Nargicardium*). ••1987 Taktakishvili: *Nargicardium nargiavagicum* Ebersin.
- Nargicardium** Eberzin, 1958 (genus). – Lymnocoardiidae. Pliocene. RECORDS. ••1958 ZR: (*Nargicardium*) Eberzin, 1958 subgen. nov. of *Limnocardium* Pliocene of the Ponto Caspian basin, Russia. Subgenotype: *Limnocardium (Nargicardium) nargiavagicum* Eberzin, 1958. Azerbaijan. Pliocene. ••1958. ZR: (*Nargicardium*) Eberzin, 1958 subgen. nov. of *Limnocardium* q.v. ••1980. Vokes: *Nargicardium* Ebersin, 1947 in subfamily Lymnocoardiinae.
- Nargicardium** (subgenus). RECORDS. ••1987. Taktakishvili: (*Nargicardium*) Ebersin, 1947.
- naricum** Vredenburg, 1928. – *Discors naricum* (Vredenburg, 1928). Cardiidae. Fossil. RECORDS. ••1977 Popov: *Discors naricum* (Vredenburg, 1928).
- narisawaense** (error). – Printer’s mistake for *narusawaense* in Nomura, 1935 (Keen 1973).
- narusawaense** Nomura, 1935. – Changed combination: *Vasticardium narusawaense* (Nomura, 1935). Cardiidae. Tertiary. RECORDS. ••1935 Nomura: *Cardium narusawaense*. ••1935 ZR: *Cardium (Trachycardium) narusawaense* sp. n. Tertiary Kurikoma Japan. ••1973 Keen: *Vasticardium narusawaense* (Nomura, 1935).
- nasyrica** – *Lymnocardium nasyrica*. Lymnocoardiidae. Fossil. RECORDS. ••1987. Taktakishvili: *Tauricardium nasyrica*.
- nasyrica** (subspecies and variety). – See under *petersi nasyrica* and *subsquamulosum nasyrica* Eberzin, 1958.
- natalense** Krauss, 1848. [Figs. Part 3 p. 916]. – Changed combination: *Fulvia natalensis* (Krauss, 1848). OTHER JUDGEMENTS: *Fulvia apertum* (Bruguière, 1789). – *Papyridea papyraceum* (Chemnitz) Schröter [not available]. >> Regarding *Cardium natalensis*: Cardiidae. Recent. DISTRIBUTION. South Africa Indo-Pacific (Hylleberg 1994). RECORDS. ••1848 Krauss, Tab. 1. fig. 9: *Cardium natalense* Krauss. ••1869 Römer: *Cardium natalense* Krauss = *Cardium papyraceum* Chemnitz. ••1890 Paetel: *Cardium natalense* Krss. is Papyridea. ••1890 Paetel: *Papyridea natalensis* Krss. = *papyracea* Ch. [not available]. ••1904 Smith: *Cardium natalense* Sowb. ••1915 Bartsch: *Cardium (Fulvia) natalensis* Sowerby. ••1922-32 Sherborn, p. 4160: *Cardium natalense* Krauss, 1848. ••1932 ZR: *Cardium natalensis* [Ref. Turton 1932]. ••1950 Barnard: *Papyridea natalensis*. ••1974 Barnard: *Cardium natalense* Krauss 1848 = *Papyridea papyracea*. ••1977 Fischer-Piette: *Cardium natalense* Krauss = *Papyridea papyraceum* (Chemnitz) Schröter. ••1977 Wilson & Stevenson: *Cardium natalense* Krauss, 1848 = *Fulvia apertum* (Bruguière, 1789). ••1994 Vidal: *Fulvia (Fulvia) natalensis* (Krauss, 1848).
- natalense** Sowerby. – See under *natalense* Krauss, 1848.
- natalense adjacens** Turton, 1932 (variety). – Changed combination: *Fulvia natalensis* (Krauss, 1848). OTHER JUDGEMENTS: *Fulvia aperta* (Bruguière, 1789). >> Regarding *Cardium natalensis* var. *adjacens*: Cardiidae. Recent. RECORDS. ••1932 ZR: *Cardium natalensis* var. *adjacens* Turton, 1932 nov. Port Alfred S. Africa [Ref. Turton 1932]. ••1977 Wilson & Stevenson: *Cardium natalense* var. *adjacens* Turton, 1932 = *Fulvia aperta* (Bruguière, 1789). ••1994 Vidal: *Cardium natalensis* var. *adjacens* Turton, 1932 = *Fulvia (Fulvia) natalensis* (Krauss, 1848).
- Natella** Ebersin, 1949 (genus). – Homonym. Replaced by *Pachydacna* Ebersin. 1955. Lymnocoardiidae. Tertiary. RECORDS. ••1980 Vokes: *Natella* Ebersin, 1949 non Watson, 1934 (Mamm.), see *Pachydacna* Ebersin. 1955.
- natella** Ebersin, 1947. – *Natella natella* Ebersin, 1947. Lymnocoardiidae. Fossil. RECORDS. ••1987 Anaya: *Natella natella* Ebersin, 1947 is type species of genus *Pachydacna* Ebersin, 1955.
- natella** Ebersin, 1960. – *Pachydacna natella* (Ebersin, 1960). Lymnocoardiidae. Tertiary. RECORDS. ••1960 ZR: *Pachydacna natella* Eberzin, 1960 sp. nov. Duab river, Abkhaziya, Georgia, USSR. ••1960 ZR: *Pachydacna*

**natella extenuis – negativum**

*natella natella* Eberzin, 1960 subsp. nov. Duab river, Abkhaziya, Georgia, USSR.

***natella extenuis*** Eberzin, 1960 (subspecies). – *Pachydacna natella extenuis* Eberzin, 1960. Lymnocardidae, Tertiary. RECORDS. ••1960 ZR: *Pachydacna natella extenuis* Eberzin, 1960 subsp. nov. Duab river, Abkhaziya, Georgia, USSR.

***natella pseudocimmerica*** Eberzin, 1960 (subspecies). – *Pachydacna natella pseudocimmerica* Eberzin, 1960. Lymnocardidae, Tertiary. RECORDS. ••1960 ZR: *Pachydacna natella pseudocimmerica* Eberzin, 1960 subsp. nov. Duab river, Abkhaziya, Georgia, USSR.

***nautiloides*** Castelnau, 1843. – Combination to be revised: “*Cardium*” *nautiloides* Castelnau, 1843. Cardiidae. Silurian. TYPE SPECIES. Stoliczka (1871) stated that *Cardium nautiloides* is type species of genus *Goldfussia* Castelnau, 1843. *Cardium nautiloides* is referred to Cardiidae by Philippi. Fossil. RECORDS. ••1871 Stoliczka: *Cardium nautiloides*. ••1922-32 Sherborn, p. 4263: *Cardium nautiloides* Castelnau, 1843.

\****nebulosum***. – Homonymy to be noticed. *Cardium nebulosum* from 2 sources: Reeve, 1845. – Iredale, 1927.

***nebulosa*** (mode). – See under *nebulosum*.

***nebulosum*** Iredale, 1927. – *Vasticardium nebulosum* (Iredale, 1927). Cardiidae. Recent. TYPE SPECIES. Iredale (1927) designated *Cardium nebulosum*, citing Martyn, 1786, type species of the genus *Vasticardium*. Gladenkov & Sinelnikova (1990) stated that *Cochlea nebulosa* (citing Martyn) is type species of genus *Vasticardium* Iredale, 1927. TYPE LOCALITY. Unknown. RECORDS. ••1927 Iredale: *Trachycardium (Vasticardium) nebulosum*. ••1969 Moore et al.: *Acrosterigma (Vasticardium) nebulosum* (Iredale, 1927). – CHARACTERS AND OCCURRENCE – REMARKS. ••1936 Keen: Martyn’s Universal Conchologist is not consistently binomial and hence is to be rejected. HABITAT. ••1971 Kuroda, Habe & Oyama: 18–110 m depth. DISTRIBUTION. ••1971 Kuroda, Habe & Oyama: Indo-Pacific; in Japan from Honshu to the tropical Pacific.

***nebulosum*** Martyn, 1784. *Non* binomial. – Not available. Replaced by *Vasticardium nebulosum* Iredale, 1927. OTHER JUDGEMENTS: *Acrosterigma elongatum* (Bruguière, 1789). >> Regarding *Cardium nebulosum*: Cardiidae. Recent. TYPE SPECIES. Cotton (1961) stated that *Cardium nebulosum*, citing Martyn 1786, is type species of *Vasticardium* Iredale 1927. Martyn rejected for nomenclatorial purposes. REMARKS. The specimen figured by Martyn has 28 ribs. DISTRIBUTION. China (Martyn, 1784). RECORDS. ••1784 Martyn, p. 50, pl. 46, fig. 1: *Cardium nebulosa*. ••1880 Martens: *Cardium nebulosum* Martyn = *Cardium (Trachycardium) elongatum* Bruguière. ••1961 Cotton: *Cardium nebulosum* Martyn 1786. Type species of *Vasticardium* Iredale 1927. ••1971 Kuroda, Habe & Oyama: *Cochlea nebulosa* citing Martyn = *Vasticardium nebulosum* Iredale, 1927. ••1977 Popov: *Cochlea nebulosa* Martyn, 1792. Type of (*Vasticardium*) Iredale, 1927. ••1977 Wilson & Stevenson: *Cochlea nebulosa* citing Martyn, 1792 (= *Cardium elongatum* Bruguière, 1789). ••1977 Wilson & Stevenson: *Vasticardium nebulosum* citing Martyn,

1799. ••1978 Maxwell: *Vasticardium nebulosum* citing Martyn, 1784 in Iredale 1927 = *Cardium elongatum* Bruguière 1792. ••1980 Keen: *Cochlea nebulosa* citing Martyn = *Cardium elongatum* Bruguière, 1789. ••1990 Gladenkov & Sinelnikova: *Cochlea nebulosa* citing Martyn. ••1993 Vidal: ?*Cochlea nebulosa* citing Martyn, 1786 = *Acrosterigma elongatum* (Bruguière 1789).

***nebulosum*** Reeve, 1845. [Figs. Part 1 p. 142. Part 3 p. 877, 927]. – Synonym of *Acrosterigma simplex* (Spengler, 1799). OTHER JUDGEMENTS: *Trachycardium unicolor* (Sowerby, 1841). – *Cardium enode* Sowerby. >> Regarding *Cardium nebulosum*: Cardiidae. Recent. TYPE LOCALITY. Unknown (Reeve 1845); the Maldives (Vidal 1999). TYPE REPOSITORY. Holotype, BMNH reg. no. 1900.2.13.22. Neg. No. 0386. A paired specimen from the Maldives figured by Reeve (Vidal 1999). RECORDS. ••1845 Reeve: *Cardium nebulosum*. ••1858 Adams & Adams, p. 455: *Cardium (Trachycardium) nebulosum*, Reeve. ••1890 Paetel: *Cardium nebulosum* Rv. ••1922-32 Sherborn, p. 4270: *Cardium nebulosum* Reeve, 1845. ••1932 Prashad: *Cardium nebulosum* Reeve, 1845 = *Cardium unicolor* Sowerby, 1841. ••1977 Fischer-Piette: *Cardium nebulosum* Reeve = *Cardium enode* Sowerby. ••1988 Drivas & Jay: *Trachycardium nebulosum* (Reeve, 1845). ••1993 Vidal: *Cardium nebulosum* not synonym of *Cardium enode* as suggested by Fischer-Piette. ••1999 Higo et al.: *Cardium nebulosum* Reeve, 1845 = *Acrosterigma (Vasticardium) unicolor* (Sowerby, 1841). ••1999 Vidal: *Cardium nebulosum* Reeve, 1845: Sp. 99 = *Acrosterigma simplex* (Spengler, 1799). ••1999 Vidal: Drivas & Jay 1988, p. 17, fig. 15: *Trachycardium nebulosum* (Reeve) = *Acrosterigma mauritanium* (Deshayes, 1855) [Not *Cardium nebulosum* Reeve = *Acrosterigma simplex* (Spengler)]. ••1999 Vidal: Drivas & Jay 1988, p. 140, pl. 55: *Trachycardium nebulosum* (Reeve) = *Acrosterigma mauritanium* (Deshayes, 1855) [Not *Cardium nebulosum* Reeve = *Acrosterigma simplex* (Spengler)]. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1845 Reeve: shell ovate, somewhat Pecten-shaped, radiately ribbed, 42-43 convex, smooth ribs, posteriorly very finely crenulated whitish, clouded with pale brown spots, ribs irregularly painted here and there with red transverse lines; interior white, stained with pink beneath the umbones, ornamented near the margins with blotches of bright purple violet. DIMENSIONS. ••1988: Drivas & Jay: max. ant.-post. 26.5 mm, umbo-ventr. 29.5 mm. REMARKS. ••1845 Reeve: the external painting of this shell is very similar to that of the *Pectunculus pectinatus*. ••1988: Drivas & Jay: Shape similar to *C. mauritanium* (Deshayes) but has a lower number of ribs, and a more rounded outline. HABITAT. ••1988: Drivas & Jay: Réunion, western Indian Ocean. DISTRIBUTION. ••1845 Reeve: unknown. ••Of authors: Central Indo-West Pacific, Australia.

***nefundum*** Kolesnikov, 1935. – Combination to be revised: “*Cardium*” *nefundum* Kolesnikov, 1935. Cardiidae. Sarmatian. RECORDS. ••1945 ZR: *Cardium nefandum* Kolesnikov, 1935 sp. nov. USSR Sarmatian. ***nefarius*** (variety). – See *nikitini nefarius* Uspenskaia, 1931.

***negativum*** Andrussow, 1909. – Combination to be

## neglectum – neozelandicum

- revised: "*Cardium*" *negativum* Andrussov, 1909. *Cardiidae*. Miocene. RECORDS. ••1910 ZR: *Cardium negativum* Andrussov, 1909 sp. n. Fossil. ••1963 ZR: *Cardium negativum* Andrusov, 1963 sp. nov. Miocene, Russia.
- neglectum** Hölzl, 1962. – Combination to be revised: "*Cardium*" *neglectum* Hölzl, 1962. *Cardiidae*. Oligocene. RECORDS. ••1962 ZR: *Cardium neglectum* Hölzl, 1962 sp. nov. Sulz–Graben (Leitzachtal) Chattian, Oligocene, Bavaria. ••1962 ZR: *Cardium neglectum* Oligocene.
- neglectum angustum** Hölzl, 1962 (variety). – Combination to be revised: "*Cardium*" *neglectum* var. *angustum* Hölzl, 1962. *Cardiidae*. Oligocene. RECORDS. ••1962 ZR: *Cardium neglectum* var. *angustum* Hölzl, 1962 nov. Bad Tölz Chattian, Bavaria.
- neglectum intersulcatum** Baldi, 1975 (subspecies). New combination: *Trachycardium neglectum intersulcatum* (Baldi, 1975). *Cardiidae*. Upper Oligocene. RECORDS. ••1975 ZR: *Cardium* (?*Trachycardium*) *neglectum intersulcatum* Baldi, 1975 subsp. nov. Hungary, Borehole Solymar. Ref. to Baldi, p. 208.
- nemo** Fischer-Piette, 1977. [Figs. Plate 3 p. 930]. Dubious species. >> Regarding *Laevicardium nemo*: *Cardiidae*. Recent. TYPE REPOSITORY. Holotype, right valve, Paris Museum. RECORDS. ••1977 Fischer–Piette: *Laevicardium nemo* n. sp. ••1977 ZR: *Laevicardium nemo* Fisher–Piette, 1977 sp. nov. Type locality not given. Ref. to Fischer–Piette, E. p. 24. ••1980 Keen: species insufficiently known. ••1991 Voskuil & Onverwagt: *Laevicardium nemo* Fischer–Piette, 1977. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1977 Fischer–Piette: Shell white, equilateral, oblong, inside with marginal dentation, median tooth small, lateral teeth well separated, different size. 55 ribs. [I have translated from French]. DIMENSIONS. Umbo–vent. 31 mm, anterior–post. 22 mm, half diameter 9 mm. REMARKS. ••1980 Keen: a fragmentary specimen resembling a fossil *Clinocardium* from the North Pacific. ••1991 Voskuil & Onverwagt: *Laevicardium nemo* Fischer–Piette, 1977 proposed as a *nomen novum* for *Cardium fragile* Sowerby, but *Cardium fragile* Sowerby, 1841 is considered a *nomen dubium*. DISTRIBUTION. Unknown.
- nomocardiiforme** Kafanov & Savizky, 1983. – *Laevicardium nomocardiiforme* Kafanov & Savizky, 1983. *Cardiidae*. Middle Miocene. RECORDS. ••1983 Kafanov & Savizky, p. 119: *Laevicardium nomocardiiforme* Kafanov & Savizky. ••1983 ZR: *Laevicardium nomocardiiforme* Kafanov *et al.*, 1983 sp. nov. Russian SFSR, Middle Miocene. Ref. to Kafanov *et al.*, p. 119.
- nomocardiiformis** Eames, 1951. – *Discors nomocardiiformis* Eames, 1951. *Cardiidae*. Eocene. RECORDS. ••1951 ZR: *Discors nomocardiiformis* Eames, 1951 sp. nov. Eocene Pakistan.
- Nemocardium** Meek, 1876 (genus). – *Cardiidae*. Fossil and Recent. Type species: Sacco (1899) designated *Cardium semiasperum* Deshayes, 1858 [Eocene, France] type species of genus *Nemocardium*. RECORDS. ••1876 Meek: *Nemocardium*, Meek. *Cardium semiasperum* Deshayes regarded as genotype. ••1921 ZR: *Cardium* (*Nemocardium*) [Ref. Brun & Vedel 1921]. ••1923 ZR: *Nemocardium* [Ref. Cossmann 1923]. ••1923 ZR: *Nemocardium* [Ref. Lissajous 1923]. ••1946 ZR: *Nemocardium* shell structure [Ref. Wrigley 1946]. ••1947 ZR: *Nemocardium* Meek 1876, Rep. U.S. Geol. Surv. Territories (Haydm. sic) 9 167, 173 type by virtual monotypy and subseq. desig. Sacco 1899. *Cardium semiasperum* Deshayes, Eocene, France [Ref. Vokes 1946]. ••1950 ZR: *Nemocardium* history of the genus and list of species with localities [Ref. Keen 1950]. ••1961 ZR: *Nemocardium* Meek: Tertiary species [Ref. Hughes 1961]. ••1954 Keen: *Nemocardium* Meek, 1876. ••1975 ZR: *Nemocardium*. Key to species. Ref. to Merklin, p. 104. ••1977 Popov: *Nemocardium* Meek, 1876. Genotype: *Cardium semiasperum* Deshayes, 1858. ••1977 ZR: *Nemocardium*. Key to subgenera. Ref. to Popov p. 63. / California, Pliocene. Ref. to Hertlein & Grant p. 262. ••1978 Maxwell: Genus *Nemocardium* Meek, 1876. ••1980 Vokes: *Nemocardium* Meek, 1876 in subfamily Protocardiinae. ••1986 Abdel–Gawad: genus *Nemocardium*. ••1986 Scott: *Nemocardium* Meek, 1876. ••1992 Schneider p. 155: *Nemocardium*. Type species *Nemocardium semiasperum* (Deshayes). ••1995 Pacaud & Renard: *Nemocardium* Meek, 1876 in subfamily Protocardiinae. ••1998 Lamprell & Healy: *Nemocardium* Meek, 1876. ••2000 Coan *et al.*: Genus *Nemocardium* Meek, 1876. ••2002 Schneider: *Nemocardium* (*Nemocardium*) originated in the Aptian, is the oldest living cardiid genus or subgenus. ••1999 Higo *et al.*: *Nemocardium* Meek, 1876. Type species *Cardium semiasperum* Deshayes, 1858 (s. d. Sacco, 1899). ••2001 Vidal, p. 407, Group 2: *Nemocardium*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1994 Hylleberg: sculpture radial throughout, strong and ornamented on posterior slope. Central and anterior slopes nearly smooth, marginal crenulations changing abruptly in size at posterior–ventral junction. ••2001 Vidal: tentacles numerous. No eyes on tentacles. ••2002 Schneider: *Nemocardium* has labial palps with length less than one–third the length of the entire animal (minus the shell).
- Nemocardium** Meek, 1876 (section and subgenus). – *Cardiidae*. Fossil and Recent. REMARKS. The designation "section" takes the value of subgenus. RECORDS. ••1887 Fischer: *Nemocardium*, Meek, 1876. Section of subgenus *Laevicardium* Swainson, 1840. ••1954 Keen: (*Nemocardium*) s.s. ••1986 Abdel–Gawad: subgenus *Nemocardium* Meek, 1876. ••1986 Scott: (*Nemocardium*) Meek, 1876. ••1999 Higo *et al.*: *Nemocardium* (subgenus) s. str.
- neoinflatum** Miletic–Spajic, 1960. – New name. New combination: *Lymnocardium neoinflatum* Miletic–Spajic, 1960. *Lymnocardiidae*. Tertiary. RECORDS. ••1960 ZR: *Lymnocardium neoinflatum* Miletic–Spajic, 1960 nom. nov. pro. *Lymnocardium inflatum* Jekelius, 1944 (non Gorjanovic–Kramberger 1902) Aleksandrova, Tertiary.
- neotropica** Cowper–Reid, 1943. – *Pachycardium neotropica* Cowper–Reid, 1943. *Cardiidae*. Trias. RECORDS. ••1947 ZR: *Pachycardium neotropica* Cowper–Reid, 1943 sp. nov. Trias, Brazil.
- neozelandicum** Deshayes, 1853. – New name: "*Cardium*" *neozelandicum* Deshayes. *Cardiidae*. Recent. RECORDS. ••1857 Deshayes: *Cardium neozelandicum* new name for *Cardium striatum*

**neozelanica – nigropunctatum**

Sowerby, 1840. ••1980 Ruhoff: *Cardium neozelandicum* Deshayes, 1853; vol. 2: 46.

**neozelanica** Marshall & Murdoch. – *Lahillia neozelanica* Marshall & Murdoch. Cardiacea. Fossil. RECORDS. ••1937 ZR: *Lahillia neozelanica* Marshall & Murdoch, Danian Wangaloa, New Zealand [Ref. Finlay & Marwick 1937].

**neptuni** Goldfuss, 1837. Not a cardiid. RECORDS. ••1857 Deshayes: *Cardium neptuni* Goldfuss. Not a cardiid: in genus *Pinna*. ••1922-32 Sherborn, p. 4293: *Cardium neptuni* Goldfuss, 1837.

**nequam** Healey, 1908. – Combination to be revised: "*Cardium*" *nequam* Healey, 1908. Cardiidae. Mesozoic. RECORDS. ••1976 Ma Qi-hong *et al.* p. 255: *Cardium nequam* Healey, 1908. ••1977 ZR: *Vietnamocardium nequam* (Healey) Comb. nov. Original combination not given. Ref. to Vu-Huc D. p. 679. ••1995 Schneider: *Cardium nequam* Healey, 1908 = *Tulogocardium nequam* (Healey, 1908). ••1995 Schneider: *Tulogocardium nequam* (Healey, 1908).

**nequam** (aff.) Healey, 1908. – Combination to be revised: "*Cardium*" aff. *nequam* Healey, 1908. RECORDS. ••1976 Ma Qi-hong *et al.*: *Cardium* aff. *nequam* Healey.

**neszmelyense** Strausz, 1975. – New combination: *Laevicardium neszmelyense* (Strausz, 1975). Cardiidae. Middle Eocene. RECORDS. ••1975 ZR: *Cardium (Laevicardium) neszmelyense* Strausz, 1975 sp. nov. Hungary, Neszmely. Ref. to Strausz, p. 20.

**neumayri** Fuchs, 1873. – *Prosodacna neumayri* (Fuchs, 1873). Lymnocardiiidae. Fossil. TYPE LOCALITY. From Matitza, north of Ploesti. RECORDS. ••1873 Fuchs, p. 22, pl. III, fig. 7–10: *Cardium neumayri*. ••1886 Fischer: *Prosodacna neumayri* (Fuchs, 1873).

**nevesskajae** Ali-Zade & Ribina. – New combination: *Replidacna nevesskajae* (Ali-Zade & Ribina). Cardiacea. Fossil. RECORDS. ••1977 ZR: *Cardium (Replidacna) nevesskajae* Ali-Zade & Ribina. Ref. to Paramonova p.70 [Transl. p. 320].

**nevesskajae** Paramonova, 1977. – *Cerastoderma nevesskajae* Paramonova, 1977. Cardiidae. Upper Miocene. RECORDS. ••1977 ZR: *Cerastoderma (Planacardium) nevesskajae* Paramonova, 1977 sp. nov. Ukraine, Upper Miocene. Ref. to Il'ina, Nevesskaya & Paramonova p. 208, fig'd.

**newberryana** Gabb. – *Protocardia newberryana* Gabb. Cardiidae. Fossil. RECORDS. ••1922 Olsson: *Protocardia newberryana* Gabb.

**newtoni** Eames, 1957. – *Loxocardium newtoni* (Eames, 1957). Cardiidae. Eocene. TYPE SPECIES. Eames, 1957 designated *Fragum (Acanthocardia) newtoni* type of the subgenus *Africofragum*, which is synonym with *Schedocardia* Stewart, 1930 (Moore *et al.* 1969). RECORDS. ••1957 ZR: *Fragum (Africofragum) newtoni* Eames, 1957 sp. nov. Eocene, Nigeria, subgenotype of (*Africofragum*) Eames, 1957 subgen. nov. ••1969 Moore *et al.*: *Acanthocardia (Africofragum) newtoni* (Eames, 1957). ••1970 Glibert & Poel: *Loxocardium newtoni* (Eames, 1957).

**nexile** Branson, 1942. – New name: *Conocardium nexile* Branson, 1942. Conocardiidae. Fossil. RECORDS. ••1942 ZR: *Conocardium nexile* Branson, 1942 nom. nov. p. 389, for *Conocardium phillipsi* Koninck 1885 non Orbigny 1850.

**nexilis** Martyn, 1784. Non binominal. – Not available.

>> Regarding *Cardium nexilis*: not a cardiid. RECORDS. ••1784 Martyn: *Cardium nexilis*.

**nextingense** (subspecies). – See under *latisulcus nextingense* Papp, 1954.

**nexum** Humphrey, 1797. – Synonym of *Fragum fragum* (Linné, 1758). >> Regarding *Cardium nexum*: Cardiidae. Recent. RECORDS. ••1797 Humphrey: *Cardium nexum*. ••1932 Prashad: *Cardium nexum* Humphrey, 1797 = *Fragum fragum* (Linné, 1758). ••1977 Fischer-Piette: *Cardium nexum* Humphrey = *Corculum fragum* Linné. ••1977 Wilson & Stevenson: *Cardium nexum* Humphrey, 1797 (non binomial) = *Fragum fragum* (Linnaeus, 1758). ••1999 Higo *et al.*: *Cardium nexum* Humphrey, 1797 = *Fragum fragum* (Linnaeus, 1758).

**niagarensis** Winchell & Marcy, 1865. – *Conocardium niagarensis* Winchell & Marcy, 1865. Conocardiidae. Fossil. REMARKS. Conocardiids have no connection with the Cardiacea except analogy of form, which does not offer any point of relationship (Dall 1895, p. 519). RECORDS. ••1980 Ruhoff: *Conocardium niagarensis* Winchell & Marcy, 1865; vol. 1: 97, pl. 2, fig. 14.

**nicense** Bellardi, 1852. – Combination to be revised: "*Cardium*" *nicense* Bellardi, 1852. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium nicense* Bellardi, 1852; vol. 4: 241, pl. F (*sic* = 17) fig. 9.

**niciense** d'Orbigny, 1850. – Combination to be revised: "*Cardium*" *niciense* d'Orbigny, 1850. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 4305: *Cardium niciense* d'Orbigny, 1850.

**nicklesi** Adegoke, 1977. – *Cardium nicklesi*. Cardiidae. Paleocene. RECORDS. ••1977 ZR: *Cardium (Cardium) nicklesi* sp. nov. Nigeria. Palaeocene. Ref. to Adegoke p. 270.

**nicolletti** Conrad, 1842. – Changed combination: *Nemocardium nicolletti* (Conrad, 1842). Cardiidae. Eocene. RECORDS. ••1886 Dall: *Cardium nicolletti* Conrad [Eocene]. ••1922-32 Sherborn, p. 4307: *Cardium nicolletti* Conrad, 1841. ••1961 ZR: *Nemocardium nicolletti* (Conrad) systematic description and review of N. American Paleocene forms [Ref. Hughes 1961]. ••1977 Popov: *Nemocardium (Nemocardium) nicolletti* (Conrad, 1842). ••2001 Schneider & Carter: *Nemocardium nicolletti* (Conrad, 1841). Cardiidae. Early Cenozoic, Eocene, Mississippi, USA.

**nigamiensis** (subspecies). – See under *makiyami nigamiensis* Noda, 1962.

**niger** Zhizhchenko, 1934. – Combination to be revised: "*Cardium*" *niger* Zhizhchenko, 1934. Cardiidae. Miocene. RECORDS. ••1939 ZR: *Cardium niger* Zhizhchenko, 1934 sp. n. Miocene Ciscaucasia. ••1952 ZR: *Cardium niger* Miocene Caucasus [Ref. Zhezhenko 1934].

**nigropunctatum** Habe & Kosuge, 1966. – Synonym of *Vasticardium pectiniforme* (Born, 1780). OTHER JUDGEMENTS: *Acrosterigma rugosum* (Lamarck, 1819). – *Acrosterigma flava* (Linnaeus, 1758). >> Regarding *Vasticardium nigropunctatum*: TYPE LOCALITY. Amami Oshima (Higo *et al.* 1999). Cardiidae. Recent. RECORDS. ••1966 Habe & Kosuge, p. 154 (pl. 59, fig. 9): *Vasticardium nigropunctatum*. ••1966 Garrard: *Vasticardium nigropunctatum*. ••1966 ZR: *Vasticardium nigropunctatum* Habe & Kosuge, 1966

- sp. nov. Amami Is. Japan. ••1967 ZR: *Vasticardium nigropunctatum*, North Keppel Island, Queensland, Australia [Ref. Garrard 1967]. ••1974 Habe & Kosuge: *Vasticardium nigropunctatum* Habe et Kosuge. ••1977 Wilson & Stevenson: *Vasticardium nigropunctatum* Habe & Kosuge, 1966 = *Acrosterigma rugosum* Lamarck, 1819. ••1992 Lamprell & Whitehead: *Vasticardium nigropunctatum* Habe & Kosuge, 1966 = *Acrosterigma flava* (Linné, 1758). ••1977 Fischer-Piette, p. 174: *Vasticardium nigropunctatum* Habe & Kosuge = *Laevicardium flavum* Linné auctorum. ••1977 Habe: *Trachycardium (Vasticardium) nigropunctatum* Habe & Kosuge, 1966. ••1997 Vidal: *Vasticardium nigropunctatum* Habe & Kosuge, 1966 = *Vasticardium pectiniforme* (Born, 1780). ••1998 Poutiers: *Vasticardium nigropunctatum* Habe & Kosuge, 1966. ••1999 Vidal: *Vasticardium nigropunctatum* Habe & Kosuge 1966 = *Vasticardium pectiniforme* (Born, 1780). ••1999 Higo et al.: *Acrosterigma (Regozara) nigropunctatum* (Habe & Kosuge, 1966). ••1999 Higo et al.: *Vasticardium nigropunctatum* Habe & Kosuge, 1966. – CHARACTERS AND OCCURRENCE – REMARKS. *Trachycardium nigropunctatum* Habe & Kosuge, 1966 is not synonym with *Trachycardium flavum* (Linné, 1758). HABITAT. ••1999 Higo et al.: subtidal to 20 m, sand. DISTRIBUTION. ••1994 Hylleberg: Indo-Pacific, Red Sea, Indo-West Pacific, Australia. ••1999 Higo et al.: Amami islands and southwards, East China Sea, Philippines, northern Australia.
- \***nikitini** – Homonymy to be noticed. *Cardium nikitini* from 2 sources: Andrussov, 1902. – Andrusov, 1963. – REMARKS. I do not know how Andrussov 1902 compares with Andrusov, 1963.
- nikitini** Andrusov, 1963. – Combination to be revised: “*Cardium*” *nikitini* Andrussov, 1902. *Cardiidae*. Neogene. RECORDS. ••1961 ZR: *Cardium nikitini* Andrusov, 1961 “sp. nov.” [in a table] Miocene Caspian region, Russia. ••1963 ZR: *Cardium nikitini* Andrusov, 1963 sp. nov. Neogene, Russia [Ref. Andrusov 1963].
- nikitini** Andrussov, 1902. – Combination to be revised: “*Cardium*” *nikitini* Andrussov, 1902. *Cardiidae*. Miocene. RECORDS. ••1905 Dollfus, commenting Andrussov 1902: *Cardium nikitini* n. sp. tends towards *Cerastoderma*. ••1932 ZR: *Cardium nikitini* Andrus. Miocene [Ref. Uspenskaia 1931].
- nikitini** Andrussov. – *Avicardium nikitini* (Andrussov). *Cardiacea*. Fossil. RECORDS. ••1977 Popov: *Avicardium nikitini* (Andrussov).
- nikitini nefarius** Uspenskaia, 1931 (variety). – Upgraded. “*Cardium*” *nikitini nefarius* Uspenskaia, 1931. *Cardiidae*. Miocene. RECORDS. ••1932 ZR: *Cardium nikitini* Andrus var. *nefarius* Uspenskaia, 1931 nov. Miocene Daghestan and Transcaspien.
- nikolaevae** Merklin, 1975. – *Parvicardium nikolaevae* Merklin, 1975. *Cardiidae*. Upper Oligocene. RECORDS. ••1975 ZR: *Parvicardium nikolaevae* Merklin, 1975 sp. nov. Kazakhstan, south west Mangyshlak. Ref. to Merklin, p. 99.
- nimbata** Martyn, 1784. *Non* binominal. – Not available. >> Regarding *Cardium nimbata*: not a *cardiid*. RECORDS. ••1784 Martyn: *Cardium nimbata*.
- nipponense** Tashiro, 1976. – *Granocardium nipponense* Tashiro, 1976. *Cardiidae*. Upper Cretaceous. RECORDS. ••1976 ZR: *Granocardium nipponense* sp. nov. Japan, Kyushu, Miyakowachi. Ref. to Tashiro, p. 65.
- nipponica** Yokoyama, 1925. – Changed combination: *Profulvia nipponica* (Yokoyama, 1925). OTHER JUDGEMENTS: *Fulvia hariimani* (Dall, 1904). >> Regarding *Papyridea nipponica* *Cardiidae*. Oligocene–Miocene. TYPE LOCALITY. Honshu, Japan. TYPE REPOSITORY. Type CM 22090 missing at the University Museum, University of Tokyo (Kafanov et al. 1994). RECORDS. ••1924 Yokoyama, p. 17, pl. 3, figs. 3, 4: *Papyridea (Fulvia) nipponica* (fide Kafanov et al. 1994). ••1924 ZR: *Papyridea (Fulvia) nipponica* Yokoyama, 1924 sp. n. Tertiary Japan. ••1925 Yokoyama: *Papyridea (Fulvia) nipponica* Yokoyama. ••1973 Keen: *Papyridea nipponica* Yokoyama, 1924 (fide Oyama, Mizuno, & Sakamoto, 1960) = *Fulvia hariimani* (Dall, 1904). ••1976 ZR: *Profulvia nipponica* (Yokoyama, 1924) Comb. nov. Transferred from *Papyridea*. Ref. to Kafanov, p. 482 [orig. p. 111]. ••1980 ZR: *Profulvia nipponica* (Yokoyama 1924) is a junior synonym of *P. hariimani* (Dall 1904). ZR Ref. to Kafanov.
- nipponicum** Noda, 1991. – *Vasticardium nipponicum* Noda, 1991. *Cardiidae*. Pleistocene. TYPE LOCALITY. Ryukyu Islands, Japan. RECORDS. ••1991 Noda, p. 27, fig.: *Vasticardium nipponicum* sp. nov.
- \***nitens**. – Homonymy to be noticed. *Cardium nitens* from 2 sources: Sowerby, 1813. – Galeotti (?year).
- nitens** Galeotti. – Combination to be revised: “*Cardium*” *nitens* Galeotti. *Cardiidae*. Fossil. TYPE LOCALITY. Belgium. RECORDS. ••1857 Deshayes: *Cardium nitens* Galeotti.
- nitens** Sowerby, 1813. – Changed combination: *Nemocardium nitens* (Sowerby, 1813). *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 4369: *Cardium nitens* Sowerby, 1813. ••1970 Glibert & Poel: *Nemocardium* (s.s.) *nitens* (Sowerby, 1813), compared with *N. turgidum* (Solander). ••1977 Popov: *Nemocardium (Nemocardium) nitens* (Sowerby, 1813).
- nitida** Andrussov, 1924. – *Monodacna nitida* Andrussov, 1924. *Lymnocardiiidae*. Fossil. RECORDS. ••1924 ZR: *Monodacna nitida* Andrussov, 1924 sp. n. Pleistocene. ••1963 ZR: *Monodacna nitida* Andrusov, 1963 sp. nov. Pliocene, Russia.
- nitidulum** Tremlett, 1950. – *Nemocardium nitidulum* Tremlett, 1950. *Cardiidae*. Fossil. RECORDS. ••1950 ZR: *Nemocardium nitidulum* Tremlett, 1950 sp. nov. ex Edwards MS. London Basin. ••1970 Glibert & Poel: *nitidulum* Tremlett, 1950. ••1977 Popov: *Nemocardium (Nemocardium) nitidulum* Tremlett, 1950.
- nitidum** – Unknown. << Regarding *Cardium papyraceum*: RECORDS. ••1817 Dillwyn: under the name *Cardium nitidum*, Mr. Humphrey sold *Cardium papyraceum* Chemnitz.
- nivale** Reeve, 1845. [Figs. Part 1 p. 142. Part 3 p. 909, 931]. – Changed combination: *Fragum nivale* (Reeve, 1845). *Cardiidae*. Recent. RECORDS. ••1845 Reeve: *Cardium nivale*. ••1858 Adams & Adams, p. 458: *Hemicardia (Fragum) nivalis* Reeve. ••1870 Macandrew: *Hemicardia (Fragum) nivale*. ••1884 Grasset: *Hemicardium nivale* Rv. ••1890 Paetel: *Hemicardium nivale* Rv. ••1899 Sturany: *Hemicardia nivale*. ••1903 Hidalgo: *Hemicardium nivale* Reeve. 1845. ••1905 Sturany: *Hemicardium nivale* (Rve.). ••1909 Melvill: *Cardium (Ctenocardia) nivale*, Reeve.



**nivalis – nodosum**

••1922-32 Sherborn, p. 4387: *Cardium nivale* Reeve, 1845. ••1926 Fischer & Fischer: *Cardium (Hemicardium) nivale* Rve. ••1928 Faustino: *Cardium (Hemicardium) nivale* Reeve. ••1931 Thiele & Jaekel: *Cardium (Fragum) nivale* Reeve. ••1956 ZR: *Hemicardia nivale* Reeve new to Seychelles [Ref. Rost & Soot–Ryen 1956]. ••1965 Biggs: *Hemicardia (Hemicardia) nivale*. ••1977 Fischer–Piette: *Corculum (Hemicardia) nivale* Reeve. ••1992 Oliver: *Fragum nivale*. ••2001 Vidal, p. 408: *Fragum nivale*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1845 Reeve: shell triangularly cordate, a little compressed towards the margins, angulated and flatly depressed on the posterior side; radiately flatly ribbed, 35 ribs, those of the posterior area smooth, irregular, sometimes narrow, sometimes rather broad, the anterior very finely nodulously crenated; transparent white, profusely ornamented, on the posterior area especially, with opaque snowy spots. ••2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes. REMARKS. ••1845 Reeve: An interesting new species, intermediate in form between *Cardium fragum* and *Cardium hemicardium*. HABITAT. ••1845 Reeve: dredged from coral sand at the depth of 8 fathoms. DISTRIBUTION. ••1845 Reeve: Island of Corrigidor, Philippines. ••1884 Grasset: China. ••1909 Melvill and ••1994 Hylleberg: Red Sea, Kenya.

**nivalis** (mode). – See under *nivale* Reeve, 1845.

**nixicollis** Stephenson, 1923. – New name: *Protocardia nixicollis* (Stephenson, 1923) nom. nov. Cardiidae. Upper Cretaceous. RECORDS. ••1936 ZR: *Cardium nixicollis* Stephenson, 1923 nom. nov. for *Cardium (Protocardia) vaughani* Stephenson, 1923 Invert. pos. Upper Cretaceous N. Carol. Geol. & Econ. Surv. 5 1923 p. 287 non Shattuck.

**njalindungense** Martin, 1922. – Combination to be revised: “*Cardium*” *njalindungense* Martin, 1922. Cardiidae. Tertiary. RECORDS. ••1922 ZR: *Cardium (Eucardium) njalindungense* Martin, 1922 sp. n. Tertiary.

**noae** Röding, 1798. – Synonym of *Tridacna maxima* (Röding, 1798). Tridacnidae. Recent. RECORDS. ••1947 ZR: *Tridacna noae* (Röding) [Ref. McLean 1947]. ••1999 Higo *et al.*: *Tridacnes noae* Röding, 1798 = *Tridacna (Flodacna) maxima* (Röding, 1798).

**nobile** Sabba Stefanescu, 1896. – Changed combination: *Euxinocardium nobile* (Sabba Stefanescu, 1896). Lymnocardidae. Tertiary. RECORDS. ••1987 Anaya: *Limnocardium nobile* Sabba, Stefanescu 1896. ••1987 Taktakishvili: *Limnocardium nobile* Sabba. ••1987 Taktakishvili: *Limnocardium (Euxinocardium) nobile* Sabba. ••1987 Taktakishvili: *Euxinocardium nobile* (Sabba).

**nobile** (cf.) Sabba Stefanescu, 1896. – RECORDS. ••1987 Anaya: *Limnocardium (Euxinocardium) cf. nobile* Sabba Stefanescu.

**nobile amicorum** Ebersin, 1947 (variety). – Upgraded. Changed combination: *Euxinocardium nobile amicorum* (Eberzine, 1947). Lymnocardidae. Tertiary. TYPE LOCALITY. Russia. RECORDS. ••1987 Anaya: *Limnocardium nobile* var. *amicorum* Eberzine, 1947. ••1987 Taktakishvili: *Limnocardium (Euxinocardium) nobile* Sabba var. *amicorum* Andrus. ••1987

Taktakishvili: *Euxinocardium nobile amicorum* Ebers. ••1987 Taktakishvili: *Limnocardium (Euxinocardium) nobile amicorum* Ebers.?

**nobile amicorum** (aff.) Ebersin, 1947. – RECORDS. ••1987 Taktakishvili: *Euxinocardium* aff. *nobile amicorum* Andrus.

**nodai** Kafanov, 1980. – *Serripes nodai* Kafanov, 1980. Cardiidae. Fossil. RECORDS. ••1980 Kafanov, p. 319: *Serripes nodai* Kafanov. ••1980 ZR: *Serripes nodai* Kafanov, 1980 nom. nov. for *Cardium pauperculum* Yokoyama 1923 nec Meek 1871. Ref. to Kafanov, p. 319.

**nodosulum** Wood, 1853. – *Parvicardium nodosulum* (Wood, 1853). Cardiidae. Fossil. RECORDS. ••1970 Glibert & Poel, p. 46. *Parvicardium nodosulum* (Wood, 1853).

**\*nodosum**. – Homonymy to be noticed. *Cardium nodosum* from 4 sources: Montagu, 1803. – Turton, 1822. – Chiereghini in Nardo, 1847. – Moulton, 1880.

**nodosum** Chiereghini in Nardo, 1847. – Combination to be revised: “*Cardium*” *nodosum* Chiereghini in Nardo, 1847. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 4401: *Cardium nodosum* Nardo (ex Chiereghini MS), 1847.

**nodosum** Montagu, 1803. [Figs. Part 1 p. 145, 171]. – Identical with *Parvicardium scabrum* (Philippi, 1844). OTHER JUDGEMENTS: *Acanthocardia tuberculata* (Linnaeus, 1758). >> Regarding *Cardium nodosum*:

TYPE MATERIAL missing (Glibert & Poel, p. 43). Cardiidae. Recent. RECORDS. ••1803 Montagu, No. 6: *Cardium nodosum* n. sp. ••1807 Maton & Rackett, No. 11: *Cardium nodosum* Montagu p. 81. ••1813 Fleming: *Cardium nodosum* Montagu. ••1815 Wood: *Cardium nodosum* Mont. ••1817 Dillwyn: *C. nodosum* Montagu has too uncertain status to be retained. ••1840 Sowerby, catalogue p. 2, No. 23: *Cardium nodosum* Montagu = *Cardium nodosum* Turton, 1822. ••1845 Reeve: *Cardium nodosum* Montagu. ••1852 Leach: *Cardium nodosum* Mont. = Testa junior *Cardium tuberculatum*. ••1856 Wood & Hanley No. 7: *Cardium nodosum* Mont. T. B. (not Turt.). ••1858 Adams & Adams, p. 458: *Hemicardia (Fragum) nodosa* Mont. ••1864 Mayer: *C. nodosum* (comparison with *Cardium papillosum* Poli.) [Tertiary]. ••1868 ZR: *Cardium nodosum* (Mont.) is perhaps not = *roseum* (Lam.), or *punctatum* (Brocchi), or *scabrum* (Phil.) [Ref. Römer 1868]. ••1871 Mörch, p. 215, No. 204: *Cardium (Cerastoderma) nodosum* Mtg. ••1888 Petersen: *Cardium nodosum* Mtg. ••1890 Paetel: *Cardium nodosum* Mtg. ••1907 ZR: *Cardium nodosum* [Refs. Colgan, Hoel, Øyen]. ••1922-32 Sherborn, p. 4401: *Cardium nodosum* Montagu, 1803. ••1932 Winckworth: *Cardium nodosum* = *Cardium (Parvicardium) scabrum* Philippi, 1844. ••1970 Glibert & Poel: *Parvicardium nodosum* (Montagu, 1803). ••1977 Fischer–Piette: *Cardium (Cerastoderma, Parvicardium) nodosum* Montagu. ••1978 Janssen & Van der Slik: *Cardium nodosum* Montagu, 1803 = *Cardium tuberculatum* Linnaeus. ••2000 Aartsen & Goud: *Cardium nodosum* Montagu, 1803 not Gmelin, 1791 is a synonym of *Parvicardium scabrum* (Philippi, 1844). ••2001 Vidal, p. 408: *Parvicardium nodosum*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1845 Reeve: shell orbicular, rather depressed, posteriorly slightly angulated; radiately

*nodosum* – *nodulosum*

ribbed, 25–26 ribs, conspicuously obtusely noduled whitish. •2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes. REMARKS. •1845 Reeve: each rib is surmounted with a row of small blunt nodules. HABITAT. •1876 Duprey: *Cardium nodosum* Turton intertidal on the coast of New Jersey with a tidal range of about 13 m. •1969 Nordsieck: 9–420 m depth, in the North Sea from 42 m depth and down. DISTRIBUTION. •1807 Maton & Rackett: Falmouth in Cornwall. •1845 Reeve: Britain. •1856 Wood & Hanley: Britain. •Of authors: North Norway, Ireland, Canary Islands, Mediterranean.

***nodosum* Mourlon 1880.** – Replaced by *Parvicardium straelini* (Gilbert, 1945). >> Regarding *Cardium nodosum*: Cardiidae. Miocene. RECORDS. •1947 ZR: *Cardium nodosum* Mourlon 1880–1881 non Montagu, 1803, = *Cardium* (*Parvicardium*) *straelini* Gilbert, 1945 Miocene Anversian, Belgium.

***nodosum* Turton, 1822.** – Identical with *Parvicardium scabrum* (Philippi, 1844). OTHER JUDGEMENTS: *Cardium muricatulum* jun., auctorum. – *Plagiocardium papillosum* (Poli). – *Cardium punctatum* Broc. – juv. *Cardium tuberculatum* Linnaeus. – *Cardium roseum* Lamarck, 1818. >> Regarding *Cardium nodosum*: Cardiidae. Recent. RECORDS. •1822 Turton: *Cardium nodosum*. •1855 Clark: *C. nodosum* Turton = *C. muricatulum* jun., auctorum. •1856 Jeffreys: *Cardium nodosum* (Turton) B.M (= “British Mollusca”) = *Cardium papillosum* (Poli) Ph. •1857 Deshayes: *Cardium nodosum* Turton. •1859 Danielssen: *Cardium nodosum* Turton = *Cardium scabrum* Philippi. •1859 Sowerby: *C. nodosum* Turton = *Cardium punctatum* Broc. •1867 ZR: *Cardium nodosum* (Turton) and other authors [Ref. Weinkauff 1867]. •1868 Mörch: *Cardium* (*Cerastoderma*) *nodosum* Turton. •1868 ZR: *Cardium nodosum* (Mont.) is perhaps not = *roseum* (Lam.), or *punctatum* (Brocchi), or *scabrum* (Phil.) [Ref. Römer 1868]. •1882 Cooke: *Cardium nodosum* Turton. = *C. pygmaeum* Don. = *C. exiguum* Gmel. •1884 Grasset: *Cardium nodosum* Turton. •1886 Locard: *Cardium nodosum* Turton, 1822 = *Cardium roseum* de Lamarck, 1818. •1888 Servain: *Cardium nodosum* Turton, 1822 = Lamarck, 1818. •1892 Locard: *Cardium nodosum* Turton, 1822. •1900 Brögger: *Cardium nodosum*, Turton. •1900 Locard & Caziot: *Cardium nodosum* Turton, 1822. •1906 Dautzenberg & Durouchoux: *Cardium* (*Parvicardium*) *nodosum* Turton. •1933 Coen: *Cardium nodosum* Turton = *Eucardium* (*Cardium*) *echinatum* var. *roseum* Lamarck. •1933 Coen & Vatova: *Eucardium* (*Rudicardium*) *nodosum* Turton. •1937 Coen: *Cerastoderma* (*Rudicardium*) *nodosum* Turton. •1947 ZR: *Cardium nodosum* Turton, mode of locomotion, figs. [Ref. Stoll 1947]. •1962 Pasteur–Humbert: *Cardium nodosum* Turton. •1969 Nordsieck: *Parvicardium nodosum* (Turton, 1822). •Scarlato & Starobogatov: *Cardium nodosum* Turton. in Kobelt 1898 = *Plagiocardium papillosum* (Poli, 1791). •1978 Janssen & Van der Slik: *Cardium nodosum* Turton, 1822 = *Parvicardium scabrum* (Philippi). •1998 Macedo *et al.*: *Cardium nodosum* Turton, 1822 non Montagu, 1803 = *Parvicardium scabrum* (Philippi, 1844). – CHARACTERS AND OCCURRENCE – DISTRIBUTION. •1884 Grasset: Algeria.

***nodosum ovata* Jeffreys (variety).** – Infrasubspecific. No evidence of subspecific status. *Parvicardium scabrum* (Philippi, 1844). >> Regarding *Cardium nodosum* var. *ovata*: Cardiidae. Recent. RECORDS. •1897 Marshall: *Cardium nodosum* var. *ovata* Jeff.

***nodosum rosea* Lamarck (variety).** – Infrasubspecific. No evidence of subspecific status. *Parvicardium scabrum* (Philippi, 1844). >> Regarding *Cardium nodosum* var. *rosea*: Cardiidae. Recent. RECORDS. •1876 Duprey: *Cardium nodosum* var. *rosea* Lam. •1897 Marshall: *Cardium nodosum* var. *rosea* Lamk. •1901 Chaster *et al.*: *Cardium nodosum* var. *rosea* Lamarck. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. Intertidal on the coast of New Jersey with a tidal range of about 13 m (Duprey 1876).

***nodulosum* Lamarck.** [Figs. part 3 p. 847]. – *Acanthocardia tuberculata*. Lamarck collection MNHN Paris. No published records encountered.

***nodulosum* Orbigny, 1850.** – *Conocardium nodulosum* d’Orbigny, 1850. Conocardiidae. Fossil. RECORDS. •1922–32 Sherborn: *Pleurohynchus nodulosum* M’Coy. •1922–32 Sherborn, p. 4405: *Conocardium* (M’Coy) *nodulosum* d’Orbigny, 1850. – *Pleurohynchus*.

***nodulosum* Spengler, 1799.** [Figs. Part 1 p. 93. Part 3 p. 906]. – ? *Americardia* sp. OTHER JUDGEMENTS: *Cardium medium* Linnaeus, 1758. >> Regarding *Cardium nodulosum*: Cardiidae. Recent. TYPE LOCALITY. The East Indies (Spengler 1799). TYPE REPOSITORY. •ZMUC: 1 specimen (Spengler coll.). RECORDS. •1799 Spengler, p. 57, No. 37, pl. 1, figs. 4 a, b: *Cardium nodulosum*. •1808 Spengler, p. 131: *Cardium nodulosum*. •1870 Mörch: *Cardium nodulosum* Spengler; good species related to *C. imbricatum* Sow. •1902. Sherborn, p. 669: *Cardium nodulosum* Spengler, 1799. •1977 Fischer–Piette: *Cardium nodulosum* Spengler = *Corculum medium* Linné. •1999 Knudsen & Hylleberg: *Cardium nodulosum* Spengler, 1799. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: a three-sided cockle, posterior slope marked, 10 very smooth ribs, margin dentate. Shell surface with about 20 ribs, narrower than on the posterior slope, rounded tops ornamented with nodules instead of scales, narrow interstices. DESCRIPTIONS. •1799 Spengler: *testa subcordata aequivalvi, carinato-angulata, sulcis nodulosis*. •1799 Spengler translated by Knudsen & Hylleberg 1999: this triangular cockle is a distinct and new species, which is not published by any author. After its heart-shaped front side, which is encased by an elevated blunt crest, lengthwise broadest at the middle, towards the side of the back hollowed, but in the middle elevated. It is covered by ten glossy ribs, which on the margin, where both valves closely interlock, are incised with serrate teeth. Deeply incised ribs, which however are narrower than those on the front side, and which on their rounded backs are furnished with tubercles instead of scales, cover the two inflated surfaces. The backside of the bivalve, from the umbo to the lower margin, is rather long, not very much shorter than the anterior margin. The bivalve is white all over, only inside is the front side yellow. DIMENSIONS. •1799 Spengler: length 33 mm (1.25 Tom.), width 26 mm (1 Tom.). REMARKS. It is not clear which specimen Spengler (1799) has described. The type specimen at

**nodulosum – norvegicum**

ZMUC has dense chevrons on top of radial ribs (like in *C. medium* Linné, from the West Indies). The figures (4 a, b) by Spengler indicates that he apparently described a white specimen of *Fragum unedo*. His figs. do not show the characters of *medium* Linné so the original specimen must have been lost. DISTRIBUTION. •1799 Spengler: Its home is the East Indies [?error, should be the W. Indies if the species is *C. medium* L.].

**nodulosum** Wood, 1853. – Not valid. >> Regarding *Cardium nodulosum*: Cardiidae. Tertiary. Synonym of *Parvicardium papillosum* (Poli, 1791). RECORDS. •1864 Mayer: *C. nodulosum* (comparison with *Cardium papillosum*. Poli.). •1867 Weinkauff: *Cardium nodulosum* Wood, (Crag Moll.) = *Cardium papillosum* Poli. •1888 Kobelt: *Cardium nodulosum* Wood (fide Weinkauff) = *Cardium papillosum* Poli. •1922-32 Sherborn, p. 4405: *Cardium nodulosum* Wood, 1840 [n.n.]. •1970 Glibert & Poel: *Parvicardium nodulosum* (Wood, 1853).

**noeggerathi** J. Müller, 1851. – Changed combination: *Pleurocardia noeggerathi* (J. Müller, 1851). Cardiidae. Cretaceous. RECORDS. •1871 Stoliczka: *Cardium noeggerathii* (*Laevicardium*). •1889 ZR: *Cardium noeggerathi* with fig. (ref. Holzappel). •1931 ZR: *Cardium noeggerathi* Ref. to Rieder (1931). •1980 Ruhoff: *Cardium noeggerathi* J. Müller, 1851; part 2: 65. •1986 Abdel-Gawad: *Cardium noeggerathi* J. Müll. in Andert 1934. •1986 Abdel-Gawad, pl. 40, fig. 10: *Pleurocardia* (*Pleurocardia*) *noeggerathi* (J. Müller, 1851). •1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection as *Cardium noeggerathi* Muller. Lower Senonian. Germany, B18197.

**nomurai** (subspecies). – See under *notabilis nomurai* Otuka, 1943.

**nomurai** Hayasaka, 1957. – Combination to be revised: "*Clinocardium*" *nomurai* Hayasaka, 1957. Cardiidae. Pliocene. RECORDS. •1957 ZR: "*Clinocardium*" *nomurai* Hayasaka, 1957 sp. nov. Pliocene, Futaba district, Fukushima Prefecture, Japan.

**nomurai** Kuroda & Habe, 1951. – New name: *Nemocardium nomurai* Kuroda & Habe, 1951. Cardiidae. Recent. TYPE LOCALITY. Taiwan (fossil) (Higo *et al.*: 1999). GENOTYPE. Habe (1951) designated *Cardium nomurai* Kuroda & Habe, 1951 type species of the subgenus *Trifaricardium* Habe, 1951. RECORDS. •1951 Kuroda & Habe: *Cardium nomurai*. •1951 Habe: *Cardium nomurai* Kuroda & Habe, 1951. •1952 Kuroda & Habe: *Cardium* (*Trifaricardium*) *nomurai* Kuroda & Habe. •1961 ZR: *Trifaricardium nomurai* Kuroda & Habe, 1961 nom. nov. pro *Cardium* (*Acanthocardia*) *cancellatum* Nomura 1933 non Gmelin 1791, Japan. •1962 ZR: *Trifaricardium nomurai* Kuroda & Habe in Kuroda, 1962 nom. nov. for *Cardium cancellata* Nomura 1933, non Gmelin 1791. •1973 Keen: *Nemocardium* (*Trifaricardium*) *nomurai* Kuroda & Habe, 1951. •1977 Fischer-Piette: *Trifaricardium nomurai* Kuroda & Habe. •1977 Habe: *Trifaricardium nomurai* Kuroda & Habe, 1951. •1977 Popov: *Pratulium nomurai* (Kuroda & Habe). •1981 Koyama *et al.*: *Trifaricardium nomurai*. •1995 Schneider: *Nemocardium* (*Trifaricardium*) *nomurai* Habe, 1951. •1999 Higo *et al.*: *Trifaricardium nomurai* Kuroda & Habe in Habe, 1951. – CHARACTERS

AND OCCURRENCE – REMARKS. •1973: Keen stated that *Nemocardium* (*Trifaricardium*) *nomurai* Kuroda & Habe, 1951 is a new name for *Cardium cancellatum* Nomura, 1933, preoccupied. HABITAT. •1999 Higo *et al.*: 100-200 m, mud and sand. DISTRIBUTION. •1994 Hylleberg: Japan. •1999 Higo *et al.*: Mie prefecture (off Kii-Nagashima; off Owase Matsumoto, 1979) and southwards, Kii peninsula (Kuroda & Habe, 1981), Tosa bay; South China Sea.

**noquam** (error). – Printer's mistake for *nequam* in Ma Qi-hong *et al.* 1976.

**nordenskiöldi** (subspecies). – See under *ciliatum nordenskiöldi* Kabanov, 1981.

**nortonensis** Cox, 1946. – *Tutcheria nortonensis* Cox, 1946. Cardiacea. Middle Lias. RECORDS. •1946 ZR: *Tutcheria nortonensis* Cox, 1946 sp. nov. Middle Lias of Chipping Norton, Oxon.

**norvegicum** Spengler, 1799. [Figs. Part 1 p. 94, 175. 176. Part 3 p. 895, 896]. – Synonym of *Laevicardium crassum* (Gmelin, 1791). >> Regarding *Cardium norvegicum*: Cardiidae. Miocene and Recent. TYPE SPECIES. Sacco (1899) stated that *Laevicardium norvegicum* (Spengl.) is type species of subgenus *Laevicardium* Swainson, 1840. TYPE LOCALITY. Bergen, Norway (Spengler 1799). TYPE REPOSITORY. •ZMUC (Spengler collection). RECORDS. •1799 Spengler, p. 42, No. 26: *Cardium norvegicum*. •1808 Spengler: *Cardium norvegicum*. •1840 Swainson: *Cardium norvegicum* Spengler type of the genus *Laevicardium* (in Nordsieck 1969, p. 97). •1846 Lovén: *Cardium norvegicum* Spengler. •1855 Clark: *C. norvegicum* Spengler = *C. laevigatum* auctorum. •1856 Wood & Hanley: *C. norvegicum* Speng. is to be preferred for *Cardium laevigatum* Penn. •1857 Deshayes: *Cardium norvegicum* Spengler. •1858 Adams & Adams, p. 457: *Laevicardium norvegicum*, Spengl. •1867 ZR: *Cardium norvegicum* (Spengler) = *laevigatum* of the Mediterranean conchologists [Ref. Weinkauff 1867]. •1868 Colbeau: *Laevicardium norvegicum* Spgl. •1868 ZR: *Cardium norvegicum* (Spengl.) = *C. laevigatum* of Pennant not Linné = *C. vitellinum* [Ref. Römer 1868]. •1868 ZR: *Cardium norvegicum* (Spengl.). Living specimens observed in aquarium at Arcachon; makes considerable leaps [Ref. Crosse 1868]. •1871 Mörch, p. 215, No. 200: *Cardium norvegicum* Spgl. = *Cardium* (*Liocardium*) *crassum* Gm. •1872 Tryon: *Laevicardium norvegicum* Spengler. •1884 Cundall: *Cardium norvegica*. •1884 Grasset: *Laevicardium norvegicum* Spgl. •1885 Smart: *Cardium norvegicum* Spengl. •1885 Smith: *Cardium norvegicum* Spengler, Forbes and Hanley, pl. 31, figs. 1–2 = *Cardium* (*Laevicardium*) var. *norvegicum* Spengler. •1886 Locard: *Cardium norvegicum* Spengler, 1792 *sic*. •1887 Fischer: *Laevicardium norvegicum* Spengler. •1888 Petersen: *Cardium norvegicum* Spgl. •1888 Servain: *Cardium norvegicum* Spengler, 1792 *sic*. •1890 Paetel: *Cardium norvegicum* Spglr. •1890 Paetel: *Laevicardium norvegicum* Spglr. •1892 Locard, p. 307: *Cardium norvegicum* Spengler, 1792 *sic*. •1899 Sacco: *Laevicardium norvegicum* (Spengl.) (an var. *fragilis* Br.). •1899 Sacco: *Laevicardium norvegicum* (Spengler 1790) [Miocene–Recent]. •1900 Locard & Caziot: *Cardium norvegicum* Spengler, 1790 *sic*. •1902

*norvegicum* – *norvegicum gibba*

Dall: *Cardium norvegicum* Spengler, type of subgenus *Laevicardium* Swainson. •1902 Sherborn, p. 670: *Cardium norvegicum* Spengler, 1799. •1906 Dautzenberg & Durouchoux: *Cardium (Laevicardium) norvegicum* Spengler. •1907 ZR: *Cardium norvegicum* [Refs. Christensen, Colgan]. •1912 Dautzenberg & Fischer: *Cardium (Laevicardium) norvegicum* Spengler 1799. •1912 ZR: *Cardium (Laevicardium) norvegicum* Speng. [Ref. Dautzenberg & Fischer 1912]. •1927 Dautzenberg: *Cardium (Laevicardium) norvegicum* Spengler = *Cardium (Laevicardium) crassum* Gmelin. •1931 ZR: *Cardium norvegicum* Ref. to Patrini (1931). •1933 Coen & Vatova: *Laevicardium norvegicum* Spengler var. *gibba* Jeffreys. •1962 Pasteur–Humbert: *Laevicardium norvegicum* (Spengler). •1969 Nordsieck: *Laevicardium norvegicum norvegicum* Spengler, 1790 sic. •1969 Nordsieck: *Cardium norvegicum* Spengler, 1790 sic = *Laevicardium crassum* (Gmelin, 1791). •1977 Fischer–Piette: *Cardium norvegicum* Schr., Spengler, 1799 = *Laevicardium crassum* Gmelin. •1977 ZR: *Laevicardium norvegicum*. Shell. Aberrant specimen. Ref to Entrop, B. •1970 Glibert & Poel: *Cardium norvegicum* Spengler, 1799 = *Laevicardium* (s.s.) *crassum* Gmelin, 1791. •1977 Fischer–Piette p. 18: *Cardium norvegicum* in Jeffreys 1856 = *Cardium oblongum* Gmelin. •1978 Janssen & Van der Slik: *Cardium norvegicum* Spengler = *Laevicardium (Laevicardium) crassum* (Gmelin, 1791). •1983 Anaya: *Laevicardium* (s. s.) *norvegicum* (Spengler, 1790 sic) [Pliocene]. •1998 Macedo et al.: *Cardium norvegicum* Spengler, 1799 = *Laevicardium crassum* (Gmelin, 1791). •1999 Knudsen & Hylleberg: *Cardium norvegicum* Spengler, 1799. •1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection as *Laevicardium norvegicum* Spengler. Pliocene–Quaternary. Morocco, B38093 to –95. B44385. Italy, B40619, B36098, B36099. Egypt, B42202. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: 2 specimens from Bergen in Norway, the Spengler coll. CHARACTERS of diagnostic value: shells thick, glossy, not gaping, anterior part round like part of a circle, posterior slope smooth, nymphs broad and deeply set, ribs flat vanishing towards the umbo, 2 cardinals in each shell, Colour yellow outside, white inside. DESCRIPTIONS. •1799 Spengler: *testa cordata aequalvalvi, laevi sulcis transversis antiquatis, costis obsoletis*. •1799 Spengler translated by Knudsen & Hylleberg 1999: this *Cardium* is as long as it is broad. Its actual length on the front side is reckoned from the umbo down to the lower margin. The posterior end of the bivalve is very short and round as a circular arc. The front side is only slightly projecting and smooth in the middle. Both valves have here only quite flattened teeth and are closely connected. The nymphs are very broad and placed deeply in the bivalve. Both surfaces, on their lower part towards the middle, have flattened elevated ribs, whose backs are straight and separated by furrows. But these ribs become indistinct upwards and leave only faint traces, which become almost invisible due to the lustre by which the bivalve becomes very shining. This cockle has two hinge teeth in each valve, which is usual in this genus. The whole margin

of the bivalve is provided with small teeth by which both valves interlock tightly. The valves are thick, light yellow outside, and snow–white inside. DIMENSIONS. •1799 Spengler: height and width 65 mm (2 1/2 Tom.). HABITAT. •1969 Nordsieck: generally recorded from 7 to 180 m depth (maximum 2195 m). •1876 Duprey: intertidal on the coast of New Jersey with a tidal range of about 13 m. DISTRIBUTION. •1799 Spengler: Berger in Norway. •1856 Wood & Hanley: Britain &c. •1884 Grasset: England. •1969 Nordsieck: North Europe, West Africa, Mediterranean; Atlantic Ocean from Lofoten to the Ivory Coast.

***norvegicum*** Jeffreys (variety). – Infrasubspecific. >> Regarding *Laevicardium norvegicum* var. *Cardiidae*. Recent. RECORDS. •1899 Sacco: *Laevicardium norvegicum* var. Jeffr. •1969 Nordsieck: *Laevicardium norvegicum norvegicum* (Spengler, 1790 sic) var. Jeffreys.

***norvegicum*** Schröter 1786 (variety). – Infrasubspecific. >> Regarding *Cardium norvegicum* var. *Cardiidae*. Recent. TYPE LOCALITY. Mediterranean. TYPE REPOSITORY. •ZMUC (Spengler coll.). OF COLLECTIONS. Spengler p. 42. No. 26b. •ZMUC: 1 specimen from the Mediterranean in Spengler coll. RECORDS. •1784 Schröter, p. 57, No. 12 (1786), pl. 7, fig. 12 (1784): *Cardium* var. *norvegicum*. •1799 Spengler, p. 42, No. 26: *Cardium* var. *norvegicum* in Schröter, 3<sup>rd</sup>, vol. p.57, no. 12. Tab. 7 fig. 12. •1870 Mörch: *Cardium* var. *norvegicum* Spengler, Schröter Einl. = *Cardium crassum* Gmelin. •1885 Smith: *Cardium norvegicum* Spengler, Forbes and Hanley, pl. 31, figs. 1–2 = *Cardium (Laevicardium) var. norvegicum*, Spengler. •1999 Knudsen & Hylleberg: *Cardium norvegicum* var. Spengler, 1799 (the Mediterranean). – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: larger than *C. norvegicum*, more inflated, but otherwise similar to *C. norvegicum* from Norway. DESCRIPTIONS. •1799 Spengler translated by Knudsen & Hylleberg 1999: This bivalve is considerably larger, thicker and has a more solid shell, more strongly inflated; otherwise very similar to the preceding one [*Cardium norvegicum*]. It belongs to the Mediterranean. DIMENSIONS. •1799 Spengler: height and width 72 mm (2 3/4 Tom.).

***norvegicum*** Spengler, 1799 (variety). [Figs. Plate 3 p. 895]. – See *norvegicum* var. Schröter.

***norvegicum dertogibba*** Sacco, 1899 (variety). – Identical with *Laevicardium crassum* (Gmelin, 1791). >> Regarding *Laevicardium norvegicum* var. *dertogibba*: no evidence of subspecific status. *Cardiidae*. Recent. RECORDS. •1899 Sacco, p. 52, pl. 11, fig. 45: *Laevicardium norvegicum* var. *dertogibba* Sacc.

***norvegicum devians*** Bucquoy, Dautzenberg & Dollfus, 1892 (variety). – Identical with *Laevicardium crassum* (Gmelin, 1791). >> Regarding *Cardium norvegicum* var. *devians*: Infrasubspecific. No evidence of subspecific status. *Cardiidae*. Recent. RECORDS. •1892 Bucquoy, Dautzenberg & Dollfus, *Cardium norvegicum* var. *devians*. •1969 Nordsieck: *Laevicardium norvegicum norvegicum* var. *devians* Bucquoy sic, Dautzenberg & Dollfus. Unknown distribution.

***norvegicum gibba*** (mode). – See under *norvegicum gibbum* Jeffreys, 1863.

*norvegicum gibbum* – *norvegicum senegalensis*

***norvegicum gibbum*** Jeffreys, 1863 (variety). – Identical with *Laevicardium crassum* (Gmelin, 1791). >> Regarding *Laevicardium norvegicum* var. *gibba*: Infrasubspecific. No evidence of subspecific status. Cardiidae. Recent. RECORDS. ••1933 Coen: *Laevicardium norvegicum* Spengler var. *gibba* Jeffreys. ••1937 Coen: *Laevicardium norvegicum gibbum* Jeffreys. Described as a variety. ••1856 Jeffreys: *Cardium norvegicum* var. *gibbum*. ••1897 Marshall: *Cardium norvegicum* var. *gibba* Jeff. ••1899 Sacco: *Laevicardium norvegicum* var. *gibba* (Jeffr.). ••1899 Sacco: *Cardium norvegicum* var. *gibba* Jeffrey sic 1863. ••1901 Chaster et al.: *Laevicardium norvegicum* var. *gibba* Jeffreys. ••1969 Nordsieck: *norvegicum* var. *gibbum* Jeffreys = *norvegicum* var. *senegalensis* Dautzenberg. ••1980 Ruhoff: *Cardium norvegicum gibba* Jeffreys, 1863; [1862–1869] vol. 2: 295. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1969 Nordsieck: more inflated, lighter weight, more marked sculpture. REMARKS. ••1969 Nordsieck: *Laevicardium norvegicum* Spengler, 1799 = *Laevicardium crassum* (Gmelin, 1791). DISTRIBUTION. Unknown.

***norvegicum lineolatum*** Bucquoy, Dautzenberg & Dollfus, 1892 (variety). – Identical with *Laevicardium crassum* (Gmelin, 1791). >> Regarding *Cardium norvegicum* var. *lineolatum*: infrasubspecific. No evidence of subspecific status. Cardiidae. Recent. RECORDS. ••1892 Bucquoy, Dautzenberg & Dollfus, 1892: *Cardium norvegicum* var. *lineolatum*. ••1969 Nordsieck: *Laevicardium norvegicum norvegicum* (Spengler, 1790 sic) var. *lineolatum* Bucquoi sic, Dautzenberg & Dollfus, 1889 sic. Unknown distribution.

***norvegicum marmoratum*** Bucquoy, Dautzenberg & Dollfus, 1892 (variety). – Identical with *Laevicardium crassum* (Gmelin, 1791). >> Regarding *Cardium norvegicum* var. *marmoratum*: no evidence of subspecific status. Cardiidae. Recent. RECORDS. ••1892 Bucquoy, Dautzenberg & Dollfus, 1892: *Cardium norvegicum* var. *marmoratum*. ••1969 Nordsieck: *Laevicardium norvegicum norvegicum* (Spengler, 1790 sic) var. *marmoratum* Bucquoi sic, Dautzenberg & Dollfus. Unknown distribution.

***norvegicum mediterraneum*** Bucquoy, Dautzenberg & Dollfus, 1892 (variety). – Identical with *Laevicardium crassum* (Gmelin, 1791). >> Regarding *Cardium norvegicum mediterranea*: infrasubspecific. No evidence of subspecific status. Cardiidae. Recent. RECORDS. ••1892 Bucquoy, Dautzenberg & Dollfus, 1892: *Cardium norvegicum mediterranea*. ••1899 Sacco: *Laevicardium norvegicum* var. *mediterranea* B.D.D. ••1900 Locard & Cazier: *Cardium norvegicum* Spengler, 1790 sic var. *mediterranea*. ••1906 Dautzenberg & Fischer: *Cardium (L.) norvegicum* var. *mediterranea*, Bucquoy, Dautzenberg & G. Dollfus 1892. ••1937 Coen: *mediterraneum* Monter. = *Laevicardium norvegicum gibbum* Jeffreys. ••1969 Nordsieck: *Laevicardium norvegicum mediterraneum* Bucquoi sic, Dautzenberg & Dollfus, 1889. – CHARACTERS AND OCCURRENCE – REMARKS. ••1969 Nordsieck: *Laevicardium norvegicum mediterraneum* coexists with a typical Atlantic form, e.g. at Marseilles. DISTRIBUTION. ••1900 Locard & Cazier: Mediterranean.

***norvegicum minor*** (variety) – Identical with *Laevicardium crassum* (Gmelin, 1791). >> Regarding *Cardium norvegicum* var. *minor*: infrasubspecific. No evidence of subspecific status. Cardiidae. Recent. RECORDS. ••1900 Locard & Cazier: *Cardium norvegicum* var. *minor*. Mediterranean.

***norvegicum pallidum*** Jeffreys, 1863 (variety). – Identical with *Laevicardium crassum* (Gmelin, 1791). >> Regarding *Cardium norvegicum* var. *pallidum*: infrasubspecific. No evidence of subspecific status. Cardiidae. Recent. RECORDS. ••1863 Jeffreys: *Cardium norvegicum* var. *pallidum*. ••1896 Tregelles: *Cardium norvegicum* var. *pallida* Jeff. ••1897 Marshall: *Cardium norvegicum* var. *pallida* Jeff. 1901 Chaster et al.: *Laevicardium norvegicum* var. *pallida* Jeffreys. ••1969 Nordsieck: *Laevicardium norvegicum* var. *pallidum* (Jeffreys). ••1980 Ruhoff: *Cardium norvegicum pallida* Jeffreys, 1863; [1862–1869] vol. 2: 295. – CHARACTERS AND OCCURRENCE – REMARKS. ••1969 Nordsieck: yellow colour. HABITAT. ••1876 Duprey: *Cardium norvegicum* var. *pallida* intertidal on the coast of New Jersey with a tidal range of about 13 m. DISTRIBUTION. ••1969 Nordsieck: unknown.

***norvegicum ponderosum*** Bucquoy, Dautzenberg & Dollfus, 1892 (variety). – Identical with *Laevicardium crassum* (Gmelin, 1791). >> Regarding *Cardium norvegicum* var. *ponderosum*: infrasubspecific. No evidence of subspecific status. Recent. DESCRIPTIONS. Shell thick, heavy. DISTRIBUTION. Unknown (Nordsieck 1969). RECORDS. ••1952 Lecointre: *Cardium norvegicum* Spengler var. *ponderosa* de Bory. ••1892 Bucquoi, Dautzenberg & Dollfus: *Cardium norvegicum* var. *ponderosum*. ••1969 Nordsieck: *Laevicardium norvegicum* var. *ponderosum* Bucquoi sic, Dautzenberg & Dollfus, 1889.

***norvegicum rotundum*** Jeffreys (variety). – Identical with *Laevicardium crassum* (Gmelin, 1791). >> Regarding *Cardium norvegicum* var. *rotunda*: infrasubspecific. No evidence of subspecific status. Cardiidae. Recent. REMARKS. *Laevicardium norvegicum* (Spengler, 1799) = *Laevicardium crassum* (Gmelin, 1791). DESCRIPTIONS. More round and flat (Nordsieck 1969). DISTRIBUTION. Unknown (Nordsieck 1969). RECORDS. ••1896 Tregelles: *Cardium norvegicum* var. *rotunda* Jeff. ••1897 Marshall: *Cardium norvegicum* var. *rotunda* Jeff. ••1901 Chaster et al.: *Laevicardium norvegicum* var. *rotunda* Jeffreys. ••1969 Nordsieck: *Laevicardium norvegicum* var. *rotundum* Jeffreys. ••1980 Ruhoff: *Cardium norvegicum rotunda* Jeffreys, 1863; [1862–1869] vol. 2: 295.

***norvegicum senegalensis*** Dautzenberg, 1891 (variety). – *Laevicardium crassum* (Gmelin, 1791). OTHER JUDGEMENTS: *Laevicardium norvegicum norvegicum* var. *gibbum* Jeffreys. >> Regarding *Laevicardium norvegicum* var. *senegalensis*: Cardiidae. Recent. Infrasubspecific. No evidence of subspecific status. RECORDS. ••1891 Dautzenberg, p. 59: *Laevicardium norvegicum* Spengler var. *senegalensis* nov. ••1969 Nordsieck: *Laevicardium norvegicum norvegicum* (Spengler, 1790 sic) var. *senegalensis* Dautzenberg. ••1969 Nordsieck: *Laevicardium norvegicum norvegicum* var. *senegalensis* Dautzenberg = *Laevicardium norvegicum norvegicum* var. *gibbum* Jeffreys. – CHARACTERS AND OCCURRENCE –

## norwegicum – nuciforme

DESCRIPTIONS. •1969 Nordsieck: more inflated, light weight, marked sculpture. REMARKS. *Laevicardium norvegicum* Spengler, 1790 = *Laevicardium crassum* (Gmelin, 1791). DISTRIBUTION. •1969 Nordsieck: unknown.

**norwegicum** erroneous spelling of *norvegicum*.

**notabile** (mode). – See under *notabilis*.

**notabilis** Sowerby, 1915. [Figs. Part 3 p. 854]. – *Serripes notabilis* (Sowerby, 1915). OTHER JUDGEMENTS: *Serripes notabilis nomurai* Otuka, 1943. – *Serripes groenlandicus* (Bruguère, 1789). >> Regarding *Serripes notabilis*: Cardiidae. Recent. TYPE LOCALITY. Japan. DISTRIBUTION. Japan (Hylleberg 1994). RECORDS. •1915 Sowerby, p. 169, pl. 10, fig. 9: *Cardium* (*Serripes*) *notabile*. •1915 ZR: *Cardium* (*Serripes*) *notabile* Sowerby, 1915 sp. n. Japan. •1952 Kuroda & Habe: *Serripes notabilis* Sowerby. •1954 Taki: *Serripes notabilis* Sowerby. •1962 Habe: *Serripes notabilis* Sowerby. •1964 Habe: *Serripes notabilis* Sowerby. •1964 Shikama: *Serripes notabilis* (Sowerby). •1967 Habe: *Serripes notabilis*. •1973 Keen: *Serripes notabilis* (Sowerby, 1915) = *S. notabilis nomurai* Otuka, 1943 (*vide* Noda, 1962). •1975 ZR: *Cardium* (*Serripes*) *notabile* Saverby *sic*, 1915. Designated type species for new genus *Yagudinella*, Ref. to Kafanov. •1977 Popov: *Serripes notabilis* (Sowerby). •1977 Fischer–Piette: *Serripes notabilis* Sowerby. •1977 Habe: *Cardium notabilis* Sowerby, 1915 = *Serripes groenlandicus* (Bruguère, 1789). •1978 Kafanov: *Yagudinella notabilis* (Sowerby, 1915). •1980 ZR: *Yagudinella notabilis* (Sowerby 1915). Removal from synonymy. *Y. notabilis nomurai* (Otuka 1943). Ref. to Kafanov. •1995 Chung–Hung & Hsi–Jen: *Serripes notabilis* (Sowerby). •1998 Schneider (1998b): *Yagudinella notabile* (Sowerby, 1915). •1999 Higo *et al.*: *Cardium notabilis* Sowerby, 1915 = *Serripes groenlandicus* (Bruguère, 1789). •2000 Coan *et al.*: *Serripes* (*Yagudinella*) *notabilis* (Sowerby, 1915).

**notabilis nomurai** Otuka, 1943 (subspecies). – Synonym of *Serripes groenlandicus* (Bruguère, 1789). >> Regarding *Serripes notabilis nomurai*: Cardiidae. Recent. RECORDS. •1975 ZR: *Yagudinella notabilis nomurai* Otuka, 1943 comb. nov. transferred from *Serripes*. Ref. to Kafanov, p. 147. •1978 Kafanov: *Serripes notabilis nomurai* Otuka, 1943 = *Yagudinella notabilis* (Sowerby, 1915). •1980 ZR: *Yagudinella notabilis nomurai* (Otuka 1943). Removal from synonymy with *Y. notabilis* (Sowerby 1915). Ref. to Kafanov. •2000 Coan *et al.*: *Serripes notabilis nomurai* Otuka, 1943 = *Serripes* (*Yagudinella*) *notabilis* (Sowerby, 1915).

**novaspica** (subspecies). – See under *protracta novaspica* Glazunova, 1971.

**novaezelandiae** Deshayes. – Unknown species. >> Regarding *Cardium novaezelandiae*: Cardiidae. Recent. RECORDS. •1885 Smith: *Cardium novaezelandiae* Deshayes, MS. in Mus. Cuming (?) = *Cardium* (*Bucardium*) *pulchellum* Gray.

\***novakovskii**. – Homonymy to be noticed. *Cardium novakovskii* from 2 sources: Andrussow, 1902. – Andrusov, 1963. – REMARKS. I do not know how Andrussow 1902 compares with Andrusov 1963. –

**novakovski** Andrussow, 1902. – Combination to be

revised: “*Cardium*” *novakovski* Andrussow, 1902. Cardiacea. Fossil. RECORDS. •1905 Dollfus, commenting Andrussow 1902: *Cardium novakovski* n. sp. tends towards *Cerastoderma*.

**novakovskii** Andrusov, 1963. – Combination to be revised: “*Cardium*” *novakovskii* Andrusov, 1963. Cardiacea. Miocene. RECORDS. •1961 ZR: *Cardium novakovskii* Andrusov, 1961 “sp. nov.” [in a table] Miocene Caspian region, Russia. •1963 ZR: *Cardium novakovskii* Andrusov, 1963 sp. nov. Neogene, Russia [on the pl. as *novakovskii*].

**novakovskyi** (error). – Printer’s mistake for *novakovskii* in Andrusov, 1963.

**novarossica** Barbot de Marny, 1869. – Changed combination: *Pontalmyra novarossica* (Barbot de Marny, 1869). Lymnocardiiidae. Fossil. •1899 Sacco: *Cardium novarossica* Barbot de Marny 1869. RECORDS. •1899 Sacco: *Adachna sic novarossica* (Barb.). •1899 Sacco: *Pontalmyra novarossica* (Barb.). •1987 Taktakishvili: *Didacna novorossica* (Barb.). •1987 Taktakishvili: *Pontalmyra novorossica* (Barb.).

**novatum** Deshayes, 1853. – New name. Combination to be revised: “*Cardium*” *novatum* Deshayes, 1853. Cardiidae. Fossil. RECORDS. •1857 Deshayes: *Cardium novatum* new name for *Cardium cognatum* Phillips in Goldfuss. •1980 Ruhoff: *Cardium novatum* Deshayes, 1853; vol. 2: 47, 53.

**novorossica** (subspecies). – See under *incerta novorossica* Barbot de Marny, 1869.

**novum** Coen, 1941. – Synonym of *Acanthocardia echinata* (Linné, 1758). >> Regarding *Cardium novum*: Cardiidae. Recent. RECORDS. •1941 Coen, p. 170 (pl. 1, figs. 12–14): *Cardium* (*Acanthocardia*) *novum* nov. spec. •1948 ZR: *Cardium* (*Acanthocardia*) *novum* Coen, 1941 sp. nov. Ac. Frezza. •1977 Fischer–Piette: *C. (Acanthocardia) novum* = *C. echinatum* Linné.

**novus** Rio, 1994. – *Dinocardium novus* Rio, 1994. Cardiidae. Middle Miocene. TYPE LOCALITY. Argentina. RECORDS. •1994 Rio, p. 106, pl. 1, fig. 5: *Dinocardium novus* sp. nov.

**noyamiana** Slodkewitsch, 1938. – Changed combination: *Fulvia noyamiana* (Slodkewitsch, 1938). Cardiidae. Miocene. TYPE LOCALITY. Sakhalin Island. RECORDS. •1945 ZR: *Papyridea noyamiana* ‘Kogan’ *sic* Upper Miocene Sakhalin. •1973 Keen: *Fulvia noyamiana* (Slodkewitsch, 1938) [Papyridea]. Miocene, Sakhalin Is. •1976 ZR: *Profulvia noyamiana* (Slodkewitsch, 1938) Comb. nov. Transferred from *Papyridea*. Ref. to Kafanov, p. 482 [orig. p. 111].

**nucella**. – *Conocardium nucella*. Conocardiidae. Fossil. RECORDS. •1889 ZR: *Conocardium nucella* with fig. (ref. Barrois).

**nuci** Jekelius, 1934 – Changed combination: *Euxinocardium nuci* (Jekelius, 1934). Lymnocardiiidae. Pliocene. RECORDS. •1935 ZR: *Limnocardium nuci* Jekelius, 1934 sp. n. Pliocene Rumania. •1971 ZR: *Limnocardium nuci* Jekelius, 1932 Combination revalidated. Transferred back from *Pseudoprosodacna* [Ref. Andreescu 1971]. •1975 ZR: *Limnocardium* (*Euxinocardium*) *nuci* Jekelius. Emended diagnosis. Ref. to Andreescu. I. (139). •1987 Taktakishvili: *Euxinocardium nuci* (Jek.).

**nuciforme** d’Orbigny, 1850. – Combination to be revised: “*Cardium*” *nuciforme* d’Orbigny, 1850.

**nuciformis – nuttallii**

?Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 4433: *Petricola nuciforme* Sowerby, 1836. ••1922-32 Sherborn, p. 4433: *Cardium* (Sow.) *nuciforme* d'Orbigny, 1850. – *Petricola*.

**nuciformis** (variety). – See under *edule nuciformis* Milachewitch, 1916.

**nudum** Münster, 1840. – Combination to be revised: “*Cardium*” *nudum* Münster, 1840. ?Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 4438: *Cardium nudum* Muenster, 1840.

**nummuliticum** d'Archiac, 1850. – Not valid. >> Regarding *Cardium nummuliticum*: Combination to be revised: “*Cardium*” *nummuliticum* d'Archiac, 1850. Cardiidae. Lower Eocene. RECORDS. ••1922-32 Sherborn, p. 4442: *Cardium nummuliticum* d'Archiac, 1850 [n.n.]. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium nummuliticum* d'Archiac. Turkey, B22343, B22344.

**nunninkae** Lucas, 1984. – *Cerastoderma nunninkae* Lucas, 1984. Cardiidae. Recent. DISTRIBUTION. Europe, West Africa. RECORDS. ••1984 Lucas: *C. nunninkae*. ••1984 ZR: *Cerastoderma nunninkae* sp. nov. Lucas, 1984. Bay of Biscay. Ref. to Lucas p. 24.

**nutans** Perkins, 1961. – *Protocardia nutans* Perkins, 1961. Cardiidae. Cretaceous. ••1961 ZR: *Protocardia nutans* Perkins, 1961 sp. nov. Cretaceous, Texas, Fort Worth. ••1986 Scott: *Protocardia nutans* Perkins, 1961.

**nuttallii** (error). – Printer's mistake for *nuttallii* in the present work Part 1, p. 171, fig. 5.

**nuttallianum** Carpenter, 1857. – Synonym of *Clinocardium nuttallii* (Conrad, 1837). >> Regarding *Cardium nuttallianum*: Cardiidae. Recent. RECORDS. ••1857 Carpenter (1856), p. 192: *Cardium nuttallianum*. ••1872 Carpenter: *Cardium nuttallianum*. ••1901 Dall: *Cardium nuttallianum* Carpenter, 1864 = *Cardium corbis* Martyn, 1784. ••1977 Fischer–Piette: *Cardium nuttallianum* Carpenter = *Corculum* (*Keenocardium*) *nuttallii* Conrad. ••1980 Ruhoff: *Cardium nuttallianum* Carpenter, 1857; p. 192.

**nuttallii** Conrad, 1837. [Figs. Part 1 p. 136, 171. Part 3 p. 852]. – *Clinocardium nuttallii* (Conrad, 1837). Cardiidae. Miocene and Recent. TYPE SPECIES. Keen (1936) designated *Cardium nuttallii* Conrad, 1837 as type species of the genus *Clinocardium* Keen, 1936. Gladenkov & Sinelnikova (1990) stated that *Cardium nuttallii* Conrad, 1837 is type species of genus *Clinocardium* Keen, 1936. Glibert & Poel (1970) stated that *Cardium nuttallii* Conrad, 1837 is type species of subgenus *Clinocardium* Keen, 1936. TYPE LOCALITY. A few miles from the estuary of the Columbia River. TYPE REPOSITORY. Academy of Natural Sciences, Philadelphia, Cat. No. 54036. RECORDS. ••1837 Conrad: *Cardium nuttallii*. ••1845 Reeve, sp. 66: *Cardium nuttallii* Conrad, Journal Academy Nat. Sci. Philadelphia, p. 229. pl. 17. f. 3. ••1858 Adams & Adams, p. 456: *Cardium* (*Cerastoderma*) *nuttallii* Conr. ••1860 Carpenter: *Cardium nuttalli* Conr. ••1869 ZR: *Cardium nuttallii* (Conrad) is distinct from *corbis* (Martyn) [Ref. Conrad 1869]. ••1871 Stoliczka: *Cardium nuttallii* (shows a transition to *Pectunculus*). ••1870 Conrad: *Cardium nuttallii* Conrad. ••1872 Dall: *Cardium nuttallii*, Conrad (= *corbis* Desh., Cpr., not Martyn). ••1878 Whiteaves: *Cardium nuttallii* Reeve. ••1884

Grasset: *Cardium nuttalli*. Conr. ••1890 Paetel: *Cardium nuttalli* Conr. ••1896 Rolle: *Cardium nuttallii* Conrad = *Cardium californianum* Conrad. ••1900 Dall: *Cardium* (*Cerastoderma*) *nuttallii* Conrad, 1837, section *Cerastoderma* (fide Schneider 2002). ••1901 Dall: *Cardium nuttallii* Conrad, 1838 = *Cardium corbis* Martyn, 1784. ••1922-32 Sherborn, p. 4444: *Cardium nuttallii* Conrad, 1837. ••1927 Yokoyama: *Cardium nuttallii* Conr. [Miocene]. ••1930 Stewart: *Cardium nuttallii* Conrad is a typical American *Cerastoderma*. ••1936 Keen: *Cardium nuttallii* Conrad, 1837. ••1936 ZR: *Cardium nuttallii* Conrad, 1837. Genotype of *Clinocardium* Keen, 1936 [Ref. Keen 1936]. ••1944 Keen & Bentson: *Clinocardium nuttallii* (Conrad). ••1953 La Rocque: *Clinocardium nuttallii* Conrad 1837. ••1954 Keen: *Cardium nuttallii* Conrad, 1837. [U. Miocene to Recent]. ••1963 ZR: *Clinocardium nuttalli*, comparative study of base composition of DNA [Ref. Smith & Quayle 1963]. ••1963 ZR: *Clinocardium nuttalli*, orientation and form [Ref. Stasek 1963]. ••1964 Shikama: *Cardium* (*Clinocardium*) *nuttallii* (Conrad). ••1967 Habe: *Clinocardium nuttallii*. ••1968 ZR: *Clinocardium nuttallii* Effect of insecticide Sevin on survival and growth [Ref. Butler *et al.* 1968]. ••1968 ZR: *Clinocardium nuttallii* interganglionic regulation of heart-beat [Ref. Silvey 1968]. ••1968 ZR: *Clinocardium nuttallii* Notes on biology and commercial importance, N. American Pacific coast, [Ref. Amos 1968]. ••1871 Stoliczka: *Cardium nuttallii*. ••1972 ZR: *Clinocardium nuttalli* [Ref. Evans 1972]. ••1975 ZR: *Clinocardium nuttalli*. Rate of growth. Seasonal variation. Measurements. Ref. to Ham. / *Clinocardium nuttallii*. Associations. Endozoic alga. Ref. to Cooke. ••1973 ZR: *Clinocardium nuttallii*. Palaeoecology. Japan. Ref. to Kilmer / Symbiont green alga. Ref. to Hartman. ••1976 ZR: *Clinocardium nuttallii*. Parasites. Algal parasites. Northern Pacific. Ref. to Hartman. ••1977 Fischer–Piette: *Corculum* (*Keenocardium*) *nuttallii* Conrad. ••1977 Habe: *Clinocardium* (*Clinocardium*) *nuttallii* (Conrad, 1937). ••1977 Popov: *Cardium nuttallii* Conrad, 1837. Type of *Clinocardium* Keen, 1936. ••1981 ZR: *Cerastoderma nuttallii*. California. Ref. to McPeak. ••1982 ZR: *Clinocardium nuttallii* (Conrad 1837). Diagnostic characters. Ref. to Kafanov *et al.* p. 43. ••1982 ZR: *Clinocardium nuttallii* syn. nov. *Cardium* ?*decoratum* Grewingk 1850. Ref. to Kafanov *et al.* p. 43. ••1982 ZR: *Clinocardium nuttallii*. Miocene. Russian SFSR. Kamchatka & Sakhalin, first record for Miocene & range extension. Ref. to Kafanov *et al.* ••1982 ZR: *Clinocardium nuttallii*. Ref. to Brenchley. / Gallucci *et al.* / Smith. ••1983 ZR: *Clinocardium nuttallii*. Oregon. Ref. to Robinson *et al.* ••1985 ZR: *Clinocardium nuttallii*. Ref. to Meyhofer. ••1987 ZR: *Clinocardium nuttallii*. Ref. to Bayer. – *Clinocardium nuttalli*. Ref. to Estes *et al.* ••1990 Gladenkov & Sinelnikova: *Clinocardium nuttallii* (Conrad), 1837. ••1994 Schneider: *Clinocardium nuttallii* (Conrad, 1837). ••1998 Schneider (1998b): *Clinocardium nuttallii* (Conrad, 1837) from Oregon and Washington harbour *Chlorella* in the tissues. ••1999 Higo *et al.*: *Clinocardium* (*Clinocardium*) *nuttallii* (Conrad, 1837). Type locality: California. Distribution: northeastern Honshu (Iwate prefecture) and northwards, Hokkaido,

Okhotsk Sea; Bering Sea, Alaska, northwestern USA to California. Habitat: 10–50 m, sandy mud. •2000 Coan *et al.*: *Clinocardium (Clinocardium) nuttallii* (Conrad, 1837). •2001 Schneider & Carter: *Clinocardium nuttallii* (Conrad, 1837). •2002 Schneider: *Clinocardium nuttallii*. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC wet collection: Friday Harbor, 15 m muddy silt J. Hylleberg leg. DESCRIPTIONS. •1845 Reeve: shell cordately ovate, Venus-shaped, radiately ribbed, 32 ribs, the extreme posterior ribs very close and almost obsolete, the rest rounded, nodulously crenated in an arched manner throughout; whitish, covered with a rather thick live-brown epidermis. •1870 Conrad: 28 large ribs; no intermediate rib between large ribs; 6 close narrow ribs on posterior slope. Ligament very wide. Narrow and prominent beaks. •1896 Rolle: 34 ribs. REMARKS. •1845 Reeve: this is a noble species though not exhibiting any attractive display of colours; the ribs are rounded, and regularly crenated, in a peculiar arched style, from the margins to the summit of the umbones. All the specimens that have come under my notice are curiously characteristic of several distinct epochs of growth. The first stage of growth is completed within about the radius of an inch from the umbones, and others succeed it at rather less intervals throughout. •1870: Conrad compared *C. corbis* Meusch or of Martyn, from Pooloo Condor [Vietnam] with *C. nuttallii* Conrad from Upper California. They were claimed to be synonyms by Carpenter, but Conrad showed the two to be very different. •1871: Stoliczka stated that *Cardium nuttallii* is a true intermediate between the genera (subgenera) *Acanthocardia* Gray, 1853 and *Pectunculus* Adans., 1757 = *Vepricardium*. •1927 Yokoyama p. 178: *Cardium shinjiense* = *Cardium nuttallii* (sic) Conrad; they resemble *Cardium fastosum* Yokoyama, 1927. HABITAT. Intertidal, shallow water. DISTRIBUTION. •1844 Sitka, Reeve: Northwest USA. •1884 Grasset: Vancouver. •Of authors: North West Pacific, Bering Sea, California.

**nux** da Costa, 1778. – Not a cardiid. >> Regarding *Cardium nux*: RECORDS. •1778 da Costa, p. 173 (pl. 13, fig. 2. 2): *Cardium nux*. •1803 Montagu: *Cardium nux* Da Costa. p. 173. •1853 Forbes & Hanley: *Cardium nux* not a cardiid. •1902 Sherborn, p. 676: *Cardium nux* da Costa, 1778. •1977 Fischer-Piette: *Cardium nux* da Costa = freshwater species.

**nystianum** Orbigny, 1852. – Combination to be revised: “*Cardium*” *nystianum* Orbigny, 1852. Cardiidae. Fossil. RECORDS. •1980 Ruhoff: *Cardium nystianum* Orbigny, 1852; [1850–1852] vol. 3: 21.

**nystii** – *Conocardium nystii*. Conocardiidae. Fossil. RECORDS. •1857 Deshayes: *Cardium nystii*. •1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection as *Conocardium nystii* de Konink. Belgium (Tournai) B06485.

**nöggerathi** (invalid spelling). – See under *noeggerathi* J. Müller, 1851.

## O

**O**, *Cardium* Martyn, 1789. *Non* binominal. – Not available. Cardiidae. Recent. RECORDS. •1789 Martyn: *Cardium* “O”. REMARKS. •1936 Keen: Martyn’s

Universal Conchologist is not consistently binomial. Martyn’s identification is erroneous and confusion has been created. The only available name is *Clinocardium nuttallii* Conrad, 1837. DISTRIBUTION. North West Pacific, Bering Sea, California.

**obesa** Sowerby, 1899. – Synonym of *Tridacna (Flodacna) derasa* (Röding, 1798). Tridacnidae. Recent. RECORDS. •1899 ZR: *Tridacna obesa* Sowerby, 1899 n. sp. Philippines. •1999 Higo *et al.*: *Tridacna obesa* Sowerby, 1899 = *Tridacna (Flodacna) derasa* (Röding, 1798) Tridacnidae.

**obesum** Bartsch, 1947. – Synonym of *Corculum cardissa* (Linné, 1758). >> Regarding *Corculum obesum*: Cardiidae. Recent. TYPE LOCALITY. Cebu, Philippines. TYPE REPOSITORY. USNM 543559. RECORDS. •1947 Bartsch, p. 224–225, pl. 1, fig. 2: *Corculum obesum* new species. •1947 ZR: *Corculum obesum* Bartsch, 1947 sp. nov. Cebu. •1960 Kuroda: *Corculum obesum* Bartsch. •1964 Shikama: *Corculum obesum* Bartsch. •1977 Fischer-Piette: *Cardium obesum* Bartsch = *Cardium cardissa* Linné. •1977 Habe: *Corculum obesum* Bartsch, 1947 = *Corculum cardissa* (Linnaeus, 1758). •1989 Severin & Cooper: *Corculum obesum*. •1999 Higo *et al.*: *Corculum obesum* Bartsch, 1947 = *Corculum cardissum* (Linnaeus, 1758). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. Anterior side much more convex than posterior side. DIMENSIONS. •1947 Bartsch: height 36.1 mm; length 18 mm, diameter 29.9 mm. REMARKS. •1989: Severin & Cooper found that *C. obesum* is part of an ecological continuum of *Corculum* represented by a ‘cardissa’-morph and a ‘monostroma’-morph at each of the two ends.

**obliqua** (subspecies). – See *longiuscula obliqua* Eberzin, 1960. – *samarangae obliqua* Ozaki, 1956.

**obliqua** Ozaki, 1956. – *Nemocardium obliqua* Ozaki, 1956. Cardiidae. Fossil. RECORDS. •1980 Noda: *Nemocardium obliqua* Ozaki, 1956. •1988 Noda: *Nemocardium obliqua*.

**obliquata/-um** (variety). – See under *rectidens obliquata*. – *papillosum obliquata* Aradas 1846. – *papillosum obliquata* Michelotti 1839.

**obliquata** Gillet, 1970. – *Plagiodacna obliquata* Gillet 1970. Lymnocardiidae. Miocene. RECORDS. •1970 ZR: *Plagiodacna obliquata* Gillet, 1970 sp. nov. ‘Monte dei Corvi’ deposit, Ancona deposits, Italy.

**obliquata** Warren, 1932. – *Protocardia obliquata* Warren, 1932. Cardiidae. Jurassic. RECORDS. •1933 ZR: *Protocardia obliquata* Warren, 1932 sp. n. Jurassic Alberta.

**\*obliquatum**. – Homonymy to be noticed. *Cardium obliquatum* from 2 sources: Michelotti, 1839. – Aradas, 1846.

**obliquatum** Aradas 1846. – Synonym of *Parvicardium papillosum* (Poli, 1795). >> Regarding *Cardium obliquatum*: Cardiidae. Recent. DISTRIBUTION. *C. obliquatum*: unknown (Nordsieck 1969); *C. papillosum*: Europe, North West Africa. RECORDS. •1878 Monterosato: *Cardium obliquatum* Arad. = *Cardium papillosum* Poli. •1884 Monterosato: *Cardium obliquatum*. •1922–32 Sherborn, p. 4461: *Cardium obliquatum* Aradas, 1846. •1969 Nordsieck: *Papillicardium papillosum* (Poli, 1791) var. *obliquatum* (Monterosato, 1884).



**obliquatum – obliquum**

**obliquatum** Michelotti, 1839. – Synonym of *Cerastoderma edule incerta* (Brn.). >> Regarding *Cardium obliquatum*: Cardiidæ. Fossil. RECORDS. ••1899 Sacco: *Cardium obliquatum* Michelotti ?1839 = *Cerastoderma edule* var. *incerta* (Brn.). ••1922-32 Sherborn, p. 4461: *Cardium obliquatum* Michelotti, 1839.

**oblique** (error). – Printer's mistake for *obliqua* in Noda 1980.

**obliquicosta** – *Budmania obliquicosta*. Lymnocardiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Budmania obliquicosta*. ••1987 Taktakishvili: *Limnocardium (Budmania) obliquicosta*.

**obliquicostata** Marinescu, 1975. New combination: *Lymnocardium obliquicostata* (Marinescu, 1975). Lymnocardiidae. Pliocene. RECORDS. ••1975 ZR: *Limnocardium (Budmania) obliquicostata* Marinescu, 1975 sp. nov. Romania, Banat. Ref. to Marinescu, p. 25.

**obliquum** (error). – Printer's mistake for *obliquum* in Glibert & Poel 1970.

**obliquooobsoletum** Kolesnikov, 1929. – Combination to be revised: "*Cardium*" *obliquooobsoletum* Kolesnikov, 1929. Cardiidæ. Sarmatian. RECORDS. ••1929 ZR: *Cardium obliquooobsoletum* Kolesnikov, 1929 sp. n. Sarmatian.

**obliquooobsoletum armavirense** Kolesnikov, 1929 (variety). – Combination to be revised: "*Cardium*" *obliquooobsoletum armavirense* Kolesnikov, 1929. Cardiaceæ. Sarmatian. RECORDS. ••1929 ZR: *Cardium obliquooobsoletum* var. *armavirense* Kolesnikov, 1929 nov. Sarmatian [Ref. Kolesnikov 1929].

\***obliquum**. – Homonymy to be noticed. *Cardium obliquum* from 5 sources: Spengler, 1799. – Lamarck, 1805. – Woodward, 1833. – Andrzejoswky, 1836. – Dufour, 1881.

**obliquum** Andrzejoswky, 1836. – Replaced by "*Cardium*" *protractum* Eichwald. Combination to be revised. Cardiidæ. Fossil. RECORDS. ••1857 Deshayes: *Cardium obliquum* Andrzejoswky, 1836 – *C. protractum* Eichwald.

**obliquum** Dufour, 1881. – Replaced by "*Cardium*" *obliquum* Lamarck. Cardiidæ. Eocene. RECORDS. ••1886 Cossmann: *Cardium obliquum* Dufour, 1881 = *Cardium obliquum* Lamarck.

**obliquum** Lamarck, 1805. [Figs. Part 3 p. 920]. – Changed combination: *Loxocardium obliquum* (Lamarck, 1805). OTHER JUDGEMENTS: *Cerastoderma edule* (Linnaeus, 1758). – *Loxocardium bouei* (Deshayes, 1858). >> Regarding *Cardium obliquum*: Cardiidæ. Eocene. TYPE LOCALITY. Paris Basin, France. REMARKS. Anton (1839): stated that *Cardium obliquum* Lamarck [fossil] is a synonym of *Cardium edule* Linné. Glibert & Poel (1970): stated that *Cardium obliquum* [sic = *obliquum*] Lamarck, 1805 non Spengler, 1799 is a synonym of *Loxocardium bouei* (Deshayes, 1858). RECORDS. ••1835 Lamarck: *Cardium obliquum* Lamk. ••1839 Anton: *Cardium obliquum* Lamarck. ••1844 Potiez & Michaud: *Cardium obliquum* Lam. fossil of France. ••1857 Deshayes: *Cardium obliquum* Lamarck, 1809. ••1859 Sowerby: *C. obliquum* = *Cardium edule* Linn. ••1886 Cossmann: *Cardium obliquum* Lamarck. ••1887 Fischer: *Cardium obliquum* Lamarck. ••1899 Sacco: Type species *Loxocardium obliquum* Lamarck. ••1904 Cossmann & Pissarro: *Cardium (Loxocardium) obliquum* Lamarck. ••1912 Favre: *Cardium obliquum*

Lamarck. ••1922-32 Sherborn, p. 4463: *Cardium obliquum* Lamarck, 1805. ••1936 ZR: *Laevicardium obliquum* Vin. & Cout. non Lk. Glibert, 1933 sp. n. Wommel Sands, Eocene Belgium. ••1950 ZR: *Cardium obliquum* Lk. 1805, non Spengler 1799 = *Cardium (Loxocardium) bouei* Desh. var. *bartonensis* Tremlett, 1950 nov. ••1970 Glibert & Poel: = *Loxocardium bouei* (Deshayes, 1858). ••1977 Popov: *Loxocardium obliquum* (Lamarck, 1805). ••1998 Schneider: *Loxocardium obliquum* (Lamarck, 1805). ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection as *Cardium (Loxocardium) obliquum* Lamarck. Lutetien, Bartonien. France; Turkey; Egypt; i.a. ••2001 Schneider & Carter: *Loxocardium obliquum* (Lamarck, 1805). Eocene, France. ••2002 Schneider: *Loxocardium obliquum* (Lamarck, 1805).

**obliquum** Meek & Worthen, 1865. – *Conocardium obliquum* Meek & Worthen, 1865. Conocardiidae. Fossil. REMARKS. Conocardiids have no connection with the Cardiaceæ except analogy of form, which does not offer any point of relationship (Dall 1895, p. 519). RECORDS. ••1980 Ruhoff: *Conocardium obliquum* Meek & Worthen, 1865 [1865–1866]; p. 249.

**obliquum** Spengler, 1799. [Figs. Part 1 p. 93. Part 3 p. 856]. – Synonym of *Dinocardium robustum* (Lightfoot, 1786). >> Regarding *Cardium obliquum*: Cardiidæ. Recent. TYPE LOCALITY. •• Carolina. ZMUC. •• Lister quoted by Spengler 1799: Caroline Isl. TYPE REPOSITORY. ZMUC Spengler coll. RECORDS. ••1687 Lister, pl. 328, fig. 165: *Cardium obliquum* (fide Spengler 1799) [not available]. ••1799 Spengler, p. 23–24, No. 12, p. 60, figs. 3 a,b: *Cardium obliquum* Lister. ••1853 Forbes & Hanley: *Cardium obliquum*. ••1856 Wood & Hanley: *C. obliquum* Spen. Sk. Nat. v. pt. 1, p. 23, pl. 1, f. 3. = *Cardium ventricosum* Brug. ••1902 Sherborn, p. 678: *Cardium obliquum* Spengler, 1799. ••1974 Abbott: *Cardium obliquum* Spengler, 1799 = *Dinocardium robustum* (Lightfoot, 1786). ••1977 Fischer-Piette: *Laevicardium obliquum* Spengler. ••1999 Knudsen & Hylleberg: *Cardium obliquum* Spengler, 1799. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1799 Spengler, fig. 3: *pectunculus magnus, maculatus, intus leviter rufescens*. Lister Tab. 328. fig. 165. Shell with triangular outline, posterior edge very long, nearly straight, anterior edge very short, margin rounded from anterior to posterior end, 32 ribs, anteriorly and posteriorly broad, flat and smooth, centrally rounded, transversely ornamented with scale-like stripes, interstices narrow, umbones pointed, turned in anterior direction, exterior white, yellow posteriorly, with scattered red-brown spots, interior bright red, brown towards the margin. DIMENSIONS. ••1799 Spengler: length 83 mm (3 Tom 2 Linier), width 83 mm (3 Tom 2 Linier) The latter measure must have been taken diagonally. If the width is measured perpendicular to length, it is about 66 mm. Thickness is 60 mm, measured on fig. 3. REMARKS. *Cardium obliquum* Spengler, 1799 is very similar to *Dinocardium robustum* (Lightfoot in Solander, 1786). However, the latter species is a Caribbean species. Unfortunately Spengler's specimen (ZMUC) is without locality. Hence, the reference to Lister (1687) is without relevance. DISTRIBUTION. Unknown (? Caroline Isl.).

**obliquum** Woodward, 1833. – Synonym of *Cerastoderma edule* (Linné, 1758). >> Regarding *C. obliquum*: Cardiidae. Fossil. REMARKS. Forbes (1846) stated that *C. obliquum* Woodward = *Cardium edule* Linné; first appearance during Red Crag period. Deshayes (1857) and Dollfus & Dautzenberg (1912) were of the same opinion. RECORDS. •1846 Forbes: *C. obliquum* Woodward. •1853 Forbes & Hanley: *Cardium obliquum* Woodward. •1857 Deshayes: *Cardium obliquum* Woodward. – *C. edule*. •1902 Dollfus & Dautzenberg: *Cardium obliquum* Woodward, 1833. •1922–32 Sherborn, p. 4463: *Cardium obliquum* Woodward, 1833.

**obliquum bouei** Deshayes (variety). – Upgraded. Changed combination: *Loxocardium obliquum bouei* (Deshayes). TYPE LOCALITY. Paris Basin, France. Cardiidae. Eocene. RECORDS. •1904 Cossman & Pissarro: *Cardium (Loxocardium) obliquum* var. *bouei* Deshayes.

**obliquum** Spengler, 1799. – See under *obliquum* Spengler, 1799.

**oblonga** (subspecies and variety). – See under *caucasica oblonga* Androusov, 1923. – *privum oblonga* Eberzin, 1958. – *propinqua oblonga* Androusov, 1923.

**oblonga** Sowerby. – *Cardiomorpha oblonga*, Sowerby. Cardiacea. Fossil. RECORDS. •1859 Chen: *Cardiomorpha oblonga* Sowerby.

**oblongatum** Solander in Brander, 1766. – Unknown species. •1902 Sherborn, p. 679: *Cardium oblongatum* Solander in Brander, 1766.

**oblongulum** Sacco, 1899 (Rov. in schedis). – Combination to be revised: “*Cardium oblongulum* Rov. Cardiidae. Miocene. RECORDS. •1899 Sacco: *Cardium oblongulum* Rov. •1899 Sacco, p. 38, pl. 9, fig. 5: *Cardium oblongulum* Rov. (in schedis). Described by Sacco.

\***oblongum**. – Homonymy to be noticed. *Cardium oblongum* from 3 sources: Gmelin, 1791. – Brown, 1825. – Alieva, 1967.

**oblongum** Alieva, 1967. – Combination to be revised: “*Cardium oblongum* Alieva, 1967. Cardiidae. Fossil. RECORDS. •1967 ZR: *Cardium oblongum* Alieva, 1967 sp. nov. figs. Akchagil deposits, Naftalan, Azerbaidjan, SSR.

**oblongum** Born 1780. [Figs. Part 1 p. 67]. – RECORDS. •1780 Born as *C. latum* [err.]. ID by Gmelin 1791: *C. oblongum* mus. Caes. Vind. test. t. 3. f. 8.

**oblongum** Brown, 1825. – Synonym of *Laevicardium crassum* (Gmelin, 1791). >> Regarding *Cardium oblongum*: Cardiidae. Recent. RECORDS. •1844 Brown: *Cardium oblongum*. •1867 Weinkauff: *Cardium oblongum* Brown (non Gmelin) = *C. norvegicum* Spengler. •1886 Locard: *Cardium oblongum* Brown, 1825 (non Chem.) = *Cardium norvegicum* Spengler, 1792 sic. •1888 Kobelt: *Cardium oblongum* Brown = *Cardium norvegicum* Spengler.

**oblongum** Bruguière, 1789 replaces **oblongum** Chemnitz, 1782. [Figs. Part 1 p. 76, 169. Part 3 p. 897, 898]. Chemnitz is non binominal. Not available. – *Laevicardium oblongum* (Gmelin, 1791). OTHER JUDGEMENTS: *Cardium sulcatum* Lamarck, 1819. – *Cardium obsoletum* Spengler, 1799. – *Cardium flavum* Poli (non Lin.). >> Regarding *Cardium oblongum*: Cardiidae. Recent. RECORDS. •1782 Chemnitz, Tab. 19

Fig. 190: *Cardium oblongum*. •1782 Chemnitz. ID by Gmelin 1791: *Cardium oblongum* t. 19. f. 190. •1788 Schröter: *Cardium oblongum*. [Reference to Chemnitz (1782) fig. 195]. •1789 Bruguière: *Cardium oblongum* Martini, tom. 6. pag. 195, tab. 19, fig. 190. •1817 Dillwyn: *Cardium oblongum* Chemnitz. •1819 Lamarck: *Cardium oblongum* Chemnitz 6. t. 19. fig. 190 = *Cardium sulcatum* Lamarck, 1819. •1832 Bronn: *Cardium oblongum* Chemnitz. •1832 Deshayes: *Cardium oblongum* Chemnitz. = *Cardium sulcatum* Lamk. •1840 Pfeiffer: Chemnitz Fig. 190. *Cardium oblongum* = *Cardium sulcatum* Lam. 24. •1856 Wood & Hanley, No. 23: *Cardium oblongum* Ch. vi. 195, f. 190. •1857 Deshayes: *Cardium oblongum* Chemnitz. •1858 Adams & Adams, p. 457: *Laevicardium oblongum*, Chemn. •1858 Gray: *Cardium oblongum* Chemnitz. •1867 Weinkauff: *Cardium oblongum* Chemnitz. •1867 Hidalgo: *Cardium oblongum* Chemnitz. •1867 ZR: *Cardium oblongum* (Chemn.) = *sulcatum* (Lam.) (nearly allied, but may be kept distinct [Ref. Weinkauff 1867]). •1869 Appellius: *Cardium oblongum* Chemnitz. •1869 Petit de la Saussaye: *Cardium oblongum* Chemnitz. •1870 Aradas & Benoît: *Cardium oblongum* Chemnitz. •1870 Hidalgo: *Cardium oblongum* Chemnitz. •1870 Mörch: *C. oblongum* Chemnitz. junior synonym of *Cardium obsoletum* Spgl. •1872 Monterosato: *Cardium oblongum* Chemnitz. •1878 Monterosato: *Cardium oblongum* Chemnitz. = *C. flavum* Poli (non Lin.) = *C. sulcatum* Lk. •1874 Jeffreys: *Cardium oblongum* Chemnitz. •1875 Monterosato: *Cardium oblongum* Chemnitz. •1875 Clément: *Cardium oblongum* Chemnitz. •1878 Monterosato: *Cardium oblongum* Chemnitz. •1879 Granger: *Cardium oblongum* Chemnitz. •1880 Stossich: *Cardium oblongum* Chemnitz. •1883 Dollfus: *Cardium oblongum* Chemnitz. •1883 Marion: *Cardium oblongum* Chemnitz. •1884 Grasset: *Laevicardium oblongum* Chem. •1884 Monterosato: *Laevicardium oblongum* Chemnitz. •1884 Péprax: *Cardium oblongum* Chemnitz. •1889 Carus: *Cardium oblongum* Chemnitz. •1890 Paetel: *Laevicardium oblongum* Ch. = *Cardium oblongum*. •1891 Brusina: *Cardium oblongum* Chemnitz. •1891 Dautzenberg: *Cardium oblongum* Chemnitz. •1892 Locard: *Cardium oblongum* Chemnitz, 1789 sic. •1896 Elera: *Cardium oblongum* Chemnitz. •1898 Locard: *Cardium oblongum* Chemnitz. •1899 Locard: *Cardium oblongum* Chemnitz. •1899 Granger: *Cardium oblongum* Chemnitz. •1899 Sacco: *Laevicardium oblongum* Chemnitz 1782 [Pliocene–Recent]. •1900 Locard & Caziot: *Cardium oblongum* Chemnitz, 1789 sic. •1903 Font y Sagué: *Laevicardium oblongum* Chemnitz. •1913 Pallary: *Cardium oblongum* Chemnitz. •1927 Dautzenberg: *Cardium (Laevicardium) oblongum* (Chemnitz) Gmelin. •1962 Pasteur–Humbert: *Cardium (Laevicardium) oblongum* Chemnitz. •1965 Mars: *Laevicardium oblongum* Chemnitz. •1969 Nordsieck: *Laevicardium oblongum* (Chemnitz, 1782). •1999 Knudsen & Hylleberg: Spengler, 1799 *Cardium oblongum* Chemnitz Tom. VI. Tab. 19. fig. 190. = No. 15 *Cardium obsoletum* in Spengler (The Mediterranean). •1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological

*oblongum* – *oblongum comitatensis*

Collection. *Cardium oblongum* Chemnitz. Belgium (An Vers). B35562.

**oblongum** Gmelin, 1791. [Figs. Part I p. 67, 76, 101, 138 Part 3 p. 896–98]. – *Laevicardium oblongum* (Gmelin, 1791). OTHER JUDGEMENTS: *Laevicardium attenuatum* (Sowerby). – *Cardium crassum* Gmelin. – *Cardium laevigatum* Linné – *Cardium norvegicum* Spengler, 1799. – *Cardium sulcatum* Lamarck. >> Regarding *Cardium oblongum*: *Cardiidae*. Pliocene and Recent. Type species: Stoliczka (1870) designated *Cardium oblongum* Gmelin, 1791 type species of genus *Laevicardium* Swainson, 1840. – Glibert & Poel: (1970) designated *Laevicardium oblongum* (Gmelin, 1791) as type species of subgenus (*Laevicardium*) Stoliczka. RECORDS. ••1780 Born. ID by Gmelin 1791: *Cardium oblongum* mus. Caes. Vind. test. t. 3. f. 8. ••1782 Chemnitz. ID by Gmelin 1791: *Cardium oblongum* t. 19. f. 190. ••1791 Gmelin, 13, p. 3254, No. 34: *Cardium oblongum*. ••1798 Röding: *Cardium oblongum* Gmelin. ••1803 Montagu: *Cardium oblongum* Gmel. 34? = *Cardium laevigatum* Lin. ••1806 Link: *Cardium oblongum* Linné, Gmelin, p. 3254. ••1815 Wood: *Cardium oblongum*. ••1828 Wood: *Cardium oblongum*. ••1829 Costa: *Cardium oblongum*. Gm. = *Cardium flavum*, Poli et Born. ••1836 Philippi: *Cardium oblongum* Gmelin p. 3254; citing Chemnitz VI. t. 19. fig. 190 = *Cardium sulcatum* Lamk. ••1840 Sowerby, catalogue p. 5, No. 64: *Cardium oblongum* = *Cardium sulcatum* Lam. ••1844 Potiez & Michaud: *Cardium oblongum* Gmel. = *Cardium sulcatum* Lam. ••1845 Reeve, species 71: *Cardium oblongum* Linnaeus, Syst. Nat. (Gmelin's edit.), p. 3254. ••1859 Sowerby: *C. oblongum* = *Cardium norvegicum*, Spengler. ••1866 Brusina: *Laevicardium oblongum* Gmelin. ••1870 Stoliczka: *Cardium oblongum* Gmelin, 1791. ••1890 Paetel: *Cardium crassum* Gm. = *oblongum* Ch. [not available]. ••1891 Danilo & Sandri: *Cardium oblongum* Gmel. = *Cardium sulcatum* Lam. ••1897 ZR: *Cardium oblongum*, note on the siphonal papillae Ref. to Nagel (1897). ••1900 Pallary: *Cardium* (*Laevicardium*) *oblongum* Gmelin. ••1902 Pallary: *Cardium* (*Laevicardium*) *oblongum* Gmelin. ••1902 Sherborn, p. 679: *Cardium oblongum* Gmelin, 1790 sic. ••1907 ZR: *Cardium oblongum* [Ref. Zimmermann 1907]. ••1913 Dautzenberg: *Cardium oblongum*. ••1916 Hidalgo: *Cardium oblongum*. ••1920 Palary: *Cardium oblongum* Gmelin. ••1933 Coen: *Laevicardium oblongum* Gmelin. ••1933 Coen & Vatova: *Laevicardium oblongum* Gmelin. ••1940 Smith: *Cardium oblongum* L. = *Laevicardium attenuatum* (Sowerby) (cited by Fischer-Piette 1977, p. 26). ••1954 ZR: *Cardium oblongum*, ecological and biological notes, figs. [Ref. Braun 1954]. ••1959 Devids: *Cardium oblongum* Gmelin. ••1961 ZR: *Laevicardium oblongum* sic; deep sea faunal associations off Provence [Ref. Picard 1961]. ••1963 Riedl: *Laevicardium oblongum* Gmelin. ••1967 Colantoni: *Laevicardium oblongum*. ••1969 Moore et al.: *Laevicardium* (*Laevicardium*) *oblongum* (Gmelin, 1791). ••1970 Glibert & Poel: *Laevicardium* (s.s.) *oblongum* Gmelin, 1790 sic. ••1977 Fischer-Piette: *Laevicardium oblongum* Gmelin. ••1977 Popov p. 50.: Genotype: *Cardium oblongum* Gmelin, 1790. Type of *Laevicardium* Swainson, 1840. ••1977 Wilson & Stevenson: *Cardium oblongum*

Gmelin, 1791. ••1983 Anaya: *Cardium oblongum* Gmelin, 1791. Type species of *Laevicardium* Swainson, 1840. Type designated by Stoliczka 1871. ••1992 Schneider p. 155: *Laevicardium oblongum* (Gmelin). Type species of *Laevicardium*. ••1998 Macedo et al.: *Laevicardium oblongum* (Gmelin, 1791). ••2001 Vidal, p. 407: *Laevicardium oblongum*. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC wet collection, West Indies. It is not *Laevicardium oblongum* Gmelin. DESCRIPTIONS. ••1845 Reeve: shell ovately oblong, ventricose, somewhat attenuated towards the umbones, rather thin, radiated with grooved striae, posterior area smooth; brownish-white, covered with a yellowish brown epidermis. ••2001 Vidal: tentacles numerous. No eyes on tentacles. REMARKS. ••1845 Reeve: Lamarck appears to have omitted all notice of this species. HABITAT. ••1845 Reeve: dredged from mud at the depth of about twenty fathoms. ••1969 Nordsieck: sand at 4 to 200 m depth. DISTRIBUTION. ••1845 Reeve: Devonshire, Britain. ••1884 Grasset: Algeria. ••1969 Nordsieck: Mediterranean, Canary Isl. **oblongum** Linné. – See under Gmelin, 1791.

**oblongum** of Brown 1845. – Misidentification of *Laevicardium crassum* (Gmelin, 1791). *Cardiidae*. Recent. RECORDS. ••1912 Dautzenberg & Fischer: *Cardium oblongum* Brown 1845 (non Chemnitz) = *Cardium* (*Laevicardium*) *norvegicum* Spengler 1799.

**oblongum** of Montagu 1803. – Misidentification of *Parvicardium fasciatum* (Montagu, 1808). *Cardiidae*. Recent. RECORDS. ••1886 Locard: *Cardium oblongum* Montagu, 1803 (non Brug.) = *Cardium fasciatum* Montagu, 1808. ••1888 Servain: *Cardium oblongum* Montagu 1803 non Bruguière = *Cardium fasciatum* Montagu, 1808.

**oblongum** of Reeve 1845. – Misidentification of *Laevicardium crassum* (Gmelin, 1791). OTHER JUDGEMENTS: *Cardium oblongum* var. *ovale*. – *Cardium laevigatum* Penn. >> Regarding *Cardium oblongum*: *Cardiidae*. Recent. RECORDS. ••1856 Wood & Hanley: *C. oblongum* Reeve (not. Ch.) I. Car. f. 71 = *Cardium laevigatum* Penn. ••1868 ZR: *Cardium oblongum* of Reeve to be distinguished from the Mediterranean *oblongum* (Chemn.) = *flavum* (Born) = *sulcatum* (Lam.) [Ref. Römer 1868]. ••1869 Römer: *Cardium oblongum* Reeve fig. 71 = *Cardium norvegicum* Spengler. ••1917 Hidalgo: *Cardium oblongum* Reeve = *Cardium norvegicum* Spengler. ••1912. Dautzenberg & Fischer: Reeve 1845, fig. 71 is *C. oblongum* var. *ovale*. ••1912. Dautzenberg & Fischer: Reeve 1845, fig. 79 represents the true *Cardium oblongum*.

**oblongum attenuata** Locard & Caziot, 1900 (variety). – Infrasubspecific. No evidence of subspecific status. << Regarding *Cardium oblongum* var. *attenuata*: *Cardiidae*. Recent. TYPE LOCALITY. Mediterranean. RECORDS. ••1900 Locard & Caziot: *Cardium oblongum* Chemnitz, 1789 sic var. *attenuata*.

**oblongum comitatensis** Fontannes (variety). – No evidence of subspecific status. OTHER JUDGEMENTS: *Laevicardium crassum fragile* (Brocchi, 1814). >> Regarding *Laevicardium oblongum* var. *comitatensis*: *Cardiidae*. Recent. RECORDS. ••1902 Dollfus & Dautzenberg: *Cardium oblongum* var. *comitatensis* Fontannes. ••1899 Sacco: *Laevicardium oblongum* var. *comitatensis* Fontannes. ••1970 Glibert & Poel:

*oblongum gibbum* – *obscurum*

*Laevicardium oblongum* variety *comitatensis* = *Laevicardium* (s.s.) *crassum fragile* (Brocchi, 1814).

***oblongum gibbum*** Jeffreys (variety). – Infrasubspecific. No evidence of subspecific status. >> Regarding *Laevicardium oblongum* var. *gibbum*: *Cardiidae*. Recent. RECORDS. ••1969 Nordsieck: *Laevicardium oblongum* var. *gibbum* (Jeffreys).

***oblongum minor*** Locard & Caziot, 1900 (variety). – Infrasubspecific. No evidence of subspecific status. >> Regarding *Laevicardium oblongum* var. *minor*: *Cardiidae*. Recent. TYPE LOCALITY. The Mediterranean. DISTRIBUTION. Mediterranean (Locard & Caziot 1900). RECORDS. ••1900 Locard & Caziot: *Cardium oblongum* Chemnitz, 1789 *sic* var. *minor*.

***oblongum ovale*** (variety). – Infrasubspecific. No evidence of subspecific status. >> Regarding *Laevicardium oblongum* var. *ovale*: *Cardiidae*. Recent. RECORDS. ••1912 Dautzenberg & Fischer: Reeve 1845, fig. 71 is *C. oblongum* var. *ovale*.

***oblongum*** (error). – Printer's mistake for *oblongum* in Picard 1961.

***obovalis*** (mode). – See under *obovale*.

***obovale*** Sowerby, 1833. [Figs. Part 1 p. 106, 144. Part 3 p. 856, 931]. – Changed combination: *Trigoniocardia obovalis* (Sowerby, 1833). OTHER JUDGEMENTS: *Cardium exiguum* Gmelin. >> Regarding *Cardium obovale*: *Cardiidae*. Pliocene and Recent. TYPE SPECIES. Olsson (1961) designated *Trigoniocardia obovalis* (Sowerby, 1833) type species of the subgenus (*Apiocardia*). TYPE LOCALITY. Hab. ad oras Americae Meridionalis (Xipixapi) (Sowerby 1833). Xipixapi (Jipijapa), Ecuador, in 11 fathoms, sandy mud (Hertlein & Strong 1947). TYPE REPOSITORY. 2 syntypes BMNH London. Plesiotype [fossil] No. 6069 (C.A.S. type collection) Hertlein 1934. RECORDS. ••1833 Sowerby, p. 84: *Cardium obovale*. ••1834 Sowerby, 46<sup>th</sup> part, fig. 4: *Cardium obovale* nobis. ••1840 Sowerby, catalogue p. 7, No. 90: *Cardium obovale*, Sow. ••1840 Sowerby, corrected list p. 8: *Cardium obovale*, (Sowerby No. 90). ••1845 Reeve: *Cardium obovale* Broderip & Sowerby. ••1846 Orbigny: *Cardium obovale*, Sowerby, 1833. ••1852 Adams: 431. *Cardium obovale* Brod. et Sowb. 1833. ••1858 Adams & Adams, p. 459: *Hemicardia (Fragum) obovalis*, Brod. and Sow. ••1860 Carpenter: *Cardium obovale* Brod. & S. ••1884 Grasset: *Cardium obovale*. Sow. ••1890 Paetel: *Hemicardium obovale* Brod. et Sow. ••1901 Dall: *Cardium (Trigoniocardia) obovale* Sowerby, 1833. ••1922-32 Sherborn, p. 4478: *Cardium obovale* Sowerby, 1833. ••1932 Pilsbry & Lowe: *Cardium (Trigoniocardium) obovale* Sby. ••1934 Hertlein, p. 62 (pl. 21, fig. 14): *Cardium obovale* Sowerby [fossil]. ••1941 Pilsbry & Olsson: *Cardium (Trigoniocardia) obovale* Sby. [Pliocene]. ••1944 Smith: *Trigoniocardia obovale* Sowerby. ••1947 Hertlein & Strong: *Cardium (Trigoniocardia) obovale* Sowerby. ••1955 Hertlein & Strong: *Cardium (Trigoniocardia) obovale* Sowerby. ••1958. Abbott: *Trigoniocardia obovalis* Sowerby 1833 [Recent]. ••1961. Olsson: *Trigoniocardia obovalis* (Broderip & Sowerby, 1833). ••1961. Olsson: *Cardium obovale* Sowerby, 1833. ••1961. ZR: *Cardium obovale* Sowerby Subgenotype of (*Apiocardia*) Olsson, 1961. ••1961. ZR: *Trigoniocardia (Apiocardia) obovale* subgenotype of (*Apiocardia*) Olsson, 1961. ••1964. Parker:

*Trigoniocardia (Trigoniocardia) obovalis* (Sowerby, 1833). ••1969. Moore *et al.*: *Trigoniocardia (Apiocardia) obovalis* (Sowerby, 1833). ••1977. Popov: *Trigoniocardia (Trigoniocardia) obovalis* (Sowerby, 1833). ••1977. Fischer-Piette: *Corculum (Trigoniocardia, Apiocardia) obovale* Sowerby. ••1977. Fischer-Piette, p. 174: *Cardium obovale* Sowerby = *Cardium exiguum* Gmelin. ••1998 Schneider (1998b): *Trigoniocardia (Apiocardia) obovale* (Sowerby, 1833). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: Gulf of California. CHARACTERS OF diagnostic value: subovate, somewhat oblique shell sculptured with about 21 finely noded ribs is typical of this species. DESCRIPTIONS. ••1845 Reeve: shell oblong, heart-shaped, oblique, gibbous, sides very short; radiately ribbed, 22 ribs, side ribs depressly flattened, anterior of which are finely crenulated on the posterior side, middle ribs rounded, very closely crenated throughout, interstices between all the ribs transversely impressly cancellated; whitish, faintly tinged with brown towards the umbones. ••1947 Hertlein & Strong: shell decidedly higher than long; umbo abruptly angled posteriorly; posterior margin truncated; ribs beaded; anterior laterals crowded against cardinals posteriorly; posterior margin truncated. – Shell subovate, oblique, fairly convex and peaked, ornamented by about 21 finely noded radial ribs, those anteriorly somewhat broadly and asymmetrically triangular, those along the posterior umbonal ridge higher and rounded, those on the posterior area about 8 in number, flatter, narrower and closer together than those on the anterior area, interspaces transversely grooved. This is a small white form, distinguished by the very different outline and more numerous ribs (20 to 22), which are roughened by numerous minute nodes. Maximum size attained is about 14 mm. Length; 20 mm. height. Magdalena Bay and the Gulf of California to Salinas, Ecuador. Sometimes the shells are found on shore but mostly are taken by dredging. REMARKS. ••1845 Reeve: of a very singular oblong form, with a peculiarity of sculpture, which I have not observed in any other species. DIMENSIONS. About 20.5 mm in height and 14 mm in length. HABITAT. ••1845 Reeve: found in sandy mud at the depth of 11 fathoms. ••ZMUC: sand, shelly sand, 9–104 m. DISTRIBUTION. ••1845 Reeve: Xipixapi, West Columbia. ••1884 Grasset: China. ••1964 Parker: Gulf of California.

***obscura*** (mode). – See under *obscurum*.

***obscura*** Papaianopol, 1981. – *Pontalmyra obscura* Papaianopol, 1981. *Lymnocardiidae*. Upper Miocene. RECORDS. ••1981 ZR: *Pontalmyra (Pontalmyra) obscura* Papaianopol, 1981 sp. nov. Romania. Ref. to Papaianopol, p. 40.

***obscurum*** Münster, 1839 – Not valid. >> Regarding *Cardium obscurum*: Combination to be revised: “*Cardium*” *obscurum*. – ?*Cardiidae*. Fossil. TYPE LOCALITY. Germany. RECORDS. ••1857 Deshayes: *Cardium obscurum* (Germany). ••1922-32 Sherborn, p. 4485: *Cardium obscurum* Muenster, 1839 [n. n.].

***obscurum*** Papaianopol, 1982. – Changed combination: *Euxinocardium obscurum* (Papaianopol, 1982). *Lymnocardiidae*. Pliocene. TYPE LOCALITY. Pontien et Dacien du Bassin Dacique, Romania. RECORDS. ••1982 Papaianopol, p. 204, fig.: *Limnocardium*

**obsoleta vindobonense – obunca**

(*Euxinocardium*) *obscurum* sp. nov. ••1987 Taktakishvili: *Euxinocardium obscurum* Papaian.

••1987 Taktakishvili: *Pontalmyra obscura* Papaian.  
**obsoleta vindobonense** – *Cerastoderma obsoleta vindobonense*. *Cardiidae*. Fossil. RECORDS. ••1987 Taktakishvili: *Cerastoderma (Obsoletiforma) obsoleta vindobonense*.

**Obsoletiforma** Kolesnikov in Paramonova, 1971 (genus). – *Lymnocardiidae*. Tertiary. RECORDS. ••1980. Vokes: *Obsoletiforma* Kolesnikov in Paramonova, 1971. Genus pro *Obsoletiformes* Kolesnikov, 1948. Subfamily uncertain. ••1987 Kojumdzieva p. 12: *Obsoletiforma*: three subgenera: *Kubanocardium* Muskhelishvili, 1965. – *Obsoletiforma* Kolesnikov 1948 – *Sarmaticardium* Bagdasarjan 1978. *Cardiidae*. Miocene, Sarmatian. Emended diagnosis. ••2002 Schneider: *Obsoletiforma*. Sarmatian (late Middle Miocene) brackish–water.

**Obsoletiforma** (subgenus). – RECORDS. ••1977 ZR: *Cerastoderma (Obsoletiforma)*. Key to species. Ref to Il'ina, Neveeskaya & Paramonova p. 72. ••1987 Kojumdzieva p. 8: (*Obsoletiforma*) Kolesnikov, 1948. *Cardiidae*. Miocene, Sarmatian. Emended diagnosis.

**obsoletiforme** Kolesnikov, 1929 – Changed combination: *Cerastoderma obsoletiforme* (Kolesnikov, 1929). *Cardiidae*. Fossil. RECORDS. ••1929 ZR: *Cardium obsoletiformis* Kolesnikov, 1929 sp. n. Sarmatian. ••1977 Popov: *Cerastoderma (Obsoletiforma) obsoletiforme*.

**Obsoletiformes** Kolesnikov, 1948 (genus). – Invalid. RECORDS. ••1980 Vokes: invalid vernacular see *Obsoletiforma*.

**\*obsoletum**. – Homonymy to be noticed. *Cardium oblongum* from 2 sources: Spengler, 1799. – Eichwald, 1830.

**obsoletum** Eichwald, 1830. – Changed combination: *Cerastoderma obsoletum* (Eichwald, 1830). *Cardiidae*. Miocene. RECORDS. ••1899 Sacco: *Plagiocardium obsoletum* (Eichwald). ••1922–32 Sherborn, p. 4497: *Cardium obsoletum* Eichwald, 1830. ••1931 ZR: *Cardium obsoletum* Ref. to Klinger (1931). ••1966 ZR: *Cardium obsoletum*, from the Sarmatian of the USSR, taxonomic position [Ref. Paramonova 1966]. ••1977 Popov: *Cerastoderma (Obsoletiforma) obsoletum* (Eichw.). ••1977 ZR: *Cerastoderma (Obsoletiforma) obsoletum* (Eichwald) Key to subspecies. Ref to Il'ina, Neveeskaya & Paramonova. p. 59. ••1987 Taktakishvili: *Cardium obsoletum* Eichw. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium obsoletum* Eichwald. Austria (Bassin de Vienna), B31391.

**obsoletum** aff. Eichwald, 1830. – RECORDS. ••1907 ZR: *Cardium* aff. *obsoletum* [Ref. Bogatchew 1907]. ••1987 Taktakishvili: *Limnocardium* aff. *obsoletum* Eichw.

**obsoletum** Spengler, 1799. [Figs. Part 1 p. 76 No. 190. Part 3 p. 898]. – Synonym of *Laevicardium oblongum* (Gmelin, 1791). >> Regarding *Cardium obsoletum*: *Cardiidae*. Recent. TYPE LOCALITY. ••1799 Spengler: The Mediterranean. RECORDS. ••1782 Chemnitz, pl. 19, fig. 190: *Cardium obsoletum* (fide Spengler 1799). ••1799 Spengler, p. 28, No. 15: *Cardium obsoletum* von Born p. 47, Tab. 3. fig. 7. ••1808 Spengler: *Cardium obsoletum*. ••1856 Wood & Hanley: *C. obsoletum* Speng. Sk. Nat. v. pt. 1, p. 28 = *Cardium oblongum* Ch. ••1870 Mörch: *C. oblongum* Chemn., synonym of

*Cardium obsoletum* Spgl. ••1902 Sherborn, p. 682: *Cardium obsoletum* Spengler, 1799. ••1977 Fischer-Piette, p. 17: *Laevicardium oblongum* (Gmelin, 1791) synonym of *Cardium obsoletum* Spengler, 1799. ••1999 Knudsen & Hylleberg: No. 15: *Cardium obsoletum* in Spengler 1799 (Comments to sp. No. 11) = *Cardium flavum* Born, 1780 Tab. 3, fig. 8. ••1999 Knudsen & Hylleberg: No. 15: *Cardium obsoletum* in Spengler 1799 = *Cardium oblongum* Chemnitz Tom. VI. Tab. 19, fig. 190. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: 3 specimens in the Spengler coll. DESCRIPTIONS. ••1799 Spengler: *testa subovata, longitudinaliter obsoleta sulcata, margine crenato*. ••1799 Spengler: shell oblong, egg-shaped, inflated, very large nymphs, posterior slope occupies about 25% of the surface, very smooth, ribs low, decreasing in distinctness towards the anterior end, where only traces of ribs are seen, umbones narrow, turned towards the anterior end. Outside pale yellow, brown around the umbones, inside snow–white. DIMENSIONS. ••1799 Spengler: length 72 mm (2 3/4 Tom.), width 57 mm (2 Tom. 2 Lin.). REMARKS. ••ZMUC: *Cardium obsoletum* Spengler, 1799 = *Cardium oblongum* Gmelin, 1791. DISTRIBUTION. ••1856 Wood & Hanley: Mediterranean. ••Of authors: Mediterranean, Canary Isl.

**obsoletum** of Born, 1780. – Identical with *Laevicardium oblongum* (Gmelin, 1791). >> Regarding *Cardium obsoletum*: *Cardiidae*: Recent. REMARKS. ••1799 Spengler (p. 29) is puzzled why Born has mistaken this species for *C. flavum* Linné; probably because it has a yellow colour. I don't know why Spengler referred to Born since Born did not use the name *C. obsoletum* in his description. He called it *C. flavum*. RECORDS. ••1780 Born, p. 47, pl. 3, fig. 7: *Cardium obsoletum* (fide Spengler 1799).

**obstinatus** Barinov, 1992. – *Clinocardium obstinatus* Barinov, 1992. *Cardiidae*. Neogene. TYPE LOCALITY. Kamtchatka, Russia. RECORDS. ••1992 Barinov *et al.*, p. 123, fig.: *Clinocardium obstinatus* Barinov, 1992; sp. nov.

**obtrita** (mode). – See under *obtritum* Locard, 1886.

**obtritum** Locard, 1886. – Synonym of *Cerastoderma edule* (Linné, 1758). OTHER JUDGEMENTS: *Cardium* var. *edule*. >> Regarding *Cardium obtritum*: *Cardiidae*. Recent. HABITAT. Littoral zone (Locard & Caziot 1900). DISTRIBUTION. Etangs de Biguglia and Diane (Locard & Caziot 1900); Atlantic to the British Channel (Nordsieck 1969). RECORDS. ••1886 Locard: *Cardium obtritum* Locard. ••1886 ZR: *Cardium obtritum* Locard, 1886, n. sp. (= *C. edule*, pars), France. ••1888 Kobelt: *Cardium obtritum* Locard = *Cardium* var. *edule*. ••1888 Servain: *Cardium obtritum* Locard = *Cardium edule* Linnaeus, 1767. ••1892 Locard: *Cardium obtritum* Locard, 1886. ••1897 Dollfus: *Cardium obtritum* Locard (1886). ••1900 Locard & Caziot: *Cardium obtritum* reference to figs. 14–15, Requier 1848. ••1902 Dollfus & Dautzenberg: *Cardium obtritum* Locard, 1886 = *Cardium (Cerastoderma) edule* Linné, 1758. ••1969 Nordsieck: *Cerastoderma obtrita* (Locard, 1889 sic). ••1977 Fischer–Piette: *Cardium obtritum* Locard = *Cardium edule* Linné.

**obunca** (subspecies). – See under *praetrigonoides obunca* Popov, 1983.

- occidentalis** Ebersin, 1962. – Changed combination: *Pontalmyra occidentalis* (Ebersin, 1962). Lymnocardiiidae. Pliocene. RECORDS. ••1962 ZR: *Didacna* (*Pontalmyra*) *occidentalis* Eberzin, 1962 sp. nov. Kerchenskii, Azov region; Pliocene, Russia. ••1987 Taktakishvili: *Pontalmyra occidentalis* (Ebers.).
- ochetophorum** Brusina, 1902. – Changed combination: *Euxinocardium ochetophorum* (Brusina, 1902). Lymnocardiiidae. Tertiary. RECORDS. ••1987 Anaya: *Limnocardium ochetophorum* Brusina, 1902. ••1987 Taktakishvili: *Limnocardium ochetophorum* (Brus.). ••1987 Taktakishvili: *Euxinocardium ochetophorum* (Brus.).
- ochilleanum** Stephenson, 1956. – *Trachycardium ochilleanum* (Stephenson, 1956). Cardiidae. Cretaceous. RECORDS. ••1956 ZR: Combination to be revised: “*Cardium*” (*Trachycardium*) *ochilleanum* Stephenson, 1956 sp. nov. Cretaceous. Ochillee Creek, Georgia, U.S.A.
- ochotense** (subspecies). – See under *ciliatum ochotense* Kafanov, 1981.
- ochotense** Ilyina, 1963. – Changed combination: *Serripes ochotensis* (Ilyina, 1963). Cardiidae. Middle Pliocene. TYPE LOCALITY. Kamtchatka. REMARKS. The species *C. ochotense* is close to *Clinocardium ciliatum* (Fabricius, 1780). RECORDS. ••1973 Keen: ?*Serripes ochotensis* Ilyina, 1963. [Kamtchatka]. ••1981 Kafanov: *Clinocardium ochotense*. ••1990 Gladenkov & Sinelnikova: *Serripes ochotensis* Ilyina.
- ochoterenai** Muellerried, 1933. – Combination to be revised: “*Cardium*” *ochoterenai* Muellerried, 1933. Cardiidae. Cretaceous. RECORDS. ••1933 ZR: *Cardium ochoterenai* Muellerried, 1933 sp. n. Cretaceous Mexico. ••1934 sic ZR: *Cardium ochoterenai* Muellerried, 1933 sp. n. Cretaceous Mexico.
- odessae**. – Homonymy to be noticed. *Cardium odessae* from 2 sources: Brab. (?year). – Capellini (?year).
- odessae** Brab. – New combination: *Lymnocardium odessae* (Brab.). Lymnocardiiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Cardium odessae*. ••1987 Taktakishvili: *Limnocardium odessae* (Brab.).
- odessa** Capellini. – Synonym of *Cerastoderma edule* (Linnaeus, 1758). >> Regarding *C. odessa*: Cardiidae. Fossil. RECORDS. ••1902 Dollfus & Dautzenberg: *Cardium odessa* Capellini = *Cardium* (*Cerastoderma*) *edule* Linné, 1758.
- odischiensis** Eberzin, 1960. – *Pachydaena odischiensis* Eberzin, 1960. Lymnocardiiidae. Pliocene. RECORDS. ••1960 ZR: *Pachydaena odischiensis* Eberzin, 1960 sp. n. Pliocene Nodzhikhevi, Mingrelli, Western Georgia, USSR.
- oedaliium** (subspecies). – See under *muricatum oedaliium* Dall, 1900.
- oedaliium** Dall, 1900. – Changed combination: *Trachycardium oedaliium* (Dall, 1900). Cardiidae. Fossil. RECORDS. ••1953 Olsson & Harbison: *Cardium* (*Trachycardium*) *oedaliium* Dall, 1900. ••1977 Popov: *Trachycardium* (*Dallocardia*) *oedaliium* (Dall, 1900).
- oedaliium harveyense** Mansfield, 1932 (subspecies). – Combination to be revised: “*Cardium*” *oedaliium harveyense* Mansfield, 1932. Cardiidae. Miocene. RECORDS. ••1938 ZR: *Cardium* (*Trachycardium*) *oedaliium harveyense* Mansfield, 1932 subsp. n. Harvey’s Creek, Leon Co. Choctawhatchee formation (Miocene), Florida.
- oelicum** – Combination to be revised: “*Cardium*” *oelicum*. Cardiidae. Miocene. RECORDS. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium oelicum* [no author stated]. Aquitanien. France (Gironde), B28623.
- oenanum** Gümbel, 1861. – “*Cardium*” *oenanum* Gümbel, 1861. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium oenanum* Gümbel, 1861; p. 673.
- officiosa** Papaianopol, 1989. – *Pachydaena officiosa* Papaianopol, 1989. Lymnocardiiidae. Pliocene. TYPE LOCALITY. Bassin Dacique, Romania. RECORDS. ••1989 Papaianopol, p. 92, fig.: *Pachydaena* (*Pachydaena*) *officiosa* sp. nov.
- ogurai** Otuka, 1938. – Changed combination: *Vepricardium ogurai* (Otuka, 1938). Cardiidae. Miocene. RECORDS. ••1938 Otuka: *Cardium ogurai*. ••1941 ZR: *Cardium ogurai* Otuka, 1939 sp. n. Miocene Tyugoku, Japan. ••1949 ZR: *Cardium* (*Bucardium*) *ogurai* Otuka, 1938 sp. nov. Miocene, Tyugoku, Japan. ••1973 Keen: *Vepricardium ogurai* (Otuka, 1938). Miocene.
- ohomachii** (subspecies). – See under *heredium ohomachii* Oinomikado, 1939.
- okamotoi** Taguchi, 1990. – *Vepricardium okamotoi* Taguchi, 1990. Cardiidae. Middle Miocene. TYPE LOCALITY. Miocene Katsuta group in Okayama Prefecture, Japan. RECORDS. ••1990 Taguchi, p. 609, fig.: *Vepricardium* (*Vepricardium*) *okamotoi* sp. nov.
- okeziei** Adegoke, 1977. – *Cardium okeziei*. Cardiidae. Palaeocene. RECORDS. ••1977 ZR: *Cardium* (*Cardium*) *okeziei* sp. nov. Nigeria, Palaeocene. Ref. to Adegoke p. 271.
- okinawense** Kuroda, 1960. [Figs. Part 3 p. 867]. – Synonym of *Vasticardium elongatum* (Bruguère, 1789). OTHER JUDGEMENTS: *Cardium enode* Sowerby. >> Regarding *Vasticardium okinawense*: Cardiidae. Recent. TYPE LOCALITY. Amami Islands, Japan. TYPE REPOSITORY. Osaka City Museum (Natural History); not available for loan (Vidal 1993. RECORDS. ••1951 Habe: *Vasticardium serricostatum okinawense* Kuroda M. S. ••1955 Kira: *Vasticardium serricostatum* Kuroda M. S. ••1959 Kira: *Vasticardium* var. *serricostatum* Melvill & Standen. ••1960 Kuroda: *Vasticardium* (*Acrosterigma*) *okinawense*. ••1961 ZR: *Trachycardium* (*Acrosterigma*) [*serricostatum* Melvill & Standen var. ?] *okinawense* Kuroda (nov.) Okinawa Is. [Ref. Kuroda 1961]. ••1962 Kira: *Vasticardium* (*Acrosterigma*) *okinawense*. ••1977 Fischer–Piette: *Cardium okinawense* Kuroda = *Cardium enode* Sowerby. ••1990 Bieler & Petit: *Trachycardium* (*Acrosterigma*) *serricostatum* Melvill & Standen var. ? *okinawaense* Kuroda nov. ••1993 Vidal: *Trachycardium* (*Acrosterigma*) *okinawense* Kuroda, 1960 = *Acrosterigma elongatum* (Bruguère, 1789). ••1999 Vidal: *Trachycardium okinawaense* Kuroda, 1960 = *Vasticardium elongatum* (Bruguère 1789). – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1994 Hylleberg: Japan, Australia.
- okrugici** Brusina. – New combination: *Lymnocardium okrugici* (Brusina). Lymnocardiiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocardium okrugici* Brus.
- okrugljaki** Basch, 1990. – New combination: *Lymnocardium okrugljaki* Basch, 1990. Lymnocardiiidae. Miocene. TYPE LOCALITY. Yugoslavia.

**olchovensis – omanense**

RECORDS. ••1990 Basch, p. 30, fig.: *Limnocardium* (*Zagrabocardium*) *okrugljaki* sp. nov.

**olchovensis** Petrov, 1982. – *Ciliatocardium olchovensis* Petrov, 1982. Cardiiidae. Pliocene/Pleistocene.

RECORDS. ••1982 ZR: *Ciliatocardium olchovensis* Petrov, 1982 sp. nov. Russian SFSR, Ref. to Petrov, p. 104.

**oldroydi** Weaver and Palmer, 1922. – Combination to be revised: "*Cardium*" *oldroydi* Weaver and Palmer, 1922. Cardiiidae. Fossil. RECORDS. ••1926 ZR: *Cardium oldroydi* Weaver & Palmer, 1926 sp. n. Eocene U.S.A. ••1930 Stewart: *Cardium oldroydi* Weaver and Palmer, 1922.

**olea** Vokes, 1946. – *Protocardia olea* Vokes, 1946. Cardiiidae. Cretaceous. RECORDS. ••1946 ZR: *Protocardia olea* Vokes, 1946 sp. nov. Cretaceous (Aptian) Lebanon.

**olequahensis** (cf.) Weaver. – Combination to be revised: "*Cardium*" cf. *olequahensis* Weaver. Cardiiidae. Fossil. RECORDS. ••1915 Dickerson: *Cardium* cf. *olequahensis* Weaver.

**oligocenicum** /-um (variety). – See under *semistriatum oligocenicum* Sacco, 1899. – *grateloupi oligocenicum* Noszki, 1936.

**oligoparvum** Sacco, 1899. *Loxocardium oligoparvum* Sacco, 1899. Cardiiidae. Fossil. RECORDS. ••1899 Sacco, p. 47, pl. 11, fig. 23: *Loxocardium oligoparvum* Sacc.

**olisiponense** Sharpe, 1850. – Combination to be revised: "*Cardium*" *olisiponense*. Cardiiidae. Cretaceous. RECORDS. ••1871 Stoliczka: *Cardium olisiponense* (*Acanthocardium* sic). ••1922-32 Sherborn, p. 4558: *Cardium olisiponense* Sharpe, 1850. ••1980 Ruhoff: *Cardium olisiponense* Sharpe, 1850; vol. 6: 181, pl. 14, figs. 4 a,b.

**olivetum** Papaianopol, 1982. – Changed combination: *Euxinocardium olivetum* (Papaianopol, 1982). Lymnocardiidae. Pliocene. TYPE LOCALITY. Pontien et Dacien du Bassin Dacique, Romania. RECORDS. ••1982 Papaianopol, p. 202, fig.: *Limnocardium* (*Euxinocardium*) *olivetum* sp. nov. ••1987 Taktakishvili: *Euxinocardium olivetum* Papaian.

**olivifer** Iredale, 1936. [Figs. Part 3 p. 864]. – Synonym of *Vasticardium vertebratum* (Jonas, 1844). OTHER JUDGEMENTS: *Laevicardium flavum* (Linnaeus, 1758). – *Acrosterigma reeveanum* (Dunker, 1852). – ?*Trachycardium rugosum* (Lamarck). >> Regarding *Regozara olivifer*: Cardiiidae. Recent. GENOTYPE. Iredale (1936) designated *Regozara olivifer* as type species of the genus *Regozara* Iredale, 1936. TYPE LOCALITY. Australia. TYPE REPOSITORY. Australian Museum, Sydney. Holotype C060606. RECORDS. ••1936 Iredale, p. 275 (pl. 20, fig. 8): *Regozara olivifer* sp. nov. ••1936 Iredale: *Regozara*, gen. nov. ••1936 Iredale designated *olivifer* as type species of genus *Regozara* Iredale. ••1950 Allan: *Regozara olivifer* (southern form of *flavum*). ••1952 Kuroda & Habe: *olivifer* Iredale = ? *Trachycardium rugosum* (Lamarck). ••1962 Iredale & MacMichael: *Cardium olivifer* Iredale. ••1969 Moore et al.: *Acrosterigma* (*Regozara*) *olivifer* (Iredale, 1936). ••1977 Fischer-Piette, p. 31: *Regozara olivifer* Iredale = *Laevicardium flavum* Linné, auctorum. ••1977 Wilson & Stevenson: *Regozara olivifer* Iredale, 1936; junior synonym of *Acrosterigma reeveanum* (Dunker, 1852). ••1978 ZR: *Regozara olivifer* Iredale, 1936 junior

synonym of *Acrosterigma reeveanum* (Dunker, 1852). Ref. to Wilson et al. p. 82. ••1980 Keen: *Acrosterigma* (*Regozara*) *olivifer* (Iredale). ••1992 Lamprell & Whitehead: *Regozara olivifer* Iredale, 1936 = *Acrosterigma reeveanum* (Dunker, 1852). ••1997 Vidal: *Regozara olivifer* Iredale, 1936 = *Vasticardium vertebratum* (Jonas, 1844). ••1999 Vidal: *Regozara olivifer* Iredale, 1936 = *Vasticardium vertebratum* (Jonas, 1844). – CHARACTERS AND OCCURRENCE – REMARKS: *Cardium flavum* Linné and *Cardium rugosa* Lamarck are closely related to *Regozara olivifer*. DISTRIBUTION. ••1994 Hylleberg: Indo-Pacific.

**olssoni** Marwick, 1944. *Hedecardium olssoni* Marwick, 1944. Cardiiidae. Tertiary. TYPE LOCALITY. Southland, N.Z. RECORDS. ••1944 ZR: *Hedecardium olssoni* Marwick, 1944 sp. nov. Shell Gully, Kelly's Farm, Chattoa (Duntroonian). ••1977 Popov: *Hedecardium olssoni* Marwick, 1944. ••1978 Maxwell: *Hedecardium* (*Hedecardium*) *olssoni* Marwick, 1944. ••2002 Schneider: *Hedecardium olssoni* Marwick, 1944 New Zealand. Chattian.

**olteniae** Ion.-Arget. – Changed combination: *Tauricardium olteniae* (Ion.-Arget). Lymnocardiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Cardium olteniae* Ion.-Arget. ••1987 Taktakishvili: *Tauricardium olteniae*.

**olteniae** Motas, 1974. – *Prosodacna olteniae* Motas, 1974. Lymnocardiidae. Pliocene. RECORDS. ••1974 ZR: *Prosodacna* (*Prosodacna*) *olteniae* Motas, 1974 sp. nov. Romania, Bengesti, Valea Mare. Ref. to Motas, p. 94.

**oltinae** Pana & Andreescu, 1980. – *Fischeridacna oltinae* Pana & Andreescu, 1980. Lymnocardiidae. Lower Pliocene. RECORDS. ••1980 ZR: *Fischeridacna oltinae* Pana & Andreescu, 1980 sp. nov. Romania. Ref. to Andreescu, p. 58.

**omagariense** Honda, 1981. *Clinocardium omagariense* Honda, 1981. Cardiiidae. Middle Oligocene. RECORDS. ••1981 ZR: *Clinocardium omagariense* sp. nov. Japan, Middle Oligocene. Ref. to Honda, p. 130.

**omanense** Melvill in Melvill & Standen, 1906. [Figs. Part 3 p. 915]. – Changed combination: *Papillicardium omanense* (Melvill, 1906). Cardiiidae. Recent. TYPE LOCALITY. Persian Gulf, Gulf of Oman (Melvill & Standen, 1906). RECORDS. ••1906 Melvill, p. 838, pl. 53, fig. 5: *Cardium* (*Acanthocardia*) *omanense* n. sp. ••1906 ZR: *Cardium omanense* Melvill & Standen, 1906 sp. n. G. of Oman. ••1977 Fischer-Piette: *Cardium* (*Cerastoderma*, *Acanthocardia*) *omanense* Melvill. ••1995 Oliver: *Papillicardium omanense* (Melvill & Standen, 1907). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1995 Oliver: roundly subquadrate, posterior margin a little longer and straighter than anterior. Sculpture of 25 radial ribs all but posterior few bearing large rounded nodules, these widely spaced and not the full width of the ribs, posterior ribs with sharper scales. White. DIMENSIONS. ••1995 Oliver: to 5 mm. REMARKS. ••1906 Melvill & Standen: a small species, with ribs coarse proportionately speaking to the size of the shell, each rib being ornamented with distinct scaly nodules, these not being in the least imbricate. Only imperfect specimens, but presumably adult, occurred. HABITAT.

- 1906 Melvill & Standen: 156 fathoms, shell-sand.  
 ••1995 Oliver: offshore. DISTRIBUTION. Oman.
- omnifera** Papaianopol, 1981. – *Pontalmyra omnifera* Papaianopol, 1981. Lymnocardiiidae. Upper Miocene. RECORDS. ••1981 ZR: *Pontalmyra (Pontalmyra) omnifera* Papaianopol, 1981 sp. nov. Romania. Ref. to Papaianopol, p. 33. ••1987 Taktakishvili: *Pontalmyra omnifera* Papaianopol.
- omnivaga** Papaianopol, 1978. – *Paradacna omnivaga* Papaianopol, 1978. Lymnocardiiidae. Pliocene. RECORDS. ••1978 ZR: *Paradacna omnivaga* Papaianopol, 1978 sp. nov. Romania. Ref. to Papaianopol, I, p. 285.
- omnivagus** Ebersin, 1967. – *Pseudocatillus omnivagus* Ebersin, 1967. Lymnocardiiidae. Pliocene. RECORDS. ••1967 Ebersin: *Pseudocatillus omnivagus* sp. n. ••1967 ZR: *Pseudocatillus omnivagus* Eberzin, 1967 sp. nov. Pliocene, USSR. ••1982 ZR: *Pseudocatillus omnivagus* Ebersin, 1967. Description. Ref. to Papaianopol *et al.*
- onachitense** Harris, 1919. – Combination to be revised: “*Cardium*” *onachitense* Harris, 1919. Cardiidae. Eocene. RECORDS. ••1919 ZR: *Cardium onachitense* Harris, 1919 sp. n. Eocene U.S.A.
- oneroaense** (mode). – See under *oneroaensis*.
- oneroaensis** Powell, 1938. – *Maoricardium oneroaense* (Powell, 1938). Cardiidae. Fossil. RECORDS. ••1939 ZR: *Cardium oneroaensis* Powell, 1938 sp. n. Tertiary near Oneroa, Waikato Island, Auckland. ••1977 Popov: *Maoricardium oneroaense* (Powell, 1938).
- onestae** McLearn, 1931. – *Laevicardium onestae* McLearn, 1931. Cardiidae. Cretaceous. RECORDS. ••1932 ZR: *Laevicardium onestae* McLearn, 1932 sp. n. Cretaceous Canada. ••1980 ZR: *Onestia onestae* (McLearn, 1931). Ref. to Day. ••1995 Schneider: *Onestia onestae* (McLearn, 1931): GSC 6345 (holotype).
- Onestia** McLearn, 1933 (genus). – Cardiidae. Fossil. RECORDS. ••1980 Vokes: *Onestia* McLearn, 1933 in subfamily Protocardiinae. ••1980 ZR: *Onestia* is referred to Lahillidae from Cardiidae. Ref. to Day, p. 40. ••1980 ZR: *Onestia* Emended diagnosis. Lower Cretaceous Alberta & Queensland Aptian & Albian. Ref. to Day.
- Onestia** McLearn, 1933 (subgenus). – Cardiidae. Fossil. RECORDS. ••1934 ZR: *Onestia* McLearn, 1933 subgen. n. of *Integricardium* Rollier, type *Laevicardium onestae* McLearn [Ref. McLearn 1933]. ••1970 ZR: *Onestia etheridgei* (Etheridge, 1892) first adequate description [Ref. Fleming 1970].
- onoi** Hayami, 1959. – *Protocardia onoi* Hayami, 1959. Cardiidae. Lower Liassic. RECORDS. ••1960 ZR: *Protocardia onoi* Hayami, 1960 sp. nov. Lias, Higashinagano Japan. ••1973 Keen: *Protocardia onoi* Hayami, 1959. Lower Liassic. *Incertae sedis*.
- onusta** Papaianopol, 1992. – *Pachydaena onusta* Papaianopol, 1992. Lymnocardiiidae. Pliocene. TYPE LOCALITY. Dacien inferieur (Getien) du Bassin Dacique, Romania. RECORDS. ••1992 Papaianopol, p. 23, fig.: *Pachydaena (Pachydaena) onusta* sp. nov.
- onustum** Papaianopol, 1982. – Changed combination: *Euxinocardium onustum* (Papaianopol, 1982). Lymnocardiiidae. Pliocene. TYPE LOCALITY. Pontien et Dacien du Bassin Dacique, Romania. RECORDS. ••1982 Papaianopol, p. 201, fig.: *Limnocardium (Euxinocardium) onustum* sp. nov. ••1987 Taktakishvili: *Euxinocardium onustum* Papaianopol.
- Onychocardium** Whitfield, 1905 (genus). – Cardiacea. Fossil. RECORDS. ••1905 ZR: *Onychocardium* Whitfield, 1905 n. gen. for *Onychocardium portlandicum* Whitfield, 1905 n. sp. Portage Rocks of Lake Erie Whitfield.
- Opisocardium** Bayle, 1879 (genus). – Synonym of *Lunulicardium* Gray, 1853. >> Regarding *Opisocardium*: Cardiidae. Recent. RECORDS. ••1879 ZR: *Opisocardium*, substituted for *Lunulicardium* (Gray, 1847), type *Cardium retusum* (L.), nec *Lunulicardium* (Münster, 1840) [Ref. Bayle 1879]. ••1980 Vokes: *Opisocardium* Bayle, 1879 [unnecessary n.n. pro *Lunulicardium* Gray, 1853, not pre-occ. by *Lunulacardium* Muenster, 1840 (*Lunulacardiidae*)]. ••1999 Higo *et al.*: *Opisocardium* Bayle, 1879 = *Lunulicardium* Gray, 1853.
- Opisocardium** Bayle, 1879 (section and subgenus). – Cardiidae. Recent. REMARKS. The designation “section” takes the value of subgenus. RECORDS. ••1887 Fischer: *Opisocardium* Bayle, 1879. Section of subgenus *Hemicardia* Klein, 1755.
- oppenheimi** Cuvillier, 1935. – Combination to be revised: “*Cardium*” *oppenheimi* Cuvillier, 1935. Cardiidae. Lower Eocene. RECORDS. ••1935 ZR: *Cardium oppenheimi* Cuvillier, 1935 sp. n. Bartonian (Eocene) Egypt. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium oppenheimi* Cuvillier. Bartonien. Egypt, B43632.
- oraphense** Davidasvili, 1930. – *Oraphocardium oraphense* (Davidasvili, 1930). Lymnocardiiidae. Fossil. RECORDS. ••1932 ZR: *Phyllicardium oraphense* Davidasvili, 1930 sp. n. Pliocene Transcaucasia. ••1977 Popov: *Oraphocardium oraphense*. ••1987 Taktakishvili: *Oraphocardium oraphense* (Dav.).
- oraphense** Taktakishvili, 1970. – *Arcicardium oraphense* Taktakishvili, 1970. Lymnocardiiidae. Pliocene. RECORDS. ••1970 ZR: *Arcicardium oraphense* Taktakishvili, 1970 sp. nov. Pliocene Upper Cimmerian, Orapo River Makharadze district, Georgia, USSR.
- Oraphocardium** Ebersin, 1949 (genus). – Lymnocardiiidae. Pliocene. RECORDS. ••1962 ZR: *Oraphocardium* Ebersin in subfam. Didacninae Eberzin, 1962, family Cardiidae [Ref. Eberzin 1962]. ••1977 Popov: *Oraphocardium* Ebersin, 1949. ••1980 Vokes: *Oraphocardium* Ebersin, 1949 in subfamily Didacninae. ••1987 Taktakishvili: *Oraphocardium* Ebersin, 1949. ••2001 Schneider & Carter: *Oraphocardium* (genus). Lymnocardiiidae.
- \*orbiculare**. – Homonymy to be noticed. *Cardium orbiculare* from 3 sources: Forbes, 1846. – Schaffhäutl, 1852. – d’Acosta (?year).
- orbiculare** d’Acosta. – Combination to be revised: “*Cardium*” *orbiculare* d’Acosta. Cardiidae. Fossil. REMARKS. Chemnitz (1782) is not available. RECORDS. ••1788 Schröter [not available]: *Cardium orbiculare* [Reference to Chemnitz 1782 fig. 166. Not available]. ••1789 Bruguière: *Cardium orbiculare* d’Acosta, pag. 176, tab. 14, fig. 2.
- orbiculare** Forbes, 1846. – *Cardita orbiculare* Forbes, 1846. Not in Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 4596: *Cardita orbicularis* Forbes, 1846. ••1922-32 Sherborn, p. 4596: *Cardium* (Forbes) *orbiculare* d’Orbigny, 1850. – *Cardita*.



**orbiculare – orbita**

**orbiculare** M'Coy in Griffith, 1844. – *Nomen nudum*. Not available. FOSSIL RECORDS. ••1922-32 Sherborn, p. 4596: *Cardium orbiculare* M'Coy in Griffith, 1842 [n.n.].

**orbiculare** Orbigny, 1850. – See under *orbiculare* Forbes, 1846.

**orbiculare** Schafhütl, 1852. Combination to be revised: "*Cardium*" *orbiculare* Schafhütl, 1852. *Cardiidae*. FOSSIL RECORDS. ••1980 Ruhoff: *Cardium orbiculare* Schafhütl, 1852; p. 159, 168, pl. 4, figs. 7a,b. ••1980 Ruhoff: *Cardium orbiculare* Schafhütl, 1863; p. 166, pl. 41, fig. 3; pl. 65a, fig. 8.

**orbiculata** Kvaliashvili, 1978. – *Digressodacna orbiculata* Kvaliashvili, 1978. *Lymnocypridae*. Pliocene. RECORDS. ••1978 ZR: *Digressodacna orbiculata* Kvaliashvili, 1978 sp. nov. Georgia SSR. Ref. to Kvaliashvili p. 86.

**orbiculata** Papaianopol, 1989. – *Pachydaena orbiculata* Papaianopol, 1989. *Lymnocypridae*. Pliocene. TYPE LOCALITY. Bassin Dacique, Romania. RECORDS. ••1989 Papaianopol, p. 94, fig.: *Pachydaena (Pachydaena) orbiculata* sp. nov.

**orbiculo** Day, 1980. – *Onestia orbiculo* Day, 1980. *Cardiidae*. Lower Cretaceous. RECORDS. ••1980 ZR: *Onestia orbiculo* Day, 1980 sp. nov. Queensland. Ref. to Day, p. 39.

**orbignyanum** d'Archiac, 1846. – Combination to be revised: "*Cardium*" *orbignyanum* d'Archiac, 1846. *Cardiidae*. FOSSIL RECORDS. ••1922-32 Sherborn, p. 4600: *Cardium orbignyanum* d'Archiac, 1846

**Orbis** Blainville, 1825 non Müller, 1767 (genus). – Objective synonym. >> Regarding *Orbis*: *Cardiidae*. RECORDS. ••1969 Moore *et al.*: *Orbis* = *Acanthocardia* Gray, 1851. ••1980 Vokes: *Orbis* Blainville, 1825, [non Müller, 1767 (Pisces), etc. = *Acanthocardia* Gray, 1851].

**orbita** Broderip & Sowerby, 1833. [Figs. Part 1 p. 108, 140, 173. Part 3 p. 866]. – Changed combination: *Vasticardium orbita* (Broderip & Sowerby, 1833). *Cardiidae*. Recent. TYPE LOCALITY. Isl. Annaa, Pacific Ocean (Sowerby 1841). RECORDS. ••1833 Broderip & Sowerby, p. 85: *Cardium orbita*. ••1834 Sowerby, 48<sup>th</sup> part, fig. 13: *Cardium orbita* nobis. ••1840 Sowerby, catalogue p. 4, No. 53: *Cardium orbita* Brod. & Sow. ••1840 Sowerby, corrected list, p. 8: *Cardium orbita*, (Sowerby No. 53). ••1841 Reeve: *Cardium orbita* Sowerby. ••1845 Reeve, sp. 85: *Cardium orbita* Brod. & Sow. ••1856 Hanley: *Cardium orbita* Broderip & Sowerby. ••1858 Adams & Adams, p. 455: *Cardium (Isocardia) orbita*, Brod. and Sow. ••1869 Römer: *Cardium orbita* Sowerby. ••1871 Stoliczka: *Cardium orbita* is a *Trachycardium*. ••1872 Tryon: *Cardium orbita* Sowerby. ••1890 Paetel: *Cardium orbita* Sow. ••1901 Dall: *Cardium orbita* Sowerby, 1833 (appears to be an Indo-Pacific species). ••1906 Lamy: *Cardium orbita* Sowerby. ••1920 Pilsbry: *Cardium orbita* B. and S. ••1922-32 Sherborn, p. 4604: *Cardium orbita* Sowerby, 1833. ••1923 Dautzenberg: *Cardium orbita* Rve. ••1926 Pallary: *Cardium orbita* Brod. & Sow. = *Cardium enode* Sowerby in Fischer-Piette (1977). ••1929 Dautzenberg: *Cardium orbita* Rve. ••1932 Dautzenberg: *Cardium orbita* Sowerby. ••1933 Dautzenberg & Rouge: *Cardium orbita* Broderip & Sowerby. ••1935 Oestergaard: *Cardium orbita* Broderip

& Sowerby. ••1955 Rost & Soot-Ryen: *Trachycardium orbita* Sowerby, 1833. ••1956 ZR: *Trachycardium orbita* Swby., new to Seychelles [Ref. Rost & Soot-Ryen 1956]. ••1977 Fischer-Piette: *Cardium orbita* Broderip & Sowerby, 1833 = *Cardium flavum* Linné auctorum. ••1977 Wilson & Stevenson: *Cardium orbita* Broderip and Sowerby, 1833. ••1979 Kay: *Trachycardium orbita* (Sowerby, 1833). ••1979 Kay: *Cardium orbiter* sic Reeve, Bryan, 1915 (jun. syn.) = *Trachycardium orbita* (Sowerby, 1833). ••1990 Abbott & Dance: *Trachycardium orbita*. ••1990 Wells *et al.*: *Trachycardium orbita* (Sowerby, 1832). ••1997 Vidal: *Vasticardium orbita orbita* (Broderip & Sowerby, 1833). ••1997 Vidal: *Cardium orbita* Reeve *sensu* Dautzenberg, 1929 (not *Cardium orbita* Broderip & Sowerby, 1833) = *Vasticardium luteomarginatum insulare* Vidal, 1997. ••1997 Vidal: *Trachycardium orbita* (Sowerby): Wells *et al.* 1990 = *Vasticardium orbita philippinense* (Hedley, 1899). ••1998 Poutiers: *Trachycardium orbita* (Sowerby, 1833). ••1998 Schneider: *Cardium orbita* is a *Trachycardium*. (Stoliczka 1871, according to Schneider 1998). ••1999 Vidal: *Vasticardium orbita* (Broderip & Sowerby, 1833). ••1999 Vidal, p. 357: *Vasticardium orbita orbita* (Broderip & Sowerby, 1833). – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: foundation of anterior lateral teeth is strong and angular (hooked appearance) in *orbita* and its subspecies. DESCRIPTIONS. ••1845 Reeve: shell oval, gibbous, slightly angulated on the posterior side; radiately ribbed, 42 ribs, of which the anterior are rounded and crenated, the middle are obtusely scaled on each side, the scales being small, alternate, and oblique, and the posterior are scaled on the posterior side, the scales being larger, but still short and obscure; interstices between the ribs, especially those of the middle ribs, deeply excavated or rutted; whitish, palely variegated with fulvous yellow or purple, interior white, margins richly stained with purple. ••1979 Kay: shell ovate, solid, equi-valve, inflated; beaks full and prominent; with flattened spinous ribs; margins fluted and denticulated; flesh-colored maculated with brown. Hinge: broad and strong with a strong cardinal in each valve; left anterior and right posterior cardinals well developed, the left posterior and right anterior cardinals obsolete; laterals strongly developed and projecting. Sculpture: about 42 large, high, flattened ribs separated by narrow, deep interspaces; ribs imbricated with distantly spaced spinous scales. Color: exterior flesh, tinged with spots of chestnut brown, edge becoming purplish; interior with a purple border and irregular purple zones within. ••1979 Kay: maximum dimensions, length 53, width 65, breadth 40 mm. REMARKS. ••1840 Sowerby *cf.* Mr. Cuming: more oblique, more closely tuberculated and ribbed than *C. marmoreum*. ••1845 Reeve: the sculpture of this species is well characterized by the oblique alternately diverging minute scales, which ornament the middle ribs. HABITAT. ••1845 Reeve: found in fine coral sand on the reefs. ••1979 Kay: commonly occurring species in shallow waters shoreward of fringing reefs and to depths of less than 20 m; occasional valves have been dredged to depths of 60 m. DISTRIBUTION. ••1845 Reeve: Isl. of Annaa, Pacific Ocean. ••1979 Kay: *C. orbita* is

- a wide-ranging species in the Indo–West Pacific. ••1994 Hylleberg: Hawaii, Australia.
- orbita** Reeve. – See under *orbita* Broderip & Sowerby, 1833.
- orbita hawaiiensis** Dall, Bartsch & Rehder, 1938 (subspecies). – Upgraded. *Vasticardium hawaiiensis* (Dall, Bartsch & Rehder, 1938). *Cardiidae*. Recent. RECORDS. ••1997 Vidal: *Vasticardium orbita hawaiiensis* (Dall, Bartsch & Rehder, 1938) new combination. ••1999 Vidal: *Vasticardium orbita hawaiiensis*.
- orbita mendanense** Sowerby, 1897 (subspecies). – Upgraded. *Vasticardium mendanense* (Sowerby, 1897). *Cardiidae*. Recent. RECORDS. ••1997 Vidal: *Vasticardium orbita mendanense* (Sowerby, 1897) new combination. ••1999 Vidal: *Vasticardium orbita mendanense*. ••1999 Vidal, p. 357: *Vasticardium orbita mendanense* (Sowerby, 1897). Endemic of Marquis.
- orbita philippinense** Hedley, 1899 (subspecies). Figs. Part 3 p. 866]. – Upgraded. *Vasticardium philippinense* (Hedley, 1899). *Cardiidae*. Recent. RECORDS. ••1997 Vidal: *Vasticardium orbita philippinense* (Hedley, 1899) new combination. ••1999 Hylleberg, p. 401: *Vasticardium orbita philippinense* (Hedley, 1899). ID J. Vidal. ••1999 Vidal, p. 357: *Vasticardium orbita philippinense* (Hedley, 1899). ••2003 Hylleberg & Kilburn, p. 185, Plate 4, figs. 14 a,b. *Vasticardium orbita philippinense* (Hedley, 1899). – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1999 Vidal: Indonesia (Lombok, Sumbawa, Komodo). ••2003 Hylleberg & Kilburn: Vietnam (range extension).
- orbiter** Bryan 1915. – Synonym of *Trachycardium hawaiiensis* Dall, Bartsch & Rehder 1938. >> Regarding *Cardium orbiter*: *Cardiidae*. Recent. RECORDS. ••1939 ZR: *Cardium orbiter* in Bryan Nat. Hist. Hawaii (1915) p. 446 pl. civ f. 19 = *Cardium orbita* in Ostergaard Bull. 51 B.P. Mus. p. 8 = *Trachycardium hawaiiensis* sp. n. [Ref. Dall, Bartsch & Rehder 1938]. ••1979 Kay: printer's error of *orbita* (Sowerby, 1833).
- orbis** Uspenskaia, 1931. – Combination to be revised: "*Cardium*" *orbis* Uspenskaia, 1931. *Cardiidae*. Miocene. RECORDS. ••1932 ZR: *Cardium orbis* Uspenskaia, 1931 n. sp. Miocene Daghestan and Transcaspiian.
- ordinatum** Sowerby in Dixon, 1850. – Combination to be revised: "*Cardium*" *ordinatum* Sowerby in Dixon, 1850. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 4606: *Cardium ordinatum* Sowerby in Dixon, 1850. ••1980 Ruhoff: *Cardium ordinatum* Sowerby in Dixon, 1850; p. 52, 169, pl. 3, fig. 17.
- orfellensis** (variety). – See under *martellii orfellensis* Oliveri, 1944.
- orgrinensis** (subspecies). – See under *sturi orgrinensis* Andreescu, 1980.
- orheiensis** Gillet, 1938. – *Phyllicardium orheiensis* Gillet, 1938. *Lymnocardiidae*. Sarmatian. RECORDS. ••1939 ZR: *Phyllicardium orheiensis* Gillet, 1938 sp. n. Sarmatian Roumania.
- orientale** Janicchewskil 1900. – *Conocardium orientale* Janicchewskil 1900. *Conocardiidae*. Fossil. RECORDS. ••1942 ZR: *Conocardium orientale* Janicchewskil 1900 [Ref. Branson 1942].
- orientalis** (subspecies, race, variety). – See under *otiophora orientalis* Stef. – *otiophorum orientalis* Stef. – *peregrinorsa orientalis* Douvillé, 1917.
- orientalis** Papaianopol, 1982. – *Luxuridacna orientalis* Papaianopol, 1982. *Lymnocardiidae*. Upper Miocene. TYPE LOCALITY. Bassin Dacique, Romania. RECORDS. ••1982 Papaianopol, p. 62, fig.: *Luxuridacna orientalis* sp. nov. ••1987 ZR: *Luxuridacna orientalis* sp. nov. Romania, Upper Miocene. Ref. to Papaianopol p. 62.
- orientalis** Papaianopol, 1989. – *Pachydacna (Pachydacna) orientalis* Papaianopol, 1989. *Lymnocardiidae*. Pliocene. TYPE LOCALITY. Bassin Dacique, Romania. RECORDS. ••1989 Papaianopol, p. 86, fig.: *Pachydacna (Pachydacna) orientalis* sp. nov.
- orientalis** Stef. – *Prosodacna orientalis* Stef. *Lymnocardiidae*. Pliocene. RECORDS. ••1987 Lutskanov & Tcholakov: *Prosodacna (Stylodacna) orientalis* Stef.
- oriovacense** (mode). – See under *oriovacensis*.
- oriovacensis** Neum. & Paul. – *Didacna oriovacense* Neum. & Paul. *Lymnocardiidae*. Miocene. RECORDS. ••1946 ZR: *Didacna oriovacensis* Neum. & Paul Pontian, Miocene [Ref. Gillet 1943]. ••1987 Taktakishvili: *Cardium oriovacense* Neum.
- oriovacensis banaticum** Gillet, 1943 (variety). – Upgraded. *Didacna oriovacensis banaticum* Gillet, 1943. *Lymnocardiidae*. Miocene. RECORDS. ••1946 ZR: *Didacna oriovacensis* Neum. & Paul var. *banaticum* Gillet, 1943 nov. Pontian, Miocene, Rumania.
- ornata** (mode). – See under *ornatum*.
- ornata kostici** – *Caladacna ornata kostici*. *Lymnocardiidae*. Fossil. RECORDS. ••1987 Taktakishvili: *Caladacna ornata kostici*.
- \*ornatum; Cardiidae. – Homonymy to be noticed.** *Cardium ornatum* from 3 sources: Orbigny, 1850. – Eichwald, 1855. – Sowerby, 1876.
- ornatum** Eichwald, 1855. – Synonym of *Cerastoderma glaucum* (Bruguière). >> Regarding *Cardium ornatum*: *Cardiidae*. Recent. REMARKS. *Cerastoderma lamarcki* (Reeve) = *Cerastoderma glaucum* (Bruguière). RECORDS. ••1876 Grimm: *Cardium ornatum*. ••1890 Paetel: *Cardium ornatum* Eichw. ••1968 Logvinenko & Starobogatov: *Cardium ornatum* Eichwald, 1855 = *Cerastoderma lamarcki* (Reeve).
- ornatum** Orbigny, 1850. – Combination to be revised: "*Cardium*" *ornatum* d'Orbigny, 1850. – ?*Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn. 4618: *Cardium* (Hall) *ornatum* d'Orbigny, 1850. – *Pinnopsis*. ••1922-32 Sherborn: *Pinnopsis ornatum* Hall.
- ornatum** Sowerby, 1876. – New name *Trachycardium sowerbyorum* Voskuil & Onverwagt, 1992. OTHER JUDGEMENTS: *Vasticardium ornatum* (Sowerby, 1877). >> Regarding *Cardium ornatum*: *Cardiidae*. Recent. DISTRIBUTION. Hong Kong. RECORDS. ••1876 Sowerby: *Cardium ornatum*. ••1876 ZR: *Cardium ornatum* Sowerby, 1876 sp. n. Hongkong. ••1890 Paetel: *Cardium ornatum* Sow. ••1992 Voskuil & Onverwagt, p. 41: *Acrosterigma ornatum* (Sowerby, 1876) nec Orbigny 1850 = *Trachycardium sowerbyorum* nom. nov. ••1997 Vidal: *Vasticardium ornatum* (Sowerby, 1877). ••1999 Vidal: *Vasticardium ornatum* (Sowerby, 1877).
- \*ornatum; Conocardiidae. – Homonymy to be noticed.** *Conocardium ornatum* from 2 sources: Winchell & Marcy, 1865. – Cleland, 1912.
- ornatum** Cleland, 1911. – New name *Conocardium plinthinatus* Branson, 1942. *Conocardiidae*. Devonian. REMARKS. *Conocardiids* have no connection with the

**ornatum – otiofhora**

Cardiacea except analogy of form, which does not offer any point of relationship (Dall 1895, p. 519). RECORDS. ••1912 ZR: *Conocardium ornatum* Cleland, 1912 sp. n. Wisconsin Devonian. ••1942 ZR: *Conocardium ornatum* Cleland 1911 non Winchell & Marcy, 1865 = *Conocardium plinthinatus* nom. nov. Branson, 1942.

**ornatum** Winchell & Marcy, 1865. – *Conocardium ornatum* Winchell & Marcy, 1865. Conocardiidae. FOSSIL. REMARKS. Conocardiids have no connection with the Cardiacea except analogy of form, which does not offer any point of relationship (Dall 1895, p. 519). RECORDS. ••1942 ZR: *Conocardium ornatum* Winchell & Marcy 1865 [Ref. Branson 1942]. ••1980 Ruhoff: *Conocardium ornatum* Winchell & Marcy, 1865; vol. 1: 111, pl. 2, fig. 15.

**ornatus** Hall, 1843. – Synonym of *Lunulicardia ornatus* (Hall, 1843). Not in Cardiidae. Devonian. RECORDS. ••1997 Vidal: *Pinnopsis ornatus* Hall, 1843 [Devonian] = *Lunulicardia ornatus* (Hall, 1843).

Lymnocardiidae.

**\*ornatum; Lymnocardiidae – Homonymy to be noticed.** *Lymnocardium ornatum* from 2 sources: Pavlovic, 1929. Papp (?year).

**ornatum** Papp. – New combination: *Lymnocardium ornatum* Papp. Lymnocardiidae. FOSSIL. RECORDS. ••1987 Taktakishvili: *Limnocardium ornatum ornatum* Papp.

**ornatum** Pavlovic, 1929. – Changed combination: *Caladacna ornatum* (Pavlovic, 1929). Lymnocardiidae. Pontian. RECORDS. ••1928 ZR: *Limnocardium (Pontalmyra) ornatum* [Ref. Pavlovitch 1928]. ••1929 ZR: *Limnocardium (Pontalmyra) ornatum* Pavlovic, 1929 sp. n. Pontian Serbia. ••1987 Taktakishvili: *Limnocardium (Pontalmyra) ornatum*. ••1987 Taktakishvili: *Caladacna ornata* (Pavl.)

**ornatum biseptum** Papp, 1953 (subspecies). – New combination: *Lymnocardium ornatum biseptum* (Papp, 1953). Lymnocardiidae. FOSSIL. RECORDS. ••1948 ZR: *Limnocardium ornatum biseptum march sic* [n. sp.] *sic* [nomen nud.] [Ref. Papp 1948]. ••1956 ZR: *Laevicardium ornatum biseptum* Papp, 1953 subsp. nov. ••1987 Taktakishvili: *Limnocardium ornatum biseptum* Papp.

**ornithopetronica** Chapman & Crespin, 1928. – *Protocardia ornithopetronica* Chapman & Crespin, 1928. Cardiidae. Tertiary. RECORDS. ••1928 ZR: *Protocardia* [vide etiam *Protocardium*] *ornithopetronica* Chapman & Crespin, 1928 sp. n. Tertiary Victoria.

**orolesi** (subspecies). – See under *munieri orolesi*.

**orolesi** Papaianopol, 1982. – Changed combination: *Euxinocardium orolesi* (Papaianopol, 1982). Lymnocardiidae. Pliocene. TYPE LOCALITY. Pontien et Dacien du Bassin Dacique, Romania. RECORDS. ••1982 Papaianopol, p. 200, fig.: *Limnocardium (Euxinocardium) orolesi* sp. nov. ••1987 Taktakishvili: *Euxinocardium orolesi* Papaian.

**orsa** (variety). – See under *fervidum orsa* Eberzin, 1958.

**Orthocardiinae** Schneider, 2002 (subfamily). RECORDS. ••2002 Schneider: Orthocardiinae subfam. nov. Type genus: *Orthocardium* Tremlett, 1950.

**Orthocardium** Tremlett, 1950 (genus). – Cardiidae Middle Eocene and Upper Eocene. RECORDS. ••1998 Schneider (1998b): *Orthocardium* placed in Fraginae

by Popov (1977) and Kafanov & Popov (1977). Placed in Cardiinae by Schneider 1992. ••2002 Schneider: *Orthocardium*: Cardiinae, not Fraginae. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••2002 Schneider: Cross striae present in rib interspaces. Radially ribs weakly expressed internally, adductor muscles strongly impressed. Ridges on lunule flap absent. Periphonal suture present. Very heavy and imbricated spines. ••1969 Moore *et al.*: the shell of *Orthocardium* has rib-sculpture tending to form vertical frill at rib crest; outline more quadrate than in *V. (Vepricardium)*, hinge line narrower and straighter.

**Orthocardium** Tremlett, 1950 (subgenus). – Cardiidae Middle Eocene and Upper Eocene. GENOTYPE. Tremlett (1950) designated *Cardium porulosum* Solander, 1766 type species of subgenus *Orthocardium* of genus *Vepricardium*. RECORDS. ••1950 Tremlett: *Orthocardium* is less globose than *Vepricardium* and has a straight, thinner hinge line. ••1950 ZR: *Orthocardium* Tremlett, 1950 subgen. nov. of *Cardium*. Subgenotype *Cardium porulosum* Solander, Middle and Upper Eocene. ••1969 Moore *et al.*: *Orthocardium*. Europe. ••1977 Popov: *Orthocardium* Tremlett, 1950. Genotype: *Cardium porulosum* Solander, 1766. ••1980 Vokes: *Orthocardium* Tremlett, 1950 in subfamily Cardiinae. ••1992 Schneider p. 149: *Orthocardium* Tremlett, 1950. ••1995 Pacaud & Renard: (*Orthocardium*) Tremlett, 1950 subgenus of *Cardium* Linné, 1758 in subfamily Cardiinae.

**orthogonale** Buvignier, 1852. – Combination to be revised: “*Cardium*” *orthogonale* Buvignier. Cardiidae. Lias–Jurassic. RECORDS. ••1980 Ruhoff: *Cardium orthogonale* Buvignier, 1852; atlas p. 16, pl. 15, figs. 4–6. ••1999–Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium orthogonale* Buvignier. Sequanien. France (Cher), S05033.

**orthogonalis lexoviensis** Chavan, 1952 (variety). – Upgraded. New combination: *Protocardia orthogonalis lexoviensis* Bigot MS (Chavan, 1952). Cardiidae. Jurassic and Cretaceous. RECORDS. ••1985 Fürsich & Werner: *Protocardia (Protocardia) orthogonalis* var. *lexoviensis* Bigot MS (Chavan, 1952).

**orthopyrmos** Scott, 1978. – *Pleuriocardia orthopyrmos*. Cardiidae. Cretaceous. RECORDS. ••1978 Scott, p. 895, pl. 1, figs. 12–13: *Pleuriocardia (Pleuriocardia) orthopyrmos* n. sp. ••1978 ZR: *Pleuriocardia (Pleuriocardia) orthopyrmos* Scott, 1978 sp. nov. Texas, Lower Cretaceous. Ref. to Scott p. 895.

**osijeki** Basch, 1990. – New name: *Prosodacna osijeki* Basch, 1990. Lymnocardiidae. FOSSIL. RECORDS. ••1990 Basch, p. 65: *Prosodacna (Prosodacnomya) osijeki* nom. nov. for *Limnocardium stenopleura* Brusina & Brusina, 1902, nec Stefanescu.

**Osoinia** Stevanovic, 1979 (subgenus). Lymnocardiidae. FOSSIL. RECORDS. ••1979 ZR: *Pseudocatillus (Osoinia) Stevanovic*, 1979. Subgen. nov. Type species *P. laticostatus* Stevanovic 1951. Ref. to Stevanovic, p. 326.

**ossoinae** (subspecies and variety). – See under *retowskii ossoinae* Stevanovic, 1951.

**otarii** (variety). – See *praechinatum otarii* Kharatishvili, 1958.

**otiofhora** Brusina. – Changed combination: *Pontalmyra*

*otiophora orientalis* – *ovata*

- otiophora* (Brusina). Lymnocaridiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Pontalmyra otiophora* (Brus.).
- otiophora orientalis*** Stevanovic, 1951 (variety). – Upgraded. *Pontalmyra otiophora orientalis* (Stevanovic, 1951). Lymnocaridiidae. Fossil. RECORDS. ••1953 ZR: *Didacna otiophorum* var. *orientalis* Stevanovic, 1951 nov. Pontian Serbia. ••1987 Taktakishvili: *Pontalmyra otiophora orientalis* (Stev.).
- otiosa*** Papaianopol, 1981. – *Pontalmyra otiosa* Papaianopol, 1981. Lymnocaridiidae. Upper Miocene. RECORDS. ••1987 Taktakishvili: *Pontalmyra otiosa* Papaianopol, 1981 ZR: *Pontalmyra (Pontalmyra) otiosa* Papaianopol, 1981 sp. nov. Romania. Ref. to Papaianopol, p. 21.
- ottoi*** Geinitz. – Synonym of *Trachycardium incomptum* (Sowerby apud Forbes, 1846). >> Regarding *Cardium ottoi*: Cardiidae. Cretaceous. RECORDS. ••1871 Stoliczka: *Cardium ottoi* (*Cerastoderma*) = *Cardium (Trachycardium) incomptum* Sowerby apud Forbes, 1846, according to Zittel.
- ottonis*** Geinitz, 1843. – Combination to be revised: “*Cardium*” *ottonis* Geinitz, 1843. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 4645: *Cardium ottonis* Geinitz, 1843.
- otukai*** Hatai & Nisiyama, 1952. – See under *otukai* Oyama, Mizuno & Sakamoto, 1960.
- otukai*** Oyama, Mizuno & Sakamoto, 1960. Invalid name. OTHER JUDGEMENTS: *Vasticardium otukai* Oyama, Mizuno & Sakamoto, 1960. >> Regarding *V. otukai*: Cardiidae. Upper Oligocene. RECORDS. ••1973 Keen: *Vasticardium otukai* Oyama, Mizuno & Sakamoto, 1960, ex Hatai & Nisiyama, MS. ••1982 ZR: *Vasticardium otukai* Hatai & Nisiyama, 1952. Invalid name. Ref. to Masuda *et al.* p. 7. ••1999 Vidal: *Vasticardium otukai* Hatai & Nisiyama, 1952: 35.
- ouralicum*** Verneuil in Murchison, 1845. – *Conocardium ouralicum*, de Verneuil. Conocardiiidae. Fossil. RECORDS. ••1859 Chenu: *Conocardium ouralicum* de Verneuil. ••1922-32 Sherborn, p. 6763: *Cardium ouralicum* Verneuil in Murchison, 1845.
- ovale*** Montagu, 1803. – See under *ovale* Sowerby, 1840.
- ovale*** Pcelinzev, 1928. – *Protocardium ovale* Pcelinzev, 1928. Cardiidae. Jura. RECORDS. ••1928 ZR: *Protocardium ovale* [vide etiam *Protocardia*] Pcelinzev, 1928 sp. n. Jura. Turcoman USSR
- ovale*** Sowerby, 1840. [Figs. Part 1 p. 144. Part 3 p. 919]. – New name and changed combination: *Parvicardium ovale* (Sowerby, 1840). OTHER JUDGEMENTS: *Cardium elongatum* Montagu. – *Cardium fasciatum* Montagu. – *Parvicardium pinnulatum* (Conrad, 1831). >> Regarding *Cardium ovale*: Cardiidae. Recent. TYPE LOCALITY. Britain. RECORDS. ••1840 Sowerby, catalogue p. 2, No. 24: *Cardium ovale* nob., new name for *C. elongatum* Mont. (preoccupied). ••1845 Reeve, sp. 119: *Cardium ovale* Sowerby, Cat. Card. Conch. Illus., no. 24. ••1846 Lovén: *Cardium ovale* Sow. = *Cardium elongatum* Mont. ••1856 Wood & Hanley: *C. ovale* Sow. = *Cardium fasciatum* Mont. ••1858 Adams & Adams, p. 456: *Cardium (Cerastoderma) ovale* Sow. ••1859 Sowerby: *C. ovale* = *Cardium fasciatum* Mont. ••1867 Weinkauff: *Cardium ovale* Brown, Sowerby = *Cardium fasciatum* Montagu. ••1869 Römer: *Cardium ovale* Sowerby fig. 24 = *Cardium fasciatum* Montagu. ••1884 Grasset: *Cardium ovale* Sow. ••1886 Locard:
- Cardium ovale* Sowerby = *Cardium fasciatum* Montagu, 1808. ••1888 Kobelt: *Cardium ovale* Sow. = *Cardium fasciatum* Montagu. ••1888 Servain: *Cardium ovale* Sowerby, Reeve = *Cardium fasciatum* Montagu, 1808. ••1890 Paetel: *Cardium ovale* Sow. = *fasciatum* Mtg. ••1917 Hidalgo: *Cardium ovale* Reeve sic = *Cardium fasciatum* Montagu. ••1922-32 Sherborn, p. 4647: *Cardium ovale* Sowerby, ?1840. ••1932 Winckworth: *Cardium (Parvicardium) ovale* Sowerby, 1840. ••1962 Allen: *Cardium (Parvicardium) ovale* Sowerby 1840 = *Cardium fasciatum* in Jeffreys 1863. ••1969 Nordsieck: *Parvicardium ovale* (Sowerby, 1841). ••1973 ZR: *Cardium ovale* Sowerby. Ref. to Rasmussen. ••1974 Clarke: *Parvicardium ovale* (Sowerby). ••1987 ZR: *Parvicardium ovale* (Sowerby, 1840). Senior synonym of *Cardium fasciatum* Montagu, 1808. Ref. to Backeljau *et al.* p. 4. ••1998 Macedo *et al.*: *Parvicardium ovale* (Sowerby G.B. III, 1840). ••2000 Aartsen & Goud: *Cardium ovale* Sowerby, 1840 = *Cardium ovale* Sowerby, 1841 (1840 is most probably the correct year). ••2000 Aartsen & Goud: *Cardium ovale* Sowerby, 1840 is a synonym of *Parvicardium pinnulatum* (Conrad, 1831). ••2001 Vidal, p. 408: *Parvicardium ovale*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1845 Reeve: shell thin, somewhat squarely ovate, rather depressed, posteriorly slightly elongated; radiately ribbed, ribs, the anterior especially, obscurely very finely muricated; whitish, faintly stained and banded with brown. ••2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes. REMARKS. ••1969 Nordsieck: *Parvicardium ovale* (Sowerby, 1840) = *Parvicardium fasciatum* (Montagu, 1803). HABITAT. ••1969 Nordsieck: 0 to 350 m depth. DISTRIBUTION. ••1845 Reeve: Britain (Torbay). ••1884 Grasset: Sicily. ••1969 Nordsieck: Arctic, North Norway to the Canary Islands, Mediterranean.
- ovalis*** (mode). – See also under *ovale*.
- ovalis*** Barinov, 1992. – *Clinocardium ovalis* Barinov, 1992. Cardiidae. Neogene. TYPE LOCALITY. Kamchatka, Russia. RECORDS. ••1992 Barinov *et al.*, p. 124, fig.: *Clinocardium ovalis* Barinov, 1992 sp. nov.
- ovalis*** Martinson, 1959. – *Pseudocardinia ovalis* Martinson, 1959. Cardiacea. Fossil. RECORDS. ••1959 ZR: *Pseudocardinia ovalis* Martinson, 1959 sp. nov. Sary-Chelek, eastern Fergana, fossil.
- ovalis*** Yanina, 1983. – *Didacna ovalis* Yanina, 1983. Lymnocaridiidae. Middle Pleistocene. RECORDS. ••1983 ZR: *Didacna ovalis* Yanina, 1983 sp. nov. No description given. Russian SFSR. Ref. to Yanina, p. 36.
- ovaloides*** (variety). – See under *bistriata ovaloides* Sadykov, 1962.
- ovalum*** Alieva, 1967. – Combination to be revised: “*Cardium*” *ovalum* Alieva, 1967. Cardiidae. Tertiary. RECORDS. ••1967 ZR: *Cardium ovalum* Alieva, 1967 sp. nov. figs. Akchagil deposits, Naftalan, Azerbaidjan, SSR.
- ovata*** (mode, subspecies, variety). – See under *ovatum*. – *echinatum ovata* Jeffreys, 1863. – *sulcatina ovata* Deshayes. – *exiguum ovata* Milachewitch, 1916. – *exiguum f. ovata* Milachewitch, 1916.
- ovata*** Papaianopol, 1975. – *Chartoconcha ovata* Papaianopol, 1975. Cardiacea. Pliocene. RECORDS.

**ovatum – ovuloides**

••1975 ZR: *Charotoconcha ovata* Papaianopol, 1975 sp. nov. Romania. Prahova, Lacuri. Ref. to Papaianopol, p. 136.

\***ovatum**. – Homonymy to be noticed. *Cardium ovatum* from 2 sources: Münster, 1840. – Deshayes, 1838.

**ovatum** Deshayes, 1838. – Changed combination: *Didacna ovata* (Deshayes, 1838). Lymnocardidae. Tertiary. TYPE LOCALITY. The Crimea. RECORDS. ••1838 Deshayes, p. 56, pl. 1, figs. 19–21: *Cardium ovatum*. ••1857 Deshayes: *Cardium ovatum* Deshayes, 1837 sic. ••1877 Grimm: *Cardium ovatum* Deshayes. ••1905 Dollfus, commenting Andrussow 1903: *Cardium ovatum*. ••1922–32 Sherborn, p. 4652: *Cardium ovatum* Deshayes, 1838. ••1953 Celidje: *Didacna ovata* Desh. ••1987 Anaya: *Didacna* (s. s.) the group *ovata* (Deshayes, 1810 sic). ••1987 Taktakishvili: *Didacna ovata* Desh.

**ovatum** (aff.) Deshayes, 1838. – RECORDS. ••1987 Taktakishvili: *Pontalmyra* aff. *ovata* (Desh.).

**ovatum** Münster, 1840. – Replaced by *Cardium cornutum* Deshayes. >> Regarding *Cardium ovatum*: Cardiidae. Fossil. RECORDS. ••1857 Deshayes: *Cardium ovatum* Münster, 1840 – *C. cornutum* Desh. ••1922–32 Sherborn, p. 4654: *Lunulacardium ovatum* Muenster, 1840.

**Ovicardium** Marwick, 1944 (subgenus). – Cardiidae. Pliocene. Type species. Original designation. *Trachycardium (Ovicardium) rossi* Marwick, 1944. CHARACTERS. Shell ovate, intercostal spaces cross-striate, with vertical sides; hinge with oblique groove behind 4b. New Zealand–Australia (Moore *et al.* 1969). RECORDS. ••1944 ZR: *Ovicardium* Marwick, 1944 subgen. nov. of *Trachycardium* Mörch, type *Trachycardium (Ovicardium) rossi* Marwick, 1944 sp. nov. (Opoitian) Te Reinga Falls, Hangarua R. ••1969 Moore *et al.*: *Acrostegma (Ovicardium) rossi* Marwick, 1944. ••1980 Vokes: *Ovicardium* Marwick, 1944 in subfamily Trachycardiinae.

**ovicella** Dujardin. – “*Cardium*” *ovicella* Dujardin. Cardiidae. Miocene. RECORDS. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium ovicella* Dujardin. Helvetien. France (Touraine), B.27157.

**oviformis** – *Tauricardium oviformis*. Lymnocardidae. Fossil. RECORDS. ••1987 Taktakishvili: *Tauricardium oviformis*.

**oviformis** (subspecies and variety). – See under *petersi oviformis* and *subsquamulosum oviformis* Eberzin, 1958.

**oviputamen** Reeve, 1844. [Figs. Part 1 p. 130. Part 3 p. 894]. – Synonym of *Laevicardium serratum* (Linné, 1758). OTHER JUDGEMENTS: *Laevicardium brasilianum* (Lamarck, 1819). >> Regarding *C. oviputamen*: Cardiidae. Recent. TYPE LOCALITY. Unknown (Reeve 1844). TYPE MATERIAL. University Museum of Zoology, Cambridge, coll. J. Saul no 1691 (J. Vidal pers. comm.). RECORDS. ••1844. Reeve, p. 168, sp. 36: *Cardium oviputamen*. ••1858. Adams & Adams, p. 457: *Laevicardium oviputamen*, Reeve. ••1864. Krebs: *Cardium oviputamen* Reeve. ••1868. ZR: *Cardium elenense* (Sow.) and *oviputamen* (Reeve) shortly characterized [Ref. Römer 1868]. ••1884. Grasset: *Laevicardium oviputamen*. Rv. ••1890. Paetel: *Laevicardium oviputamen* Rv. ••1902. Dall: ? *Cardium*

*oviputamen* Reeve, 1844 = *Cardium serratum* Linnaeus, 1758. ••1921. Maury: *oviputamen* Reeve, 1844 = *Cardium (Laevicardium) serratum* Linnaeus, 1758. ••1922–32. Sherborn, p. 4658: *Cardium oviputamen* Reeve, 1844. ••1925 Woodring, p. 145: *Cardium oviputamen* Reeve, 1844 is identical with *Cardium serratum* Linné, 1758. ••1977. Fischer–Piette: *Cardium oviputamen* Reeve, 1844 = *Laevicardium brasilianum* Lamarck, 1819. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: concentrically waved pinkish brown marks, though faintly indicated, are characteristic. DESCRIPTIONS. ••1844 Reeve: shell obliquely ovate, thin, ventricose, radiately very finely striated; opaque snowy white, concentrically clouded with faint waved pinkish–brown spots or lines, covered with a pale epidermis towards the margins; margins finely crenulated within. REMARKS. ••1844 Reeve: the general appearance is very like that of the *Cardium serratum*; however the form is of less oblique, and the *Cardium oviputamen* under consideration is more ventricose. The concentrically waved pinkish brown marks above noticed, though faintly indicated, are nevertheless characteristic, as distinguished from those of a different pattern in *Cardium vitellinum* Reeve. [Present generic classification is *Laevicardium oviputamen*]. DISTRIBUTION. ••1844 Reeve: unknown. ••1884 Grasset: Bahamas. ••Of authors: Florida, Panama, West Indies.

**ovolum** – Combination to be revised: “*Cardium*” *ovolum*. Unfamiliar species. >> Regarding *Cardium ovolum*: Cardiidae. Cretaceous. TYPE LOCALITY. Palaestine. RECORDS. ••1871 Stoliczka: *Cardium ovolum* (Stoliczka: unfamiliar species).

**ovuloide** (error). – Printer’s mistake for *ovuloides* in Dall 1901.

**ovuloides** Reeve, 1845. [Figs. Part 1 p. 145. Part 3 p. 856, 931]. – Changed combination: Synonym of *Trigoniocardia obovale* (Sowerby, 1833). OTHER JUDGEMENTS: *Trigoniocardia ovuloides* (Reeve 1845). >> Regarding *Cardium ovuloides*: Cardiidae. Recent. TYPE REPOSITORY. 3 syntypes. 1978 139. BMNH London. TYPE LOCALITY. Reeve 1845: unknown. RECORDS. ••1845 Reeve: *Cardium ovuloides*. ••1858 Adams & Adams, p. 459: *Hemicardia (Fragum) ovuloides*, Reeve. ••1890 Paetel: *Hemicardium ovuloides* Rv. ••1901 Dall: *Cardium (Trigoniocardia) ovuloide* sic Reeve, 1845. ••1922–32 Sherborn, p. 4660: *Cardium ovuloides* Reeve, 1845. ••1932 Pilsbry & Lowe: *Cardium (Trigoniocardia) ovuloides* Rve. ••1958 Abbott: *Trigoniocardia ovuloides* Reeve [Recent]. ••1961 Olsson: *Cardium ovuloides* Reeve, 1845 = *Trigoniocardia (Apiocardia) obovale* (Sowerby, 1833). ••1977 Popov: *Trigoniocardia (Trigoniocardia) ovuloides* (Reeve, 1845). ••1977 Fischer–Piette: *Cardium ovuloides* Reeve = *Corculum obovale* Sowerby. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1845 Reeve: shell oblong-ovate, very gibbous, radiately ribbed, about 17 ribs, the middle and anterior large, strong, nodulously granulated, interstices transversely impressly striated, posterior ribs narrow, smooth, flattened; yellowish white within and without. REMARKS. This little species exhibits the form of the *Cardium obovale* with the sculpture of the *Cardium graniferum*. DISTRIBUTION. ••1845 Reeve: unknown.

••Of authors: California, Ecuador.

**ovum** Martyn, 1784. *Non binominal*. – Not available.

>> Regarding *Cochlea ovum*: *Cardiidae*. Recent. TYPE LOCALITY. Pulo-Condore (Martyn, 1784). RECORDS. ••1784 Martyn, p. 24, sp. 79, pl. 28, fig. 1: *Cochlea ovum*. ••1789 Martyn: *Cochlea ovum*. Pulo Condore. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: 1 specimen M U ?*Cardium ovum*. The label refers to “cf 79 in fig. Martyni”.

**Oxydacna** Davitaschvili, 1930 (genus). – Lymnocardiidae. Tertiary. RECORDS. ••1962 ZR: *Oxydacna* Davidaschvili in subfam. Didacninae Eberzin, 1962, family *Cardiidae* [Ref. Eberzin 1962]. ••1980 Vokes: *Oxydacna* Davidaschvili, 1930 in subfamily Didacninae. ••1987 Taktakishvili, p. 90: *Oxydacna* Davitaschvili, 1930; referred to new tribe Pontalmyrini.

**oxypleura** Sowerby, 1834. [Figs. Part 1 p. 107, 139, Part 3 p. 866, 878]. – Changed combination: *Acrosterigma oxygonum* (Sowerby, 1834). *Cardiidae*. Recent. TYPE MATERIAL. Two shells considered as syntypes in BMNH, Cuming collection, labeled Philippines. The dimensions and rib number given by Sowerby could fit the specimen figured by Vidal (1999, figs. 5D–E); but the locality given by Sowerby (China Sea) does not agree. TYPE LOCALITY. ad mare Sinense (China) (Sowerby 1840). RECORDS. ••1834 Sowerby, 47<sup>th</sup> part, fig. 9: *Cardium oxygonum*. ••1840 Sowerby, p. 107: *Cardium oxygonum* Sow. ••1840 Sowerby, Proc. Z.S. London p. 107: *Cardium oxygonum*. ••1840 Sowerby, catalogue p. 4, No. 50: *Cardium oxygonum* Sow. ••1840 Sowerby, corrected list, p. 8: *Cardium oxygonum*, (Sowerby No. 50). ••1841 Reeve, p. 99: *Cardium oxygonum* Sow. ••1843 Hanley: *Cardium oxygonum* Sow. ••1845 Reeve, sp. 77: *Cardium oxygonum* Sow. ••1858 Adams & Adams, p. 455: *Cardium (Trachycardium) oxygonum*, Sow. ••1867 Mitchell: *Cardium oxygonum* Sow. ••1869 Frauenfeld: *Laevicardium oxygonum* Sow. ••1870 Mörch: *C. oxygonum* Sowb junior synonym of *Cardium leucostoma* Born. ••1872 Tryon: *Cardium oxygonum* Sow. ••1884 Grasset: *Cardium oxygonum* Sow. ••1890. Paetel: *Cardium oxygonum* Sow. ••1903 Hidalgo: *Cardium oxygonum* Sow. ••1905 Hidalgo: *Cardium oxygonum* Sow. ••1906 Standen & Leicester: *Cardium oxygonum*. ••1912 Shirley: *Cardium oxygonum* Sow. ••1922–32 Sherborn, p. 4665: *Cardium oxygonum* Sowerby, 1841. ••1923 Hedley: *Cardium oxygonum* Sow. (erroneous identification, see Vidal 1999). ••1928 Faustino: *Cardium oxygonum* Sowerby. ••1941 Gravely: *Cardium oxygonum*. ••1962 Iredale & McMichael: *Cardium oxygonum* Sow. ••1977 Fischer-Piette: *Laevicardium oxygonum* Sowerby. ••1977 Wilson & Stevenson: *Cardium oxygonum* Sowerby, 1841. ••1978 ZR: *Trachycardium oxygonum*. Bay of Bengal Burma, Maungmagan. First record for Burmese waters. Ref. to Ray ••1992 Oliver: *Trachycardium oxygonum*. ••1999 Vidal: *Acrosterigma oxygonum* (Sowerby, 1833). ••1999 Vidal: *Cardium oxygonum* Sowerby, 1833 in Hedley, 1923: 304. = *Acrosterigma*. ••2002 Hylleberg & Kilburn, p. 63: *Acrosterigma oxygonum* (Sowerby, 1834). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: one specimen identified by Cuming, sine loc. CHARACTERS of diagnostic value: the elaborate and distinctive rib morphology. DESCRIPTIONS. ••1845 Reeve: Shell oblong-

ovate, attenuated towards the umbones, radiately ribbed, 35 ribs, peculiarly sharp angled, finely crenulated at the base on the posterior side, extreme posterior ribs prickly, anterior very finely crenated; white, profusely stained and spotted with rose. ••1999 Vidal: Shell ovoid, and almost equilateral, sometimes with posterior dorsal margin a little straightened; hardly elongated and not appreciably compressed. Ribs straight in projection. Lunule about equivalent on both valves, well delineated, and appreciably hollowed on both sides. External colour beige, variegated with rather dark brown to purple in large irregular patches; interior white, except for umbonal rays. Hinge appreciably asymmetrical. A long, thin, weak umbonal sterigma in about 20% of the specimens. Mean rib number  $38.9 \pm 1.4$ , range 36–41. Posteriorly ribs of equivalent width, with a weakly marked median furrow and scales that are sometimes irregular; interstices well marked. Elsewhere, ribs always triangular, except for the first anterior ribs, which are rounded; on median posterior part, ribs first retro-ridged, becoming retro-tuberculated anteriorly, with numerous small tubercles situated on lower part of flank; anterior flank smooth, and a significant smooth crestal fold is present. On anterior half, anterior flanks of ribs become at first pro-tuberculated at base, then pro-ridged, with ridges terminating in crestal tubercles, but not reaching interstice; in contrast, posterior flanks of ribs become and remain smooth throughout. Interstices triangular and smooth. DIMENSIONS. ••1999 Vidal: length 37.0, width 42.8, thickness 26.0 mm. REMARKS. ••1840 Sowerby: this species resembles *C. maculosum* of Wood in form, but in sculpture it is more like *C. angulatum* of Lamarck, from which it is distinguished by being narrower towards the umbo, less ventricose, and having the ribs distinctly angulated. ••1845 Reeve: this species exhibits a very peculiar plan of sculpture, the ribs being sharply angled at the summit, and very finely crenulated at the base, on the posterior side. ••1999 Vidal: *A. oxygonum* has very constant characters, particularly an elaborate and distinctive rib morphology. One lot of this species in BMNH (reg. 1910–12–13–15), from Sri Lanka, is labeled as a type series of “*Cardium sanguineotincta*” Preston; another lot AMS C034080, from Sri Lanka, is labeled as a cotype lot of the same taxon. There is no verification of this name in the literature. DISTRIBUTION. ••1845 Reeve China, Philippines. ••1884 Grasset: China. ••1923 Hedley: Australia, New South Wales, Queensland. ••1994 Hylleberg: Indo–West Pacific. 1999 Vidal: exclusively in the northern hemisphere: Gulf of Mannar, Andaman Sea and Malacca Strait, Gulf of Thailand, (south?) China, Philippines. Published records from Australia (South Queensland and New South Wales) are erroneous and should be referred to *A. kerslakae*. Specimens from Zanzibar need to be confirmed. ••2002 Hylleberg & Kilburn: South India.

**oxynoti** Quensted, 1856. – Combination to be revised: “*Cardium*” *oxynoti* Quensted, 1856. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium oxynoti* Quensted, 1856; [1856–1858] p. 110, pl. 13, fig. 46.

**oxypleura** Davidasvili, 1930 – Changed combination: *Pontalmyra oxypleura* (Davidasvili, 1930). Lymnocardiidae. Fossil. RECORDS. ••1932 ZR: *Didacna*

**ozurgeticum – pallidum**

*oxypleura* Davidasvili, 1930 sp. n. ••1987 Taktakishvili: *Pontalmyra oxypleura* (Dav.).

**ozurgeticum** Davidasvili, 1930 – Changed combination: *Moquicardium ozurgeticum* (Davidasvili, 1930). Lymnocardidae. Fossil. RECORDS. ••1932 ZR: *Limno-cardium ozurgeticum* Davidasvili, 1930 sp. n. Pliocene Transcaucasia. ••1987 Taktakishvili: *Limno-cardium* (*Moquicardium*) *ozurgeticum* Dav. (?). ••1987 Taktakishvili: *Moquicardium ozurgeticum* Dav. (?).

## P

**Pachycardium** Conrad, 1869 (genus). – Cardiidae. Cretaceous. *Pachycardium spillmani* Conrad, 1869, p. 96, type species of the genus *Pachycardium*. RECORDS. ••1980 Vokes: *Pachycardium* Conrad, 1869 in subfamily Protocardiinae. ••1995 Schneider: *Protocardia* (*Pachycardium*). Type species *Protocardia spillmani* (Conrad, 1869).

**Pachycardium** Conrad, 1869 (subgenus). – Cardiidae. Cretaceous. REMARKS. The designation “section” takes the value of subgenus. RECORDS. ••1876 Meek: *Pachycardium* Conrad, 1870 synonym of *Protocardia*, Beyrich, 1845. ••1887 Fischer: *Pachycardium* Conrad, 1870. Section of subgenus *Protocardia* Beyrich.

**Pachydaena** Ebersin, 1955 (genus). – New Name. Lymnocardidae. Tertiary. RECORDS. ••1974 ZR: *Pachydaena* Ebersin, 1955. Referred to new subfamily Prosodacninae, p. 128. Ref. to Andreescu. ••1980 Vokes: *Pachydaena* (genus) Ebersin, 1955. n.n. pro *Natella* Ebersin, 1949. In subfamily Lymnocardinae. ••1987 Anaya: *Pachydaena* Ebersin, 1955. Type species: *Natella natella* Ebersin, 1947.

**Pachydaena** (error). – Printer’s mistake for genus *Pachydaena* in ZR for 1970.

**Pachyprionopleura** Andreescu, 1974 (genus). Lymnocardidae. Tertiary. RECORDS. ••1974 ZR: *Pachyprionopleura* Ahvlediani, 1970. Referred to new subfamily Prosodacninae, p. 128. Ref. to Andreescu. ••1980 Vokes: *Pachyprionopleura* Andreescu, 1974.

**Pachyrismella** (genus). – Transferred from Megalodontacea. RECORDS. ••1978 ZR: *Pachyrismella* Cox 1964. Ref. to Morris p. 267.

**pachyrrhinum** Eichwald, 1868. – Combination to be revised: “*Cardium*” *pachyrrhinum* Eichwald, 1868. Cardiacea. Fossil. RECORDS. ••1980 Ruhoff: *Cardium pachyrrhinum* Eichwald, 1868; [1853–1868] vol. 2. 678, pl. 25, figs. 9–10.

**padimeicum** (subspecies). – See under *ciliatum* *padimeicum* Merklin & Zarkhidze, 1979.

**padimeicum** Merklin & Zarkhidze 1979. – Synonym of *Ciliatocardium ciliatum* (Fabricius 1780). Cardiidae. Fossil. RECORDS. ••1980 ZR: *Ciliatocardium padimeicum* Merklin & Zarkhidze 1979 is a junior synonym of *C. ciliatum* (Fabricius 1780). Ref. to Kafanov.

**paetrigonoides** (error). – Printer’s mistake for *praetrigonoides* in ZR for 1916.

**Palaeocardita** (genus). – RECORDS. ••1992 Schneider p. 146: *Palaeocardita* is usually placed with the Carditidae. Type species *Palaeocardita austriaca* (Hauer). ••1995 Schneider: *Palaeocardita*. May not belong to the cardiids.

**palatum** Martyn, 1784. *Non* binominal. – Not available. >> Regarding *Cardium palatum*: Not a cardiid.

RECORDS. ••1784 Martyn: *Cardium palatum*.

**pallasanum** Basterot in Mayer, 1864. – Combination to be revised: “*Cardium*” *pallasanum* Basterot in Mayer, 1864. Cardiacea. Fossil. RECORDS. ••1980 Ruhoff: *Cardium pallasanum* Basterot in Mayer, 1864; [1857–1869], vol. 12: 355.

\***pallasianum**. – Homonymy to be noticed. *Cardium pallasianum* from 2 sources: Basterot, 1825. – Andrzejoswky, 1836.

**pallasianum** Andrzejoswky. 1836. – Replaced by *Parvicardium exiguum* (Gmel.). Cardiidae. Fossil. RECORDS. ••1857 Deshayes: *Cardium pallasianum* Audr. sic., 1836 [? = Andrzejoswky] – *C. exiguum* Gmel.?

**pallasianum** Basterot, 1825. – Changed combination: *Loxocardium pallasianum* (Basterot, 1825). Cardiidae. Miocene. RECORDS. ••1835 Lamarck: *Cardium pallasianum* Bast. ••1857 Deshayes: *Cardium pallasianum* Basterot 1825. ••1899 Sacco: *Cardium pallasianum* Basterot 1825. ••1899 Sacco: *Loxocardium pallasianum* (Bast.). ••1922-32 Sherborn, p. 4689: *Cardium pallasianum* sic de Basterot, 1825. ••1977 Popov: *Loxocardium pallasianum* (Basterot, 1825). ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium pallasianum* Basterot. Helvetien. France, B26227.

**pallasianum** (error). – Printer’s mistake for *pallasianum* in Sherborn 1922-32, p. 4689

**palleus**. – Label name for *Laevicardium laevigatum* (Linné, 1758). Cardiidae. Recent. OF COLLECTIONS. ••ZMUC: 1 specimen in dry collection referring to Reeve (1845) No. 69, *palleus* = *Laevicardium laevigatum* Linné, 1758.

**pallida** /-um (subspecies, variety) – See under *norvegicum* *pallida* Jeffreys, 1863. – *norvegicum* *pallidum* Jeffreys.

**pallidum** Reeve, 1845. [Figs. Part 1 p. 141. Part 3 p. 928]. – Synonym of *Fulvia papyracea* (Bruguière, 1789). OTHER JUDGEMENTS: *Fulvia tenuicostata* (Lamarck, 1819). >> Regarding *Cardium pallidum*: Cardiidae. Recent. TYPE REPOSITORY. 2 possible syntypes. 1978134. BMNH London. TYPE LOCALITY. Manila Bay, Philippines. RECORDS. ••1844 Reeve: *Cardium pallidum*. ••1884 Grasset: *Cardium pallidum*. Rv. ••1885 Smith: *Cardium pallidum* (Reeve in Römer, fig. 92) = *Cardium* (*Bucardium*) *tenuicostatum* Lamarck. ••1890 Paetel: *Cardium pallidum* Rv. ••1903 Pritchard & Gatliff: *Cardium pallidum* Römer in Küster 1869 = *Cardium tenuicostatum* Lamarck. ••1906 Melvill & Standen, p. 839: *Cardium* (*Acanthocardia*) *pallidum* Reeve. ••1922-32 Sherborn, p. 4701: *Cardium pallidum* Reeve, 1845. ••1928 Faustino: *Cardium pallidum* Reeve. ••1945 Smith: *Cardium pallidum* Reeve 1843 syn. = *Cardium tenuicostata* Lamarck 1819. ••1977 Fischer–Piette: *Cardium pallidum* Reeve = *Papyridea papyracea* (Chemnitz) Schröter. ••1992 Lamprell & Whitehead: *Cardium pallidum* Reeve, 1844 = *Fulvia tenuicostata* (Lamarck, 1819). ••1994 Vidal: ? *Cardium pallidum* Reeve, 1845 = *Fulvia* (*Fulvia*) *papyracea* (Bruguière, 1789). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS ••1845 Reeve: shell somewhat squarely ovate, rather depressed, posteriorly a little angularly produced; radiately finely ribbed, ribs very numerous, sometimes 42-43, sometimes 52-53,

*palmatum* – *panamense*

smooth, somewhat keel-shaped; pale. REMARKS. •1845 Reeve: This is another species, which has been probably confounded with the *Cardium tenuicostatum*, an examination of several specimens assures me, however, that it is distinct. It is more depressed, has, not the slightest indication of the waved flesh-colour spots, which adorn that species, and is altogether different. HABITAT. •1845 Reeve: found in sandy mud at a depth of from 4 to 5 fathoms. DISTRIBUTION. •1845 Reeve: Bay of Manila, the Philippines. •1884 Grasset: Manila.

***palmatum*** Goldfuss, 1837. – Combination to be revised: "*Cardium*" *palmatum* Goldfuss, 1837. *Cardiidae*. Pre-Mesozoic. RECORDS. •1922-32 Sherborn, p. 4714: *Cardium palmatum* Goldfuss, 1837. •1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium palmatum* Goldfuss. Germany, B03948.

***palmerae*** Harbinson, 1944. – Combination to be revised: "*Cardium*" *palmerae* Harbinson, 1944. *Cardiidae*. Eocene. RECORDS. •1944 ZR: *Cardium palmerae* Harbinson, 1944 sp. nov. (Eocene) Santee-Cooper Canal 17 m. N.-W. of Moncks Corner, South Carolina.

***paludosum*** (variety). – See under *glaucum paludosa* Bucquoy, Dautzenberg & Dollfus, 1892.

***panamense*** Dall, 1908. – *Nemocardium panamense* (Dall, 1908). OTHER JUDGEMENTS: suggested new name *Microcardium williami*. >> Regarding *Protocardia panamensis*: *Cardiidae*. Recent. RECORDS. •1908 Dall: *Protocardia panamensis*. •1961 Olsson: *Microcardium panamense*. •1971 Keen & McLean: *Nemocardium (Microcardium) panamense* (Dall, 1908). •1977 Fischer-Piette: *Protocardia panamensis* Dall. •1977 ZR: *Microcardium panamensis* (Dall, 1908) Preoccupied name Replaced by *Microcardium williami*. Ref. to Fischer-Piette, E. p. 4. •1980 Keen. *Nemocardium panamense* (Dall, 1908). – CHARACTERS AND OCCURRENCE – REMARKS. •1977 Fischer-Piette, p. 4: *Microcardium williami* new name for *Microcardium panamense* Dall, 1908. However, Keen (1980) claims that *Microcardium williami* is an unnecessary new name for a supposed homonym: *Protocardia panamensis* Dall, 1908, versus *Cardium panamense* Sowerby, 1833, species that now fall not only in different genera but in different subfamilies. HABITAT. •1971 Keen & McLean: 333 m. DISTRIBUTION. •1971 Keen & McLean: Panama.

***panamense*** Sowerby, 1833. [Figs. Part 1 p. 109, 134. Part 3 p. 857, 924]. – Changed combination: *Trachycardium panamense* (Sowerby, 1833). OTHER JUDGEMENTS: *Trachycardium procerum* (Sowerby, 1833). >> Regarding *Cardium panamense*: *Cardiidae*. Recent. TYPE LOCALITY. Ad Panamam in sandy mud at a depth of 10 fathoms (Sowerby 1833). TYPE REPOSITORY. BMNH; *Cardium panamense* Sowerby Holotype reg. no. 1991024. Neg. No. 0629. RECORDS. •1833 Sowerby, p. 85: *Cardium panamense*. •1834 Sowerby, 49<sup>th</sup> part, fig. 21: *Cardium panamense* nobis. •1840 Sowerby, catalogue p. 5, No. 62: *Cardium panamense*, Sow. •1840 Sowerby, corrected list, p. 8: *Cardium panamense* (Sowerby No. 62). •1844 Reeve, sp. 56: *Cardium panamense* Sowerby, 1843 sic. •1858 Adams & Adams, p. 455: *Cardium (Trachycardium) Panamense* Sow. •1860 Carpenter: *Cardium panamense* Sby. •1869 Römer: *Cardium Panamense*

Sowerby fig. 21 (juvenile) = *Cardium procerum* Sowerby. •1890 Paetel: *Cardium panamense* Sow. = *procerum* Sow. juv. •1891 Stearns: *C. Panamense* Sby. (probably a growth stage of *Cardium procerum* Sby. •1901 Dall: *Cardium panamense* Sowerby, 1833 = *Cardium procerum* Sowerby, 1833. •1909 Lamy: *Cardium panamense* Sowerby (1833) = *Cardium procerum* Sowerby. •1910 Dall: *Cardium panamense* Sowerby = *Cardium procerum* Sowerby (p. 282). •1922-32 Sherborn, p. 4727: *Cardium panamense* Sowerby, 1833. •1936 Jordan: *Cardium panamense* Sowerby, 1833 = *Cardium procerum* Sowerby, 1833. •1947 Hertlein & Strong: *Cardium panamense* Sowerby, 1833 = *Cardium (Mexicardia) procerum* Sowerby. •1959 Ranson, p. 71: *Cardium panamense* Sow = *Cardium procerum* Sowerby. •1964 Parker: *Trachycardium (Mexicardia) panamense* (Sowerby, 1833). •1971 Keen & McLean: *Trachycardium (Mexicardia) panamense* (Sowerby, 1833). •1977 Fischer-Piette: *Cardium panamense* Sowerby = *Laevicardium procerum* Sowerby. •1995 Poutiers: *Trachycardium panamense* (Sowerby, 1833). •1999 Vidal: *Trachycardium (Mexicardia) panamense* (Sowerby in Broderip & Sowerby, 1833). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: Gulf of California. •ZMUC: 1 specimen. Philippines. •ZMUC: 1 specimen. Panama; 11 shells from Realejo (Oersted coll. No. 326) *panamanense* Sowerby, 1833 •ZMUC: Gulf of California 13 m, shelly sand. Sowerby, 1843 sic. •ZMUC: wet collection: Gulf of California, 13 m muddy sand. DESCRIPTIONS. •1844 Reeve: shell rather elongately ovate, ventricose, attenuated towards the umbones, anterior side rounded, posterior rather angulated; radiately ribbed, about 20 large, conspicuous, ribs, first angulated, then rounded; whitish, covered with an olive epidermis, posterior margins purple within. •1971 Keen: there seem so many points of difference between this and the generally more southern form, *Trachycardium procerum*, that the two are here considered as separate species. The shell is much more massive and may attain a height of 90 mm, compared with 55 mm for the southern one. The ribs are triangular in outline, with fine nodes along the sharp crest, especially on the umbones, and the rather wide spaces between ribs are flat. The shell is white under a greenish, persistent periostracum, except for spots of brown on the umbones. The species is a common one in mud, from low-tide line to a depth of several fathoms, ranging from San Ignacio Lagoon, Lower California, throughout the Gulf of California but, in spite of its name, apparently no farther south than Costa Rica; common. REMARKS. •1840 Sowerby: ribs fewer and more angulated than in *C. procerum*. •1844 Reeve: this is a truly noble species, very closely allied to the *Cardium procerum*, but easily distinguished by its more elongated form, and by the marked development of the ribs. HABITAT. •1844 Reeve: found in sandy mud at the depth of about 10 fathoms. •ZMUC: sand, shelly sand, silty sand, shelly mud. 7–67 m depth. •1964 Parker: occasionally to a depth of about 100 m. DISTRIBUTION. •1844 Reeve: Panama. •1884 Grasset: Panama. •1971 Keen & McLean: San Ignacio Lagoon



**panamensis – papillosum**

in Baja California to Costa Rica, not reaching Panama. ••ZMUC Gulf of California, Realejo.

**panamensis** (mode). – See under *panamense* Dall, 1908.

**paucicostatum** (error). – Printer's mistake for *paucicostatum* in ZR for 1937 with ref. to Keen 1937.

**paucicostatum eburnea** (error). – Printer's mistake for *paucicostatum eburnea* in Coen, 1914.

**pancintermedia** (error). – Printer's mistake for *paucintermedia*.

**paniselense** – Combination to be revised: "*Cardium*" *paniselense* Cardidae. Fossil. RECORDS. ••1932 ZR: *Cardium paniselense* [Ref. Vincent 1932].

**panis-sacchari** (invalid spelling). – See under *panissacchari*.

**panissacchari** Altena, 1961. – *Trigoniocardia panissacchari* Altena, 1961. Cardidae. Pleistocene. RECORDS. ••1961 ZR: *Trigoniocardia (Trigoniocardia) panissacchari* Altena, 1961 sp. nov. St. Eustatius Sugar Loaf, presumably Pleistocene, Leeward Islands.

**pannanicum** Vodasz, 1910. – Combination to be revised: "*Cardium*" *pannanicum* (Vodasz, 1910). Cardidae. Eocene. RECORDS. ••1910. ZR: *Cardium (Trachycardium) pannanicum* Vodasz, 1910 sp. n. Hungary Eocene.

**pannonica** Stevanovic, 1979. – *Paradacna pannonica* Stevanovic, 1979. Lymnocypridae. Upper Miocene. RECORDS. ••1979 ZR: *Paradacna pannonica* Stevanovic, 1979. Sp. nov. Yugoslavia. Ref. to Stevanovic, p. 322.

**Pannonicardium** Stevanovic 1951 (genus). Lymnocypridae. Tertiary and Recent. RECORDS. ••1980. Vokes: *Pannonicardium* Stevanovic 1951 in subfamily Lymnocyprinae.

**Pannonicardium** Stevanovic 1951 (subgenus). Lymnocypridae. Pontian. RECORDS. ••1953 ZR: *Pannonicardium* subgen. nov. of *Lymnocypridium* type *Lymnocypridium dumieici* (Gorj. Krumb) Pontian Serbia [Ref. Stevanovic 1951]. ••1987 Taktakishvili: (*Pannonicardium*) Stevanovic, 1951.

**pansatrum**. – Combination to be revised: "*Cardium*" (*Cerastoderma*) *pansatrum*. ••2002 Schneider citing Dall (1900): *Cardium (Cerastoderma) pansatrum* sp. nov. section *Cerastoderma*.

**pantecolpatum** Cossmann & Peyrot, 1911. – Changed combination: *Clinocardium pantecolpatum* (Cossmann & Peyrot, 1911). Cardidae. Neogene. RECORDS. ••1911 ZR: *Cardium (Laevicardium) pantecolpatum* Cossmann & Peyrot, 1911 sp. n. France Neogene. ••1952 Lecointre: *Cardium (Laevicardium) pantecolpatum* Cossmann et Peyrot, 1912. ••1970 Glibert & Poel: *Cardium (Laevicardium) pantecolpatum* Cossmann & Peyrot, 1909–1912. ••1977 Popov: *Clinocardium pantecolpatum* (Cossmann & Peyrot, 1911).

**Panticapaea** Andrussov 1923 (genus). – Lymnocypridae. Pliocene. RECORDS. ••1977 Popov: *Panticapaea* Andrussov, 1923. ••1980 Vokes: *Panticapaea* Andrussov, 1923 in subfamily Paradacninae. ••1987 Taktakishvili, p. 188: designated *Panticapaea* Andrussov 1923 type genus of the new tribe Panticapaeini. ••2001 Schneider & Carter: *Panticapaea* (genus). Lymnocypridae. Pliocene.

**panticapaea** R. Hoern. – Synonym of *Didacna tamanensis* R. Hoern. >> Regarding *Didacna panticapaea*: Lymnocypridae. Fossil. RECORDS. ••1987

Taktakishvili: *Didacna panticapaea* (R. Hoern.) (= *Didacna tamanensis* R. Hoern.). ••1987 Taktakishvili: *Pontalmyra panticapaea* (R. Hoern.).

**panticapaea** (cf.) R. Hoern. – RECORDS. ••1987 Taktakishvili: *Pontalmyra* cf. *panticapaea* (Andrus.).

**panticapaea gurianthica** Tschel. (subspecies). – *Pontalmyra panticapaea gurianthica* (Tschel.). Lymnocypridae. Fossil. RECORDS. ••1987 Taktakishvili: *Pontalmyra panticapaea gurianthica* (Tschel.).

**Panticapaeini** Taktakishvili, 1987 (tribus). – Lymnocypridae. RECORDS. ••1987 Taktakishvili, p. 188: Panticapaeini; tribe nov. of Lymnocyprinae. Type genus *Panticapaea* Andrussov, 1923.

**Papillicardium** Monterosato in Sacco, 1899 (genus). – Cardidae. Middle Miocene to Recent. Subgenus *Papillicardium* upgraded to generic level by authors. RECORDS. ••1969 Moore *et al.*: Genus *Papillicardium*. ••1979 ZR: *Papillicardium* F. Sacco 1899. New synonym of *Parvicardium* Monterosato 1884. Ref. to Lambiotte, p. 46. ••1980 Vokes: *Papillicardium* (Monterosato MS) Sacco in Bellardi & Sacco, 1899. In subfamily Cardinae. ••2002 Schneider: *Papillicardium* is considered basal fragines. ••1998 Schneider (1998b): *Papillicardium*. Junior synonym of *Parvicardium* (Glibert & van de Poel, 1970; Popov, 1977; Lambiotte, 1979). ••1998 Schneider (1998b): *Papillicardium*. Junior synonym of *Plagiocardium* (Spada & Della Bella, 1987). ••1998 Schneider: *Papillicardium*. Type species *Papillicardium papillosum* (Poli, 1791). Cardidae. Middle Miocene to Recent. (The genus originates in the Eocene; Keen 1980). ••2002 Schneider: citing Kafanov and Popov (1977): *Papillicardium* subfamily Fraginae, tribe Parvicardiini.

**Papillicardium** Monterosato in Sacco, 1899 (subgenus). – Cardidae. Fossil and Recent. Type species: Monterosato in Sacco (1899) designated *Cardium papillosum* Poli, 1795 type species of subgenus *Papillicardium* of genus *Plagiocardium* Cossmann, 1886. The subgenus (*Papillicardium*) was subsequently raised to generic level. According to Sacco (1899): Subgenus *Papillicardium* Montr. 1899 *in litt.* RECORDS. ••1899 ZR: *Papillicardium* (Monts. MS.) Sacco, 1899 n. sg. of *Cardium* for *Cardium papillosum* Poli. ••1899 ZR: *Cardium papillosum* in sg. *Papillicardium* [Ref. Sacco 1899]. ••1998 Schneider (1998b): *Papillicardium*. Subgenus of *Parvicardium* (Keen, 1969a, 1980; Kafanov & Popov, 1977; Voskuil & Onverwagt, 1989). – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: shell small, resembling *Parvicardium* but with heavier hinge. With beaded rather than spinose sculpture on ribs; on posterior ribs in the form of semispatulate nodules. (Hylleberg 1994).

**Papillocardium** (error). – Printer's mistake for *Papillicardium* in Oliver 1992.

**\*papillosum**. – Homonymy to be noticed. *Cardium papillosum* from 3 sources: Chiaje, 1830. – Poli, 1791. – Goldfuss (?year).

**papillosum** Chiaje, 1830. – Combination to be revised: "*Cardium*" *papillosum* d. Chiaje, 1830. Cardidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 4739: *Cardium papillosum* d. Chiaje, 1830.

**papillosum** Poli, 1791. [Figs. Part 1 p. 81, 94, 121, 143, 173. Part 3 (comparisons) p. 915, 933]. *Papillicardium*

*papillosum* – *papillosum depressum*

*papillosum* (Poli, 1791). OTHER JUDGEMENTS: *Cardium punctatum* Brocchi. – *Cardium planatum* (Renieri). – *Cardium polii* Payraudeau. >> Regarding *C. papillosum*: *Cardiidae*. Miocene to Recent. Sacco (1899) designated *Cardium papillosum* Poli, 1795 type species of the subgenus (*Papillicardium*) Sacco, 1899. Subsequently raised to generic status. TYPE LOCALITY. The Mediterranean. RECORDS. •1791 Poli, I, p. 56–57 (pl. 16, figs. 2–4): *Cardium papillosum*. •1840 Sowerby, 184<sup>th</sup> part, fig. 69: *Cardium papillosum* Poli, 1795. •1840 Sowerby, catalogue p. 3, sp. 37: *Cardium papillosum* Poli. •1840 Sowerby, corrected list, p. 8: *Cardium papillosum* (Sowerby, No. 37). •1844 Forbes: *Cardium papillosum* Poli. •1845 Reeve, sp. 111, fig. 105: *Cardium papillosum*. •1848 Requier: *Cardium Papillosum* Poli = *Cardium punctatum* Brocchi. tab. 16, fig. 11. •1864 Mayer: *Cardium papillosum*. Poli. •1867 Weinkauff, p. 138: *Cardium papillosum* Poli. Weinkauff has a very long list of synonyms, both Recent and fossil occurrences. •1878 Monterosato: *Cardium papillosum* Poli = *C. planatum* (Renieri). •1885 Smith: *Cardium (Acanthocardia) papillosum* Poli. •1888 Servain: *Cardium papillosum* Poli, 1791. •1888 Simroth: *Cardium papillosum* Poli. •1889 Martens: *Cardium papillosum* Poli. •1890 Paetel: *Cardium papillosum* Poli. •1892 Locard: *Cardium papillosum* Poli, 1791. •1894 Jousseume: *Cerastoderma papillosum* (Dollfus & Dautzenberg 1912). •1899 Sacco: *Papillicardium papillosum* (Poli 1791). •1900 Locard & Caziot: *Cardium papillosum* Poli, 1791. •1901 Chaster et al.: *Cardium papillosum* Poli. •1902 Sherborn, p. 716: *Cardium papillosum* Poli, 1795. •1907 ZR: *Cardium (Papillicardium) papillosum* [Ref. Martinelli 1907]. •1927 Dautzenberg: *Cardium (Parvicardium) papillosum* Poli. •1931 ZR: *Cardium papillosum* Ref. to Patrini (1931). •1932 Winckworth: *Cardium (Parvicardium) papillosum* Poli, 1795. •1933 Coen: *Eucardium (Papillicardium) papillosum* Poli. •1933 Coen & Vatova: *Eucardium (Papillicardium) papillosum* Poli. •1937 Coen: *Papillicardium papillosum* Poli. •Scarlato & Starobogotov: *Plagiocardium papillosum* (Poli, 1791). •1956 Rasmussen: *Corculum (Papillicardium) papillosum* (Poli). •1958 Hölzl: *Corculum (Parvicardium) papillosum* (Poli). •1962 Pasteur–Humbert: *Cardium (Corculum) papillosum* Poli. •1969 Moore et al.: *Plagiocardium (Papillicardium) papillosum* (Poli, 1795). •1969 Nordsieck: *Papillicardium papillosum* (Poli, 1791). •1970 Glibert & Poel: *Parvicardium papillosum* (Poli, 1791). •1974 Barnard: *Cardium papillosum* in Jaekel 1931 = *Cardium turtoni*. •1977 Fischer–Piette: *Corculum (Papillicardium) papillosum* Poli. •1978 Janssen & Van der Slik: *Parvicardium papillosum* (Poli, 1795). •1978 Janssen & Van der Slik: *Plagiocardium (Papillicardium) papillosum* (Poli). •1983 Salvini-Plawen: *Corculum papillosum* (Poli). •1992 Oliver: *Papillicardium sic papillosum* (Poli, 1795). •1998 Macedo et al.: *Parvicardium papillosum* (Poli, 1795). •1998 Schneider (1998b): *Papillicardium papillosum* (Poli, 1795). •1998 Schneider: *Papillicardium*. Type species *Papillicardium papillosum* (Poli, 1791). *Cardiidae*. Middle Miocene to Recent. •1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection as *Parvicardium papillosum*

(Poli). Helvetien. France; Italy; Turkey; Morocco. •2000 Aartsen & Goud: *Parvicardium papillosum* (Poli, 1795). •2001 Vidal, p. 408: *Parvicardium papillosum*. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: Atlantide Exp. St. 153, 145, 231, 44, 147, 123, 45. •ZMUC: wet collection: Neapel, Mediterranean. •ZMUC: West Africa. DESCRIPTIONS. •1845 Reeve: shell somewhat orbicular, convex, a little oblique; radiately ribbed, 24 ribs, echinated throughout with short papillae; interstices between the ribs transversely impressly punctured; whitish, stained and sparingly spotted with rusty brown, interior white, reddish brown on the posterior side. •1888 Simroth: “Bunt dunkelbraun gefleckt, einige Stücke innen mit amarantrothen Flecken oder mit zwei Strahlen”. •2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes. REMARKS. •1845 Reeve: a well-known species, which may be easily recognised by the papilliferous sculpture of the ribs, and the peculiar transverse groove-like punctures in the interstices. HABITAT. •1844 Forbes: Aegaeon Sea depth range 6–75 fathoms. •1889 Martens: South of Madeira, 109–128 m, mixed bottom. DISTRIBUTION. •1845 Reeve: Mediterranean. •1884 Grasset: Sicily. •1845 Reeve: Mediterranean. •1969 Nordsieck, •1994 Hylleberg: West Europe to Canary Islands, Mediterranean, Red Sea. •ZMUC: Mediterranean, West Africa. •1992 Oliver: Suez.

*papillosum* Goldfuss. – Replaced by combination to be revised: “*Cardium*” *scobinula* Merian. >> Regarding *Cardium papillosum*: *Cardiidae*. Oligocene. RECORDS. •1892 B. D. & D., p. 277: *Cardium papillosum* Goldfuss differs from *papillosum* (Poli, 1791). The *papillosum* of Goldfuss has become *Cardium scobinula* Merian. •1902 Dollfus & Dautzenberg: *Cardium papillosum* Goldfuss (*non* Poli).

*papillosum* Mac Andrew (variety). – *Parvicardium scabrum* (Philippi, 1844). *Cardiidae*. Recent. RECORDS. •1890 Hidalgo: *Cardium papillosum* var. of Mac Andrew = *Cardium nodosum* Montagu.

*papillosum A* Scacchi, 1836 (variety). – Infrasubspecific. >> Regarding *Papillicardium papillosum* var. *a*: *Cardiidae*. RECORDS. •1836 Scacchi: *Cardium papillosum* var. *a* *penitus papillosa*.

*papillosum alba* Locard & Caziot, 1900 (variety). – Infrasubspecific. No evidence of subspecific status. >> Regarding *Cardium papillosum* var. *alba*: *Cardiidae*. Recent. TYPE LOCALITY. Mediterranean. RECORDS. •1900 Locard & Caziot: *Cardium papillosum alba* (var.).

*papillosum aurea* Bucquoy, Dautzenberg & Dollfus, 1892 (variety). – Infrasubspecific. No evidence of subspecific status. >> Regarding *Cardium papillosum* var. *aurea*: *Cardiidae*. Recent. RECORDS. •1892 Bucquoy, Dautzenberg & Dollfus, p. 277: *Cardium papillosum* var. (ex colore 1) *aurea*. •1900 Locard & Caziot: *Cardium papillosum* var. *aurea* (B.D. & D.).

*papillosum B* Scacchi, 1836 (variety). – Infrasubspecific. >> Regarding *Papillicardium papillosum* var. *b*: *Cardiidae*. RECORDS. •1836 Scacchi: *Cardium papillosum* var. *b* semi-papillosa.

*papillosum depressum* Locard, 1898 (variety). – Infrasubspecific. No evidence of subspecific status. >> Regarding *Papillicardium papillosum* var. *depressum*:

*papillosum dertonense* – *papillosum transversa*

Cardiidae. Recent. RECORDS. ••1898 Locard, p. 262: *Cardium papillosum* var. *depressum*. ••1969 Nordsieck: *Papillicardium papillosum* (Poli, 1791) var. *depressum* (Locard). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1898 Locard: often somewhat oblique outline, depressed; very small.

*papillosum dertonense* Michellotti, 1847 (variety). – Infrasubspecific. No evidence of subspecific status. >> Regarding *Papillicardium papillosum* var. *dertonense*: Cardiidae. Recent. RECORDS. ••1899 Sacco: *Papillicardium papillosum* var. *dertonense* Michellotti 1847 (an species distinguenda). ••1902 Dollfus & Dautzenberg: *Cardium papillosum* var. *dertonense* Michellotti.

*papillosum globulosum* Locard, 1898 (variety). – Infrasubspecific. No evidence of subspecific status. >> Regarding *Cardium* var. *globulosum*: Cardiidae. Recent. RECORDS. ••1898 Locard, p. 263: *Cardium globulosum*. ••1969 Nordsieck: *Papillicardium papillosum* (Poli, 1791) var. *globulosum* (Locard).

*papillosum lactea* Jeffreys, 1863 (variety). – Infrasubspecific. No evidence of subspecific status. >> Regarding *Cardium papillosum* var. *lactea*: Cardiidae. Recent. RECORDS. ••1901 Chaster *et al.*: *Cardium papillosum* var. *lactea* Jeffreys. ••1980 Ruhoff: *Cardium papillosum lactea* Jeffreys, 1863; [1862–1869] vol. 2: 276.

*papillosum maculatum* Danilo & Sandri, 1891 (variety). – Infrasubspecific. No evidence of subspecific status. >> Regarding *Cardium papillosum* var. *maculatum*: Cardiidae. Recent. RECORDS. ••1891 Danilo & Sandri: *Cardium papillosum* Poli var. *maculatum* nob. ••1892 Bucquoy, Dautzenberg & Dollfus, p. 277: *Cardium papillosum* var. (ex colore 2) *maculata*. ••1969 Nordsieck: *Papillicardium papillosum* (Poli, 1791) var. *maculatum* (Brusina). – CHARACTERS AND OCCURRENCE – REMARKS. Brusina wrote the introduction to Danilo & Sandri (1891). DISTRIBUTION. Unknown (Nordsieck 1969).

*papillosum maxima* Bucquoy, Dautzenberg & Dollfus, 1892 (variety). – Infrasubspecific. No evidence of subspecific status. *Papillicardium papillosum* (Poli, 1791). >> Regarding *Cardium papillosum* var. *maximum*: Cardiidae. Recent. RECORDS. ••1892 Bucquoy, Dautzenberg & Dollfus, p. 276: *Cardium papillosum* var. *ex forma 2 maximum*. ••1927 Dautzenberg: *Cardium papillosum* var. *maxima*, Bucquoy, Dautzenberg et Dollfus = *Cardium (Parvicardium) papillosum* Poli. ••1969 Nordsieck: *Papillicardium papillosum* (Poli, 1791) var. *maximum*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1892 Bucquoy, Dautzenberg & Dollfus: very thick shell, and large size compared with the Mediterranean specimens. REMARKS. Described as a variety. DIMENSIONS. Umbo–ventral 25 mm, anterior–posterior 25 mm. HABITAT. ••1969 Nordsieck: 40–1494 m depth. DISTRIBUTION. ••1892 Bucquoy, Dautzenberg & Dollfus: The Azores.

*papillosum minor* Locard, 1898 (variety). – Infrasubspecific. No evidence of subspecific status. >> Regarding *Cardium papillosum* var. *minor*: Cardiidae. Recent. RECORDS. ••1898 Locard, p. 263: *Cardium papillosum* var. *minor*. ••1900 Locard & Caziot: *Cardium papillosum* var. *minor*. ••1969 Nordsieck:

*Papillicardium papillosum* (Poli, 1791) var. *minor* (Locard) Distribution unknown.

*papillosum obliquatum* Michelotti, 1839 (variety). – Infrasubspecific. No evidence of subspecific status. Cardiidae. Fossil. RECORDS. ••1902 Dollfus & Dautzenberg: *Cardium papillosum* var. *obliquatum* Michelotti, 1839.

*papillosum obliquatum* Monterosato, 1872 (variety). Infrasubspecific. No evidence of subspecific status. OTHER JUDGEMENTS: *Cardium laevigatum*. >> Regarding *C. papillosum* var. *obliquatum*: Cardiidae. Recent. RECORDS. ••1872 Monterosato (p. 39): *C. papillosum*, var. *obliquatum* = *Cardium laevigatum*. ••1892 Bucquoy, Dautzenberg & Dollfus: *Cardium papillosum* var. *ex forma 1 obliquata* (Aradas) Monterosato. ••1893 Marshall: *Cardium papillosum* var. *obliquata* Monterosato. ••1901 Chaster *et al.*: *Cardium papillosum* var. *obliquata* Monterosato. ••1902 Dollfus & Dautzenberg: *Cardium papillosum* var. *obliquata* Aradas 1846 (non var. *obliquatum* Michelotti, 1839) = *Cardium aradasi* Crema. ••1926 McClelland: *Cardium papillosum* v. *obliquata* Monts. ••1969 Nordsieck: *Papillicardium papillosum* (Poli, 1791) var. *obliquatum* (Monterosato, 1884).

*papillosum pertransversa* Sacco, 1899 (variety). – Infrasubspecific. No evidence of subspecific status. Cardiidae. Recent. RECORDS. ••1899 Sacco, p. 45, pl. 11, figs. 6,7: *Papillicardium papillosum* var. *pertransversa* Sacc. (an species distinguenda). ••1902 Dollfus & Dautzenberg: *Cardium papillosum* var. *pertransversa* Sacco.

*papillosum roseum* Pallary (variety). – Synonym of *Papillicardium papillosum* (Poli, 1791). Cardiidae. Recent. RECORDS. ••1969 Nordsieck: *Papillicardium papillosum* (Poli, 1791) var. *roseum* (Pallary). Distribution unknown.

*papillosum rotundum* Locard, 1898 (variety). – Infrasubspecific. No evidence of subspecific status. Cardiidae. Recent. DESCRIPTIONS. Rounded outline, nearly symmetric (Locard 1898). RECORDS. ••1898 Locard, p. 263: *Cardium papillosum* var. *rotundum*. ••1969 Nordsieck: *Papillicardium papillosum* (Poli, 1791) var. *rotundum* (Locard). Distribution unknown.

*papillosum senegalensis* Dollfus, 1911 (variety). Infrasubspecific. No evidence of subspecific status. Cardiidae. Recent. RECORDS. ••1911 Dollfus, p. 59: *Cardium papillosum* var. *senegalensis*.

*papillosum senegalensis* Rosso, 1974. – ?*Corculum papillosum senegalensis* Rosso, 1974. Cardiidae. Quaternary. RECORDS. ••1974 ZR: *Corculum* sic *papillosum senegalensis* Rosso, 1974 subsp. nov. Senegal, Tongon. Quaternary. Rosso p. 811.

*papillosum simile* Milaschewitch, 1909 (variety). Identical with *Plagiocardium simile* (Milaschewitch, 1909). >> Regarding *Cardium papillosum* var. *simile*: Cardiidae. Recent. RECORDS. ••1969 Nordsieck: *Papillicardium papillosum* (Poli, 1795) var. *simile* Milaschewicz (= Milaschewitch). Distribution Black Sea. ••Scarlato & Starobogatov: *Cardium papillosum* var. *simile* Mil. = *Plagiocardium simile* (Milaschewitch, 1909).

*papillosum transversa* Cerulli Irelli (variety). – Identical with *Cerastoderma edule* (Linné, 1758). >> Regarding *Cardium papillosum* var. *transversa*: Cardiidae. Fossil.

*papillosum zonata* – papyraceum

- RECORDS. ••1902 Dollfus & Dautzenberg: *Cardium papillosum* var. *transversa* Cerulli Irelli = *C. edule* var. *papillosum zonata* Locard & Caziot, 1900 (variety). – Infrasubspecific. No evidence of subspecific status. **Cardiidae**. Recent. RECORDS. ••1900 Locard & Caziot, p. 236: *Cardium papillosum* var. *zonata*. Mediterranean. *papiolensis* (variety). – See under *edule papiolensis* Almera & Boffill.
- pappi* Strausz, 1930. – *Lymnocardium pappi* Strausz, 1930. **Lymnocardiidae**. Miocene. RECORDS. ••1941 ZR: *Lymnocardium pappi* Strausz, 1930 sp. nov. Miocene, Hungary. ••1987 Taktakishvili: *Lymnocardium pappi* Strausz.
- papuanum* Vidal, 1996. [Figs. Part 3 p. 869]. – *Vasticardium papuanum* Vidal, 1996. **Cardiidae**. Recent. RECORDS. ••1999 Vidal: *Vasticardium papuanum* Vidal, 1996. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1996 Vidal: foundation of anterior lateral teeth is gently curved and moderately strong (non-hooked appearance). DISTRIBUTION. ••1996 Vidal: Papua Sibuko Bay, Borneo (USNM 239129); ••1999 Vidal: Palau.
- papyracea* (mode). – See under *papyraceum* Bruguière, 1789.
- \**papyraceum*. – Homonymy to be noticed. *Cardium papyraceum* from 2 sources: Bruguière, 1789. – Sinz. (?year).
- papyraceum* Bruguière, 1789. [Figs. Part 1 p. 118. Part 3 p. 889, 890, 893]. = *Fulvia laevigatum* (Linnaeus, 1758). OTHER JUDGEMENTS: *Fulvia aperta* (Bruguière, 1789). – *Cardium deshaysianum* Bianconi 1856. >> Regarding *Cardium papyraceum*: **Cardiidae**. Recent. TYPE MATERIAL. Two syntypes of *Cardium laevigatum* Linné present in The Linnean Society, are *Fulvia papyracea* (Bruguière, 1789) [see Vidal 1994: 99] The largest of the two bivalved shells [46.2 x 46.5 x 31.1], hand marked 88 by Linné (his list number in 1767) has been selected by Vidal (1999, p. 327) as lectotype of *Cardium laevigatum* Linné, 1758, senior synonym of *Cardium papyraceum* Bruguière, 1789. – Higo *et al.* (1999) note: ‘dans les mers des grandes Indes’ (‘seas of the East Indies’); Bruguière took this locality from Chemnitz in Martini & Chemnitz - he noted that he had never personally seen a specimen. RECORDS. ••1789 Bruguière, p. 231, No. 29. *Cardium papyraceum*; Chemnitz, Martini, tom. 6. pag. 190, tab. 18, fig. 184. ••1836 Bosc: *Cardium papyraceum*. ••1840 Sowerby, Part 181, figs. 55 and 56: *Cardium papyraceum* Bruguière. ••1840 Sowerby, catalogue p. 2, No. 13: *Cardium papyraceum* Brug. ••1902 Sherborn, p. 716: *Cardium papyraceum* Bruguière, 1789. ••1960 Biggs & Grantier: *Cardium (Papyridea) papyraceum* Gmelin. ••1973 Biggs: *Laevicardium papyraceum* (Bruguière, 1789). ••1977 Habe: *Fulvia papyracea* (Bruguière, 1798). ••1977 Wilson & Stevenson: *Cardium papyraceum* Bruguière, 1789; probably only one species: *Fulvia aperta* (Bruguière, 1789) which has page priority. ••1982 Kilburn & Rippey: *Fulvia papyracea* (Bruguière, 1789). ••1984 Taylor & Reid: *Laevicardium papyraceum papyraceum* Bruguière, 1789. ••1989 Bosch & Bosch: *Laevicardium papyraceum* (Bruguière, 1789). ••1994 Bonfitto, Sabelli, Tommasini & Herbert: *Fulvia papyracea* (Bruguière, 1789); senior synonym of *Cardium deshaysianum* Bianconi 1856. ••1994 Vidal: *Fulvia (Fulvia) papyracea* (Bruguière, 1789). ••1998 Poutiers: *Fulvia papyracea* (Bruguière, 1789). ••1999 Hylleberg, p. 401: *Fulvia papyracea* (Bruguière, 1789). ••1999 Higo *et al.*: *Fulvia papyracea* (Bruguière, 1789). ••2002 Hylleberg & Kilburn, p. 63: *Fulvia papyracea* (Bruguière, 1789). – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1928 Kuroda, ••1977 Habe: Amami Oshima. ••1993 Bernard *et al.*: South China Sea, Taiwan. ••1999 Higo *et al.*: Red Sea, Mediterranean. ••1999 Hylleberg: Indonesia. ••2003 Hylleberg & Kilburn: Vietnam.
- papyraceum** Chemnitz, 1782. [Figs. Part 1 p. 75 No. 184, p. 101, 125, 165, 174. Part 3 p. 889]. Non binominal. Not available. = *Fulvia laevigatum* (Linnaeus, 1758). OTHER JUDGEMENTS: *Fulvia papyracea* (Bruguière, 1789). – *Fulvia papyracea* (Gmelin, 1791). – *Cardium muticum* Reeve. – *Cardium tenuicostatum* Lmk. juv. >> Regarding *Cardium papyraceum*: **Cardiidae**. Recent. TYPE LOCALITY. East Indies (Chemnitz 1782); Japan (Sowerby 1841). RECORDS. ••1781 Gronovius, fasc. 3, pl. 1, fig. 5: *Cardium papyraceum* (fide Spengler 1799). ••1782 Chemnitz, Tab. 18 Fig. 184: *Cardium papyraceum*, ex museo Spengleriano. ••1782 Chemnitz. ID by Gmelin 1791: *Cardium papyraceum* t. 18. f. 184. ••1788 Schröter: *Cardium papyraceum*. [Reference to Chemnitz (1782) fig. 190]. ••1791 Gmelin: p. 3254 No. 32: *Cardium papyraceum*. ••1799 Spengler: p. 41, No. 25: *Cardium papyraceum* Chemnitz Tom. 6. Tab. 18. fig. 184. ••1817 Dillwyn: *Cardium papyraceum* Chemnitz. ••1819 Lamarck: p. 6 No. 9: *Cardium papyraceum*. ••1839. Anton: *Cardium papyraceum* Chemnitz. ••1840 Sowerby, 181<sup>st</sup> part, figs. 55–56: *Cardium papyraceum*. ••1840 Sowerby, corrected list, p. 8: *Cardium papyraceum* (Sowerby, No. 13). ••1844 Reeve, sp. 9: *Cardium papyraceum* Chemnitz, Conch. Cab. vol. vi. p. 190. pl. 18. f. 184 ••1858 Adams & Adams, p. 457: *Cardium (Fulvia) papyracea* Chem. ••1867 Angas: *Cardium (Papyridea) papyraceum* Chem. ••1867 ZR: *Cardium papyraceum* (Chemn.) = *muticum* (Reeve) Hakodate [Ref. Schrenck 1867]. ••1869 ZR: Section, subtypical – 7. **Papyraceae**: *bullata* (L.), *papyracea* (Chemn.), &c. [Ref. Graham–Ponton 1869]. ••1880 Martens: *Cardium (Papyridea) papyraceum* Chemnitz = *C. laevigatum* Linné according to Hanley. ••1886 Cooke p. 97: *Cardium papyraceum* Chemn. ••1890 Paetel: *Papyridea papyracea* Ch. ••1891 Römer: *Fulvia papyracea* Ch. ••1897 Sowerby: *Cardium papyraceum* Chemnitz. ••1902 Sherborn, p. 716: *Cardium papyraceum* Gmelin, 1790 sic. ••1815 Wood, p. 230: *Cardium papyraceum* Linn, Gmelin. p. 3254. ••1903 Hidalgo: *Papyridea papyraceum*. ••1906 Melvill & Standen, p. 839: *Cardium (Papyridea) papyraceum* Chemn. ••1909 Lyngé: *Cardium (Papyridea) papyraceum*. ••1933 ZR: *Cardium papyraceum* Gm. [Ref. Gruvel 1933]. ••1937 Viader: *Cardium papyraceum* Chemnitz = *C. laevigatum* Linné. ••1945 ZR: *Cardium papyraceum* Chem. [Ref. Lamy 1945]. ••1960 Biggs & Grantier: *Cardium (Papyridea) papyraceum* Gmelin. ••1977 Fischer–Piette: *Papyridea (Fulvia) papyraceum* (Chemnitz) Schröter. ••1984 Sharabati: *Laevicardium (Fulvia) papyraceum*. ••1992 Oliver: *Fulvia papyracea*. ••1992 Oliver: *Cardium papyraceum* Chemn. in Cooke

**papyraceum – Papyridea**

1886 = *tenuicostatum* Lmk. juv. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: Gulf of Thailand, 1 fathom, sand. •ZMUC: 1 specimen (the true one) in the Spengler coll. sine loc. Possibly syntype from Chemnitz [not available] according to note written by Vidal 1994. ZMUC wet coll. sine loc. DESCRIPTIONS. •1799 Spengler: *testa cordata, fragili, membranacea, longitudinaliter obsolete striata, cinerea, maculis purpureis internae cavitatis extus pellucentibus margine subtilissime crenulato*. My translation: Shells thin, umbo–ventral distance longer than anterior–posterior distance, central umbones, posterior area not expanded as a wing, shells only slightly gaping, ribs raised posterior and anterior, but low centrally. •1844 Reeve: Shell depressly heart-shaped, thin, fragile, anteriorly very minutely granulated, radiately impressly striated, striae rudely engraved, giving root to an epidermis; whitish or yellowish, faintly tinged here and there with purple, umbones reddish purple, interior reddish purple. DIMENSIONS. •1799 Spengler: height 44 mm (1 Tom. 8 Lin.), width 39 mm (1.5 Tom.). •1819 Lamarck: length 34 mm. REMARKS. •1799 Spengler, p. 41: the figure in Gronovius (1781, fasc. 3, pl. 1, fig. 5) should illustrate *Cardium hians*, but it does not resemble that species at all. However, it is identical with *Cardium papyraceum* according to Spengler. •1844 Reeve: The accompanying figure, and Fig. 56. of Mr. Sowerby's "Conchological Illustrations," represent varieties of the true *Cardium papyraceum*, and are quite distinct from a fine new species, which has been confounded with it in the same work, at Fig. 55. This shell, for which see *Cardium muticum*, Plate VI. is of much larger dimensions, of a more transversely ovate form, and exhibits no indication of that curious minute granulation which characterizes the posterior side of the *Cardium papyraceum*, after the manner of the *Cardium sinense*. HABITAT. •1844 Reeve: found in sandy mud at the depth of seven fathoms. •1906 Melvill & Standen: 2–15 fathoms, mud. •1960: Biggs & Grantier collected live specimens buried in a mudflat, the Persian Gulf. •ZMUC: sand 2 m depth. DISTRIBUTION. •1844 Reeve: East end of the Island of Luzon, Philippines. •1856 Wood & Hanley: Indian Ocean. •1884 Grasset; China. •1891 Römer; East Indies. •1994 Hylleberg; Indo-Pacific, Gulf of Thailand.

**papyraceum** Schrenck, 1867. – Misidentification of *Fulvia muticum* (Reeve, 1844). >> Regarding *Cardium papyraceum*: Cardiidae. Recent. RECORDS. •1867 Schrenck: *Cardium papyraceum* Chemn. •1869 Lischke: *Cardium papyraceum* Chemnitz. in Schrenck = *Cardium muticum* Reeve. •1869 ZR: *papyraceum* (Schrenck not Chemn.) = *Cardium muticum* (Reeve) = *japonicum* (Dunker), both from Japan [Ref. Lischke 1869]. •1890 Paetel: *Cardium papyraceum* Schrenk. = *muticum* Rv.

**papyraceum** Sinz. – "*Cardium*" *papyraceum* Sinz. Cardiidae. Sarmatian. RECORDS. •1929 ZR: *Cardium papyraceum* Sinz. Sarmatian [Ref. Kolesnikov 1929]. **papyraceum** Sowerby 1840 (variety). [Figs. Part 1 p. 118]. – Identical with *Fulvia mutica* (Reeve, 1844). >> Regarding *Cardium papyraceum*: Cardiidae. Recent. TYPE LOCALITY. Unknown (Reeve 1844). RECORDS. •1840 Sowerby, 1840: *Cardium papyraceum*.

•1844 Reeve: *Cardium papyraceum* var. Sowerby, Conch. Illus. f. 55. = *Cardium muticum* = *Fulvia mutica* (Reeve, 1844).

**papyraceum** Wood. – Identical with *Fulvia tenuicostata* (Lamarck) Cardiidae. Recent. RECORDS. •1856 Wood & Hanley: *Cardium papyraceum* Wood = ?*C. tenuicostatum* Lam. (Australia). •1856 Wood & Hanley, No. 33: *Cardium papyraceum* Wood (as of Ch.).

**papyraceum brevior** Schrenck, 1867 (forma). – Infrasubspecific. No evidence of subspecific status. Cardiidae. Recent. RECORDS. •1867 Schrenck: *Cardium papyraceum*, auct. *brevior*. = *Cardium papyraceum* Chemnitz forma *elatii*.

**papyraceum depressior** Schrenck, 1867 (forma). – Infrasubspecific. No evidence of subspecific status. Cardiidae. Recent. RECORDS. •1867 Schrenck: *Cardium papyraceum* Chemnitz forma *depressior*.

**papyraceum elatii** Schrenck, 1867 (forma). – Infrasubspecific. No evidence of subspecific status. Cardiidae. Recent. RECORDS. •1867 Schrenck: *Cardium papyraceum* Chemnitz forma *elatii*.

**papyraceum aviculaeformis** Kolesnikov, 1929. – Combination to be revised: "*Cardium*" *papyraceum aviculaeformis* Kolesnikov, 1929. Cardiidae. Sarmatian. RECORDS. •1929 ZR: *Cardiacea* p. 93: *Cardium papyraceum* Sinz. var. *aviculaeformis* Kolesnikov, 1929 nov. Sarmatian [Ref. Kolesnikov 1929].

**Papyridea** Swainson, 1840 (genus). – Cardiidae. Miocene to Recent. Type species: Gray, 1847 designated *Cardium soleniforme* Bruguière, 1789 type of the genus *Papyridea* Swainson, 1840. RECORDS. •1836 Bosc: *Cardium soleniforme*. •1840 Swainson, p. 374: Subgenus *Papyridea* Sw. •1847 Gray, No. 560: *Papyridea* Swainson. Type species *Cardium soleniforme*. •1857 Deshayes: *Papyridea* Swainson, in Gray: syn. of *Cardium*. •1858 Adams & Adams: Genus *Papyridea* Swainson. •1871 Stoliczka: *Papyridea*, Swainson, 1840. Type not identified by Stoliczka. •1886 Cossmann: Genus *Papyridea* Swainson, 1840. •1890 Paetel, 992: Gen. *Papyridea* Sw. •1934 Johnson: *Papyridea* Swainson 1840. •1953 Olsson & Harbison: Genus *Papyridea* Swainson, 1840. •1961 Olsson: *Papyridea* Swainson, 1840. •1977 Popov p. 49: *Papyridea* Swainson, 1840. Genotype: *Cardium soleniforme* Bruguière, 1789. •1980 Vokes: *Papyridea* Swainson, 1840 in subfamily Trachycardiinae. •1995 Pacaud & Renard: *Papyridea* Swainson, 1840 in subfamily Trachycardiinae. •1997 Kafanov *et al.*: *Cardium soleniforme* Bruguière, 1789 = *Cardium latum* Born, 1780. •1998 Schneider: *Papyridea*. All alleged Eocene *Papyridea* are species of *Parvicardium*. •1998 Schneider: *Papyridea*. Keen (1969, 1980) states that the stratigraphic range of *Papyridea* is Miocene to Recent. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1840 Swainson: shell heart-shaped, or transversely oval; inequilateral; the anterior side almost always gaping representing the Pholidae. •1997 Kafanov citing Clench & Smith 1944, p. 16: Shell transversely oval, inequilateral, the anterior and posterior sides always gaping. Radially and obliquely ribbed, the ribs more or less spiny. Posterior portion of shell longer than anterior, with the ribs of the posterior

*Papyridea* – *parile*

slope extending beyond the margins of the valves, so that the ribs of opposing valves form a series of interlocking teeth. •1969 Moore *et al.*, emend. Hylleberg 1994: Shell longer than high, gaping at both ends, ribs spinose; hinge short; posterior margin notched (serrated). West Indies.

***Papyridea*** Swainson, 1840 (section and subgenus). – Cardiidae. Miocene to Recent. Raised to generic level by authors. REMARKS. Section takes the value of subgenus. RECORDS. •1840 Swainson, p. 374: Subgenus *Papyridea* Sw. of genus *Cardium* Linn. •1869 ZR: subgenus *Papyridea* (Swains.), type *Cardium bullatum* (Chemn.) [Ref. Römer 1869]. •1887 Fischer: Subgenus *Papyridea* Swainson, 1840 of genus *Cardium* Linné, 1758. •1889 Dall: (*Papyridea*) Swainson. •1890 Paetel: 1. Sect. *Papyridea* Sw. •1891 Römer: 1. Sect. *Papyridea* of genus *Papyridea* Sw. •1922 Olsson: (*Papyridea*) Swainson. •1928 Kuroda: (*Papyridea*) Swainson, 1840.

***Papyridea*** sp. Swainson. – Invalid taxon. Cardiidae. RECORDS. •1847 Gray, No. 560: *Papyridea* sp. Swains. Type species *Cardium ringens*.

***Papyrocardium*** Gabunia 1953 (genus). – Lymnocypridae. Tertiary. RECORDS. •1980. Vokes: *Papyrocardium* Gabunia 1953 in subfamily Paradacninae.

***Paradacna*** Andrussov, 1909 (genus). – Lymnocypridae. Pliocene and Recent. *Cardium abichi* Hörnes, 1874 is type species of genus *Paradacna* Andrussov, 1909. RECORDS. •1927 ZR: *Paradacna* fossil [Ref. Krejci & Wenz 1927]. •1968 ZR: *Paradacna* from Pliocene deposits Carpathian mts. [Ref. Pana 1968]. •1977 Popov: *Paradacna* Andrussov, 1901. •1978 ZR: *Paradacna*. Pliocene. Romania. Dacian Basin, faunal assemblages, systematic accounts. Ref. to Papaianopol, I. •1980 Vokes: *Paradacna* Andrussov, 1909 in subfamily Paradacninae. •2001 Schneider & Carter: *Paradacna* (genus). Lymnocypridae. Pliocene.

***paradacniforme*** Tscheltzov, 1965. – *Avicardium paradacniforme* Tscheltzov, 1965. Lymnocypridae. Pliocene. RECORDS. •1965 ZR: *Avicardium paradacniforme* Tscheltzov, 1965 sp. nov. Pliocene, Turkmenia, USSR.

***Paradacninae*** Ebersin, 1964 (genus). Lymnocypridae. Fossil. RECORDS. •1970 ZR: *Paradacninae*, Ebersin, 1964, brackish water fauna, Pontian, Yugoslavia [Ref. Stevanovic 1970].

***Paradacninae*** Ebersin, 1964 (subfamily). – Lymnocypridae. Tertiary and Recent. RECORDS. •1980 Vokes: Subfamily Paradacninae Ebersin, 1964.

**\*paradoxum**. – Homonymy to be noticed. *Cardium paradoxum* from 2 sources: Münster, 1842. – Buvignier, 1843.

***paradoxum*** Buvignier, 1843. – Transferred to *Opis paradoxo*. Deshayes. Cardiacea. Fossil. RECORDS. •1857 Deshayes: *Cardium paradoxum* Buvignier, 1843. – *Opis paradoxa*. Desh. •1922-32 Sherborn, p. 4746: *Cardium paradoxum* Buvignier, 1843.

***paradoxum*** Münster, 1842. – Combination to be revised: "*Cardium*" *paradoxum* Münster, 1842. Cardiidae. Fossil. RECORDS. •1857 Deshayes: *Cardium paradoxum*. Münster, 1842. •1922-32 Sherborn, p. 4746: *Cardium paradoxum* Muenster, 1842.

***parahillana*** Wade, 1926. – *Protocardia parahillana*

Wade, 1926. Cardiidae. Cretaceous. RECORDS. •1926 ZR: *Protocardia parahillana* Wade, 1926 sp. n. Cretaceous U.S.A. •1963 ZR: *Protocardia parahillana*, first record from Delaware, Upper Cretaceous [Ref. Richards & Shapiro 1963].

***parallelala*** Bogatshev, 1932. – *Didacna parallelala* Bogatshev, 1932. Lymnocypridae. Fossil. TYPE LOCALITY. Caspian Sea. RECORDS. •1968 Logvinenko & Starobogatov: *Didacna parallelala* Bogatshev, 1932.

***Parapachydacna*** Andreescu, 1974 (genus). Lymnocypridae. Tertiary. RECORDS. •1974 ZR: *Parapachydacna* Andreescu, 1974 gen. nov. of Lymnocypridae Type species *Lymnocypridium cobalcescui* Fontannes, 1886. Ref. to Andreescu, p. 141. •1980 Vokes: *Parapachydacna* Ebersin, 1959, nom. nud. Lymnocypridae. Tertiary.

***Parapscheronia*** Ebersin, 1955 (genus). – Lymnocypridae. Tertiary and Recent. RECORDS. •1980 Vokes: *Parapscheronia* Ebersin, 1955 in subfamily Adacninae.

***paraviticardium*** O.G. Costa, 1839. – Synonym of *Parvicardium exiguum* Gmelin, 1791. OTHER JUDGEMENTS: *Parvicardium exiguum commutata* B.D.D. >> Regarding *Cardium parasiticum*: Cardiidae. Recent. DISTRIBUTION. Mediterranean. RECORDS. •1839 O.G. Costa: *Cardium parasiticum*. •1844 Philippi: *Cardium parasitici* sic Costa = *Cardium exiguum* Gm. •1867 Hidalgo: *Cardium parasiticum* Costa = *Cardium exiguum*, Gmelin. •1867 Weinkauff: *Cardium parasiticum* = *Cardium exiguum* Gmelin. •1869 Römer: *Cardium parasiticum* Costa = *Cardium exiguum* Gmelin. •1870 Aradas & Benoit: *Cardium parasiticum* Costa = *Cardium exiguum*, Gmelin. •1888 Kobelt: *Cardium parasiticum* Costa = *Cardium exiguum* Gmelin. •1890 Hidalgo: *Cardium parasitica* Costa = *Cardium exiguum* Gmelin. •1890 Paetel: *Cardium parasiticum* Cost. = *exiguum* Gm. •1902 Bellini: *C. parasiticum* O.G. Costa = *Cardium (Parvicardium) exiguum* Gm. •1917 Hidalgo: *Cardium parasiticum* Costa = *Cardium exiguum* Gmelin. •1922-32 Sherborn, p. 4757: *Cardium parasitium* sic O.G. Costa, 1839. •1933 Coen: *Cardium parasiticum* Costa = *Eucardium (Parvicardium) exiguum* var. *commutata* B.D.D. •1937 Coen: *parasiticum* Costa = *Cerastoderma (Parvicardium) exiguum* Gmelin. •1962 Grossu: *Cardium parasiticum* O.G. Costa, 1839 = *Cardium (Parvicardium) exiguum* Gmelin, 1790. •2000 Aartsen & Goud: *Cardium parasitium* O.G. Costa, 1839 = *C. parasitum* of authors, which is a synonym of *Parvicardium exiguum* (Gmelin, 1791).

***parasitum*** (error). – Printer's mistake for *parasiticum*. ***parazujovici*** Stevanovic, 1951 – New combination: *Lymnocypridium parazujovici* Stevanovic, 1951. Lymnocypridae. Fossil. RECORDS. •1953 ZR: *Lymnocypridium parazujovici* Stevanovic, 1951 sp. nov. Pontian Serbia. •1987 Taktakishvili: *Lymnocypridium parazujovici* Stev.

**\*parile**. – Homonymy to be noticed. *Cardium parile* from 2 sources: Deshayes, 1858. – Dall, 1900.

***parile*** Dall, 1900. – Changed combination: *Trachycardium parile* (Dall, 1900). Cardiidae. Oligocene. RECORDS. •1898 Dall: *Cardium (Trachycardium) parile* Dall, 1898 n. sp. •1977 Popov: *Trachycardium (Trachycardium) parile* (Dall, 1900).

**parile – Parvicardium**

••1977 Vokes: "*Trachycardium*" *parile* (Dall) *not Cardium* (*Trachycardium*) *parile* in Dall 1915.

**parile** Deshayes, 1858. – Changed combination: *Nemocardium parile* (Deshayes, 1858). *Cardiidae*. Eocene. TYPE LOCALITY. Paris Basin, France. RECORDS. ••1871 Stoliczka: *Cardium parile*. ••1886 Cossmann: *Protocardium parile* (Deshayes). ••1886 Dall: *Cardium parile* Deshayes. ••1899 Sacco: *Nemocardium parile* (Deshayes). ••1904 Cossmann & Pissarro: *Nemocardium parile* (Deshayes). ••1970 Glibert & Poel: *Nemocardium* (s.s.) *parile* (Deshayes, 1858). ••1977 Popov: *Nemocardium* (*Nemocardium*) *parile* (Deshayes, 1858). ••1980 Ruhoff: *Cardium parile* Deshayes, 1858; [1856–1865] vol. 1: 573, pl. 54, figs. 1–3. ••1985 Strougo: *Nemocardium* (*Nemocardium*) *parile* (Deshayes, 1858). ••1995 Le Renard et al.: *Nemocardium* (s. str.) *parile* [*Cardium parile*] Deshayes, 1858. ••1995 Pacaud & Renard: *Nemocardium* (*Nemocardium*) *parile*. ••1999 Jacques Vidal (pers. comm.) MNHN, Paris: Fossils from the Paleontological Collection as *Nemocardium parile* (Deshayes). Bartonien. France (Bassin de Paris), B52884, B69480, B70579.

**parisiense** Orbigny, 1850. – Changed combination: *Discors parisiense* (Orbigny, 1850). OTHER JUDGEMENTS: *Discors discors* Lamarck, 1805. >> Regarding *Cardium parisiense*: *Cardiidae*. Lower Eocene. TYPE LOCALITY. Paris Basin, France. RECORDS. ••1886 Cossmann: *Divaricardium parisiense* (d'Orbigny). ••1899 Sacco: *Discors parisiensis* (d'Orb.). ••1904 Cossmann & Pissarro: *Laevicardium parisiense* (d'Orbigny). ••1922–32 Sherborn, p. 4762: *Cardium parisiense* d'Orbigny, 1850. ••1970 Glibert & Poel: *Discors parisiensis* (Orbigny, 1850). ••1970 Glibert & Poel: *Cardium parisiense* Orbigny = *Cardium discors* Lamarck, 1805. ••1977 Popov: *Discors parisiensis*. ••1977 Popov: *Discors parisiense* (Orb.). ••1995 Le Renard et al.: *Nemocardium* (*Discors*) *parisiense* [*Cardium parisiense*] d'Orbigny, 1850 (= *discors*). ••1995 Pacaud & Renard: *Nemocardium* (*Discors*) *parisiense*. ••1995 Schneider: *Discors parisiense* (Orbigny, 1850). ••1999 Higo et al.: *Cardium parisiense* Orbigny, 1850 = *Cardium discors* Lamarck, 1805 *non* Montagu, 1803. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection as *Discors* (or *Laevicardium*) *parisiense* d'Orbigny. Bartonien. France (Bassin de Paris). Egypt.

**parisiensis** (mode). – See under *parisiense* Orbigny, 1850.

**parki** Marwick, 1944. – Changed combination: *Ovicardium parki* (Marwick, 1944). *Cardiidae*. Tertiary. RECORDS. ••1944 ZR: *Trachycardium* (*Ovicardium*) *parki* Marwick, 1944 sp. nov. (basal Castlecliffian) mouth of Butler's (Ototoka) Creek Niekirmaru Surv. Dist. ••1973 Beu, p. 318: *Ovicardium parki* Marwick, 1944 = *Ovicardium rossi* Marwick, 1944 (Maxwell 1978). ••1973 ZR: *Acrosterigma* (*Ovicardium*) *parki* (Marwick 1944). New synonym of *A. (O.) rossi* (Marwick 1944), fossil.). Ref. to Beu. ••1977 Popov: *Trachycardium* (*Vasticardium*) *parki* Marwick, 1944. ••1978 Maxwell: *Ovicardium parki* Marwick, 1944.

**parkinsoni** Sowerby, 1814. – Changed combination: *Laevicardium parkinsoni* (Sowerby, 1814). *Cardiidae*. Pliocene. RECORDS. ••1844 Potiez & Michaud: *Cardium*

*parkinsoni* Sow. fossil of England and France, Crag. ••1857 Deshayes: *Cardium parkinsoni*. ••1922–32 Sherborn, p. 4763: *Cardium parkinsoni* Sowerby, 1814. ••1970 Glibert & Poel: *Laevicardium* (*Dinocardium*) *parkinsoni* (Sowerby, 1818). ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection as *Cardium parkinsoni* Sowerby. Red Crag, U.K. (Essex and Suffolk), B39920 to –22. Belgium (Anvers), B43215.

**parmata** Papaianopol & Lubenescu, 1985. – *Prosodacna parmata*. *Lymnocardiidae*. Pliocene. TYPE LOCALITY. Pontien et le Dacien du Bassin Dacique, Romania. RECORDS. ••1985 Papaianopol & Lubenescu, p. 140, fig.: *Prosodacna* (*Prosodacna*) *parmata* sp. nov.

*Conocardiidae*

**partschii** d'Orbigny, 1850. – Changed combination: *Conocardium partschii* d'Orbigny, 1850. *Conocardiidae*. Fossil. RECORDS. ••1922–32 Sherborn, p. 4769: *Lunulacardium partschii* Muenster, 1840. ••1922–32 Sherborn, p. 4768: *Conocardium* (Muenst.) *partschii* d'Orbigny, 1850. – *Lunulocardium*.

*Lymnocardiidae*

**partschii** Mayer. – Changed combination: *Didacna partschii* (Mayer, 1871). *Lymnocardiidae*. Pliocene. RECORDS. ••1886 Fischer: *Cardium partschii* Mayer. ••1899 Sacco: *Cardium partschii* Mayer, 1871. ••1899 Sacco: *Cardium partschii* Fontannes, 1881 = *Pontalmyra partschii* (May.). ••1899 Sacco: *Adachna sic partschii* (May.). ••1899 Sacco: *Pontalmyra partschii* (May.). ••1987 Anaya: *Didacna* (s. s.) *partschii* (Mayer, 1871).

**partschii castrensis** Almera & Bofill, 1894 (variety). – Upgraded. Changed combination: *Didacna partschii castrensis* (Almera & Bofill, 1894). *Lymnocardiidae*. Pliocene. RECORDS. ••1987 Anaya: *Didacna* (s. s.) *partschii castrensis* (Almera & Bofill, 1894). ••1987 Anaya: *Cardium partschii* var. *castrensis*.

**partschii miopleura** Fontannes, 1879–1882 (subspecies). – Changed combination: *Didacna partschii miopleura* (Fontannes, 1879–1882). *Lymnocardiidae*. Pliocene. RECORDS. ••1987 Anaya: *Didacna* (s. s.) *partschii miopleura* (Fontannes, 1879–1882).

**partschii subrostrata** Almera & Bofill, 1894 (variety). – Upgraded. Changed combination: *Didacna partschii subrostrata* (Almera & Bofill, 1894). *Lymnocardiidae*. Pliocene. RECORDS. ••1987 Anaya: *Didacna* (s. s.) *partschii subrostrata* (Almera & Bofill, 1894). ••1987 Anaya: *Cardium partschii* var. *subrostrata*.

**partschii tyopleura** Fontannes, 1879 (subspecies). – Changed combination: *Didacna partschii tyopleura* (Fontannes, 1879–1882). *Lymnocardiidae*. Pliocene. RECORDS. ••1987 Anaya: *Didacna* (s. s.) *partschii tyopleura* (Fontannes, 1879–1882).

**Parvicardiini** Kafanov & Starobogatov, 1977 (tribus). – *Cardiidae*. Fossil and Recent. ••1977 Kafanov et Starobogatov: *Parvicardiini*. ••1977 ZR: *Parvicardiini* Kafanov & Starobogatov Tribe nov. of *Cardiidae*, type genus *Parvicardium* Monterosato, 1884. Ref. to Kafanov & Popov p. 63 [Transl. p. 313]. ••2002 Schneider: citing Kafanov and Popov (1977) subfamily *Fraginae*, tribe *Parvicardiini*.

**Parvicardium** Monterosato, 1884 (genus). – *Cardiidae*. Eocene and Recent. Type species: Crosse (1885) designated *Cardium parvum* Philippi, 1844 (non da

## Parvicardium – parvulum

- Costa, 1778) type species of the genus *Parvicardium*. *C. parvum* Philippi, 1844 has been replaced by *C. exiguum commutatum* B.D.D., 1892. RECORDS. •1900 ZR: *Parvicardium* Monterosato, 1900 n. sect. of *Cardium* for *Cardium parvum* Phil., etc. •1969 ZR: *Parvicardium* Monterosato, 1884 in subfamily Cerastodermatinae Nordsieck, F. 1969. •1975 ZR: *Parvicardium*. Key to species. USSR. Oligocene. Ref. to Merklin p. 99. •1977 Popov: *Parvicardium* Monterosato, 1884. Genotype: *Cardium exiguum* Gmelin, 1790. •1977 ZR: *Parvicardium* Monterosato 1884 Designated type genus for new tribe Parvicardiini Kafanov & Starobogatov. Ref. to Kafanov & Popov p. 63 [Transl. p. 313]. •1979 ZR: *Parvicardium* Monterosato 1884. Ref. to Lambiotte. •1980 Vokes: *Parvicardium* Monterosato, 1884 in subfamily Cardiinae. •1982 Kilburn & Rippey: *Parvicardium* Monterosato, 1884. •1983 Anaya: *Parvicardium* Monterosato, 1884 (= *Plagiocardium* Cossmann, 1886; = *Papillicardium* Sacco, 1896). Type: (Crosse, 1885) *Cardium parvum* Philippi, 1844, non Da Costa. •1995 Pacaud & Renard: *Parvicardium* Monterosato. 1884 in subfamily Cardiinae. •1998 Schneider: *Parvicardium*. Type species *Parvicardium siculum* (Sowerby, 1841). Cardiidae. Recent. •1998 Schneider (1998b): *Parvicardium*. The type species of is uncertain. •1998 Schneider (1998b): *Parvicardium* in Fraginae. The genus originates in the Eocene (Keen 1980). •2000 Aartsen & Goud: *Parvicardium* Monterosato, 1884. •2001 Vidal, p. 408: *Parvicardium*. •2002 Schneider: citing Kafanov and Popov (1977): *Parvicardium* in subfamily Fraginae, tribe Parvicardiini. •2002 Schneider: *Parvicardium* is considered basal fragines. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1969 Moore *et al.*, emend. Hylleberg 1994. Small shell. Outline rounded-subquadrate; posterior margin less curved than anterior; ribs sculptured with nodules, blunt spines or raised ridges (heavy cross-threads) arising from the midline or covering the complete rib. Hinge line gently curved; hinge weak, cardinal teeth minute, lower cardinal much larger and than upper cardinal; fused at base in LV. Inner margin crenulate. Resembling *Plagiocardium* (*Papillicardium*). •2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes. DISTRIBUTION. Europe–North America.
- Parvicardium*** Monterosato, 1884 (subgenus and section). – Cardiidae. Recent and Eocene. REMARKS. The designation “section” takes the value of subgenus. RECORDS. •1887 Fischer: *Parvicardium* Monterosato, 1884. Section of genus *Cardium* Linné, 1758. •1912 Dautzenberg & Fischer: Subgenus *Parvicardium* Monterosato 1884.
- Parvidacna*** Stevanovic, 1951 (genus). Lymnecardiidae. Pontian. RECORDS. •1951 ZR: *Parvidacna* Stevanovic, 1950 gen. nov. Cardiidae genotype *Parvidacna planicostata* Stevanovic, 1950 sp. nov. Upper Pontian Serbia. •1953 ZR: *Parvidacna* Stevanovic, 1951 gen. nov. *Parvidacna planicostata* Stevanovic, 1951 sp. nov. Pontian Serbia. •1980 Vokes: *Parvidacna* (genus) Stevanovic, 1950 [Ebersin & Stevanovic, 1949 n.n.] in subfamily Paradacninae. •1987 ZR: *Parvidacna* Stevanovic, 1951. Referred to new tribe. Phyllocardiini.
- Ref. to Neveeskaya *et al.* p. 189.
- parvissimum*** Svagrovsky, 1960. – *Parvicardium parvissimum* (Svagrovsky, 1960). Cardiidae. Miocene. RECORDS. •1960 ZR: *Cardium* (*Parvicardium*) *parvissimum* Svagrovsky, 1960 sp. nov. Upper Tortonian (Miocene) Kirzan massive “Slanske hory” mts.
- parvula*** Nalivkin, 1916. – *Didacna parvula* Nalivkin 1916. Lymnecardiidae. Fossil. RECORDS. •1916 ZR: *Didacna parvula* Nalivkin, 1916 sp. n. Berg der Bakustufe.
- parvula anomalodonta*** Nalivkin, 1916 (variety). – Upgraded. *Didacna parvula anomalodonta* Nalivkin, 1916. Lymnecardiidae. Fossil. RECORDS. •1916 ZR: *Didacna parvula* var. *anomalodonta* Nalivkin, 1916 var. n. Berg der Bakustufe.
- parvula catillus*** Nalivkin, 1916 (variety) Upgraded. – *Didacna parvula catillus* Nalivkin, 1916. Lymnecardiidae. Fossil. RECORDS. •1916 ZR: *Didacna parvula* var. *catillus* Nalivkin, 1916 var. n. Berg der Bakustufe.
- parvula planissima*** Nalivkin, 1916 (variety). – Upgraded. *Didacna parvula planissima* Nalivkin, 1916. Lymnecardiidae. Fossil. RECORDS. •1916 ZR: *Didacna parvula* var. *planissima* Nalivkin, 1916 var. n. Berg der Bakustufe.
- parvulinum*** Locard, 1900. – Synonym of *Parvicardium parvum* (Philippi, 1844). >> Regarding *Cardium parvulinum*: Cardiidae. Recent. DISTRIBUTION. Mediterranean, 50–60 m depth. RECORDS. •1900 Locard & Caziot: *Cardium parvulinum* Locard, 1900. •1972 Petersen & Russell: *Cardium parvulinum* Locard & Caziot, 1900 = *Parvicardium parvum* (Philippi, 1844). •1977 Fischer–Piette: *Cardium exiguum* Gmelin. •2001 Vidal, p. 408: *Parvicardium parvulinum*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes.
- parvuloides*** Popov, 1955. – *Didacna parvuloides* Popov, 1955. Lymnecardiidae. Quaternary. RECORDS. •1956 ZR: *Didacna parvuloides* Popov, 1955 sp. nov. Premanich part of Pricaspian Quaternary. Russia.
- \*parvulum**. – Homonymy to be noticed. *Cardium parvulum* from 4 sources: Dunker, 1861. – Martin, 1879. – Li, 1930. – Tavani, 1948.
- parvulum*** Dunker, 1861. – Not a cardiid. >> Regarding *Cardium parvulum*: of genus *Cardita* or *Carditella*. RECORDS. •1862 Dunker, p. 36: *Cardium parvulum*. •1890 Paetel: *Cardium parvulum* Dkr. = *edule* L. •1951 Carcelles & Williamson: *Cardium parvulum* Dunker 1862. •1959 Soot–Ryen, p. 54: *Cardium parvulum* Dkr. = *Cardita* or *Carditella*. •1977 Fischer–Piette: *Cardium parvulum* Dunker = *Cardita* or *Carditella*. •1980 Ruhoff: *Cardium parvulum* Dunker, 1861; vol. 8: 36.
- parvulum*** Li, 1930. – Synonym of *Trachycardium procerum* (Sowerby, 1833). >> Regarding *Cardium parvulum*: Cardiidae. Recent. RECORDS. •1930 Li: *Cardium parvulum*. •1931 Pilsbry: *Cardium parvulum* Li (unmistakable *C. procerum* Sowerby). •1931 ZR: *Cardium* sic [*Cardium*] *parvulum* Li, 1931 sp. n. Panama. •1947 Hertlein & Strong: *Cardium parvulum* Li = *Cardium* (*Mexicardia*) *procerum* Sowerby. •1968



**parvulum – parvum**

Velez: *Cardium parvulum* = *Trachycardium procerum* (Sowerby, 1833). ••1971 Keen & McLean: *Cardium parvulum* Li, 1930 = *Trachycardium (Mexicardia) procerum* (Sowerby, 1833). Distribution as for *T. procerum*: occasional in the Gulf of California, South West Mexico to Chile. ••1974 Abbott: *Cardium parvulum* Li, 1930 = *Trachycardium (Mexicardia) procerum* (Sowerby, 1833). ••1977 Fischer-Piette: *Cardium parvulum* Li = *Laevicardium procerum* Sowerby.

**parvulum** Martin, 1879. – *Cardium parvulum* Martin, 1879. Cardiidae. Upper Miocene. RECORDS. ••1919 Martin: *Cardium parvulum* Mart. (U. Miocene).

**parvulum** Tavani, 1948. – “*Cardium*” *parvulum* Tavani, 1948. Cardiidae. Cretaceous. RECORDS. ••1948 ZR: *Cardium parvulum* Tavani, 1948 sp. nov. Cretaceous, Somaliland.

**parvulum** Dunker (variety). – RECORDS. ••1890 Paetel: *Cardium* var. *parvulum* Dkr.

## Lymnocardiidae

**parvulum** Fuchs. – Changed combination: *Lymnocardium parvulum* (Fuchs). Lymnocardiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocardium parvulum* Fuchs.

**parvulum** Morris & Lycett, 1853. – *Unicardium parvulum* Morris & Lycett, 1853. Lymnocardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Unicardium parvulum* Morris & Lycett, 1853; [1853–1854] vol. 2: 74; pl. 8, fig. 6a.

**parvulus** (variety). – See under *dahestanicum parvulus* Uspenskaia, 1931.

**parvum** (subspecies and variety). – See under *haueri parvum* Stevanovic, 1979. – *glaucum rectidens* var. *parvum* Brusina, 1870.

\***parvum**. – Homonymy to be noticed. *Cardium parvum* from 6 sources: da Costa, 1778. – Mawe, 1823. – Sowerby, 1838. – Philippi, 1844. – Adams in MacAndrew, 1870. – Deshayes, (?year).

**parvum** Adams in M'Andrew, 1870. – Unknown species. >> Regarding *Cardium parvum*: TYPE LOCALITY. Gulf of Suez. REMARKS. No description, no figures (Fischer-Piette 1977). RECORDS. ••1870 Adams in MacAndrew, p. 447: *Cardium parvum* n. sp. ••1886 Cooke: *Cardium parvum* Ad. ••1977 Fischer-Piette: *Cardium parvum* (H. Adams) McAndrew = species insufficiently known. ••1980 Ruhoff: *Cardium parvum* H. Adams in M'Andrew, 1870; vol. 6: 447.

**parvum** Brusina, 1870 (variety). – Synonym of *Parvicardium exiguum* Gmelin. >> Regarding *Cardium* var. *parvum*: Cardiidae. Recent. RECORDS. ••1880 Stossich: *Cardium* var. *parvum* = *Cardium exiguum* Gmelin.

**parvum** da Costa, 1778. – Unknown species. OTHER JUDGEMENTS: *Acanthocardia aculeata* (Linnaeus, 1758). – *Cardium ciliare* Linnaeus. – *Acanthocardia echinata* (Linnaeus, 1758). – *Parvicardium exiguum* var? – *Cerastoderma glaucum* (Bruguière, 1789). >> Regarding *Cardium parvum*: Cardiidae. Recent. RECORDS. ••1778 da Costa: *Cardium parvum*. ••1789 Bruguière: *Cardium parvum* d'Acosta pag. 177, num. 17. ••1803 Montagu: *Cardium parvum* Da Costa. p. 177. = *Cardium ciliare* Lin. ••1817 Dillwyn: *Cardium parvum* Da Costa = *Cardium echinatum* Linnaeus. ••1828 Mawe: *Cardium parvum* da Costa, 1778 =

*Cerastoderma glaucum* (Bruguière, 1789). ••1852 Leach: *Cardium parvum* Da Costa = Testa junior *Cardium echinatum*. ••1856 Wood & Hanley: *C. parvum* Da Costa, 177 – Is the young of *C. aculeatum*. ••1890 Paetel: *Cardium parvum* Cost. = *aculeatum* L. juv. ••1898 Bucquoy, Dautzenberg & Dollfus: *Cardium parvum* da Costa, 1778 = juv. *Acanthocardia aculeatum* or *A. echinatum*. ••1899 Sacco: *Cardium parvum* Da Costa 1778 = *Parvicardium exiguum* var?. ••1902 Sherborn, p. 720: *Cardium parvum* da Costa, 1778. ••1972 Petersen & Russell: *Cardium parvum* da Costa, 1778 = unknown cockle according to Sowerby (1840). ••1977 Fischer-Piette: *Cardium parvum* da Costa.

**parvum** Deshayes. – Combination to be revised: “*Cardium*” *parvum* Deshayes. Cardiidae. Fossil. RECORDS. ••1857 Deshayes: *C. parvum* Desh.

**parvum** Lovén. – Misidentification of *Parvicardium exiguum* (Gmelin, 1791). >> Regarding *Cardium parvum*: Cardiidae. Recent. RECORDS. ••1871 Mörch, p. 215, No. 205 *Cardium parvum* Lovén = *Cardium exiguum* Gm.

**parvum** Mawe, 1823. – *Cardium parvum* Mawe, 1823. – OTHER JUDGEMENTS: *Parvicardium exiguum* (Gmelin, 1791). >> Regarding *Cardium parvum*: Cardiidae. Recent. RECORDS. ••1823 Mawe, p. 29, 32, Figs. 4–5: *Cardium parvum*. ••1922–32 Sherborn, p. 4777: *Cardium parvum* Mawe, 1823 [n. etf.] = *nomen nudum* accompanied by figure. ••1977 Fischer-Piette: *Cardium parvum* Mawe = *Cardium exiguum* Gmelin.

**parvum** Paramonova, 1977. – *Cerastoderma parvum* Paramonova, 1977. Cardiidae. Upper Miocene. RECORDS. ••1977 ZR: *Cerastoderma (Planacardium) parvum* Paramonova sp. nov. Russian SFSR. Ref to Il'ina, Nevenskaya & Paramonova p. 209, fig'd.

**parvum** Philippi, 1844. – Synonym of *Parvicardium exiguum* (Gmelin, 1791). OTHER JUDGEMENTS: *Cardium aculeatum* Linnaeus, 1758. – *Parvicardium commutatum* (Bucquoy, Dautzenberg & Dollfus, 1892). – *Parvicardium exiguum* (Gmelin, 1791). – Removal from synonymy with *C. exiguum* Gmelin, 1791. – *Cardium fasciatum* Montagu. – *Cardium parvulinum* Locard, 1900. – *Parvicardium parvum* (Philippi, 1844). >> Regarding *Cardium parvum*: Cardiidae. Recent. Type species *Cardium parvum* Philippi, 1844, non da Costa (Crosse, 1886) is type species of genus *Parvicardium* Monterosato, 1884 (Glibert & Poel 1970). *Cardium parvum* Philippi 1844 is type species of subgenus *Parvicardium* Montr. 1884 (Sacco 1899). RECORDS. ••1844 Philippi, p. 39, pl. 14, figs. 17 a,b: *Cardium parvum* n. sp. ••1849 Middendorff: *Cardium parvum*. ••1856 Jeffreys: (*Cardium parvum*, Ph.) = *Cardium fasciatum*, B. M. (Note: Ph. & B. M. = Philippi and “British Mollusca”, Forbes & Hanley 1849 respectively). ••1859 Sowerby: *C. parvum* = *Cardium fasciatum* Mont. ••1859 Sowerby: *C. parvum* (young) = *Cardium aculeatum*, Linn. ••1869 Römer: *Cardium parvum* Philippi (a variety of *Cardium exiguum* Gmelin). ••1884 Monterosato: *Parvicardium parvum*, Ph. (*Cardium*). ••1885 Crosse designated *Cardium parvum* Philippi, 1844 as type species of the genus *Parvicardium* Monterosato, 1884. ••1886 Locard: *Cardium ? parvum* Philippi, 1844 = *Cardium fasciatum* Montagu, 1808. ••1887 Fischer: *Cardium parvum* Philippi. ••1888 Kobelt: *Cardium parvum* Philippi =

*parvum – patruilii*

- Cardium exiguum* Gmelin. •1890 Paetel: *Cardium parvum* Phil. = *exiguum* Gm. •1891 Danilo & Sandri: *Cardium parvum* Phil. •1892 Locard: *Cardium parvum*, Philippi, 1844. •1900 Locard & Caziot: *Cardium parvum* Philippi, 1844 = *Cardium parvulinum* Locard, 1900. •1900 ZR: *Cardium parvum* Phil. [Ref. Monterosato 1900]. •1917 Hidalgo: *Cardium parvum* Philippi = *Cardium exiguum* Gmelin. •1922-32 Sherborn, p. 4777: *Cardium parvum* Philippi, 1844. •1933 Coen: *Cardium parvum* Philippi = *Eucardium* (*Parvicardium*) *exiguum* var. *scripta* B.D.D. •1933 Coen & Vatova: *Cardium parvum* Phil. (Stossich 1865) = *Eucardium* (*Parvicardium*) *exiguum* Gmelin. •1937 Coen: *parvum* Philippi = *Cerastoderma* (*Parvicardium*) *exiguum scriptum* B.D.D. •1962 Grossu: *Cardium parvum* Philippi, 1844 = *Cardium* (*Parvicardium*) *exiguum* Gmelin, 1790 *sic*. •1969 Moore *et al.*: *Cardium parvum* Philippi, 1844 = *Cardium exiguum commutatum* Bucquoy, Dautzenberg & Dollfus, 1892. •1969 Nordsieck: *Parvicardium parvum* (Philippi, 1844) = *Parvicardium exiguum* (*exiguum*) (Gmelin, 1791). •1972 ZR: *Cardium parvum* Philippi, 1844. Removal from synonymy With *C. exiguum* Gmelin, 1791 [Ref. Petersen 1972]. •1977 Fischer–Piette, p. 174: *Cardium parvum* Philippi = *Cardium exiguum* Gmelin. •1978 ZR: *Cardium parvum* Philippi, 1844. Valid name. Ref. to Janssen *et al.* p. 56. •1983 Anaya: *Cardium parvum* Philippi, 1844, *non* Da Costa. •1991 van Aartsen & Giannuzzi-Savelli: *Cardium parvum* Philippi, 1844; preoccupied name replaced by *Parvicardium commutatum* (B.D.D., 1892). •2000 Aartsen & Goud: *Cardium parvum* Philippi, 1844 not Da Costa 1778, not Mawe 1823, not Sowerby 1840 is a synonym of *Parvicardium exiguum* (Gmelin, 1791). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: Lake Fusaro, near Naples, Italy. DISTRIBUTION. •1969 Nordsieck: Mediterranean. REMARKS. Petersen & Russell (1972) *Cardium parvulinum* Locard & Caziot, 1900 *sic* Locard 1900 = *Parvicardium parvum* (Philippi, 1844); Nordsieck (1969) stated the following synonymy: *Parvicardium exiguum* (*exiguum*) (Gmelin, 1791) = *pygmaeum* (Donovan, 1799) = *siculum* (Sowerby, 1839 *sic*. = 1834) = *stellatum* (Reeve, 1844).
- parvum* Philippi (variety). – Infrasubspecific. RECORDS. •1890 Paetel: *Cardium* var. *parvum* Phil.
- parvum* Sowerby, 1838. [Figs. Part 1 p. 112]. – Synonym of *Cardium exiguum* Gmelin. >> Regarding *Cardium parvum*: *Cardiidae*. Recent. TYPE LOCALITY. Unknown (Sowerby 1840). RECORDS. •1838 Sowerby, 149<sup>th</sup> part, fig. 33: *Cardium parvum* nobis. •1840 Sowerby p. 110: *Cardium parvum*. •1840 Sowerby, catalogue p. 6, No. 80: *Cardium parvum* Sow. •1840 Sowerby, corrected list, p. 8: *Cardium parvum* (Sowerby No. 80). •1922-32 Sherborn, p. 4777: *Cardium parvum* Sowerby, 1841. •1977 Fischer–Piette: *Cardium parvum* Sowerby = *Cardium exiguum* Gmelin. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1840 Sowerby: shell oval, subquadrate, posterior subangulate, anterior rounded, pale yellowish, dark reddish spotted along margin, numerous ribs, somewhat flattened, narrow interspaces [I have translated from Latin]. DIMENSIONS. •1840 Sowerby: long. 0.50 poll. (length 13 mm), lat. 0.40 poll. (width 10 mm), alt. 0.43 poll. (height 11 mm).
- parvum commutata* Bucquoy, Dautzenberg & Dollfus, 1892 (variety). – Infrasubspecific. No evidence of subspecific status. >> Regarding *Parvicardium parvum* var. *commutata*: *Cardiidae*. Recent. RECORDS. •1899 Sacco: *Cardium parvum* var. *commutata* B.D.D.
- parvum flavida* (variety). – *Cardium parvum* var. *flavida*. No evidence of subspecific status. >> Regarding *Cardium parvum* var. *flavida*: *Cardiidae*. Recent. RECORDS. •1878 Monterosato: *Cardium parvum*, Ph. var. *flavida*.
- Pascoella* (genus) Cox, 1949. – *Cardiidae*. Fossil. RECORDS. •1980. Vokes: *Pascoella* Cox, 1949 in subfamily *Cardiinae*.
- pasinii* Schauroth, 1865. – “Combination to be revised: “*Cardium*” *pasinii* Schauroth, 1865. *Cardiidae*. Fossil. RECORDS. •1980 Ruhoff: *Cardium pasinii* Schauroth, 1865; p. 210, pl. 20, figs. 1–3.
- passyi* Deshayes, 1858. – Synonym of *Parvicardium granulosum* (Lamarck, 1805). >> Regarding *Cardium passyi*: *Cardiidae*. Eocene. TYPE LOCALITY. Paris Basin, France. RECORDS. •1886 Cossmann: *Cardium passyi* Deshayes. •1904 Cossmann & Pissarro: *Cardium* (*Plagiocardium*) *passyi* Deshayes. •1970 Glibert & Poel: *Cardium passyi* Deshayes, 1856 = *Parvicardium granulosum* (Lamarck, 1805). •1977 Popov: *Plagiocardium* (*Plagiocardium*) *passyi* (Deshayes). •1980 Ruhoff: *Cardium passyi* Deshayes, 1858; [1856–1865] vol. 1: 557, pl. 71, figs. 12–14 (*sic* = 14–16). •1995 Le Renard *et al.*: *Plagiocardium granulosum passyi* [*Cardium passyi*] Deshayes, 1858. •1995 Pacaud & Renard: *Plagiocardium passyi*. •1999 Jacques Vidal (pers. comm.) MNHN, Paris: Fossils from the Paleontological Collection as *Plagiocardium passyi* (Deshayes). Lutetien. France (Bassin de Paris), B52724, B52725.
- patagonicum* Ihering, 1907. – *Hedecardium patagonicum* (Ihering, 1907). *Cardiidae*. Oligocene. RECORDS. •1907 Ihering: *Cardium patagonicum* (*fide* Schneider 2002). •2002 Schneider: *Hedecardium* (*Iheringcardium*) *patagonicum* *Cardiidae*. Oligocene.
- Patrocardium* (genus). – RECORDS. •1926 ZR: *Patrocardium* [Ref. Heller 1926].
- patruelinum* Deshayes, 1858. – Changed combination: *Loxocardium patruelinum* (Deshayes, 1858). *Cardiidae*. Eocene. TYPE LOCALITY. Paris Basin, France. RECORDS. •1886 Cossmann: *Cardium patruelinum* Deshayes. •1904 Cossmann & Pissarro: *Cardium* (*Loxocardium*) *patruelinum* Deshayes. •1970 Glibert & Poel: *Loxocardium patruelinum* (Deshayes, 1858). •1977 Popov: *Loxocardium patruelinum* (Deshayes, 1858). •1980 Ruhoff: *Cardium patruelinum* Deshayes, 1858; [1856–1865] vol. 1: 565, pl. 55, figs. 8–10. •1995 Le Renard *et al.*: *Loxocardium patruelinum* [*Cardium patruelinum*] Deshayes, 1858. •1995 Pacaud & Renard: *Loxocardium patruelinum*. •1999 Jacques Vidal (pers. comm.) MNHN, Paris: Fossils from the Paleontological Collection. *Loxocardium patruelinum* (Deshayes). Yprésien. France (Bassin de Paris), B52818 to –25, B72593.
- patruilii* (subspecies). – See under *penslii patruilii*.
- patruilii* Marinescu, 1975. – New combination: *Limnocardium patruilii* (Marinescu, 1975). *Lymnocardiidae*. Pliocene. RECORDS. •1975 ZR: *Limnocardium* (*Pannonocardium*) *patruilii* Marinescu, 1975 sp. nov.

**patruliusi – paucicostatum**

Romania, Banat. Ref. to Marinescu, p. 19.

**patruliusi** Papaianopol, 1992. – *Pseudocatillus patruliusi* Papaianopol, 1992. Lymnocardiiidae. Pliocene. TYPE LOCALITY. Dacien inferieur (Getien) du Bassin Dacique, Romania. RECORDS. •1992 Papaianopol, p. 26, fig.: *Pseudocatillus patruliusi* sp. nov.

**patulum** Hutton, 1873. – *Nemocardium patulum* (Hutton, 1873). Cardiidae. Fossil. TYPE SPECIES: *Cardium patulum* Hutton, 1873. Type of (*Varicardium*) Marwick, 1944 (Popov 1977). RECORDS. •1944 ZR: *Protocardium patulum* Hutton 1873 [Ref. Marwick 1944]. •1944 ZR: *Varicardium patulum* (Hutton, 1873) [Ref. Marwick 1944]. •1965 ZR: *Varicardium patulum* revised, Tertiary, New Zealand [Ref. Boreham 1965]. •1977 Popov: *Nemocardium* (*Varicardium*) *patulum* (Hutton, 1873). •1995 Schneider: *Nemocardium* (*Varicardium*) *patulum* (Hutton, 1873).

**paucicostata/-um** (mode, variety). – See under *paucicostatum*. – *exiguum paucicostatum* Milascewicz, 1909.

**\*paucicostatum**. – Homonymy to be noticed. *Cardium paucicostatum* from 4 sources: Murchison, 1831. – Sowerby, 1834. – Deshayes, 1838. – Münster, 1840.

**paucicostatum** Deshayes, 1838. – *Pontalmyra paucicostatum* (Deshayes, 1837). Lymnocardiiidae. Fossil. TYPE LOCALITY. The Crimea. RECORDS. •1838 Deshayes, p. 52, pl. 2, figs. 14–15: *Cardium paucicostatum*. •1857 Deshayes: *Cardium paucicostatum* Deshayes, 1837 sic. •1886 Fischer: *Cardium paucicostatum* Deshayes. •1922–32 Sherborn, p. 4792: *Cardium paucicostatum* Deshayes, 1838. •1970 Glibert & Poel: *Cardium paucicostatum* non Sowerby. •1980 ZR: *Cardium paucicostatum*. Black Sea. Ref. to Gomoiu *et al.* •1980 ZR: *Didacna* (*Pontalmyra*) *kamyshburunensis* Kafanov, 1980 nom. nov. for *Cardium paucicostatum* Deshayes 1838 nec Sowerby 1834. Ref. to Kafanov, p. 623. •1987 Taktakishvili: *Pontalmyra paucicostata* (Desh.). •1987 Taktakishvili: *Didacna paucicostata* (Desh.). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1903 Andrussoff: *Cardium pauci-costatum* has well developed cardinal teeth.

**paucicostatum** Murchison, 1831. – Combination to be revised: “*Cardium*” *paucicostatum* Murchison, 1831. Cardiidae. Recent. RECORDS. •1857 Deshayes: *Cardium paucicostatum* Murchison, 1831.

**paucicostatum** Münster, 1840. – Replaced. Combination to be revised: “*Cardium*” *raricostatum* Deshayes. >> Regarding *Cardium paucicostatum*? Cardiacea. Fossil. RECORDS. •1857 Deshayes: *Cardium paucicostatum* Munster = *C. raricostatum* Desh. •1922–32 Sherborn, p. 4792: *Cardium paucicostatum* Muenster, 1840. •1922–32 Sherborn, p. 4792: *Conocardium* (Muenst.) *paucicostatum* d’Orbigny, 1850. – *Cardium*.

**paucicostatum** Orbigny, 1850. – See under *paucicostatum* Münster, 1840.

**paucicostatum** Sowerby, 1834. [Figs. Part 1 p. 90, 109, 127]. – Changed combination: *Acanthocardia paucicostata* (Sowerby, 1834). OTHER JUDGEMENTS: *Cardium ciliare* Lamarck. >> Regarding *Cardium paucicostatum*: Cardiidae. Miocene and Recent. Keen 1937 designated *Cardium paucicostatum* Sowerby, 1841 type species of the genus *Sphaerocardium* Coen, 1933. TYPE LOCALITY. Adriatic Sea (Malta), Sowerby

(1840). TYPE REPOSITORY. UNKNOWN. RECORDS. •1834 Sowerby, 49<sup>th</sup> part, fig. 20: *Cardium paucicostatum*. •1840 Sowerby, p. 106: *Cardium paucicostatum*. •1840 Sowerby, p. 2, No. 29: *Cardium paucicostatum*. •1840 Sowerby, corrected list, p. 8: *Cardium paucicostatum* (Sowerby No. 29). •1844 Philippi: *Cardium paucicostatum* Sow. = *Cardium ciliare*. •1844 Reeve: *Cardium paucicostatum* Sowerby, 1840. •1857 Deshayes: *Cardium paucicostatum* Sowerby, 1833. •1857 Deshayes: *Cardium paucicostatum* Sowerby, 1839 sic – *C. ciliare*. Lamk. •1857 Deshayes: *Cardium paucicostatum* Sowerby, 1839 – *C. ciliare* Lamk. •1858 Adams & Adams, p. 455: *Cardium* (*Isocardia*) *paucicostatum* Sow. •1867 Weinkauff: *Cardium paucicostatum* Sowerby (juv.) = *Cardium echinatum* Linné. •1867 ZR: *Cardium paucicostatum* (Sow.) = *Cardium deshayesii* (Payr.), which alone is found in the Mediterranean, and not on the Atlantic shores of Europe [Ref. Weinkauff 1867]. •1868 ZR: *paucicostatum* of Sowerby and Reeve = *Cardium ciliare* (Linné, not Reeve) [Ref. Römer 1868]. •1878 Monterosato: *Cardium paucicostatum* Sow. = *C. ciliare*, auctt. (non Lin.). •1884 Grasset: *Cardium paucicostatum* Sow. •1890 Paetel: *Cardium paucicostatum* Sow. = *echinatum* juv. •1892 Locard: *Cardium paucicostatum* Sowerby. 1859 sic. •1899 Sacco: *Cardium paucicostatum* Sowerby 1839 [Miocene–Recent]. •1900 Locard & Caziot: *Cardium paucicostatum* Sowerby, 1859 sic. •1907 ZR: *Cardium* (s. strict.) *paucicostatum* [Ref. Martinelli 1907]. •1907 ZR: *Cardium paucicostatum* [Refs. Roule 1907. Zimmermann 1907]. •1916 Milaschewitch: *Cardium paucicostatum* Sowerby, 1893 sic = *Cardium paucicostatum* Sowerby var. *impedita* Mil. (1909). •1922–32 Sherborn, p. 4792: *Cardium paucicostatum* Sowerby, 1841. •1931 ZR: *Cardium paucicostatum* Ref. to Borcea (1931). •1933 Coen: *Eucardium* (*Sphaerocardium*) *paucicostatum* Sowerby. •1933 Coen & Vatova: *Eucardium* (*Sphaerocardium*) *paucicostatum* Sowerby. •1937 Coen: *Cerastoderma* (*Sphaerocardium*) *paucicostatum* Sowerby. •1937 ZR: *Cardium paucicostatum* Sowerby, 1841 type of *Sphaerocardium*, probably = *Acanthocardia* Gray, 1851 [Ref. Keen 1937]. •1939 Steuer: *Cardium* (*Rudicardium*) *paucicostatum* Sowerby. •1962 Pasteur–Humbert: *Cardium paucicostatum* Sowerby. •1969 Nordsieck: *Sphaerocardium paucicostatum* (Sowerby, 1839). •1977 Fischer–Piette: *Cardium* (*Cerastoderma*, *Acanthocardia*) *paucicostatum* Sowerby. •1977 Popov: *Acanthocardia* (*Acanthocardia*) *paucicostata* (Sowerby, 1839). •1978 Janssen & Van der Slik: *Sphaerocardium paucicostatum* (Sowerby, 1839). •1980 ZR: *Cardium paucicostatum* Sowerby 1834. Replaced by *C. ciliare* Linnaeus 1758 Ref. to Kafanov, p. 625. •1983 Salvini–Plawen: *Sphaerocardium paucicostatum* (Sowerby). •1991 Krzyminska & Wolowicz: *Cardium paucicostatum* Sowerby. •1998 Macedo *et al.*: *Acanthocardia paucicostata* (Sowerby G.B. III, 1841). •1999 Vidal (pers. comm.). Fossils from the Paleontological Collection as *Acanthocardia paucicostatum*. Italy; Morocco; Bulgaria. •2001 Vidal, p. 407: *Acanthocardia paucicostatum*. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: 45 m (Ashdod Israel). •ZMUC:

3–7 m (La Goretlette, Gulf of Tunisia). ••ZMUC: 16 ribs (range 14–19),  $n = 15$ . ••ZMUC wet collection: Black Sea. DESCRIPTIONS. ••1844 Reeve: shell rounded, thin, rather ventricose, nearly equilateral, radiately ribbed, 16–17 flatly convex ribs, eequal in the middle, keel armed with scale-like spines, interstices concave, wide, crisply wrinkled zoned transversely in a wavy manner with white and reddish brown. ••2001 Vidal: with a few additional larger tentacles outside siphons. No eyes on tentacles. DIMENSIONS. ••1840 Sowerby: long. 1.3 poll. (length 33 mm), lat. 1.3 poll. (width 33 mm), alt. 1. poll (height 25 mm). REMARKS. ••1840 Sowerby: this species differs from *C. echinatum* in being comparatively smooth, and in having few ribs, with wide interstices. The genus *Acanthocardia* is used instead of the genus *Sphaerocardium*. ••1844: Reeve found that Mr. Sowerby has acted very judiciously in promoting this shell to the rank of a new species. The *Cardium ciliare*, with which it has been confounded, has certainly as small a number of ribs, and is moreover the only other aculeated cockle with so few, but the spines of these two species vary most importantly in their character. The *Cardium ciliare* has a solid laterally compressed spine like that of the young *Cardium aculeatum*, noticed above; the *Cardium paucicostatum* has a folded scale-like spine, papilliform at the base, like that of the *Cardium erinaceum*. HABITAT. ••1900 Locard & Caziot: 40–60 m. ••ZMUC: 3–45 m depth. DISTRIBUTION. ••1844 Reeve: Adriatic, South Europe. ••1884 Grasset: Algeria. ••Of authors: West Europe, Mediterranean, Black Sea, West Africa; Ashdod Israel, La Goretlette, Gulf of Tunisia, Black Sea.

***paucicostatum alba*** Bucquoy, Dautzenberg & Dollfus, 1892 (variety). – New combination: *Acanthocardia paucicostata* var. *alba* (B.D.D., 1892). >> Regarding *Cardium paucicostatum* var. *alba*: Infrasppecific. No evidence of subspecific status. Cardiidae. Recent RECORDS. ••1892 Bucquoy, Dautzenberg & Dollfus, p. 270: *Cardium paucicostatum* var. (ex colore) *alba* B.D.D. ••1969 Nordsieck: *Sphaerocardium paucicostatum* (Sowerby, 1839) var. *album* (Bucquoy sic, Dautzenberg & Dollfus). – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1969 Nordsieck: unknown.

***paucicostatum bianconiana*** Cocconi 1873 (variety). – Upgraded. New combination: *Acanthocardia paucicostata bianconiana* (Cocconi 1873). Cardiidae. Fossil RECORDS. ••1899 Sacco: *Cardium paucicostatum* var. *bianconiana* Cocconi 1873 (an species distinguishing). ••1912 Favre: *Cardium paucicostatum* Sowerby var. *bianconiana* Cocc. ID suggested by Favre.

***paucicostatum impeditum*** Milaschewitsch, 1909 (variety). – Replaced by *Acanthocardia ciliaris milaschewitschi*. >> Regarding *Cardium paucicostata* var. *impedita*: Cardiidae. Recent RECORDS. ••1916 Milaschewitsch: *Cardium paucicostatum* Sowerby var. *impedita* Mil. (1909). ••1969 Nordsieck: *Sphaerocardium paucicostatum* (Sowerby, 1839) var. *impeditum* (Milaschewicz). ••1980 ZR: *Cardium paucicostatum* var. *impedita* Milaschewitsch 1909. Preoccupied name, replaced by *Acanthocardia (Sphaerocardium) ciliaris milaschewitschi*. Kafanov, 1980. Ref. to Kafanov, p. 625. – CHARACTERS AND

***paucicostatum alba* – *paucicostatum rarepartita***

OCCURRENCE – DISTRIBUTION. ••1969 Nordsieck: Black Sea.

***paucicostatum milaschewitschi*** Kafanov, 1980. – Replacement name for *Cardium paucicostatum* var. *impedita* Milaschewitsch 1909.

***paucicostatum piacentiana*** (variety). – New combination: *Acanthocardia paucicostatum* var. *piacentiana*: Cardiidae. Fossil RECORDS. ••1899 Sacco: *Cardium paucicostatum* var. *piacentiana*.

***paucicostatum planicosta*** Coen, 1933 (variety). – Infrasppecific. No evidence of subspecific status. >> Regarding *Eucardium paucicostatum* var. *planicosta*: new combination: *Acanthocardia paucicostata* (Sowerby, 1834). Cardiidae. Recent RECORDS. ••1933 Coen: *Eucardium (Sphaerocardium) paucicostatum* var. *planicosta* Monterosato mss. ••1933 ZR: *Sphaerocardium paucicostatum* var. *planicosta* Coen, 1933 nov. Adriatic [Ref. Coen 1933]. ••1937 Coen, pl. 10, fig. 90, Note 263: *Cerastoderma (Sphaerocardium) paucicostatum* Sowerby *planicosta* Monterosato, Coen n. var. ••1937 ZR: *Cardium (Sphaerocardium) paucicostatum* var. *planicosta* (Monts. mss.) Coen, 1937 nov. Adriatic. ••1937 ZR: *Sphaerocardium paucicostatum* var. *planicosta* Coen, 1933 nov. Venice.

***paucicostatum planicosta eburnea*** Coen, 1914 (variety). – Infrasppecific. No evidence of subspecific status. >> Regarding *Eucardium paucicostatum planicosta* var. *eburnea*: new combination: *Acanthocardia paucicostata* (Sowerby, 1834). DISTRIBUTION. The Mediterranean. Cardiidae. Recent RECORDS. ••1914 ZR: *Eucardium (Tropicardium) paucicostatum eburnea* var. n. Coen, 1914. ••1933 Coen: *Eucardium (Sphaerocardium) paucicostatum* var. *eburnea* Coen. ••1937 Coen, Note 263: *Cerastoderma (Sphaerocardium) paucicostatum* Sowerby var. *eburnea* Coen n. var. ••1937 ZR: *Eucardium (Sphaerocardium) paucicostatum* var. *eburnea* (Monts. mss.) var. *eburnea* Coen, 1933 nov. Adriatic.

***paucicostatum productum*** Bucquoy, Dautzenberg & Dollfus, 1892 (variety). – Infrasppecific. No evidence of subspecific status. >> Regarding *Cardium paucicostata productum*: new combination: *Acanthocardia paucicostata* (Sowerby, 1834). Cardiidae. Recent RECORDS. ••1892 Bucquoy, Dautzenberg & Dollfus: *Cardium paucicostatum* var. *productum*. ••1899 Sacco: *Cardium paucicostatum* var. *producta* B.D.D. 1892. ••1933 Coen: *Eucardium (Sphaerocardium) paucicostatum* var. *producta* B.D.D. ••1937 Coen: *Cerastoderma (Sphaerocardium) paucicostatum productum*. ••1969 Nordsieck: *Sphaerocardium paucicostatum* (Sowerby, 1839 *sic*) var. *productum* (Bucquoy *sic*, Dautzenberg & Dollfus). Unknown distribution.

***paucicostatum rarepartita*** Coen, 1933 (variety). – Infrasppecific. No evidence of subspecific status. >> Regarding *Eucardium paucicostatum* var. *anomala rarepartita*: new combination: *Acanthocardia paucicostata* (Sowerby, 1834). Cardiidae. Recent RECORDS. ••1933 Coen: *Eucardium (Sphaerocardium) paucicostatum* var. *anomala rarepartita* Coen. ••1933 ZR: *Sphaerocardium paucicostatum* var. *rarepartita* Coen, 1933 nov. Adriatic [Ref. Coen 1933]. ••1937 Coen, Note 264, pl. 10, fig. 91: *Cerastoderma*

***paucicostatum rotundicosta* – *pazianum***

(*Sphaerocardium paucicostatum* Sowerby var. (anom.) *rarepartita* Coen n. var. ••1937 ZR: *Eucardium* (*Sphaerocardium sic*) *paucicostatum* Sow *planicosta* (Monts. mss.) *rarepartita* (v. anom.) var. Coen, 1937 nov. Adriatic. ••1937 ZR: *Sphaerocardium paucicostatum* var. *rarepartita* Coen, 1933 nov. Venice. – CHARACTERS AND OCCURRENCE – LOCALITY. The Mediterranean.

***paucicostatum rotundicosta*** Sacco, 1899 (variety). – New combination: *Acanthocardia paucicostata* var. *rotundicosta* (Sacco, 1899). *Cardiidae*. Recent. RECORDS. ••1899 Sacco, pl. 8, fig. 18: *Cardium paucicostatum* var. *rotundicosta* Sacc.

\****paucintermedia***. – Homonymy to be noticed. *Didacna paucintermedi* from 2 sources: Andrussov, 1924. – Andrussov, 1963. – REMARKS. I do not know how Andrussov 1963 compares with Andrussov 1924.

***paucintermedia*** Andrussov, 1963. – *Didacna paucintermedia* Andrussov, 1963. *Lymnocardiiidae*. Pliocene. RECORDS. ••1963 ZR: *Didacna paucintermedia* Andrussov, 1963 sp. nov. Apsheron layers, Pliocene, Russia. ••1977 Popov: *Hyrkania* (*Hyrkania*) *paucintermedia* (?) (Andrussov).

***paucintermedia*** Andrussov, 1924. – *Didacna paucintermedia* (Andrussov, 1924). *Lymnocardiiidae*. Pleistocene. RECORDS. ••1924 ZR: *Didacna paucintermedia* Andrussov, 1924 sp. n. Pleistocene.

***paueri*** Gümbel, 1861. – Combination to be revised: “*Cardium*” *paueri* Gümbel, 1861. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium paueri* Gümbel, 1861; p. 662.

***paulayi*** Vidal, 1999. – *Acrosterigma paulayi* Vidal, 1999. *Cardiidae*. Neogene fossil. TYPE LOCALITY. Holotype, Niue Island, Neogene fossil reef. TYPE REPOSITORY. Holotype, USNM. TYPE MATERIAL. All material from Niue Island, Neogene fossil reef, will be stored in USNM, Paulay Collection Ref. FNIUE 2B. Holotype: An incomplete left valve. Paratype 1: An incomplete right valve. Paratype 2: An incomplete right valve. Paratype 3: an incomplete right valve. RECORDS. ••1999 Vidal, p. 299, Table 23, Figs. 8G–I: *Acrosterigma paulayi* n. sp. – CHARACTERS AND OCCURRENCE – DIMENSIONS. ••1999 Vidal: Length 25.5, height 29.5, width (calculated) 20.0 mm. REMARKS. *Acrosterigma paulayi* is close to *A. profundum*; it differs in having a more depressed lunule, shorter oblique scales on posterior slope not encroaching upon the anterior smooth zone, no squared ribs elsewhere, no or less marked anterior serrations or scales on the ribs of the median part, more pronounced herringbone structure on the central shell surface. DISTRIBUTION. Only known from Neogene fossil reef of Niue Island.

***pauli*** Coquand, 1862. – Changed combination: *Protocardia pauli* (Coquand, 1862). *Cardiidae*. Cretaceous. TYPE LOCALITY. Constantine. RECORDS. ••1871 Stoliczka: *Cardium pauli* Coquand, 1862 (species insufficiently known). ••1980 Ruhoff: *Cardium pauli* Coquand, 1862; vol. 2: 204, pl. 10, figs. 5–6. ••1934 ZR: *Cardium pauli* Cretaceous [Ref. Blanckenhorn 1934]. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Protocardia pauli* Coquand. Senonien–Cenomanien. Gabon (Gorges No. 204), R51370. Algeria, B19813, B19814.

***pauli aequilaterale*** Blanckenhorn, 1934 (variety). –

Upgraded. Combination to be revised: “*Cardium*” *pauli aequilaterale* Blanckenhorn, 1934. *Cardiidae*. Cretaceous. RECORDS. ••1934 ZR: *Cardium pauli* var. *aequilaterale* Blanckenhorn, 1934 nov. Cretaceous Syria [Ref. Blanckenhorn 1934].

***paululum*** Eberzin, 1958. – Changed combination: *Euxinocardium paululum* (Eberzin, 1958). *Lymnocardiiidae*. Pliocene. RECORDS. ••1958 ZR: *Lymnocardium* (*Euxinocardium*) *paululum* Eberzin, 1958 sp. nov. Kerchenski Peninsula, Crimea. Pliocene of the Ponto–Caspian basin, Russia. ••1987 Taktakishvili: *Limnocardium* (*Euxinocardium*) *paululum* Ebers. ••1987 Taktakishvili: *Euxinocardium paululum*.

***paupera*** Papaianopol, 1989. – *Pachyadna paupera* Papaianopol, 1989. *Lymnocardiiidae*. Pliocene. TYPE LOCALITY. Bassin Dacique, Romania. RECORDS. ••1984 ZR: *Prosodacna* (*Prosodacna*) *paupera* sp. nov. Romania, Pliocene. Ref. to Papaianopol p. 98. ••1989 Papaianopol, p. 78, fig.: *Pachyadna* (*Pachyadna*) *paupera* sp. nov.

***pauperulum*** Meek, 1871. – *Pleuriocardia pauperulum* (Meek, 1871). *Cardiidae*. Fossil. RECORDS. ••1978 ZR: *Cardium pauperulum* Meek, 1871 designated type species for new subgenus *Pleuriocardia* (*Dochmocardia*). Ref. to Scott p. 894. ••1987 Geary: The transformation from *Pleuriocardia subcurtum* to *Pleuriocardia pauperulum* is fairly abrupt. ••1995 Schneider: *Pleuriocardia* (*Dochmocardia*) *pauperula* (Meek, 1871). Type species of *Pleuriocardia* (*Dochmocardia*).

***pauperulum*** Yokoyama, 1923. – *Serripes nodai* Kafanov, 1980 new name. OTHER JUDGEMENTS: *Serripes groenlandicus* (Bruguière, 1789). >> Regarding *Cardium pauperulum*: *Cardiidae*. Miocene, Pliocene and Recent. TYPE LOCALITY. Japan, Lower Miocene to Upper Pliocene. RECORDS. ••1923 Yokoyama, p. 6, pl. 1, fig. 2: *Cardium pauperulum* n. sp. ••1923 ZR: *Cardium pauperulum* Yokoyama, 1923 sp. n. Neogene Japan. ••1925 Yokoyama: *Cardium pauperulum* Yokoyama, 1923, not Meek, 1872 (*fide* Noda 1962) = *Serripes groenlandicus* (Bruguière, 1789). ••1980 ZR: *Cardium pauperulum* Yokoyama 1923. Removal from synonymy with *Serripes groenlandicus* (Bruguière 1789). Ref. to Kafanov. ••1980 ZR: *Cardium pauperulum* Yokoyama 1923. Preoccupied name, replaced by *Serripes nodai*. Ref. to Kafanov, p. 319.

***pauperulum jacksoni*** (subspecies). – *Pleuriocardia pauperulum jacksoni*. *Cardiidae*. Fossil. RECORDS. ••1987 Geary: *Pleuriocardia pauperulum jacksoni*.

***paucicostatum*** (error). – Printer’s mistake for *paucicostatum* in Glibert & Poel 1970.

***pavlinovi*** (variety). – See under *andrussovi pavlinovi* Zhizhenko, 1961.

***paxfordensis*** Cox, 1946. – *Tutcheria paxfordensis* Cox, 1946. *Cardiacea*. Lower Lias. RECORDS. ••194. ZR: *Tutcheria paxfordensis* Cox, 1946. sp. nov. Lower Lias of Paxford brickyard 3 1/2 m, N.N.W. of Moreton-in-the-Marsh, Glos.

***paziana*** (mode). – See under *pazianum* Dall, 1917. ***pazianum*** Dall, 1917. – Changed combination: *Nemocardium pazianum* (Dall, 1917). OTHER JUDGEMENTS: ?*Protocardia panamensis* Dall, 1908. >> Regarding *Protocardia paziana*: *Cardiidae*. Recent. TYPE LOCALITY.

••1917 Dall: Off la Paz, Gulf of California in 10 fathoms. TYPE REPOSITORY. Hypotype USNM Cat. No. 211618. Calf. Acad. Sci. Paleo. Type Coll. ••1947 Hertlein & Strong: left & right valves, Santa Inez Bay, east coast of Lower California, in 10–15 fathoms (18–27 m), Plate 1, figs. 9, 12, 15. RECORDS. ••1916 ZR: *Protocardia paziana* Dall, 1916 sp. n. N.W. America. ••1917 Dall, p. 412: *Protocardia paziana* n. sp. resembling *Protocardia panamensis* Dall. ••1947 Hertlein & Strong: *Cardium (Microcardium) pazianum* = ? *Protocardia panamensis* Dall, 1908. ••1957 Emerson & Puffer: *Cardium (Microcardium) pazianum* Dall, 1916. ••1958 Keen: *Nemocardium pazianum*. ••1960 Shasky: *Nemocardium pazianum* Dall. ••1961 Olsson: *Microcardium pazianum*. ••1964 Parker: *Nemocardium (Microcardium) pazianum* (Dall, 1916). ••1967 Dushane & Poorman: *Nemocardium pazianum* Dall. ••1971 Keen: *Nemocardium pazianum* Dall. ••1971 Keen & McLean: *Nemocardium (Microcardium) pazianum* (Dall, 1916). ••1974 Abbott: *Nemocardium (Microcardium) pazianum* (Dall, 1916). ••1977 Fischer-Piette: *Nemocardium pazianum* Dall. ••1977 Popov: *Pratulium pazianum* (Dall, 1916). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: Gulf of California, 64 m sand, 61 m sand, 73 m shelly sand, 61 m shelly sand, 92–119 m silty clay, 46–57 m sand, 33 m sand. CHARACTERS of diagnostic value: shell about as high as long; various ribs on posterior area with strong scales only. DESCRIPTIONS. ••1917 Dall: shell small and delicate, resembling *P. panamensis* Dall, but smaller, more delicate, more elongated, and with the spinose posterior sculpture much more prominent when preserved intact; sculpture of about 40 anterior minutely nodulous ribs, each giving the effect of a string of beads, and to the interspaces of punctuation; there are about 22 ribs on the posterior area, which, when intact, carry close-set spinules; the inner margins are sharply serrate; the hinge margin near the umbones has a tinge of crimson, otherwise the shell is yellowish white. ••1947 Hertlein & Strong: shell thin, rounded, posteriorly somewhat obliquely produced and subtruncated; the anterior area ornamented by about 40 fine ribs which are finely nodulous where the concentric crosses the radial sculpture; posterior area with about 22 ribs which are minutely scaled, but interspersed in this series there are 6 with comparatively large scales; the colour of the shell is yellowish–white, some specimens entirely so, but are ornamented by vivid red and orange interiorly toward the hinge and occasionally there is exteriorly a narrow concentric band which is tinged with this colour. DIMENSIONS. ••1917 Dall: length 10, height 8.6, diameter 6 mm. ••1947 Hertlein & Strong: about 15 mm, both in height and length. ••1971 Keen: fairly abundant in deep water but has never been taken ashore. It is sculptured with some 60 fine ribs, the posterior ribs bearing fine scales. The color is yellowish white to red or orange, uniformly or in bands. Length and height, about 15 mm. REMARKS. This species is very close to *Protocardia panamensis* Dall, 1908, a Panamanian species which was described as possessing a shorter shell with about 33 ribs and the interior white and polished. ••1947: Hertlein & Strong doubted whether *C. pazianum* is really distinct from *Protocardia*

*panamensis*. DISTRIBUTION. ••1971 Keen & McLean: Cedros Island, Gulf of California to Panama. HABITAT. ••ZMUC: Sand, shelly sand, silty clay 33–119 m depth. DISTRIBUTION. Gulf of California.

**pecteniforme** (error). – Printer's mistake for *pectiniforme* in Wood and other authors.

\***pectinatum**. – Homonymy to be noticed. *Cardium pectinatum* from 8 sources: Linné, 1758. – Born 1778 – Lamarck, 1819. – Klöden, 1834. – Tausch, 1884. – Yales & Bean (?year). – Goldfuss in Decken (?year). – Hoernes (?year).

**pectinatum** Born 1778. – Identical with *Cardium pectiniforme* Born, 1780. >> Regarding *C. pectinatum*: Cardiidae. Recent. RECORDS. ••1778 Born, G17. *Cardium pectinatum* Ref to Mus. Caes. Vindobon. ••1780 Born: *Cardium pectinatum* in Born 1778 = *Cardium pectiniforme* Born, 1780.

**pectinatum** Bruguière. – Identical with *Lyrocardium pectinatum* (Linné, 1758). >> Regarding *Cardium pectinatum*: RECORDS. ••1844 Potiez & Michaud: *Cardium pectinatum* Brug. = *Cardium aeolicum* Born.

**pectinatum** Goldfuss in Decken. – Unknown species. >> Regarding *Cardium pectinatum*: Fossil. RECORDS. ••1857 Deshayes: *Cardium pectinatum* Goldf. in Decken. Spec. incogn.

**pectinatum** Hoernes. – Synonym of *Divaricardium aquitanicum* Mayer. >> Regarding *Cardium pectinatum*: Cardiidae. Fossil. RECORDS. ••1886 Dollfus & Dautzenberg: *C. pectinatum* Hoernes = *Cardium (Divaricardium) aquitanicum* Mayer.

**pectinatum** Klöden, 1834. – Name replaced: "*Cardium kloedeni*" Deshayes. >> Regarding *Cardium pectinatum*: Cardiidae. Fossil. RECORDS. ••1857 Deshayes: *Cardium pectinatum* Klöden – *C. kloedeni* Desh. ••1922–32 Sherborn, p. 4802: *Cardium pectinatum* Kloeden, 1834.

**pectinatum** Lamarck, 1819. [Figs. Part 3 p. 850]. – Synonym of *Cerastoderma edule* (Linné, 1758). OTHER JUDGEMENTS: *Lyrocardium lyratum* (Sowerby, 1834). – Erroneous ID of *Lyrocardium lyratum* by Melvill & Sykes (1898). Their material was collected at the Andaman Islands. – *Cardium pectiniforme* Born. >> Regarding *Cardium pectinatum*: Cardiidae. Recent. RECORDS. ••1819 Lamarck, p. 12: *Cardium pectinatum*. ••1836 Philippi: *Cardium pectinatum* Lamk. ?. ••1853 Doublier: *Cardium pectinatum* Lamarck. ••1839 Anton: *Cardium pectinatum* ? Lam (non Linn.) = ? *C. pectiniforme* Born. ••1856 Wood & Hanley: *C. pectinatum* Lam. = *Cardium edule* Lin. ••1857 Deshayes: *Cardium pectinatum* Lamarck, 1818 sic – *C. edule*?. ••1866 Brusina: *Cardium pectinatum* Lamarck. ••1867 Weinkauff: *Cardium pectinatum* Lamarck = *Cardium edule* Linné. ••1867 Weinkauff: *Cardium pectinatum* sic Philippi = *Cardium edule* Linné. ••1868 ZR: *Cardium pectinatum* (L.) probably not = *aeolicum* (Born) [Ref. Römer 1868]. ••1869 ZR: Section, subtypical – 3. Lyrasculptae: *pectinata* (L.) and *lyrata* (Sow.) [Ref. Graham–Ponton 1869]. ••1869 Römer: *Cardium pectinatum* Lamarck = *Cardium edule* L. ••1880 Stossich: *Cardium pectinatum*, in Philippi. 1836 = *Cardium edule* Linné. ••1886 Locard: *Cardium pectinatum*, de Lamarck, 1818 = *Cardium edule*, Linné, 1767. ••1887 Hoyle: *Cardium pectinatum* Lamarck. ••1888 Kobelt: *Cardium pectinatum* Lam. = *Cardium*

**pectinatum – pectiniforme**

- edule* Linné. •1890 Paetel: *Cardium pectinatum* Lm. = *edule* L. •1891 Danilo & Sandri: *Cardium pectinatum* Lam. •1898 Melvill & Sykes: *Laevicardium pectinatum* Lamarck = *Lyrocardium lyratum* [cited from Fischer–Piette 1977]. •1902 Dollfus & Dautzenberg: *Cardium pectinatum* Lamarck, 1819 (non Linné) = *Cardium (Cerastoderma) edule* Linné, 1758. •1945 ZR: *Cardium pectinatum* Lk. (non L.) [Ref. Lamy 1945]. •1977 Fischer–Piette: *Cardium pectinatum* Lamarck = *Cardium edule* Linné.
- pectinatum** Linné, 1758. [Figs. Part 1 p. 75, 125. Part 3 p. 899]. – *Lyrocardium pectinatum* (Linné, 1758). OTHER JUDGEMENTS: *Lyrocardium aeolicum* (Born, 1780). – *Nomen dubium*. – Valid species. >> Regarding *C. pectinatum*: Cardiidae. Tertiary and Recent. TYPE LOCALITY. Mediterranean (Linné 1758), Guinea (Spengler 1799); unknown (Reeve 1844). RECORDS. •1742 Gualtieri. ID by Linnaeus 1758: *Cardium pectinatum* t. 75. f. A. •1758 Linné, p. 681, No. 79: *Cardium pectinatum*. •1764 Linné, p. 492, No. 47: *Cardium pectinatum*. •1767 Linné, p. 1124, No. 92: *Cardium pectinatum*. •1771 Knorr: *Cardium pectinatum* (fide Spengler 1799). •1782 Chemnitz: *Cardium pectinatum*. •1786 Schröter, No. XX: *Cardium pectinatum* Linn. XII. pag. 1124. Spec. 92. •1788 Schröter: *Cardium pectinatum* [Reference to Chemnitz (1782) vol. VII, fig. 30, and fig. 188]. •1789 Bruguière, No. 18. *Cardium pectinatum* Linn. •1791 Gmelin No. 24: *Cardium pectinatum*. •1799 Spengler: *Cardium pectinatum* Linné Sp. 92. p.1124 (from the coast of Guinea). •1802 Bosc: *Cardium pectinatum*. •1807 Fischer: *Cardium pectinatum*. •1815 Wood: *Cardium pectinatum* Linn. Gmel. •1817 Dillwyn: *Cardium pectinatum* Linnaeus. •1817 Dillwyn: Linnaeus, for *Cardium pectinatum*, has erroneously referred to Gualtieri. t. 75, f. A. which is *Venus pectinata*. •1823 Dillwyn, Tab. 314 fig. 150: *Cardium pectinatum*. •1836 Bosc: *Cardium pectinatum*. •1844 Philippi: *Cardium pectinatum* = *Cardium edule* L. [fossil]. •1844 Reeve, species 14: *Cardium pectinatum* Linnaeus (not of Lamarck, nor Philippi), Mus. Ulric. Deshayes, note in new edition of Lamarck, vol. vi. p. 404. •1853 Menke: *Cardium pectinatum* L. = *C. aeolicum* Born, 1780. •1857 Deshayes: *Cardium pectinatum* Linné, 1780 sic. •1858 Adams & Adams, p. 457: *Laevicardium pectinatum* Linn. •1864 Mayer: *Cardium pectinatum*. Linné. [Tertiary]. •1877 Marrat: *Cardium (Laevicardium) pectinatum* L. •1884 Grasset: *Laevicardium pectinatum* L. •1899 Sacco: *Discors pectinatus* (L.) [Recent]. •1902 Dollfus & Dautzenberg: *C. pectinatum* Linné = *C. aeolicum* Born. •1902 Sherborn, p. 724: *Cardium pectinatum* Linnaeus, 1758. •1906 Dautzenberg & Fischer: *Cardium pectinatum* Linné. •1952 Dawydoff: *Laevicardium pectinatum* Linné. •1952 Dodge: *Cardium pectinatum* = species insufficiently known. •1977 Fischer–Piette: *Cardium pectinatum* L. = *C. aeolicum* Born, 1780. •1977 Wilson & Stevenson: *Lyrocardia pectinatum* (Linnaeus, 1758) (= *aeolicum* Born, 1778). •1989 Voskuil & Onverwagt: *Cardium pectinatum* Linnaeus, 1758; nomen dubium. •1998 Poutiers: *Cardium pectiniforme* Born, 1780. •1999 Higo et al.: *Cardium pectiniforme* Born, 1780 = *Acrosterigma (Regozara) flava* (Linnaeus, 1758).
- 2003 Hylleberg & Kilburn, p. 183: *Lyrocardium pectinatum* (Linnaeus, 1758). West African species. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1799 Spengler: *testa subcordata pectinata*. •1799 Spengler: posteriorly, one half of the ribs set with elevated stripes. The other half transversally covered with folds which, like the scales, are arranged from below upwards, i.e. an angular pattern of stripes or folds. •1844 Reeve: shell gibbously globose, radiately striated, striae numerous, close-set, the posterior elevated, the anterior somewhat obsolete and obliquely crossed with narrow slightly wrinkled plaits, the extreme posterior area of the shell smooth; white, everywhere painted with waved pink spots. DIMENSIONS. •1799 Spengler: length: 47 mm (1.75 Tom.), width 44 mm (1 Tom. 8 Lin.). REMARKS. Linnaeus has created confusion because he gave reference to *Venus pectinata* in Gualtieri (1742), pl. 72, fig. A. However, the shell of *Cardium pectinata* is so characteristic that mistake is impossible (Spengler 1799). Furthermore, following Deshayes, Reeve 1844 restored the Linnaean name *Cardium pectinatum* as a senior synonym of *Cardium aeolicum* Born, 1780. This restoration was correct, but has not been observed by most modern authors. •1884 Tausch: *Cardium pectinatum* Linné is also known from the “Wiener Becken” [Tertiary]. DISTRIBUTION. •1799 Spengler: Guinea [West Africa]. •1865 Reibisch: Mediterranean. •1884 Grasset: Gabon. •1906 Dautzenberg & Fischer: Indian Ocean.
- pectinatum** Menke 1853. – Misidentification of *Lyrocardium pectinatum* (Linné, 1758). Cardiidae. Recent. RECORDS. •1901 Dall: *Cardium pectinatum* (Linnaeus) Menke from St. Vincent of the Cap Verde Islands. •1906 Dautzenberg & Fischer: *Cardium pectinatum* Menke 1853, not Linné 1758 = *Cardium (Discors) aeolicum* Born.
- pectinatum** of Philippi. – Misidentification of *Cerastoderma edule* (Linné). Cardiidae. Recent. RECORDS. •1917 Hidalgo: *Cardium pectinatum* in Philippi = *Cardium edule* Linné.
- pectinatum** Tausch, 1884. – Misidentification of *Lyrocardium pectinatum* (Linné, 1758). Cardiidae. Recent. RECORDS. •1906 Dautzenberg & Fischer: *Cardium pectinatum* Tausch, 1884, not Linné 1758 = *Cardium (Discors) aeolicum* Born.
- pectinatum** Wood. – Not a cardiid. >> Regarding *Cytherea pectinatum*: identical with *C. gibba*, Lam.; *Circe* g. Sow. Red Sea; Philippines (Wood & Hanley 1856). RECORDS. •1856 Wood & Hanley, No. 30: *Cytherea pectinatum* Wood (not Lin. nor Lam.).
- pectinatum** Yales & Bean. – Replaced by *Cardium truncatum* Sowerby. >> Regarding *Cardium pectinatum*: Cardiidae. Fossil. RECORDS. •1857 Deshayes: *Cardium pectinatum* Yales et Bean – *C. truncatum* Sow.
- \*pectiniforme**. – Homonymy to be noticed. *Cardium pectiniforme* from 5 sources: Born, 1780. – Bosc in Buffon, 1801. – Megerle, 1811. – Wood, 1815. – Müller, 1859.
- pectiniforme** Born, 1780. [Figs. Part 1 p. 48, 67, 89. Part 3 p. 863, and inside of front cover]. – *Vasticardium pectiniforme* (Born, 1780). OTHER JUDGEMENTS: *Cardium magnum* var. *gamma* Gmelin, 1791. – *Cardium flavum* Linnaeus, 1758. >> Regarding *C.*

*pectiniforme – pedelayense*

- pectiniforme*: Cardiidae. Recent. RECORDS. ••1780 Born, p. 49, pl. 3, fig. 9: *Cardium pectiniforme*. ••1782 Chemnitz, Tab. 17 Fig. 180: *Cardium pectiniforme* Bornii. ••1788 Schröter: *Cardium pectiniforme*. [Reference to Chemnitz (1782) fig. 188, sic should be fig. 178]. ••1789 Bruguière, No. 23. *Cardium pectiniforme*; Born. ••1789 Bruguière: *Cardium pectiniforme* Bornii; Martini, tom. 6. pag. 188, tab. 17, fig. 180. ••1815 Wood: *Cardium pectiniforme* Born. ••1817 Dillwyn: *Cardium pectiniforme* Born. ••1828 Wood: *Cardium pectiniforme* sic Born. ••1840 Pfeiffer: Chemnitz Fig. 180. *Cardium pectiniforme* Bornii = *Cardium magnum gamma* Gm. 16. ••1856 Wood & Hanley, No. 37: *Cardium pectiniforme* Born, T. Caes. 49, pl. 3, f. 10. ••1869 Römer: *Cardium pectiniforme* Bornii Chemnitz (juvenile) = *C. flavum* L. ••1878 Brauer: *Cardium pectiniforme* Born. ••1889 ZR: *Cardium pectiniforme* with fig. [ref. Holzapfel]. ••1891 Fischer: *Cardium pectiniforme* Born. ••1903 Hidalgo: *Cardium pectiniforme* Born = *Cardium flavum* Linné, 1758. ••1929 Dautzenberg: *Cardium pectiniforme* Born. ••1932 Dautzenberg: *Cardium pectiniforme* Born. ••1932 Prashad: *Cardium pectiniforme* Born, 1780. ••1937 Serène: *Cardium pectiniforme* Born. ••1939 Adam & Leloup: *Cardium pectiniforme* Bornii Chemnitz = *Laevicardium (Trachycardium) flavum* (Linné 1758). ••1955 Rost & Soot-Ryen: *Trachycardium pectiniforme* Born, 1780. ••1956 ZR: *Trachycardium pectiniforme* sic Born, new to Seychelles [Ref. Rost & Soot-Ryen 1956]. ••1961 Salvat: *Cardium pectiniforme* Born. ••1974 Barnard: *Cardium pectiniforme* in Dautzenberg 1929 = *Cardium flavum*. ••1977 Fischer-Piette: *Trachycardium pectiniforme* (Born, 1780) = *Laevicardium flavum* Linné auctorum. ••1990 Abbott & Dance: *Trachycardium pectiniforme*. ••1991 Voskuil & Onverwagt p. 58: *Trachycardium pectiniforme* (Born, 1780). ••1997 Vidal: *Vasticardium pectiniforme* (Born, 1780). ••1999 Vidal, p. 354: *Cardium pectiniforme* Born, 1780 is senior syn. of *Vasticardium rugosum* (Lamarck, 1819). ••2000 Hylleberg, p. 532: *Vasticardium pectiniforme* (Born, 1780). ••2001 Vidal, p. 407: *Vasticardium pectiniforme*. ••2002 Hylleberg & Kilburn, p. 64: *Vasticardium pectiniforme* (Born, 1778). ••2003 Hylleberg & Kilburn, p. 185, Plate 4, figs. 15 a,b,c: *Vasticardium pectiniforme* (Born, 1778). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••2001 Vidal: tentacles numerous. No eyes on tentacles. REMARKS. The synonymy suggested by Prashad (1932) is erroneous, maybe caused by a printer's error in Explicatio Tabularum (Table of Contents), Born (1780). Table III fig. 9 is listed as *Cardium pectiniforme*, which is correct on the Plate. However, *Cardium flavum* has No. 7 in the Table, but No. 10 on the Plate. DISTRIBUTION. ••1856 Wood & Hanley: unknown. ••1991 Voskuil & Onverwagt, ••1994 Hylleberg: Red Sea, Indo-West Pacific. ••2000 Hylleberg: Vietnam and Cambodia. ••2002 Hylleberg & Kilburn: South India. ••2003 Hylleberg & Kilburn: Vietnam.
- pectiniforme* Bosc in Buffon, 1801. – Combination to be revised: "*Cardium*" *pectiniforme* Bosc in Buffon, 1801. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 4805: *Cardium pectiniforme* Bosc in Buffon, 1801. *pectiniforme* Megerle, 1811. – Combination to be revised: "*Cardium*" *pectiniforme* Megerle, 1811. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 4805: *Cardium pectiniforme* Megerle, 1811.
- pectiniforme* Müller, 1859. – Combination to be revised: "*Cardium*" *pectiniforme* J. Müller, 1859. Cardiidae. Cretaceous. RECORDS. ••1871 Stoliczka: *Cardium pectiniforme* Müller (Stoliczka: unfamiliar species). ••1980 Ruhoff: *Cardium pectiniforme* J. Müller, 1859, p. 29.
- pectiniforme* Wood, 1815. – Combination to be revised: "*Cardium*" *pectiniforme* Wood, 1815. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 4805: *Cardium pectiniforme* Wood, 1815.
- pectinioides* Link, 1807. – Combination to be revised: "*Cardium*" *pectinioides* Link, 1807. Cardiidae. ?Fossil. RECORDS. ••1922-32 Sherborn, p. 4805: *Cardium pectinioides* Link, 1807.
- pectinoideum* O.G. Costa, 1846. – Combination to be revised: "*Cardium*" *pectinoideum* O.G. Costa, 1846. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 4806: *Cardium pectinoideum* O.G. Costa, 1846.
- pectunculoides* d'Archiac & Verneuil, 1842. – Combination to be revised: "*Cardium*" *pectunculoides* d'Archiac & Verneuil, 1842. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 4810: *Cardium pectunculoides* d'Archiac & Verneuil, 1842.
- Pectunculus** Adanson (genus). *Non* binominal. – Not available. >> Regarding *Pectunculus*: Cardiidae. Fossil and Recent. RECORDS. ••1857 Deshayes: *Pectunculus* in Belon, Lister, Petiver, Rumphius, Adanson, Martini [authors not available]: syn. of *Cardium*. ••1876 Meek: *Cardium asiaticum* Lam. regarded as genotype of *Pectunculus* (Adanson), Stoliczka. ••1847 Gray, No. 557: *Pectunculus*, Adans. [synonym of *Cardium*, Linn]. ••1858 Adams & Adams: Sub-gen. *Pectunculus* Adanson. ••1869 ZR: subgenus *Pectunculus* (Adanson, Mörch), type *Cardium asiaticum* (Brug.) [Ref. Römer 1869]. ••1876 Meek: *Pectunculus* (Adanson), Stoliczka, 1870 (as a subgenus of *Cardium*). Synonym of Cardiidae. ••1980 Vokes: *Pectunculus* (ex Adanson) Mörch, 1853 [non Da Costa, 1778 (Veneridae)]. ••1980 Vokes: *Pectunculus* (genus) "Adanson" Stoliczka, 1870 [non Da Costa, 1778 (Veneridae)].
- Pectunculus** Adanson (subgenus). *Non* binominal. – Not available. RECORDS. ••1871 Stoliczka: (*Pectunculus*) Adanson. Type species *Cardium asiaticum*.
- Pectunculus** Mart. (genus). *Non* binominal. Not available. – Synonym of *Trachycardium*. >> Regarding *Pectunculus*: Cardiidae. Fossil and Recent. RECORDS. ••1858 Adams & Adams: subgenus *Pectunculus* Mart., not Adanson is a synonym = subgenus *Trachycardium*, Mörch.
- Pectunculus** Paetel, 1875 (genus). – *Nomen nudum*. RECORDS. ••1980. Vokes: *Pectunculus* "Romer" Paetel, 1875 [n.n.]. In subfamily Cardiinae.
- peculiare* – *Conocardium peculiare*. Conocardiidae. Fossil. RECORDS. ••1960 ZR: *Conocardium peculiare* [Ref. Branson 1960a].
- pedelayense* Cossmann, 1921. – Changed combination: *Fragum pedelayense* (Cossmann, 1921). Cardiidae. Eocene. RECORDS. ••1922 ZR: *Cardium (Parvicardium) pedelayense* Cossmann, 1922 sp. n. Eocene. ••1977 Popov: *Fragum (Fragum) pedelayense* (Cossmann, 1921).



**pedernale – peraltaensis**

**pedernale** Bonn, 1852. – Changed combination: *Protocardium pedernale* (Bonn, 1852). *Cardiidae*. Fossil. RECORDS. •1871 Stoliczka: *Cardium pedernale* Bonn sic, 1852 (*Protocardium*).

**pedernalense** Pilsbry & Olsson, 1941. – Synonym of *Laevicardium substriatum* (Conrad, 1837). >> Regarding *Laevicardium pedernalense*: *Cardiidae*. Pliocene. RECORDS. •1941 Pilsbry & Olsson, pp. 10, 60 (pl. 14, fig. 2): *Laevicardium pedernalense* new species. •1941 ZR: *Laevicardium pedernalense* Pilsbry & Olsson, 1941 sp. n. Pliocene, Jama formation, Puerto Jama, Western Ecuador. •1977 Popov: *Laevicardium pedernalense* (Pilsbry & Olsson, 1941). •2000 Coan et al.: *Laevicardium pedernalense* Pilsbry & Olsson, 1941 = *Laevicardium substriatum* (Conrad, 1837).

**pedernalis** Roemer, 1849. – *Nomina oblita*. >> Regarding *Cardium pedernalis*: *Cardiidae*. Cretaceous. TYPE LOCALITY. Cretaceous of Texas. RECORDS. •1922-32 Sherborn, p. 4811: *Cardium pedernalis* C.F. Roemer, 1849. •1986 Scott: *Cardium pedernalis* Roemer (1849) considered *nomina oblita*.

**pectinatum** (error). – Printer's mistake for *pectinatum* in Weinkauff 1867.

**pelagi** – Combination to be revised: "*Cardium*" *pelagi*. *Cardiidae*. Cretaceous. RECORDS. •1871 Stoliczka: *Cardium pelagi* (*Laevicardium*).

**pellati** Loriol in Loriol & Pellat, 1867. – Combination to be revised: "*Cardium*" *pellati* Loriol in Loriol & Pellat, 1867. ?*Cardiidae*. Lias and Jurassic. RECORDS. •1980 Ruhoff: *Cardium pellati* Loriol in Loriol & Pellat, 1867; vol. 19: 58, pl. 6, figs. 1–2. •1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium pellati* de Loriol. Portlandien. France (Pas de Calais), S05323.

**pellucidum** Schroeter, 1802. – Combination to be revised: "*Cardium*" *pellucidum* Schroeter, 1802. ?*Cardiidae*. Fossil. RECORDS. •1922-32 Sherborn, p. 4824: *Cardium pellucidum* Schroeter, 1802.

**pelonatense** Cossmann & Peyrot, 1911. Changed combination: *Acanthocardia pelonatense* (Cossmann & Peyrot, 1911). *Cardiidae*. Fossil. RECORDS. •1902 Dollfus & Dautzenberg: *Cardium pelonatense* Cossmann & Peyrot. •1911 ZR: *Cardium pelonatense* Cossmann & Peyrot, 1911 sp. n. France Neogene. •1977 Popov: *Acanthocardia* (*Acanthocardia*) *pelouatensis* sic (Cossmann & Peyrot, 1911).

**pelouatensis** (error). – Printer's mistake for *pelonatense* in Popov 1977.

**pelzelni** Brusina. – New combination: *Lymnocardium pelzelni* (Brus.). *Lymnocardiidae*. Fossil. RECORDS. •1987 Taktakishvili: *Limnocardium pelzelni* (Brus.)

**pendens** Cragin, 1893. – Changed combination: *Granocardium pendens* (Cragin, 1893). *Cardiidae*. Cretaceous. RECORDS. •1978 Scott: *Protocardia pendens* Cragin, 1893. •1978 Scott: *Granocardium* (*Granocardium*) *pendens* (Cragin, 1893). •1978 ZR: *Granocardium* (*Granocardium*) *pendens* (Cragin 1893) Description. Ref. to Scott p. 897.

**penderense** Stephenson, 1923. – Combination to be revised: "*Cardium*" *penderense* Stephenson, 1923. *Cardiidae*. Cretaceous. RECORDS. •1923 ZR: *Cardium penderense* Stephenson, 1923 sp. n. Cretaceous U.S.A.

**pennantii** Beck, 1842. [Figs. Part 1 p. 132]. – Synonym of *Laevicardium crassum* (Gmelin, 1791). OTHER

JUDGEMENTS: *Laevicardium laevigatum* (Pennant). – *Laevicardium norvegicum* (Spengler 1799), both synonyms of *Laevicardium crassum*. >> Regarding *Cardium pennantii*: *Cardiidae*. Recent. TYPE REPOSITORY. 3 syntypes. 1978130. BMNH London. TYPE LOCALITY. Exmouth, Devon, Britain (Reeve 1845). RECORDS. •1842 Beck: *Cardium pennantii*. •1844 Reeve, species 48: *Cardium pennantii* Beck, MSS., H. M. The King of Denmark's Museum. •1846 Lovén: "*Cardium pennanti* Beck", Reeve = *Cardium norvegicum* Spengl. •1856 Wood & Hanley: *C. pennantii* Reeve I. Car. f. 48 = *Cardium laevigatum* Penn. •1858 Adams & Adams, p. 457: *Laevicardium pennantii* Beck. •1859 Sowerby: *C. Pennantii* = *Cardium norvegicum* Spengler. •1867 Mitchell: *Cardium pennantii* Beck = *Laevicardium crassum* Gmelin in Fischer-Piette (1977, p.12). •1867 Hidalgo: *Cardium pennantii*, Reeve = *Cardium norvegicum* Spengler. •1867 Weinkauff: *Cardium Pennanti* sic Reeve = *Cardium norvegicum* sic Spengler. •1868 ZR: *Cardium pennanti* and *oblongum* of Reeve to be distinguished from the Mediterranean *oblongum* (Chemn.) = *flavum* (Born) = *sulcatum* (Lam.) [Ref. Römer 1868]. •1869 Römer: *Cardium Pennanti* Reeve fig. 48 = *Cardium norvegicum* Spengler. •1888 Kobelt: *Cardium Pennanti* Reeve = *Cardium norvegicum* Spengler. •1890 Hidalgo: *Cardium pennantii* Reeve = *Cardium norvegicum* Spengler. •1890 Paetel: *Cardium pennanti* Bk. = *norvegicum* Spglr. •1912 Dautzenberg & Fischer: *Cardium pennanti* Beck, Reeve 1844 = *Cardium* (*Laevicardium*) *norvegicum* Spengler 1799. •1917 Hidalgo: *Cardium pennanti* Reeve = *Cardium norvegicum* Spengler. •1922-32 Sherborn, p. 4833: *Cardium pennantii* Reeve (ex Beck MS), 1844. •1977 Fischer-Piette, p. 12: *Cardium pennantii* (Beck ms.) = *Laevicardium crassum* Gmelin. – CHARACTERS AND OCCURRENCE – DESCRIPTION. •1844 Reeve: shell depressly cordate, rather oblique, very inequilateral, radiately very faintly grooved, posterior area smooth; dirty yellowish colour covered with a thin smooth earthy epidermis, interior white. REMARKS. •1844 Reeve: The grooves of this species, which has been confounded with the *C. laevigatum*, are almost obsolete. HABITAT. •1844 Reeve: found in sandy mud in deep water. DISTRIBUTION. •1844 Reeve: Hab. Exmouth, Devon.

**pennantii** Reeve 1844. [Figs. Part 3 p. 930]. – See under *pennantii* Beck, 1842.

**penslii** Fuchs, 1870. – Changed combination: *Pannonicardium penslii* (Fuchs, 1870). *Lymnocardiidae*. Fossil. RECORDS. •1970 Glibert & Poel: *Limnocardium penslii* (Fuchs, 1870). •1987 Taktakishvili: *Limnocardium penslii* (Fuchs). •1987 Taktakishvili: *Pannonicardium penslii*.

**penslii patrulei** (subspecies). – *Pannonicardium penslii patrulei*. *Lymnocardiidae*. Fossil. RECORDS. •1987 Taktakishvili: *Pannonicardium penslii patrulei*.

**pentagonalis** (subspecies). – See under *planum pentagonalis* Huica, 1977.

**peraltaensis** Fürsich & Werner, 1985. – *Protocardia peraltaensis* Fürsich & Werner, 1985. *Cardiidae*. Upper Jurassic. TYPE LOCALITY. Portugal. RECORDS. •1985 Fürsich & Werner, p. 440, figs. 1c–e, 3, 4d: *Protocardia* (*Protocardia*) *peraltaensis* n. sp. •1985 ZR:

*peramabile* – *peregrinum*

*Protocardia (Protocardia) peraltaensis* Fursich *et al.*, 1985 sp. nov. Portugal, Upper Jurassic. Ref. to Fursich *et al.* p. 440.

*peramabile* (mode). – See under *peramabiles*.

*peramabilis* Dall, 1881. – *Microcardium peramabilis* (Dall, 1881). Cardiidae. Recent. Type species of (*Microcardium*) Thiele, 1934 raised to generic level. TYPE LOCALITY. Off Yucatan. RECORDS. •1881 Dall, p. 132–133: *Cardium (Fulvia) peramabilis* n. s. •1881 ZR: *Cardium (Fulvia) peramabilis*, sp. n., Dall, 1881. Florida and Barbados, 54–111 fath. •1882 Verrill: *Cardium peramabilis* Dall. •1884 Verrill: *Cardium peramabilis* Dall. •1886 Dall: *Cardium (Fulvia) peramabilis* Dall. •1889 Dall: *Cardium peramabilis* Dall. •1899 Sacco: *Cardium peramabile* Dall. •1900 Dall: *Protocardia peramabilis* Dall. •1902 Dall: *Protocardia peramabilis* Dall, 1886. •1902 Dall & Simpson: *Protocardia peramabilis* Dall. = *Cardium peramabile* Dall, 1881. •1915 Johnson: *Cardium peramabilis* Dall. •1921 Maury: *Protocardia peramabilis* Dall, 1881 (as *Fulvia*). •1937 Keen: designated *Cardium peramabile* Dall, 1881 as type species of the subgenus (*Microcardium*) Thiele, 1934. Recognised at the generic level by authors. •1937 Smith, M: *Protocardia peramabilis* Dall. •1937 ZR: *Cardium (Fulvia) peramabilis* Dall 1881 (= *Cardium peramabile* Dall) here amended" [Ref. Keen 1937]. •1939 ZR: *Microcardium peramabile* fig. [Ref. McLean 1939]. •1947 Hertlein & Strong: *Cardium (Microcardium) peramabile* Dall, 1881. •1958 Abbott: *Nemocardium (Microcardium) peramabilis* Dall. •1962 Warmke & Abbott: *Microcardium peramabile* Dall, 1881. •1974 Abbott: *Nemocardium peramabile* (Dall, 1881). •1977 Popov: *Pratulium peramabilis* (Dall, 1886). •1944 ZR: *Microcardium peramabile* Dall fig. [Ref. Clench & Smith 1944]. •1995 Schneider: *Nemocardium (Microcardium) peramabilis* sic (Dall, 1881). •1997 Shelton: *Nemocardium peramabile* (Dall, 1881). •2001 Schneider & Carter: *Nemocardium (Microcardium) peramabilis* sic (Dall, 1881). Cardiidae. Recent. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1902 Dall & Simpson: shell small, slightly inequilateral, rather thin and fragile, inflated; posterior area sculptured with a great number of fine, radiating, nearly smooth ribs, the spaces between them being slightly pitted, the whole being covered with a fine epidermis, which is scaly on the ribs; the anterior 3/5 of the shell is sculptured with equally fine, radiating ribs, and these are crossed by very numerous somewhat fainter, concentric ridges, leaving the surface minutely beaded; borders of the shell delicately and sharply serrate, not gaping; within the shell the outside patterns of sculpture may be plainly seen. Colour whitish Soft body: The foot is keeled below but not serrate. DIMENSIONS. •1902 Dall & Simpson: 10 x 11 x 9 mm (McLean 1939); length 10, height 11, diameter 9 mm. REMARKS. •1921 Maury: the recent species is *Protocardia peramabilis* Dall, 1881 (as *Fulvia*). The ancestral form appears to be *Protocardia islahispaniolae* Maury, Miocene. HABITAT. •Of authors: 150 m depth. DISTRIBUTION. •Of authors: Rhode Island, West Indies, Mexico, Brazil.

*peramabilis tinctum* Dall, 1881 (subspecies). – Changed combination: *Microcardium tinctum* (Dall, 1886).

OTHER JUDGEMENTS: *Microcardium peramabilis tinctum* (Dall, 1881). >> Regarding *C. peramabilis* var. *tinctum*: Cardiidae. Recent. RECORDS. •1881 Dall: *Cardium peramabilis* var. *tinctum*. •1886 Dall: *Cardium (Fulvia) peramabile* var. *tinctum*. •1889 Dall: *Cardium peramabilis* var. *tinctum* Dall. •1901 ZR: *Cardium peramabile* var. *tinctum* Dall is a good species [Ref. Dall & Simpson 1900]. •1902 Dall & Simpson: *Cardium peramabile* var. *tinctum* Dall, 1886 = *Protocardia tincta* Dall. •1947 Hertlein & Strong: *Cardium peramabilis tinctum* Dall = *tinctum* Dall, 1886. •1951 McLean: *Microcardium peramabile* var. *tinctum* (Dall, 1886) = *Microcardium tinctum* (Dall).

*peramabilis* (error). – Printer's mistake for *peramabile* in Schneider 1995.

*perarensis* Gillet, 1970. – *Euxinocardium ? perarensis* Gillet, 1970. Lymnocypridae. Miocene. RECORDS. •1970 ZR: *Euxinocardium ? perarensis* Gillet, 1970 sp. nov. 'Montei dei Corvi' deposits, Ancona district, Italy.

*perdita* Papaianopol, 1981. – *Pontalmyra perdita* Papaianopol, 1981. Lymnocypridae. Upper Miocene and Recent. RECORDS. •1981 ZR: *Pontalmyra (Pontalmyra) perdita* Papaianopol, 1981 sp. nov. Romania. Ref. to Papaianopol, p. 36. •1987 Taktakishvili: *Pontalmyra perdita* Papaianopol.

*peregrina* Papaianopol, 1980. – *Luxuridacna peregrina* Papaianopol, 1980. Lymnocypridae. Pliocene. RECORDS. •1980 ZR: *Luxuridacna peregrina* Papaianopol, 1980 sp. nov. Romania. Ref. to Papaianopol, p. 53.

*peregrinorsa* Orbnig, 1843. – Changed combination: *Protocardia peregrinorsa* (d'Orbigny, 1843). Cardiidae. Cretaceous. RECORDS. •1842 d'Orbigny, p. 81, lam. 18, figs. 6–8: *Cardium peregrinorsa* (fide Arango & Gonzalez 1983). •1857 Deshayes: *Cardium peregrinosum* sic d'Orbigny close to *Cardium hillanum* [fossil]. •1917 ZR: *Protocardia peregrinorsa* [Ref. Douville 1917] Cretaceous. •1922–32 Sherborn, p. 4847: *Cardium peregrinosum* d'Orbigny, 1842. •1983 Arango & Gonzalez: *Protocardia peregrinorsa* d'Orbigny, 1842. •1983 Botero & Gonzalez: *Protocardia peregrinorsa* d'Orbigny, 1842. •1986 Scott: *Protocardia peregrinorsa* (d'Orbigny, 1843).

*peregrinorsa orientalis* Douville, 1917 (variety). – Upgraded. *Protocardia peregrinorsa orientalis* Douville, 1917. Cardiidae. Cretaceous. RECORDS. •1917 ZR: *Protocardia peregrinorsa orientalis* race n. Douville, 1917. Cretaceous Moghara.

*peregrinosum* (mode). – See under *peregrinorsa* Orbnig.

*peregrinosum* (error). – Printer's mistake for *peregrinorsa* in Deshayes 1857.

*peregrinum* d'Orbigny. – Combination to be revised: "*Cardium*" *peregrinum*. Cardiidae. Cretaceous. RECORDS. •1871 Stoliczka: *Cardium peregrinum* (genus *Protocardium*). •1876 Meek: *Cardium peregrinum* d'Orbigny.

*peregrinum* Eberzin, 1958. – Changed combination: *Arpadiocardium peregrinum* (Eberzin, ?1958). Lymnocypridae. Pliocene. RECORDS. •1953 Celidje: *Arpadiocardium peregrinum* Ebers. •1958 ZR: *Limnocypridium (Arpadiocardium) peregrinum* Eberzin, 1958 sp. nov. Subgenotype. Pliocene of the Ponto-

**peregrinum – perornatum**

- Caspian basin, Russia. ••1987 Taktakishvili: *Limnocardium peregrinum* Ebers. ••1987 Taktakishvili: *Arpadicardium peregrinum*.
- peregrinum** Jousseau, 1888. [Figs. Part 3 p. 864]. – Synonym of *Vasticardium pectiniforme* (Born, 1780) OTHER JUDGEMENTS: *Trachycardium flavum* (Linnaeus, 1758). – *Cardium dupuchense* Reeve. >> Regarding *Trachycardium peregrinum*: *Cardiidae* Recent. DISTRIBUTION. Indo-Pacific (Hyllberg 1994). RECORDS. ••1888 Jousseau: *Trachycardium peregrinum*. ••1888 ZR: *Trachycardium peregrinum* Jousseau, 1888 n. sp. Red Sea. ••1893 Dautzenberg: *Cardium peregrinum* Jousseau. ••1905 Anthony: *Cardium peregrinum* Jousseau. ••1909 Lamy: *Cardium peregrinum*. ••1919 Odhner: *Cardium peregrinum* Jousseau (1888) = *C. dupuchense* Reeve. ••1923 Dautzenberg: *Cardium peregrinum*. ••1927 Lamy: *Cardium peregrinum*. ••1932 Prasad: *Trachycardium peregrinum* (Jousseau, 1888) = *Trachycardium flavum* (Linné, 1758). ••1939 Adam & Leloup: *Cardium peregrinum* Jousseau = *Laevicardium* (*Trachycardium*) *flavum* (Linné 1758). ••1977 Fischer-Piette, p. 174: *Cardium peregrinum* Jousseau = *Cardium flavum* Linné. ••1992 Oliver: *Trachycardium peregrinum* (Jousseau, 1888) = *Trachycardium flavum* (Linné, 1758). ••1997 Vidal: *Trachycardium peregrinum* Jousseau, 1888 = *Vasticardium pectiniforme* (Born, 1780). ••1999 Vidal: *Trachycardium peregrinum* Jousseau, 1888 = *Vasticardium pectiniforme* (Born, 1780). ••1999 Higo *et al.*: *Trachycardium peregrinum* Jousseau, 1888 = *Acrosterigma* (*Regozara*) *flava* (Linnaeus, 1758).
- peregrinum** Papaianopol, 1982. – Changed combination: *Euxinocardium peregrinum*. *Lymnocardidae*. Pliocene. TYPE LOCALITY. Pontien et Dacien du Bassin Dacique, Romania. RECORDS. ••1982 Papaianopol, p. 207, fig.: *Limnocardium* (*Euxinocardium*) *peregrinum* sp. nov. ••1987 Taktakishvili: *Euxinocardium peregrinum* Papaian.
- perelongata** (variety). – See under *deshayesi perelongata* Kutassy, 1929.
- peresii** d'Orbigny, 1850. – Combination to be revised: "*Cardium*" *peresii* d'Orbigny, 1850. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 4849: *Cardium peresii* d'Orbigny, 1850.
- perezi** Bellardi, 1852. – Combination to be revised: "*Cardium*" *perezi* Bellardi, 1852. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium perezi* Bellardi, 1852; vol. 4: 240, pl. H (*sic* = 19), figs. 2-5.
- pereziforme** Schauroth, 1865. – Combination to be revised: "*Cardium*" *pereziforme* Schauroth, 1865. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium pereziforme* Schauroth, 1865; p. 209, pl. 18, fig. 9.
- perfecta** Chelidze, 1957. – Changed combination: *Pontalmyra perfecta* (Chelidze, 1957). *Lymnocardidae*. Pliocene. RECORDS. ••1957 ZR: *Didacna perfecta* Chelidze, 1957 sp. nov. Pliocene, River Zhuzhi, Makharadze town, Georgia, Russia. ••1987 Taktakishvili: *Pontalmyra perfecta* (Tschel.).
- perfida** (variety). – See under *ingratum perfida* Kolesnikov, 1929.
- periimaris** Maury, 1925. – *Trigoniocardia periimaris* (Maury, 1925). *Cardiidae*. Fossil. RECORDS. ••1977 Popov: *Trigoniocardia* (*Americardia*) *periimaris* (Maury, 1925).
- perincertum** Gregorio, 1930. – Combination to be revised: "*Cardium*" *perincertum* Gregorio, 1930. *Cardiidae*. Lias. RECORDS. ••1936 ZR: *Cardium perincertum* Gregorio, 1930 sp. n. Lias Palermo.
- perlonga** Kvaliashvili, 1978. – *Digressodacna perlonga* Kvaliashvili, 1978. *Lymnocardidae*. Pliocene. RECORDS. ••1978 ZR: *Digressodacna perlonga* Kvaliashvili, 1978 sp. nov. Georgia SSR. Ref. to Kvaliashvili p. 50.
- permica**. – *Cypricardinia?* *Permica*. *Cardiacea*. Upper Permian. RECORDS. ••1931 ZR: *Cypricardinia?* *permica* sp. n. Upper Permian Northern Province Russia.
- permulta** Celidje, 1953. – *Monodacna permulta* Celidje, 1953. *Lymnocardidae*. Tertiary. RECORDS. ••1953 Celidje, p. 157: *Monodacna permulta* nov. sp.
- pernimia** Kvaliashvili, 1978. – *Digressodacna pernimia* Kvaliashvili, 1978. *Lymnocardidae*. Pliocene. RECORDS. ••1978 ZR: *Digressodacna pernimia* Kvaliashvili, 1978 sp. nov. Georgia SSR. Ref. to Kvaliashvili p. 76.
- perobliquum** Koenen. – *Fragum perobliquum* Koenen. *Cardiidae*. Cretaceous. RECORDS. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Fragum perobliquum* Koenen. Senonien. Cameroun, R51368, R51369, R51552.
- perobliquum** Martin. – Combination to be revised: "*Cardium*" *perobliquum* Martin. *Cardiidae*. Miocene. RECORDS. ••1919 Martin: *Cardium perobliquum* Mart.
- perornata** (mode). – See under *perornatum* Iredale, 1929.
- perornatum** Iredale, 1929. [Part 1. Fig. p. 144. Part 3 p. 903]. – Synonym of *Ctenocardia virgo* (Reeve, 1845). OTHER JUDGEMENTS: replaced by *Fragum* (*Ctenocardia*) *perornatum* nom. nov. for *Cardium imbricatum* Sowerby. >> Regarding *Ctenocardia perornatum*: *Cardiidae*. Recent. RECORDS. ••1929 Iredale, p. 264 (pl. 30, fig. 14): *Fragum* (*Ctenocardia*) *perornatum* nom. nov. for *Cardium imbricatum* Sowerby, 1841 (*imbricatum* preoccupied by Born, 1780). ••1929 ZR: *Fragum perornatum* nom. n. for *Cardium imbricatum* Sow. [Ref. Iredale 1929b]. ••1977 Fischer-Piette: *Corculum* (*Ctenocardia*) *perornata* Iredale. ••1977 Wilson & Stevenson: *Fragum* (*Ctenocardium*) *perornata* Iredale, 1929; new name for *Cardium imbricatum* Sowerby, 1841. ••1977 Wilson & Stevenson: *Ctenocardia perornata* (Iredale, 1929). ••1992 Lamprell & Whitehead: *Ctenocardia perornata* Iredale, 1929 = *Ctenocardia virgo* Reeve, 1845. ••1994 Chung-Hung & Hsi-Jen: *Fragum perornatum* Iredale. ••1995 Chung-Hung & Hsi-Jen: *Fragum perornatum* Iredale. ••1999 Higo *et al.*: *Ctenocardia perornata* Iredale, 1929 = *Ctenocardia virgo* (Reeve, 1845). ••1999 Higo *et al.*: *Fragum perornatum* Iredale, 1929 *sensu* Bernard *et al.*, 1993 = *Ctenocardia virgo* (Reeve, 1845). ••2003 Hyllberg & Kilburn, p. 177, Pl. 2, fig. 2. *Ctenocardia perornatum* (Iredale, 1929). – CHARACTERS AND OCCURRENCE – DESCRIPTION. ••1977 Wilson & Stevenson: shell solid, inflated; umbo central, prosogyrate; shell height slightly greater than shell length. Lunule well defined, short and broad, similar in left and right valves; escutcheon poorly defined, elongate. Radial ribs strong, interstices wide and deep, each rib with a central row of prominent

*perrieri* – *pesolinum*

spines, crescent-shaped in section, concavity facing ventrally; posterior slope with numerous smaller spines, interstices anterior to umbonal keel smooth or crossed by minute crowded transverse lamellae; interstices behind keel crossed by stronger transverse lamellae which thicken and extend up over posterior ribs as closely packed V-shaped scales or ridges. Lateral, delicate, compressed, pointed scales or spinelets sometimes present on ribs. HABITAT. ••1977 Wilson & Stevenson: mud, shelly sand with sponge, sand at 2–90 m depth. ••1994 Hylleberg: Indo-Pacific. DISTRIBUTION. ••Of authors: Western Australia, Queensland, Sulu Archipelago, Philippines. ••2003 Hylleberg & Kilburn: *C. perornatum* from Quinhon, Vietnam is deposited in the Coll. Saurin at MNHN, Paris (J. Vidal).

***perrieri*** Dautzenberg & Fischer, 1897. – Synonym of *Parvicardium minimum* Philippi, 1836. >> Regarding *Cardium perrieri*: *Cardiidae*. Recent. DISTRIBUTION. Europe. RECORDS. ••1897 Dautzenberg & Fischer: *Cardium perrieri*. ••1897 ZR: *Cardium perrieri* Dautzenberg & Fischer, 1897 n. sp. N. Atlantic. ••1927 Dautzenberg: *Cardium perrieri* Dautzenberg & Fischer = *Cardium (Parvicardium) minimum* Philippi. ••1977 Fischer-Piette: *Cardium perrieri* Dautzenberg & Fischer = *Cardium minimum* Philippi. ••2001 Aartsen & Goud: *Cardium perrieri* Dautzenberg & Fischer, 1897 = *Parvicardium minimum* (Philippi, 1836).

***Persikima*** Iredale, 1937 (genus). – Tridacnidae. RECORDS. ••1937 ZR: *Persikima* Iredale, 1937 gen. n. Tridacnidae type *Persikima whitleyi* Iredale, 1937 sp. n. Middleton Reef, S. Pacific.

***Persikima*** (subgenus). – RECORDS. ••1998. Schneider: (*Persikima*) subgenus of *Tridacna*. ••1999 Higo *et al.*: *Persikima* (subgenus) Iredale, 1937. Type species: *Persikima whitleyi* Iredale, 1937 (o. d.).

***persistans*** Schwetz, 1913. – Changed combination: *Moquicardium persistans* (Schwetz, 1913). *Lymnocardidae*. Tertiary. RECORDS. ••1913 ZR: *Cardium persistans* Schwetz, 1913 sp. n. Tertiary, Kertsch. ••1987 Taktakishvili: *Cardium persistans* Schwetz (= *Prosodacna ampelakiensis* Andrus.). ••1987 Taktakishvili: *Moquicardium persistans*.

***personata*** Martyn, 1784. *Non* binominal. – Not available. Not a *cardiid*. RECORDS. ••1784 Martyn: *Cardium personata*.

***perstriatum*** Kuroda, 1928. – Synonym of *Acrosterigma transcendens* (Melvill & Standen, 1899). OTHER JUDGEMENTS: *Trachycardium “variegatum”* (Sowerby). >> Regarding *Trachycardium perstriatum*: *Cardiidae*. Fossil. TYPE MATERIAL. No data on types (Vidal 1999). DISTRIBUTION. Indo-Pacific (Hylleberg 1994). RECORDS. ••1928 Kuroda, p. 11, No. 117: *Trachycardium perstriatum* Kuroda (nov.) Short description in Japanese. ••1952 Kuroda & Habe: *perstriatum* Kuroda = *Trachycardium “variegatum”* (Sowerby). ••1977 Fischer-Piette: *Cardium perstriatum* Kuroda = *Laevicardium variegatum* Sowerby. ••1981 Koyama *et al.*: *Cardium perstriatum* Kuroda, 1928 = *Cardium (Trachycardium) transcendens* Melvill & Standen, 1899. ••1999 Higo *et al.*: *Cardium perstriatum* Kuroda, 1928 = *Acrosterigma (Vasticardium) transcendens* (Melvill & Standen, 1899). ••1999 Vidal: Kuroda 1928, p. 11 [*Fide* Habe, 1981: 111]: *Cardium perstriatum* =

*Acrosterigma transcendens* (Melvill & Standen, 1899). **\**pertenue***. – Homonymy to be noticed. *Cardium pertenuis* from 2 sources: Meek & Hayden, 1861. – Gabb, 1869.

***pertenue*** Gabb, 1869. – Combination to be revised: “*Cardium*” *pertenue* Gabb, 1870. *Cardiidae*. Tertiary. TYPE LOCALITY. Payata, Peru. RECORDS. ••1870 Gabb p. 30: *Cardium (Laevicardium) pertenuis* Gabb. ••1980 Ruhoff: *Cardium (Laevicardium) pertenuis* Gabb, 1869; vol. 5: 30.

***pertenue*** Meek & Hayden, 1861. – Changed combination: *Protocardium pertenuis*. *Cardiidae*. Cretaceous. TYPE LOCALITY. From North America. RECORDS. ••1871 Stoliczka: *Cardium pertenuis (Protocardium)* (Referred to by Meek 1864). ••1876 Meek: *Cardium pertenuis* Meek & Hayden type of (b) *Leptocardia* Meek, 1876. ••1876 Meek: *Protocardia (Leptocardia) pertenuis* Meek & Hayden, 1861. ••1970 Speden: *Cardium pertenuis* Meek & Hayden, 1861, p. 442.

***pertenuis*** (mode). – See under *pertenue*.

***pertumidum*** Koenen, 1893. – *Discors pertumidum* (Koenen, 1893). *Cardiidae*. Oligocene. RECORDS. ••1899 Sacco: *Discors pertumidus* (Koen.). ••1977 Popov: *Discors pertumidum* (Koenen, 1893).

***Perucardia*** Olsson, 1944 (genus). – *Cardiidae*. Maastrichtian. RECORDS. ••1980. Vokes: *Perucardia* Olsson, 1944 in subfamily *Cardiinae*. ••1998 Schneider (1998b): *Perucardia*. Maastrichtian.

***Perucardia*** Olsson, 1944 (subgenus). – *Cardiidae*. Upper Senonian. GENOTYPE. Olsson (1944) designated *Cardium brueggeri* type species of subgenus *Perucardia* of genus *Vepricardium*. The shell of has ribs with granular nodes. Peru. (Moore *et al.* 1969). RECORDS. ••1944 ZR: *Perucardia* Olsson, 1944 subgen. nov. of *Cardium* type *Cardium (Perucardia) brueggeri* Olsson, 1944b sp. nov. Païta District Peninsula, Upper Senonian. ••2002 Schneider: *Perucardia* was found to be a ‘transitional fossil’ between Profraginatae and all other eucardiids.

***peruvianum*** Spieker, 1922. – Combination to be revised: “*Cardium*” *peruvianum* (Spieker, 1922). *Cardiidae*. Tertiary. RECORDS. ••1922 ZR: *Cardium (Trachycardium) peruvianum* Spieker, 1922 Tertiary, Peru.

***pervinquieri*** Freneix. – *Protocardia pervinquieri* Freneix. *Cardiidae*. Cretaceous. RECORDS. ••1980 ZR: *Protocardia pervinquieri* Freneix, 1980 nom. nov. for *Protocardia biseriata* Pervinquieré 1912 nec Conrad 1852. Ref. to Freneix p. 172. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Protocardia pervinquieri* Freneix. Santonien. Algeria, B19932.

***pesbovis*** d’Archiac, 1843– Combination to be revised: “*Cardium*” *pesbovis* d’Archiac, 1843. *Cardiidae*. Fossil. RECORDS. ••1857 Deshayes: *Cardium pes bovis*. ••1922–32 Sherborn, p. 4879: *Cardium pesbovis* d’Archiac, 1843.

***pesolinum*** Contejean, 1859. – Combination to be revised: “*Cardium*” *pesolinum* Contejean. *Cardiidae*. Lias–Jurassic. RECORDS. ••1980 Ruhoff: *Cardium pesolinum* Contejean, 1859; p. 277, pl. 15, figs. 6–7. ••1980 Ruhoff: *Cardium pesolinum* Contejean, 1859; quoted by Loriol & Cotteau 1867; vol. 21: 554, pl. 7,

**pessoae – philippianum**

fig. 13. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium pesolinum* Contejean. Portlandien. France (Yonne), S05432, R50201.

**pessoae** Maury, 1924. – Changed combination: *Agnocardia pessoae* (Maury, 1924). Cardiidae. Tertiary. RECORDS. ••1984 ZR: *Agnocardia pessoae* (Maury, 1925) Comb. nov. Transferred from *Cardium* (*Trachycardium*) *pessoae* Maury, 1925. Ref. to Vokes p. 42. ••1998 Schneider: *Agnocardia pessoae* (Maury, 1924). ••2002 Schneider: *Cardium* (*Trachycardium*) *pessoae* Maury, 1925. ••2002 Schneider: *Agnocardia pessoae* (Maury, 1925). Cardiidae.

**pestis** Zhizhchenko, 1934. – Combination to be revised: “*Cardium*” *pestis* Zhizhchenko, 1934. [Miocene, Cardiidae], RECORDS. ••1939 ZR: *Cardium pestis* Zhizhchenko, 1934 sp. n. Miocene Ciscaucasia. ••1952 ZR: *Cardium pestis* Miocene Caucasus [Ref. Zhezhenko 1934].

**pesurae** Mariani, 1919. – “*Cardium*” *pesurae* Mariani, 1919. Cardiidae. Rhaetic. RECORDS. ••1919 ZR: *Cardium pesurae* Mariani, 1919 sp. n. Rhaetic Lombardy.

\***petersi**. – Homonymy to be noticed. *Cardium petersi* from 2 sources: Hörnes, 1862. – Zittel, 1865.

**petersi** Hörnes, 1862. – Synonym of *Tauricardium subsquamulosum*. >> Regarding *Limnocardium petersi*: *Limnocardiiidae*. Miocene. RECORDS. ••1961 ZR: *Limnocardium* (*Tauricardium*) *petersi* Pontian Miocene, Kadar, Bosnia, Yugoslavia [Ref. Stevanovic 1961]. ••1980 Ruhoff: *Cardium petersi* Hörnes, 1862; [1851–1870] vol. 4: 199, pl. 19, fig. 3. ••1987 Taktakishvili: *Limnocardium petersi* (M. Hoern.). ••1987 Taktakishvili: *Tauricardium petersi* = *subsquamulosum*.

**petersi** Zittel, 1865. – *Protocardium petersi*, Zittel. Cardiidae. Cretaceous. RECORDS. ••1871 Stoliczka: *Protocardium petersi*, Zittel. ••1980 Ruhoff: *Cardium* (*Protocardia*) *petersi* Zittel, 1865 [1865–1866] vol. 24(2): 145, pl. 6, fig. 5.

**petersi nasyrica** (subspecies). – *Tauricardium petersi nasyrica*. *Limnocardiiidae*. Fossil. RECORDS. ••1987 Taktakishvili: *Tauricardium petersi nasyrica*.

**petersi oviformis** (subspecies). – *Tauricardium petersi oviformis*. *Limnocardiiidae*. Fossil. RECORDS. ••1987 Taktakishvili: *Tauricardium petersi oviformis*.

**petilum** Loriol, 1868. – *Protocardium petilum* (Loriol, 1868). Cardiidae. Cretaceous. TYPE LOCALITY. Valangien beds, Suisse. RECORDS. ••1871 Stoliczka: *Cardium petilum* Loriol, 1868 (genus *Protocardium*). ••1980 Ruhoff: *Cardium petilum* Loriol, 1868: ser. 4: 26, pl. 2, figs. 3–4.

**petitianum** Orbigny, 1853. – Synonym of *Papyridea semisulcata* (Gray, 1825). OTHER JUDGEMENTS: close to *Cardium bullatum*. >> Regarding *Cardium petitianum*: Cardiidae. Recent. RECORDS. ••1853 Orbigny, p. 309, pl. 27, fig. 50–52: *Cardium petitianum* d’Orb., 1846 sic. ••1853 Orbigny: *Cardium petitianum* d’Orb., 1846 close to *Cardium bullatum*. ••1864 Krebs: *Cardium ringiculum* Sowb. (syn.) = *Cardium petitianum* d’Orb. ••1884 Grasset: *Cardium petitianum*. Orb. = *C. bullatum*. ••1885 Smith: *Cardium petitianum* d’Orbigny = *Cardium* (*Papyridea*) *semisulcatum*, Gray, 1825. ••1889 Dall: *Papyridea petitiana* Orbigny. ••1890

Paetel: *Cardium petitianum* Orb. = *Papyridea bullata*. ••1902 Dall: *Cardium petianum* Orbigny, 1845 = *Cardium semisulcatum* Gray, 1825. ••1902 Dall & Simpson: *Cardium petitianum* d’Orbigny, 1845 = *Cardium semisulcatum* Gray 1825. ••1939 McLean: *Cardium petitianum* Orbigny, 1853 = *Papyridea semisulcata* (Gray, 1825). ••1951 McLean: *Cardium petianum* d’Orbigny (1846) = *Papyridea semisulcata* (Gray). ••1958 Abbott: *Papyridea petitianum* Orbigny 1846 = *Papyridea semisulcata* Gray 1825. ••1970 Rios: *Cardium petitianum* Orbigny = *Papyridea semisulcata* (Gray, 1825). ••1974 Abbott: *Cardium petitianum* Orbigny, 1846 (orange form) = *Papyridea semisulcata* (Gray, 1825). – CHARACTERS AND OCCURRENCE – REMARKS. ••1958 Abbott: *Papyridea petitianum* Orbigny 1846, is the orange form of *Papyridea semisulcata* Gray 1825. DISTRIBUTION. ••1884 Grasset: Guadeloupe. ••Of authors: South Florida, West Indies, Brazil.

**petkovi** Pavlovic, 1929. – New combination: *Limnocardium petkovi* (Pavlovic, 1929). *Limnocardiiidae*. Pontian. RECORDS. ••1928 ZR: *Limnocardium* (*Pseudocatillus*) *petkovi* [Ref. Pavlovitch 1928]. ••1929 ZR: *Limnocardium* (*Pseudocatillus*) *petkovi* Pavlovic, 1929 sp. n. Pontian Serbia. ••1987 Taktakishvili: *Limnocardium petkovi* Pavl.

**pharaonica** Abbass, 1966. – *Lunulicardia pharaonica* Abbass, 1966. Probably not in Cardiidae. Cretaceous. RECORDS. ••1966 ZR: *Lunulicardia pharaonica* Abbass, 1966 sp. nov. Cretaceous, Egypt.

**pharaonium** Cuvillier. – *Cardium pharaonium* Cuvillier. Cardiidae. Lower Eocene. RECORDS. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium pharaonium* Cuvillier. Ypresien. Egypt (Thebes), B43626.

**pharisiana** (variety). – See *tuberculatum pharisiana* Pallary, 1924.

**pharnaci** Schwez, 1913. – *Pseudocatillus pharnaci* (Schwez, 1913). *Limnocardiiidae*. Tertiary. RECORDS. ••1913 ZR: *Monodacna pharnaci* Schwez, 1913 sp. n. Tertiary, Kertsch. ••1967 Ebersin: *Pseudocatillus pharnaci* (Schwets). ••1984 ZR: *Pseudocatillus pharnaci* Schwez. Referred to new subgenus *P.* (*Donaciatillus*). Ref. to Akhvediani p. 71.

**phasiaca** Davidachvili, 1933. – Changed combination: *Didacnomya phasiaca* Davidachvili, 1933. *Limnocardiiidae*. Upper Pliocene. RECORDS. ••1934 ZR: *Didacnomya phasiaca* Davidachvili, 1933 sp. n. Upper Pliocene Georgia, Caucasus. ••1939 ZR: *Didacnomya phasiaca* Bogatschev, 1938 “sp. n.” Baku. ••1967 Ebersin: *Didacnomya phasiaca* (David.).

**phataetisis** Chiploukar, 1975. – Combination to be revised: “*Cardium*” *phataetisis* Chiploukar, 1975. Cardiidae. Upper Cretaceous. RECORDS. ••1975 ZR: *Cardium phataetisis* Chiploukar, 1975 sp. nov. Kashmir, Phata. Ref. to Chiploukar, p. 94.

**philippianum** Dunker, 1847. – *Nemocardium philippianum* (Dunker, 1847). Cardiidae. Lias and Jurassic. RECORDS. ••1922–32 Sherborn, p. 4909: *Cardium philippianum* Dunker, 1847. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Nemocardium philippianum* Dunker. Heltangien. France (Vendée), R05122.

*philippii* – *Phyllocardium*

- \**philippii*. – Homonymy to be noticed. *Cardium philippii* from 2 sources: Deshayes, 1853. – Ihering, 1897.
- philippii* Ihering, 1897. – *Hedecardium philippi* Cardiidae. Oligocene. ?Lower Miocene. RECORDS. ••1897 Ihering: *Cardium philippi* (fide Schneider 2002). ••2002 Schneider: *Hedecardium (Iheringicardium) philippi* Cardiidae.
- philippii* Deshayes, 1853. – New name. Combination to be revised: “*Cardium*” *philippii* Deshayes, 1853. Cardiidae. Fossil. RECORDS. ••1857 Deshayes: *Cardium philippii* Desh. new name for *Cardium pulchellum* Philippi, 1844. ••1980 Ruhoff: *Cardium philippii* Deshayes, 1853; vol. 2: 46.
- \**philippinense*. – Homonymy to be noticed. *Cardium philippinense* from 2 sources: Hedley, 1899. – Deshayes in Shirley, 1912.
- philippinense* Deshayes in Shirley, 1912. *Nomen nudum*. OTHER JUDGEMENTS: *Vasticardium orbita philippinense* (Hedley, 1899). – *Cardium angulatum* Lamarck. – *Trachycardium orbita* (Broderip & Sowerby, 1833). >> Regarding *Cardium philippinense*: Cardiidae. Recent. TYPE LOCALITY. Philippines. TYPE REPOSITORY. Paris Museum. RECORDS. ••1899 Hedley: *Cardium philippinense* Deshayes = *Cardium angulatum* Lamarck. ••1912 Shirley: *Cardium philippinensis* Desh. ••1934 Tomlin: *Cardium (Trachycardium) philippinense* Deshayes. ••1977 Fischer–Piette: *Laevicardium (Trachycardium) philippinense* (Deshayes) Shirley. ••1980 Keen: *Cardium philippinense* = *Vasticardium orbita* (Sowerby, 1833). ••1991 Voskuil & Onverwagt: *Laevicardium (Trachycardium) philippinense* (Deshayes) Shirley, 1912 = *Trachycardium orbita* (Broderip & Sowerby, 1833). ••1997 Vidal: *Cardium philippinense* Deshayes: Hedley 1899 = *Vasticardium orbita philippinense* (Hedley, 1899). ••1997 Vidal: *Laevicardium (Trachycardium) philippinense* (Deshayes) Shirley sensu Fischer–Piette, 1977 (not *Vasticardium orbita philippinense* (Hedley)). – CHARACTERS AND OCCURRENCE – REMARKS. ••1899: Hedley was unable to trace the species *Cardium philippinense* in the literature. ••1980 Keen: declared it *nomen nudum* as of Shirley, 1912 and Tomlin, 1934; specimens evidently labeled by reference to a lot in the British Museum Collection that carried only Deshayes’ manuscript name. *Cardium philippinensis* Desh. is only a name in a check list by Shirley 1912. DISTRIBUTION. 1994 Hylleberg: Indo–Pacific. Hawaii, Australia.
- philippinense* Hedley, 1899 [Figs. Part 3 p. 866]. – *Vasticardium philippinense* (Hedley, 1899). OTHER JUDGEMENTS: *Vasticardium orbita* (Broderip & Sowerby, 1833). RECORDS. ••1999 Vidal: *Cardium philippinense* Hedley, 1899 = *Vasticardium orbita* (Broderip & Sowerby, 1833).
- philippinense*. – See also under *orbita philippinense* Hedley, 1899.
- philipsi* Koninck 1885. – Replaced by *Conocardium nexile* Branson, 1942. Conocardiidae. Fossil. RECORDS. ••1942 ZR: *Conocardium philipsi* Koninck 1885 non Orbigny 1850 replaced by *Conocardium nexile* Branson, 1942 nom. nov.
- philipsi* Orbigny 1850. – *Conocardium philipsi* Orbigny 1850. Conocardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 4911: *Conocardium philipsii* d’Orbigny, 1850. ••1942 ZR: *Conocardium philipsi* Orbigny 1850 [Ref. Branson 1942].
- Phlogocardia* Stewart, 1930 (genus). – Cardiidae. Fossil and Recent. Subgenus *Phlogocardia* upgraded to generic level by authors. RECORDS. ••1977 Popov p. 48: *Phlogocardia* Stewart, 1930. Genotype: *Cardium belcheri* Broderip & Sowerby, 1829. ••1980 Vokes: *Phlogocardia* Stewart, 1930 in subfamily Trachycardiinae.
- Phlogocardia* Stewart, 1930 (section, subgenus). – Cardiidae. Fossil and Recent. Type species: Stewart (1930) designated *Cardium belcheri* Broderip & Sowerby, 1829 type species of subgenus *Phlogocardia* of genus *Trachycardium* Mörch, 1853. RECORDS. ••1930 ZR: (*Phlogocardia*) Stewart, 1930 fossil sec. n. of *Trachycardium* type *Cardium belcheri* Brod. and Sow. [Ref. Stewart 1930]. ••1961 Olsson: (*Phlogocardia*) Stewart, 1930. ••1999 Vidal: Subgenus (*Phlogocardia*) Stewart, 1930 of the genus *Trachycardium*. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: central ribs with frills along posterior sides, anterior ribs with knobby spines (Hylleberg 1994).
- phlyctaena* Dall, 1900. – Combination to be revised: “*Cardium*” *phlyctaena* Dall, 1900. Cardiidae. Fossil. RECORDS. ••2002 Schneider: citing Dall (1900): *Cardium (Cerastoderma) phlyctaena* sp. nov. section *Dinocardium*.
- pholadiforme* Sowerby, 1847. – Combination to be revised: “*Cardium*” *pholadiforme* Sowerby, 1847. ?Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 4922: *Cardium pholadiforme* Sowerby, 1847.
- Pholadomya* Agassiz, 1842 (genus). – Synonym of *Adacna* Eichwald. >> Regarding *Pholadomya*: Lymnocardiidae RECORDS. ••1858 Adams & Adams: Syn. *Pholadomya* Agass. and Midd., not Sow. = Genus *Adacna* Eichwald. ••1890 Paetel: *Pholadomya* Ang. syn. of *Adacna*. ••1903 Andrussoff: *Pholadomya* Agassiz, 1842.
- Phyllocardium* (error). – Printer’s mistake for *Phyllicardium* in Pavlovic 1928 (Vokes 1980).
- phyllicardiforme* Jekelius, 1944. – *Lymnocardium phyllicardiforme* Jekelius, 1944. Lymnocardiidae. Miocene. RECORDS. ••1946 ZR: *Limnocardium phyllicardiforme* Jekelius, 1944 sp. nov. Miocene Soceni Banat.
- Phyllocardium* (error). – Printer’s mistake for *Phyllicardium* in Andrussoff 1903 (Vokes 1980).
- Phyllocardiini* (tribe). – Cardiidae. Miocene/Pliocene. RECORDS. ••1987 ZR: Phyllocardiini Neveeskaja, 1986 Tribe nov. of Cardiidae. Type genus *Phyllocardium* Fischer, 1887. Ref. to Neveeskaya *et al.* p. 189.
- Phyllocardium* Fischer, 1887 (genus). – Lymnocardiidae. Tertiary. RECORDS. ••1903 Andrussoff: *Phyllicardium* Fischer, 1887. ••1905 Dollfus, commenting Andrussoff 1903: *Phyllicardium* Fischer. ••1962 ZR: *Phyllocardium* Fischer provisionally in subfam. Didacninae Eberzin, 1962, family Cardiidae [Ref. Eberzin 1962]. ••1970 Glibert & Poel: *Phyllicardium*. ••1980 Vokes: *Phyllocardium* Fischer, 1887 in subfamily Didacninae. ••1987 ZR: *Phyllocardium* Fischer, 1887. Designated type genus for new tribe Phyllocardiini. Ref. to Neveeskaya *et al.* p. 189.
- Phyllocardium* Fischer, 1887 (subgenus). –

**picardi – pinnulatum**

Lymnocardiiidae. Tertiary. GENOTYPE. *Cardium planum* Deshayes (Dollfus 1905, commenting Andrussov 1903). RECORDS. ••1887 Fischer: Subgenus *Phyllocardium* of genus *Limnocardium*, Stoliczka, em. 1870.

**picardi** Blanckenhorn, 1934. – *Protocardia picardi* Blanckenhorn, 1934. Cardiiidae. Cretaceous. RECORDS. ••1934 ZR: *Protocardia picardi* Blanckenhorn, 1934 sp. n. Cretaceous Syria.

**picta** (variety). – See under *edule picta* Milachewitch, 1916. – *tuberculatum* var. *picta*.

**pictaviense** d'Orbigny, 1850. – Combination to be revised: "*Cardium*" *pictaviense* d'Orbigny, 1850. Cardiiidae. Lias and Jurassic. RECORDS. ••1922-32 Sherborn, p. 4949: *Cardium pictaviense* d'Orbigny, 1850. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium pictaviense* d'Orbigny. Callovien. France (Sarthe), S02743.

\***picteti**. – Homonymy to be noticed. *Cardium picteti* from 2 sources: Rouault, 1851. – d'Arch (?year).

**picteti** d'Arch. – Combination to be revised: "*Cardium*" *picteti* d'Arch. Cardiiidae. Eocene. RECORDS. ••1886 Cossmann: *Cardium picteti* d'Arch.

**picteti** Rouault, 1851. – Combination to be revised: "*Cardium*" *picteti* M. Rouault, 1851. Cardiiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium picteti* M. Rouault, 1851; vol. 8: 388.

**pictum** (subspecies). – See under *edule pictum*.

**pictum** Dunker, 1861. – Synonym of *Cardium papillosum* Poli. OTHER JUDGEMENTS: unknown species. >> Regarding *Cardium pictum*: Cardiiidae. Recent. RECORDS. ••1861 Dunker, p. 37: *Cardium pictum* (fide Fischer-Piette 1977). ••1872 Tryon: *Cardium pictum* Dkr. ••1901 Dall: *Cardium pictum* Dunker, April, 1861 is probably a variety of *Cardium papillosum* Poli. ••1944 Clench & Smith: *Cardium pictum* Rav. in Dunker 1862 = unknown species. ••1980 Ruhoff: *Cardium pictum* Dunker 1861; vol. 8: 37.

**pictum** Ravenel, 1861. – Unknown species. OTHER JUDGEMENTS: *Laevicardium pictum* (Ravenel, 1861). – *Laevicardium serratum* (Linnaeus, 1758). – *Cardium serratum* var. *sybariticum* Dall, 1886. >> Regarding *C. pictum*: Cardiiidae. Recent. RECORDS. ••1861 Ravenel, vol. 13, p. 44: *Liocardium pictum*. ••1901 Dall: *Cardium pictum* Ravenel, February, 1861. ••1902 Dall: ?*Cardium pictum* Ravenel (type lost) = *Cardium serratum* var. *sybariticum* Dall, 1886. ••1902 Dall: *Cardium pictum* Ravenel, 1861 (not of Dunker, 1861) = *Cardium serratum* Linnaeus, 1758. ••1921 Maury: *pictum* Ravenel, 1861 = *Cardium* (*Laevicardium*) *serratum* Linnaeus, 1758. ••1925 Woodring, p. 145: *Cardium pictum* Ravenel, 1862 is identical with *Cardium serratum* Linné, 1758. ••1939 McLean: *Cardium pictum* Ravenel, 1861 = *Laevicardium serratum* (*serratum*) (Linné, 1758). ••1944 ZR: *Laevicardium pictum* Ravenel [Ref. Clench & Smith 1944]. ••1962 Warmke & Abbott: *Laevicardium pictum* Ravenel, 1861. ••1968 Jong & Kristensen: *Americardia pictum* Ravenel. ••1970 Rios: *Laevicardium pictum* (Ravenel, 1861). ••1974 Abbott: *Laevicardium pictum* (Ravenel, 1861). ••1977 Popov: *Laevicardium pictum* (Ravenel). ••1977 Fischer-Piette: *Laevicardium pictum* Ravenel. ••1980 Ruhoff: *Liocardium pictum* Ravenel,

1861; p. 44. ••1997 Shelton: *Laevicardium pictum* (Ravenel, 1861). – CHARACTERS AND OCCURRENCE – REMARKS. ••1977: Fischer-Piette, p. 22 failed to locate references given by Dunker (1862 (1861), VII, p. 37), including references in Tryon and Dall. The species is insufficiently known. DISTRIBUTION. ••1939 McLean: North Carolina to Brazil.

**pictus** Tryon, 1870. – *Hemidonax pictus* (Tryon, 1870). Cardiiidae, ?Hemidonacidae. Recent. RECORDS. ••1950 Allan: *Hemidonax pictus* (Anatomical structure places *Hemidonax* in the family Cardiiidae). ••2001 Schneider & Carter: *Hemidonax pictus* (Tryon, 1870). Hemidonacidae.

**piettei** J.C. Fischer. – *Protocardia piettei* J.C. Fischer. Cardiiidae. Lias and Jurassic. RECORDS. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Protocardia piettei* J.C. Fischer. Bathonien. France (Aisne, Ardennes), R05125, B47036, B47038.

**pigmae** Shuto, 1960. – *Laevicardium pigmae* Shuto, 1960. Cardiiidae. Middle Miocene. RECORDS. ••1960 ZR: *Laevicardium pigmae* Shuto, 1960 sp. nov. Tano member, Miyazaki Group, Middle Miocene, Japan. ••1973 Keen: P. (sic = *Laevicardium*) *pigmae* Shuto, 1960. Middle Miocene.

**pilatium** Stoliczka, 1871. – Combination to be revised: "*Cardium*" *pilatium* (Stoliczka, 1871). Cardiiidae. Cretaceous. TYPE LOCALITY. Ninnyoof, South India. RECORDS. ••1871 Stoliczka, p. 218, pl. 13, figs. 6–7: *Cardium* (*Cerastoderma*) *pilatium* Stoliczka. ••1980 Ruhoff: *Cardium* (*Cerastoderma*) *pilatium* Stoliczka, 1870; [1870–1871] vol. 3: 218, pl. 13, figs. 6–7.

**plidei** Tournouër, mss. Fischer, 1886. – *Prosodacna plidei* Fischer, 1886. Lymnocardiiidae. Pliocene. TYPE LOCALITY. Valea Nigovani, Roumania. RECORDS. ••1886 Fischer: *Prosodacna plidei* Tournouër, mss. Description p. 223, Pl. 9, fig. 7. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Prosodacna plidei* Tournouër. Rumania, B35815.

**pinellasense** Mansfield, 1937. – Combination to be revised: "*Cardium*" *pinellasense* (Mansfield, 1937). Cardiiidae. Lower Miocene. RECORDS. ••1937 ZR: *Cardium* (*Dinocardium*?) *pinellasense* Mansfield, 1937 sp. n. Tampa limestone Florida (Lower Miocene).

**Pingecardium** (error). – Printer's mistake for *Ringecardium* in Clark & Woodford, 1927 (Stewart 1930; Vokes 1980).

**pinnulatum** Conrad, 1831. [Figs. Part 1 p. 145, 178]. – Changed combination: *Parvicardium pinnulatum* (Conrad, 1831). Cardiiidae. Pliocene, Pleistocene and Recent. TYPE LOCALITY. Unknown (Reeve 1845); Massachusetts (McLean 1939). RECORDS. ••1831 Conrad, p. 260 (pl. 11, fig. 8): *Cardium pinnulatum*. ••1845 Reeve: *Cardium pinnulatum* Conrad. ••1860 Stimpson: *Cardium pinnulatum* Con. ••1873 Tryon: *Cardium pinnulatum* Conrad, 1836. ••1884 Grasset: *Cardium pinnulatum* Conr. ••1889 Dall: *Cardium pinnulatum* Conrad [P. Pliocene]. ••1890 Paetel: *Cardium pinnulatum* Conr. ••1902 Dall: *Cardium* (*Cerastoderma*) *pinnulatum* Conrad, 1831 [Pleistocene]. ••1922-32 Sherborn, p. 4985: *Cardium pinnulatum* Conrad, 1831. ••1934 Johnson: *Cardium pinnulatum* Conrad 1831. ••1939 McLean: *Cardium*

## Pinzonella – Plagiocardium

- (*Cerastoderma*) *pinnulatum* Conrad. •1939 ZR: *Cardium* (*Cerastoderma*) *pinnulatum* fig. [Ref. McLean 1939]. •1944 ZR: *Cerastoderma pinnulatum* Conrad figs. [Ref. Clench & Smith 1944a]. •1953 La Rocque: *Cerastoderma pinnulatum* Conrad 1831. •1962 Dexter: *Cerastoderma pinnulatum* (Conrad). •1971 ZR: *Cerastoderma pinnulata* Crawling. Veliger larva. Photomicrography [Ref. Culliney 1971]. •1974 Abbott: *Cerastoderma pinnulatum* (Conrad, 1831). •1977 Fischer–Piette: *Cardium* (*Cerastoderma*) *pinnulatum* Conrad. •1980 Keen: *Parvicardium pinnulatum* (Conrad, 1831). •2000 Aartsen & Goud: *Parvicardium pinnulatum* (Conrad, 1831). •2001 Vidal, p. 408: *Parvicardium pinnulatum*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1845 Reeve: shell ovate, rather oblique, radially ribbed, 26 ribs, irregularly sculptured with numerous short obtuse scales, posterior ribs the more conspicuous; whitish. •2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes. DIMENSIONS. •1939 McLean: 12 x 10 x 6.5 mm; ribs 25–28. REMARKS. •1845 Reeve: although some doubt has been attached to the value of this species, the shell here represented, is certainly distinct from any of the small *Cardium* that I have had an opportunity of examining. DISTRIBUTION. •1845 Reeve: unknown. •1884 Grasset: Portland. •Of authors: Labrador to North Carolina.
- Pinzonella** Cowper–Reid, 1943 (genus). Cardiacea. Trias. RECORDS. •1947 ZR: *Pinzonella* [*Pinzonella* in Index] Cowper–Reid, 1943 nov. gen. Trias, Brazil [Cardiacea] Genotype *Pinzonella illusa* Cowper–Reid, 1943 sp. nov.
- pironai**. – *Apricardia pironai*. Cardiacea. RECORDS. •1933 ZR: *Apricardia pironai* [Ref. Parona 1933].
- pirsagatica** Andrusov, 1963. – Changed combination: *Pontalmyra pirsagatica* (Andrusov, 1963). Lymnocaridiidae. Miocene. RECORDS. •1963 ZR: *Didacna pirsagatica* Andrusov, 1963 sp. nov. Miocene, Russia. •1987 Taktakishvili: *Pontalmyra pirsagatica* (Andrusov).
- pisiformis** Gmelin. – Synonym of *Cardium discors* Gmel. >> Regarding *Tellina pisiformis*: Cardiidae. Recent. RECORDS. •1803 Montagu: *Tellina pisiformis* Gmel. Syst. p. 3241? = *Cardium discors* Gmel.
- pisolithicum** d’Orbigny, 1850 – Combination to be revised: “*Cardium*” *pisolithicum* d’Orbigny, 1850. Cardiidae. Fossil. RECORDS. •1871 Stoliczka: *Cardium pisolithicum* (?*Acanthocardium* sic). •1922–32 Sherborn, p. 4994: *Cardium pisolithicum* d’Orbigny, 1850.
- pissarroi** (error). – Printer’s mistake for *pissarroi* in ZR for 1908 with ref. to Cossmann 1908.
- pissarroi** Cossmann, 1905. – Changed combination: *Fragum pissarroi* (Cossmann, 1905). Cardiidae. Fossil. RECORDS. •1908 ZR: *Cardium pissarroi* sic Cossmann, 1908b sp. n. Loire inférieure. •1970 Glibert & Poel: *Fragum pissarroi* (Cossmann, 1905).
- pium** Zhizhchenko, 1934. – *Cerastoderma pium* (Zhizhchenko, 1934). Cardiidae. Miocene. RECORDS. •1939 ZR: *Cardium pium* Zhizhchenko, 1934 sp. n. Miocene Caucasus. •1952 ZR: *Cardium pium* Miocene Caucasus [Ref. Zhezhenko 1934]. •1977 ZR: *Cerastoderma* (*Inaequicostata*) *pium* Key to subspecies. Ref to Il’ina, Nevesskaya & Paramonova p. 77.
- pium convexum** Paramonova, 1977 (subspecies). – *Cerastoderma pium convexum* Paramonova, 1977. Cardiidae. Upper Miocene. RECORDS. •1977 ZR: *Cerastoderma* (*Inaequicostata*) *pium convexum* Paramonova, subsp. nov. Russian SFSR. Ref to Il’ina, Nevesskaya & Paramonova. p. 207, fig’d.
- placense** Gabb, 1864. – Combination to be revised “*Cardium*” *placense*. Gabb, 1864. Cardiidae. Cretaceous. TYPE LOCALITY. From California. RECORDS. •1871 Stoliczka: *Cardium* (*Protocardium*) *placense*. (Recorded by Gabb). •1980 Ruhoff: *Cardium* (*Protocardium*) *placensis* Gabb, 1864; vol. 1: 173, pl. 24, fig. 156.
- placida** Stefanescu, 1896. – Changed combination: *Pontalmyra placida* (Stefanescu, 1896). Lymnocaridiidae. Miocene. Type species of subgenus *Pontalmyra* Stefanescu, 1896 in family Lymnocaridiidae (Glibert & Poel 1970). Type species of subgenus *Pontalmyra* Sabba [= Stefanescu], 1896 (Sacco, 1899). RECORDS. •1896 ZR: *Pontalmyra placida* Miocene, Roumania [Ref. Stefanescu]. •1970 Glibert & Poel: *Pontalmyra placida* Stefanescu, 1896. •1987 Taktakishvili: *Didacna placida* (Sabba). •1987 Taktakishvili: *Pontalmyra placida*.
- plaekovalevskii** Goretzki, 1956. – *Caspia plaekovalevskii* Goretzki, 1956. Lymnocaridiidae. Quaternary. RECORDS. •1956 ZR: *Caspia plaekovalevskii* sic Goretzki, 1956 sp. nov. Lower Kamar basin, Quaternary Russia.
- Plagiadacna** (error). – Printer’s mistake for *Plagiocardia* in Dollfus 1905 (Vokes 1980).
- Plagiocardium** Cossmann, 1886 (genus). – Cardiidae. Tertiary and Recent. Type species: Crosse (1887) designated *Cardium granulosum* Lamarck, 1805 type species of genus *Plagiocardium* Cossmann, 1886. RECORDS. •1930 Stewart: *Plagiocardium* Cossmann 1886 (p. 254–255). •1977 Kafanov and Popov: *Plagiocardium* subfamily Fraginae, tribe Parvicardiini (*vide* Schneider 2002). •1977 Popov: *Plagiocardium* Cossmann, 1886. Genotype: *Cardium granulosum* Lamarck, 1805. •1980 Vokes: *Plagiocardium* Cossmann 1886 in subfamily Cardiinae. •1983 Anaya: *Plagiocardium* Cossmann, 1886. Synonym of *Parvicardium* Monterosato, 1884. •1995 Pacaud & Renard: *Plagiocardium* Cossmann, 1886 in subfamily Cardiinae. •1998 Schneider (1998b): *Plagiocardium* in Fraginae. The genus appears in the Paleocene (Keen 1980). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1969 Moore *et al.*: the shell of *Plagiocardium* is elliptical–oblique, hinge arched; rib sculpture of bead–like nodes. Europe–Africa–East Indies–New Zealand. •2002 Schneider: the right anterior cardinal tooth is subconical in shape, above (or sometimes slightly anterior) to the right anterior cardinal socket. The tooth does not obscure the socket face. The right anterior cardinal tooth has a rounded tip. The right posterior cardinal is lacking a hook. *Plagiocardium* has symmetrical or nearly symmetrical knob–like spines. *Plagiocardium* was found to have composite spines.
- Plagiocardium** Cossmann, 1886 (subgenus). – Cardiidae. Tertiary and Recent. RECORDS. •1886 Cossmann: Section *Plagiocardium* nov. sect. of genus *Cardium* Linné, 1758. •1887 Fischer: *Plagiocardium* Cossmann, 1887. Section of genus *Cardium* Linné,



**Plagiodacna – plancarinata**

1758. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1969 Moore *et al.*: Shell medium in size; cardinal teeth nearly equidistant between lateral teeth. Europe–East Indies. REMARKS. The designation “section” takes the value of subgenus.

**Plagiodacna** Andrussow, 1903 (genus). Lymnocardiiidae. FOSSIL. GENOTYPE. *Cardium carinatum* Deshayes (Dollfus 1905, commenting Andrussow 1903). RECORDS. ••1905 Dollfus, commenting Andrussow 1903: *Plagiodacna* n. g. ••1962 ZR: *Plagiodacna* Andrussov provisionally in subfam. Didacninae Eberzin, 1962, family Cardiidae [Ref. Eberzin 1962]. ••1977 Popov: *Plagiodacna* Andrussow, 1903. ••1977 ZR: *Plagiodacna* Pliocene, Romania, systematic accounts. Ref. to Papaianopol, I. ••1980 Vokes: *Plagiodacna* Andrussov, 1903 in subfamily Didacninae. ••1987 Taktakishvili, p. 93: *Plagiodacna* Andrussov, 1903; referred to new tribe Pontalmyrini. ••1987 ZR: *Plagiodacna* Andrussov, 1903. Referred to new tribe Arcicardiini. Ref. to Nevevskaya *et al.* p. 190. ••2001 Schneider & Carter: *Plagiodacna* (genus). Lymnocardiiidae. Pliocene.

**Plagiodacnopsis** Andrussov, 1923 (genus). – Lymnocardiiidae. Tertiary and Recent. RECORDS. ••1980 Vokes: *Plagiodacnopsis* Andrussov, 1923 in subfamily Adacninae.

**Plagiodacnopsis** Andrussov, 1963 (section and subgenus). Lymnocardiiidae. Pliocene. RECORDS. ••1963 ZR: (*Plagiodacnopsis*) Andrussov, 1963 sect. nov. of *Monodacna* Apsheron beds, Pliocene, Russia. ••1963 ZR: *Plagiodacnopsis* Andrussov, 1963 sect. nov. of *Monodacna* q.v.

**Plagiodaena** (error). – Printer’s mistake for *Plagiodacna* in Salisbury & Edwards, 1960 (Vokes 1980).

**\*plagiomorphum**. – Homonymy to be noticed. *Cardium plagiomorphum* from 3 sources: Cossmann, 1886. – Bois-Gouet (?year). – Laub (?year).

**plagiomorphum** Bois-Gouet. – Changed combination: *Parvicardium plagiomorphum* (Bois-Gouet). Cardiidae. FOSSIL. RECORDS. ••1970 Glibert & Poel: *Cardium plagiomorphum* Bois-Gouet. ••1970 Glibert & Poel: *Plagiocardium plagiomorphum* (Bois-Gouet). ••1970 Glibert & Poel: *Parvicardium plagiomorphum* (Bois-Gouet).

**plagiomorphum** Cossmann, 1886. – Changed combination: *Parvicardium plagiomorphum* (Cossmann, 1886). Cardiidae. Eocene. TYPE LOCALITY. Paris Basin, France. RECORDS. ••1886 Cossmann, p. 170, Pl. VIII, fig. 21–22: *Cardium plagiomorphum* nov. sp. ••1899 Sacco: *Papillicardium plagiomorphum* (Cossmann). ••1970 Glibert & Poel: *Parvicardium plagiomorphum* (Cossmann, 1886). ••1995 Le Renard *et al.*: *Parvicardium plagiomorphum* [*Cardium plagiomorphum*] Cossmann, 1886. ••1995 Pacaud & Renard: *Parvicardium plagiomorphum*.

**plagiomorphum** Laub. – Changed combination: *Plagiocardium plagiomorphum* (de Laub). REMARKS. I have only seen the below reference to de Laub. RECORDS. ••1904 Cossmann & Pissarro: *Cardium (Plagiocardium) plagiomorphum* de Laub.

**\*plana**. – Homonymy to be noticed. *Didacna plana* from 2 sources: Ebersin, 1959. – Nevevskaya, 1956.

**plana** Ebersin, 1959. – *Didacna plana* Ebersin, 1959. Lymnocardiiidae. FOSSIL. RECORDS. ••1959 ZR: *Didacna*

*plana* Ebersin, 1959 sp. nov. fossil.

**plana** Nevevskaya, 1956. – *Didacna plana* Nevevskaya, 1956. Lymnocardiiidae. Quaternary. RECORDS. ••1956 ZR: *Didacna plana* Nevevskaya, 1956 sp. nov. Khazar deposits, Quaternary. Cheleken, Russia, Turkmenia. ••1957 ZR: *Didacna plana* Nevevskaya, 1957 sp. nov. Khazar deposits, Chelekhon Quaternary, Turkmenia, Russia.

**Planacardium** Paramonova, 1971 (genus). – Lymnocardiiidae. Miocene. RECORDS. ••1980. Vokes: *Planacardium* Paramonova, 1971. Subfamily uncertain. ••1977 Popov: *Planacardium* Paramonova, 1971. ••1977 ZR: *Cerastaderma* (sic = *Cerastoderma*) (*Planacardium*). Key to species. Ref. to Il’ina, Nevevskaya & Paramonova, p. 78. ••2001 Schneider & Carter: *Planacardium* (genus). Lymnocardiiidae. Miocene.

**planacardo** Andrussov, 1907. – *Arcicardium planacardo* Andrussov, 1907. Lymnocardiiidae. FOSSIL. TYPE LOCALITY. Crimean iron ore deposits. RECORDS. ••1907 Andrussov, p. 114, Taf. IV, Fig. 10–12: *Arcicardium planacardo* nov. sp. ••1964 ZR: *Arcicardium planacardo* Andrussov, 1964 sp. nov. Tertiary.

**planaecarinata**. *Nomen nudum*. RECORDS. ••1949 ZR: *Replidacna planaecarinata* ‘n. sp.’ [nomen nud.] Maestrichtian, Sarmat. [Ref. Papp 1949].

**planata** (variety). – See under *irgisicum planata* var. Yarkin, 1963.

**planatum** Brocchi. [Figs. Part I p. 94]. – Synonym of *Parvicardium papillosum* (Poli, 1791). Cardiidae. Quaternary and Recent. RECORDS. ••1886 Dollfus & Dautzenberg: *C. planatum* Br. = *Cardium* (s. g.?) *papillosum* Poli. ••1869 Römer: *Cardium planatum* Brocchi = *Cardium papillosum* Poli. ••1878 Monterosato: *C. planatum* (Ren.) Brocc. = *C. Polii* Payr. = *C. papillosum* Poli. ••1922–32 Sherborn, p. 5005: *Cardium planatum* Brocchi, 1814 (ex Renier, 1804). ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection *Cardium planatum* Brocchi. Sicily, B40617, B40618.

**planatum** Renier, 1804. *Nomen nudum*. Not valid. OTHER JUDGEMENTS: *Parvicardium papillosum* (Poli, 1791). >> Regarding *Cardium planatum*: Cardiidae. Recent. DISTRIBUTION. Europe, North West Africa. RECORDS. ••1804 Renier: *Cardium planatum*. ••1836 Philippi: *Cardium planatum* Ren. Broc. = *Cardium papillosum* Poli. ••1836 Scacchi: *Cardium planatum* Ren. Broc. ••1862 Weinkauff: *Cardium planatum* Ren. = *Cardium papillosum* Poli. ••1867 Weinkauff: *Cardium planatum* Renieri = *Cardium papillosum* Poli. ••1886 Locard: *Cardium planatum* Renieri, 1804 = *Cardium papillosum* Poli, 1791. ••1888 Kobelt: *Cardium planatum* Renier = *Cardium papillosum* Poli. ••1888 Servain: *Cardium planatum* of Renieri = *Cardium papillosum* Poli, 1791. ••1890 Paetel: *Cardium planatum* Ren. = *papillosum* Poli. ••1902 Dollfus & Dautzenberg: *Cardium planatum* Renier, 1804 = *Cardium (Parvicardium) papillosum* Poli, 1791. ••1922–32 Sherborn, p. 5005: *Cardium planatum* Renier, 1804 [n.n.]. ••1977 Fischer-Piette: *Cardium planatum* Renier = *Plagiocardium papillosum* Poli.

**plancarinata** Papp, 1954. – *Replidacna plancarinata* Papp, 1954. Lymnocardiiidae. Sarmatian. RECORDS. ••1954 ZR: *Cardium?* (*Replidacna*) *plancarinata* Papp, 1954 sp. nov. Sarmatian, Vienna.

*Planicardium* – *planicostatum*

***Planicardium*** Olsson, 1967 (genus). – Cardiiidae. Fossil. RECORDS. ••1980 Vokes: Olsson, 1967. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••2002 Schneider: *Clinocardium* (*Planicardium*): Large shells externally resembling *Dinocardium*, but with a hinge resembling *Cerastoderma* (Campbell 1993). The right anterior cardinal teeth are small, blunt, longer than high, anterior and dorsal to the right anterior cardinal socket, and do not obscure the face of the socket. The right posterior cardinal tooth is twisted, curved, and lacking a hook. REMARKS. ••2002 Schneider: Olsson (1967) erected *Planicardium* as a monotypic genus. Only species was the Neogene *Cardium virginianum* Conrad, 1839. Keen (1980) classified *Planicardium* as a subgenus of *Clinocardium* because the “beaks [are] prosogyrate, [with] the initial part or tip lying above anterior cardinal teeth.” *Planicardium*, often considered closely related to *Clinocardium*, is a cardiine.

***planicostata*** Dockery, 1982. – *Trachycardium planicostata* Dockery, 1982. Cardiiidae. Lower Oligocene. RECORDS. ••1982 ZR: *Trachycardium planicostata* Dockery, 1982 sp. nov. Mississippi. Ref. to Dockery, p. 70.

***planicostata*** Stevanovic, 1950. – *Parvidacna planicostata* Stevanovic, 1950. Lymnocardiiidae. Upper Pontian. RECORDS. ••1951 ZR: *Parvidacna planicostata* Stevanovic, 1950 sp. nov. Upper Pontian Serbia, genotype of *Parvidacna* Stevanovic, 1950. Cardiiidae. ••1953 ZR: *Parvidacna planicostata* Stevanovic, 1951 sp. nov. genotype of *Parvidacna* Stevanovic, 1951 gen. nov. Pontian Serbia.

***planicosta*** (variety). – See under *paucicostatum planicosta* Monterosato.

***planicostata kiptschakensis*** Andrusov, 1964 (variety). – Infrasubspecific. *Didacna planicostata* var. *kiptschakensis* Andrusov, 1964. Lymnocardiiidae. Miocene. RECORDS. ••1964 ZR: *Didacna planicostata* var. *kiptschakensis* Andrusov, 1964 nov. Miocene USSR.

***planicostata latecarinata*** Andrusov, 1964 (variety). – Infrasubspecific. *Didacna planicostata* var. *latecarinata* Andrusov, 1964. Lymnocardiiidae. Miocene. RECORDS. ••1964 ZR: *Didacna planicostata* var. *latecarinata* Andrusov, 1964 nov. Miocene USSR.

***planicostata pluricostata*** Andrusov, 1964 (variety). – Infrasubspecific. *Didacna planicostata* var. *pluricostata* Andrusov, 1964. Lymnocardiiidae. Miocene. RECORDS. ••1964 ZR: *Didacna planicostata* var. *pluricostata* Andrusov, 1964 nov. Miocene USSR.

***planicostata tenuicostata*** Andrusov, 1964 (variety). – Infrasubspecific. *Didacna planicostata* var. *tenuicostata* Andrusov, 1964. Lymnocardiiidae. Miocene. RECORDS. ••1964 ZR: *Didacna planicostata* var. *tenuicostata* Andrusov, 1964 nov. Miocene USSR.

***planicostata verneuili*** Deshayes, 1838. – *Pontalmyra planicostata verneuili* (Deshayes, 1838). Lymnocardiiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Pontalmyra planicostata verneuili*.

***planicostata zuzica*** Chelidze, 1957 (variety). – Upgraded. *Didacna planicostata zuzica* Chelidze, 1957. Lymnocardiiidae. Pliocene. RECORDS. ••1957 ZR: *Didacna planicostata* var. *zuzica* Chelidze, 1957 nov. Pliocene, River Zhuzhi, Makharadze town, Georgia, Russia.

***planicostatum***. – Homonymy to be noticed. *Cardium planicostatum* from 4 sources: Sedgwick & Murchison, 1829. – Sowerby, 1833. – Deshayes, 1838. – Braun in Münster, 1842.

***planicostatum*** Braun in Münster, 1842. – Replaced by “*Cardium braunni* Deshayes. Combination to be revised. Cardiiidae. Fossil. RECORDS. ••1857 Deshayes: *Cardium planicostatum* Braun, 1842 – *C. braunni* Desh. ••1922-32 Sherborn, p. 5009: *Cardium planicostatum* Braun in Muenster, 1842.

***planicostatum*** Deshayes, 1838. – *Pontalmyra planicostata* (Deshayes, 1838). Lymnocardiiidae. Fossil. TYPE LOCALITY. The Crimea. RECORDS. ••1838 Deshayes, p. 53, pl. 2, figs. 7–8: *Cardium planicostatum*. ••1857 Deshayes: *Cardium planicostatum* Deshayes, 1837 sic – *C. huoti* Desh. ••1886 Fischer: *Cardium planicostatum* Deshayes. ••1905 Dollfus, commenting Andrussow 1903: *Cardium planicostatum* Deshayes is type species of sub-form *Pontalmyra*. ••1922-32 Sherborn, p. 5009: *Cardium planicostatum* Deshayes, 1838. ••1957 ZR: *Didacna planicostata* Pliocene [Ref. Chelidze 1957]. ••1964 ZR: *Didacna planicostata* Miocene [Ref. Andrusov 1964]. ••1987 Taktakishvili: *Didacna planicostata* (Desh.). ••1987 Taktakishvili: *Pontalmyra planicostata* (Desh.).

***planicostatum*** Sedgwick & Murchison, 1829. – *Ctenocardia planicostatum* (Sedgwick & Murchison, 1829). Cardiiidae. Fossil. RECORDS. ••1829 Sedgwick & Murchison: *Cardium planicostatum*. ••1857 Deshayes: *Cardium planicostatum* sic Sedgw. et Murch. 1831 sic. ••1947 Hertlein & Strong: *Cardium planicostatum*.

***planicostatum*** Sowerby, 1833. [Figs. Part I p. 110, 129. Part 3 p. 904]. – *Americardia planicostata* (Sowerby, 1833). OTHER JUDGEMENTS: *Fragum magnificum* (Carpenter, 1857). – *Americardia guanacastensis* (Hertlein & Strong, 1947). >> Regarding *Cardium planicostatum*: Cardiiidae. Recent. TYPE REPOSITORY. Holotype. BMNH London. TYPE LOCALITY. Ad oras Americae Centralis (Guacomayo) in fine sand, at a depth of 13 fathoms (Sowerby 1833). RECORDS. ••1833 Sowerby, p. 83: *Cardium planicostatum*. ••1834 Sowerby, 50<sup>th</sup> part, fig. 25: *Cardium planicostatum*. ••1840 Sowerby, p. 7, No. 83: *Cardium planicostatum* Sow. ••1840 Sowerby, corrected list, p. 8: *Cardium planicostatum* (Sowerby No. 83). ••1841 Reeve, pl. 77, fig. 25: *Cardium planicostatum* Sow. ••1843 Hanley: *Cardium planicostatum* Sow. ••1844 Reeve: *Cardium planicostatum* Sowerby. ••1852 Adams: 432. *Cardium planicostatum* Sowb. 1833. ••1858 Adams & Adams, p. 459: *Hemicardia (Fragum) planicostata* Sow. ••1885 Smith: *Cardium planicostatum* (on the west side of America). ••1889 Dall p. 282: *Cardium planicostatum* Sowerby 1833 not Sedgwick & Murchison, 1829 = *C. magnificum* Deshayes. ••1890 Paetel: *Hemicardium planicostatum* Sow. ••1891 Stearns: *Cardium (Hemicardium) planicostatum* Sby. ••1901 Dall: *Cardium planicostatum* Sowerby, 1833 (not of Sedgwick & Murchison, 1829) = *Cardium (Fragum) magnificum* (Deshayes MS) in Carpenter, 1857. ••1922-32 Sherborn, p. 5009: *Cardium planicostatum* Sowerby, 1833. ••1947 Hertlein & Strong: *Cardium planicostatum* Sowerby, 1833 = *Cardium (Americardia) guanacastensis*. ••1947 ZR: *Cardium planicostatum*

**planior – plenicostatium**

Sow. P.Z.S. 1833 p. 83 not Sedgwick & Murchison 1829 p. 140, replaced by *Cardium (Americardia) guanacastense* Hertlein & Strong, 1947 [nom. nov.]. ••1961 Olsson: *Cardium planicostatium* Sowerby, 1833 = *Trigoniocardia (Americardia) guanacastense* (Hertlein & Strong, 1947). ••1971 Keen: *Cardium planicostatium* Sowerby, 1833 = *Trigoniocardia (Americardia) guanacastensis* (Hertlein and Strong, 1947). ••1974 Abbott: *Cardium planicostatium* Sowerby, 1833, not Sedgwick and Murchison, 1829 = *Americardia guanacastensis* (Hertlein & Strong, 1947). ••1977 Fischer-Piette: *Cardium planicostatium* Sowerby = *Corculum guanacastensis* Hertlein & Strong. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1844 Reeve: shell somewhat squarely cordate, attenuated towards the umbones, rounded anteriorly, very short, concavely angulated posteriorly, middle of the posterior area prominent, radiately ribbed, 30 flat, sharp-edged ribs, the anterior crenated in a somewhat wrinkled manner, posterior finely serrated along the posterior edge, the whole very closely sculptured with arched impressed striae; interstices between the ribs deeply excavated; warm pinkish flesh-colour, clouded and spotted with brown; interior white. ••1891 Stearns: *Cardium planicostatium* Sby. is very close to *C. biangulatum* Sby. Since Sowerby's specific name had been used earlier by Sedgwick & Murchison, 1829, a new name was required for *Cardium planicostatium* of Sowerby. Hence, Hertlein & Strong (1947) proposed the name *Cardium guanacastense*. REMARKS. ••1844 Reeve: one of the most remarkable features in this species is the extremely delicate manner in which the flattened surface of the ribs is very minutely engraved throughout with close-set arched impressed striae. The specimen here figured, from the collection of Mr. Cuming, and one in the British Museum, are all that have as yet been discovered. HABITAT. ••1844 Reeve: found in fine sand at the depth of 13 fathoms. DISTRIBUTION. ••1844 Reeve: Guacomoayo, Central America. ••1947 Hertlein & Strong: California, Costa Rica.

**planior** (variety). – See under *edule planior* Stimpson and *vulgaris planior* Krestovnikov, 1929.

**planiovatum** Tscheltzov, 1965. – *Avicardium planiovatum* Tscheltzov, 1965. Cardiacea. Pliocene. RECORDS. ••1965 ZR: *Avicardium planiovatum* Tscheltzov, 1965 sp. nov. Pliocene, Turkmenia, USSR.

**planissima** (variety). – See under *parvula* var. *planissima*.

**planum** Deshayes, 1838. – Changed combination: *Phyllocardium planum planum* (Deshayes, 1838). Lymnocardiiidae. Tertiary. Type species. *Cardium planum* Deshayes, type species of genus *Phyllocardium* Fischer, 1887 (Dollfus 1905, commenting Andrussow 1903). *Cardium planum* Deshayes, 1838 (monotype) type species of genus *Phyllocardium* sic Fischer, 1887 in family Lymnocardiiidae (Glibert & Poel 1970). TYPE LOCALITY. The Crimea. RECORDS. ••1838 Deshayes, p. 46, pl. 2, figs. 24–30: *Cardium planum*. ••1857 Deshayes: *Cardium planum* Verneuil sic. ••1887 Fischer: *Phyllocardium planum* Deshayes. ••1907 Andrussow: *Phyllicardium planum* Desh. ••1922-32 Sherborn, p. 5017: *Cardium planum* Deshayes, 1838. ••1953 Celidje: *Phyllocardium planum* Desh. ••1970

Glibert & Poel: *Phyllocardium planum* (Deshayes, 1838). ••1977 ZR: *Phyllocardium planum planum* Pliocene. Romania, morphological Variation. Ref. to Papaianopol & Popescu. ••1988 Lyutskanov & Zlatev *Phyllocardium planum* (Desh.).

**planum giganteum** Wenz, 1942 (subspecies). – *Phyllicardium planum giganteum* Wenz, 1942. Lymnocardiiidae. Pliocene. RECORDS. ••1945 ZR: *Phyllicardium (Phyllocardium) planum giganteum* Wenz, 1942 subsp. nov. Pliocene Valea Salcii.

**planum pentagonalis** Huica, 1977 (subspecies). – *Phyllocardium planum pentagonalis* Huica, 1977. Lymnocardiiidae. Pliocene. RECORDS. ••1977 ZR: *Phyllocardium planum pentagonalis* Huica, 1977 subsp. nov. Romania, Pliocene. Ref. to Huica, I. p. 109, fig'd.

**planum rumanum** Wenz, 1942 (subspecies). – *Phyllicardium planum rumanum* Wenz, 1942. Lymnocardiiidae. Pliocene. RECORDS. ••1945 ZR: *Phyllicardium (Phyllocardium) planum rumanum* Wenz, 1942 subsp. nov.

**platense** Orbigny, 1842. – Changed combination: *Dinocardium platense* (d'Orbigny 1842). Cardiidae. Tertiary. RECORDS. ••1922-32 Sherborn, p. 5021: *Cardium platense* d'Orbigny, 1842. ••1930 Stewart: *Cardium platense* d'Orbigny. ••1994 Rio: *Dinocardium platense* (d'Orbigny 1842).

**platipleurum** Brusina. – New combination: *Lymnocardium platipleurum* (Brusina). Lymnocardiiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocardium platipleurum* Brus.

**platonis** Coquand, 1862. – Unknown species. >> Regarding *Cardium platonis*: Cretaceous. TYPE LOCALITY. Constantine. RECORDS. ••1871 Stoliczka: *Cardium platonis* Coquand, 1862 (species insufficiently known). ••1980 Ruhoff: *Cardium platonis* Coquand, 1862; vol. 2: 205, pl. 10, figs. 11–12.

**plebeium** (spelling). – See under *plebejum* Solander, 1786.

**plebejum** Solander. – Not valid. OTHER JUDGEMENTS: *Cardium oblongum*. Cardiidae. Recent. RECORDS. ••1817 Dillwyn: *Cardium plebejum* Solander's MSS = *Cardium oblongum* Chemnitz [not available]. ••1922-32 Sherborn, p. 5033: *Cardium plebeium* Solander, 1786 [n. n.].

**plectopleura** Gardner, 1926. – Changed combination: *Trachycardium plectopleura* (Gardner, 1926). Cardiidae. Tertiary. RECORDS. ••1926 ZR: *Cardium (Trachycardium) plectopleura* Gardner, 1926 sp. n. Tertiary U.S.A. ••1970 Glibert & Poel: *Trachycardium* (s.s.) *plectopleura* (Gardner, 1926).

**pleistopleura** Davidasvili 1932 *Didacna pleistopleura* Davidasvili 1932. Lymnocardiiidae. Fossil. RECORDS. ••1932 ZR: *Didacna pleistopleura* [Ref. Davidasvili 1932]. ••1964 Davidasvili & Kitovani: *Didacna pleistopleura* Dav. type species of genus *Submonodacna* Livalental, 1931. ••1977 Popov: *Didacna (Pontalmyra) pleistopleura*.

**pleistopleura pseudomultistriata** Dav (subspecies). *Submonodacna pleistopleura pseudomultistriata* Dav. Lymnocardiiidae. Fossil. RECORDS. ••1964 Davidasvili & Kitovani: *Submonodacna pleistopleura pseudomultistriata* Dav.

**plenicostatium** (error). – Printer's mistake for

*plenum – plicata*

*planicostatum* in Deshayes 1857.

**plenum** Papaianopol, 1992. – *Dacicardium plenum* Papaianopol, 1992. Lymnocardiiidae. Pliocene. TYPE LOCALITY. Dacien inferior (Getien) du Bassin Dacique, Romania. RECORDS. ••1992 Papaianopol, p. 25, fig.: *Dacicardium plenum* sp. nov.

**pleonexia** Davidachvili, 1933 – Changed combination: *Pseudocatillus pleonexia* (Davidachvili, 1933). Lymnocardiiidae. Upper Pliocene. RECORDS. ••1934 ZR: *Monodacna pleonexia* Davidachvili, 1933 sp. n. Upper Pliocene Georgia, Caucasus. ••1939 ZR: *Monodacna pleonexia* [? Bogatshev, 1938a] “sp. n.” Baku. ••1964 Davidaschvili & Kitovani: *Monodacna pleonexia* Dav. ••1967 Ebersin: *Pseudocatillus pleonexia* (David.).

**plesiochora** Dav.– *Didacna plesiochora* Dav. Lymnocardiiidae. Fossil. RECORDS. ••1964 Davidaschvili & Kitovani: *Didacna plesiochora* Dav. ••1964 Davidaschvili & Kitovani: *Submonodacna plesiochora* Dav.

**Pleuriocardia** Scott, 1978 (genus). – Cardiidae. Fossil. GENOTYPE. *Cardium* (?) *kansasense* Meek, 1871. OD. RECORDS. ••1978 Scott: *Pleuriocardia* Scott, 1978 n. gen. (Cretaceous). ••1978 ZR: *Pleuriocardia* Scott, 1978 gen. nov. of Cardiidae. Type species *Cardium kansasense* Meek, 1871. Lower Cretaceous. Ref. to Scott p. 893. ••1978 ZR: *Pleuriocardia* (*Pleuriocardia*) Diagnosis. Ref. to Scott p. 894. ••1980 Vokes: *Pleuriocardia* Scott, 1978. Fossil. ••1986 Abdel-Gawad: genus *Pleuriocardia* Scott, 1978. ••1995 Schneider: *Pleuriocardia* (*Pleuriocardia*) Scott, 1978 Cretaceous. ••1995 Schneider: *Pleuriocardia* (*Dochnocardia*) Scott, 1978 Cretaceous. ••1998 Schneider: *Pleuriocardia*. Type species *Pleuriocardia kansasense* (Meek, 1871).

**Pleuriocardia** Scott, 1978 (subgenus). – Cardiidae. Fossil. RECORDS. ••1978 Scott p. 894, pl. 1, figs. 1-13: (*Pleuriocardia*) Scott, 1978 n. subgen. (Cretaceous). ••1986 Abdel-Gawad: subgenus (*Pleuriocardia*) Scott, 1978.

**Pleuriocardiinae** (subfamily). – Cardiidae. RECORDS. ••1995 Schneider: Pleuriocardiinae Schneider, 1995 subfam. n. Type genus: *Pleuriocardia* Scott, 1978. ••2002 Schneider: *Incardium* has been transferred to Pleuriocardiinae. ••2001 Schneider & Carter: Pleuriocardiinae (subfamily) Schneider, 1995. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••2000 Schneider: Cardiidae with sculpture of radial ribs on entirety of shell, cross-striae in rib interspaces. Unlike most cardiids, the right cardinal teeth are of almost equal size: anterior right cardinal tooth large, wide, blunt, arching over anterior cardinal socket. Posterior right cardinal tooth shaped as in *Nemocardium* and *Granocardium*, but rotated counterclockwise so that the tooth and the right posterior cardinal socket are at less than a 35° angle from the horizontal. Spines of concave-down triangles emanating from top of ribs (may be microscopic). OCCURRENCE. ••2000 Schneider: Albian to Maastrichtian, United States, Mexico, Jamaica, Peru, France, England, Algeria, Libya, Egypt.

**Pleurorhynchus** Phillips, 1836 (genus). – Synonym of *Conocardium* Bronn, 1835. >> Regarding *Pleurorhynchus*. Conocardiidae: Fossil. RECORDS. ••1847 Gray, No. 561: *Pleurorhynchus*, sp. Swains.

1840. Synonym of *Cardium*, sp. Lam.; type species *Card. avicularia*. ••1857 Deshayes: *Pleurorhynchus* Phillips, in Swainson, Morris: syn. of *Cardium*. ••1887 Fischer: *Pleurorhynchus* Phillips, 1836. Jun. syn. of *Conocardium* Bronn, 1835.

**plicata** (mode). – See also under *plicatum* Eichwald, 1829 & 1840.

**plicata** Eichwald, 1829. [Figs. Part 1 p. 122, 181]. – *Hypanis plicata* (Eichwald, 1829). Lymnocardiiidae. Miocene and Recent. TYPE LOCALITY. Caspian Sea. RECORDS. ••1829 Eichwald: *Glycimeris plicata*. ••1838 Eichwald: *Adacna plicata* m. ••1838 Eichwald: *Hypanis plicata* Pand. Menetr. ••1838 Eichwald: *Glycimeris plicata* Zool. special. ••1841 Eichwald: *Adacna plicata*. ••1849 Middendorff: *Pholadomya plicata* Eichw. (*vide* Andrussoff 1903). ••1858 Adams & Adams, p. 460: *Adacna plicata*, Eichw. ••1866 Issel: *Adacna plicata*, Eichwald, 1842. ••1877 Grimm: *Adacna plicata* Eichwald. ••1877 ZR: *Adacna plicata* (Eichw.) Caspian Sea [Ref. Grimm 1877]. ••1890 Paetel: *Adacna plicata* Eichw. ••1890 Woodward: *Adacna plicata* Eich. – Caspian, Black Sea. ••1884 Grasset: *Adacna plicata*. Eich. ••1903 Andrussoff: *Glycimeris plicata* Eichwald, 1829. ••1903 Andrussoff: Eichwald, 1838 *Glycimeris plicata* (moved to genus *Adacna*). ••1917 ZR: *Adacna plicata* [Ref. Andrusov 1914]. ••1922-32 Sherborn, p. 5045: *Glycimeris plicata* Eichwald, 1829, Fauna Caspio-Caucasia, p. 224. ••1935 ZR: *Limnocardium plicatum* Eichw. [Ref. Friedberg 1934]. ••1935 ZR: *Limnocardium plicatum* Miocene Poland [Ref. Friedberg 1934]. ••1968 Logvinenko & Starobogatov: *Hypanis plicata plicata* (Eichwald). ••1968 Logvinenko & Starobogatov: *Glycimeris plicata* Eichwald, 1829 = *Hypanis plicata plicata* Eichwald. ••1968 Logvinenko & Starobogatov: *Mya edentula* Pallas, 1771 = *Hypanis plicata plicata* Eichwald. ••1969 Nordsieck: *Hypanis plicatus* (Eichwald, 1829). ••1977 Popov.; *A. plicata* (Eichw.). ••1977 Popov: *Hypanis plicatus*. ••1977 Popov: *Plicatiforma plicatum* [fossil] = ?Eichwald's species. ••1992 Schneider p. 155: *Hypanis plicatum* (Eichwald). Type species of *Hypanis*. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1884 Grasset: Caspian Sea. ••1969 Nordsieck: Black Sea.

**plicata** Eichwald, 1829. – See also under *plicata* Pander in Menetries, 1832.

**plicata** Eichwald, 1838. – *Hypanis plicata* Eichwald. Cardiacea. Fossil. RECORDS. ••1857 Deshayes: *Cardium plicatum* Eichwald, 1840. ••1882. Menetries designated *Cardium plicatum* Eichwald, 1829 *sic* as type species of the genus *Hypanis* Eichwald, 1838 [Remarks: Eichwald did not describe a species called *Cardium plicatum* in 1829]. ••1888 Kobelt: *Cardium plicatum* Eichw. (*Adacna*). ••1893. Ostroumoff: *Cardium plicatum* (Eichw.). ••1922-32 Sherborn, p. 5045: *Adacna sic* (Pand.) *plicata* Eichwald, 1838. ••1922-32 Sherborn, p. 5045: *Hypanis ? plicata* Eichwald, 1838. ••1987. Taktakishvili: *Cardium plicatum* Eichw. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection as *Cardium plicatum* Eichwald. Austria, B31397.

**plicata** Eichwald, 1841. – *Adacna plicata* Eichwald. Cardiacea. Fossil. RECORDS. ••1922-32 Sherborn, p. 5045: *Adacna plicata* Eichwald, 1841 N. Mem. Soc.

**plicata – plicatum**

- Imp. Nat. Moscou, VII, p. 280. – *Glycimeris plicata* Eichwald, 1829, Fauna Caspio-Caucasia, p. 224.
- plicata** Grimm. – Changed combination: *Adacna plicata* Grimm non Eichwald, 1877. Replaced by *Adacna (Hypanis) grimmii* Andrusov, 1963. Lymnocardidae. Pliocene. RECORDS. ••1963 ZR: *Adacna plicata* Grimm non Eichwald, 1877 replaced by *Adacna (Hypanis) grimmii* Andrusov, 1963 Pliocene, Russia [Ref. Andrusov 1963].
- plicata** Pander in Menetries, 1832. – Changed combination: *Adacna plicata* (Pander in Menetries, 1832). Lymnocardidae. Fossil. RECORDS. ••1837 Krynicky: *Hypanis plicata* Pander. Menetries = *Glycimeris plicata* Eichw. Zool. spec. I. 279. V. 2. However, Krynicky doubts the proposed synonymy. ••1903 Andrusoff: *Hypanis plicata* Pand. in Menetries 1832 = *Amphidesma caspia* Krynicky, 1837. ••1905 Dollfus, commenting Andrusow 1903: *Adacna plicata* type species of group *Hypanis* Pander.
- plicata golbarga** Tadjalli-Pour, 1977 (subspecies). – *Hypanis plicata golbarga* Tadjalli-Pour, 1977. Lymnocardidae. Recent. RECORDS. ••1977 ZR: *Hypanis plicata golbarga* Tadjalli-Pour, 1977 subsp. nov. Caspian Sea. Ref to Tadjalli-Pour, M. p. 99, fig'd.
- plicata luciae** Borcea, 1926 (form). – Infrasubspecific. No evidence of subspecific status. >> Regarding *Adacna plicata plicata* forma *luciae*: Changed combination: *Hypanis luciae* (Borcea, 1926). Lymnocardidae. Recent. DISTRIBUTION. Caspian Sea. RECORDS. ••1962 Grossu: *Adacna plicata plicata* forma *luciae* Borcea.
- plicata minima** – *Adacna plicata minima*. Lymnocardidae. Recent. RECORDS. ••1963 ZR: *Adacna plicata minima*, food and feeding mechanism [Ref. Romanova 1963].
- plicata relicta** Milaschewitch, 1916 (variety). – Changed combination: *Hypanis plicata relicta* (Milaschewitch, 1916). Lymnocardidae. Recent. RECORDS. ••1962 Grossu: *Adacna plicata* var. *relicta* Mil. ••1963 ZR: *Adacna plicata relicta* from Quaternary deposits of the Danube delta [Ref. Grossu & Baltac 1963]. ••1969 Nordsieck: *Hypanis plicatus relictus* (Milaschewicz). ••Scarlato & Starobogatov: *Hypanis plicata relicta* (Milaschewitch, 1916). – CHARACTERS AND OCCURRENCE – REMARKS. The name of the author is spelled in different ways: Milaschewicz, Milaschewitch, and Milasevic. DISTRIBUTION. ••1969 Nordsieck: Black Sea.
- plicata relicta dolosmiana** Borcea, 1926 (form). – *Hypanis dolosmiana* Borcea, 1926. >> Regarding *Adacna plicata relicta dolosmiana*: Lymnocardidae. Fossil. RECORDS. ••1962 Grossu: *Adacna plicata relicta* forma *dolosmiana* Borc. ••Scarlato & Starobogatov: *Hypanis dolosmiana* Borcea, 1926.
- plicataeformis** Gorj.-Kramb. – New combination: *Lymnocardium plicataeformis* (Gorj.-Kramb.). Lymnocardidae. Fossil. RECORDS. ••1987 Taktakishvili: *Lymnocardium plicataeformis* (Gorj.-Kramb.).
- plicatella** (variety). – See under *plicatum plicatella* Friedberg, 1934.
- plicatieostatum** Tscheltzov, 1965. – Combination to be revised: “*Cardium*” *plicatieostatum* sic Tscheltzov, 1965. Cardiacea. Pliocene. RECORDS. ••1965 ZR: *Cardium plicatieostatum* sic Tscheltzov, 1965 sp. nov. Akchagylian (Pliocene), Turkmenia, USSR.
- Plicatiforma** Paramanova, 1971 (genus). – Synonym of *Plicatiformes* Kolesnikov, 1948. Lymnocardidae. Tertiary. RECORDS. ••1977 ZR: *Cerastoderma (Plicatiforma)*. Key to species. Ref to Il'ina, Neveeskaya & Paramanova p. 70. ••1980 Vokes: *Plicatiforma* Paramanova, 1971 pro *Plicatiformes* Kolesnikov, 1948. ••2001 Schneider & Carter: *Plicatiforma* (genus). Lymnocardidae. Miocene.
- Plicatiforma** Tournouer, 1882 (genus). – RECORDS. ••1977 Popov: *Plicatiforma* Tournouer, 1882.
- Plicatiformes** Kolesnikov, 1948 (genus). – Lymnocardidae. Tertiary and Recent. RECORDS. ••1980 Vokes: *Plicatiformes* Kolesnikov, 1948.
- plicatofittoni** – Combination to be revised: “*Cardium*” *plicatofittoni*. Cardiacea. Sarmatian. RECORDS. ••1965 ZR: *Cardium plicatofittoni* figd. Sarmatian, Yugoslavia [Ref. Spajic 1965].
- plicatoforme** Senes, 1955. – Combination to be revised: “*Cardium*” *plicatoforme* Senes, 1955. Lymnocardidae. Miocene. RECORDS. ••1955 ZR: *Cardium (Lymnocardium) plicatoforme* Senes, 1955 sp. nov. Miocene, Czechoslovakia.
- plicatoides chisinau** Mateuti-Sorooca. – Upgraded. Combination to be revised: “*Cardium*” *plicatoides chisinau* Mateuti-Sorooca. Cardiacea. Sarmatian. RECORDS. ••1946 ZR: *Cardium plicatoides* Mateuti-Sorooca n. f. *chisinau*, Sarmatian fossil, Rumania.
- plicatum** (*us* (mode)). – See also under *plicata* Eichwald, 1829 & 1840.
- \*plicatum**. – Homonymy to be noticed. *Cardium plicatum* from 2 sources: Eichwald, 1830. – Münster in Goldfuss, 1837.
- plicatum** Eichwald, 1830. – RECORDS. ••1922-32 Sherborn, p. 5046: *Cardium plicatum* Eichwald, 1830. Nat. Lithauen, 209.
- plicatum** Münster in Goldfuss, 1837. – Replaced by “*Cardium*” *munsteri* Deshayes. Combination to be revised >> Regarding “*C.*” *plicatum*: Cardiidae. Fossil. RECORDS. ••1857 Deshayes: *Cardium plicatum* Munster, 1840 – *C. munsteri* Desh. ••1922-32 Sherborn, p. 5046: *Cardium plicatum* Muenster in Goldfuss, 1837, p. 215.
- plicatum jammense** (subspecies). – *Plicatiforma plicatum jammense*. Lymnocardidae. Fossil. RECORDS. ••1977 Popov: *Plicatiforma plicatum jammense*.
- plicatum plicatella** Friedberg, 1934 (variety). – New combination: *Lymnocardium plicatum plicatella* (Friedberg, 1934). Lymnocardidae. Miocene. RECORDS. ••1935 ZR: *Lymnocardium plicatum* var. *plicatella* Friedberg, 1934 nov. Miocene Poland.
- plicatum pseudoplicatum** Friedberg, 1934 (variety). – New combination: *Lymnocardium plicatum pseudoplicatum* (Friedberg, 1934). Lymnocardidae. Miocene. RECORDS. ••1935 ZR: *Lymnocardium plicatum* var. *pseudoplicatum* Friedberg, 1934 nov. Miocene Poland.
- plicatum rybnicense** Grishkevitch & Neveeskaya, 1959 (subspecies). – *Nomen nudum*. >> Regarding *Cardium plicatum rybnicense*: Cardiacea. Miocene. RECORDS. ••1959 ZR: *Cardium plicatum rybnicense* Grishkevitch & Neveeskaya, 1959 subsp. nov. as nom. nud. in list p. 90, Northern shore of Kara-Bogaz, Turkmeniya, Sarmatian, Miocene.
- plicatum**. – *Cerastoderma plicatum*. Cardiidae. ? fossil. RECORDS. ••1977 ZR: *Cerastoderma* sic (*Plicatiforma*)

- plicatum*. Key to subspecies. Ref to Il'ina, Neveeskaya & Paramonova p. 70.
- plinthinatus** Branson, 1942. – New name: *Conocardium plinthinatus* Branson, 1942. Conocardiidae. Fossil. RECORDS. ••1942 ZR: *Conocardium plinthinatus* Branson, 1942 nom. nov. for *Conocardium ornatum* Cleland 1911 non Winchell & Marcy 1865. ••1943 ZR: *Conocardium plinthinatus* Branson, 1942 nom. nov. for *C. ornatum* Cleland, 1911 not Winchell & Marcy.
- plumsteadianum** (error). – Printer's mistake for *plumstedianum* in Deshayes 1857, Le Renard *et al.* 1995, and Pacaud & Renard 1995.
- plumstedianum** Sowerby, 1813. – Changed combination: *Nemocardium plumstedianum* (Sowerby, 1813). Cardiidae. Oligocene. RECORDS. ••1835 Lamarck: *Cardium plumstedianum* Sow. = *Cardium semi-granulosum* Sow. ••1857 Deshayes: *Cardium plumsteadianum* sic Sowerby. ••1922-32 Sherborn, p. 5061: *Cardium plumstedianum* Sowerby, 1813. ••1970 Glibert & Poel: *Nemocardium* (s.s.) *plumstedianum* (Sowerby, 1813). ••1995 Le Renard *et al.*: *Nemocardium* (s. str.) *plumsteadianum* [*Cardium plumstedianum*] Sowerby J., 1813. ••1995 Pacaud & Renard: *Nemocardium* (*Nemocardium*) *plumsteadianum*. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium plumstedianum* Sowerby. Germany, B24909.
- pluricostata** – *Hyrkania pluricostata*. Lymnocypridae. Fossil. RECORDS. ••1977 Popov: *Hyrkania* (*Hyrkania*) *pluricostata*.
- pluricostata** (variety). – See under *caucasica pluricostata* Andrussov, 1923. – *planicostata pluricostata* Andrussov, 1964.
- plurintermedia** Andrussov, 1924. – *Didacna plurintermedia* Andrussov, 1924. Lymnocypridae. Pliocene and Pleistocene. RECORDS. ••1924 ZR: *Didacna plurintermedia* Andrussov, 1924 sp. n. Pleistocene. ••1963 ZR: *Didacna plurintermedia* Andrussov, 1963 sp. nov. Apsheiron layers, Pliocene, Russia.
- pluriradiatum** Chen *et al.* – *Tulongocardium pluriradiatum* (Chen, Chen & Zhang, 1976). Cardiacea. Upper Triassic. RECORDS. ••1980 ZR: *Cardium* (*Tulongocardium*) *pluriradiatum* Chen, Chen & Zhang, 1976 sp. nov. China, Upper Triassic. Type species of subgenus (*Tulongocardium*). Ref. to Wen *et al.*, p. 32. ••1995 Schneider: *Cardium* (*Tulongocardium*) *pluriradiatum* Chen, Chen & Zhang in Lan & Chen, 1976. Type species of *Tulongocardium* Chen, Chen & Zhang in Lan and Chen, 1976.
- plurisuperfactata** (variety). – See under *lamareckii plurisuperfactata* Coen, 1937.
- podolicum** Deshayes, 1853. – Combination to be revised: "*Cardium*" *podolicum* Deshayes. Cardiacea. Fossil. RECORDS. ••1857 Deshayes: *Cardium podolicum* Desh. ••1980 Ruhoff: *Cardium podolicum* Deshayes, 1853; vol. 2: 49.
- pokveschia** Akhvediani, 1966. – *Plagiodacna pokveschia* Akhvediani, 1966. Lymnocypridae. Middle Pliocene. RECORDS. ••1966 ZR: *Plagiodacna pokveschia* Akhvediani, 1966 sp. nov. Mid-Pliocene, River Galizqa, Kerchensk Peninsula. SSR.
- poleanum** Schauthroth, 1865. – Combination to be revised: "*Cardium*" *poleanum* Schauthroth, 1865. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium poleanum* Schauthroth, 1865; p. 209, pl. 18, fig 10
- polemonis** Schwets, 1913. – Changed combination: *Pseudocatillus polemonis* (Schwets, 1913). Lymnocypridae. Fossil. RECORDS. ••1913 ZR: *Monodacna polemonis* Schwetz, 1913 sp. n. Tertiary, Kertsch. ••1967 Ebersin: *Pseudocatillus polemonis* (Schwets). ••1984 ZR: *Pseudocatillus polemonis* Schwetz. Referred to new subgenus *P.* (*Donaciatillus*). Ref. to Akhvediani p. 71.
- polii** Payraudeau, 1826. [Figs. Part 1 p. 143. Part 3 p. 933]. – Synonym of *Parvicardium papillosum* (Poli, 1791). OTHER JUDGEMENTS: *Cardium planatum* Renier. – *Cardium scabrum* Phil. >> Regarding *Cardium polii*: Cardiidae. Recent. DISTRIBUTION. Mediterranean (Reeve 1845). RECORDS. ••1826 Payraudeau, N. 96: *Cardium polii* Nob. (new name for *C. papillosum* Poli; *papillosum* preoccupied). ••1832 Bronn: ? *Cardium polii* Pa. 57 = *Cardium planatum* Brch. ••1836 Philippi: *Cardium polii* Payr. p. 57. = *Cardium papillosum* Poli. ••1845 Reeve: *Cardium polii* Payraudeau = *Cardium papillosum* Poli. ••1848 Requier: *Cardium polii*. Payr. = *Cardium scabrum*. Phil. tom. 2. p. 38. tab. 14. fig. 16. ••1850 Jay: *Cardium polii* Payr. = *Cardium papillosum* Poli. ••1857 Deshayes: *Cardium polii* Payraudeau sic. ••1862 Weinkauff: *Cardium polii*, Payr. = *Cardium papillosum*, Poli. ••1867 Hidalgo: *Cardium polii*, Payraudeau = *Cardium papillosum*, Poli. ••1867 Weinkauff: *Cardium polii* Payraudeau = *Cardium papillosum* Poli. ••1886 Locard: *Cardium polii*, Payraudeau, 1826 = *Cardium papillosum*, Poli, 1791. ••1888 Kobelt: *Cardium polii* Payraudeau = *Cardium papillosum* Poli. ••1888 Servain: *Cardium polii* Payraudeau = *Cardium papillosum* Poli, 1791. ••1890 Hidalgo: *Cardium poli* Payraudeau = *Cardium papillosum* Poli. ••1890 Paetel: *Cardium polii* Payr. = *papillosum* Poli. ••1900 Locard & Caziot: *Cardium polii* = *Cardium papillosum* Poli, 1791. ••1902 Dollfus & Dautzenberg: *Cardium polii* Payraudeau, 1826 = *Cardium* (*Parvicardium*) *papillosum* Poli, 1791. ••1922-32 Sherborn, p. 5074: *Cardium polii* Payraudeau, 1826. ••1977 Fischer-Piette: *Cardium polii* Payraudeau = *Cardium papillosum* Poli.
- polii** Payraudeau (variety). – Identical with *Parvicardium papillosum* (Poli, 1791). Cardiidae. Recent. RECORDS. ••1878 Monterosato: *Cardium* var. *polii* Payr. *C. obliquatum* Arad. = *Cardium papillosum* Poli.
- politioanei** Jekelius, 1944. – *Cerastoderma politioanei* (Jekelius, 1944). Cardiidae. Miocene. RECORDS. ••1946 ZR: *Cardium politioanei* Jekelius, 1944 sp. nov. Miocene Soceni Banat. ••1965 ZR: *Cardium politioanei* figd. Sarmatian, Yugoslavia [Ref. Spajic 1965]. ••1977 ZR: *Cerastoderma* (*Inaequicostata*) *politioanei* (Jekelius) Key to subspecies. Ref to Il'ina, Neveeskaya & Paramonova p. 77.
- politioanei suessiformis** Jekelius, 1944 (subspecies). – Combination to be revised: "*Cardium*" *politioanei suessiformis* Jekelius 1944. Cardiidae. Miocene. RECORDS. ••1946 ZR: *Cardium politioanei* var. *suessiformis* Jekelius, 1944 nov. (type f. 15). Miocene Soceni Banat. ••1971 ZR: *Cardium politioanei suessiformis* Jekelius 1944 Neotype Designated p. 57 Morphological variation [Ref. Hinculov 1971].
- \*politum**. – Homonymy to be noticed. *Cardium politum* from 2 sources: Spengler, 1799. – Risso, 1826.

*politum* – *pondicheriense*

- politum*** Risso, 1826. – Unknown species. >> Regarding *Cardium politum*: Cardiidae. Recent. TYPE LOCALITY. South Europe (Fischer–Piette, 1977). REMARKS. No description, no figure. RECORDS. ••1826 Poli, p. 333: *Cardium politum*. ••1922–32 Sherborn, p. 5077: *Cardium politum* Risso, 1826. ••1977 Fischer–Piette: *Cardium politum* Risso = species insufficiently known.
- politum*** Spengler, 1799. [Figs. Part 3 p. 896]. – Unknown species. >> Regarding *Cardium politum*: Cardiidae. Recent. TYPE LOCALITY. South Seas (Pacific Ocean) (Spengler, 1799). TYPE REPOSITORY. ZMUC. RECORDS. ••1799 Spengler, p. 46, No. 30: *Cardium politum*. ••1808 Spengler, p. 126: *Cardium politum*. ••1870 Mörch: *Cardium politum* Spgl.; resembling *C. norvegicum* Spengler. ••1902 Sherborn, p. 765: *Cardium politum* Spengler, 1799. ••1977 Fischer–Piette: *Cardium politum* Spengler. Species insufficiently known. ••1999 Knudsen & Hylleberg: *Cardium politum* Spengler, 1799. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1799 Spengler: shell circular, compressed, not inflated, smooth, very glossy, inner margin finely dentate, extending inside shell, colour outside even light yellow, blue–grey lines imbedded in the shell, extend from umbo to margin, inside dark yellow. DESCRIPTIONS. ••1799 Spengler: *Testa cordata aequivalvi, laevigato-striata, margine intus dentato*. ••1799 Spengler translated by Knudsen & Hylleberg 1999: this *Cardium*, which also comes from the South Sea, is still smaller than the preceding one [*Cardium striatum*]. Like this, it is circular in outline, not vaulted, but flatly compressed. The whole surface is smooth, shining as polished agate. The whole internal margin of the cockle is provided with numerous fine teeth, which reach rather far up internally. The outside has a uniform beautiful light yellow colour, provided with grey–blue lines extending longitudinally under the glaze and shining through it. Inside the colour is dark–yellow. DIMENSIONS. Height and breadth 3/4 Tom. (20 mm). REMARKS. ••1977: Fischer–Piette considers the species insufficiently known because it has not been illustrated or recorded since its description by Spengler. Vidal (1996) identified the shell as *Laevicardium crassum* (label at ZMUC). HABITAT. ••1799 Spengler: South Seas.
- polonicum*** Alth, 1850. – Synonym of *Nemocardium fenestratum* (Kner 1850). >> Regarding *Cardium polonicum*: Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 5083: *Cardium polonicum* Alth, 1850. ••1986 Abdel–Gawad: *Cardium polonicum* Alth, 1850 = *Nemocardium (Nemocardium) fenestratum* (Kner 1850). ••1980 Ruhoff: *Cardium polonicum* Alth, 1850; vol. 3(2): 227, pl. 12, fig. 3.
- polycolpatum*** Cossmann & Peyrot, 1911. – Changed combination: *Europicardium polycolpatum* (Cossmann & Peyrot 1911). Cardiidae. Tertiary. RECORDS. ••1902 Dollfus & Dautzenberg: *Cardium polycolpatum* Cossmann & Peyrot, 1912 = *Cardium (Trachycardium) multicosstatum* Brocchi, 1814. ••1911 ZR: *Cardium (Trachycardium) polycolpatum* Cossmann & Peyrot, 1911 sp. n. France Neogene. ••1959 Csepregy–Meznerics: *Cardium (Trachycardium) polycolpatum* Cossmann et Peyrot. ••1977 Popov: *Bucardium (Europicardium) polycolpatum* (Cossmann & Peyrot, 1911). ••1994 Marcomini: *Cardium (Trachycardium) polycolpatum* Cossmann & Peyrot, 1912. ••2002 Schneider: *Europicardium polycolpatum* (Cossmann & Peyrot 1911). France. Aquitanian–Burdigalian.
- polymorpha*** (subspecies). – See under *angusticostata polymorpha* Logvinenko & Starobogatov, 1967.
- polyodon*** Solander, 1786. – *Cardium polyodon* Solander, 1786. RECORDS. ••1786 Solander, p. 17 no. 382: *Cardium polyodon*.
- polypleurum*** Brusina. – New combination: *Lymnocardium polypleurum* (Brusina). Lymnocardiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocardium polypleurum* Brus.
- polyptyctus*** Bayan, 1870. – Changed combination: *Discors polyptyctus* (Bay.). Cardiidae. Eocene and Oligocene. RECORDS. ••1899 Sacco: *Discors polyptyctus* (Bay.). ••1980 Ruhoff: *Cardium polyptyctum* Bayan, 1870; vol. 27: 461, 485. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium polyptyctum* Bayan. Upper Lutetien. Egypt, B43628.
- pomeyrolii*** Keen, 1954. – *Granocardium pomeyrolii* Keen, 1954. Cardiidae. Upper Cretaceous. RECORDS. ••1954 Keen: *Granocardium (Ethmocardium) pomeyrolii* Keen, n. sp. ••1954 ZR: *Granocardium (Ethmocardium) pomeyrolii* Keen, 1954 sp. nov. Upper Cretaceous, New Caledonia. ••1956 ZR: *Granocardium (Ethmocardium) pomeyrolii* from New Caledonia, now thought to be Cretaceous [Ref. Pomeyrol 1956]. ••1978 Freneix & Mackie: *Granocardium (Ethmocardium) pomeyrolii* Keen, 1954.
- pomeyrolii pomeyrolii*** Freneix, 1957 (form). – Infrasubspecific level. *Granocardium (Ethmocardium) pomeyrolii pomeyrolii* Freneix, 1957. Cardiidae. Cretaceous. RECORDS. ••1957 ZR: *Granocardium (Ethmocardium) pomeyrolii pomeyrolii* Freneix, 1957 forma nov. Cretaceous, New Caledonia [Ref. Freneix 1957].
- pomeyrolii transversa*** Freneix, 1957 (form). – *Granocardium pomeyrolii transversa* Freneix, 1957. Cardiidae. Cretaceous. RECORDS. ••1957 ZR: *Granocardium (Ethmocardium) pomeyrolii transversa* Freneix, 1957 forma nov. New Caledonia [Ref. Freneix 1957].
- pomeyrote*** Keen, 1954. – *Granocardium pomeyrote* Keen, 1954. Cardiidae. Cretaceous. RECORDS. ••1954 ZR: *Granocardium (Ethmocardium) pomeyrote* Keen, 1954 sp. nov. Upper Cretaceous, New Caledonia.
- ponacoides** (error). – Printer's mistake for *donacoides* in Andrussow 1907, p. 108.
- ponchibaense*** Amano, 1983. – *Clinocardium ponchibaense* Amano, 1983. Cardiidae. Miocene. RECORDS. ••1983 ZR: *Clinocardium (Keenocardium) ponchibaense* Amano, 1983 sp. nov. Japan. Ref. to Amano, p. 47.
- ponderosum*** (variety). – See under *norvegicum ponderosum* Bucquoy, Dautzenberg & Dollfus, 1889.
- pondicheriense*** Orbigny, 1847. – *Protocardium pondicheriense* Orbigny, 1847. Cardiidae. Cretaceous. REMARKS. Species intermediate between *Protocardium hillanum* and *Protocardium altum*. *Cardium pondicheriense* considered syn. with *Cardium altum* by d'Orbigny but Stoliczka finds the two species distinct. RECORDS. ••1871 Stoliczka: *Protocardium*

- pondicheriense* d'Orbigny, 1847.
- Pontalmyra** Sabba Stefanescu, 1896 (genus). – Lymnocypridae. Tertiary. Erected to accommodate Rumanian Pontian [Tertiary basin] cyprids. RECORDS. ••1896 ZR: *Pontalmyra* Stefanescu, 1896 n. g. Miocene, Roumania. ••1903 Andrussoff: *Pontalmyra* Sabba Stefanescu, 1896. ••1905 Dollfus, commenting Andrussoff 1903: *Pontalmyra*. ••1980 Vokes: *Pontalmyra* Stefanescu, 1896 in subfamily Didacninae. ••1981 ZR: *Pontalmyra* Sabba Stefanescu, 1896. Miocene, Romania. Ref. to Papaianopol, p. 7. ••1987 Taktakishvili: *Pontalmyra* Sabba Stefanescu, 1896.
- Pontalmyra** Sabba Stefanescu, 1896 (subgenus). – Lymnocypridae. Tertiary. RECORDS. ••1905 Dollfus, commenting Andrussoff 1903: *Cardium planicostatum* Deshayes is type species of sub-form *Pontalmyra*.
- Pontalmyrini** Taktakishvili, 1985 (tribe). – Lymnocypridae. Fossil. RECORDS. ••1987 Taktakishvili: Pontalmyrini tribe nov. of Lymnocyprinae. Type genus *Pontalmyra* Sabba Stefanescu, 1896. ••1987 Taktakishvili, p.85: *Oraphocardium* Ebersin, 1949; referred to new tribe Pontalmyrini.
- ponteleviense** Mayer, 1868. – *Papyridea ponteleviense* (Mayer, 1868). Cardiidae. Fossil. RECORDS. ••1886 Dollfus & Dautzenberg: *Cardium (Papyridea) ponteleviense* Mayer. ••1902 Dollfus & Dautzenberg, p. 330: *Cardium (Papyridea) ponteleviense* sic Mayr, 1868. ••1970 Glibert & Poel: *Papyridea ponteleviense* (Mayer, 1868). ••1980 Ruhoff: *Cardium ponteleviense* Mayer, 1868; [1857–1869] vol. 16: 189, pl. 7, fig. 5.
- pontica** (variety). – See under *caspia pontica* Eichwald 1838.
- pontica** Celidje, 1953. – *Chartadacna pontica* Celidje, 1953. Lymnocypridae. Fossil. RECORDS. ••1953 Celidje, p. 157: *Chartadacna pontica* gen. et sp. nov.
- pontica** Eichwald, 1838. – Synonym of *Hypanis caspia* (Eichwald, 1841). OTHER JUDGEMENTS: *Monodacna pseudocardium* Deshayes, 1838. – *Monodacna pontica* Eichwald, 1841. >> Regarding *Monodacna pontica*: Lymnocypridae. Recent. TYPE LOCALITY. Caspian Sea. DISTRIBUTION. Caspian Sea. RECORDS. ••1838 Eichwald, p. 168–169: *Monodacna pontica* m. ••1841 Eichwald, p. 219: *Monodacna pontica* m. ••1857 Deshayes: *Cardium ponticum*. ••1888 Kobelt: *Cardium ponticum* Eichw. = *Monodacna pseudocardium*. ••1890 Woodward: *Monodacna pontica*, Eich. – Black Sea. ••1893 Ostroumoff: *Cardium ponticum*. ••1903 Andrussoff: Eichwald, 1838 *Monodacna pontica* n. sp. sic. ••1908 Milaschewitch: *pontica* Eichw. syn. = *Monodacna pseudocardium* (Deshayes) 1838. ••1922–32 Sherborn, p. 5107: *Monodacna pontica* Eichwald, 1838. ••1922–32 Sherborn, p. 5107: *Monodacna pontica* Eichwald, 1841. ••1962 ZR: *Monodacna pontica* in the étangs of Crapina–Jijila, Roumania [Ref. Botnariuc 1962]. ••1963 ZR: *Monodacna pontica* from deposits of the Danube delta [Ref. Grossu & Baltac 1963]. ••1974 ZR: *Monodacna pontica*. Artificial pond. Acclimatization. Ref. to Ioffe. ••1975 ZR: *Monodacna pontica*. Distribution. Lake USSR. Ref. to Zhuravel.
- pontica carinata** Grossu & Baltac, 1963 (subspecies). – *Monodacna pontica carinata* Grossu & Baltac, 1963. Lymnocypridae. Quaternary. RECORDS. ••1963 ZR: *Monodacna pontica carinata* Grossu & Baltac, 1963 subsp. nov. Quaternary deposits of the Danube Delta, Rumania.
- ponticum** Deshayes, 1853. – Combination to be revised: “*Cardium*” *ponticum* Deshayes, 1853. Lymnocypridae. Fossil. ••1980 Ruhoff: *Cardium ponticum* Deshayes, 1853; vol. 2: 49.
- ponticum** (aff.) Hal. – New combination: *Lymnocypridium* aff. *ponticum* (Hal.). Lymnocypridae. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocypridium* aff. *ponticum* (Hal.).
- ponticus** Ebersin, 1955. – *Valenciennius ponticus* Ebersin, 1955. Cardiacea. Fossil. RECORDS. ••1955 Ebersin: *Valenciennius ponticus* sp. nov.
- pontileviense** (error). – Printer's mistake for *ponteleviense* in Dollfus & Dautzenberg 1902
- pontocaspia** Pavlov, 1925. – Changed combination: *Didacna pontocaspia* (Pavlov, 1925). Lymnocypridae. Pleistocene and Quaternary. RECORDS. ••1926 ZR: *Cardium (Didacna) pontocaspium* Pavlov, 1926 sp. n. Tertiary S.E. Europe. ••1929 ZR: *Cardium (Didacna) pontocaspium* Pavlov. 1925 sp. n. Neogene & Quaternary of S.E. Europe. ••1932 Zoological Record, VIII. Moll. Cardiacea p. 111: *Didacna pontocaspia* [Ref. Petrbok 1932]. ••1963 ZR: *Didacna pontocaspia*, from Quaternary deposits of the Danube delta [Ref. Grossu & Baltac 1963]. ••1985 Mikhailescu: *Didacna pontocaspia* Pavlov [1925]. ••1989 Mikhailescu: *Didacna pontocaspia* Pavl. ••1989 Klimanov, Mikhailescu & Chepalyga: *Didacna pontocaspia* Pavl.
- pontocaspia tanaitica** Popov, 1983 (subspecies). – *Didacna pontocaspia tanaitica* Popov, 1983. Lymnocypridae. Pleistocene. TYPE LOCALITY. Russian SFSR. RECORDS. ••1983 Popov, p. 191, fig.: *Didacna pontocaspia tanaitica* subsp. nov.
- pontocrassa** (subspecies). – See under *crassa pontocrassa* Pavlov, 1925.
- Pontolamyna** (error). – Printer's mistake for *Pontalmyra* in Dybowski & Grochmalicki 1917 (Vokes 1980)
- populosum** (error). – ?Printer's mistake for *porulosum* in Potiez & Michaud 1844.
- poratica** Mih. – *Didacna poratica* Mih. Lymnocypridae. Fossil. RECORDS. ••1989 Mikhailescu: *Didacna poratica* Mih. ••1989 Klimanov, Mikhailescu & Chepalyga: *Didacna poratica* Mih.
- porcellanus** Rosewater, 1982. – *Hippopus porcellanus* Rosewater, 1982. Tridacnidae. Recent. RECORDS. ••1982 ZR: *Hippopus porcellanus* Rosewater, 1982 sp. nov. Philippines. Ref. to Rosewater, p. 3. ••1982 ZR: *Hippopus porcellanus*. Ref. to D'Attilio *et al.* / Okutani. ••1998 Poutiers: *Hippopus porcellanus* Rosewater, 1982.
- \*porsugelica**. – Homonymy to be noticed. *Didacna porsugelica* from 2 sources: Nevevskaya, 1956. – Ebersin, 1959.
- porsugelica** Ebersin, 1959. – *Didacna porsugelica* Ebersin, 1959. Lymnocypridae. Fossil. RECORDS. ••1959 ZR: *Didacna porsugelica* Ebersin, 1959 sp. nov.
- porsugelica** Nevevskaya, 1956. – *Didacna porsugelica* Nevevskaya, 1956. Lymnocypridae. Quaternary. RECORDS. ••1956 ZR: *Didacna porsugelica* Nevevskaya, 1956 sp. nov. Khazar deposits, Quaternary. Cheleken, Russia, Turkmenia. ••1957 ZR: *Didacna porsugelica* Nevevskaya, 1957 sp. nov. Khazar deposits, Cheleken Quaternary, Turkmenia, Russia.
- portaferrica** Papaian. & Marin. – Changed combination:



**portaferrica – postdonacoides**

- Pontalmyra portaferrica* (Papaian. et Marin.) Lymnocypridae. Fossil. RECORDS. ••1987 Taktakishvili: *Pontalmyra portaferrica* (Papaian. et Marin.)
- portaferrica** Papaianopol, 1975. – *Didacna portaferrica* Papaianopol, 1975. Lymnocypridae. Pliocene. RECORDS. ••1975 ZR: *Didacna (Crassadacna) portaferrica* Papaianopol, 1975 sp. nov. Romania, Mehedinti, Susita. Ref. to Papaianopol, p. 153.
- portaferrica** Papaianopol, 1978. – *Zamphiridacna portaferrica* Papaianopol, 1978. Lymnocypridae. Upper Miocene. RECORDS. ••1978 ZR: *Zamphiridacna portaferrica* Papaianopol, 1978 sp. nov. Romania. Ref. to Papaianopol, I. p. 145.
- portlandicum** Whitfield, 1905. – *Onychocardium portlandicum* Whitfield, 1905. Cardiacea. Fossil. RECORDS. ••1905 ZR: *Onychocardium portlandicum* Whitfield, 1905 n. sp. Portage Rocks of Lake Erie Whitfield.
- portoricoensis** (variety). – See under *sambaicum portoricoensis* Hubbard, 1920.
- porulosum**. – Homonymy. *Cardium porulosum* from 2 sources: Solander in Brander, 1766. Lamarck (?year).
- porulosum** Lamarck. [Figs. Part 3 p. 920]. – “*Cardium*” *porulosum* Lamarck. Cardiidae. Fossil. REMARKS. I do not know how the authorship of Solander, 1766 compares with Lamarck. RECORDS. ••1839 Anton: *Cardium porulosum* Lamarck. ••1844 Potiez & Michaud: *Cardium porulosum* Lam. Tertiary of France.
- porulosum** Solander in Brander, 1766. [Figs. Part 3 p. 920]. – Changed combination: *Orthocardium porulosum* (Solander in Brander, 1776). Cardiidae. Lower Eocene. Tremlett (1950) designated *Cardium porulosum* Solander, 1766 type species of subgenus *Orthocardium* of genus *Vepricardium*. TYPE LOCALITY. Paris Basin, France. RECORDS. ••1766 Solander in Brander p. 39, pl. 8, fig. 99: *Cardium porulosum*. ••1857 Deshayes, pl. 26, figs. 1–3: *Cardium porulosum* Brander. ••1886 Cossmann: *Cardium porulosum* Solander in Brander, 1776. ••1886 Vincent: *Cardium porulosum* Solander. ••1902 Sherborn, p. 773: *Cardium porulosum* Solander in Brander, 1766. ••1904 Cossmann & Pissarro: *Cardium (Trachycardium) porulosum* Sol. ••1912 Favre: *Cardium porulosum* Solander. ••1930 Stewart: “*C.*” *porulosum*. ••1950 Tremlett: *Cardium (Orthocardium) porulosum* Solander, 1766. ••1950 ZR: *Cardium (Orthocardium) porulosum* Sol. Eocene and Oligocene Cardiidae [Ref. Tremlett 1950]. ••1950 ZR: *Cardium porulosum* Solander, Middle and Upper Eocene subgenotype of *Orthocardium* Tremlett, 1950 subgen. nov. *Cardium*. ••1969 Moore et al.: *Vepricardium (Orthocardium) porulosum* (Solander, 1766). ••1970 Glibert & Poel: *Cardium (Orthocardium) porulosum porulosum* Solander in Brander, 1766. ••1970 ZR: *Trachycardium porulosum* identified from Eocene and Lower Oligocene sands in Zealand, [Ref. Gittenberger 1970]. ••1977 Popov: *Orthocardium porulosum* (Solander, 1766). ••1977 Popov: *Cardium porulosum* Solander, 1766. Type of *Orthocardium* Tremlett, 1950. ••1987 Cuif, Denis, Jaillard & Zhu: *Vepricardium porulosum*. ••1987 ZR: *Vepricardium porulosum*. Ref. to Cuif et al. ••1995 Le Renard et al.: *Cardium (Orthocardium) porulosum* Solander in Brander, 1766. ••1995 Pacaud & Renard: *Cardium (Orthocardium) porulosum*. ••1998 Schneider: *Orthocardium porulosum* (Solander, 1766). ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection as *Trachycardium porulosum* Solander (Lamarck?). Lutetien. France (Bassin de Paris), i.a. ••2002 Schneider: *Orthocardium porulosum* (Solander, 1766). One of the very first species of any sort of fossil to be given a Linnean binomen.
- porulosum asiatica** Kakhanova, 1957 (variety). *Nomen nudum*. >> Regarding *Cardium porulosum* var. *asiatica*: RECORDS. ••1957 ZR: *Cardium porulosum* var. *asiatica* Kakhanova, 1957 nov. as nom. nud. Eocene, Tadgic depression, Middle Asia; Tadzhikistan Republic, USSR?
- porulosum belgium** Glibert, 1933 (variety). – Upgraded. New combination: *Orthocardium porulosum belgium* (Glibert, 1933). Cardiidae. Bruxellien. RECORDS. ••1933 ZR: *Cardium (Trachycardium) porulosum* var. *belgium* Glibert, 1933 nov. Bruxellien Belgium.
- porulosum highcliffensis** Tremlett, 1950 (variety). – Upgraded. *Orthocardium porulosum highcliffensis* (Tremlett, 1950). Cardiidae. Oligocene. RECORDS. ••1950 ZR: *Cardium (Orthocardium) porulosum* Sol. var. *highcliffensis* Tremlett, 1950 nov. Hampshire Basin, Highcliff p. 130 pl. 19 f. 21 English Eocene and Oligocene Cardiidae.
- porulosum hopneri** Glibert & Poel, 1970 (subspecies). – New combination: *Orthocardium porulosum hopneri* Glibert & Poel, 1970. Cardiidae. Fossil. RECORDS. ••1970 Glibert & Poel, p. 52: *Cardium (Orthocardium) porulosum hopneri* nov. subsp. ••1970 ZR: *Cardium (Orthocardium) porulosum hopneri* Glibert & Van De Poel, 1970 subsp. nov. Lutetian, Eocene, Parnes, Paris Basin, France. ••1995 Le Renard et al.: *Cardium (Orthocardium) porulosum hopneri* Glibert & Van De Poel, 1970.
- porulosum keeni** Glibert, 1933 (subspecies). – Nom. mut. New combination: *Orthocardium porulosum belgium* Glibert, 1933. Cardiidae. Eocene. RECORDS. ••1936 ZR: *Laevicardium (Trachycardium) porulosum keeni* nom. mut. = *belgium* Glibert, 1933 Wommel Sands, Eocene Belgium, [Ref. Glibert 1933]. ••1970 Glibert & Poel: *Cardium (Orthocardium) porulosum keeni* Glibert, 1933.
- porulosum subporulosum** d’Orbigny 1850 (subspecies). – New combination: *Orthocardium porulosum subporulosum* d’Orbigny 1850. Cardiidae. Fossil. RECORDS. ••1995 Le Renard et al.: *Cardium (Orthocardium) porulosum subporulosum* d’Orbigny 1850.
- postcarditoides** Nalivkin & Anisimov. – *Didacna postcarditoides* Nalivkin & Anisimov, 1916. Lymnocypridae. Pliocene. RECORDS. ••1916 ZR: *Didacna postcarditoides* Nalivkin & Anisimov, 1916 sp. n. Pliocene Russia.
- postcimmerica** Davidachvili, 1933. – *Chartoconcha postcimmerica* Davidachvili, 1933. Cardiacea. Upper Pliocene. RECORDS. ••1934 ZR: *Chartoconcha postcimmerica* Davidachvili, 1933 sp. n. Upper Pliocene Georgia, Caucasus. ••1977 Popov: *Chartoconcha postcimmerica*.
- postdonacoides** (variety). – See under *donacoides postdonacoides* Davidachvili, 1933.

*postdonacoides* – *praeechinata*

- postdonacoides*** Davitashvili. – *Pseudocatillus postdonacoides* (Davitashvili). Lymnocardidae. Fossil. RECORDS. ••1967 Ebersin: *Pseudocatillus postdonacoides* (David.). ••1984 ZR: *Pseudocatillus postdonacoides* Davitashvili. Referred to new subgenus. *P. (Donaciatillus)*. Ref. to Akhvediani p. 71.
- postduabica*** Davidachvili, 1933. – *Prosodacna postduabica* Davidachvili, 1933. Lymnocardidae. Upper Pliocene. RECORDS. ••1934 ZR: *Prosodacna postduabica* Davidachvili, 1933 sp. n. Upper Pliocene Caucasus.
- postmoutonianum*** Poyarkova, 1978. – New combination: *Trachycardium postmoutonianum* (Poyarkova, 1978). Cardiidae. Upper Cretaceous. RECORDS. ••1978 ZR: *Cardium (Trachycardium) postmoutonianum* Poyarkova, 1978 sp. nov. Kazakhstan. Ref. to Poyarkova p. 112.
- postoxypleura*** Akhvediani, 1984. – *Pontalmyra postoxypleura* Akhvediani, 1984. Lymnocardidae. Pliocene. RECORDS. ••1984 ZR: *Pontalmyra postoxypleura* sp. nov. Georgia SSR. Ref. to Akhvediani p. 55.
- pracedentula*** Eberzin, 1956. – *Pteradacna pracedentula* Eberzin, 1956. Lymnocardidae. Fossil. RECORDS. ••1956 ZR: *Pteradacna pracedentula* Eberzin, 1956 sp. nov. Kerchenski, Crimea, Russia.
- pracipitatum*** Slodkewitsch, 1932. – Combination to be revised: “*Cardium*” *pracipitatum* Slodkewitsch, 1932. Cardiidae. Paleogene. RECORDS. ••1932 ZR: *Cardium (Trachycardium?) pracipitatum* Slodkewitsch, 1932b sp. n. Paleogene S. Russia.
- praeaculeatum*** Hölzl, 1958. – New combination: *Acanthocardia praeaculeatum* (Hölzl, 1958). Cardiidae. Miocene. RECORDS. ••1958 ZR: *Cardium (Acanthocardia) praeaculeatum* sic Hölzl, 1958 sp. nov. Burdigalian, Miocene. Kaltenbach excavation, Upper Bavaria, Germany.
- praeangusticostata*** Eberzin, 1956 – *Stenodacna praeangusticostata* Eberzin, 1956. Lymnocardidae. Pliocene. RECORDS. ••1956 ZR: *Stenodacna praeangusticostata* Eberzin, 1956 sp. nov. Kuban. Kerchenski, Crimea, Russia. Pliocene. ••1977 Popov: *Stenodacna praeangusticostata*.
- praeannulatus*** (subspecies). – See under *annulatus praeannulatus* Ebersin, 1955.
- praearenicola*** – Combination to be revised: “*Cardium*” *praearenicola*. Cardiidae. Fossil. RECORDS. ••1946 Abrard: *Cardium praearenicola*.
- praeblandum*** Keen, 1954. – *Clinocardium praeblandum* Keen, 1954. Cardiidae. Upper Miocene. RECORDS. ••1954 ZR: *Clinocardium praeblandum* Keen, 1954b sp. nov. Briones formation, Upper Miocene Contra Costa Co. California. ••1977 Popov: *Clinocardium praeblandum* Keen, 1954.
- Praecardium*** (genus). – Not a cardiid genus. >> Regarding *Praecardium*: Silurian. RECORDS. ••1926 ZR: *Praecardium latecostatum* Heller, 1926 Silurian Germany.
- praececedens*** Mayer, 1858. – Combination to be revised: “*Cardium*” *praececedens* Mayer. Cardiidae. Miocene. RECORDS. ••1980 Ruhoff: *Cardium praececedens* Mayer, 1858; [1857–1869] vol. 7: 187. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium praececedens* Mayer. Helvetien. Suisse, B30825, B30826.
- praecipitatum*** Slodkewitsch, 1932. – Combination to be revised: “*Cardium*” *praecipitatum* (Slodkewitsch, 1932). Cardiidae. Fossil. RECORDS. ••1932 ZR: *Cardium (Trachycardium) praecipitatum* Slodkewitsch, 1932a “sp. nova”.
- praechinatum otarii*** Kharatishvili, 1958 (variety). – Upgraded. Combination to be revised: “*Cardium*” *praechinatum otarii* Kharatishvili, 1958. – Cardiidae. Miocene. RECORDS. ••1958 ZR: *Cardium (Cardium) praechinatum* var. *otarii* Kharatishvili, 1958 nov. Kaspi Sakar Aul horizon, Miocene. Georgia USSR
- praecoloratus*** Eberzin, 1967. – *Pseudocatillus praecoloratus* Eberzin, 1967. Lymnocardidae. Pliocene. RECORDS. ••1967 ZR: *Pseudocatillus praecoloratus* Eberzin, 1967 sp. nov. Pliocene, USSR.
- praecrenulata*** Eberzin, 1962. – *Didacna praecrenulata* Eberzin, 1962. Lymnocardidae. Pliocene. RECORDS. ••1962 ZR: *Didacna (Pontalmyra) praecrenulata* Eberzin, 1962 sp. nov. Kerchenskii; Azov region; Pliocene, Russia. ••1987 Taktakishvili: *Pontalmyra praecrenulata* (Ebers.).
- praeculeatum*** (error). – ?Printer’s mistake for *praeaculeatum* in ZR for 1958.
- praecurrens*** Stoliczka, 1871. – Changed combination: *Profragum praecurrens* (Stoliczka, 1871). Cardiidae. Late Cretaceous. TYPE LOCALITY. North of Odium and west of Anapady, South India. REMARKS. Resembles a recent sp. living on coral reefs in the Nicobar islands (Stoliczka 1871). RECORDS. ••1871 Stoliczka, p. 222, pl. 11, figs. 1–2: *Fragum praecurrens* Stoliczka. ••1980 Ruhoff: *Fragum praecurrens* Stoliczka, 1870; [1870–1871] vol. 3: 222, pl. 11, figs. 1–2. ••1998 Schneider: *Profragum praecurrens* (Stoliczka, 1871). ••2001. Schneider & Carter: *Profragum praecurrens* (Stoliczka, 1871). Cardiidae. Late Cretaceous, India.
- praecygnorum*** Ludbrook, 1955. – Changed combination: *Vasticardium praecygnorum* (Ludbrook, 1955). Cardiidae. Pliocene. TYPE LOCALITY. Dry Creek Sands (Pliocene), Adelaide, South Australia. RECORDS. ••1955 ZR: *Vasticardium (Regozara) praecygnorum* Ludbrook, 1954 sp. nov. *nom. nud.* Pliocene, Australia. ••1977 Popov: *Trachycardium (Vasticardium) praecygnorum* (Ludbrook, 1955). ••1999 Vidal: *Vasticardium (Regozara) praecygnorum* Ludbrook, 1955. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1999 Vidal: this species has 48 ribs (Ludbrook 1955: 61)
- praedesertum*** Strausz, 1930. – New combination: *Lymnocardium praedesertum* (Strausz, 1930). Lymnocardidae. Miocene. RECORDS. ••1941 ZR: *Linnocardium praedesertum* Strausz, 1930 sp. nov. [Miocene], Hungary.
- praeduboisii*** – *Panticapaea praeduboisii*. Cardiacea. Pliocene. RECORDS. ••1956 ZR: *Panticapaea praeduboisii* sp. nov. Pliocene. Kerchenski, Crimea Peninsula, and Kuban Russia. ••1977 Popov: *Panticapaea praeduboisii*.
- praeechinata*** Hilber, 1882. – Synonym of *Acanthocardia turonica* (Hörnes, 1861). Cardiidae. Middle Miocene. RECORDS. ••1902 Dollfus & Dautzenberg: *Cardium praechinatum* Hilber. ••1958 ZR: *Cardium (Cardium) praechinatum* Miocene. [Ref. Kharatishvili 1958]. ••1970 Glibert & Poel: *Cardium (Acanthocardia)*

***praeachinatum* – *praepermicus***

*praeachinatum* Hilber, 1882. ••1977 Popov: *Acanthocardia* (*Acanthocardia*) *praeachinata* (Hilber, 1882). ••1986 Studencka, p. 69: *Cardium praeachinatum* Hilber, 1882; syn. nov.; of *Acanthocardia* (*Acanthocardia*) *turonica* (Hörnes, 1861). ••1987 ZR: *Cardium praeachinatum* Hilber, 1882. New synonym of *Acanthocardia* (*Acanthocardia*) *turonica* (Hörnes, 1861). Ref. to Studencka p. 69.

***praeachinatum*** (mode). – See under *praeachinata*.

***praeachinatum*** Mayer mss. – Combination to be revised: “*Cardium*” *praeachinatum* Mayer. *Cardiidae*. Fossil. RECORDS. ••1902 Dollfus & Dautzenberg: *Cardium praeachinatum* Mayer mss.

***praeextensa*** (variety). – See under *propinqua* *praeextensa* Andrussov, 1923.

***praeischerianum*** Kolesnikov, 1929. – *Protractiforma praeischerianum* (Kolesnikov, 1929). *Cardiidae*. Sarmatian. RECORDS. ••1929 ZR: *Cardium praeischerianum* Kolesnikov, 1929 sp. n. Sarmatian. ••1979 ZR: *Protractiforma praeischerianum* (Kolesnikov). Referred to new subgenus *P.* (*Fischericardium*) Ref. to Bagdasaryan, p. 44.

***praeformis*** (subspecies). – See *doenginki praeformis* Papp, 1954.

***praellesponticus*** Eberzin, 1967. – *Pseudocatillus praellesponticus* Eberzin, 1967. *Lymnocypridae*. Pliocene. RECORDS. ••1967 ZR: *Pseudocatillus praellesponticus* Eberzin, 1967 sp. nov. Pliocene, USSR.

***praeispidiforme*** Bagdasaryan, 1970. – Combination to be revised: “*Cardium*” *praeispidiforme* Bagdasaryan, 1970. *Cardiidae*. Miocene. RECORDS. ••1970 ZR: *Cardium* (*Papillicardium*) *praeispidiforme* Bagdasaryan, 1970 sp. nov. Miocene, Chkumi, western Georgia, USSR.

***praeircania*** Tscheltzov, 1965. – Changed combination: *Cerastoderma praeircania* Tscheltzov, 1965. *Cardiidae*. Pliocene. RECORDS. ••1965 ZR: *Cardium praeircania* Tscheltzov, 1965 sp. nov. Akchagylian (Pliocene), Turkmenia, USSR. ••1977 Popov: *Cerastoderma praeircania*.

***praeircanicum*** Baba-Zade 1967. – Combination to be revised: “*Cardium*” *praeircanicum* Baba-Zade 1967. *Cardiidae*. Cenozoic. RECORDS. ••1967 ZR: *Cardium praeircanicum* Akchagyl deposits (Cenozoic), Azerbaidjan, SSR [Ref. Baba-Zade 1967].

***praeinflatum*** Papp, 1953 – New combination: *Lymnocypridium praeinflatum* Papp, 1953. *Lymnocypridae*. Fossil. RECORDS. ••1948 ZR: *Limnocypridium praeinflatum* Papp, 1948 ‘n. sp.’ [nomen nud.] [Ref. Papp 1948]. ••1956 ZR: *Laevicardium praeinflatum* Papp, 1953 sp. nov. ••1987 Taktakishvili: *Limnocypridium praeinflatum* Papp.

***praekarpinskyi*** Ebersin, 1962. – *Pontalmyra praekarpinskyi* (Ebersin, 1962). *Lymnocypridae*. Fossil. RECORDS. ••1962 ZR: *Didacna* (*Pontalmyra*) *praekarpinskyi* Eberzin, 1962 sp. nov. N.W. Kerchenskogo region; Pliocene, Russia. ••1987 Taktakishvili: *Pontalmyra praekarpinskyi* (Ebers.).

***praelaeiviuscula*** Andrussov, 1924. – *Adacna praelaeiviuscula* Andrussov, 1924. *Lymnocypridae*. Pleistocene. RECORDS. ••1924 ZR: *Adacna praelaeiviuscula* sic Andrussov, 1924 Pleistocene.

***praelaeiviuscula*** Andrussov, 1963. – *Adacna*

*praelaeiviuscula* Andrussov, 1963. *Lymnocypridae*. Pliocene. RECORDS. ••1963 ZR: *Adacna* (*Adacna*) *praelaeiviuscula* Andrussov, 1963 sp. nov. Apscheron layers, Pliocene, Russia [Ref. Andrusov 1963].

***praemodiolaris*** Chelidze, 1975. *Plagiodacna praemodiolaris* Chelidze, 1975. *Lymnocypridae*. Lower Pliocene. RECORDS. ••1975 ZR: *Plagiodacna praemodiolaris* Chelidze, 1975 sp. nov. Georgia SSR, Zugdidi. Ref. to Chelidze, p. 192.

***praemoquicum*** Davidasvili, 1930 – Changed combination: *Moquicardium praemoquicum* (Davidasvili, 1930). *Lymnocypridae*. Fossil. RECORDS. ••1932 ZR: *Limnocypridium praemoquicum* Davidasvili, 1930 sp. n. Pliocene Transcaucasia. ••1957 ZR: *Limnocypridium praemoquicum* Pliocene [Ref. Chelidze 1957]. ••1958 ZR: *Limnocypridium* (*Moquicardium*) *praemoquicum* Pliocene [Ref. Eberzin 1958]. ••1987 Taktakishvili: *Limnocypridium* (*Moquicardium*) *praemoquicum* Dav. ••1987 Taktakishvili: *Moquicardium praemoquicum* Dav.

***praemoquicum alta*** Ebersin, 1958 (variety). – Upgraded. New combination: *Moquicardium praemoquicum alta* (Ebersin, 1958). *Lymnocypridae*. Fossil. RECORDS. ••1958 ZR: *Limnocypridium* (*Moquicardium*) *praemoquicum* var. *alta* Eberzin, 1958 nov. Abkhazia, Mokvi, east coast of Black Sea. Pliocene of the Ponto Caspian basin, Russia. ••1987 Taktakishvili: *Limnocypridium* (*Moquicardium*) *praemoquicum* Dav. var. *alta* Ebers.

***praemoquicum submoquicum*** Ebersin (variety). – Upgraded. New combination: *Moquicardium praemoquicum submoquicum* (Ebersin). *Lymnocypridae*. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocypridium praemoquicum* var. *submoquicum* Ebers.

***praemoquicum subpraemoquicum*** Chelidze, 1957 (variety). – Upgraded. New combination: *Moquicardium praemoquicum subpraemoquicum* (Chelidze, 1957). *Lymnocypridae*. Pliocene. RECORDS. ••1957 ZR: *Limnocypridium praemoquicum* var. *subpraemoquicum* Chelidze, 1957 nov. Makharadze river Zhuzhi, Pliocene.

***praebobusa*** Finlay & Marwick, 1937. – *Lahillia praebobusa* Finlay & Marwick, 1937. *Cardiacea*. Danian. RECORDS. ••1937 ZR: *Lahillia* (?*Lahilleona*) *praebobusa* Finlay & Marwick, 1937 sp. n. Danian Wangaloa, New Zealand.

**\**praepapillosum***. – Homonymy to be noticed. *Cardium praepapillosum* from 2 sources: Baldi, 1966. – ?author before 1891.

***praepapillosum*** – Combination to be revised: “*Cardium*” *praepapillosum*. *Cardiidae*. Pliocene. RECORDS. ••1891 ZR: *Cardium praepapillosum* Pliocene of Altavilla [Ref. Gregorio 1891].

***praepapillosum*** Baldi, 1966. – Combination to be revised: “*Cardium*” *praepapillosum* (Baldi, 1966). *Cardiidae*. Oligocene. RECORDS. ••1966 ZR: *Cardium* (*Parvicardium*) *praepapillosum* Baldi, 1966 sp. nov. Oligocene, Eger, Hungary.

***praepermicus*** Fredericks, 1916. *Conocardium praepermicus* Fredericks, 1916. *Conocypridae*. Carbon. RECORDS. ••1916 ZR: *Conocardium praepermicus* Fredericks, 1916 sp. n. Ural Upper Carboniferous. ••1926 ZR: *Conocardium praepermicus*

*praeplicatum* – *prigorovskii*

- Fredericks, 1926 sp. n. Carbon.
- praeplicatum** Hilber 1882. – *Cerastoderma praeplicatum* (Hilber 1882). Cardiidae. Miocene. RECORDS. ••1974 ZR: *Cerastoderma praeplicatum*. Interspecific variation. Miocene. Ref. to Baghdasariani. ••1977 Popov: *Plicatiforma praeplicatum*. ••1977 ZR: *Cerastoderma (Plicatiforma) praeplicatum*. Key to subspecies. Ref. to Il'ina, Nevesskaya & Paramonova p. 70. ••1979 ZR: *Cerastoderma (Plicatiforma) praeplicatum* (Hilber 1882). Neotype designated. Ref. to Paramonova, p. 45. ••1979 ZR: *Cerastoderma (Plicatiforma) praeplicatum praeplicatum* (Hilber 1882). Ref. to Paramonova, p. 46.
- praeplicatum pseudoplicatum** Friedberg 1934 (subspecies). – *Cerastoderma praeplicatum pseudoplicatum* (Friedberg 1934). Cardiidae. Fossil. RECORDS. ••1977 Popov: *Plicatiforma praeplicatum pseudoplicatum*. ••1979 ZR: *Cerastoderma (Plicatiforma) praeplicatum pseudoplicatum* (Friedberg 1934). Ref. to Paramonova, p. 48.
- praesandbergeri** Hölzl, 1962. – Combination to be revised: "*Cardium*" *praesandbergeri* Hölzl, 1962. Cardiidae. Oligocene. RECORDS. ••1962 ZR: *Cardium praesandbergeri* Hölzl, 1962 sp. nov. N. of Tölz Chatti, Oligocene, Bavaria.
- praesquamulosa** (mode). – See under *praesquamulosum*.
- praesquamulosum** – *Tauricardium praesquamulosum*. Lymnocypridae. Fossil. RECORDS. ••1987 Taktakishvili: *Tauricardium praesquamulosum*. ••1987 Taktakishvili: *Tauricardium praesquamulosa*.
- praesubsquamulosum** (variety). – See under *sub-squamulosum praesubsquamulosum* Eberzin, 1958.
- praesquamulosum minor**. – *Tauricardium praesquamulosum minor*. Lymnocypridae. Fossil. RECORDS. ••1987 Taktakishvili: *Tauricardium praesquamulosum minor*.
- praetenue** Mayer. – Combination to be revised: "*Cardium*" *praetenue* Mayer. Cardiidae. Pliocene. RECORDS. ••1886 Fischer: *Cardium praetenue* Mayer. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection as *Cardium praetenue* Mayer. Plio. inf. France, B35022.
- praetrigonoides** Nalivkin & Anisimov, 1916. – *Didacna praetrigonoides* Nalivkin & Anisimov, 1916. Lymnocypridae. Pliocene. RECORDS. ••1916 ZR: *Didacna praetrigonoides* sic Nalivkin & Anisimov, 1916 sp. n. Pliocene Russia. ••1964 ZR: *Didacna praetrigonoides* from the Caspian, biometrical study [Ref. Asadullaev 1964]. ••1968 Logvinenko & Starobogatov: *Didacna praetrigonoides* Nat. & Anis., 1945 = *Didacna trigonoides praetrigonoides* Nat. et Anis. ••1977 Popov: *Didacna praetrigonoides*.
- praetrigonoides abescunica** Popov, 1983 (subspecies). – *Didacna praetrigonoides abescunica* Popov, 1983. Lymnocypridae. Pleistocene. TYPE LOCALITY. Russian SFSR. RECORDS. ••1983 Popov, p. 197, fig.: *Didacna praetrigonoides abescunica* subsp. nov.
- praetrigonoides inderana** Svitoc, 1967 (subspecies). – *Didacna praetrigonoides inderana* Svitoc, 1967. Lymnocypridae. Quaternary. RECORDS. ••1967 ZR: *Didacna praetrigonoides inderana* Svitoc, 1967 subsp. nov. figs.; Quaternary, central Caspian region [Ref. Svitoc 1967].
- praetrigonoides obunca** Popov, 1983 (subspecies). – *Didacna praetrigonoides obunca* Popov, 1983. Lymnocypridae. Pleistocene. TYPE LOCALITY. Russian SFSR. RECORDS. ••1983 Popov, p. 198, fig.: *Didacna praetrigonoides obunca* subsp. nov.
- prahovensis** (subspecies). – See under *subodessae prahovensis* Papaianopol, 1974.
- prahovensis** Papaian. – *Euxinocardium prahovensis* Papaian. Lymnocypridae. Fossil. RECORDS. ••1987 Taktakishvili: *Euxinocardium prahovensis* Papaian.
- prahovensis** Papaianopol, 1989. – *Pachydacna prahovensis* Papaianopol, 1989. Lymnocypridae. Pliocene. TYPE LOCALITY. Bassin Dacique, Romania. RECORDS. ••1989 Papaianopol, p. 85, fig.: *Pachydacna (Pachydacna) prahovensis* sp. nov.
- prashadi** Vidal, 1994. – *Fulvia prashadi* Vidal, 1994. Cardiidae. Recent. TYPE LOCALITY. Indonesia. RECORDS. ••1994 Vidal, p. 111, pl. 3, figs. 8 a,b: *Fulvia (Laevifulvia) prashadi* sp. nov.
- pratenuae** Meyer in Capellini, 1879. – Combination to be revised: "*Cardium*" *pratenuae* (Meyer in Capellini, 1879). Cardiidae. Tertiary. RECORDS. ••1987 Anaya: *Cardium pratenuae* Mayer.
- pratenuae** (aff.) Meyer in Capellini, 1879. – RECORDS. ••1970 ZR: *Cardium* aff. *Cardium pratenuae* Meyer in Capellini, 1879, see under *Monodacna tenuicostata* sp. nov. sic [?Ref. ?Gillet 1970].
- pratenuae catalaunica** Almera et Bofill, 1894 (variety). – Upgraded. New combination: *Lymnocypridium pratenuae catalaunica* (Almera et Bofill, 1894). Lymnocypridae. Pliocene. RECORDS. ••1987 Anaya: *Cardium pratenuae* Meyer var. *catalaunica* Almera et Bofill, 1894. ••1987 Anaya: *Limnocypridium (Euxinocardium) pratenuae catalaunica* (Almera et Bofill, 1894).
- prattenanum** Hall, 1858. – *Conocardium prattenanum* Hall, 1858. Conocardidae. Fossil. REMARKS. Conocardiids have no connection with the Cardiacea except analogy of form, which does not offer any point of relationship (Dall 1895, p. 519). RECORDS. ••1980 Ruhoff: *Conocardium prattenanum* Hall, 1858; vol. 4: 15.
- Pratulium** Iredale, 1924 (genus). – Cardiidae. Recent. Subgenus (*Pratulium*) upgraded to generic level by authors. RECORDS. ••1924 ZR: *Pratulium* Iredale, 1924b gen nov. for *Cardium thetidis* Hed. ••1938 Cotton & Godfrey: *Pratulium* Iredale 1924. ••1977 Popov: *Pratulium* Iredale, 1924. Genotype: *Cardium thetidis* Hedley, 1902. ••1978 Maxwell: Genus *Pratulium* Iredale, 1924. ••1978 ZR: *Pratulium* Iredale 1924, Status. Ref. to Wilson *et al.* p. 69. ••1980 Vokes: *Pratulium* Iredale, 1924 in subfamily Protocardiinae. ••1992 Poutiers: *Pratulium* Iredale 1924.
- Pratulium** Iredale, 1924 (subgenus). – Cardiidae. Recent. GENOTYPE. Type species: Iredale (1924) designated *Cardium thetidis* Hedley, 1902 type species of subgenus (*Pratulium*) of genus *Nemocardium* Meek, 1876. Subsequently raised to generic level. RECORDS. ••1954 Keen: (*Pratulium*) Iredale, 1924. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1994 Hylleberg: more equilateral than *Nemocardium* (*Nemocardium*); sculpture of fine radial ribs but coarser on anterior slope; with very fine concentric ridges.
- prigorovskii** Boghachev, 1938. – New combination: *Lymnocypridium prigorovskii* Boghachev, 1938. Lymnocypridae. Fossil. RECORDS. ••1939 ZR: *Limnocypridium*

**primigenium – pristiopleura**

*prigorovskii* Boghachev, 1938 sp. n. ••1981 ZR: *Cardium prigorovskii* Bogatshev is a senior synonym of *C. helmerseni* Ilyina, 1960, and *C. levinae* Merklin, 1960. Ref. to Vialov *et al.* p. 45.

**primigenium** Eberzin & Stevanovic, 1949. – *Arcicardium primigenium* Eberzin & Stevanovic, 1949. Lymnocardiiidae. Pontic. RECORDS. ••1949 ZR: *Arcicardium primigenium* Eberzin & Stevanovic, 1949 [sp. n.?] Pontic of Servia. ••1949 ZR: *Arcicardium primigenium* as the oldest representative of the genus. [Ref. Eberzin & Stevanovic 1949].

**primulum** Barrande. – *Praecardium primulum* Barrande. Cardacea. Fossil. RECORDS. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Praecardium primulum* Barrande. Bohemia, B02612.

**prinopleura** Andrus. – Sp. inedita. >> Regarding *Prosodacna prinopleura*: Lymnocardiiidae. Pliocene. RECORDS. ••1932 ZR: *Prosodacna prinopleura* Andrus. sp. inedita p. 184 pl. xiii f. 1–5 Pliocene Transcaucasia, [Ref. Davidasvili 1930a].

**prionophorum** Brusina. – New combination: *Lymnocardium prionophorum* (Brus.). Lymnocardiiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Lymnocardium prionophorum* (Brus.).

**Prionopleura** Ebersin, 1949 (genus). – Lymnocardiiidae. RECORDS. ••1974 ZR: *Prionopleura* Ebersin, 1949. Referred to new subfamily Prosodacninae. Ref. to Andreescu, p. 128. ••1980 Vokes: *Prionopleura* Ebersin, 1949 in subfamily Lymnocardiinae. ••1987 Taktakishvili: p. 162 designated *Prionopleura* Ebersin, 1949 type genus of new tribe Prionopleurini.

**prionopleura** Wassoievic & Eberzin, 1931. – *Prosodacna prionopleura* Wassoievic & Eberzin, 1931. Lymnocardiiidae. Pliocene. RECORDS. ••1931 ZR: *Prosodacna prionopleura* Wassoievic & Eberzin, 1931 sp. n.

**prionopleura davilasrili** Wassoievic & Eberzin, 1931 (subspecies). – *Prosodacna prionopleura davilasrili* Wassoievic & Eberzin, 1931. Lymnocardiiidae. Pliocene. RECORDS. ••1931 ZR: *Prosodacna prionopleura davilasrili* Wassoievic & Eberzin, 1931 sp. n.

**prionopleura krestovnikovi** Wassoievic & Eberzin, 1931 (subspecies). – *Prosodacna prionopleura krestovnikovi* Wassoievic & Eberzin, 1931. Lymnocardiiidae. Pliocene. RECORDS. ••1931 ZR: *Prosodacna prionopleura krestovnikovi* Wassoievic & Eberzin, 1931 sp. n.

**prisca** (subspecies) Douvillé, 1917. – See under *hillana prisca* Douville, 1916.

**prisca** Douville 1916. – *Protocardia prisca* Double 1916. Cardidae. Fossil. RECORDS. ••1980 ZR: *Protocardia prisca* Douville 1916 raised from *Protocardia hillana prisca*. Type designation p. 173. Ref. to Frenéix.

**priscae** Strausz, 1942. – New combination: *Lymnocardium priscae* Strausz, 1942. Lymnocardiiidae. Pre. Pliocene. RECORDS. ••1947 ZR: *Lymnocardium (Pontalmyra) priscae* Strausz, 1942 sp. nov. Somlojeno (Upper Pannon) [Pre. Pliocene]. ••1987 Taktakishvili: *Lymnocardium priscae* Strausz.

**pristinum** Keen, 1954. – *Clinocardium pristinum* Keen. Cardidae. Middle and Upper Miocene. RECORDS. ••1954. Keen, p. 322: *Clinocardium pristinum* Keen n. sp. n. ••1954 ZR: *Clinocardium pristinum* Keen, 1954 sp. nov. Neroly formation, Upper Miocene, Contra

Costa Co. California. ••1977 Popov, p. 52: *Clinocardium pristinum* sic Keen, 1954.

**pristiopleura** (mode). – See under *pristiopleurum* Dall, 1901.

**pristiopleura** Dall, 1901. – Changed combination: *Acrosterigma pristiopleurum* (Dall, 1901). Cardidae. Recent. TYPE MATERIAL. Types of *Cardium pristiopleura* have not been traced but *Cardium maculosum* Sowerby, 1833 is a synonym, and type material of this species is available (see *maculosum* Sowerby). TYPE LOCALITY. Tres Marias Islands, west Mexico, on the sands (Hertlein & Strong 1947). RECORDS. ••1900 Dall, p. 389: *Cardium (Trachycardium) pristiopleura* Dall, 1900 cited from Vidal (1999). ••1901 Dall: *Cardium (Trachycardium) pristiopleura* Dall, 1900. ••1901 Dall: *Cardium pristiopleurum* a new name for *C. maculosum* Sowerby, 1833 (not *C. maculosum* Wood, 1815). ••1932 Pilsbry & Lowe: *Cardium (Trachycardium) pristiopleura* Dall 1900 = (*C. maculosum* Sby. 1833, non Wood 1815). ••1947 Hertlein & Strong: *Cardium (Acrosterigma) pristiopleura* Dall = *Cardium maculosum* Sowerby. ••1953 Olsson & Harbison: *Cardium (Acrosterigma) pristiopleura* Dall. ••1971 Keen & McLean: *Trachycardium (Acrosterigma) pristiopleura* (Dall, 1901). ••1977 Popov: *Acrosterigma pristiopleura* (Dall, 1901). ••1977 Fischer-Piette: *Laevicardium pristiopleura* Dall. ••1977 Vokes: *Cardium (Trachycardium) pristiopleura* Dall, 1901 = *Cardium maculosum* Sowerby, 1833 (non Wood, 1815). ••1977 Vokes: *Cardium (Trachycardium) pristiopleura* Dall, 1901 = *Cardium maculatum* Sowerby, 1840 (non Gmelin, 1791) = *Cardium maculosum* Sowerby, 1833. ••1991 Matsukuma, Okutani & Habe: *Trachycardium pristiopleura* (Dall, 1901). ••1999 Vidal: *Acrosterigma pristiopleura* (Dall, 1900). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1971 Keen: Shell elongately obliquely ovate, gently convex; ornamented by 34–39 flattened, laterally imbricated ribs; coloration whitish–yellow and reddish–brown exteriorly, the interior white. The ribs, numbering from 34 to 39, are flattened, with very narrow interspaces, and the anterior ribs show a file–like roughening along each edge. The color of the exterior is yellowish white, with reddish–brown markings and often with pinkish–purple concentric bands or blotches. The interior is white. There is a thin light–brown periostracum that persists, mainly toward the ventral margin. Height, about 65 mm. ••1999 Vidal: shells ovoid to ‘pear–shaped’, rarely elliptical, and equilateral with possible weak truncation on posterior margin. Always elongated in adult stage, width rather variable. Ribs straight or slightly curved in projection. Lunular area rather large. Exterior coloured orange, pink, brown and/or purple; interior white, with posterior margin generally orange and ventral and anterior margins purple. Hinge line moderately arched. No sterigma observed. Rib number mean  $35.0 \pm 2.1$ . (range 31–41). Posterior slope with wide ribs anteriorly, ribs reduced and with very small scales on posterior part of slope. Median part of shell with low, flat ribs overhanging thin interstices; regularly notched bottom of interstices on juvenile shells (elongated or crescent–shaped notches, which continue on lower sides of ribs); contact between interstices and ribs marked, on both sides, by a very thin longitudinal

*pristis* – *proboscideum*

depressed line. The last rib of MPQ, mainly on right valve, can bear a longitudinal gash on its anterior part. DIMENSIONS. ••1999 Vidal: length 66.3, width 87.3, breadth (calculated) 47.4 mm. REMARKS. ••1999 Vidal: *Acrosterigma pristipleura* conforms with the species-group diagnosis as far as rib morphology is concerned, and is very close to the genotype *A. dalli*, in that its ribs are “flattened and peculiarly approximated, interstices. deep narrow cuts” (Reeve 1844, Sp. 58). *Acrosterigma pristipleura*, when adult, is easily distinguishable from *A. magnum*, the other living representative of the species-group in the Americas, mainly by its flat low ribs and very thin interstices. It is a rather uncommon species, little cited in the literature. HABITAT. ••1947 Hertlein & Strong: shallow water at depth of 3–6 fathoms, sand, algae, crushed shell. ••1999 Vidal: recorded from 18 to 33 m. DISTRIBUTION. ••1971 Keen & McLean: this is not a common species although it may be found by shore collectors anywhere between the southern portion of the Gulf of California and Guayaquil, Ecuador. ••1999 Vidal: a stretch of about 3800 km from the southern portion of Gulf of California to Ecuador. Dubious and wrong localities. – Vidal (1999): Monterey, California (MNHN du Petit Thouars 1839) – Philippines (LACM 50904 Burch).

*pristis* Valenciennes, 1827. [Figs. Part 1 p. 91. Part 3 p. 895]. – *Laevicardium pristis* (Valenciennes, 1827). OTHER JUDGEMENTS: *Cardium serratum* Linné. – *Cardium laevigatum* Linné. >> Regarding *Cardium pristis*: *Cardiidae*. Recent. TYPE MATERIAL. Holotype at MNHN, Paris. RECORDS. ••1798 Bruguière. ID by Lamarck, pl. 299. fig. 3. *Cardium pristis* Val. ••1827 Bory St. Vincent: annotations to Bruguière 1798. Pl. 299 fig. 3 *Cardium pristis* Valenciennes. ••1839 Anton: *Cardium pristis* Val. = *Cardium laevigatum* Linné. ••1845 Reeve, sp. 69: *Cardium laevigatum* Linné = *Cardium pristis* Valenciennes (J. Vidal pers. comm.). ••1846 Valenciennes, Voyage de la Venus: *Cardium pristis*. ••1864 Krebs: *Cardium pristis* Valene sic (syn.) = *Cardium laevigatum* L. ••1870 Mörch: *C. pristis* Valenc. = *C. laevigatum* Reeve = *C. var. citrinum* Chemnitz junior synonyms of *Cardium laevigatum* L. ••1900 Dall, p. 387.; *Cardium pristis* Valenciennes = *Cardium serratum* Linné. ••1902 Dall: *Cardium pristis* Valenciennes, 1846 = *Cardium serratum* Linnaeus, 1758. ••1977 Fischer–Piette: *Cardium pristis* Valenciennes = species insufficiently known. – CHARACTERS AND OCCURRENCE – REMARKS. ••1977 Fischer–Piette: no figure in Valenciennes 1846. ••2004 Vidal pers. comm.: *Laevicardium pristis* (Valenciennes, 1827) is a good species. Summary of ID’s: American Atlantic species close to *C. serratum* Linné, 1758 but larger and with different specific characters. It has 3 synonyms *C. sublineatum* Conrad, 1841. *C. glabratum* Römer, 1869, and *C. multilineatum* Dall & Simpson, 1901.

*pristonum* (error). – Printer’s mistake for *pristinum* in Popov 1977.

*privum* Ebersin. – *Moquicardium privum* (Ebersin). *Lymnocardium*. Fossil. RECORDS. ••1958 ZR: *Limnocardium* (*Moquicardium*) *privum* [Ref. Eberzin 1958]. ••1987 Taktakishvili: *Limnocardium* (*Moquicardium*) *privum* Ebers. (?). ••1987

Taktakishvili: *Moquicardium privum*. ••1987 Taktakishvili: *Moquicardium privum* Ebers. (?).

*privum oblonga* Ebersin, 1958 (variety). – Upgraded. *Moquicardium privum oblonga* (Ebersin, 1958). Fossil. RECORDS. ••1958 ZR: *Limnocardium* (*Moquicardium*) *privum* var. *oblonga* Eberzin, 1958 nov. Abkhazia, river Mokvi, east coast of Black Sea. ••1987 Taktakishvili: *Limnocardium* (*Moquicardium*) *privum* Ebers. var. *oblonga* Ebers. ••1987 Taktakishvili: *Moquicardium privum oblonga*.

*probatum* Iredale, 1927. [Figs. Part 3 p. 900]. – Synonym of *Nemocardium bechei* (Reeve, 1847). OTHER JUDGEMENTS: *Pratulium probatum*. >> Regarding *Pratulium probatum*: *Cardiidae*. Recent. TYPE LOCALITY. Australia. TYPE REPOSITORY. Australian Museum, Sydney. Syntypes C028434. DISTRIBUTION. Japan, Australia (Hylleberg 1994). RECORDS. ••1927 Iredale, p. 333–334 (pl. 46, fig. 8): *Pratulium probatum*. ••1927 ZR: *Pratulium probatum* Iredale, 1927 sp. n. E. Australia. ••1950 Allan: *Pratulium probatum* (somewhat different from *bechei* Reeve). ••1950 Keen: *Nemocardium* (*Pratulium*) *probatum* (Iredale, 1927). ••1951 Habe: *Nemocardium probatum* Rve. ••1958 Powell: *Nemocardium probatum* Ired. ••1961 Rippingale & MacMichael: *Pratulium probatum* Iredale. ••1962 Iredale & MacMichael: *Cardium probatum* Ired. ••1977 Fischer–Piette: *Pratulium probatum* Iredale = *Cardium bechei* Reeve. ••1977 Wilson & Stevenson: *Pratulium probatum* Iredale, 1927; junior synonym of *Nemocardium bechei* (Reeve, 1840). ••1978 ZR: *Pratulium probatum* Iredale, 1927 New synonym of *Nemocardium bechei* (Reeve, 1840). Ref. to Wilson *et al.* p. 63. ••1990 Abbott & Dance: *Nemocardium probatum* (Iredale, 1927) = *Cardium bechei* Reeve, 1847.

*problematica*. – See under *problematicum* Münster, 1840.

*problematicum* d’Orbigny, 1850. – *Cardium problematicum* d’Orbigny, 1850. ?*Cardiidae*. Fossil. RECORDS. ••1922–32 Sherborn, p. 5156: *Avicula problematica* Muenster, 1840. ••1922–32 Sherborn, p. 5156: *Cardium problematicum* Muenster, 1842. ••1922–32 Sherborn, p. 5156: *Cardium* (Muenster) *problematicum* d’Orbigny, 1850. – *Avicula*.

\**proboscideum* – Homonymy to be noticed. *Cardium proboscideum* from 2 sources: Sowerby, 1817. – Hoening, 1839.

*proboscideum* Hoening, 1839. – Unknown species. >> Regarding *Cardium proboscideum*: ?*Cardiacea*. Fossil. RECORDS. ••1857 Deshayes: *Cardium proboscideum* Hoening, 1839 – spec. incog.

*proboscideum* Sowerby, 1815. – *Granocardium proboscideum* (Sowerby, 1815). *Cardiidae*. Cretaceous. RECORDS. ••1815 Sowerby, Conch. no. 27. t. 156. fig. 1: *Cardium proboscideum*. ••1819 Lamarck: *Cardium proboscideum* close to *Cardium echinatum*. ••1857 Deshayes: *Cardium proboscideum* Sowerby, 1815. ••1871 Stoliczka: *Cardium proboscideum* (*Acanthocardium* sic). ••1899 Sacco: *Cardium proboscideum* Sowerby [Cretaceous]. ••1922–32 Sherborn, p. 5157: *Cardium proboscideum* Sowerby, 1817. ••1931 ZR: *Cardium proboscideum* Ref. to Rieder (1931). ••1978 Scott: *Granocardium proboscideum* (Sowerby in Woods, 1908). ••1999 Jacques Vidal (pers. com.),

**procarpatina – procumbens**

MNHN, Paris: Fossils from the Paleontological Collection as *Cardium proboscideum* d'Orbigny. Albien–Cénom. France (Yonne, Nièvu), S07059, S07281.

**procarpatina** Jekelius, 1944. – *Replidacna procarpatina* Jekelius, 1944. Lymnocardiiidae. Miocene. RECORDS. ••1946 ZR: *Replidacna procarpatina* Jekelius, 1944 sp. nov. Miocene Soceni Banat. ••1946 ZR: *Replidacna procarpatina* Miocene [Ref. Jekelius 1944]. ••1977 ZR: *Cerastoderma (Obsoletiforma) procarpatinum* (Jekelius). Syn. nov. *Cardium (Replidacna) procarpatinum* Jekelius. Ref to Paramonova p. 70 [Transl. p. 320].

**procarpatina spinosa** Jekelius, 1944 (variety). – Upgraded. *Replidacna procarpatina spinosa* Jekelius, 1944. RECORDS. ••1946 ZR: *Replidacna procarpatina* var. *spinosa* Jekelius, 1944 nov. Miocene, Soceni Banat.

**procera** (mode). – See under *procerum* Sowerby, 1833.

**procerum** Sowerby in Broderip & Sowerby, 1833. [Figs. Part 1 p. 110, 133, 172. Part 3 p. 924]. – Changed combination: *Trachycardium procerum* (Sowerby, 1833). Cardiidae. Pliocene and Recent. Type species: *Cardium procerum* Sowerby, 1833 (DO) is type species of subgenus *Mexicardia* Stewart, 1930 (Glibert & Poel 1970). TYPE LOCALITY. In America Centrali (Real Llejos, near Corinto, Nicaragua) in coarse sand from 4 to 6 fathoms (Sowerby 1833). TYPE REPOSITORY. BMNH; *Cardium procerum* Sowerby. Three syntypes. reg. no. 1989118. Neg. No. 0630. RECORDS. ••1833 Sowerby, p. 83: *Cardium procerum*. ••1834 Sowerby, 50<sup>th</sup> part, fig. 23: *Cardium procerum* nobis. ••1840 Sowerby, p. 5, No. 61: *Cardium procerum* Sow. ••1840 Sowerby, corrected list, p. 8: *Cardium procerum* (Sowerby No. 61). ••1844 Reeve, sp. 51: *Cardium procerum* Sowerby, 1833. Pro. Zool. Soc. ••1846 Orbigny: *Cardium procerum* Sowerby, 1833. ••1852 Adams: 433. *Cardium procerum* Sowerby, 1833. ••1858 Adams & Adams, p. 455: *Cardium (Trachycardium) procerum*, Sow. ••1860 Carpenter: *Cardium procerum* Sby. ••1868 ZR: *Cardium procerum* (Sow.), a variety of it is *laticostatum* (Sow.) [Ref. Römer 1868]. ••1890 Paetel: *Cardium procerum* Sow. ••1895 Stearns: *Cardium procerum* Sowerby. ••1901 Dall: *Cardium (Ringicardium) procerum* Sowerby, 1833 [Pleistocene]. ••1909 Lamy: *Cardium (Ringicardium) procerum* Sowerby. ••1922-32 Sherborn, p. 5160: *Cardium procerum* Sowerby, 1833. ••1930 Stewart designated *Cardium procerum* Sowerby, 1833 type species of the subgenus (*Mexicardia*) Stewart, 1930. ••1932 Pilsbry & Lowe: *Cardium (Bingicardium sic) procerum* Brod. and Sby. ••1934 Hertlein: *Cardium procerum* Sowerby [fossil]. ••1941 Pilsbry & Olsson: *Cardium (Mexicardia) procerum* Sby. [Pliocene]. ••1947 Hertlein & Strong: *Cardium (Mexicardia) procerum* Sowerby. ••1959 Ranson, p. 71: *Cardium procerum* Sowerby. ••1964 Parker: *Trachycardium (Mexicardia) procerum* (Sowerby, 1833). ••1969 Moore et al.: *Trachycardium (Mexicardia) procerum* (Sowerby, 1833). ••1969 ZR: *Trachycardium procerum* range extension, Peru [Ref. Vegas Velez 1969]. ••1970 Glibert & Poel: *Trachycardium (Mexicardia) procerum* (Sowerby, 1833). ••1971 Keen & McLean: *Trachycardium (Mexicardia) procerum* (Sowerby, 1833). ••1977 Fischer-Piette: *Laevicardium (Mexicardia) procerum*

Sowerby. ••1977 Popov: *Cardium procerum* Sowerby, 1833. Type of *Mexicardia* Stewart, 1930. ••1977 Wilson & Stevenson: *Cardium procerum* Sowerby, 1833. ••1995 Poutiers: *Trachycardium procerum* (Sowerby, 1833). ••1999 Vidal: *Trachycardium (Mexicardia) procerum* (Sowerby in Broderip & Sowerby, 1833). ••2001 Schneider & Carter: *Trachycardium procerum*. ••2001 Vidal, p. 407: *Trachycardium procerum*. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: shell decidedly higher than long; umbo rounded or roundly angled posteriorly; posterior area not set off with strong concentric sculpture; very convex; ribs without scales. OF COLLECTIONS. ••ZMUC: 1 specimen from Bai de la Magdalaine, Venus Expedition, 1839. ••ZMUC Gulf of California. DESCRIPTIONS. ••1844 Reeve: shell oblong-ovate, swollen, anterior side rounded, posterior somewhat squarely angulated, serrated, radiately ribbed, 25 flattened ribs, arcuately striated, the 4 extreme anterior ribs rather obsolete, the rest posteriorly angulated; brownish-white, ribs faintly stained with a very few purple-brown spots, covered with a thin earthy epidermis, posterior margins purple-brown within. ••1947 Hertlein & Strong: shell elongately trigonal, somewhat oblique posteriorly, 22–25 smooth, flattish-topped radial ribs, these are not strongly developed on the anterior slope of the shell but the posterior margin is serrated due to projecting ends of the ribs which interlock with the opposite valve. Shells < 35 mm in length are longer in proportion to the height. Shells about 10–15 mm in length have rounded ribs which gradually become broader, subtriangular and flatter and are separated by narrow and fairly deep interspaces. Colour externally brownish with a tendency toward yellowish concentric areas. ••2001 Vidal: tentacles numerous. No eyes on tentacles. REMARKS. ••1971 Keen: some authors have placed this species in the subgenus *Ringicardium*, but that group is essentially European and African in distribution. *T. procerum* is of moderate size (about 2 inches in height), with smooth, rounded ribs that are separated by linear interspaces. The shell is only moderately thick and the color is white, extensively mottled and spotted with brown. Although a few specimens have been found as far north as the Gulf of California, the geographic range seems mostly to be southward from Oaxaca, Mexico, to Chile; not uncommon. DIMENSIONS. ••1947 Hertlein & Strong: height more than 80 mm. REMARKS. ••1947 Hertlein & Strong: The rather considerable variation in shape during growth has led to description of this species under several different names: *Cardium laticostatum* Sowerby = a young stage of *C. procerum*. HABITAT. ••1844 Reeve: found in coarse sand at a depth of from 4 to 6 fathoms. ••ZMUC: sand at 22–70 m depth. DISTRIBUTION. ••1844 Reeve: Real Llejos, Central America. ••1884 Grasset: Panama. ••1971 Keen & McLean: the Gulf of California, South West Mexico to Chile. ••ZMUC: Gulf of California.

**prorescens** Münster, 1840. – *Lunulacardium prorescens* Muenster, 1840. Not in Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 5161: *Lunulacardium prorescens* Muenster, 1840.

**procumbens** – Not valid: *Conocardium procumbens*. RECORDS. ••1922-32 Sherborn, p. 5162: *Conocardium*

*productum* – *profundum*

*procumbens* without authorship [n. n.].

**productum** (variety). – See under *paucicostatum productum* Bucquoy, Dautzenberg & Dollfus, 1892.

\***productum**. – Homonymy to be noticed. *Cardium productum* from 3 sources: Sowerby, 1832. – Deshayes, 1854. – Orbigny (?year).

**productum** d'Orbigny. – *Granocardium productum* (d'Orbigny). *Cardiidae*. Cretaceous. RECORDS. •1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection as *Cardium*, *Granocardium productum* d'Orbigny. France; Austria, S10015, S10016. Cameroun, R51365.

**productum** (aff.) – *Cardiidae*. Cenomanian. RECORDS. •1965 ZR: *Cardium* aff. *productum* synonymy, Cenomanian, Egypt [Ref. Fawzi 1965].

**productum** Deshayes, 1854. [Figs. Part 3 p. 915]. – ?Synonym of *Corculum cardissa* (Linné, 1758). OTHER JUDGEMENTS: *Corculum dionaeum* (Sowerby) 1855. >> Regarding *Cardium productum*: *Cardiidae*. Recent. TYPE LOCALITY. Torres Strait. TYPE REPOSITORY. 2 syntypes. BMNH. RECORDS. •1855 Deshayes: *Cardium productum*. •1890 Paetel: *Hemicardium productum* Dsh. •1903 Hidalgo: *Cardium productum* Deshayes, 1854 sic; doubtful occurrence in the Philippines. •1913 ZR: *Cardium productum* Desh. fig. [Ref. Hedley 1913]. •1914 Hedley, p. 268 (pl. 16 figs. 20–22): *Cardium productum* Deshayes = *Cardium dionaeum* Sowerby. •1928 Faustino: *Cardium (Hemicardium) productum* Deshayes. •1977 Fischer–Piette: *Cardium productum* Deshayes = *Cardium cardissa* Linné. •1980 Ruhoff: *Cardium productum* Deshayes, 1854; p. 333. – CHARACTERS AND OCCURRENCE – DIMENSIONS. •1914 Hedley: 15 mm long 23 mm high, and 20 mm across the conjoined valves. REMARKS. •1914 Hedley p. 268 (pl. 16 figs. 20–22): the accompanying figure is taken from a Cumingian specimen, probably the type. DISTRIBUTION. •Of authors: Indo–West Pacific.

**productum** J.Sowerby, 1832. – *Granocardium productum* (Sowerby, 1832). *Cardiidae*. Upper Cretaceous. *Cardium productum* Sowerby, 1832 is type species of subgenus *Granocardium* Gabb. REMARKS. *Cardium productum* (*Trachycardium*) identical with European species (*Stoliczka* 1871). According to Sherborn (1922–32) there is no description, but it is figured [n. et f.]. – RECORDS. •1832 Sowerby: *Cardium productum*. •1857 Deshayes: *Cardium productum* Sowerby. •1871 Stoliczka: *Cardium productum* (*Acanthocardium* sic). •1871 Stoliczka: *Cardium productum* Sowerby, 1832. type of subgenus *Granocardium* Gabb. •1887 Fischer: *Cardium productum* Sowerby. •1889 ZR: *Granocardium productum* with fig. (ref. Holzapfel). •1922–32 Sherborn, p. 5164: *Cardium productum* Sowerby, 1832 [n. et f.]. •1933 ZR: *Cardium productum* [Ref. Parona 1933]. •1935 ZR: *Granocardium productum* Sow. fig. [Ref. Bakalov & Tzankov 1935]. •1963 ZR: *Cardium productum* Cretaceous [Ref. Bobkova 1963]. •1986 Abdel–Gawad, pl. 40, figs. 6,7: *Granocardium (Criocardium) productum* (Sowerby, 1832). •1994 El–Nakhal & El–Naggar: *Cardium productum*. •1998 Schneider: *Cardium productum* Sowerby, 1832. Transferred to genus *Granocardium* Gabb, 1869.

**productum daganakiikensis** Bobkova, 1963 (variety). – Infrasubspecific. >> Regarding *Cardium productum*.

var. *daganakiikensis*: *Cardiidae*. Cretaceous. RECORDS. •1963 ZR: *Cardium productum* var. *daganakiikensis* Bobkova, 1963 nov. Cretaceous, Tadzhik depression, USSR.

**productum subtriangulare** Cottreau, 1924. – Upgraded. “*Cardium productum subtriangulare* Sow. *Cardiidae*. Cretaceous. RECORDS. •1924 ZR: *Cardium productum* Sow. *subtriangulare* Cottreau, 1924 mut. n.

**proechinatum** Hilber. – Combination to be revised: “*Cardium proechinatum* Hilber. *Cardiidae*. Miocene. RECORDS. •1899 Sacco: *Cardium proechinatum* Hilber [Miocene].

**Profraginae** Badve, 1977 (subfamily). – RECORDS. •2001 Schneider & Carter: Profraginae (subfamily) Badve, 1977. •2002 Schneider: *Criocardium*, *Ethmocardium*, and *Granocardium* has been transferred to Profraginae.

**Profulvia** Kafanov, 1976 (genus). – *Cardiidae*. Fossil. Subgenus (*Profulvia*) Kafanov, 1976 upgraded to generic level by authors. RECORDS. •1976 ZR: *Profulvia* gen. nov. of *Cardiidae* Type species *Papyridea harrimani* Dall, 1904. Ref. to Kafanov, p. 482 [org. p. 111]. •1977 ZR: *Profulvia* Kafanov 1976. Designated type genus for new tribe Profulviini. Ref. to Kafanov & Popov p. 62 [Transl. p. 312]. •1980 Vokes: *Profulvia* Kafanov, 1976. Fossil. •1980 ZR: *Profulvia* Kafanov 1976. Key to species. Ref. to Kafanov. •1992 Amano & Tanaka: *Profulvia* Kafanov, 1976.

**Profulvia** Kafanov, 1976 (subgenus). – *Cardiidae*. Fossil. Type species by original designation: *Papyridea harrimani* Dall, 1904. RECORDS. •1976 Kafanov: Subgenus *Profulvia* Kafanov, 1976. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. Shell elongate–ovate, truncated, variable inequilateral, moderately convex, with gape at posterior or both ends. Beaks relatively low, obtuse, nearly orthograte, opistograte or weakly prosograte. Ribs about 30–65 in number; ribs straight, narrow and low on the anterior valve surfaces, more curved posteriorly. Ridges of ribs with numerous commarginal lines and wrinkles; weak nodes occur where growth lines cross costal crests. Paired cardinal teeth small and straight in both valves; lateral teeth usually single.

**Profulviini** Kafanov in Kafanov and Popov, 1977 (tribus). – *Cardiidae*. Fossil. RECORDS. •1977 Kafanov: Profulviini. •1999 Kafanov: Kafanov in Kafanov and Popov, 1977. •1977 ZR: Profulviini Tribe nov. of *Cardiidae*, type genus *Profulvia* Kafanov 1976. Tertiary. Ref. to Kafanov & Popov p. 62. [Transl. p. 312].

**profundicola** Logvinenko & Starobogatov, 1966. – *Didacna profundicola* Logvinenko & Starobogatov, 1966. Lymnocardiidae. Recent. TYPE LOCALITY. Caspian Sea. RECORDS. •1968 Logvinenko & Starobogatov: *Didacna profundicola* Logvinenko & Starobogatov, 1966.

**profundum** Vidal, 1999. [Figs. Part 3 p. 878]. – *Acrosterigma profundum* Vidal, 1999. *Cardiidae*. Recent. TYPE LOCALITY. Holotype, New Caledonia, 245–268m. TYPE REPOSITORY. Holotype and paratypes: Muséum national d'Histoire naturelle, Paris. Paratypes, National Museum of Natural History, Washington DC. TYPE MATERIAL. Holotype: A right valve. (MNHN, Bouchet, Metivier, Richer de Forges). Paratype 1: A



***promethei* – *Prophylicardium***

left valve, New Caledonia, 105–110 m (MNHN, *idem*). Paratype 2: A left valve, north of New Caledonia, 315–350m (MNHN *idem*). Paratype 3: A left valve, broken and incomplete, east coast of New Caledonia, 227–250m (MNHN, *idem*). Paratype 4: A very small left valve, from same locality as paratype 1. Paratype 5: A right valve, seaward (N.) of west end of Bikini Atoll, Marshall Islands, 177–244m (USNM 598697, R. W. Russell Coll). Paratype 6: A left valve, same lot as paratype 5. Paratype 7: A left valve, same lot as paratypes 5 and 6. RECORDS. ••1999 Vidal, p. 296, Table 20, Figs. 7J–M, 8C: *Acrosterigma profundum* n. sp. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: very elaborate and specific rib morphology that cannot be confused with any other cardiid. DESCRIPTIONS. ••1999 Vidal: shell ovoid and nearly equilateral with no posterior truncation, moderately elongated and globose. Lunule small, rather imperfectly delineated and nearly the same on both valves; umbonal margin raised, forming a double wall. External colour pattern is unique: on adult part, posteriorly entirely pink to orange, middle surface bears large, pink to orange, irregularly concentric splashes, and anterior half of the shell beige, with widely scattered small splashes. Interior white with some exterior splashes showing through; no umbonal rays visible. Hinge symmetrical and moderately angled. On right valve, cardinals show an unusual degree of fusion at their base. Mean rib number  $56.9 \pm 3.1$ , range 55–63. Posteriorly, interstices thin; ribs flat with a central longitudinal furrow, anterior smooth part as wide as or narrower than posterior. Elongated, thin, straight, oblique scales develop on posterior part, straddling axial furrow and encroaching slightly upon anterior zone. On posterior half of middle surface, the same features appear, but posterior zone slightly raised and ribs become flatly triangular; longitudinal furrow progressively disappears and anterior smooth zone becomes anterior flank of the rib. On anterior half of middle surface, ribs become more rounded, scales become progressively shorter and more numerous and change into posterior ridges, rib tops becoming smooth; at same time, numerous very thin oblique serrations appear on anterior flanks of ribs, changing anteriorly into small ridges or tubercles. Anteriorly, on middle surface, this sculptural evolution leads to ribs which are slightly square-sided, serrated on both sides, and slightly overhanging interstices. Anteriorly, some lateral serrations join on top of ribs, forming thin, free top-ridges, which are not imbricated; the first ribs of this quarter slightly degenerate, their ornamentation becoming less regular. DIMENSIONS. ••1999 Vidal: length 28.2, height 36.7, width (calculated) 23.6 mm. REMARKS. ••1999 Vidal: *Acrosterigma profundum* is separated from *A. uniornatum* by its larger size, higher rib number, and particular rib ornamentation on the median part of the shell, i.e. the small dense serrations on the anterior flanks of the ribs. It cannot be confused with other species. DISTRIBUTION. North and east of New Caledonia, at relatively great water depths for Cardiidae other than Protocardiinae; present also in Bikini Atoll, Marshall Islands.

***promethei*** Celidje, 1953. – *Chartadacna promethei* Celidje, 1953. Lymnocoardiidae. Fossil. RECORDS. ••1953

Celidje, p. 157: *Chartadacna promethei* gen. et sp. nov. ***prominens*** Popov & Neveeskaya, 2000. – *Lymnocardium prominens* Popov & Neveeskaya, 2000. Cardiidae. Late Miocene. RECORDS. ••2000 Popov & Neveeskaya, downloaded abstract: *Lymnocardium (Euxinocardium) prominens* n. sp.

***promultistriata*** Jekelius, 1944. – Changed combination: *Pontalmyra promultistriata* (Jekelius, 1944). Lymnocoardiidae. Miocene. ••1946 ZR: *Lymnocardium promultistriatum* Jekelius, 1944 sp. nov. Miocene Soceni Banat. RECORDS. ••1987 Taktakishvili: *Didacna promultistriata* Jekelius. ••1987 Taktakishvili: *Pontalmyra promultistriata* (Jek.).

***propebanneianum*** Dietrich, 1933. – *Tendagurium propebanneianum* (Dietrich, 1933). Cardiidae. Cretaceous. RECORDS. ••1933 ZR: *Cardium propebanneianum* Dietrich, 1933 sp. n. Type of *Tendagurium* Dietrich, 1933 subgen. n. of *Cardium*. Cretaceous Africa. ••1937 ZR: *Cardium (Tendagurium) propebanneianum* Dietrich 1933 type of *Tendagurium* [Ref. Keen 1937]. ••1995 Schneider: *Tendagurium* Dietrich, 1933. Mesozoic subgenus of *Cardium*. Salisbury (1934) designated *Cardium propebanneianum* (sic = *propebanneianum*) Dietrich, 1933, as the type species. ••1995 Schneider: *Tendagurium propebanneianum* (Dietrich, 1933).

***propeciliare*** Dall, 1898. – Changed combination: *Acanthocardia propeciliare* (Dall, 1898). Cardiidae. Fossil. RECORDS. ••1898 Dall: *Cardium propeciliare* Dall, 1898 n. sp. ••1977 Vokes *Acanthocardia propeciliare* (Dall).

***propeleve*** Ebersin, 1958. – Changed combination: *Euxinocardium propeleve* (Ebersin, 1958). Lymnocoardiidae. Fossil. RECORDS. ••1958 ZR: *Lymnocardium (Euxinocardium) propeleve* Ebersin, 1958 sp. nov. Kerchenski Peninsula. Crimea; Kuban Province. Pliocene of the Ponto-Caspian basin, Russia. ••1987 Taktakishvili: *Lymnocardium (Euxinocardium) propeleve* Ebers. ••1987 Taktakishvili: *Euxinocardium propeleve*.

***propeleve*** Ebersin (variety). – Infrasubspecific. >> Regarding *Euxinocardium propeleve* var: Lymnocoardiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Euxinocardium propeleve* Ebers. var.

***propeleve inleve*** Ebersin (subspecies). – *Euxinocardium propeleve inleve*. Lymnocoardiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Euxinocardium propeleve inleve*.

***propesemicostatum*** Gregorio, 1930. – Combination to be revised: “*Cardium*” *propesemicostatum* Gregorio, 1930. Cardiidae. Lias. RECORDS. ••1936 ZR: *Cardium propesemicostatum* Gregorio, 1930 sp. n. Lias Palermo [Ref. Gregorio 1930].

***propexum*** Monterosato, 1891. – Synonym of *Acanthocardia echinata* (Linné, 1758). >> Regarding *Cardium propexum*: Cardiidae. Recent. RECORDS. ••1891 Monterosato: *Cardium propexum*. ••1892 B.D.D. *Cardium propexum* = *Cardium echinatum*. ••1912 Dautzenberg & Fischer: *Cardium propexum* Monterosato 1891 = *Cardium (Acanthocardia) echinatum*, Linné.

***Prophylicardium*** Jekelius, 1944 (genus). – Lymnocoardiidae. Pliocene. RECORDS. ••1946 ZR: *Prophylicardium* Jekelius, 1944 gen. nov. Cardiidae, type *Prophylicardium soceni* Jekelius, 1944 sp. nov.

**Prophylicardium – Prosodacnidae**

- Pliocene Rumania (Lower Congerien) Soceni. Banat.
- Prophylicardium** Jekelius, 1944 (genus). – Lymnocardiiidae. Tertiary. RECORDS. ••1980 Vokes: *Prophylicardium* Jekelius, 1944. Subfamily uncertain.
- propinqua** Eichwald, 1841. [Figs. Part 1 p. 123]. – Changed combination: *Apscheronia propinqua* (Eichwald, 1841). Lymnocardiiidae. Tertiary. TYPE LOCALITY. Caspian Sea. RECORDS. ••1841 Eichwald, p. 220, pl. 40, figs. 3–4: *Monodacna propinqua*. ••1866 Issel: *Monodacna propinqua*, Eichwald, 1842. ••1903 Andrussoff: *Monodacna propinqua* Eichwald, 1841. ••1922-32 Sherborn, p. 5173: *Monodacna propinqua* Eichwald, 1841. ••1930 ZR: *Apscheronia propinqua* [Ref. Andrussoff 1923]. ••1977 Popov: *Apscheronia propinqua* (Eichw.). – CHARACTERS AND OCCURRENCE – DESCRIPTION. ••1903 Andrussoff: *Monodacna propinqua* Eichwald has a smooth shell surface. See also under the proposed replacement name: *Cardium proximum* Deshayes.
- propinqua** Reed, 1944. – *Plethocardia propinqua* Reed, 1944. Cardiacea. Ordovician. RECORDS. ••1944 ZR: *Plethocardia propinqua* Reed, 1944 sp. nov. Balclatchie Beds, Balclatchie, Girvan (Ordovician).
- propinqua brevior** Androussov, 1923 (variety). – Upgraded. *Apscheronia propinqua brevior* Androussov, 1923. Lymnocardiiidae. Tertiary. RECORDS. ••1930 ZR: *Apscheronia propinqua* var. *brevior* Androussov, 1923 nov. [Ref. Androussov 1923].
- propinqua mactriformis** Androussov, 1923 (variety). – Upgraded. *Apscheronia propinqua mactriformis* Androussov, 1923. Lymnocardiiidae. Tertiary. RECORDS. ••1930 ZR: *Apscheronia propinqua* var. *mactriformis* Androussov, 1923 nov. [Ref. Androussov 1923].
- propinqua oblonga** Androussov, 1923 (variety). – Upgraded. *Apscheronia propinqua oblonga* Androussov, 1923. Lymnocardiiidae. Tertiary. RECORDS. ••1930 ZR: *Apscheronia propinqua* var. *oblonga* Androussov, 1923 nov. [Ref. Androussov 1923].
- propinqua praeextensa** Androussov, 1923 (variety). – Upgraded. *Apscheronia propinqua praeextensa* Androussov, 1923. Lymnocardiiidae. Tertiary. RECORDS. ••1930 ZR: *Apscheronia propinqua* var. *praeextensa* Androussov, 1923 nov. [Ref. Androussov 1923].
- propinqua typica** Androussov, 1923 (variety). – Upgraded. *Apscheronia propinqua typica* Androussov, 1923. Lymnocardiiidae. Tertiary. RECORDS. ••1930 ZR: *Apscheronia propinqua* var. *typica* Androussov, 1923 nov. [Ref. Androussov 1923].
- propinquum** (mode). – See also under *propinqua* Eichwald, 1841.
- propinquum**. – Homonymy. *Cardium propinquum* from 3 sources: Münster in Goldfuss, 1837. Münster, 1839. Eichwald, 1841.
- propinquum** Eichwald, 1841. – Replaced by *Cardium proximum* Deshayes. Cardiidae. Fossil. RECORDS. ••1857 Deshayes: *Cardium propinquum* Eichwald, 1841 – [C.] *proximum* Desh.
- propinquum** Münster in Goldfuss, 1837. – Replaced by “*Cardium*” *bavaricum* Deshayes. >> Regarding *Cardium propinquum*: Cardiacea. Cretaceous. RECORDS. ••1857 Deshayes: *Cardium propinquum* Münster, 1840 – [C.] *bavaricum* Desh. ••1922-32 Sherborn, p. 5172: *Cardium propinquum* Münster in Goldfuss, 1837.
- propinquum** Münster, 1839. – Combination to be revised: “*Cardium*” *propinquum* Münster, 1839. Cardiidae. Cretaceous. RECORDS. ••1857 Deshayes: *Cardium propinquum* Münster, 1839. ••1871 Stoliczka: *Cardium propinquum* (Cerastoderma).
- propinquum** Orbigny, 1850. – *Conocardium propinquum* d’Orbigny, 1850. Conocardiiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 5172: *Conocardium* (Muenst.) *propinquum* d’Orbigny, 1850. – *Cardium*.
- propria** (subspecies). – See under *corbuloides propria* Taktakishvili, 1978
- proprium** – *Cerastoderma proprium*. Cardiidae. Fossil. RECORDS. ••1977 Popov: *Cerastoderma proprium*.
- proprium** Alizade. – *Acobaecardium proprium* (Alizade). Lymnocardiiidae. Neogene. RECORDS. ••1986 Nevesskaya et al.: *Acobaecardium proprium* (Alizade) comb. nov. ••1987 ZR: *Acobaecardium proprium* (Alizade) comb. nov. Ref. to Nevesskaya et al. p. 192.
- Prosodacna** (error). – Printer’s mistake for *Prosodacna* in Fischer (Vokes 1980).
- Prosochiasta** Ebersin, 1959 (genus). – Lymnocardiiidae. Tertiary. RECORDS. ••1974 ZR: *Prosochiasta* Ebersin, 1959. Referred to new subfamily Prosodacninae, Ref. to Andreescu, p. 128. ••1980 Vokes: *Prosochiasta* Ebersin, 1959 in subfamily Lymnocardiiinae.
- Prosochiasta** Eberzin, 1960 (subgenus). – Lymnocardiiidae. Pliocene. RECORDS. ••1960 ZR: (*Prosochiasta*) Eberzin, 1960 subgen. nov. of *Prosodacna*. Subgenotype: *Prosodacna prosochiasta* Andrus., Pliocene Galizgi river, Abkhaziya, Georgia USSR. ••1960 ZR: *Prosochiasta* Eberzin, 1960 subgen. nov. of *Prosodacna* q.v.
- prosochiasta** Andrus. – *Prosodacna prosochiasta* Andrus. Lymnocardiiidae. Pliocene. RECORDS. ••1960 ZR: *Prosodacna prosochiasta* Andrus., Pliocene Galizgi river, Abkhaziya, Georgia USSR. [Ref. Eberzin 1960].
- Prosodacna** Tournouër, 1882 (genus). – Lymnocardiiidae. Pliocene. GENOTYPE. *Cardium macrondon* Deshayes, 1838. TYPE LOCALITY. Crimean fossil. REMARKS. Divided into 3 sections by Dollfus 1905, commenting Andrussov 1903; (I) type species *Prosodacna semisulcata* Rouss. (II) type species *P. rumana* Sabba, (III) type species *P. cobalcescui* Fontannes. RECORDS. ••1903 Andrussoff: *Prosodacna* Tournouër, 1882. ••1905 Dollfus, commenting Andrussov 1903: *Prosodacna* Tournouër. ••1974 ZR: *Prosodacna* Tournouër, 1882. Designated type genus for new subfamily Prosodacninae. Ref. to Andreescu, p. 130. ••1975 ZR: *Prosodacna* (*Psilodon*) Cobalcescu, 1883. Diagnostic characters. Palaeoecology. Systematic accounts of species. Pliocene. Romania. Ref. to Motas. ••1977 Popov: *Prosodacna* Tournouër, 1882. ••1977 ZR: *Prosodacna* Systematic accounts of species. Ref. to Papaianopol, I. p. 25. ••1980 Vokes: *Prosodacna* Tournouër, 1882. ••1980 ZR: *Prosodacna* Tournouër 1882. Key to species. Ref. to Andreescu. ••1987 Anaya: *Prosodacna* Tourquër, 1882. ••2001 Schneider & Carter: *Prosodacna* (genus). Lymnocardiiidae. Pliocene.
- Prosodacna** Tournouër, 1882 (subgenus). – Lymnocardiiidae. Tertiary. RECORDS. ••1887 Fischer: Subgenus (*Prosodacna*) Tournouër, 1882. ••1987 Anaya: (*Prosodacna*) s.s.
- Prosodacnidae** – RECORDS. ••1937 ZR: Prosodacnidae (?) not a cardiid unit [Ref. Keen 1937].

**prosodacnoides – Protocardiinae**

**prosodacnoides** Andreescu, 1972. – *Euxinocardium prosodacnoides* (Andreescu, 1972). Lymnocardiiidae. Fossil. RECORDS. ••1972 ZR: *Limnocardium* (*Euxinocardium* sic) *prosodacnoides* Andreescu, 1972 sp. nov. Romania. Pleistocene. ••1975 ZR: *Limnocardium* (*Euxinocardium*) *prosodacnoides* Andreescu, 1975 sp. nov. Romania, Vrancea district. Pleistocene. Ref. to Andreescu, p. 112. ••1987 Taktakishvili: *Euxinocardium prosodacnoides* (Andreescu).

**Prosodacnomya** Eberzin, 1960 (genus). Lymnocardiiidae. Upper Miocene/Pliocene. RECORDS. ••1974 ZR: *Prosodacnomya* Ebersin, 1959. Referred to new subfamily Prosodacninae. Ref. to Andreescu, p. 128. ••1980 Vokes: *Prosodacnomya* Ebersin, 1959 in subfamily Prosodacninae Andreescu, 1974. ••1980 ZR: *Prosodacnomya* Ebersin 1959. Key to species. Ref. to Andreescu. ••1984 ZR: *Prosodacna* (*Prosodacnomya*) Upper Miocene. Dacian Basin. Ref. to Papaianopol.

**Prosodacnomya** Eberzin, 1960 (subgenus). Lymnocardiiidae. Upper Miocene/Pliocene. RECORDS. ••1960 ZR: (*Prosodacnomya*) Eberzin, 1960 subgen. nov. of *Prosodacna*. Subgenotype: *Prosodacna rostrata* (Sinz.) Pliocene Ukraine, Odessa USSR. ••1978 ZR: *Prosodacna* (*Prosodacnomya*) Upper Miocene Romania, Boteni. List & stratigraphy. Ref. to Pavnotescu *et al.*

**prosodactoides** Andreescu, 1971. – New combination: *Lymnocardium prosodactoides* (Andreescu, 1971). Lymnocardiiidae. Pleistocene. RECORDS. ••1971 ZR: *Limnocardium* (*Euxinocardium*) *prosodactoides* Andreescu, 1971 sp. nov. Pleistocene Rimnicu–Sarat Valley, Dumitresti, Romania.

**prosogyrata** Kafanov, 1994 – *Profulvia prosogyrata* Kafanov, 1994. Cardiiidae. Fossil. RECORDS. ••1994 Kafanov in Arkhipova *et al.*: *Profulvia prosogyrata* Kafanov.

**prosogyrata** Perkins, 1961. – *Protocardia prosogyrata* Perkins, 1961. Cardiiidae. Cretaceous. RECORDS. ••1961 ZR: *Protocardia prosogyrata* Perkins, 1961 sp. nov. Cretaceous, Texas, Fort Worth.

**prosogyrata** Perkins, 1961. – *Protocardia prosogyrata* Perkins, 1961. Cardiiidae. Cretaceous. RECORDS. ••1986 Scott: *Protocardia prosogyrata* Perkins, 1961.

**protei** Brongniart, 1821. – *Pholadomya protei* (Brongniart, 1821). Lymnocardiiidae. Fossil. RECORDS. ••1857 Deshayes: *Cardium protei* Brongniart. In genus *Pholadomya*. ••1922–32 Sherborn, p. 5177: *Cardium protei* Brongniart, 1821.

**proterothetidis** Ludbrook, 1955. *Nomen nudum*. RECORDS. Cardiiidae. Pliocene. ••1955 ZR: *Nemocardium* (*Pratulum*) *proterothetidis* Ludbrook, 1954 sp. nov. *nom. nud.* Pliocene, Australia. ••1977 Popov: *Pratulum proterothetidis* (Ludbrook, 1955).

**proteua** (error). – Printer's mistake for *proteus* in Ma Qi–hong *et al.* 1976.

**proteus** Krumbeck, 1914. – *Protocardia proteus* Krumbeck, 1914. Cardiiidae. Trias. RECORDS. ••1914 ZR: *Protocardia proteus* Krumbeck, 1914 sp. n. Trias Buru. ••1976 Ma Qi–hong *et al.*: *Protocardia proteua* sic Krumbeck, 1913.

**protextum** Conrad, 1853. – Combination to be revised: "*Cardium*" *protextum* Conrad, 1853. Cardiiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium protextum* Conrad,

1853; vol. 2: 275, pl. 24, fig. 12.

**protoaliculum** Richards in Richards & Palmer, 1953. – *Sawkinsia protoaliculum* (Richards in Richards & Palmer, 1953). Cardiiidae. Eocene. RECORDS. ••1998 Schneider: *Cardium* (*Trigonocardia*) *protoaliculum* Richards in Richards & Palmer, 1953 in genus *Sawkinsia*. ••1998 Schneider: *Cardium* (*Trigonocardium* sic) *protoaliculum* Richards, in Richards & Palmer, 1953. *Sawkinsia protoaliculum* (Richards, in Richards & Palmer, 1953).

**Protocardia** Beyrich, 1845 (genus). – Cardiiidae. Eocene and Recent. GENOTYPE. Herrmannsen (1847) designated *Cardium hillanum* Sowerby, 1818 type species of genus *Protocardia* Beyrich, 1845 (Speden 1970). RECORDS. ••1845 Beyrich, designated the genus *Protocardia*. ••1857 Deshayes: *Protocardia* Beyrich, in Bronn: syn. of *Cardium*. ••1876 Meek: *Protocardia*, Beyrich, 1845. ••1876 Meek: *Protocardium* = *Protocardia*. ••1886 Cossmann: Genus *Protocardium* Beyrich, 1845. ••1906 Suter: *Protocardia* Beyrich, 1845. ••1920 ZR: *Protocardia* [Refs. Henning, Lange, Roman & Mazeran]. ••1922 Olsson: *Protocardia* Beyrich. ••1922–32 Sherborn, p. 5180: *Protocardia* Beyrich, 1845. ••1924 Oldroyd: Genus *Protocardia* Beyrich, 1845. ••1926 ZR: *Protocardia* [Ref. Schmidtil 1926]. ••1928 ZR: *Protocardia* [vide etiam *Protocardium*] [Ref. Patte 1928]. ••1929 ZR: *Protocardia* [vide etiam *Protocardium*] [Refs. Cox, Rennie, Parona]. ••1934 Johnson: *Protocardia* Beyrich 1845. ••1961 ZR: *Protocardia*, all Tertiary species considered to belong to *Nemocardium* Meek [Ref. Hughes 1961]. ••1980 Vokes: *Protocardia* Beyrich, 1845 in subfamily Protocardiinae. ••1980 ZR: *Protocardia* India Rann Islands, Jurassic, first record. Ref. to Singh *et al.* ••1986 Scott: *Protocardia* von Beyrich, 1845 (p. 1192).

**Protocardia** Conrad, 1860 (genus). Invalid. RECORDS. ••1980 Vokes: *Protocardia* Conrad, 1860 [non Beyrich, 1845].

**Protocardia** Beyrich, 1845 (subgenus). – Cardiiidae. Eocene and Recent. RECORDS. ••1887 Fischer: Subgenus *Protocardia*, Beyrich. 1845 of genus *Cardium* Linné, 1758.

**Protocardiinae** Keen, 1951 (subfamily). – Cardiiidae. Fossil and Recent. RECORDS. ••1978 Maxwell: Subfamily Protocardiinae. ••1980 Vokes: Subfamily Protocardiinae Keen, 1951. ••1980 ZR: Protocardiinae Keen 1951. Key to genera. Ref. to Keen. ••1980 ZR: Systematics. Generic composition & position. Ref. to Andreescu. / Origin of taxon. Ref. to Andreescu. ••1986 Abdel–Gawad: subfamily Protocardiinae Keen, 1951. ••1987 ZR: Protocardiinae. Lower Cretaceous. Mexico & USA. Caribbean Province palaeozoogeography Stratigraphic distribution, palaeobiology & Systematics. Ref. to Scott. ••1992 Poutiers: Protocardiinae. ••1995 Pacaud & Renard: Subfamily Protocardiinae. ••1999 Higo *et al.*: Protocardiinae (subfamily) Keen, 1951. ••2001 Schneider & Carter: Protocardiinae (subfamily) Keen, 1951. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1994 Hylleberg: rounded quadrate, beaks nearly central; posterior slope well defined by umbonal ridge, its radial ribs tending to be spinose; hinge long, slightly arched, cardinals 2 and 3b larger, peglike, curved upward, sinuating lower border of hinge plate;

## Protocardium – proximum

- pallial line mostly entire, some with small sinus near posterior adductor scar.
- Protocardium** (error). – Invalid emendation of genus *Protocardia*. RECORDS. •1871 Stoliczka: *Protocardium* Beyrich, 1817. •1980. Vokes: *Protocardium* (emend. pro *-cardia* Beyrich, 1845).
- Protocardium** (error). – Printer's mistake for *Protocardia* in Meek & Hayden, 1860 (Vokes 1980).
- Protocardia** (error). – Printer's mistake for *Protocardia* in Preston, 1921 (Vokes 1980).
- Protodacna** (genus). – RECORDS. •1968 Logvinenko & Starobogatov: Genus *Protodacna* Logvinenko & Starobogatov.
- Protodacninae** (subfamily). – RECORDS. •1980 ZR: Protodacninae. Origin of taxon. Ref. to Andreescu. •1980 ZR: Systematics. Generic composition & position. Ref. to Andreescu.
- Protodidacna** Logvinenko & Starobogatov, 1966 (genus). – Lymnocoardiidae. Tertiary and Recent. RECORDS. •1980 Vokes: *Protodidacna* Logvinenko & Starobogatov, 1966.
- Protoplagiodacna** (genus). – Lymnocoardiidae. RECORDS. •1987 ZR: *Protoplagiodacna* Stevanovic, 1978. Referred to new tribe Arcicardiini. Ref. to Nevesskaya et al. p. 190.
- protosubrugosum** Noetling, 1901. – *Vasticardium protosubrugosum* (Noetling, 1901). Cardiidae. Miocene. RECORDS. •1977 Popov: *Trachycardium (Vasticardium) protosubrugosum* (Noetling, 1901). •1999 Vidal: *Cardium protosubrugosum* Noetling, 1901: 179, pl. 10, figs 10–11 Miocene of Burma. Compared by Pannekoek (1936: 71) with *spolongense* and *sedanense*.
- protracta** (mode). – See under *protractum*.
- protracta** Eichwald, 1841. [Figs. Part 1 p. 123, 181]. – Changed combination: *Didacna protracta* (Eichwald, 1841). OTHER JUDGEMENTS: *Monodacna catillus* Eichwald. >> Regarding *Cardium protracta*: Lymnocoardiidae. Pliocene and Recent. TYPE LOCALITY. Caspian Sea. RECORDS. •1841 Eichwald, p. 223, pl. 40, figs. 9–10: *Adacna protracta* m. •1875 ZR: *Adacna protracta* (Eichw.), exhibits vestiges of cardinal teeth [Ref. Martens 1875]. •1877 Grimm: *Adacna protracta* Eichwald (syn.) = *Monodacna catillus* Eichwald. •1903 Andrussov: *Adacna protracta* Eichwald, 1841. •1922–32 Sherborn, p. 5182: *Adacna protracta* Eichwald, 1841. •1968 Logvinenko & Starobogatov: *Didacna protracta protracta* (Eichwald). •1977 Popov: *Didacna protracta*. •1987 Taktakishvili: *Limnocardium protractum* (Eichw.). •1987 Taktakishvili: *Didacna protracta*.
- protracta grimmi** Andrusov (variety). – Changed combination. Identical with *Didacna protracta submedia* Andrusov, 1911. >> Regarding *Didacna protracta submedia*: Lymnocoardiidae. Fossil. RECORDS. •1968 Logvinenko & Starobogatov: *Didacna protracta* var. *grimmi* Andrusov = *Didacna protracta submedia* Andr.
- protracta novacaspica** Glazunova, 1971. – *Didacna protracta novacaspica* Glazunova, 1971. Lymnocoardiidae. Pleistocene. RECORDS. •1971 ZR: *Didacna protracta novacaspica* Glazunova, 1971 subsp. nov. Pleistocene Cape Peschanyy area, Middle Caspian, USSR.
- protracta submedia** Andrusov, 1911 (variety). – Upgraded. *Didacna protracta submedia* Andrusov, 1911. Lymnocoardiidae. Fossil. RECORDS. •1968 Logvinenko & Starobogatov: *Didacna protracta submedia* Andr. •1968 Logvinenko & Starobogatov: *Didacna protracta* var. *submedia* Andrusov, 1911 = *Didacna protracta submedia* Andr.
- Protractiforma** Bagdassarian, 1978 (genus). – Cardiidae. Fossil. RECORDS. •1979 ZR: *Protractiforma*. Ref. to Bagdasaryan, p. 44. •1980 Vokes: *Protractiforma* Bagdassarian, 1978.
- protractiformis** (variety). – See under *quadripartitum protractiformis* Andrusov.
- \*protractum**. – Homonymy to be noticed. *Cardium protractum* from 2 sources: Eichwald, 1829. – Dall, 1900.
- protractum** Eichwald, 1829. – Combination to be revised: "*Cardium*" *protractum* Eichwald, 1829. Cardiidae. Fossil. RECORDS. •1829 Eichwald, p. 283, Tab. 5, f. 9: *Cardium protractum* n. •1857 Deshayes: *Cardium protractum* Eichwald. •1922–32 Sherborn, p. 5182: *Cardium protractum* Eichwald, 1829. •1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection as *Cardium protractum* Eichwald. Greece, B37539. Turkey, B41471.
- protractus** Dall, 1900. – Synonym of *Serripes groenlandicus* (Bruguière, 1789). >> Regarding *Cardium protractus*. Cardiidae: Recent. DISTRIBUTION. Arctic (McLean 1939). RECORDS. •1900 Dall: *Cardium protractus*. •1974 Abbott: *Serripes protractus* Dall. 1900 = *Serripes groenlandicus* (Bruguière, 1789).
- protractus** (subspecies). – See under *groenlandicus protractus* Dall, 1900.
- protrusum** Solander, 1786 – Synonym of *Corculum impressum* (Lightfoot, 1786). OTHER JUDGEMENTS: *Corculum cardissa* (Linnaeus, 1758). >> Regarding *Cardium protrusum*: Cardiidae. Recent. RECORDS. •1687 Lister, pl. 319, fig. 156: pectunculus dorso sine margine laevi. •1786 Solander, p. 178, ref. to Lister: *Cardium protrusum*. •1817 Dillwyn: *Cardium protrusum*. Solander's MSS, lot 3325 = *Cardium humanum* Chemnitz. •1916 Iredale, p. 86: *Cardium protrusum* Solander. •1922–32 Sherborn, p. 5182: *Cardium protrusum* Solander, 1786. •1967 Rehder: Portland Catalogue No. 3825. A very fine specimen of *Cardium protrusum*, S. a curious variety of the Venus heart, from China, very rare. Lister, 319. 156. •1967 Rehder: *Cardium protrusum* (Lightfoot, 1786) = *Corculum impressum* (Lightfoot, 1786). •1977 Fischer–Piette, p. 153: *Cardium protrusum* Solander = species insufficiently known. – CHARACTERS AND OCCURRENCE – REMARKS. Lister (1687, pl. 319, fig. 156) is most likely *Cardium humanum* Chemnitz, 1782 = *Corculum cardissa* (Linné, 1758).
- \*proximum**. – Homonymy to be noticed. *Cardium proximum* from 2 sources: Deshayes, 1853. – ? possibly Dufour, 1881.
- proximum** Deshayes, 1853. – Combination to be revised: "*Cardium*" *proximum* Deshayes. Cardiidae. Fossil. RECORDS. •1857 Deshayes: *Cardium proximum* Desh. •1980 Ruhoff: *Cardium proximum* Deshayes, 1853; vol. 2: 48.
- proximum** Dufour, 1881. – *Loxocardium proximum* (Dufour, 1881). Lymnocoardiidae. Fossil. RECORDS.

**proximum – Pseudocatillus**

••1970 Glibert & Poel, p. 50: *Loxocardium proximum* (Dufour, 1881).

**proximum** Fuchs. – *Lymnocardium proximum* (Fuchs). Lymnocardiidae. Fossil. RECORDS. ••1928 ZR: *Limnocardium proximum* Fuchs Pontian [Ref. Pavlovitch 1928]. ••1929 ZR: *Limnocardium proximum* Fuchs Pontian [Ref. Pavlovic 1929]. ••1987 Taktakishvili: *Limnocardium proximum* (Fuchs).

**proximum bonei** Pavlovitch, 1928 (variety). – Upgraded. New combination: *Lymnocardium proximum bonei* Pavlovitch, 1928. Lymnocardiidae. Pontian. RECORDS. ••1928 ZR: *Limnocardium proximum* Fuchs var. *bonei* Pavlovitch, 1928 nov. Pontian Serbia [Ref. Pavlovitch 1928]. ••1929 ZR: *Limnocardium proximum* Fuchs var. *bonei* Pavlovic, 1929 nov. Pontian Serbia [Ref. Pavlovic 1929].

**prunum** Meuschen, 1778. *Non binominal*. – Not available. RECORDS. ••1902 Sherborn, p. 780: *Cardium prunum* Meuschen, 1778. ••1902 Sherborn, p. 780: *Cardium prunum* Meuschen, 1778.

**pseudocardo** Andrussow, 1907. – *Arcicardium pseudacardo* Andrussow, 1907. Lymnocardiidae. Fossil. TYPE LOCALITY. Crimean iron ore deposits. RECORDS. ••1907 Andrussow, p. 113, Taf. III, Fig. 5–9, Taf. IV, Fig. 14: *Arcicardium pseudacardo* nov. sp. ••1964 ZR: *Arcicardium pseudacardo* Andrusov, 1964 sp. nov. Tertiary.

**pseudoangulata** (mode). – See under *pseudoangulatum*.

**pseudoangulatum** Bülow, 1905. – *Synonym of Vasticardium philippinense = Vasticardium orbita philippinense* (Hedley, 1899). >> Regarding *Cardium pseudoangulatum*: Cardiidae. Recent. TYPE LOCALITY. None designated (Higo *et al.* 1999). RECORDS. ••1905 Bülow: *Cardium pseudoangulatum*. ••1905 ZR: *Cardium (Trachycardium) pseudoangulatum* Bülow, 1905b sp. n. Hab. incert. ••1991 Vidal: *Cardium pseudoangulatum* Bülow, 1905. ••1991 Voskuil & Onverwagt: *Trachycardium pseudoangulatum*. ••1997 Vidal: *Cardium (Trachycardium) pseudoangulatum* Bülow, 1905 = *Vasticardium orbita philippinense* (Hedley, 1899). ••1999 Vidal: *Cardium pseudoangulatum* Bülow, 1905 = *Vasticardium orbita* (Broderip & Sowerby, 1833). ••1999 Higo *et al.*: *Acrosterigma (Vasticardium) pseudoangulata* (Bülow, 1905). ••1999 Vidal, p. 357: *C. pseudoangulatum* Bülow, 1905 identical with *Vasticardium orbita philippinense*. – CHARACTERS AND OCCURRENCE – HABITAT. ••1999 Higo *et al.*: subtidal to 20 m, sand. DISTRIBUTION. ••1994 Hylleberg: Central Indo-West Pacific. ••1999 Higo *et al.*: Amami islands and southwards, Philippines, South China Sea, China, Indonesia, IndoPacific.

**Pseudoarcicardium** Akhvlediani, 1974 (genus). – Lymnocardiidae. Fossil. RECORDS. ••1974 ZR: *Pseudoarcicardium* Akhvlediani, 1974 gen. nov. of Cardiidae. Type species *Arcicardium kubanicum* Andrusov. Ref. to Akhvlediani, p. 486. ••1980 Vokes: *Pseudoarcicardium* Akhvlediani, 1974. ••1987 Taktakishvili, p. 92: *Pseudoarcicardium* Akhvlediani, 1974; referred to new tribe Pontalmyrini.

**pseudoaxinus** Thurmann in Thurmann & Etallon, 1862. – Combination to be revised: "*Cardium*" *pseudoaxinus* Thurmann in Thurmann & Etallon, 1862. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium pseudoaxinus*

Thurmann in Thurmann & Etallon, 1862; p. 182, pl. 21, fig 1e.

**pseudobogatchevi** (variety). – See under *gracile pseudobogatchevi* Gillet, 1938.

**Pseudocardia** Conrad, 1866 (genus). – *Synonym*. >> Regarding *Pseudocardia*: Lymnocardiidae. Fossil. RECORDS. ••1887 Fischer: *Pseudocardia* pars Conrad, 1866. Jun. syn. of Genus *Limnocardium* Stoliczka, em. 1870. ••1903 Andrusoff: *Pseudocardia* Conrad.

**pseudocardia** (mode). – See under *pseudocardium*. **pseudocardia** Eichwald. RECORDS. ••1890 Paetel: *Adacna pseudocardia* Eichw.

**Pseudocardita** Oppenheim, 1919 (genus). – Carditidae. Tertiary and Recent. RECORDS. ••1980 Vokes: *Pseudocardita* Oppenheim, 1919 in subfamily Pseudocarditinae.

**Pseudocarditinae** Ebersin, 1964 (subfamily). – RECORDS. ••1980 Vokes: Subfamily Pseudocarditinae Ebersin, 1964. ••1977 ZR: Pseudocarditinae Ebersin 1964. Referred to Carditidae from Cardiidae. Ref. to Kafanov & Popov p. 56 [Transl. p. 308].

**pseudocardium** Deshayes, 1838. – *Synonym of Monodacna pontica* (Eichwald, 1838). >> Regarding *Cardium pseudocardium*: Lymnocardiidae. Tertiary. TYPE LOCALITY. The Crimea. DISTRIBUTION. Caspian Sea. RECORDS. ••1838 Deshayes, p. 59, pl. 1, figs. 1–2: *Cardium pseudocardium*. ••1849 Middendorff: *Cardium pseudocardium = Cardium ? ponticum* Eichw. (*vide* Andrusoff 1903). ••1858 Adams & Adams, p. 460: *Adacna (Monodacna) pseudocardia* Desh. ••1888 Kobelt: *Monodacna pseudocardium* Desh. (*Monodacna*). ••1890 Woodward: *Monodacna pseudocardium* Desh. – Black Sea. ••1903 Andrusoff: *Cardium pseudocardium* Deshayes, 1838. ••1903 Andrusoff: *Cardium pseudocardium* Deshayes, 1838 = *Cardium ponticum* Eichw. ••1908 Milaschewitch: *Monodacna pseudocardium*. ••1908 Milaschewitch: *Monodacna pseudocardium* (Deshayes) 1838 = *pontica* Eichw. ••1916 Milaschewitch: *Monodacna pseudocardium* (Deshayes), 1838. ••1922–32 Sherborn, p. 5194: *Cardium pseudocardium* Deshayes, 1838. ••2001 Vidal, p. 407: *Monodacna pseudocardium*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••2001 Vidal: no tentacles. No eyes.

**Pseudocatillini** Taktakishvili, 1987 (tribus). – Lymnocardiidae. RECORDS. ••1987 Taktakishvili, p. 102: Pseudocatillini; tribe nov. of Limnocardiinae; Type genus for new tribe *Pseudocatillus* Andrussow, 1903.

**Pseudocatillus** Andrussow, 1903 (genus). – Lymnocardiidae. Tertiary and Recent. RECORDS. ••1980 Vokes: *Pseudocatillus* Andrussow, 1903 in subfamily Didacninae. ••1981 Taktakishvili: *Pseudocatillus*. ••1982 ZR: *Pseudocatillus*. Romania, Bucarest region. Upper Miocene. Ref. to Papaianopol *et al.* ••1984 ZR: genus *Pseudocatillus*. Ref. to Akhvlediani p. 70. ••1987 Anaya: Genus *Pseudocatillus* Andrusov, 1923. Type species *Cardium pseudocatillus* Barbot de Marny, 1869.

**Pseudocatillus** Andrussow, 1903 (subgenus). – Lymnocardiidae. Fossil. GENOTYPE. *Monodacna pseudocatillus* (Abich) Barbot de Marny (Dollfus 1905, commenting Andrussow 1903). RECORDS. ••1905 Dollfus, commenting Andrussow 1903: *Pseudocatillus* n.s.g. ••1970 ZR: *Pseudocatillus* Pliocene fauna of region between Teleajen and Cricov valleys, Romania

*pseudocatillus* – *pseudofossile*

- [Ref. Pauliuc 1970]. ••1981 Taktakishvili: (*Pseudocatillus*) subgenus of *Monodacna*.
- pseudocatillus*** Abich. – Combination to be revised: "*Cardium*" *pseudocatillus* Abich. Lymnocaridiidae. Recent. TYPE LOCALITY. Caspian Sea. DISTRIBUTION. Caspian Sea. RECORDS. ••1877 Grimm: *Cardium pseudocatillus* Abich. ?. ••1877 ZR: *Cardium pseudocatillus* (Abich), also recent in the Caspian Sea [Ref. Grimm 1877].
- pseudocatillus*** Barbot de Marny, 1869. – *Pseudocatillus pseudocatillus* (Barbot de Marny, 1869). Lymnocaridiidae. Pliocene. *Cardium pseudocatillus* Barbot de Marny, 1869 (tautotype) is type species of genus *Pseudocatillus* Andrussov, 1923 in family Lymnocaridiidae *sic* (Glibert & Poel 1970). RECORDS. ••1905 Dollfus, commenting Andrussov 1903: *Monodacna pseudocatillus* (Abich) Barbot de Marny. ••1953 Celidje: *Pseudocatillus pseudocatillus* (Barb.). ••1967 Ebersin: *Pseudocatillus pseudocatillus* (Barbot). ••1982 ZR: *Pseudocatillus pseudocatillus* (Barbot, 1869). Description. Ref. to Papaianopol *et al.* ••1987 Lutskanov & Tcholakov: *Pseudocatillus pseudocatillus*. ••1987 Anaya: *Cardium pseudocatillus* Barbot de Marny, 1869. ••1987 Anaya: *Pseudocatillus pseudocatillus* Barbot, 1869. ••1987 Anaya: *Monodacna pseudocatillus* in Andrussov *sic* 1917. ••1987 Lutskanov: *Pseudocatillus pseudocatillus* Barb. ••1987 Lutskanov & Tcholakov: *Pseudocatillus pseudocatillus* Barb.
- pseudocatillus larga*** Taktakishvili, 1966 Changed combination: – *Monodacna pseudocatillus larga* Taktakishvili, 1966. Lymnocaridiidae. Pliocene. RECORDS. ••1966 ZR: *Monodacna pseudocatillus larga* Taktakishvili, 1966 subsp. nov. western Gruzia, SSR, Pliocene.
- pseudocimmerica*** (subspecies). – See under *natella pseudocimmerica* Eberzin, 1960.
- Pseudoconocardium*** Zavodovskii, 1962 (genus). Conocaridiidae. Permian. RECORDS. ••1962 ZR: *Pseudoconocardium* Zavodovskii, 1962 gen. nov. of Conocaridiidae. Type species *Pseudoconocardium licharewi* Zavodovskii, 1962 sp. nov. Permian R. Khivach, N.E. Russia.
- pseudocrassa*** Pavl. – *Didacna pseudocrassa* Pavl. Lymnocaridiidae. Fossil. RECORDS. ••1989 Mikhailesku: *Didacna pseudocrassa* Pavl. ••1989 Klimanov, Mikhailesku & Chepalyga: *Didacna pseudocrassa* Pavl.
- pseudocrassatellata*** Ebersin, 1958. – *Limnodacna pseudocrassatellata* Ebersin, 1958. Lymnocaridiidae. Pliocene. RECORDS. ••1958 ZR: *Limnodacna pseudocrassatellata* Eberzin, 1958 sp. nov. Abkhazia, Galizga river. Pliocene. ••1987 Taktakishvili: *Limnodacna pseudocrassatellata* Ebers.
- pseudocrassum*** Pavlov, 1926. – Changed combination: *Didacna pseudocrassum* (Pavlov, 1926). [Tertiary and Quaternary, Lymnocaridiidae]. RECORDS. ••1926 ZR: *Cardium* (*Didacna*) *pseudocrassum* Pavlov, 1926 sp. n. Tertiary S.E. Europe. ••1929 ZR: *Cardium pseudocrassum* Pavlov, 1929 sp. n. Neogene & Quaternary of S.E. Europe.
- pseudocucestiensis*** Ebersin, 1959. – *Prosodacna pseudocucestiensis* Ebersin, 1959. Lymnocaridiidae. Pliocene. RECORDS. ••1960 ZR: *Prosodacna* (*Prosodacna*) *pseudocucestiensis* Eberzin, 1960 sp. n. Pliocene Kamyshburun, Kerchensky, Crimea USSR. ••1987 Anaya: *Prosodacna pseudocucestiensis* Eberzine, 1959.
- pseudocucestiensis*** (cf.) Ebersin, 1959. – RECORDS. ••1987 Anaya: *Prosodacna* (s. s.) cf. *pseudocucestiensis* *sic* Eberzine, 1959.
- pseudocucestiensis*** (error). – Printer's mistake for *pseudocucestiensis* in Anaya 1987.
- pseudodeserta***. – *Nomen nudum*. RECORDS. ••1949 ZR: *Replidacna pseudodeserta* 'n. sp.' [nomen nud.] Maestrichtian, Sarmat. [Ref. Papp 1949].
- pseudodoengingki*** Barnabas & Strausz, 1989. – New combination: *Lymnocardium pseudodoengingki* Barnabas & Strausz, 1989. Lymnocaridiidae. Miocene. TYPE LOCALITY. Pannonian in SW Transdanubia (Hungary). RECORDS. ••1989 Barnabas & Strausz p. 234 & 305, fig.: *Lymnocardium pseudodoengingki* sp. nov.
- pseudodonax*** Dunker. – Combination to be revised: "*Hemicardium*" *pseudodonax* Dkr. Cardiidae. RECORDS. ••1890 Paetel: *Hemicardium pseudodonax* Dkr.
- pseudoduplicatum*** – Combination to be revised: "*Cardium*" *pseudoduplicatum*. Cardiidae. Sarmatian. RECORDS. ••1965 ZR: *Cardium pseudoduplicatum* figd. Sarmatian, Yugoslavia [Ref. Spajic 1965].
- pseudoedule*** Andrussov, 1902. – Changed combination: *Cerastoderma pseudoedule* (Andrussov, 1902). Cardiidae. Fossil. RECORDS. ••1905 Dollfus, commenting Andrussov 1902: *Cardium pseudoedule* n. sp. tend s towards *Cerastoderma*. ••1977 Popov: *Cerastoderma pseudoedule*.
- pseudoesperanzae*** Ebersin, 1967. – *Macradacna pseudoesperanzae* Ebersin, 1967. Lymnocaridiidae. Pliocene. RECORDS. ••1967 Ebersin: *Macradacna pseudoesperanzae* sp. n. ••1967 ZR: *Macradacna pseudoesperanzae* Eberzin, 1967 sp. nov. Pliocene, USSR.
- pseudofastosum*** Nomura, 1937. – Changed combination: *Clinocardium pseudofastosum* (Nomura), 1937. Cardiidae. Pliocene. RECORDS. ••1937 ZR: *Cardium* (*Clinocardium*) *pseudofastosum* Nomura, 1937 sp. n. Neogene Japan. ••1954 Keen: *Clinocardium pseudofastosum* (Nomura), 1937 [Pliocene]. ••1973 Keen: *Clinocardium pseudofastosum* (Nomura, 1937) [Lower Pliocene].
- pseudofischerianum*** Kolesnikov. – *Protractiforma pseudofischerianum* (Kolesnikov). Lymnocaridiidae. Fossil. RECORDS. ••1979 ZR: *Protractiforma pseudofischerianum* (Kolesnikov). Referred to new subgenus *P.* (*Fischericardium*). Ref. to Bagdasaryan, p. 44.
- pseudofossile*** Reeve, 1844. [Figs. Part 1 p. 133. Part 3 p. 926]. – Synonym of *Clinocardium californiense* (Deshayes, 1839). OTHER JUDGEMENTS: *Clinocardium uchidai* Habe. >> Regarding *Cardium pseudofossile*: Cardiidae. Recent. TYPE LOCALITY. Unknown (Reeve 1844). TYPE REPOSITORY. BMNH; *Cardium pseudofossile* Reeve Syntypes reg. no. 1975617. Neg. No. 0227. RECORDS. ••1844 Reeve, p. 52: *Cardium pseudofossile*. ••1858 Adams & Adams, p. 454: *Cardium* (*Pectunculus*) *pseudofossile*, Reeve. ••1864 Carpenter: *Cardium pseudofossile*, Rve [Asiatic]. ••1867 ZR: *Cardium pseudofossile* (Reeve) Hakodate

**pseudogigas – pseudolima**

and Bay of Castries (Lischke 1867). ••1869 Lischke: *Cardium pseudofossile* Reeve = *Cardium californiense* Deshayes. ••1869 Römer: *Cardium pseudofossile* Reeve. ••1890 Paetel: *Cardium pseudofossile* Rv. = *californiense* Dsh. ••1896 Rolle: *Cardium pseudofossile* Reeve. ••1901 Dall: *Cardium pseudofossile* Reeve, 1844 = *Cardium californiense* Deshayes, 1839. ••1922-32 Sherborn, p. 5195: *Cardium pseudofossile* Reeve, 1844 [as *pseudo-fossile*]. ••1952 Kuroda & Habe: *Clinocardium pseudofossile* Reeve. ••1977 Fischer-Piette: *Cardium pseudo-fossile* in Rolle (1896) = *Corculum uchidai* Habe. ••1977 Fischer-Piette: *Cardium pseudo-fossile* Reeve 1844 = *Corculum californiense* Deshayes. ••1980 ZR: *Keenocardium pseudofossile* (Reeve 1845) is a junior synonym of *Keenocardium californiense* (Deshayes 1839). Ref. to Kafanov. ••2000 Coan *et al.*: *Cardium pseudofossile* Reeve, 1844 = *Clinocardium (Keenocardium) californiense* (Deshayes, 1839). ••2002 Schneider: citing Dall (1900): *Cardium (Cerastoderma) pseudofossile* Reeve, 1844, section *Cerastoderma*. – CHARACTERS AND OCCURRENCE – DESCRIPTION. ••1844 Reeve: shell depressly ovate, a little produced on each side, radiately ribbed, about 50 narrow, smooth ribs very numerous, a little swollen here and there; rusty white. DIMENSIONS. ••1896 Rolle: length 70 mm, width 60 mm, diameter 40 mm. REMARKS ••1844 Reeve: this is a remarkable species and has so much the appearance of being in a fossil state, that I only felt satisfied to the contrary upon discovering a large portion of fresh horny ligament attached to the hinge of one of Mr. Cuming's specimens. ••1869 Römer: *Cardium pseudofossile* Reeve is closely related to *Cardium ciliatum*. ••1896 Rolle found that *Cardium pseudofossile* is closely related to *Clinocardium californiense* (Deshayes, 1839). They can hardly be separated based on the shell form. HABITAT ••1844 Reeve: unknown. DISTRIBUTION. North Japan, Alaska.

**pseudogigas** Eames, 1951. – *Trachycardium pseudogigas* Eames, 1951. Cardiidae. Eocene. RECORDS. ••1951 ZR: *Trachycardium pseudogigas* Eames, 1951 sp. nov. Eocene Pakistan.

**pseudohillanum** de Ryckh. in Dew. – Synonym of *Protocardium edwardsi* (Deshayes). >> Regarding *Cardium pseudohillanum*: Cardiidae. Eocene. RECORDS. ••1886 Cossmann: *Cardium pseudohillanum* de Ryckh. in Dew. = *Protocardium edwardsi* (Deshayes).

**pseudohispida** (variety). – See under *suessi pseudohispida* Simionescu & Barbu, 1940.

**pseudolaticostatus** Chelidze, 1975. – *Pseudocatillus pseudolaticostatus* Chelidze, 1975. Lymnocaridiidae. Lower Pliocene. RECORDS. ••1975 ZR: *Pseudocatillus pseudolaticostatus* Chelidze, 1975 sp. nov. Georgia SSR, Khobs region. Ref. to Chelidze, p. 188.

**pseudolatium** Voskuil & Onverwagt, 1991. *Maoricardium pseudolatium* (Voskuil & Onverwagt, 1991). Cardiidae. Recent. TYPE LOCALITY. Padang, western Sumatra, Indonesia (Higo *et al.* 1999). RECORDS. ••1991 Voskuil & Onverwagt, p. 31–32, figs. 1–3, 12): *Maoricardium pseudolatium* n. sp. ••1992 Lamprell & Whitehead: *Plagiocardium (Maoricardium) pseudolatium*. ••1998 Schneider: *Maoricardium pseudolatium* Voskuil & Onverwagt, 1991. ••1998 Poutiers: *Plagiocardium pseudolatium* (Voskuil

& Onverwagt, 1991). ••1998 Schneider (1998b): *Maoricardium pseudolatium* Voskuil & Onverwagt, 1991. ••1999 Higo *et al.*: *Maoricardium pseudolatium* Voskuil & Onverwagt, 1991. ••2002 Hylleberg & Kilburn, p. 63: *Plagiocardium pseudolatium* (Voskuil & Onverwagt, 1991). – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1994 Hylleberg: Indo–West Pacific. ••1999 Higo *et al.*: apparently not distributed in Japan. REMARKS. ••2002 Hylleberg & Kilburn: the Indian species is probably *Plagiocardium pseudolatium* (Voskuil & Onverwagt, 1991) but the distinguishing characters between *Plagiocardium setosum* and *Plagiocardium pseudolatium* are not clear.

**pseudolima** Lamarck, 1819. [Figs. Part 1 p. 120, 124, 171. Part 3 p. 902]. – Changed combination: *Plagiocardium pseudolima* (Lamarck, 1819). Cardiidae. Recent. Type species: *Cardium pseudolima* Lamarck, 1819. Type species of *Plagiocardium* Cossmann, 1886. TYPE LOCALITY. Unknown (Lamarck 1819). TYPE REPOSITORY. Cabinet of Mr. Dufresne, (Lamarck 1819). Unknown availability. DESCRIPTIONS. Oliver (1995): No transverse ridges in the interstices (Lamarck 1819). Subquadrate, distinctly longer than high, umbones high, posterior margin almost straight. Sculpture of 36–40 flat radial ribs these bearing small cup-shaped spines (nodules if worn) arising from the mid-line of each rib. In fresh specimens periostracal bristles arise from the base of each spine. Pink to reddish brown with contrasting white spines. DIMENSIONS. 110 mm length. To 150 mm (Oliver 1995). HABITAT. Muddy sand (Oliver 1995). DISTRIBUTION. Red Sea (Sowerby 1841); Zanzibar, E. Africa (Reeve 1844); Zanzibar (Grasset 1884); East Africa, Persian Gulf (Hylleberg 1994); Arabian Sea (Oliver 1995). RECORDS. ••1819 Lamarck, p. 7, No. 13: *Cardium pseudolima*. ••1840 Sowerby, 1837 part, fig. 67: *Cardium pseudolima*, Lam. ••1840 Sowerby, catalogue p. 2, No. 18: *Cardium pseudolima*, Lam. ••1840 Sowerby, corrected list, p. 8: *Cardium pseudolima* (Sowerby, No. 18). ••1844 Reeve: *Cardium pseudolima* Lamarck Anim. sans vert. vol. vi. p. 396. ••1858 Adams & Adams, p. 455: *Cardium (Isocardia) pseudolima*, Lam. ••1868 ZR: *Cardium pseudolima* (Lam.), much more rarely white than pink. [Ref. Römer 1868]. ••1890 Paetel: *Cardium pseudolima* Lm. ••1922-32 Sherborn, p. 5195: *Cardium pseudolima* Lamarck, 1819. ••1927 Lamy: *Cardium (Acanthocardia) pseudolima*. ••1930 Stewart: "C." *pseudolima* (Recent, Indian Ocean). ••1964 Spry: *Cardium pseudolima* (Lamarck). ••1977 Fischer-Piette: *Cardium (Cerastoderma) pseudolima* Lamarck. ••1977 Wilson & Stevenson: *Maoricardium pseudolima* (Lamarck, 1819). ••1982 Bosch & Bosch: *Cardium pseudolima* Lamarck, 1819. ••1990 Abbott & Dance: *Plagiocardium pseudolima*. ••1991 Voskuil & Onverwagt: *Maoricardium pseudolima* (Lamarck, 1819). ••1992 Oliver: *Rudicardia pseudolima*. ••1995 Oliver, fig. 1079: *Plagiocardium pseudolima* (Lamarck, 1819). – CHARACTERS AND OCCURRENCE – DESCRIPTION. ••1844 Reeve: shell somewhat heart-shaped, ventricose, radiately grooved, about 38 grooves, intermediate ridges rather flat, sometimes the whole, sometimes the lateral ridges only, armed with rows of very minute sharp-scaled tubercles; pink flesh-colour, ornamented with pink transverse rays, tubercles

*pseudolima beta* – *pseudosubdentata*

- white. HABITAT. ••1844 Reeve: found in deep water. DISTRIBUTION. ••1844 Reeve: Zanzibar, east coast of Africa.
- pseudolima beta*** (variety). – *Cardium pseudolima* Variety *beta*. Cardiidae. Recent. RECORDS. ••1844 Reeve: Shell entirely snowy white. Mr. Cuming possesses the variety *beta* of this well-known species, of a pure snowy white, in fine fresh condition.
- pseudomagnum*** McCoy, 1877. *Hedecardium pseudomagnum* (McCoy, 1877). Cardiidae. Oligocene. RECORDS. ••1877 McCoy: *Cardium pseudomagnum* McCoy, 1877 (fide Schneider 2002). ••1970 Darragh assigned *Cardium pseudomagnum* to *Trachycardium* (fide Schneider 2002). ••2002 Schneider: *Hedecardium pseudomagnum* (McCoy, 1877). Victoria. Oligocene.
- pseudomaxima*** Davidasvili, 1930. – *Monodacna pseudomaxima* Davidasvili, 1930. Lymnocardiiidae. Pliocene. RECORDS. ••1932 ZR: *Monodacna pseudomaxima* Davidasvili, 1930 sp. n. Pliocene Transcaucasia.
- pseudomichailov*** (variety). – See under *gatuevi pseudomichailov* Kolesnikov, 1929.
- pseudomulicostatum*** (error). – Printer's mistake for *pseudomulticostatum* in Popov 1977.
- pseudomulticostatum*** Zhizchenko, 1934. – Changed combination: *Europicardium pseudomulticostatum* (Zhizchenko, 1934). Cardiidae. Miocene. RECORDS. ••1934. Zhizchenko: *Cardium pseudomulticostatum* Zhizchenko, 1934 (fide Schneider 2002). ••1937 ZR: *Cardium pseudomulticostatum* Zhizchenko, 1936 sp. n. ••1939 ZR: *Cardium pseudomulticostatum* Zhizchenko, 1934 sp. n. Miocene Ciscaucasia. ••1961 ZR: *Cardium pseudomulticostatum* ?Miocene. ••1977 Popov: *Bucardium* (*Europicardium*) *pseudomulticostatum* (Zhizchenko, 1934). ••1977 Popov, Tab. 1, pp. 20–21: *Bucardium* (*Europicardium*) *pseudomulticostatum* sic. ••1977 ZR: *Bucardium* (*Europicardium*) *pseudomulticostatum* (Zhizchenko, 1934) Comb. nov. Transferred from *Trachycardium*. Ref. to Popov p. 44. ••1989 Gontsharova, p. 123: *Europicardium pseudomulticostatum* (Zhizchenko, 1934). ••2002 Schneider: *Europicardium pseudomulticostatum* (Zhizchenko, 1934). Ukraine.
- pseudomulticostatum elongata*** Baghdasaryan, 1961 (variety). – Upgraded. New combination: *Europicardium pseudomulticostatum* (Zhizchenko, 1934). RECORDS. ••1961 ZR: *Cardium pseudomulticostatum* var. *elongata* Baghdasaryan, 1961 nov. Chokraks deposits, ?Miocene, Georgia, Russia.
- pseudoobsoletum*** Fuchs, 1873. – New combination: *Lymnocardium pseudoobsoletum* (Fuchs, 1873). Lymnocardiiidae. Pliocene. RECORDS. ••1987 Anaya: *Cardium pseudo-obsoletum* Fuchs, 1873. ••1987 Anaya: *Limnocardium* sic (s. s.) the group *pseudo-obsoletum* Fuchs, 1873. ••1987 Taktakishvili: *Limnocardium pseudoobsoletum* (Fuchs).
- pseudoobsoletum*** Kolesnikov, 1929. – Combination to be revised: "*Cardium*" *pseudoobsoletum* Kolesnikov, 1929. Lymnocardiiidae. Sarmatian. RECORDS. ••1929 ZR: *Cardium pseudoobsoletum* Kolesnikov, 1929 sp. n. Sarmatian.
- pseudoottonis*** Frolenkova, 1983. – Combination to be revised: "*Cardium*" *pseudoottonis* Frolenkova, 1983. Cardiidae. Upper Cretaceous. RECORDS. ••1983 ZR: *Cardium pseudoottonis* Frolenkova, 1983 sp. nov. Tadzjikistan, Upper Cretaceous. Ref. to Frolenkova, p. 162.
- pseudoovata*** Gillet, 1965. – *Didacna pseudoovata* Gillet, 1965. Lymnocardiiidae. Pliocene. RECORDS. ••1987 Anaya: *Didacna* (s. s.) *pseudo-ovata* Gillet, 1965.
- pseudo-petersi*** (invalid spelling). – See under *pseudopetersi*.
- pseudopetersi*** Stevanovic, 1951. – New combination: *Lymnocardium pseudopetersi* Stevanovic, 1951. Lymnocardiiidae. Pontian. RECORDS. ••1953 ZR: *Limnocardium pseudopetersi* Stevanovic, 1951 sp. nov. Pontian Serbia. ••1987 Taktakishvili: *Limnocardium pseudopetersi* Stev.
- Pseudopsis*** Cox, 1946 (genus). – Cardiidae. Fossil. RECORDS. ••1946 ZR: *Pseudopsis* Cox, 1946 gen. nov. Cardiidae genotype *Pseudopsis astonensis* Cox, 1946 sp. nov. Lower Aston Magna Wores.
- pseudoplanicostata*** Gillet, 1965. – *Didacna pseudoplanicostata* Gillet, 1965. Lymnocardiiidae. Pliocene. RECORDS. ••1987 Anaya: *Didacna* (s. s.) *pseudo-planicostata* Gillet, 1965.
- pseudoplicatum*** (subspecies and variety). – See under *praeplicatum pseudoplicatum* and *plicatum pseudoplicatum* Friedberg, 1934.
- pseudopoiitionanci***. – *Nomen nudum*. RECORDS. ••1949 ZR: *Replidacna pseudopoiitionanci* 'n. sp.' [nomen nud.] Maestrictkian, Sarmat. [Ref. Papp 1949].
- pseudoproductum*** Pethö, 1906. – Combination to be revised: "*Cardium*" *pseudoproductum* Pethö, 1906. Cardiidae. Cretaceous. TYPE LOCALITY. Hungary. RECORDS. ••1906 Pethö: *Cardium pseudoproductum* sp. n. ••1906 ZR: *Cardium pseudoproductum* Pethö, 1906 sp. n. Cretaceous, Hungary.
- Pseudoprosodacna*** Gillet, 1943 (genus). – Lymnocardiiidae. Tertiary. RECORDS. ••1946 ZR: *Pseudoprosodacna* Gillet, 1943 gen. nov. between *Limnocardium* and *Prosodacna* first species *Cardium littorale* Eich. ••1980 Vokes: *Pseudoprosodacna* Gillet, 1943.
- pseudoschemachinica*** Gillet & Vicente, 1961. – *Didacna pseudoschemachinica* Gillet & Vicente, 1961. Lymnocardiiidae. Pliocene. RECORDS. ••1961 ZR: *Didacna pseudoschemachinica* Gillet & Vicente, 1961 sp. nov. Pliocene, Barcelona, Spain. ••1987 Anaya: *Didacna* (s. s.) *pseudoschemachinica* Gillet, 1961.
- pseudosecans*** Andrusov, 1917. – Changed combination: *Euxinocardium pseudosecans* (Andrusov, 1917). Lymnocardiiidae. Tertiary. RECORDS. ••1987 Anaya: *Limnocardium pseudosecans* Andrusov, 1917. ••1987 Anaya: *Limnocardium* (*Euxinocardium*) the group *pseudosecans* Andrusov, 1917. ••1987 Taktakishvili: *Limnocardium* (*Euxinocardium*) *pseudosecans* Andrus. ••1987 Taktakishvili: *Euxinocardium pseudosecans*.
- pseudosecans*** (aff.) Andrusov, 1917. – RECORDS. ••1987 Taktakishvili: *Limnocardium* aff. *pseudosecans* Andrus.
- pseudosoceni*** Jekelius, 1944. – Combination to be revised: "*Cardium*" *pseudosoceni* Jekelius, 1944. Cardiidae. Miocene. RECORDS. ••1946 ZR: *Cardium pseudosoceni* Jekelius, 1944 sp. nov. (type f. 11). Miocene Soceni Banat.
- pseudosubdentata*** Celidje, 1953. – *Monodacna pseudosubdentata* Celidje, 1953. Lymnocardiiidae. Fossil. RECORDS. ••1953 Celidje, p. 157: *Monodacna*



**pseudosubdentatus – pulchella**

- pseudosubdentata* nov. sp.  
**pseudosubdentatus** Chelidze, 1975. – *Pseudocatillus pseudosubdentatus* Chelidze, 1975. Lymnocardiiidae. Lower Pliocene. RECORDS. ••1975 ZR: *Pseudocatillus pseudosubdentatus* Chelidze, 1975 sp. nov. Georgia SSR, Khobs region. Ref. to Chelidze, p. 185.  
**pseudosuessi** Hal. – New combination: *Lymnocardium pseudosuessi* (Hal.). Lymnocardiiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Lymnocardium pseudosuessi* (Hal.).  
**pseudosulcatina** Gillet, 1965. – *Didacna pseudosulcatina* Gillet, 1965. Lymnocardiiidae. Pliocene. RECORDS. ••1987 Anaya: *Didacna* (s. s.) *pseudosulcatina* Gillet, 1965 [Pliocene].  
**Pseudotrapezium** (genus). – Cardiaceae. Fossil. RECORDS. ••1916 ZR: *Pseudotrapezium* (fossil) Ref. to Cossmann (1916).  
**Psilodon** Cobalcescu, 1883 (genus). – Synonym of *Prosodacna* Tournouer, 1882. >> Regarding *Psilodon*: Lymnocardiiidae. Tertiary and Recent. Type species: *Cardium macron* Deshayes type of the genus *Psilodon* Cobalcescu, 1882 (Andrussoff 1903). RECORDS. ••1887 Fischer: *Psilodon*, Cobalcescu, 1882? Jun. syn. of subgenus *Prosodacna* Tournouer, 1882. ••1896 ZR: *Stylodacna* n. g. for *Psilodon herbeti* Cobalcescu [Ref. Stefanescu 1896]. ••1975 ZR: *Psilodon* Cobalcescu, 1883. Emendation. Ref. to Motas, p. 60. ••1978 ZR: *Prosodacna* (*Psilodon*) Pliocene. Romania. Dacian, systematic & phylogeny. Ref. to Papaianopol, I. ••1980 Vokes: *Psilodon* Cobalcescu, 1883 in subfamily Lymnocardiinae.  
**Psilodonini** Taktakishvili, 1987 (tribus). – Lymnocardiiidae. RECORDS. ••1987 Taktakishvili (p. 159) designated *Psilodon* Cobalcescu 1883 type genus of the new tribe Psilodonini.  
**Pteradacna** Andrussov 1907 (genus). – *Pteradacna* Andrussov 1907. Lymnocardiiidae. Pliocene. RECORDS. ••1951 ZR: *Pteradacna* Andrussov 1907 and synonymy of *Pteradacna pterophora* Brus. [Ref. Stevanovic 1951]. ••1962 ZR: *Pteradacna* Andrussov in subfam. Didacninae Eberzin, 1962, family Cardiiidae [Ref. Eberzin 1962]. ••1977 Popov: *Pteradacna* Andrussov, 1907. ••1980 Vokes: *Pteradacna* Andrussov, 1907 in subfamily Didacninae. ••1987 Taktakishvili p. 100, *Pteradacna* Andrussov 1907; referred to new tribe Pontalmyrini. ••2001 Schneider & Carter: *Pteradacna* (genus). Lymnocardiiidae. Pliocene.  
**Pterocardia** Bayan, 1874 (genus). – Cardiiidae. Jurassic. RECORDS. ••1887 Fischer: Subgenus *Pterocardia* (Agassiz) Bayan, 1874 of genus *Cardium* Linné, 1758. ••1931 ZR: *Pterocardium* Ref. to Douvillé (1931). ••1964 ZR: *Pterocardia eparcyensis* [Fischer, 1964. Jurassic]. ••1978 ZR: *Pterocardia* Favre 1834 sic. Transferred from *Megalodontacea*. Ref. to Morris p. 267.  
**Pterocardium** (error). – Printer's mistake for genus *Pterocardia* in Deckaseaux 1945 and Douvillé 1931.  
**pteropernoida** Repman, 1961. – *Arkitella pteropernoida* Repman, 1961. Cardiiidae. Jurassic. RECORDS. ••1961 ZR: *Arkitella pteropernoida* Repman, 1961 sp. nov. Arkit, USSR Jurassic. Genotype of *Arkitella* Repman, 1961.  
**pterophora** Brusina. – Changed combination: *Pteradacna pterophora* (Brusina). Lymnocardiiidae.

- Fossil. RECORDS. ••1907 Andrussov: *Adacna pterophora* Brusina compared with *Prosodacna semisulcata* Rouss. ••1951 ZR: *Pteradacna pterophora* Brus. synonymy [Ref. Stevanovic 1951].  
**pubescens** Couthouy, 1839. – Synonym of *Ciliatocardium ciliatum* (Fabricius, 1780). >> Regarding *Cardium pubescens*: Cardiiidae. Recent. DISTRIBUTION. Iceland (Reeve 1844); Iceland, Greenland (Wood & Hanley 1856); circumpolar. RECORDS. ••1839 Couthouy, p. 60, pl. 3, fig. 6: *Cardium pubescens*. ••1844 Reeve: *Cardium pubescens* = juvenile *Cardium icelandicum* Chemnitz, 1782. ••1850 Jay: *Cardium pubescens* Couth. = *Cardium icelandicum* Linn. sic. ••1856 Wood & Hanley: *C. pubescens* Couthouy = *Cardium icelandicum* Ch. ••1869 Römer: *Cardium pubescens* Couthouy = *Cardium ciliatum* Fabricius. ••1870 Gould: *Cardium pubescens* Couth. (syn.) = *Cardium icelandicum* Linn. ••1873 Tryon: *Cardium pubescens* Couthouy = *Cardium icelandicum*, Linnaeus, 1767. ••1888 Kobelt: *Cardium pubescens* Couthouy = *Cardium icelandicum* Linné. ••1902 Dall: *Cardium pubescens* Couthouy, 1838 = *Cardium ciliatum* Fabricius, 1780. ••1912 Dautzenberg & Fischer: *Cardium pubescens* Ch. Couthouy 1838 = *Cardium (Cerastoderma) icelandicum*, Chemnitz 1782. ••1912 Jensen: *Cardium pubescens* Couthouy, 1838 = *Cardium ciliatum* Fabricius. ••1922-32 Sherborn, p. 5214: *Cardium pubescens* Couthouy, 1838. ••1924 Schlesch: *Cardium pubescens* Couthouy = *Cardium (Cerastoderma) ciliatum* (Fabricius). ••1939 McLean: *Cardium pubescens* = *Clinocardium ciliatum* Fabricius, 1780. ••1974 Abbott: *Cardium pubescens* Couthouy, 1838 = *Clinocardium ciliatum* (Fabricius, 1780). ••1977 Fischer-Piette: *Cardium pubescens* Couthouy = *Corculum ciliatum* Fabricius. ••2000 Coan et al.: *C. pubescens* Couthouy, 1838 = *Clinocardium (Ciliatocardium) ciliatum* (Fabricius, 1780).  
**pubescens** (variety). – Infrasubspecific. RECORDS. ••1890 Paetel: *Cardium* var. *pubescens* Couth.  
**puebloensis** Anderson, 1929. – *Trachycardium puebloensis* Anderson, 1929. Cardiiidae. Miocene. RECORDS. ••1929 ZR: *Cardium (Trachycardium) puebloensis* Anderson, 1929 spp. n. Miocene N. Carolina.  
**puelchum** Sowerby in Darwin, 1846. – Combination to be revised: "*Cardium*" *puelchum* Sowerby in Darwin, 1846. Cardiiidae. Tertiary. RECORDS. ••1922-32 Sherborn, p. 5219: *Cardium puelchum* Sowerby in Darwin, 1846. ••2002 Schneider: *Cardium puelchum* Sowerby, 1846. Tertiary sediments in Patagonia.  
**pulcellum** White & Whitfield, 1862. – *Conocardium pulcellum* White & Whitfield, 1862. Conocardiidae. Fossil. REMARKS. Conocardiids have no connection with the Cardiaceae except analogy of form, which does not offer any point of relationship (Dall 1895, p. 519). RECORDS. ••1980 Ruhoff: *Conocardium pulcellum* White & Whitfield, 1862; vol. 8: 299.  
**pulchella** (variety). – See under *rectidens pulchella*.  
**pulchella** Chiplonkar & Tapaswi, 1976. – *Protocardia pulchella* Chiplonkar & Tapaswi, 1976. Cardiiidae. Upper Cretaceous. RECORDS. ••1983 ZR: *Protocardia (Tamilcardia) pulchella* Chiplonkar et al., 1983 sp. nov. India. Upper Cretaceous. Ref. to Chiplonkar et al. p. 153. ••1995 Schneider: *Protocardia (Tamilcardia)*

*pulchellum* – *pulcherrimum*

*pulchella* Chipplonkar & Tapaswi, 1976.

\**pulchellum*. – **Homonymy to be noticed.** *Cardium pulchellum* from 3 sources: Gray in Dieffenbach, 1843. – Philippi, 1844. – Reeve, 1844.

*pulchellum* Gray in Dieffenbach, 1843. – Changed combination: *Microcardium pulchellum* (Gray, 1843) OTHER JUDGEMENTS: in genus *Nemocardium*.

*Nemocardium thetidis* (Hedley, 1902). – *Cardium striatulum* Sowerby. >> Regarding *Cardium pulchellum*: *Cardiidae*. Recent. TYPE LOCALITY. New Zealand (*pulchellum* Gray, 1843); Australia (*pulchellum* Reeve, 1844). RECORDS. •1843 Gray in Dieffenbach: *Cardium pulchellum*. •1885 Smith: *Cardium pulchellum* Gray. •1887 Tate: *Cardium pulchellum* Gray. •1889 Whitelegge: *Cardium pulchellum* Gray. •1903 Pritchard & Gatliff: *Cardium pulchellum*, Gray = *Cardium striatulum*, Sowerby. •1904 Hutton: *Cardium pulchellum* Gray. •1905 Hedley: *Cardium pulchellum* Gray. •1906 Suter: *Protocardia (Nemocardium) pulchella* Gray. •1907 Suter: *Protocardia pulchella* Gray. •1907 ZR: *Cardium pulchellum* [Ref. Hedley 1907]. •1907 ZR: *Cardium pulchellum* Gray ref. to *Protocardia* (q.v.) subgen. *Nemocardium* [Ref. Suter 1907]. •1912 Suter: *Protocardia pulchella* Gray. •1913 Suter: *Protocardia pulchella* Gray. •1915 Oliver: *Protocardia pulchella* Gray. •1915 Smith: *Cardium pulchellum* Gray. •1918 Hedley: *Cardium pulchellum* Gray. •1922-32 Sherborn, p. 5224: *Cardium pulchellum* Gray in Dieffenbach, 1843. •1924 Iredale: *Cardium pulchellum* Gray, 1843. •1939 Powell, p. 213: *Nemocardium (Pratulum) pulchellum* (Gray 1843). •1950 Keen: *Nemocardium (Pratulum) pulchellum* (Gray, 1843). •1953 Macpherson & Chapple: *Cardium pulchellum* Gray. •1955 Powell: *Nemocardium pulchellum* (Gray). •1956 Gabriel: *Cardium pulchellum* Gray. •1962 Powell: *Nemocardium pulchellum* (Gray). •1970 Glibert & Poel: *Nemocardium (Pratulum) pulchellum* (Gray, 1843). •1975 ZR: *Nemocardium (Pratulum) pulchellum*. Depth distribution. Habitat substrate. New Zealand zone. Ref. to Luckens. •1977 Fischer-Piette: *Cardium pulchellum* Gray = *Pratulum striatulum* Sowerby, 1834. •1977 Fischer-Piette: *Cardium pulchellum* Gray = *Cardium thetidis* Hedley, 1902. •1977 Popov: *Pratulum pulchellum* (Gray, 1843). •1979 Powell: *Nemocardium (Pratulum) pulchellum* (Gray, 1843). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC Colville Channel, New Zealand: 30, 70, 123, 128, 268, 293 m, West Pacific, Milford Sound, Campbell Island. •ZMUC: 1 large specimen from Queen Charlotte Sound, New Zealand, coll. Mortensen, det. Odnher. •ZMUC: Albatross point New Zealand, 25 fathoms Twofold Bay, NS Wales. •ZMUC: wet collection New Zealand. DESCRIPTIONS. Fine radial riblets. Two divergent radial streaks of dark pink. DIMENSIONS. 29 x 26 x 18 mm. REMARKS. Closely related to *thetidis* Hedley, 1902 (Powell 1979). •1844: Reeve stated that *Cardium striatulum* jun., Sowerby, 1840 (177<sup>th</sup> part, fig. 45) cannot surely be the young of the *Cardium striatulum*. Therefore, Reeve coined the new name *Cardium pulchellum* which, however, also was used by Gray, 1843, probably for the same species. Fischer-Piette had the opinion that *C. pulchellum* Rve. = *C. striatulum*

Sowerby. •1979 Powell: the species is closely allied to the New South Wales *thetidis*. HABITAT. •ZMUC: sandy mud, sandy clay, mud, fine sand, mud at 18–293 m depth. DISTRIBUTION. •1950 Keen, •1979 Powell: New Zealand. •ZMUC: New Zealand, Campbell Island Twofold Bay, NS Wales.

*pulchellum* Philippi, 1844. – Replaced by “*Cardium philippii* Deshayes. >> Regarding *Cardium pulchellum*: *Cardiidae*. Fossil. RECORDS. •1857 Deshayes: *Cardium pulchellum* Philippi, 1844. – *C. philippii* Desh.

*pulchellum* Reeve, 1844. [Figs. Part 1 p. 131. Part 3 p. 928]. – Synonym of *Nemocardium pulchellum* (Gray, 1843). OTHER JUDGEMENTS: *Cardium thetidis* Hedley, 1902. – *Pratulum striatulum* (Sowerby, 1834). *Cardiidae*. Recent. TYPE REPOSITORY. 3 syntypes. 1978127. BMNH London. TYPE LOCALITY. Australia (Reeve, 1844). RECORDS. •1844 Reeve, sp. 42: *Cardium pulchellum*. •1857 Deshayes: Living. *Cardium pulchellum* Reeve, 1844. •1867 Angas: *Cardium pulchellum* Reeve. •1869 Dunker: *Laevicardium pulchellum* Reeve. •1872 Tryon: *Cardium pulchellum* Reeve. •1878 Tenison-Woods: *Cardium pulchellum* Reeve. •1879 Martens: *Cardium pulchellum* Reeve. •1884 Grasset: *Cardium pulchellum*. Rv. •1890 Paetel: *Cardium pulchellum* Rv. •1901 Tate & May: *Cardium pulchellum* Reeve. •1962 Graham: *Nemocardium pulchellum* Rev. •1977 Fischer-Piette: *Cardium pulchellum* Reeve 1844 = *Cardium pulchellum* Gray 1843 = *Cardium thetidis* Hedley, 1902 = *Pratulum striatulum* Sowerby, 1834. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1844 Reeve: shell orbicular, thin, somewhat depressed, nearly equilateral, radiately closely striated, striae solid, raised, regular, the posterior striae covered with very minute scales; white, striae some few white, most of them bright scarlet; interior yellowish, two scarlet rays diverging within the umbone in each valve. REMARKS. This very pretty species cannot surely be the young of the *Cardium striatulum*; it is of a different form, being truly orbicular, and offers no indication of the wrinkled striae with which that species is so peculiarly cancelled. DISTRIBUTION. •1844 Reeve: Australia.

*pulcherrima* (variety). – See under *victor pulcherrima* Melvill, 1909.

*pulcherrimum* Sakurai & Habe, 1966. – Synonym of *Acrosterigma transcendens* (Melvill & Standen, 1899) OTHER JUDGEMENTS: *Laevicardium biradiatum* (Bruguère, 1789). >> Regarding *Laevicardium pulcherrimum*: *Cardiidae*. Recent. TYPE LOCALITY. Holotype, Kakeroma Jima, Amami Is. Japan. TYPE REPOSITORY. Holotype, National Science Museum, Japan. TYPE MATERIAL. Holotype and two paratypes, in National Science Museum, Japan ref. NSMT–MO 48405 and MO 70S79 (Vidal 1999). RECORDS. •1966 Habe et Kosuge, p. 295–296: *Laevicardium pulcherrimum* sp. nov. •1966 ZR: *Laevicardium pulcherrimum* Sakurai & Habe, 1966 sp. nov. Kakeroma-jima, Amami Is. Japan. •1973 Keen: *Laevicardium pulcherrimum* Sakurai & Habe, 1966. Recent. •1977 Fischer-Piette: *Laevicardium pulcherrimum* Sakurai & Habe. •1977 Habe: *Laevicardium pulcherrimum* Sakurai & Habe, 1966. •1981 Koyama *et al.*: *Laevicardium pulcherrimum* Sakurai & Habe, 1966 = *Trachycardium transcendens*

**pulchricostatum – pulchrum**

(Melvill & Standen, 1899). ••1999 Higo *et al.*: *Laevicardium pulcherrimum* Sakurai & Habe, 1966 = *Acrosterigma (Vasticardium) transcendens* (Melvill & Standen, 1899). ••1999 Vidal: Sakurai & Habe 1966, p. 293: *Laevicardium pulcherrimum* = *Acrosterigma transcendens* (Melvill & Standen, 1899). – CHARACTERS AND OCCURRENCE – REMARKS. Fischer–Piette (1977, p. 26) refers to the authors stating the *Laevicardium pulcherrimum* Sakurai & Habe, 1966 is close to *Laevicardium biradiatum* (Bruguère, 1789) (= *Laevicardium rubropictum*), and also to *Vasticardium arenicola* Reeve; *pulcherrimum* is ill defined, and, with some hesitation, considered a junior synonym of *Laevicardium biradiatum* by Fischer–Piette (1977). DISTRIBUTION. Indo–Pacific (Hylleberg 1994).

**pulchricostatum** Iredale, 1929. [Figs. Part 3 p. 885]. – Synonym of *Vepricardium multispinosum* (Sowerby, 1838). >> Regarding *Vepricardium pulchricostatum*: Cardiidae. Recent. *Vepricardium pulchricostatum* Iredale, 1929 (DO) is type species of subgenus *Vepricardium* Iredale, 1929 (Glibert & Poel 1970). TYPE LOCALITY. Australia. TYPE REPOSITORY. Australian Museum, Sydney. Holotype C057839. RECORDS. ••1929 Iredale: *Vepricardium pulchricostatum*. ••1929 Iredale designated *pulchricostatum* genotype. ••1929 ZR: *Vepricardium pulchricostatum* [type] sp. n. Iredale, 1929a E. Australia. ••1950 Allan: *Vepricardium pulchricostatum* = *Cardium multispinosum*. ••1961 Ripplingale & MacMichael: *Vepricardium pulchricostatum* Iredale. ••1964 Shikama: *Cardium (Vepricardium) pulchricostatum* (Iredale). ••1969 Moore *et al.*: *Vepricardium (Vepricardium) multispinosum* Iredale, 1929. ••1974 Habe & Kosuge: *Vepricardium pulchricostatum* Iredale, 1927. ••1977 Fischer–Piette: *Cardium pulchricostatum* Iredale = *Laevicardium multispinosum* Sowerby. ••1977 Popov: *Bucardium (Vepricardium) pulchricostatum* (Iredale, 1929). ••1977 Wilson & Stevenson: *Vepricardium pulchricostatum* Iredale, 1929; junior synonym of *Cardium multispinosum* Sowerby, 1838. ••1990 Abbott & Dance: *Vepricardium pulchricostatum* Iredale, 1929 = *Trachycardium multispinosum*. ••1992 Lamprell & Whitehead: *Vepricardium pulchricostatum* Iredale, 1929 = *Vepricardium multispinosum* (Sowerby, 1838). ••1999 Higo *et al.*: *V. pulchricostatum* Iredale, 1929 = *Vepricardium multispinosum* (Sowerby, 1841). ••2000 Vidal, p. 458: *Vepricardium pulchricostatum* Iredale, 1929, from Australia, is probably = *Vepricardium multispinosum* (Sowerby, 1841). – CHARACTERS AND OCCURRENCE – DISTRIBUTION. Solomon Islands, Australia, Indo–Pacific (Hylleberg 1994).

**\*pulchrum. – Homonymy to be noticed.** *Cardium pulchrum* from 4 sources: Reeve, 1845. – Deshayes, 1858. – Brüggén, 1910. – Hinds (?year).

**pulchrum** Brüggén, 1910. – Combination to be revised: “*Cardium*” *pulchrum* Brüggén, 1910. Cardiidae. Senon. ••1910 ZR: *Cardium pulchrum* Brüggén, 1910 sp. n. Peru Senon.

**pulchrum** Deshayes, 1858. – Synonym. Combination to be revised: “*Cardium*” *bouei* Deshayes. OTHER JUDGEMENTS: *Cardium obliquum* Lamarck. >> Regarding *Cardium pulchrum*: Cardiidae. Eocene. RECORDS. ••1886 Cossmann: *Cardium bouei* Desh. =

*C. pulchrum* = *Cardium obliquum* Lamarck. ••1980 Ruhoff: *Cardium pulchrum* Deshayes, 1858; [1856–1865] atlas 1, pl. 55, figs. 25–28. ••1995 Le Renard *et al.*: *Loxocardium bouei* [*Cardium bouei*] Deshayes, 1858 (*pulchrum*).

**pulchrum** Hinds. – Combination to be revised: “*Cardium*” *pulchrum* (Hinds.). Cardiidae. Recent. DISTRIBUTION. Japan (Grasset 1884); Persian Gulf (Melvill & Standen 1906). RECORDS. ••1884 Grasset: *Cardium pulchrum* Hinds. ••1906 Melvill & Standen, p. 839: *Cardium (Cerastoderma) pulchrum* Hinds.

**pulchrum** Reeve, 1845. [Figs. Part 1 p. 141. Part 3 p. 929]. – Synonym of *Fulvia australis* (Sowerby, 1834). OTHER JUDGEMENTS: *Cardium striatum* Spengler, 1799. – *Papyridea papyraceum* (Chemnitz) Schröter [not available]. >> Regarding *Cardium pulchrum*: Cardiidae. Recent. TYPE REPOSITORY. 3 syntypes. 1978136. BMNH London. RECORDS. ••1845 Reeve, sp. 98: *Cardium pulchrum*. ••1858 Adams & Adams, p. 457: *Laevicardium pulchrum*, Reeve. ••1870 Mörch: *C. pulchrum* Reeve = *C. australe* Sowb.; junior synonyms of *Cardium striatum* Spgl. ••1878 Smith: *Cardium pulchrum* Reeve = a variety of *Cardium (Laevicardium) australe* Sowerby. ••1869 Römer: *Cardium pulchrum* Reeve = *Cardium australe* Sowerby. ••1878 ZR: *Cardium australe* (Sow.) = *pulchrum* (Reeve), Andaman examples [Ref. Smith 1878]. ••1880 Martens: *Cardium (Papyridea) pulchrum* Reeve (from China). ••1882 Rochebrune: *Laevicardium pulchrum* Reeve. ••1884 Grasset: *Cardium pulchrum* Rv. (Papyridea). ••1885 Smith: *Cardium pulchrum*, Reeve, fig. 98 = *Cardium (Bucardium) australe*, Sowerby, 1840. ••1889 Martens: *Cardium (Papyridea) pulchrum* Sow., Reeve. ••1890 Paetel: *Cardium pulchrum* Hinds. ••1891 Fischer: *Cardium pulchrum* Reeve. ••1909 Lyngé: *Cardium pulchrum* Reeve, 1845 = *Cardium australe* Sowerby, 1840. ••1909 Melvill: *pulchrum* Reeve = *Cardium (Papyridea) australe*, Sowb. ••1922–32 Sherborn, p. 5232: *Cardium pulchrum* Reeve, 1845. ••1926 Fischer & Fischer: *Cardium pulchrum* Rve. = *Cardium (Papyridea) australe*. ••1928 Kuroda: *pulchrum* Reeve, 1845 syn. = *Papyridea papyracea* (Bruguère, 1789). ••1937 Viader: *Cardium pulchrum* Reeve = *C. australe* Sowerby. ••1939 Adam & Leloup: *Cardium pulchrum* Reeve = *Laevicardium (Laevicardium) australe* (Sowerby 1840). ••1952 Kuroda & Habe: *pulchrum* Reeve = *Fulvia australis* (Sowerby). ••1977 Fischer–Piette: *Chemnitzium* Reeve = *Papyridea papyraceum* (Chemnitz) Schröter. ••1981 Koyama *et al.*: *Cardium pulchrum* Reeve, 1845 = *Fulvia australe* (Sowerby, 1840). ••1994 Vidal: ? *Cardium pulchrum* Reeve, 1845 = *Fulvia (Fulvia) australis* (Sowerby, 1834). ••1999 Higo *et al.*: *Cardium pulchrum* Reeve, 1845 = *Fulvia australis* (Sowerby, 1841). ••2003 Hylleberg & Kilburn, p. 178: *Cardium pulchrum* Reeve. Synonym of *Fulvia australis* (Sowerby, 1834). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: one individual = *australe* according to H. Lyngé. DESCRIPTIONS. ••1845 Reeve: shell ovate, somewhat attenuated towards the umbones; radiately very finely grooved; fleshy brown, white towards the margins, prettily ornamented with square rose spots, umbones purple, interior concentrically variegated with rose. REMARKS. ••1845

*pulchrum* – *punctatum*

Reeve: this interesting species is not only distinct from *Cardium australe* in form, but in sculpture and colouring. DISTRIBUTION. China (Reeve 1845); China (Grasset 1884).

***pulchrum*** Martens, 1869 (variety). – Infrasubspecific. >> Regarding *Cardium* var. *pulchrum*: *Cardiidae*. Recent. TYPE LOCALITY. Seychelles. RECORDS. •1869 Martens, pl. 3, figs. 2a–c: *Cardium* var. *pulchrum* (in between *pulchrum* and *rugatum*). •1869 ZR: *Cardium pulchrum* var., allied to *rugatum* (Gronov.) from Zanzibar [Ref. Martens 1869].

***pulcarium*** Reeve, 1845. [Figs. Part 1 p. 142]. – Synonym of *Acrosterigma elongatum* (Bruguière, 1789). OTHER JUDGEMENTS: *Trachycardium pulcarium* Reeve, 1845. >> Regarding *Cardium pulcarium*: *Cardiidae*. Recent. TYPE LOCALITY. Unknown (Reeve 1845). TYPE REPOSITORY. Unknown (Vidal 1993). RECORDS. •1845 Reeve, fig. 102: *Cardium pulcarium*. •1858 Adams & Adams, p. 455: *Cardium* (*Trachycardium*) *pulcarium*, Reeve. •1890 Paetel: *Cardium pulcarium* Rv. •1922–32 Sherborn, p. 5238: *Cardium pulcarium* Reeve, 1845. •1972 Cernohorsky: *Vasticardium pulcarium* (Reeve, 1845). •1977 Fischer–Piette: *Laevicardium* (*Vasticardium*) *pulcarium* Reeve. •1993 Vidal: ? *Cardium pulcarium* Reeve, 1845 = *Acrosterigma elongatum* (Bruguière, 1789). •1993 Vidal: *Cardium pulcarium* Reeve, 1845 = *Acrosterigma elongata* = *Trachycardium elongatum* (Bruguière, 1789). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1845 Reeve, shell somewhat orbicular, Pecten-shaped, radiately ribbed, 34 ribs, the anterior prickly, the middle crenulated on both sides, and the posterior crenated; yellowish or fleshy white, stained with scattered blackish brown spots, interior pinkish white, margins rose-purple towards the hinge. •1972 Cernohorsky: 35–37 ribs, prominently crenulate on each side, spinose on the posterior 5–6 ribs. DIMENSIONS. 25 mm. REMARKS. •1845 Reeve: a characteristic little shell, which I cannot refer to any described species. •1993: Vidal suggested that the shell described by Reeve could be a juvenile *Acrosterigma elongata* (Bruguière, 1789). DISTRIBUTION. •1845 Reeve: unknown. •1994 Hylleberg: Indo-Pacific.

***pullatum*** Stoliczka, 1871. – Combination to be revised: “*Cardium*” *pullatum* (Stoliczka, 1871). *Cardiidae*. Cretaceous. TYPE LOCALITY. Vylapaudy and Anapaudy, South India. RECORDS. •1871 Stoliczka, p. 218, pl. 11, figs. 8–10: *Cardium* (*Acanthocardium* sic) *pullatum* Stoliczka. •1980 Ruhoff: *Cardium* (*Acanthocardium* sic) *pullatum* Stoliczka, 1870; [1870–1871] vol. 3: 218, pl. 11, figs. 8–10. •1983 Gliozzi & Malatesta: *Cardium pullatum* Stoliczka, 1871.

***pulvinatum*** Lam. – Combination to be revised: “*Cardium*” *pulvinatum* Lam. *Cardiidae*. Fossil. •1844 Potiez & Michaud: *Cardium pulvinatum* Lam. ex fide Mich.

***pumila*** (variety). – See under *lamarckii pumila* Friedel, 1870.

***punctatostriatum*** Lycett, 1850. – Combination to be revised: “*Cardium*” *punctatostriatum*” Lycett, 1850. *Cardiidae*. Fossil. RECORDS. •1922–32 Sherborn, p. 5255: *Cardium punctatostriatum* Lycett, 1850 [as *punctato-striatum*]. •1980 Ruhoff: *Cardium punctatostriatum* Lycett, 1850; vol. 6: 423.

***punctatum*** Brocchi, 1814. – Identical with *Parvicardium papillosum* (Poli, 1791). OTHER JUDGEMENTS: *Parvicardium minimum* (Philippi). – *Cardium planatum* var. – *Cardium roseum* Lamarck. – *Parvicardium scabrum* (Philippi, 1844). >> Regarding *C. punctatum*: *Cardiidae*. Fossil and Recent. RECORDS. •1814. Brocchi: *Cardium punctatum*. •1832 Bronn: *Cardium punctatum* Brch. 666 = ? variety of *Cardium planatum*. •1836 Philippi: *Cardium punctatum* Broc. p. 666. t. 16. fig. 11. = *Cardium papillosum* Poli. •1844 Philippi: *Cardium punctatum* Brocchi. •1848 Requien: *Cardium punctatum* Brocchi. •1857 Deshayes: *Cardium punctatum* Brocchi. •1866 Brusina: *Cardium punctatum* Brocchi. •1867 Weinkauff: *Cardium punctatum* Brocchi = *Cardium papillosum* Poli. •1868 Colbeau: *Cardium punctatum* Brocchi = *Cardium nodosum*. •1869 Römer: *Cardium punctatum* Brocchi, an varietas ? (a good species, Römer, p. 34). •1880 Stossich: *Cardium punctatum* Brocchi. 1814 = *Cardium nodosum* Montagu. •1888 Kobelt: ? *Cardium punctatum* Brocchi = *Cardium minimum* Philippi. •1888 Kobelt: *Cardium punctatum* Brocchi = *Cardium papillosum* Poli. •1891 Danilo & Sandri: *Cardium punctatum* Broc. •1899 Sacco: *Cardium punctatum* Brocchi 1814 = *Papillicardium papillosum* (Poli 1791). •1902 Dollfus & Dautzenberg: *Cardium punctatum* Brocchi, 1814 = *Cardium* (*Parvicardium*) *papillosum* Poli, 1791. •1912 Dautzenberg & Fischer: *C. punctatum* Brocchi is a synonym of *C. papillosum* Poli. •1922–32 Sherborn, p. 5259: *Cardium punctatum* Brocchi, 1814 •1977 Fischer–Piette: *Cardium punctatum* Brocchi = *Corculum papillosum* Poli ref. •1983 Anaya: *Cardium punctatum* Brocchi, 1814 = *Parvicardium papillosum* (Poli, 1791). •2000 Aartsen & Goud: *Cardium punctatum* Brocchi, 1814 (? misidentified). – CHARACTERS AND OCCURRENCE – REMARKS. According to Aartsen & Goud (2000), *Cardium punctatum* is probably a misidentification of a worm *Parvicardium papillosum* (Poli, 1795). HABITAT. Aegean Sea depth range 12 fathoms (Forbes 1844). DISTRIBUTION. Guernsey (Grasset 1884); Mediterranean (Locard & Caziot 1900); Europe, North West Africa (auct.).

***punctatum*** of Forbes. – Identical with *Cardium roseum* Lamarck. >> Regarding *C. punctatum*: RECORDS. •1867 Weinkauff: ? *Cardium punctatum* Forbes = *Cardium roseum* Lamarck.

***punctatum*** of Monterosato 1891. – Identical with *Parvicardium minimum* (Philippi 1836). >> Regarding *C. punctatum*: RECORDS. •1891 Monterosato: *Cardium punctatum*. •1912 Dautzenberg & Fischer: *Cardium punctatum* Monterosato 1891 (non Brocchi) = *Parvicardium minimum* (Philippi 1836).

***punctatum*** of Philippi, 1844. – Identical with *Parvicardium scabrum* (Philippi, 1844). OTHER JUDGEMENTS: *Cardium nodosum* Turton, 1822. – *Parvicardium papillosum* (Poli). >> Regarding *C. punctatum*: RECORDS. •1856 Jeffreys: *Cardium punctatum* and variety *Cardium scabrum* Ph. = *Cardium papillosum* (Poli). •1884 Grasset: *Cardium punctatum* Phil. •1890 Paetel: *Cardium punctatum* Phil. = *nodosum* Mtg. •1933 Coen: *Cardium punctatum* Philippi = *Eucardium* (*Cardium*) *echinatum* var. *roseum* Lamarck. •1937 Coen: *punctatum* Philippi =

**punctatum – pusillum**

*Cerastoderma (Rudicardium) nodosum* Turton.

**punctatum** of Renier. – Identical with *Parvicardium scabrum* (Philippi, 1844). >> Regarding *C. punctatum*: RECORDS. ••1844 Forbes: *Cardium punctatum* Ren.

**punctatum** of Requier. – Identical with *Parvicardium scabrum* (Philippi, 1844). OTHER JUDGEMENTS: *Cardium nodosum* Turton, 1822. – *Parvicardium scabrum* (Philippi, 1844). >> Regarding *C. punctatum*: RECORDS. ••1886 Locard: *Cardium punctatum* Requier, 1848. = *Cardium roseum* de Lamarck, 1818. ••1888 Kobelt: *Cardium punctatum* Requier = *Cardium nodosum* Turton. ••1900 Locard & Caziot: *Cardium punctatum* Requier = *Cardium nodosum* Turton, 1822.

**punctatum** of Sowerby. – Identical with "*Cardium*" *nodosum* Turton, 1822. RECORDS. ••1868 Mörch: *Cardium punctatum* "Brocchi" Sow. = *Cardium (Cerastoderma) nodosum* Turton.

**punctatum** of Tapparone–Canefri 1869. – Identical with *Parvicardium minimum* (Philippi 1836). >> Regarding *C. punctatum*: RECORDS. ••1869 Tapparone–Canefri: *Cardium punctatum*. ••1912 Dautzenberg & Fischer: *Cardium punctatum* Tapparone–Canefri (non Brocchi) = *Parvicardium minimum* (Philippi 1836).

**punctolineatum** Healy & Lamprell, 1992. – *Acrosterigma punctolineatum* Healy & Lamprell, 1992. Cardiidae. Recent. TYPE LOCALITY. Holotype, Little Trunk Reef, N. Queensland, Australia. TYPE REPOSITORY. Holotype, Queensland Museum, Brisbane. TYPE MATERIAL. Holotype, a paired specimen from Little Trunk Reef, N. Queensland, QM ref. MO32905. Paratypes: Four paired specimens from N. Queensland, in AMS. RECORDS. ••1992 Healy & Lamprell: *Acrosterigma punctolineatum*. ••1999 Vidal: *Acrosterigma punctolineata* Healy & Lamprell, 1992: 87, pl. 3, figs. e–h. ••2001 Vidal, p. 407: *Acrosterigma punctolineatum*. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: the coloured spots, riblets in interstices. DESCRIPTIONS. ••1999 Vidal: Shell ovoid, equilaterally (only anterior dorsal margin slightly raised) to transversally (posterior margin expanded) but not posteriorly truncated, moderately elongated, and variably compressed. Lunule of medium size on right valve, with its umbonal margin raised and encroaching on left valve, where lunule is almost non-existent. External colour beige with small, slightly elongated brown spots, limited to smooth anterior part of ribs on posterior slope, and to rib tops on other parts of shell; on posterior slope these spots are longer and darker than elsewhere. Interior shows the same features by transparency. Hinge symmetrical and moderately angled. Mean rib number  $48.9 \pm 3.3$ , range 42–56. On posterior slope, ribs flat with thin interstices; anterior smooth part of ribs narrower than posterior part and terminating abruptly against interstice. Axial furrow relatively wide and readily visible; oblique scales slightly elongated, regular in shape and regularly disposed in axial furrow, encroaching upon posterior part of rib, but usually not upon anterior part. On median part of shell, ribs roundly triangular to rounded, slightly asymmetrical, and generally smooth, except for those closest to posterior slope, which sometimes bear numerous long ridges on posterior face; on some young shells, small rounded tubercular pustules randomly scattered on rib tops; interstices narrower than ribs,

bearing a well-delineated small riblet in bottom, and finely notched in places on adult parts. Anteriorly, ribs become retro-crenulated, then top-ridged (wide ridges, somewhat imbricated, becoming even wider and irregular approaching lunule). ••2001 Vidal: tentacles numerous. No eyes on tentacles. DIMENSIONS. ••1999 Vidal: length 29.9, height 35.7, width 24.0 mm. REMARKS. Vidal (1999): *Acrosterigma punctolineatum* has typical characters and cannot be confused; it is close to the next species *A. hobbsae*, but can easily be separated from it. HABITAT. Recorded from 10 to 38 m depth. DISTRIBUTION. ••1992 Healy & Lamprell: Philippines, North East Australia. ••1999 Vidal: recorded only in the eastern part of the western Pacific, in littoral, reef environment. The species has been cited and figured from Taiwan by Kuroda (1941: 161, pl. 5, fig. 74.) and from Okinawa by Kubo & Kurozumi (1995: 181, fig. 3).

**punctulatum** Broderip & Sowerby, 1829. [Figs. Part 1 p. 107]. – Combination to be revised: "*Cardium*" *punctulatum* Broderip & Sowerby, 1829. Cardiidae. Recent. RECORDS. ••1829 Broderip & Sowerby, p. 366: *Cardium punctulatum*. ••1834 Sowerby, 47<sup>th</sup> part, fig. 7: *Cardium punctulatum*. ••1840 Sowerby, catalogue p. 2, No. 20: *Cardium punctulatum* Brod. & Sow. ••1840 Sowerby, corrected list, p. 8: *Cardium punctulatum* (Sowerby No. 20). ••1841 Reeve: *Cardium punctulatum* Brod. & Sow. ••1843 Hanley: *Cardium punctulatum* Brod. ••1851 MacAndrew: *Cardium punctulatum* Broderip & Sowerby. ••1922–32 Sherborn, p. 5282: *Cardium punctulatum* Broderip & Sowerby, 1829. ••1977 Fischer–Piette: *Cardium punctulatum* Broderip & Sowerby. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1841 Sowerby: not known. ••1851 MacAndrew: Gibraltar.

**punicum** Coquand, 1862. – Unknown species. >> Regarding *Cardium punicum*: Cretaceous. TYPE LOCALITY. Constantine. RECORDS. ••1871 Stoliczka: *Cardium punicum* Coquand, 1862 (species insufficiently known). ••1980 Ruhoff: *Cardium punicum* Coquand, 1862; vol. 2: 208, pl. 11, figs. 10–11.

**punjabensis** Eames, 1951. – *Discors punjabensis* Eames, 1951. Cardiidae. Eocene. RECORDS. ••1951 ZR: *Discors punjabensis* Eames, 1951 sp. nov. Eocene Pakistan.

**purbeckense** Loriol & Jaccard, 1865. – *Cardium purbeckense* Loriol & Jaccard, 1865. Cardiidae. Jurassic and Cretaceous. RECORDS. ••1985 Fürsich & Werner: *Cardium purbeckense* Loriol & Jaccard, 1865.

**purpurea** Martyn, 1784. *Non binomial*. – Not available. << Regarding *Cardium purpurea*: Not a cardiid. RECORDS. ••1784 Martyn: *Cardium purpurea*.

**pusilla** Chiplonker, 1939. – *Protocardia pusilla* Chiplonker, 1939. Cardiidae. Cretaceous. ••1939 ZR: *Protocardia pusilla* Chiplonker, 1939 sp. n. Bagh Beds Cretaceous S. India.

\***pusillum**. – Homonymy to be noticed. *Cardium pusillum* from 2 sources: Gregorio, 1930. – Anrezjowski (?year).

**pusillum** Anrezjowski. Combination to be revised: "*Cardium*" *pusillum* Anrezjowski. Cardiidae. Fossil. RECORDS. ••1857 Deshayes: *Cardium pusillum* Anrezjowski.

**pusillum** Gregorio, 1930. – Combination to be revised: "*Cardium*" *pusillum* Gregorio, 1930. Cardiidae. Lias.

*pustulosum* – *quadragenarium*

- 1936 ZR: *Cardium pusillum* Gregorio, 1930 sp. n. Lias Palermo.
- pustulosum*** (aff.) Münster, 1836. – *Granocardium* aff. *pustulosum* (Münster, 1836). *Cardiidae*. Cretaceous. RECORDS. ••1986 Abdel-Gawad, pl. 40, fig. 8: *Granocardium* (*Granocardium*) aff. *pustulosum* (v. Münster, 1836).
- pustulosum*** Münster in Goldfuss, 1837. – Combination to be revised: “*Cardium*” *pustulosum* Münster in Goldfuss, 1837. *Cardiidae*. Cretaceous. RECORDS. ••1871 Stoliczka: *Cardium pustulosum* (*Acanthocardium* sic). ••1922-32 Sherborn, p. 5317: *Cardium pustulosum* Muenster in Goldfuss, 1837.
- putcaradze*** Gadzhiev, 1968. – *Didacna putcaradze* Gadzhiev, 1968. *Lymnocardiiidae*. Tertiary. ••1968 ZR: *Didacna putcaradze* Gadzhiev, 1968 sp. nov. Caspian, Baku archipelago.
- putzeysi*** Glibert, 1933. – *Laevicardium putzeysi* Glibert, 1933. *Cardiidae*. Upper Eocene. RECORDS. ••1936 ZR: *Laevicardium putzeysi* (E. Vincent MSS) Glibert, 1933 sp. n. Wemmel Sands, Eocene Belgium. ••1970 Glibert & Poel: *Laevicardium putzeysi* (E. Vincent). ••1970 Glibert & Poel: *Pratulium putzeysi*.
- pycnosora*** Kol. – *Hyrkania pycnosora* (Kol.). *Lymnocardiiidae*. Fossil. RECORDS. ••1977 Popov: *Hyrkania pycnosora* (Kol.).
- pygmaeum*** Donovan, 1799. – Synonym of *Parvicardium exiguum* (Gmelin, 1791). OTHER JUDGEMENTS: *Cardium siculum* Sowerby, 1839. = *Cardium stellatum* Reeve, 1844. >> Regarding *Cardium pygmaeum*: *Cardiidae*. Recent. REMARKS. *Parvicardium exiguum* (*exiguum*) (Gmelin, 1791) = *pygmaeum* (Donovan, 1799) = *siculum* (Sowerby, 1839) = *stellatum* (Reeve, 1844) in Nordsieck (1969). Habitat: *C. exiguum*: littoral and algal zone, Orkney Isles. (Nordsieck 1969). DISTRIBUTION. *C. exiguum*: North Europe, Mediterranean, Black Sea (Nordsieck 1969). RECORDS. ••1800 Donovan, Pl. 9, fig. 4a *Cardium pygmaeum*. ••1803 Montagu: *Cardium pygmaeum* Don. Br. Shells. i. t. 32. f. 3. = *Cardium exiguum* Gmel. 37. ••1817 Dillwyn: *Cardium pygmaeum* Solander’s MSS = *Cardium exiguum* Gmelin. ••1844 Brown: *Cardium pygmaeum* of Donovan = *Cardium exiguum*. ••1846 Forbes: *Cardium pygmaeum* Donovan = *Cardium exiguum* Gmelin. ••1850 Jay: *Cardium pygmaeum* Donov. = *Cardium exiguum*. ••1852 Leach: *Cardium pygmaeum* Donov. = *Cardium exiguum*. ••1856 Wood & Hanley: *C. pygmaeum* Don. pl. 32, f. 3. = *Cardium exiguum* Mont. ••1867 Hidalgo: *Cardium pygmaeum*, Donovan = *Cardium exiguum* Gmelin. ••1867 Weinkauff: *Cardium pygmaeum* = *Cardium exiguum* Gmelin. ••1868 Colbeau: *Cardium pygmaeum* Donov. ••1869 Römer: *Cardium pygmaeum* Donovan = *Cardium exiguum* Gmelin. ••1871 Mörch, p. 215, No. 205 *Cardium pygmaeum* Don. = *Cardium exiguum* Gm. ••1882 Cooke: *Cardium pygmaeum* Don. ••1882 Cooke: Syn. *Cardium nodosum* Turt. labeled *C. pygmaeum* Don. (= *C. exiguum* Gmel.). ••1886 Chevreux: *Cardium pygmaeum* Donov. ••1886 Locard: Syn. *Cardium pygmaeum*, Donovan, 1804 = *Cardium exiguum*, Gmelin, 1789 sic. ••1888 Kobelt: Syn. *Cardium pygmaeum* Donovan = *Cardium exiguum* Gmelin. ••1888 Servain: *Cardium pygmaeum* Donovan, Forbes & Hanley, Sowerby = *Cardium exiguum*. ••1890 Hidalgo: *Cardium pygmaeum* Donovan = *Cardium exiguum* Gmelin. ••1890 Paetel: *Cardium pygmaeum* Donov. = *exiguum* Gm. ••1902 Sherborn, p. 801: *Cardium pygmaeum* Donovan, 1800. ••1917 Hidalgo: Syn. *Cardium pygmaeum* Donovan = *Cardium exiguum* Gmelin. ••1932 Winckworth: Syn. *Cardium pygmaeum* = *Cardium* (*Parvicardium*) *exiguum* Gmelin, 1791. ••1962 Grossu: Syn. *Cardium pygmaeum* Donovan = *Cardium* (*Parvicardium*) *exiguum* Gmelin, 1790. ••1977 Fischer-Piette: Syn. *Cardium pygmaeum* Donovan = *Cardium exiguum* Gmelin. ••2000 Aartsen & Goud: *Cardium pygmaeum* Donovan, 1800 is a synonym of *Parvicardium exiguum* (Gmelin, 1791).
- pygmaeum*** Philippi, 1860. – Combination to be revised: “*Cardium*” *pygmaeum* Philippi, 1860. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium pygmaeum* Philippi, 1860; p. 176.
- \**pygmaeum*; Conocardiidae**. – Homonymy to be noticed. *Conocardium pygmaeum* from 2 sources: Hisinger, 1837. – Isberg, 1934.
- pygmaeum*** Hisinger, 1837. – *Conocardium pygmaeum* Hisinger 1837. *Conocardiidae*. Fossil. ••1942 ZR: *Conocardium pygmaeum* Hisinger 1837 [Ref. Branson 1942].
- pygmaeum*** Isberg 1934. – Replaced by *Conocardium isbergi* Branson, 1942. *Conocardiidae*. Fossil. RECORDS. ••1942 ZR: *Conocardium pygmaeum* Isberg 1934 replaced by *Conocardium isbergi* Branson, 1942.
- pyramidatum*** Grimm, 1877. [Figs. Part 1 p. 180]. – Changed combination: *Didacna pyramidatum* (Grimm, 1877). *Lymnocardiiidae*. Fossil. TYPE LOCALITY. Caspian Sea. RECORDS. ••1877 Grimm, p. 46, pl. 8, figs. 1 a–d: *Cardium pyramidatum* sp. n. ••1877 ZR: *Cardium pyramidatum* Grimm, 1877 sp. n. Caspian Sea. ••1968 Logvinenko & Starobogatov: *Didacna pyramidata* (Grimm). ••1987 Taktakishvili: *Didacna pyramidata* (Gr.).
- pyramidum*** Abbas, 1978. – *Cardium pyramidum* Abbas, 1978. *Cardiidae*. Upper Eocene. RECORDS. ••1978 ZR: *Cardium* (*Cardium*) *pyramidum* Abbas, 1978 sp. nov. Egypt. Upper Eocene. Ref. to Abbas p. 155.
- pyriforme*** d’Orbigny, 1850. – *Conocardium pyriforme* d’Orbigny, 1850. *Conocardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 4990: *Lunulacardium pyriforme* Muenster, 1840. ••1922-32 Sherborn: *Conocardium* (*Muenster*) *pyriforme* d’Orbigny, 1850. – *Lunulacardium*.
- pyrocostatum*** (aff.) Hal. – New combination: *Lymnocardium* aff. *pyrocostatum* Hal. *Lymnocardiiidae*. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocardium* aff. *pyrocostatum* Hal.
- pyrophila*** (variety). – See under *sjoegreni pyrophila* Andrussov, 1924.

## Q

- quadragenarium*** Conrad, 1837. – Changed combination: *Trachycardium quadragenarium* (Conrad, 1837). *Cardiidae*. Fossil and Recent. Type species: Stewart (1930) designated *Cardium quadragenarium* Conrad, 1837 type species of the subgenus (*Dallocardia*) Stewart, 1930. Subsequently raised to generic status. RECORDS. ••1837 Conrad: *Cardium quadragenarium*.

**quadrigenarium – quadripartitum**

- 1860 Carpenter: *Cardium quadrigenarium* Conr.  
 ••1864 Carpenter: *Cardium quadrigenarium* Conr. = *luteolabrum* (= *xanthocheilum*) Gld. ••1890 Paetel: *Cardium quadrigenarium* Conr. ••1901 Dall: *Cardium* (*Trachycardium*) *quadrigenarium* Conrad, 1837.  
 ••1918 Chase p. 103: *Cardium quadrigenarium* [err. pro *quadrigenarium*] Conr. ••1921 Dall: *Trachycardium quadrigenarium* Conrad, 1837. ••1922-32 Sherborn, p. 5353: *Cardium quadrigenarium* Conrad, 1837. ••1924 Oldroyd: *Cardium quadrigenarium* Conrad, 1837. ••1930 Stewart: *Cardium quadrigenarium* Conrad, 1837. ••1930 ZR: *Dalloccardia* Stewart, 1930 subgen. n. of *Trachycardium* type *Cardium quadrigenarium* Conrad, fossil. ••1937 Keen: *Trachycardium quadrigenarium*. ••1944 Keen & Bentson: *Cardium quadrigenarium* Conrad. ••1954 Keen: *Trachycardium* (*Dalloccardia*) *quadrigenarium*. ••1960 Morris: *Trachycardium quadrigenarium* (Con.). ••1969 Moore et al.: *Trachycardium* (*Dalloccardia*) *quadrigenarium* (Conrad, 1837). ••1977 Popov: *Trachycardium* (*Dalloccardia*) *quadrigenarium* (Conrad, 1837). ••1977 Fischer-Piette: *Laevicardium quadrigenarium* Conrad. ••1977 p. 46. Popov: *Cardium quadrigenarium* Conrad, 1837. Type of (*Dalloccardia*) Stewart, 1930. ••1977 Wilson & Stevenson: *Cardium quadrigenarium* Conrad, 1837. ••1983 Anaya: Type: *Cardium quadrigenarium* Conrad, 1837. Type species (D.O.) of (*Dalloccardia*) Stewart, 1930. ••1995 Poutiers: *Trachycardium quadrigenarium* (Conrad, 1837). ••1999 Vidal: *Trachycardium quadrigenarium* (Conrad, 1837). ••1999 Vidal: "*Cardium*" *quadrigenarium*. ••2000 Coan et al.: *Trachycardium* (*Dalloccardia*) *quadrigenarium* (Conrad, 1837). ••2001 Schneider & Carter: *Trachycardium quadrigenarium* (Conrad, 1837). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: one old shell from Catalina Island, California. REMARKS. ••1999: Vidal cites Conrad 1837, p. 230: *Cardium quadrigenarium* being "allied to *Cardium asiaticum*". DISTRIBUTION. ••ZMUC California.
- quadrigenarium** (aff.) Conrad, 1837. – RECORDS. ••1907 ZR: *Cardium* aff. *quadrigenarium* sic [Ref. Arnold 1907b].
- quadrigenarium fernandoensis** Arnold, 1907 (variety). – Synonym of *Trachycardium quadrigenarium* (Conrad, 1837). >> Regarding *Cardium quadrigenarium* var. *fernandoensis*: Cardiidae. Fossil. RECORDS. ••1907 ZR: *Cardium quadrigenarium* sic var. *fernandoensis* Arnold, 1907 var. n. Middle Fernando formn. S. California [Ref. Arnold 1907a]. ••1944 Keen & Bentson: *Cardium quadrigenarium* Conrad var. *fernandoensis* Arnold, 1907 (n. var.). ••2000 Coan et al.: *C. quadrigenarium fernandoensis* Arnold, 1907 = *Trachycardium* (*Dalloccardia*) *quadrigenarium* (Conrad, 1837).
- quadrigenarium** (error). – Printer's mistake for *quadrigenarium* in Chase 1918.
- quadrans** Cragin, 1894. – Synonym of *Protocardia filosa* (Conrad, 1857). >> Regarding *Roudairia quadrans*: Cardiidae. Cretaceous. RECORDS. ••1986 Scott: *Roudairia quadrans* Cragin, 1894 = *Protocardia filosa* (Conrad, 1857). ••1987 ZR: *Protocardia quadrans* (Cragin, 1894) Junior synonym of *P. filosa* (Conrad, 1857). Ref. to Scott p. 1203.
- quadrans** W.B. & H.D. Rogers, 1839. – Combination to be revised: "*Cardium*" *quadrans* W.B. & H.D. Rogers, 1839. ?Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 5354: *Cardium quadrans* W.B. & H.D. Rogers, 1839.
- quadrans**. – *Conocardium quadrans*. Conocardiidae. Fossil. RECORDS. ••1889 ZR: *Conocardium quadrans* with fig. (ref. Barrois).
- quadrarium** Reeve, 1845. [Figs. Part 1 p. 145. Part 3 p. 933]. – *Parvicardium quadrarium* (Reeve, 1845). OTHER JUDGEMENTS: *Cardium exiguum* Gmelin, 1791. >> Regarding *Cardium quadrarium*: Recent, Cardiidae. TYPE LOCALITY. UNKNOWN (Reeve 1845). TYPE REPOSITORY. BMNH. holotype reg. no. 1978141. Neg. No. 0392. DISTRIBUTION. UNKNOWN (Reeve 1845). RECORDS. ••1845 Reeve: *Cardium quadrarium*. ••1922-32 Sherborn, p. 5354: *Cardium quadrarium* Reeve, 1845. ••1977 Fischer-Piette: *Cardium quadrarium* Reeve = *Cardium exiguum* Gmelin. – CHARACTERS AND OCCURRENCE – ••1845 Reeve: Shell thin, squarely ovate, posteriorly slightly concavely angulated; radiately ribbed, ribs flattened, here and there prickly scaled, those of the posterior area smooth, interstices between the ribs rather deeply cut; whitish, the concave posterior area pale rusty brown. REMARKS. ••1845 Reeve: the chief peculiarities of this shell are its flattened ribs, the interstices between which are narrowly and deeply cut, and its posterior concavity. DISTRIBUTION. ••1845 Reeve: unknown.
- quadrata** Kvaliashvili, 1978. – *Digressodacna quadrata* Kvaliashvili, 1978. Lymnocardiidae. Pliocene. RECORDS. ••1978 ZR: *Digressodacna quadrata* Kvaliashvili, 1978 sp. nov. Georgia SSR. Ref. to Kvaliashvili p. 73.
- quadrata** (subspecies). – See under *edule quadratum* Bucquoy, Dautzenberg & Dollfus, 1892.
- \*quadratum**. – Homonymy to be noticed. *Cardium quadratum* from 2 sources: Deshayes, 1853. – Doncieux, 1912.
- quadratum** Chen, 1974. – Changed combination: *Myophoricardium quadratum* (Chen, 1974). Cardiidae. Fossil. RECORDS. ••1976 Ma et al. p. 260: *Myophoriopsis quadratum* Chen, 1974. ••1976 Ma et al. p. 260: *Myophoricardium quadratum* (Chen, 1974).
- quadratum** Deshayes, 1853. – Combination to be revised: "*Cardium*" *quadratum* Deshayes, 1853. Cardiidae. Fossil. RECORDS. ••1857. Deshayes, p. 53: *Cardium quadratum* (Germany) new name for *Cardium multicoatum* Goldfuss. ••1980 Ruhoff: *Cardium quadratum* Deshayes, 1853; vol. 2: 48.
- quadratum** Doncieux, 1912. – Combination to be revised: "*Cardium*" *quadratum* Doncieux, 1912. Cardiidae. Eocene. RECORDS. ••1912 ZR: "*Cardium*" *quadratum* Doncieux, 1912 sp. n. France Eocene.
- quadratricistatum** Pethö, 1906. – Combination to be revised: "*Cardium*" *quadratricistatum* Pethö, 1906. Cardiidae. Cretaceous. TYPE LOCALITY. Hungary. RECORDS. ••1906 Pethö: *Cardium quadratricistatum* sp. n. ••1906 ZR: *Cardium quadratricistatum* Pethö, 1906 sp. n. Cretaceous, Hungary.
- quadrigenarium** (error). – Printer's mistake for *quadrigenarium* in Arnold 1907.
- quadripartitum** Kolesnikov, 1929. – *Cerastoderma*

**quadripartitum protractiformis – radiata**

*quadripartitum* (Kolesnikov, 1929). *Cardiidae*. Sarmatian. RECORDS. ••1929 ZR: *Cardium quadripartitum* Kolesnikov, 1929 sp. n. Sarmatian. ••1977 ZR: *Cerastoderma (Obsoletiforma) quadripartitum* Key to subspecies. Ref to Il'ina, Nevevskaya & Paramonova p. 76.

***quadripartitum protractiformis*** Andrus (variety). – Upgraded. *Cerastoderma quadripartitum protractiformis* (Andrus.) *Cardiidae*. Sarmatian. RECORDS. ••1929 ZR: *Cardium quadripartitum* var. *protractiformis* Andrus., Sarmatian [Ref. Kolesnikov 1929].

***quadripartitum squamata*** Andrus (subspecies). – *Cerastoderma quadripartitum squamata* (Andrus.) *Cardiidae*. Sarmatian. RECORDS. ••1929 ZR: *Cardium quadripartitum squamata* Andrus., Sarmatian [Ref. Kolesnikov 1929].

***quedongensi*** Sherrard, 1960. – *Lunulicardium quedongensi* Sherrard, 1960. Not in *Cardiacea*. Silurian. RECORDS. ••1960 ZR: *Lunulicardium quedongensi* Sherrard, 1960 sp. nov. Quedong near Bombala, N.S. Wales, Silurian.

***quilonense*** Dey, 1962. – Combination to be revised: “*Cardium quilonense* Dey, 1962. *Cardiidae*. Miocene. RECORDS. ••1962 ZR: *Cardium* (s.l.) *quilonense* Dey, 1962 sp. nov. Indo-Pacific Province, Miocene.

***quinarium*** Marwick, 1944. – Changed combination: *Pratulium quinarium* (Marwick, 1944). *Cardiidae*. Opoitian. RECORDS. ••1944 ZR: *Nemocardium (Pratulium) quinarium* Marwick, 1944 sp. nov. roadside just E. of Mangatarchu Stream, Waikohu Surv. Dist. (Opoitian). ••1977 Popov: *Pratulium quinarium* (Marwick, 1944).

***quinquecostatum*** Douvillé, 1917. – *Granocardium quinquecostatum* Douvillé, 1917. *Cardiidae*. Cretaceous. RECORDS. ••1917 ZR: *Granocardium quinquecostatum* Douvillé, 1917 n. sp. Cretaceous Moghara.

***quinquecostatum*** Münster, 1840. – Combination to be revised: “*Cardium quinquecostatum* Münster, 1840. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 5398: *Cardium quinquecostatum* Muenster, 1840.

## R

***rachitis*** Deshayes, 1829. – Changed combination: *Goniocardium rachitis* (Deshayes, 1829). *Aviculariidae*. Eocene. TYPE LOCALITY. Paris Basin. RECORDS. ••1835 Lamarck: *Cardium rachitis* Desh. ••1839 Anton: *Cardium rachites* Deshayes. ••1886 Cossmann: *Fragum rachitis* (Deshayes). ••1887 Fischer: *Goniocardium rachitis* Deshayes. ••1922-32 Sherborn, p. 5407: *Cardium rachitis* Deshayes, 1829. ••1937 ZR: *Cardium rachites* Deshayes, 1829 type of *Goniocardium* Vasseur, 1880 *Prosodacnidae* (?) not a *cardiid* unit [Ref. Keen 1937]. ••1995 Le Renard *et al.*: *Goniocardium rachitis* [*Cardium rachitis*] Deshayes, 1829. ••1995 Pacaud & Renard: *Goniocardium rachitis* Superfamily *Tridacnoidea*. Family *Aviculariidae*. ••1998 Schneider (1998b): *Goniocardium rachitis* (Deshayes, 1829). ••1999 Jacques Vidal (1999, pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as both *rachite* Deshayes & *rachitis* Deshayes. Bartonien. France (Bassin de Paris).

***racketti*** Donovan, 1825. – Synonym of *Fulvia tenuicosta*

(Lamarck, 1819). OTHER JUDGEMENTS: *Papyridea papyraceum* Schröter [not available]. >> Regarding *Cardium racketti*: *Cardiidae*. Recent. TYPE LOCALITY. New South Wales. RECORDS. ••1825 Donovan: *Cardium racketti*. ••1922-32 Sherborn, p. 5407: *Cardium rackettii* Donovan, 1825. ••1938 Cotton & Godfrey: *Cardium racketti* Donovan 1826. ••1945 Smith: *Cardium rackettii* Donovan, 1825 = *Cardium tenuicostata* Lamarck 1819. ••1945 Smith: *Cardium rackettii* ‘Donovan’ Hedley 1916 = *Cardium tenuicostata* Lamarck 1819. ••1950 Allan: *Cardium racketti*. ••1961 Cotton: *Fulvia racketti* Donovan 1826 = *Fulvia tenuicostata* Lamarck 1819; Pliocene, South Australia. ••1961 Rippingale & MacMichael: *Fulvia racketti* Donovan. ••1977 Fischer–Piette: *Cardium racketti* Donovan = *Papyridea papyraceum* (Chemnitz) Schröter. ••1977 Wilson & Stevenson: *Cardium racketti* Donovan, 1825, junior synonym of *Fulvia tenuicostatum* (Lamarck, 1819). ••1992 Lamprell & Whitehead: *Cardium racketti* Donovan, 1925 = *Fulvia tenuicostata* (Lamarck, 1819). ••1994 Vidal: *Cardium racketti* Donovan, 1826 = *Fulvia (Fulvia) tenuicosta* (Lamarck, 1819). – CHARACTERS AND OCCURRENCE – REMARKS. ••1961: Cotton stated that *Fulvia racketti* Donovan, 1826 is a living form of the Pliocene *Fulvia tenuicostata* Lamarck 1819. DISTRIBUTION. ••1994 Hylleberg: South Australia.

***radians*** Mayer, 1857. – Combination to be revised: “*Cardium radians* Mayer, 1857. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium radians* Mayer, 1857; [1856–1857] vol. 5: 363.

***radiata*** (mode). – See under *radiatum* Reeve, 1845

***radiata*** Donovan, 1799. – Synonym of *Serripes groenlandicum* (Bruguière, 1789). OTHER JUDGEMENTS: *Cardium edentula*. – Not syn. of *Cardium tenuicostata* Lamarck, 1819. >> Regarding *Maetra radiata*: *Cardiidae*. Recent. RECORDS. ••1799 Donovan: *Maetra radiata*. ••1800 Donovan, Pl. 44. figs. 1, 2 *Maetra radiata*. ••1813 Fleming: *Maetra radiata* Brit. Shells. tab. 161. = *Cardium edentula*. ••1850 Jay: *Cardium radiatum* Donov. = *Cardium groenlandicum*. ••1856 Wood & Hanley: *Maetra radiata* Donov. = *Cardium Groenlandicum* Ch. [not available]. ••1868 Mörch, no. 120: *Maetra radiata* Don. = *Cardium (Serripes) grönlandicum* Chemn. var *solida* Mörch, 1868. ••1869 Römer: *Maetra radiata* Donovan = *Cardium Grönlandicum* Chemnitz [not available]. ••1870 Gould: *Maetra radiata* Donovan (syn.) = *Aphrodite groenlandica*. ••1888 Kobelt: *Maetra radiata* Donovan = *Aphrodite groenlandicus*. ••1890 Paetel: *Cardium radiatum* Donov. = *groenlandicum* Ch. [not available]. ••1902 Dall: *Maetra radiata* of Donovan, 1799 = *Serripes grönlandicus* Gmelin, 1792. ••1912 Dautzenberg & Fischer: *Maetra radiata* Donovan 1800 = *Cardium (Serripes) groenlandicum*, (Chemnitz) Bruguière, Gmelin. ••1939 McLean: *Cardium radiatum* (Donovan, 1799) = *Serripes groenlandicum* (Bruguière, 1789). ••1945 Smith: *radiatum* ‘Donovan’ Gray 1824 not synonym of *Cardium tenuicostata* Lamarck, 1819. ••1977 Fischer–Piette: *Maetra radiata* Donovan = *Serripes groenlandicum* (Chemnitz) Schröter. ••1980 ZR: *Serripes radiata* Donovan 1803 is a junior synonym of *S. groenlandicus groenlandicus* (Bruguière 1789). Ref. to Kafanov. ••2000 Coan *et al.*: *Maetra*



**radiata – radula**

*radiata* Donovan, 1803 = *Serripes* (*Serripes*) *groenlandicus* (Mohr, 1786). – CHARACTERS AND OCCURRENCE – DISTRIBUTION. Arctic regions.

**radiata** Martyn, 1789. *Non* binominal. – Not available. >> Regarding *Cochlea radiata*: not a *cardiid* (?*Maetra*). RECORDS. ••1789 Martyn: *Cochlea radiata*.

**radiata** Meek & Worthen. – ?*Cardiopsis radiata* Meek et Worthen. ?*Cardiacea*. Devonian–Carboniferous. RECORDS. ••1887 Fischer: ?*Cardiopsis radiata* Meek et Worthen.

**radiata** Stevanovic, 1951. – *Paradacna radiata* Stevanovic, 1951. Lymnocardiiidae. Pontian. RECORDS. ••1953 ZR: *Paradacna radiata* Stevanovic, 1951 sp. nov. Pontian Serbia.

\***radiatum**. – Homonymy to be noticed. *Cardium radiatum* from 4 sources: Dujardin, 1837. – Koninck, 1842. – Reeve, 1845. – Svarovsky, 1971.

**radiatum** Dujardin, 1837. – Combination to be revised: “*Cardium*” *radiatum* Dujardin, 1837. *Cardiidae*. Fossil. RECORDS. ••1857 Deshayes: *Cardium radiatum*. Duj. 1836 *sic*. ••1922-32 Sherborn, p. 5411: *Cardium radiatum* Dujardin, 1837. ••1945 Smith: *Cardium radiatum* Dujardin, 1837 is not a synonym of *Cardium tenuicostata* Lamarck, 1819.

**radiatum** Gray, 1824. – Synonym of *Serripes groenlandicum* (Bruguière, 1789). RECORDS. ••1922-32 Sherborn: *Maetra radiata* Donovan. ••1922-32 Sherborn, p. 5411: *Cardium* (Don.) *radiatum* Gray, 1824. – *Maetra*.

**radiatum** Koninck, 1842. Replaced by “*Cardium*” *modiolaeforme*. Deshayes. ?*Cardiacea*. Silurian. RECORDS. ••1857 Deshayes: *Cardium radiatum* Koninck. 1842 (*cardiomorpha*). – *C. modiolaeforme*. Desh.

**radiatum** Reeve, 1845. [Figs. Part 1 p. 141. Part 3. p. 929]. – Synonym of *Fulvia tenuicostata* (Lamarck, 1819). OTHER JUDGEMENTS: *Fulvia fagea* Voskuil & Onverwagt, 1992. – *Papyridea papyracea* (Chemnitz) Schröter. – *Cardium tenuicostatum* var. >> Regarding *Cardium radiatum*. *Cardiidae*. Recent. TYPE LOCALITY. Unknown (Reeve 1845). TYPE REPOSITORY. BMNH; *Cardium radiatum* Reeve Holotype reg. no. 1912.6.4.17. Neg. No. 0382. RECORDS. ••1845 Reeve: *Cardium radiatum*. ••1868 ZR: *Cardium radiatum* (Reeve) seems to be a variety of *tenuicostatum* (Lam.) [Ref. Römer 1868]. ••1869 Römer: *Cardium radiatum* Reeve fig. 89 = *Cardium tenuicostatum* Lamarck. ••1877 Marrat: *Cardium* (*Fulvia*) *radiatum* Reeve. ••1885 Smith: *Cardium radiatum*, (Reeve in Römer, fig. 89) = *Cardium* (*Bucardium*) *tenuicostatum* Lamarck. ••1889 Martens: *Cardium radiatum* Reeve (p. 26: off Liberia, 68 m, black mud). ••1889 Martens: *Cardium radiatum* Reeve (p. 29: off Liberia, 179 m, dark brown sand). ••1890 Paetel: *Cardium radiatum* Rv. ••1890 Paetel: *Papyridea radiata* Rv. ••1903 Pritchard & Gatliff: *Cardium radiatum* Römer in Küster 1869 = *Cardium tenuicostatum* Lamarck. ••1903 Hidalgo: *Cardium radiatum* Reeve. 1845. ••1922-32 Sherborn, p. 5411: *Cardium radiatum* Reeve, 1845. ••1928 Faustino: *Cardium radiatum* Reeve. ••1945 Smith: *Cardium radiatum* Reeve, 1843 syn. = *Cardium tenuicostata* Lamarck, 1819. ••1977 Fischer–Piette: *Cardium radiatum* Reeve = *Papyridea papyracea* (Chemnitz) Schröter. ••1992 Voskuil & Onverwagt, p. 42: *Cardium*

*radiatum* Reeve, 1845 = *Fulvia fagea* (nom. nov.). Nec Gray 1820, nor Dujardin 1837, nor Svarovsky 1971. ••1994 Vidal: *Cardium radiatum* Reeve, 1845 = *Fulvia* (*Fulvia*) *tenuicostata* (Lamarck, 1819). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS.

••ZMUC: 1 specimen. Quartz sediment inside the shell contained the foraminiferan *Amphistegina*, spine of sea urchin, crab claw, small gastropods. No remains of corals. (label in box: N. S. Wales coll. Corneliusen 1814). DESCRIPTIONS. ••1845 Reeve: shell somewhat squarely ovate, radiately rather obscurely ribbed, 52 ribs, nearly obsolete at the umbones; fleshy white, concentrically banded with pale brown, stained within and without at each umbone with a conspicuous purple ray. REMARKS. ••1845 Reeve: This species has been probably confounded hitherto with the *Cardium tenuicostatum*, from which it differs somewhat in form, besides being of a more solid structure. DISTRIBUTION. ••1845 Reeve: unknown. ••ZMUC: North Australia, Solomon Islands; N. S. Wales.

**radiatum** Svarovsky, 1971. – Combination to be revised: “*Cardium*” *radiatum*. *Cardiidae*. Upper Miocene. RECORDS. ••1971 ZR: *Cardium radiatum* Svarovsky, 1971 sp. nov. Upper Miocene Ostslowakei, Czechoslovakia.

\***radiiferum**. – Homonymy to be noticed. *Cardium radiiferum* from 2 sources: Andrusov, 1902. – Andrusov, 1963. REMARKS. I do not know how Andrusov, 1902 compares with Andrusov, 1963.

**radiiferum** Andrusov, 1902. – Changed combination: *Andrusovicardium radiiferum* (Andrusov, 1902). Lymnocardiiidae. Pliocene. GENOTYPE. Nevevskaya *et al.* (1986 p. 192) designated *Cardium radiiferum* Andrusov, 1902 type species of genus *Andrusovicardium* Paramonova, 1986. Dollfus (1905) commenting Andrusov 1902: *Cardium radiiferum* n. sp. tends towards *Cerastoderma*. RECORDS. ••1902 Andrusov: *Cardium radiiferum*. ••1905 Dollfus: *Cardium radiiferum* Andrusov, 1902. ••1977 Popov: *Avicardium radiiferum*. ••1986 Nevevskaya *et al.*: *Andrusovicardium radiiferum* (Andrusov, 1902). ••1987 ZR: *Cardium radiiferum* Andrusov, 1902. Designated type species for new genus *Andrusovicardium*. Ref. to Nevevskaya *et al.* p. 192.

**radiiferum** Andrusov, 1963. – *Cardium radiiferum* Andrusov, 1963. Lymnocardiiidae. Miocene. RECORDS. ••1961 ZR: *Cardium radiiferum* Andrusov, 1961 “sp. nov.” [in a table] Miocene Caspian region, Russia. ••1963 ZR: *Cardium radiiferum* Andrusov, 1963 sp. nov. Neogene, Russia.

**radmanesti** (variety). – See under *chartacea* var. *radmanesti* Gillet, 1943.

**radbojanum** Anic, 1952. – Combination to be revised: “*Cardium*” *radbojanum* Anic, 1952. *Cardiidae*. Oligocene. RECORDS. ••1952 ZR: *Cardium radbojanum* Anic, 1952 sp. nov. Upper Oligocene, Croatia.

\***radula**. – Homonymy to be noticed. *Cardium radula* from 3 sources: Broderip & Sowerby, 1829. – Deshayes, 1832. – Thiele & Jaeckel, 1931.

**radula** Broderip & Sowerby, 1829. – Changed combination: *Trachycardium radula* (Broderip & Sowerby, 1829). *Cardiidae*. Recent. RECORDS. ••1829 Broderip & Sowerby, p. 366: *Cardium radula*. ••1840

- Sowerby, catalogue p. 3, No. 43: *Cardium radula*.  
 ••1857 Carpenter: *Cardium radula*. ••1872 Carpenter: *Cardium radula*. ••1922-32 Sherborn, p. 5419: *Cardium radula* Broderip & Sowerby, 1829. ••1977 Fischer-Piette: *Cardium radula* Broderip & Sowerby. – CHARACTERS AND OCCURRENCE – REMARKS. In general appearance *C. radula* resembles *C. muricatum*; but it differs in shape, and in the ribs being angular at both edges (Broderip & Sowerby 1829). Sowerby (1841) noted: We have not seen this shell. It is in Mr. Bland's collection. Fischer-Piette (1977) found that the description of *radula* would fit *C. senticosum*, but refrained from specifying synonymy because *Cardium radula* is so poorly known. DISTRIBUTION. California, Peru.
- radula** Deshayes, 1832. [Figs. Part 3 p. 921]. – Synonym of *Cerastoderma edule* (Linnaeus, 1758). OTHER JUDGEMENTS: *Cardium nodosum* Montagu. >> Regarding *Cardium radula*: Cardiidae. Fossil. RECORDS. ••1832 Deshayes, p. 106, pl. 18, figs. 15–17: *Cardium radula* Desh. ••1890 Paetel: *Cardium radula* Dsh. = *nodosum* Mtg. ••1922-32 Sherborn, p. 5419: *Cardium radula* Deshayes in Bory de St. V., 1833. ••1977 Fischer-Piette: *Cardium radula* Deshayes = *Cardium edule* Linné.
- radula** Thiele & Jaeckel, 1931. – Synonym of *Afrocardium infantile* (Nomura & Zinbo, 1834). OTHER JUDGEMENTS: New name *Laevicardium thielei* Fischer-Piette, 1977. >> Regarding *Cardium radula*: Cardiidae. Recent. TYPE LOCALITY. Dar es Salaam, E. Africa. REMARKS. *Laevicardium thielei* referred to *Ctenocardia (Afrocardium)* in Keen (1980). DISTRIBUTION. E. Africa. RECORDS. ••1931 Thiele & Jaeckel, p. 227, pl. 9, no. 99: *Cardium radula* n. sp. ••1931 ZR: *Cardium radula* Thiele & Jaeckel, 1931 sp. n. ••1977 Fischer-Piette: *Laevicardium thielei* new name for *Cardium radula* Thiele & Jaeckel, 1931. ••1977 ZR: *Cardium radula* Thiele & Jaeckel 1931. Preoccupied name, replaced by *Laevicardium (Trachycardium) thielei*. Ref to Fischer-Piette, E. p. 55. ••1981 Koyama et al.: *Cardium radula* Thiele & Jaeckel, 1931 = *Cardium (Trachycardium) infantile* Nomura & Zinbo, 1834. ••1999 Higo et al.: *Cardium radula* Thiele & Jaeckel, 1831 sic non Broderip & Sowerby, 1829 = *Afrocardium infantile* (Nomura & Zinbo, 1934).
- rahmuensis** Cox, 1965. – *Protocardia rahmuensis* Cox, 1965. Cardiidae. Oxfordian. RECORDS. ••1965 ZR: *Protocardia rahmuensis* Cox, 1965 sp. nov. Rahmu, S.E. Kenya, Oxfordian.
- rammaurtii** Singh et al. – *Protocardia rammaurtii* Singh et al., 1980. Cardiidae. Jurassic. RECORDS. ••1980 ZR: *Protocardia (Protocardia) rammaurtii* sic sp. nov. India. Spelling of species also as *P. (P.) rammaurtii*. Ref to Singh et al., p. 73.
- rammvrtil** (spelling). – See under *rammaurtii*.
- ranvillensis** Palmer, 1973. – *Cryptocardia ranvillensis* Palmer, 1973. Cardiidae. Upper Jurassic. RECORDS. ••1973 ZR: *Cryptocardia ranvillensis* Palmer, 1973 sp. nov. France, Calvados, Ranville. Ref. to Palmer p. 170.
- ranvillianum** d'Orbigny, 1850. – *Unicardium ranvillianum* d'Orbigny, 1850. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 5429: *Unicardium ranvillianum* d'Orbigny, 1850.
- rara** (mode). – See also under *rarum* Evans & Shumard.
- rara** Kvaliashvili, 1978. – *Digressodacna rara* Kvaliashvili, 1978. Lymnocardiidae. Pliocene. RECORDS. ••1978 ZR: *Digressodacna rara* Kvaliashvili, 1978 sp. nov. Georgia SSR. Ref. to Kvaliashvili p. 54.
- rarepartita** (variety). – See under *paucicostatum planicosta* var. *rarepartita* Coen, 1933. – *paucicostatum* var. *eburnea* Coen, 1937. – *paucicostatum* var. *rarepartita* Coen, 1933.
- Raricardium** (genus). – Paramonova, 1986. Cardiidae. Pliocene. RECORDS. ••1987 ZR: *Raricardium* Paramonova, 1986 gen. nov. of *Cerastodermini*. Type species *Cardium konjuschkevskii* Alizade, 1932. Pliocene. Ref. to Nevesskaya et al. p. 191.
- raricostata** Papaianopol, 1992. – *Prosodacna raricostata* Papaianopol, 1992. Lymnocardiidae. Pliocene. TYPE LOCALITY. Dacien inferieur (Getien) du Basin Dacique, Romania. RECORDS. ••1992 Papaianopol, p. 28, fig.: *Prosodacna (Prosodacna) raricostata* sp. nov.
- raricostata** Popov, 1983. – *Didacna raricostata* Popov, 1983. Lymnocardiidae. Pleistocene. TYPE LOCALITY. Russian SFSR. RECORDS. ••1983 Popov, p. 200, fig.: *Didacna raricostata* sp. nov.
- \*raricostatum** – Homonymy to be noticed. *Cardium raricostatum* from 2 sources: Deshayes, 1853. – Ali-Zade & Ribina (?year).
- raricostatum** Ali-Zade & Ribina. – New combination: *Replidacna raricostatum* (Ali-Zade & Ribina). Lymnocardiidae. Fossil. RECORDS. ••1977 ZR: *Cardium (Replidacna) raricostatum* Ali-Zade & Ribina. Ref to Paramonova p.70 [Transl. p. 320].
- raricostatum** Deshayes, 1853. – Combination to be revised: "*Cardium*" *raricostatum* Deshayes, 1853. ?Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium raricostatum* Deshayes, 1853; vol. 2: 45.
- raricostatum** Kafanov, 1994. – *Keenocardium raricostatum* Kafanov, 1994. Cardiidae. Fossil. RECORDS. ••1994 Kafanov in Arkhipova et al.: *Keenocardium raricostatum* Kafanov.
- rarissima** Stevanovic, 1951. – *Didacna rarissima* Stevanovic, 1951. Lymnocardiidae. Pontian. RECORDS. ••1953 ZR: *Didacna rarissima* Stevanovic, 1951 sp. nov. Pontian Serbia [Ref. Stevanovic 1951].
- raristriatum** Bellardi, 1852. – Combination to be revised: "*Cardium*" *raristriatum* Bellardi, 1852. ?Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium raristriatum* Bellardi, 1852; vol. 4: 242, pl. H (sic = 19), fig. 10.
- raritanensis** Richards, 1943. – Combination to be revised: "*Cardium*" *raritanensis* Richards, 1943. Cardiidae. Fossil. ••1943 ZR: *Cardium (Granocardium) raritanensis* Richards, 1943 sp. nov. New Jersey. Raritan.
- rarum** Evans & Shumard, 1857. – Changed combination: *Protocardia rarum* Evans & Shumard. Cardiidae. Cretaceous. RECORDS. ••1860 Meek & Hayden: *Cardium rarum* Evans & Shumard. ••1876 Meek: *Cardium (Protocardia?) rarum* Evans & Shumard. ••1876 Meek: *Protocardia (Leptocardia) rara* Evans & Shumard. ••1876 Meek: *Cardium (Leptocardia) rara* Evans & Shumard. ••1970 Speden: *Cardium rarum* Evans & Shumard, 1857, p. 39. ••1980 Ruhoff: *Cardium rarum* Evans & Shumard, 1857; vol. 1: 39.
- rarum** Paramonova, 1977. – *Cerastoderma rarum* Paramonova, 1977. Cardiidae. Upper Miocene. RECORDS. ••1977 ZR: *Cerastoderma (Planacardium)*

*rasmyslovae* – *rectidens minor*

*rarum* Paramonova, 1977 sp. nov. Ukraine. Ref to Il'ina, Nevevskaya & Paramonova p. 208, fig'd.

***rasmyslovae***. – *Nemocardium rasmyslovae*. Cardiidae. Fossil. RECORDS. ••1977 Popov: *Nemocardium (Nemocardium) rasmyslovae*.

***rastrum*** Reeve, 1845. [Figs. Part 1 p. 139. Part 3 p. 923]. – Synonym of *Trachycardium senticosum* (Sowerby, 1833). >> Regarding *Cardium rastrum*: Cardiidae. Recent. TYPE REPOSITORY. 2 syntypes. 1978/131. BMNH London. TYPE LOCALITY. (Reeve 1845: unknown), Santa Elena, Ecuador, in 6–12 fathoms, sandy mud (Hertlein & Strong 1947). RECORDS. ••1845 Reeve, sp. 82: *Cardium rastrum* Reeve, 1845 = *Cardium senticosum* Sowerby, 1841 (in the errata). ••1852 Adams: *Cardium rastrum* Reeve 1845 = *Cardium senticosum* Sowb. 1833. ••1858 Adams & Adams, p. 455: *Cardium (Isocardia) rastrum* Reeve. ••1869 Römer: *Cardium rastrum* Reeve Fig. 82 = *Cardium senticosum* Sowerby. ••1886 Dall: *Cardium rastrum* Reeve = *C. senticosum* Sowerby. ••1890 Paetel: *Cardium rastrum* Rv. = *senticosum* Sow. ••1891 Stearns: *C. rastrum* Rve. = *Cardium senticosum* Sby. ••1901 Dall: *Cardium rastrum* Reeve, 1845 = *Cardium senticosum* Sowerby, 1833. ••1910 Dall: *Cardium rastrum* Reeve = *Cardium senticosum* Sowerby. ••1922–32 Sherborn, p. 5436: *Cardium rastrum* Reeve, 1845. ••1947 Hertlein & Strong: *Cardium rastrum* Reeve = *Cardium (Dallocardia) senticosum* Sowerby, 1833. ••1971 Keen & McLean: *Cardium rastrum* Reeve, 1845 = *Trachycardium (Dallocardia) senticosum* (Sowerby, 1833). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1845 Reeve: shell nearly orbicular, rather thin, radiately ribbed, 39 ribs, the first 13 anterior ribs prickly on the anterior side, then 2, sometimes 3, prickly on both sides, the rest prickly on the posterior side; brownish white, banded and spotted with reddish-brown. REMARKS. ••1845 Reeve: the sculpture of this shell is arranged very much after the style of the *Cardium muricatum*. HABITAT. ••ZMUC: clay–sand at 11–29 m depth. DISTRIBUTION. ••1845 Reeve: St. Elena, West Columbia. ••1971 Keen & McLean: Gulf of California to Peru.

***raulineanum*** Orbigny, 1844. – New combination: *Criocardium raulineanum* (Orbigny, 1844). Cardiidae. Fossil. RECORDS. ••1998 Schneider: *Cardium raulineanum* Orbigny, 1844. *Cardium (Criocardium) raulineanum* Orbigny, 1844.

**\**raulini***. – Homonymy to be noticed. *Cardium raulini* from 4 sources: Coquand, 1859. – Gumbel (?year). – Orbigny, (?year). – Heb. & Bosquet (?year).

***raulini*** Coquand, 1859. – Combination to be revised: "*Cardium*" *raulini* Coquand, 1859. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium raulini* Coquand, 1859; vol. 16: 1003.

***raulini*** Gumbel. – New name. Combination to be revised: "*Cardium*" *teisenbergerense* Schlosser, 1926. >> Regarding *Cardium raulini*: Cardiidae. Fossil. RECORDS. ••1926 ZR: *Cardium raulini* Gumbel replaced by *Cardium teisenbergerense* Schlosser, 1926 nom. nov.

***raulini*** Hébert & Bosquet, 1849. – Synonym of "*Cardium*" *kochi* Semp. Combination to be revised. >> Regarding *Cardium raulini*: Cardiidae. Fossil. RECORDS. ••1886 Vincent: *Cardium raulini* Heb. et Bosquet in Dewalque = *Cardium kochi* Semp. ••1922–

32 Sherborn, p. 5437: *Cardium raulini* Hébert, 1849. ***raulini*** Orbigny. – Combination to be revised: "*Cardium*" *raulini* d'Orbigny. Cardiidae. Cretaceous. RECORDS. ••1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium raulini* d'Orbigny. Albien. France (Yonne), S07060.

***raulinianum*** Orbigny, 1844. – *Pleuriocardia raulinianum* (d'Orbigny, 1844). Cardiidae. Cretaceous. RECORDS. ••1922–32 Sherborn, p. 5438: *Cardium raulinianum* d'Orbigny, 1844. ••1978 Scott: *Cardium raulinianum* d'Orbigny. ••1978 Scott: *Pleuriocardia (Pleuriocardia) raulinianum* (d'Orbigny).

***razelmiana*** (variety). – See under *colorata razelmiana* Borcea, 1926.

***reatricosum*** Hall. – *Conocardium reatricosum* Hall. Conocardiidae. Fossil. ••1943 ZR: *Conocardium reatricosum* Hall (revised descriptions) Ref. to Branson (1942).

***rectangulare*** Roemer, 1860. – Combination to be revised: "*Cardium*" *rectangulare* Fr. Roemer, 1860. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium rectangulare* Fr. Roemer, 1860; vol. 9: 12, pl. 4, fig. 5.

***rectangulare*** Schlosser, 1926. – *Nemocardium rectangulare* Schlosser, 1926. Cardiidae. Eocene. RECORDS. ••1926 ZR: *Nemocardium rectangulare* Schlosser, 1926 sp. n. Eocene Bavaria.

***rectidens*** Coen, 1917. – *Cerastoderma rectidens* (Coen, 1917). OTHER JUDGEMENTS: ?*Cerastoderma glaucum* (Bruguière, 1789). >> Regarding *Cerastoderma rectidens*: Cardiidae. Recent. RECORDS. ••1917 ZR: *Cardium (Cerastoderma) rectidens* Coen, 1917 sp. n. Mediterranean. ••1933 Coen: *Eucardium (Cerastoderma) rectidens*. ••1937 Coen: *Cerastoderma rectidens* Coen.

***rectidens adusta*** Monts. Mss. (subspecies). – Infrasubspecific. : *Cerastoderma rectidens* var. *adusta*. RECORDS. ••1917 ZR: *Cardium (Cerastoderma) rectidens adusta* Monts. Mss. [Ref. Coen 1917].

***rectidens alba*** Monts. Mss. (subspecies). – Infrasubspecific. *Cerastoderma rectidens* var. *alba* RECORDS. ••1917 ZR: *Cardium (Cerastoderma) rectidens alba* Monts. Mss. [Ref. Coen 1917].

***rectidens clodiense*** Renier (variety). – Infrasubspecific. No evidence of subspecific status. *Cerastoderma rectidens* var. *clodiense* Renier. (Coen, 1917). OTHER JUDGEMENTS: *Cerastoderma rectidens* var. *clodiense* Renier. – ?*Cerastoderma glaucum* (Bruguière, 1789). >> Regarding *Cerastoderma rectidens* var. *clodiense*: Cardiidae. Recent. RECORDS. ••1933 Coen: *Eucardium (Cerastoderma) rectidens* var. *clodiensis* Renier. ••1937 Coen: *Cerastoderma rectidens clodiense* Renier.

***rectidens drepanensis*** Coen, 1917 (subspecies). – Infrasubspecific. No evidence of subspecific status. RECORDS. ••1917 ZR: *Cardium (Cerastoderma) rectidens drepanensis* Coen, 1917 n. var.

***rectidens fragilis*** Coen, 1917 (subspecies). – Infrasubspecific. No evidence of subspecific status. RECORDS. ••1917 ZR: *Cardium (Cerastoderma) rectidens fragilis* Monts. Mss. [Ref. Coen 1917].

***rectidens minor*** Coen, 1917 (variety). – No evidence of subspecific status. >> Regarding *Cardium rectidens minor*: See also *Cardium glaucum rectidens* var. *minor* Coen, 1915. RECORDS. ••1917 ZR: *Cardium*

*rectidens obliquata* – *regulare*

- (*Cerastoderma*) *rectidens minor* Coen, 1917 n. var.  
***rectidens obliquata*** Coen, 1917 (subspecies). – Infrasubspecific. No evidence of subspecific status. *Cerastoderma rectidens* var. *obliquata* RECORDS. ••1917 ZR: *Cardium* (*Cerastoderma*) *rectidens obliquata* Monts. Mss. [Ref. Coen 1917].
- rectidens pulchella*** Coen, 1917 (subspecies). – Infrasubspecific. No evidence of subspecific status. *Cerastoderma rectidens* var. *pulchella*. RECORDS. ••1917 ZR: *Cardium* (*Cerastoderma*) *rectidens pulchella* Monts. Mss. [Ref. Coen 1917].
- rectidens supina*** Coen, 1917 (subspecies). – Infrasubspecific. No evidence of subspecific status. *Cerastoderma rectidens* var. *supina* RECORDS. ••1917 ZR: *Cardium* (*Cerastoderma*) *rectidens supina* Monts. Mss. [Ref. Coen 1917].
- rectidens varnensis*** Coen, 1917 (variety). – Infrasubspecific. No evidence of subspecific status. *Cerastoderma rectidens* var. *varnensis* RECORDS. ••1917 ZR: *Cardium* (*Cerastoderma*) *rectidens varnensis* Coen, 1917 n. var.
- rectispina*** Koenen, 1893. – Changed combination: *Agnocardia rectispina* (Koenen, 1893). Cardiidae. Fossil. RECORDS. ••1893 Koenen: *Cardium rectispina* (fide Schneider 2002). ••1984 ZR: *Agnocardia rectispina* (Koenen, 1893). Taxonomic position. Ref. to Vokes p. 43. ••1998 Schneider: *Agnocardia rectispina* (Koenen, 1893) Cardiidae. Early Oligocene, Germany. ••2002 Schneider: *Agnocardia rectispina* (Koenen, 1893). Cardiidae. Rupelian.
- rectum*** Taltasse, 1950. – Synonym of *Cardium hians* var. *recta* Dollfus. >> Regarding *Bucardium rectum*: Cardiidae. Miocene. TYPE LOCALITY. Portugal. TYPE REPOSITORY. UNKNOWN. RECORDS. ••1952 Lecointre: *Bucardium rectum* Taltasse, 1950 = *Cardium hians* var. *recta* Dollfus.
- reductum*** Alizade. – Changed combination: *Acobaecardium reductum* (Alizade). Lymnocoardiidae. Neogene. RECORDS. ••1986 Nevesskaya et al.: *Acobaecardium reductum* (Alizade) comb. nov. ••1987 ZR: *Acobaecardium reductum* (Alizade) comb. nov. Ref. to Nevesskaya et al. p. 192.
- reedi*** Loel & Corey, 1932. – Combination to be revised: "*Cardium*" *reedi* Loel & Corey, 1932. Cardiidae. Miocene. RECORDS. ••1933 ZR: *Cardium* (*Acanthocardia*) *reedi* Loel & Corey, 1932 Miocene California. ••1944 Keen & Bentson: *Cardium* (*Acanthocardia*) *reedi* Loel & Corey, 1932 (n. sp.).
- \*reeveanum**. – **Homonymy to be noticed.** *Cardium reeveanum* from 2 sources: Dunker, 1852. – Deshayes, 1853.
- reeveanum*** Deshayes, 1853. – Combination to be revised: "*Cardium*" *reeveanum* Deshayes, 1853. Cardiidae. ?Recent. RECORDS. ••1980. Ruhoff: *Cardium reeveanum* Deshayes, 1853; vol. 2: 46.
- reeveanum*** Dunker, 1852. – Synonym of *Vasticardium vertebratum* (Jonas, 1844). OTHER JUDGEMENTS: *Cardium flavum* Linnaeus of authors. >> Regarding *Cardium reeveanum*: Cardiidae. Recent. RECORDS. ••1852 Dunker: *Cardium reeveanum*. ••1858 Dunker: *Cardium reeveanum*. ••1869 Dunker: *Cardium reeveanum*. ••1872 Tryon: *Cardium reeveanum* Dkr. ••1884 Grasset: *Cardium reeveanum* Desh. ••1884 Smith: *Cardium reeveanum* Dkr. ••1890 Paetel: *Cardium reeveanum* Dkr. ••1906 Hedley: *Cardium reevianum* sic Dunker. ••1910 Hedley: *Cardium reeveanum* Dkr. ••1923 Shirley: *Cardium reeveanum* Dkr. ••1977 Fischer–Piette, p. 30: *Cardium reeveanum* Dunker = *Laevicardium flavum* Linné auctorum. ••1977 Wilson & Stevenson: *Cardium reeveanum* Dunker, 1852. ••1977 Wilson & Stevenson: *Acrosterigma reeveanum* (Dunker, 1852). ••1978 ZR: *Acrosterigma reeveanum* (Dunker 1852). Senior synonym of *Regozara olivifer* Iredale, 1936. Ref. to Wilson et al. p. 82. ••1980 Ruhoff: *Cardium reeveanum* Dunker, 1852; [1852–1853] vol. 9: 54. ••1980 Ruhoff: *Cardium reeveanum* Dunker, 1858; [1858–1870] vol. 2: 22, pl. 6, figs. 6–8. ••1990 Abbott & Dance: *Trachycardium reeveanum*. ••1922 Shirley: *Cardium reeveanum* Dunker. ••1992 Lamprell & Whitehead: *Acrosterigma reeveanum*. ••1997 Vidal: *Cardium reeveanum* Dunker, 1852 = *Vasticardium vertebratum* (Jonas, 1844). ••1999 Vidal: *Cardium reeveanum* Dunker, 1852 = *Vasticardium vertebratum* (Jonas, 1844). – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1884 Grasset: Australia. ••1994 Hylleberg: Red Sea, Australia.
- reevei*** Hidalgo, 1903. – New name *Tridacna reevei* Hidalgo, 1903. Tridacnidae. Recent. RECORDS. ••1903 ZR: *Tridacna reevei* Hidalgo, 1903 n.n. for *Tridacna elongata* Rve. nec Lamarck.
- reevianum*** (error). – Printer's mistake for *reeveanum* in Hedley 1906.
- reflexum*** – *Conocardium reflexum*. Conocardiidae. Fossil. RECORDS. ••1889 ZR: *Conocardium reflexum* with fig. (ref. Barrois).
- Regozara*** Iredale, 1936 (genus). – Cardiidae. Neogene and Recent. Type of genus *Regozara olivifer* Iredale, 1936. Original designation. RECORDS. ••1980 Vokes: *Regozara* Iredale, 1936 in subfamily Trachycardiinae. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1969 Moore et al.: hinge less angulate than in *A. (Acrosterigma)*, sculpture of small scales or cross-threads on posterior sides of ribs. East Indies–Australia.
- Regozara*** Iredale, 1936 (subgenus). – Cardiidae. Neogene and Recent. RECORDS. ••1969 Moore et al. classified *Regozara* as a subgenus of the genus *Acrosterigma* Dall, 1900. ••1978 Maxwell: Subgenus *Regozara* Iredale, 1936. ••1999 Higo et al.: *Regozara* (subgenus) Iredale, 1936. Type species: *Regozara olivifer* Iredale, 1936 (o.d.).
- \*regulare**. – **Homonymy to be noticed.** *Cardium regulare* from 2 sources: Bruguière, 1789. – Coquand, 1862.
- regulare*** Bruguière, 1789. – Synonym of *Vasticardium pectiniforme* (Born, 1780). OTHER JUDGEMENTS: *Trachycardium flavum* (Linnaeus, 1758). – Variety of *Cardium rugosum*. – *Cardium leucostomum* Born, 1780. >> Regarding *Cardium regulare*: Cardiidae. Recent. DISTRIBUTION. *C. regulare* St. Domingo (Wood & Hanley 1856); Indo–Pacific (Hylleberg 1994). *C. pectiniforme*: Red Sea, Indo–West Pacific. RECORDS. ••1789 Bruguière, No. 24. *Cardium regulare*; Nob. ••1815 Wood: *Cardium regulare* Brug. ••1817 Dillwyn: *Cardium regulare* Bruguière. ••1819 Lamarck: *Cardium regulare*, Brug. Dict. no. 24. (American variety of *Cardium rugosum*). ••1836 Bosc: *Cardium regulare*. ••1856 Wood & Hanley, No. 29: *Cardium regulare* Brug. E. M. Vers. 227. ••1902 Sherborn, p.

**regulare – replicatum**

824: *Cardium regulare* Bruguière, 1789. ••1932 Prashad: *Cardium regulare* Bruguière, 1789 = *Trachycardium flavum* (Linné, 1758). ••1977 Fischer-Piette: *Cardium regulare* Bruguière = *Cardium leucostomum* Born. ••1999 Higo et al.: *Cardium regulare* Bruguière, 1789 = *Acrosterigma (Regozara) flava* (Linnaeus, 1758). ••1997 Vidal: *Cardium regulare* Bruguière, 1789 = *Vasticardium pectiniforme* (Born, 1780). ••1999 Vidal: *Cardium regulare* Bruguière, 1789 = *Vasticardium pectiniforme* (Born, 1780).

**regulare** Coquand, 1862. – “*Cardium*” *regulare* Coquand, 1862. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium regulare* Coquand, 1862; vol. 2: 205, pl. 10, figs. 13–14.

**regularis** (subspecies). – See under *edule regularis* Pallary, 1900.

**reissi** Bronn in Reiss & Bronn, 1862. – Combination to be revised: “*Cardium*” *reissi* Bronn in Reiss & Bronn, 1862. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium reissi* Bronn in Reiss & Bronn, 1862; p. 40, pl. 1, fig. 17.

**rekensis** Ebersin, 1967. – *Macradacna rekensis* Ebersin, 1967. *Lymnocardiiidae*. Pliocene. RECORDS. ••1967 Ebersin: *Macradacna rekensis* sp. n. ••1967 ZR: *Macradacna rekensis* Eberzin, 1967 sp. nov. Pliocene, USSR.

**relicta** (subspecies). – See under *plicata relicta*.

**relicta** Milaskewicz, 1916. – *Adacna relicta* Milaskewicz, 1916. OTHER JUDGEMENTS: *Hypanis plicatus relictus* (Milaskewicz). >> Regarding *Adacna relicta*: *Lymnocardiiidae*. Recent. RECORDS. ••1916 Milaschewitch, p. 274 (pl. 8, figs. 10–12); *Adacna relicta* sp. n. ••1923 ZR: *Adacna relicta* Milaschewitch, 1916. ••1927 ZR: *Adacna relicta* [Ref. Borcea 1927b]. ••2001 Vidal, p. 407: *Adacna relicta*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••2001 Vidal: No tentacles. No eyes. DISTRIBUTION. Black Sea (Nordsieck 1969).

**relicta dolosmiana** Borcea, 1926 (variety). – Upgraded. *Hypanis dolosmiana* Borcea, 1926. *Lymnocardiiidae*. Recent. REMARKS. Upgraded to species. RECORDS. ••1927 ZR: *Adacna relicta* var. *dolosmiana* Rumania, [Ref. Borcea 1927b]. ••1928 ZR: *Adacna relicta* var. *dolosmiana* Borcea, 1928 nov. Roumania [Ref. Borcea 1928b]. ••1962 Grossu: *Adacna relicta* var. *dolosmiana* Borcea, 1926 = *Hypanis dolosmiana* Borcea, 1926 in Scarlato & Starobogatov. ••1962 Grossu: *Adacna plicata relicta* forma *dolosmiana* Borc. = *Hypanis dolosmiana* Borcea, 1926 in Scarlato & Starobogatov.

**remondianum** Gabb, 1864. – Combination to be revised: “*Cardium*” *remondianum* Gabb, 1864. *Cardiidae*. Fossil. RECORDS. ••1871 Stoliczka, 143: *C. remondianum*. ••1980 Ruhoff: *Cardium remondianum* Gabb, 1864; vol. 1: 172, pl. 23, fig. 153.

**renevieri** – Combination to be revised: “*Cardium*” *renevieri*. *Cardiidae*. Eocene. RECORDS. ••1886 Cossmann: *Cardium renevieri*.

**reniforme** Koenen, 1893. – Changed combination: *Gonicardium reniforme* (Koenen, 1893). *Cardiacea*. Oligocene. RECORDS. ••1998b Schneider, p. 353: *Cardium (Fragum) reniforme* Koenen, 1893. It is a *Gonicardium*.

**renngarteni** Wassoievic & Eberzin, 1931. – *Prosodacna renngarteni* Wassoievic & Eberzin, 1931.

*Lymnocardiiidae*. Fossil. ••1931 ZR: *Prosodacna renngarteni* Wassoievic & Eberzin, 1931 sp. n.

**renticosum** (error). – Printer’s mistake for *ventricosum* in Zoological Record 1945.

**repens** Taktakishvili, 1966. – *Didacna repens* Taktakishvili, 1966. *Lymnocardiiidae*. Pliocene. RECORDS. ••1966 ZR: *Didacna repens* Taktakishvili 1966 sp. nov. Pliocene, western Gruzia, SSR.

**repentinus** Grishkevitch, 1962. – Combination to be revised: “*Cardium*” *repentinus* Grishkevitch, 1962. *Cardiidae*. Miocene. RECORDS. ••1959 ZR: *Cardium repentinus* Grishkevitch & Nevesskaya, 1959 sp. nov. as nom. nud. in list Trans-Carpathians, Sarmatian, Miocene. ••1962 ZR: *Cardium repentinus* Grishkevitch, 1962 sp. nov. Sarmatian, Trans-Carpathians, USSR.

**replicatum** Spengler 1799. [Figs. Part 3 p. 914]. Synonym of *Corculum monstrosum* (Gmelin 1791). OTHER JUDGEMENTS: *Corculum cardissa* (Linnaeus, 1758). >> Regarding *Cardium replicatum*: *Cardiidae*. Recent. TYPE LOCALITY. ••1782 Chemnitz Nicobar Islands. ••1799 Spengler: unknown. TYPE REPOSITORY. ZMUC, Spengler’s coll. RECORDS. ••1799 Spengler, p. 52–53, No. 33: *Cardium replicatum* Chemnitz Tom. VI. Tab. 14. fig. 149.150. ••1799 Spengler: *replicatum* = *monstrosum* (reference to Chemnitz Tom. 6. Tab. 14. fig. 149.150). ••1870 Mörch: *Cardium replicatum* Spengler = *C. monstrosum* Chemn. ••1902 Sherborn, p. 826: *Cardium replicatum* Spengler, 1799. ••1977 Fischer-Piette: *Cardium replicatum* Chemnitz = *Cardium cardissa* Linné. ••1999 Knudsen & Hylleberg Spengler, 1799 No. 33: *Cardium replicatum* in Spengler = *Cardium monstrosum* Chemnitz Tom. VI. Tab. Tab. 14 Fig. 149–150. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC 1 specimen, Spengler’s collection. CHARACTERS of diagnostic value: the anterior side very inflated, round, the shell almost half-spherical, posterior side impressed into the curved anterior, margin bent over, creating a sharp keel, ribs rounded, broad interstices, irregularly nodulose. Anterior surface, alternating narrow and broad stripes. The bent in margin spiny, shell not gaping, colour white throughout. DESCRIPTIONS. ••1799 Spengler: *testa cordata aequivalvi, valvulis dentato-carinatis, postice excavato-depressa, carina reflexa*. ••1799 Spengler translated by Knudsen & Hylleberg 1999: The back side of this Venus heart is so strongly elevated and roundly vaulted that the bivalve thereby gets the appearance of half a sphere. The front side lies partly very deep internally in the globular posterior part, on which its margin is bent strongly forwards; this front side is rather flattened, only towards the middle elevated with a sharp crest. The ribs on this part are rounded and separated from each other by rounded furrows and irregularly set with small tubercles. The surface of the backside is covered by alternately narrow and broad stripes, as is common in most Venus hearts. The anus is a comparatively large and smooth heart-shaped depression. The hymen is very small, the introvert margin is provided with pointed spines. Both valves interlock closely at the margins by means of small teeth. Inside the margin of the anterior part is snow-white and strongly enameled; on the inner and outer sides the bivalve is white. Its height and breadth are 1 inch 1 line. Another smaller specimen exists, which on the

## Replidacna – retusum

posterior vaulted side is densely set with light-brown spots on a white background, up to an elevated, heart-shaped casing of the groove or *Anus*, which is white. The enameled anterior side, after the external ribs to below the umbo, is inside incised with narrow furrows, which are serrate on the margin and interlock both valves. DIMENSIONS. •1799 Spengler: length and width 28 mm (1 Tom. 1 Lin.). REMARKS. •1799: Spengler did not give reasons for changing the name *Cardium monstrosum* given by Chemnitz, 1782. DISTRIBUTION. •1782 Chemnitz: Nicobar Islands.

**Replidacna** Jekelius, 1944 (invalid genus). Lymnocardiiidae. Miocene. RECORDS. •1960 ZR: *Replidacna* Jekelius, note on this genus created for small Lymnocardium with exaggerated hinge line development. [Ref. Gillet 1960b]. •1960 ZR: *Replidacna* used as a genus for young lymnocardiiids [Ref. Gillet 1960a]. •1980 Vokes: *Replidacna* Jekelius, 1944. Subfamily uncertain.

**Replidacna** Jekelius, 1944 (invalid subgenus). Lymnocardiiidae. Miocene. RECORDS. •1946 ZR: *Replidacna* Jekelius, 1944 'subgen. nov.' [given as a new genus on p. 153 and in Index p. 167 and used as such in headings of species] Cardiiidae, type *Replidacna carasi* Jekelius, 1944. Miocene Soceni Banat. •1977 ZR: *Cardium (Replidacna)* Jekelius, 1944. Invalidation. Ref to Paramonova p. 69 [Transl. p. 318].

**requienianum** Matheron, 1843. – Combination to be revised: "*Cardium*" *requienianum* Matheron, 1843. Cardiiidae. Fossil. RECORDS. •1922-32 Sherborn, p. 5470: *Cardium requienianum* Matheron, 1843.

**restinense** Olsson, 1928. – Combination to be revised: "*Cardium*" *restinense* Olsson, 1928. Cardiiidae. Fossil. RECORDS. •1928 ZR: *Cardium (Ringicardium) restinense* Olsson, 1928 sp. n.

**reticulatum** Fischer, 1807. – Combination to be revised: "*Cardium*" *reticulatum* Fischer, 1807. Cardiiidae. Fossil. RECORDS. •1922-32 Sherborn, p. 5476: *Cardium reticulatum* Fischer, 1807.

**reticulatum** Meuschen, 1778. *Non* binominal. – Not available. RECORDS. •1902 Sherborn: *Venus reticulatum* Linnaeus. •1902 Sherborn, p. 827: *Cardium (L.) reticulatum* Meuschen, 1778. *Venus reticulatum*.

**reticulatum** Muromtzeva in Khalfina, 1962. – *Conocardium reticulatum* Muromtzeva in Khalfina, 1962. Conocardiiidae. Carboniferous. RECORDS. •1962 ZR: *Conocardium reticulatum* Muromtzeva in Khalfina, 1962 sp. nov. Carboniferous, Sayano-Altai Mts. USSR

**retovskii** Andrus. – *Paradacna retovskii* Andrus. Lymnocardiiidae. Fossil. RECORDS. •1953 ZR: *Paradacna retovskii*. Pontian [Ref. to Stevanovic 1951].

**retovskii** (cf.) Andrus. – RECORDS. •1953 Celidje: *Paradacna* cf. *retovskii* Andrus.

**retovskii controversa** Papaianopol, 1978 (subspecies). – *Paradacna retovskii controversa* Papaianopol, 1978. Lymnocardiiidae. Pliocene. RECORDS. •1978 ZR: *Paradacna retovskii controversa* Papaianopol, 1978 subsp. nov. Romania. Ref. to Papaianopol, I. p. 289.

**retovski ossoinae** Stevanovic, 1951 (variety). – Upgraded. *Paradacna retovski ossoinae* Stevanovic, 1951. Lymnocardiiidae. Fossil. RECORDS. •1953 ZR: *Paradacna retovskii* var. *ossoinae* Stevanovic, 1951 nov. Pontian Serbia. •1988 Lyutchanov & Zlatev:

*Paradacna retovski ossoinae* Sev.

**retrostriatum** Buch, 1832. – Combination to be revised: "*Cardium*" *retrostriatum* d'Orbigny, 1850. Not in Cardiiidae. Fossil. RECORDS. •1857. Deshayes, p. 51: *Cardium retrostriatum* Buch [Silurian-Devonian] •1922-32 Sherborn, p. 5486: *Venericardium retrostriatum* Buch, 1832. •1922-32 Sherborn, p. 5486: *Cardium (Buch) retrostriatum* d'Orbigny, 1850. – *Venericardium*.

**retrostriatum** Sandberger, 1845. – *Lunulocardium retrostriatum* Sandberger, 1845. Not in Cardiiidae. Fossil. RECORDS. •1922-32 Sherborn, p. 5486: *Lunulocardium retrostriatum* Sandberger, 1845.

**retusa** (mode). – See under *retusum* Linné, 1758.

**retusum** Linnaeus, 1758. [Figs. Part 1 p. 66, 71, 86, 103, 168. Part 3 p. 910, 911, 932]. – *Lunulicardia retusum* (Linné, 1758). OTHER JUDGEMENTS: *Lunulicardia auricula* (Niebuhr in Forsskaal, 1775). – *Cardium subretusum* (Sow., Reeve) is only a variety of *retusum* (L.), but *auricula* (Forsk.) is a distinct species [Ref. Römer in ZR for 1868]. >> Regarding *Cardium retusum*: Cardiiidae. Recent. GENOTYPE. Gray (1853) designated *Cardium retusum* Linné, 1758 type species of the subgenus (*Lunulicardia*) Gray, recognised at the generic level by authors. TYPE LOCALITY. Unknown. Spengler (1799) refers his specimens to Tranquebar, the Coromandel coast; Reeve (1844) to China; Sowerby (1841 No. 92) refers to Suez, Arabia. RECORDS. •1758 Regenfuss, Vol. 2, pl. 9, fig. 20: *Cardium retusum* (fide Spengler 1799). •1767 Linné, p. 1121, sp. 75: *Cardium retusum*. Habitat in India. Sprengler *sic*. •1778 Born, G3. *Cardium retusum* Linn. S.N. Sp. 75. •1780 Born: *Cardium retusum* Linn. S. N. Sp. 75. •1780 Born. ID by Gmelin 1791: *Cardium retusum* mus. Caes. Vind. test. t. 3. f. 1. 2. •1782 Chemnitz, Tab. 14 Fig. 139–142: *Cardium retusum* Linnaei. •1782 Chemnitz. ID by Gmelin 1791: *Cardium retusum* t. 14. f. 139–142. •1786 Schröter, No. III: *Cardium retusum*. Linn. XII. pag. 1121. Spec. 75. •1788 Schröter: *Cardium retusum*. [Reference to Chemnitz 1782: fig. 147]. •1789 Bruguière, No. 2: *Cardium retusum* Linn. •1791 Gmelin, p. 3245, No. 4: *Cardium retusum*. •1798 Bruguière ID by Lamarck, pl. 294. fig. 3 a, b, c, d. *Cardium retusum*. •1799 Spengler: *Cardium retusum* Linné sp. 75. p. 1121. •1799 Spengler: *Cardium retusum* in Regenfuss *sic* Tom. 2. Tab. 9. fig. 20. •1815 Wood p. 243, No. 52: *Cardium retusum* Linn. Gmel. p. 3245. •1817 Dillwyn: *Cardium retusum* Linnaeus. •1836 Bosc: *Cardium retusum*. •1840 Sowerby, catalogue p. 7, No. 92: *Cardium retusum* Linn. •1844 Potiez & Michaud: *Cardium retusum* Linn. Gmel. •1844 Reeve, sp. 103: *Cardium retusum*. •1850 Cuvier, pl. 99: *Cardium retusum* Lin. •1853 Gray: *Cardium retusum* Linné, 1758. •1853 Gray: *Lunulicardia retusum*. •1858 Adams & Adams, p. 459: *Hemicardia (Lunulicardia) retusa*, Linn. •1869 Römer: *Cardium (Lunulicardia) retusum*. •1879 ZR: *Cardium retusum* (L.), nec *Lunulicardium* (Münster, 1840): Type of *Opisocardium* Bayle, 1879. •1884 Grasset: *Hemicardium retusum*. L. •1889 Martens: *Cardium retusum* (L.?) = *Cardium (Hemicardium) subretusum* Sow. •1890 Paetel: *Hemicardium retusum* L. •1899 Sturany: *Hemicardia retusum*. •1901 Sturany: *Hemicardium retusum* (L.) (*subretusum* Sow.). •1902

**retusum – retusum var.**

Dall: *Cardium retusum* Linnaeus, type of genus *Lunulicardia* Gray. •1902 Sherborn, p. 829: *Cardium retusum* Linnaeus, 1758. •1909 Lyngé: *Hemicardium* (*Lunulicardia*) *retusum*. •1928 Kuroda: *Lunulicardia retusa* (Linné, 1767). •1939 Adam & Leloup: *Corculum* (*Lunulicardia*) *retusum* (Linné 1767). •1945 ZR: *Cardium retusum* L. [Ref. Lamy 1945]. •1952 Dawydoff: *Hemicardium retusum* Linné. •1952 Kuroda & Habe: *Corculum retusum* (Linné). •1958 Abbott: *Hemicardia* (*Lunulicardia*) *retusum* Linné. •1969 Moore *et al.*: *Fragum* (*Lunulicardia*) *retusum*. •1960 Kuroda: *Hemicardia* (*Lunulicardia*) *retusa* (Linné). •1970 ZR: *Corculum* (*Lunulicardia*) *retusum* new record for Mozambique [Ref. Moura 1970]. •1977 Popov: *Corculum* (*Lunulicardia*) *retusum* (Linné, 1758). •1977 Fischer–Piette: *Corculum* (*Lunulicardia*) *retusum* Linné. •1977 Popov: *Cardium retusum* Linné, 1758. Type of (*Lunulicardia*) Gray, 1853. •1977 Wilson & Stevenson: *Fragum* (*Lunulicardia*) *retusum* (Linnaeus, 1758). •1978 ZR: *Fragum* (*Lunulicardia*) *retusa* Bay of Bengal. Burma, Maungmagan. First record. Ref. to Ray. •1988 Drivas & Jay: *Lunulicardia retusua* (Linné, 1758). •1990 Abbott & Dance: *Lunulicardia retusum*. •1991 Matsukuma, Okutani & Habe: *Lunulicardia retusa* (Linnaeus, 1758). •1992 Oliver: *Cardium retusum* Linné, 1758 = *Lunulicardia auricula* Niebuhr in Forsskaal, 1775. •1992 Oliver: *Cardium retusum* Linné, 1758 in Sturany (1899) = *Lunulicardia auricula* Niebuhr in Forsskaal, 1775. •1998 Schneider (1998b): *Lunulicardia retusa* (Linné, 1767). Harbours photosymbiotic dinoflagellates. •1999 Higo *et al.*: *Lunulicardia retusa* (Linnaeus, 1767). •1999 Aungtonya *et al.*, PMBC-SP 19(2): 377: *Lunulicardia retusa* (Linnaeus, 1758). •2001 Schneider & Carter: *Lunulicardia retusa* (Linné, 1758). •2001 Vidal, p. 408: *Lunulicardia retusum*. •2002 Hylleberg & Kilburn, p. 63: *Lunulicardia retusa* (Linné, 1758). •2003 Hylleberg & Kilburn, p. 183: Plate 2, fig. 5. *Lunulicardia retusa* (Linnaeus, 1758). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: Tranquebar, Ceylon, Gulf of Thailand. •ZMUC: wet collection. CHARACTERS of diagnostic value: Shell gibbously cordate, somewhat oblique, posteriorly concavely depressed; radiately ribbed, ribs convex, smooth, interstices strongly latticed, lunule deeply excavated, with a conspicuous callosity, white within and without. DESCRIPTIONS. •1799 Spengler: *testa cordata, valvulis striatis crenulatis subcarinatis, ano lunato cordiformi intruso*. •1799 Spengler translated by Knudsen & Hylleberg 1999: I have deliberately let this cockle follow after the preceding one, because it is completely similar to this except on the posterior side. On this posterior side, right below the umbo or the anus, is placed a heart-shaped, deep, and, towards the innermost side, strongly widened cavity. In this cavity, a free, elevated mussel-shaped ornamentation is suspended from the umbo tip, resembling an adornment for decoration of the upper part of a niche. A very large specimen, which Prof. Forskål sent home from Arabia, is kept in the “Grevelige Moltkiske Naturaliesamling”. Today this rare bivalve, though of a smaller size, is still found at Tranquebar. •1815 Wood: shell heart-shaped, valves striated, crenated, and somewhat keeled; a lunate heart-

shaped hollow behind the beak [Linne’s description translated from Latin by Wood]. •1845 Reeve: shell gibbously cordate, somewhat oblique, posteriorly concavely depressed; radiately ribbed, ribs convex, smooth, interstices strongly latticed, lunule deeply excavated, with a conspicuous callosity intruding; white within and without. •2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes. DIMENSIONS. •1988 Drivas & Jay: ant.–post. 20 mm, umbo–ventr. 28 mm. REMARKS. •1969 Moore *et al.*: *Hemicardia* is used by Spengler 1799 as a subdivision, not as a genus. HABITAT •1988 Drivas & Jay: Réunion, western Indian Ocean to 12 m depth. •1999 Higo *et al.*: subtidal to 50 m, sand. •ZMUC: sand, gravel at 6–18 m depth. DISTRIBUTION. •1799 Spengler: Tranquebar the Coromandel coast. •1845 Reeve: China. •1884 Grasset: China. •ZMUC: Ceylon, Gulf of Thailand. •1994 Hylleberg: Indo–West Pacific. •1999 Aungtonya *et al.*: Andaman Sea & Gulf of Thailand. •1999 Higo *et al.*: Kii peninsula (Kuroda & Habe, 1981) and southwards, East China Sea, Philippines, South China Sea, Hainan, Beibu gulf, southeast Asia, northern Australia, Indo-Pacific. •2002 Hylleberg & Kilburn: South India. •2003 Hylleberg & Kilburn: Vietnam.

**retusum** of Reeve, 1845. – Misidentification = *Cardium subretusum* Sow. RECORDS. •1880 Martens: *Cardium retusum* Reeve fig. 103 = *Cardium* (*Hemicardium*) *subretusum* Sow.

**retusum** of Swainson, 1840. – *Hemicardium retusum* Swainson, 1840. *Cardiidae*. Fossil. RECORDS. •1922–32 Sherborn, p. 5487: *Hemicardium* (Wood) *retusum* Swainson, 1840. – ? *Cardium* L. 1767.

**retusum** of Wood, 1815. – *Lunulicardia auricula* (Niebuhr in Forsskaal, 1775). >> Regarding *Cardium retusum*: *Cardiidae*. Recent. Wood did not describe *C. retusum*. RECORDS. •1856 Wood & Hanley, No. 52: *Cardium retusum* Wood (not Lin.) G.C. [General Conchology 1815] pl. 58, f. 4, 5. = no. 31 = *Cardium auricula* Gm. 3253, from Forsk. Arab. Red Sea.

**retusum** Chemnitz, 1782. *Non* binomial. – Not available. >> Regarding *Cardium retusum*: *Cardiidae*. Recent. Chemnitz did not describe *C. retusum*. RECORDS. •1863 Deshayes: *Cardium retusum* Chemnitz (non Linné) = *Cardium auricula* Forsk.

**retusum** var. Spengler, 1799 (variety). [Figs. Part 3 p. 911]. Infrasubspecific. RECORDS. >> Regarding *Cardium* var. *retusum*: *Cardiidae*. Recent. TYPE LOCALITY. Coromandel coast, India. TYPE REPOSITORY. ZMUC, Spengler’s coll. RECORDS. •1799 Spengler, p. 55, No. 35: *Cardium* var. *retusum*. •1999 Knudsen & Hylleberg: *Cardium retusum* var. Spengler, 1799. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: *C. retusum* var. Spengler’s coll., 1 specimen. Coromandel, South India. CHARACTERS of diagnostic value: Shell broad, thick, anteriorly rounded, surface with few broad folds, granulated on the posterior side, lunule strongly excavated, round like part of a circle, very broad. DESCRIPTIONS. •1799 Spengler translated by Knudsen & Hylleberg 1999: This *Cardium* is equally beautifully heart-shaped from the front side as the preceding one [*Cardium retusum*], but somewhat broader, consequently thicker, and

strongly rounded posteriorly. The heart-shaped casing of the anterior part is neither so high nor so sharp as that of the other one, but more flattened and more rounded, its surface is very different from that of the usual *Cardium retusum*; since, in the middle, where both valves are joined, it is not hollowed as the others, but on the contrary inflated, and the heart-shaped folds are broader, more deeply incised and smoothly rounded above. Moreover, the total surface of the bivalve is set with only a few, but very broad folds, of which those on the back are granulated at their front side. The unusually strongly hollowed depression at the anus is not heart-shaped, but rounded as a half-circular arc, and very broad. The whole bivalve is snow-white.

**DISTRIBUTION.** Coromandel coast, South India.  
**retusum a** Chemnitz, 1782. *Non binominal* (variety). – Not available. RECORDS. •1839 Anton: *Cardium retusum* Linné var. *a*. Chemnitz.

**reussi** Zittel, 1865. – Combination to be revised: "*Cardium*" *reussi* Zittel, 1865. *Cardiidae*. Fossil. RECORDS. •1980 Ruhoff: *Cardium reussi* Zittel, 1865; [1865–1866] vol. 24(2): 144, pl. 6, fig. 3.

**rewaense** Ladd, 1934. – Combination to be revised: "*Cardium*" *rewaense* Ladd, 1934. *Cardiidae*. Quaternary. RECORDS. •1934 ZR: *Cardium rewaense* Ladd, 1934 sp. n. Quaternary Fiji [Ref. Ladd 1934].

**reynoldsi** Rennie, 1929. – Combination to be revised: "*Cardium*" *reynoldsi* (Rennie, 1929). *Cardiidae*. Cretaceous. RECORDS. •1929 ZR: *Cardium (Trachycardium) reynoldsi* Rennie, 1929 sp. n. Cretaceous Angola.

**rhegminum** Oliver & Chesney, 1997. – *Vasticardium rhegminum* (Oliver & Chesney, 1997). *Cardiidae*. Recent. RECORDS. •1997 Oliver & Chesney, Journal of Conchology 1997 Vol. 36: *Trachycardium rhegminum*. •1998 Vidal: *Vasticardium rhegminum* (Oliver & Chesney, 1997). •1999 Vidal: *Vasticardium rhegminum* (Oliver & Chesney, 1997).

**Rhipidocardium** (section). – *Conocardiidae*. REMARKS. The designation "section" takes the value of subgenus. *Rhipidocardium* have no connection with the *Cardiacea* except analogy of form, which does not offer any point of relationship (Dall 1895, p. 519). RECORDS. •1887 Fischer: *Rhipidocardium* Fischer, 1887. Section of genus *Conocardium*.

**rholesi** Papaianopol, 1982. – New combination: *Lymnocardium rholesi* Lymnocardiidae. Pliocene. TYPE LOCALITY. Pontien et Dacien. Basin Dacique, Romania. RECORDS. •1982 Papaianopol, p. 206, fig.: *Lymnocardium (Euxinocardium) rholesi* sp. nov.

**rombeum** d'Orbigny, 1850. – Combination to be revised: "*Cardium*" *rombeum* d'Orbigny, 1850. ?*Cardiidae*. Fossil. RECORDS. •1922–32 Sherborn, p. 5506: *Cardium* (Hall) *rombeum* d'Orbigny, 1850. – *Cypricardia*. •1922–32 Sherborn, p. 5506: *Cypricardia rombeum* Hall, 1843.

**rhomboides** Lamarck, 1819. [Figs. Part 3 p. 921]. Synonym of *Cerastoderma edule* (Linné, 1758). >> Regarding *Cardium rhomboides*: *Cardiidae*. Pliocene. RECORDS. •1819 Lamarck: *Cardium rhomboides* Lamarck *sic*. Note: considered an unimportant variety of fossil *Cardium edule* abundant in Italy. •1832 Deshayes: *Cardium rhomboides* Lamk. Fossilis = *Cardium edule* L. •1867 Weinkauff: *Cardium*

*rhomboides* in Lamarck (1818–1822) = *C. edule* Linné. •1888 Kobelt: *Cardium rhomboides* Lam. = *Cardium* var. *edule*. •1922–32 Sherborn, p. 5509: *Cardium rhomboides* Lamarck, 1819. •1999 Jacques Vidal (pers. com.), MNHN, Paris: Fossils from the Paleontological Collection. *Cardium rhomboides* Lamarck. Algeria (Oran), B35905, B41580. Tunisia (Gabes), B42004.

**rhomboideum** Khomenko, 1934. – *Clinocardium rhomboideum* (Khomenko, 1934). *Cardiidae*. Miocene. TYPE LOCALITY. Sakhalin. RECORDS. •1954 Keen: *Clinocardium rhomboideum* (Khomenko), 1934. [L. Miocene]. •1973 Keen: *Clinocardium rhomboideum* (Khomenko, 1934) [*Cardium*]. Miocene, Sakhalin. •1977 Popov: *Clinocardium rhomboideum* (Khomenko, 1934).

**richardi** Audouin in Savigny, 1827. [Figs. Part 3 p. 918]. *Afrocardium richardi* (Audouin in Savigny, 1827). *Cardiidae*. Recent. TYPE LOCALITY. Egypt. TYPE REPOSITORY. Type in the Savigny Collection at the MNHN, Paris (Bouchet, & Danrigal 1982). RECORDS. •1809 Audouin, 51, pl. 9, fig. 14: *Cardium richardi* new. •1827 Audouin: *Cardium richardi*. •1922–32 Sherborn, p. 5515: *Cardium richardi* Audouin in Savigny, 1826. •1926 Pallary: *Cardium (Parvicardium) richardi*. •1977 Fischer–Piette: *Cardium richardi* Audouin. •1992 Oliver: *Afrocardium richardi*. •1995 Oliver, fig. 1080: *Afrocardium richardi* (Audouin, 1826). •2000 Aartsen & Goud: *Afrocardium richardi* (Audouin, 1826). •2001 Vidal, p. 408: *Afrocardium richardi*. •2002 Schneider: *Afrocardium richardi* (Audouin, 1827). Holocene. •2003 Hylleberg & Kilburn, p. 176: *Afrocardium richardi* (Audouin, 1827). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1995 Oliver: beaks well in front of midline. Obliquely oval, almost modioliform; posterior not keeled but roundly angulate; posterior expanded, margin long, almost straight. Sculpture of 35–38 narrow ribs, all with thin, imbricate, projecting scales, these becoming longer on posterior ribs. White, yellow, orange, red, some with reddish brown markings. •2001 Vidal: two siphons. No eyes. DIMENSIONS. •1995 Oliver: to 11 mm. HABITAT. •1995 Oliver: offshore. DISTRIBUTION. •1994 Hylleberg: Red Sea, Indo–West Pacific. •2003 Hylleberg & Kilburn: Vietnam.

**richardi hiulca** (mode). – See under *richardi hiulcum* Reeve 1845.

**richardi hiulcum** Reeve 1845 (subspecies). – Not a subspecies. Changed combination: *Afrocardium richardi* (Audouin, 1826). *Cardiidae*. Recent. RECORDS. •1845 Reeve: *Cardium hiulcum*. •1977 Fischer–Piette: *Papyridea richardi hiulca* Reeve. •1992 Oliver: *Papyridea richardi hiulca* Reeve = *Cardium richardi* Audouin, 1826. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. •1994 Hylleberg: Indo–Pacific.

**richardsoni** Cox, 1946. – *Tutcheria richardsoni* Cox, 1946. *Cardiacea*. Middle Lias. RECORDS. •1946 ZR: *Tutcheria richardsoni* Cox, 1946 sp. nov. Middle Lias, Chipping Norton, Oxon.

**richardsonii** Whiteaves, 1878. – Synonym of *Nemocardium centiflosum* (Carpenter, 1864). >> Regarding *Cardium richardsoni*: *Cardiidae*. Recent. TYPE LOCALITY. Strait of Georgia, between Rhode Island Lighthouse and Victoria Harbor, in 30 to 50 fathoms.



*richmondensis* – *ringens*

TYPE REPOSITORY. UNKNOWN. RECORDS. ••1878 Whiteaves, p. 468, foot note: *Cardium richardsoni* n. sp. ••1880 ZR: *Cardium richardsoni* sp. n. Whiteaves, 1880. British Columbia. ••1921 ZR: *Protocardia richardsonii* [Ref. Dall 1921]. ••1937 Keen: *Nemocardium richardsoni*. ••1947 Hertlein & Strong: *Cardium richardsoni* Whiteaves = *Cardium centifilosum* Carpenter, 1864. ••1974 Abbott: *Nemocardium richardsoni* (Whiteaves, 1878) = *Nemocardium centifilosum* (Carpenter, 1864). ••1977 Fischer-Piette: *Nemocardium richardsoni* Whiteaves. ••2000 Coan *et al.*: *C. richardsoni* Whiteaves, 1878 = *Nemocardium (Keenaea) centifilosum* (Carpenter, 1864). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1878 Whiteaves: shell inflated, but not quite as thick as high, inequilateral; outline transversely and ovately subcircular, length slightly exceeding the height; posterior side rather long, and more narrowly rounded than the anterior: beaks large incurved and approximating; placed a little in advance of the middle. Surface of the anterior and central portions of the shell marked by flattened and comparatively broad, radiating ribs, separated by narrower, deeply impressed lines, both of which are crossed by faint, concentric striae or lines growth. On the posterior area, the radiating ribs are thin, prominent, and much narrower than the flattened interspaces, and the concentric striations are developed into elevated, thin and crenulated laminar ridges. Hinge with two small cardinal and two remote lateral teeth in each valve, one of which is sublunular. Pallial line entire; inferior margin of the valves denticulated all round within. Valves touching at all points when closed; not open at either extremity. DIMENSIONS. ••1878 Whiteaves: length 8 lines and a quarter: height seven lines and a half; thickness through the closed valves, not quite six lines. REMARKS. ••1947 Hertlein & Strong: *Cardium centifilosum richardsoni* Whiteaves, a northern form of *Cardium centifilosum*, is generally a little larger and more coarsely sculptured. DISTRIBUTION. ••1947 Hertlein & Strong: Alaska, California. ••1937 Keen: British Columbia, between 38 and 55 degrees north.

*richmondensis* Foerste, 1914. – *Conocardium richmondensis* Foerste, 1914. Conocardiidae. Ordovician. RECORDS. ••1914 ZR: *Conocardium richmondensis* Foerste, 1914 sp. n. Ordovician U.S.A. *riegeli* Hörnes, 1862. – New combination: *Lymnocardium riegeli* (Hörnes, 1870). Lymnocardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium riegeli* Hörnes, 1862; [1851–1870] vol. 4: 195, pl. 28. Fig. 4. ••1990 Basch (p. 26): designated *Cardium riegeli* Hörnes, 1870 type species of subgenus (*Zagrabocardium*) of genus *Limnocardium*.

\**rigidum* – Homonymy to be noticed. *Cardium rigidum* from 2 sources: Wood, 1815. – Reeve. 1845.

*rigidum* of Reeve. 1845 non Wood. – New name *Ctenocardia translatum* Prashad, 1932. >> Regarding *Cardium rigidum*: Cardiidae. Recent. RECORDS. ••1845 Reeve, sp. 105: *Cardium rigidum*. ••1932 ZR: *Cardium (Ctenocardia) translatum* nom. n. for *Cardium rigidum* Rve. non Wood [Ref. Prashad 1932]. ••1977 Fischer-Piette: Reeve, sp. 105: *Cardium rigidum* = *Corculum translatum* Prashad.

*rigidum* Wood, 1815. [Figs. Part 1 p. 102, p. 143

erroneous, see below]. – Combination to be revised: “*Cardium*” *rigidum* Wood 1815. OTHER JUDGEMENTS: *Cardium (Ctenocardia) translatum*. – *Cardium edule*. >> Regarding *Cardium rigidum*: Cardiidae. Recent. RECORDS. ••1815 Wood, p. 236, pl. 57, figs. 2–3: *Cardium rigidum*. ••1817 Dillwyn: *Cardium rigidum* Solander’s MSS, Wood fig. ••1828 Wood: *Cardium rigidum* Wood. ••1843 Hanley: *Cardium rigidum* Wood ••1856 Wood & Hanley, No. 41: *Cardium rigidum* Wood, G.C. pl. 57, f. 2, 3. [G.C. = General Conchology 1815]. ••1890 Paetel: *Cardium rigidum* Wood. ••1922–32 Sherborn, p. 5519: *Cardium rigidum* Wood, 1815. ••1932 Prashad: *Cardium rigidum* Wood, 1815. ••1977 Fischer-Piette: *Cardium rigidum* Wood. – CHARACTERS AND OCCURRENCE – REMARKS. ••1845 Reeve: error regarding Fig. 105 in Part 1 p. 143. In legend to the figures, Reeve gave reference to *rigidum* Wood Plate XX species 105. However, in the text he wrote: As the shell here represented proves to be merely an obscure specimen of the *Cardium papillosum*, I take the opportunity of inserting a rare and very distinct species omitted in the illustration. In consequence, my explanation to Fig. 105 should read *Cardium papillosum* and not *Cardium rigidum*. ••1977 Fischer-Piette: the name *rigidum* Wood has been used by Reeve, but for a completely different species (= *Cardium (Ctenocardia) translatum* Prashad). The original species of Wood was probably *Cardium edule*. ••My remarks: The species figured by Wood is definitely not *Cardium edule*. DISTRIBUTION. ••1845 Reeve, ••1856 Wood & Hanley: unknown. ••1994 Hylleberg: Indo-Pacific.

*rimula* Meuschen, 1778. *Non* binominal. – Not available. RECORDS. ••1902 Sherborn, p. 833: *Cardium rimula* Meuschen, 1778.

\**ringens* – Homonymy to be noticed. *Cardium ringens* from 4 sources: Bruguière, 1789. – Bronn, 1848. – Wood, 1815. – DeFrance (?year).

*ringens* Bronn, 1848 *non* Chemnitz. – Synonym of *Cardium hians* Brocchi, 1814. >> Regarding *Cardium ringens*: Cardiidae. Fossil. RECORDS. ••1877 Locard: *Cardium ringens* 1848 Bronn (non Chemn.) = *Cardium hians* Brocchi, 1814.

*ringens* Bruguière, 1789. [Figs. Part 1 p. 73, 88, 99, 105, 124, 166, 174. Part 3 p. 843]. – *Ringicardium ringens* (Bruguière, 1789). Cardiidae. Recent. Type species: Gray (1847) designated *Cardium ringens* type species of the invalid genus *Papyridea* sp. Swainson. West (1875) designated *Cardium ringens* Bruguière, 1789 type species of the subgenus (*Bucardium*) Gray, 1853. Moore *et al.* (1969) quote Fischer (1887) who designated *Cardium ringens* (Chemnitz, 1782) type species of the genus *Ringicardium* Fischer, 1887 (obj.) TYPE LOCALITY. Guinea (Spengler 1799); Gambia, Africa (Sowerby 1841). RECORDS. ••1836 Bosc: *Cardium ringens*. ••1875 von West: *Cardium ringens* Bruguière, 1789. ••1902 Sherborn, p. 833: *Cardium ringens* Bruguière, 1789. ••1930 Stewart: *Cardium ringens*, monotypic type species of (*Ringicardium*). ••1969 Moore *et al.*: *Cardium (Bucardium) ringens* (Bruguière, 1789). ••1969 Nordsieck: *Ringicardium ringens* (Bruguière, 1789). ••1983 Anaya: *Cardium ringens* Chemnitz (Bruguière, 1789). Type species of (*Bucardium*) Gray, 1853. Type designated by von Vest

ringens – *Ringicardium*

1875. ••1991 Matsukuma, Okutani & Habe: *Ringicardium ringens* (Bruguière, 1789). *ringens* ••2001 Vidal, p. 407: *Cardium ringens*. ••2002 Schneider: *Bucardium ringens* (Burger, 1789). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: Accra tidal zone, Gambia (Cuming's specimen), Guinea Mörrck's specimen (Lamarck no. 3), Angola, off Monrovia, Coast of Congo, off Freetown 15 m, Port Marshall, mangrove, off Brathurst 18 m very fine sand. ••ZMUC: 1 specimen and 1 shells. Spengler p. 10 Guinea, coll. ••ZMUC: wet collection off Brathurst, Gambia, 18 m, very fine sand, Atlantide St. 161. dorso-lateral keels, Manrovia, Liberia 10 m, Atlantide St. 52. DESCRIPTIONS. ••1799 Spengler: *pectunculus orbicularis, ex altero latere praelongis, latisque dentibus conspicuus*. ••1799 Spengler: shell orbicular, 26 ribs; posteriorly with 8 ribs, sharp keel-like, widely separated, interspaces broad centrally with nodules or scales transversely extending, centrally with 12 ribs, broad but not rounded, interspaces broad with a central line, anteriorly with 7 small, low, fine ribs. Small nymphs. Large and strong lateral teeth, exterior colour red posteriorly, the rest white. ••2001 Vidal: with a few additional larger tentacles outside siphons. No eyes on tentacles. DIMENSIONS. ••1799 Spengler: largest specimen length and width 44 mm (1 inch 4 lines). HABITAT. ••ZMUC: tidal zone, mangrove, very fine sand, shells at 0–18 m depth. DISTRIBUTION. ••1819 Lamarck: African coasts and American Seas. ••1844 Reeve: Mouth of the Gambia. ••1856 Wood & Hanley: Mouth of the Gambia, Africa. ••1884 Grasset: Gabon. ••1891 Römer: Gambia. ••ZMUC: West Africa off Liberia, Gambia, Guinea, Angola, Congo.
- ringens** Chemnitz, 1782. [Figs. Part 1 p. 68, 73]. – Non binominal, to be replaced by Bruguière, 1789. >> Regarding *Cardium ringens*: *Ringicardium ringens* (Bruguière, 1789). Cardiidae. Recent RECORDS. ••1687 Lister, pl. 330, fig. 167: *Cardium ringens* ID by Spengler 1799. ••1757 Adanson, pl. 18, fig. 1: *Cardium ringens* (fide Spengler 1799) [not available]. ••1771 Knorr, pl. 14, fig. 3: *Cardium ringens* ID by Spengler 1799. ••1780 Argenville: *Cardium ringens* ID by Chemnitz. ••1782 Chemnitz, Tab. 16 Fig. 170: *Cardium ringens*. ••1782 Chemnitz. ID by Gmelin 1791: *Cardium ringens* t. 16. f. 170. ••1786 Schröter, No. 5: *Cardium ringens* citing Chemnitz Choncy. Th. vi. tab. 16. fig. 170. ••1788 Schröter: *Cardium ringens*. [Reference to Chemnitz (1782) fig. 178]. ••1789 Bruguière, No. 21. *Cardium ringens* citing Martini. ••1799 Spengler refers *Cardium ringens* to Lister. ••1799 Spengler, p. 10–12, No. 4: *Cardium ringens* citing Chemnitz Tom. 6. Tab. 16. fig. 170. ••1817 Dillwyn: *Cardium ringens* Chemnitz. ••1823 Dillwyn, Tab. 330 fig. 167 *Cardium ringens*. ••1844 Reeve: *Cardium ringens*. ••1856 Wood & Hanley, No. 18: *Cardium ringens* citing Ch. vi. 176, f. 170. ••1858 Adams & Adams, p. 454: *Cardium (Pectunculus) ringens* citing Chemn. ••1877 Marrat: *Cardium (Pectunculus) ringens* citing Chem. ••1884 Grasset: *Cardium ringens* Chem. ••1887 Fischer: *Cardium ringens* citing Chemnitz (in s. g. *Ringicardium*, Fischer, 1887). ••1889 Martens: *Cardium ringens* citing Chemn. (p. 27: off Liberia, 11–18 m, sand). ••1889 Martens: *Cardium ringens* citing Chemn. (p. 29: off Liberia, 108 m, mixed sand). ••1890 Paetel: *Cardium ringens* Ch. ••1891 Römer: *Bucardium ringens* Ch. ••1911 Dollfus: *Cardium (Ringicardium) ringens* citing Chemnitz. ••1923 Lamy: *Cardium (Ringicardium) ringens* citing Chemnitz. ••1927 Lamy: *Cardium (Ringicardium) ringens* (citing Chemnitz) Gmelin. ••1945 ZR: *Cardium ringens* Chem. [Ref. Lamy 1945]. ••1977 Fischer-Piette: *Cardium (Ringicardium) ringens* (citing Chemnitz) Schröter. ••1999 Knudsen & Hylleberg: Spengler, 1799 sp. 4: *Cardium ringens*. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: this species is singularly characterized by the curious manner in which the interstices between the ends of the posterior ribs remain open (Reeve 1844). DESCRIPTION. ••1844 Reeve: shell rounded, sometimes rather depressed, a little gaping at the posterior side radiately ribbed, about 26 flatly convex, smooth ribs, posterior interstices peculiarly cut open near the margins; yellowish-white, partially stained with pink. HABITAT. ••1844 Reeve: found in sandy mud. DISTRIBUTION: ••1844 Reeve: Mouth of the Gambia, Africa
- ringens** Defrance. – Synonym of “*Cardium*” *burdigalinum* Lamarck. >> Regarding *Cardium ringens*: Cardiidae. Fossil. RECORDS. ••1844 Potiez & Michaud: *Cardium ringens* Defr. = *Cardium burdigalinum* Lam.
- ringens** Gmelin, 1791. [Figs. Part 1 p. 42, 63, 65]. – Changed combination: *Ringicardium ringens* (Bruguière, 1789). Cardiidae. Recent RECORDS. ••1687 Lister. ID by Gmelin 1791: *Cardium ringens* t. 330. f. 167. ••1769 Knorr. ID by Gmelin 1791: *Cardium ringens* Vergn. 4. t. 14. f. 3. ••1772 Knorr. ID by Gmelin 1791: *Cardium ringens* Vergn. 6. t. 3 f. 4. ••1782 Chemnitz. ID by Gmelin 1791: *Cardium ringens* t. 16. f. 170. ••1791 Gmelin No. 31: *Cardium ringens*. ••1902 Dall: *Cardium ringens* Gmelin, type of subgenus *Ringicardium* Fischer. ••1902 Sherborn, p. 833: *Cardium ringens* Gmelin, 1790 sic. ••1915 Tomlin & Shackelford: *Cardium ringens* Gmel., 1791. – CHARACTERS AND OCCURRENCE – REMARKS. Gmelin did not provide the first description. He referred to Lister, Adanson, Knorr, and Chemnitz. None of these are available today. – See *ringens* Bruguière, 1789.
- ringens** Lamarck, 1798. – *Cardium ringens* Lamarck, 1798. Cardiidae. Recent RECORDS. ••1798 Bruguière. ID by Lamarck, pl. 296. fig. 3. *Cardium ringens*. ••1840 Sowerby, catalogue p. 1: *Cardium ringens* Lamarck. Gambia, Africa. ••1844 Potiez & Michaud: *Cardium ringens* Lam. African and American coasts.
- ringens** Wood, 1815. – *Cardium ringens* Wood 1815 non Gmelin, 1791. Cardiidae. Recent RECORDS. ••1815 Wood: *Cardium ringens* Linn. Gmel. ••1922–32 Sherborn, p. 5522: *Cardium ringens* Wood [non Gm.], 1815.
- Ringicardium** Fischer, 1887 (genus). – Objective synonym of *Bucardium* Gray, 1853. Cardiidae. Recent RECORDS. ••1969 Moore *et al.*: *Ringicardium* = *Bucardium* Gray, 1853. ••1978 Freneix & Mackie: *Ringicardium* Fischer, 1887 = subgenus *Bucardium* Gray, 1853. ••1980 Vokes: *Ringicardium* Fischer, 1887 in subfamily Cardiinae. ••1980. Vokes: *Ringicardium* Fischer, 1887 [= *Bucardium* Gray, 1853]. ••1983 Anaya: *Ringicardium* Fischer, 1887. Synonym of (*Bucardium*)

**Ringicardium – robillardi**

Gray, 1853. Type: *Cardium ringens* Chemnitz (Bruguière, 1789). Type designated by von Vest 1875.

**Ringicardium** Fischer, 1887 (section, subgenus). Objective synonym of *Bucardium* Gray, 1853. Cardiidae. Recent. REMARKS. The designation "section" takes the value of subgenus. RECORDS. •1887 Fischer: (*Ringicardium*) Fischer, 1887. Section of genus *Cardium* Linné, 1758. •1930 Stewart: (*Ringicardium*) Fischer, 1887

**ringiculum** Sowerby, 1834. [Figs. Part 1 p. 108, 144, 174]. – Synonym of *Papyridea semisulcata* (Gray, 1825). OTHER JUDGEMENTS: *Cardium petitianum* Orbigny. >> Regarding *Cardium ringiculum*: Cardiidae. Recent. TYPE LOCALITY. Hab. ad insulam Ceylon (Sowerby 1840). RECORDS. •1834 Sowerby, 48<sup>th</sup> part, fig. 11: *Cardium ringiculum* nobis. •1840 Sowerby, Proc. Z.S. London p. 106: *Cardium ringiculum*. •1840 Sowerby, catalogue p. 2, No. 16: *Cardium ringiculum* Sow. •1840 Sowerby, corrected list, p. 8: *Cardium ringiculum* (Sowerby No. 16). •1845 Reeve: *Cardium ringiculum*. •1858 Adams & Adams, p. 456: *Cardium (Papyridea) ringicula* Sow. •1863 Swift: *Cardium ringiculum* Sow., 1840 Conch. Icon. sp. 115. Sowerby's name should be retained as it was published long before d'Orbigny's species *Cardium petitianum*. •1864 Krebs: *Cardium ringiculum* Sowb. = *Cardium petitianum* d'Orb. •1884 Grasset: *Cardium ringiculum*. Sow. •1868 ZR: *Cardium ringiculum* (Sow.) comes from the West Indies [Ref. Römer 1868]. •1885 Smith: *Cardium ringiculum* Sowerby. 1848 sic = *Cardium (Papyridea) semisulcatum*, Gray, 1825. •1890 Paetel: *Cardium ringiculum* Sow. = *Papyridea ringicula* Sow. •1902 Dall: *Cardium ringiculum* Sowerby, 1840 = *Cardium semisulcatum* Gray, 1825. •1922-32 Sherborn, p. 552: *Cardium ringiculum* Sowerby, 1841. •1939 McLean: *Cardium ringiculum* Sowerby, 1841 = *Papyridea semisulcata* (Gray, 1825). •1951 McLean: *Cardium ringiculum* Sowerby (1841) = *Papyridea semisulcata* (Gray). •1953 Olsson & Harbison: *Cardium ringiculum* Sby., 1840 = *Papyridea semisulcatum* (Gray, 1825). •1977 Fischer-Piette: *Cardium ringiculum* Sowerby = *Papyridea semisulcata* Gray. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: strongly toothed posterior area (Sowerby 1840). OF COLLECTIONS. •ZMUC: many shells from St Martin, Krebs coll. no. 699, •ZMUC: St Thomas. •ZMUC: label *C. ringiculum* Sowerby = *C. petitianum* d'Orb. DESCRIPTIONS. •1845 Reeve: Shell transversely ovate, sides gaping, anterior very short, posterior elongated; radiately ribbed, 24-25 narrow, rude, rather inconspicuous ribs, anterior ribs finely crenulated, posterior interstices cut near the margins; yellowish-white, interior sometimes brightly stained with rose on the posterior side. DIMENSIONS. •1840 Sowerby: a pretty little species. REMARKS. Mention of Ceylon as the type locality by Sowerby (1840) may be erroneous. I have only seen material from the West Indies in accordance with Reeve (1845). •1845 Reeve: There seems to be an error in the locality quoted by Mr. Sowerby for this interesting little species. HABITAT. •1845 Reeve: found in sandy mud. DISTRIBUTION. •1845 Reeve: Islands of Nevis and St. Vincent, West Indies •1884 Grasset: Singapore. •ZMUC: South Florida, West Indies,

Brazil; St Martin, St Thomas the West Indies.

**ringriseni** Jekelius, 1944. – Combination to be revised: "*Cardium*" *ringriseni* Jekelius, 1944. Cardiidae. Miocene. •1946 ZR: *Cardium ringriseni* Jekelius, 1944 sp. nov. (type f. 6) Miocene Soceni Banat.

**riogramamense** Maury, 1930. – Combination to be revised: "*Cardium*" *riogramamense* Maury, 1930. Cardiidae. Cretaceous. RECORDS. •1933 ZR: *Cardium riogramamense* Maury, 1930 sp. n. Cretaceous Brazil.

**ripleyanum** Conrad, 1869. – Changed combination: *Pleuriocardia (Pleuriocardia) ripleyanum* (Conrad, 1869). Cardiidae. Cretaceous. TYPE LOCALITY. Haddonfield, New York. RECORDS. •1869 Conrad, p. 96, Pl. 9, fig. 6: *Cardium ripleyanum* Conrad, 1869. •1870 Conrad, *Cardium ripleyanum* Conrad (Haddonfield, N. J.). •1978 Scott: *Cardium ripleyanum* Conrad. •1978 Scott: *Pleuriocardia (Pleuriocardia) ripleyanum* (Conrad). •1980 Ruhoff: *Cardium ripleyanum* Conrad, 1869; vol. 5: 96, pl. 9, fig. 6.

**ripleyense** Conrad, 1858. – Combination to be revised: "*Cardium*" *ripleyense* Conrad, 1858. Cardiidae. Fossil. RECORDS. •1980 Ruhoff: *Cardium ripleyense* Conrad, 1858; vol. 3: 326.

**ritter-gulderi** (invalid spelling). – See under *rittergulderi* Steininger, 1963.

**rittergulderi** Steininger, 1963. – *Cardium rittergulderi* Steininger, 1963. Cardiidae. Miocene. RECORDS. •1963 ZR: *Cardium (Cardium) rittergulderi* Steininger, 1963 sp. nov. Miocene, Austria.

**rivalis** Müller. Not a cardiid. << Regarding *Tellina rivalis*: RECORDS. •1803 Montagu: *Tellina rivalis* Müller verm. 387. •1803 Montagu: *Tellina rivalis*. Lin. Transactions = *Cardium amnicum*.

**roanokensis** Perkins, 1961. – *Protocardia roanokensis* Perkins, 1961. Cardiidae. Cretaceous. RECORDS. •1986 Scott: *Protocardia roanokensis* Perkins, 1961. •1961 ZR: *Protocardia roanokensis* Perkins, 1961 sp. nov. Cretaceous, Texas, Denton Co.

**robici** Brusina. – Combination to be changed: "*Cardium*" *robici* Brus. Cardiacea. Fossil. RECORDS. •1987 Taktakishvili: *Cardium robici* Brus.

**robici** Brusina. – New combination: *Lymnocardium robici* (Brus.). Lymnocardiidae. Fossil. RECORDS. •1987 Taktakishvili: *Lymnocardium robici* Brus.

**robillardi** Sowerby, 1894. – Changed combination: *Ctenocardia robillardi* (Sowerby, 1894). Cardiidae. Recent. RECORDS. •1894 Sowerby, p. 47, pl. 4, fig. 20: *Cardium robillardi*. •1894 ZR: *Cardium robillardi* Sowerby, 1894 n. sp. Mauritius. •1926 McClelland: *Cardium robillardi* Sowerby, 1894. •1937 Viader: *Cardium robillardi* Sowerby. •1977 Fischer-Piette: *Laevicardium robillardi* Sowerby. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. Shell subcircular, somewhat solid, medium convex, rounded anteriorly, subangulate posteriorly, white, irregularly distributed dark spots, ca. 33 rounded medium elevated ribs with conspicuous nodose scales, interstices concentric corrugated. Normal heart shape. With ligament. White side with coloured stripes, dark red-yellow in three stripes [I have translated from Latin]. DIMENSIONS. Antero-post 13 mm (length); umbo-marg. 14 mm (width). REMARKS. A pretty little species, with numerous raised ribs covered with nodular scales, the interstices between the ribs being transversely wrinkled.

*robusta* – *robustum vanhyningi*

DISTRIBUTION. Mauritius (Sowerby 1897).  
*robusta* (subspecies). – See under *brewerii robusta* Weaver & Kleinpell, 1963.

\***robustum**. – **Homonymy to be noticed.** *Cardium robustum* from 2 sources: Lightfoot in Solander, 1786. – Shikama, 1964.

**robustum** Lightfoot in Solander, 1786. [Figs. Part 1 p. 91. Part 3. p. 856]. – Changed combination: *Dinocardium robustum* (Lightfoot in Solander, 1786). OTHER JUDGEMENTS: *Cardium robustum* Solander, 1786 is a *nomen nudum*. >> Regarding *Cardium robustum*: Cardiidae. Upper Miocene and Recent. Dall (1900) designated *Cardium robustum* Lightfoot in Solander, 1786 type species of the subgenus *Dinocardium* Dall, 1900. Rio (1994) *Cardium robustum* (Lightfoot, 1786) is type species of genus *Dinocardium* Dall, 1900. TYPE LOCALITY. Florida. RECORDS. •1786 Lightfoot in Solander: *Cardium robustum*. •1817 Dillwyn: *Cardium robustum* Solander's MSS = *Cardium maculatum* Gmelin. •1900 Dall: *Cardium robustum* Lightfoot in Solander, 1786. •1902 Dall: *Cardium (Dinocardium) robustum* Solander, 1786 [U. Miocene. Recent]. •1907 ZR: *Cardium robustum* [Ref. Hinkley 1907]. •1921 Maury: *Cardium (Cerastoderma) robustum* Solander, 1786 [U. Miocene. Recent]. •1922-32 Sherborn, p. 5533: *Cardium robustum* Solander, 1786 [n. n.]. •1926 Weisbord: *Cardium (Cerastoderma) robustum* Solander. •1930 Stewart: *Cardium robustum* "Solander". •1932 ZR: *Cardium robustum* [Ref. Vincent 1932]. •1939 McLean: *Cardium (Dinocardium) robustum* (Lightfoot in Solander, 1786). •1939 ZR: *Cardium (Dinocardium) robustum* fig. [Ref. McLean 1939]. •1942 Harry: *Cardium robustum* Solander = *Cardium muricatum* Linné. •1944 ZR: *Dinocardium robustum* Sol. fig. [Ref. Clench & Smith 1944a]. •1945 Smith, Maxwell: *Cardium (Dinocardium) robustum* Solander. •1947 Hertlein & Strong: *Cardium (Dinocardium) robustum* Solander. •1953 Olsson & Harbison: *Cardium (Dinocardium) robustum* Solander, 1786. •1954 Abbott, p. 401: *Dinocardium robustum* Solander (*vide* Rehder 1967). •1958 Abbott: *Laevicardium (Dinocardium) robustum* Solander. •1960 ZR: *Dinocardium robustum* internal volume measurement [Ref. Kornicker 1960]. •1960 ZR: *Dinocardium robustum* mobility when partially submerged [Ref. Kornicker & Armstrong 1960]. •1963 ZR: *Dinocardium robustum*, seasonal distribution and population statistics on valves deposited on Mustang Island, Texas [Ref. Kornicker, Wise & Wise 1963]. •1965 ZR: *Dinocardium robustum* distribution of opposing valves on Texas beach [Ref. Wise & Kornicker 1965]. •1967 Rehder: Portland Catalogue No. 1358. *Cardium robustum*, S. (Lister, 328. 186). •1967 Rehder: *Dinocardium robustum* (Lightfoot, 1786) valid name, from Florida. •1967 Rehder: *Cardium robustum* (Lightfoot, 1786) = *Dinocardium robustum* (Lightfoot, 1786). •1969 Moore *et al.*: *Laevicardium (Dinocardium) robustum* (Lightfoot, 1786). •1970 ZR: *Dinocardium robustum* first record in southwestern Texas, USA, marine sp., archaeological site [Ref. Hester 1970]. •1971 Andrews: *Dinocardium robustum* (Solander, 1786). •1972 ZR: *Dinocardium robustum* [Ref. Tiffany 1972]. •1974 Abbott: *Dinocardium robustum* (Lightfoot, 1786). •1977

Fischer-Piette: *Laevicardium robustum* Solander. •1977 Popov: *Cardium robustum* Lightfoot, 1786. Type of *Dinocardium* Dall, 1900. •1979 ZR: *Laevicardium (Dinocardium) robustum*. Ref. to Lawrence. •1987 ZR: *Laevicardium (Dinocardium) robustum*. Ref. to Wicksten. •1994 Rio: *Dinocardium robustum* s. str. (Lightfoot) [Miocene and Pliocene]. •1997 Shelton: *Dinocardium robustum* (Lightfoot 1786). •2002 Schneider: citing Dall (1900): *Cardium (Cerastoderma) robustum* Solander, 1786, section *Dinocardium*. •2001 Schneider & Carter: *Dinocardium robustum*. Cardiidae. Recent. •2002 Schneider: *Dinocardium robustum* (Lightfoot, 1786). – CHARACTER AND OCCURRENCE – OF COLLECTIONS. •ZMUC: 33 shells from shore on Sapelo Island, Georgia; 2 shells from shore, Florida, Gulf of Mexico. DIMENSIONS. •1939 McLean: 104 x 119 x 87 mm; ribs about 35. REMARKS. •1930 Stewart: *Cardium robustum* "Solander", apparently the first valid name for *Dinocardium chipolanum* (Dall) [Miocene]. DISTRIBUTION. •1947 Hertlein & Strong: it is a Caribbean species and has not been recorded as occurring in the Gulf of California. Virginia East USA to Belize, British Honduras, and in the West Indies south to Jamaica.

**robustum** Shikama, 1964. – Synonym of *Laevicardium obliquum* (Spengler, 1799). >> Regarding *Cardium robustum*: Cardiidae. Recent. RECORDS. •1964 Shikama, p. 71, pl. 43, fig. 6: *Cardium robustum*. •1977 Fischer-Piette: *Cardium robustum* Shikama = *Laevicardium (Dinocardium) obliquum* (Spengler, 1799).

**robustum hazeli** Ward & Blackwelder, 1987 (subspecies). – *Dinocardium robustum hazeli* Ward & Blackwelder, 1987. Cardiidae. Pleistocene. TYPE LOCALITY. North Carolina. RECORDS. •1987 Ward & Blackwelder, p. 153, fig.: *Dinocardium robustum hazeli* subsp. nov.

**robustum vanhyningi** Clench & Smith, 1944 (subspecies). [Figs. Part 1 p. 91]. – *Dinocardium robustum vanhyningi* Clench & Smith, 1944. OTHER JUDGEMENTS: *Laevicardium obliquum*. >> Regarding *Cardium robustum vanhyningi*: Cardiidae. Recent. OF COLLECTIONS. •ZMUC: 4 specimens, Sanibel Island, Florida. RECORDS. •1944 Clench & Smith, p. 11 (pl. 7): *Dinocardium robustum vanhyningi* n. subsp. •1944 ZR: *Dinocardium robustum vanhyningi* Clench & Smith, 1944b subsp. nov. Sanibel Island, Florida. •1948 Aguayo & Jaume: *Cardium robustum vanhyningi* Clench & Smith. •1950 Baker: *Cardium robustum vanhyningi* Clench & Smith. •1954 Abbott: *Dinocardium robustum vanhyningi* Clench & Smith. •1953 Olsson & Harbison: *Dinocardium robustum vanhyningi* Clench & Smith, 1944 = *Cardium (Dinocardium) robustum* Solander, 1786. •1955 Perry & Schwengel: *Dinocardium robustum vanhyningi* Clench & Smith. •1968 Abbott: *Dinocardium robustum vanhyningi* Clench & Smith. •1972 Shoemaker: *Dinocardium robustum vanhyningi* Clench & Smith. •1974 Abbott: *Dinocardium robustum vanhyningi* Clench & L. C. Smith, 1944. •1977 Fischer-Piette, p.175: *Cardium robustum vanhyningi* Clench & Smith = *Laevicardium obliquum* Solander *sic*. •1994 Rio: *Dinocardium robustum vanhyningi*

**rochebruni** – **roseum**

Clench and Smith 1944.

**rochebruni** Coquand, 1859. – Combination to be revised: "*Cardium*" *rochebruni* Coquand, 1859. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium rochebruni* Coquand, 1859; vol. 16: 983.

**rogata** (error). – Printer's mistake for *rugata* in Vidal 1994.

**rogenhoferi** Brusina & Brusina, 1884. – New combination: *Lymnocardium rogenhoferi* (Brusina & Brusina, 1884). *Lymnocardiiidae*. Fossil. RECORDS. ••1990 Basch: *Lymnocardium (Zagrabicardium) rogenhoferi* (Brusina & Brusina, 1884).

**rogersi** Rennie, 1936. – Combination to be revised: "*Cardium*" *rogersi* Rennie, 1936. *Cardiidae*. Lower Cretaceous. RECORDS. ••1936 ZR: *Cardium rogersi* Rennie, 1936 sp. n. Lower Cretaceous. Northern Zululand.

**rosea** (variety). – See *nodosum* var. *rosea* Lamarck.

**rosemariensis** Wilson & Stevenson, 1977. [Figs. Part 3 p. 878]. – Synonym of *Acrosterigma impolitum* (Sowerby, 1833). >> Regarding *Acrosterigma rosemariensis*: *Cardiidae*. Recent. TYPE LOCALITY. Dampier Archipelago, Western Australia. TYPE REPOSITORY. Holotype, Western Australian Museum, 650–66. TYPE MATERIAL. Holotype in WAM, a specimen from Rosemary Island, Western Australia. Ten paratypes, all from the northern coast of Western Australia, from Point Cloates to Dampier Archipelago (Vidal 1999). RECORDS. ••1977 Wilson & Stevenson, p. 95–97 (pl. 6, figs. 23–24): *Acrosterigma rosemariensis* sp. nov. ••1978 ZR: *Acrosterigma rosemariensis* sp. nov. Western Australia. Ref. to Wilson *et al.* p. 95. fig'd. ••1999 Vidal, p. 305: Wilson & Stevenson 1977, p. 95, pl. 6, figs 23–24: *Acrosterigma rosemariensis* = *Acrosterigma impolitum* (Sowerby, 1833). – CHARACTERS AND OCCURRENCE – DIMENSIONS. Length 17.0 mm, height 20.2 mm, width (calculated) 11.8 mm (Vidal 1999). DISTRIBUTION. West Australia.

**roseolum** Melvill, 1909. [Figs. Part 3 p. 907]. – *Fragum roseolum* (Melvill, 1909). Recent. *Cardiidae*. TYPE REPOSITORY. Holotype. BMNH London. TYPE LOCALITY. Cargados Carajos, western Indian Ocean. RECORDS. ••1909 Melvill, p. 134 (pl. 5, fig. 14): *Cardium (Fragum) roseolum* sp. nov. ••1909 ZR: *Cardium (Fragum) roseolum* Melvill, 1909 sp. n. Cargados Carajos. ••1937 Viader: *Cardium roseolum*, Melvill. ••1977 Fischer–Piette: *Corculum (Afrocardium) roseolum* Melvill. ••2002 Schneider: *Afrocardium roseolum* (Melvill, 1909). Holocene. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1909 Melvill: shell equivalve, inequilateral, inflated, squarrose contour, ventral and dorsal margins almost parallel, the posterior margin much shortened. The whole surface is closely scaly–ribbed, these ribs are 40 in number. A clear rose colour. DIMENSIONS. Alt. 7, lat. 6, diam. 5 mm (Melvill 1909). REMARKS. Ribs are of much the same character as exists in *C. crenelloides*, save that they appear more persistent and imbricate, not being of so delicate a substance. The margin of the valves also is more deeply serrated or pectinate than in the allied species, of which, indeed, it might be considered a variety, but the great difference of form and colour, a clear rose, have prompted the differentiation (Melvill

1909). DISTRIBUTION. Red Sea, Indo–West Pacific.

**\*roseum**. – **Homonymy to be noticed.** *Cardium roseum* from 2 sources: Gmelin, 1791. – Lamarck, 1819.

**roseum** Chemnitz, 1782. [Figs. Part 1 p. 45, 71, 103, 126]. *Non* binominal to be replaced by Gmelin, 1791. – Synonym of *Corculum cardissa* (Linné, 1758). OTHER JUDGEMENTS: *Corculum humanum* Röding, 1798. – *Corculum impressum* (Lightfoot, 1786). – *Cardium junoniae* Lamarck. << Regarding *Cardium roseum*: *Cardiidae*. Recent. RECORDS. ••1742 Argenville. ID by Gmelin 1791: *Cardium roseum* conch. t. 23. f. D. ••1782 Chemnitz, Tab. 14 Fig. 147–148: *Cardium roseum*. ••1782 Chemnitz. ID by Gmelin 1791: *Cardium roseum* t. 14. f. 147. ••1788 Schröter: *Cardium roseum* [Reference to Chemnitz (1782) fig. 154]. ••1789 Bruguière: *Cardium roseum*. Martini tom. 6. pag. 154, tab. 14, fig. 147, 148. ••1791 Gmelin p. 3245, No. 3: *Cardium roseum* (reference to Chemnitz fig. 147). ••1815 Wood p. 239, No 48: *Cardium roseum* Linn. Gmel. (reference to Chemnitz fig. 147). ••1817 Dillwyn: *Cardium roseum*. Chemnitz. ••1823 Dillwyn, Tab. 320 fig. 157 *Cardium roseum*. ••1825 Wood p. 27 No. 48: *Cardium roseum* (reference to Chemnitz fig. 147). ••1840 Pfeiffer: Chemnitz Fig. 147–148. *Cardium roseum* = *Cardium Junoniae* 2. Lam. 47. ••1844 Reeve: *Cardium roseum* Chemnitz = *Cardium cardissa* Linnaeus var. *delta*. ••1856 Wood & Hanley, No. 48: *Cardium roseum* Wood (as of Ch.) G.C. pl. 57, f. 6. [G.C. = General Conchology 1815]. ••1902 Sherborn, p. 836: *Cardium roseum* Gmelin, 1790 *sic*. ••1947 Bartsch: *Corculum roseum* (Chemnitz, 1782) = *Corculum humanum* Röding, 1798. ••1977 Fischer–Piette: *Cardium roseum* Gmelin = *Cardium cardissa* Linné. ••1977 Habe: *Cardium roseum* Gmelin, 1791 = *Corculum impressum* (Lightfoot, 1786). ••1999 Higo *et al.*: *Cardium roseum* Gmelin, 1791 = *Corculum impressum* (Lightfoot, 1786). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: Chemnitz 6, 147–148, = *junoniae*, beta Lamarck sine loc. REMARKS. Chemnitz (1782) is not binominal. DISTRIBUTION. China, Eastern Seas (Reeve 1844); Gulf of Bengal (Wood & Hanley 1856).

**roseum** Chemnitz, 1782. (variety). *Non* binominal – Not available. RECORDS. ••1890 Paetel: *Hemicardium* var. *roseum* Ch.

**roseum** Lamarck, 1819. [Figs. Part 3 p. 915]. – Synonym of *Parvicardium scabrum* (Philippi, 1836). OTHER JUDGEMENTS: dubious species. – *Cardium nodosum* Turton, 1822. – *Plagiocardium papillosum* (Poli, 1791). >> Regarding *C. roseum*: *Cardiidae*. Recent. TYPE LOCALITY. Manche, close to Cherbourg. TYPE REPOSITORY. Cabinet de France's, unknown availability. RECORDS. ••1819 Lamarck, No. 37: *Cardium roseum*. ••1844 Potiez & Michaud: *Cardium roseum* Lam. French Atlantic coast. ••1867 ZR: *Cardium roseum* (Lam) = *nodosum* (Turton and other authors) [Ref. Weinkauff 1867]. ••1869 Römer: *Cardium roseum* Lamarck; a dubious species. ••1878 Monterosato: *Cardium roseum*, Lk. = *C. nodosum*, Turt. = *C. scabrum*, Ph. ••1880 Stossich: *Cardium roseum* in Weinkauff 1867 = *Cardium nodosum* Montag. ••1888 Servain: *Cardium roseum* Lamarck, 1818. ••1890 Paetel: *Cardium roseum* Lm. = *nodosum* Mtg. ••1922–32 Sherborn, p. 5548: *Cardium roseum* Lamarck, 1819. ••1937 Coen: *roseum*

## roseum – rotundatum

- Lamarck = *Cerastoderma (Rudicardium) nodosum* Turton. ••1969 Nordsieck: *Parvicardium roseum* (Lamarck, 1819). ••1977 Fischer-Piette: *Cardium roseum* Lamarck = *Cardium nodosum* Montagu. ••Scarlato & Starobogatov: *Cardium roseum* (Lam) in Ostroumoff 1893 = *Plagiocardium papillosum* (Poli, 1791). ••2000 Aartsen & Goud: *Cardium roseum* Lamarck, 1819 is a junior homonym of *Cardium roseum* Gmelin, 1791. – CHARACTERS AND OCCURRENCE – REMARKS. *Cardium roseum* Lamarck, 1819 = *Parvicardium nodosum* (Turton, 1822) = *Parvicardium scabrum* (Philippi, 1836) (Nordsieck 1969). HABITAT. The species *C. nodosum* 9–420 m depth, in the North Sea from 42 m depth and down (Nordsieck 1969). DISTRIBUTION. *C. nodosum* North Norway, Ireland, Canary Islands, Mediterranean (Nordsieck 1969).
- roseum** Lamarck (variety). – Synonym of *Cardium scabrum* Phil. RECORDS. ••1867 ZR: a variety of *Cardium roseum* (Lam) = *scabrum* (Phil.) [Ref. Weinkauff 1867].
- roseum** (variety). – See under *papillosum* var. *roseum* Pallary.
- Rosphoricardium** (error) – Printer's mistake for subgenus *Bosphoricardium* in Celidje 1953.
- rossae** Stephenson, 1941. – Combination to be revised: "*Cardium*" *rossae* (Stephenson, 1941). Cardiidae. Cretaceous. RECORDS. ••1946 ZR: *Cardium (Granocardium) rossae* Stephenson, 1941 sp. nov. Navarro formations, Cretaceous, Texas, Neylandville marl Tex Bu. ••1947 ZR: *Cardium (Granocardium) rossae* Stephenson, 1941 sp. nov. Upper Cretaceous, Navarro Group Texas.
- rossi** Marwick, 1944. – Changed combination: *Trachycardium rossi* (Marwick, 1944). Cardiidae. Tertiary. RECORDS. ••1944 Marwick: *Ovicardium rossi*. ••1944 ZR: *Trachycardium (Ovicardium)* *rossi* Marwick, 1944a sp. nov. genotype of (*Ovicardium*) Marwick, 1944 (Opoitian) Te Reinga Falls, Hangarua R. ••1973 ZR: *Acrosterigma (Ovicardium)* *rossi* (Marwick 1944), fossil. Ref. to Beu. ••1977 Popov: *Trachycardium (Vasticardium) rossi* Marwick, 1944. ••1977 Wilson & Stevenson: *Trachycardium (Ovicardium) rossi* Marwick, 1944. ••1978 Maxwell: *Trachycardium (Ovicardium) rossi* Marwick, 1944.
- rossii** Abbass, 1978. – *Cardium rossii* Abbass, 1978. Cardiidae. Upper Eocene. RECORDS. ••1978 ZR: *Cardium (Cardium) rossii* Abbass, 1978 sp. nov. Egypt. Ref. to Abbass p. 56.
- rossolum** (error). – Printer's mistake for *roseolum* Melvill in Cotton 1961, p. 241.
- rostrata** Sinz. – *Prosodacna rostrata* (Sinz.). Lymnocardiidae. Pliocene. RECORDS. ••1960 ZR: *Prosodacna rostrata* (Sinz.) Pliocene Ukraine, Odessa USSR. [Ref. Eberzin 1960].
- \*rostratum**. – Homonymy to be noticed. *Conocardium rostratum* from 2 sources: Bronn, 1848. – Orbigny, 1850.
- rostratum** Bronn, 1848. – *Conocardium rostratum* Bronn, 1848. Conocardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 5555: *Arcites rostratus* Martin, 1809. ••1922–32 Sherborn, p. 5556: *Conocardium* (Martin) *rostratum* Bronn, 1848. – *Arcites*.
- rostratum** Deshayes, 1853. – Combination to be revised: "*Cardium*" *rostratum* Deshayes, 1853. ?Cardiacea. Fossil. RECORDS. ••1980. Ruhoff: *Cardium rostratum* Deshayes, 1853; vol. 2: 48.
- rostratum** Orbigny, 1850. – *Conocardium rostratum* d'Orbigny, 1850. Conocardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 5555: *Cardium* (Mart.) *rostratus* de Koninck, 1841. – *Arcites*. ••1922–32 Sherborn, p. 5556: *Conocardium* (Koninck) *rostratum* d'Orbigny, 1850. – *Cardium*.
- rothi** Halavats, 1887. – New combination: *Lymnocardium rothi* (Halavats, 1887). Lymnocardiidae. Pannonian. RECORDS. ••1966 ZR: *Limnocardium rothi* Pannonian, Mecsek Mts. Yugoslavia, pls. [Ref. Bartha 1966]. ••1990 Basch: *Limnocardium (Zagrabi-cardium) rothi* (Halavats, 1887).
- rotulum** Linnaeus (error). – *Corculum rotulum* (Linnaeus) in Nguyen *et al.* (1997). Probably misprint of *C. roseum*. RECORDS. ••2003 Hylleberg & Kilburn, p. 177: *Corculum rotulum* (Linnaeus). This name does not exist.
- rotunda** Harper, 1947. – *Plethocardia rotunda* Harper, 1947. Cardiacea. Fossil. RECORDS. ••1947 ZR: *Plethocardia rotunda* Harper, 1947 sp. n. "Caradoc" of Ynys Gabel, Caernarvonshire.
- rotunda** Kvaliashvili, 1978. – *Digressodacna rotunda* Kvaliashvili, 1978. Lymnocardiidae. Pliocene. RECORDS. ••1978 ZR: *Digressodacna rotunda* Kvaliashvili, 1978 sp. nov. Georgia SSR. Ref. to Kvaliashvili p. 63.
- rotunda**. – See under *norvegicum rotunda* Jeffreys, 1863.
- \*rotundatum**. – Homonymy to be noticed. *Cardium rotundatum* from 2 sources: Dujardin, 1837. – Carpenter, 1857.
- rotundatum** Carpenter, 1857. – Synonym of *Trachycardium panamense* (Sowerby, 1833). OTHER JUDGEMENTS: *Trachycardium procerum* (Sowerby). >> Regarding *Cardium rotundatum*: Recent, Cardiidae. RECORDS. ••1857 Carpenter: *Cardium rotundatum*. ••1860 Carpenter: *Cardium rotundatum* Cpr. ••1886 Dall: *Cardium rotundatum* Carpenter = *C. procerum* juv. ••1909 Lamy: *Cardium rotundatum* Carpenter (1855–57) = *Cardium procerum* Sowerby. ••1901 Dall: *Cardium rotundatum* Carpenter, 1857 (testa juv.) = *Cardium procerum* Sowerby, 1833. ••1910 Dall: *Cardium rotundatum* Carpenter = *Cardium procerum* junior. ••1947 Hertlein & Strong: *Cardium rotundatum* Carpenter = *Cardium (Mexicardia) procerum* Sowerby. ••1951 Winkle: *Cardium rotundatum* Carpenter. ••1961 Olsson: *Cardium rotundatum* Carpenter, 1857 = *Mexicardia procera* (Sowerby, 1833). ••1968 Keen: *Cardium rotundatum* Carpenter, 1857 = *Trachycardium (Mexicardium) panamense* (Sowerby, 1833). ••1968 Velez: *Cardium rotundatum* = *Trachycardium procerum* (Sowerby, 1833). ••1971 Keen & McLean: *Cardium rotundatum* Carpenter, 1857 = *Trachycardium (Mexicardia) panamense* (Sowerby, 1833). ••1977 Fischer-Piette: *Cardium rotundatum* Carpenter = *Laevicardium procerum* Sowerby). ••1980 Ruhoff: *Cardium rotundatum* Carpenter, 1857 [1855–1857] p. 531. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. As for *C. panamense* San Ignacio Lagoon in Baja California to Costa Rica, not reaching Panama (Keen & McLean 1971).
- rotundatum** Dujardin, 1837. – Combination to be revised:

**rotundum – rubicundum**

revised: "*Cardium*" *rotundatum* Dujardin, 1837. Cardiidae. Miocene. RECORDS. ••1877 Locard: *Cardium rotundatum* Dujardin, 1837. ••1922-32 Sherborn, p. 5564: *Cardium rotundatum* Dujardin, 1837. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium rotundatum* Dujardin. Pontilevien. France (Indre and Loire), B45417.

**rotundum** Senes, 1955. – *Lymnocardium rotundum* (Senes, 1955). Lymnocardiidae. Miocene. RECORDS. ••1955 ZR: *Cardium (Lymnocardium) rotundum* Senes, 1955 sp. nov. Miocene, Czechoslovakia.

**rotundum** (variety). – See under *norvegicum rotundum* Jeffreys. – *papillosum* var. *rotundum* Locard.

**rouaulti** Bellardi, 1852. – Combination to be revised: "*Cardium*" *rouaulti* Bellardi, 1852. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium rouaulti* Bellardi, 1852; vol. 4: 240 pl. H (*sic* = 19), fig. 1.

**rousseauii** Mayer Combination to be revised: "*Cardium*" *rousseauii* Mayer. Lymnocardiidae. Fossil. RECORDS. ••1886 Fischer: *Cardium rousseauii* Mayer.

**royandum** Orbigny, 1847. – Changed combination: *Vepricardium royandum* (Orbigny, 1847). Cardiidae. Fossil. RECORDS. ••1977 Popov: *Bucardium (Vepricardium) royandum sic* (Orbigny, 1847).

**royanum** Orbigny, 1850. – Combination to be revised: "*Cardium*" *royanum* Orbigny, 1850. Cardiidae. Eocene. RECORDS. ••1886 Cossmann: *Cardium royanum* d'Orbigny. ••1922-32 Sherborn, p. 5572: *Cardium royanum* d'Orbigny, 1850.

**rubellum** Chiereghini in Nardo, 1847. – Combination to be revised: "*Cardium*" *rubellum* Chiereghini in Nardo, 1847. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 5575: *Cardium rubellum* Nardo (ex Chiereghini MS), 1847.

**rubescens** Smith, 1911. [Figs. Part 3 p. 917]. – Changed combination: *Afrocardium rubescens* (Smith, 1911). OTHER JUDGEMENTS: *Afrocardium skeeti* (Hedley, 1906). – *Afrocardium richardi* (Audouin, 1827) >> Regarding *Cardium rubescens*: Cardiidae. Recent. TYPE REPOSITORY. 2 syntypes. BMNH London. TYPE LOCALITY. Christmas Islands, Flying Fish Cove, in 30 fathoms. RECORDS. ••1911 Smith: *Cardium (Fragum) rubescens*. ••1911 ZR: *Cardium (Fragum) rubescens* Smith, 1911 sp. n. Christmas Island Indian Ocean. ••1926 McClelland: *Cardium rubescens* Smith, 1911 n. sp. ••1934 Tomlin: *Cardium (Fragum) rubescens* Smith. ••1977 Fischer–Piette: *Corculum (Afrocardium) rubescens* Smith. ••1992 Lamprell & Whitehead: *Cardium rubescens* Smith, 1911 = *Afrocardium skeeti* (Hedley, 1906). ••2002 Schneider: *Afrocardium rubescens* (Smith, 1911). Holocene. ••2003 Hylleberg & Kilburn, p. 176: *C. rubescens* Smith, 1911. Syn of *Afrocardium richardi* (Audouin, 1827) according to J. Vidal. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1911 Smith: Shell small, thin, inequivalve, triangular–cordate, short in front, posterior produced, somewhat pointed, reddish; sometimes completely reddish, about 38 radiating ribs, little elevated around the umbo, delicately squamose, close set until separated by furrows; anterior and posterior ribs narrow, densely squamose, intercostal areas with transverse sculpture; thin valves, slightly dentate along central part of ventral margin, stronger denticulation

posteriorly; interior of valves white, posteriorly reddish, shells have reddish colour in rays (I have translated from Latin]. DIMENSIONS. ••1911 Smith: length 8 mm, width 6.5 mm, diameter 5.5 mm. REMARKS. ••1911 Smith: one specimen entirely rosy–red, the other with the front half of the valves almost white, and the hinder portion stained rosaceous, the colour in two more or less suffused rays. The radiating riblets upon the middle of the valves are faintly convex, and separated by mere impressed lines. These become more distinct grooves both anteriorly and behind. The lines of growth are distinct in the grooves, and in the impressed striae, produce an almost punctuate appearance. Two specimens were studied by Smith 1911. Allied to *C. crenelloides* Melvill, and *carditaeformis* Reeve, both Indian Ocean species. However, *carditaeformis* is longer, the ribs are finer and more numerous, and the is colour different; *carditaeformis* is narrower in front, and less acuminate behind, has more ribs, and is devoid of colour. (Smith 1911). HABITAT. In 30 fathoms. DISTRIBUTION. East Indian Ocean (authors).

**rubicundum** Reeve, 1844. [Figs. Part 1 p. 132, 173. Part 3 p. 865, 926]. – *Trachycardium rubicundum* (Reeve, 1844). Cardiidae. Recent. TYPE LOCALITY. Zanzibar, east coast of Africa (Reeve 1844). TYPE REPOSITORY. 3 syntypes. 1978128. BMNH London. RECORDS. ••1844 Reeve, p.169: *Cardium rubicundum*. ••1844 Reeve, Conch. Icon. sp. 44: *Cardium rubicundum*. ••1884 Grasset: *Cardium rubicundum*. Rv. ••1890 Paetel: *Cardium rubicundum* Rv. ••1897 Sowerby: *Cardium rubicundum* Reeve. ••1901 Sturany: *Cardium rubicundum* Rve. (possible synonym of *Cardium rugosum*). ••1906 Melvill & Standen, p. 837: *Cardium (Trachycardium) rubicundum* Reeve. ••1922-32 Sherborn, p. 5587: *Cardium rubicundum* Reeve, 1844. ••1955 Rost & Soot–Ryen: *Trachycardium rubicundum* Reeve, 1844. ••1956 Rye: *Trachycardium rubicundum* Reeve, new to Seychelles [Ref. Rost & Soot–Ryen 1956]. ••1964 Spry: *Cardium (Vasticardium) (Regozara) rubicundum* (Reeve). ••1974 Habe & Kosuge: *Vasticardium (Regozara) rubicundum* (Reeve, 1844). ••1977 Fischer–Piette: *Laevicardium rubicundum* Reeve. ••1977 Wilson & Stevenson: *Cardium rubicundum* Reeve, 1844. ••1981 Koyama *et al.*: *Cardium rubicundum* Reeve, 1844 = *Laevicardium biradiatum* (Bruguère, 1789). ••1982 Kilburn & Rippey: *Trachycardium rubicundum* (Reeve, 1844). ••1992 Oliver: *Trachycardium rubicundum*. ••1992 Oliver: *Cardium rubicundum* Reeve, 1844 in Shopland (1896) = *Trachycardium lacunosum* (Reeve, 1845). ••1992 Oliver: *Cardium rubicundum* Reeve, 1844 in Lamy (1927) = *Trachycardium lacunosum* (Reeve, 1844). ••1998 Vidal: *Vasticardium rubicundum* (Reeve, 1844). ••1999 Aungtonya *et al.*, PMBC-SP 19(2): 378: *Trachycardium rubicundum* (Reeve, 1845). ••1999 Vidal: *Vasticardium rubicundum* (Reeve, 1844). ••2000 Hylleberg, p. 532: *Vasticardium rubicundum* (Reeve, 1845). Det. J. Vidal. ••2003 Hylleberg & Kilburn, p. 185, Plate 4, fig. 16: *Vasticardium rubicundum* (Reeve, 1845). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. Madagascar H. Cuming Coll. 7 specimens Acc. No. 1829 BMNH reg. no. 1844.6.3. 105–110. CHARACTERS of diagnostic value: 37 ribs. DESCRIPTIONS. ••1844 Reeve: Shell oblong-ovate, very slightly

*rubicundus* – *rubrum*

oblique, radiately ribbed, 37 sharply convex ribs, the anterior third portion squamosely crenated, the middle portion obtusely scaled on both sides, the posterior portion obliquely tubercled; bright red, whitish towards the umbones spotted with reddish brown, margins edged with bright pinkish red interiorly. (Description in Latin as well as in English). Cuming's specimen has 6–7 ornamented posterior ribs. REMARKS. •1844 Reeve: An extremely pretty species, remarkable for its vivid colouring and for the elaborate character of its sculpture. • Koyama *et al.* These authors indicate erroneous synonymy. *Trachycardium rubicundum* (Reeve, 1844) is a valid species. HABITAT. •1906 Melville & Standen: at 3–10 fathoms depth, sandy mud. DISTRIBUTION. •1844 Reeve: Zanzibar, E. Africa. •1884 Grasset: Natal, Zanzibar. •1897 Sowerby: Indian Ocean. •1999 Aungtonya *et al.*: Thailand, Andaman Sea. •1999 Vidal: Indonesia (Lombok). •2000 Hylleberg and •2003 Hylleberg & Kilburn: Vietnam.

***rubicundus***. – Not in *Cardiacea*. *Glossus rubicundus*. RECORDS. •1815 Oken, p. 235: genus *Glossus* with *Chama cor*, *Glossus rubicundus* [Oken is not available]. •1818 Schmidt, p. 158: *Glossus rubicundus* (*Chama cor*).

***rubiginosum*** Gmelin 1791. [Figs. Part 1 p. 50]. – *Nomen dubium*. >> Regarding *Cardium rubiginosum*: not a *cardiid*. RECORDS. •1742 Gualtieri, pl. 43 fig. D: *Concha cordiformis* D. *rubiginosa*. •1742 Gualtieri. ID by Gmelin 1791: *Cardium rubiginosum* t. 83. f. D. •1791 Gmelin p. 3256 (*vide* Wood 1815). •1817 Dillwyn: *Cardium rubiginosum* Gmelin should be ignored. •1828 Wood: *Cardium rubiginosum*. •1856 Wood & Hanley, No. 44: *Cardium rubiginosum* Gmel. 3256, from Gualt. 83, f. D. irrerecognisable. •1856 Wood & Hanley: *Cardium rubiginosum* Gmel. = *C. edule* var. = irrerecognisable. •1902 Sherborn, p. 844: *Cardium rubiginosum* Gmelin, 1790 *sic*. •1977 Fischer–Piette: *Cardium rubiginosum* Wood = not a *Cardium*. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. Mediterranean (Wood & Hanley 1856).

***rubiginosum*** Wood, 1815. – See under *rubiginosum* Gmelin 1791.

***rubraquale*** Tscheltzov, 1965. – *Avicardium rubraquale* Tscheltzov, 1965. *Cardiacea*. Pliocene. RECORDS. •1965 ZR: *Avicardium rubraquale* Tscheltzov, 1965 sp. nov. Pliocene, Turkmenia, USSR.

***rubricatti*** Almera y Bofill, 1894. – Combination to be revised: “*Cardium*” *rubricatti* Almera y Bofill, 1894. *Cardiacea*. Tertiary. RECORDS. •1983 Anaya: “*Cardium*” *rubricatti* Almera y Bofill, 1894.

***rubrohamatum*** Voskuil & Onverwagt, 1988. [Figs. Part 3 p. 881]. – *Vepricardium rubrohamatum* Voskuil & Onverwagt, 1988. *Cardiidae*. Recent. DISTRIBUTION. Philippines. RECORDS. •1988 Voskuil & Onverwagt: *Vepricardium rubrohamatum*.

***rubropictum*** Habe & Kosuge, 1966. – Synonym of *Acrosterigma biradiatum* (Bruguère, 1789). >> Regarding *Laevicardium rubropictum*: *Cardiidae*. Recent. TYPE MATERIAL. •2000 Vidal: holotype, a bivalved specimen from Bentayan Island, Philippines, in ZBM No 53798; seven bivalved paratypes, all from the type locality, in various collections. TYPE REPOSITORY. Holotype and two paratypes in National Science Museum (Tokyo). RECORDS. •1966 Habe & Kosuge,

p. 339 (pl. 29, fig. 20): *Laevicardium rubropictum*. •1966 ZR: *Laevicardium rubropictum* Habe & Kosuge, 1966 sp. nov. Samboanga, Mindanao, Philippines. •1974 Habe & Kosuge: *Laevicardium rubropictum* Habe & Kosuge. •1977 Fischer–Piette: *Laevicardium rubropictum* Habe & Kosuge = *Laevicardium biradiatum* Bruguère. •1977 Habe: *Laevicardium rubropictum* Habe & Kosuge, 1966. •1999 Higo *et al.*: *Laevicardium rubropictum* Habe & Kosuge, 1966. •1999 Vidal: *Laevicardium rubropictum* Habe & Kosuge, 1966: 153, pl. 59, fig. 2: = *Acrosterigma biradiatum* (Bruguère, 1789). •2000 Vidal, p. 460, Fig. 7: *Vepricardium rubrohamatum* Voskuil & Onverwagt, 1988: 86, pl. 1, fig. 1–3. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •2000 Vidal: *V. rubrohamatum* is characterised by its very oval shape, strongly prosogyrate umbos, thinner shell and hinge, and higher rib number with very elaborate ornamentation. Distribution: - In addition to the type series from the Philippines, only one shell from Visayas Islands, Philippines is known in the MNHN, collection Vidal. REMARKS. 1966. Habe et Kosuge: *Laevicardium rubropictum* Habe et Kosuge, 1960, ally of *Laevicardium pulcherrimum* Sakurai & Habe, 1966. Habe & Kosuge state that *Laevicardium rubropictum* differs from *Laevicardium biradiatum* which has many fleshy reddish brown patches of various sizes and lacks the large reddish brown patch on the posterior part of the surface. Fischer–Piette (1977, p. 25) maintains that colour variation is a poor reason to erect a new species, because this character is too variable. HABITAT: intertidal to 20 m, sand and mud (Higo *et al.* 1999). DISTRIBUTION. Indo–Pacific, Red Sea, Indo–West Pacific (Hylleberg 1994); Kii peninsula (Kuroda & Habe, 1981) and southwards, East China Sea, South China Sea, Philippines, Indo–Pacific (Higo *et al.* 1999).

***rubrum*** Chemnitz, 1782 [Figs. Part 1 p. 73 No. 168–169]. *Non* binominal. – Not available. >> Regarding *Fragum rubrum*: *Cardiidae*. Recent. RECORDS. •1782 Chemnitz, Tab. 16 Fig. 168–169: *Fragum rubrum*. *Cardium unedo* Lin. •1789 Bruguère: *Fragum rubrum*, *Cardium unedo* Linnæi; Martini tom. 6. tab. 16, fig. 168, 169. •1799 Spengler: *Fragum rubrum* Chemnitz Tom. VI. Tab. 16 Fig. 168–169 = *Cardium unedo* Lin. •1932 Prashad: *Fragum rubrum* (Chemnitz, 1782) = *Fragum unedo* (Linné, 1758). •1977 Wilson & Stevenson: *Fragum rubrum* Chemnitz, 1782; junior synonym of *Fragum unedo* (Linnaeus, 1758). •1999 Knudsen & Hylleberg; Spengler, 1799 *Fragum rubrum* Chemnitz Tom. VI. Tab. 16 Fig. 168–169 = *Cardium unedo* Lin. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. Indo–Pacific (Hylleberg 1994).

***rubrum*** Montagu, 1803. – Unknown species. OTHER JUDGEMENTS: *Tellina r.*, Turt. C.D. 186; Syn. – *Kellia r.* Turt. D. B. 57, pl. 11, f. 7,8; Syn. – *Bornia seminulum*, Phil. Sic. i. 14, pl. 1, f. 16; Syn. – *Poronia r.* Récluz. Rev. Z. 1843, p. 175.; – Syn. *Lasaea r.* Brown. >> Regarding *Cardium rubrum*: RECORDS. •1803 Montagu, p. 83 (pl. 27, fig 4): *Cardium rubrum*. •1803 Montagu: *Cardium rubrum* Walker's Minute Shells. 86?. •1807 Maton & Rackett, No. 10: *Cardium rubrum* Montagu p. 9. •1813 Fleming: *Cardium rubrum* Montagu. •1815 Wood: *Cardium rubrum* Montagu.



**rubrum – rudis catillusrudis**

- 1817 Dillwyn: *Cardium rubrum* Montagu. ••1819 Turton: *Tellina rubra* Montagu. ••1822 Turton: *Kellia rubra* Montagu. ••1825 Gerville: *Cardium rubrum* Montagu. ••1828 Wood: *Cardium rubrum* Montagu. ••1844 Brown: *Lasaea rubra* Montagu. ••1845 Reeve, No. 124: *Cardium rubrum* Montagu. ••1850 Jay: *Cardium rubrum* Mont. = *Kellia rubra* Turton. ••1856 Wood & Hanley, No. 8: *Kellia rubrum* Mont. T. B. 83 (not Reeve). ••1859 Sowerby: *C. rubrum* (young) = *Cardium fasciatum* Montagu. ••1871 Lischke: *Cardium rubrum* Montagu, non Reeve Fig. 124 = *Lasaea rubra*. ••1892 Bucquoy, Dautzenberg & Dollfus: *Lasaea rubra* Montagu according to Fischer–Piette 1977. ••1922–32 Sherborn, p. 5578: *Cardium rubrum* Montagu, 1803. ••1942 Fischer–Piette, Fischer, Germain & Pallary: *Cardium rubrum* Montagu 1803 = *Lasaea adansoni* Gmel. = *Lasaea rubra* Montagu. ••1977 Fischer–Piette: 1845 Reeve, No. 124: *Cardium rubrum* Montagu = *Cardium exiguum* Gmelin. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. Kentish coast, Falmouth, Kingsbridge, Devon (Maton & Rackett 1807); Britain &c. (Wood & Hanley 1856).
- rubrum** Reeve, 1845. [Figs. Part 1 p. 145]. – Unknown species. OTHER JUDGEMENTS: *Parvicardium ovale* (Sowerby, 1833). – *Cardium fasciatum* Montagu = *Parvicardium ovale*. >> Regarding *Cardium rubrum*: Cardiidae. Recent. RECORDS. ••1845 Reeve, No. 124: *Cardium rubrum* Montagu, Testacea Britannica, p. 83. ••1856 Wood & Hanley: *C. rubrum* Reeve f. 124 = *Cardium fasciatum* Mont. ••1868 ZR: *Cardium rubrum* (Reeve) = *fasciatum* (Mont.); *suecicum* (Lovén) is distinct from *minimum* (Phil.) [Ref. Römer 1868]. ••1867 Weinkauff: *Cardium rubrum* Reeve = *Cardium fasciatum* Montagu. ••1869 Römer: *Cardium rubrum* Reeve sic fig. 124 = *Cardium fasciatum* Montagu. ••1880 Stossich: *Cardium rubrum* Reeve = *Cardium ovale* in Reeve. ••1886 Locard: *Cardium rubrum* Reeve, 1845 = *Cardium fasciatum*, Montagu, 1808. ••1888 Kobelt: *Cardium rubrum* Reeve = *Cardium fasciatum* Montagu. ••1890 Paetel: *Cardium rubrum* Rv. = *fasciatum* Mtg. ••1917 Hidalgo: *Cardium rubrum* Reeve = *Cardium fasciatum* Montagu. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1845 Reeve: shell globose cordate, posteriorly slightly angulated; radiately ribbed, ribs convex, here and there prickly; rose-colour, somewhat transparent. DISTRIBUTION. ••1845 Reeve: Britain.
- rubrus** Meuschen, 1778. Non binominal. – Not available. RECORDS. ••1902 Sherborn, p. 845: *Cardium rubus* Meuschen, 1778.
- rucali** Uspenskaia, 1931. – Combination to be revised: “*Cardium*” *rucali* Uspenskaia, 1931. Cardiidae. Miocene. RECORDS. ••1932 ZR: *Cardium rucali* Uspenskaia, 1931 n. sp. Miocene Daghestan and Transcaspien.
- rudentis** Fischer–Piette, 1977. [Figs. Part 3 p. 884]. – Mistake: a fossil. >> Regarding *Laevicardium rudentis*: Cardiidae. Eocene. TYPE LOCALITY. West Africa. TYPE REPOSITORY. Paris Museum. RECORDS. ••1977 Fischer–Piette: *Laevicardium* (*Vepricardium*) *rudentis* n. sp. ••1977. ZR: *Laevicardium* (*Vepricardium*) *rudentis* Fischer–Piette, 1977 sp. nov. West Africa. Ref to Fischer–Piette, E. p. 41, fig’d. ••1991 Voskuil & Onverwagt: *Laevicardium* (*Vepricardium*) *rudentis* Fischer–Piette, 1977. ••2000 Vidal, p. 448: *Laevicardium* (*Vepricardium*) *rudentis* Fischer–Piette, 1977: 41, pl. 3, figs 1–2; the holotype and paratype (in MNHN) are *Cardium porulosum* Lamarck, an Eocene fossil. – CHARACTERS AND OCCURRENCE – REMARKS. Referred to *Cardium* (*Bucardium*) in Keen (1980). DISTRIBUTION. Indo–Pacific (Hylleberg 1994).
- Rudicardium** Coen, 1915 (genus). – Cardiidae. Miocene and Recent. RECORDS. ••1937 ZR: *Rudicardium* Coen 1915 “type here designated *Cardium tuberculatum* Linné, 1758” [Ref. Keen 1937]. ••1980 Vokes: *Rudicardium* (*Monterosato* MS) Coen, 1914 in subfamily Cardiinae.
- Rudicardium** Coen, 1915 (section, subgenus). – Cardiidae. Miocene and Recent. Type species: Keen (1937) designated *Cardium tuberculatum* Linné, 1758 type species of subgenus *Rudicardium* of the genus *Acanthocardia* Gray, 1851. Subsequently raised to generic level by authors. The designation “section” takes the value of subgenus. RECORDS. ••1914 Coen: Section *Rudicardium* *Monterosato* Mss. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. Medium to large shells. Outline rounded, subquadrate; posterior margin subtruncate. Sculpture of prominent ribs with narrow cup shaped spines (noded) arising from midlines of ribs. Hinge gently curved, lower cardinal in RV much the larger. Internal margin crenulate. Mediterranean (Moore *et al.* 1969, emend. Hylleberg 1994). Characters compiled from Schneider (2002): the right anterior cardinal tooth does not extend ventrally to the hinge line, nor do the right anterior cardinal teeth connect dorsally to the right posterior cardinal teeth. The right posterior cardinal teeth longer than high with a weaker hook. Notches on the posterodorsal portion of the tuberculate spines. *Acanthocardia* (*Rudicardium*) has labial palps with length less than one–third the length of the entire animal (minus the shell).
- rudis** Camacho, 1960. – “*Cardium*” *rudis* Camacho, 1960. Cardiidae. Paleocene. RECORDS. ••1960 ZR: *Cardium rudis* Camacho, 1960 sp. nov. Paleocene River Ewan, Tierra del Fuego.
- \*rudis**. – Homonymy to be noticed. *Didacna rudis* from 2 sources: Nalivkin, 1916. – Ebersin (?year).
- rudis** Ebersin. – *Didacna rudis* Ebersin. Lymnocardiidae. Quaternary. RECORDS. ••1943 ZR: *Didacna rudis* Ref. to Joukove (1943). ••1963 ZR: *Didacna rudis* Ebersin Quaternary.
- rudis** Nalivkin, 1916. – *Didacna rudis* Nalivkin, 1916. Lymnocardiidae. Fossil. ••1916 ZR: *Didacna rudis* Nalivkin, 1916 sp. n. Berg der Bakustufe.
- rudis** Reeve, 1862. – *Tridacna rudis* Reeve, 1862. Tridacnidae. RECORDS. ••1980 Ruhoff: *Tridacna rudis* Reeve, 1862; [1851–1870] vol. 14 (*Tridacna*) pl. 5, sp. 4. ••1999 Higo *et al.*: *Tridacna rudis* Reeve, 1862 = *Tridacna* (*Flodacna*) *maxima* (Röding, 1798). ••2003 Hylleberg & Kilburn, p. 186: *Tridacna rudis* Reeve, 1862. Synonym of *Tridacna maxima* (Röding, 1798).
- rudis** (variety). – See *tuberculatum rudis* var. Coen, 1914.
- rudis catillusrudis** Nalivkin, 1916 (variety). – Upgraded. *Didacna rudis catillusrudis* Nalivkin, 1916. Lymnocardiidae. Fossil. RECORDS. ••1916 ZR: *Didacna rudis* var. *catillusrudis* Nalivkin, 1916 var. n. Berg der Bakustufe.

*rudis euxinica* – *rugosum*

*rudis euxinica* Popov, 1983 (subspecies). – *Didacna rudis euxinica* Popov, 1983. Lymnocardiiidae. Pleistocene. TYPE LOCALITY. Russian SFSR. RECORDS. •1983 Popov, p. 170, fig.: *Didacna rudis euxinica* subsp. nov.

*rudis subvulgaris* Nevevskaya, 1963 (subspecies). – *Didacna rudis subvulgaris* Nevevskaya, 1963. Lymnocardiiidae. Quaternary. RECORDS. •1963 ZR: *Didacna rudis* Ebersin *subvulgaris* Nevevskaya, 1963 subsp. nov. Quaternary, Black Sea basin.

*rudis varia* Nalivkin, 1916 (variety). – Upgraded. *Didacna rudis varia* Nalivkin. Lymnocardiiidae. Fossil. RECORDS. •1916 ZR: *Didacna rudis* var. *varia* Nalivkin, 1916 var. n. Berg der Bakustufe.

*Rudistes*. – Not in Cardiacae. RECORDS. •1894 ZR: *Rudistes* with new species [Ref. Douvillé 1894]. •1896 ZR: *Rudistes* in the Urgonia [Ref. Paquier 1896].

*rufovariegatum* (variety). – See under *edule rufovariegatum* var.

*rugata* (mode). – See *rugatum* Gronovius, 1781.

*rugatum* Gronovius, 1781 authorship replaced by Dillwyn, 1817. [Figs. Part 1 p. 135, 165]. – Identical with *Fulvia aperta* (Bruguière, 1789). PREVIOUS JUDGEMENTS: species not sufficiently known (Fischer-Piette 1977). – *Fulvia bullata* (Meuschen) [not available]. >> Regarding *Cardium rugatum*: Not available. Cardiiidae. Recent. RECORDS. •1781 Gronovius, pl. 18, fig. 5: *Cardium rugatum* (fide Fischer-Piette 1977). •1817 Dillwyn: *Cardium rugatum* Gronovius. •1844 Reeve, sp. 63: *Cardium rugatum*. •1867 Frauenfeld: *Papyridea rugatum*. •1868 ZR: *Cardium rugatum* (Gronov.) = *apertum* (Chemn.) [Ref. Römer 1868]. •1869 ZR: *C. rugatum* (Gronov.) allied to *Cardium pulchrum* var. [Ref. Martens 1869]. •1874 Lischke: *Cardium rugatum* Meuschen, 1781. •1884 Grasset: *Cardium rugatum*. Gron. •1889 Martens: *Cardium (Papyridea) rugatum* Gronov., Reeve. •1890 Paetel: *C. rugata* Gronov. = *Papyridea aperta* Ch. [not available]. •1891 Römer: *Papyridea rugata* Gronov. Philippines. •1903 Hidalgo: *Papyridea rugata* Gronovius. 1781. •1928 Faustino: *Cardium (Papyridea) rugatum* Gronovius. •1932 Prashad: *Cardium rugatum* Gronovius, 1781 = *Cardium apertum* Bruguière, 1789. •1952 Kuroda & Habe: *rugatum* (Meuschen) = *Papyridea rugatum* = *Fulvia bullata* (Meuschen). •1977 Fischer-Piette: *Cardium rugatum* Gronovius = species insufficiently known (Fischer-Piette 1977). •1977 Wilson & Stevenson: *Cardium rugatum* Gronovius, 1871 *sic* (non binomial) = *Fulvia aperta* (Bruguière, 1789). •1991 Rao *et al.*: *Cardium (Fulvia) rugatum* in Preston (1915) = *Laevicardium (Fulvia) apertum* (Bruguière, 1789). •1991 Rao *et al.*: *Cardium (Fulvia) rugatum* in Annandale & Kemp (1916) = *Laevicardium (Fulvia) apertum* (Bruguière, 1789). •1994 Vidal: *Cardium rogata sic* Gronovius, 1781 = *Fulvia (Fulvia) aperta* (Bruguière, 1789). •1999 Higo *et al.*: *Cardium rugatum* Reeve, 1844 non Dillwyn, 1817 = *Fulvia aperta* (Bruguière, 1789). •2003 Hylleberg & Kilburn, p. 178: *Cardium rugatum* Dillwyn, 1817. Synonym of *Fulvia aperta* (Bruguière, 1789). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. *C. rugatum* Gro. Gulf of Thailand, 5 fv. Gravel. DESCRIPTION. •1844 Reeve: shell orbicular, very thin, fragile, posterior side

produced, gaping open; radiately ribbed, about 43-44 thin, rather superficial ribs, nearly obsolete towards the umbones; sometimes whitish variegated with pink, sometimes purple or yellowish bay, umbones pinkish purple. REMARKS. •1844 Reeve: This very delicate and elegant species varies singularly in colour, some examples being white mottled with pink, whilst others are of a clear orange bay or purple. HABITAT. •1844 Reeve: found in sandy mud at the depth of about 7 fathoms. DISTRIBUTION. •1844 Reeve: Eastern coast of the Island of Luzon, Philippines. •1884 Grasset: Luzon. •1891 Römer: Philippines.

*rugatum* of Dillwyn, 1817. – Identical with *Fulvia aperta* (Bruguière, 1789). OTHER JUDGEMENTS: *Fulvia bullata* (Linnaeus, 1758). – Species insufficiently known (Fischer-Piette 1977). >> Regarding *C. apertum*: Cardiiidae. Recent. TYPE LOCALITY. Jamaica and East Indies (Smith 1945). TYPE REPOSITORY. Unknown. RECORDS. •1817 Dillwyn, I, p. 125, No. 31: *Cardium rugatum*. •1871 Lischke: *Cardium rugatum* in Reeve = *Cardium apertum* Chemnitz. •1909 Lyngé: *Cardium (Papyridea) rugatum*. •1922-32 Sherborn, p. 5668: *Cardium rugatum* Dillwyn, 1817. •1945 Smith: *Cardium rugatum* Dillwyn 1817 syn. = *Fulvia bullata* Linné. •1977 Fischer-Piette: *Cardium rugatum* Dillwyn = species insufficiently known. •1979 Richardson *et al.*: *Cardium rugatum* in Dillwyn, 1817 = *Cardium apertum* Bruguière, 1789. •1992 Lamprell & Whitehead: *Cardium rugatum* Dillwyn, 1817 = *Cardium apertum* Bruguière, 1789. •1994 Vidal: *Cardium rugatum* “Gronovius” in Dillwyn, 1817 = *Fulvia (Fulvia) aperta* (Bruguière, 1789). •1997 Nguyen *et al.*: ?*Vepricardium rugatum* (Dillwyn). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1844 Reeve: shell orbicular, very thin, fragile, posterior side produced, gaping open; radiately ribbed, ribs about three and forty in number, thin, rather superficial, nearly obsolete towards the umbo; sometimes whitish variegated with pink, sometimes purple or yellowish bay, umbo pinkish purple. REMARKS. •1844 Reeve: varies singularly in colour, some examples being white mottled with pink, whilst others are of a clear orange bay or purple. HABITAT. •1844 Reeve: Island of Luzon, Philippines. •ZMUC: in sandy mud at a depth of about 7 fathoms, Cuming coll. DISTRIBUTION. •1844 Reeve: *C. apertum* Luzon, the Philippines. •1994 Hylleberg: *C. apertum* Gulf of Thailand, Japan, East Indies, Australia.

*rugatum* of Reeve 1844. – See under *rugatum* Gronovius, 1781.

*rugiferum* Rovert, 1898. – *Hemidiscors rugiferum* Rovert, 1898. Cardiiidae. Fossil. RECORDS. •1898 ZR: *Hemidiscors rugiferum* Rovert, 1898 n. sp. Tongrian of Liguria. •1899 Sacco, p. 54: *Hemidiscors rugiferum* Rovereto, 1898.

*rugosicostatum* Schaffer, 1910. – Combination to be revised: “*Cardium*” *rugosicostatum* Schaffer, 1910. Cardiiidae. Miocene. RECORDS. •1911 ZR: *Cardium rugosicostatum* Schaffer, 1910 sp. n. Austria Miocene.

*rugosum* Deshayes (variety). – Synonym of *Trachycardium angulatum* (Lamarck). >> Regarding *Cardium* var. *rugosum*: Cardiiidae. Recent. RECORDS. •1839 Anton: *Cardium* var. *rugosum* Desh. = *Cardium angulatum* Lamarck.

**rugosum – rugosum gortanii**

**rugosum** Lamarck, 1819 (variety). [Figs. Part 3 p. 870]. – Infrasubspecific. RECORDS. ••1819 Lamarck: *Cardium rugosum* var. *testa minore*, subaequilaterata.

**rugosum** Lamarck, 1819. [Figs. Part 1 p. 59 No. 7, p. 76 No. 191, 79 No. 11 a, b, p. 89, 113, 115, 137. Part 3 p. 863]. – Synonym of *Vasticardium pectiniforme* (Born, 1780). OTHER JUDGEMENTS: *Cardium angulatum* Lamarck 1819. – Not a synonym of *Cardium angulatum* Lamarck 1819. – *Cardium flavum* Linnaeus, 1758. – *Cardium magnum* Chemnitz cited. – *Cardium reeveanum* Dunker, 1852. – *Cardium rugosum* Lamarck 1819. << Regarding *Cardium rugosum*: *Cardiidae*. Recent. RECORDS. ••1798 Bruguière. ID by Lamarck, pl. 297. fig. 2. *Cardium rugosum*. ••1819 Lamarck, p. 10, No. 23: *Cardium rugosum*. ••1827 Bory de St. Vincent: *Cardium rugosum* Lamarck. ••1835 Deshayes: *Cardium rugosum* Lamarck. ••1838 Sowerby, 149<sup>th</sup> part, fig. 39: *Cardium rugosum* Lam. ••1839 Anton: *Cardium rugosum* Lamarck = *Cardium magnum* Chemnitz. ••1840 Sowerby, 178<sup>th</sup> part, fig. 41: *Cardium rugosum* Lam. ••1840 Sowerby, p. 5, No. 58: *Cardium rugosum* Lam. ••1841 Sganzin: *Cardium rugosum* Lamarck. ••1843 Hanley: *Cardium rugosum* Lamarck. ••1844 Potiez & Michaud: *Cardium rugosum* Lam. Indian Ocean and American?. ••1845 Reeve, sp. 68: *Cardium rugosum* Lamarck. ••1867 Mitchell: *Cardium rugosum* Lamarck. ••1867 Frauenfeld: *Trachycardium rugosum*. ••1868 ZR: *C. rugosum* (Lam.) = *Cardium flavum* (L.) [Ref. Römer 1868]. ••1869 Frauenfeld: *Cardium rugosum* Lamarck. ••1869 Issel: *Cardium rugosum*, Reeve, *Conch. Icon.* pl. 14, fig. 86 (*sic* = 68) = *Cardium magnum* citing Chemnitz. ••1869 Römer: *Cardium rugosum* Lamarck = *Cardium flavum* L. ••1870 Blanford: *Cardium rugosum* Lamarck. ••1874 Martens: *Cardium rugosum* Lamarck. ••1877 Angas: *Cardium rugosum* Lam. ••1879 Martens: *Cardium rugosum* Lamarck. ••1880 Martens in Möbius: *Cardium rugosum* Lamarck. ••1880 Martens: *Cardium (Trachycardium) rugosum* Lamarck. ••1884 Grasset: *Cardium rugosum*. Lam. ••1889 Martens: *Cardium (Trachycardium) rugosum* Lam., citing Chemnitz. ••1890 Paetel: *Cardium rugosum* Lm. = *flavum* L. ••1891 Smith: *Cardium rugosum* Lamarck. ••1894 Sowerby: *Cardium rugosum* Lamarck. ••1895 Martens & Smith in Thurston: *Cardium rugosum* Lamarck. ••1896 Shopland: *Cardium rugosum* Lamarck. ••1897 Sowerby: *Cardium rugosum* Lamarck. ••1898 Melvill & Sykes: *Cardium rugosum* Lamarck. ••1901 Sturany: *Cardium rugosum* Lamarck. ••1901 Sturany: *Cardium rugosum* Lm. (= *magnum* citing Chemn.). ••1902 Shopland: *Cardium rugosum* Lamarck. ••1905 Sturany: *Cardium rugosum* Lm. (= *magnum* citing Chemn.). ••1906 Melvill & Standen: *Cardium rugosum* Lamk. = *flavum* L. in pt. ••1909 Lynge: *Cardium rugosum* Lamarck, 1819 = *Cardium (Trachycardium) flavum* (Linné, 1758) illustrated by Spengler (1799). ••1917 Odhner: *Cardium rugosum* Lamarck. ••1919 Martin: *Cardium rugosum* Lamk. ••1922-32 Sherborn, p. 5674: *Cardium rugosum* Lamarck, 1819. ••1923 Dautzenberg: *Cardium rugosum* Lamarck. ••1927 Winckworth: *Cardium rugosum* Lamarck. ••1931 Thiele & Jaeckel: *Cardium (Trachycardium) rugosum* Lamarck = *Cardium flavum* Linné. ••1932 Prashad: *Cardium rugosum* Lamarck, 1819 in Reeve (1845) =

*Cardium reeveanum* Dunker, 1852. ••1939 Adam & Leloup: *Cardium rugosum* Lamarck = *Laevicardium (Trachycardium) flavum* (Linné 1758). ••1942 Abrard: *Cardium rugosum* Lm. in Nardini 1933 is probably *leucostoma* Reeve. ••1942 Lamy: *Cardium rugosum* Lamarck = *Cardium flavum* Linné. ••1945 ZR: *Cardium rugosum* Lk. [Ref. Lamy 1945]. ••1948 Ray: *Cardium rugosum* Lamarck, 1819 = *Cardium (Trachycardium) flavum* Linnaeus, 1758. ••1952 Braga: *Cardium rugosum* Lamarck. ••1954 Taki: *Cardium rugosum* Lamarck. ••1958 MacNae & Kalk: *Cardium rugosum* Lamarck. ••1960 Kuroda: *Trachycardium (Acrosterigma) rugosum* (Lamarck = (? *flavum* Linné)). ••1960 Paes da Franca: *Cardium rugosum* Lamarck. ••1962 MacNae & Kalk: *Cardium rugosum* Lamarck. ••1974 Barnard: *Cardium rugosum* Lamarck 1819 in Sowerby 1897 = *C. flava*. ••1977 Fischer-Piette: *Cardium rugosum* Lamarck = *Laevicardium flavum* Linné auctorum. ••1977 Wilson & Stevenson: *Cardium rugosum* Lamarck, 1819. ••1991 Vidal: *Acrosterigma rugosum* (Lamarck, 1819); removal from synonymy with *A. angulatum* (Lamarck 1819). ••1991 Vidal: *Acrosterigma rugosum* (Lamarck 1819) diagnostic characters to distinguish from *A. angulatum* (Lamarck 1819). ••1992 Dharma: *Trachycardium rugosum*. ••1997 Vidal: *Cardium rugosum* Lamarck, 1819 = *Vasticardium pectiniforme* (Born, 1780). ••1997 Vidal: *Cardium rugosum* Lamarck *sensu* Reeve, 1845 sp. 68 (*not Cardium rugosum* Lamarck, 1819) = *Vasticardium luteomarginatum marerubrum* (Voskuil & Onverwagt 1991). ••1998 Poutiers: *Trachycardium rugosum* (Lamarck, 1819). ••1999 Higo *et al.*: *Cardium rugosum* Lamarck, 1819 *non* Münster, 1835 = *Acrosterigma (Regozara) flava* (Linnaeus, 1758). ••1999 Hylleberg, p. 401: *Vasticardium rugosum*. ID J. Vidal. ••1999 Vidal: *Cardium rugosum* Lamarck, 1819 = *Vasticardium pectiniforme* (Born, 1780). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1845 Reeve: shell oblong-ovate, rather thick, radiately ribbed, 28-30 ribs, interstices deeply excavated extreme posterior ribs prickly scaled, middle ribs smooth, posteriorly crenulated, interior rugosely crenated; white, banded with faint red spots. REMARKS. ••1819 Lamarck: *Cardium rugosum* close to *Cardium flavum*. Lin. ?Schroet. 2. t. 7. f. 11. a, b. ••1845 Reeve: the deep interstices between the ribs of this species give them an exceedingly prominent character. DISTRIBUTION. ••1845 Reeve: Ceylon, Nicobar, Madagascar, &c. ••1884 Grasset: Australia. ••1994 Hylleberg Indo-Pacific.

**rugosum** Orbigny, 1850. – *Unicardium rugosum* d'Orbigny, 1850. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 5682: *Unicardium rugosum* d'Orbigny, 1850.

**rugosum** Sowerby, 1840 (variety). [Figs. Part 1 p. 113, 115]. – *Vasticardium pectiniforme* (Born) >> Regarding *Cardium rugosum*: *Cardiidae*. Recent. RECORDS. ••1840 Sowerby, corrected list, p. 8, No. 58: Figs. 39 and 41 = *Cardium* var. *rugosum* Sowerby. – CHARACTERS AND OCCURRENCE – REMARKS. Sowerby (1840) fig. 39, dark spotted; fig. 41, pink spotted.

**rugosum gortanii** Nardini, 1937 (variety). – Changed combination: *Vasticardium gortanii* (Nardini, 1937). *Cardiidae*. Pleistocene. RECORDS. ••1937 ZR: *Cardium*

*rumana bassarabica* – *rusticum*

- rugosum* var. *gortanii* Nardini, 1937 nov. Dahalac (Coll. Ragazzi). ••1997 Vidal: *Cardium rugosum* var. *gortanii* Nardini, 1937 = *Vasticardium gortanii* (Nardini, 1937).
- rumana bassarabica*** Macarovici, 1961 (variety). – Upgraded. *Prosodacna rumana* Fischer, 1886. Lymnocythidae. Miocene. RECORDS. ••1961 ZR: *Prosodacna rumana* var. *bassarabica* Macarovici, 1961 nov. Odessa; Miocene, Bessarabia, Roumania.
- rumana*** Motas, 1972. – New combination: *Limnodacna rumana* (Motas, 1972). Lymnocythidae. Pliocene. RECORDS. ••1972 ZR: *Limnodacna rumana* Motas, 1972 sp. nov. Romania. Pliocene. ••1975 ZR: *Limnodacna rumana* Motas, 1975 sp. nov. Romania, Prahova region Pliocene. Ref. to Motas, p. 178. ••1976 ZR: *Limnodacna rumana* Motas & Papaianopol, 1971. Redescription Lymnocythidae. Ref. to Motas, p. 132.
- rumana*** Papaianopol, 1989. – *Pachydacna rumana* Papaianopol, 1989. Lymnocythidae. Pliocene. TYPE LOCALITY. Basin Dacicque, Romania. RECORDS. ••1989 Papaianopol, p. 66, fig.: *Pachydacna (Pachydacna) rumana* sp. nov. ••1981 ZR: *Pontalmyra (Pontalmyra) rumana* Papaianopol, 1981 sp. nov. Romania, Upper Miocene. Ref. to Papaianopol, p. 32.
- rumana*** Pauliuc, 1974. – *Oxydacna rumana* Pauliuc, 1974. Lymnocythidae. Pliocene. RECORDS. ••1974 ZR: *Oxydacna rumana* Pauliuc, 1974 sp. nov. Romania, La Vallee de Lopatna. Pliocene. Ref. to Pauliuc, p. 74.
- rumana*** Stefanescu, 1896 – *Horiodacna rumana* Stefanescu, 1896. Lymnocythidae. Miocene. RECORDS. ••1896 ZR: *Horiodacna rumana* Stefanescu, 1896 n. sp. Miocene, Roumania. ••1905 Dollfus, commenting Andrussov 1903: *P. rumana* Sabba. ••1961 ZR: *Prosodacna rumana* Miocene [Ref. Macarovici 1961]. ••1987 Lutskanov: *Horiodacna rumana* Stef.
- rumana*** Tournouër, mss. Fischer, 1886. – *Prosodacna rumana* Fischer, 1886. Lymnocythidae. Pliocene. TYPE LOCALITY. Valea Nigovani, Roumania. RECORDS. ••1886 Fischer: *Prosodacna rumana* Tournouër, mss. ••1886 Fischer: Description p. 223, Pl. 9, fig. 6. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Protodacna rumana* Tournouër. Roumania, B35813.
- rumanum*** (subspecies). – See under *planum rumanum* Wenz, 1942.
- rumanum*** Fontannes, 1886. – *Dacicardium rumanum* (Fontannes 1886). Lymnocythidae. Fossil. RECORDS. ••1975 ZR: *Limnocardium rumanum* Fontannes, 1886 designated type species for new genus *Dacicardium* Ref. to Papaianopol, p. 255. ••1978 ZR: *Dacicardium rumanum* (Fontannes 1886). Description. Ref. to Papaianopol et al. p. 304.
- rupisalbae***. – Combination to be revised: “*Cardium*” (?) *rupisalbae* Osswald, 1930. Cardiidae. Fossil. RECORDS. ••1930 ZR: *Cardium* (?) *rupisalbae* Osswald, 1930 sp. n., fossil.
- rustica*** (mode). – See under *rusticum* Linné, 1758.
- rustici*** Schlf. – Synonym of “*Cardium*” *incertum* Brn. Cardiidae. Fossil. RECORDS. ••1832 Bronn: *Bucardites rustici* Schlf. 176. = *Cardium incertum* Brn. n. 201.
- \**rusticum***. – Homonymy to be noticed. *Cardium rusticum* from 3 sources: Linnaeus, 1758. – Brocchi, 1814. – Eichwald, 1842.
- rusticum*** Brocchi 1814. – Synonym of “*Cardium*” *incertum* Brn. Cardiidae. Fossil. RECORDS. ••1832 Bronn: *Cardium rusticum* Brch. 500 (non Lmk.) = *Cardium incertum* Brn. n. 201.
- rusticum*** Eichwald 1841. [Figs. Part 1 p. 122, 142]. – Synonym of *Cerastoderma glaucum* (Bruguière). OTHER JUDGEMENTS: *Cardium edule* Linnaeus, 1758. – *Cardium eichwaldi* Reeve. – *Cardium lamarcki* Reeve. – *Cerastoderma umbonatum* (Wood, 1850). >> Regarding *Cardium rusticum*: Cardiidae. Recent. DISTRIBUTION. Caspian Sea (Reeve 1845). RECORDS. ••1841 Eichwald, figs. 26–27: *Cardium rusticum*. ••1845 Reeve: *Cardium rusticum*, Eichwald (not of Linnaeus, nor Lamarck) Fauna Caspio-Caucasia. pl. 38. f. 24-27 = *Cardium eichwaldi*. ••1871 Mörch, p. 215, No. 202: *Cardium rusticum* Eichw. (1842) = *Cardium eichwaldi* Reeve = *Cardium (Cerastoderma) edule* L. ••1871 ZR: *C. rusticum* (Eichwald) = *Cardium edule* (L.) var. *inflatum* [Ref. Mörch 1871]. ••1916 Milachewitch: *Cardium rusticum* in Eichwald (1829); Krynicki (1837); Siemaschko (1847); Middendorff (1849); Uljanin (1872); Weinkauff (1880) = *Cardium edule* var. *lamarcki* Reeve (= *Cardium glaucum* Bruguière). ••1968 Logvinenko & Starobogatov: *Cardium rusticum* Eichwald, 1829 (non Linné, 1758) = *Cerastoderma lamarcki* (Reeve). ••1974 Starobogatov: *Cardium rusticum* Eichwald, 1829 (non Linné, 1758) = *Cerastoderma umbonatum* (Wood, 1850).
- rusticum*** Linnaeus, 1758 / Gmelin, 1791. [Figs. Part 1 p. 43, 48, 55, 76, 81, 101, 126. Part 3 p. 847, 848, 849]. – Synonym of *Acanthocardia tuberculata* (Linné, 1758). OTHER JUDGEMENTS: *Cardium edule* Linnaeus, 1758. >> Regarding *Cardium rusticum*: Cardiidae. Recent. TYPE LOCALITY. The Mediterranean (Spengler 1799). TYPE REPOSITORY. Museum of the Linnaean Society, London (Reeve 1844, in Note). RECORDS. ••1705 Rumphius. ID by Linnaeus 1758: *Cardium rusticum* mus. t. 78. f. K. ••1742 Gualtieri. ID by Linnaeus 1758 and by Gmelin 1791: *Cardium rusticum* t. 71. f. M. ••1758 Linnaeus (10<sup>th</sup> edition) No. 78. *Cardium rusticum*. ••1758 Regenfuss. ID by Gmelin 1791: *Cardium rusticum* Conch. I. t. 12. f. 77. 78. ••1758 Regenfuss, I, pl. 12, figs. 77–78: *Cardium rusticum (fide Spengler 1799)*. ••1767 Linné, p. 1124, sp. 91: *Cardium rusticum*. ••1778 Born, G18. *Cardium rusticum* Linn. S.N. Sp. 91. ••1780 Born: *Cardium rusticum* Linn. S. N. Sp. 91. ••1782 Chemnitz, VI, p. 201–202, pl. 19, fig. 197: *Cardium rusticum* Linné (ex museo Spengleriano). ••1782 Chemnitz. ID by Gmelin 1791: *Cardium rusticum* t. 19. f. 197. ••1786 Schröter, No. XIX: *Cardium rusticum* Linn. XII. pag. 1124. Spec. 91. ••1788 Schröter: *Cardium rusticum*. [Reference to Chemnitz (1782) fig. 201]. ••1789 Bruguière, p. 222, No. 15: *Cardium rusticum* Linn. ••1791 Gmelin, p. 3252, No. 23: *Cardium rusticum*. ••1791 Poli: *Cardium rusticum* Linn. pag. 1124 (p. 51–56) (pl. 16, fig. 5–19). ••1799 Spengler, p. 34, No. 20: *Cardium rusticum* Linné Sp. 91. p. 1124. ••1800 Donovan, Pl. 32, fig. 6 *Cardium rusticum*. ••1802 Bosc, III, p. 102: *Cardium rusticum*. ••1815 Wood, p. 225, No. 24: *Cardium rusticum* Linné. ••1817 Dillwyn, I, p. 128, No. 38: *Cardium rusticum* Linnaeus. ••1819 Lamarck, VI, p. 12, No. 30: *Cardium rusticum*. ••1823 Dillwyn, Tab. 333 fig. 170 *Cardium rusticum*. ••1825 Wood, p. 26, No. 25: *Cardium rusticum*. ••1832 Deshayes: *Cardium*

**rusticum**

*rusticum* L. = *Cardium edule* L. •1832 Deshayes: *Cardium rusticum* in Brocc. Fossilis = *Cardium edule* L. •1836 Bosc: *Cardium rusticum*. •1839 Anton, p. 11, No. 403: *Cardium rusticum* Linné. •1840 Sowerby, p. 2, No. 21: *Cardium rusticum* Linn. •1841 Eichwald: *Cardium rusticum* L. •1844 Philippi: *Cardium rusticum* = *Cardium edule* L. [fossil]. •1844 Reeve, sp. 16: *Cardium rusticum* of Poli. •1844 Reeve: *Cardium tuberculatum* Chemnitz, Sowerby, (not of Linnaeus) = *Cardium rusticum*. •1856 Wood & Hanley, No. 25: *Cardium rusticum* Lin. Syst. •1858 Adams & Adams, p. 455: *Cardium (Isocardia) rusticum*, Linn. •1859 Sowerby: *C. rusticum* = *Cardium edule*, Linn. •1867 Hidalgo: *Cardium rusticum*, Linné (in Reeve 1844 fig. 16) = *Cardium tuberculatum* Linné. •1867 Weinkauff: *Cardium rusticum* Linné, Chemnitz = *Cardium tuberculatum* Linné. •1868 ZR: *Cardium tuberculatum* (L.), this name to be restored for *rusticum* (Linné, Reeve) [Ref. Römer 1868]. •1869 Römer: *Cardium rusticum* Linné = *Cardium tuberculatum* L. •1870 Mörch: *C. rusticum* L. junior synonym of *Cardium tuberculatum* L. •1886 Locard: *Cardium rusticum* Linné, 1767, Poli, 1791 = *Cardium tuberculatum*, Linné, 1767. •1888 Kobelt: *Cardium rusticum* Linné, p. 1124 = *Cardium tuberculatum* Linné. •1888 Servain: *Cardium rusticum* of Linnaeus, Poli, Forbes & Hanley. Not of Chemnitz = *Cardium tuberculatum* Linnaeus, 1767. •1890 Paetel: *Cardium rusticum* L. = *tuberculatum* L. juv. •1891 Römer: *Acanthocardia rusticum* L. •1892 B. D. & D. p. 256: *Cardium rusticum* in Linné, 1767; Born 1780; Gmelin 1790; Poli 1791; Scacchi 1836; Reeve 1844; Hanley 1856; Sowerby 1859; Chenu 1862 = *tuberculatum*. •1902 Sherborn, p. 859: *Cardium rusticum* Linnaeus, 1758. •1914 Coen: *Cardium rusticum* L., non Chemnitz nec Lamk., nec auct. = *Eucardium (Rudicardium) tuberculatum* L. forma typica. •1932 Winckworth: *Cardium rusticum* = *Cardium (Cerastoderma) edule lamarcki*. •1939 Steuer: *Cardium (Rudicardium) rusticum* L. •1967 ZR: *Cardium rusticum*, conchology, effect of environmental salinity on size, palaeogeographical significance [Ref. Kovalevskii 1967]. •1969 Nordsieck: *Cardium rusticum* Linné, 1758 = *Rudicardium tuberculatum tuberculatum* (Linné, 1758). •1977 Fischer-Piette: *Cardium rusticum* Linné = *Cardium tuberculatum* Linné. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: 3 specimens Spengler coll. Mediterranean. (?appears to be brown *glaucum*) One specimen Mittellandmeere. DESCRIPTIONS. •1799 Spengler: *Testa antiquata sulcis 20. remotis interstitiis rugosis*. Linné Sp. 91. p. 1124. Shell with 20 ribs. Umbones rather close to the anterior end. Outside dull, calcareous, colour variable; blue, yellow, brown and red transverse stripes. •1844 Reeve: shell somewhat heart-shaped, gibbous, posterior side slightly angulated, radiately ribbed, about 20 rounded ribs, interstices peculiarly crisply wrinkled; fulvous white, ornamented with rather broad rusty-brown transverse bands. REMARKS. •1819 Lamarck: *Cardium rusticum*; close to *Cardium edule* Lin. but different from *edule* in Poli. l. tab. 16. f. 5–7. •1844 Reeve: varieties of the common *Cardium edule* appear to have been confounded by several authors with *Cardium rusticum*. The richly

painted specimen here represented answers with remarkable accuracy to Linnaeus' description of his *Cardium rusticum*, which may be easily distinguished by the curious crisped wrinkled sculpture in the interstices between the ribs. •1844 Reeve: *Cardium rusticum* of Poli, but not of Chemnitz, Lamarck, Sowerby and others. Linnaeus' specimen is present in the collection of the Linnaean Society of London marked "91", in Linnaeus' handwriting, referring to the 12th edition of the 'Syst. Nat.' •1844 Reeve, in Note: the original specimen of *Cardium rusticum* No. 91, described by Linnaeus in Syst. natur. 12<sup>th</sup> edition, is deposited in the Museum of the Linnaean Society of London. Reeve concluded that *Cardium tuberculatum* Chemnitz, Sowerby, (not of Linnaeus) = *Cardium rusticum*. However, *Cardium tuberculatum* of Linnaeus, considered identical with *Cardium rusticum* by most authors, is an obscure specimen of *Cardium echinatum*. DIMENSIONS. •1799 Spengler: length 39 mm (1.5 Tom.) width 46 mm (1.75 Tom.). HABITAT. •1844 Forbes: Aegean Sea depth range littoral. DISTRIBUTION. •1844 Reeve: Adriatic and other seas of southern Europe. •1856 Wood & Hanley: Britain & c. •1891 Römer: Rügen, the Baltic.

**rusticum** Chemnitz, 1782. *Non binominal*. – Not available. OTHER JUDGEMENTS: *Cerastoderma edule* (Linnaeus, 1758). – *Cerastoderma glaucum* (Bruguière, 1789). – *Cardium lamarcki* Reeve, 1845. >> Regarding *Cardium rusticum*: *Cardiidae*. Recent. RECORDS. •1844 Forbes: *Cardium rusticum* Chemn. •1856 Wood & Hanley: *C. rusticum* Ch. (not Lin.) = *Cardium glaucum* Brug. •1867 Weinkauff: *Cardium rusticum* Chemnitz non Linné = *Cardium edule* Linné. •1868 ZR: *C. rusticum* (Chemn. not L.) variety of *Cardium edule* (L.) [Ref. Römer 1868]. •1869 Römer: *Cardium rusticum* Chemn. non L. = *Cardium edule* L. •1886 Locard: *Cardium rusticum* (n. Linné, 1845), Chemnitz, 1782 = *Cardium lamarcki*, Reeve, 1845. •1888 Kobelt: *Cardium rusticum* Chemnitz = *Cardium edule* var. *inaequilatera*. •1888 Servain: *Cardium rusticum*, Chemnitz, non Linnaeus = *Cardium lamarcki* Reeve, 1845. •1890 Hidalgo: Var. *Cardium rusticum* Chemnitz and Lamarck, non Linné = *Cardium edule* Linné. •1890 Paetel: *Cardium rusticum* Ch. = *C. edule* L. •1902 Bellini: *C. rusticum*, Chemn., Lam. = *Cardium (Cerastoderma) lamarcki*, Reeve.

**rusticum** of Donovan – Synonym of *Cerastoderma edule* (Linné, 1758). >> Regarding *Cardium rusticum*: *Cardiidae*. Recent. RECORDS. •1817 Dillwyn: *Cardium rusticum* Donovan = *Cardium edule* Linnaeus. •1844 Brown: *Cardium rusticum* of Donovan = *Cardium edule*.

**rusticum** of Lamarck. [Figs. Part 1 p. 141]. – Synonym of *Cerastoderma edule* (Linné, 1758). OTHER JUDGEMENTS: *Cardium lamarckii*. >> Regarding *Cardium rusticum*: *Cardiidae*. Recent. DISTRIBUTION. Brest (Grasset 1884). RECORDS. •1836 Philippi: *Cardium rusticum* Lamk. = *Cardium edule*. •1845 Reeve: *Cardium rusticum* Lamarck (not of Linnaeus) = *Cardium lamarckii*. •1850 Jay: *Cardium rusticum* Lam. = *Cardium lamarckii*. •1866 Brusina: *Cardium rusticum* Lamarck. •1870 ZR: *Cardium rusticum* Lam., non Linné, in brackish water on the shores of the in Eastern Holstein [Ref. Friedel 1870]. •1878

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- Monterosato: *Cardium rusticum*, Lk. (non Lin.) = *C. Clodiense*, Ren. (non Brocc.) = *C. Lamarcki*, Reeve = *C. glaucum* Bruguière = *C. edule*, auctt. (non L.). •1884 Grasset: *Cardium rusticum*. Lam. Brest (Grasset 1884).
- rusticum** of Philippi, 1836. – Synonym of *Cerastoderma edule* (Linné, 1758). >> Regarding *Cardium rusticum*: Cardiidae. Recent. DISTRIBUTION. Mediterranean (Wood & Hanley 1856). RECORDS. •1856 Jeffreys: (*Cardium rusticum*, Ph.) = *Cardium* var. *edule*, B. M. (Note: Ph. & B. M. = Philippi and “British Mollusca”, Forbes & Hanley 1849 respectively). •1880 Stossich: *Cardium rusticum*, in Philippi, 1836 = *Cardium edule* Linné. •1900 Locard & Caziot: *Cardium rusticum* (according to Philippi 1844) in Requien, p. 27 = *Cardium edule* Linné, 1767.
- rusticum** of Poli. – Synonym of *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *Cardium rusticum*: Cardiidae. Recent. RECORDS. •1829 Costa: *C. rusticum* Poli = *Cardium tuberculatum* L. •1836 Philippi: *Cardium rusticum* Poli t. 16. f. 5 etc. = *Cardium tuberculatum* L. •1844 Potiez & Michaud: *Cardium rusticum* Poli = *Cardium tuberculatum* Linn. •1902 Sherborn, p. 859: *Cerastoderma* (L.) *rusticum* Poli, 1795. – *Cardium rusticum*.
- rusticum alpha** Born, 1778 (variety). – Infrasubspecific. Unknown. RECORDS. •1778 Born, G18. *rusticum* var. *alpha*: alba, facies ferrugineis.
- rusticum beta** Born, 1778 (variety). – Infrasubspecific. Unknown. RECORDS. •1778 Born, G18. *rusticum* var. *beta*: nivea.
- rusticum gamma** Eichwald (variety). – Infrasubspecific. Probably = *Cardium rusticum* Eichwald = *Cerastoderma glaucum* (Bruguière). Cardiidae. Recent. RECORDS. •1876 Grimm: *Cardium rusticum* var. *gamma* Eichwald.
- rusticum minor** Phil. (variety). – Infrasubspecific. >> Regarding *Cardium rusticum minor*: probably = *Acanthocardia tuberculatum*. Cardiidae. Recent. RECORDS. •1891 Danilo & Sandri: *Cardium rusticum* Chem. var. *minor* Phil. tav. 4. f. 14.
- rusticum** (variety). – See under *edule rusticum* var. *Lamarck*.
- ruthenicum**. – *Cardium ruthenicum*. Cardiidae. Middle Miocene. RECORDS. •1976 ZR: *Cardium ruthenicum*. Middle Miocene. Monastyrz. First record for Poland. Ref. to Musial.
- rutteni** Beets, 1983. – *Laevicardium rutteni* Beets, 1983. Cardiidae. Upper Miocene. RECORDS. •1983 ZR: *Laevicardium* (*Discors*) *rutteni* Beets, 1983 sp. nov. Indonesia. Ref. to Beets, p. 57.
- ruvarzi** Stevanovic, 1951. – *Plagiodacna ruvarzi* Stevanovic, 1951. Lymnocardiiidae. Pontian. RECORDS. •1953 ZR: *Plagiodacna ruvarzi* Stevanovic, 1951 “(Pavl. in coll.) sp. nov. Pontian Serbia.
- rybnicense** (subspecies). – See under *plicatum rybnicense* Grishkevitch & Nevenskaya, 1959.
- rzhaki** Ctyroky, 1972. – *Limnopagetia rzhaki* Ctyroky, 1972. Cardiacea. Miocene. RECORDS. •1972 ZR: *Limnopagetia rzhaki* Ctyroky, 1972. Czechoslovakia. Miocene.
- Rzhakia** (genus) Korobkov, 1954. – Cardiacea. Miocene. RECORDS. •1972 ZR: *Rzhakia* Korobkov, 1954 [Ref. Ctyroky 1972].
- sabbae** Papaianopol, 1981. – *Pontalmyra sabbae* Papaianopol, 1981. Lymnocardiiidae. Upper Miocene. RECORDS. •1981 ZR: *Pontalmyra* (*Pontalmyra*) *sabbae* Papaianopol, 1981 sp. nov. Romania. Ref. to Papaianopol, p. 26.
- sabulosum** Gabb, 1869. – Changed combination *Granocardium sabulosum* (Gabb, 1869). Cardiidae. Cretaceous. RECORDS. •1978 Scott: *Cardium* (*Granocardium*) *sabulosum* Gabb, 1869. •1978 Scott: *Granocardium* (*Granocardium*) *sabulosum* (Gabb, 1869).
- sacellum** Papaianopol, 1982. – New combination: *Lymnocardium sacellum* (Papaianopol, 1982). Lymnocardiiidae. Upper Miocene. TYPE LOCALITY. Pontien et Dacien. Basin Dacique, Romania. RECORDS. •1982 Papaianopol, p. 185, fig.: *Lymnocardium* (*Euxinocardium*) *sacellum* sp. nov.
- sachalinense** Khranova, 1962. – *Clinocardium sachalinense* Khranova, 1962. Cardiidae. Fossil. RECORDS. •1977 Popov: *Clinocardium sachalinense* Khranova, 1962.
- sacrum** Papaianopol, 1982. – New combination: *Lymnocardium sacrum* (Papaianopol, 1982). Lymnocardiiidae. Upper Miocene. TYPE LOCALITY. Pontien et Dacien. Basin Dacique, Romania. RECORDS. •1982 Papaianopol, p. 196, fig.: *Lymnocardium* (*Euxinocardium*) *sacrum* sp. nov.
- sagaseri** Adegoke, 1969. – *Trachycardium sagaseri* Adegoke, 1969. Cardiidae. Pliocene. RECORDS. •1969 ZR: *Trachycardium sagaseri* Adegoke, 1969 sp. nov. Early Pliocene, Coalinga region, California, U.S.A.
- sagawai** Yokoyama, 1927. – Combination to be revised: “*Cardium*” *sagawai* Yokoyama, 1927. Cardiidae. Tertiary. RECORDS. •1927 ZR: *Cardium sagawai* Yokoyama, 1927 sp. n. Tertiary Japan.
- sagittarium** Papaianopol, 1982. – New combination: *Lymnocardium sagittarium* (Papaianopol, 1982). Lymnocardiiidae. Pliocene. TYPE LOCALITY. Pontien et Dacien. Basin Dacique, Romania. RECORDS. •1982 Papaianopol, p. 209, fig.: *Lymnocardium* (*Euxinocardium*) *sagittarium* sp. nov.
- sakaraulense**. – *nomen nudum*. RECORDS. •197. ZR: *Cardium* (*Papillicardium*) *sakaraulense* nom. nud. p. 505, Miocene, Georgia, USSR, Bagdasaryan.
- sakhalinensis** Slodkewitsch, 1938. – Changed combination: *Profulvia sakhalinensis* (Slodkewitsch, 1938). Cardiidae. Miocene & Pliocene. TYPE LOCALITY. Sakhalin Island. RECORDS. •1945 ZR: *Papyridea sakhalinensis* “Kogan” *sic* Upper Miocene. Sakhalin. •1973 Keen: *Fulvia sakhalinensis* (Slodkewitsch, 1938) (Papyridea). •1976 ZR: *Profulvia sakhalinensis* (Slodkewitsch, 1938) Comb. nov. Transferred from *Papyridea*. Ref. to Kafanov, p. 482 [orig. p.111].
- sakuraii** Habe, 1961. – *Nemocardium sakuraii* Habe, 1961. Cardiidae. Recent. RECORDS. •1961 Habe: *Nemocardium sakuraii* Habe, 1961. •1962 Habe: *Nemocardium sakuraii* Habe. •1964 Habe: *Nemocardium* (*Microcardium*) *sakuraii* Habe. •1977 Fischer-Piette: *Nemocardium sakuraii* Habe. •1977 Habe: *Microcardium sakuraii* Habe, 1961. •1981 Koyama *et al.*: *Microcardium sakuraii*. •1991 Matsukuma, Okutani & Habe: *Nemocardium sakuraii*

*salinaensis* – *samodurovi*

Habe, 1961. – CHARACTERS AND OCCURRENCE – REMARKS. Resembles *C. modestum* Adams & Reeve (non Philippi) but is more rounded posteriorly (Fischer-Piette 1977). DISTRIBUTION. Japan (Hylleberg 1994).

*salinaensis* Meek, 1871. – *Protocardia salinaensis* Meek, 1872. *Cardiidae*. Cretaceous. RECORDS. ••1876 Meek: *Protocardia salinaensis*. ••1876 Meek: *Protocardia salinnaensis* sic Meek, 1871. ••1986 Scott: *Protocardia salinaensis* Meek, 1872.

*salinnaensis* (error). – Printer's mistake for *salinaensis* in Meek 1876.

*sallomacense* Cossmann & Peyrot, 1911. – Synonym of *Acanthocardia turonica* (Hörnes, 1861). >> Regarding *Cardium sallomacense*: *Cardiidae*. Miocene. RECORDS. ••1911 ZR: *Cardium sallomacense* Cossmann & Peyrot, 1911 sp. n. France Neogene. ••1977 Popov: *Acanthocardia sallomacensis* (Cossmann & Peyrot, 1911). ••1987 ZR: *Cardium sallomacense* Cossmann & Peyrot 1912. New synonym of *Acanthocardia (Acanthocardia) turonica* (Hörnes 1861). Ref. to Studencka p. 69. ••1986 Studencka, p. 69: *Cardium sallomacense* Cossmann & Peyrot, 1912; syn. nov.; of *Acanthocardia (Acanthocardia) turonica* (Hörnes, 1861). ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Cardium sallomacense* Cossmann & Peyrot. Burdig. France (Landes), B28704.

*sallomacensis* (mode). – See under *sallomacense* Cossmann & Peyrot.

*salrivalis* Harris, 1919. – *Protocardia salrivalis* Harris, 1919. *Cardiidae*. Eocene. RECORDS. ••1919 ZR: *Protocardia salrivalis* Harris, 1919 sp. n. Eocene U.S.A.

*saltieri* d'Archiac. – Combination to be revised: "*Cardium*" *saltieri* d'Archiac. *Cardiidae*. Lower Eocene. RECORDS. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium saltieri* d'Archiac. B22948.

*salvationemense* Lautenschläger, 1962. – Synonym of *Ciliatocardium asagaiense* (Makiyama 1934). >> Regarding *salvationemense*: *Cardiidae*. Fossil. RECORDS. ••1974 ZR: *Ciliatocardium salvationemense* Lautenschläger, 1962. Comb. nov. Ref. to Kafanov, p. 1469. ••1980 ZR: *Ciliatocardium salvationemense* (Lautenschläger 1962) is a junior synonym of *C. asagaiense* (Makiyama 1934). Ref. to Kafanov.

*samanicum* Olsson, 1928. – Combination to be revised: "*Cardium*" *samanicum* (Olsson, 1928). *Cardiidae*. Tertiary. RECORDS. ••1928 ZR: *Cardium (Trigoniocardia) samanicum* Olsson, 1928 sp. n. Tertiary N. Peru.

*samarangae* Makiyama, 1934. – *Nemocardium samarangae* (Makiyama, 1934). *Cardiidae*. Recent. Type species: Habe (1951) designated *Nemocardium samarangae* Makiyama, 1934 type species of the subgenus (*Keenaea*) Habe, 1951. Recognised at the generic level by authors. Keen (1954) *Cardium samarangae* Makiyama, 1934 is type species of *Keenaea* Habe, 1951. TYPE LOCALITY. Eastern Seas. RECORDS. ••1850 Adams & Reeve, p. 77, pl. 22, fig. 6: *Cardium modestum*. ••1872 Carpenter: *Cardium modestum* Adams & Reeve. ••1882 Dunker: *Cardium modestum* Adams & Reeve. ••1895 Pilsbry: *Cardium modestum* Adams & Reeve. ••1934 Makiyama:

*Cardium samarangae*; new name for *Cardium modestum* Adams & Reeve, 1850. ••1940 Nomura & Niino: *Cardium samarangae*. ••1940 Nomura: *Nemocardium samarangae*. ••1950 Keen: *Nemocardium samarangae* Makiyama, 1934. ••1951 Habe: *Nemocardium (Keenaea) samarangae*. ••1952 Kuroda & Habe: *Nemocardium samarangae*. ••1952 ZR: *Cardium samarangae* Makiyama subgenotype of *Keenaea* Habe, 1951 subgen. nov. of *Nemocardium*. ••1954 Keen: *Cardium samarangae* Makiyama, 1934. ••1952 Kuroda & Habe: *samarangae* Makiyama = *Nemocardium adamsi* sic. ••1954 Keen: *Nemocardium (Keenaea) samarangae* (Makiyama), 1934. ••1955 Kira: *Nemocardium samarangae*. ••1958 Habe: *Keenaea samarangae* Makiyama. ••1962 Kira: *Nemocardium (Keenaea) samarangae*. ••1964 Shikama: *Nemocardium samarangae*. ••1968 ZR: *Nemocardium samarangae* first record from off Rikuchu coast, Iwate prefecture, Japan [Ref. Habe & Kosuge 1968]. ••1969 Moore *et al.*: *Nemocardium (Keenaea) samarangae* Makiyama, 1934. ••1971 Kuroda, Habe & Oyama: *Nemocardium (Keenaea) samarangae*. ••1977 Fischer-Piette: *Nemocardium samarangae* Makiyama. ••1977 Popov: *Pratulium samarangae* (Makiyama). ••1981 Koyama *et al.*: *Keenaea samarangae*. ••1990 Gladenkov & Sinelnikova: *Nemocardium samarangae* (Makiyama, 1934). ••1991 Matsukuma, Okutani & Habe: *Keenaea samarangae* (Makiyama, 1934). – CHARACTERS AND OCCURRENCE – DIMENSIONS. 28 x 26 x 18 mm (Kuroda *et al.*, 1971). HABITAT. Fine sand, mud at 50–300 m depth (Kuroda *et al.* 1971). DISTRIBUTION. East China Sea (Hylleberg 1994); Japan, Honshu to Kyushu (Kuroda *et al.* 1971).

*samarangae obliqua* Ozaki, 1957 (subspecies). – *Nemocardium samarangae obliqua* Ozaki, 1957. *Cardiidae*. Miocene. RECORDS. ••1957 ZR: *Nemocardium (Keenaea) samarangae obliqua* Ozaki, 1957 subsp. nov. Miocene Koti Prefecture, Japan.

*samarangae taiwanensis* Masuda & Huang, 1990 (subspecies). – *Nemocardium samarangae taiwanensis* Masuda & Huang, 1990. *Cardiidae*. Miocene. TYPE LOCALITY. Western Foothills of northern Taiwan. RECORDS. ••1990 Masuda & Huang, p. 153, fig.: *Nemocardium (Keenaea) samarangae taiwanensis* subsp. nov.

*sambaicum* Maury 1917. – Combination to be revised: "*Cardium*" *sambaicum* (Maury 1917). *Cardiidae*. Neogene. TYPE MATERIAL. Lectotype designated Vokes 1989, p.115. RECORDS. ••1919 ZR: *Cardium (Trigoniocardia) sambaicum* Maury, 1919 sp. n. Tertiary S. Domingo. ••1989 Vokes, p. 115: *Cardium (Trigoniocardia) sambaicum* Maury, 1917.

*sambaicum portoricoensis* Hubbard, 1920 (variety). – Upgraded. Combination to be revised: "*Cardium*" *sambaicum portoricoensis* Hubbard, 1920. *Cardiidae*. Tertiary. RECORDS. ••1920 ZR: *Cardium (Trigoniocardia) sambaicum portoricoensis* Hubbard, 1920 var. n. Tertiary Porto Rico.

*samodurovi* Merklin, 1960. – *Cerastoderma samodurovi* Merklin, 1960. *Cardiidae*. Fossil. RECORDS. ••1975 ZR: *Cerastoderma (Cerastoderma) samodurovi* Merklin, 1975 sp. nov. USSR, north Aral region, Kokturnak Peninsula. Middle Oligocene. Ref. to Merklin, p. 96.

- 1977 Popov: *Cerastoderma samodurovi* Merklin, 1960.
- sancatsense**. – Changed combination: *Acanthocardia sancatsense*. Cardiidae. Upper Miocene. RECORDS.
- 1973 ZR: *Cardium (Acanthocardia) sancatsense*. First record. Czechoslovakia. Ref. to Ondrejickova.
- sanctdavidis** Maury, 1925. – *Trachycardium sanctdavidis* (Maury, 1925). Cardiidae. Fossil. RECORDS. ••1977 Popov: *Trachycardium (Dallocardia) sanctdavidis* (Maury, 1925).
- sanctisabae** C.F. Roemer, 1849. – Combination to be revised: “*Cardium*” *sanctisabae* C.F. Roemer, 1849. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 5732: *Cardium sanctisabae* C.F. Roemer, 1849 [as *sancti Sabae*].
- sanctisebastiani** Maury, 1920. – Combination to be revised: “*Cardium*” *Trigoniocardia sanctisebastiani* (Maury, 1920). Cardiidae. Tertiary. RECORDS. ••1920 ZR: *Cardium (Trigoniocardia) sanctisebastiani* Maury, 1920 sp. n. Tertiary Porto Rico.
- sandbergri** Gümbel, 1861. – Combination to be revised: “*Cardium*” *sandbergri* Gümbel, 1861. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium sandbergri* Gümbel, 1861; p. 743.
- sandigii** Caster, 1938. – Combination to be revised: “*Cardium*” *sandigii* Caster, 1938. Cardiidae. Eocene. RECORDS. ••1938 ZR: *Cardium sandigii* sp. n. Eocene, Luculo, R., Angola [without auct. 1938]. ••1939 ZR: *Cardium sandigii* Caster, 1938 sp. n. Eocene at mouth of Luculo River. Angola.
- sanguineotincta** Preston (invalid). – *Nomen nudum*. One lot (identified as *Cardium oxogonum* Sowerby, 1833 by Vidal 1999) at the BMNH (reg. 1910–12–13–15), from Sri Lanka, is labeled as a type series of “*Cardium sanguineotincta*” Preston; another lot AMS C034080, from Sri Lanka, is labeled as a cotype lot of the same taxon (Vidal 1999). Since there is no description or reference to *Cardium sanguineotincta* in the literature, it is a *nomen nudum*. J. Hylleberg located one specimen of “*Cardium sanguineotincta*” at the Natural History Museum in Vienna (labeled co-type) and one specimen labeled type in the Dautzenberg collection, Natural History Museum, Brussels. RECORDS. ••1999 Vidal, p. 289: *Vasticardium sanguineotinctum*. See under *oxogonum*.
- \***santacruzense**. – **Homonymy to be noticed.** *Cardium santacruzense* from 2 sources: Ihering, 1914. – Feruglio, 1936.
- santacruzense** Feruglio, 1936. Combination to be revised: “*Cardium*” *santacruzense* (Feruglio, 1936). Cardiidae. Cretaceous. RECORDS. ••1937 ZR: *Cardium (Hemicardium?) santacruzense* Feruglio, 1936 sp. n. Cretaceous Argentina. ••1938 ZR: *Cardium (Hemicardium?) santacruzense* n. f. Upper Cretaceous, Calafate [Ref. Ferruglio 1936].
- santacruzense** Ihering, 1914. – Combination to be revised: “*Cardium*” *santacruzense* Ihering, 1914. Cardiidae. Patagonian. RECORDS. ••1935 ZR: *Cardium santacruzense* Ihering, 1914 sp. n. Upper Patagonian Santa Cruz.
- saportae** Coquand, 1862. – Combination to be revised: “*Cardium*” *saportae* Coquand, 1862. Cardiidae. Fossil. RECORDS. ••1871 Stoliczka, 113: *C. saportae* Coquand, 1862. ••1980 Ruhoff: *Cardium saportae* Coquand, 1862; vol. 2: 207, pl. 11, figs. 8–9.
- sarbiense** (variety). – See under *schedelianum* var. *sarbiense* Gillet, 1943.
- Sarmaticardium** Bagdasarian, 1978 (genus). – Cardiidae. Fossil. RECORDS. ••1979 ZR: *Sarmaticardium* Bagdasarian, 1979. Gen. nov. Type species *S. vigeni*, Upper Miocene. Ref. to Bagdasarian, p. 40. ••1980 Vokes: *Sarmaticardium* Bagdasarian, 1978. Fossil.
- Sarmaticardium** (subgenus). – RECORDS. ••1987 p. 9. Kojumdgieva: (*Sarmaticardium*) Bagdasarian, 1978. Cardiidae. Miocene, Sarmatian. Emended diagnosis.
- sartasense** Merklin & Nevevsckaya, 1956. – Combination to be revised: “*Cardium*” *sartasense* Merklin & Nevevsckaya, 1956. Cardiidae. Miocene. RECORDS. ••1956 ZR: *Cardium sartasense* Merklin & Nevevsckaya, 1956 sp. nov. Miocene. Turkmenstan and W. Kazakhstan. ••1959 ZR: *Cardium sartasense* Merklin & Nevevsckaya, 1959 sp. nov. Turkmenistan, Miocene.
- sauciatum** Beck. – *Nomen nudum*. REMARKS. After publication of the name *C. australe*, Sowerby (1840) met the name *C. sauciatum* in Mr. Cuming’s collection which had been studied by Dr. Beck, but the name was never published. RECORDS. ••1840 Sowerby, Proc. Z.S. London p. 105: *Cardium sauciatum (nomen nudum)*. ••1840 Sowerby, catalogue p. 1, re sp. 10: *C. sauciatum* Beck = *Cardium australe* Sowerby 1840.
- sauerzopfi** (subspecies). – See under *kuiperi sauerzopfi*.
- sautcatsense** Mayer, 1866. – Combination to be revised: “*Cardium*” *sautcatsense* Mayer, 1866. Cardiacea. Fossil. RECORDS. ••1902 Dollfus & Dautzenberg p. 314: *Cardium sautcatsense* Mayer. ••1970 Glibert & Poel, p. 56: *Cardium (Acanthocardia) sautcatsense* Mayer, 1866. ••1980 Ruhoff: *Cardium sautcatsense* Mayer, 1866; [1857–1869] vol. 14: 75, pl. 2, fig–2.
- Sawkinsia** (genus). – Tridacnacea. Fossil. CHARACTERS. Sawkinsia has symmetrical or nearly symmetrical knob-like spines (Schneider 2002). ••1976 ZR: *Sawkinsia* Cox 1941. Redescription. p. 744. Ref. to Jung. ••1992 Schneider p. 149: *Sawkinsia*; Cox 1941. Referred to Cardiinae (Cardiacea) from Tridacninae. ••1998 Schneider: *Sawkinsia*.
- sayrei** Elias, 1957. – *Conocardium sayrei* Elias, 1957. Conocardiidae. Carboniferous. RECORDS. ••1957 ZR: *Conocardium sayrei* Elias, 1957 sp. nov. Mississippian, Carboniferous, Southern Oklahoma, U.S.A.
- sayri** Richards, 1943. – Combination to be revised: “*Cardium*” *sayri* Richards, 1943. Cardiidae. Fossil. RECORDS. ••1943 ZR: *Cardium (Granocardium) sayri* Richards, 1943 sp. nov. New Jersey. Raritan.
- scabriusculum** Fuchs. – New combination: *Lymnocardium scabriusculum* (Fuchs). Lymnocardiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocardium scabriusculum* (Fuchs).
- \***scabrum**. – **Homonymy to be noticed.** *Cardium scabrum* from 2 sources: Philippi, 1844. – Reuss, 1844. **scabrum** of Uljanin (1872). – Misidentification. Changed combination: *Parvicardium simile* (Milashevich). Cardiidae. Recent. RECORDS. ••1916 Milachewitch: *Cardium scabrum* in Uljanin (1872) = *Cardium simile* Milachewitch. ••1962 Grossu: *Cardium scabrum* Philippi in Uljanin (1872) = *Cardium (Parvicardium) simile* Milashevich sic.



**scabrum – schemachinica**

- scabrum** Philippi, 1844. – *Parvicardium scabrum* (Philippi, 1844). *Cardiidae*. Recent. RECORDS. ••1844 Philippi, p. 38, pl. 14, fig. 16: *Cardium scabrum* n. sp. ••1859 Sowerby: *C. scabrum* Ph. = *Cardium punctatum* Broc. ••1867 Weinkauff: *Cardium scabrum* Philippi = variety of *Cardium roseum* Lamarck. ••1868 ZR: *Cardium nodosum* (Mont.) is perhaps not = *roseum* (Lam.), or *punctatum* (Brocchi), or *scabrum* (Phil.) [Ref. Römer 1868]. ••1869 Römer: *Cardium scabrum* Philippi, an varietas ? (not close to *nodosum*). ••1880 Stossich: *Cardium scabrum*, Philippi. 1844 = *Cardium nodosum* Montagu. ••1886 Locard: *Cardium scabrum* Philippi, 1844. = *Cardium roseum*, de Lamarck, 1818. ••1888 Kobelt: *Cardium scabrum* Philippi = *Cardium nodosum* Turton. ••1890 Paetel: *Cardium scabrum* Phil. = *nodosum* Mtg. ••1900 Locard & Caziot: *Cardium scabrum* (Phil) in Requin = *Cardium nodosum* Turton, 1822. ••1917 Hidalgo: *Cardium scabrum* Philippi = *Cardium nodosum* Turton. ••1922-32 Sherborn, p. 5765: *Cardium scabrum* Philippi, 1844. ••1932 Winckworth: *Cardium (Parvicardium) scabrum* Philippi, 1844. ••1938 ZR: *Cardium scabrum* larvae, figs. [Ref. Lebour 1938]. ••1962 Allen: *Cardium (Parvicardium) scabrum* Philippi 1844 = *Cardium nodosum* in Jeffreys 1863. ••1969 Nordsieck: *Parvicardium scabrum* Philippi, 1836. ••1971 ZR: *Cardium scabrum* New record. West of British Isles Glamorgan–Pembrokeshire coastal region [Ref. Taylor 1971]. ••1973 ZR: *Cardium scabrum* Philippi. New synonym of *C. ovale* Sowerby, p. 282. Ref. to Rasmussen. ••1974 Clarke: *Parvicardium scabrum* (Philippi). ••1977 Fischer–Piette: *Cardium scabrum* Philippi = *Cardium nodosum* Montagu. ••1978 Janssen & Van der Slik: *Parvicardium scabrum* (Philippi, 1844). ••1991 van Aartsen & Giannuzzi-Savelli: *Parvicardium scabrum* (Philippi, 1844) valid name. ••1998 Macedo *et al.*: *Parvicardium scabrum* (Philippi, 1844). – CHARACTERS AND OCCURRENCE – HABITAT. The species *nodosum* at 9–420 m depth, in the North Sea from 42 m depth and down (Nordsieck 1969). DISTRIBUTION. *C. nodosum* North Norway, Ireland, Canary Islands, Mediterranean (Nordsieck 1969).
- scabrum** Reuss, 1844. – Combination to be revised: “*Cardium*” *scabrum* Reuss, 1844. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 5765: *Cardium scabrum* Reuss, 1844.
- scacchii** Deshayes, 1853. – Combination to be revised: “*Cardium*” *scacchii* Deshayes, 1853. *Cardiacea*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium scacchii* Deshayes, 1853; vol. 2: 70.
- scalata** Vidal, 1994. [Figs. Part 3 p. 890]. – *Fulvia scalata* Vidal, 1994. *Cardiidae*. Recent. TYPE LOCALITY. New Caledonia. RECORDS. ••1994 Vidal, p. 108, pl. 1, figs. 3, 4; pl. 3, figs 5 a,b, 7: *Fulvia (Fulvia) scalata* sp. nov. ••1998 Lamprell & Healy: *Fulvia (Fulvia) scalata* Vidal, 1994. ••2001 Vidal, p. 407: *Fulvia scalata*. ••2003 Hylleberg & Kilburn, p. 183: *Fulvia scalata* (Vidal, 1994). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••2001 Vidal: tentacles numerous. Eyes on tip of tentacles. DISTRIBUTION. ••2003 Hylleberg & Kilburn: 3 valves from “Sainson”? are deposited in the Collection Saurin at MNHN, Paris (J. Vidal).
- scapoosense** Clark, 1925. – Changed combination: *Clinocardium scapoosense* (Clark, 1925). *Cardiidae*. Oligocene. RECORDS. ••1927 ZR: *Cardium (Cerastoderma) scapoosense* Clark, 1927 sp. n. Oligocene W. N. America. ••1977 Popov: *Clinocardium scapoosense* (Clark, 1925).
- scarsellai** Tavani, 1948. – Combination to be revised: “*Cardium*” Tavani, 1948. *Cardiidae*. Cretaceous RECORDS. ••1948 ZR: *Cardium (Protocardia) scarsella* Tavani, 1948 sp. nov. Cretaceous Somaliland.
- schafferi barrandei** Kautsky, 1925 (variety). – Upgraded. *Acanthocardia schafferi barrandei* Kautsky, 1925. *Cardiidae*. Miocene. RECORDS. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Acanthocardia schafferi* var. *barrandei* Kautsky, 1925. Bulgaria (Dobroucha), B44409.
- schakonensis** Wassoievic & Eberzin, 1930. – *Macrodacna schakonensis* Wassoievic & Eberzin, 1930. *Lymnocardidae*. Fossil. RECORDS. ••1931 ZR: *Monodacna schakonensis* Wassoievic & Eberzin, 1930 sp. n., m. URSS Pliocene. ••1967 Ebersin: *Macradacna schakonensis* Ebers. et Wass. ••1967 ZR: *Macradacna schakonensis* (Ebers. & Wass., 1930) pro *Monodacna schakonensis* Ebers. & Wass., 1930 [Ref. Eberzin 1967]. ••1977 Popov: *Macrodacna schakonensis*.
- schatskii** Ruzencev, 1929. – *Monodacna schatskii* Ruzencev, 1929. *Lymnocardidae*. Apscheronian. RECORDS. ••1929 ZR: *Monodacna schatskii* Ruzencev, 1929 sp. n. Apscheronian, Transcaucasia.
- shedelianum** Partsch. – New combination *Lymnocardium shedelianum* (Partsch). *Lymnocardidae*. Miocene. RECORDS. ••1946 ZR: *Limnocardium shedelianum* Partsch Miocene [Ref. Gillet 1943]. ••1998 Schultz: *Limnocardium shedelianum* (Partsch).
- shedelianum sarbiense** Gillet, 1943 (variety). – Upgraded. New combination. *Lymnocardium shedelianum sarbiense* Gillet, 1943. *Lymnocardidae*. Miocene. RECORDS. ••1946 ZR: *Limnocardium shedelianum* Partsch var. *sarbiense* Gillet, 1943 nov. Miocene, Rumania.
- Schedocardia** Stewart, 1930 (genus). – *Cardiidae*. Fossil. RECORDS. ••1978 Freneix & Mackie: Genus *Schedocardia* Stewart, 1930. ••1980 Vokes: *Schedocardia* Stewart, 1930 in subfamily *Cardiinae*. ••2002 Schneider: *Schedocardia*: *Cardiinae*, not *Fraginae*. – CHARACTERS AND OCCURRENCE – DESCRIPTION. ••2002 Schneider: *Schedocardia* has symmetrical or nearly symmetrical knob-like spines.
- Schedocardia** Stewart, 1930 (subgenus). – *Cardiidae*. Paleocene–Eocene. GENOTYPE. Stewart (1930) designated *Cardium hatchetigbeense* Alrich *sic*, 1886 type species of subgenus *Schedocardia* of genus *Acanthocardia*. RECORDS. ••1930 ZR: (*Schedocardia*) Stewart, 1930 subgen. n. of *Plagiocardium* type *Cardium hatchetigbeense* Alrich *sic*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. *Schedocardia* is less oblique than *A. (Acanthocardia)*; spines on ribs weak to obsolete, especially anteriorly. SE. Asia–Africa–Europe–North and South America (Moore *et al.* 1969).
- schemachinica** Andrusov, 1963. – *Didacna schemachinica* Andrusov, 1963. *Lymnocardidae*. Miocene. RECORDS. ••1963 ZR: *Didacna schemachinica*

- Andrusov, 1963 sp. nov. Miocene, Russia.
- schencki** Wiedey, 1928. – Changed combination: *Trachycardium schencki* (Wiedey). *Cardiidae*. Miocene. RECORDS. ••1928 ZR: *Cardium schencki*, Wiedey, 1928 sp. n. Miocene California. ••1944 Keen & Bentson: *Cardium schencki* Wiedey, 1928 (n. sp.). ••1944 Keen & Bentson: *Trachycardium schencki* (Wiedey). ••1954 Keen: *Trachycardium schencki* (Wiedey), 1928 (in unpublished thesis).
- schirvanica** (variety). – See under *ampelakiensis* var. *schirvanica* Andrusov, 1963.
- schirvanica** Ali-Zade & Aleskerov, 1969. – *Hyrkania schirvanica* Ali-Zade & Aleskerov, 1969. *Lymnocardiiidae*. Apsheron. RECORDS. ••1969 ZR: *Hyrkania schirvanica* Ali-Zade & Aleskerov, 1969 sp. nov. Upper Apsheron, Mali Kharam, Azerbaidjan.
- schirvanica** Andrusov, 1909. – *Prosodacna schirvanica* Andrusov, 1963. *Lymnocardiiidae*. Miocene. RECORDS. ••1963 ZR: *Prosodacna schirvanica* Andrusov, 1963 sp. nov. Miocene, Russia. ••1981 ZR: *Prosodacna schirvanica* sic Andrusov, 1909 Designated type species for new genus *Schirvanicardium*. Ref. to Andreescu, p. 129.
- schirvanica major** Andrusov & Ebersin, 1959 (subspecies). – Replaced by *Prosodacna semisulcata babadjanica* Andreescu, 1980. >> Regarding *P. schirvanica major*: *Lymnocardiiidae*. Fossil. RECORDS. ••1980 ZR: *Prosodacna schirvanica major* Andrusov & Ebersin, 1959. Replaced by *Prosodacna semisulcata babadjanica* Andreescu, 1980. Ref. to Andreescu.
- Schirvanicardium** Andreescu, 1974 (genus). – *Lymnocardiiidae*. Tertiary. RECORDS. ••1980. Vokes: *Schirvanicardium* Andreescu, 1974. Subfamily uncertain. ••1981 ZR: *Schirvanicardium* Andreescu, 1981 gen. nov. of *Lymnocardiiidae*, type species *Prosodacna schirvanica* sic Andrusov 1909, fossil. Ref. to Andreescu, p. 129.
- schmidti** Hörnes, 1862. – New combination. *Lymnocardium schmidti* (Hörnes, 1862). *Lymnocardiiidae*. Pannonian. RECORDS. ••1966 ZR: *Lymnocardium schmidti* Pannonian, Mecsek Mts. Yugoslavia, pls. [Ref. Bartha 1966]. ••1980 Ruhoff: *Cardium schmidti* Hörnes, 1862; [1851–1870] vol. 4: 193, pl. 28. Fig. 1.
- schmidti** Khramova, 1962. – *Ciliatocardium schmidti* Khramova, 1962. *Cardiidae*. Fossil. RECORDS. ••1974 ZR: *Ciliatocardium schmidti* Khramova, 1962 Comb. nov. Ref. to Kařanov, p. 1469.
- schmiereri** Schlicum, 1964. *Limnopagetia schmiereri* Schlicum, 1964. *Cardiacea*. Miocene. RECORDS. ••1964 ZR: *Limnopagetia schmiereri* Schlicum, 1964 sp. nov. Miocene, Brombach.
- schoelleri** Magna, 1950. – *Ringicardium schoelleri* Magna, 1950. *Cardiidae*. Neogene. RECORDS. ••1950 ZR: *Ringicardium schoelleri* Magna, 1950 sp. nov. Neogene Aquitaine.
- schreteri** Strausz, 1942. – New combination. *Lymnocardium schreteri* (Strausz, 1942). *Lymnocardiiidae*. Pre. Pliocene. RECORDS. ••1947 ZR: *Limnocardium (Pontalmyra) schreteri* Strausz, 1942 sp. nov. Somlojeno (Upper Pannon) [Pre. Pliocene].
- schirvanica** (error). – Printer's mistake for *schirvanica* in ZR for 1981 with ref. to Andreescu.
- schucherti** McLearn, 1927. – *Protocardia schucherti* McLearn, 1927. *Cardiidae*. Jura. RECORDS. ••1927 ZR: *Protocardia schucherti* McLearn, 1927 sp. n. Jura. Canada.
- schuetti**. – *Limnopappia schuetti*. *Cardiacea*. Fossil. RECORDS. ••1962 ZR: *Limnopappia schuetti*. *Viviparus* horizon. Genotype of *Limnopappia* Schlickum, 1962 of *Cardiidae*.
- schulzi** Yamani, 1975. – *Jurassicardium schulzi* Yamani, 1975. *Cardiidae*. Upper Jurassic. RECORDS. ••1975 ZR: *Jurassicardium schulzi* Yamani, 1975 sp. nov. West Germany, Bavaria, Ingolstadt. Ref. to Yamani, p. 22.
- sciloticum** Sokolov, 1899. – Changed combination: *Parvicardium sciloticum* (Sokolov, 1899). *Cardiidae*. Fossil. RECORDS. ••1977 Popov: *Parvicardium sciloticum* (Sokolov, 1899).
- scitulum** Meek, 1858. – Combination to be revised: “*Cardium*” *scitulum* Meek, 1858. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium scitulum* Meek, 1858; vol. 4: 40.
- scobinatum** Lamarck, 1819. – Synonym of *Parvicardium papillosum* (Poli, 1791). >> Regarding *Cardium scobinatum*: *Cardiidae*. Recent. TYPE LOCALITY. European Seas? (Lamarck). TYPE REPOSITORY. Muséum de Paris, but lost (Lamy 1942). DESCRIPTIONS. Ribs close, echinate–squamose (Latin in Lamarck, translated by J.H.). DISTRIBUTION. Bonifacio (Locard & Caziot 1900). RECORDS. ••1819 Lamarck, p. 14, No. 38: *Cardium scobinatum*. ••1829 Costa: *Cardium scobinatum* = *C. papillosum*, Poli. ••1835 Deshayes p. 408: *Cardium scobinatum* Lamarck. ••1836 Philippi: *Cardium scobinatum* Lamarck = *Cardium papillosum* Poli. ••1869 Römer: ?*Cardium scobinatum* Lamarck = *Cardium papillosum* Poli. ••1862 Weinkauff: *Cardium scobinatum* Lamarck = *Cardium papillosum* Poli. ••1867 Weinkauff: *Cardium scobinatum* Lamarck = *Cardium papillosum* Poli. ••1886 Locard: *Cardium scobinatum*, de Lamarck, 1818 = *Cardium papillosum*, Poli, 1791. ••1888 Kobelt: *Cardium scobinatum* Lam. = *Cardium papillosum* Poli. ••1888 Servain: *Cardium scobinatum* Lamarck = *Cardium papillosum* Poli, 1791. ••1890 Paetel: *Cardium scobinatum* Lm. = *papillosum* Poli. ••1892 Bucquoy; Dautzenberg & Dollfus: *Cardium scobinatum* Lamarck = *Cardium papillosum*. ••1900 Locard & Caziot: *Cardium scobinatum* in Requien = *Cardium papillosum* Poli, 1791. ••1911 Dollfus: *Cardium scobinatum* Lamarck [junior synonym] of *Cardium (Parvicardium) papillosum* Poli. ••1922–32 Sherborn, p. 5809: *Cardium scobinatum* Lamarck, 1819. ••1942 Lamy: *Cardium scobinatum* Lamarck?. ••1977 Fischer–Piette: *Cardium scobinatum* = *Cardium papillosum* Poli?
- scobinella** Deshayes, 1858. – Synonym of “*Cardium*” *sublima* d’Orbigny. >> Regarding *Cardium scobinella*: *Cardiidae*. Eocene. RECORDS. ••1886 Cossmann: *Cardium scobinella* Deshayes = *Cardium sublima* d’Orbigny. ••1980 Ruhoff: *Cardium scobinella* Deshayes, 1858; [1856–1865] vol. 1: 564.
- \***scobinula**. – Homonymy to be noticed. *Cardium scobinula* from 2 sources: Merian in Deshayes, 1858. – Cossmann & Lamb. (?year).
- scobinula** Cossmann & Lamb. – Synonym of “*Cardium*” *kochi* Semp. >> Regarding *Cardium scobinula*: *Cardiidae*. Oligocene. RECORDS. ••1886 Cossmann: *Cardium scobinula*. ••1886 Vincent: *Cardium scobinula*

*scobinula* – *sedanense*

Cossmann & Lamb. = *Cardium kochi* Semp. •1936 ZR: *Laevicardium scobinula* figs. Authorship not shown. [Ref. Gillet & Théobald 1936].

***scobinula*** Merian in Deshayes, 1858. – Combination to be revised: “*Cardium*” *scobinula* Merian. *Cardiidae*. Fossil. RECORDS. •1892 B.D.D. p. 277: *Cardium scobinula* Merian is related to *Cardium papillosum* Goldfuss. •1980 Ruhoff: *Cardium scobinula* Merian in Deshayes, 1858; [1856–1865] vol. 1: 562, pl. 56, figs. 29–32. •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. Stampien. *Cardium scobinula* Merian. France (Bassin de Paris). Germany (Bade), B24907.

***scripta*** (mode and variety). – See under *scriptum* Bucquoy, Dautzenberg & Dollfus, 1892 and *exiguum* var. *scripta* Bucquoy, Dautzenberg & Dollfus, 1892.

***scriptum*** Bucquoy, Dautzenberg & Dollfus, 1892. – Changed combination: *Parvicardium scriptum* (B.D.D., 1892). OTHER JUDGEMENTS: Downgraded to variety *Parvicardium exiguum* var. *scriptum*. >> Regarding *Cardium scriptum*: *Cardiidae*. Recent. DISTRIBUTION. Mediterranean. RECORDS. •1892 Bucquoy, Dautzenberg & Dollfus: *Cardium scriptum*. •1969 Nordsieck: *Parvicardium scriptum* (Bucquoy, Dautzenberg & Dollfus, 1892) = *Parvicardium exiguum* (Gmelin, 1791) var. *scriptum* Bucquoy (sic = Bucquoy), Dautzenberg & Dollfus. •1998 Macedo et al.: *Parvicardium scriptum* (B.D.D., 1892).

***scrivenori*** Kobayashi & Tamura, 1968. – Combination to be revised: “*Cardium*” *scrivenori* Kobayashi & Tamura, 1968. *Cardiidae*. Triassic. RECORDS. •1968 ZR: *Cardium* (s.l.) *scrivenori* Kobayashi & Tamura, 1968 sp. nov. Upper Triassic, Jurong Industrial Estate, Singapore.

***scrobiculatum*** Stoliczka, 1870. – Combination to be revised: “*Cardium*” *scrobiculatum* (*Pectunculus*) Stoliczka, 1870. *Cardiacea*. Fossil. RECORDS. •1980 Ruhoff: *Cardium scrobiculatum* (*Pectunculus*) Stoliczka, 1870; [1870–1871], vol. 3: 219, pl. 11, fig. 4.

***scruposum*** Deshayes, 1854. [Figs. Part 3 p. 907]. – Changed combination: *Fragum scruposum* (Deshayes, 1855). OTHER JUDGEMENTS: *Fragum fragum* (Linnaeus). >> Regarding *Cardium scruposum*: *Cardiidae*. Recent. TYPE LOCALITY. Malacca (syntype, coll. Cuming). TYPE REPOSITORY. 3 syntypes (valves). BMNH London. DISTRIBUTION. Malacca, Andaman Islands. RECORDS. •1855 Deshayes (1854) p. 333: *Cardium scruposum*. •1890 Paetel: *Hemicardium scruposum* Dsh. •1977 Fischer-Piette: *Cardium scruposum* Deshayes = *Corculum fragum* Linné. •1980 Ruhoff: *Cardium scruposum* Deshayes, 1854; p. 333. •1999 Hylleberg, p. 401: *Fragum scruposum* (Deshayes, 1855). ID J. Vidal. •2000 Hylleberg, p. 532: *Fragum scruposum* (Deshayes, 1855). Det. J. Vidal. •2001 Vidal, p. 408: *Fragum scruposum*. •2003 Hylleberg & Kilburn, p. 178: *Fragum scruposum* (Deshayes, 1855). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes. DISTRIBUTION. •2000 Hylleberg: Vietnam and Cambodia. •2003 Hylleberg & Kilburn: Vietnam.

***scutellatum*** Chiareghini in Nardo, 1847. – Combination to be revised: “*Cardium*” *scutellatum* Chiareghini in

Nardo, 1847. ?*Cardiidae*. Fossil. RECORDS. •1922-32 Sherborn, p. 5831: *Cardium scutellatum* Nardo (ex Chiareghini MS), 1847.

***scutula*** Papaianopol & Lubenescu, 1985. – *Pseudoprosodacna scutula* Papaianopol & Lubenescu, 1985. *Lymnocardiidae*. Upper Miocene. TYPE LOCALITY. le Pontien et le Dacien. Basin Dacique, Romania. RECORDS. •1985 Papaianopol & Lubenescu, p. 138, fig.: *Pseudoprosodacna scutula* sp. nov.

***scutula*** Papaianopol, 1989. – *Pachydaena scutula* Papaianopol, 1989. *Lymnocardiidae*. Pliocene. TYPE LOCALITY. Basin Dacique, Romania. RECORDS. •1989 Papaianopol, p. 83, fig.: *Pachydaena* (*Pachydaena*) *scutula* sp. nov.

***secans*** Fuchs, 1870. – New combination: *Lymnocardium secans* (Fuchs, 1870). *Lymnocardiidae*. Fossil. GENOTYPE. Dollfus (1905) *Limnocardium secans* Fischer is type of *Myocardia* v. Vest. RECORDS. •1899 Sacco, p. 58: *Limnocardium secans* (Fuchs, 1870). •1905 Dollfus, commenting Andrussov 1903: *Limnocardium secans* Fischer.

***secundum*** Petiver. – Unknown status. *Cardiidae*. RECORDS. •1789 Bruguière: *Fragum secundum* Petiver.

***securiformis*** Cragin, 1894. – Synonym of *Protocardia filosa* (Conrad, 1857). >> Regarding *Trigonia securiformis*: *Cardiidae*. Cretaceous. RECORDS. •1986 Scott: *Trigonia securiformis* Cragin, 1894 = *Protocardia filosa* (Conrad, 1857). •1986 Scott: *Protocardia securiformis* Cragin, 1895 = *Protocardia filosa* (Conrad, 1857). •1986 Scott: *Roudairia securiformis* Cragin, 1895 = *Protocardia filosa* (Conrad, 1857). •1987 ZR: *Protocardia securiformis* (Cragin, 1893) Junior synonym of *filosa* (Conrad, 1857). Ref. to Scott p. 1203.

***securiformis*** Slodkewitsch, 1938. – Changed combination: *Fulvia securiformis* (Slodkewitsch, 1938). *Cardiidae*. Pliocene. TYPE LOCALITY. Kamtchatka. RECORDS. •1938 Slodkewitsch: *Papyridea securiformis* (fide Keen 1973). •1973 Keen: *Fulvia securiformis* (Slodkewitsch, 1938). •1976 ZR: *Profulvia securiformis* (Slodkewitsch, 1938) Comb. nov. Transferred from *Papyridea*. Ref. to Kafanov, p. 482 [orig. p. 111]. •1990 Gladenkov & Sinelnikova: *Papyridea securiformis* sic Slodk.

***securigera*** Talent, 1963. – *Cypricardina securigera* Talent, 1963. *Cardiacea*. Devonian. RECORDS. •1963 ZR: *Cypricardina securigera* Talent, 1963 sp. nov. Kilgower Member, Tabberabbera Formation, Victoria, Australia, Devonian.

***securus*** Papaianopol, 1982. – *Pseudocatillus securus* Papaianopol, 1982. *Lymnocardiidae*. Upper Miocene. RECORDS. •1982 ZR: *Pseudocatillus securus* Papaianopol, 1982 sp. nov. Romania. Ref. to Papaianopol et al. p. 145.

***secutus*** Ebersin, 1967. – *Pseudocatillus secutus* Ebersin, 1967. *Lymnocardiidae*. Pliocene. RECORDS. •1967 Ebersin: *Pseudocatillus secutus* sp. n. •1967 ZR: *Pseudocatillus secutus* Eberzin, 1967 sp. nov. Pliocene, USSR.

***sedanense*** Pannekoek, 1936. – Combination to be revised: “*Cardium*” *sedanense* (Pannekoek, 1936). *Cardiidae*. Lower Miocene. TYPE LOCALITY. Java. REMARKS. Elongated shape, strong rib sculpture; compared with *spolungense* by its author. RECORDS.

- 1999 Vidal: *Cardium (Trachycardium) sedanense* Pannekoek, 1936: 72, pl. 4, figs 51–51a.
- sedgwichi** Deshayes, 1853. – Combination to be revised: “*Cardium*” *sedgwichi* Deshayes, 1853. *Cardiacea*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium sedgwichi* Deshayes, 1853; vol. 2: 45.
- seikaiana** Amano, Ogata, & Nire, 1958. – Changed combination: ?*Protocardia seikaiana* Amano, Ogata, & Nire, 1958. *Cardiidae*. Cretaceous. RECORDS. ••1958 Amano, Ogata, & Nire: *Tendagurium seikaiana* (fide Keen 1973). ••1973 Keen: ?*Protiocardia (Tendagurium) seikaiana* (Amano, Ogata, & Nire, 1958).
- selene** Vidal, 1999. [Figs. Part 3 p. 877]. – *Acrosterigma selene* Vidal, 1999. *Cardiidae*. Recent. TYPE MATERIAL. All shells from several dredging campaigns in the vicinity of New Caledonia, MNHN, Richer de Forges ORSTOM collection. Holotype: A bivalved shell (Figs 5G, 5H, 5I), S zone of Lagoon, 40–50 m. Paratype 1: A left valve (Fig. 5J), Lansdowne–Fairway Plateau, 67–70 m. Paratype 2: A left valve, south–east of New Caledonia ridge, 200m. Paratype 3: A right valve, Chesterfield–Bellona plateau, 40 m. Paratype 4: A left valve, Lansdowne–Fairway Plateau, 69m. Paratype 5: A bivalved shell, Grand Recif Sud, 70m. Paratypes 6 to 10: Six smaller valves or bivalved shells, from Chesterfield and Lansdowne–Fairway areas. TYPE LOCALITY. New Caledonia. RECORDS. ••1999 Vidal, p. 289, Table 16, Figs. 5G–J: *Acrosterigma selene* sp. nov. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value. It differs from all *Acrosterigma* species by its extremely hollowed lunule (Vidal 1999). DESCRIPTION. Vidal (1999): Shell almost equilateral, neither elongated nor inflated, and very slightly truncated on posterior margin. Lunule well delineated and extremely hollowed on both sides, the right being wider. External colour yellowish–beige, with irregular darker zones and pink to orange spots. Interior whitish with traces of external spots, and two pink umbonal rays which are also visible exteriorly. Hinge moderately angled, and strongly asymmetrical in contrast to the shell itself, which is almost perfectly equilateral. Mean rib number  $36.6 \pm 0.8$  (range 35–38). On posterior shell, the anterior smooth part of ribs much wider than posterior part; intermediate furrow very thin and not always visible in adult region. Scales elongated, sometimes prismatic, straddling the longitudinal furrow, and often almost longitudinally disposed rather than oblique. In median–posterior area, ribs triangular and slightly asymmetrical with posterior flank flat, shorter, and more abrupt, and anterior flank slightly convex. Ribs themselves practically smooth (rarely slightly retro–ridged), with a crestal fold marked by regular, short undulations. On anterior half, ribs become progressively less triangular, then rounded, first retro–ridged or crenulated, then top–ridged. Interstices rounded, smooth, and as wide as ribs. DIMENSIONS. Length 32.9, width 35.3, thickness (calculated) 23.6 mm. REMARKS. Vidal (1999): *Acrosterigma selene* superficially resembles *A. mauritanum* in shape and colour, but has fewer ribs and its rib morphology is different (ribs more triangular). It differs from all *Acrosterigma* species by its unique lunule. DISTRIBUTION. South east of New Caledonia, Chesterfield Bellona Plateau and Lansdowne–Fairway banks.
- sellardsi** Gardner, 1926. – Combination to be revised: “*Cardium*” *sellardsi* Gardner, 1926. *Cardiidae*. Fossil. RECORDS. ••1926 Gardner, p. 140, pl. 23, figs. 11–12: *Cardium* [(*Fragum*) (*Trigoniocardia*)] *sellardsi*. ••1926 ZR: [*Fragum* (*Trigoniocardia*)] *sellardsi* Gardner, 1926 sp. n. Tertiary U.S.A. ••1977 Vokes: *Cardium* [(*Fragum*) (*Trigoniocardia*)] *sellardsi* Gardner, 1926
- sellii** Gillet, 1970. – *Plagiodacna sellii* Gillet, 1970. *Lymnodiidae*. Miocene. RECORDS. ••1970 ZR: *Plagiodacna sellii* Gillet, 1970 sp. nov. Miocene, ‘Monte dei Corvi’ deposits, Ancona district, Italy.
- semialatum** Andrzejowski, 1832. – *Nomen nudum*. Not available. RECORDS. ••1857 Deshayes: *Cardium semialatum*. Audr. sic. 1836. ••1922–32 Sherborn, p. 5831: *Cardium semialatum* Andrzejowski, 1832 [n. n.].
- semialatum** Münster, 1840. – *Cardium semialatum* Münster, 1840. *Conocardiidae*. Fossil. RECORDS. ••1922–32 Sherborn, p. 5831: *Cardium semialatum* Münster, 1840.
- semialatum** Orbigny, 1850. – Transferred to *Conocardium semialatum* d’Orbigny, 1850. *Conocardiidae*. Fossil. RECORDS. ••1922–32 Sherborn, p. 5831: *Conocardium* (Münster) *semialatum* d’Orbigny, 1850. – *Cardium*.
- semiasperum** Deshayes, 1858. – Changed combination: *Nemocardium semiasperum* (Deshayes, 1858). *Cardiidae*. Eocene. Type species: Sacco (1899) designated *Cardium semiasperum* Deshayes, 1858 type species of the genus *Nemocardium* Meek, 1876. Dall (1902) *Cardium semiasperum* Deshayes is type of section *Nemocardium* Meek. Keen (1954) and Scott (1986): *Cardium semiasperum* Deshayes, 1858 is type species of *Nemocardium* Meek, 1876. TYPE LOCALITY. France, Paris Basin. RECORDS. ••1858 Deshayes: *Cardium semiasperum*. ••1886 Cossmann: *Protocardium semiasperum* (Deshayes). ••1886 Dall: *Cardium semiasperum* Deshayes. ••1887 Fischer: *Lyocardium semiasperum* Deshayes. ••1899 Sacco: *Cardium semiasperum* Deshayes, 1858. ••1902 Dall: *Cardium semiasperum* Deshayes. ••1925 Woodring, p. 146: *Cardium semiasperum* Deshayes. Eocene, Paris Basin. ••1947 ZR: *Nemocardium semiasperum* (Deshayes). *Cardium semiasperum* Deshayes, Eocene, France, type of *Nemocardium* Meek 1876, subseq. desig. Sacco 1899. [Ref. Vokes 1946]. ••1950 Keen: *Nemocardium semiasperum* (Deshayes, 1860 sic). ••1954 Keen: *Cardium semiasperum* Deshayes, 1858. ••1986 Scott: *Cardium semiasperum* Deshayes, 1858. ••1969 Moore et al.: *Nemocardium (Nemocardium) semiasperum* (Deshayes, 1858). ••1977 Popov: *Nemocardium (Nemocardium) semiasperum*. ••1977 Popov: *Cardium semiasperum* Deshayes, 1858. Type of *Nemocardium* Meek, 1876. ••1977 Wilson & Stevenson: *Cardium semiasperum* Deshayes, 1858 [Eocene]. ••1980 Ruhoff: *Cardium semiasperum* Deshayes, 1858; [1856–1865] vol. 1: 573, pl. 55, figs. 1–2. ••1992 Schneider p. 155: *Nemocardium semiasperum* (Deshayes). Type species of *Nemocardium*. ••1995 Le Renard et al.: *Nemocardium (s. str.) semiasperum* [*Cardium semiasperum*] Deshayes, 1858. ••1995 Pacaud & Renard: *Nemocardium (Nemocardium) semiasperum*. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from

**semicinetum – semistriatum**

the Paleontological Collection as *Nemocardium semiasperum* Deshayes. Ypresien. France (Bassin de Paris), B700580.

**semicinetum** Münster, 1840. – Combination to be revised: "*Cardium*" *semicinetum* Münster, 1840. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 5853: *Cardium semicinetum* Muenster, 1840.

**semicostata**. – *Pholadomya semicostata*. *Cardiacea*. Fossil. RECORDS. ••1842 Agassiz: *Pholadomya semicostata* (comparison with *Pholadomya crispera* Ag.).

**semicostatum** Lycett, 1850. – Combination to be revised: "*Cardium*" *semicostatum* Lycett, 1850. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 5854: *Cardium semicostatum* Lycett, 1850. ••1980 Ruhoff: *Cardium semicostatum* Lycett, 1850; vol. 6: 422. ••1980 Ruhoff: *Cardium semicostatum* Morris & Lycett, 1853; [1853–1854] vol. 2: 63, pl. 7, figs. 6 a,b.

\***semiglabrum**. – **Homonymy to be noticed.** *Cardium semiglabrum* from 2 sources: Phillips, 1829. – Goldfuss, 1840.

**semiglabrum** Goldfuss, 1840. – Transferred to *Isocardia?* *semiglabrum* (Goldfuss, 1840). ?*Isocardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 5857: *Cardium semiglabrum* Muenster in Goldfuss, 1837. ••1857 Deshayes: *Cardium semiglabrum* Goldfuss, 1840. – *Isocardia?*

**semiglabrum** Phillips, 1829. – *Nomen nudum* accompanied by figure. >> Regarding *Cardium semiglabrum*: *Cardiidae*. Fossil. RECORDS. ••1857 Deshayes: *Cardium semiglabrum* Philips, 1829. ••1922-32 Sherborn, p. 5857: *Cardium semiglabrum* Phillips, 1829 [n. et f.]. ••1947 ZR: *Cardium semiglabrum* Phillips [Ref. Melmore 1947].

**semiglobosum** Matheron. – Combination to be revised: "*Cardium*" *semiglobosum* Matheron. *Isocardiidae*. Fossil. RECORDS. ••1857 Deshayes: *Cardium semiglobosum* Matheron. Not a cardiid: in genus *Isocardia*.

**semigranosum** Sowerby. – Identical with *Nemocardium semistriatum oligocena* Sacco. >> Regarding *C. semigranosum*: *Cardiidae*. Oligocene. RECORDS. ••1835 Lamarck: *Cardium semigranosum* Sow. ••1899 Sacco, p. 57: *Cardium semigranosum* Sow. No. 1535, Sacco 1889. = *Nemocardium semistriatum* var. *oligocena* Sacco.

\***semigranulatum**. – **Homonymy to be noticed.** *Cardium semigranulatum* from 2 sources: Sowerby, 1816. – Sowerby 1847.

**semigranulatum** Sowerby, 1816. – New combination. *Nemocardium semigranulatum* (Sowerby, 1816). *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 5858: *Cardium semigranulatum* Sowerby, 1816. ••1977 Popov: *Nemocardium* (*Nemocardium*) *semigranulatum* (Sowerby, 1816).

**semigranulatum** of Sowerby 1847. – Replaced by *Laevicardium taurovatum* Sacco, 1899. >> Regarding *Cardium semigranulatum*: *Cardiidae*. Fossil. RECORDS. ••1899 Sacco: *Cardium semigranulatum* Sowerby 1847 = *Laevicardium taurovatum* Sacco, 1899. ••1922-32 Sherborn, p. 5858: *Cardium semigranulatum* Sowerby in Dixon, 1850.

**semilineatum** Koenen, 1864. – *Nemocardium semiliniatum* (Koenen, 1864). *Cardiidae*. Oligocene. RECORDS. ••1899 Sacco, p. 54: *Laevicardium*

*semilineatum* (Koen.). ••1977 Popov: *Nemocardium* (*Habecardium*) *semilineatum* (Koenen, 1864).

**seminulum** Fr. Roemer, 1852. – Combination to be revised: "*Cardium*" *seminulum* Fr. Roemer, 1852. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium seminulum* Fr. Roemer, 1852; [1850–1852] vol. 3: 79, pl. 12, fig. 12.

**semipapillatum** Reuss, 1844. – Combination to be revised: "*Cardium*" *semipapillatum* Reuss, 1844. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 5864: *Cardium semipapillatum* Reuss, 1844.

**semipellucida** Logvinenko & Starobogatov, 1967. – *Hypanis semipellucida* Logvinenko & Starobogatov, 1967. *Lymnocardidae*. Recent. RECORDS. ••1968 Logvinenko & Starobogatov: *Hypanis semipellucida* Logvinenko & Starobogatov, 1967.

**semiplenum** White. – *Conocardium semiplenum* White. *Conocardiidae*. Fossil. RECORDS. ••1943 ZR: *Conocardium semiplenum* White Ref. to Branson (1942).

**semipunctatum** Münster in Goldfuss, 1837. – Combination to be revised: "*Cardium*" *semipunctatum* Münster in Goldfuss, 1837. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 5865: *Cardium semipunctatum* Muenster in Goldfuss, 1837.

**semipustulosum** – Combination to be revised: "*Cardium*" *semipustulosum*. *Cardiidae*. Fossil. RECORDS. ••1889 ZR: *Cardium semipustulosum* with fig. (ref. Holzapfel). ••1922-32 Sherborn, p. 5866: *Cardium semipustulosum* J. Müller, 1846.

**semiseptiferum** d'Orbigny, 1850. – Combination to be revised: "*Cardium*" *semiseptiferum* d'Orbigny, 1850. *Cardiidae*. Lias–Jurassic. RECORDS. ••1922-32 Sherborn, p. 5868: *Cardium semiseptiferum* d'Orbigny, 1850. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium semiseptiferum* d'Orbigny. Rauracien. France (Yonne), S04051.

**semistriatum** Deshayes. – RECORDS. ••1922-32 Sherborn, p. 5868: *Cardium semistriatum* Deshayes; err. Brown pro *semistriatum* q.v.

\***semistriatum**. – **Homonymy to be noticed.** *Cardium semistriatum* from 3 sources: Bean in Young & Bird, 1828. – Deshayes, 1829. Münster, 1840.

**semistriatum** Bean in Young & Bird, 1828. – Combination to be revised: "*Cardium*" *semistriatum* Bean in Young & Bird, 1828. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 5868: *Cardium semistriatum* Bean in Young & Bird, 1828. ••1994 Renard, J. le: not *Cardium semistriatum* Deshayes, 1829.

**semistriatum** Deshayes, 1829. – Replaced by *Nemocardium* (*Nemocardium*) *keenae* Renard, 1994. >> Regarding *Cardium semistriatum*: *Cardiidae*. Eocene. RECORDS. ••1829 Deshayes: *Cardium semistriatum*. ••1835 Lamarck: *Cardium semistriatum* Desh. ••1857 Deshayes: *Cardium semistriatum* Desh. 1830 sic. ••1886 Cossmann: *Protocardium semistriatum* (Deshayes). ••1922-32 Sherborn, p. 5868: *Cardium semistriatum* Deshayes, 1829. ••1977 Popov: *Nemocardium* (*Nemocardium*) *semistriatum* (Deshayes, 1858). ••1994 Renard, J. le, p. 39: *Cardium semistriatum* Deshayes 1829; preoccupied name replaced by *Nemocardium* (*Nemocardium*) *keenae*.

*semistriatum* – *senticosum*

- 1995 Le Renard *et al.*: *Nemocardium* (*s. str.*) *keenae* Le Renard, 1994 (= *semistriatum* Desh. non Bean).  
 •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Cardium* (and *Nemocardium*) *semistriatum* Deshayes. Lutetien. Lower Eocene. France (Bassin de Paris). U.K. (Hants), B21200. Turkey, B22331.
- semistriatum* Münster, 1840. – *Conocardium semistriatum* (Münster, 1840). OTHER JUDGEMENTS: *Cardium lunatum* Deshayes. >> Regarding *C. semistriatum*: Conocardiidae. Silurian–Devonian. REMARKS. *Lunulicardium* Münster, 1840 not in Cardiidae (*vide* Fischer 1887). RECORDS. •1857 Deshayes: *Cardium semistriatum* Münster. 1840. – *C. lunatum*. Desh. •1887 Fischer: *Lunulicardium semistriatum* Münster, 1840. •1922-32 Sherborn, p. 5869: *Lunulacardium semistriatum* Muenster, 1840. •1922-32 Sherborn, p. 5869: *Conocardium* (Muenster) *semistriatum* d'Orbigny, 1850. – *Lunulacardium*.
- semistriatum oligocenica* (cf.) Sacco, 1899 (variety). – *Nemocardium* cf. *semistriatum oligocenica* Sacco, 1899. Cardiidae. Oligocene. RECORDS. •1899 Sacco, p. 57, pl. 12, fig. 24: *Nemocardium* cf. *semistriatum* var. *oligocenica* Sacco.
- semisulcata* (mode). – See under *semisulcatum* Gray, 1825.
- \**semisulcata*. – Homonymy to be noticed. *Cardium semisulcata* from 2 sources: Gray, 1825. – Rousseau in Demidoff, 1842.
- semisulcata* Gray, 1825. [Figs. Part 3 p. 916]. – Changed combination: *Papyridea semisulcata* (Gray, 1825). Cardiidae. Pliocene and Recent. TYPE LOCALITY. Cuba. RECORDS. •1825 Gray, p. 137: *Cardium semisulcatum*. •1885 Smith: *Cardium* (*Papyridea*) *semisulcatum*, Gray, 1825. •1902 Dall: *Cardium* (*Papyridea*) *semisulcatum* Gray, 1825 [Pliocene to Recent]. •1902 Dall & Simpson: *Cardium semisulcatum* Gray. •1934 Johnson: *Papyridea semisulcatum* Gray 1825. (*C. petiana* Orbigny 1846). •1936 McLean: *Papyridea semisulcatum* Gray. •1939 McLean: *Papyridea semisulcata* (Gray, 1825). •1939 ZR: *Papyridea semisulcatum* [Ref. McLean 1939]. •1953 Olsson & Harbison: *Papyridea semisulcatum* (Gray, 1825). •1957 Nowell–Usticke: *Papyridea semisulcata* Sowerby. •1958 Abbott: *Papyridea semisulcata* Gray 1825 senior synonym of *Papyridea petitianum* Orbigny 1846, which is the orange form. •1962 Warmke & Abbott: *Papyridea semisulcata* Gray, 1825. •1963 Coomans: *Papyridea semisulcata* (Gray). •1968 Jong & Kristensen: *Papyridea semisulcata* Gray. •1968 Kempf & Matthews: *Papyridea semisulcata* Gray, 1825. •1970 Rios: *Papyridea semisulcata* (Gray, 1825). •1973 Waller: *Papyridea semisulcata* (Gray, 1825). •1977 Fischer–Piette: *Papyridea semisulcatum* Gray. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. Dall & Simpson (1902): Shell small, elliptical, thin, very inequilateral, moderately inflated, with numerous low ribs, and with more or less perfectly developed smaller ribs between the larger ones, the margin at the posterior end sharply toothed; surface covered with fine concentric growth lines, which are stronger on the anterior part of the shell; interior showing the sculpture; hinge teeth compressed. Colour whitish or yellowish, with faint brown blotches and spots. McLean (1939): 24–25 narrow ribs. DIMENSIONS. 13 x 9 x 7 mm (McLean 1939); length 10, height 6.5, diameter 5 mm (Dall & Simpson 1902). DISTRIBUTION. South Florida, West Indies, Brazil.
- semisulcata* Rousseau in Demidoff, 1842. – Changed combination: *Prosodacna semisulcatum* (Rousseau in Demidoff, 1842). Lymnocardiidae. Fossil. TYPE LOCALITY. Crimean. RECORDS. •1842 Rousseau, vol. II, p. 810, pl. IX, fig. 1: *Cardium semisulcatum*. •1886 Fischer: *Cardium semisulcatum* Rousseau. •1886 Fischer: *Prosodacna semisulcatum* Rousseau, 1842. •1905 Dollfus, commenting Andrussow 1903: *Prosodacna semisulcata* Rouss. •1907 Andrussow: *Prosodacna semisulcata* Rouss. •1922-32 Sherborn, p. 5870: *Cardium semisulcatum* Rousseau in Demidoff, 1842.
- semisulcata angustata* Eberzin, 1960 (subspecies). – *Prosodacna semisulcata angustata* Eberzin, 1960. Lymnocardiidae. Pliocene. RECORDS. •1960 ZR: *Prosodacna* (*Prosodacna*) *semisulcata angustata* Eberzin, 1960 subsp. n. Pliocene Galizgi river, Abkhaziya, Georgia USSR.
- semisulcata antiqua* Eberzin, 1960 (subspecies). – *Prosodacna semisulcata antiqua* Eberzin, 1960. Lymnocardiidae. Pliocene. RECORDS. •1960 ZR: *Prosodacna* (*Prosodacna*) *semisulcata antiqua* Eberzin, 1960 subsp. n. Pliocene Kamyshburun Kerchensky, Crimea USSR.
- semisulcata badjanica* Andreescu, 1980. – Replacement name: *Prosodacna semisulcata badjanica*. Lymnocardiidae. Tertiary. RECORDS. •1980 ZR: *Prosodacna semisulcata badjanica*. Replacement name for *P. schirvanica* major Andrusov & Eberzin. [Ref. to Andreescu].
- semisulcatoides* (subspecies). – See under *littoralis semisulcatoides* Eberzin, 1960.
- semisulcatum* (mode and subspecies). – See under *semisulcata* Rousseau, 1842 and *hiatus semisulcatum* Gray.
- semisulcatum* Sacco, 1899. *Discors semisulcatus* (Sacco, 1899). Cardiidae. Fossil. RECORDS. •1970 Glibert & Poel, p. 33: *Discors semisulcatus* (Sacco, 1899) [Raised from *Discors discrepans semisulcata* Sacco, 1899, p. 54].
- semitectum* Marwick, 1926. – *Nemocardium semitectum* Marwick, 1926. Cardiidae. Cretaceous. RECORDS. •1926 ZR: *Nemocardium semitectum* Marwick, 1926 sp. n. Cretaceous N. Zealand.
- semseyi* Hal. – Changed combination: *Budmania semseyi* (Hal.). Lymnocardiidae. Fossil. RECORDS. •1987 Taktakishvili: *Limnocardium semseyi* Hal. – *Budmania semseyi*.
- senegalensis* (variety). – See under *norvegicum* var. *senegalensis* Dautzenberg.
- seninskii* Andrus. – Changed combination: *Euxinocardium seninskii* (Andrus.). Lymnocardiidae. Fossil. RECORDS. •1987 Taktakishvili: *Limnocardium* (*Euxinocardium*) *seninskii* Andrus. – *Euxinocardium seninskii*.
- senticosum* Sowerby, 1833. [Figs. Part 1 p. 107, 173. Part 3 p. 923]. – *Trachycardium senticosum* (Sowerby, 1833). OTHER JUDGEMENTS: *Trachycardium radula* (Broderip & Sowerby, 1833). – *Trachycardium quadragenarium* (Conrad, 1837). >> Regarding

**Sepidacna – Septocardiidae**

*Cardium senticosum*: Cardiidae. Fossil and Recent. TYPE LOCALITY. Hab. ad Sanctam Elenam, Americae Meridionalis, in sandy mud at from 6–12 fathoms depth (Sowerby 1833). RECORDS. ••1834 Sowerby, 47<sup>th</sup> part, fig. 10: *Cardium senticosum* nobis. ••1840 Sowerby, catalogue p. 3, No. 43: *Cardium senticosum*, Sow. ••1840 Sowerby, corrected list p. 8: *Cardium senticosum*, (Sowerby No. 43). ••1845 Reeve: *C. radula* Reeve = *C. senticosum* Sowerby. ••1852 Adams: 434. *Cardium senticosum* Sowb. 1833. ••1860 Carpenter: *Cardium senticosum* Sby. ••1884 Grasset: *Cardium senticosum*. Sow. ••1890 Paetel: *Cardium senticosum* Sow. ••1891 Stearns: *Cardium senticosum* Sby. ••1895 Stearns: *Cardium senticosum* Sowerby. ••1901 Dall: *Cardium (Trachycardium) senticosum* Sowerby, 1833. ••1901 Dall: *Cardium senticosum* Pacific coast analogue of *Cardium muricatum* Linnaeus. ••1922–32 Sherborn, p. 5882: *Cardium senticosum* Sowerby, 1833. ••1928 Tomlin: *Cardium (Trachycardium) senticosum* (Sow., 1833). ••1934 Hertlein: *Cardium senticosum* Sowerby [fossil]. ••1947 Hertlein & Strong: *Cardium (Dallocardia) senticosum* Sowerby, 1833. ••1961 Olsson: *Trachycardium (Dallocardia) senticosum* (Sowerby, 1833). ••1964 Parker: *Trachycardium (Dallocardia) senticosum* (Sowerby, 1833). ••1971 Keen & McLean: *Trachycardium (Dallocardia) senticosum* (Sowerby, 1833). ••1977 Popov: *Trachycardium (Dallocardia) senticosum* (Sowerby, 1833). ••1977 Fischer–Piette: *Laevicardium senticosum* Sowerby. ••1991 Voskuil & Onverwagt: *Laevicardium (Trachycardium) senticosum* Sowerby; junior synonym of *Trachycardium quadragenarium* (Conrad, 1837). ••1999 Vidal: *Trachycardium senticosum* (Sowerby in Broderip & Sowerby, 1833). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ZMUC from the Gulf of California; Rulejo (Oersted coll. No. 325). DESCRIPTIONS. Hertlein & Strong (1947): Shell rounded, gently convex; in total 36–39 ribs, which in their earlier stages are subtriangular but later become subrounded; ribs bear obliquely projecting scale-like imbrications which toward the ventral margin develop into oblique nodes; nodes are strongly developed on the posterior side of central ribs, may also present, but to a lesser degree, on the anterior side; nodes may be present on top or on the anterior side of anterior ribs; nodes strongly developed on the posterior side of posterior ribs. Exterior brownish–white or purple, interiorly the portion under the umbo is usually reddish–purple; the remainder, and sometimes all of the shell, is white. Variation: specimens on a muddy bottom may be thinner and less coloured than the other specimens. Keen (1971): Compared with *Trachycardium consors*, this is smaller, lighter in color, with more ribs (35 to 40), which bear only short, thornlike scales, most prominent on the anterior part of the shell. The coloring is basically white, inside and out, with reddish–brown or purple bands and spots exteriorly. It attains a height of about 40 mm. The recorded range includes the whole of the Gulf of California, southward to Paita, Peru. Really good specimens can ordinarily be obtained only by dredging on shallow muddy bottoms. The very similar Atlantic analogue of this species is *Trachycardium (Dallocardia) muricatum* (Linnaeus, 1758). DIMENSIONS. Altitude of 40 mm (Hertlein &

Strong 1947). REMARKS. *Cardium muricatum* Linnaeus from the western Atlantic is a similar species. (Hertlein & Strong 1947), but *C. muricatum* is rounder than *C. muricatum*, and tubercles not so oblique (Sowerby 1841). Fischer–Piette (1977) identified a particular cockle as *Laevicardium (Trachycardium) senticosum* (Sowerby, 1833) labeled as from Monterey, California. According to Keen (1980) it should be *Trachycardium (Dallocardia) quadragenarium* (Conrad, 1837). HABITAT. In sandy mud, at from 6 to 12 fathoms depth (Adams 1852); on clay–sand at 11–29 m depth (ZMUC); occasionally to a depth of about 100 m (Parker 1964) mostly on muddy bottoms (Hertlein & Strong 1947). DISTRIBUTION. *C. senticosum* is known from Columbia Occ. (Grasset 1884); Gulf of California to Peru (Keen & McLean 1971). *C. radula* is known from California to Peru.

**Sepidacna** (genus). – Tridacnidae. RECORDS. ••1937 ZR: *Sepidacna* Iredale, 1937 gen. n. Tridacnidae type *Tridacna troughtoni*.

**septemputeanus** Ebersin, 1967. – *Pseudocatillus septemputeanus* Ebersin, 1967. Lymnocardiidae. Pliocene. RECORDS. ••1967 Ebersin: *Pseudocatillus septemputeanus* sp. n. ••1967 ZR: *Pseudocatillus septemputeanus* Ebersin, 1967 sp. nov. Pliocene, USSR. ••1984 ZR: *Pseudocatillus septemputeanus* Ebersin. Referred to new subgenus *P. (Donaciatillus)*. Ref. to Akhvediani p. 71.

**septiferum** Buvignier, 1843. – Combination to be revised: “*Cardium*” *septiferum* Buvignier. Cardiidae. Lias–Jurassic. RECORDS. ••1922–32 Sherborn, p. 5889: *Cardium septiferum* Buvignier, 1843. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium septiferum* Buvignier. Rauracien. France (Yonne). S04455, B12335, S04686.

**Septocardia** Hall & Whitfield, 1877 (genus). – Cardiidae. Upper Trias. GENOTYPE. Hall & Whitfield (1877) designated *Septocardia typica* type species of genus *Septocardia*. RECORDS. ••1980 Vokes: *Septocardia* Hall & Whitfield, 1877 in subfamily Cardiinae. ••1992 Schneider p. 149: *Septocardia* Hall & Whitfield, 1877. Referred to Septocardiinae from Cardiinae. Tridacninae. Downgraded from Tridacnidae (Tridacnacea). ••2002 Schneider: *Septocardia* has been tentatively rejected from Cardiidae. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1969 Moore *et al.*: thick-shelled, ribs beaded, incremental lines conspicuous in interspaces as cross-striae; ligament inserted in broad and slightly oblique furrow bordered by nymph with pointed summit; hinge plate wide, anteriorly forming deep cavity for reception of anterior adductor muscle; anterior lateral teeth small, placed at junction of muscle cavity flange and hinge plate proper, cardinal teeth with 2 salient, 4b lamellar, sloping obliquely backward from beak, 3a–3b joined above; posterior lateral teeth well developed; pallial line entire, posterior muscle scar ovate, not impinging on hinge plate; inner margin strongly crenulate. REMARKS. ••1969 Moore *et al.*: *Septocardia* seems to be ancestral stock of Cardiacea, but with strong affinities to *Palaeolcardita*. North and South America.

**Septocardiidae** Kafanov & Starobogatov, 1977 (tribus). – Cardiidae. RECORDS. ••1977 Kafanov *et* Starobogatov:

## septuagenarium – serratum

Septocardiidae.

**septuagenarium** Tate, 1887. – Synonym of *Hedecardium monilectum*. Changed combination. Cardiidae. Fossil. RECORDS. ••2002 Schneider: *Cardium septuagenarium* is considered a junior synonym of *Cardium monilectum* by Schneider (2002). ••2002 Schneider: Darragh (1970) assigned *Cardium septuagenarium* Tate, 1887 to *Hedecardium*.

**sera**. – *Protocardia sera*. Cardiidae. RECORDS. ••1914 ZR: *Protocardia sera* [Ref. Suter 1914].

**serbica** Brusina 1902. – *Prosodacna serbica* Brusina 1902. Lymnocardiiidae. Fossil. RECORDS. ••1979 ZR: *Prosodacna serbica* Brusina 1902. Topotype Ref. to Stevanovic, p. 331.

**serbica** (aff.) Brusina 1902. – RECORDS. ••1991 Müller & Magyar, p. 356: *Lymnocardium* aff. *serbicum* (Brusina 1902).

**serena** Papaianopol, 1980. – *Luxuridacna serena* Papaianopol, 1980. Lymnocardiiidae. Fossil. RECORDS. ••1980 ZR: *Luxuridacna serena* Papaianopol, 1980 sp. nov. Romania, Pliocene. Ref. to Papaianopol, p. 51.

**Seripes** (error). – Printer's mistake for *Serripes* in Nomura, 1933 (Vokes 1980).

**serogosicum exile** Popov, 1982. – *Cerastoderma serogosicum exile* Popov, 1982. Cardiidae. Oligocene. RECORDS. ••1982. ZR: *Cerastoderma serogosicum exile* Popov, 1982 subsp. nov. Georgia SSR. Ref. to Popov *et al.* p. 42.

**serogosicum** Nossovsky, 1962. – Changed combination: *Cerastoderma serogosicum* (Nossovsky, 1962). Cardiidae. Oligocene. RECORDS. ••1962 ZR: *Cardium (Cerastoderma) serogosicum* Nossovskii, 1962 sp. nov. Oligocene, Khersonsk province, USSR ••1977 Popov: *Cerastoderma serogosicum* (Nossovsky, 1962).

**serratulum** (variety). – See under *buekkianum* var. *serratulum* Noszki, 1936.

\***serratum**. – **Homonymy to be noticed.** *Cardium serratum* from 2 sources: Linnaeus, 1758. – Bruguière, 1789.

\***serratum**. – **Summary of identifications:** *C. serratum* are American Atlantic species, rather variable in shape and colour, but always identifiable by some other constant specific characters (Vidal pers. comm.). *C. serratum* Linnaeus, 1758. has two synonyms: *C. oviputamen* Reeve, 1844 and *C. citrinum serratum* Chemnitz, 1782 [not available]. Many European and American authors were right about the ID of *C. serratum* before the regrettable intervention of Clench & Smith, 1944, who named this species *C. laevigatum*. Unfortunately this erroneous interpretation was immediately adopted by the majority of authors until today. It has often been misidentified by authors. The name *Cardium serratum* has erroneously been used for [1] *Cardium biradiatum* Bruguière, 1789. ••1784 Schroter, p. 46: *Cardium serratum*. ••1799 Spengler, p. 43: *Cardium serratum*. [2] *Cardium oblongum-crassum* complex. Bruguière, 1789, p. 229: *Cardium serratum* Linn. *Cardium serratum* Nob. [3] *Cardium crassum* Gmelin, 1791. ••1819 Lamarck, p. 11: *Cardium serratum*. ••1835 Deshayes *et al.* p. 401: *Cardium serratum*. ••1841 Sowerby, p. 5: *Cardium serratum*. [4] *Cardium pristis* Valenciennes, 1827. ••1970 Vilas & Vilas, p. 39: *Laevicardium serratum* var. *laevigatum*. The name *Cardium serratum* has correctly

been used to name the American species by: ••1822 Turton [erroneous locality: British Isles]. – ••1828 Fleming [erroneous locality]. – ••1844 Reeve. – ••1847, ••1853 Orbigny. – ••1869 Römer. – ••1886, ••1900, ••1901 Dall. – ••1855 Hanley. – ••1900 Dautzenberg. – ••1922 Pilsbry. – ••1925 Woodring. – ••1926 Weisbord. – ••1929 Tomlin. – ••1939 MacLean.

**serratum** Bolten, 1798. – Synonym of *Laevicardium serratum* (Linné, 1758). RECORDS. ••1798 Bolten: *Cardium serratum* = *Cardium laevigatum* Gmelin sp. 18. ••1902 Sherborn, p. 893: *Cardium serratum* Bolten, 1798.

**serratum** Bruguière / Lamarck. [Figs. Part 1 p. 76. Part 3 p. 896]. – Identical with *Laevicardium crassum* Gmelin. OTHER JUDGEMENTS: *Cardium norvegicum* Spengler, 1799 = *Laevicardium crassum* (Gmelin, 1791) = *Cardium oblongum* = *Cardium sulcatum* Lamarck, 1819. >> Regarding *Cardium serratum*: Cardiidae. Recent. RECORDS. ••1789 Bruguière, p. 229, No. 27: *Cardium serratum* Linn. & *Cardium serratum* Nob. ••1798 Bruguière. ID by Lamarck, pl. 299. fig. 2. *Cardium serratum*. ••1815 Wood: *Cardium serratum* of Bruguière = *Cardium oblongum* Linn. ••1817 Dillwyn: *Cardium serratum* Bruguière = *Cardium oblongum* Chemnitz. ••1827 Bory de St. Vincent: *Cardium serratum* Lmk. = *Laevicardium crassum* Gmelin (*vide* Fischer–Piette 1977). ••1832 Deshayes: *Cardium serratum* Brug. = *Cardium sulcatum* Lamk. ••1835 Deshayes: *Cardium serratum* Lmk. = *Laevicardium crassum* Gmelin (*vide* Fischer–Piette 1977). ••1837 Deshayes: *Cardium serratum* Lmk. = *Laevicardium crassum* Gmelin (*vide* Fischer–Piette 1977). ••1839 Anton: *Cardium serratum* Lam. (non Linné). ••1845 Reeve: *Cardium serratum* Bruguière = *Cardium sulcatum* Lamarck. ••1846 Lovén: *Cardium serratum* Lamk., Desh., Thorpe, Turt. (*non* L., *nec* Chemn., *nec* Brug.) = *Cardium norvegicum* Spengl. ••1848 Requier: *Cardium serratum* Brug. = *Cardium oblongum* Chemn. ••1850 Jay: *Cardium serratum* Brug. = *Cardium sulcatum*. ••1851 Petit de la Saussaye: *Cardium serratum* Bruguière (European record). ••1856 Wood & Hanley: *C. serratum* Lam. (not Lin.). ••1860 Mace: *Cardium serratum* Bruguière (European record). ••1867 Weinkauff: *Cardium serratum* Lamarck (non Linné) = *C. norvegicum* Spengler. ••1869 Römer: *Cardium serratum* Bruguière, Lamarck = *Cardium norvegicum* Spengler. ••1888 Kobelt: *Cardium serratum* Lam. = *Cardium norvegicum* Spengler. ••1850 Jay: *Cardium serratum* Lam. = *Cardium pennantii*. ••1890 Paetel: *Cardium serratum* Brug. = *norvegicum* Spglr. ••1912 Dautzenberg & Fischer: *Cardium serratum* Bruguière 1789 (non Linné) = *Cardium (Laevicardium) norvegicum* Spengler 1799. ••1942 Lamy: *Cardium serratum* Lmk. = *Laevicardium crassum* Gmelin (*vide* Fischer–Piette 1977). ••1945 ZR: *Cardium serratum* Lk (non L.) [Ref. Lamy 1945]. – CHARACTERS AND OCCURRENCE – DESCRIPTION. ••1789 Bruguière: *Cardium testa oblonga ovata, sulcis longitudinalibus obsolete, antice laevis*; Nob. REMARKS. The suggested synonyms are all European species. They do not occur in the Caribbean (Antilles) or the Atlantic Ocean of North America (Carolina coast).

**serratum** Chemnitz, 1782. *Non* binominal. – Not



**serratum**

available. >> Regarding *Cardium serratum*: RECORDS. •1788 Schröter: *Cardium serratum* [Reference to Chemnitz (1782) figs. 193. 194?]. •1864 Krebs: *Cardium serratum* Ch., non L. = *Cardium citrinum* Ch. **serratum** Dall & Simpson 1901 (variety). Infrasubspecific. Cardiidae. RECORDS. •1901 ZR: *Cardium serratum* n. var. described in Dall & Simpson 1901. **serratum** Linnaeus, 1758 / Gmelin, 1791. [Figs. Part 1 p. 75 No. 185-186, p. 91. p. 100, 124, 165, 179. Part 3 p. 879, 893, 894, 896]. – *Laevicardium serratum* (Linné, 1758). OTHER JUDGEMENTS: *Cardium laevigatum* Linné sensu Clench & Smith 1944. (See overview of ID). – *Laevicardium oblongum* (Gmelin, 1791). – *Laevicardium crassum* (Gmelin, 1791). >> Regarding *Cardium serratum*: Cardiidae. Miocene and Recent. TYPE LOCALITY. Matanzas Bay, Cuba. Unknown (McLean 1939). TYPE MATERIAL. Vidal (1999): The syntypes of *C. serratum* in Linné's personal collection at The Linnean Society in London, encompass three single valves that belong undoubtedly to the American Atlantic *Laevicardium laevigatum* (Linné) sensu Clench & Smith, 1944. The largest, a left valve [37.7 x 31.5 x (24.0)], with Linné's hand marks 73 and 89 (his list numbers in 1758 and 1767) still discernible, has been selected by Vidal (1999, p.327) as lectotype of *Cardium serratum* Linné. RECORDS. •1758 Linné, p. 680, No. 73: *Cardium serratum*. •1764 Linnaeus (Mus. Lud. Ulr. Reg.) No. 45: *Cardium serratum*. •1767 Linné, p. 1123, sp. 89: *Cardium serratum*. •1782 Chemnitz. ID by Gmelin 1791: *Cardium serratum* t. 18. f. 185. 186. •1786 Schröter, No. XVII: *Cardium serratum* Linn. XII. pag. 1123. Spec. 89. •1791 Gmelin No. 19: *Cardium serratum*. •1799 Spengler, No. 27: *Cardium serratum* Linnéi Sp. 89. pag. 1123. •1817 Dillwyn: *Cardium serratum* Linnaeus. •1819 Lamarck, p.11, No. 25: *Cardium serratum* Linné. •1819 Lamarck (pro parte): *Cardium serratum* L. = *Laevicardium crassum* Gmelin (fide Fischer-Piette 1977). •1836 Bosc: *Cardium serratum*. •1840 Sowerby, catalogue p. 5, No. 66: *Cardium serratum* Linn. = *Laevicardium crassum* Gmelin (fide Fischer-Piette 1977). •1843 Hanley: *Cardium serratum* L. = *Laevicardium brasilianum* Lamarck, 1819 (fide Fischer-Piette 1977). •1844 Potiez & Michaud: *Cardium serratum* Linn. Coasts of England and France. •1844 Thorpe: *Cardium serratum* Lin. 1123. •1844 Reeve Pl. 1 fig. 1 *Cardium serratum* Linnaeus (not of Gmelin), Syst. Nat. 12th edit. No. 89. p. 1123. •1859 Sowerby: *C. serratum* = *Cardium norvegicum*, Spengler. •1860 Stimpson: *Liocardium serratum* Lin. •1868 Colbeau: *Cardium serratum* = *Laevicardium norvegicum* Spgl. •1884 Grasset: *Laevicardium serratum* Linné. •1890 Paetel: *Laevicardium serratum* L. •1902 Dall: *Cardium* (*Laevicardium*) *serratum* Linnaeus, 1758. •1902 Dall: *Cardium serratum* Linnaeus, 1758 (not of Pennant, 1778). •1902 Dall & Simpson: *Cardium* (*Laevicardium*) *serratum* L. = *Laevicardium brasilianum* Lamarck, 1819 (fide Fischer-Piette 1977). •1902 Sherborn, p. 893: *Cardium serratum* Linnaeus, 1758. •1921 Maury: *Cardium* (*Laevicardium*) *serratum* Linnaeus, 1758 [Miocene to Recent]. •1925 Woodring, p. 145, Pl. 19, Figs. 14-16: *Cardium* (*Laevicardium*) *serratum* Linné, 1758. Bowden, Jamaica. •1926 Peile: *Liocardium serratum*, L. = ?

*laevigatum*, L., Dall. 1929 Tomlin: *Laevicardium serratum* (L.). •1932 Prasad: *Cardium serratum* Gmelin, 1790 = *Cardium biradiatum* Bruguière, 1789. •1934 Johnson: *Laevicardium serratum* Linné 1758 (*laevigatum* Linné). •1936 Pearse: *Trigoniocardia serrata* (L.) = *Laevicardium brasilianum* Lamarck, 1819 (fide Fischer-Piette 1977). •1939 McLean: *Laevicardium serratum serratum* (Linné, 1758). •1939 ZR: *Laevicardium serratum serratum* fig. [Ref. McLean 1939]. •1942 Harry: *Cardium serratum* Linné = *Cardium muricatum* Linné. •1977 Fischer-Piette: *Liocardium serratum* Linné in Dall 1889 = *Laevicardium brasilianum* Lamarck, 1819. •1977 Wilson & Stevenson: *Cardium serratum* Gmelin, 1791; junior synonym of *Laevicardium biradiatum* (Bruguière, 1789). •1992 Lamprell & Whitehead: *Cardium serratum* Gmelin, 1790 = *Laevicardium biradiatum* (Bruguière, 1789). •1999 Vidal: *Cardium serratum* Linné, 1758 = *Laevicardium laevigatum* (Linné) sensu Clench & Smith, 1944: 22. •1999 Knudsen & Hylleberg: Spengler, 1799 No. 27: *Cardium serratum* in Spengler (without locality) = *Cardium laevigatum* Lin. Chemnitz Tom. VI. Tab. 18 Fig. 185–186. •2001 Vidal, p. 407: *Laevicardium serratum*. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ZMUC from West Indies, 4 specimens; ZMUC 4 shells: *laevigatum* Lam. = *serratum* L., Dansk Vestindien, Steenberg coll. ZMUC label: Type, but together with *biradiatum* no locality. ZMUC 2 specimens. Florida Keys. – 6 specimens. from West Indies. – 4 1/2 specimens from Antilles, – 1 specimen = *laevigatum* Lamarck (no. 26) & Chemnitz 6. fig. 189: same species as labeled *laevigatum* from the Danish West Indies and Tortola (Moellers samling); – ZMUC 2 specimens in Spengler coll. DESCRIPTIONS. •1799 Spengler: *Testa obovata laevi striis obsoletis, margine interiore serrato*. [My translation: Shell inverted egg-shaped, smooth, obsolete ribs, inner margin serrated]. •1799 Spengler translated by Knudsen & Hylleberg 1999: *Cardium serratum* in Chemnitz Tom. VI. Tab. 18. fig. 185. 186. (is also called *laevigatum* and thus confounded with *serrato*). Since Linné in his Syst. Nat., but notably in the Queen's Museum, described this *Cardium* in great detail, it needs no further description. Page 44: Margins finely serrated from anterior to posterior ends (contrary to *C. laevigatum*). •1844 Reeve: shell ovate, rather gibbous towards the umbones, smooth, shining, anteriorly rather obsoletely striated; whitish yellow, posterior side bright citron yellow or pinkish purple, palely stained with pinkish-waved spots around the umbones, interior yellowish under the umbones; margins very minutely serrated within. •1902 Dall & Simpson: Shell subsolid, suboval or subquadrate, the posterior edge being less curved than the anterior; the low, rounded, posterior ridge being slightly produced at the base of the shell; surface nearly smooth, shining and polished, with faint vestiges of ribs, which appear on the border of the shell which scarcely gapes and has delicate serrations within; laterals high and strong; cardinals small; interior of the shell polished; in a fresh state the surface is usually covered with a thin, brownish epidermis; the shell is beautifully polished; whitish, straw-coloured, lemon-yellow, purplish or reddish, and it is slightly clouded

*serratum* – *serratum multilineatum*

with brown near the beaks; within it has much the same range of colour, and it is one of the most delicate and lovely shells of the Antilles. •1939 McLean: Obsolete radial striae. •2001 Vidal: tentacles numerous. No eyes on tentacles. DIMENSIONS. •1939 McLean: 38 x 45 x 30 mm. REMARKS. •1799 Spengler: stated that the species illustrated by Chemnitz (1782 pl. 18, figs. 185–186) as *Cardium laevigatum* has been confused with *Cardium serratum*. The reason is that Chemnitz refers to Linné (1769, p. 1123, No. 88), but species No. 88 is *Cardium laevigatum* (a printer's error). Spengler (1799) mentions the description of *Cardium serratum* by Linné (1764) as being very clear and in no need of further comments. •1844 Reeve: An odd valve of the *Cardium serratum* is still preserved in the Linnaean Society of London marked "86" in Linnaeus' handwriting, referring to the 12th edition of the 'Syst. Nat.' Regarding erroneous ID of *Cardium laevigatum* by Gmelin, Lamarck, Sowerby. The opinions of Lamarck and Sowerby were induced probably by Gmelin (an error), followed by Bruguière, in the Encyclopédie Méthodique. •1867 Weinkauff: mentioned that Linné described 3 similar species: *C. flavum*, *C. laevigatum*, and *C. serratum*. Chemnitz illustrated the 3 species but confused the figure numbers with the Linnaean descriptions. He stated that the figures 185 and 186 showed *C. serratum* but it was actually *C. laevigatum*. The figure 189 illustrated *C. laevigatum* but actually referred to *C. serratum*. Weinkauff maintained that figs. 185 and 186 did not illustrate either of the species. Hanley (1855) discovered that *C. laevigatum* Linné = *C. papyraceum* Chemnitz. *C. serratum* Linné = *C. laevigatum* Lamarck (West Indian species) (discussion p. 147–148). HABITAT. •1844 Reeve: found in sandy mud at the depth of from 6 to 10 fathoms. DISTRIBUTION. •1758 Linnaeus: Mediterranean. •1790 Gmelin: *C. serratum* Mediterranean & Indian Ocean. •1844 Reeve: Islands of Nevis and St. Vincent, West Indies. •1884 Grasset: Guadeloupe. •1939 McLean: *C. serratum (serratum)* North Carolina to Brazil.

*serratum* of authors. – *Laevicardium laevigatum* (Linnaeus). Cardiidae. Recent. RECORDS. •1886 Locard: *Cardium serratum (non Linné)* = *Cardium norvegicum* Spengler, 1792 sic. •1951. McLean: *Cardium serratum* of authors non Linnaeus = *Laevicardium laevigatum* (Linnaeus).

*serratum* of Reeve (1843). – Identical with *Laevicardium laevigatum* (Linnaeus, 1758). >> Regarding *Cardium serratum*: Cardiidae. Recent. RECORDS. •1969 Work: *Cardium serratum* Reeve, 1843 = *Laevicardium laevigatum* (Linnaeus, 1758). – CHARACTERS AND OCCURRENCE – DISTRIBUTION. •1844 Reeve: Mediterranean.

*serratum* of Requier (1848). – Misidentification of *Cardium norvegicum* Spengler = *Laevicardium crassum* (Gmelin, 1791). Cardiidae. Recent. RECORDS. •1900 Locard & Caziot: *Cardium serratum* Requier (1848) p. 26 = *Cardium norvegicum* Spengler, 1790 sic.

*serratum* of Schröter (1788). – Identical with *Cardium lineatum* Gmelin. Cardiidae. Recent. RECORDS. •1817 Dillwyn: *Cardium serratum* Schröter = *Cardium lineatum* Gmelin.

*serratum* of Thorpe (1844). – Identical with *Laevicardium laevigatum* (Linnaeus, 1758). Cardiidae.

Recent. RECORDS. •1844 Thorpe: *Cardium serratum* D. p. 124. = *Cardium levigatum* Lin. 1123.

*serratum* of Turton (1822). – Identical with *Laevicardium crassum* (Gmelin, 1791). Cardiidae. Recent. RECORDS. •1917 Hidalgo: *Cardium serratum* Turton = *Cardium norvegicum* Spengler. •1977 Fischer-Piette: *Cardium serratum* L. in Turton 1822 = *Laevicardium crassum* Gmelin.

*serratum* of Weinkauff (1862). – Identical with *Laevicardium norvegicum* (Spengler) = *Laevicardium crassum* (Gmelin, 1791). Cardiidae. Recent. RECORDS. •1880 Stossich: *Cardium serratum* in Weinkauff. 1862 = *Laevicardium norvegicum* (Spengler).

*serratum brasilianum* Lamarck, 1819 (variety). – Upgraded. Changed combination: *Laevicardium serratum brasilianum* (Lamarck, 1819). Cardiidae. Recent. TYPE LOCALITY. Rio de Janeiro, Brazil. RECORDS. •1908 Cary & Spaulding: *Liocardium serratum* var. *brasilianum*. •1939 McLean: *Laevicardium serratum brasilianum* (Lamarck, 1819). •1939 ZR: *Laevicardium serratum brasilianum* [Ref. McLean 1939]. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1939 McLean: obsolete radial striae. DISTRIBUTION. Southern West Indies to Brazil.

*serratum laevigatum* Lamarck, 1819 (variety). – Upgraded. Changed combination: *Laevicardium serratum* (Linnaeus, 1758). Cardiidae. Recent. TYPE LOCALITY. Rio de Janeiro, Brazil. RECORDS. •1819 Lamarck, p. 11, No. 26: *Cardium laevigatum* (quelques variété dans la forme et les couleurs). •1902 Dall & Simpson, p. 489: *Cardium (Laevicardium) serratum* var. *laevigatum* Lamarck. •1926 Weisbord: *Cardium (Laevicardium) serratum* var. *laevigatum* Lamarck. •1945 Smith, Maxwell, p. 50: *Laevicardium serratum laevigatum* Lamarck. •1970 Vilas & Vilas p. 38: *Laevicardium serratum* var. *laevigatum*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. Shell rather large, subsolid, moderately inflated, subquadrate, usually, though not always, faintly ribbed, ribs numerous when developed, strongest around the outer part of the shell; there is an area at the anterior and posterior parts of the shell which is generally smoother than the rest of it, which is outlined by a shallow groove, forming a sort of lunule and escutcheon; laterals rather strong, especially the anterior ones; edges of the shell serrated within. Colour generally whitish, cream or pale buff, with a faint subconcentric cloudings of brown (Dall & Simpson 1902). DIMENSIONS. Length 50, height 63, diameter 40 mm (Dall & Simpson, 1902). REMARKS. Generally larger, more quadrate, duller coloured, and more painted with brownish, nebulous bands than typical *serratum*, yet there are intermediate specimens which can be assigned to one form about as well as the other. This form is one of the characteristic species of West Florida (Dall & Simpson 1902). DISTRIBUTION. West Florida, Playa de Ponce, Porto Rico (Dall & Simpson 1902).

*serratum multilineatum* Dall & Simpson 1902 (variety). – Synonym of *Laevicardium pristis* (Valenciennes, 1827). OTHER JUDGEMENTS: *Cardium leucostomum* Born. >> Regarding *Laevicardium serratum multilineatum*: Cardiidae. Pleistocene and Recent. TYPE LOCALITY. Mayaguez Harbor, Puerto Rico. RECORDS. •1902 Dall & Simpson, p. 489–490: *Cardium serratum* var.

**serratum sybariticum** – Serripedini

*multilineatum*, n. var. •1939 McLean: *Laevicardium serratum multilineatum* (Dall & Simpson 1902). •1939 ZR: *Laevicardium serratum multilineatum* fig. [Ref. McLean 1939]. •1953 Olsson & Harbison: *Cardium serratum multilineatum* Dall & Simpson, 1901 = *Laevicardium laevigatum laevigatum* (Linné, 1758). •1977 Fischer–Piette: *Laevicardium serratum multilineatum* Dall & Simpson = *Cardium leucostomum* Born. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1902 Dall & Simpson: shell more nearly round than the type. The smoother anterior and posterior areas are distinctly marked out and are tawny or buff coloured; the rest of the shell is dirty straw coloured, and the narrow spaces between the scarcely developed ribs are pale brown; the beaks are purple, clouded. The interior is much the colour of the yolk of an egg; with purple cloudings at the cavities of the beaks. •1939 McLean: obsolete radial striae. DIMENSIONS. •1939 McLean: 40 x 45 x 32 mm. •1902 Dall & Simpson: length 40, height 45, diameter 32 mm. DISTRIBUTION. •1939 McLean: Santo Domingo, Puerto Rico.

***serratum sybariticum*** Dall, 1886 (variety). – Upgraded. *Laevicardium serratum sybariticum* (Dall, 1886). Cardiidae. Oligocene and Recent. TYPE LOCALITY. Barbados, West Indies. RECORDS. •1886 Dall, p. 271: *Cardium serratum* var. *sybariticum*. •1902 Dall: *Cardium serratum* var. *sybariticum* Dall, 1886. •1902 Dall & Simpson: *Cardium (Laevicardium) serratum* var. ?*sybariticum*. •1902 Dall & Simpson: *Cardium serratum* var. *sybariticum* Dall, 1886. •1939 McLean: *Laevicardium serratum sybariticum* (Dall, 1886). •1939 ZR: *Laevicardium serratum sybariticum* [Ref. McLean 1939]. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. Shell much smaller and more delicate than the type, more compressed, pale faintly flecked with pink or purple; beaks often deep pink (Dall & Simpson 1902); obsolete radial striae (McLean 1939). DIMENSIONS. 11.5 x 13.5 x 8 mm (McLean 1939); length 11 mm, height 14 mm, diameter 7 mm (Dall & Simpson 1902). DISTRIBUTION. West of Florida to Barbados.

***serresense*** Popov & Nevenskaya, 2000. – *Lymnocardium serresense* Popov & Nevenskaya, 2000. Cardiidae. Late Miocene. RECORDS. •2000 Popov & Nevenskaya, downloaded abstract: *Lymnocardium (Euxinocardium) serresense* n. sp.

***serricostatum*** Kira, 1955. Synonym of *Acrosterigma elongatum* (Bruguière, 1789). >> Regarding *Vasticardium serricostatum*: Cardiidae. Recent. TYPE LOCALITY & REPOSITORY. See *okinawense* Kuroda, 1960. DISTRIBUTION. Japan. RECORDS. •1954 Kira: *Vasticardium serricostatum* Kuroda, MS. •1955 Kira: *Vasticardium serricostatum* Kuroda, MS.

***serricostatum*** Melvill & Standen, 1899. – Synonym of *Vasticardium elongatum* (Bruguière, 1789). OTHER JUDGEMENTS: *Cardium flavum* Linnaeus, 1758. – *Trachycardium luteomarginata* Voskuil & Onverwagt, 1991. >> Regarding *Cardium (Trachycardium) serricostatum*: Cardiidae. Recent. TYPE LOCALITY. Torres Strait. TYPE REPOSITORY. BMNH reg. nr. 1899–2–23–10 (Vidal 1993). RECORDS. •1899 Melvill & Standen, p. 191, pl. 11, fig. 20: *Cardium (Trachycardium) serricostatum*. •1899 ZR: *Cardium (Trachycardium)*

*serricostatum* Melvill & Standen, 1899 n. sp. •1909 Melvill: *Cardium (Trachycardium) serricostatum*, M. & S. •1951 Habe: *Vasticardium serricostatum*. •1952 Kuroda & Habe: *Trachycardium serricostatum*. •1955 Kira: *Vasticardium serricostatum*. •1977 Fischer–Piette: *Cardium serricostatum* Melvill & Standen = *Laevicardium flavum* Linné. •1990 Abbott & Dance: *Trachycardium serricostatum*. •1993 Vidal p. 44: *Cardium serricostatum* Melvill & Standen, 1899 probably = *Acrosterigma elongatum* (Bruguière, 1789). •1993 Vidal: *Trachycardium serricostatum* in Abbott & Dance, 1982 = ? *Trachycardium luteomarginata* Voskuil & Onverwagt, 1991. •1999 Vidal: *Cardium serricostatum* Melvill & Standen, 1899 = *Vasticardium elongatum* (Bruguière 1789). – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: the deeply excavate interstices and squarely set serrated ribs are noticeable (Melvill 1909). DISTRIBUTION. North Indian Ocean, Japan (Hylleberg 1994); *elongatum* West Indies (Reeve 1844); Philippines, Australia. Murray Island, Torres Straits (Melvill 1909).

***serricostatum*** Melvill & Standen, 1899 (variety). – Synonym of *Vasticardium elongatum* (Bruguière, 1789). RECORDS. •1952 Kuroda & Habe: *serricostatum* Melvill & Standen var. = *Trachycardium serricostatum* Melvill & Standen var. •1959 Kira: *Vasticardium* var. *serricostatum* Melvill & Standen. •1962 Kira, p. 139, pl. 55, No. 11: *Vasticardium* var. *serricostatum*. •1993 Vidal: *Vasticardium* var. *serricostatum* (Melvill & Standen, 1899) = *Acrosterigma okinawense* = small *Acrosterigma elongatum*.

***serricostatum okinawense*** Kuroda, MS. – Synonym of *Vasticardium elongatum* (Bruguière, 1789). >> Regarding *Vasticardium serricostatum okinawense*: Cardiidae. Recent. RECORDS. •1951 Habe: *Vasticardium serricostatum okinawense* Kuroda MS. •1960 Kuroda: *Trachycardium (Acrosterigma) serricostatum okinawense* Kuroda.

***serrifera*** Lamarck. [Figs. Part 1 p. 152]. – Tridacnidae. RECORDS. •1845 Chenu, pl. 8 f. 4: *Tridacna serrifera* Lamarck. •1868 ZR: *Tridacna serrifera* [Ref. Küster 1868]. •1932 ZR: *Tridacna serrifera* [Ref. Lamy 1932]. •1947 ZR: *Tridacna serrifera* sic Lamarck, 1819. •1956 ZR: *Tridacna serrifera* spawning habits [Ref. Wada 1956].

\****serrigerum***. – Homonymy to be noticed. *Cardium serrigerum* from 2 sources: Lamarck, 1819. – Basterot (?year).

***serrigerum*** Basterot. – Combination to be revised: “*Cardium*” *serrigerum* Basterot. Cardiidae. Miocene. RECORDS. •1844 Potiez & Michaud: *Cardium serrigerum* Bast. Fossil of France. •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. As *Cardium serrigerum* Basterot. Burdigalien. France (Gironde), S10999.

***serrigerum*** Lamarck, 1819. – Combination to be revised: “*Cardium*” *serrigerum* Lamk. Cardiidae. Fossil. RECORDS. •1819 Lamarck: *Cardium serrigerum* Lamk. •1922–32 Sherborn, p. 5914: *Cardium serrigerum* Lamarck, 1819.

**Serripedini** Kafanov, 1975 (tribus). – Cardiidae. RECORDS. •1975 Kafanov: Serripedini. •1975 ZR: Serripedini Tribe nov. of Cardiidae. Type genus *Serripes* Gould 1841, p. 146. Ref. to Kafanov.

*Serripes* – *setosum*

- Serripes*** Gould, 1841 (genus). – Cardiidae. Fossil and Recent. Type species: Gould, 1841 designated *Cardium groenlandicum* Bruguière, 1789 type species of the genus *Serripes* Beck. RECORDS. ••1847 Gray, No. 559: *Serripes*, Beck MSS. [synonym of *Aphrodite*, Lea; 183? not Linn.]. ••1924 Oldroyd: Genus *Serripes*. ••1934 Johnson: *Serripes* Beck (Aphrodite Lea 1834, not Hubner 1816). ••1975 ZR: *Serripes* Gould, 1841 designated type genus for new tribe Serripedini, p. 146. Ref. to Kafanov. ••1977 Popov: *Serripes* Beck in Gould, 1841. Genotype: *Cardium groenlandicum*. ••1980 Vokes: *Serripes* Gould, 1841 in subfamily Laevicardiinae. ••1980 ZR: *Serripes* Gould, 1841. Key to species & subspecies. ZR Ref. to Kafanov. ••1981 ZR: *Serripes* Gould, 1841. Western Pacific. temperate zone. Ref. to Skarlato, p. 347. ••2000 Coan *et al.*: Genus *Serripes* Gould, 1841. ••2001 Vidal, p. 406: *Serripes* – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value. ••1994 Hylleberg: sculpture almost obsolete; shell medium sized to large, inequilateral; cardinal teeth weak in adults or absent, laterals also evanescent. ••2001 Vidal: Siphons relatively long, close to each other, often fused at their bases. No eyes on tentacles. REMARKS. 1876. Meek: mentioned *Serripes* as allied to *Laevicardium*.
- Serripes*** Gould, 1841 (section & subgenus). – Cardiidae. Fossil and Recent. RECORDS. ••1858 Adams & Adams: Subgenus *Serripes* Beck. ••1869 ZR: subgenus *Serripes* (Beck), type *Cardium groenlandicum* (Chemn.) [Ref. Römer 1869]. ••1887 Fischer: Subgenus *Serripes* Beck, *vide* Gould 1841 of genus *Cardium* Linné, 1758. ••1890 Paetel: 6. Sect. *Serripes* Bk. of *Cardium*. ••1912 Dautzenberg & Fischer: Subgenus *Serripes* (Beck) Gould, 1841 of genus *Cardium*, Linné 1758.
- serrula*** Cox, 1927. – Identical with *Cardium burnupi* Sowerby, 1897. >> Regarding *Cardium serrula*: Cardiidae. Miocene. RECORDS. ••1927 ZR: *Cardium* (*Acanthocardia*) *serrula* Cox, 1927 sp. n. Miocene Pemba Isd. ••2000 Vidal, p. 448: *Cardium* (*Acanthocardia*) *serrula* Cox, 1927, a Neogene and Quaternary fossil from Zanzibar. Synonym of *Cardium burnupi* Sowerby, 1897.
- serrulatum*** Deshayes, 1854. – Changed combination: *Europicardium serrulatum* (Deshayes, 1855). Cardiidae. Recent. TYPE LOCALITY. Guinea. TYPE REPOSITORY. Possible holotype BMNH. REMARKS. Referred to *Vepricardium* in Keen (1980). Syn. *kobelti* v. Maltzan, 1885 (Vidal, pers. com.). DISTRIBUTION. West Africa (Vidal 1999). RECORDS. ••1855 Deshayes: *Cardium serrulatum*. ••1890 Paetel: *Cardium serrulatum* Dsh. ••1977 Fischer–Piette: *Laevicardium* (*Trachycardium*) *serrulatum* Deshayes. ••1980 Ruhoff: *Cardium serrulatum* Deshayes, 1854; p. 330. ••1999 Vidal: *Cardium serrulatum* Deshayes, 1855. ••1999 Vidal: *Europicardium serrulatum* (Deshayes, 1855).
- sertunayana*** Slodkewitsch, 1938. – Changed combination: *Fulvia sertunayana* (Slodkewitsch, 1938). Cardiidae. Miocene. TYPE LOCALITY. Kamtchatka. RECORDS. ••1945 ZR: *Papyridea sertunayana* 'Kogan' *sic* Slodkewitsch, 1938 sp. nov. Upper Miocene E. coast Kamchatka. ••1973 Keen: *Fulvia sertunayana* (Slodkewitsch, 1938) [Papyridea]. Miocene, Kamtchatka.
- sertunayana*** Slodkewitsch, 1938. – *Profulvia sertunayana* (Slodkewitsch, 1938). Cardiidae. Fossil. RECORDS. ••1976 ZR: *Papyridea sertunayana* Slodkewitsch, 1938 Referred to *Profulvia*. Ref. to Kafanov, p. 482 [orig. p. 111].
- serum*** Hutton, 1873. – Changed combination: *Nemocardium serum* (Hutton, 1873). Cardiidae. Fossil. RECORDS. ••1897 Harris: *Protocardium serum* Hutton. 1873. ••1944 ZR: *Protocardium serum* Hutton Catal. Tert. Moll. 1873, p. 23 [Ref. Marwick 1944]. ••1944 ZR: *Varicardium serum* (Hutton, 1873) genotype of *Varicardium* Marwick, 1944. ••1965 ZR: *Varicardium serum* revised, Tertiary, New Zealand [Ref. Boreham 1965]. ••1977 Popov: *Nemocardium* (*Varicardium*) *serum* (Hutton, 1873).
- Serupes** (error). – Printer's mistake for *Serripes* in Gould, 1841 (Vokes 1980).
- sessa** Nelli, 1915. – New combination: *Lymnocardium sessa* Nelli, 1915. Lymnocardiidae. Pontian. RECORDS. ••1915 ZR: *Limnocardium sessa* Nelli, 1915 sp. n. Pontian, Greece.
- setigerum*** Dunker. – Combination to be revised: "*Cardium*" *setigerum* Dkr. Cardiidae. RECORDS. ••1890 Paetel: *Cardium setigerum* Dkr.
- setosum*** Linné (error). – Printer's mistake for *retosum* in Shikama 1964.
- setosum*** Redfield, 1848. [Figs. Part 1 p. 88. Part 3 p. 902]. – Changed combination: *Plagiocardium setosum* (Redfield, 1848). Cardiidae. Recent. TYPE LOCALITY. Seas of China. RECORDS. ••1848 Redfield: *Cardium setosum*. ••1858 Adams & Adams, p. 456: *Cardium* (*Cerastoderma*) *setosum*, Redf. ••1884 Grasset: *Cardium setosum*. Redf. ••1885 Smith: *Cardium* (*Acanthocardia*) *setosum* Redfield. ••1890 Paetel: *Cardium setosum* Rdfld. ••1909 Lynge: *Cardium* (*Acanthocardia*) *setosum*. ••1922–32 Sherborn, p. 5924: *Cardium setosum* Redfield, 1846. ••1952 Kuroda & Habe: *Papyridea setosa* (Redfield). ••1960 Kuroda: *Maoricardium setosum* (Redfield). ••1964 Shikama: *Papyridea* (*Maoricardium*) *setosa* Redfield. ••1967 ZR: *Cardium setosum*, effect of myotropic substances on the heart [Ref. Kratzing & Ladd 1967]. ••1977 Fischer–Piette: *Laevicardium* (*Vepricardium*) *setosum* Redfield. ••1977 Wilson & Stevenson: *Plagiocardium* (*Maoricardium*) *setosum* (Redfield, 1848). ••1977 Popov: *Plagiocardium* (*Plagiocardium*) *setosum* (Redfield). ••1988 Drivas & Jay: *Plagiocardium* (*Maoricardium*) *setosum* (Redfield, 1848). ••1990 Abbott & Dance: *Plagiocardium setosum*. ••1991 Rao, Rao & Maitra: *Cardium setosum* in Satyamurti (1956) = *Acanthocardia lata* (Born, 1778). ••1991 Voskuil & Onverwagt: *Maoricardium setosum* (Redfield, 1846). ••1992 Lamprell & Whitehead: *Plagiocardium* (*Maoricardium*) *setosum*. ••1994 Chung–Hung & Hsi–Jen: *Plagiocardium* (*Maoricardium*) *setosum* (Redfield, 1846). ••1994 Schneider: *Maoricardium setosum* (Redfield, 1846). ••1995 Chung–Hung & Hsi–Jen: *Maoricardium setosum* (Redfield). ••1997 Nguyen *et al.*: *Vepricardium setosum* (Redfield). ••1999 Aungtonya *et al.*, PMBC–SP 19(2): 378: *Vepricardium setosum* (Redfield, 1846). ••1999 Hylleberg, p. 401: *Maoricardium setosum* (Redfield, 1846). ID J. Vidal. ••2000 Hylleberg, p. 532: *Plagiocardium setosum* (Redfield, 1848). ••2003 Hylleberg & Kilburn, p. 184: Plate 2, fig. 8: *Plagiocardium setosum* (Redfield, 1848).

**setosum** – **shepstonense**

– CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: 1 specimen from China. DESCRIPTIONS. •1848 Redfield: Shell a little obliquely rounded ovate, somewhat tumid; anterior side shortest, beaks prominent, inflected and nearly in contact; in front of them is a rather narrow ovate depression. About 40 flattened ribs, twice as wide as the interstices. Rib edges very minutely denticulate, small semi-tubular spines or scales upon the central line of each rib, spines terminate in blackish bristles, more developed on the posterior margin than elsewhere. The ribs which cross the anterior lunular depression are not bristly, but tubercular. Colour white, periostracum dirty yellow, which becomes thicker and much wrinkled towards the margin, especially upon the posterior end, where the colour is nearly black. Interior white. •1988 Drivas & Jay: interior shell with a large brown blotch. DIMENSIONS. •1848 Redfield: length: 2.75 inches, height 2.75 inches, breadth 2.1 inches. •1988 Drivas & Jay: max. ant.–post. 47.5 mm, umbo–ventr. 34.2 mm. REMARKS. •2003 Hylleberg & Kilburn: maintained that several synonyms of *P. setosum* (Redfield, 1848) have been proposed. *Maoricardium latum* is a synonym of *Maoricardium setosum* according to J. Vidal. DISTRIBUTION. •1884 Grasset: China. •1994 Hylleberg: South West Pacific, Australia. •1988 Drivas & Jay: Réunion, western Indian Ocean at 12 m depth. •1999 Aungtonya *et al.*: Thailand, Andaman Sea. •2000 Hylleberg: Vietnam and Cambodia. •2003 Hylleberg & Kilburn: Vietnam. •ZMUC: China.

**setosum** Tryon, 1872. – Synonym of *Cardium quadragenarium* Conrad, 1837. >> Regarding *Cardium setosum*: Cardiidae. Recent. RECORDS. •1902 Dall: *Cardium setosum* Tryon, 1872 (not Redfield, 1846) = *Cardium quadragenarium* Conrad, 1837.

**seurati** Vidal, 1999. [Figs. Part 3 p. 880]. – *Acrosterigma seurati* Vidal, 1999. Cardiidae. Recent. TYPE LOCALITY. Holotype, Tuamotu archipelago, south central–Pacific. TYPE REPOSITORY. Holotype, Muséum national d'Histoire naturelle, Paris. TYPE MATERIAL. All the existing material, nineteen single valves, collected by L. G. Seurat, probably on beaches, in the Marutea du Sud Atoll, Tuamotu Archipelago (1902–1905), is selected as type series, stored in MNHN. Holotype: A right valve. Paratypes 1 to 18: Ten right valves and eight left valves. RECORDS. •1999 Vidal, p. 312, Table 28, Figs. 14 E–F: *Acrosterigma seurati* n. sp. – CHARACTERS AND OCCURRENCE – DESCRIPTION. •1999 Vidal: Shell almost perfectly ovoid and equilateral (anterior dorsal margin sometimes very slightly raised), rarely slightly truncated posteriorly, weakly elongated and rather globose. Lunule narrow, almost equal on both valves, and poorly differentiated, with its umbonal margins slightly raised. External colour almost entirely white, except for a few pink spots or small splashes and part of posterior slope sometimes yellow; interior white, sometimes with very pale yellow umbonal rays. Hinge nearly symmetrical and variably angled. Mean rib number  $62.8 \pm 3.6$ , range 56–68. On posterior slope, interstices very narrow and both parts of ribs about equivalent in width; scales irregular, tubercular. On posterior part of median surface, ribs become more or less flatly rounded, sometimes still bearing an axial furrow; entire rib or wider posterior part can bear

elongated ridges, analogous to the scales of posterior slope, but more numerous. On anterior part of median part, ribs ornamented only with posterior crenulations; interstices become wider and often very finely notched. On anterior half of shell, ribs at first remain rounded and retro-crenulated, and then become finely top-ridged; on first anterior ribs, top ridges become tubercular and irregular, tending to be arranged in concentric alignments which can replace the longitudinal ribbing. DIMENSIONS. •1999 Vidal: Length 37.9, height 43.6, width (calculated) 30.0 mm. REMARKS. *A. seurati* has several characters in common with *A. transcendens*, but has a much larger, thicker, heavier shells and slightly less elongated shell than *A. transcendens*. It is also noticeably less colorful and the hinge is a little less angled.

**sevieriense** Hill, 1888. – Changed combination: *Pleuriocardia sevieriense* (Hill, 1888). Cardiidae. Cretaceous. RECORDS. •1978 Scott: *Cardium* ? *sevieriense* Hill, 1888. •1978 Scott: *Pleuriocardia (Pleuriocardia) sevieriense* (Hill, 1888).

**sewelli** Prashad, 1932. [Figs. Part 3 p. 865]. – Changed combination. *Vasticardium sewelli* (Prashad, 1932). Cardiidae. Recent. TYPE LOCALITY. Indonesian Island. RECORDS. •1932 Prashad: *Cardium (Trachycardium) sewelli*. •1932 ZR: *Cardium (Trachycardium) sewelli* Prashad, 1932 sp. n. •1977 Fischer–Piette: *Laevicardium (Vasticardium) sewelli*. •1997 Poorten: *Acrosterigma sewelli* (Prashad, 1932). •1999 Vidal: *Vasticardium sewelli* (Prashad, 1932). – CHARACTERS AND OCCURRENCE – DISTRIBUTION. Indonesia (Hylleberg 1994).

**sexcostatum** Fr. Roemer, 1852. – Combination to be revised: “*Cardium*” *sexcostatum* Fr. Roemer, 1852. Cardiidae. Fossil. RECORDS. •1980 Ruhoff: *Cardium sexcostatum* Fr. Roemer, 1852; [1850–1852] vol. 3: 79, pl. 12, fig. 13.

**shabrawitensis** Abbass, 1966. – *Protocardia shabrawitensis* Abbass, 1966. Cardiidae. Cretaceous. RECORDS. •1966 ZR: *Protocardia shabrawitensis* Abbass, 1966 sp. nov. Cretaceous, Egypt.

**Shanina** Reed, 1915 (genus). – Cardiacea. Ordovician. RECORDS. •1915 ZR: *Shanina* Reed, 1915 gen. nov. Ordovician, Shan States.

**shehuenensis** Feruglio, 1936. – *Protocardia shehuenensis* Feruglio, 1936. Cardiidae. Cretaceous. RECORDS. •1936 ZR: *Protocardia shehuenensis* Feruglio, 1936 sp. n. Cretaceous Patagonia.

**shepstonense** Tomlin, 1931. [Figs. Part 3 p. 918]. – Changed combination: *Afrocardium shepstonense* (Tomlin, 1931). OTHER JUDGEMENTS: *Afrocardium richardi* (Audouin, 1827). >> Regarding *Afrocardium shepstonense*: Cardiidae. Recent. Type species: Tomlin (1931) designated *Fragum (Afrocardium) shepstonense* type species of subgenus (*Afrocardium*) Tomlin, 1931. Upgraded to generic level by authors. TYPE LOCALITY. South Africa. RECORDS. •1931 Tomlin: *Fragum (Afrocardium) shepstonense*. •1931 ZR: *Fragum (Afrocardium) shepstonense* Tomlin, 1931 subg. et sp. n. S. Africa. •1961 Cotton: *Fragum shepstonense* Tomlin 1931. Type species of *Afrocardium* Tomlin 1931. •1969 Moore *et al.*: *Ctenocardia (Afrocardium) shepstonense* (Tomlin, 1931). •1977 Fischer–Piette: *Corculum (Afrocardium) shepstonense* Tomlin. •1977

*shimotokuraense* – *silvacollina*

- Wilson & Stevenson: *Fragum* (*Afrocardium*) *shepstonense* Tomlin, 1931. ••1982 Kilburn & Rippey: *Afrocardium shepstonense* (Tomlin, 1932). ••2002 Schneider: *Afrocardium shepstonense* (Tomlin, 1931). Holocene. ••2003 Hylleberg & Kilburn, p. 176: *C. shepstonense* Tomlin, 1931. Syn of *Afrocardium richardi* (Audouin, 1827) according to J. Vidal.
- shimotokuraense*** Akutsu, 1964. – Changed combination: *Clinocardium shimotokuraense* (Akutsu, 1964). Cardiidae. Miocene. RECORDS. ••1964 Akutsu: *Vasticardium shimotokuraense*. ••1964 ZR: *Vasticardium shimotokuraense* Akutsu, 1964 sp. nov. Miocene, Shimotokurazawa, Tochigi Pref. Japan. ••1973 Keen: *Clinocardium shimotokuraense* (Akutsu, 1964).
- shimotokuraensis*** (mode). – See under *shimotokuraense* Akutsu, 1964.
- shinjiensis*** Yokoyama, 1923. – Changed combination: *Clinocardium shinjiensis* (Yokoyama, 1923). OTHER JUDGEMENTS: *Cardium nuttallii* Conrad. – *Cardium californianum* Conrad. >> Regarding *C. shinjiensis*: Cardiidae. Miocene. REMARKS. The fossil species is most likely to be classified as *Cerastoderma shinjiensis* (Yokoyama, 1923). RECORDS. ••1923 Yokohama, p. 7, pl. 2, fig. 6: *Cardium shinjiensis*, n. sp. ••1923 ZR: *Cardium shinjiense* Yokohama, 1923 sp. n. Neogene Japan. ••1926 Yokoyama: *Cardium shinjiense* Yokoyama, 1923 = *Cardium californianum* Conrad. ••1926 Yokoyama: *Cardium shinjiense* Yokoyama, 1923 = *Cardium nuttallii* Conrad. ••1927 Yokoyama: *Cardium shinjiense* = *Cardium nuttallii* Conr.; the shells resemble *Cardium fastosum* Yokoyama, 1927. ••1937 ZR: *Cardium* (*Cerastoderma*) *shinjiense* Yokoyama [Ref. Kanehara 1937a]. ••1954 Keen: *Clinocardium shinjiense* (Yokoyama, 1923). [Miocene]. ••1973 Keen: *Clinocardium shinjiense* (Yokoyama, 1923) [*Cardium*]. Neogene. ••1974 ZR: *Ciliatocardium shinjiense* (Yokoyama, 1923) Comb. nov. Ref. to Kafanov, p. 1469. ••1977 Popov: *Clinocardium shinjiense* (Yokoyama, 1923).
- shiobaraensis*** Noda 1962. – Changed combination: *Serripes shiobaraensis* Noda, 1962. Cardiidae. Middle Miocene. RECORDS. ••1962 ZR: *Serripes shiobaraensis* Noda, 1962 sp. nov. Hoki River, Sekiya, Shiobaramachi, Shioya-gun, Tochigi Pref. Kanomatazawa formation. ••1973 Keen: *Serripes shiobaraensis* Noda, 1962. ••1975 ZR: *Yagudinella shiobaraensis* (Noda, 1962) comb. nov. transferred from *Serripes*. Ref. to Kafanov, p. 147. ••1978 Kafanov: *Yagudinella shiobaraensis* (Noda 1962). ••1982 ZR: *Serripes shiobaraensis* Noda, 1962. Diagnostic characters. Combination revalidated. Transferred back from *Yagudinella*. Middle Miocene. Russian SFSR. Ref. to Kafanov *et al.* p. 44. ••1982 ZR: *Yagudinella shiobaraensis* (Noda, 1962). Referred to *Serripes*. Ref. to Kafanov *et al.* p. 44.
- shiobarensis*** Yokoyama, 1926. – Changed combination: *Clinocardium shiobarensis* (Yokoyama, 1926). Cardiidae. Miocene. RECORDS. ••1926 Yokoyama: *Cardium shiobarensis*, Yokoyama. ••1954. Keen: *Clinocardium shiobarensis* (Yokoyama), 1926. ••1973 Keen: *Laevicardium shiobarensis* (Yokoyama, 1926).
- shumardi*** Meek & Hayden, 1860. – Combination to be revised: "*Cardium*" *shumardi* Meek & Hayden, 1860. Cardiidae. Jurassic. RECORDS. ••1860 Meek & Hayden: *Cardium* [*Protocardium*? sic] *shumardi* Meek & Hayden, 1860. ••1980 Ruhoff: *Cardium shumardi* Meek & Hayden, 1860; p. 182.
- siculum*** Sowerby, 1834. [Figs. Part I p. 111]. – Synonym of *Parvicardium exiguum* (Gmelin, 1791). >> Regarding *Cardium siculum*: Cardiidae. Recent. TYPE LOCALITY. Ad mare Siculum (= Sicily), Sowerby (1840). RECORDS. ••1834 Sowerby, 51th part, fig. 31: *Cardium siculum*. ••1840 Sowerby, Proc. Z.S. London p.106: *Cardium siculum*. ••1840 Sowerby, catalogue p. 2, No. 26: *Cardium siculum* Sow. ••1840 Sowerby, corrected list, p. 8: *Cardium siculum* (Sowerby No. 26). ••1844 Philippi: *Cardium siculum* Sowerb. = *Cardium exiguum* Gm. ••1862 Weinkauff: *Cardium siculum* Sow. = *Cardium subangulatum* Scacchi. ••1858 Adams & Adams, p. 457: *Laevicardium siculum* Sow. ••1867 Weinkauff: *Cardium siculum* = *Cardium exiguum* Gmelin. ••1869 Römer: *Cardium siculum* Sowerby = *Cardium exiguum* Gmelin. ••1878 Monterosato: *Cardium siculum* Sow. = *C. stellatum* Reeve. ••1878 ZR: *Cardium siculum* (Sow.) = *stellatum* (Reeve) [Ref. Monterosato 1878]. ••1888 Kobelt: *Cardium siculum* Sow. = *Cardium exiguum* Gmelin. ••1890 Paetel: *Cardium siculum* Sow. = *exiguum* Gm. ••1917 Hidalgo: *Cardium siculum* Sowerby = *Cardium exiguum* Gmelin. ••1922-32 Sherborn, p. 5944: *Cardium siculum* Sowerby, 1841. ••1933 Coen: *Cardium siculum* Sowerby = *Eucardium* (*Parvicardium*) *exiguum* var. *subangulata* Scacchi. ••1937 Coen: *siculum* Sowerby = *Cerastoderma* (*Parvicardium*) *exiguum* *subangulatum* Scacchi. ••1962 Grossu: *Cardium siculum* Sowerby, 1839 sic = *Cardium* (*Parvicardium*) *exiguum* Gmelin, 1790 sic. ••1969 Nordsieck: *Parvicardium siculum* (Sowerby, 1839 sic). ••1977 Fischer-Piette: *Cardium siculum* Sowerby = *Cardium exiguum* Gmelin. ••1989 Voskuil & Onverwagt: *Parvicardium* (*Parvicardium*) *siculum* (Sowerby, 1841). – CHARACTERS AND OCCURRENCE – REMARKS. *Cardium siculum* was first figured by Sowerby in 1834. DIMENSIONS. ••1840 Sowerby: long. 0.5 poll. (length 13 mm), lat. 0.4 poll. (width 10 mm), alt. 0.45 poll (height 11 mm). ••1969 Nordsieck: stated the following synonymy: *Parvicardium exiguum* (*exiguum*) (Gmelin, 1791) = *pygmaeum* (Donovan, 1799) = *siculum* (Sowerby, 1839) = *stellatum* (Reeve, 1844) = *parvum* (Philippi, 1844). DISTRIBUTION. ••1969 Nordsieck: *C. siculum*: Mediterranean.
- sidorovi*** Starobogatov 1974. – *Hypanis minima sidorovi* Starobogatov. Lymnocardiiidae. RECORDS. ••1974 Starobogatov, p. 246, fig. 213: *Hypanis minima sidorovi* Starobogatov subsp. nov.
- silicatum*** Mansfield, 1937. – Combination to be revised: "*Cardium*" *silicatum* Mansfield, 1937. Cardiidae. L. Miocene. RECORDS. ••1937 ZR: *Cardium* (*Trachycardium*) *silicatum* Mansfield, 1937 sp. n. Tampa limestone, Florida (Lower Miocene).
- silicea*** Blanckenhorn, 1934. – *Protocardia silicea* Blanckenhorn, 1934. Cardiidae. Cretaceous. RECORDS. ••1934 ZR: *Protocardia silicea* Blanckenhorn, 1934 sp. n. Cretaceous Syria.
- silvacollina*** Dockery, 1982. – *Trigoniocardia silvacollina* Dockery, 1982. Cardiidae. Lower Oligocene. RECORDS. ••1982 ZR: *Trigoniocardia* (*Americardia*) *silvacollina*

**simile – simplex**

Dockery, 1982 sp. nov. Mississippi. Ref. to Dockery p. 72.

**simile** (variety). – See *papillosum simile* Milaschewitch, 1909.

**simile** Milaschewitch, 1909. – Synonym of *Parvicardium papillosum* (Poli, 1791). OTHER JUDGEMENTS: *Cardium exiguum* Gmelin, 1791. >> Regarding *Cardium simile*: *Cardiidae*. Recent. RECORDS. ••1909 Milaschewitch p. 318: *Cardium simile*. ••1916 Milaschewitch: *Cardium simile* Milaschewitsch, 1909. ••1962 Grossu: *Cardium (Parvicardium) simile* Milaschewich (= Milaschewitch) 1909. ••1977 Fischer–Piette: *Cardium simile* Milaschewich = *Cardium exiguum* Gmelin. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: wet collection from Bosphorus IV. DISTRIBUTION. ••1969 Nordsieck: Black Sea.

**similifittoni**. – *Nomen nudum*. RECORDS. ••1949 ZR: *Replidacna similifittoni* 'n. sp.' [nomen nud.] Maestrictian, Sarmat. [Ref. Papp 1949].

**similis** Cowper–Reid, 1943. – *Pinzonella similis* Cowper–Reid, 1943. *Cardiacea*. Trias. RECORDS. ••1947 ZR: *Pinzonella similis* Cowper–Reid, 1943 sp. nov. Trias, Brazil.

**similis** Kafanov, 1994. – *Serripes similis* Kafanov, 1994. *Cardiidae*. RECORDS. ••1994 Kafanov in Arkhipova *et al.*: *Serripes similis* Kafanov.

**similis** Papaianopol, 1989. – *Pachydacna similis* Papaianopol, 1989. *Lymnocardiiidae*. Pliocene. TYPE LOCALITY. Basin Dacicque, Romania. RECORDS. ••1989 Papaianopol, p. 75, fig.: *Pachydacna (Pachydacna) similis* sp. nov.

**simillimum** Smith, 1896. – New combination. *Fragum simillimum* (Smith, 1896). *Cardiidae*. Recent. TYPE LOCALITY. Off Colombo Lighthouse, in 142–400 fathoms. RECORDS. ••1896 Smith: *Cardium (Fragum) simillimum*. ••1896 ZR: *Cardium (Fragum) simillimum* Smith, 1896 n. sp. off Colombo. ••1909 Melvill: *Cardium (Fragum) simillimum*, Smith. ••1937 Viader: *Cardium simillimum*, Smith. ••1940 Winckworth: *Corculum (Fragum) simillimum*. ••1948 Ray: *Corculum (Fragum) simillimum*. ••1977 Fischer–Piette: *Corculum (Fragum) simillimum* Smith. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value. The posterior portion of the surface occupies nearly half the valve; it is divided off by two approximated ribs. DESCRIPTIONS. ••1896 Smith: Description based on a single left valve. The sculpture is similar to that of *C. peramabilis* Dall, from 50–125 fathoms in the West-Indian region. However, the posterior end is distinctly truncate, not curved as in *C. peramabilis*. ••1948 Ray: nine complete shells and four valves were examined. They agree in their essential characters with Smith's description and figure. Its occurrence on the Coromandel coast is, therefore of interest. The fine radiating striae are absent in the lunular region, which consequently is smooth. The granules, arranged in radiating series, appear to be restricted to the hinder part of the shell. Rounded anteriorly, truncate posteriorly. The posterior portion of the surface is somewhat more finely cancellate than the anterior, and is divided off by two approximated ribs, but occupies nearly half the valve. DIMENSIONS. ••1896 Smith: length 21 mm, width 21 mm, diameter 17 mm. HABITAT. ••1909 Melvill: Deep sea, 123–150 fathoms, on broken shell

and rough material; recorded to a depth of 400 fathoms. DISTRIBUTION. ••1896 Smith: Indian Ocean. ••1948 Ray: Bay of Bengal, the Coromandel coast.

**simionescui**. – Combination to be revised: "*Cardium*" *simionescui*. *Cardiacea*. Fossil. RECORDS. ••1930 ZR: *Cardium simionescui*, fossil [Ref. Vascautanu 1930].

\***simkewici**. – **Homonymy to be noticed.** *Cardium simkewici* from 2 sources: Andrussow, 1902. – Andrussow, 1963. REMARKS. I do not know how Andrussow 1902 compares with Andrusov, 1963. Andrussow and Andrusov probably reflect different transcriptions of the Russian alphabet.

**simkewici** Andrussow, 1902. – Changed combination: *Raricardium simkewici* (Andrussow, 1902). *Lymnocardiiidae*. Neogene. RECORDS. ••1905 Dollfus, commenting Andrussow 1902: *Cardium simkewici* n. sp. tends towards *Cerastoderma*. ••1986 Nevesskaya *et al.*: *Raricardium simkewici* (Andrus) comb. nov. ••1987 ZR: *Raricardium simkewici* (Andrus) comb. nov. Ref. to Nevesskaya *et al.* p. 191.

**simkewici** Andrussow, 1963. – Combination to be changed: "*Cardium*" *simkewici* Andrusov, 1963. *Lymnocardiiidae*. Neogene. RECORDS. ••1963 ZR: *Cardium simkewici* Andrusov, 1963 sp. nov. Russia [spelled *simkevici* on plate].

**simlaensis** Vokes, 1937. – *Discors simlaensis* Vokes, 1937. *Cardiidae*. Eocene. RECORDS. ••1937 ZR: *Discors simlaensis* Vokes, 1937 sp. n. Lutetian, Eocene; Simla Hills State, India.

**simmetrica** Ali–Zade & Aleskerov, 1969. – *Monodacna simmetrica* Ali–Zade & Aleskerov, 1969. *Lymnocardiiidae*. Apsheron. RECORDS. ••1969 ZR: *Monodacna simmetrica* Ali–Zade & Aleskerov, 1969 sp. nov. Apsheron deposits, Apsheron Peninsula, Chemberkend, Azerbaijan.

**simouensis** (variety). – See under *echinatum* var. *simouensis* Cowper Reed, 1935.

**simplex** Douvillé, 1917. – *Granocardium simplex* Douvillé, 1917. *Cardiidae*. Cretaceous. RECORDS. ••1917 ZR: *Granocardium simplex* Douvillé, 1917 n. sp. Cretaceous Moghara.

**simplex** Spengler, 1799. [Figs. Part 3 p. 879]. – Changed combination: *Acrosterigma simplex* (Spengler, 1799). *Cardiidae*. Recent. TYPE LOCALITY. Holotype, Coast of Guinea (Spengler 1799), without locality (Vidal 1999). TYPE REPOSITORY. A paired specimen in ZMUC, Spengler collection, Zoological Museum University of Copenhagen (Vidal 1999). TYPE MATERIAL. *Cardium unicolor*: Six paired syntypes from Ticao (Philippines), in BMNH, Cuming coll., the largest of which fits the specimen cited and figured by Sowerby, and was selected as lectotype by Voskuil & Onverwagt (1991: 116). *Cardium nebulosum*: Holotype, BMNH reg. no. 1900.2.13.22. Neg. No. 0386. A paired specimen from the Maldives figured by Reeve (Vidal 1999). *Laevicardium soyeri*: Holotype and three paratypes, all paired specimens, labeled (incorrectly) "Corsica", in MNHN. RECORDS. ••1799 Spengler: *Cardium simplex*. ••1870 Mörch: *Cardium simplex* Spengler; senior synonym of *C. maculosum* Sow? non Wood = *C. arenicolom* Reeve. ••1902 Sherborn, p. 904: *Cardium simplex* Spengler, 1799. ••1977 Fischer–Piette: *Cardium simplex* Spengler. ••1999 Knudsen & Hylleberg: *Cardium simplex* Spengler, 1799. ••1999

Vidal: *Acrosterigma simplex* (Spengler, 1799). ••2001 Vidal, p. 407: *Acrosterigma simplex*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. Shell inflated, round, 40 ribs, low, flat and smooth, interstices low and very narrow. Outside white dotted with pale red spots, inside white, but pale red under the umbones. DESCRIPTIONS. ••1799 Spengler: *Testa cordata aequalvalvi, obsolete sulcata, margine antico dentata*. ••1799 Spengler, translated by Knudsen & Hylleberg (1999): In external shape this bivalve very much resembles the preceding species. The difference lies alone in the shape, colour and number of ribs. Despite its smallness it has no less than 40 of these; they are not separated by furrows, but are situated very close to each other; they are also low and flattened, without scales and teeth, and consequently quite smooth. On the external side it is strewn with pale red spots on a white background. Internally, below the umbo, the same pale colour prevails; the rest is white. It is slightly smaller than the preceding one and comes from the same place. ••1999 Vidal: Medium-sized; adult shells generally asymmetrical on dorsal margin with a receding posterior side and a raised, inflated anterior one, and with an obtuse angle on dorsal margin at the level of anterior laterals; ventral part also asymmetrical, with an expansion of posterior side and ribs generally curved backwards in projection. Generally slightly truncated at posterior–median limit; a weak furrow sometimes separates these two zones, producing an obtuse notch on margin. Moderately but variably elongated, and rather inflated. Lunule rather large and flat on left valve, very large and appreciably depressed on right valve. An additional thick dark–brown layer of lamellated periostracum present on posterior slope and part of median shell of the adult part. Exterior of the young shells generally marked with irregular concentric light purple stains; on adults, which generally remain uniform pale white to yellow, these aligned stains can persist on median part. Interiorly white to somewhat purple by transparency; posterior slope always white. Hinge slightly asymmetrical, slightly angled. Mean rib number  $47.6 \pm 3.8$ , range 42–59. On posterior slope, smooth anterior part of ribs flat, with an abrupt anterior flank, and much wider than posterior part, represented by a thin, low ridge between axial furrow and interstice; this ridge, in turn, bears a very thin top–furrow in which very small irregular scales occur, often connected by a thin ridge. These features are only present on juvenile part of shell; on the adult part (except for some of last ribs), the posterior ridge and scales disappear and posterior part of ribs becomes a “pseudo–interstice,” simultaneously anterior part of ribs lowers, shell surface becoming almost smooth on the most adult margin of large shells. On median part of shell there are low ribs of slightly rounded profile, at first smooth beside posterior slope, then becoming finely and regularly retro–ridged. Interstices rounded, smooth, and half width of ribs. Anteriorly, posterior thin ridges of ribs disappear or change into scarce, irregular, very thin top–ridges; ribs beside lunule become very low, sometimes with somewhat wide, tubercular top–ridges, sometimes entirely smooth and almost indistinct on fully adult part of shell. ••2001 Vidal: tentacles numerous. No eyes on

tentacles. DIMENSIONS. ••1999 Vidal: length 39.4, height 52.8, width 36.0 mm. ••1799 Spengler: Slightly smaller than *C. fucatum*. REMARKS. ••1799 Spengler: outline very similar to *C. fucatum*. Major differences are the number of ribs, their form and colour. ••1999 Vidal: *Acrosterigma simplex* can be separated from the other species of the species–group mainly by its large lunule, the lack of bright colours (though exceptions exist), unique character of posterior slope rib morphology (particularly with ontogenetic disappearance of scales and smoothing of surface and the weak ornamentation of the ribs elsewhere. Junior synonyms according to Vidal (1999): *Cardium nebulosum* Reeve, 1845; *Laevicardium soyeri* Fischer–Piette, 1977; *Cardium unicolor* Sowerby, 1840. HABITAT. ••1999 Vidal: recorded from 0 to 100 m depth. DISTRIBUTION. ••1799 Spengler: Guinea [West Africa, Hylleberg 2001]. ••1999 Vidal: *Acrosterigma simplex* has a large but patchy distribution in the Indo–Pacific; it seems inexplicably absent from the north–western Indian Ocean and from the south–eastern west Pacific (eastern Melanesia and Polynesia).

**simrothi** Dall 1898. – Changed combination: *Trigoniocardia simrothi* (Dall 1900). Cardiidae. Tertiary. TYPE LOCALITY. China. RECORDS. ••1898 Dall: *Cardium (Trigoniocardia) Simrothi* Dall, 1898 n. sp. ••1958 Abbott: *Trigoniocardia simrothi* Dall 1900. ••1977 Popov: *Trigoniocardia (Trigoniocardia) simzothi* sic (Dall, 1900). ••1977 Vokes: *Trigoniocardia (Trigoniocardia) simrothi* (Dall).

**simulans** Partsch. – Combination to be changed: “*Cardium*” *simulans* Partsch. Cardiacea. Fossil. RECORDS. ••1857 Deshayes: *Cardium simulans* Partsch.

**simzothi** err. spelling of *simrothi* Dall in Popov 1977.

**sinense** Sowerby, 1838. [Figs. Part 1 p. 112, 124, 174. Part 3 p. 886]. – Changed combination: *Vepricardium sinense* (Sowerby, 1838). Cardiidae. Pliocene(?) and Recent. Iredale (1929) *Cardium sinense* Sowerby is type species of the genus *Vepricardium*. TYPE MATERIAL. ••2000 Vidal: type specimen Sowerby 1838: fig. 35. Type has not been located. RECORDS. ••1838 Sowerby, 149<sup>th</sup> part, fig. 35: *Cardium sinense* nobis. ••1840. Sowerby, Proc. Z.S. London p.105: *Cardium sinense*. ••1840 Sowerby, catalogue No. 4: *Cardium sinense*. ••1840 Sowerby, corrected list, p. 8: *Cardium sinense* (Sowerby No. 4). ••1844 Reeve: *Cardium sinense* Sowerby, Pro. Zool. Soc., 1840. Conch. Illus. f. 35. ••1858 Adams & Adams, p. 454: *Cardium (Pectunculus) sinense* Sow. ••1884 Grasset: *Cardium sinense*. Sow. ••1890 Paetel: *Cardium sinense* Sow. ••1891 Fischer: *Cardium sinense* Sowerby. ••1907 ZR: *Cardium sinense* [Ref. Dautzenberg & Fischer 1907]. ••1909 Lyngé: *Cardium (Bucardium) sinense*. ••1919 Martin: *Cardium sinense* Sow. [Pliocene(?) to Recent]. ••1922–32 Sherborn, p. 5979: *Cardium sinense* Sowerby, 1841. ••1929 Iredale: *sinense* (Sowerby). ••1962 Kira: *Vepricardium sinense*. ••1974 Habe & Kosuge: *Vepricardium sinense* (Sowerby, 1844). ••1977 Fischer–Piette: *Laevicardium sinense* Sowerby. ••1995 Chung–Hung & Hsi–Jen: *Cardium sinense* Sowerby. ••1999 Aungtonya *et al.*, PMBC–SP 19(2): 378: *Vepricardium sinense* (Sowerby, 1841). ••2000 Hylleberg, p. 532: *Vepricardium sinense* (Sowerby, 1840). ••2000 Lutaenko, p. 372: *Vepricardium sinense*



**sinuatus – soceni**

(Sowerby, 1841). ••2000 Vidal, p. 454, Fig. 4: *Cardium sinense* Sowerby, 1841: 105. ••2001 Vidal, p. 407: *Vepricardium sinense*. ••2003 Hylleberg & Kilburn, p. 186, Plate 5, fig. 21: *Vepricardium sinense* (Sowerby, 1840). – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: ••1844 Reeve: the ribs of this species are peculiarly narrowed along the summit; and the granulated surface of the shell is of an extremely curious character. ••2000 Vidal: *V. sinense* is so characteristic, with its few triangular ribs, that it has never been misidentified. OF COLLECTIONS. ••ZMUC: Siam 3–5 fv, soft clay, 9 fv mud, shells, 5–9 fv sand, 30 fv shells. ••ZMUC: Gulf of Thailand 5 fv soft clay, 8 fv, mud, 10 fv mud China from Ludvigsen. ••ZMUC: wet collection: sine loc. DESCRIPTIONS. ••1844 Reeve: shell somewhat depressly orbicular, posteriorly slightly beaked, everywhere minutely granulated, especially on the anterior side; radiately ribbed, 24 ribs, a little compressed, posterior narrower; fulvous white, margins very strongly crenated. ••2001 Vidal: tentacles numerous. Eyes on tip of tentacles. ••ZMUC: 23 ribs, 8 of which are posterior. DIMENSIONS. ••1840 Sowerby: long. 1.55 poll. (length 39 mm), lat. 1 poll. (width 25 mm), alt. 1.40 poll (height 36 mm). REMARKS. ••1840 Sowerby: Slightly resembling *C. asiaticum*, from which it is distinguished by having larger and fewer ribs, and a small fringe on the posterior ribs. HABITAT. Found in sand. DISTRIBUTION. ••1844 Reeve: China and Java. ••1884 Grasset: China. ••1994 Hylleberg: Gulf of Thailand, Philippines. ••1999 Aungtonya *et al.*: Thailand, Andaman Sea. ••2000 Hylleberg: Vietnam and Cambodia. ••2000 Lutaenko: Vietnam. ••2000 Vidal: Never recorded in the Indian Ocean, probably only west Pacific: Java, Philippines, Cambodia, Gulf of Thailand, Vietnam, south China, Japan. ••2003 Hylleberg & Kilburn: Vietnam, 10–20 m, near shore.

**sinuatus** Bog. – *Valenciennius sinuatus* Bog. Cardiacea. Fossil. RECORDS. ••1955 Ebersin: *Valenciennius sinuatus* Bog.

**sinuosum** d'Orbigny, 1850. – *Cardium sinuosum* d'Orbigny, 1850. ?Cardiidae. Fossil. RECORDS. ••1922–32. Sherborn, p. 5990: *Cardiola sinuosa* Muenster, 1840. ••1922–32. Sherborn, p. 5990: *Cardium* (Muenster) *sinuosum* d'Orbigny, 1850. – *Cardiola*.

**Sinupontalmyra** (subgenus). – RECORDS. ••1981 ZR: *Pontalmyra* (*Sinupontalmyra*) Papaianopol, 1981 subgen. nov. Type species *Cardium corbuloides* Deshayes, 1838, Upper Miocene. Ref. to Papaianopol, p. 41. ••1987 Taktakishvili pp. 58–85: (*Sinupontalmyra*) Taktakishvili, 1987 subgen. nov. of *Crassadacna* Ebersin.

**sinzovi** Sinz. – *Monodacna sinzovi* Sinz. Lymnocardiidae. Fossil. RECORDS. ••1907 Andrussov: *Monodacna sinzovi* Sinz.

**siphonophorum** Andrussov, 1902. – Combination to be revised: “*Cardium*” *siphonophorum* (Andrussov, 1902). Cardiidae. Miocene. RECORDS. ••1905 Dollfus, commenting Andrussov 1902: *Cardium siphonophorum* n. sp. tends towards *Cerastoderma*. ••1961 ZR: *Cardium siphonophorum* Andrusov, 1961 “sp. nov.” [in a table] Miocene Caspian region, Russia. ••1972 ZR: *Cardium siphonophorum* [Ref. Archambault 1972].

**sjoegreni**. – *Monodacna sjoegreni*. Lymnocardiidae.

Pliocene. RECORDS. ••1916 ZR: *Monodacna sjoegreni* Ref. to Kalickij (1916). ••1963 ZR: *Monodacna sjoegreni*. Pliocene. ••1977 Popov: *Monodacna sjoegreni*.

**sjoegreni minor** Andrussov, 1924 (variety). – Upgraded. *Monodacna sjoegreni minor* Andrussov, 1924. Lymnocardiidae. Pliocene and Pleistocene. RECORDS. ••1924 ZR: *Monodacna sjoegreni minor* Andrussov, 1924 var. n. Pleistocene. ••1963 ZR: *Monodacna sjoegreni* var. *minor* Andrusov, 1963 nov. Pliocene, Russia.

**sjoegreni pyrophila** Andrussov, 1924 (variety). – Upgraded. *Monodacna sjoegreni pyrophila* Andrussov, 1924. Lymnocardiidae. Pliocene and Pleistocene. RECORDS. ••1924 ZR: *Monodacna sjoegreni pyrophila* Andrussov, 1924 var. n. Pleistocene. ••1963 ZR: *Monodacna sjoegreni* var. *pyrophila* Andrusov, 1963 nov. Pliocene, Russia.

**skadovskense** Eberzin, 1958. – New combination: *Lymnocardium skadovskense* (Eberzin, 1958). Lymnocardiidae. Pliocene. RECORDS. ••1958 ZR: *Limnocardium* (*Euxinocardium*) *skadovskense* Eberzin, 1958 sp. nov. Ukraine, Skadovsk north coast of Black Sea. Pliocene of the Ponto–Caspian basin, Russia.

**skeeti** Hedley, 1906. [Figs. Part 3 p. 918]. – Changed combination: *Afrocardium skeeti* (Hedley, 1906). OTHER JUDGEMENTS: *Afrocardium richardi* (Audouin, 1827). Cardiidae. Holocene and Recent. TYPE LOCALITY. Australia. TYPE REPOSITORY. Australian Museum Sydney. Syntypes C018858. RECORDS. ••1906 Hedley, p. 476, pl. 38, fig. 25: *Cardium skeeti* Hedley n. sp. ••1906 ZR: *Cardium skeeti* Hedley, 1906 sp. n. Mast Head Reef Q. ••1977 Fischer–Piette: *Cardium* (*Ringicardium*) *skeeti* Hedley. ••1992 Lamprell & Whitehead: *Afrocardium skeeti*. ••2002 Schneider: *Afrocardium skeeti* (Hedley, 1906). Holocene. ••2003 Hylleberg & Kilburn, p. 176: *C. skeeti* Hedley, 1906. Syn of *Afrocardium richardi* (Audouin, 1827) according to J. Vidal. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1994 Hylleberg: East Australia.

**slatteri** Cox, 1946. – *Tutcheria slatteri* Cox, 1946. Cardiacea. Middle Lias. RECORDS. ••1946. ZR: *Tutcheria slatteri* Cox, 1946. sp. nov. Middle Lias, Aston Magna, Wores.

**slavonica** (variety). – See under *abichi* var. *slavonica* Jenko, 1961.

**smekhovi** Kafanov & Savizky, 1982. – *Ciliatocardium smekhovi* Kafanov & Savizky, 1982. Cardiidae. RECORDS. ••1982 Kafanov & Savizky: *Ciliatocardium smekhovi* Kafanov & Savizky. ••1982 ZR: *Ciliatocardium smekhovi* sp. nov. Russian SFSR, Lower Miocene. Ref. to p. 58, fig'd Kafanov.

**snideri** Morgan. – *Conocardium snideri* Morgan. Conocardiidae. Fossil. RECORDS. ••1960 ZR: *Conocardium snideri* synonymy, description and photographs of the ecotypes of Morgan's species [Ref. Branson 1960b].

**snjatkovi** Fedotor, 1932. – *Conocardium snjatkovi* Fedotor, 1932. Conocardiidae. Carboniferous. RECORDS. ••1932 ZR: *Conocardium snjatkovi* Fedotor, 1932 sp. n. Carboniferous Donetz Basin. ••1933 ZR: *Conocardium snjatkovi* Fedotov, 1932 sp. n. Carboniferous.

**soceni** Jekelius, 1944. – *Prophyllocardium soceni*

- Jekelius, 1944. Lymnocypridae. Pliocene. RECORDS. ••1946 ZR: *Prophyllocardium soceni* Jekelius, 1944 sp. nov. type of *Prophyllocardium* Jekelius, 1944 gen. nov. Cardiidae. TYPE Rumania (Lower Congerien) Soceni. Banat.
- soceni** Jekelius, 1944. – *Replidacna soceni* Jekelius, 1944. Lymnocypridae. Miocene. RECORDS. ••1946 ZR: *Replidacna soceni* Jekelius, 1944 sp. nov. Miocene Soceni Banat.
- sociale** Krauss, 1852. – Changed combination: *Cerastoderma sociale* (Krauss, 1852). Cardiidae. Fossil. RECORDS. ••1977 Popov: *Cerastoderma sociale*. ••1980 Ruhoff: *Cardium sociale* Krauss, 1852; vol. 8: 154, pl. 3, fig. 7.
- socialis** Papaianopol, 1989. – *Pachydaena socialis* Papaianopol, 1989. Lymnocypridae. Pliocene. TYPE LOCALITY. Basin Dacique, Romania. RECORDS. ••1989 Papaianopol, p. 69, fig.: *Pachydaena (Pachydaena) socialis* sp. nov.
- socrivenori** Tamura, 1968. – *Cardium socrivenori* Tamura, 1968. Cardiidae. Fossil. RECORDS. ••1976 Ma et al. p. 255: *Cardium socrivenori* Tamura, 1968.
- sokkohense** Martin, 1917. – Combination to be revised: “*Cardium*” *sokkohense* Martin, 1917. Cardiidae. Lower Miocene. TYPE LOCALITY. West-Prögogeb. Java, Indonesia. TYPE REPOSITORY. ?Geologischen Reichsmuseum, Leiden, the Netherlands. RECORDS. ••1917 ZR: *Cardium sokkohense* Martin, 1917 n. sp. Miocene Java. ••1919 Martin: *Cardium sokkohense* Martin 1916–1917 [L. Miocene].
- sokolovi** Andrussov, 1930. – Changed combination: *Macradacna sokolovi* (Andrussov, 1930). Lymnocypridae. Fossil. REMARKS. I do not know how Andrussov, 1930 compares with Wassoievic & Eberzin, 1930 (see below). RECORDS. ••1967 Ebersin: *Macradacna sokolovi* (Andrus.). ••1967 ZR: *Macradacna sokolovi* (Andrus., 1930) pro *Monodacna sokolovi* (Andrus., 1930) [Ref. Eberzin 1967].
- sokolovi** Wassoievic & Eberzin, 1930. – *Monodacna sokolovi* Wassoievic & Eberzin, 1930. Lymnocypridae. Pliocene. RECORDS. ••1931 ZR: *Monodacna sokolovi* Wassoievic & Eberzin, 1930 sp. n. URSS
- sola** (variety). – See under *subsquamulosum* var. *sola* Eberzin, 1958.
- Solen** (genus) Linné, 1758. Not in Cardiidae. RECORDS. ••1857 Deshayes: *Solen* (spec.) Linné, in Schroeter, Spengler, Gmelin, Dillwyn: syn. of *Cardium*.
- soleniforme** (mode). – See under *soleniformis* Bruguière, 1789.
- soleniforme** Bruguière, 1789. [Figs. Part 1 p. 70, 88, 102. Part 3 p. 917]. – Changed combination: *Papyridea soleniforme* (Bruguière, 1789). OTHER JUDGEMENTS: *Cardium bullatum* Lam. = *Papyridea spinosum* (Meuschen, 1778) [not available]. >> Regarding *Cardium soleniforme*: Cardiidae. Recent. Gray (1847) designated *Cardium soleniforme* Bruguière, 1789 type species of the genus *Papyridea* Swainson, 1840. RECORDS. ••1789 Bruguière, p. 235, No. 34: *Cardium soleniforme* Nob. Compared with Lister, tab. 342, fig. 179. ••1836 Bosc: *Cardium soleniforme*. ••1840 Sowerby, catalogue p. 2, No. 14: *Cardium soleniforme* Brug. = *Cardium bullatum* Lam. ••1844 Potiez & Michaud: *Cardium soleniforme* Brug. = *Cardium bullatum* Linn. Gmel. ••1847 Gray: *Cardium soleniforme* Bruguière, 1789. ••1850 Jay: *Cardium soleniforme* Brug. = *Cardium bullatum*. ••1856 Wood & Hanley, No. 36: *Cardium soleniforme* Brug. ••1864 Krebs: *Cardium soleniforme* Brug. (syn.) = *Cardium spinosum* Meusch. ••1869 Römer: *Cardium soleniforme* Bruguière N. 34 = *Cardium bullatum* (L.) Chemnitz. ••1885 Smith: *Cardium soleniforme* Bruguière = *Cardium (Papyridea) bullatum* ([Linn. ?] Chemnitz). ••1902 Dall: *Cardium soleniforme* Bruguière, 1789 = *Cardium spinosum* Meuschen, 1778. ••1902 Sherborn, p. 911: *Cardium soleniforme* Bruguière, 1789. ••1915 Tomlin & Shackleford: *Papyridea soleniformis* (Brug., 1789). ••1921 Maury: *soleniforme* Bruguière, 1789 = *Cardium (Papyridea) spinosum* Meuschen, 1778. ••1939 McLean: *Cardium soleniforme* Bruguière, 1789 = *Papyridea spinosum* (Meuschen, 1778). ••1953 Olsson & Harbison: *Cardium soleniforme* Bruguière = *Cardium hiatus* Meuschen. ••1963 Coomans: *Papyridea soleniformis* (Bruguière) = *Papyridea hiatus* (Meuschen). ••1968 Jong & Kristensen: *Papyridea soleniformis* Bruguière = *P. hiatus* Meuschen. ••1969 Moore et al.: *Papyridea soleniforme* (Bruguière, 1789). ••1969 Nordsieck: *Papyridea soleniforme* (Bruguière, 1792). ••1970 Rios: *Papyridea soleniformis* (Bruguière, 1789). ••1971 Keen & McLean: *Papyridea soleniforme* (Bruguière, 1789). ••1977 Fischer-Piette: *Papyridea soleniforme* Bruguière. ••1977 Popov p. 49: *Cardium soleniforme* Bruguière, 1789. Type of *Papyridea* Swainson, 1840. ••1977 Wilson & Stevenson: *Cardium soleniforme* Bruguière, 1789. ••1997 Shelton: *Papyridea soleniformis* (Bruguière, 1789). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: *soleniforme*, 3 specimens from Tortula, Brug. Encycl. pl. 296 f. 6 a,b. ••ZMUC: 2 specimens. sine loc. ••ZMUC: 2 specimens labeled West Indies. ••ZMUC: Gulf of Mexico, 64 m, rock. 1 old shell. Ornamentation differ somewhat from the west Indian specimens in the collection, but it is close to *bullata* from St Helena, Sea Cow cove, 15 fv, identified by Odhner. DESCRIPTIONS. ••1819 Lamarck: Reddish spines. HABITAT. ••ZMUC Rocky bottom at 64 m depth. ••1969 Nordsieck: 0–37 m depth. DISTRIBUTION. ••1969 Nordsieck: Brazil, Florida–West Indies, West Africa, Cape Verde Islands, Lusitanian Seas. ••1971 Keen & McLean: South East USA, Brazil, West Africa; Caribbean.
- soleniformis aspera** Sowerby, 1833 (subspecies). – *Papyridea soleniformis aspera* (Sowerby, 1833). Cardiidae. Recent. RECORDS. ••1961 Olsson: *Papyridea soleniformis aspera* (Sowerby, 1833).
- solense** Senes, 1955. – Combination to be revised: “*Cardium*” *solense* Senes, 1955. Lymnocypridae. Miocene. RECORDS. ••1955 ZR: *Cardium (Limnocypridium) solense* Senes, 1955 sp. nov. Miocene, Czechoslovakia
- solida** (variety). – See under *groenlandicum* var. *solida* Mörch, 1868.
- solidum** Linnaeus, 1758. [Figs. Part 1 p. 37]. – Not in Cardiidae. Recent. RECORDS. ••1678 Lister. ID by Linnaeus 1758: *Cardium solidum* angl. t. 4. f. 24. ••1684 Bonanno. ID by Linnaeus 1758: *Cardium solidum* recr. 3 sic. t. 51. ••1758 Linnaeus (10<sup>th</sup> edition) No. 76: *Cardium solidum*. ••1786 Solander, p. 17 no. 382:

**solimani – sorrentoense**

*Cardium solidum*. •1788 Schröter: *Cardium solidum* [Reference to Chemnitz (1782) fig. 231]. •1902 Sherborn, p. 911: *Cardium solidum* Linnaeus, 1758 [Mactra, ed. 12].

**solimani** Not in Cardiidae. •1966 ZR: *Isocardia (Isocardia) solimani* Abbass, 1966 sp. nov. Cretaceous, Egypt [Ref. Abbass 1966] REMARKS. Probably placed in Cardiacea of ZR by mistake. Should be in Family Isocardiidae.

**solitaria** Papaianopol, 1989. – *Pachydaena solitaria* Papaianopol, 1989. Lymnocypridae. Pliocene. TYPE LOCALITY. Basin Dacique, Romania. RECORDS. •1989 Papaianopol, p. 76, 88, fig.: *Pachydaena (Pachydaena) solitaria* sp. nov.

**solitarium** Krauss, 1852. – Combination to be revised: “*Cardium*” *solitarium* Krauss, 1852. Cardiidae. Fossil. RECORDS. •1980 Ruhoff: *Cardium solitarium* Krauss, 1852; vol. 8: 155, pl. 3, fig. 8.

**solitarius** Papaianopol, 1992. – *Pseudocatillus solitarius* Papaianopol, 1992. Lymnocypridae. Pliocene. TYPE LOCALITY. Dacien inferieur (Getien). Basin Dacique, Romania. RECORDS. •1992 Papaianopol, p. 25, fig.: *Pseudocatillus solitarius* sp. nov.

**solutum** Uspenskaia, 1931. – Combination to be revised: “*Cardium*” *solutum* Uspenskaia, 1931. Cardiidae. Miocene. RECORDS. •1932 ZR: *Cardium solutum* Uspenskaia, 1931 n. sp. Miocene Daghestan and Transcaspien.

**Somalidacna** Azzaroli, 1958 (genus). – Cardiacea. RECORDS. •1958 ZR: *Somalidacna* Azzaroli, 1958 gen. nov. Shows affinity to the Tridacnidi with pronounced convergence towards the Osteridai. Guban Series. Piano Dubar, Oligocene.

**somaliensis** Cox, 1935. – *Protocardia somaliensis* Cox, 1935. Cardiidae. Jurassic. RECORDS. •1935 ZR: *Protocardia somaliensis* Cox, 1935 sp. n. Jurassic British Somaliland.

**sonense** Cossmann, 1895. – Changed combination: *Parvicardium sonense* (Cossmann, 1895). Cardiidae. Fossil. RECORDS. •1977 Popov: *Parvicardium sonense* (Cossmann, 1895). •1994 Marcomini: *Cardium (Parvicardium) sonense* Cossmann, 1895.

**sookense** Clark & Arnold, 1923. – Changed combination: *Clinocardium sookense* (Clark & Arnold, 1923). Cardiidae. Fossil. •1923 ZR: *Cardium sookensis* Clark & Arnold, 1923 Tertiary Vancouver Isd. •1977 Popov: *Clinocardium sookense* (Clark & Arnold, 1923).

**sookensis** (mode). – See under *sookense* Clark & Arnold, 1923.

**soosi** Bartha, 1954. – New combination: *Lymnocardium soosi* Bartha, 1954. Lymnocypridae. Pliocene. RECORDS. •1954 ZR: *Lymnocardium soosi* Bartha, 1954 sp. nov. Pliocene. Öcs.

**soproniense** Vitalis, 1936. – New combination: *Lymnocardium soproniense* Vitalis, 1936. Lymnocypridae. Pontian. RECORDS. •1937 ZR: *Lymnocardium soproniense* Vitalis, 1936 sp. n. Pontian Hungary.

**sorenseni** Powell, 1958. [Figs. Part 3 p. 865]. – *Trachycardium sorenseni* Powell, 1958. Cardiidae. Recent. TYPE MATERIAL. Holotype: A right valve. Two other smaller valves in Auckland Museum from *Galathea* 1952, stn 674 off Raoul Is, 75–85m, paratypes were cited but not qualified by the author (Vidal 1999).

TYPE LOCALITY. Denham Bay, Raoul Island, Kermadec Islands, 0 m. TYPE REPOSITORY. Auckland Museum, New Zealand AK701236. RECORDS. •1958 Powell, p. 76, pl. 11, figs 6–7: *Trachycardium sorenseni*. •1958 ZR: *Trachycardium (Vasticardium) sorenseni* sp. nov. Kermadec Islands, S. Pacific. •1977 Fischer-Piette: *Laevicardium sorenseni* Powell. •1999 Vidal: *Trachycardium (Vasticardium) sorenseni* Powell, 1958. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value. Anterior surface area with thin interstices, high ribs which are square-sided rather than rounded and, on the ribs, wide, imbricated ridges which almost touch DESCRIPTIONS. •1999 Vidal: Shell rounded in outline. Posterior slope area very slightly flattened. Lunule non-existent, ribs practically reaching margins. Colour of fresh shells whitish heavily blotched with orange-pink; interior with external colour pattern showing through; holotype, a faded beach shell, shows a sparsely speckled pattern on a pale ground. Hinge variably asymmetrical and rather moderately angled. Mean rib number  $51.2 \pm 1.4$  (range 48–54). On posterior slope, ribs with irregular, somewhat elongated oblique tubercles on posterior half of ribs. In central area ribs retro-ridged, almost square-sided, but with rounded tops, and a slight forward bending; interstices about 1/3 of ribs width, and loosely striated. On anterior part of shell, ribs become higher, square-sided, flat-topped and top-ridged with wide touching ridges which are sometimes imbricated. Interstices become progressively narrower. DIMENSIONS. Length 27.5, width 29.4, breadth (calculated) 15.2 mm. REMARKS. •1999 Vidal: *Acrosterigma sorenseni* is close to *A. cygnorum*. The former mainly differs in: (1) higher rib number (48–54 against 35–47 in *cygnorum*); (2) presence on PQ of a discontinuous axial furrow, formed by successive holes between the scales; (3) different rib morphology on AQ, i.e. thinner interstices, higher ribs which are square-sided rather than rounded and, on the ribs, wider, more imbricated ridges which almost touch (instead of the thin, free ridges of *A. cygnorum*). The two valves in New Zealand Oceanographic Institute cited by Powell (1958: 76) from E of Philip Isl., Norfolk Isl. “similar to the Kermadec species in sculpture but of oblique-ovate outline, and with a rib count 48–50” are very probably *A. maculosum howense*, abundant in Norfolk Isl. HABITAT. Recorded from 22 to 47 m depth. DISTRIBUTION. Raoul Island, Kermadec Islands, New Zealand.

**soriensis** Eames, 1951. – *Discors soriensis* Eames, 1951. Cardiidae. Eocene. RECORDS. •1951 ZR: *Discors soriensis* Eames, 1951 sp. nov. Eocene Pakistan.

**sorokini** Androusov, 1923. – *Apscheronia sorokini* Androusov, 1923. Lymnocypridae. Pliocene. RECORDS. •1930 ZR: *Apscheronia sorokini* Androusov, 1923 sp. n. •1963 ZR: *Apscheronia sorokini* Andrusov, 1963 sp. nov. sic Apscheron layers, Pliocene, Russia.

**sorrentoense** Hanna, 1927. – Changed combination: *Agnocardia sorrentoense* (Hanna, 1927). Cardiidae. Eocene. RECORDS. •1927 ZR: *Cardium sorrentoense* Hanna, 1927 sp. n. Eocene California. •1944 Keen & Bentson: *Cardium sorrentoense* Hanna, 1927 (n. sp.). •1944 Keen & Bentson: *Trachycardium (Agnocardia) sorrentoense* (Hanna). •1984 ZR: *Agnocardia*

*sorrentoensis* – *speciosum*

- sorrentoensis* (Hanna, 1927). Taxonomic position. Ref. to Vokes p. 43. ••2002 Schneider: *Agnocardia sorrentoensis* (Hanna, 1927). Cardiidae.
- sorrentoensis* (mode). – See under *sorrentoense* Hanna, 1927.
- sotterii* Michelotti, 1839. – Combination to be revised: “*Cardium*” *sotterii* Michelotti, 1839. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6033: *Cardium sotterii* Michelotti, 1839.
- sougraignense* Dechaseaux, 1938. – Combination to be revised: “*Cardium*” *sougraignense* Dechaseaux, 1938. Cardiidae. Santonian. RECORDS. ••1948 ZR: *Cardium sougraignense* Dechaseaux, 1938 sp. nov. Santonian Corbière.
- sowerbianum* d’Orbigny, 1850. – Combination to be revised: “*Cardium*” *sowerbianum* d’Orbigny, 1850. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6033: *Cardium sowerbianum* d’Orbigny, 1850.
- sowerbyorum* Voskuil & Onverwagt, 1992. – New name reversed to original name: *Vasticardium ornatum* (Sowerby, 1877). << Regarding *Trachycardium sowerbyorum*: Cardiidae. Recent. DISTRIBUTION. Hong Kong. RECORDS. ••1992 Voskuil & Onverwagt, p. 41: *Trachycardium sowerbyorum* nom. nov.; for *Cardium ornatum* Sowerby, 1876 nec Orbigny 1850. ••1997 Vidal: *Acrosterigma sowerbyorum* Voskuil and Onverwagt, 1992 (*nomen novum* for *Cardium ornatum* erroneously considered unavailable) = *Vasticardium ornatum* (Sowerby, 1877). ••1999 Vidal: *Acrosterigma sowerbyorum* Voskuil & Onverwagt, 1992 = *Vasticardium ornatum* (Sowerby, 1877).
- soyeri* Fischer–Piette, 1977. [Figs. Part 3 p. 880]. – Synonym of *Acrosterigma simplex* (Spengler, 1799). OTHER JUDGEMENTS: *Cardium unicolor* Sowerby, 1834. >> Regarding *Laevicardium soyeri*: Cardiidae. Recent. TYPE LOCALITY. ? Mediterranean area. TYPE REPOSITORY. Museum national d’Histoire naturelle, Paris, Musée des Colonies, holotype and 3 paratypes. TYPE MATERIAL. Holotype and three paratypes, all paired specimens, labeled (incorrectly) “Corsica”, in MNHN. RECORDS. ••1977 Fischer–Piette, No. 22, p. 19, pl. 1, figs. 4–7: *Laevicardium soyeri* n. sp. ••1977 Fischer–Piette: *Cardium oblongum* L., Gmel. sp. 71 in Reeve [*non* Gmelin] 1845 = *Laevicardium soyeri* n. sp. ••1977 Fischer–Piette: *Cardium oblongum* Chemnitz in Granger 1886 = *Laevicardium soyeri* n. sp. ••1991 Voskuil & Onverwagt: *Laevicardium soyeri* Fischer–Piette, 1977, junior synonym of *Cardium unicolor* Sowerby, 1834. ••1999 Vidal: *Laevicardium soyeri* Fischer–Piette, 1977: 19, pl. 1, figs 4–7 = *Acrosterigma simplex* (Spengler, 1799). – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value. Sculpture on the entire shell surface; 42–57 ribs. DESCRIPTIONS. ••1977 Fischer–Piette: shells slightly inequilateral, tightly fitting; sculpture of 49 ribs on right valve, 52 on the left valve, flat ribs with concentric costulation, very fine and serrated, but visible with naked eye, lunule and area not developed, ligament 9 mm long, white–yellow coloration, with remains of olive coloured periostracum, white inside, but around the cardinal plate is a confuse purple coloration divided by a white median stripe [I have translated from French]. DIMENSIONS. Umbo–ventral 48 mm, anterior–post. 36 mm, diameter 32 mm. REMARKS. ••1980 Keen: Probably a *Vasticardium* with incorrect locality data. The species is close to *Laevicardium oblongum* (Gmelin, 1791), which, however, only has 24–30 ribs. DISTRIBUTION. Mediterranean, Canary Isl.
- spadicea* Meuschen. *Non* binominal. – Not available. Not in Cardiidae. Meuschen, in the Museum Gervasianum, No. 1621, it is quoted for *Cardium ciliare*. RECORDS. ••1823 Dillwyn, Tab. 340 fig. 177: *Venus spadicea*.
- spatiosum* Hutton, 1873. – Changed combination: *Plagiocardium spatiosum* (Hutton, 1873). Cardiidae. Miocene and Pliocene. Type species: Hutton (1873) designated *Cardium spatiosum* type species of the subgenus (*Maoricardium*) Hutton, 1873. Recognised at the generic level by authors. DISTRIBUTION. New Zealand. RECORDS. ••1873 Hutton: *Cardium spatiosum*. ••1897 Harris: *Cardium spatiosum*, Hutton. 1873. [Miocene]. ••1914 ZR: *Cardium spatiosum* [Ref. Suter 1914]. ••1944 ZR: *Cardium spatiosum* Hutton, Pliocene (Catal. Tert. Moll. 1873, 23) genotype of *Maoricardium* Marwick, 1944a. ••1965 ZR: *Maoricardium spatiosum* revised, Tertiary, New Zealand [Ref. Boreham 1965]. ••1969 Moore *et al.*: *Plagiocardium (Maoricardium) spatiosum* (Hutton, 1873). ••1977 Popov: *Cardium spatiosum* Hutton, 1873. Type of *Maoricardium* Marwick, 1944. ••1977 Wilson & Stevenson: *Maoricardium spatiosum* (Hutton, 1873). ••1977 Wilson & Stevenson: *Cardium spatiosum* Hutton, 1873 (tertiary fossil).
- speciosa* (mode). – See under *speciosum* Adams & Reeve, 1850.
- \**speciosum*. – Homonymy to be noticed. *Cardium speciosum* from 2 sources: Adams & Reeve, 1848. – Meek & Hayden, 1856.
- speciosum* Adams & Reeve, 1848. [Figs. Part 3 p. 904]. – Changed combination: *Americardia speciosa* (Adams & Reeve, 1848). Cardiidae. Recent. TYPE LOCALITY. China Sea. TYPE REPOSITORY. 3 syntypes, BMNH, London. RECORDS. ••1848 Adams & Reeve, p. 77, pl. 22, fig. 9: *Cardium speciosum*. ••1858 Adams & Adams, p. 459: *Hemicardia (Fragum) speciosa* Adams and Reeve. ••1884 Grasset: *Hemicardium speciosum*. Ad. ••1890 Paetel: *Hemicardium speciosum* Ad. et Rv. ••1900 Dall: *Cardium speciosum* Adams and Reeve, 1850 *sic* is not a synonym of the Cretaceous *Cardium whitei* Dall. ••1922-32 Sherborn, p. 6046: *Cardium speciosum* Adams & Reeve, 1850. ••1977 Fischer–Piette: *Corculum (Hemicardia) speciosum* Adams & Reeve, 1850. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1848 Adams & Reeve: *Card. testa subcordata, crassiuscula, tumida. postice peculiariter concavo-truncata, albo rufoque tessellata, radiatum costata, costis ad sex et viginti, convexis, squamato-granulatis, interstitiis transversim striatis*. REMARKS. ••1977 Fischer–Piette: *Cardium speciosum* is allied in form to *C. fornicatum* Sowb. (Melville & Standen 1906, p. 840) and *C. medium*. DISTRIBUTION. ••1884 Grasset: China.
- speciosum* Meek & Hayden, 1856. – Changed combination: *Granocardium speciosum* (Meek & Hayden, 1856). Cardiidae. Cretaceous. White (1880) designated *Cardium speciosum* Meek & Hayden, 1857 type species of subgenus *Ethmocardium* of genus *Granocardium*. Dall (1900) *Cardium whitei* Dall is type species for

**speluncarium – spinosum**

the subgenus *Ethmocardium*. TYPE LOCALITY. Mouth of Judith River, Montana. TYPE REPOSITORY. Lectotype USNM 190, Hypotype YPM 24180 held at YPM (Speden 1970). RECORDS. ••1860 Meek & Hayden: *Cardium speciosum* Meek & Hayden, 1856. ••1876 Meek: *Cardium (Criocardium) speciosum* Meek & Hayden, 1856. ••1880 White: *Cardium speciosum* Meek & Hayden, 1857. ••1900 Dall: *Cardium whitei* Dall. ••1954 Keen: *Cardium speciosum* Meek and Hayden (1857) = *C. whitei* Dall, 1900. ••1969 Moore *et al.*: *Granocardium (Ethmocardium) speciosum* (Meek & Hayden, 1857). ••1970 Speden: *Cardium speciosum* Adams & Reeve = *Cardium (Ethmocardium) whitei* Dall, 1900. ••1980 Ruhoff: *Cardium speciosum* Meek & Hayden, 1856; vol. 8: 274.

**speluncarium** Neum. – Combination to be changed: “*Cardium*” *speluncarium* Neum. Cardiacea. Fossil. RECORDS. ••1987 Taktakishvili: *Cardium speluncarium* Neum.

**speluncense** Almera y Bofill, 1894. – Combination to be revised: “*Cardium*” *speluncense* Almera y Bofill, 1894. Cardiacea. Miocene. RECORDS. ••1902 Dollfus & Dautzenberg, p. 318: *Cardium speluncense* Almera & Bofill. Syn of *Cardium multicostatum*. ••1983 Anaya: “*Cardium*” *speluncense* Almera y Bofill, 1894.

**Sphaerocardium** Coen, 1933 (genus). – *nomen null.* = *Acanthocardia* Gray, 1851. Cardiidae. Recent. Type species: *Cardium paucicostatum* Sowerby, 1841 (non Deshayes, 1838, SD Keen, 1937). RECORDS. ••1937 ZR: *Sphaerocardium* (subgen. sp. *Encardium* sic) Coen, 1933. Type here designated *Cardium paucicostatum* sic Sowerby, 1841 Probably = *Acanthocardia* Gray, 1851 [Ref. Keen 1937]. ••1969 Moore *et al.*: *Sphaerocardium* = *Acanthocardia* Gray, 1851. ••1980 Vokes: *Sphaerocardium* (genus) Coen, 1933 in subfamily Cardiinae.

**sphaeroidea** Forbes, 1845. – Changed combination: *Protocardia sphaeroidea* (Forbes, 1845). Cardiidae. Lower Cretaceous. TYPE LOCALITY. In Europe. RECORDS. ••1871 Stoliczka, 13: *C. sphaeroideum* (?*Laevicardium*). ••1922-32 Sherborn, p. 6061: *Cardium sphaeroideum* Forbes, 1845. ••1965 ZR: *Cardium sphaeroideum* Forbes, 1845, Aptian, W. Europe and Japan. Subgenotype of (*Globocardium*) [Ref. Hayami 1965]. ••1965 ZR: *Protocardia (Globocardium) sphaeroideum* Forbes, 1845. ••1973 Keen: *Protocardia (Globocardium) sphaeroidea* (Forbes, 1845). Lower Cretaceous in Japan; type locality in Europe.

**sphaeroideum** (mode). – See under *sphaeroidea*.

**spiekeri** Hanna & Israelsky, 1925. – Changed combination: *Trigonicardia spiekeri* Hanna and Israelsky, 1925. Cardiidae. Pliocene. RECORDS. ••1925 Hanna & Israelsky: *Cardium (Trigonicardia) spiekeri* (new name for *affinis* Nelson). ••1941 Pilsbry & Olsson: *Cardium (Trigonicardia) spiekeri* Hanna & Israelsky, 1925 (new name for *affinis* Nelson) [Pliocene]. ••1958 Abbott: *Trigonicardia spiekeri* Hanna and Israelsky.

**spillmani** Conrad, 1858. – Changed combination: *Protocardia spillmani* (Conrad, 1858). Cardiidae. Cretaceous. GENOTYPE of *Pachycardium* Conrad. TYPE LOCALITY. Mississippi N. America. RECORDS. ••1869 Conrad: *Pachycardium spillmani* Conrad. ••1870

Conrad: *Pachycardium spillmani* Conrad (Mississippi). ••1871 Stoliczka: *Card. spillmani*, Conr. ••1876 Meek: *Cardium (Laevicardium) spillmani* Conrad is type of *Pachycardium* Conrad. ••1887 Fischer: *Pachycardium spillmani* Conrad. ••1902 Dall: *Cardium spillmani* Conrad; Cretaceous, type of section *Pachycardium* Conrad, 1870. ••1980 Ruhoff: *Cardium (Laevicardium) spillmani* Conrad, 1858; vol. 3: 326, pl. 34, fig. 3. ••1980 Ruhoff: *Pachycardium spillmani* Conrad, 1869; vol. 5: 96. ••1998 Rindsberg: *Protocardia (Pachycardium) spillmani* (Conrad, 1858).

**spinalatum** Rowley. – *Conocardium spinalatum* Rowley. Conocardiidae. Fossil. RECORDS. ••1960 ZR: *Conocardium spinalatum* Rowley description and figures of the holotype, metatype and paratype. [Ref. Branson 1960a].

**spinicosta** Mayer, 1857. – Combination to be revised: “*Cardium*” *spinicosta* Mayer, 1857. Cardiacea. Fossil. RECORDS. ••1980 Ruhoff: *Cardium spinicosta* Mayer, 1857; [1856–1857] vol. 5; 361.

**spinosa** (mode and variety). – See under *spinosum* Lightfoot in Solander, 1786. – *procarpatina* var. *spinosa* Jekelius, 1944. – *tuberculatum* var. *spinosa*.

**spinosifrons** Vokes, 1984. – *Agnocardia spinosifrons* Vokes, 1984. TYPE MATERIAL. Holotype 377405: United States National Museum. Washington, DC, USA (Schneider 2002). Cardiidae. Fossil. RECORDS. ••1984 ZR: *Agnocardia spinosifrons* sp. nov. Florida, Middle Pliocene. Ref. to Vokes p. 43. ••2002 Schneider: *Agnocardia spinosifrons* Vokes, 1984.

\***spinosum**. – **Homonymy to be noticed.** *Cardium spinosum* from 3 sources: Lightfoot in Solander, 1786. – Nardo in Chiareghini, 1847. – Sowerby, 1804.

**spinosum** Nardo in Chiareghini, 1847. – Combination to be revised: “*Cardium*” *spinosum* Nardo in Chiareghini, 1847. ••1922-32 Sherborn, p. 6083: *Cardium spinosum* Nardo (ex Chiareghini), 1847.

**spinosum** Lightfoot in Solander, 1786. [Figs. Part 1 p. 58 No. 3, p. 68, 89]. – Changed combination: *Acanthocardia spinosa* (Lightfoot in Solander, 1786). OTHER JUDGEMENTS: *Acanthocardia aculeata* (Linné, 1758). – *Acanthocardia erinacea* (Lamarck, 1819). >> Regarding *Cardium spinosum*: Cardiidae. Recent. RECORDS. ••1786 Solander, p. 16 no. 344. *Cardium spinosum* S. ••1786 Lightfoot in Solander: *Cardium spinosum*. ••1817 Dillwyn: *Cardium spinosum* Solander’s MSS. ••1922-32 Sherborn, p. 6083: *Cardium spinosum* Solander, 1786. ••1945 Smith: *Acanthocardia spinosa* Solander = *Cardium spinosa* Solander 1786. ••1967 Rehder: Portland Catalogue No. 2297. *Cardium spinosum* S. Figured in Favanne 52. A2. ••1967 Rehder: *Cardium spinosum* (Lightfoot, 1786), p. 105 = *Acanthocardia echinatum* (Linné, 1758). ••1967 Rehder: *Cardium spinosum* Dillwyn, 1817, p. 115 = *Acanthocardia echinatum* (Linné, 1758). ••1969 Nordsieck: *Acanthocardia spinosa* (Solander, 1786). ••1969 Nordsieck: *Cardium spinosum* (Solander, 1786) = *Acanthocardia erinaceum* (Lamarck, 1819). ••1977 Fischer-Piette: *Cardium (Cerastoderma, Acanthocardia) spinosum* Solander. ••1979 ZR: *Acanthocardia spinosa* (Lightfoot 1786). Ref. to Mienis, p. 912. ••1998 Macedo *et al.*: *Acanthocardia spinosa* (Solander, 1786). ••2001 Vidal, p. 407: *Acanthocardia spinosum*. – CHARACTERS AND

## spinosum – spiridionis

OCCURRENCE – DESCRIPTIONS. ••2001 Vidal: With a few additional larger tentacles outside siphons. No eyes on tentacles. REMARKS. ••1969 Nordsieck: the species *erinaceum* Lamarck, 1819 is a junior synonym of *spinosum* Solander, 1786. HABITAT. ••1969 Nordsieck: Zone of laminarians. DISTRIBUTION. ••1969 Nordsieck: *C. spinosum*: Mediterranean, Lusitanian area. *C. aculeata*: Portugal, West Europe, Mediterranean, West Africa.

**spinosum** Meuschen, 1778. *Non* binominal. – Not available. >> Regarding *Coeur spinosum*: replaced by *Papyridea soleniformis* (Bruguière, 1789). Cardiidae. Pleistocene and Recent. Swainson (1840) designated *spinosum* (citing Meuschen, 1778) type species of the genus *Papyridea*. TYPE LOCALITY. Jamaica. RECORDS. ••1778 Meuschen, p. 442: *Coeur spinosum*. ••1840 Swainson: *spinosum* (citing Meuschen). ••1858 Adams & Adams, p. 456: *Cardium (Papyridea) spinosa* citing Meusch. ••1890 Paetel: *Papyridea spinosa* Meusch. ••1902 Dall: *Cardium (Papyridea) spinosum* citing Meuschen, 1778 [Pleistocene]. ••1902 Dall: *Cardium spinosum* citing Meuschen, type of subgenus *Papyridea* Swainson. ••1902 Dall & Simpson: *Cardium spinosum* citing Meuschen. ••1902 Sherborn, p. 920: *Cardium spinosum* Meuschen, 1778. ••1921 Maury: *Cardium (Papyridea) spinosum* citing Meuschen, 1778 [Pleistocene to present]. ••1934 Johnson: *Papyridea spinosum* citing Meuschen 1778. (*C. bullata* of authors). ••1936 McLean: *Papyridea spinosum* citing Meusch. ••1939 McLean: *Papyridea spinosum* (citing Meuschen, 1778). ••1939 ZR: *Papyridea spinosum* Meuschen [non binom.] [Ref. McLean 1939]. ••1951 McLean: *Cardium spinosum* citing Meuschen = *Papyridea hiatus* (citing Meuschen). ••1961 Olsson: *P. hiatus* citing Meuschen. ••1974 Abbott: *Cardium spinosum* citing Meuschen, 1778 = *Papyridea soleniformis* (Bruguière, 1789). ••1977 Fischer–Piette: *Cardium spinosum* citing Meuschen = *Laevicardium soleniforme* Bruguière. – CHARACTERISTICS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: 5 shells from Florida Keys coll. Wolff 1873. ••ZMUC No. 676: corresponds with *bullata* Chemnitz, Lam No. 10, 50 *leviformis* Bruguière. Yoldi coll. 401, the Antilles, ZMUC 1 specimen from Tortola, Antilles. ••ZMUC: 8 shells from the Antilles, label indicates *bullatum* = *soleniforme* = *spinosum*; ••ZMUC wet collection: Antilles; Nah Trang, Vietnam, very strong spines, looks different. DESCRIPTIONS. ••1939 McLean: Ribs 46–47. DIMENSIONS. ••1939 McLean: 41 x 31 x 20 mm. DISTRIBUTION. North Carolina to Brazil.

**spinosum** Sowerby, 1804. – Misidentification: *Acanthocardia aculeata* (Linnaeus, 1758). OTHER JUDGEMENTS: *Cardium echinatum* Linnaeus. >> Regarding *Cardium spinosum* of Sowerby: Cardiidae. Recent. RECORDS. ••1804 Sowerby, p. 65, pl. 32: *Cardium spinosum*. ••1807 Maton & Rackett, No. 4: *Cardium spinosum* Sowerby. Coast of Devonshire. ••1856 Wood & Hanley: *C. spinosum* Sow. Brit. Misc. Pl. 32 = *Cardium echinatum* Lin. ••1896 Elera: *Cardium spinosum* Sowerby. ••1922–32 Sherborn, p. 6083: *Cardium spinosum* Sowerby, 1805. ••1997 Kafanov: *Cardium spinosum* in J. Sowerby, 1804 p. 65, pl. 32 – not syn. of *Papyridea (Papyridea) aspersa* Sowerby in Broderip et Sowerby, 1833.

**spinosum** of authors. – Misidentification: *Papyridea aspersa* Sowerby. Cardiidae. Recent. RECORDS. ••1997 Kafanov: *Cardium spinosum* auctt. – in part syn. of *Papyridea (Papyridea) aspersa* Sowerby in Broderip et Sowerby, 1833.

**spinosum** Chemnitz (1782). *Non* binominal. – Not available. Misidentification. *Cardium echinatum* Linné. Cardiidae. Recent. RECORDS. ••1867 Weinkauff: *Cardium spinosum* Chemnitz = *Cardium echinatum* Linné.

**spinosum** of Dillwyn 1817. – Misidentification: *Cardium aculeatum* Wood. Cardiidae. Recent. RECORDS. ••1856 Wood & Hanley: *Cardium spinosum* Dillw. 115 = *Cardium aculeatum* Wood (not of authors). ••1922–32 Sherborn, p. 6083: *Cardium spinosum* Dillwyn (ex Solander MS), 1817. ••1997 Kafanov: *Cardium spinosum* in Dillwyn, 1817 p. 115, pl. 32 – not syn. of *Papyridea (Papyridea) aspersa* Sowerby in Broderip et Sowerby, 1833.

**spinosum** of Link (1806). – Misidentification: *Acanthocardia aculeata* (Linné, 1758). Cardiidae. Recent. RECORDS. ••1806 Link: *Cardium spinosum* = *Cardium aculeatum* [Chemnitz. figs. 155, 156]. ••1807 Link: *Cardium spinosum* Sowerby, 1805 = *Acanthocardia aculeatum* (Linné, 1758) [fide Rehder 1967]. ••1922–32 Sherborn, p. 6083: *Cardium spinosum* Link, 1807. ••1979 Richardson *et al.*: *Cardium spinosum* in Link (1807) pt. 3, p. 151 = *Acanthocardia aculeata* (Linné, 1758).

**spinosum** of Maton & Rackett (1807). – Misidentification: *Acanthocardia echinata* (Linné, 1758). OTHER JUDGEMENTS: *Acanthocardia aculeata* (Linnaeus, 1758). >> Regarding *Cardium spinosum*: Cardiidae. Recent. RECORDS. ••1807 Maton & Rackett: *Cardium spinosum* Sowerby. ••1890 Paetel: *Cardium spinosum* Mat. = *echinatum* L. ••1903 Hidalgo, p. 343: *Cardium spinosum* Maton = *C. echinatum* Linné. ••1905 Hidalgo: *Cardium spinosum* Maton. ••1928 Faustino: *Cardium spinosum* Maton. ••1977 Fischer–Piette: *Cardium spinosum* Maton = *Cardium aculeatum* Linné.

**spinosum** of Sowerby (1859). – Misidentification of *Acanthocardia echinata* (Linné, 1758). Cardiidae. Recent. RECORDS. ••1859 Sowerby: *C. spinosum* = *Cardium echinatum* Linn. ••1977 Fischer–Piette: *Cardium spinosum* in Sowerby 1859 = *C. echinatum* Linné.

**spinosum aspersum** Sowerby, 1833 (variety). – Upgraded. Changed combination: *Papyridea soleniformis aspera* (Sowerby, 1833). Cardiidae. Recent. RECORDS. ••1901 Dall: *Cardium (Papyridea) spinosum* Meuschen, 1797 var. *aspersum* Sowerby, 1833. ••1902 Dall: *Cardium spinosum* var. *asperum* Sowerby. ••1909 Lamy: *Cardium (Papyridea) spinosum* Meuschen var. *asperum* Sowerby, Dall. ••1961 Olsson: *Cardium spinosum* var. *asperum* Sowerby, Dall, 1900 = *Papyridea soleniformis aspera* (Sowerby, 1833).

**spinosum turtoni** (variety) Dall. – Synonym of *Papyridea soleniformis* (Bruguière, 1789). >> Regarding *Cardium spinosum* var. *turtoni*: Cardiidae. Recent. RECORDS. ••1902 Dall: *Cardium spinosum* var. *turtoni* Dall = *Cardium spinosum* Meuschen, 1778. **spiridionis** Pavlovic, 1929. – New combination:

**spolongense – squamosum**

*Lymnocardium spiridionis* Pavlovic, 1928. Lymnocardiidae. Pontian. RECORDS. ••1928 ZR: *Lymnocardium spiridionis* [Ref. Pavlovitch 1928]. ••1929 ZR: *Lymnocardium spiridionis* Pavlovic, 1929 sp. n. Pontian Serbia.

**spolongense** Martin, 1916. – Combination to be revised: "*Cardium*" *spolongense* (Martin, 1916). Cardiidae. Lower Miocene. TYPE LOCALITY. Lower Miocene of West-Progoeb. Java, Indonesia. TYPE REPOSITORY. ?Geologischischen Reichs-Museum, Leiden, the Netherlands. RECORDS. ••1917 ZR: *Cardium spolongense* Martin, 1917 n. sp. Miocene Java. ••1919 Martin: *Cardium spolongense* Martin, 1916. ••1999 Vidal: cites Martin 1916, 266, pl. 4, figs 107–109: *Cardium (Trachycardium) spolongense*.

**spondyloides** Hauer, 1847. – Changed combination: *Discors spondyloides* (Hauer, 1847). Cardiidae. Miocene. RECORDS. ••1922–32 Sherborn, p. 6106: *Cardium spondyloides* Hauer, 1847. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Discors spondyloides*. Helvetien. France (Touraine), B27156.

**spondyloides**. – Identical with *Discors semisulcatus* (Sacco, 1899, p. 54). RECORDS. ••1970 Glibert & Poel: *Cardium spondyloides*, not Hauer in Dollfus & Dautzenberg 1902–1920 = *Discors semisulcatus* (Sacco, 1899, p. 54).

**spondyloides** (cf.). – Combination to be revised: "*Cardium*" cf. *spondyloides*. Cardiidae. Miocene. RECORDS. ••1938 ZR: *Cardium* cf. *spondyloides* Miocene, Lybia figs. [Ref. Alberichi & Mauroner 1938].

**spondyloopsis** Almera et Bofill, 1894. – *Didacna spondyloopsis* (Almera et Bofill, 1894). Lymnocardiidae. Fossil. RECORDS. ••1987 Anaya: *Cardium spondyloopsis* Almera et Bofill, 1894. ••1987 Anaya: *Didacna* (s. s.) *spondyloopsis* (Almera et Bofill, 1894).

**spratti** Fuchs in Capellini 1879. Lymnocardiidae. Fossil. RECORDS. ••1970 ZR: *Cardium spratti* Fuchs in Capellini 1879, see *Pontalmyra equilateralis*.

**spurius** d'Orbigny, 1850. – Combination to be revised: "*Cardium*" *spurius* d'Orbigny, 1850. ?Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6110: *Cardiola spurius* Muenster, 1840. ••1922–32 Sherborn, p. 6110: *Cardium* (Muenster) *spurius* d'Orbigny, 1850. – *Cardiola*.

**squalidum** (mode). – See under *squalidus* Yokoyama, 1924.

**squalidus** Yokoyama, 1924. – Changed combination: *Serripes squalidus* (Yokoyama, 1924). Cardiidae. Upper Oligocene. RECORDS. ••1924 Yokoyama: *Cardium squalidus* (fide Keen 1973). ••1924 ZR: *Cardium (Laevicardium) squalidum* Yokoyama, 1924 sp. n. Tertiary Japan. ••1973 Keen: *Serripes squalidus* (Yokoyama, 1924).

**squamata** (subspecies). – See under *quadripartitum squamata* Andrus.

**squamosa** Lamarck. [Figs. Part 1 p. 148]. – *Tridacna squamosa* Lamarck. Tridacnidae. Recent. RECORDS. ••1845 Chenu, pls. 3, 6: *Tridacna squamosa* Lamarck. ••1868 ZR: *Tridacna squamosa* [Ref. Küster 1868]. ••1869 ZR: *Tridacna squamosa*. Specimens from Japan, [Ref. Lischke 1869]. ••1880 ZR: *Tridacna squamosa* (Lam.) common on the reefs of North-east Australia,

attached to or imbedded in the coral rock, variable in the color of the mantle [Ref. Woods 1880]. ••1932 ZR: *Tridacna squamosa* [Ref. Lamy 1932]. ••1935 ZR: *Tridacna squamosa* fig. [Ref. Nomura & Zinbo 1935]. ••1947 ZR: *Tridacna squamosa* Lk. [Ref. McLean 1947]. ••1950 ZR: *Tridacna squamosa* morphological and histological characteristics [Ref. Mansour 1950]. ••1956 ZR: *Tridacna squamosa* spawning habits [Ref. Wada 1956]. ••1965 ZR: *Tridacna squamosa* aging and duration of life [Ref. Haranghy et al. 1965]. ••1965 ZR: *Tridacna squamosa* described and figd. range, habitat and synonymy discussed [Ref. Rosewater 1965]. ••1937 ZR: *Tridacna squamosa* auct. of Flodacna "group" [Ref. Iredale 1937]. ••1974 ZR: *Tridacna squamosa*. Shell. Calcification. Trochosphere. Metamorphosis. Ref. to LaBarbera. ••1975 ZR: *Tridacna squamosa* Gametes, spawning, development, lava. Postlarva. Ref. to La Bareaera. ••1981 ZR: *Tridacna squamosa*. Ref. to Beckvar. Caroline Islands. / Fitt et al. Pacific Ocean islands. ••1976 ZR: *Tridacna squamosa*. Crustacean parasites. *Anthesius alatus*. Molucca Strait. Ref. to Humes. ••1979 ZR: *Tridacna squamosa* Ref. to Khristoforova et al. / Uhlenbruck et al. ••1983 ZR: *Tridacna squamosa*. Ref. to Khristoforova et al., Mangum et al. ••1999 Aungtonya et al., PMBC-SP 19(2): 378: *Tridacna (Chametrachea) squamosa* Lamarck, 1819. ••2000 Lutaenko, p. 372: *Tridacna squamosa* Lamarck, 1819. ••2002 Hylleberg & Kilburn, p. 64: *Tridacna squamosa* Lamarck, 1819. ••2003 Hylleberg & Kilburn, p. 186: *Tridacna squamosa* Lamarck, 1819. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1999 Aungtonya et al.: Thailand, Andaman Sea. ••2000 Lutaenko: Vietnam. ••2002 Hylleberg & Kilburn: South India. ••2003 Hylleberg & Kilburn: Vietnam.

**squamosum** Gmelin, 1791. [Figs. Part 1 p. 48. Part 3 p. 922 (comparison)]. – Uncertain status. >> Regarding *Cardium squamosum*: ? = *Trachycardium isocardia* (Linné, 1758). Cardiidae. Recent. TYPE LOCALITY. ••1845 Reeve: unknown. RECORDS. ••1742 Gualtieri. ID by Gmelin 1791: *Cardium squamosum* t. 71. f. N. ••1791 Gmelin, 3256, No. 44: *Cardium squamosum*. ••1815 Wood: *Cardium squamosum* Gmelin p. 3256 is a young *C. isocardia*. ••1817 Dillwyn: *Cardium squamosum* Gmelin = *Cardium isocardia* Linnaeus. ••1844 Potiez & Michaud: *Cardium squamosum* Gmel. = *Cardium isocardia* Linn. ••1902 Sherborn, p. 925: *Cardium squamosum* Gmelin, 1790 sic. ••1930 Stewart: *Cardium squamosum* Gmelin. ••1944 Clench & Smith: *Cardium squamosum*. ••1977 Fischer–Piette: *Cardium squamosum* Gmelin = species insufficiently known. – CHARACTERS AND OCCURRENCE – REMARKS. ••1742 Gualtieri, pl. 71, fig. N shows 2 species, both labeled N. The one to the left is *C. fragum* Linné (1758, No. 67). The one to the right could be either *Cardium isocardia* Linné (1758, No. 66) or *Cardium consors* Sowerby. Clench & Smith (1944) states that if it should be decided that figure N is that of *C. consors* Sowerby, the name *squamosum* would take priority and would replace *consors*.

**squamosum** Sandberger, 1842. – *Conocardium squamosum* Sandberger, 1842. Conocardiidae. Fossil. RECORDS. ••1922–32 Sherborn: *Conocardium squamosum* Sandberger, 1842.

- squamulosa** Stevanovic, 1951. – *Didacna squamulosa* Stevanovic, 1951. Lymnocardidae. Pontian. RECORDS. ••1953 ZR: *Didacna squamulosa* Stevanovic, 1951 sp. nov. Pontian Serbia.
- squamulosum** Deshayes, 1838. – New combination: *Lymnocardium squamulosum* (Deshayes, 1838). Lymnocardidae. Fossil. RECORDS. ••1886 Fischer: *Cardium squamulosum* Deshayes. ••1907 Andrussov: *Limnocardium squamulosum* Desh. ••1922-32 Sherborn, p. 6122: *Cardium squamulosum* Deshayes, 1838.
- stampinense** Stanislas-Meunier, 1880. – *Fragum stampinense* (Stanislas-Meunier, 1880). Cardiidae. Oligocene. RECORDS. ••1986 Gitton *et al.*: *Fragum stampinense* Meun. Oligocene. ••1970 Glibert & Poel, p. 59: *Fragum stampinense* (Stanislas-Meunier, 1880). ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium stampinense* S. Meunier. Stampien. France (Bassin de Paris), B52836.
- stanae** Brusina, 1893. – New combination: *Lymnocardium stanae* Brusina, 1893. Lymnocardidae. Fossil. RECORDS. ••1979 ZR: *Limnocardium stanae* Brusina, 1893. Neotype. Ref. to Stevanovic, p. 337.
- stantoni** Wade, 1926. – Changed combination: *Protocardia stantoni* (Wade, 1926). Cardiidae. Cretaceous. RECORDS. ••1926 ZR: *Cardium stantoni* Wade, 1926 sp. n. Cretaceous U.S.A. ••1998 Rindsberg: *Protocardia (Pachycardium) stantoni* (Wade, 1926).
- starobogatovi** Kafanov & Savizky, 1982. – *Keenocardium starobogatovi* Kafanov & Savizky, 1982. Cardiidae. Oligocene. RECORDS. ••1982. Kafanov *et Savizky*: *Keenocardium starobogatovi* Kafanov & Savizky. ••1982 ZR: *Keenocardium starobogatovi* Kafanov, 1982 sp. nov. Russian SPSR. Ref. to Kafanov *et al.* p. 40.
- stonis**. – *Paradacna stonis*. Lymnocardidae. Fossil. ••1977. Popov: *Paradacna stonis*.
- stefanescoid** (error). – Printer's mistake for *stefanescoid* in Fischer 1886 p. 218.
- stefanescoid** Tournouër. – Changed combination: *Prosodacna stefanescoid* (Tournouër, 1879). Lymnocardidae. Miocene. TYPE LOCALITY: Jossen, Roumania. RECORDS. ••1879. Tournouër. vol. 28, p. 263: *Cardium stefanescoid*. ••1886. Fischer: *Prosodacna stefanescoid* Tournouër, 1879. ••1999. Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Prosodacna stefanescoid* Tournouër. Meotien. Rumania, B35686, B35811.
- steindachneri** Brusina. – *Caladacna steindachneri* (Brusina). Lymnocardidae. Fossil. RECORDS. ••1953. Celidje: *Caladacna steindachneri* Brus. ••1977. Popov: *Caladacna steindachneri* (Brus.).
- steindachneri** (cf.) Brusina. – RECORDS. ••1953. Celidje: *Caladacna cf. steindachneri* Brus.
- steindachneri euxinica** Eberzin, 1956. – *Caladacna steindachneri euxinica* Eberzin, 1956. Lymnocardidae. Pliocene. RECORDS. ••1956. ZR: *Caladacna steindachneri euxinica* Eberzin, 1956 subsp. nov. Pliocene, Kerchenski, Crimea Peninsula, Russia.
- stellatum** Reeve, 1845. [Figs. Part 1 p. 143. Part 3 p. 916]. – *Parvicardium stellatum* (Reeve, 1845). OTHER JUDGEMENTS: *Cardium exiguum* Gmelin, 1791. – *Eucardium exiguum* var. *subangulata* Scacchi. – *Cerastoderma exiguum subangulatum* Scacchi. – *Parvicardium siculum* (Sowerby, 1839). – *Cardium pygmaeum* Donovan, 1799. << Regarding *Cardium stellatum*: Cardiidae. Recent. TYPE LOCALITY. ••1845 Reeve: unknown. TYPE REPOSITORY. BMNH: *Cardium stellatum* Reeve 1 of 3 syntypes (Reeve's Figure) reg. no. 1975620. Neg. No. 0233. RECORDS. ••1845. Reeve: *Cardium stellatum*. ••1867. Weinkauff: *Cardium stellatum* = *Cardium exiguum* Gmelin. ••1868. ZR: *Cardium stellatum* (Reeve) = *Cardium exiguum* (Gmel.) [Ref. Römer 1868]. ••1888. Kobelt: *Cardium stellatum* Reeve = *Cardium exiguum* Gmelin. ••1890. Paetel: *Hemicardium stellatum* Rv. ••1892. Bucquoy, Dautzenberg & Dollfus: *Cardium stellatum* Reeve = *Cardium exiguum* Gmelin. ••1962. Grossu: *Cardium stellatum* Reeve 1844 = *Cardium (Parvicardium) exiguum* Gmelin, 1790. ••1922-32. Sherborn, p. 6133: *Cardium stellatum* Reeve, 1845. ••1933. Coen: *Cardium stellatum* Reeve = *Eucardium (Parvicardium) exiguum* var. *subangulata* Scacchi. ••1937. Coen: *stellatum* Reeve = *Cerastoderma (Parvicardium) exiguum subangulatum* Scacchi. ••1965. Mars: *Cardium stellatum* Reeve = *Cardium exiguum* Gmelin ••1969. Nordsieck: *Cardium stellatum* Reeve, 1845 = *Parvicardium exiguum exiguum* (Gmelin, 1791) identical with *C. pygmaeum* Donovan, 1799 and *C. siculum* Sowerby, 1839. ••1977. Fischer-Piette: *Cardium stellatum* Reeve. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1845 Reeve: shell obliquely quadrate, gibbous, very inequilateral, anterior side very short, posterior angulated; radiately flatly ribbed, 23-24 ribs, finely crenulated on each side, anterior ribs noduliferous; rusty brown, starred with a few white spots. REMARKS. ••1845 Reeve: a square gibbous shell of which the anterior side is remarkably short and contracted. HABITAT. ••1845 Reeve: unknown.
- Stenodacna** Andrussov 1923 (genus). – Lymnocardidae. Fossil. RECORDS. ••1962. ZR: *Stenodacna* Andrussov in subfam. Didacninae Eberzin, 1962, family Cardiidae [Ref. Eberzin 1962]. ••1963. ZR: *Stenodacna* Andrusov, historical survey of genus and related species [Ref. Akhvlediani 1963]. ••1977. Popov: *Stenodacna* Andrussov, 1923. ••1980. Vokes: *Stenodacna* Andrussov, 1923 in subfamily Didacninae. ••1987. Taktakishvili, p. 87: *Stenodacna* Andrussov 1923; referred to new tribe Pontalmyrini.
- stenopleura** Brusina & Brusina, 1902. – New name *Prosodacna osijeki* Basch, 1990. Lymnocardidae. Pliocene. RECORDS. ••1961. ZR: *Prosodacna stenopleura* Dacian [Ref. Macarovici 1961]. ••1987. Lutskanov & Tcholakov: *Prosodacna (Prosodacnomya) stenopleura*. ••1987. Lutskanov & Tcholakov: *Prosodacna (Prosodacnomya) stenopleura* sic. ••1990. Basch, p. 65: *Limnocardium stenopleura* Brusina & Brusina, 1902; preoccupied name replaced by *Prosodacna (Prosodacnomya) osijeki*.
- stenopleura sturiensis** (variety) Macarovici, 1961. – Upgraded. *Stenodacna stenopleura* Brusina & Brusina, 1902. Lymnocardidae. Pliocene. RECORDS. ••1961. ZR: *Prosodacna stenopleura* var. *sturiensis* Macarovici, 1961 nov. Dacian, Fersampenuazul Mare (Nou) Cetatea-Alba.
- stenopleura** (error). – Printer's mistake for *stenopleura* in Lutskanov & Tcholakov 1987.



**stevanovici – striatulum**

- stevanovici** Basch, 1990. – New combination: *Lymnocardium stevanovici* Basch, 1990. Lymnocardiidae. Miocene. TYPE LOCALITY. Tal des Flusses Krapina (Gebiet von Hrvatsko Zagorje) Nordwestkroatien, Jugoslavien. RECORDS. ••1990. Basch, p. 7, fig.: *Limnocardium (Zagrabicardium) stevanovici* sp. nov.
- stigmaticum** (subspecies). – See under *hungerfordi stigmaticum* Pilsbry, 1904.
- stilpnaulax** Cossmann, 1886. – Changed combination: *Bucardium stilpnaulax* (Cossmann, 1886). Cardiidae. Eocene. RECORDS. ••1886. Cossmann, p. 166, pl. VIII, fig. 5–6: *Cardium stilpnaulax* nov. sp. ••1977. Popov: *Bucardium (Europicardium) stilpnaulax* (Cossmann, 1886). ••1995. Le Renard *et al.*: *Cardium (Orthocardium) stilpnaulax* Cossmann, 1886. ••1995. Pacaud & Renard: *Cardium (Orthocardium) stilpnaulax*.
- stiriaceum** Rolle, 1860. – Combination to be revised: “*Cardium*” *stiriaceum* Rolle, 1860. Cardiidae. Fossil. RECORDS. ••1980. Ruhoff: *Cardium stiriaceum* Rolle, 1860; vol. 42: 275, fig. 6.
- striatum** Brown & Pilsbry, 1911. – Combination to be revised: “*Cardium*” *striatum* Brown & Pilsbry, 1911. Cardiidae. Oligocene. RECORDS. ••1911. ZR: *Cardium (Trachycardium) striatum* Brown & Pilsbry, 1911 sp. n. Panama Oligocene.
- stojadinovici** Pavlovic, 1928. – New combination: *Lymnocardium stojadinovici* Pavlovic, 1928 Lymnocardiidae. Pontian. RECORDS. ••1928. ZR: *Limnocardium stojadinovici* [Ref. Pavlovitch 1928]. ••1929. ZR: *Limnocardium stojadinovici* Pavlovic, 1929 sp. n. Pontian Serbia.
- stonei** Cragin, 1893. – Synonym of *Protocardia filosa* (Conrad, 1857). >> Regarding *Protocardia stonei*: Cardiidae. Cretaceous. RECORDS. ••1986. Scott: *Protocardia stonei* Cragin, 1893 = *Protocardia filosa* (Conrad, 1857). ••1987 ZR: *Protocardia stonei* Cragin, 1893. Junior synonym of *P. filosa* (Conrad 1857). Ref. to Scott p. 1203.
- stoosi** Brusina. – New combination: *Lymnocardium stoosi* (Brusina). Lymnocardiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocardium stoosi* Brus.
- straeleni** Glibert 1945. – Synonym of *Parvicardium papillosum* (Poli). OTHER JUDGEMENTS: *Cardium nodosum* Mourlon 1880–1881. >> Regarding *C. straeleni*: Cardiidae. Miocene. RECORDS. ••1945 Glibert: *Cardium (Parvicardium) straeleni*. ••1947. ZR: *Cardium (Parvicardium) straeleni* Glibert, 1945 sp. nov. = *Cardium nodosum* Mourlon 1880–1881 non Montagu, 1803, Miocene Anversian, Eocene, Belgium. ••1958. Sorgenfrei: *Cardium straeleni* Glibert. ••1968. Rasmussen: *Cardium straeleni* Glibert 1945 = *Parvicardium papillosum* (Poli).
- strangi** Laws, 1930. – Changed combination: *Maoricardium strangi* (Laws, 1930). Cardiidae. Fossil. RECORDS. ••1931. ZR: *Cardium strangi* Laws, 1931 sp. n. Tertiary N.Z. ••1977. Popov: *Maoricardium strangi* (Laws, 1930).
- strangulatum** d’Orbigny, 1850. – *Conocardium strangulatum* d’Orbigny, 1850. Conocardiidae. Fossil. RECORDS. ••1922–32. Sherborn, p. 6163: *Cardium strangulatum* Koninck, 1841. ••1922–32. Sherborn: *Conocardium* (Koninck) *strangulatum* d’Orbigny, 1850. – *Cardium*.
- stratonis** Andrussow, 1907. – *Abichia stratonis* Andrussow, 1907. Lymnocardiidae. Fossil. RECORDS. ••1907. Andrussow: *Abichia stratonis* nov. sp. (no description).
- stratonis** Vassoievitch, 1929. – *Paradacna stratonis* Vassoievitch, 1929. Lymnocardiidae. Pliocene. RECORDS. ••1929. ZR: *Paradacna stratonis* Vassoievitch, 1929 sp. n. Pliocene or Post Tertiary N. Caucasus.
- strauchi** Glibert & Van De Poel, 1970. – *Parvicardium strauchi* Glibert & Van De Poel, 1970. Cardiidae. Eocene. RECORDS. ••1970. ZR: *Parvicardium strauchi* Glibert & Van De Poel, 1970 sp. nov. Auversian, Eocene, Mary, Seine-et-Marne, France. ••1995. Pacaud & Renard: *Parvicardium strauchi*.
- striata** Martyn, 1784. *Non binominal*. – Not available. >> Regarding *Cardium striata*: identical with *Cardium costatum* Linné, 1758. Cardiidae. Recent. REMARKS. The figures by Martyn 1784 are excellent. However, the locality China is wrong. The distribution of *C. costatum* is limited to West Africa. RECORDS. ••1784. Martyn, p. 50, pl. 48, fig. 3, pl. 49, fig. 4: *Cardium striata*.
- striatissimum** Kutassy, 1934. – Combination to be revised: “*Cardium*” *striatissimum* Kutassy, 1934. Cardiidae. Miocene. RECORDS. ••1935. ZR: *Cardium striatissimum* Kutassy, 1934 sp. n. Miocene Celebes.
- striatopunctatum** Münster, 1835. – Combination to be revised: “*Cardium*” *striatopunctatum* Muenster, 1835. ?Cardiidae. Fossil. RECORDS. ••1922–32. Sherborn, p. 6170: *Cardium striatopunctatum* Muenster, 1835.
- striatula** Sowerby 1829. – *Protocardia striatula* (Sowerby 1829). Cardiidae. Upper Jurassic. RECORDS. ••1982. Fürsich, p. 78: *Protocardia (Protocardia) striatula* (Sowerby 1829); senior synonym of *Protocardia concinna* (von Buch 1844).
- \*striatum**. – **Homonymy to be noticed.** *Cardium striatum* from 5 sources: Brocchi, 1814. – Chiaje, 1830. – Sowerby, 1827. – Sowerby, 1834. – Phillips (?year).
- striatum** Beyrich, 1845. – *Protocardia striatum* Beyrich, 1845. Cardiidae. Fossil. RECORDS. ••1922–32. Sherborn, p. 6174: *Protocardia* (Sow.) *striatum* Beyrich, 1845. – *Cardium striatum*.
- striatum** Brocchi, 1814. [Figs. Part I p. 94]. – Changed combination: *Nemocardium striatum* (Brocchi, 1814). Cardiidae. Mio–Pliocene. TYPE LOCALITY. Italy, Mio–Pliocene deposit. RECORDS. ••1814 Brocchi: *Cardium striatum*. ••1832 Bronn: *Cardium striatum* Brch. 507 (*vide* Keen 1950). ••1857 Deshayes: *Cardium striatum* Brocchi, 1813 *sic*. ••1899 Sacco, p. 56, Pl. 12, figs. 18–23: *Nemocardium striatum* (Brocchi, 1814). ••1922–32 Sherborn, p. 6172: *Cardium striatum* Brocchi, 1814. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Nemocardium striatum* Brocchi. Oligocene. Germany, B31365, B36100.
- striatum** Chiaje, 1830. – Combination to be revised: “*Cardium*” *striatum* d. Chiaje, 1830. Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6172: *Cardium striatum* d. Chiaje, 1830.
- striatum** Phillips. – Combination to be revised: “*Cardium*” *striatum* Phillips. Cardiidae. Fossil. RECORDS. ••1947 ZR: *Cardium striatum* Phillips [Ref. Melmore 1947].

*striatulum* – *striatum*

- striatulum*** Sowerby, 1827. – Combination to be revised: “*Cardium*” *striatulum* Sowerby, 1827. *Cardiidae*. Fossil. RECORDS. ••1922-32. Sherborn, p. 6172: *Cardium striatulum* J. De C. Sowerby, 1827. (Min. Conch. VI, 101).
- striatulum*** Sowerby, 1834. [Figs. Part 1 p. 109, 114, 135]. – *Synonym of Nemocardium pulchellum* (Reeve, 1844). OTHER JUDGEMENTS: *Cardium substriatulum* Orbigny. >> Regarding *Cardium striatulum*: *Cardiidae*. Recent. TYPE LOCALITY. Australia, New Zealand (Sowerby 1840). RECORDS. ••1834 Sowerby, 49<sup>th</sup> part, fig. 16: *Cardium striatulum* nobis. ••1840 Sowerby, 177<sup>th</sup> part, fig. 45: *Cardium striatulum* jun. ••1840 Sowerby, Proc. Z.S. London p.105: *Cardium striatulum*. ••1840 Sowerby, catalogue p. 1, No. 9: *Cardium striatulum* Sow. ••1840 Sowerby, corrected list, p. 8: *Cardium striatulum* (Sowerby, No. 9). ••1841 Reeve: *Cardium striatulum* Sowerby. ••1843 Hanley: *Cardium striatulum* Sowerby. ••1844 Reeve, sp. 60: *Cardium striatulum* Sowerby, 1840 (juvenile) = *Cardium pulchellum* Reeve, 1844. ••1857 Deshayes: *Cardium striatulum* Sow. – *C. substriatulum* d’Orb. ••1858 Adams & Adams, p. 457: *Laevicardium striatulum* Sow. ••1873 Martens: *Cardium striatulum* Sowerby. ••1873 Hutton: *Cardium striatulum* Sowerby. ••1880 Hutton: *Cardium striatulum* Sowerby. ••1884 Grasset: *Cardium striatulum* Sow. ••1884 Hutton: *Cardium striatulum* Sowerby. ••1885 Smith: *Cardium striatulum* Sowerby. 1840. = *Cardium (Bucardium) pulchellum* Gray. ••1890 Paetel: *Cardium striatulum* Sow. ••1901 Suter: *Cardium striatulum* Sow., 1840 (not of Brocchi) = *Cardium pulchellum* Gray. ••1902 Hedley: *C. striatulum* Sowerby 1841, fig. 45 = *C. pulchellum* Gray. ••1904 Hutton: *Cardium striatulum* Sowerby (non Brocchi) = *Cardium pulchellum* Gray (non Reeve). ••1922-32 Sherborn, p. 6172: *Cardium striatum* G. B. Sowerby, 1841. ••1933 David: *Protocardia (Nemocardium) striatula* Sow. ••1977 Fischer-Piette: *Pratulum striatum* Sowerby. ••1977 Wilson & Stevenson: *Nemocardium striatum* (Sowerby, 1841) non Brocchi = *pulchellum* Gray, 1843. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Protocardium striatum* Sowerby. Mesozoic. Madagascar, B10064, B10065. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1840 Sowerby: found that the pink-striped bands, which gave so much brilliancy to the young shells, was scarcely to be traced in the older specimens. ••1844 Reeve: shell transversely ovate, rather thin, posterior side a little gaping, radiately closely striated, striae conspicuous, elevated, peculiarly cancellated with very fine waved wrinkles, posterior striae covered towards the margins with minute short spines; pale rusty white, two orange-red rays diverging from within the umbones of each valve. REMARKS. ••1844 Reeve: a thin delicate shell, slightly produced at the posterior side, and having its entire surface cancellated with fine irregularly waved wrinkles. ••1844 Reeve: stated that *striatulum* (Reeve 1844) differed significantly from *pulchellum* (Reeve 1844). However, this difference has been questioned by authors. ••1977 Fischer-Piette: claimed that *Cardium striatulum* Sowerby, 1834 = *Cardium pulchellum* Gray, 1843 = *Cardium thetidis* Hedley, 1902. DIMENSIONS. ••1840 Sowerby: long. 1. poll. (length 25 mm), lat. 0.6 poll. (width 15 mm), alt. 0.9 poll (height 23 mm). DISTRIBUTION. ••1844 Reeve: New Zealand. ••1884 Grasset: N. Zealand.
- striatum thetidis*** Hedley 1902 (variety). [Figs. Part 3 p. 900]. – Upgraded. New combination: *Nemocardium striatum thetidis* (Hedley, 1902). >> Regarding *Cardium striatum* Sow., var. *thetidis*: *Cardiidae*. Recent. TYPE LOCALITY. Australia, New Zealand (Sowerby 1840). RECORDS. ••1902 Hedley: *Cardium striatum* Sow., var. *thetidis* nov. Hedley 1902. ••1902 ZR: *Cardium striatum* n. var. described by Hedley 1902. ••1977 Wilson & Stevenson: *Cardium striatum thetidis* Hedley, 1902.
- \**striatum***. – Homonymy to be noticed. *Cardium striatum* from 9 sources: Wulff, 1790. – Wuleus, 1793. – Spengler, 1799. – Schlotheim, 1813. – Defrance, 1817. – Hoeninghaus, 1830. – Sowerby in Murchison, 1839. – Buvignier, 1843. – Buckman in Murchison, 1844.
- striatum*** Buckman in Murchison, 1844. – Combination to be revised: “*Cardium*” *striatum* Buckman in Murchison, 1844. *Cardiidae*. Fossil. RECORDS. ••1857. Deshayes: *Cardium striatum*. Backmann. Spec. incog. ••1922-32 Sherborn, p. 6178: *Cardium striatum* Buckman in Murchison, 1844.
- striatum*** Buvignier, 1843. – Replaced by “*Cardium*” *buvignieri* Deshayes. >> Regarding *C. buvignieri*: *Cardiidae*. Fossil. RECORDS. ••1857. Deshayes: *Cardium striatum* Buvignier. – *C. buvignieri* Desh. ••1922-32 Sherborn, p. 6178: *Cardium striatum* Buvignier, 1843.
- striatum*** Defrance, 1817. – Identical with *Cardium multicostatum* Brocchi. *Cardiidae*. Fossil. RECORDS. ••1844 Potiez & Michaud: *Cardium striatum* Defr. = *Cardium multicostatum* Brocc. ••1899 Sacco, p. 42: *C. striatum* Defrance = *Trachycardium multicostatum* var. *mirotundata* Sacc. ••1922-32 Sherborn, p. 6178: *Cardium striatum* Defrance, 1817.
- striatum*** Hoeninghaus, 1830. – See also under *striatum* Schlotheim, 1813. RECORDS. ••1922-32 Sherborn, p. 6178: *Cardium* (Schl.) *striatum* Hoeninghaus, 1830. – *Chamites*.
- striatum*** Koninck, 1842. – Combination to be revised: “*Cardium*” *striatum*. Koninck 1842. Not in *Cardiacea (cardiomorpha)*. Silurian. RECORDS. ••1857. Deshayes: *Cardium striatum* Koninck (*cardiomorpha*). 1842.
- striatum*** Münster, 1830. – Replaced by *C. substriatum*? Münster. *Cardiacea*. Fossil. RECORDS. ••1857. Deshayes: *Cardium striatum* Münster. 1830. – *C. substriatum*? Münster.
- striatum*** Münster, 1840. – Unknown species. ?*Cardiacea*. Fossil. RECORDS. ••1857. Deshayes: *Cardium striatum* Münster, 1840. Spec. incog.
- striatum*** Schlotheim, 1813. Not a *cardiid*. RECORDS. ••1857 Deshayes: *Cardium striatum* Schlotheim. – *Lima striata*. ••1922-32 Sherborn, p. 6178: *Chamites striatum* Schlotheim, 1813.
- striatum*** Sowerby in Murchison, 1839. – Combination to be revised: “*Cardium*” *striatum* Sowerby in Murchison, 1839. ?*Cardiidae*. Lias–Jurassic. RECORDS. ••1922-32 Sherborn, p. 6178: *Cardium striatum* Sowerby in Murchison, 1839 [Silurian]. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium striatum* Sowerby. Ludlow, Grande Bretagne, B01930. Rauracien. Meuse

**striatum – Stykladacna**

(France), S04454.

**striatum** Sowerby, 1836. – Replaced by "*Cardium*" *sowerbyanum* d'Orb. >> Regarding *Cardium striatum*: Cardiacea. Fossil. RECORDS. ••1857. Deshayes: *Cardium striatum*. Sowerby, 1836. – *C. sowerbyanum*. d'Orb.

**striatum** Spengler, 1799. [Figs. Part 3 p. 880]. – Synonym of *Fulvia australis* (Sowerby, 1834). >> Regarding *Cardium striatum*: Cardiidae. Recent. TYPE LOCALITY. South Seas [Pacific Ocean] (Spengler 1799). TYPE REPOSITORY. ZMUC in Spengler coll. RECORDS. ••1799 Spengler, p. 45, No. 29: *Cardium striatum*. ••1902 Sherborn, p. 933: *Cardium striatum* Spengler, 1799. ••1977 Fischer-Piette: *Cardium striatum* Spengler. ••1994 Vidal: *Cardium striatum* Spengler, 1799 = *Fulvia (Fulvia) australis* (Sowerby, 1834). ••1999 Knudsen & Hylleberg: *Cardium striatum* Spengler, 1799. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC 2 specimens in Spengler coll. DESCRIPTIONS. ••1799 Spengler: *Testa cordata aequalivalvi longitudinaliter striata, natibus laevigatis apice purpureis*. ••1799 Spengler: shell circular, inflated, umbo central, posterior slope sharply keeled, ribs terminate in teeth, closely fitting, shells not gaping, central and anterior parts, very low ribs on the lower half, upper half smooth, glossy. Colour outside white, lower part dotted with red, upper part olive–green with red–brown spots, umbo covered with dark red spot, inside white. ••1999 Spengler (1799) translated by Knudsen & Hylleberg: this small cockle from the South Sea is circular in outline, the umbo thus is placed in the middle. From the middle to above the tip of the umbo the bivalve is strongly vaulted. In the middle, the front side is bent outward in a sharp crest and covered by stripes. On the anterior end these stripes have incised teeth, which interlock and tightly close both valves with the remaining margin, which is neatly set with small fine teeth. Both surfaces are set with narrow, flattened stripes from the lower margin to the middle of the valve. The rest of the bivalve is shining smooth. In the lower part, it is white outside and strewn with red spots. The upper part, together with the umbo, is olive–green, ornamented with red–brown spots. Both umbo tips are half covered by a dark spot. Inside the cockle is white. Size: 1 inch in height and in breadth. DIMENSIONS. ••1799 Spengler: height and width 26 mm (1 Tom). REMARKS. *Cardium striatum* Spengler = *Fulvia australis* identified by Vidal 1994.

**striatum** Wuleus, 1793. – *Cardium striatum*. Wuleus. 1793. Cardiidae. Living species, Recent. RECORDS. ••1857. Deshayes: *Cardium striatum* Wuleus, 1793. especes vivantes.

**striatum** Wulff, 1790. – *Cardium striatum* Wulff, 1790. Cardiidae. Fossil. RECORDS. ••1899 Sacco, p. 42: *Cardium striatum* Wulff, 1790 (oldest application of the name *C. striatum*).

**striatum beta** DeFrance, 1817 (variety). – Identical with *Cardium multicostatum* Brocchi. Cardiidae. Fossil. RECORDS. ••1832 Bronn: *Cardium striatum beta* Df. = *Cardium multicostatum* Brch. 506.

**striatum leonense** Mansfield, 1932 (subspecies). – Combination to be revised: "*Cardium*" *striatum leonense* Mansfield, 1932. Cardiidae. Miocene. RECORDS. ••1938 ZR: *Cardium (Trachycardium) striatum leonense* Mansfield, 1932 subsp. n. Borrow

pit, nr. Jackson Bluff, Leon Co. Choctawhatchee formation (Miocene) Florida.

**stricklandi** Morris & Lycett, 1852. – Combination to be revised: "*Cardium*" *stricklandi* Morris & Lycett. Cardiidae. Lias–Jurassic. RECORDS. ••1980 Ruhoff: *Cardium stricklandi* Morris & Lycett, 1852 [quoted from Laube 1867, vol. 27(2): 41]. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium stricklandi* Morris & Lycett. Bathonien. France (Pas de Calais), B13069. France (Pas de Calais), S01916.

**strigilliferum** Wood, 1856. – Combination to be revised: "*Cardium*" *strigilliferum* Wood, 1856. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium strigilliferum* Wood, 1856 [1850–1856] vol. 2: 154, pl. 13, fig. 5a–d

**strimonense** Popov & Nevesskaya, 2000. – *Lymnocardium strimonense* Popov & Nevesskaya, 2000. Cardiidae. Late Miocene. RECORDS. ••2000 Popov & Nevesskaya, downloaded abstract: *Lymnocardium (Hellenicardium) strimonense* n. sp.

\***striolatum**. – Homonymy to be noticed. *Cardium striolatum* from 2 sources: Link, 1807. – Calcara, 1841.

**striolatum** Calcara, 1841. – Combination to be revised: "*Cardium*" *striolatum* Calcara, 1841. Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6203: *Cardium striolatum* Calcara, 1841.

**striolatum** Link, 1807. – Combination to be revised: "*Cardium*" *striolatum* Link, 1807. Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6203: *Cardium striolatum* Link, 1807.

**striolatum** Orbigny, 1850. – *Unicardium striolatum* d'Orbigny, 1850. Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn: *Mactromya striolatum* Ag. ••1922–32 Sherborn, p. 6204: *Unicardium* (Ag.) *striolatum* d'Orbigny, 1850. – *Mactromya striolatum*.

**stultorum** Linnaeus, 1758. [Figs. Part 1 p. 47]. – Not a cardiid. >> Regarding *Cardium stultorum*: identical with *Mactra stultorum*. RECORDS. ••1742 Gualtieri. ID by Linnaeus 1758: *Cardium stultorum* t. 71. f. C. ••1758 Linnaeus (10<sup>th</sup> edition) No. 80: *Cardium stultorum*. ••1902 Sherborn, p. 940: *Cardium stultorum* Linnaeus, 1758 [*Mactra*, ed. 12]. ••1853 Forbes & Hanley, p. 362: *Cardium stultorum* = *Mactra stultorum*.

**stultorum** of Schröter, 1788. Not a cardiid. >> Regarding *Cardium stultorum*: identical with *Mactra stultorum*. RECORDS. ••1788 Schröter: *Cardium stultorum*. [Reference to Chemnitz (1782) fig. 226].

**sturi** Cobalcescu. – *Prosodacnomya sturi* (Cobalcescu). Lymnocardiidae. Fossil. RECORDS. ••1980 ZR: *Prosodacnomya sturi* (Cobalcescu) Key to subspecies. Ref. to Andreescu.

**sturi orgrinensis** Andreescu, 1980. – *Prosodacnomya sturi orgrinensis* Andreescu, 1980. Lymnocardiidae. Lower Pliocene. RECORDS. ••1980 ZR: *Prosodacnomya sturi orgrinensis* Andreescu, 1980 subsp. nov. Romania. Ref. to Andreescu, p. 30.

**sturiensis** (variety). – See under *stenopleura* var. *sturiensis* Macaroviici, 1961.

**sturzai** Gillet, 1943. – New combination: *Lymnocardium sturzai* Gillet, 1943. Lymnocardiidae. Pliocene. RECORDS. ••1946 ZR: *Limnocardium sturzai* Gillet, 1943 sp. nov. Pliocene Rumania.

**Styladacna** (error). – Printer's mistake for *Stylodacna* in Dollfus, 1905 (Vokes 1980).

*Stylodacna* – *subcarinata arcaeiformis*

***Stylodacna*** Sabba Stefanescu, 1896 (genus). Lymnocythidae. Tertiary. GENOTYPE. *Stylodacna heberti* Cobal. (Dollfus 1905, commenting Andrussov 1903). Erected to accommodate Rumanian Pontian [Tertiary basin] cardiids. RECORDS. ••1896 ZR: *Stylodacna* Stefanescu, 1896 n. g. for *Psilodon herbeti* Cobalcescu [Ref. Stefanescu 1896]. ••1903 Andrussov: *Stylodacna* Sabba Stefanescu, 1896. ••1974 ZR: *Stylodacna* Sabba Stefanescu, 1896 referred to new subfamily Prosodacninae. Ref. to Andreescu, p. 128. ••1980 Vokes: *Stylodacna* Stefanescu, 1896 in subfamily Lymnocythiidae.

***subacardo*** Andrussov, 1907. – *Arcicardium subacardo* Andrussov, 1907. Lymnocythidae. Tertiary. TYPE LOCALITY. Crimean iron ore deposits. RECORDS. ••1907 Andrussov, p. 114, Taf. IV, Fig. 4–9: *Arcicardium subacardo* nov. sp. ••1964 ZR: *Arcicardium subacardo* Andrussov, 1964 sp. nov. *sic* Tertiary.

***subaequilatera*** (variety). – See under *muricatum* var. *subaequilatera* Roemer, 1849.

***subalatum*** Andrzejowski, 1833. – Combination to be revised: “*Cardium*” *subalatum* Andrzejowski, 1833. ?Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6219: *Cardium subalatum* Andrzejowski, 1833.

***subalpina*** Orbigny, 1850. – *Unicardium subalpina* d’Orbigny, 1850. ?Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn: *Tellina subalpina* Münster. ••1922–32 Sherborn, p. 6219: *Unicardium* (Muenst.) *subalpina* d’Orbigny, 1850. – *Tellina subalpina*.

***subalpinum*** Gümbel, 1861. – Combination to be revised: “*Cardium*” *subalpinum* Gümbel, 1861. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium subalpinum* Gümbel, 1861; p. 743.

***subalternatum***. – Homonymy to be noticed. *Cardium subalternatum* from 2 sources: Orbigny, 1850. – Jenkins, 1864.

***subalternatum*** Jenkins, 1864. – Combination to be revised: “*Cardium*” *subalternatum* (Jenkins, 1864). OTHER JUDGEMENTS: *Vasticardium flavum* (Linnaeus, 1758). >> Regarding *Cardium subalternatum*: Cardiidae. Miocene. TYPE LOCALITY. Miocene of Mount Séla, on the Island of Java (Jenkins 1864). RECORDS. ••1864 Jenkins, p. 60, pl. 7, figs. 7a, b: *Cardium subalternatum* spec. nov. ••1925 Oostingh, p. 274: *Cardium subalternatum* = *Cardium flavum* Linné, 1758. ••1939 Adam & Leloup: *Cardium subalternatum* Jenkins = *Laevicardium* (*Trachycardium*) *flavum* (Linné 1758). ••1980 Ruhoff: *Cardium subalternatum* Jenkins, 1864; vol. 20: 60, pl. 7, figs. 7a,b. ••1999 Vidal citing Jenkins 1864: *Cardium subalternatum*. Compared by its author with *C. alternatum*.

***subalternatum*** Orbigny, 1850. – Combination to be revised: “*Cardium*” *subalternatum* d’Orbigny, 1850. Cardiidae. Cretaceous. RECORDS. ••1922–32 Sherborn, p. 6219: *Cardium subalternatum* d’Orbigny, 1850. ••1999. Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium subalternatum* d’Orbigny. Turonien. France (Loir and Cher), S08378.

***subalutaceum*** Falckenstein, 1911. – Combination to be revised: “*Cardium*” *subalutaceum* Falckenstein, 1911. Cardiidae. Senon. RECORDS. ••1911 ZR: *Cardium subalutaceum* Falckenstein. 1911 sp. n. Senon Germany. ••1986 Abdel-Gawad: “*Cardium*”

*subalutaceum* Vogel von Falckenstein, 1911.

***\*subangulatum***. – Homonymy to be noticed. *Cardium subangulatum* from 2 sources: Scacchi, 1836. – Orbigny, 1850.

***subangulatum*** Orbigny, 1850. – Combination to be revised: “*Cardium*” *subangulatum* d’Orbigny, 1850. Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6220: *Cardium subangulatum* d’Orbigny, 1850.

***subangulatum*** Scacchi, 1836. [Figs. Part 3 p. 916]. – *Nomen nudum*. OTHER JUDGEMENTS: *Parvicardium exiguum* (Gmelin, 1791). >> Regarding *Cardium subangulatum*: Cardiidae. Fossil. RECORDS. ••1836 Scacchi, p. 7 (8): *Cardium subangulatum*. ••1844 Philippi: *Cardium subangulatum* Scac. (jun.) = *Cardium exiguum* Gm. ••1851 Petit de la Saussaye: *Cardium subangulatum* Scacchi. ••1853 Doublier: *Cardium subangulatum* (Scacchi). ••1858 Gay: *Cardium subangulatum* Scacchi. ••1862 Weinkauff: *Cardium subangulatum* Scacchi. ••1867 Weinkauff: *Cardium subangulatum* = *Cardium exiguum* Gmelin. ••1869 Römer: *Cardium subangulatum* Scacchi = *Cardium exiguum* Gmelin. ••1870 Aradas & Benoit: *Cardium subangulatum*, Scacchi = *Cardium exiguum*, Gmelin. ••1880 Stossich: *Cardium subangulatum* in Weinkauff. 1862 = *Cardium exiguum* Gmelin. ••1886 Locard: *Cardium subangulatum* Scacchi, 1836 = *Cardium exiguum* Gmelin, 1789 *sic*. ••1888 Kobelt: *Cardium subangulatum* Scacchi = *Cardium exiguum* Gmelin. ••1890 Paetel: *Cardium subangulatum* Scach. = *exiguum* Gm. ••1892 Bucquoy, Dautzenberg & Dollfus: *Cardium subangulatum* Scacchi = *Cardium exiguum* Gmelin (*vide* Fischer–Piette 1977). ••1902 Bellini: *C. subangulatum*, in Scacchi = *Cardium* (*Parvicardium*) *exiguum*, Gm. ••1917 Pallary: *Cardium subangulatum* Scacchi. ••1962 Grossu: *Cardium subangulatum* Scacchi = *Cardium* (*Parvicardium*) *exiguum* Gmelin, 1790. ••1969 Nordsieck: *Parvicardium exiguum subangulatum* (Scacchi, 1836). ••1977 Fischer–Piette: *Cardium subangulatum* Scacchi = *nomen nudum*. ••1989 Voskuil, p. 263: *Cardium subangulatum* Scacchi, 1836 = *nomen nudum*. – CHARACTERS AND OCCURRENCE – REMARKS. ••1977 Fischer–Piette: *Cardium subangulatum* Scacchi = *nomen nudum* (there is no description, no figure). HABITAT. ••1969 Nordsieck: littoral and algal zone. DISTRIBUTION. ••1969 Nordsieck: Mediterranean.

***subapertum*** Orbigny, 1852. – Combination to be revised: “*Cardium*” *subapertum* Orbigny, 1852. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium subapertum* Orbigny, 1852; [1850–1852] vol. 3: 118.

***subarquatum*** Münster, 1840. – Combination to be revised: “*Cardium*” *subarquatum* Münster, 1840. ?Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6222: *Cardium subarquatum* Münster, 1840.

***subasperulum*** d’Orbigny, 1850. – Combination to be revised: “*Cardium*” *subasperulum* d’Orbigny, 1850. ?Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6223: *Cardium subasperulum* d’Orbigny, 1850.

***subassimile*** Vidal, 2003. [Figs. Part 3 p. 868]. – *Vasticardium subassimile* Vidal, 2003. TYPE REPOSITORY. MNHN. TYPE LOCALITY. Unknown. Cardiidae. Recent. RECORDS. ••2003 Vidal p. 57, figs. 1–3, 6: *Vasticardium subassimile* sp. nov.

***subcarinata arcaeiformis*** Wenz, 1942. – *Didacna*

**subcarinata luxuriosa – subdeforme**

- subcarinata arcaeformis* Wenz, 1942. Lymnocardiiidae. ?Pliocene. RECORDS. ••1945 ZR: *Didacna subcarinata arcaeformis* Wenz, 1942 subsp. nov. M. Pont. [? Pliocene].
- subcarinata luxuriosa** Wenz, 1942. – *Didacna subcarinata luxuriosa* Wenz, 1942. Lymnocardiiidae. Pliocene. RECORDS. ••1945 ZR: *Didacna subcarinata luxuriosa* Wenz, 1942 subsp. nov. O. Pout–A. Day Valea Salcii. Pliocene. ••1980 ZR: *Didacna subcarinata luxuriosa* Wenz 1942. Type species of *Luxuridaena* Papaianopol, 1980. Pliocene. Ref. to Papaianopol.
- subcarinatum** Deshayes, 1838. – Combination to be revised: “*Cardium*” *subcarinatum* Deshayes, 1838. Lymnocardiiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6226: *Cardium subcarinatum* Deshayes, 1838.
- subcarinifera** Ruzencev, 1929. – *Monodacna subcarinifera* Ruzencev, 1929. Lymnocardiiidae. Apscheronian. RECORDS. ••1929 ZR: *Monodacna subcarinifera* Ruzencev, 1929 sp. n. Apscheronian Transcaucasia.
- \*subcatillus**. – Homonymy to be noticed. *Didacna subcatillus* from 2 sources: Andrusov, 1910. – Pravoslavleff, 1913.
- subcatillus** Andrusov, 1910. – *Didacna subcatillus* Andrusov, 1910. Lymnocardiiidae. Fossil. RECORDS. ••1970 Glibert & Poel, p. 62: *Didacna* (s.s.) *subcatillus* Andrusov, 1910.
- subcatillus** Pravoslavleff, 1913. – *Didacna subcatillus* Pravoslavleff, 1913. Lymnocardiiidae. Fossil. RECORDS. ••1930 ZR: *Didacna subcatillus* Pravoslavleff, 1913 sic sp. n.
- subcatillus angusta** Popov, 1983 (subspecies). – *Didacna subcatillus angusta* Popov, 1983. Lymnocardiiidae. Pleistocene. TYPE LOCALITY. Russian SFSR. RECORDS. ••1983 Popov, p. 156, fig.: *Didacna subcatillus angusta* subsp. nov.
- subcatillus elongatoplana** Popov, 1983 (subspecies). – *Didacna subcatillus elongatoplana* Popov, 1983. Lymnocardiiidae. Pleistocene. TYPE LOCALITY. Russian SFSR. RECORDS. ••1983 Popov, p. 158, fig.: *Didacna subcatillus elongatoplana* subsp. nov.
- subcatillus itilica** Popov, 1983 (subspecies). – *Didacna subcatillus itilica* Popov, 1983. Lymnocardiiidae. Pleistocene. TYPE LOCALITY. Russian SFSR. RECORDS. ••1983 Popov, p. 158, fig.: *Didacna subcatillus itilica* subsp. nov.
- subcolorata** Andrusov, 1965. – *Nomen nudum*. RECORDS. ••1965 ZR: *Monodacna subcolorata* Andrusov, 1965 sp. nov. [nom. nud.]. S. Russian seas.
- subcolorata** Vassoievitch, 1929. – *Monodacna subcolorata* Vassoievitch, 1929. Lymnocardiiidae. Fossil. RECORDS. ••1929 ZR: *Monodacna subcolorata* Vassoievitch, 1929 sp. n. Pliocene or Post Tertiary N. Caucasus. ••1935 ZR: *Monodacna subcolorata* [Ref. Eberzin 1935]. ••1977 Popov: *Monodacna subcolorata*.
- subcongestum** Böse, 1910. – Combination to be revised: “*Cardium*” *subcongestum* Böse, 1910. Cardiidae. Cretaceous. RECORDS. ••1911 ZR: *Cardium subcongestum* Böse, 1910 sp. n. Mexico Cretaceous.
- subcordatum** Suter, 1917. – Changed combination: *Hedecardium subcordatum* (Suter, 1917). Cardiidae. Tertiary. TYPE LOCALITY. North Canterbury N. Z. RECORDS. ••1917 Suter: *Cardium subcordatum*. ••1977 Popov: *Hedecardium subcordatum* (Suter, 1917). ••1978 Maxwell: *Hedecardium* (*Hedecardium*) *subcordatum* (Suter, 1917). ••2002 Schneider: *Hedecardium subcordatum* (Suter, 1917). New Zealand. Chattian.
- subcostalis** (mode). – See under *subcostalis*.
- subcostalis** Petrov, 1982. – *Clinocardium subcostalis* Petrov, 1982. Cardiidae. Pleistocene. RECORDS. ••1982 ZR: *Clinocardium subcostalis* Petrov, 1982 sp. nov. Russian SFSR. Ref. to Petrov, p. 103. ••1998 Kafanov: *Laevicardium subcostale* (Petrov, 1982).
- subcrassatellata** Andrusov, 1964. – *Didacna subcrassatellata* Andrusov, 1964. Lymnocardiiidae. Tertiary. RECORDS. ••1964 ZR: *Didacna subcrassatellata* Andrusov, 1964 sp. nov. Tertiary, USSR.
- subcrassatellatoides** Andrus. – Changed combination: *Pontalmyra subcrassatellatoides* (Andrus.). Lymnocardiiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Pontalmyra subcrassatellatoides* (Andrus.)
- subcrassidens** (subspecies). – See *macrodon subcrassidens* Eberzin, 1960.
- subcrenula**. – *Pontalmyra subcrenula*. Lymnocardiiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Pontalmyra subcrenula* sic.
- \*subcrenulata**. – Homonymy to be noticed. *Didacna subcrenulata* from 2 sources: Andrusov, 1964. – Possibly Andrusov (?year).
- subcrenulata** Andrusov, 1964. – *Didacna subcrenulata* Andrusov, 1964. Lymnocardiiidae. Tertiary. RECORDS. ••1964 ZR: *Didacna subcrenulata* Andrusov, 1964 sp. nov. Tertiary, USSR.
- subcrenulata** Andrusov. – *Didacna subcrenulata* Andrusov. Lymnocardiiidae. Fossil. RECORDS. ••1953 Celidje: *Didacna subcrenulata* Andrus.
- subcurtum**. – *Pleuriocardia subcurtum*. Cardiidae. Fossil. RECORDS. ••1987 Geary: The transformation from *Pleuriocardia subcurtum* to *Pleuriocardia pauperulum* is fairly abrupt.
- subcylindricum** Mayer, 1857. – Combination to be revised: “*Cardium*” *subcylindricum* Mayer, 1857. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium subcylindricum* Mayer, 1857; [1856–1857] vol. 5; 362.
- subdecorticatum** Bell, 1913. – Combination to be revised: “*Cardium*” *subdecorticatum* Bell, 1913. Cardiidae. Crag. RECORDS. ••1913 ZR: *Cardium subdecorticatum* Bell, 1913 sp. n. Suffolk Crag.
- subdecussata** Münster, 1840. – See under *subdecussatum* Orbigny, 1850.
- subdecussatum** Orbigny, 1850. – Combination to be revised: “*Cardium*” *subdecussatum* d’Orbigny, 1850. Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6235: *Cardiola subdecussata* Muenster, 1840. ••1922–32 Sherborn, p. 6235: *Cardium* (Muenster) *subdecussatum* d’Orbigny, 1850. – *Cardiola*.
- subdecussatum** Shuto, 1960. – *Clinocardium subdecussatum* Shuto, 1960. Cardiidae. Upper Miocene. RECORDS. ••1960. ZR: *Clinocardium subdecussatum* Shuto, 1960 sp. nov. Upper Miocene, Tsuma member Miyazaki Group, Japan. ••1973 Keen: *Clinocardium subdecussatum* Shuto, 1960. Upper Miocene. ••1977 Popov: *Clinocardium subdecussatum* Shuto, 1960.
- subdeforme** Falckenstein. 1911. – Combination to be revised: “*Cardium*” *subdeforme* Falckenstein. 1911. Cardiidae. Senon. RECORDS. ••1911 ZR: *Cardium*

## subdeltoideum – subelongatum

- subdeforme* Falckenstein. 1911 sp. n. Senon Germany.
- subdeltoideum** Orbigny, 1850. – Combination to be revised: “*Cardium*” *subdeltoideum* d’Orbigny, 1850. *Cardiidae*. Fossil. RECORDS. ••1922-32. Sherborn, p. 6235: *Cardium subdeltoideum* d’Orbigny, 1850.
- subdentatum** Deshayes, 1838. [Figs. Part 1 p. 181]. – Changed combination: *Pseudocatlillus subdentatum* (Deshayes, 1838). *Lymnocardiidae*. Fossil. RECORDS. ••1877 Grimm: *Cardium subdentatum* Deshayes. ••1922-32 Sherborn, p. 6236: *Cardium subdentatum* Deshayes, 1838. ••1967 Ebersin: *Pseudocatlillus subdentatus* (Desh.).
- subdepressa** Andrusov, 1964. – *Didacna subdepressa* Andrusov, 1964. *Lymnocardiidae*. Tertiary. RECORDS. ••1964 ZR: *Didacna subdepressa* Andrusov, 1964 sp. nov. Tertiary, USSR.
- subdeserta** (aff.) Loer. – Changed combination: *Pontalmyra* aff. *subdeserta* (Loer.). *Lymnocardiidae*. Fossil. RECORDS. ••1987 Taktakishvili: *Didacna subdeserta* Loer. – *Pontalmyra* aff. *subdeserta* (Loer.).
- subdichotomum** d’Orbigny, 1850. – *Cardium subdichotomum* d’Orbigny, 1850. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 6237: *Cardium subdichotomum* d’Orbigny, 1850
- subdinnense** d’Orbigny, 1844. – *Cardium subdinnense* d’Orbigny, 1844. *Cardiidae*. Cretaceous. RECORDS. ••1922-32 Sherborn, p. 6237: *Cardium subdinnense* d’Orbigny, 1844 [Cretaceous].
- subdiprosopum** (nomen nudum) Stevanovic, 1982. – *Laevicardium subdiprosopum* Stevanovic, 1982. *Cardiidae*. Miocene. RECORDS. ••1956 ZR: *Laevicardium subdiprosopum* Stevanovic, 1956 sp. nov. nom. nud. Miocene. Yugoslavia.
- subdiprosopum** Stevanovic, 1982. – New combination: *Lymnocardium subdiprosopum* Stevanovic, 1982. *Lymnocardiidae*. Upper Miocene. RECORDS. ••1982 ZR: *Lymnocardium subdiprosopum* Stevanovic, 1982 sp. nov. Yugoslavia. Ref. to Stevanovic, p. 123.
- subdiscors** Orbigny 1850. – Changed combination: *Discors subdiscors* (Orbigny, 1850). *Cardiidae*. Eocene. GENOTYPE. Dall (1902) stated that *Cardium subdiscors* d’Orbigny is type of subgenus *Discors* Deshayes, 1858. Subsequently raised to generic level by auct. TYPE LOCALITY. Paris Basin. RECORDS. ••1850 Orbigny: *Cardium subdiscors*. ••1886 Cossmann: *Divaricardium subdiscors* (d’Orbigny). ••1902 Dall: *Cardium subdiscors* d’Orbigny. ••1922-32 Sherborn, p. 6237: *Cardium subdiscors* d’Orbigny, 1850. ••1969 Nordsieck: *Discors subdiscors* (d’Orbigny). ••1977 Popov: *Discors subdiscors* (Orbigny, 1850). Type of *Discors* Deshayes, 1858. ••1995 Le Renard *et al.*: *Nemocardium* (*Discors*) *subdiscors* [*Cardium subdiscors*] d’Orbigny, 1850. ••1995 Pacaud & Renard: *Nemocardium* (*Discors*) *subdiscors*. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Discors subdiscors* d’Orbigny. Ypretien. France (Aisne, Oise), B52855 to –58, B68916, B72596.
- subdissimile** Orbigny, 1850. – Combination to be revised: “*Cardium*” *subdissimile* d’Orbigny, 1850. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 6237: *Cardium subdissimile* d’Orbigny, 1850.
- subdubium** Orbigny, 1850. – Combination to be revised: “*Cardium*” *subdubium* d’Orbigny, 1850. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 6238: *Cardium subdubium* d’Orbigny, 1850.
- subdentulum** Orbigny, 1852. – Synonym of *Pteradacna subdentulum* d’Orbigny, 1852. *Lymnocardiidae*. Fossil. RECORDS. ••1969 Moore *et al.*: *Pteradacna edentulum* (Deshayes, 1838) syn. of *Cardium subdentulum* d’Orbigny, 1852. ••1980 Ruhoff: *Cardium subdentulum* Orbigny, 1852; [1850–1852] vol. 3: 120.
- \*subedule**. – Homonymy to be noticed. *Cardium subedule* from 2 sources: Orbigny, 1852. – Raulin, 1897.
- subedule** Orbigny, 1852. – Synonym of *Cerastoderma edule* (Linnaeus, 1758). >> Regarding *C. subedule*: *Cardiidae*. Fossil. RECORDS. ••1902 Dollfus & Dautzenberg, p. 324: *Cardium subedule* d’Orbigny, 1852. Syn. of *Cardium* (*Cerastoderma*) *edule* Linné, 1758.
- subedule** Raulin, 1897. – Synonym of *Cerastoderma edule* (Linnaeus, 1758). >> Regarding *C. subedule*: *Cardiidae*. Fossil. RECORDS. ••1902 Dollfus & Dautzenberg, p. 325: *Cardium subedule* Raulin, 1897. Syn. of *Cardium* (*Cerastoderma*) *edule* Linné, 1758.
- subelangatum** “Reeve” of Valenciennes. – Err. pro *subelongatum*. Misidentification: *Mexicardia procerum* (Sowerby, 1833). *Cardiidae*. Recent. REMARKS. Reeve has not described a species named *Cardium subelangatum*. RECORDS. ••1846 Valenciennes, pl. 17, fig. 2: *Cardium subelangatum* “Reeve”. ••1886 Dall: *Cardium subelongatum* Valenciennes, 1846 not of Sowerby, 1840. ••1947 Hertlein & Strong: *Cardium subelangatum* “Reeve” = *Cardium* (*Mexicardia*) *procerum* Sowerby.
- subelegans** Orbigny, 1852. – Combination to be revised: “*Cardium*” *subelegans* Orbigny, 1852. *Cardiidae*. Recent. RECORDS. ••1980 Ruhoff: *Cardium subelegans* Orbigny, 1852; [1850–1852] vol. 3: 21.
- subellipticum** Alekseev, 1963. – Combination to be revised: “*Cardium*” *subellipticum* Alekseev, 1963. *Cardiacea*. Palaeogene. RECORDS. ••1963 ZR: *Cardium subellipticum* Alekseev, 1963 sp. nov. Palaeogene, Pre-Arals, Russia.
- \*subelongatum**. – Homonymy to be noticed. *Cardium subelongatum* from 2 sources: Sowerby, 1840. – Valenciennes, 1846.
- subelongatum** Sowerby, 1840. [Figs. Part 1 p. 119, 134, 172. Part 3 p. 867]. – Synonym of *Acrosterigma magnum* (Linné, 1758). OTHER JUDGEMENTS: *Trachycardium leucostoma* (Born, 1780). >> Regarding *C. subelongatum*: *Cardiidae*. Recent. TYPE MATERIAL. ••1999 Vidal: the types of Sowerby’s taxon are located in BMNH. There are two uncatalogued specimens from Cuming collection from the type locality (St. Thomas Island, West Indies) which could be considered as syntypes. TYPE LOCALITY. ad Sancta Thomae insulam [St. Thomas, the West Indies] (Sowerby 1840). RECORDS. ••1840 Sowerby, 182<sup>nd</sup> part, fig. 61: *Cardium subelongatum*. ••1840 Sowerby, Proc. Z.S. London p. 108: *Cardium subelongatum*. ••1840 Sowerby, catalogue p. 4, No. 55: *Cardium subelongatum*, Sow. ••1840 Sowerby, corrected list, p. 8: *Cardium subelongatum* (Sowerby, No. 55). ••1858 Adams & Adams, p. 455: *Cardium* (*Trachycardium*) *subelongatum* Sow. ••1863 Swift: *Cardium subelongatum* Sow. ••1864 Krebs: *Cardium subelongatum* Sow.

*subelongatum* – *subgracile*

••1869 Römer: *Cardium subelongatum* Sowerby.  
 ••1884 Grasset: *Cardium subelongatum*. Sow. ••1890 Paetel: *Cardium subelongatum* Sow. ••1902 Dall: *Cardium (Trachycardium) subelongatum* Sowerby, 1840. ••1902 Dall: *Cardium subelongatum* Sowerby, 1840 not *Cardium angulatum* Lamarck of authors. ••1922-32 Sherborn, p. 6238: *Cardium subelongatum* Sowerby, 1841. ••1939 McLean: *Cardium subelongatum* Sowerby, 1840 = *Trachycardium leucostoma* (Born, 1780). ••1944 Clench & Smith in Abbott 1958: *subelongatum* Sowerby, 1840 junior synonym of *magnum* Linné 1758. ••1946 Abrard: *Cardium subelongatum* Sow. ••1951 McLean: *Cardium subelongatum* Sowerby = *Cardium (Trachycardium) magnum* Linnaeus. ••1977 Fischer-Piette: *Cardium subelongatum* Sowerby = *Trachycardium leucostoma* (Born, 1780). ••1977 Fischer-Piette: *Cardium subelongatum* in Reeve 1844 = *Laevicardium procerum* Sowerby. ••1999 Vidal: *Cardium subelongatum* Sowerby, 1840: fig. 61; 1841: 108 = *Acrosterigma magnum* (Linné, 1758). – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: The deep-ploughed interstices between the ribs are very characteristic in this species (Reeve, 1944). OF COLLECTIONS. ••ZMUC 1 specimen. ANTILLES DESCRIPTIONS. ••1844 Reeve: shell rather elongately ovate, oblique, radiately ribbed, about 32-33 sharply angled ribs, interstices between them deeply excavated, the extreme posterior ribs armed with small tubercles, the middle ribs smooth, the anterior crenated; whitish or yellowish, stained and spotted with red. ••1999 Vidal: shells medium (very rarely large), almost perfectly ellipsoidal and equilateral, exceptionally with truncation of the posterior part. Ribs show pronounced backwards curvature, but posterior part very rarely expanded. Adult shells always elongated; width also relatively constant. Lunular area very small. Glossy exterior surface brightly coloured with orange, white, yellow, pink and purple. Interior often colored only in umbonal area and on ventral margin. Hinge typical of genus. No sterigma. Ribs in median and anterior parts are higher than usual and interstices wider; a gash very frequently occurs along posterior 8<sup>th</sup> or 9<sup>th</sup> rib of MPQ in right valve. Interstices regularly notched by transverse, elongated, sometimes crescent-shaped notches. DIMENSIONS. ••1840 Sowerby: long. 1.85 poll. (length 47 mm), lat. 1.40 poll. (width 36 mm), alt. 2.35 poll (height 60 mm). ••1999 Vidal: the largest specimen (73 x 55 x 44 mm) is probably the one figured by Reeve (1844, fig. 57). REMARKS. ••1840 Sowerby: *C. subelongatum* resembles some of the figures to which Lamarck refers for his *C. marmoreum*, and which Bruguière quotes for *C. elongatum*. It is much longer and smoother than the former, and does not agree with the description. The true *C. elongatum* is described by Bruguière, from a specimen of M. de Lamarck, as an elongated, ventricose shell of 39-40 ribs, and attaining a large size. It seems to have been a matter of dispute between the two conchologists, whether the above-named species were identical. We are unable to meet with a shell agreeing with Bruguière's description, until the arrival of Mr. Cuming with fine specimens sufficiently characteristic to set the matter at rest. The present species has fewer ribs, wider apart, and less

ventricose than in *C. elongatum* Brug. DISTRIBUTION. ••1844 Reeve: Isl. of St. Thomas, West Indies. ••1884 Grasset: Guadeloupe. ••1999 Vidal: West Indies, Jamaica (authors). South Florida and Bahamas, south through the West Indies and Gulf of Mexico to Brazil (Abrolhos Archipelago).

***subelongatum*** Valenciennes, 1846. – Identical with *Trachycardium procerum* (Sowerby). >> Regarding *Cardium subelongatum*: Cardiidæ. Recent RECORDS. ••1901 Dall: *Cardium subelongatum* Valenciennes, 1846 (not of Sowerby, 1840) = *Cardium procerum* Sowerby, 1833. ••1909 Lamy: *Cardium subelongatum* Valenciennes, 1846 (*non* Sowerby) = *Cardium procerum* Sowerby.

***submarginatum*** Orbigny, 1852. – Combination to be revised: "*Cardium*" *submarginatum* Orbigny, 1852. Cardiidæ. Fossil. RECORDS. ••1980 Ruhoff: *Cardium submarginatum* Orbigny, 1852; [1850-1852] vol. 3: 119.

***subesperanzae*** Eberzin, 1958. – New combination: *Lymnocardium subesperanzae* Eberzin, 1958. Lymnocardiidae. Pliocene. RECORDS. ••1958 ZR: *Limnocardium (Euxinocardium) subesperanzae* Eberzin, 1958 sp. nov. Kerchenski Peninsula. Crimea Pliocene of the Ponto-Caspian basin, Russia.

***subflavum*** Sowerby, 1840. – *Trachycardium subflavum* (Sowerby, 1840). Cardiidæ. Fossil. RECORDS. ••1977 Habe: *Trachycardium (Regozara) subflavum* (Sowerby, 1840).

\****subfragile***. – Homonymy to be noticed. *Cardium subfragile* from 3 sources: Orbigny, 1850. – Boettger, 1875. – Melville (?year).

***subfragile*** Boettger, 1875. – Synonym of *Discors kyetubokiensis* Eames, 1950. >> Regarding *Cardium subfragile*: Cardiidæ. Upper Eocene. TYPE LOCALITY. Nanggulansch, Java, Indonesia. RECORDS. ••1919 Martin: *Cardium subfragile* Boettger. ••1950 ZR: *Cardium subfragile* Boettger, 1875 *non* Orbigny, 1850 = *Discors kyetubokiensis* Eames, 1950 nom. nov.

***subfragile*** Melville. – Combination to be revised: "*Cardium*" *subfragile* Melville. Cardiidæ. ?Fossil. RECORDS. ••1886 Cossmann: *Cardium subfragile* Melville.

***subfragile*** Orbigny, 1850. – Changed combination: *Bucardium subfragile* (Orbigny, 1850). Cardiidæ. Eocene. RECORDS. ••1922-32 Sherborn, p. 6243: *Cardium subfragile* d'Orbigny, 1850. ••1977 Popov: *Bucardium (Vepricardium) subfragile* (Orbigny). ••1995 Le Renard *et al.*: *Cardium (Bucardium) subfragile* d'Orbigny, 1850 (= *fragile*) [Authorship needed. There are a number of *Cardium fragile*]. ••1995 Pacaud & Renard: *Cardium (Bucardium) subfragile*.

***subfraterculus*** Dufour, 1881. – *Nemocardium subfraterculus* (Dufour, 1881). Cardiidæ. Fossil. RECORDS. ••1970 Glibert & Poel: *Nemocardium* (s.s.) *subfraterculus* (Dufour, 1881).

***subfutile*** Celidje, 1953. – New combination: *Lymnocardium subfutile* Celidje, 1953. Lymnocardiidae. Fossil. RECORDS. ••1953 Celidje, p. 157: *Limnocardium (Tauricardium) subfutile* nov. sp.

***subgracile*** Orbigny, 1850. – Combination to be revised: "*Cardium*" *subgracile* d'Orbigny, 1850. ?Cardiidæ. Fossil. RECORDS. ••1922-32 Sherborn, p. 6245: *Cardium subgracile* d'Orbigny, 1850.

- subgranosum** (variety). >> Regarding *Cardium* var. *subgranosum*: I have not been able to trace a reference to this taxon. Cardiiidae. Recent. OF COLLECTIONS. •ZMUC: H.C. [H. Cuming] No. 117 Philippines. *Cardium* var. *subgranosum*. It could be a catalogue name.
- subgranulatum** Orbigny, 1850. – Combination to be revised: “*Cardium*” *subgranulatum* d’Orbigny, 1850. ?Cardiiidae. Fossil. RECORDS. •1922-1932 Sherborn, p. 6246. Sherborn: *Cardium subgranulatum* d’Orbigny, 1850.
- subgratum** Dufour, 1881. – *Loxocardium subgratum* (Dufour, 1881). Cardiiidae. Fossil. RECORDS. •1970 Glibert & Poel, p. 50: *Loxocardium subgratum* (Dufour, 1881).
- subguttiferum** Archiac, 1854. – Combination to be revised: “*Cardium*” *subguttiferum* Archiac, 1854. ?Cardiiidae. Fossil. RECORDS. •1980 Ruhoff: *Cardium subguttiferum* Archiac, 1854; vol. 11: 211, pl. 3, figs. 3 a,b.
- subguttula** Eberzin, 1958. – New combination: *Lymnocardium subguttula* Eberzin, 1958. Lymnocardiidae. Pliocene. RECORDS. •1958 ZR: *Limnocardium* (*Egericardium*) *subguttula* Eberzin, 1958 sp. nov. Esheri, Guriya region. Pliocene of the Ponto Caspian basin, Russia.
- subhians** d’Archiac, 1850. *Nomen nudum*. Not available. RECORDS. •1922-32 Sherborn, p. 6246: *Cardium subhians* d’Archiac, 1850 [n. n].
- subhians** Fischer, 1869. – Combination to be revised: “*Cardium*” *subhians* Fischer, 1869. Cardiiidae. Miocene. RECORDS. •1877 Locard: *Cardium subhians* Fischer, 1869. •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Cardium subhians* Fischer. Turkey, B32955, B32956, B32978.
- \***subhillanum**. – Homonymy to be noticed. *Cardium subhillanum* from 3 sources: Münster, 1835. – Leymerie, 1842. – d’Orbigny (?year).
- subhillanum** d’Orbigny. – Combination to be revised: “*Cardium*” *subhillanum* d’Orbigny. Cardiiidae. Cretaceous. RECORDS. •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Cardium subhillanum* d’Orbigny. Cretaceous. Neocomien. France (Yonne), S060043.
- subhillanum** Leymerie, 1842. – Changed combination: *Nemocardium subhillanum* (Leymerie, 1842). Cardiiidae. Cretaceous. RECORDS. •1876 Meek: *Cardium subhillanum* Leymerie. •1922-32 Sherborn, p. 6246: *Cardium subhillanum* de Leymerie, 1841 [n.n.]. •1922-32 Sherborn, p. 6246: *Cardium subhillanum* de Leymerie, 1842. •1965 ZR: *Cardium subhillanum* described and figd. U. Barremian, Keldzke, Tuarkir, Turkmenia [Ref. Purliev 1965]. •1986 Scott: *Nemocardium subhillanum* (Leymerie, 1842).
- subhillanum** Münster, 1835. – Combination to be revised: “*Cardium*” *subhillanum* Münster, 1835. ?Cardiiidae. Fossil. RECORDS. •1922-32 Sherborn, p. 6246: *Cardium subhillanum* Muenster, 1835.
- subhispidum** Hilber, 1882. – Changed combination: *Parvicardium subhispidum* (Hilber, 1882). Cardiiidae. Fossil. RECORDS. •1913 ZR: *Cardium subhispidum* = *hispidum* var. Tertiary, Kertsch [Ref. Schwetz 1913b]. •1977 Popov: *Parvicardium subhispidum* (Hilber, 1882).
- subincerta** Andrussov. – *Didacna subincerta* Andrussov. Lymnocardiidae. Tertiary. RECORDS. •1953 Celidje: *Didacna subincerta* Andrussov. •1964 ZR: *Didacna subincerta* Andrussov, 1964 sp. nov. sic Tertiary, USSR
- subincertum** Orbigny, 1850. – Combination to be revised: “*Cardium*” *subincertum* d’Orbigny, 1850. ?Cardiiidae. Silurian-Devonian. RECORDS. •1922-32 Sherborn, p. 6247: *Cardium subincertum* d’Orbigny, 1850.
- subintermedia** Andrussov, 1924. – *Didacna subintermedia* Andrussov, 1924. Lymnocardiidae. Pliocene. RECORDS. •1924 ZR: *Didacna subintermedia* Andrussov, 1924 sp. n. Pleistocene. •1963 ZR: *Didacna subintermedia* Andrussov, 1963 sp. nov. sic Apsheron layers, Pliocene, Russia.
- subintermedium** Orbigny, 1850. – Combination to be revised: “*Cardium*” *subintermedium* d’Orbigny, 1850. ?Cardiiidae. Fossil. RECORDS. •1922-32 Sherborn, p. 6248: *Cardium subintermedium* d’Orbigny, 1850.
- subkujalnicensis** Krestovnikov, 1929. – *Prosodacna subkujalnicensis* Krestovnikov, 1929. Lymnocardiidae. Pliocene. RECORDS. •1929 ZR: *Prosodacna subkujalnicensis* Krestovnikov, 1929 sp. n. Pliocene S. Russia.
- sublaeve** Orbigny, 1850. – *Unicardium sublaeve* d’Orbigny, 1850. ?Cardiiidae. Fossil. RECORDS. •1922-32 Sherborn: *Corbis sublaeve* Keys. •1922-32 Sherborn, p. 6250: *Unicardium* (Keys.) *sublaeve* d’Orbigny, 1850. – *Corbis sublaeve*.
- sublaevigata** Andrussov, 1924. – *Monodacna sublaevigata* Andrussov, 1924. Lymnocardiidae. Pleistocene. RECORDS. •1924 ZR: *Monodacna sublaevigata* Andrussov, 1924 sp. n. Pleistocene. •1963 ZR: *Monodacna sublaevigata* Andrussov, 1963 sp. nov. Pliocene, Russia.
- sublaevigatum**. – Combination to be revised: “*Cardium*” *sublaevigatum*. Cardiiidae. Miocene. •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium sublaevigatum*. Gironde, B27482.
- sublamellosum** Orbigny, 1850. – Combination to be revised: “*Cardium*” *sublamellosum* d’Orbigny, 1850. Cardiiidae. Lias–Jurassic. RECORDS. •1922-32 Sherborn, p. 6250: *Cardium sublamellosum* d’Orbigny, 1850. •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium sublamellosum* d’Orbigny. Rauracien. France (Yonne), S04050.
- sublatisulcatum** Orbigny, 1852. – Combination to be revised: “*Cardium*” *sublatisulcatum* Orbigny, 1852. Cardiiidae. Fossil. RECORDS. •1980 Ruhoff: *Cardium sublatisulcatum* Orbigny, 1852; [1850–1852] vol. 3: 118.
- sublatum** Orbigny, 1850. – Combination to be revised: “*Cardium*” *sublatum* d’Orbigny, 1850. ?Cardiiidae. Fossil. RECORDS. •1922-32 Sherborn, p. 6251: *Cardium sublatum* d’Orbigny, 1850.
- sublebedinzevi** (variety). – See *lebedinzevi* var. *sublebedinzevi* Davidachvili, 1933.
- subleve** Tscheltzov, 1965. – *Avicardium subleve* Tscheltzov, 1965. Cardicea. Pliocene. RECORDS. •1965



**sublima – suboxypleura**

- ZR: *Avicardium subleve* Tscheltzov, 1965 sp. nov. Pliocene, Turkmenia, USSR.
- sublima** Orbigny, 1850. – Changed combination: *Loxocardium sublima* (Orbigny, 1850). Cardiidae. Eocene. RECORDS. ••1886 Cossmann: *Cardium sublima* d'Orbigny, nom. mut. ••1922-32 Sherborn, p. 6251: *Cardium sublima* d'Orbigny, 1850. ••1977 Popov: *Loxocardium sublima* (Orbigny, 1850). ••1995 Le Renard *et al.*: *Loxocardium sublima* [*Cardium sublima*] d'Orbigny, 1850 (= *lima*). ••1995 Pacaud & Renard: *Loxocardium sublima*. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Loxocardium sublimum* d'Orbigny. Lutetien. France (Bassin de Paris), B52740 to –51, B69103, B70552 to –54.
- sublimoides** Cossmann, 1923. – Changed combination: *Loxocardium sublimoides*. Cardiidae. Fossil. RECORDS. ••1995 Le Renard *et al.*: *Loxocardium sublimoides* [*Cardium sublimoides*] Cossmann, 1923. ••1995 Pacaud & Renard: *Loxocardium sublimoides*.
- sublineatum** Conrad, 1841. – Synonym of *Laevicardium pristis* (Valenciennes, 1827). >> Regarding *Cardium sublineatum*: Cardiidae. Miocene. RECORDS. ••1922-32 Sherborn, p. 6251: *Cardium sublineatum* Conrad, 1841. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium sublineatum* Conrad. USA (Wilmington), B33363. (Syn. of *Laevicardium pristis*).
- sublingulata** Chen, 1976. – *Protocardia sublingulata* Chen, 1976. Cardiidae. Mesozoic fossil. RECORDS. ••1976 Ma *et al.* p. 258: *Protocardia sublingulata* Chen, 1976.
- submaculosum** Ludbrook, 1954. – *Nomen nudum*. RECORDS. ••1955 ZR: *Vasticardium (Vasticardium) submaculosum* Ludbrook, 1954 sp. nov. nom. nud. Pliocene, Australia.
- submagna** Martinson, 1959. – *Pseudocardinia submagna* Martinson, 1959. Cardiacea. Fossil. RECORDS. ••1959 ZR: *Pseudocardinia submagna* Martinson, 1959 sp. nov. Tyan-Shan, Atbaya region, Fergana, fossil.
- submartini** Chen, 1976. – Combination to be revised: "*Cardium*" *submartini* Chen, 1976. Cardiidae. Upper Triassic. TYPE LOCALITY. Yunnan, China. RECORDS. ••1976 Ma *et al.* p. 256, pl. 23, figs. 1-4: *Cardium submartini* Chen, 1976 sp. nov.
- submedius** Popov & Neveeskaya, 2000. – *Pseudocatillus submedius* Popov & Neveeskaya, 2000. Cardiidae. Late Miocene. RECORDS. ••2000 Popov & Neveeskaya, downloaded abstract: *Pseudocatillus submedius* n. sp.
- subminutum** Orbigny, 1850. – Combination to be revised: "*Cardium*" *subminutum* d'Orbigny, 1850. ?Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6254: *Cardium subminutum* d'Orbigny, 1850.
- Submonodacna** Livaltal, 1931 (genus). – *Nomen nudum*. Tertiary, Lymnocardiidae. Fossil. RECORDS. ••1964 Davidashvili & Kitovani: *Submonodacna* Livaltal, 1931. Genotype: *Didacna pleistopleura* Dav. ••1980 Vokes: *Submonodacna* Livaltal, 1931, nom. nud.
- submoquicum** Eberzin, 1958. – New combination: *Lymnocardium submoquicum* Eberzin, 1958. Lymnocardiidae. Pliocene. RECORDS. ••1958 ZR: *Limnocardium (Moquicardium) submoquicum* Eberzin,
- 1958 sp. nov. Gudauta, Abkhazia, east coast of Black Sea. Pliocene of the Ponto Caspian basin, Russia.
- submulticostatum** Orbigny, 1850. – Changed combination: *Tutcheria submulticostatum* (d'Orbigny, 1850). Cardiacea. Fossil. RECORDS. ••1922-32 Sherborn, p. 6254: *Cardium submulticostatum* d'Orbigny, 1850. ••1946 ZR: *Tutcheria submulticostatum* (Orb.) type of *Tutcheria* Cox, 1946 gen. nov. Cardiidae.
- submuticum** (variety). – See under *mucronatum* var. *submuticum* Coen, 1941.
- suboblongum** Orbigny, 1852. – Combination to be revised: "*Cardium*" *suboblongum* Orbigny, 1852. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium suboblongum* Orbigny, 1852; [1850–1852] vol. 3: 119.
- subodenae** Gillet, 1943. – New combination: *Lymnocardium subodenae* (Gillet, 1943). Lymnocardiidae. Fossil. RECORDS. ••1987 Anaya: *Limnocardium subodenae* sic Gillet, 1943.
- subodessae** Sinzov, 1877. – New combination: *Lymnocardium subodessae* (Sinzov, 1877). Lymnocardiidae. Fossil. RECORDS. ••1958 ZR: *Limnocardium (Euxinocardium) subodessae* Pliocene [Ref. Eberzin 1958]. ••1987 Anaya: *Limnocardium (Euxinocardium)* the group *subodessae* (Sinzov, 1877).
- subodessae muntieniae** Papaianopol, 1974 (subspecies). – New combination: *Lymnocardium subodessae muntieniae* (Papaianopol, 1974). Lymnocardiidae. Pliocene. RECORDS. ••1974 ZR: *Limnocardium (Euxinocardium) subodessae muntieniae* Papaianopol, 1974 subsp. nov. Romania. Prahova District, Dealul Belciu Mare. Pliocene. Ref. to Papaianopol, p. 77.
- subodessae prahovensis** Papaianopol, 1974 (subspecies). – New combination: *Lymnocardium subodessae prahovensis* (Papaianopol, 1974). Lymnocardiidae. Pliocene. RECORDS. ••1974 ZR: *Limnocardium (Euxinocardium) subodessae prahovensis* Papaianopol, 1974 subsp. nov. Romania. Prahova District, Dealul Belciu Mare. Pliocene. Ref. to Papaianopol, p. 80.
- subodessae ursina** Ebersin 1947 (variety). – Upgraded. New combination: *Lymnocardium subodessae ursina* (Ebersin, 1947). Lymnocardiidae. Pliocene. REMARKS. Raised to subspecies by Papaianopol 1982; from *Limnocardium (Euxinocardium) subodessae* var. *ursina* RECORDS. ••1958 ZR: *Limnocardium (Euxinocardium) subodessae* var. *ursina* Eberzin, 1958 nov. Northern Caucasus, Stavropol. Pliocene of the Ponto-Caspian basin, Russia. ••1982 Papaianopol: *Limnocardium (Euxinocardium) subodessae ursina* Ebersin, 1947. ••1987 Taktakishvili: *Limnocardium (Euxinocardium) subodessae* (Sinzov) var. *ursinae* Ebers.
- suborbicula** (variety). – See under *tuberculatum* var. *suborbicula* Marsh.
- suborbicularis** Fan, 1963. – *Protocardia suborbicularis* Fan, 1963. Cardiidae. Lias. RECORDS. ••1963 ZR: *Protocardia suborbicularis* Fan, 1963 sp. nov. Xiaoshui, Guangdong, China, Lias.
- subovale** Broderip & Sowerby. Cardiidae. Fossil. RECORDS. ••1850 Sowerby, p. 52: *Cardium subovale* Brod. and Sow. [compared with *Cardium haitense* n. sp.].
- suboxypleura** Gab. – Changed combination: *Pontalmyra suboxypleura* (Gab.). Lymnocardiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Pontalmyra suboxypleura* (Gab.).

## subparallellella – subretusum

- subparallellella** Bogachev & Gadzhiev, 1968. – *Didacna subparallellella* Bogachev & Gadzhiev, 1968. Lymnocardiiidae. Quaternary. RECORDS. ••1968 ZR: *Didacna subparallellella* sp. nov. p. 37, figs. Khazarian, Quaternary, Azerbaijan, USSR.
- subparvocostata** (subspecies). – See under *orbicularis subparvocostata* Baldi, 1963.
- subpassyi** Dufour, 1881. – *Parvicardium subpassyi* (Dufour, 1881). Cardiididae. Fossil. RECORDS. ••1970 Glibert & Poel, p. 48: *Parvicardium subpassyi* (Dufour, 1881).
- subpaucicostata** (cf.) R. Hörn. – *Didacna* cf. *subpaucicostata* R. Hörn. Lymnocardiiidae. Fossil. RECORDS. ••1953 Celidje: *Didacna* cf. *subpaucicostata* R. Hörn.
- subpetersi** (variety and subspecies). – See under *subsquamosum subpetersi* Eberzin, 1958.
- subplanicostatum** Orbigny, 1852. – Combination to be revised: “*Cardium*” *subplanicostatum* Orbigny, 1852. Cardiacea. Fossil. RECORDS. ••1980 Ruhoff: *Cardium subplanicostatum* Orbigny, 1852; [1850–1852] vol. 3: 119.
- subplicatofittoni** Senes, 1955. – Combination to be revised: “*Cardium*” *subplicatofittoni* Senes, 1955. Lymnocardiiidae. Miocene. RECORDS. ••1955 ZR: *Cardium* (*Limnocardium*) *subplicatofittoni* Senes, 1955 sp. nov. Miocene, Czechoslovakia.
- subpolemonis** Ebersin, 1967. – *Pseudocatillus subpolemonis* Ebersin, 1967. Lymnocardiiidae. Pliocene. RECORDS. ••1967 Ebersin: *Pseudocatillus subpolemonis* sp. n. ••1967 ZR: *Pseudocatillus subpolemonis* Ebersin, 1967 sp. nov. Pliocene, USSR. ••1982 Papaianopol: *Pseudocatillus subpolemonis* Ebersin, 1967. ••1987 ZR: *Pseudocatillus subpolemonis* Ebersin, 1967. Ref. to Papaianopol.
- subporulosum** Orbigny, 1850. – Changed combination: *Orthocardium subporulosum* (Orbigny, 1850). Cardiididae. Eocene. RECORDS. ••1886 Cossmann: *Cardium subporulosum* d’Orbigny. ••1922–32 Sherborn, p. 6261: *Cardium subporulosum* d’Orbigny, 1850. ••1977 Popov: *Orthocardium subporulosum* (Orbigny, 1850). ••1995 Pacaud & Renard: *Cardium* (*Orthocardium*) *subporulosum*. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Cardium*, *Trachycardium*, *subporulosum* d’Orbigny. Ypresien, France (Oise), B52657 to –67. B68876, B68890, B68972, B68999, 69038.
- subporulosum** (subspecies). – See under *porulosum subporulosum* Orbigny 1850.
- subpraemoquicum** (variety). – See under *praemoquicum* var. *subpraemoquicum* Chelidize, 1957.
- subproductum** Péron, 1891. – Combination to be revised: “*Cardium*” *subproductum* Péron, 1891. Cardiididae. Cretaceous. RECORDS. ••1891 ZR: *Cardium subproductum* Cretaceous of Tunis [Ref. Peron 1891]. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium subproductum* Thomas Péron. Turonien. Tunesia, R51451.
- subprotracta** Popov, 1983. – *Didacna subprotracta* Popov, 1983. Lymnocardiiidae. Pleistocene. TYPE LOCALITY. Russian SFSR. RECORDS. ••1983 Popov, p. 167, fig.: *Didacna subprotracta* sp. nov.
- subpunctatum** Münster, 1835. – Combination to be revised: “*Cardium*” *subpunctatum* Muenster, 1835. ?Cardiididae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6262: *Cardium subpunctatum* Muenster, 1835.
- subpygmaeum** d’Orbigny, 1850. – Combination to be revised: “*Cardium*” *subpygmaeum* d’Orbigny, 1850. ?Cardiididae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6263: *Cardium subpygmaeum* d’Orbigny, 1850.
- subpyramidata** Pravoslavleff, 1913. – *Didacna subpyramidata* Pravoslavleff, 1913. Lymnocardiiidae. Fossil. RECORDS. ••1930 ZR: *Didacna subpyramidata* Pravoslavleff, 1913 sic sp. n.
- subquadrata** (mode and subspecies). – See under *subquadratum* Evans & Shumard, 1857 and *exiguum subquadrata* Jeffreys, 1863.
- subquadrata** Sibiryakova, 1963. – *Protocardia subquadrata* Sibiryakova, 1963. Cardiididae. Jurassic. RECORDS. ••1963 ZR: *Protocardia subquadrata* Sibiryakova, 1963 sp. nov. Jurassic, Bol’shoi Balkhans.
- subquadratum** (variety). – See under *lamarckii tenue subquadratum* Coen 1937. – *exiguum subquadratum* Jeffreys.
- subquadratum** Evans & Shumard, 1857. – Changed combination: *Protocardia subquadrata* (Evans & Shumard, 1857). Cardiididae. Cretaceous. REMARKS. Meek (1876) stated that *Cardium subquadratum* Evans & Shumard is type of (a) *Leptocardia* Meek, 1876. Speden (1970) stated that adductor and pedal musculature of *P. subquadrata* is closely analogous to that of *Cardium edule* Linnaeus and *Corculum hemicardium* (Linnaeus). RECORDS. ••1860 Meek & Hayden: *Cardium subquadratum* Evans & Shumard. ••1876 Meek: *Protocardia* (*Leptocardia*) *subquadrata* Evans & Shumard, 1857. ••1887 Fischer: *Pachycardium subquadrata* Evans et Shumard (in section *Leptocardia* Meek, 1876). ••1902 Dall: *Cardium subquadratum* Evans and Shumard. Type of section *Leptocardia* Meek, 1876. ••1970 Speden: *Protocardia subquadrata* (Evans & Shumard, 1857, p. 39). ••1980 Ruhoff: *Cardium subquadratum* Evans & Shumard, 1857; vol. 1: 38. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Cardium subquadratum* [without author]. Cretaceous sup. USA (Dakota), B20348.
- subradiatum** d’Orbigny, 1850. – Combination to be revised: “*Cardium*” *subradiatum* d’Orbigny, 1850. ?Cardiididae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6264: *Cardium subradiatum* d’Orbigny, 1850.
- subregularare** d’Orbigny, 1850. – *Unicardium subregularare* d’Orbigny, 1850. ?Cardiididae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6265: *Unicardium subregularare* d’Orbigny, 1850.
- subretusa** (mode). – See under *subretusum* Sowerby, 1840.
- subretusum** Sowerby, 1834. [Figs. Part 1 p. 110, 142. Part 3 p. 912]. – Changed combination: *Lunulicardia subretusa* (Linné, 1758). OTHER JUDGEMENTS: *Lunulicardia auricula* (Niebhur in Forsskaal, 1775). >> Regarding *Cardium subretusum*: Cardiididae. Recent. TYPE LOCALITY. Unknown (Sowerby 1840; Reeve 1845). TYPE REPOSITORY. BMNH; *Cardium subretusum* Sowerby. 3 syntypes. 197129, Neg. No. 54612/A–C. RECORDS. ••1834 Sowerby, 50<sup>th</sup> part, fig. 24: *Cardium subretusum* nobis. ••1840 Sowerby, Proc. Z.S. London

**subretusum – subrugosum**

p. 110: *Cardium subretusum*. ••1840 Sowerby, catalogue p. 7, No. 91: *Cardium subretusum*, Sow. ••1840 Sowerby, corrected list, p. 8: *Cardium subretusum*, (Sowerby No. 91). ••1845 Reeve, sp. 100: *Cardium subretusum* Sowerby, 1840. ••1858 Adams & Adams, p. 459: *Hemicardia (Lunulicardia) subretusa*, Sow. ••1868 ZR: *Cardium subretusum* (Sow., Reeve) is only a variety of *retusum* (L.), but *auricula* (Forsk.) is a distinct species [Ref. Römer 1868]. ••1869 Martens: *Cardium subretusum* Sow. (hardly to distinguish from *retusum* L.). ••1869 Römer: *C. subretusum* Sowerby, synonym of *Cardium retusum* L., hardly a variety. ••1870 McAndrew: *Hemicardia (Lunulicardia) subretusum* Sow. ••1886 Cooke: *Cardium subretusum* Sow. ••1884 Grasset: *Hemicardium subretusum*. Sow. ••1889 Martens: *Cardium (Hemicardium) subretusum* Sow. ••1890 Paetel: *Hemicardium subretusum* Sow. = *retusum* L. ••1898 Melvill & Standen: *Cardium (Lunulicardia) subretusum*. ••1903 Hidalgo: *Hemicardium subretusum* Sowerby, 1840; considered a variety of *Hemicardium retusum* Linné by authors. ••1906 Standen & Leicester: *Cardissa (Lunulicardia) subretusum*. ••1907 Hall & Standen: *Cardissa (Lunulicardia) subretusa* Sowerby. ••1907 ZR: *Cardium (Lunulicardia) subretusa* raised beach, Red Sea [Ref. Hall & Standen 1907]. ••1909 Lyngé: *Cardium subretusum* Sowerby, 1834 = *Lunulicardia retusum* (Linné, 1758). ••1909 Melvill: *Hemicardium (Lunulicardia) subretusum*, Sowb. ••1910 Hedley: *Opisocardium subretusum*. ••1918 ZR: *Opisocardium subretusum* [Ref. Hedley 1918b]. ••1922-32 Sherborn, p. 6265: *Cardium subretusum* Sowerby, 1841. ••1931 Thiele & Jaekel: *Cardium (Lunulicardia) subretusum* Sowerby. ••1950 Allan: *Hemicardium subretusum*. ••1952 Kuroda & Habe: *Corculum subretusum* (Sowerby). ••1960 Kuroda: *Hemicardia (Lunulicardia) subretusa* (Sowerby). ••1962 Kira: *Fragum subretusum*. ••1964 Spry: *Lunulicardia (Hemicardium) subretusa* (Sowerby). ••1977 Popov: *Corculum (Lunulicardia) subretusa* (Linné, 1758). ••1977 Fischer-Piette: *Cardium subretusum* Sowerby = *Corculum retusum* Linné. ••1977 Wilson & Stevenson: *Cardium subretusum* Sowerby, 1834; junior synonym of *Fragum (Lunulicardium) retusum* (Linnaeus, 1758). ••1990 Abbott & Dance: *Lunulicardia subretusum*. ••1991 Matsukuma, Okutani & Habe: *Lunulicardia subretusa* (Sowerby, 1843 sic) = 1834. ••1992 Oliver: *Cardium subretusum* in MacAndrew (1870); Cooke (1886); Hall & Standen (1907) = *Cardium auricula* Niebuhr in Forsskaal, 1775. ••1999 Aungtonya *et al.*, PMBC-SP 19(2): 377: *Fragum subretusa* (Sowerby, 1841). ••2000 Hylleberg, p. 532: *Lunulicardia subretusum* (Sowerby, 1834). ••2000 Lutaenko, p. 372: *Lunulicardia subretusa* (Sowerby, 1841). ••2003 Hylleberg & Kilburn, p. 183: *Lunulicardia subretusum* (Sowerby, 1834). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: wet collection. CHARACTERS of diagnostic value: middle ribs noduled, interstices merely finely punctured. DESCRIPTIONS. ••1845 Reeve: Shell oblong–cordate, very much swollen, posteriorly concavely depressed; radiately flatly ribbed, middle ribs nodulous, interstices between all ribs very closely punctured; lunule slightly excavated, with a somewhat

obsolete callosity intruding; white within and without. DIMENSIONS. ••1840 Sowerby long. 0.90 poll. (length 23 mm), lat. 1.20 poll. (width 30 mm), alt. 1.30 poll (height 33 mm). REMARKS. ••1840 Sowerby: distinguished from the *Cardium retusum* by a more elongated form and smoother behind the angle, the cavity is not so deep, and the callosity is more strongly marked. ••1845 Reeve: chiefly distinguished from the *Cardium retusum* by the middle ribs being noduled, and the interstices between the whole being merely finely punctured. ••2000 Lutaenko: according to Fischer–Piette (1977), this species is a synonym of *Corculum (Lunulicardia) retusum* (L., 1767). ••1999: Higo *et al.* regarded it as a synonym of *Lunulicardia hemicardium* (L., 1758). ••1977 Habe, ••1993 Bernard *et al.* and ••1997 Xu regarded this species as separate individual taxon. ••2003 Hylleberg & Kilburn: maintains that the status of this species is still debated. Some malacologists consider it a junior synonym of *Lunulicardia retusa* (Linnaeus, 1758). Known from Vietnam. HABITAT. ••1909 Melvill: Providence at 25–80 fathoms, on hard rough ground. DISTRIBUTION. ••1845 Reeve: unknown. ••1884 Grasset: Ceylon, Singapore. ••1994 Hylleberg: Red Sea, Indo–Pacific. ••1999 Aungtonya *et al.*: Thailand, Andaman Sea. ••2000 Hylleberg and ••2000 Lutaenko: Vietnam. ••2003 Hylleberg & Kilburn: Vietnam.

**subretusum** Sowerby (variety). – Infrasubspecific. Cardiidae. Recent. RECORDS. ••1890 Paetel: *Hemicardium* var. *subretusum* Sow.

**subrhaetica** Krumbeck, 1923. – *Protocardia subrhaetica* Krumbeck, 1923. Cardiidae. Fossil. RECORDS. ••1976 Ma *et al.* p. 257: *Protocardia subrhaetica* Krumbeck, 1923.

**subriegeli** Sinz., 1875. – Changed combination. *Macradacna subriegeli* (Sinz., 1875). Lymnocypridae. Fossil. RECORDS. ••1967 Ebersin: *Macradacna subriegeli* (Sinz.). ••1967 ZR: *Macradacna subriegeli* pro *Monodacna subriegeli* (Sinz., 1875) [Ref. Eberzin 1967].

**subrotundatum** Szöts, 1953. – *Corculum subrotundatum* Szöts, 1953. Cardiidae. Eocene. RECORDS. ••1954 ZR: *Corculum subrotundatum* Szöts, 1953 sp. nov. Eocene Hungary.

**subrugosum** Sowerby, 1838. [Figs. Part 1 p. 112, 121, 134. Part 3 p. 861]. – Downgraded to subspecies: *Vasticardium flavum subrugosum* (Sowerby). OTHER JUDGEMENTS: *Cardium flavum* Linnaeus, 1758. – *Vasticardium luteomarginata* (Voskuil & Onverwagt, 1991). – *Cardium rugosum* Lamarck. – *Trachycardium vertebratum* (Jonas, 1844). >> Regarding *Cardium subrugosum*: Cardiidae. Quaternary–Recent. TYPE LOCALITY. Ad insulam Ceylon (Sri Lanka) (Sowerby 1840). RECORDS. ••1838 Sowerby, 149<sup>th</sup> part, fig. 32: *Cardium subrugosum* nobis. ••1838 Sowerby, 184<sup>th</sup> part, fig. 71: *Cardium subrugosum*. ••1840 Sowerby, Proc. Z.S. London p. 108: *Cardium subrugosum*. ••1840 Sowerby, catalogue p. 5, No. 58: *Cardium subrugosum* Sowerby, 1838 (fig. 32) = *Cardium rugosum* Lam. ••1840 Sowerby, catalogue p. 5, No. 59: *Cardium subrugosum* Sow. ••1840 Sowerby, corrected list, p. 8: *Cardium subrugosum* (Sowerby No. 59). ••1843 Hanley: *Cardium subrugosum* Sow. ••1844 Reeve, sp. 55: *Cardium subrugosum* Sow. ••1857 Adams &

*subrugosum* – *subsquamulosum*

Adams: *Cardium* (*Trachycardium*) *subrugosum*. ••1858 Adams & Adams, p. 455: *Cardium* (*Trachycardium*) *subrugosum* Sow. ••1858 Fischer, P: *Cardium subrugosum* Sow. ••1869 Dunker: *Cardium subrugosum* Sow. ••1869 Frauenfeld: *Cardium subrugosum* Sow. ••1869 Römer: *Cardium subrugosum* Sowerby, oblique, related to *C. leucostomum* Born. ••1872 Tryon: *Cardium subrugosum* Sow. ••1884 Grasset: *Cardium subrugosum* Sow. ••1890 Paetel: *Cardium subrugosum* Sow. ••1896 Elera: *Cardium subrugosum* Sow. ••1903 Hidalgo: *Cardium subrugosum* Sow. ••1905 Hidalgo: *Cardium subrugosum* Sow. ••1907 ZR: *Cardium* (*Trachycardium*) *subrugosum* raised beach, Red Sea [Ref. Hall & Standen 1907]. ••1919 Martin: *Cardium subrugosum* Sow. [Quaternary to Recent]. ••1922-32 Sherborn, p. 6268: *Cardium subrugosum* Sowerby, 1841. ••1928 Faustino: *Cardium subrugosum* Sow. ••1932 Prashad: *Cardium subrugosum* Sowerby, 1834 = *Cardium flavum* Linné, 1758. ••1942 Abrard: *Cardium subrugosum* Sow. ••1945 Keen: *Vasticardium subrugosum* Sow. ••1956 Franc: *Laevicardium subrugosum* Sow. ••1964 Shikama: *Trachycardium* (*Vasticardium*) *subrugosum* (Sowerby). ••1974 Habe & Kosuge: *Vasticardium* (*Regozara*) *subrugosum* (Sowerby, 1840). ••1977 Fischer-Piette: *Cardium subrugosum* Sowerby = *Laevicardium flavum* Linné auctorum. ••1977 Wilson & Stevenson: *Cardium subrugosum* Sowerby. ••1990 Abbott & Dance: *Trachycardium subrugosum*. ••1992 Dharma: *Trachycardium subrugosum*. ••1992 Oliver: *Cardium subrugosum* Sowerby, 1834 = *Trachycardium vertebratum* (Jonas, 1844). ••1999 Aungtonya *et al.*, PMBC-SP 19(2): 378: *Trachycardium subrugosum* (Sowerby, 1840). ••1999 Vidal: *Cardium subrugosum* Sowerby, 1838 = *Vasticardium flavum* (Linné, 1758). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC 2 specimens from the Philippines. DESCRIPTIONS. ••1840 Sowerby: 33 ribs, of which the 25 anterior ones are rounded. ••1844 Reeve: shell rather elongately ovate, attenuated towards the umbones, very oblique, anterior side peculiarly rounded; radiately ribbed, about 30 ribs, more or less, the extreme posterior ribs smooth, the rest rugosely crenated; yellowish white faintly tinged with rose, sometimes covered towards the margins with a brown epidermis. DIMENSIONS. ••1840 Sowerby: long. 2.30 poll. (length 60 mm), lat. 1.70 poll. (width 43 mm), alt. 2.40 poll (height 61 mm). REMARKS. ••1840 Sowerby: shell less spread, ribs less elevated, the 8 posterior ones are so little raised as to leave the surface nearly smooth, and anterior side smoother than in *C. rugosum*. ••1844 Reeve: the extreme posterior ribs of this species are smooth and nearly obsolete, whilst the middle ribs are most delicately wrinkled; and the wrinkles, increasing gradually in size and distance from each other, impart to the anterior portion of the shell, a distinctly crenated character. ••1997 Vidal: accepted *subrugosum* at the subspecific level. DISTRIBUTION. ••1844 Reeve: Ceylon, Philippine Islands, and Zanzibar. ••1994 Hylleberg: Ceylon, Philippines, Zanzibar (Reeve 1844). Indo-Pacific. ••1999 Aungtonya *et al.*: Thailand, Andaman Sea.

***subrugosum*** of Abrard 1942. – Identical with

*Vasticardium pectiniforme*. RECORDS. ••1997 Vidal: *Cardium subrugosum* in Abrard 1942 = *V. pectiniforme*. ***subrugosum*** of Lamy 1927. – Identical with *Vasticardium luteomarginata marerubrum*. RECORDS. ••1997 Vidal: *Cardium subrugosum* Sowerby sensu Lamy 1927 (not *Cardium subrugosum* Sowerby, 1838) = *Vasticardium luteomarginatum marerubrum* (Voskuil & Onverwagt, 1991).

***subrugosum*** of Reeve 1845. – Identical with *Vasticardium luteomarginata*. RECORDS. ••1997 Vidal: *Cardium subrugosum* in Reeve 1845 sp. 55 = *V. luteomarginata* (Voskuil & Onverwagt, 1991).

***subrugosum*** (subspecies). – See under *flavum subrugosum* Sowerby, 1838.

***subrugosum*** Sowerby, 1838 (variety). [Figs. Part 1 p. 112]. – Synonym of "*Cardium*" *fucatum* Sggl. >> Regarding *Cardium* var. *subrugosum*: Cardiidae. Recent. RECORDS. ••1838 Sowerby, 149<sup>th</sup> part, fig. 34: *Cardium* var. *subrugosum*. ••1840 Sowerby, corrected list p. 8: *Cardium subrugosum*. ••1870 Mörch: *Cardium* var. *subrugosum* Sow. = *C. implicatum* sic Sow. junior synonym of *Cardium fucatum* Sggl.

***subschakonensis*** Akhvediani, 1984. – *Macradacna subschakonensis* Akhvediani, 1984. Lymnocythidae. Pliocene. RECORDS. ••1984 ZR: *Macradacna subschakonensis* sp. nov. Georgia SSR. Ref. to Akhvediani p. 80.

***subserigerum*** Orbigny, 1852. – Combination to be revised: "*Cardium*" *subserigerum* d'Orbigny. Cardiidae. Miocene. RECORDS. ••1980 Ruhoff: *Cardium subserigerum* Orbigny, 1852; [1850–1852] vol. 3: 118. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium subserigerum* d'Orbigny. Burdigalien. France (Bordeaux), B27481.

***subsetosum*** Sowerby (error). – Printer's mistake for *subretusum* (Sowerby). Sowerby never described a species named *subsetosum*. RECORDS. ••1964 Shikama: *Corculum* (*Lunulicardia*) *subsetosum*. ••1977 Fischer-Piette: *Cardium subsetosum* Sowerby = species insufficiently known.

***subsimile*** Münster, 1840. – Combination to be revised: "*Cardium*" *subsimile* Muenster, 1840. ?Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6271: *Cardium subsimile* Muenster, 1840

***subspinigera*** (subspecies). – See under *texana subspinigera* Cragin, 1893.

***subsquamosum*** Andrussov. – New combination: *Lymnocardium subsquamosum* Andrussov. Lymnocythidae. Fossil. RECORDS. ••1953 Celidje: *Limnocardium* (*Tauricardium*) *subsquamosum* Andrussov.

***subsquamosum subpetersi*** Ebersin (variety). – Upgraded. New combination: *Lymnocardium subsquamosum subpetersi*. Lymnocythidae. Fossil. RECORDS. ••1953 Celidje: *Limnocardium* (*Tauricardium*) *subsquamosum* Andrus var. *subpetersi* Ebers.

***subsquamulosum*** Andrussov, 1903. – New combination: *Lymnocardium subsquamulosum* Andrussov, 1903. Lymnocythidae. Miocene and Pliocene. RECORDS. ••1958 ZR: *Limnocardium* (*Tauricardium*) *subsquamulosum* Andrussov, 1903. Pliocene [Ref. Eberzin 1958]. ••1958 ZR: *Limnocardium subsquamulosum* Andrussov, 1903

***subsquamulosum bosporica* – *subsulcatina***

subgenotype of (*Tauricardium*) Eberzin, 1958. Pliocene of the Ponto–Caspian basin, Russia. ••1964 ZR: *Limnocardium subsquamulosum* Andrusov, 1964 sp. nov. sic Rumania, Miocene.

***subsquamulosum bosporica*** Eberzin, 1958 (variety). – Upgraded. New combination: *Lymnocardium subsquamulosum bosporica* Eberzin, 1958. Lymnocardiidae. Pliocene. RECORDS. ••1958 ZR: *Limnocardium (Tauricardium) subsquamulosum* var. *bosporica* Eberzin, 1958 nov. Kerchenski, Crimea, Black Sea. Pliocene of the Ponto–Caspian basin, Russia.

***subsquamulosum finitima*** Eberzin, 1958 (variety). – Upgraded. New combination: *Lymnocardium subsquamulosum finitima* Eberzin, 1958. Lymnocardiidae. Pliocene. RECORDS. ••1958 ZR: *Limnocardium (Tauricardium) subsquamulosum* var. *finitima* Eberzin, 1958 nov. Kerchenski, Crimea; Kipchak Ama Darya river, south of the Aral Sea. Pliocene of the Ponto–Caspian basin, Russia.

***subsquamulosum nasyrica*** Eberzin, 1958 (variety). – Upgraded. New combination: *Lymnocardium subsquamulosum nasyrica* Eberzin, 1958. Lymnocardiidae. Pliocene. RECORDS. ••1958 ZR: *Limnocardium (Tauricardium) subsquamulosum* var. *nasyrica* Eberzin, 1958 nov. Kerchenski, Sea of Azov. Pliocene of the Ponto–Caspian basin, Russia.

***subsquamulosum oviformis*** Eberzin, 1958 (variety). – Upgraded. New combination: *Lymnocardium subsquamulosum oviformis* Eberzin, 1958. Lymnocardiidae. Pliocene. RECORDS. ••1958 ZR: *Limnocardium (Tauricardium) subsquamulosum* var. *oviformis* Eberzin, 1958 nov. Kerchenski, Crimea. Pliocene of the Ponto–Caspian basin, Russia.

***subsquamulosum praesubsquamulosum*** Eberzin, 1958 (variety). – Upgraded. New combination: *Lymnocardium subsquamulosum praesubsquamulosum* Eberzin, 1958. Lymnocardiidae. Pliocene. RECORDS. ••1958 ZR: *Limnocardium (Tauricardium) subsquamulosum* var. *praesubsquamulosum* Eberzin, 1958 nov. Tamansky, Azov Sea–Black Sea. Pliocene of the Ponto–Caspian basin, Russia.

***subsquamulosum sola*** Eberzin, 1958 (variety). – Upgraded. New combination: *Lymnocardium subsquamulosum sola* Eberzin, 1958. Lymnocardiidae. Pliocene. RECORDS. ••1958 ZR: *Limnocardium (Tauricardium) subsquamulosum* var. *sola* Eberzin, 1958 nov. Kerchenski, Crimea. Pliocene of the Ponto–Caspian basin, Russia.

***subsquamulosum subpetersi*** Eberzin, 1958. – New combination: *Lymnocardium subsquamulosum subpetersi* Eberzin, 1958. Lymnocardiidae. Pliocene. RECORDS. ••1958 ZR: *Limnocardium (Tauricardium) subsquamulosum subpetersi* Eberzin, 1958 subsp. nov. Kerchenski Peninsula, and Crimea and Kuban. Pliocene of the Ponto–Caspian basin, Russia.

***substratonis*** Celidje, 1953. – *Paradacna substratonis* Celidje, 1953. Lymnocardiidae. Fossil. RECORDS. ••1953 Celidje, p. 157: *Paradacna substratonis* nov. sp. ••1975 ZR: *Paradacna substratonis* Chelidze, 1975 sp. nov. Georgia SSR, Khobs region Lower Pliocene. Ref. to Chelidze, p. 198.

***substriatum*** Orbigny, 1850. – Combination to be revised: "*Cardium*" *substriatum* d'Orbigny, 1850.

?Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6273: *Cardium substriatum* d'Orbigny, 1850.

\****substriatum***. – Homonymy to be noticed. *Cardium substriatum* from 2 sources: Conrad, 1837. – Orbigny, 1850).

***substriatum*** Conrad, 1837. – Changed combination: *Laevicardium substriatum* (Conrad, 1837). Cardiidae. Pleistocene. TYPE LOCALITY. California. RECORDS. ••1837 Conrad: *Cardium substriatum* Conr. ••1843 Hanley: *Cardium substriatum* Conr. ••1856 Carpenter: *Cardium substriatum* Conr. ••1858 Adams & Adams, p. 456: *Cardium (Cerastoderma) substriatum*, Conr. ••1857 Carpenter: *Cardium substriatum* Conr. ••1860 Carpenter: *Cardium substriatum* Conr. ••1864 Stimpson: *Cardium substriatum* Conr. ••1864 Carpenter: *Liocardium substriatum* Conr. almost identical with *C. elenense* [Peru]. ••1864 Carpenter: *Liocardium substriatum* Conr. = *cruentatum* Gld. ••1872 Tryon: *Laevicardium substriatum* Conr. ••1872 Carpenter: *Laevicardium substriatum* (Conrad, 1837). ••1890 Paetel: *Cardium substriatum* Conr. is *Laevicardium*. ••1901 Dall: *Cardium (Laevicardium) substriatum* Conrad, 1838. ••1907 Kelsey: *Liocardium substriatum* Conr. ••1907 Smith, M: *Cardium substriatum* Conr. ••1907 ZR: *Cardium substriatum* [Ref. Smith 1907]. ••1916 Dall: *Laevicardium substriatum* Conr. ••1918 Chace: *Cardium substriatum* Conr. ••1921 Dall: *Laevicardium substriatum* Conr. ••1923 Strong: *Cardium substriatum* Conr. ••1924 Oldroyd: *Cardium substriatum* Conrad, 1837. ••193 Grant & Gale: *Cardium substriatum* Conr. ••1934 Hertlein: *C. substriatum* Conrad, by Jordan = *Cardium elenense* Sowerby. ••1937 Keen: *Laevicardium substriatum*. ••1945 Burch: *Laevicardium substriatum* Conr. ••1948 Smith & Gordon: *Cardium substriatum* Conr. ••1954 Abbott: *Laevicardium substriatum* Conr. ••1958 Stohler: *Laevicardium substriatum* Conr. ••1960 Morris: *Laevicardium substriatum* Conr. ••1961 Stohler: *Laevicardium substriatum* Conr. ••1965 Coan: *Laevicardium substriatum* Conr. ••1966 Keen: *Laevicardium substriatum* (Conrad, 1837). ••1966 Morris: *Laevicardium substriatum* Conr. ••1968 Abbott: *Laevicardium substriatum* Conr. ••1969 MacLean: *Laevicardium substriatum* Conr. ••1974 Abbott: *Laevicardium substriatum* (Conrad, 1837). ••1977 Popov: *Laevicardium substriatum* (Conrad, 1837). ••1977 Fischer–Piette: *Laevicardium substriatum* Conrad. ••2000 Coan *et al.*: *Laevicardium substriatum* (Conrad, 1837). ••2001 Vidal, p. 407: *Laevicardium substriatum*. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC from San Diego, USA. DESCRIPTIONS. ••2001 Vidal: tentacles numerous. No eyes on tentacles. DISTRIBUTION. ••ZMUC: San Diego, USA.

***substriatum*** Orbigny, 1850. – Combination to be revised: "*Cardium*" *substriatum* d'Orbigny, 1850. Cardiidae. Fossil. RECORDS. ••1922–32 Sherborn, p. 6274: *Cardium substriatum* d'Orbigny, 1850.

\****subsulcatina***. – Homonymy to be noticed. *Didacna subsulcatina* from 2 sources: Andrusov, 1910. – Andrusov, 1964.

***subsulcatina*** Andrusov, 1964. – *Didacna subsulcatina* Andrusov, 1964. Lymnocardiidae. Miocene. RECORDS. ••1964 ZR: *Didacna subsulcatina* Andrusov, 1964 sp.

- nov. Miocene USSR.
- subsulcaltina** (cf.) Andrusov, 1910. – *Didacna* cfr. *subsulcaltina* Andrusov, 1910. Lymnocardiiidae. Fossil. RECORDS. ••1987 Anaya: *Didacna* (s. s.) cfr. *subsulcaltina* [err. pro *subsulcaltina*] Andrusov, 1910.
- subsulcaltina** Link, 1807. – Combination to be revised: “*Cardium*” *subsulcatum* Link, 1807. ?Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6276: *Cardium subsulcatum* Link, 1807.
- subsyrmienne** Andrusow. – Changed combination: *Lymnocardium subsyrmienne* Andrusow. Lymnocardiiidae. Pliocene. RECORDS. ••1907 Andrusow: *Lymnocardium subsyrmienne* Andrus. ••1958 ZR: *Lymnocardium (Euxinocardium) subsyrmienne* Pliocene [Ref. Eberzin 1958]. ••1958 ZR: *Lymnocardium subsyrmienne* Andrus. subgenotype of (*Euxinocardium*) Eberzin, 1958. Pliocene of the Ponto–Caspian basin, Russia. ••1987 Anaya: *Lymnocardium subsyrmienne* Andrusov, 1903. Type species (D.O.) of (*Euxinocardium*) Ebersin, 1947.
- subsyrmienne lacta** Eberzin, 1958 (variety). – Upgraded. New combination: *Lymnocardium subsyrmienne lacta* Eberzin, 1958. Lymnocardiiidae. Pliocene. RECORDS. ••1958 ZR: *Lymnocardium (Euxinocardium) subsyrmienne* var. *lacta* Eberzin, 1958 nov. Kerchenski Peninsula, Black Sea. Pliocene of the Ponto–Caspian basin, Russia.
- subsyrmienne lecta** (variety). – *Euxinocardium subsyrmienne lecta*. Lymnocardiiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Euxinocardium subsyrmienne lecta*. – *Lymnocardium (Euxinocardium) subsyrmienne* Andrus. var. *lecta* Ebers.
- subsyrmienne turbida** Eberzin, 1958 (variety). – Upgraded. New combination: *Lymnocardium subsyrmienne turbida* Eberzin, 1958. Lymnocardiiidae. Pliocene. RECORDS. ••1958 ZR: *Lymnocardium (Euxinocardium) subsyrmienne* var. *turbida* Eberzin, 1958 nov. Kerchenski Peninsula, Black Sea. Pliocene of the Ponto–Caspian basin, Russia.
- subtentum**. – Combination to be revised: “*Cardium*” *subtentum*. Cardiidae. Lower Eocene. RECORDS. ••1871 Stoliczka, 150: *C. subtentum*.
- subtenuae integricosta** Almera & Bofill (variety). – Combination to be revised: “*Cardium*” *subtenuae* var. *integricosta* Almera & Bofill. Lymnocardiiidae. Fossil. RECORDS. ••1987 Anaya: *Cardium subtenuae* var. *integricosta* Almera & Bofill.
- subtenuisulcatum** Orbigny, 1852. – “*Cardium*” *subtenuisulcatum* Orbigny, 1852. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium subtenuisulcatum* Orbigny, 1852; [1850–1852] vol. 3: 21.
- subtile**. – “*Cardium*” *subtile*. Cardiacea. Fossil. RECORDS. ••1886 Fischer: *Cardium subtile*.
- subtrapezinum** Tscheltzov, 1965. – *Avicardium subtrapezinum* Tscheltzov, 1965. Cardiacae. Pliocene. RECORDS. ••1965 ZR: *Avicardium subtrapezinum* Tscheltzov, 1965 sp. nov. Pliocene, Turkmenia, USSR.
- subtriangulare** mut. n. – See under *productum* Sow.
- subtriangulare** Cotteau, 1924.
- subtrigonale** d’Orbigny, 1850. – *Conocardium subtrigonale* d’Orbigny, 1850. Conocardiiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6281: *Conocardium subtrigonale* d’Orbigny, 1850.
- \***subtrigonum**. – Homonymy to be noticed. *Cardium subtrigonum* from 2 sources: Orbigny, 1850. – Morris & Lycett, 1853.
- subtrigonum** Morris & Lycett, 1853. – Changed combination: *Protocardium subtrigonum*. Cardiidae. Lias–Jurassic. RECORDS. ••1980 Ruhoff: Combination to be revised: “*Cardium*” *subtrigonum* Morris & Lycett, 1853; [1853–1854] vol. 2: 64, pl. 7, fig. 3. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Protocardium subtrigonum*. Bathonien. France (Pas de Calais), S01914.
- subtrigonum** Orbigny, 1850. – *Cardium subtrigonum* d’Orbigny, 1850. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6281: *Cardium subtrigonum* d’Orbigny, 1850.
- subtrigonum** Orbigny, 1850. – *Unicardium subtrigonum* d’Orbigny, 1850. ?Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6281: *Unicardium subtrigonum* d’Orbigny, 1850.
- subtruncata** (variety). – See under *martelli* var. *subtruncata* Viola, 1949.
- subtruncatum** Orbigny, 1850. – Combination to be revised: “*Cardium*” *subtruncatum* d’Orbigny, 1850. ?Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6282: *Cardium subtruncatum* d’Orbigny, 1850.
- subturgidum millasiense** Fontannes, 1882. – *Laevicardium subturgidum millasiense* (Fontannes, 1882). Cardiidae. Fossil. RECORDS. ••1970 Glibert & Poel, p. 37: *Laevicardium (Habecardium) subturgidum millasiense* (Fontannes, 1882). ••1989 Gontsharova: *Laevicardium (Habecardium) subturgidum millasiense* in Glibert & Poel, 1970.
- subturgidum** Orbigny, 1852. – Changed combination: *Nemocardium subturgidum* (d’Orbigny, 1852). Cardiidae. Pliocene. RECORDS. ••1970 ZR: *Laevicardium (Habecardium) subturgidum* (Orbigny, 1852) [Ref. Glibert & Van De Poel 1970]. ••1980 Ruhoff: *Cardium subturgidum* Orbigny, 1852; [1850–1852] vol. 3: 118. ••1989 Gontsharova: *Nemocardium (Habecardium) subturgidum* (Orbigny, 1852). ••1989 Gontsharova: *Laevicardium (Laevicardium) subturgidum* Glibert, 1945. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium subturgidum* d’Orbigny. Belgium (Anvers), B35561.
- subumbonatum** Orbigny, 1852. – Combination to be revised: “*Cardium*” *subumbonatum* Orbigny, 1852. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium subumbonatum* Orbigny, 1852; [1850–1852] vol. 3: 118.
- subventricosum** Orbigny, 1850. – Combination to be revised: “*Cardium*” *subventricosum* d’Orbigny, 1850. ?Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6289: *Cardium subventricosum* d’Orbigny, 1850.
- subvitrea** Andrusov, 1924. – *Adacna subvitrea* Andrusov, 1924. Lymnocardiiidae. Pliocene and Pleistocene. RECORDS. ••1924 ZR: *Adacna subvitrea* Andrusov, 1924 Pleistocene. ••1963 ZR: *Adacna (Adacna) subvitrea* Andrusov, 1963 sp. nov. Apsheron layers, Pliocene, Russia.
- subvulgaris** (subspecies). – See under *rudis subvulgaris* Nevesskaya, 1963.
- subzlatarski** Ebersin, 1967. – *Pseudocatillus subzlatarskii* Ebersin, 1967. Lymnocardiiidae. Pliocene.

**Succuridacna – sueziensis**

RECORDS. ••1967 Ebersin: *Pseudocatillus subzlatarskii* sp. n. ••1967 ZR: *Pseudocatillus subzlatarskii* Eberzin, 1967 sp. nov. Pliocene, USSR.

**Succuridacna** Korobkov, 1958 (subgenus). – Lymnocardidae. Miocene. RECORDS. ••1958 ZR: *Succuridacna* Korobkov, 1958 subgen. nov. of *Eoprosodacna*, subgenotype *Cardium goriense* Davidaschvili, Georgia, USSR Kotsakhursk horizon, Miocene [Ref. Korobkov 1958]. ••1980 Vokes: *Succuridacna* Korobkov, 1954 in subfamily Lymnocardinae.

**suculum** in Monterosato 1878, printer's error of *C. siculum* Sowerby.

**suecicum** (spelling). – See under *suediense* Reeve, 1845.

**suecicum** Lovén, 1846. – Synonym of *Parvicardium minimum* (Philippi, 1836). OTHER JUDGEMENTS: not a synonym of *Parvicardium minimum* (Philippi, 1836). >> Regarding *Cardium suecicum*: Cardiidae. Recent. RECORDS. ••1867 Weinkauff: *Cardium suecicum* Forbes, Loven = *Cardium minimum* Philippi. ••1867 ZR: *Cardium minimum* (Phil.) identified on Jeffreys's authority with *Cardium suecicum* (Lovén) [this identification is not correct, according to a communication from Mr. Jeffreys, Ref. to Weinkauff 1867]. ••1886 Locard: *Cardium suecicum* Lovén, 1846 = *Cardium minimum* Philippi, 1845. ••1890 Paetel: *Cardium suecicum* Lovén. ••1901 Friele & Grieg: *Cardium suecicum* Lovén, 1846 = *Cardium minimum* Philippi, 1836. ••1912 Jensen: *Cardium suecicum* Lovén, 1846 = *Cardium minimum* Philippi. ••1969 Nordsieck: *Parvicardium minimum suecicum* (Lovén, 1846). ••2001 Aartsen & Goud: *Cardium suecicum* Lovén, 1846 emend. = *Parvicardium minimum* (Philippi, 1836).

**suecicum** Reeve (spelling) – See under *suediense* Reeve. **suedense** (error). – Printer's mistake for *suediense* in Kobelt 1888.

**suediense** Reeve, 1845. [Figs. Part 1 p. 145. Part 3 p. 915]. – Synonym of *Parvicardium minimum* (Philippi, 1836). >> Regarding *Cardium suediense*: Cardiidae. Recent. TYPE REPOSITORY. BMNH; *Cardium suediense* Reeve Syntypes 2 of 3 valves reg. no. 197628. Neg. No. 0261. DISTRIBUTION. West coast of Sweden (Reeve 1845). RECORDS. ••1845 Reeve: *Cardium suediense*. ••1846 Lovén: *Cardium suecicum* Reeve sp. 132. ••1851 Sars: *Cardium svecicum* Reeve. ••1856 Jeffreys: (*Cardium suecicum* B.M.) = *Cardium minimum* Ph. (Note: Ph. & B.M. = Philippi and "British Mollusca", Forbes & Hanley 1849 respectively). ••1858 Adams & Adams, p. 456: *Cardium (Cerastoderma) suecicum* Reeve. ••1859 Danielssen: *Cardium svecicum* Reeve = *Cardium loveni* Thompson. ••1867 Weinkauff, p. 143: *Cardium suedense* [err. pro *suediense*] Reeve = *Cardium minimum* Philippi. ••1869 Römer: *Cardium suedense* Reeve fig. 132 = *Cardium suecicum* Lovén. ••1871 Mörch, p. 215, No. 206 *Cardium svecicum* Reeve = *Cardium minimum* Phil. ••1872 ZR: *Cardium minimum* (Phil.) = *suecicum* (Reeve), ribs vary from 28–33 [Ref. Brögger 1872]. ••1886 Locard: *Cardium suldiense* sic Reeve, 1836 = *Cardium minimum*, Philippi, 1845. ••1888 Kobelt: *Cardium suedense* sic Reeve = *Cardium suecicum* Lovén. ••1912 Dautzenberg & Fischer: *Cardium suedense* Reeve 1843 = *Cardium (Parvicardium) minimum*, Philippi 1836. ••1917

Hidalgo: *Cardium suedense* sic Reeve = *Cardium Suecicum* Loven. ••1922–32 Sherborn, p. 6294: *Cardium suedense* Reeve, 1845. ••1932 Winckworth: *Cardium suecicum* = *Cardium (Parvicardium) minimum* Philippi, 1836. ••1977 Fischer-Piette: *Cardium suedense* Reeve, 1845 = *Cardium minimum* Philippi. ••2001 Aartsen & Goud: *Cardium suedense* Reeve, 1845 = *Parvicardium minimum* (Philippi, 1836). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1845 Reeve: shell minute, orbicular, thin, fragile, radiately ribbed, 28 convex, prickly ribs; white, covered with a thin straw-coloured epidermis. REMARKS. ••1845 Reeve: this is the smallest species of *Cardium* I have met with; it is not much unlike the figure of an odd valve discovered by M. Philippi, at Palermo, and figured in his second volume of the Enum. Moll. Siciliae, pl. 14. f. 18, under the name of *C. minimum*; his description, however, by no means agrees with the northern species under consideration. DISTRIBUTION. ••1845 Reeve: West coast of Sweden.

**suense** Sidorova, 1961. – Combination to be revised: "*Cardium*" *suense* Sidorova, 1961. Cardiacea. Miocene. RECORDS. ••1961 ZR: *Cardium suense* Sidorova, 1961 sp. nov. Sue, Sarmatian, Miocene; Mangyshlak, Turkmeniya, Russia. DISTRIBUTION. Europe (Winckworth 1932); Arctic, Atlantic, Pacific, Gulf of Suez (Nordsieck 1969).

**suessi** Barbot, 1869. – Combination to be revised: "*Cardium*" *suessi* Barbot, 1869. Cardiacea. Sarmatian. RECORDS. ••1929 ZR: *Cardium suessi* Barb. Sarmatian [Ref. Kolesnikov 1929]. ••1946 ZR: *Cardium suessi* Barbot. Sarmatian fossil [Ref. Simionescu & Barbu 1940]. ••1970 ZR: *Cardium suessi* Barbot, 1869 type sp. for *Maequicostates* group nov. q.v. [?Ref.].

**suessi**. – *Inaequicostata suessi*. Cardiacea. Fossil. RECORDS. ••1977 Popov: *Inaequicostata suessi*.

**suessi imbecilla** Kolesnikov, 1929 (variety). – Upgraded. Combination to be revised: "*Cardium*" *suessi imbecilla* Kolesnikov, 1929. Cardiacea. Sarmatian. RECORDS. ••1929 ZR: *Cardium suessi* Barb. var. *imbecilla* Kolesnikov, 1929 nov. Sarmatian [Ref. Kolesnikov 1929].

**suessi pseudohispida** Simionescu & Barbu, 1940 (variety). – Upgraded. "*Cardium*" *suessi pseudohispida* Simionescu & Barbu, 1940. Cardiacea. Sarmatian. RECORDS. ••1946 ZR: *Cardium suessi* Barbot var. *pseudohispida* Simionescu & Barbu, 1940 nov. Chisinau, Sarmatian fossil, Rumania.

**suessiformis** (subspecies and variety). – See under *politioanei suessiformis* and *politioanei* var. *suessiformis* Jekelius, 1944.

**sueziense** (mode). – See under *sueziensis* Issel, 1869. **sueziensis** Issel, 1869. [Figs. Part 3 p. 852]. – Changed combination: *Parvicardium sueziensis* (Issel, 1869). Cardiidae. Recent. TYPE LOCALITY. Bay of Suez. RECORDS. ••1869 Issel, p. 76, Pl. 3, fig. 4: *Cardium sueziensis*. ••1869 ZR: *Cardium sueziense* Issel, 1869 sp. n. from Suez. ••1870 Macandrew: *Cardium (Cerastoderma) sueziensis*. ••1885 Smith, p. 158–159, pl. 8, figs. 2–2b: *Cardium (Acanthocardia) sueziense* Issel. ••1899 Hedley: *Cardium fragrum* [sic. = *fragum*] var. *sueziense* Issel. ••1906 Melvill & Standen, p. 839: *Cardium (?Acanthocardia) sueziense* Issel. ••1907 ZR: *Cardium sueziense* raised beach, Red Sea [Ref. Hall &

Standen 1907]. •1909 Lynge: *Cardium* (*Acanthocardia*) *sueziensis*. •1938 Lamy: *Cardium* (*Cerastoderma*) *sueziensis* Issel. •1973 Biggs: *Parvicardium sueziensis* (Issel, 1869). •1977 Fischer-Piette: *Cardium* (*Cerastoderma*, *Parvicardium*) *sueziense* Issel. •1977 Popov: *Loxocardium sueziense* (Issel, 1869). •1980 Ruhoff: *Cardium sueziensis* Issel, 1869; p. 76, pl. 3, fig. 4. •1992 Oliver: *Parvicardium sueziensis*. •1995 Oliver, fig. 1078: *Parvicardium sueziense* (Issel, 1869). •2000 Hylleberg, p. 532: *Parvicardium sueziense* (Issel, 1869). Det. J. Vidal. •2001 Vidal, p. 408: *Fragum sueziense*. •2002 Hylleberg & Kilburn, p. 63: *Parvicardium sueziense* (Issel, 1869). •2003 Hylleberg & Kilburn, p. 178: *Fragum sueziense* (Issel, 1869). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC from the Gulf of Thailand. DESCRIPTIONS. •1869 Issel: shell small, equivalve, inequilateral, suborbicular, somewhat oblique, anterior rounded, posterior obtuse, subangulate, somewhat inflated, thin, white, small brown spots, about 23–24 ribs, numerous transverse scales, small umbo, denticulated margin [I have translated from Latin]. Roundly subquadrate, posterior margin slightly longer and less rounded than anterior. Sculpture of 20–24, low rather broad, radial ribs, all but the posterior few bearing large, slightly curved cross bars; posterior ribs with blunt spines. •2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes. DIMENSIONS. •1869 Issel: length 7.5 mm, width 6 mm, diameter 5 mm. •1995 Oliver: to 8 mm. REMARKS. •1869 Issel: *C. sueziensis* resembles *C. minimum* Philippi, but differs in number of ribs and their ornamentation. – The dozen odd valves studied by Hedley (1899) passed gradually into typical *C. fragum*. The species was redescribed and reillustrated by Smith (1885, p. 158 and pl. 8) because he condemned the original figure by Issel (Hedley 1899). Unfortunately *C. minimum* and *C. fragum* are very different, so it is difficult to judge the status of *C. sueziensis*, based on information in the literature. HABITAT. •1906 Melvill & Standen: sand 3 fathoms, mud, 10 fathoms, coral. •ZMUC mud 30 m depth. •1995 Oliver: muddy sand, lower shore and below. DISTRIBUTION. •1899 Hedley: Fiji, Torres Strait. •1994 Hylleberg: Suez, Red Sea. •1995 Oliver: Red Sea. •ZMUC Arabian Sea. •2000 Hylleberg: Vietnam and Cambodia. •2002 Hylleberg & Kilburn: South India. •2003 Hylleberg & Kilburn: Vietnam.

**suicum** Iqbal, 1970. – “*Cardium*” *suicum* Iqbal, 1970. Cardiidae. Early Eocene. RECORDS. •1970 ZR: *Cardium suicum* Iqbal, 1970 sp. nov. Early Eocene, Ghazij Formation, Shahrj, Pakistan.

**sukaraii** Habe, 1961. – *Nemocardium sukaraii* Habe, 1961. Cardiidae. Recent. RECORDS. •1961 ZR: *Nemocardium* (*Microcardium*) *sukaraii* Habe, 1961 sp. nov. Cardiidae, Tosa Bay, Kochi Pref. Shikoku, Japan.

**sulacense** Andrusov, 1963. – Combination to be revised: “*Cardium*” *sulacense* Andrusov, 1963. Cardiacea. Neogene. RECORDS. •1963 ZR: *Cardium sulacense* Andrusov, 1963 sp. nov. Neogene, Russia.

**sulcata** (variety). – See under *archiaciana* var. *sulcata* Acquotta, 1929.

\***sulcatinum**. – Homonymy to be noticed. *Cardium sulcatinum* from 2 sources: Lamarck, 1819. – Deshayes,

1838.

**sulcatinum** Deshayes 1838. – New name: *Didacna andrusovi* Gude, 1913. OTHER JUDGEMENTS: *Cardium ponticum* Deshayes. Lymnocoardiidae. Fossil RECORDS. •1857. Deshayes: *Cardium sulcatinum* Desh. 1837 sic. – *C. ponticum* Desh. •1913 ZR: “*Cardium*” *sulcatinum* Desh. 1838 non Lamarck, 1819 replaced by *Didacna andrusovi* Gude, 1913 nom. nov. •1922–32 Sherborn, p. 6298: *Cardium sulcatinum* Deshayes, 1838.

**sulcatinum** Lamarck, 1819. [Figs. Part 3 p. 921]. – Combination to be revised: “*Cardium*” *sulcatinum* Lamarck, 1819. ?Cardiidae. Fossil RECORDS. •1819 Lamarck: “*Cardium*” *sulcatinum* Lamk. •1886 Fischer: “*Cardium*” *sulcatinum*. •1857. Deshayes: *Cardium sulcatinum*. Lamk. 1818 sic. •1922–32 Sherborn, p. 6298: “*Cardium*” *sulcatinum* Lamarck, 1819.

\***sulcatum**. – Homonymy to be noticed. *Cardium sulcatum* from 3 sources: Lamarck, 1819. – Michelotti, 1839. – Koninck (?year).

**sulcatum** Koninck. – Replaced by “*Cardium*” *sulciferum*. Deshayes. >> Regarding *Cardium sulcatum*: Not a cardiid (*cardiomorpha*). Silurian. RECORDS. •1857. Deshayes: “*Cardium*” *sulcatum* Koninck (*cardiomorpha*). – *C. sulciferum*. Desh.

**sulcatum** Lamarck, 1819. [Figs. Part 1 p. 76 No. 190, p. 79 No. 12, p. 82 No. 9, p. 90. Part 3 p. 898]. – Identical with *Laevicardium oblongum* (Gmelin, 1791). OTHER JUDGEMENTS: *Laevicardium crassum* (Gmelin, 1791). – *Cardium flavum* Poli – *Cardium norvegicum* Spengler, 1799. – *Cardium serratum* Bruguière. >> Regarding *Cardium sulcatum*: Cardiidae. Pliocene and Recent. TYPE LOCALITY. Mediterranean (Reeve 1845). TYPE REPOSITORY. Lamarck’s cabinet, unknown availability. RECORDS. •1798 Bruguière. ID by Lamarck, pl. 298, fig. 5. *Cardium sulcatum*. •1819 Lamarck, p. 10, No. 24: *Cardium sulcatum* new name for *Cardium oblongum* Chemnitz, t. 19, fig. 190. •1832 Bronn: *Cardium sulcatum* Lamarck = *Cardium oblongum* (Chemn.) Brch. 503. •1835 Deshayes: *Cardium sulcatum* Lamarck. •1836 Philippi: *Cardium sulcatum* Lamarck. = *Cardium crassum* Gm. p. 3254. •1838 Maravigna: *Cardium sulcatum* Lamarck. •1839 Anton: *Cardium sulcatum* Lamarck = *Cardium oblongum* Chemnitz = *Cardium serratum* Bruguière. •1840 Sowerby, catalogue p. 5, No. 64: *Cardium sulcatum* Lamarck. •1844 Brown: *Cardium sulcatum* Lamarck = *Cardium oblongum*. •1844 Philippi: *Cardium sulcatum* Lamarck. •1844 Potiez & Michaud: *Cardium sulcatum* Lamarck. •1846 Verany: *Cardium sulcatum* Lamarck. •1848 Requier: *Cardium Sulcatum* Lamarck. = *Cardium oblongum* Chemn. •1856 Wood & Hanley: *C. sulcatum* Lam. = *Cardium oblongum* Ch. •1857. Deshayes: *Cardium sulcatum*. Lamk 1818 sic. •1862 Weinkauff: *Cardium sulcatum* Lamarck. •1867 Hidalgo: *Cardium sulcatum* Lamarck = *Cardium oblongum*, Chemnitz. •1867 Weinkauff: *Cardium sulcatum* Lamarck, Deshayes, Philippi = *C. oblongum* Chemnitz. •1867 ZR: *Cardium sulcatum* (Lam.) and *Cardium oblongum* (Chemn.) nearly allied, but may be kept distinct [Ref. Weinkauff 1867]. •1868 ZR: The Mediterranean *Cardium sulcatum* (Lam.) = *oblongum* (Chemn.) = *flavum* (Born) to be distinguished from *Cardium pennanti* and *oblongum* of Reeve [Ref. Römer



**sulcatum – suluanum**

1868]. ••1869 Römer: *Cardium sulcatum* Lamarck = *Cardium oblongum* Chemnitz. ••1872 Monterosato: *Cardium sulcatum* = *C. norvegicum* (foss. recente). ••1878 Monterosato: *C. sulcatum* Lamarck = *C. flavum* Poli (non Lin.) = *Cardium oblongum* Chemn. ••1884 Monterosato: *C. sulcatum* Lamarck = *C. flavum* Poli (non Lin.) = *Loeicardium sic oblongum*. ••1886 Locard: *Cardium sulcatum* de Lamarck, 1818 = *Cardium oblongum* Chemnitz, 1782. ••1888 Kobelt: *Cardium sulcatum* Lamarck = *Cardium oblongum* Chemnitz. ••1899 Granger: *Cardium sulcatum* Lamarck. ••1843 Hanley: *Cardium sulcatum* Lamarck. ••1890 Hidalgo: *Cardium sulcatum* Lamarck = *Cardium oblongum* Chemnitz. ••1890 Paetel: *Cardium sulcatum* Lm. = *oblongum* Ch. [not available]. ••1900 Locard & Caziot: *Cardium sulcatum* Lamarck, 1819 = *Cardium oblongum* Chemnitz, 1789 sic. ••1922-32 Sherborn, p. 6300: *Cardium sulcatum* Lamarck, 1819. ••1930 Stewart: *Laevicardium sulcatum*. ••1945 ZR: *Cardium sulcatum* Lk. [Ref. Lamy 1945]. ••1969 Nordsieck: *Cardium sulcatum* Lamarck, 1819 = *Laevicardium oblongum* (Chemnitz, 1782). ••1977 Fischer-Piette, p. 176: *Cardium sulcatum* Lamarck = *Laevicardium oblongum* Lamarck sic. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Cardium sulcatum* Lamarck. Pliocene. Italy; Algeria; Greece; B36096, B38899, B40342, B41270. – CHARACTERS AND OCCURRENCE – REMARKS. ••1841 Sowerby, No. 64: a shell [*C. sulcatum*] has been collected at Plymouth by Mr. Cuming, which is distinct from *C. serratum*, and may probably turn out to be a British variety of this species. •• Label at ZMUC: “Lamarck No. 24 = *flavum* Born t 3/8, and *oblongum* Ch fig. 190, E. pl. 298 f. 5 bon, and *flavum* Poli t 17 f. 9. Gulf d Toronto = *oblongum* Gmelin, 1791 Mediterranean, Canary Isl.” ••1969 Nordsieck: *Cardium flavum* Born, 1780 = *Cardium sulcatum* Lamarck, 1819 = *Laevicardium oblongum* (Chemnitz, 1782). HABITAT. ••1969 Nordsieck: the species *oblongum*: sand at 4–200 m depth. DISTRIBUTION. ••1845 Reeve: the species *sulcatum*: Mediterranean. ••1969 Nordsieck: *oblongum*: Mediterranean, Canary Isl.

**sulcatum** Leckenby, 1858. – *Unicardium sulcatum* Leckenby, 1858. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Unicardium sulcatum* Leckenby, 1858; vol. 15: 14, pl. 3, fig. 11.

**sulcatum** of authors. – RECORDS. ••1870 Aradas & Benoit: *Cardium sulcatum* auctt. = *Cardium oblongum* Chemnitz.

**sulcatum** of Blainville – RECORDS. ••1917 Hidalgo: *Cardium sulcatum* Blainville = *Cardium oblongum*.

**sulcatum** of Gmelin (1791). [Figs. Part 1 p. 139]. – Synonym of *Laevicardium oblongum* (Gmelin, 1791). >> Regarding *Cardium sulcatum*: Cardiidae. Recent. TYPE LOCALITY. Mediterranean (Reeve 1845). DISTRIBUTION. Mediterranean (Römer 1891). RECORDS. ••1791 Gmelin: did not refer to *Cardium sulcatum*, only to *Cardium oblongum*. ••1891 Römer: *Trachycardium sulcatum* Gm. ••1845 Reeve, fig. 79: *Cardium sulcatum* Gmelin. ••1977 Fischer-Piette, p. 18: *Cardium sulcatum* Gmelin = *Cardium oblongum* Gmelin. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1845 Reeve: shell elongately ovate,

attenuated towards the umbones, very ventricose, radiately grooved, posterior area smooth, depressed; rusty white, covered with a yellowish olive epidermis. REMARKS. ••1845 Reeve: the sculpture of this species is of such a very similar character to that of the *Cardium oblongum*, that I (Reeve) at first doubted whether they be truly distinct. Upon subsequent examination I (Reeve) find they differ constantly in form, the *Cardium sulcatum* being more elongated and so much more full and ventricose about the umbones. DISTRIBUTION. ••1845 Reeve: Mediterranean.

**sulcatum** of Payraudeau (1826). – RECORDS. ••1826 Payraudeau: *Cardium sulcatum* Lamarck. n. 24. ••1880 Stossich: *Cardium sulcatum* Payraudeau, 1862 sic = *Laevicardium oblongum* Chemnitz.

**sulcatum** of Philippi. – RECORDS. ••1856 Jeffreys: (*Cardium sulcatum* Ph.) = *Cardium norvegicum* B.M. (Note: Ph. & B.M. = Philippi and “British Mollusca Forbes & Hanley 1849” respectively).

**sulcatum** Michelotti, 1839. – Combination to be revised: “*Cardium sulcatum* Michelotti, 1839. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6300: *Cardium sulcatum* Michelotti, 1839.

\***sulciferum**. – Homonymy to be noticed. *Cardium sulciferum* from 2 sources: Bayle in Fournel, 1849. – Deshayes, 1853.

**sulciferum** Bayle in Fournel, 1849. – Combination to be revised: “*Cardium sulciferum* Bayle in Fournel, 1849. ?Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6311: *Cardium sulciferum* Bayle in Fournel, 1849.

**sulciferum** Deshayes, 1853. – Combination to be revised: “*Cardium sulciferum* Deshayes, 1853. ?Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium sulciferum* Deshayes, 1853; vol. 2: 49.

**suldiense** (error). – Printer’s mistake for *suediense* in Locard 1886.

**sulini** Alizade. – *Raricardium? sulini* (Alizade). Lymnocardiidae. Neogene. RECORDS. ••1986 Nevesskaya et al.: *Raricardium? sulini* (Alizade) comb. nov. ••1987 ZR: *Raricardium? sulini* (Alizade) comb. nov. Ref. to Nevesskaya et al. p. 191.

**sulini magnum** Tscheltzov, 1965 (subspecies). – Combination to be revised: “*Cardium sulini magnum* Tscheltzov, 1965. Lymnocardiidae. Pliocene. RECORDS. ••1965 ZR: *Cardium sulini magnum* Tscheltzov, 1965 subsp. nov. Akchagyalian (Pliocene), Turkmenia, USSR.

**suluanum** Vidal, 1999. [Figs. Part 3 p. 880]. – *Acrosterigma suluanum* Vidal, 1999. Cardiidae. Recent. TYPE LOCALITY. Holotype, Tawitawi Island, Sulu Archipelago, Philippines, 439 m. TYPE REPOSITORY. Holotype, National Museum of Natural History, Washington DC. Paratypes, Zoological Museum University of Copenhagen. TYPE MATERIAL. Holotype, a right valve (USNM 299435). Paratypes 1,2,3, a left valve and two right valves from Sunasaki, Japan, 150–35 m (ZMUC, coll. Mortensen). Paratypes 4 and 5 two right valves, Japan, 113 m, same repository and collection. RECORDS. ••1999 Vidal, p. 298, Table 22, Figs 8D–F: *Acrosterigma suluanum* n. sp. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value. Ribs are rounded and the fine lateral ornaments are situated at the base of the ribs, touching the interstice. DESCRIPTIONS. ••1999 Vidal: shell ovoid, not truncated posteriorly and almost equilateral,

## sumsarica – symbolicum

moderately elongated and tumid. Lunule small, rather imperfectly delineated, its umbonal margin raised. Colour yellow with orange splashes; interior partially pink. Hinge slightly asymmetrical and moderately angled. On right valve, cardinals slightly more than usually fused at base. Rib number  $43.8 \pm 1.3$ , range 41–45. Posteriorly, interstices very thin, ribs very flat with an axial furrow separating two zones of similar width. Slightly elongated, tubercular, oblique scales on posterior part encroaching upon anterior zone, straddling axial furrow. On middle part of surface, ribs are flatly triangular and asymmetrical posteriorly, then rounded. Scales disappear and are replaced further posteriorly with numerous very thin short ridges or tubercles, situated at base of rib, touching interstice. Anteriorly, large scales reappear on posterior flanks, imposed on the latter fine ornamentation: a similar fine beading but thinner and more tubercular appears also at base of anterior flank of ribs. On anterior slope, the fine beading of both sides disappears and posterior large scales proceed to top and anterior flank of ribs, forming free top-ridges which are not imbricated. DIMENSIONS. Length 34.0, height 43.6, width (calculated) 30.0 mm. REMARKS. ••1999 Vidal: *Acrosterigma suluanum* shares with *A. profundum* the character of having fine ornaments on both sides of the ribs on median surface (difference with *A. uniornatum* and *A. amirante* that have ornaments only on the posterior side). On *A. suluanum*, however, the ribs are rounded and the fine lateral ornaments are situated at the base of the ribs, touching the interstice, whilst on *A. profundum* the ribs are squared and the fine ornaments are separated from the interstice and slightly overhang it. In addition, the rib number of *profundum* is higher, with an average of 58.4, against 43.8 on *suluanum*. DISTRIBUTION. ••1999 Vidal: Known from the Philippines and Japan.

**sumsarica** (variety). – See under *beshbaluki* var. *sumsarica* Mirkamalova, 1958.

**sundica** Andrusov, 1963. – *Didacna sundica* Andrusov, 1963. Lymnocardiidae. Miocene. RECORDS. ••1963 ZR: *Didacna sundica* Andrusov, 1963 sp. nov. Miocene, Russia.

**sundicum** Vekilov, 1959. – Combination to be revised: "*Cardium*" *sundicum* Vekilov, 1959. Lymnocardiidae. Pliocene. RECORDS. ••1959 ZR: *Cardium sundicum* Vekilov, 1959 sp. nov. Pontic beds, Lower Pliocene, Maraza region, Azerbaidjan.

**superbum** Tremlett, 1950. – *Nemocardium superbum* Tremlett, 1950. Cardiidae. Cretaceous. RECORDS. ••1950 ZR: *Nemocardium superbum* Tremlett, 1950 sp. nov. Hampshire Basin, Bracklesham Bay. ••1977 Popov: *Nemocardium (Nemocardium) superlum* sic Tremlett, 1950.

**superlum** (error). – Printer's mistake for *superbum* in Popov 1977.

**superobliquum** Riedel, 1932. – Combination to be revised: "*Cardium*" *superobliquum* Riedel, 1932. Cardiidae. Cretaceous. RECORDS. ••1938 ZR: *Cardium superobliquum* Riedel, 1932 sp. n. Cretaceous Cameroons.

**supina** (variety). – See under *rectidens supina*.

**supracimmerica** Eberzin, 1960. – *Pachydaena supracimmerica* Eberzin, 1960. Lymnocardiidae. Pliocene. RECORDS. ••1960 ZR: *Pachydaena supracimmerica*

Eberzin, 1960 sp. n. Pliocene Tamansk, Bugazskii region, Crimea, USSR.

**supraelegans** Gregorio, 1930. – Combination to be revised: "*Cardium*" *supraelegans* Gregorio, 1930. Cardiidae. Lias. RECORDS. ••1936 ZR: *Cardium supraelegans* Gregorio, 1930 sp. n. Lias Palermo.

**supsaе** (subspecies). – See under *crassa supsaе* Nevesskaya, 1963.

**susannae** Bagdasaryan, 1979. – *Parvicardium susannae* Bagdasaryan, 1979. Cardiidae. Lower Miocene. RECORDS. ••1979 ZR: *Parvicardium susannae* Bagdasaryan, 1979. Sp. nov. Ukraine. Ref. to Bagdasaryan, p. 39.

**suwannense** Mansfield, 1937. – Combination to be revised: "*Cardium*" *suwannense* Mansfield, 1937. Cardiidae. Oligocene. RECORDS. ••1937 ZR: *Cardium (Acanthocardia) suwannense* Mansfield, 1937 sp. n. Suwannee limestone (Oligocene) Florida.

**sveticum** (error). – Printer's mistake for *suediense* in Sars 1851, Danielssen 1859 and Mörch 1871.

**suediense** (error). – Printer's mistake for *suediense* in Sowerby 1859.

**sybariticum** (subspecies). – See under *serratum sybariticum*.

**sybariticum** Dall, 1886. – Changed combination: *Laevicardium sybariticum* (Dall, 1886). Cardiidae. Recent. OF COLLECTIONS. ZMUC from St Thomas, West Indies. Antilles. RECORDS. ••1886 Dall, 12, p. 171: *Cardium serratum* var. *sybariticum*. ••1900 Dall: *Cardium serratum* var. *sybariticum*. ••1902 Dall & Simpson, pl. 58, fig. 11: *Cardium (serratum* var.?) *sybariticum* Dall. ••1939 McLean: *Cardium sybariticum* Dall, 1886 = *Laevicardium serratum sybariticum* (Dall, 1886). ••1944 Clench & Smith: *Laevicardium sybariticum* Dall. ••1944 ZR: *Laevicardium sybariticum* Dall [Ref. Clench & Smith 1944]. ••1947 Aguayo & Jaume: *Laevicardium sybariticum* Dall. ••1951 McLean: *Laevicardium sybariticum* Dall. ••1961 Weber: *Laevicardium sybariticum*. ••1962 Warmke & Abbott: *Laevicardium sybariticum* Dall, 1886. ••1968 Jong & Kristensen: *Americardia sybariticum* Dall. ••1971 Porter & Wolfe: *Laevicardium sybariticum* (Dall) ?. ••1974 Abbott: *Laevicardium sybariticum* (Dall, 1886). ••1977 Fischer-Piette: *Laevicardium sybariticum* Dall & Simpson. ••1997 Shelton: *Laevicardium sybariticum* (Dall, 1886). ••2001 Vidal, p. 407: *Laevicardium sybariticum*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1902 Dall & Simpson: shell much smaller and more delicate than the type, more compressed, pale or faintly flecked with pink or purple; beaks often deep pink. ••2001 Vidal: tentacles numerous. No eyes on tentacles. DIMENSIONS. ••1902 Dall & Simpson: length 11, height 14, diameter 7 mm. DISTRIBUTION. ••ZMUC St Thomas, West Indies; Antilles. ••1977 Fischer-Piette Brazil. ••1902 Dall & Simpson: Porto Rico.

**syphanta** Boghachev, 1938. – New combination: *Lymnocardium syphanta* Boghachev, 1938. Lymnocardiidae. Fossil. RECORDS. ••1939 ZR: *Limnocardium syphanta* Boghachev, 1938 sp. n.

**symbolicum** Iredale, 1929. [Figs. Part 3 p. 903]. – New name. *Ctenocardia symbolicum* (Iredale, 1929). Cardiidae. Recent. Type species of *Ctenocardia* H. & A.

*symmetrica* – *Tauricardium*

Adams, 1857. DISTRIBUTION. central Indo–West Pacific (Hylleberg 1994). RECORDS. ••1929 Iredale, p. 264: *Fragum* (*Ctenocardia*) *symbolicum* nom. nov. for *Ctenocardia hystrix* (Reeve, 1844) (type of genus named), *hystrix* preoccupied by Solander 1786. ••1929 ZR: *Fragum symbolicum* nom. n. for *Cardium hystrix* Rve. [Ref. Iredale 1929b]. ••1932 Prashad: *Cardium* (*Ctenocardia*) *symbolicum*. Nomen novum replacing *hystrix* Reeve, 1844. ••1977 Fischer–Piette: *Corculum* (*Ctenocardia*) *symbolicum* Iredale. ••1977 Wilson & Stevenson: *Fragum* (*Ctenocardium*) *symbolicum* Iredale, 1929; new name for *Cardium hystrix*.

*symmetrica* Popov, 1983. – *Didacna symmetrica* Popov, 1983. Lymnocardiiidae. Pleistocene. TYPE LOCALITY. Russian SFSR. RECORDS. ••1983 Popov, p. 154, fig.: *Didacna symmetrica* sp. nov.

*syriacum* (cf.) Conr. – *Trachycardium* cf. *syriacum* Conr. Cardiidae. Fossil. RECORDS. ••1917 ZR: *Trachycardium* cf. *syriacum* Conr. [Ref. Newton 1917].

*syrmienis* Hörnes, 1874. – *Paradacna syrmienis* (Hörnes, 1874). Lymnocardiiidae. Fossil. RECORDS. ••1970 Glibert & Poel, p. 66: *Paradacna syrmienis* (Hörnes, 1874). ••1987 Taktakishvili: *Limnocardium syrmienis* R. Hoern.

*syrticum* (subspecies). – See under *glaucom syrticum* Coen, 1915.

*szaboi* Loer. – New combination: *Lymnocardium szaboi* (Loer.). Lymnocardiiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocardium szaboi* Loer.

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*tabacoensis* Myers, 1968. – New combination: *Granocardium tabacoensis* Myers, 1969. Cardiidae. Fossil. ••1968 ZR: *Cardium* (*Granocardium*) *tabacoensis* Myers, 1968 sp. nov. Cardenas formation, Mexico. ••1969 ZR: *Cardium* (*Granocardium*) *tabacoensis* Myers, 1969 sp. nov. Arroyo del Tabaco, Cardenas formation, Arroyo del Aguaje, Mexico.

**Tachycardium** (error). – Printer's mistake for *Trachycardium* in Csepregy–Meznerics 1959 (Vokes 1980).

*taciturna* Papaianopol, 1989. – *Pachydaena taciturna* Papaianopol, 1989. Lymnocardiiidae. Pliocene. TYPE LOCALITY. Basin Dacique, Romania. RECORDS. ••1989 Papaianopol, p. 71, fig.: *Pachydaena* (*Pachydaena*) *taciturna* sp. nov.

*taeniopleura* Dall, 1900. – Changed combination: *Planicardium taeniopleura* (Dall, 1900). Cardiidae. Fossil. ••2002 Schneider: citing Dall (1900): *Cardium* (*Cerastoderma*) *taeniopleura* sp. nov. section *Cerastoderma*. ••2002 Schneider: citing Stanley (1986): *Planicardium taeniopleura*.

*taidonense* Tolmatchoff, 1925. – *Conocardium taidonense* Tolmatchoff, 1925. Conocardiidae. Carboniferous. RECORDS. ••1925 ZR: *Conocardium taidonense* Tolmatchoff, 1925 sp. n. Carbon.

*taiwanensis* (subspecies). – See under *samarangae taiwanensis* Masuda & Huang, 1990.

*taiwanensis* Masuda & Huang, 1990. – *Vepricardium taiwanensis* Masuda & Huang, 1990. Cardiidae. Miocene. TYPE LOCALITY. Western Foothills of northern Taiwan. RECORDS. ••1990 Masuda & Huang, p. 153,

fig.: *Vepricardium taiwanensis* sp. nov.

*takoyensis* Kafanov & Savizky, 1982. – *Yagudinella takoyensis* Kafanov & Savizky, 1982. Cardiidae. Upper Miocene. RECORDS. ••1982 Kafanov & Savizky: *Yagudinella takoyensis* Kafanov & Savizky. ••1982 ZR: *Yagudinella takoyensis* Kafanov, 1982 sp. nov. Russian SFSR, Ref. to Kafanov, *et al.* p. 41.

*talahabense* Martin, 1922. – Combination to be revised: “*Cardium*” *talahabense* (Martin, 1922). Cardiidae. Lower Miocene. TYPE LOCALITY. Lower Miocene of Java (Vidal 1999). RECORDS. ••1922 ZR: *Cardium* (*Eucardium*) *talahabense* Martin, 1922 sp. n. Tertiary. ••1999 Vidal, p. 270: cites Martin 1922, 484, pl. 61, figs. 105–105a: *Cardium* (*Eucardium*) *talahabense*.

*tamanica* (subspecies). – See under *caspia tamanica* Nevesskava, 1963.

*Tamilicardia* (subgenus). – Cardiidae. Upper Cretaceous. RECORDS. ••1983 ZR: (*Tamilicardia*) subgenus of *Protocardia*. India.

*tanaica* Ebersin, 1967. – *Didacnomya tanaica* Ebersin, 1967. Lymnocardiiidae. Pliocene. RECORDS. ••1967 Ebersin: *Didacnomya tanaica* sp. n. ••1967 ZR: *Didacnomya tanaica* Eberzin, 1967 sp. nov. figs. Pliocene, USSR.

*taanitaica* (subspecies). – See *pontocaspia taanitaica* Popov, 1983.

*taanitaica* Popov, 1955. – *Didacna taanitaica* Popov, 1955. Lymnocardiiidae. Quaternary. RECORDS. ••1956 ZR: *Didacna taanitaica* Popov, 1955 sp. nov. Don and Warsaw Manich Quaternary. Russia.

*taphrium* Dall, 1900. – *Dinocardium taphrium* (Dall, 1900). Cardiidae. Fossil. ••2002 Schneider: citing Dall (1900): *Cardium* (*Cerastoderma*) *taphrium* sp. nov. section *Dinocardium*.

*taracaicum* Yokoyama, 1930. – Changed combination: *Laevicardium taracaicum* (Yokoyama, 1930). Cardiidae. Upper Oligocene–Miocene. RECORDS. ••1930 Yokoyama: *Cardium taracaicum* (fide Keen 1973). ••1930 ZR: *Cardium taracaicum* Yokoyama, 1930 sp. n., fossil. ••1973 Keen: *Laevicardium taracaicum* (Yokoyama, 1930).

*taramelli* Gortani, 1906. – *Conocardium taramelli* Gortani, 1906. Conocardiidae. Carboniferous. RECORDS. ••1906 ZR: *Conocardium taramelli* Gortani, 1906 sp. n. Carboniferous, Carnian Alps.

*tarchanicum* (subspecies). – See under *liverovskayae tarchanicum*.

*tascharvatica* Sibiryakova, 1962. – *Protocardia tascharvatica* Sibiryakova, 1962. Cardiidae. Jurassic. RECORDS. ••1962 ZR: *Protocardia tascharvatica* Sibiryakova, 1962. sp. nov. Tascharvat, Western Turkmeniya, Russia, Jurassic.

*tatarica* Kafanov ex Lautenschläger, 1997. – *Papyridea tatarica* Kafanov ex Lautenschläger, 1997. Cardiidae. Fossil. RECORDS. ••1997 Kafanov, p. 6, pl. 8, fig. 3.: *Papyridea* (*Profulvia*) *tatarica* Kafanov ex Lautenschläger.

*Tauricardium* Ebersin, 1947 (genus). – Lymnocardiiidae. Tertiary. RECORDS. ••1980 Vokes: *Tauricardium* Ebersin, 1947 in subfamily Lymnocardiiinae.

*Tauricardium* Eberzin, 1958 (subgenus). – Lymnocardiiidae. Pliocene. RECORDS. ••1958 ZR: *Tauricardium* Eberzin, 1958 subgen. nov. of *Limnocardium*; subgenotype: *Limnocardium subsquamulosum*

- Andrusssov, 1903 Pliocene of the Ponto-Caspian basin, Russia. ••1958 ZR: *Tauricardium* Eberzin, 1958 subgen. nov. of *Lymnocardium* q.v. ••1983 ZR: (*Tauricardium*) subgenus of *Lymnocardium* Romania. Dacicue Basin. Neogene. Ref. to Papaianopol et al. ••1987 Taktakishvili: (*Tauricardium*) Ebersin, 1947.
- tauricum** Sobetskii, 1977. – *Granocardium tauricum* Sobetskii, 1977. Cardiidae. Upper Cretaceous. RECORDS. ••1977 ZR: *Granocardium tauricum* sp. nov. Ukraine. Ref. to Sobetskii, p. 184, fig'd. ••1986 Abdel-Gawad: "*Granocardium*" *tauricum* Sobetski, 1977.
- taurina** Michelotti, 1847. – *Acanthocardia taurina* (Michelotti, 1847). Cardiidae. Fossil. RECORDS. ••1977 Popov: *Acanthocardia* (*Acanthocardia*) *taurina* (Michelotti, 1847).
- taurinium** Michelotti, 1847. – Combination to be revised "*Cardium*" *taurinium* Michelotti, 1847. ?Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6393: *Cardium taurinium* Michelotti, 1847.
- taurovatum** Sacco, 1899. – *Laevicardium taurovatum* Sacco, 1899. Cardiidae. Tertiary. RECORDS. ••1899 Sacco, p. 53, pl. 12, fig. 6: *Laevicardium taurovatum* Sacc. ••1977 Popov: *Laevicardium taurovatum* Sacco, 1899.
- tcheliense** Debeaux in Pilsbry, 1904. – Synonym of *Fulvia mutica* (Reeve, 1844). >> Regarding *Cardium tcheliense*: Cardiidae. Recent. RECORDS. ••1994 Vidal: *Cardium tcheliense* Debeaux in Pilsbry, 1904 = *Fulvia* (*Fulvia*) *mutica* (Reeve, 1844).
- tchuktchense** (subspecies). – See under *ciliatum tchuktchense* Kafanov, 1981.
- tegalense** Oostingh, 1934. – New combination: *Laevicardium tegalense* Oostingh, 1934. Cardiidae. Tertiary. RECORDS. ••1934 ZR: *Laevicardium* (*Laevicardium*) *tegalense* Oostingh, 1934 sp. n. Tertiary Java.
- tegulata** Münster, 1840. – See under *tegulatum* Orbigny, 1850.
- tegulatum** Dautzenberg, 1900. [Figs. Part 3 p. 907]. Synonym of *Fragum unedo* (Linné, 1758). >> Regarding *Hemicardium tegulatum*: Cardiidae. Recent. TYPE REPOSITORY. Museum d'Histoire naturelle de Paris. RECORDS. ••1900 Dautzenberg, p. 5-8, pl. 1, figs 3-6: *Hemicardium tegulatum* n. sp. ••1900. ZR: *Hemicardium tegulatum* Dautzenberg, 1900 n. sp. hab. unknown. ••1909 Lyngé: *Hemicardium tegulatum* Dautzenberg, 1900 = *Fragum unedo* (Linné, 1758). ••1932 Prasad: *Hemicardium tegulatum* Dautzenberg, 1900 = *Fragum unedo* (Linné, 1758). ••1970 Glibert & Poel, p. 48: "*Hemicardium*" *tegulatum* Dautzenberg, 1900. ••1977 Fischer-Piette, p. 144: *Corculum* (*Hemicardia*) *tegulatum* Dautzenberg. ••1981 ZR: *Fragum tegulatum* (Dautzenberg 1900) Junior synonym of *F. unedo* Linnaeus. Ref. to Germain, p. 166. ••1982 ZR: *Fragum* (*Fragum*) *tegulatum* (Dautzenberg 1900) Diagnostic characters. Taxonomic position. Ref. to Germain. – CHARACTERS AND OCCURRENCE – REMARKS. ••1977 Fisher-Piette: re-established *tegulatum* Dautzenberg, 1900 but the action was erroneous. The synonymy (= *Fragum unedo*) is correct according to Luc Germain who studied the specimen of Dautzenberg. DISTRIBUTION. ••1994 Hylleberg: Indo-Pacific.
- tegulatum** Hal. – New combination: *Lymnocardium tegulatum* (Hal.). Lymnocardiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocardium tegulatum* (Hal.). **tegulatum** Orbigny, 1850. [Figs. Part 3 p. 907]. – *Cardium tegulatum* d'Orbigny, 1850. Conocardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6397: *Cardiola tegulata* Muenster, 1840. ••1922-32 Sherborn, p. 6397: *Cardium* (Muenster) *tegulatum* d'Orbigny, 1850. – *Cardiola*.
- teisenbergerense** Schlosser, 1926. – New name. "*Cardium*" *teisenbergerense* Schlosser, 1926. Combination to be revised. Cardiidae. Fossil. RECORDS. ••1926 ZR: *Cardium teisenbergerense* Schlosser, 1926 nom. nov. for *C. raulini* Gumbel.
- telluris** Hoeninghaus, 1831. – *Hemicardium telluris* Hoeninghaus, 1831. – Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6401: *Hemicardium telluris* Hoeninghaus, 1831. ••1922-32 Sherborn: *Hemicardium telluris*.
- telluris** Lamarck, 1819. – Not a cardiid. >> Regarding *Cardium telluris*: Cardiaceae. Fossil. RECORDS. ••1819 Lamarck: *Cardium telluris* Lamk. ••1912 Favre: *Cardium telluris* Lamarck. [Not a cardiid = *Ceromya elegans* Deshayes]. ••1922-32 Sherborn, p. 6401: *Cardium telluris* Lamarck, 1819.
- Tendagurium** Dietrich, 1933 (genus). – Cardiidae. Fossil. RECORDS. ••1980 Vokes: *Tendagurium* Dietrich, 1933 in subfamily Protocardiinae.
- Tendagurium** Dietrich, 1933 (subgenus). – Cardiidae. Cretaceous. RECORDS. ••1933 ZR: *Tendagurium* Dietrich, 1933 subgen. n. of *Cardium* type *Cardium propebanneianum* Dietrich, 1933 sp. n. Cretaceous Africa. ••1937 ZR: *Tendagurium* Dietrich 1933 "type here designated *Cardium* (*Tendagurium*) *propebanneianum* Dietrich 1933" [Ref. Keen 1937]. ••1977 ZR: *Protocardia* (*Tendagurium*). Lower Cretaceous. Argentina, Patagonian Spring hill Formation, first record for Patagonia. Ref. to Riccardi. ••1995 Schneider: *Tendagurium* Dietrich, 1933. Mesozoic subgenus of *Cardium*. Salisbury (1934) designated *Cardium propebanneianum* [err. pro *propebanneianum*] Dietrich, 1933, as the type species. ••1995 Schneider: Hayami (1958) considered the name *Tendagurium* unavailable. – *Tendagurium* is valid, and the taxon is considered to have been erected by Salisbury (1934).
- tenellum** Wood, 1840. – Combination to be revised: "*Cardium*" *tenellum* Wood, 1840. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6409: *Cardium tenellum* Wood, 1840.
- tenera** (subspecies). – See under *corbuloides tenera* Taktakishvili, 1978.
- tenerum** Solander, 1786. – Not valid. >> Regarding *Cardium tenerum*: Cardiidae. Recent. Synonym of *Fulvia aperta* (Bruguère, 1789). OTHER JUDGEMENTS: *Fulvia bullata* (Linnaeus, 1758). – *Fulvia aperta* (Bruguère, 1789). – *Nomen nudum*. REMARKS. *Cardium tenerum* was listed by Dillwyn (1817) with reference to *Cardium rugatum* Solander's MSS. No details are available about the species. RECORDS. ••1817 Dillwyn: *Cardium tenerum* Solander's MSS = *Cardium rugatum* Gronovius. ••1922-32 Sherborn, p. 6412: *Cardium tenerum* Solander, 1786 [n.n.]. ••1945 Smith: *Cardium tenerum* 'Solander' Dillwyn 1817 syn. = *Fulvia bullata* Linné. ••1977 Fischer-Piette: *Cardium tenerum*

**tenuis – tenuicostatum**

Dillwyn = *nomen nudum*. ••1992 Lamprell & Whitehead: *Cardium tenerum* Dillwyn, 1817 = *Fulvia aperta* (Bruguière, 1789).

\***tenuis**. – **Homonymy to be noticed.** *Cardium tenuis* from 4 sources: Brown, 1827. – Sowerby, 1838. – Orbigny, 1850. – Leach, 1852.

**tenuis** Brown, 1827. – *Nomen nudum* but accompanied by figure. >> Regarding *Cardium tenuis*: Cardiidae. Recent. Synonym of *Cerastoderma edule* (Linné, 1758). RECORDS. ••1852 Leach: *Cardium tenuis*. ••1867 Weinkauff: *Cardium tenuis* Brown = *Cardium edule* Linné. ••1888 Kobelt: *Cardium tenuis* Brown = *Cardium* var. *edule*. ••1922-32 Sherborn, p. 6422: *Cardium tenuis* Brown, 1827 [n. et f.].

**tenuis** Jekelius, 1944. – New combination: *Lymnocardium tenuis* Jekelius, 1944. Lymnocardiidae. Miocene. RECORDS. ••1946 ZR: *Lymnocardium tenuis* Jekelius, 1944 sp. nov. Miocene Soceni Banat.

**tenuis** Leach, 1852. – Insufficiently known species. >> Regarding *Cardium tenuis*: ?Cardiidae. Recent. TYPE LOCALITY. Seas of Great Britain. RECORDS. ••1852 Leach, p. 319: *Cardium tenuis*. ••1977 Fischer-Piette: *Cardium tenuis* Leach = species insufficiently known. ••1980 Ruhoff: *Cardium tenuis* Leach in J. Gray, 1852; p. 319. – CHARACTERS AND OCCURRENCE – DIMENSIONS. Length 1 inch and three-eighths. REMARKS. The specific name indicates that the species has a thin shell. Fischer-Piette (1977) referred to numerous ribs, but since Lea did not compare with other cardiids, the exact nature of Lea's species is cryptic.

**tenuis** Orbigny, 1850. – Combination to be revised: "*Cardium*" *tenuis* d'Orbigny, 1850. Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6422: *Cardita tenuis* Klipstein, 1845. ••1922-32 Sherborn, p. 6422: *Cardium* (Klip.) *tenuis* d'Orbigny, 1850. – *Cardita tenuis*.

**tenuis** Sowerby, 1838. [Figs. Part 1 p. 112]. – Synonym of *Fulvia tenuicostata* (Lamarck, 1819). OTHER JUDGEMENTS: Fischer-Piette (1977) suggested *Cardium tenuis* Sowerby = *Cardium tenuicostatum* Lamarck = *Papyridea papyraceum* (Chemnitz) Schröter [not available]. >> Regarding *Cardium tenuis*: Cardiidae. Recent. RECORDS. ••1838 Sowerby, 149<sup>th</sup> part, No. 36: *Cardium tenuis nobis*. ••1840 Sowerby, corrected list p. 8: *Cardium tenuis nobis* = *Cardium tenuicostatum* Lam. ••1840 Sowerby, corrected list, p. 8: *Cardium tenuicostatum* (Sowerby No. 8). ••1977 Fischer-Piette: *Cardium tenuis* Sowerby = *Papyridea papyraceum* (Chemnitz) Schröter.

**tenuis** Stephenson, 1941. – *Brevicardium tenuis* Stephenson, 1941. Cardiidae. Cretaceous. RECORDS. ••1946 ZR: *Brevicardium tenuis* Cretaceous, Texas, Neylandsville marl 2 1/2 m N. of Corbet. ••1947 ZR: *Brevicardium tenuis* Stephenson, 1941 sp. nov. Navarro Group, Upper Cretaceous, Texas.

**tenuis** Vu Khuc 1991. – *Vietnamicardium tenuis* Vu Khuc 1991. Cardiidae. Triassic. TYPE LOCALITY. Vietnam. RECORDS. ••1991 Vu Khuc et. al. p. 101, fig: *Vietnamicardium tenuis* Vu Khuc 1991; sp. nov.

**tenuis beta** Leach, 1852 (variety). – Insufficiently known species. >> Regarding *Cardium tenuis* var. *beta*: ?Cardiidae. RECORDS. ••1852 Leach: *Cardium tenuis* var. *beta* Leach, 1852.

**tenuicostata** (mode and variety). – See under *tenuicostatum* Lamarck, 1819 and *planicostata* var.

*tenuicostata* Andrusov, 1964.

**tenuicostata** Gillet, 1970. – *Monodacna tenuicostata* Gillet, 1970. Lymnocardiidae. Miocene. RECORDS. ••1970 ZR: *Monodacna tenuicostata* Gillet, 1970 sp. nov. Miocene, 'Monte dei Corvi' deposits, Ancona region, Italy.

**tenuicostata** Gillet, 1970. – *Pontalmyra tenuicostata* Gillet, 1970. Lymnocardiidae. Miocene. RECORDS. ••1970 ZR: *Pontalmyra tenuicostata* Gillet, 1970 sp. nov. Miocene, 'Monte dei Corvi' deposits, Ancona district, Italy.

\***tenuicostatum**. – **Homonymy to be noticed.** *Cardium tenuicostatum* from 2 sources: Lamarck, 1819. – Gumbel, 1861.

**tenuicostatum** Gumbel, 1861. – Combination to be revised: "*Cardium*" *tenuicostatum* Gumbel, 1861. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium tenuicostatum* Gumbel, 1861; p. 743.

**tenuicostatum** Lamarck, 1819. [Figs. Part 1 p. 119, 133, 174. Part 3 p. 891, 929]. – Changed combination: *Fulvia tenuicosta* (Lamarck, 1819). OTHER JUDGEMENTS: *Fulvia australe*. – *Papyridea papyraceum*. << Regarding *Cardium tenuicostatum*: Cardiidae. Pliocene, Quaternary and Recent. TYPE LOCALITY. Timor and Australia. TYPE REPOSITORY. National Museum in Paris, unknown availability. Lectotype designated by Vidal 1994, p. 101. RECORDS. ••1841 Lamarck, pl. 11, fig. 6 a, b, c: *Cardium tenuicostatum*. ••1844 Reeve, species 50. *Cardium tenuicostatum* Lamarck, Anim. sans vert (Deshayes' edit.), vol. vi. p. 372. ••1865 Angas: *Papyridea tenuicosta* Lam. ••1867 Angas: *Cardium* (*Papyridium* sic) *tenuicostatum* Lam. ••1868 ZR: *Cardium tenuicostatum* (Lam.). *Cardium radiatum* (Reeve) seems to be a variety [Ref. Römer 1868]. ••1869 Issel: *Cardium tenuicostatum*? Lamarck. ••1871 Fischer: *Cardium tenuicostatum* Lamarck. ••1885 Smith: *Cardium* (*Bucardium*) *tenuicostatum* Lamarck. ••1890 Paetel: *Cardium tenuicostatum* Lm. ••1898 Bavay: *Cardium tenuicostatum* Lmk. probably *Fulvia australe*. ••1899 Sturany: *Cardium tenuicostatum* Lm. ••1905 Sturany: *Cardium tenuicostatum* Lm. ••1922-32 Sherborn, p. 6418: *Cardium tenuicostatum* Lamarck, 1819. ••1932 Lamy: *Cardium* (*Papyridea*) *tenuicostatum* Lk. ••1932 Prasad: *Cardium* (*Laevicardium*) *tenuicostatum*. ••1942 ZR: *Cardium tenuicostatum* sterol fraction content [Ref. Fantl 1942]. ••1945 Smith: *Fulvia tenuicostata* Lamarck, 1819. ••1961 Cotton: *Fulvia tenuicostata* Lamarck 1819; Pliocene, South Australia. ••1974 Habe & Kosuge: *Fulvia tenuicostata* (Lamarck, 1822). ••1977 Fischer-Piette: *Cardium tenuicostatum* Lamarck = *Papyridea papyraceum* (Chemnitz) Schröter. ••1977 Wilson & Stevenson: *Fulvia tenuicostatum* (Lamarck, 1819). ••1992 Oliver: *Cardium tenuicostatum*? Lamarck in Issel (1869) = *Fulvia australe*. ••1992 Oliver: *Cardium tenuicostatum* Lamarck in Fischer 1871 = *Fulvia australe*. ••1992 Oliver: *Cardium tenuicostatum* Lm. in Sturany 1899 = *Fulvia australe*. ••1992 Oliver: *Cardium tenuicostatum* Lm. in Sturany 1905 = *Fulvia australe*. ••1992 Lamprell & Whitehead: *Fulvia tenuicostatum*. ••1994 Vidal: *Cardium tenuicostatum* Lamarck, 1819; lectotype designated, p. 101. ••1994 Vidal: *Fulvia* (*Fulvia*) *tenuicosta* (Lamarck, 1819). ••1999 Jacques Vidal (pers. com.) MNHN, Paris:

*tenuicostatum* – *tenuo*

- Fossils from the Paleontological Collection as *Cardium tenuicostatum* Lamarck. Quaternary. Egypt (Suez), B42200. •2001 Vidal, p. 408; *Fulvia tenuicostata*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1844 Reeve: shell transversely ovate, rather oblique, somewhat thin, ventricose, radiately very finely ribbed, sometimes 40 smooth ribs, sometimes about 52-53; whitish, ribs variegated in a wavy manner with small flesh-colour spots, umbones rose-purple. •1972 Cernohorsky: 45-55 feeble radial ribs. •1819 Lamarck: 48 ribs. •2001 Vidal: tentacles numerous. Eyes on tip of tentacles. DIMENSIONS. To 60 mm in length. HABITAT. Coral sand, 10-20 m. DISTRIBUTION. •1819 Lamarck: gives reference to Timor (Indonesia) and New Holland. Reference to Timor is erroneous according to Stephen & Wilson. Lamarck specifies that specimens from Australia are slightly more inequilateral, so he must have had specimens from Timor to compare with. •1819 Lamarck p. 5, No. 5: *Cardium tenuicostatum*. •1844 Reeve: New Holland = Western Australia. •1897 Sowerby: Natal South Africa. •1994 Hylleberg: Western Australia.
- tenuicostatum* of Reeve. – Misidentification. *Cardiidae*. Recent. RECORDS. •1844 Reeve, sp. 50: *Cardium tenuicostatum*. •1897 Sowerby: *Cardium tenuicostatum* Lamarck with reference to Reeve fig. 50. •1903 Hidalgo: *Cardium tenuicostatum* in Reeve, fig. 50 does not show *tenuicostatum* Lamarck.
- tenuicostatum* of Sowerby. – Misidentification of *Papyridea papyracea*. OTHER JUDGEMENTS: *Fulvia australe*. >> Regarding *Cardium tenuicostatum*: *Cardiidae*. Recent. DISTRIBUTION. Australia (Grasset 1884). RECORDS. •1840. Sowerby, 182nd part, fig. 62: *Cardium tenuicostatum* Lam. •1840 Sowerby, catalogue p. 1, No. 8: *Cardium tenui-costatum*, Lam. •1840 Sowerby, corrected list, p. 8: *Cardium tenuicostatum* (Sowerby No. 8). •1858 Adams & Adams, p. 457: *Cardium (Fulvia) tenuicostata*, Sow. •1870 Macandrew: *Papyridea (Fulvia) tenuicostatum* Sow. •1884 Grasset: *Cardium tenuicostatum*. Sow. •1974 Barnard: *Cardium tenuicostatum* in Sowerby 1897 = *Papyridea papyracea*. •1903 Hidalgo: *Cardium tenuicostatum* in Sowerby, figs. 19 and 36 do not show *tenuicostatum* Lamarck. •1992 Oliver: *Papyridea (Fulvia) tenuicostatum* Sow. in Macandrew 1870 = *Fulvia australe*.
- tenuilamellosum* Poutiers, 1981. [Figs. Part 3 p. 90]. – *Microcardium tenuilamellosum* Poutiers, 1981. *Cardiidae*. Recent. TYPE REPOSITORY. Holotype at MNHN. TYPE LOCALITY. North of Lubang Island, Philippines, 186-193 m. RECORDS. •1981 Poutiers: *Microcardium tenuilamellosum*. •1981 ZR: *Microcardium tenuilamellosum* Poutiers, 1981 sp. nov. Philippines. Ref. to Poutiers p. 338.
- tenuis* (mode). – See under *tenue*.
- tenuisquamosum* Jekelius, 1944. – New combination: *Lymnocardium tenuisquamosum* Jekelius, 1944. *Lymnocardiidae*. Miocene. RECORDS. •1946 ZR: *Lymnocardium tenuisquamosum* Jekelius, 1944 sp. nov. Miocene Soceni Banat.
- tenuissima* Ebersin, 1956. – *Charotoconcha tenuissima* Ebersin, 1956. *Cardiacea*. Pliocene. RECORDS. •1956 ZR: *Charotoconcha tenuissima* Ebersin, 1956 sp. nov. Pliocene. Kerchenski, Crimea Peninsula, Russia.
- tenuissimum* (subspecies). – See under *barzaviae tenuissimum* Andreescu, 1975.
- tenuissubquadratum* Coen, 1915. – Infrasubspecific. No evidence for subspecific status. *Cardiidae*. Recent. DISTRIBUTION. Unknown (Nordsieck 1969). RECORDS. •1915 Coen: *Cerastoderma glaucum tenuissubquadratum*. •1969 Nordsieck: *Cerastoderma glaucum tenuis-subquadratum* (Coen, 1915).
- \**tenuistriatum*. – Homonymy to be noticed. *Cardium tenuistriatum* from 2 sources: Münster in Goldfuss, 1837. – Anton 1839.
- tenuistriatum* Anton, 1839. – Combination to be revised: “*Cardium*” *tenuistriatum*. *Cardiidae*. Tertiary. RECORDS. •1839 Anton: No. 389: *Cardium tenuistriatum* mihi. •1922-32 Sherborn, p. 6427: *Cardium tenuistriatum* Anton, 1839.
- tenuistriatum* Münster in Goldfuss, 1837. – Combination to be revised: “*Cardium*” *tenuistriatum* Münster in Goldfuss, 1837. •1922-32 Sherborn, p. 6427: *Cardium tenuistriatum* Muenster in Goldfuss, 1837.
- tenuisulcatum* Lamarck. – See under *tenuisulcatum* Nyst, 1836.
- \**tenuisulcatum*. – Homonymy to be noticed. *Cardium tenuisulcatum* from 2 sources: Nyst, 1836. – Münster, 1840.
- tenuisulcatum* Münster, 1840. – Replaced by “*Cardium*” *comptum*. Deshayes. ?*Cardiidae*. Fossil. RECORDS. •1857. Deshayes: *Cardium tenuisulcatum* Münster, 1840. – C. *comptum*. Desh. •1922-32 Sherborn, p. 6429: *Cardium tenuisulcatum* Muenster, 1840.
- tenuisulcatum* Nyst, 1836. – Changed combination: *Laevicardium tenuisulcatum* (Nyst, 1836). OTHER JUDGEMENTS: *Cardium cingulatum* Goldfuss, 1840. >> Regarding *Cardium tenuisulcatum*: *Cardiidae*. Oligocene. RECORDS. •1844 Potiez & Michaud: *Cardium tenuisulcatum* Nyst. fossil of Belgium. •1857. Deshayes: *Cardium tenuisulcatum* Nyst, 1835 sic. •1886. Vincent: *Cardium tenuisulcatum* Nyst = *Cardium cingulatum* Goldfuss, 1840. •1922-32 Sherborn, p. 6429: *Cardium tenuisulcatum* Nyst, 1836. •1945 ZR: *Cardium tenuisulcatum* Lk. [Ref. Lamy 1945]. •1970 ZR: *Laevicardium tenuisulcatum* (Nyst, 1836) designated type sp. of *Laevicardium (Habecardium)* subgen. nov. Glibert & Van De Poel, 1970. •1977 Popov: *Nemocardium (Habecardium) tenuisulcatum* (Nyst, 1836). •1986 Gitten *et al.*: *Laevicardium (Habecardium) tenuisulcatum* Nyst. Oligocene. •1995 Schneider: *Habecardium tenuisulcatum* (Nyst, 1836). •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Cardium tenuisulcatum* Nyst. Tongrien. Germany, 24904 to -6. France (Bassin de Paris), B52833 to -43.
- tenuitesta* Cossmann, 1908. – Combination to be revised: “*Cardium*” *tenuitesta* Cossmann, 1908. *Cardiidae*. Tertiary. RECORDS. •1909 ZR: *Cardium (Plagiocardium) tenuitesta* Cossmann, 1908 sp. n. Belgium Tertiary. •1975 ZR: *Cardium (Plagiocardium) tenuitesta* Cossmann, 1908. Lectotype designated. p. 34. Ref. to Glibert.
- tenuitesta*. – *Parvicardium tenuitesta*. *Cardiidae*. RECORDS. •1979 ZR: *Parvicardium tenuitesta*. Lower Palaeocene. Ukraine. Ref. to Makarenko.
- tenuo* Meuschen, 1778. *Non* binominal. – Not available.

**terquemi – thaumastum**

- 1902 Sherborn, p. 963: *Cardium tenuo* Meuschen, 1778.
- terquemi** Martin, 1863. – Combination to be revised: “*Cardium*” *terquemi* J. Martin, 1863. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium terquemi* J. Martin, 1863; vol. 7: 86, pl. 5, figs. 16-20.
- tertiana** Eberzin, 1956. – *Oxydacna tertiana* Eberzin, 1956. *Lymnocardiiidae*. Pliocene. RECORDS. ••1956 ZR: *Oxydacna tertiana* Eberzin, 1956 sp. nov. Pliocene Russia Kuban Province.
- tertiocostales** (subspecies). – See under *grande terciocostales* Steininger, 1963.
- tertium** Fischer-Piette, 1977. – New name *Laevicardium tertium* Fischer-Piette, 1977. *Cardiidae*. Recent. DISTRIBUTION. Unknown. REMARKS. Fischer-Piette (1977) states that *Cardium fragile* is preoccupied by Brocchi, 1814, (*Conchiologia fossile subappennina*, II: 505 (pl. 13, Figs. 4a, b). There is a previous record of *Cardium fragile* Röding (Mus. Bolt.), but this is a *nomen nudum*. RECORDS. ••1977 Fischer-Piette, p. 28: *Laevicardium tertium* new name for *Cardium fragile* Sowerby, 1834. ••1977 Fischer-Piette, p. 176 *Laevicardium tertius* nom. nov. ••1977 ZR: *Laevicardium tertium* Fisher-Piette, 1977 nom. nov. for *Cardium fragile* Sowerby, 1834 nec Brocchi, 1814. Ref. to Fischer-Piette, É. p. 28. ••1980 Keen: *Laevicardium (Fulvia) tertius* Fischer-Piette, 1977.
- teshimaense** Saito, Bando & Noda, 1970. – *Vasticardium teshimaense* Saito, Bando & Noda, 1970. *Cardiidae*. Middle Miocene. RECORDS. ••1970 ZR: *Vasticardium teshimaense* Saito, Bando & Noda, 1970 sp. nov. Middle Miocene Teshima I., Shodo-Gun, Kagawa Prefecture, Japan.
- testata** Kvaliashvili, 1978. – *Digressodacna testata* Kvaliashvili, 1978. *Lymnocardiiidae*. Pliocene. RECORDS. ••1978 ZR: *Digressodacna testata* Kvaliashvili, 1978 sp. nov. Georgia SSR. Ref. to Kvaliashvili p. 67.
- \***tetragonum**. – **Homonymy to be noticed.** *Cardium tetragonum* from 3 sources: Voigt in Cuvier, 1834. – Michelin, 1838. – Münster, 1842.
- tetragonum** Michelin, 1838. – Replaced by *Cardita tenuicostata* d’Orbigny. Not a *cardiid*. Fossil. RECORDS. ••1857 Deshayes: *Cardium tetragonum* Michel. – *Cardita tenuicostata*. d’Orb. ••1922-32 Sherborn, p. 6466: *Cardium tetragonum* Michelin, 1838.
- tetragonum** Münster, 1842. “*Cardium*” *tetragonum* Münster, 1842. *Cardiacea*. Fossil. RECORDS. ••1857. Deshayes: “*Cardium*” *tetragonum* Münster, 1842.
- tetragonum** Orbigny, 1850. – *Conocardium tetragonum* d’Orbigny, 1850. *Conocardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 6467: *Lunulacardium tetragonum* Muenster, 1840. ••1922-32 Sherborn, p. 6466: *Conocardium* (Muenster) *tetragonum* d’Orbigny, 1850. – *Lunulacardium*.
- tetragonum** Voigt in Cuvier, 1834. – Synonym of *Fragum hemicardium* (Linné, 1758). >> Regarding *Cardium tetragonum*: *Cardiidae*. Recent. OF COLLECTIONS. One specimen at ZMUC. REMARKS. *Cardium tetragonum* Voigt = *Fragum hemicardium* (Linné, 1758) according to label in box with *hemicardium* from Amboina at ZMUC. DISTRIBUTION. East Indies (Römer 1891). RECORDS. ••1839 Anton: *Cardium tetragonum* Voigt = *Cardium hemicardium* Linné. ••1890 Paetel: *Hemicardium tetragonum* Voigt. ••1891 Römer: *Ctenocardia tetragonum* Voigt. ••1922-32 Sherborn, p. 6466: *Cardium (Hemicardium) tetragonum* Voigt in Cuvier, 1834.
- tetrameroide** Ryckholt, 1860. – *Conocardium tetrameroide* Ryckholt, 1860. *Conocardiidae*. Fossil. REMARKS. Previously in *Cardiidae* but *Conocardiids* have no connection with the *Cardiacea* except analogy of form, which does not offer any point of relationship (Dall 1895, p. 519). RECORDS. ••1980 Ruhoff: *Conocardium tetrameroide* Ryckholt, 1860; [1852-1862] part 2: plate 11, figs. 13-15.
- tetrica** Feruglio, 1937. – *Lahillia* (?) *tetrica* Feruglio, 1937. *Cardiacea*. Cretaceous. RECORDS. ••1937. ZR: *Lahillia* (?) *tetrica* Feruglio, 1937 sp. n. Cretaceous Argentina.
- tevoroa**. – *Tridacna tevoroa*. *Tridacnidae*. Fossil and Recent. RECORDS. ••2002 Schneider: *Tridacna tevoroa*, *Tridacnidae*. Fossil and Recent. The fossil record extends back to the Tertiary (?Late Miocene). Hawaii.
- tewartii** Mathur, 1975. – *Discors tewartii* Mathur, 1975. *Cardiidae*. Lower Eocene. RECORDS. ••1975 ZR: *Discors tewartii* Mathur, 1975 sp. nov. Himachal Pradesh, Simla Hills. Ref. to Mathur, p. 25.
- texana** Conrad, 1857. – Changed combination: *Protocardia texana texana* (Conrad, 1857). *Cardiidae*. Cretaceous. RECORDS. ••1871 Stoliczka, 141: *C. texanum* (genus *Protocardium*). ••1980 Ruhoff: *Cardium (Protocardia) texanum* Conrad, 1857; vol. 1: 150, pl. 6, figs. 6a-c. ••1986 Scott: *Cardium (Protocardia) texana* Conrad, 1857. ••1986 Scott: *Protocardia texana texana* (Conrad, 1857).
- texana** of authors. – Misidentification of *Protocardia multistriata* (Shumard, 1854). RECORDS. ••1986 Scott: *Protocardia texana* (Conrad, 1857) in Adkins & Winton 1920, Adkins 1928; Perkins 1961 = *Protocardia multistriata* (Shumard, 1854).
- texana salinaensis** Meek, 1872 (subspecies). – *Protocardia texana salinaensis* Meek, 1872. *Cardiidae*. Cretaceous. RECORDS. ••1986 Scott: *Protocardia texana salinaensis* Meek, 1872.
- texana subspinigera** Cragin, 1893 (subspecies). – *Protocardia texana subspinigera* Cragin, 1893. *Cardiidae*. Cretaceous. RECORDS. ••1986 Scott: *Protocardia texana subspinigera* Cragin, 1893. ••1987 ZR: *Protocardia texana subspinigera* Cragin, 1893. Neotype designated. Ref. to Scott p. 1200.
- textum** Bronn, 1832. – Combination to be revised: “*Cardium*” *textum* Bronn, 1832. *Cardiidae*. Fossil. RECORDS. ••1832 Bronn, No. 589, p. 610: *Cardium textum* n. sp. [fossil]. ••1922-32 Sherborn, p. 6475: *Cardium textum* Bronn, 1831.
- texturatum** Münster, 1840. – Combination to be revised: “*Cardium*” *texturatum* Münster, 1840. ?*Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 6475: *Cardium texturatum* Muenster, 1840.
- thalassium** Maury, 1925. – Changed combination: *Agnocardia thalassium* (Maury, 1925). *Cardiidae*. Fossil. ••2002 Schneider: *Cardium (Trachycardium) thalassium* Maury, 1925.
- thauhasta** (mode). – See under *thaumastum* Woodring, 1925.
- thaumastum** Woodring, 1925. – Changed combination: *Trigoniocardia thauhasta* (Woodring, 1925).

- Cardiidae. Fossil. RECORDS. ••1925 Woodring, p. 144, pl. 19, figs. 12-13: *Cardium (Trigoniocardia) thaumastum* new species. ••1977 Popov: *Trigoniocardia (Trigoniocardia) thaumasta* (Woodring, 1925).
- theidus** (error). – Printer's mistake for *thetidis* in Wilson & Stevenson 1977, Text Fig. 10.
- thetidis** Hedley, 1902. – Changed combination: *Pratulium thetidis* (Hedley, 1902). Cardiidae. Recent. Type species: Iredale (1924) designated *Cardium thetidis* Hedley, 1902 type species of the genus *Pratulium* Iredale, 1924. Recognised only at the subgeneric level by some authors. Keen (1954): *Cardium thetidis* Hedley, 1902 is type species of *Pratulium* Iredale, 1924. TYPE LOCALITY. A considerable series from off Port Kembla in 63-75 fathoms, and off Cape Three Points in 41-50 fathoms (Hedley 1902). TYPE REPOSITORY. Australian Museum, Sydney. Syntype C013261. RECORDS. ••1902 Hedley, p. 322: *Cardium striatulum* var. *thetidis* Hedley var. nov. ••1924 Iredale designated *Cardium thetidis* Hedley, 1902. ••1924 Iredale, p. 182: *Pratulium thetidis* (Hedley, 1902). ••1924 ZR: *Cardium thetidis* replaced by *Pratulium thetidis* Iredale, 1924. ••1938 Cotton & Godfrey: *Pratulium thetidis* Hedley 1902. ••1950 Allan: *Pratulium thetidis*. ••1950 Keen: *Nemocardium (Pratulium) thetidis* (Hedley, 1902). ••1954 Keen: *Cardium thetidis* Hedley, 1902. ••1954 Keen: *Nemocardium (Pratulium) thetidis* (Hedley), 1902. ••1961 Cotton: *Cardium thetidis* Hedley 1902. ••1962 Macpherson & Gabriel: *Pratulium thetidis* Hedl. ••1962 Iredale & MacMichael: *Cardium thetidis* Hedl. ••1969 Moore *et al.*: *Nemocardium (Pratulium) thetidis*. ••1977 Fischer-Piette: *Pratulium thetidis* Hedley = *Pratulium striatulum* Sowerby. ••1977 Popov: *Pratulium thetidis* (Hedley, 1902). Type of *Pratulium* Iredale, 1924. ••1977 Wilson & Stevenson: *Nemocardium (Pratulium) thetidis* (Hedley, 1902) [text fig. 10 *theidus* err. pro *thetidis*]. ••1977 Popov: *Pratulium thetidis* (Hedley, 1902). ••1979 Powell: *Nemocardium thetidis*. ••1992 Lamprell & Whitehead: *Nemocardium (Pratulium) thetidis*. ••1995 Schneider: *Nemocardium (Pratulium) thetidis* (Hedley, 1902). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC Australia, *C. thetidis* 36 S 150 E, 65 fv, sandy mud. DESCRIPTIONS. ••1979 Powell: delicate radial ribs. DIMENSIONS. ••1902 Hedley: to 12.5 mm in length and 11.5 mm in height. REMARKS. ••1902 Hedley: stated that “*thetidis*” appears specifically inseparable from *C. striatulum* Sowerby. But the new variety is diminutive, thin, delicate, the concentric sculpture fainter, and the angle limiting the posterior prickly area is less pronounced. Iredale (1924) found the difference described by Hedley (1902) to be quite constant and accepted their value as specific, i.e. raised the variety *thetidis* to the specific level. The new genus was not defined. Iredale only stated: “The difference between this style and typical *Cardium* is very great, and I, therefore propose the new genus *Pratulium*, naming *Cardium thetidis* Hedley as type. HABITAT. ••ZMUC: sandy mud bottom 130 m depth. ••1902 Hedley: 41-75 fathoms. DISTRIBUTION. Australia, New Zealand.
- thetironiae** Lange, 1920. – Combination to be revised: “*Cardium*” *thetironiae* Lange, 1920. Cardiidae. Jura. RECORDS. ••1920 ZR: *Cardium thetironiae* Lange, 1920
- Jura E. Africa.
- thetkegiense** Cotter, 1923. – Combination to be revised: “*Cardium*” *thetkegiense* Cotter, 1923. Cardiidae. Eocene. TYPE LOCALITY. Eocene of Burma (Cotter 1923). RECORDS. ••1923 ZR: *Cardium thetkeginense* sic Cotter, 1923 sp. n. Eocene Assam. ••1930 Stewart, p. 258: “*Cardium*” *thetkegiense* sic Cotter, 1923.
- thetkegiense** (spelling). – See under *thetkegiense* Cotter, 1923.
- thielei** Fischer-Piette, 1977. – Synonym of *Afrocardium exochum* (Melvill, 1906). OTHER JUDGEMENTS: New name for *Cardium radula* Thiele & Jaekel, 1931. – *Trachycardium infantile* (Nomura & Zinbo, 1834). >> Regarding *Laevicardium thielei*: Cardiidae. Recent. TYPE LOCALITY. Dar es Salam, E. Africa. DISTRIBUTION. E. Africa, Indo-Pacific. RECORDS. ••1977 Fischer-Piette: *Laevicardium (Trachycardium) thielei* new name for *Cardium radula* Thiele & Jaekel, 1931. ••1977 ZR: *Laevicardium (Trachycardium) thielei* nom. nov. for *Cardium radula* Thiele & Jaekel, 1931 nec Deshayes, Broderip & Sowerby. Ref to Fischer-Piette, E. p. 55. ••1980 Keen: *Ctenocardia (Afrocardium) thielei* (Fischer-Piette, 1977). ••1981 Koyama *et al.*: *Laevicardium (Trachycardium) thielei* Fischer-Piette, 1977 = *Cardium (Trachycardium) infantile* Nomura & Zinbo, 1834. ••1991 Voskuil & Onverwagt: *Laevicardium (Trachycardium) thielei* Fischer-Piette, 1977; junior synonym of *Afrocardium exochum* (Melvill, 1906). ••1999 Higo *et al.*: *Laevicardium thielei* Fischer-Piette, 1977 = *Afrocardium infantile* (Nomura & Zinbo, 1934).
- tholi** Stephenson, 1941. – Combination to be revised: “*Cardium*” *tholi* Stephenson, 1941. Cardiidae. Upper Cretaceous. RECORDS. ••1946 ZR: *Cardium (Grano-cardium) tholi* Stephenson, 1941 sp. nov. Navarro formations, Cretaceous, Texas, Nacatoch sand, vicinity of Chatfield. ••1947 ZR: *Cardium (Grano-cardium) tholi* Stephenson, 1941 sp. nov. Upper Cretaceous, Navarro Group Texas.
- thomassini** Vidal, 1998. [Figs. Part 3 p. 868]. – *Vasticardium thomassini* Vidal, 1998. Cardiidae. Recent. DISTRIBUTION. South Africa (Zululand, 45-78 m). RECORDS. ••1998 Vidal, p. 123-124: *Vasticardium thomassini* sp. nov. ••1999 Vidal, p. 269: *Vasticardium thomassini* Vidal, 1998.
- thunense** Mayer, 1866. – Combination to be revised: “*Cardium*” *thunense* Mayer, 1866. Cardiidae. Miocene. RECORDS. ••1902 Dollfus & Dautzenberg, p. 327: *Cardium thunense* Mayer, 1866.
- thurstoni** Dall, Bartsch & Rehder, 1938. [Figs. Part I p. 145]. – Synonym of *Fragum mundum* (Reeve, 1845). OTHER JUDGEMENTS: *Fragum fragum* (Linnaeus, 1758). >> Regarding *Fragum thurstoni*: Cardiidae. Recent. RECORDS. ••1938 Dall, Bartsch & Rehder, p. 154, pl. 41, figs. 9-10: *Fragum thurstoni* new species. ••1939 ZR: *Fragum thurstoni* Dall, Bartsch & Rehder, 1938. sp. n. Keokia, Hilo, Hawaii. ••1977 Fischer-Piette: *Cardium thurstoni* Dall, Bartsch & Rehder = *Corculum fragum* Linné. ••1977 Habe: *Fragum thurstoni* Dall, Bartsch & Rehder, 1938 = *Fragum mundum* (Reeve, 1865). ••1979 Kay: *Fragum thurstoni* Dall, Bartsch, and Rehder, 1938 (jun. syn.) = *Fragum (Fragum) mundum* (Reeve, 1845). ••1999 Higo *et al.*: *Fragum thurstoni* Dall, Bartsch & Rehder, 1938 = *Fragum*



**thaanumi – tintinnabularum**

*mundum* (Reeve, 1845). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: one specimen *F. thurstoni*: Beach collection on Oahu, Hawaii. Related to *Fragum mundum* Reeve, 1845 and *Fragum carinata* Lyngé, 1909. DISTRIBUTION. •ZMUC: *Fragum thurstoni*: Hawaii; *Fragum mundum*: West Pacific, Hawaii.

**thaanumi** Pilsbry, 1920. – Changed combination: *Nemocardium thaanumi* (Pilsbry, 1920). Cardiidae. Recent. RECORDS. •1920 Pilsbry, p. 323-324, pl. 12, fig. 24: *Cardium thaanumi* n. sp. •1920 ZR: *Cardium thaanumi* Pilsbry, 1920 sp. n. Hawaii. •1938 Dall, Bartsch & Rehder: *Microcardium thaanumi* Pilsbry 1921. •1964 ZR: *Microcardium thaanumi* photo. [Ref. Weaver 1964]. •1977 Fischer-Piette: *Microcardium thaanumi* Pilsbry. •1977 Popov: *Pratulium thaanumi* (Pilsbry, 1921). •1977 Wilson & Stevenson: *Nemocardium (Microcardium) thaanumi* Pilsbry, 1921. •1979 Kay: *Nemocardium thaanumi* (Pilsbry, 1921).

– CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1979 Kay: shell hemispherical, thin, equivalve; anterior margin a little more strongly curved than posterior; with slender radiating threads crossed by concentric threads; white. Hinge: narrow; left valve with two erect cardinals and elongate laterals; right valve with the ventral cardinal larger than the dorsal. Sculpture: numerous (135 or more) slender radiating ribs separated by impressed interspaces crossed by regularly spaced concentric threads with elevated spines at the junctions. Color: white, the external sculpture showing through. DIMENSIONS. •1979 Kay: Height, 7.5 mm; length, 7 mm; diameter, 6 mm. REMARKS. •1979 Kay: *N. thaanumi* was described from the Hawaiian Islands; shells similar to the Hawaiian shells have been dredged in the Marquesas (Rehder cited by Kay 1979). HABITAT. •1938 Dall, Bartsch, and Rehder: these cardiids occur at depths of from 16 m to 200 m, with one report of valves at depths of 500 m. •1979 Kay: they are not common; occurring in fewer than one percent of the dredge hauls of both the Pele and the Albatross, but appear to be most frequent at depths of 25 to 50 m. DISTRIBUTION. Tropical Pacific, Hawaii.

**tibisii** Jekelius, 1944. – *Replidacna tibisii* Jekelius, 1944. Lymnocardidae. Miocene. RECORDS. •1946 ZR: *Replidacna tibisii* Jekelius, 1944 sp. nov. Soceni Banat. •1977 ZR: *Cardium (Replidacna) tibisii* Jekelius. Ref to Paramonova p. 70 [Transl. p. 320].

**tigilense** Slodkewitsch, 1938. – *Keenocardium tigilense* (Slodkewitsch, 1938). Cardiidae. Fossil. RECORDS. •1990 Gladenkov & Sinelnikova: *Keenocardium tigilense* (Slodkewitsch), 1938. *Laevicardium tigilense* Slodkewitsch, 1938.

**tigrina** Martyn, 1784. *Non* binominal. – Not available. Not a cardiid. RECORDS. •1784 Martyn: *Cardium tigrina*.

**tilmbergense** Doderlein 1862. Identical with *Lymnocardium secans* (Fuchs, 1870). >>> Regarding *Hemicardium tilmbergense*: Lymnocardiidae. Tertiary. RECORDS. •1899 Sacco, p. 58: *Hemicardium tilmbergense* Doderlein 1862 = *Lymnocardium secans* (Fuchs, 1870).

**timisense** Jekelius, 1944. – New combination: *Lymnocardium timisense* Jekelius, 1944. Lymnocardidae. Miocene. RECORDS. •1946 ZR:

*Lymnocardium timisense* Jekelius, 1944 sp. nov. Miocene Soceni Banat. •1987 Taktakishvili: *Limnocardium timisense* Jek.

**timorensis** Krumbek, 1924. – *Protocardia timorensis* Krumbek, 1924. Cardiidae. Trias. RECORDS. •1924 ZR: *Protocardia (?Isocyprina) timorensis* Krumbek, 1924 sp. n. Trias Timor.

**tinctum** (mode and variety). – See under *tincta* Dall, 1881 and *peramabile* var. *tinctum* Dall.

**tinctum** Dall, 1886. – Changed combination: *Nemocardium tinctum* (Dall, 1886). Cardiidae. Recent. TYPE LOCALITY. St. Croix, West Indies. RECORDS. •1881 Dall: *Cardium peramabilis* var. *tinctum*. •1886 Dall, p. 270: *Cardium peramabilis* var. *tinctum*. •1900 Dall: *Protocardia tincta*. •1902 Dall: *Protocardia tincta* Dall, 1886 (quite distinct, not a variety). •1902 Dall & Simpson, pl. 58, fig. 4: *Protocardia tincta*. •1934 Johnson: *Protocardia tincta* Dall 1886. •1939 McLean: *Microcardium tinctum*. •1939 ZR: *Microcardium tinctum* fig. [Ref. McLean 1939]. •1944 ZR: *Microcardium tinctum* Dall, fig. [Ref. Clench & Smith 1944]. •1968 Kempf & Matthews: *Microcardium tinctum* (Dall, 1881). •1970 Rios: *Microcardium tinctum* (Dall, 1881). •1971 Altena: *Nemocardium tinctum*. •1974 Abbott: *Nemocardium tinctum* (Dall, 1881). •1977 Popov: *Pratulium tincta* (Dall, 1886). •1997 Shelton: *Nemocardium tinctum* (Dall, 1881).

– CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: S.W. of Mississippi delta, Gulf of Mexico 88 m. CHARACTERS of diagnostic value: minute radiating ribs. DESCRIPTIONS. •1902 Dall & Simpson: shell small, fragile, nearly equilateral, considerably inflated; posterior area sculptured with minute, radiating ribs; every second, third, fourth and fifth one bears a row of sharp, elevated spines or scales; the spaces between these ribs are crossed by delicate scales, making them pitted; the remainder of the shell is sculptured with very finely beaded ribs, as in *P. peramabilis*; borders of the shell finely and sharply serrate, not gaping; outside sculpture showing faintly within; anterior laterals showing as long arched ridges within, entering far within the cavity of the beaks. Colour whitish, beautifully tinted and clouded with pink or red. DIMENSIONS. •1902 Dall & Simpson: length 13, height 12, diameter 9 mm. •1939 McLean: 13 x 12 x 9 mm. REMARKS. •1902 Dall & Simpson: *P. tincta* is certainly different from *P. peramabilis*. It is not so high in proportion to its width, is a little less inflated, the line between the two areas of sculpture is not so distinctly marked out, and when perfect it has the scaly spines on the posterior area finely developed. The anterior lateral teeth are different from those of *P. peramabilis*. HABITAT. •ZMUC: 70-88 m depth. DISTRIBUTION. •1939 McLean: Key West, Florida, the West Indies; •Of authors: Brazil; Mississippi Delta, Gulf of Mexico.

**tinhertense** Collignon, 1971. – *Trachycardium tinrhertense* Collignon, 1971. Cardiidae. Upper Cretaceous. RECORDS. •1971 ZR: *Trachycardium tinrhertense* Collignon, 1971 sp. nov. Upper Cretaceous Sahara desert.

**tintinnabularum** Maury, 1917. – Combination to be revised: "*Cardium*" *tintinnabularum* (Maury, 1917). Cardiidae. Fossil. TYPE LOCALITY. Restriction of type

- locality Vokes 1989, p.108. RECORDS. ••1919 ZR: *Cardium (Trachycardium) tintinnabularum* Maury, 1919 sp. n. Tertiary S. Domingo. ••1922 Pilsbry: *Cardium tintinnabularum* Maury. ••1989 Vokes, p. 108: *Cardium (Trachycardium) tintinnabularum* Maury, 1917.
- tineyanum** Loer. – New combination: *Lymnocardium tineyanum* (Loer.). Lymnocardiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocardium tineyanum* Loer.
- tippanum** Conrad, 1858. – Combination to be revised: "*Cardium*" *tippanum* Conrad, 1858. Cardiidae. Fossil. RECORDS. ••1871 Stoliczka, 126: *C. tippanum* (subgenus *Acanthocardium* sic). ••1980 Ruhoff: *Cardium tippanum* Conrad, 1858; vol. 3: 326, pl. 34, fig. 8b. ••1998 Schneider: *Cardium tippanum* Conrad, 1858. *Granocardium tippanum* (Conrad, 1858).
- tiroense** Mayer & Gümbel in Gümbel, 1861. – Combination to be revised: "*Cardium*" *tiroense* Mayer & Gümbel in Gümbel, 1861. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium tiroense* Mayer & Gümbel in Gümbel, 1861; p. 673.
- Titanocardium** Maxwell, 1978 (subgenus). – Cardiidae. Tertiary. GENOTYPE. *Cardium (Trachycardium) cantuariense* Laws, 1933, original designation. RECORDS. ••1978 Maxwell, p. 18: Subgenus *Titanocardium* n. sg. ••1978 ZR: *Titanocardium* New subgenus. *Hedecardium (Titanocardium)*. Ref. to Maxwell. ••1980 Vokes: Maxwell, 1978. Fossil. ••2002 Schneider: *Titanocardium* Maxwell, 1978 subgenus of *Hedecardium* Marwick, 1944. Spines absent.
- titthus** Krishtofovich 1969. – Synonym of *S. groenlandicus* (Bruguière 1789). >> Regarding *Serripes titthus*: Cardiidae. Fossil. RECORDS. ••1980 ZR: *Serripes titthus* Krishtofovich 1969 is a junior synonym of *S. groenlandicus* (Bruguière 1789). Ref. to Kafanov.
- tkalaci** Brus. – New combination: *Lymnocardium tkalaci* (Brus.). Lymnocardiidae. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocardium tkalaci* Brus.
- tobaruense** Noda, 1988. – *Frigidocardium tobaruense* Noda, 1988. Cardiidae. Pliocene. Noda (1988) *Frigidocardium tobaruense* Noda, 1988 is type species of subgenus (*Tobarum*) Noda, 1988 of genus *Frigidocardium*. TYPE LOCALITY. The Ryukyu Islands, southwest Japan. REMARKS. Also spelt *F. (Tobarum) tobaruensis*. RECORDS. ••1988 Noda p. 74, pl. 19, fig. 12a,b: *Frigidocardium* sic (*Tobarum*) *tobaruense* n. sp. ••1988 Noda: *Frigidocardium* sic (*Tobarum*) *tobaruensis*. Type species of (*Tobarum*). ••1988 Noda: *Frigidocardium (Tobarum) tobaruense* sp. nov. ••1995 Schneider: *Microcardium tobaruense* (Noda, 1988). ••1995 Schneider: *Tobarum* Noda, 1988. Type species *Frigidocardium (Tobarum) tobaruense* Noda, 1988. Pliocene, Japan.
- tobaruensis** (mode). – See under *tobaruense* Noda 1988.
- Tobarum** Noda, 1988 (subgenus). – Cardiidae. Pliocene. RECORDS. ••1988 Noda: (*Tobarum*) Noda, 1988 n. subgen. ••1995 Schneider: *Tobarum* Noda, 1988. Type species *Frigidocardium (Tobarum) tobaruense* Noda, 1988. Pliocene, Japan.
- tocatum** Nalivkin, 1934. – *Conocardium tocatum* Nalivkin, 1934. Conocardiidae. Devonian. RECORDS. ••1935 ZR: *Conocardium tocatum* Nalivkin, 1934 sp. n. Devonian S. Ural.
- tochigiensis** Hirayama, 1954. – Changed combination: *Vasticardium tochigiensis* (Hirayama, 1954). Cardiidae. Miocene. RECORDS. ••1955 ZR: *Vasticardium tochigiensis* Hirayama, 1954 sp. nov. Miocene, Tochigi Prefecture, Japan. ••1973 Keen: *Vasticardium tochigiense* Hirayama, 1954. Miocene. [*Cardium*].
- toerteliense** (subspecies). – See under *abichi toerteliense* Széles, 1962.
- tohanensis** Papaianopol, 1974. – *Pteradacna tohanensis* Papaianopol, 1974. Lymnocardiidae. Pliocene. RECORDS. ••1974 ZR: *Pteradacna tohanensis* sp. nov. Romania, Prahova, Tohaneasa. Ref. to Papaianopol, p. 131.
- tohanensis** Papaianopol, 1977. – *Plagiodacna tohanensis* Papaianopol, 1977. Lymnocardiidae. Pliocene. RECORDS. ••1977 ZR: *Plagiodacna tohanensis* Papaianopol, 1977 sp. nov. Romania, Pliocene. Ref. to Papaianopol, I. p. 45, fig'd.
- tohanensis** Papaianopol, 1981. – *Pontalmyra tohanensis* Papaianopol, 1981. Lymnocardiidae. Upper Miocene. RECORDS. ••1981 ZR: *Pontalmyra (Pontalmyra) tohanensis* Papaianopol, 1981 sp. nov. Romania. Ref. to Papaianopol, p. 23.
- tokunagai** Yokoyama, 1922. – Changed combination: *Clinocardium tokunagai* (Yokoyama, 1920). Cardiidae. Pleistocene. RECORDS. ••1922 ZR: *Cardium tokunagai* Yokoyama, 1922 sp. n. Pleistocene Japan. ••1927 Yokoyama: *Cardium tokunagai* Yok. (Up. Musashino). ••1973 Keen: *Clinocardium tokunagai* (Yokoyama, 1920) [Pleistocene?].
- tokyoense** Tokunaga, 1906. – Changed combination: *Vasticardium tokyoense* (Tokunaga, 1906). Cardiidae. Pliocene. TYPE LOCALITY. Pliocene of Tokyo (Vidal 1999). REMARKS. Tokunaga (1906) compared *Cardium tokyoensis* with *Acrosterigma burchardi* but stated that it was closer to *Acrosterigma unicolor* (Vidal 1999). RECORDS. ••1906 Tokunaga: *Cardium tokyoensis* n. sp. post tertiary. ••1906 ZR: *Cardium tokyoensis* Tokunaga, 1906 sp. n. Post Tertiary, Japan. ••1973 Keen: *Vasticardium tokyoense* (Tokunaga, 1906). ••1990 Gladenkov & Sinelnikova: *Vasticardium tokyoense* (Tokunaga). ••1999 Vidal, p. 272: *Cardium tokyoensis* Tokunaga, 1906: 51, pl. 3, figs 12a-a'.
- tombecki** Loriol. – *Unicardium tombecki* de Loriol. Cardiidae. Lias and Jurassic. RECORDS. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Unicardium tombecki* de Loriol. Kimmeridgian. France (Bourges), S05175.
- tomlini** Cox, 1930. – *Fragum tomlini* Cox, 1930. Cardiidae. Fossil. RECORDS. ••1930 ZR: *Fragum tomlini* Cox, 1930 sp. n. fossil, Mombassa.
- toneanum** Yokoyama, 1922. – New combination: *Cerastoderma toneanum* (Yokoyama, 1922). Cardiidae. Pleistocene. RECORDS. ••1922 Yokoyama, pl. 13, figs. 6-7: *Venericardia toneanum*. ••1933 Nomura: *Cardium (? Cerastoderma) toneanum* (Yokoyama, 1922).
- tongricum** Bayan. – Synonym of *Cardium kochi* Semp. >> Regarding *Cardium tongricum*: Cardiidae. Fossil. RECORDS. ••1886 Vincent: *Cardium tongricum* Bayan = *Cardium kochi* Semp.
- torii** Nomura, 1933. – Changed combination: *Nemocardium torii* (Nomura, 1933). Cardiidae. Mio- and Pliocene. RECORDS. ••1933 Nomura, pl. 2, figs. 6a, b: *Cardium (Nemocardium) torii* n. sp. ••1954 Keen: *Nemocardium (Nemocardium) torii* torii (Nomura, 1933

**toronglynicum** – *Trachycardium*

- sic*). Japan. •1973 Keen: *Nemocardium* (*Nemocardium*) *torii* (Nomura, 1933).
- toronglynicum**. – Combination to be revised: "*Cardium*" *toronglynicum*. *Cardiidae*. Cenozoic. RECORDS. •1967 ZR: *Cardium toronglynicum*, Akchagyl deposits (Cenozoic), Azerbaijan, SSR [Ref. Baba-Zade 1967].
- torquata** (variety). – See under *tuberculatum* var. *torquata*.
- torresi** Smith, 1885. [Figs. Part 3 p. 900]. – Changed combi. *Frigidocardium torresi* (Smith, 1885). TYPE LOCALITY. 'Challenger' sta. 188, south of New Guinea 09 59' 5, 139 42' E., 28 fms (Higo *et al.* 1999). *Cardiidae*. Recent. RECORDS. •1885 Smith, p. 164-165, pl. 8, figs. 4-4b: *Cardium* (*Fragum*) *torresi*, n. sp. •1885 ZR: *Cardium* (*Fragum*) *torresi* Smith, 1885 sp. n., S. of New Guinea. •1890 Paetel: *Hemicardium torresi* Smith. •1931 Thiele & Jaekel: *Cardium* (*Fragum*) *torresi* E. Smith. •1932 Prashad: *Cardium* (*Pratulium*) *torresi*. •1977 Fischer-Piette: *Microcardium torresi* Smith. •1977 Wilson & Stevenson: *Nemocardium* (*Microcardium*) *torresi* (Smith, 1885). •1977 Wilson & Stevenson: *Cardium* (*Fragum*) *torresi* Smith, 1885. •1988 Drivas & Jay: *Nemo-cardium* (*Microcardium*) *torresi* (Smith, 1885). •1992 Lamprell & Whitehead: *Frigidocardium torresi*. •1999 Higo *et al.*: *Frigidocardium torresi* (E. A. Smith, 1885). •2003 Hylleberg & Kilburn, p. 183: *Nemocardium torresi* (Smith, 1885). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. Resembles *Fulvia dulcis* (Deshayes, 1863) *sensu* Drivas & Jay (1988) but the posterior end is more produced, and the coloration does not include a violet umbonal area. DIMENSIONS. •1988 Drivas & Jay: ant.-post. 9.2 mm, umbo-ventr. 10 mm. HABITAT. •1988 Drivas & Jay: Réunion, western Indian Ocean at 54 m depth. •1999 Higo *et al.*: 30-200 m, sandy mud. DISTRIBUTION. •1999 Higo *et al.*: North Indian Ocean, West Pacific, Australia; Boso peninsula (Tsuchida & Kurozumi 1986) and southwards, Japan Sea (off central Niigata prefecture); East China Sea, South China Sea, Australia, Persian Gulf, Indo-Pacific. •2003 Hylleberg & Kilburn: Vietnam.
- tortuosum** Hermann, 1781. – Combination to be revised: "*Cardium*" *tortuosum* Hermann, 1781. *Cardiidae*. Fossil. RECORDS. •1902 Sherborn, p. 983: *Cardium tortuosum* Hermann, 1781.
- torui**. – Changed combination: *Nemocardium torui*. *Cardiidae*. Pliocene. RECORDS. •1933 ZR: *Cardium* (*Nemocardium*) *torui* Pliocene [Ref. Nomura 1933].
- tosensis** Kimura, 1956. – *Protocardia tosisensis* Kimura, 1956. *Cardiidae*. Jurassic. RECORDS. •1973 Keen: *Protocardia* (*Protocardia*) *tosensis* Kimura, 1956.
- toucasianum** d'Orbigny, 1850. – Combination to be revised: "*Cardium*" *toucasianum* d'Orbigny, 1850. *Cardiidae*. Fossil. RECORDS. •1871 Stoliczka, 46: *C. toucasianum* (?*Acanthocardium* *sic*). •1922-32 Sherborn, p. 6549: *Cardium toucasianum* d'Orbigny, 1850.
- Touricardium** (error). – Printer's mistake for subgenus *Tauricardium* in Celidje 1953.
- tournaïense** Branson, 1942. – New name. *Conocardium tournaïense* Branson, 1942. *Conocardiidae*. Fossil. RECORDS. •1942 ZR: *Conocardium tournaïense* Branson, 1942 nom. nov. p. 389 for *Conocardium antiquum* Koninck 1885.
- touzini** Cossmann, 1922. – Combination to be revised: "*Cardium*" *touzini* Cossmann, 1922. *Cardiidae*. Eocene. RECORDS. •1922 ZR: *Cardium* (*Plagiocardium*) *touzini* Cossmann, 1922 sp. n. Eocene.
- Trachicardium** (error). – Printer's mistake for *Trachycardium* in Römer, 1869 (Vokes 1980).
- Trachycardiinae** Stewart, 1930 (subfamily). – *Cardiidae*. Eocene and Recent. RECORDS. •1936 ZR: subfamily Trachycardiinae in *Cardiidae* [Ref. Keen 1936a]. •1980 Vokes: Subfamily Trachycardiinae Stewart, 1930. •1980 ZR: Trachycardiinae Stewart 1930. Key to genera. Ref. to Keen. •1983 Anaya: subfamily Trachycardiinae Stewart, 1930. •1994 Schneider: the subfamilies Trachycardiinae Stewart, 1930 and *Cardiinae* are synonyms. •1995. Pacaud & Renard: Subfamily Trachycardiinae. •1999 Higo *et al.*: Trachycardiinae (subfamily) Stewart, 1930. •2000 Coan *et al.*: Subfamily Trachycardiinae Stewart, 1930. •2001 Schneider & Carter: Trachycardiinae (subfamily) Stewart, 1930. •2002 Schneider: Trachycardiinae originate in the Palaeogene, not Cretaceous. The monophyly of Trachycardiinae is not in doubt. – CHARACTERS AND OCCURRENCE – DESCRIPTION. •1994 Hylleberg: ovate but not oblique; rib ornamentation normally of spines or imbricating scales along posterior sides of ribs; hinge relatively short, either nearly straight or sharply bent; cardinal teeth unequal in size, A1 with socket above; posterior margin notched to digitate.
- Trachycardium** Mörch, 1853 (genus). *Cardiidae*. Eocene and Recent. GENOTYPE. Martens (1870) designated *Cardium isocardia* Linné, 1758 type species of subgenus *Trachycardium* Mörch, 1853 of genus *Cardium* Linné, 1758. Upgraded to generic level by authors. RECORDS. •1876 Meek: *Trachycardium*, Mörch. *Cardium alternatum*, Sow. regarded as genotype. •1876 Meek: *Trachicardium* [err. pro *Trachycardium*] Mörch, 1853. Synon. – *Cardiidae*. •1930 Stewart: *Trachycardium* Mörch 1853. •1961 Olsson: *Trachycardium* Mörch, 1853. •1977 Popov: *Trachycardium* Mörch, 1853. Genotype: *Cardium isocardia* Linné, 1758. •1977 ZR: *Trachycardium*. Key to subgenera. Ref. to Popov p. 46. •1978 Maxwell: Genus *Trachycardium*. •1980 Vokes: *Trachycardium* Mörch, 1853 in subfamily Trachycardiinae. •1983 Anaya: *Trachycardium* Mörch, 1853 (sic = 1853). Type species: *Cardium isocardia* Linné, 1758, designated by von Martens, 1870. •1999 Vidal: Genus *Trachycardium* Mörch, 1853: 34. •2000 Coan *et al.*: Genus *Trachycardium* Mörch, 1853. •2001 Vidal, p. 407. *Trachycardium* – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1969 Moore *et al.*, emend. Hylleberg 1994: medium to large shells. Outline ovate; nearly equilateral, height greater than length; hinge heavy, short, nearly straight, hinge line strongly arched. Sculpture of prominent ribs or riblets ornamented with spines, posteriorly arising from posterior edges of the ribs, remainder smooth or with raised scales. Inner margin crenulate. •2001 Vidal: tentacles numerous. DISTRIBUTION. Tropical America.
- Trachycardium** Mörch, 1853 (section and subgenus). – *Cardiidae*. Eocene, Oligocene and Recent. GENOTYPE. Martens (1870) designated *Cardium isocardia* Linné, 1758 type species of subgenus *Trachycardium* Mörch,

1853. RECORDS. ••1858 Adams & Adams: subgenus (*Trachycardium*) Mörch. ••1869 ZR: subgenus (*Trachycardium*) (Mörch), type *Cardium isocardia* (L.) [Ref. Römer 1869]. ••1871 Stoliczka: (*Trachycardium*) Mörch, 1852 (?). Type not identified by Stoliczka. ••1886 Cossmann: Section (*Trachycardium*) Mörch, 1853 of genus *Cardium* Linné, 1758. ••1887 Fischer: (*Trachycardium*) Mörch, 1853. Section of genus *Cardium* Linné, 1758. ••1890 Paetel: 3. Sect. (*Trachycardium*) Mörch of *Cardium*. ••1891 Römer: III. Sect. (*Trachycardium*) Mörch of genus *Cardium* L. ••1899 Sacco: subgenus (*Trachycardium*). ••1922 Olsson: (*Trachycardium*) Moerch. ••1924 Oldroyd: Subgenus (*Trachycardium*) Mörch, 1853. ••1928 Kuroda: (*Trachycardium*) Mörch, 1853. ••1934 Johnson: (*Trachycardium*) Mörch 1853. ••1953 Olsson & Harbison: subgenus (*Trachycardium*) Mörch, 1853. ••1970 Glibert & Poel: subgenus (*Trachycardium*). ••1999 Vidal: Subgenus (*Trachycardium*) Mörch, 1853 of the genus *Trachycardium* with 4 living species and at least 4 fossil nominal species. – CHARACTERS AND OCCURRENCE – DESCRIPTION. ••1969 Moore *et al.*: sculpture of imbricating scales over entire shell, reduced to beads anteriorly. West Indies-East and West Central America-South America. REMARKS. The designation “section” takes the value of subgenus.

\**transcarpaticum*. – Homonymy to be noticed.

*Cardium transcarpaticum* from 2 sources: Grischkevitch, 1955. – Merklin & Nevevskaya, 1959.

*transcarpaticum* Grischkevitch, 1955. – Combination to be revised: “*Cardium*” *transcarpaticum* Grischkevitch, 1955. Cardiacea. Fossil. RECORDS. ••1985 Ionesi: *Cardium transcarpaticum* Grischkevitch, 1955. ••1985 ZR: *Cardium transcarpaticum* Grischkevitch, 1955. Status. Ref. to Ionesi p. 15.

*transcarpaticum* Merklin & Nevevskaya, 1959. – Combination to be revised: “*Cardium*” *transcarpaticum* Merklin & Nevevskaya, 1959. Cardiidae. Miocene. RECORDS. ••1959 ZR: *Cardium transcarpaticum* Merklin & Nevevskaya, 1959 sp. nov. Turkmenistan, Miocene. ••1965 ZR: *Cardium transcarpaticum* figd. Sarmatian, Yugoslavia [Ref. Spajic 1965].

*transcaspia* Ebersin. – Changed combination: *Pontalmyra transcaspia* (Ebersin). Lymnocypridae. Fossil. RECORDS. ••1987 Taktakishvili: *Pontalmyra transcaspia* (Ebersin.).

*transcaspica* (subspecies). – See under *catillus transcaspica* Nevevskaya, 1959.

*transcaspica* Eberzin, 1962. – Changed combination: *Hyrkania transcaspica* Eberzin, 1962. Lymnocypridae. Pliocene. RECORDS. ••1962 ZR: *Didacna* (*Pontalmyra*) *transcaspica* Eberzin, 1962 sp. nov. Manghyshtak, Azerbaïdzhan, Azov region; Pliocene, Russia. ••1977 Popov: *Hyrkania* (*Hyrkanomya*) *transcaspica*.

*transcaucasicum* Bobkova, 1956. – Combination to be revised: “*Cardium*” *transcaucasicum* Bobkova, 1956. Cardiidae. Cretaceous. ••1956 ZR: *Cardium transcaucasicum* Bobkova, 1956 sp. nov. Armenia Cretaceous. Caucasus, Russia.

*transcaucasicum* (subspecies). – See under *alatoplanum transcaucasicum* Eberzin, 1956.

*transcendens* Melvill & Standen, 1899. – Changed combination: *Acrosterigma transcendens* (Melvill &

Standen, 1899). Cardiidae. Recent. TYPE LOCALITY. Holotype, Torres Strait. TYPE REPOSITORY. Holotype, Natural History Museum, London. TYPE MATERIAL. Holotype, a left valve, BMNH 1899.2.23.6 (Wilson & Stevenson 1977). Paratype: A specimen from same locality, NMW 55.158.696 Melvill coll. RECORDS. ••1899 Melvill & Standen, p. 191, pl. 11, fig. 21: *Cardium transcendens*. ••1899 ZR: *Cardium* (*Trachycardium*) *transcendens* Melvill & Standen, 1899 n. sp. ••1909 Lyngø: *Cardium* (*Trachycardium*) *transcendens*. ••1909 Melvill: *Cardium* (*Trachycardium*) *transcendens* M. & St. ••1960 Kuroda: *Trachycardium* (*Acrosterigma*) *transcendens* (Melvill & Standen). ••1977 Fischer-Piette: *Cardium transcendens* Melvill & Standen = *Cardium enode* Sowerby. ••1977 Habe: *Trachycardium* (*Vasticardium*) *transcendens* (Melvill & Standen, 1899). ••1977 Wilson & Stevenson: *Acrosterigma transcendens* (Melvill & Standen, 1899). ••1978 ZR: *Trachycardium transcendens* Bay of Bengal Burma, Maungmagan. First record for Burmese waters. Ref. to Ray, H.C. ••1999 Higo *et al.*: *Acrosterigma* (*Vasticardium*) *transcendens* (Melvill & Standen, 1899). ••1993 Vidal: *Cardium transcendens* not synonym of *Cardium enode* as suggested by Fischer-Piette. ••1999 Vidal: *Cardium* (*Trachycardium*) *transcendens* Melvill & Standen. ••2001 Vidal, p. 407: *Acrosterigma transcendens*. – CHARACTERS AND OCCURRENCE – CHARACTERS OF diagnostic value. ••1909 Melvill: distinguished by its very fine longitudinal ribs, nearly 60 in number, and bright coloration. DESCRIPTIONS. ••1999 Vidal: Shell medium to small, almost perfectly ovoid and equilateral (anterior dorsal margin sometimes very slightly raised), and never truncated; also weakly elongated and rather globose. Lunule narrow, almost equal on both valves, and poorly differentiated, with its umbonal margins slightly raised. External colour is variable, often vivid and bright, light beige-yellow variously spotted and splashed with darker pink, orange, or brown. Interior variable in colour, white to pink or orange, with two umbonal rays which are often wide and well developed. Hinge nearly symmetrical and moderately angled. Mean rib number  $64.4 \pm 3.9$ , range 56-74. On posterior slope, interstices narrow and both parts of ribs about equivalent in width, with a variable axial furrow; scales irregular, mainly tubercular, sometimes becoming very small, or absent altogether. On posterior part of median shell, ribs become more or less flatly triangular and asymmetrical (the anterior flank shorter and steeper), sometimes still bearing an axial furrow; wider posterior flank smooth or bears elongated ridges which are analogous to the scales of posterior slope, but more numerous. On anterior part of median shell, axial furrow and posterior long ridges eventually disappear and ribs become progressively more symmetrical and slightly rounded, ornamented only with posterior crenulations; interstices become wider and often very finely notched. On anterior half of shell, ribs at first remain rounded and retro crenulated, and then become somewhat top-ridged; on first anterior ribs, top ridges become tubercular and irregular, tending to be arranged in concentric alignments which can replace the longitudinal ribbing. ••2001 Vidal: tentacles numerous. No eyes on tentacles. DIMENSIONS. ••1999 Vidal: length

**transclathratum – transversum**

27.1 mm, height 30.2 mm, width 18.9 mm. REMARKS. *A. transcendens* is very close to *A. maculosum*, particularly as far as rib morphology is concerned. *A. transcendens* can be separated from *maculosum* by a more vividly coloured, thinner and often smaller shell, less elongated, more globular and with more ribs (range 56-74 as opposed to 43-61 in *maculosum*). *A. transcendens* is generally rather consistent as far as size, colours and thickness of the shell are concerned. According to Vidal (1999) junior synonyms are: *Cardium perstriatum* Kuroda 1928: 11 (*Fide* Habe, 1981: 111). *Laevicardium pulcherrimum* Sakurai & Habe, 1966: 293. HABITAT. ••1909 Melville: 30 fathoms, among quantities of *Halimeda*- and *Lithothamnium*-rubble. ••1999 Vidal: recorded from 9 to 295 m depth, mostly from 30-80 m. ••1999 Higo *et al.*: intertidal to 50 m, sand and mud. DISTRIBUTION. ••1909 Melville: Amirantes. ••1994 Hylleberg: Indo-West Pacific. ••1999 Vidal: it is probably present in the main part of the tropical Indian Ocean, and in many central Pacific archipelagoes. ••1981 Kuroda & Habe; ••1999 Higo *et al.*: Kii peninsula (and southwards, East China Sea, Philippines, South China Sea, tropical Indo-Pacific, Australia).

**transclathratum** Viader, 1951. – *Parvicardium transclathratum* Viader, 1951. Cardiidae. Recent. RECORDS. ••1951 Viader, p. 143, pl. III, fig. 7: *Parvicardium transclathratum*. ••1951 ZR: *Cardium transclathratum* Viader, 1951 sp. nov. Stray valves abundant in shell sand between Grand Bay and Cap Malheureux Mauritius. ••1988 Drivas & Jay: *Parvicardium transclathratum* (Viader, 1951). ••1977 Fischer-Piette: *Cardium (Cerastoderma, Parvicardium) transclathratum* Viader, 1951. – CHARACTERS AND OCCURRENCE – ••1988 Drivas & Jay: tuberculated ribs on the shell surface. DIMENSIONS. ••1988 Drivas & Jay: Max. ant.-post. 6.4 mm, umbo-ventr. 6.2 mm. DISTRIBUTION. ••1988 Drivas & Jay: Réunion, western Indian Ocean at 40 m depth. ••Of authors: Western Indian Ocean, South Africa.

**transilis** Eberzin, 1960. – *Pachydaena transilis* Eberzin, 1960. Lymnocoardiidae. Pliocene. RECORDS. ••1960 ZR: *Pachydaena transilis* Eberzin, 1960 sp. n. Pliocene Duab river, Abkhaziyia, Georgia, USSR.

**transkaspica** Andrussov, 1924. – *Monodacna transkaspica* Andrussov, 1924. Lymnocoardiidae. Pliocene and Pleistocene. RECORDS. ••1924 ZR: *Monodacna transkaspica* Andrussov, 1924 sp. n. Pleistocene. ••1963 ZR: *Monodacna transkaspica* Andrussov, 1963 sp. nov. Pliocene, Russia.

**translatum** Prashad, 1932. [Figs. Part 3 p. 870]. – Changed combination; new name: *Ctenocardia translatum* (Prashad, 1932). Cardiidae. Recent. RECORDS. ••1932 Prashad: *Cardium (Ctenocardia) translatum* (n. nov.). ••1932 ZR: *Cardium (Ctenocardia) translatum* Prashad, 1932 nom. n. for *Cardium rigidum* Rve. non Wood. ••1977 Fischer-Piette: *Corculum (Ctenocardium) translatum*. ••1977 Wilson & Stevenson: *Cardium translatum* Prashad, 1932. ••1977 Wilson & Stevenson: *Cardium (Ctenocardia) translatum* Prashad, 1932. ••2001 Vidal, p. 408: *Ctenocardia translatum*. ••2003 Hylleberg & Kilburn, p. 178: *Ctenocardia translatum* (Prashad, 1932). – CHARACTERS AND OCCURRENCE –

DESCRIPTIONS. ••2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes. DISTRIBUTION. ••1994 Hylleberg: Central Indo-West Pacific. ••2003 Hylleberg & Kilburn: 1 valve from Quinhon (Vietnam) is deposited in the Collection Saurin at MNHN, Paris. (J. Vidal).

**translucidum**. – Combination to be revised: "*Cardium translucidum*. Cardiidae. Cretaceous of California RECORDS. ••1871 Stoliczka, 149: *C. translucidum*."

**transpositum** Deshayes, 1853. – Combination to be revised: "*Cardium transpositum* Deshayes. Cardiacea. Fossil. RECORDS. ••1980 Ruhoff: *Cardium transpositum* Deshayes, 1853; vol. 2: 49, 53

**transversa** (subspecies). – See under *pomeyrolia transversa* Freneix, 1957.

**transversa** Fan, 1963. – *Protocardia transversa* Fan, 1963. Cardiidae. Lias. RECORDS. ••1963 ZR: *Protocardia transversa* Fan, 1963 sp. nov. Lechang, Guangdong, China, Lias.

**transversa** Sowerby. – *Papyridea transversa* Sow. Cardiidae. RECORDS. ••1890 Paetel: *Papyridea transversa* Sow.

\***transversale**. – Homonymy to be noticed. *Cardium transversale* from 2 sources: Römer, 1849. – Deshayes, 1854.

**transversale** Deshayes, 1854. [Figs. Part 3 p. 917]. – Synonym of *Parvicardium exiguum* (Gmelin, 1791). >> Regarding *Cardium transversale*: Cardiidae. Recent. REMARKS. RECORDS. ••1854 Deshayes: *Cardium transversale*. ••1885 Smith: *Cardium (Papyridea) transversale*, Deshayes, 1854. ••1888 Kobelt: *Cardium transversale* Deshayes. ••1890 Paetel: *Cardium transversale* Dsh. ••1917 Hidalgo: *Cardium transversale* Deshayes. ••1927 Dautzenberg: *Cardium (Parvicardium) transversale* Deshayes. ••1962 Clarke: *Parvicardium transversale* (Deshayes) 1854. ••1969 Nordsieck: *Papyridea transversale* (Deshayes, 1854). ••1977 Fischer-Piette: *Cardium transversale* Deshayes = *Cardium exiguum* Gmelin. ••1980 Ruhoff: *Cardium transversale* Deshayes, 1854; p. 333. ••1984 ZR: *Cardium transversale* Deshayes, 1854. Preoccupied name, replaced by *Parvicardium vroomi*. Ref. to van Aartsen *et al.* p. 67. ••2000 Aartsen & Goud: *Parvicardium transversale* Deshayes. Type in BMNH. – CHARACTERS AND OCCURRENCE – REMARKS. ••1962 Myra Keen in Clarke, p. 66: states that *Cardium transversale* Deshayes is preoccupied by *Cardium transversale* Römer 1849 (*vide* Fischer-Piette 1977). However, a new name is not needed because *C. transversale* Deshayes = *C. exiguum* Gmelin (Fischer-Piette 1977). HABITAT. ••1969 Nordsieck: 126-1846 m depth. DISTRIBUTION. ••1969 Nordsieck: Mediterranean, Canary Islands, Algeria.

**transversale** Römer, 1849. – *Nomina oblita*. Cardiidae. Cretaceous. TYPE LOCALITY. Friedrichsburg, Germany. RECORDS. ••1849 Römer: *Cardium transversale*. ••1922-32 Sherborn, p. 6560: *Cardium transversale* C.F. Roemer, 1849. ••1977 Fischer-Piette: *Cardium transversale* Römer. ••1986 Scott: *Cardium transversale* Roemer (1849) considered *nomina oblita*. **transversum** Rehder & Abbott, 1951. – Changed combination: *Nemocardium transversum* (Rehder & Abbott, 1951). Cardiidae. Recent. RECORDS. ••1951 Rehder & Abbott, p. 56, pl. 9, figs. 9-10: *Microcardium*

- transversum*. •1951 ZR: *Microcardium transversum* Rehder & Abbott, 1951 sp. nov. 50 m. SSW. of Marsh Island, Iberia Co. Louisiana 29 fms. •1964 Parker: *Microcardium transversum* Rehder & Abbott. •1974 Abbott: *Nemocardium transversum* Rehder & Abbott, 1951. •1977 Fischer-Piette: *Microcardium transversum* Rehder & Abbott. •1979 ZR: *Microcardium transversum*. Ref. to Trecece. •1997 Shelton: *Nemocardium transversum* Rehder & Abbott, 1951. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: 1 valve, west of Mississippi delta, Gulf of Mexico. HABITAT. •ZMUC: clayey sand at 60 m depth. DISTRIBUTION. •Of authors: Louisiana; Mississippi Delta, Gulf of Mexico.
- transversum* Sowerby. – Insufficiently known. RECORDS. •1840 Swainson: *Papyridea transversum* Sow. Conch. f. 4 asterisk. •1858 Adams & Adams, p. 456: *Cardium (Papyridea) transversa* Sow. •1922-32 Sherborn, p. 6562: *Cardium transversum* Sowerby, 1832 [*n. et f.*].
- \**trapezinum*. – Homonymy to be noticed. *Cardium trapezinum* from 3 sources: Andrusov, 1923. Andrusov, 1924. Andrusov, 1963. REMARKS. Andrusov, 1923 and Andrusov 1924 may be identical with Andrusov 1963 (see below).
- trapezinum* Andrusov, 1923. Changed combination: *Caspicardium trapezinum* (Andrusov, 1923). Lymnocardiidae. Pliocene. RECORDS. •1958 ZR: *Cardium trapezinum* Andrusov, 1923. Genotype of *Caspicardium Astafieva*, 1958. Cardiidae. Pliocene. Azerbaijan and Turkmenia, USSR •1958 ZR: *Caspicardium trapezinum* (Andrusov, 1923) [Ref. Astafieva 1958].
- trapezium* Andrusov, 1924. – Combination to be revised: "*Cardium*" *trapezium* Andrusov, 1924. ?Lymnocardiidae. Pleistocene. RECORDS. •1924 ZR: *Cardium trapezium* Andrusov, 1924 sp. n.
- trapezinum* Andrusov, 1963. – Combination to be revised: "*Cardium*" *trapezium* Andrusov, 1963. ?Lymnocardiidae. Pliocene. RECORDS. •1963 ZR: *Cardium trapezinum* Andrusov, 1963 sp. nov. Apsheiron layers, Pliocene, Russia.
- trapezium* Cecalupo & Quadri, 1996. – *Parvicardium trapezium* Cecalupo & Quadri, 1996, Cardiidae. Fossil. RECORDS. •2000 Aartsen & Goud: *Parvicardium trapezium* Cecalupo & Quadri, 1996.
- trapezoidale* Orbigny, 1850. – *Conocardium trapezoidale* Orbigny, 1850. Conocardiidae. Fossil. RECORDS. •1922-32 Sherborn, p. 6566: *Conocardium* (Roemer) *trapezoidale* d'Orbigny, 1850. – *Pleurorhynchus trapezoidalis*. •1922-32 Sherborn, p. 6566: *Pleurorhynchus trapezoidalis* F.A. Roemer, 1843.
- traubi* Schlickum, 1970. – *Cerastoderma traubi* Schlickum, 1970. Cardiidae. Upper Bavaria. RECORDS. •1970 ZR: *Cerastoderma traubi* Schlickum, 1970 sp. nov. Borehole SW. 13 Harmoning I, Teufe, Upper Bavaria, West Germany. •1977 Popov: *Cerastoderma traubi* Schlickum, 1970.
- triangula* G. Schneid. – Changed combination: *Pontalmyra triangula* (G. Schneid.). Lymnocardiidae. Fossil. RECORDS. •1987 Taktakishvili: *Pontalmyra triangula* (G. Schneid.).
- \**triangulare*. – Homonymy to be noticed. *Cardium triangulare* from 2 sources: Young & Bird, 1828. – Coquand, 1862.
- triangulare* Coquand, 1862, – Combination to be revised: "*Cardium*" *triangulare* Coquand, 1862. Cardiidae. Fossil. RECORDS. •1871 Stoliczka, 109: *C. triangulare* Coquand, 1862. •1980 Ruhoff: *Cardium triangulare* Coquand, 1862; vol. 2: 206, pl. 11, figs. 1,2.
- triangulare* Young & Bird, 1828. – Combination to be revised: "*Cardium*" *triangulare* Young & Bird, 1828. ?Cardiidae. Fossil. RECORDS. •1922-32 Sherborn, p. 6572: *Cardium triangulare* Young & Bird, 1828.
- triangularis* Martyn, 1784. *Non* binominal. – Not available. Not a cardiid. RECORDS. •1784 Martyn: *Cardium triangularis*.
- triangularis* Noda, 1962. – *Serripes triangularis* Noda, 1962. Cardiidae. Upper Miocene. RECORDS. •1962 ZR: *Serripes triangularis* Noda, 1962 sp. nov. Itanoki-sawa, Araki-mura, Mogami-gun, Yamagata Pref. Mitsumori formation, Miocene, Japan. •1973 Keen: *Serripes triangularis* Noda, 1962.
- triangulata* Campbell & Engel, 1963. – *Chaenocardiola triangulata* Campbell & Engel, 1963. Cardiacea. Tournaisian. RECORDS. •1963 ZR: *Chaenocardiola triangulata* Campbell & Engel, 1963 sp. nov. New South Wales, Tournaisian.
- triangulato-costatum* (Hal.). – New combination: *Lymnocardium triangulato-costatum* (Hal.) Lymnocardiidae. Fossil. RECORDS. •1987 Taktakishvili: *Limmocardium triangulato-costatum* (Hal.).
- triangulatum* Laubriere, 1881. – Changed combination: *Parvicardium triangulatum* (Laubriere, 1881). Cardiidae. Eocene. RECORDS. •1886 Cossmann: *Cardium triangulatum* Laub. •1904-06 Cossmann & Pissarro, 69-20: *Cardium (Plagiocardium) triangulatum* de Laub. •1970 Glibert & Poel, p. 48: *Parvicardium triangulatum* (de Laubriere, 1881). •1995 Le Renard et al.: *Parvicardium triangulatum* [*Cardium triangulatum*] De Laubriere, 1881. •1995 Pacaud & Renard: *Parvicardium triangulatum*. •1998 Schneider: *Parvicardium (Parvicardium) triangulatum* (Laubriere, 1881). •1998 Schneider: *Parvicardium triangulatum* (Laubriere, 1881) Cardiidae. Eocene. •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Plagiocardium triangulatum* de Laubriere. Lutetien. France (Bassin de Paris), B52735. -6.
- triangulatum* Sowerby. – *Nomen nudum*. Not available. RECORDS. •1857 Carpenter, p. 94: *Cardium triangulatum* Sow. (*nomen nudum*). •1872 Carpenter, p. 30: *Cardium triangulatum* Sow. •1901 Dall: *Cardium triangulatum* "Sowerby" Carpenter, 1857 (perhaps a MS name). •1977 Fischer-Piette, p. 123: *Cardium triangulatum* Sowerby, Orbigny, 1847. Syn. of *Corculum (Trigoniocardia) biangulatum* Sowerby, 1829. •1977 Fischer-Piette, p. 155: *Cardium triangulatum* Sowerby. Insufficiently known species.
- triangulum* Muenster in Goldfuss, 1837. – See under *triangulum* Orbigny.
- triangulum* Orbigny, 1850. – *Conocardium triangulum* d'Orbigny, 1850. Conocardiidae. Fossil. RECORDS. •1922-32 Sherborn, p. 6575: *Cardium triangulum* Muenster in Goldfuss, 1837. •1922-32 Sherborn, p. 6575: *Conocardium* (Muenster) *triangulum* d'Orbigny, 1850. – *Cardium*.
- Tridachna** (error). – Printer's mistake for *Tridacna* in ZR for 1937 with ref to Iredale 1937.

**Tridachnes – Trifaricardium**

**Tridachnes** (genus). – Synonym of *Tridacna* Bruguière, 1797. >> Regarding *Tridachnes*: Tridacnidae. Recent. RECORDS. ••1937 ZR: *Tridachnes* Bolten [Röding] Logo-type here selected *Chama gigas* L. [Ref. Iredale 1937]. ••1998 Schneider (1998b): *Tridachnes maxima* Röding, 1798. ••1999 Higo *et al.*: *Tridachnes* Röding, 1798 = *Tridacna* Bruguière, 1797. Tridacnidae.

**Tridacna**. – (genus). Tridacnidae. RECORDS. ••1884 ZR: *Tridacna* [Ref. Sowerby 1884]. ••1891 ZR: *Tridacna*, anatomy of [Ref. Ménégau 1891]. ••1899 ZR: *Tridacna* its anatomy. [Ref. Grobben 1899]. ••1904 ZR: *Tridacna* morphology and anatomy [Ref. Anthony 1904]. ••1920 ZR: *Tridacna* [Ref. Anthony 1920]. ••1927 ZR: *Tridacna* fossil [Ref. Cox 1927]. ••1931 ZR: *Tridacna* (digestion) Ref. to Yonge (1931). ••1932 ZR: *Tridacna*, crystalline style, [Ref. Yonge 1932b]. ••1934 ZR: *Tridacna* fig. [Ref. Boutan 1934]. ••1937 ZR: *Tridachna* [err. pro *Tridacna*] Humph. Mus. Calonn. "Logotype here selected" *Chama gigas* L. [Ref. Iredale 1937]. ••1938 ZR: *Tridacna* Biology [Ref. Tomlin 1936]. ••1939 ZR: *Tridacna* Pearls [Ref. Cobb 1939]. ••1946 ZR: *Tridacna* communication between mantle and stomach [Ref. Mansour 1946]. ••1947 ZR: *Tridacna* anatomy [Ref. Mansour 1947]. ••1957 ZR: *Tridacna* nature and occurrence of pearls [Ref. Haas 1957]. ••1962 ZR: *Tridacna* records of large specimens [Ref. Roscoe 1962]. ••1963 ZR: *Tridacna* collecting on Eniwetok [Ref. Roberts 1963]. ••1969 ZR: *Tridacna* spp. ecology in Palau, Western Caroline Is. [Ref. Hardy & Hardy 1969]. ••1970 ZR: *Tridacna* Biology, ecology. [Ref. Cowen, R.]. ••1971 ZR: *Tridacna* [Ref. Salvat 1971]. ••1971 ZR: *Tridacna* Biology and ecology [Ref. Fankboner 1971]. ••1975 ZR: *Tridacna*. Steroid hormones. Ref. to Teshima. / Distribution. Ref. to Yonge. ••1976 ZR: *Tridacna*. Heavy metal content. Strontium partition coefficient between sea water & aragonite. Western Pacific. Ref. to Konishi. / Toxin toxicity. Ref. to Kanno. ••1977 ZR: *Tridacna*. Care in captivity. Popular account. Ref. to Weingarten & Tuxson. / Coral Sea. Great Barrier Reef. Impact of poaching on population dynamics. Fishing & fisheries. Ref. to Pearson. / Holocene. Tasman Sea, Gilbert & Ellice Islands, stratigraphy. Ref. to Schofield. ••1981 ZR: *Tridacna*. Ref. to Benson *et al.* Great Barrier Reef. / Fankboner. / Trench *et al.* ••1982 ZR: *Tridacna*. Ref. to de Couet. / Harada *et al.* / Romano. / Ueda *et al.* / Yonge. ••1983 ZR: *Tridacna*. Ref. to Benson / Bruce / Munro *et al.* / Poulicek / Wells. ••1984 ZR *Tridacna*: Eye. Retina cell hyperpolarization. Ref. to Wilkens. ••1992 Schneider p. 155: *Tridacna*. Type species *Tridacna gigas* (Linnaeus, 1758). ••1998 Schneider: *Tridacna* with three subgenera: (*Tridacna*), (*Chametrachea*), (*Persikima*). ••1999 Higo *et al.*: *Tridacna* (subgenus) *s. str.* Tridacnidae. ••1999 Higo *et al.*: *Tridacna* Bruguière, 1797. Type species: *Chama gigas* Linnaeus, 1758 (s. m. Lamarck, 1799).

**Tridacnacea** (superfamily). – RECORDS. ••1974 ZR: Tridacnacea. Population censuses. Coral reef. West Caroline Basin. Ref. to Hester. ••1976 ZR: Tridacnacea. Crustacean parasites. Cyclopoida. Parasite systematics. Ref. to Humes. ••1977 ZR: Tridacnacea. Mutualism. Symbiosis, algae, lectin system defensive mechanism or digestive function. Ref. to Uhlenbruck & Steinhäuser. ••1979 ZR: Tridacnacea. General account.

Coral reefs, Australia. Ref. to Summerhays. ••1980 ZR: Tridacnacea, western Pacific. Ref. to Bishop, D.G. *et al.* ••1983 ZR: Tridacnacea. Ref. to Mangum: comparative review. ••1992 Schneider: superfamily Tridacnacea of Keen (fide Schneider 1992). ••1998 Schneider: superfamily Tridacnacea, Family Tridacnidae.

**Tridacnidae** (family). – RECORDS. ••1865 ZR: Tridacnidae [Ref. Vaillant 1865]. ••1940 ZR: Tridacnidae [err. pro Tridacnidae] in Mus. hist. nat. Paris [Ref. Lamy 1940]. ••1947 ZR: Tridacnidae food and feeding habits [Ref. Mansour 1947]. ••1957 ZR: Tridacnidae pallial attachment, nervous system and evolution with regard to the monomyarian condition [Ref. Yonge 1957]. ••1964 ZR: Tridacnidae, species of Dar es Salaam [Ref. Spry 1964]. ••1966 ZR: Tridacnidae of the Great Barrier Reef, Australia, [Ref. Rosewater 1966]. ••1953 ZR: Tridacnidae, mantle and water circulation, figs. [Ref. Yonge 1953]. ••1970 ZR: Tridacnidae *sic* symbiotic zooxanthellae in mantle edge [Ref. Read 1970]. ••1974 ZR: Tridacnidae. Particulate feeding. Gastric diverticula. Functional morphology. Posture. Ref. to Fankboner. ••1975 ZR: Tridacnidae. Systematic accounts of species. Ref. to Lambiotte. ••1976 ZR: Tridacnidae. Community structure. Population size. West Caroline Basin. Ref. to Bryan. ••1979 ZR: Tridacnidae. Ref. to Heslinga. ••1981 ZR: Tridacnidae. Ref. to Gwyther *et al.* / Heslinga. / Yonge. Indo Pacific. ••1999 Higo *et al.*: Tridacnidae (family) Lamarck, 1819 (Refs.: Rosewater, 1965). ••1983 ZR: Tridacnidae. Ref. to D'Attilio *et al.* – CHARACTERS AND OCCURRENCE – REMARKS. ••1998b Schneider: all species of tridacnines harbor photosymbiotic dinoflagellate algae (zooxanthellae) in their tissues. Extinct tridacnine taxa are known from the Middle Eocene. Extant tridacnine taxa are known from Miocene fossils.

**Tridacninae** (subfamily). – RECORDS. ••1998 Schneider (1998b): Tridacninae (subfamily). ••2002 Schneider: Tridacninae originate in the Palaeogene, not Cretaceous. ••2001 Schneider & Carter: Tridacninae (subfamily) Lamarck, 1819.

**Tridacnodites** Krüger, 1823. – Synonym of *Tridacna* Bruguière, 1797. >> Regarding *Tridacnodites*: Tridacnidae. Recent. RECORDS. ••1999 Higo *et al.*: *Tridacnodites* Krüger, 1823 = *Tridacna* Bruguière, 1797. Tridacnidae.

**Tridacnoidea** (Superfamily). – RECORDS. ••1995 Pacaud & Renard: Superfamily Tridacnoidea.

**Trifaricardium** Kuroda & Habe, 1951. – ?Valid genus. No description (Vokes 1980). GENOTYPE. Habe (1951) designated *Cardium nomurai* Kuroda & Habe, 195 as type species of subgenus *Trifaricardium* of the genus *Nemocardium* Meek, 1876. RECORDS. ••1961 ZR: *Trifaricardium* Kuroda & Habe, 1961 gen. nov. Cardiidae genotype *Cardium* (*Acanthocardia*) *cancellatum* Nomura 1933 = *nomurai* p. 34, nom. nov. pro *cancellatum* Nomura 1933 non Gmelin 1791, Japan [published after preparation of the manuscript of this work in Illust. Cat. Jap. Shells No. 13 p. 86, 1951 Kuroda & Habe]. ••1962 ZR: *Trifaricardium* gen. nov. *nomurai* nom. nov. for *Cardium cancellata* Nomura 1933, non Gmelin 1791. ••1980 Vokes: *Trifaricardium* Kuroda & Habe, 1951. ••1992 Poutiers: *Trifaricardium*. ••1999 Higo *et al.*: *Trifaricardium* Kuroda & Habe in

*trifidum* – *trigonoides*

- Habe, 1951. Type species: *Trifarcticardium nomurai* Kuroda & Habe, 1951 (o. d.). – CHARACTERS AND OCCURRENCE – REMARKS. ••1994 Hylleberg: near *Nemocardium* (*Microcardium*) but secondary concentric sculpture on anterior slope only.
- trifidum*** Deshayes, 1858. – Changed combination: *Orthocardium trifidum* (Deshayes, 1858). Cardiidae. Eocene. RECORDS. ••1886 Cossmann: *Cardium trifidum* Deshayes. ••1904-06 Cossmann & Pissarro, 69-6: *Cardium* (*Trachycardium*) *trifidum* Desh. ••1930 Stewart, p. 254: “*Cardium*” *trifidum*. Ref to Cossmann & Pissarro 1906, pl. 17, fig. 69-6. (Thanetien) ••1970 Gilbert & Poel, p. 53: *Cardium* (*Orthocardium*) *trifidum* Deshayes, 1858. ••1977 Popov: *Orthocardium trifidum* (Deshayes, 1858). ••1980 Ruhoff: *Cardium trifidum* Deshayes, 1858; [1856-1865] vol. 1: 556, pl. 56, figs. 5-7. ••1995 Le Renard *et al.*: *Cardium* (*Orthocardium*) *trifidum* Deshayes, 1858. ••1995 Pacaud & Renard: *Cardium* (*Orthocardium*) *trifidum*. ••1999 Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Trachycardium trifidum* Deshayes. Thanetien. France (Bassin de Paris), 52668 to -71, B69974.
- trifkovic*** (subspecies). – See under *conjugens trifkovic* Brusina 1902.
- trifkovic*** (cf.). – New combination: *Lymnocardium* cf. *trifkovic*. Lymnocardiidae. Pliocene. RECORDS. ••1961 ZR: *Limnocardium* sp. nov. Gillet & Vicente, 1961 cf. *trifkovic* Pliocene, Barcelona, Spain.
- triforme*** Sowerby, 1840. – Changed combination: *Discors triforme* (Sowerby, 1840). Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6602: *Cardium triforme* Sowerby, 1840. ••1977 Popov: *Discors triforme* (Sowerby, 1840).
- trigona*** Fan, 1963. – *Protocardia trigona* Fan, 1963. Cardiidae. Lias. RECORDS. ••1963 ZR: *Protocardia trigona* Fan, 1963 sp. nov. Xiaioshui, Lechang, Guangdong, China, Lias.
- trigona***. – Not in Cardiidae. >> Regarding *Cardium trigona*: RECORDS. ••1839 Anton, no. 405. *Cardium trigona* = *Donax cardioides* Lamarck.
- trigonale*** d’Orbigny, 1850. – *Conocardium* (Ph.) *trigonale* d’Orbigny, 1850. Conocardiidae. Fossil. RECORDS. ••1922-32 Sherborn: *Pleurohynchus trigonale* Ph. ••1922-32 Sherborn, p. 6603: *Conocardium* (Ph.) *trigonale* d’Orbigny, 1850. – *Pleurohynchus*.
- trigonalis***. – *Cardium trigonalis*. ?Cardiacea. Fossil. RECORDS. ••1857 Deshayes: *Cardium trigonalis* (England).
- trigonellare*** Buvignier, 1852. – Combination to be revised: “*Cardium*” *trigonellare* Buvignier, 1852. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium trigonellare* Buvignier, 1852; atlas p. 15, pl. 13, figs. 32-33.
- \**trigonellum***. – Homonymy to be noticed. *Cardium trigonellum* from 2 sources: Orbigny, 1852. – Bronn, 1848.
- trigonellum*** Bronn, 1848. – Synonym of *Parvicardium papillosum* (Poli, 1791). >> Regarding *C. trigonellum*: Cardiidae. Fossil. RECORDS. ••1867 Weinkauff: *Cardium trigonellum* Bronn, 1848 = *Cardium papillosum* Poli.
- trigonellum*** Orbigny, 1852. – Synonym of *Parvicardium papillosum* (Poli, 1791). >> Regarding *Cardium trigonellum*: Cardiidae. Fossil. RECORDS. ••1888 Kobelt: *Cardium trigonellum* d’Orb. (*vide* Weinkauff) = *Cardium papillosum* Poli. ••1980 Ruhoff: *Cardium trigonellum* Orbigny, 1852; [1850-1852] vol. 3: 118.
- Trigoniocardia*** Dall, 1900 (genus). – Cardiidae. Recent. GENOTYPE. Dall (1900) designated *Cardium granifera* Broderip & Sowerby, 1829 type species of genus *Trigoniocardia*. RECORDS. ••1953 Olsson & Harbison: Genus *Trigoniocardia* Dall, 1900. ••1980 Vokes: *Trigoniocardia* Dall, 1900 in subfamily Fraginae. ••1934 Johnson: *Trigoniocardia* Dall 1900. ••1961 Olsson: *Trigoniocardia* Dall, 1900. ••1977 Popov: *Trigoniocardia* Dall, 1900. Genotype: *Cardium graniferum* Broderip & Sowerby, 1829. ••1977 ZR: *Trigoniocardia* [err. pro *Trigoniocardia*] Key to subgenera. Ref. to Popov p. 55. ••1992 Schneider p. 155: *Trigoniocardia*. Type species *Trigoniocardia granifera* (Broderip & Sowerby). ••1998 Schneider: *Trigoniocardia*. A number of Eocene species have been variously classified as *Trigoniocardia*. ••1999 Higo *et al.*: *Trigoniocardia* Dall, 1900. Type species: *Cardium graniferum* Broderip & Sowerby, 1829 (o. d.). ••2001 Vidal, p. 408: *Trigoniocardia*. – CHARACTERS AND OCCURRENCE – DESCRIPTION. ••1994 Hylleberg: shell ovate to quadrate; hinge asymmetric, anterior section shorter than posterior. ••2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes.
- Trigoniocardia*** Dall, 1900 (section and subgenus). – Cardiidae. Recent. RECORDS. ••1900 ZR: *Trigoniocardia* Dall, 1900a n. sect. of *Fragum* type *Cardium graniferum* Sby. ••1922 Olsson: section *Trigoniocardia* Dall. ••1924 Oldroyd: Subgenus (*Trigoniocardia*) Dall, 1900.
- Trigoniocardia*** (genus). – Printer’s error. RECORDS. ••1980 Vokes: *Trigoniocardia* (err. pro *Trigonio-* Dall, 1900) Cossmann, 1901.
- trigonoides*** Eichwald, 1838. [Figs. Part 1 p. 123]. – Identical with *Didacna trigonoides* Pallas, 1771. Lymnocardiidae. Pliocene and Recent. RECORDS. ••1838 Eichwald: *Didacna trigonoides* n. ••1841 Eichwald: *Didacna trigonoides*. ••1844 Reeve: *Didacna trigonoides*, Eichwald = *Cardium trigonoides* Pallas. ••1876 ZR: *Cardium* [*Didacna*] *crassum* (Eichw.) and *trigonoides* (Pall.), in the Caspian Sea, connected by intermediate forms [Ref. Grimm 1876]. ••1922-32. Sherborn, p. 6606: *Didacna* (Pall.) *trigonoides* Eichwald, 1838. – *Cardium trigonoides* Pallas, 1771. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Didacna trigonoides* Eichwald. Caspian Sea, B37642.
- trigonoides*** Pallas, 1771. [Figs. Part 1 p. 128]. – *Didacna trigonoides* (Pallas, 1771). Lymnocardiidae. Pliocene and Recent. Type species: Stoliczka (1870) designated *Cardium trigonoides* Pallas, 1771 type species of the genus *Didacna* Eichwald, 1838. TYPE LOCALITY. Caspian Sea. RECORDS. ••1771 Pallas: *Cardium trigonoides* (*vide* Eichwald 1841). ••1776 Pallas [Anhang p. 26, No. 86]: *Cardium trigonoides*. ••1788 Schröter: *Cardium trigonoides* [Reference to Chemnitz (1782) fig. 203]. ••1841 Eichwald: *Cardium trigonoides* Pallas, 1771. ••1838 Eichwald: *Cardium trigonoides* Pall. ••1844 Reeve species 26: *Cardium trigonoides* Pallas, 1776. ‘Reise durch verschied. Provinzen des Russischen



*trigonoides chasarica-trilaterum*

Reichs,' vol. i.; Anhang (Appendix), p. 26, no. 80. •1849 Middendorff: *Cardium trigonoides* (fide Andrussoff 1903). •1858 Adams & Adams, p. 460: *Adacna* (*Didacna*) *trigonoides* Pallas. •1866 Issel: *Didacna trigonoides* Pallas. •1870 Stoliczka: *Cardium trigonoides* Pallas, 1771. •1877 Grimm: *Cardium trigonoides* Pallas. •1884 Grasset: *Adacna trigonoides* Pall. •1887 Fischer: *Didacna trigonoides* Pallas (in s. g. *Didacna* Eichwald, 1838). •1890 Paetel: *Adacna trigonoides* Pallas. •1890 Woodward: *Didacna trigonoides* Pal. - Caspian. •1902 Sherborn, p. 993: *Cardium trigonoides* Pallas, 1771. •1903 Andrussoff: *Cardium trigonoides* Pallas. •1903 Andrussoff: *Cardium trigonoides*. •1916 ZR: *Didacna trigonoides* Ref. to Kalickij (1916). •1930 ZR: *Didacna trigonoides* [Ref. Pravoslavleff 1913 sic]. •1947 ZR: *Didacna trigonoides* effects of salinity in the Caspian Sea, [Ref. Karparich 1947]. •1963 ZR: *Didacna trigonoides*, food and feeding mechanism [Ref. Rossanova 1963]. •1964 Shikama: *Didacna* (*Didacna*) *trigonoides* (Pallas). •1968 Logvinenko & Starobogatov: *Didacna trigonoides trigonoides*. •1969 Moore *et al.*: *Didacna* (*Didacna*) *trigonoides* (Pallas). •1977 Popov: *Didacna trigonoides* (Pall.). •1980 ZR: *Didacna trigonoides*. Caspian Sea. Ref. to Galperina. •1984 ZR: *Didacna trigonoides*. Ref. to Galperina. •1998 Schneider (1998b): *Didacna trigonoides* (Pallas, 1771). - CHARACTERS AND OCCURRENCE - DESCRIPTIONS. •1776 Pallas, original: *Testa magnitudine fere rustici, subimbricata, valde gibba, inaequilatera, subtriangularis. Valvulae aequales, vesus nates inflexas angulatae, altero latere planiusculae, altero lato, convexo. Striae in plianiore latere exiles circiter sex, area vulvae laevigata, in convexa parte 14-18. latae, complanatae. Copiosissima testa Maris Caspii, viva tamen mihi non visa.* •1844 Reeve: shell triangularly cordate, elongated and slightly angulated posteriorly with the umbones obtusely keeled, shortened and compressed anteriorly; very smooth, whitish, ornamented with slightly elevated brown rays, very like worn flattened ribs, diverging with great regularity from the umbones. REMARKS. •1844 Reeve: The Figure, Part 1, p. 128, No. 26b, has an interesting history. Reeve described the fate of the shell as being one of three shells described by Pallas in 'Journey through different Provinces of the Russian Empire,' published at Leipzig in 1776. Although a species of some rarity in our collections, it must be tolerably abundant in the Caspian Sea according to the testimony of both Pallas and Eichwald. The locality given by Lamarck, "Seas of America," is extremely vague, and most probably incorrect, as it appears to be founded merely upon the fact of his specimen, from the cabinet of M. DeFrance, having been presented to that naturalist by M. Richard after his return from Guyana. It will perhaps be interesting to know that the shell before me, belonging to Miss Saul, is from the same source; the chief portion of M. Richard's conchological rarities fell into the possession of Dr. Goodhall of Eton, and, at the death of the venerable Provost, the specimen in question passed into the collection of the Rev. Mr. Stainforth, to whom its present possessor is indebted for it. •1903: Andrussoff stated that Eichwald, 1838 moved *Cardium trigonoides*

to genus *Didacna*. DISTRIBUTION. •1844 Reeve, •1884 Grasset: Caspian Sea.

*trigonoides chasarica* Svitoc, 1967. - *Didacna trigonoides chasarica* Svitoc, 1967. Lymnocaridiidae. Quaternary. RECORDS. •1967 ZR: *Didacna trigonoides chasarica* Svitoc, 1967 subsp. nov. figs.; Quaternary, central Caspian region.

*trigonoides chvalynica* Svitoc, 1967. - *Didacna trigonoides chvalynica* Svitoc, 1967. Lymnocaridiidae. Quaternary. RECORDS. •1967 ZR: *Didacna trigonoides chvalynica* Svitoc, 1967 subsp. nov. figs.; Quaternary, central Caspian region.

*trigonoides crassum* Grimm, 1876. - Synonym of *Didacna baeri* (Grimm, 1877). >> Regarding *Cardium trigonoides crassum*: Lymnocaridiidae. TYPE LOCALITY. Caspian Sea. RECORDS. •1876 Grimm, p. 140: *Cardium trigonoides crassum* m. •1877 Grimm: *Cardium trigonoides crassum* m. (syn.) = *Cardium baeri* sp. n.

*trigonoides praetrigonoides* Nat. et Anis. - *Didacna trigonoides praetrigonoides* Nat. et Anis. Lymnocaridiidae. TYPE LOCALITY. Caspian Sea. RECORDS. •1968 Logvinenko & Starobogatov: *Didacna trigonoides praetrigonoides* Nat. et Anis.

*trigonoides tuzetae* Tadjalli-Pour, 1977. - *Didacna trigonoides tuzetae* Tadjalli-Pour, 1977. Lymnocaridiidae. RECORDS. •1977 ZR: *Didacna trigonoides tuzetae* Tadjalli-Pour, 1977 subsp. nov. Caspian Sea. Ref. to Tadjalli-Pour, M. p. 97, fig'd.

*trigonoides elongata* Pravoslavleff, 1913 (variety). - Upgraded. *Didacna trigonoides elongata* Pravoslavleff, 1913. Lymnocaridiidae. Fossil. RECORDS. •1930 ZR: *Didacna trigonoides* var. *elongata* Pravoslavleff, 1913 sic nov.

\**trigonum*. - Homonymy to be noticed. *Cardium trigonum* from 3 sources: Münster in Goldfuss, 1837. - Sismonda, 1842. - Michelotti, 1847.

*trigonum* Michelotti, 1847. - Replaced by *Cardium michelottii* Deshayes. >> Regarding *Cardium trigonum*: Cardiidae. Fossil. RECORDS. •1857. Deshayes: *Cardium trigonum* Michelotti, 1847. - *C. michelottii*. Desh.

*trigonum* Münster in Goldfuss, 1837. - *Cardium trigonum* Muenster in Goldfuss, 1837. Cardiidae. Fossil. RECORDS. •1857. Deshayes: *Cardium trigonum* Munster, 1840. •1922-32 Sherborn, p. 6607: *Cardium trigonum* Muenster in Goldfuss, 1837. [Münster in Goldfuss 1837 is assumed to be identical with Münster 1840].

*trigonum* Sismonda, 1842. - Synonym of *Parvicardium papillosum* (Poli, 1791). >> Regarding *Cardium trigonum*: Cardiidae. Fossil. RECORDS. •1888 Kobelt: *Cardium trigonum* Sism. (fide Weinkauff) = *Cardium papillosum* Poli [Weinkauff 1867, p. 138]. •1922-32 Sherborn, p. 6607: *Cardium trigonum* Sismonda, 1842. •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium trigonum* Sismonda. The Crimea, B37640.

*trilaterum* Gmelin, 1791. - Unknown species. RECORDS. •1791. Gmelin No. 26: *Cardium trilaterum*. •1815. Wood: *Cardium trilaterum* Gmelin (p. 3253) is not specific. •1817 Dillwyn: *Cardium trilaterum* Gmelin should be ignored. •1849 Middendorff: *Cardium trilaterum* Gm. (fide Andrussoff 1903). •1902 Sherborn, p. 993: *Cardium trilaterum* J.F. Gmelin, 1790.

*trilaterum – truncatum*

- trilaterum*** Gmelins, 1774. – Unknown species. RECORDS. •1774 Gmelins, p. 248: *Cardium trilaterum*. •1849 Middendorff p. 29-42: *Cardium trilaterum*. •1902 Sherborn, p. 993: *Cardium trilaterum* S.G. Gmelin sic, 1774.
- \****trinacria***. – Homonymy to be noticed. *Cardium trinacria* from 3 sources: Andrussov 1902. – Andrusov, 1963. – REMARKS. I do not know how Andrusov 1963 compares with Andrussov 1902.
- trinacria*** Andrusov, 1963. – Combination to be changed: "*Cardium*" *trinacria* Andrusov, 1963. ?Lymnocardidae. Neogene. RECORDS. •1963 ZR: *Cardium trinacria* Andrusov, 1963 sp. nov. Russia. •1986. Nevesskaya *et al.*: *Andrusovicardium trinacria* (Andrusov) comb. nov. •1987 ZR: *Andrusovicardium trinacria* (Andrusov) comb. nov. Ref. to Nevesskaya *et al.* p. 192.
- trinacria*** Andrussov, 1902. – Combination to be changed: "*Cardium*" *trinacria* (Andrussov, 1902). ?Lymnocardidae. Fossil. RECORDS. •1905 Dollfus, commenting Andrussov 1902: *Cardium trinacria* n. sp. tends towards *Cerastoderma*.
- trinitatis*** Tomlin, 1929. – *Laevicardium trinitatis* Tomlin, 1929. Cardiidae. Recent. DISTRIBUTION. Trinidad. RECORDS. •1929 Tomlin: *Laevicardium trinitatis* n. sp. •1929 ZR: *Laevicardium trinitatis* Tomlin, 1929 sp. n. Indies.
- \****tripartitum***. – Homonymy to be noticed. *Conocardium tripartitum* from 2 sources: Muenster in Goldfuss, 1837. – Branson, 1942.
- tripartitum*** Branson, 1942. – New name. *Conocardium tripartitum* Branson, 1942. Conocardiidae. Fossil. RECORDS. •1942 ZR: *Conocardium tripartitum* Branson, 1942 nom. nov. for *Conocardium truncatum* Pohl 1929 non Koninck 1885 [Ref. Branson 1942].
- tripartitum*** Muenster in Goldfuss, 1837. – *Cardium tripartitum* Muenster in Goldfuss, 1837. ?Conocardiidae. Fossil. RECORDS. •1922-32 Sherborn, p. 6620: *Cardium tripartitum* Muenster in Goldfuss, 1837.
- tripolitanum*** Blanckenhorn & Offenheim, 1927. – Combination to be revised. "*Cardium*" *tripolitanum* Blanckenhorn & Offenheim, 1927. Cardiidae. Miocene. RECORDS. •1927 ZR: *Cardium tripolitanum* Blanckenhorn & Offenheim, 1927 sp. n. Miocene Syria.
- triquetrum*** Matheron. – Not a cardiid. •1857 Deshayes: *Cardium triquetrum* Matheron In genus *Isocardia*.
- triste*** Gmelin, 1791. – See under *triste* Linnaeus, 1758.
- triste*** Linnaeus, 1758. – Dubious species. Cardiidae. RECORDS. •1758 Linnaeus (10<sup>th</sup> edition) No. 74: *Cardium triste*. •1764 Linnaeus (Mus. Lud. Ulr. Reg.) No. 46: *Cardium triste*. •1767 Linnaeus: sp. 74. *Cardium triste* removed in the 12<sup>th</sup> edition 1767. •1789 Bruguière, dubious species, p. 235. *Cardium triste* Linn. pag. 680, num. 74. •1791 Gmelin No. 28: *Cardium triste*. •1815 Wood: *Cardium triste* Gmelin is doubtful and omitted. •1817 Dillwyn: *Cardium triste* Gmelin should be ignored. •1864 Krebs: *Cardium triste* L. ? (syn.) = *Cardium citrinum* Ch. •1902 Sherborn, p. 997: *Cardium triste* Linnaeus, 1758.
- tristiculum*** Yokoyama, 1924. – Changed combination: *Nemocardium tristiculum* (Yokoyama). Cardiidae. Upper Oligocene. RECORDS. •1924 ZR: *Cardium* (*Laevicardium*) *tristiculum* Yokoyama, 1924 sp. n. Tertiary Japan. •1954 Keen: *Nemocardium* (*Arctopratalulum*) *tristiculum* (Yokoyama), 1924 [U Oligocene]. •1999 Kafanov *et al.*: *Laevicardium tristiculum* (Yokoyama) (= *Cardium esutoruensis*).
- trombosum*** Gregorio, 1930. – *Dicerocardium trombosum* Gregorio, 1930. Cardiidae. Lias. RECORDS. •1936 ZR: *Dicerocardium trombosum* Gregorio, 1930 sp. n. Lias Palermo.
- Tropicardium***. – Printer's error of genus *Tropidocardium*. RECORDS. •1980 Vokes: (err. pro *Tropido-* Römer, 1868) Preston, 1916. Synonym of *Cardium* Linnaeus, 1758.
- Tropidocardium*** Römer, 1869 (genus). – Synonym of *Cardium*. Cardiidae. RECORDS. •1869 ZR: subgenus *Tropidocardium*, type *Cardium costatum* (L.) [Ref. Römer 1869]. •1876 Meek: *Tropidocardium* Roemer (*Cardium* proper of most authors). *Cardium costatum* Linn. regarded as genotype. •1876 Meek: *Tropidocardium* Roemer, 1868. Synon. – Cardiidae. •1930 Stewart: *Tropidocardium* Römer in Küster, 1869 (objective synonym of *Cardium* Linné). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1869 Römer: shells very inflated, nearly equilateral, thin, with broad, flat, longitudinal ribs, with thin edges or spines and lamellae. Posterior end broadly gaping, with strongly serrated edges. Ligament short, thick, projecting. Edge of closure more or less straight and long; Cardinal teeth small, two in the right valve, one in the left valve; lateral teeth lamellar, prolonged, little developed.
- Tropidocardium*** Römer, 1869 (section and subgenus). – Synonym of *Cardium*. Cardiidae. REMARKS. The designation "section" takes the value of subgenus. RECORDS. •1869 Römer: Sectio *Tropidocardium* Römer. •1887 Fischer: *Tropidocardium* Römer, 1868. Section of genus *Cardium* Linné, 1758.
- troughtoni*** Iredale, 1927. – Synonym of *Tridacna maxima* (Röding, 1798). >> Regarding *Tridacnaroughtoni*: Tridacnidae. Recent. RECORDS. •1927 ZR: *Tridacnaroughtoni* Iredale, 1927 sp. n. Vanikoro. •1937. ZR: *Tridacnaroughtoni* Tridacnidae type of *Sepidacna* [Ref. Iredale 1937]. •1999 Higo *et al.*: *Tridacnaroughtoni* Iredale, 1927 = *Tridacna* (*Flodacna*) *maxima* (Röding, 1798).
- truncata*** Vest. – *Myocardia truncata* von West Adacnidae (= Lymnocardidae). Tertiary TYPE LOCALITY. Tihany, Hungary. REMARKS. This Hungarian fossil species bridges the gap between *Adacna* and *Cardium*. It has a hinge like in *Cardium* and a siphonal sinus like in *Adacna* (Andrussov 1903). RECORDS. •1877 Grimm: *Myocardia truncata* von West. •1903 Andrussov: *Myocardia truncata* Vest.
- \****truncatum*; Cardiidae** – Homonymy to be noticed. *Cardium truncatum* from 2 sources: Sowerby, 1827. – Goldfuss, 1840.
- truncatum*** Beyrich, 1845. – *Protocardia truncatum* Beyrich, 1845. Cardiidae. Fossil. RECORDS. •1922-32 Sherborn, p. 6658: *Protocardia* (Sow.) *truncatum* Beyrich, 1845. – *Cardium truncatum*.
- truncatum*** Goldfuss, 1840. – Replaced by "*Cardium*" *transpositum* Deshayes. Combination to be revised: >> Regarding *Cardium truncatum*: Cardiacea. Fossil. RECORDS. •1857. Deshayes: *Cardium truncatum*. Goldfuss. 1840. – *C. transpositum*. Desh.
- truncatum*** Sowerby, 1827. – Combination to be revised:

**truncatum – tuberculatum**

- “*Cardium*” *truncatum* Sowerby, 1827. *Cardiidae*. Lias. RECORDS. ••1857. Deshayes: *Cardium truncatum* Sowerby, 1827. ••1922-32 Sherborn, p. 6654: *Cardium truncatum* Sowerby, 1827.
- \***truncatum; Conocardiidae – Homonymy to be noticed.** *Conocardium truncatum* from 2 sources: Koninck, 1885. – Pohl, 1929.
- truncatum** Koninck 1885. *Conocardium truncatum* Koninck 1885. *Conocardiidae*. Fossil. RECORDS. ••1942 ZR: *Conocardium truncatum* Koninck 1885 [Ref. Branson 1942].
- truncatum** Pohl 1929. – Replaced by *Conocardium tripartitum*. *Conocardiidae*. Fossil. >> Regarding *Conocardium truncatum*: RECORDS. ••1942 ZR: *Conocardium truncatum* Pohl 1929 non Koninck 1885 replaced by *Conocardium tripartitum* Branson, 1942 nom. nov.
- tschandae** (error). – Printer’s mistake for *tschadae* in Davidaschvili & Kitovani 1964.
- tschandyricum** Andrusov. – Changed combination: *Andrusovicardium tschandyricum* (Andrusov). *Lymnocardiidae*. Neogene. RECORDS. ••1986 Nevevskaya *et al.*: *Andrusovicardium tschandyricum* (Andrusov) comb. nov. ••1987 ZR: *Andrusovicardium tschandyricum* (Andrusov) comb. nov. Ref. to Nevevskaya *et al.* p. 192.
- tschangeticum** Poyarkova, 1978. – New combination: *Trachycardium tschangeticum* (Poyarkova, 1978). *Cardiidae*. Upper Cretaceous. RECORDS. ••1978 ZR: *Cardium* (*Trachycardium*) *tschangeticum* Poyarkova, 1978 sp. nov. Uzbekistan. Upper Cretaceous. Ref. to Poyarkova p. 110.
- tschadae** Andrussov, 1889 – *Didacna tschadae* Andrussov, 1889. *Lymnocardiidae*. Fossil. *Didacna tschadae* Andrussov is type species of genus *Tschaudia* Davidaschvili, 1956. (Davidaschvili & Kitovani 1964) RECORDS. ••1889. ZR: *Cardium tschadae* Andrussov *sic*, 1889 n. sp. with fig. ••1964 Davidaschvili & Kitovani: *Didacna tschadae* Andrus. ••1964 Davidaschvili & Kitovani: *Didacna tschandae* *sic* Andrus. ••1965 ZR: *Cardium tschadae* Andrusov, 1965 sp. nov. S. Russian seas. ••1970 Glibert & Poel, p. 63: *Didacna* (*s.s.*) *tschadae tschadae* Andrusov, 1890. ••1977 Popov: *Didacna* (*Pontalmyra*) *tschadae*.
- Tschaudia** Davidaschvili 1956 (genus). – *Lymnocardiidae*. Fossil. RECORDS. ••1964 Davidaschvili & Kitovani: *Tschaudia* Davidaschvili, 1956. ••1980 Vokes: *Tschaudia* Davidaschvili, 1956 in subfamily *Didacninae*. ••1987 Taktakishvili: *Tschaudia* Davidaschvili 1956; referred to new tribe *Digressodacnini*.
- tschelidzei** Gab. – Changed combination: *Macradacna tschelidzei* Gab. *Lymnocardiidae*. Fossil. RECORDS. ••1967 Ebersin: *Macradacna tschelidzei* Gab. ••1967 ZR: *Macradacna tschelidzei* pro *Monodacna tschelidzei* Gab. 1953 [Ref. Eberzin 1967].
- tshepalygae** Mih. – *Didacna tshepalygae* Mih. *Lymnocardiidae*. Fossil. RECORDS. ••1989 Mikhailetsku: *Didacna tshepalygae* Mih.
- tschernyschewi** Licharew, 1931. – *Conocardium tschernyschewi* Licharew, 1931. *Conocardiidae*. Upper Permian. RECORDS. ••1931 ZR: *Conocardium tschernyschewi* Licharew, 1931 sp. n. Russia. Upper Permian.
- tschikojensis** Maslennikov, 1961. – *Cypricardinia tschikojensis* Maslennikov, 1961. *Cardiacea*. Permian. RECORDS. ••1961. ZR: *Cypricardinia tschikojensis* Maslennikov, 1961 “sp. nov.”, Permian, Transbaikalia, Russia.
- tshepalygai** Mikhailetsku, 1985. – *Didacna tshepalygai* Mikhailetsku, 1985. *Lymnocardiidae*. Pleistocene. TYPE LOCALITY. The lower reaches of the Danube, Moldavia. RECORDS. ••1985 Mikhailetsku, p. 108, pl. 3, figs. 1-2: *Didacna tshepalygai* sp. nov. ••1987 ZR: *Didacna tshepalygai* sp. nov. Moldavia. Ref. to Mikhailetsku p. 105.
- tuba** Camacho, 1960. – Combination to be revised: “*Cardium*” *tuba* Camacho, 1960. *Cardiidae*. Paleocene. RECORDS. ••1960 ZR: *Cardium tuba* Camacho, 1960 sp. nov. Paleocene River Ewan, Tierra del Fuego.
- tuberculare** Sowerby 1820. – Synonym of *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *Cardium tuberculare*: *Cardiidae*. Recent. RECORDS. ••1821-1834 Sowerby, fig. 3: *Cardium tuberculare* (only figure). ••1850 Jay: *Cardium tuberculare* Sowb. = *Cardium rusticum*. ••1856 Wood & Hanley: *C. tuberculare* Sow. G. f. 3 = no. 25 = *Cardium tuberculatum* Lin. ••1867 Weinkauff: *Cardium tuberculare* Sowerby = *Cardium tuberculatum* Linné. ••1869. Römer: *Cardium tuberculare* Sowerby = *Cardium tuberculatum* L. ••1888 Kobelt: *Cardium tuberculare* Sowerby = *Cardium tuberculatum* Linné. ••1890 Paetel: *Cardium tuberculare* Sow. = *tuberculatum* L.
- tuberculata** Chemnitz 1782. *Non* binominal. – Not available. ••1845 Reeve in the index: *Cardium tuberculatum* in Chemnitz 1782 = *Cardium rusticum* Linné, 1767. ••1850 Jay: *Cardium tuberculatum* Chemn. = *Cardium rusticum*.
- tuberculata** of Pult. – Misidentification. *Acanthocardia tuberculata* (Linnaeus, 1758). ••1803 Montagu: *Cardium tuberculatum* Pult. Cat. Dorset. p. 30? = *Cardium aculeatum* Lin.
- tuberculatum** (mode). – See under *tuberculata* Linné, 1758.
- tuberculatum** Brongniart, 1821. – *Hemicardium tuberculatum* Brongniart, 1821. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 6667: *Hemicardium tuberculatum* Brongniart, 1821.
- tuberculatum** Lamarck (variety). [Figs. Part 3 p. 847]. – Lamarck collection, MNHN Paris. No published records seen.
- tuberculatum** Linnaeus, 1758/Gmelin, 1791. [Figs. Part 1 p. 39, 42, 44, 46, 53, 55, 58, 64, 68, 74, 92, 96, 126, 167, 171. Part 3 p. 846, 847, 849]. – Changed combination: *Acanthocardia tuberculata* (Linné, 1758). *Cardiidae*. Pliocene and Recent. Type species: Keen (1937) designated *Cardium tuberculatum* Linné, 1758 as type species of the subgenus *Rudicardium* Coen, 1915. TYPE LOCALITY. Unknown (Linné, 1758); Britain and the Mediterranean (Sowerby 1841). RECORDS. ••1684 Bonanno. ID by Gmelin 1791: *Cardium tuberculatum* recr. 2. f. 100. ••1687 Lister. ID by Gmelin 1791: *Cardium tuberculatum* t. 329. f. 166. ••1705 Rumphius. ID by Linnaeus 1758 and Gmelin 1791: *Cardium tuberculatum* mus. t. 48. f. 11. ••1742 Argenville. ID by Linnaeus 1758: *Cardium*

*tuberculatum*

- tuberculatum* conch. t. 26. f. L. •1742 Gualtieri, pl. 71, fig. M: = *Cardium tuberculatum* (fide Spengler 1799). •1758 Linné, p. 679, No. 65: *Cardium tuberculatum*. •1758 Regenfuss. ID by Gmelin 1791: *Cardium tuberculatum* Conch. 1. t. 8. f. 23, 24. •1758 Seba. ID by Gmelin 1791: *Cardium tuberculatum* mus. 3. t. 86. f. 7. •1764 Linnaeus (Mus. Lud. Utr. Reg.) No. 37. •1767 Linné, p. 1122, sp. 81: *Cardium tuberculatum*. •1771 Knorr. ID by Gmelin 1791: *Cardium tuberculatum* Vergn. 5. t. 30. f. 2. •1771 Knorr, pl. 30, fig. 2: *Cardium tuberculatum* (fide Spengler 1799). •1772 Argenville. ID by Gmelin 1791: *Cardium tuberculatum* zoom. t. 6. f. C. D. •1772 Knorr. ID by Gmelin 1791: *Cardium tuberculatum* Vergn. 6. t. 8. f. 3. (Same ref. as to *C. fasciatum*). •1778 Born, G8. *Cardium tuberculatum* Linn. S.N. Sp. 81. •1780 Born: *Cardium tuberculatum* Linn. S.N. Sp. 81. •1782 Bonannio. ID by Gmelin 1791: *Cardium tuberculatum* mus Kirch. 2. f. 100. •1782 Chemnitz, Tab. 17 Fig. 173: *Cardium tuberculatum* Lin. •1782 Chemnitz. ID by Gmelin 1791: *Cardium tuberculatum* t. 17. f. 173. •1786 Schröter, No. IX: *Cardium tuberculatum* Linn. XII. pag. 1122. Spec. 81. •1788 Schröter: *Cardium tuberculatum*. [citing Chemnitz (1782) figs. 179, 180]. •1789 Bruguère, No. 12. *Cardium tuberculatum*; Linn. •1791 Gmelin No. 11: *Cardium tuberculatum*. •1798 Bruguère. ID by Lamarck, pl. 300. fig. 1. *Cardium tuberculatum*. •1799 Spengler, p. 19, No. 8: *Cardium tuberculatum* Linnéi Sp. 81. p. 1122. •1800 Donovan, Pl. 27, fig. 9 *Cardium tuberculatum*. •1803 Montagu: *Cardium tuberculatum*. •1807 Maton & Rackett, No. 7: *Cardium tuberculatum* Linn. •1817 Dillwyn: *Cardium tuberculatum*. Linnaeus. •1823 Dillwyn, Tab. 329 fig. 166 *Cardium tuberculatum*. •1829 Costa: Poli considered *C. tuberculatum* a variety of *C. rusticum*. •1832 Deshayes: *Cardium tuberculatum*, L. = *Cardium echinatum* L. •1836 Bosc: *Cardium tuberculatum*. •1840 Sowerby, catalogue p. 2, No. 28: *Cardium tuberculatum*, Linn. •1844 Potiez & Michaud: *Cardium tuberculatum* Linn. •1850 Jay: *Cardium tuberculatum* Linn. = *Cardium echinatum*. •1856 Wood & Hanley, No. 4: *Cardium tuberculatum* Lin. •1858 Adams & Adams: *Cardium (Isocardia) tuberculatum* Linn. •1859 Sowerby: *C. tuberculatum*, Linn. ? = *Cardium rusticum*, Linn. •1868 ZR: *Cardium tuberculatum* (L.), this name to be restored for *rusticum* (L., Reeve) [Ref. Römer 1868]. •1884 Grasset: *Cardium tuberculatum* L. •1888 Servain: *Cardium tuberculatum* Linnaeus, 1767. •1890 Paetel: *Cardium tuberculatum* L. •1891 Römer: *Acanthocardia tuberculatum* L. •1892 B. D. & D. p. 256-261: *Cardium tuberculatum*, Linné. •1902 Sherborn, p. 1003: *Cardium tuberculatum* Linnaeus, 1758. •1907 ZR: *Cardium tuberculatum* [Refs. Roule; Zimmermann]. •1914 Coen: *Eucardium (Rudicardium) tuberculatum* L. forma typica. •1932 Winckworth: *Cardium (Acanthocardia) tuberculatum* Linné, 1758. •1933 Coen: *Eucardium (Rudicardium) tuberculatum* Linneo. •1933 Coen & Vatova: *Eucardium (Rudicardium) tuberculatum* Linnaeus. •1937 Coen: *Cerastoderma (Rudicardium) tuberculatum* Linneo (Note 259: 8 varieties described by Coen in 1915). •1937 Keen designated *Cardium tuberculatum* Linné, 1758. •1937 ZR: *Cardium tuberculatum* [Ref. Avnimelech 1937]. •1937 ZR: *Cardium tuberculatum* L., 1758 type of *Rudicardium* Coen 1915 [Ref. Keen 1937]. •1937 ZR: *Cerastoderma (Rudicardium) tuberculatum* L. [Ref. Coen 1937]. •1938. ZR: *Cardium tuberculatum* fig. Juist [Ref. Girscher 1938a]. •1939 Adam & Leloup: *Cardium (Rudicardium) tuberculatum* Linné 1758. •1953 ZR: *Cardium tuberculatum* L. structure of shell [Ref. Saban 1953]. •1959. Devids: *Cerastoderma (Rudicardium) tuberculatum* Linné. •1959 ZR: *Cardium tuberculatum* enzyme system activated by magnesium ions [Ref. Roche, et al. 1959]. •1962 Pasteur-Humbert: *Cardium tuberculatum* Linné. •1962 ZR: *Cardium tuberculatum* photo., shell shape and colouration [Ref. Pfeiffer 1962]. •1963 ZR: *Cardium tuberculatum* [Santarelli 1963: from Italy]. •1963. ZR: *Cardium tuberculatum* [Kjolberg et al. 1963: properties of some glycochogens found in tissues]. •1966 ZR: *Cardium tuberculatum* [Salanki 1966: experiments on the rhythmic activity]. •1966 ZR: *Cardium tuberculatum* [Ref. Salanki & Zs.-Nagy 1966: investigation of the adductor muscle]. •1969 Nordsieck: *Rudicardium tuberculatum tuberculatum* (Linné, 1758). •1977 Fischer-Piette: *Cardium (Cerastoderma, Rudicardium) tuberculatum* Linné. •1978 Janssen & Van der Slik: *Acanthocardia (Rudicardium) tuberculata* (Linnaeus, 1758). •1980 ZR: *Acanthocardia (Rudicardium) tuberculatum*. Adriatic Sea. Ref. to Marano. et al. •1980 ZR: *Cardium tuberculatum*. Ref. to Gade. •1981 ZR: *Cardium tuberculatum*. Ref. to Ansell et al. •1982 ZR: *Acanthocardia tuberculata*. Ref. to Savazzi. •1983 ZR: *Acanthocardia tuberculata*. Ref. to Ivell, Meinardus et al. – *Cerastoderma tuberculatum*. Ref. to Cano Perez. •1984 ZR: *Acanthocardia (Rudicardium) tuberculata*. Ref. to Marano et al. •1985 ZR *Cardium tuberculatum*. Ref. to Chrispeel et al. / Meinardus et al. •1987 ZR: *Acanthocardia tuberculata*. Ref. to Vignali et al. •1987 ZR: *Cardium tuberculatum*. Ref. Meinhardus-Hager et al. •1993 Poutiers: *Acanthocardia tuberculata* (Linné, 1758). •1994 Schneider: *Acanthocardia (Rudicardium) tuberculata* (Linné, 1758). •1998 Macedo et al.: *Acanthocardia tuberculata* (Linnaeus, 1758). •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection as *Cardium tuberculatum* Linné. Pliocene. France; Turkey; Tunisia. •2001 Vidal, p. 407: *Acanthocardia tuberculatum*. •2002 Schneider: *Acanthocardia (Rudicardium) tuberculata* (Linné, 1758). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. •ZMUC: 2 specimens Spengler coll. (Mediterranean. p. 19 no. 8). ZMUC wet collection. DESCRIPTIONS. •1758 Linnaeus: shell subcordate, interstices transversely striated, obtuse nodes [I have translated from Latin]. •1799 Spengler: *Testa subcordata, sulcis obtusis nodosis transversim striatis*. Linnéi Sp. 81, p.1122. Colour very variable. Completely white or white with brown or yellow transverse bands. •2001 Vidal: Tentacles around siphons only. No eyes on tentacles. REMARKS. The following authorship are not available: Gualtieri 1742, Knorr 1771, Chemnitz 1782. Requien made iconographic reference to pl. 4, fig. 11 in Philippi (1844) but that figure shows *Tapes decussatus* according to Locard & Caziot (1900). According to Dillwyn (1817) Mr. Montagu doubted whether

**tuberculatum – tuberculatum coalescens**

*Cardium tuberculatum* Linnaeus should be considered a distinct species. HABITAT. ••1876 Duprey: *Cardium tuberculatum*, L. intertidal on the coast of New Jersey with a tidal range of about 13 m. ••1969 Nordsieck: among laminarians and in sand, 15-100 m depth. DISTRIBUTION. ••1807 Maton & Rackett: Dorset, Devon. ••1884 Grasset: Algeria. ••1891 Römer: Mediterranean. ••1969 Nordsieck; West Europe, Mediterranean, Canary Islands, Madeira. ••ZMUC West Europe, Mediterranean.

*tuberculatum* Pusch, 1836. – *Cardium tuberculatum* Pusch, 1836. ?Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6664: *Cardium* (Br.) *tuberculatum* Pusch, 1836. – *Hemicardium*.

*tuberculatum acuticostis* Coen, 1937 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculata* var. *acuticostis*: Cardiidae. Recent. RECORDS. ••1933 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *acuticostis* Stalio mss. The Mediterranean. ••1937 Coen, Note 260: *Cerastoderma* (*Rudicardium*) *tuberculatum* var. *acuticostis* (Stalio mss.) Coen n. var. ••1937 ZR: *Cerastoderma* (*Rudicardium*) *tuberculatum* L. var. *acuticostis* (Stalio mss.) Coen, 1937 nov. Adriatic. ••1937 ZR: *Eucardium* (*Rudicardium*) *tuberculatum* L. var. *acuticostis* (Stalio mss. var. anom.) Coen, 1933 nov.

*tuberculatum albidum* Danilo & Sandri, 1891 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculata* var. *albida*: Cardiidae. Recent. RECORDS. ••1789 Karsten: *Cardium tuberculatum* testa extus et intus albida. ••1891 Danilo & Sandri: *Cardium tuberculatum* Linn. var. *albidum* nob. ••1892 B.D. & D. p. 261: var. *albidum* Brusina = *Cardium tuberculatum* var. ex colore *alba* Monterosato. ••1914 Coen: *Cardium tuberculatum* var. *albida* Brusina = *Eucardium* (*Rudicardium*) *tuberculatum* var. *alba* Monts. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. White, milkish, uniform colour. REMARKS. Brusina wrote the introduction to Danilo & Sandri (1891).

*tuberculatum album* Monterosato, 1878 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculata* var. *alba*: Cardiidae. Recent. RECORDS. ••1878 Monterosato: *Cardium tuberculatum*, Lin. var. ex col. *alba*. ••1892 B. D. & D. p. 261: *Cardium tuberculatum* var. ex colore *alba* Monterosato. ••1900 Locard & Caziot: var. *alba* (Mtr.) = *Cardium tuberculatum* Linné. ••1914 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *alba* Monts. ••1933 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *alba* Monterosato. ••1937 Coen: *Cerastoderma* (*Rudicardium*) *tuberculatum album* Monterosato. ••1969 Nordsieck: *Rudicardium tuberculatum tuberculatum* (Linné, 1758) var. *album* (Monterosato). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: two specimens labeled “90. B. C. tb. 26 *album*, Sardinien”. DESCRIPTION. White, milkish, uniform colour. DISTRIBUTION. The Mediterranean.

*tuberculatum alta* Pallary, 1904 (variety). –

Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *alta*: Cardiidae. Recent. RECORDS. ••1904 Pallary, p. 246: *Cardium tuberculatum* var. *alta* Pallary.

*tuberculatum angulatum* Coen, 1933 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *angulata*: Cardiidae. Recent. RECORDS. ••1933 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *angulata* Coen. The Mediterranean. ••1937 Coen, Note 260: *Cerastoderma* (*Rudicardium*) *tuberculatum* Linn. var. *angulatum* Coen n. var. ••1937 ZR: *Cerastoderma* (*Rudicardium*) *tuberculatum* L. var. *angulata* (Stalio mss.) Coen, 1937 nov. Adriatic. ••1937 ZR: *Eucardium* (*Rudicardium*) *tuberculatum* L. var. *angulata* (Stalio mss. var. anom.) var. Coen, 1933 nov.

*tuberculatum asperula* Coen, 1914 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculata* var. *asperula*: Cardiidae. Recent. RECORDS. ••1914 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* n. var. *asperula* Coen. ••1915 ZR: *Cardium tuberculatum* var. *asperula* Coen, 1915 var. n. Adriatic. ••1933 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *asperula* Coen.

*tuberculatum beta* Gmelin, 1791 (variety). [Figs. Part 1 p. 58]. – Unknown status. RECORDS. ••1758 Seba. ID by Gmelin 1791: *Cardium tuberculatum* var. *beta*, mus. 3. t. 86. f. 2. ••1791 Gmelin No. 11. *Cardium tuberculatum* var. *beta*.

*tuberculatum citrinum* Danilo & Sandri, 1891 mss (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculata* var. *citrina*: Cardiidae. Recent. RECORDS. ••1891 Danilo & Sandri: *Cardium tuberculatum* var. *citrinum* nob. ••1892 B. D. & D. p. 261: *Cardium tuberculatum* var. ex forma et colore *citrina* Brusina. ••1914 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. ex forma et colore *citrina* Brusina. ••1933 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *citrina* Brusina. ••1937 Coen: *Cerastoderma* (*Rudicardium*) *tuberculatum citrinum* Brusina. ••1969 Nordsieck: *Rudicardium tuberculatum citrinum* (Brusina, 1865). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. With 19, angled ribs (normally 24 ribs); colour yellow with dark brown bands. HABITAT. Sandy bottom at 8-73 m depth (Nordsieck 1969). DISTRIBUTION. ••1892 B.D. & D.: Adriatic Sea off Albany. ••1969 Nordsieck: unknown.

*tuberculatum coalescens* Coen, 1937 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *coalescens*: Cardiidae. Recent. RECORDS. ••1933 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *coalescens* Coen. The Mediterranean. ••1933 ZR: *Rudicardium tuberculatum* var. *coalescens* Coen, 1933 nov. Venice [Ref. Coen 1933]. ••1937 Coen, Note 261, pl. 10, fig. 92: *Cerastoderma* (*Rudicardium*) *tuberculatum* Linn. var. *anomalia coalescens* Coen n. var. ••1937 ZR: *Cerastoderma* (*Rudicardium*) *tuberculatum* L. var.

*tuberculatum dautzenbergi* – *tuberculatum multifasciata*

- coalescens* (Spinelli mss.) Coen, 1937 nov. Adriatic. ••1937 ZR: *Rudicardium tuberculatum* var. *coalescens* Coen, 1933 nov. Venice. ••1937 ZR: *Eucardium* (*Rudicardium*) *tuberculatum* L. var. *coalescens* (var. anom.) Coen, 1933 nov.
- tuberculatum dautzenbergi*** Coen, 1914 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *dautzenbergi*: Cardiidae. Recent. RECORDS. ••1914 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *dautzenbergi* Coen n. var. ••1915 ZR: *Cardium tuberculatum* var. *dautzenbergi* Coen, 1915 var. n. Adriatic. ••1933 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *dautzenbergi* Coen. ••1937 Coen: *Cerastoderma* (*Rudicardium*) *tuberculatum dautzenbergi* Coen.
- tuberculatum delta*** Gmelin, 1791 (variety). [Figs. Part 1 p. 60]. – Unknown status. RECORDS. ••1758 Seba. ID by Gmelin 1791: *Cardium tuberculatum* var. *delta* mus. 3. t. 86. f. 14. ••1791 Gmelin No. 11: *Cardium tuberculatum* var. *delta*.
- tuberculatum depauperatum*** Coen, 1937 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *depauperata*: Cardiidae. Recent. RECORDS. ••1933 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *depauperata* Coen. The Mediterranean. ••1937 Coen, Note 260: *Cerastoderma* (*Rudicardium*) *tuberculatum* var. *depauperatum* Coen n. var. ••1937 ZR: *Cerastoderma* (*Rudicardium*) *tuberculatum* L. var. *depauperata* (Stalio mss.) Coen, 1937 nov. Adriatic. ••1937 ZR: *Eucardium* (*Rudicardium*) *tuberculatum* L. var. *depauperata* (Stalio mss. var. anom.) var. Coen, 1933 nov.
- tuberculatum elegans*** Danilo & Sandri, 1891 mss (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *elegans*: Cardiidae. Recent. RECORDS. ••1891 Danilo & Sandri: *Cardium tuberculatum* var. *elegans* nob. ••1892 B. D. & D. p. 261: *Cardium tuberculatum* var. ex forma *elegans* Brusina. ••1914 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. ex forma *elegans* Brusina. ••1933 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *elegans* Brusina. ••1937 Coen: *Cerastoderma* (*Rudicardium*) *tuberculatum elegans* Brusina. ••1969 Nordsieck: *Rudicardium tuberculatum tuberculatum* (Linné, 1758) var. *elegans* (Brusina). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. Elevated ribs with tubercles; interstices with undulating transverse stripes. Lunule deep. REMARKS. Brusina wrote the introduction to Danilo & Sandri (1891). DISTRIBUTION. ••1969 Nordsieck: unknown.
- tuberculatum epsilon*** Gmelin, 1791 (variety). Unknown status. RECORDS. ••1764 Knorr. ID by Gmelin 1791: *Cardium tuberculatum* var. *epsilon*, Vergn. 2. t. 29. f. 4. ••1791 Gmelin No. 11: *Cardium tuberculatum* var. *epsilon*.
- tuberculatum fuscapedratrix*** (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *fuscapedratrix*: Cardiidae. Recent. RECORDS. ••1914 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. ex col. *fuscapedratrix*.
- tuberculatum fuscum*** Pépratrix, 1884 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *fusca*: Cardiidae. Recent. RECORDS. ••1884 Pépratrix: *Cardium tuberculatum* var. *fuscum*. ••1892 B. D. & D. p. 261: *Cardium tuberculatum* var. ex colore *fusca* Pépratrix. ••1969 Nordsieck: *Rudicardium tuberculatum tuberculatum* (Linné, 1758) var. *fuscum* (Pépratrix sic).
- tuberculatum fuscum*** Philippi (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *fusca*: Cardiidae. Recent. RECORDS. ••1933 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *fusca* Philippi. ••1937 Coen: *Cerastoderma* (*Rudicardium*) *tuberculatum fuscum* Philippi.
- tuberculatum gamma*** Gmelin, 1791 (variety). [Figs. Part 1 p. 59]. – Unknown status. RECORDS. ••1758 Seba. ID by Gmelin 1791: *Cardium tuberculatum* var. *gamma*, mus. 3. t. 86. f. 6. ••1791 Gmelin No. 11: *Cardium tuberculatum* var. *gamma*.
- tuberculatum lactea*** Clément, 1879 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *lactea*: Cardiidae. Recent. RECORDS. ••1879 Clément: *Cardium tuberculatum* var. *lactea*. ••1892 B. D. & D. p. 261: var. *lactea* Clément = *Cardium tuberculatum* var. ex colore *alba* Monterosato. ••1914 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *lactea* Coen. ••1914 Coen: *Cardium tuberculatum* var. *lactea* Clément (non Coen) = *Eucardium* (*Rudicardium*) *tuberculatum* var. *alba* Monts. ••1914 ZR: *Eucardium* (*Cerastoderma*) *tuberculatum lactea* var. n. Coen, 1914. ••1933 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. *lactea* Coen. ••1937 Coen: *Cerastoderma* (*Rudicardium*) *tuberculatum lacteum* Coen. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. White, milkish, uniform colour.
- tuberculatum minor*** Monterosato, 1878 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *minor*: Cardiidae. Recent. RECORDS. ••1789 Karsten: *Cardium tuberculatum* varietas minores. ••1878 Monterosato: *Cardium tuberculatum*, Lin. var. ex forma *minor*. ••1892 B. D. & D. p. 261: *Cardium tuberculatum* var. ex forma *minor* Monterosato. ••1900 Locard & Cazio: var. *minor* (Mtr.) = *Cardium tuberculatum* Linné. ••1914 Coen: *Eucardium* (*Rudicardium*) *tuberculatum* var. ex forma *minor* Monterosato. ••1969 Nordsieck: *Rudicardium tuberculatum tuberculatum* (Linné, 1758) var. *minor* (Monterosato).
- tuberculatum minus*** Karsten, 1789 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). RECORDS. >> Regarding *A. tuberculatum* var. *minus*: Cardiidae. Recent. ••1789 Karsten: *Cardium tuberculatum* testa minus.
- tuberculatum multifasciata*** Danilo & Sandri, 1891 mss (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >>

**tuberculatum multiplicatum – tuberculatum torquata**

Regarding *A. tuberculatum* var. *multifasciatum*: Cardiidae. Recent. REMARKS. Brusina wrote the introduction to Danilo & Sandri (1891). RECORDS. ••1891 Danilo & Sandri: *Cardium tuberculatum* var. *multifasciatum* nob. ••1892 B. D. & D. p. 261: var. *multifasciata* Brusina = *Cardium tuberculata* var. ex colore *zonata* Monterosato. ••1914 Coen: *Cardium tuberculatum* var. *multifasciata* Brusina = *Eucardium (Rudicardium) tuberculatum* var. ex col. *zonata* Monterosato. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. White with several bands of marked brown colour.

***tuberculatum multiplicatum*** Coen, 1933 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *multiplicata*: Cardiidae. Recent. RECORDS. ••1933 Coen: *Eucardium (Rudicardium) tuberculatum* var. *multiplicata* Coen. ••1937 Coen, Note 260: *Cerastoderma (Rudicardium) tuberculatum* var. *multiplicatum* Coen n. var. ••1937 ZR: *Cerastoderma (Rudicardium) tuberculatum* L. var. *multiplicata* (Stalio mss.) Coen, 1937 nov. Adriatic. ••1937 ZR: *Eucardium (Rudicardium) tuberculatum* L. var. *multiplicata* (Stalio mss. var. anom.) Coen, 1933 nov.

***tuberculatum muticum*** Bucquoy, Dautzenberg & Dollfus, 1892 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *mutica*: Cardiidae. Recent. RECORDS. ••1892 Bucquoy, Dautzenberg & Dollfus, p. 261: *Cardium tuberculatum* var. ex forma *mutica* B.D.D. ••1900 Locard & Caziot: var *mutica* (B.D. & D.) = *Cardium tuberculatum* Linné. ••1914 Coen: *Eucardium (Rudicardium) tuberculatum* var. *mutica* B.D.D. ••1914 ZR: *Eucardium (Cerastoderma) tuberculatum mutica* var. n. Coen, 1914. ••1933 Coen: *Eucardium (Rudicardium) tuberculatum* var. *mutica* B.D.D. ••1937 Coen: *Cerastoderma (Rudicardium) tuberculatum muticum* B.D.D. ••1969 Nordsieck: *Rudicardium tuberculatum tuberculatum* (Linné, 1758) var. *muticum* (Bucquoi (sic = Bucquoy), Dautzenberg & Dollfus). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. Without tubercles on the ribs. DISTRIBUTION. The Mediterranean.

***tuberculatum palaemutica*** Coen, 1914 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *palaemutica*: Cardiidae. New name for fossil varieties (Coen 1914). RECORDS. ••1914 Coen: *Eucardium (Rudicardium) tuberculatum* var. *palaemutica* Coen nom. nov. suggested for the fossil records of *tuberculatum* var. *mutica*.

***tuberculatum pharisiana*** Pallary, 1924 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *pharisiana*: Cardiidae. Recent. RECORDS. ••1924 ZR: *Cardium tuberculatum pharisiana* Pallary, 1924 var. n. Tunis.

***tuberculatum picta*** Coen (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *picta*: Cardiidae. Recent. RECORDS.

••1914 Coen: *Eucardium (Rudicardium) tuberculatum* var. *picta* n. var. ••1915 ZR: *Cardium tuberculatum* var. *picta* Coen, 1915 var. n. Adriatic. ••1933 Coen: *Eucardium (Rudicardium) tuberculatum* var. *picta* Coen. ••1937 Coen: *Cerastoderma (Rudicardium) tuberculatum pictum* Coen.

***tuberculatum potens*** Monterosato Mss (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *potens*: Cardiidae. Recent. RECORDS. ••1914 Coen: *Eucardium (Rudicardium) tuberculatum* var. *potens* Monterosato Mss. ***tuberculatum ruderata*** Monterosato (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *ruderata*: Cardiidae. Recent. RECORDS. ••1914 Coen: *Eucardium (Rudicardium) tuberculatum* var. ex forma *ruderata* Mss. The Mediterranean. ••1933 Coen: *Eucardium (Rudicardium) tuberculatum* var. *ruderata* Monterosato mss. ••1937 Coen: *Cerastoderma (Rudicardium) tuberculatum ruderatum* Monter. mss.

***tuberculatum rudis*** Coen (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *rudis*: Cardiidae. Recent. RECORDS. ••1914 Coen: *Eucardium (Rudicardium) tuberculatum* var. ex forma *rudis* Coen. ••1914 ZR: *Eucardium (Cerastoderma) tuberculatum rudis* var. n. Coen, 1914. ••1933 Coen: *Eucardium (Rudicardium) tuberculatum* var. *rudis* Coen. ••1937 Coen: *Cerastoderma (Rudicardium) tuberculatum rude* Coen.

***tuberculatum spinosa*** Coen, 1914 (variety). – Infrasubspecific. No evidence of specific or subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *spinosa*: Cardiidae. Recent. RECORDS. ••1914 Coen: *Eucardium (Rudicardium) tuberculatum* var. ex forma *spinosa* Coen n. var. The Mediterranean. ••1915 ZR: *Cardium tuberculatum* var. *spinosa* Coen, 1915 var. n. Adriatic. ••1933 Coen: *Eucardium (Rudicardium) tuberculatum* var. *spinosa* Coen. = *tuberculatum unifasciata* Danilo & Sandri mss. ••1937 Coen: *Cerastoderma (Rudicardium) spinosum* Coen.

***tuberculatum suborbicula*** Marshall, 1893 (variety). – Infrasubspecific. No evidence of specific or subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *suborbicula*: Cardiidae. Recent. RECORDS. ••1893 Marshall, p. 246: *Cardium tuberculatum* var. *suborbicula* Marsh. (n. var.) Britain. ••1901 Chaster *et al.*: *Cardium tuberculatum* v. *suborbicula* Marshall. ••1926 McClelland: *Cardium tuberculatum suborbicula* Marshall, 1893 n. sp.

***tuberculatum torquata*** Coen, 1914 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *torquata*: Cardiidae. Recent. RECORDS. ••1914 Coen: *Eucardium (Rudicardium) tuberculatum* var. *torquata* Coen n. var. The Mediterranean. ••1915 ZR: *Cardium tuberculatum* var. *torquata* Coen, 1915 var. n. Adriatic. ••1933 Coen: *Eucardium (Rudicardium) tuberculatum* var. *torquata* Coen. ••1937 Coen: *Cerastoderma (Rudicardium) tuberculatum torquatum* Coen.

*tuberculatum unifasciata – tumidum*

- tuberculatum unifasciata*** Danilo & Sandri, 1891 mss (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *unifasciatum*: Cardiidae. Recent. RECORDS. •1891 Danilo & Sandri: *Cardium tuberculatum* var. *unifasciatum* nob. •1892 B. D. & D. p. 261: *Cardium tuberculata* var. ex colore *unifasciata* Brusina. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. White, with a single transverse band of brown colour. REMARKS. Brusina wrote the introduction to Danilo & Sandri (1891).
- tuberculatum vittatum*** Danilo & Sandri, 1891 mss (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *vittatum*: Cardiidae. Recent. RECORDS. •1891 Danilo & Sandri: *Cardium tuberculatum* var. *vittatum* nob. •1892 B. D. & D. p. 261: *Cardium tuberculatum* var. ex colore *vittata* Brusina. •1914 Coen: *Eucardium (Rudicardium) tuberculatum* var. *vittata* Brusina. •1933 Coen: *Eucardium (Rudicardium) tuberculatum* var. *vittata* Brusina. •1937 Coen: *Cerastoderma (Rudicardium) tuberculatum vittatum* Brusina. •1969 Nordsieck: *Rudicardium tuberculatum tuberculatum* (Linné, 1758) var. *vittatum* (Brusina). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. Characterized by a white ray on rib 17 and the adjoining two interspaces. REMARKS. Brusina wrote the introduction to Danilo & Sandri (1891). DISTRIBUTION. •1969 Nordsieck: unknown.
- tuberculatum zeta*** Gmelin, 1791 (variety). [Figs. Part 1 p. 62]. – Unknown status. RECORDS. •1768 Knorr. ID by Gmelin 1791: *Cardium tuberculatum* var. *zeta*, Vergn. 3. t. 4. f. 5. •1791 Gmelin No. 11: *Cardium tuberculatum* var. *zeta*.
- tuberculatum zonata*** Monterosato, 1878 (variety). – Infrasubspecific. No evidence of subspecific status. *Acanthocardia tuberculata* (Linné, 1758). >> Regarding *A. tuberculatum* var. *zonata*: Cardiidae. Recent. RECORDS. •1878 Monterosato: *Cardium tuberculatum*, Lin. var. ex col. *zonata*. •1892 B. D. & D. p. 261: *Cardium tuberculata* var. ex colore *zonata* Monterosato. •1900 Locard & Caziot: var. *zonata* (Mtr.) = *Cardium tuberculatum* Linné. •1914 Coen: *Eucardium (Rudicardium) tuberculatum* var. ex col. *zonata* Monterosato. •1933 Coen: *Eucardium (Rudicardium) tuberculatum* var. *zonata* Monterosato. •1937 Coen: *Cerastoderma (Rudicardium) tuberculatum zonatum* Monterosato. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. White with several bands of marked brown colour. DISTRIBUTION. Mediterranean. •1900 Locard & Caziot: unknown.
- tuberculatum*** Jekelius, 1944. – New combination: *Lymnocardium tuberosum* Jekelius, 1944. Lymnocypridae. Miocene. RECORDS. •1946 ZR: *Lymnocardium tuberosum* Jekelius, 1944 sp. nov. Miocene Soceni Banat.
- tubuliferum*** Goldfuss, 1837. – Combination to be revised: “*Cardium*” *tubuliferum* Goldfuss, 1837. ?Cardiidae. Cretaceous. RECORDS. •1871 Stoliczka, 60: *C. tubuliferum* (*Acanthocardium* sic). •1922-32 Sherborn, p. 6677: *Cardium tubuliferum* Goldfuss, 1837. •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium tubuliferum* Goldfuss. Senonien. Holland (Vael), B18337.
- tubulosum*** Eichwald, 1830. – Combination to be revised: “*Cardium*” *tubulosum* Eichwald, 1830. ?Cardiidae. Fossil. RECORDS. •1922-32 Sherborn, p. 6678: *Cardium tubulosum* Eichwald, 1830.
- tucani*** Pavlovic, 1929. – Changed combination: *Bosporicardium tucani* (Pavlovic, 1929). Lymnocypridae. Pontian. RECORDS. •1928 ZR: *Lymnocardium tucani* [Ref. Pavlovitch 1928]. •1929 ZR: *Lymnocardium tucani* Pavlovic, 1929 sp. n. Pontian Serbia. •1987 Taktakishvili: *Lymnocardium tucani* Pavl. – *Bosporicardium tucani*.
- Tulongocardiinae** Schneider, 1995 (subfamily). – RECORDS. •1995 Schneider: Tulongocardiinae Schneider, 1995 subfam. n. Type genus: *Tulongocardium* Chen, Chen & Zhang in Lan & Chen, 1976. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •1995 Schneider: Cardiidae with shell sculpture of radial ribs on entirety of shell, shell quadrate, longer than high, posterior margin crenulate. Spines absent. Hinge as in *Protocardia*, but right anterior cardinal smaller (absent in some specimens). OCCURRENCE — Norian and Rhaetian of Indonesia, Peoples’ Republic of China, northern Vietnam and Burma.
- Tulongocardium*** Chen, J. Chen & Zhang, 1976 (genus). – Cardiidae. Late Triassic. RECORDS. •1980 Vokes: Chen, J. Chen & Zhang, 1976. Fossil. •1980 ZR: *Cardium (Tulongocardium) Chen*, Chen & Zhang 1976. Subgen. nov. Type species *C. (T.) pluriradiatum*. Triassic. Ref. to Wen *et al.* p. 31. •1995 Schneider: *Tulongocardium* Chen, Chen & Zhang in Lan and Chen, 1976. Type species *Cardium (Tulongocardium) pluriradiatum* Chen, Chen & Zhang in Lan & Chen, 1976. •1995 Schneider: *Tulongocardium* is not a cardiid genus according to Keen (1980).
- tulskajensis*** (variety). – See under *andrussovi* var. *tulskajensis* Pavlinova-Ilyina, 1961.
- \**tumidum***. – Homonymy to be noticed. *Cardium tumidum* from 3 sources: Kloeden, 1834. – Deshayes, 1854. – Ali-Zade & Ribina (?year).
- tumidum*** Ali-Zade & Ribina. – Synonym of *Cerastoderma (Inaequicostata) politioanei* (Jekelius) >> Regarding *Cardium tumidum*: Cardiidae. Fossil. RECORDS. •1977 ZR: *Cardium (Replidacna) tumidum* Ali-Zade & Ribina. Ref to Paramonova p. 70 [Transl. p. 320].
- tumidum*** Deshayes, 1854. [Figs. Part 3 p. 871]. – Synonym of *Vasticardium flavum flavum* (Linné, 1758). OTHER JUDGEMENTS: *Cardium enode* Sowerby. – *Acrosterigma (Vasticardium) enode* (Sowerby, 1841). – Not *Vasticardium enode*. – Possibly *A. (R.) gratiosum*. >> Regarding *Cardium tumidum*: Cardiidae. Recent. TYPE LOCALITY. Moluccas. TYPE REPOSITORY. Syntype BMNH. RECORDS. •1855 Deshayes: *Cardium tumidum*. •1884 Grasset: *Cardium tumidum* Desh. •1890 Paetel: *Cardium tumidum* Dsh. •1980 Keen: *Cardium tumidum* not a synonym of *Vasticardium enode* but it may fall within the range of variation of *A. (R.) gratiosum*. •1980 Ruhoff: *Cardium tumidum* Deshayes, 1854; p. 331. •1993 Vidal: *Cardium tumidum* not synonym of *Cardium enode* as suggested by Fischer-Piette 1977. •1997 Vidal: *Cardium tumidum* Deshayes, 1854 = *Vasticardium flavum flavum* (Linné,



**tumidum – turislavicum**

1758). ••1999 Higo *et al.*: *Cardium tumidum* Deshayes, 1854 = *Acrosterigma (Vasticardium) enode* (Sowerby, 1841). ••1999 Vidal: *Cardium tumidum* Deshayes, 1855 = *Vasticardium flavum* (Linné, 1758). – CHARACTERS AND OCCURRENCE – REMARKS. ••1980 Keen: referred to *Acrosterigma (Regozara)* sp. DISTRIBUTION. ••1884 Grasset: Australia. ••Of authors: Moluccas.

**tumidum** Kloeden, 1834. – Combination to be revised: "*Cardium*" *tumidum* Kloeden, 1834. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 6681: *Cardium tumidum* Kloeden, 1834.

**tumidum** Meuschen, 1778. *Non binominal*. – Not available. RECORDS. ••1902 Sherborn, p. 1006: *Cardium tumidum* Meuschen, 1778.

**tumorifera** (mode). – See under *tumoriferum* Lamarck, 1819.

**tumoriferum** Lamarck, 1819. [Figs. Part 1 p. 110, 135. Part 3 p. 910]. – Synonym of *Fragum hemicardium* (Linné, 1758). OTHER JUDGEMENTS: A dubious species. >> Regarding *Cardium tumoriferum*: *Cardiidae*.

Recent. TYPE LOCALITY. (Australia, Bay of Chien-Marins) (New Holland in Sowerby 1841 No. 89). TYPE REPOSITORY. Mus. no. and in Lamarck's cabinet; availability unknown RECORDS. ••1819 Lamarck, p. 15, No. 43: *Cardium tumoriferum*. ••1834 Sowerby, 50<sup>th</sup> part, fig. 22: *Cardium tumoriferum* Lam. ••1841 Lamarck in Delessert, pl. 11, fig. 7 a,b,c: *Cardium tumoriferum*. ••1840 Sowerby, catalogue p. 7, No. 89: *Cardium tumoriferum*. ••1840 Sowerby, corrected list, p. 8: *Cardium tumoriferum* (Sowerby No. 89). ••1844 Reeve, pl. 12, sp. 64: *Cardium tumoriferum*. ••1945 ZR: *Cardium tumoriferum* Lk. [Ref. Lamy 1945].

••1858 Adams & Adams, p. 459: *Hemicardia (Fragum) tumorifera* Lam. ••1869 Römer: *Cardium tumoriferum* Lamarck, a dubious species. ••1884 Grasset: *Hemicardium tumoriferum* Lam. ••1890 Paetel: *Hemicardium tumoriferum* Lm. ••1922-32 Sherborn, p. 6683: *Cardium tumoriferum* Lamarck, 1819. ••1950 Allan: *Hemicardium tumoriferum* sic. ••1964 Shikama: *Corculum (Lunulicardia) tumoriferum*. ••1977 Fischer-Piette: *Cardium tumoriferum* Lamarck = *Corculum hemicardium* Linné. ••1977 Wilson & Stevenson: *Cardium tumoriferum* Lamarck, 1819; junior synonym of *Fragum (Lunulicardia) hemicardium* (Linnaeus, 1758). ••1986 Abbott & Dance: *Lunulicardia tumorifera* (Lamarck, 1819). ••1992 Lamprell & Whitehead: *Cardium tumoriferum* Lamarck, 1819 = *Fragum (Lunulicardia) hemicardium* (Linné, 1758). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1840 Sowerby No. 89: *C. tumoriferum* with ribs narrower and tubercles smaller than in *C. hemicardium*. ••1844 Reeve: shell cordate, swollen, obliquely quadrilateral, posteriorly compressed, with a prominent keel running down from the umbones to the margins; radiately ribbed, ribs flattened, almost obsolete, interstices closely punctured; anterior area large, smooth; snowy white. ••1844 Reeve: at first Reeve hesitated to consider this species anything more than a variety of the *Cardium hemicardium*. But, he found that it appears to differ in having the anterior area perfectly smooth, whilst the ribs are much less prominently developed. The name given to this shell is suggested by the circumstance, which Lamarck relates of its interior being often blistered, and which

is certainly very conspicuous in the example Reeve studied. DISTRIBUTION. ••1844 Reeve: New Holland = Australia. ••1884 Grasset: Australia. ••1994 Hylleberg: Red Sea, West Pacific.

**tumoriferum** of Reeve. – Suggested misidentification. ••1868 ZR: *Cardium tumoriferum* of Reeve is not that of Lamarck [Ref. Römer 1868].

**tumoriferum** (error). – Printer's mistake for *tumoriferum* in Allan 1950 and in Shikama 1964.

**tunicula** Vokes, 1977. – *Fragum tunicula* Vokes, 1977. *Cardiidae*. Oligocene. RECORDS. ••1977 Vokes, p. 172, pl. 6, fig. 5, pl. 7, figs. 1-3: *Fragum tunicula* H. E. Vokes n. sp. ••1977 ZR: *Fragum tunicula* Vokes, 1977 sp. nov. Florida. Ref to Vokes p. 172, fig'd.

**tuomeyi** Aldrich. – *Acanthocardia tuomeyi* (Aldrich). *Cardiidae*. Fossil. RECORDS. ••1977 Popov: *Acanthocardia (Schedocardia) tuomeyi* (Aldrich).

**turbida** (variety). – See under *subsyrmiense* var. *turbida* Eberzin, 1958.

**turcmena** Andrussow. – *Hyrkania turcmena* (Andrussow). *Lymnocardiidae*. Fossil. RECORDS. ••1977 Popov: *Hyrkania (Hyrkania) turcmena* (Andrussow).

**turfanensis** Martinson, 1959. – *Pseudocardinia turfanensis* Martinson, 1959. *Cardiacea*. Jurassic. RECORDS. ••1959 ZR: *Pseudocardinia turfanensis* Martinson, 1959 sp. nov. Turfan Depression, Sinkiang, Western China, Jurassic.

**\*turgidum**. – Homonymy to be noticed. *Cardium turgidum* from 4 sources: Solander in Brander, 1766. Brand, 1837. Brown, 1845-49. Deshayes, 1854.

**turgidum** Brand, 1837. – Synonym of "*Cardium*" *comatulum* Bronn, 1863. Combination to be revised. *Cardiidae*. M.-U. Oligocene. RECORDS. ••1837 Brand, p. 222, Tav. 145, fig. 3: *Cardium turgidum* (fide Ravn 1907). ••1907 Ravn: *Cardium turgidum* Brand, 1837 = *Cardium comatulum* Bronn, 1863.

**turgidum** Brown, 1845-49. – Combination to be revised: "*Cardium*" *turgidum* Brown, 1845-49. ?*Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 6691: *Cardium turgidum* Brown, 1845-49.

**turgidum** Deshayes, 1854. – Not a *cardiid*. >> Regarding *Cardium turgidum*: printer's error. Should read *Caecella turgida*. RECORDS. ••1890 Paetel: *Cardium turgidum* Dsh. ••1903 Hidalgo: *Cardium turgidum* in Deshayes 1854; printer's error = *Caecella turgida* Deshayes. ••1928 Faustino: *Cardium turgidum* Deshayes. ••1977 Fischer-Piette: erroneous citation of *Caecella turgida* Deshayes.

**turgidum** Solander in Brander, 1766. – Changed combination: *Nemocardium turgidum* (Solander in Brander, 1766). *Cardiidae*. Fossil. RECORDS. ••1902 Sherborn, p. 1007: *Cardium turgidum* Solander in Brander, 1766. ••1977 Popov: *Nemocardium (Nemocardium) turgidum* (Solander, 1766). ••2001 Schneider & Carter: *Nemocardium turgidum* (Solander, 1766). *Cardiidae*. Eocene. England.

**turislavicum** Jek. – New combination: *Lymnocardium turislavicum* (Jek.). *Lymnocardiidae*. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocardium turislavicum* Jek.

**turislavicum** Jekelius, 1944. – New combination. *Lymnocardium turislavicum* Jekelius, 1944. *Lymnocardiidae*. Miocene. RECORDS. ••1946 ZR: *Limnocardium turislavicum* Jekelius, 1944 sp. nov. Miocene Soceni Banat.

## Turkmena – tørteliense

- Turkmena** Popov, 1956 (genus). – Lymnocardiiidae. Tertiary and Recent. RECORDS. ••1980. Vokes: *Turkmena* Popov, 1956 in subfamily Adacninae.
- turkmena** Andrussov, 1924. – *Didacna turkmena* Andrussov, 1924. Lymnocardiiidae. Pliocene and Pleistocene. ••1924 ZR: *Didacna turkmena* Andrussov, 1924 sp. n. Pleistocene. ••1929 ZR: *Didacna turkmena* Apscheronian Transcaucasia [Ref. Ruzencev 1929b]. ••1963 ZR: *Didacna turkmena* Andrussov, 1963 sp. nov. Apsheron layers, Pliocene, Russia. ••1963 ZR: *Didacna turkmena* Pliocene [Ref. Andrusov 1963].
- turkmena latecostata** Ruzencev, 1929 (variety). – Upgraded. *Didacna turkmena latecostata* Ruzencev, 1929. Lymnocardiiidae. Apscheronian. RECORDS. ••1929 ZR: *Didacna turkmena* var. *latecostata* Ruzencev, 1929 nov. Apscheronian Transcaucasia [Ref. Ruzencev 1929b].
- turkmena major** Andrusov, 1963 (variety). – Upgraded. *Didacna turkmena major* Andrusov, 1963. Lymnocardiiidae. Pliocene. RECORDS. ••1963 ZR: *Didacna turkmena* var. *major* Andrusov, 1963 nov. Apsheron layers, Pliocene, Russia.
- turonense** Cossmann, Peyrot, 1911. – Synonym. >> Regarding *C. turonense*: Cardiidae. Miocene. RECORDS. ••1989 Gontsharova: *Cardium turonense* Cossmann, Peyrot, 1911 = *Acanthocardia grundensis* Ivolas et Peyrot, 1900.
- turonense** Mayer emend. Synonym. Cardiidae. Miocene. RECORDS. ••1902 Dollfus & Dautzenberg: *Cardium turonense* May. emend. Cossmann & Peyrot, 1912. Synonym of *Cardium turonicum* Mayer in Hoernes, 1863.
- turonica** (mode). – See under *turonicum*.
- \*turonicum**. – Homonymy to be noticed. *Cardium turonicum* from 3 sources: Hönes, 1861. – Mayer in Hoernes, 1863. – Possibly Mayer, 1870.
- turonicum** Hönes, 1861. – Synonym of *Cardium sallomacense* Cossmann & Peyrot 1912. OTHER JUDGEMENTS: *Cardium brocchi* Mayer, 1866. – *Cardium praeaechinatum* Hilber, 1882. >> Regarding *Cardium turonicum*: Cardiidae. Miocene. TYPE LOCALITY. Europe. RECORDS. ••1986 Studencka, p. 69: *Acanthocardia* (*Acanthocardia*) *turonica* (Hornes 1861); syn. nov. = *Cardium sallomacense* Cossmann & Peyrot 1912. ••1987 ZR: *Acanthocardia* (*Acanthocardia*) *turonica* (Hornes, 1861). New synonyms: *Cardium brocchi* Mayer, 1866, *Cardium praeaechinatum* Hilber, 1882, *Cardium sallomacense* Cossmann & Peyrot, 1912. Ref. to Studencka p. 69.
- turonicum** Mayer in Hoernes, 1863 / Mayer, 1870. – *Acanthocardia turonica* (Mayer, 1870). Cardiidae. Tertiary. RECORDS. ••1886 Dollfus & Dautzenberg: *Cardium turonicum* Mayer. ••1952 Lecointre: *Cardium turonicum* Mayer in Hoernes, 1863. ••1977 Popov: *Acanthocardia* (*Acanthocardia*) *turonica* (Mayer, 1870). ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological collection. *Cardium* (*Acanthocardia*) *turonicum* Mayer. Helvetien. France; Austria; Rumania; Hungary; Turkey; former Yugoslavia.
- turonicum grundense** Ivolas & Peyrot, 1900 (variety). – Changed combination: *Acanthocardia turonicum grundense* (Ivolas & Peyrot, 1900). Cardiidae. Fossil. RECORDS. ••1989 Gontsharova: *Cardium* (*Acanthocardia*) *turonicum grundense* in Sieber, 1956 = *Acanthocardia grundensis* Ivolas et Peyrot, 1900. ••1989 Gontsharova: *Cardium turonicum* var. *grundensis* Ivolas et Peyrot, 1900 = *Acanthocardia grundensis* Ivolas et Peyrot, 1900.
- turonicum vidali** Cossmann et Peyrot (variety). – Upgraded. New combination: *Acanthocardia turonica vidali* Cossmann & Peyrot. ••1912 Favre: *Cardium turonicum* Mayer var. *vidali* Cossm. et Peyr. ID suggested by Favre.
- turonienne** H. Woods. – Changed combination: *Pleuriocardia turoniense* (H. Woods). Cardiidae. Cretaceous. RECORDS. ••1978 Scott: *Cardium turoniense* H. Woods. ••1978 Scott: *Pleuriocardia* (*Dochmocardia*) *turonienne* (H. Woods). ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium turoniense* Woods. Turonien. France (du Rhone), B17570.
- turtoni** (variety). – See under *spinosum* var. *turtoni* Dall.
- turtoni** Sowerby, 1894. – Synonym of *Parvicardium papillosum* (Poli, 1791). >> Regarding *Cardium turtoni*: Cardiidae. Recent. DISTRIBUTION. South Africa (Sowerby 1894). RECORDS. ••1894 Sowerby, p. 377-378, pl. vii, fig. 4: *Cardium turtoni* Sowerby, n. sp. ••1894 ZR: *Cardium turtoni* Sowerby, 1894a n. sp. Port Elizabeth. ••1897 Sowerby: *Cardium turtoni*. ••1904 Smith: *Cardium turtoni* Sowb. ••1926 McClelland: *Cardium turtoni*, Sowerby, 1894 n. sp. ••1950 Barnard: *Cardium turtoni*. ••1974 Barnard: *Cardium turtoni* Sowerby. ••1977 Fischer-Piette: *Cardium turtoni* Sowerby = *Corculum papillosum* Poli. ••1982 Kilburn & Rippey: *Parvicardium turtoni* (Sowerby, 1894). ••1991 Voskuil & Onverwagt: *Cardium turtoni* Sowerby, 1894 = *Parvicardium papillosum* (Poli, 1795).
- tutcheri** Palmer, 1973. – *Cryptocardia* (?) *tutcheri* Palmer, 1973. ?Cardiidae. Lower Jurassic. RECORDS. ••1973 ZR: *Cryptocardia* (?) *tutcheri* Palmer, 1973 sp. nov. England, Somerset, Ilminster. Ref. to Palmer p. 168.
- Tutcheria** (genus). – Not valid for Cardiacea. Fossil. RECORDS. ••1946 ZR: *Tutcheria* Cox, 1946 gen. nov. Cardiidae type *Cardium submulticostatum* Orb. ••1995 Schneider: *Tutcheria* is an astartid genus.
- tuzlanum** (subspecies). – See under *lithopodolicum tuzlanum* Soklic, 1958.
- Tychoardia** [Fig. Part 1, p. 163] (section & subgenus). – Now in family Isocardiidae. RECORDS. ••1869 Ed. Römer: 1. Sectio *Tychoardia* Römer. Genus *Isocardia* Lamarck. ••1869 ZR: subgenus 1. *Tychoardia*, type *Isocardia cor* (L.) [Ref. Römer 1869].
- typica** (variety). – See under *isseli* var. *typica* Andrussov, 1923. – *propinqua* var. *typica* Andrussov, 1923.
- tzankovi** Kojumdgieva, 1970. – Combination to be revised: “*Cardium*” *tzankovi* Kojumdgieva, 1970. Cardiidae. Upper Miocene. RECORDS. ••1970 ZR: *Cardium* (*Cerastoderma*) *tzankovi* Kojumdgieva, 1970 sp. nov. Sarmatian, Upper Miocene, Gaitantzi, Vidinsko, Bulgaria.
- törteliense** (invalid spelling). – See under *toerteliense*.

*uaylandi* – undatopictum

## U

- uaylandi*** Woodring, 1925. – *Acrosterigma uaylandi* (Woodring, 1925). Cardiidae. Fossil. RECORDS. ••1977 Popov: *Acrosterigma uaylandi* (Woodring, 1925).
- uchidai*** Habe, 1955. – Synonym of *Clinocardium californiense* (Deshayes, 1839). >> Regarding *Clinocardium uchidai*: Cardiidae. Recent. RECORDS. ••1954 Kira: *Clinocardium uchidai* Habe, MS. ••1955 Habe, p. 11-12, pl. 2, figs. 5-6: *Clinocardium uchidai* sp. nov. ••1955 Habe: *Clinocardium californiense* in Rolle 1896, p. 114, fig. b, non Deshayes = *Clinocardium uchidai* sp. nov. ••1955 ZR: *Clinocardium uchidai* Habe, 1955 sp. nov. Akkeshi Bay, Japan. ••1962 Kira: *Clinocardium uchidai*. ••1973 Keen: *Clinocardium uchidai* Kira, 1954, ex Habe, MS. Recent. ••1977 Fischer-Piette: *Corculum (Keenocardium) uchidai* Habe. ••1977 Habe: *Clinocardium uchidai* Habe, 1955 = *Clinocardium (Keenocardium) californiense* (Deshayes, 1839). ••1980 Keen: *Clinocardium uchidai* = *Clinocardium californiense* (Deshayes, 1839). ••1980 ZR: *Clinocardium uchidai* Kira 1954 *Nomen nudum*. Ref. to Kafanov, p. 310. ••1999 Higo *et al.*: *Clinocardium uchidai* Habe, 1955 = *Clinocardium (Keenocardium) californiense* (Deshayes, 1839). ••2000 Coan *et al.*: *Clinocardium uchidai* Habe, 1955 = *Clinocardium (Keenocardium) californiense* (Deshayes, 1839). – CHARACTERS AND OCCURRENCE – REMARKS. ••1980 Keen: probable that *Laevicardium interrogatorium* Fischer-Piette, 1977 = *Clinocardium uchidai* (Habe, 1955) from the northwestern Pacific (not California). DISTRIBUTION. ••1994 Hylleberg: Japan.
- uiratamense*** Kolesnikov, 1929. – Combination to be revised: “*Cardium*” *uiratamense* Kolesnikov, 1929. Cardiacea. Sarmatian. RECORDS. ••1929 ZR: *Cardium uiratamense* Kolesnikov, 1929 sp. n. Sarmatian.
- uiratamense inepta*** Kolesnikov, 1929 (variety). – Upgraded. Combination to be revised: “*Cardium*” *uiratamense inepta* Kolesnikov, 1929. Cardiacea. Sarmatian. RECORDS. ••1929 ZR: *Cardium uiratamense* var. *inepta* Kolesnikov, 1929 nov. Sarmatian [Ref. Kolesnikov 1929].
- ukrainica*** Ebersin, 1967. – *Macradacna ukrainica* Ebersin, 1967. Lymnocypridae. Fossil. RECORDS. ••1967 Ebersin: *Macradacna ukrainica* sp. n. ••1967 ZR: *Macradacna ukrainica* Eberzin, 1967 sp. nov. Pliocene, USSR.
- ukrainica*** Eberzin & Semenenko, 1967. – *Limnodacna ukrainica* Eberzin & Semenenko, 1967. Lymnocypridae. Lower Kimmeridgian. RECORDS. ••1967 ZR: *Limnodacna ukrainica* Eberzin & Semenenko, 1967 sp. nov. Ukraine, USSR. ••1987 Taktakishvili: *Limnodacna ukrainica* Ebers. et Sem.
- ukrainicum*** (variety). – See under *mithridatis ukrainicum* var. *Ossaulenko*, 1936.
- ukrainicum*** Bagdasaryan, 1979. – *Sarmaticardium ukrainicum* Bagdasaryan, 1979. Cardiacea. Upper Miocene. RECORDS. ••1979 ZR: *Sarmaticardium ukrainicum* Bagdasaryan, 1979 sp. nov. Ukraine. Ref. to Bagdasaryan, p. 42.
- ultima*** (variety). – See under *inlongaevum ultima* var. Eberzin, 1958.
- ultima*** Popov, 1983. – *Didacna ultima* Popov, 1983. Lymnocypridae. Pleistocene. TYPE LOCALITY. Russian SFSR. RECORDS. ••1983 Popov, p. 160, fig.: *Didacna ultima* sp. nov.
- umbonare*** Lamarck, 1819. – Combination to be revised: “*Cardium*” *umbonare* Lamarck, 1819. Cardiacea. Fossil. RECORDS. ••1819 Lamarck: *Cardium umbonare* Lamk. ••1922-32 Sherborn, p. 6715: *Cardium umbonare* Lamarck, 1819.
- umbonata*** Ebersin, 1959. – *Didacna umbonata* Ebersin, 1959. Lymnocypridae. Quaternary. RECORDS. ••1957 ZR: *Didacna umbonata* Ebersin. Nizhnekhalin deposits, Chelekan and Pribal Khan. Quaternary, Turkmenia, Russia [Ref. Neveskaya 1957]. ••1959 ZR: *Didacna umbonata* Ebersin, 1959 sp. nov. fossil.
- umbonatum*** (subspecies). – See under *glaucum umbonatum* Wood, 1850.
- \*umbonatum**. – Homonymy to be noticed. *Cardium umbonatum* from 5 sources: Sowerby, 1817. – Bell, 1913. – Wood, 1850. – Cossmann, 1921. – Goldfuss (?year).
- umbonatum*** Bell, 1913. – Combination to be revised: “*Cardium*” *umbonatum* Bell, 1913. Cardiidae. Crag. RECORDS. ••1913 ZR: *Cardium umbonatum* Bell, 1913 sp. n. Suffolk Crag.
- umbonatum*** Cossmann, 1921. – *Fragum umbonatum* (Cossmann, 1921). Cardiidae. Eocene. RECORDS. ••1922 ZR: *Cardium (Trachycardium) umbonatum* Cossmann, 1922 sp. n. Eocene. ••1930 Stewart: “*C.*” *umbonatum* Cossmann, 1921. ••1977 Popov: *Fragum umbonatum*.
- umbonatum*** Goldfuss. – Replaced by “*Cardium*” *austriacum* Desh. >> Regarding *C. umbonatum*: Cardiidae. Fossil. RECORDS. ••1857. Deshayes: *Cardium umbonatum*. Goldf. – *C. austriacum*. Desh.
- umbonatum*** Sowerby, 1817. – Not a cardiid. RECORDS. ••1857 Deshayes: *Cardium umbonatum* Sowerby. In genus *Glycymeris*. ••1922-32 Sherborn, p. 6715: *Cardium umbonatum* Sowerby, 1817.
- umbonatum*** Wood, 1850. – Changed combination: *Cerastoderma umbonatum* (Wood, 1850). Cardiidae. Fossil. TYPE LOCALITY. Caspian Sea. DISTRIBUTION. North Africa, Adriatic Sea (Nordsieck 1969). RECORDS. ••1850 Wood: *Cardium umbonatum*. ••1974 Starobogatov: *Cerastoderma umbonatum* (Wood, 1850).
- umbricatum*** (error). – Printer’s mistake for *imbricatum* in Higo *et al.* 1999.
- umkae*** Stevanovic, 1982. *Paradacna umkae* Stevanovic, 1982. Lymnocypridae. Upper Miocene. RECORDS. ••1982 ZR: *Paradacna umkae* Stevanovic, 1982 sp. nov. Yugoslavia. Ref. to Stevanovic, p. 126.
- undatopicta*** (mode). – See under *undatopictum* Pilsbry, 1904.
- undatopictum*** Pilsbry, 1904. – Changed combination: *Fulvia undatopictum* (Pilsbry, 1904). OTHER JUDGEMENTS: *Fulvia hungerfordi* (Sowerby, 1901). – *Laevicardium hungerfordi undatopictum* (Pilsbry, 1904). – *Papyridea papyraceum* (Chemnitz) Schröter [not available]. >> Regarding *Cardium hungerfordi undatopictum*: Cardiidae. Recent. TYPE LOCALITY. Hirado, Nagasaki Pref. Kyushu (Kuroda *et al.* 1971). RECORDS. ••1904 Pilsbry, p. 556, pl. 40, figs. 14-15: *Cardium hungerfordi undatopictum*. ••1940 Nomura & Niino: *Cardium undatopictum* Pilsbry. ••1951 Habe: *Microfragum undatopictum* Pilsbry. ••1952 Kuroda & Habe: *Fulvia undatopicta* (Pilsbry). ••1954 Taki:

- Cardium undatopictum* Pilsbry. ••1954 Kira: *Laevicardium undatopictum* (Pilsbry). ••1955 Kira: *Laevicardium undatopictum* (Pilsbry). ••1958 Habe: *Laevicardium undatopictum* (Pilsbry). ••1962 Kira: *Laevicardium undatopictum* (Pilsbry). ••1971 Kuroda, Habe & Oyama: *Laevicardium undatopictum* (Pilsbry). ••1977 Popov: *Laevicardium undatopictum* (Pilsbry). ••1977 Fischer-Piette: *Cardium undatopictum* Pilsbry = *Papyridea papyraceum* (Chemnitz) Schröter. ••1977 Habe: *Laevicardium undatopictum* (Pilsbry, 1904). ••1981 Koyama *et al.*: *Fulvia undatopictum*. ••1981 Koyama *et al.*: *Laevicardium hungerfordi undatopictum* (Pilsbry, 1904) = *Fulvia hungerfordi* (Sowerby, 1901). ••1994 Vidal: *Fulvia (Laevifulvia) undatopicta* (Pilsbry, 1904). ••1994 Vidal: *Fulvia undatopicta* (Pilsbry). Type of (*Laevifulvia*) Vidal, 1994 new subgen. ••1998 Lamprell & Healy: *Fulvia (Fulvia) undatopicta* (Pilsbry, 1904). ••1999 Higo *et al.*: *Fulvia undatopicta* (Pilsbry, 1904). ••2000 Hylleberg, p. 532: *Fulvia undatopicta* (Pilsbry, 1904). Det. J. Vidal. ••2000 Lutaenko: *Fulvia undatopicta* (Pilsbry, 1904). ••2000 Lutaenko, p. 372: *Fulvia undatopicta* (Pilsbry, 1904). ••2001 Vidal, p. 408: *Fulvia undatopicta*. ••2003 Hylleberg & Kilburn, p. 183: *Fulvia undatopicta* (Pilsbry, 1904). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••2001 Vidal: tentacles numerous. Eyes on tip of tentacles. DIMENSIONS. ••1971 Kuroda *et al.*: 17.1 x 17.4 x 10.8 mm. HABITAT. ••1971 Kuroda *et al.*: fine sandy, gravelly bottoms, 10-100 m depth. ••1999 Higo *et al.*: subtidal to 100 m, sandy mud DISTRIBUTION. ••1971 Kuroda *et al.*: Japan, Honshu, Shikoku, Kyushu. ••1994 Hylleberg: Tropical Pacific, Solomon Isl. ••1999 Higo *et al.*: Boso peninsula (Kuroda & Habe, 1981) and southwards, Seto island sea, Japan Sea (Oga peninsula), Philippines, South China Sea, Indo-Pacific, Australia (Gulf of Carpentaria Lamprell & Healy 1998). ••2000 Hylleberg: Vietnam and Cambodia. ••2003 Hylleberg & Kilburn: Vietnam.
- \**undatum*. – Homonymy to be noticed. *Cardium undatum* from 2 sources: Sismonda, 1846. – Reuss, 1868.
- undatum* Reuss, 1868. – Combination to be revised: "*Cardium*" *undatum* Reuss, 1868. ?Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium undatum* Reuss, 1868; vol. 58: 87, pl. 2, figs. 3-4.
- undatum* Sismonda, 1846. – Combination to be revised: "*Cardium*" *undatum* Sismonda, 1846. ?Cardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6726: *Cardium undatum* Sismonda, 1846.
- undatum* Martyn, 1784. Non binominal. – Not available. Not a cardiid. RECORDS. ••1784 Martyn: *Cardium undatum*.
- unedo* Linné, 1758 / Gmelin, 1791. [Figs. Part 1 p. 39, 40, 43, 46, 50, 60, 61, 68, 73, 87, 103, 125, 166. Part 2 inside of back cover. Part 3 p. 905, 907]. – Changed combination: *Fragum unedo* (Linné, 1758). Cardiidae. Recent. Gray (1847, No. 557) *Cardium unedo* is type species of *Hemicardium*, Swainson 1840. Dall (1902) *Cardium unedo* Linnaeus is type of subgenus *Fragum* s.s. TYPE LOCALITY. Ceylon (Sowerby 1841 No. 86). None designated (Higo *et al.* 1999). RECORDS. ••1684 Bonanno. ID by Gmelin 1791: *Cardium unedo* recr. 3. f. 375. ••1687 Lister. ID by Gmelin 1791: *Cardium unedo* t. 315. f. 151. ••1705 Rumphius. ID by Linnaeus 1758 and Gmelin 1791: *Cardium unedo* mus. t. 44. f. F. ••1742 Argenville. ID by Linnaeus 1758 & Gmelin 1791: *Cardium unedo* conch. t. 26. f. N. ••1742 Gualtieri. ID by Gmelin 1791: *Cardium unedo* t. 83. f. A. ••1758 Linné, p. 680, No. 68: *Cardium unedo*. ••1758 Regenfuss. ID by Gmelin 1791: *Cardium unedo* Conch. 1. t. 3. f. 25. ••1758 Regenfuss, fig. 25: *Cardium unedo* (fide Linné 1758; Spengler 1799). ••1758 Seba. ID by Gmelin 1791: *Cardium unedo* mus. 3. t. 86. f. 12. ••1758 Seba, Vol. 3, pl. 86, fig. 12: *Cardium unedo* (fide Spengler 1799). ••1764 Knorr. ID by Gmelin 1791: *Cardium unedo* Vergn. 2. t. 29. f. 2. ••1764 Linnaeus (Mus. Lud. Ulr. Reg.) No. 40. ••1767 Linné, p. 1123, No. 84: *Cardium unedo*. ••1769 Knorr (author not available): *C. unedo*. ••1778 Born, G10. *Cardium unedo* Linn. S.N. Sp. 84. ••1780 Born: *Cardium unedo* Linn. S. N. Sp. 84. ••1782 Bonanno. ID by Gmelin 1791: *Cardium unedo* mus. Kirch. 2. f. 109. ••1782 Chemnitz, pl. 16, figs. 168-169: *Cardium unedo*. ••1782 Chemnitz. ID by Gmelin 1791: *Cardium unedo* t. 16. f. 168. 169. ••1786 Schröter, No. XII: *Cardium unedo* Linn. XII. pag. 1123. Spec. 84. ••1789 Bruguière, No. 7. *Cardium unedo* Linn. ••1789 Karsten: *Cardium unedo* testa solida sulcata. ••1791 Gmelin, p. 3250, No. 14: *Cardium unedo*. ••1798 Bruguière. ID by Lamarck, pl. 295. fig. 4. *Cardium unedo*. ••1798 Röding: *Fragum unedo*. ••1799 Spengler, p. 59, No. 40: *Cardium unedo* Linné Sp. 84. p. 1123. ••1817 Dillwyn: *Cardium unedo* Linnaeus. Born appears to have confounded *C. ringens* with *C. unedo*. ••1823 Dillwyn, Tab. 315 fig. 150 *Cardium unedo*. ••1836 Bosc: *Cardium unedo*. ••1840 Sowerby, catalogue p. 7, No. 86: *Cardium unedo* Linn. ••1844 Potiez & Michaud: 1. *Cardium unedo* Linn. Gmel. ••1844 Reeve, sp. 13: *Cardium unedo*. ••1847 Gray, No. 557: *C. unedo*. ••1853 Gray: *Bucardium unedo*. ••1853 Mörch: *Fragum unedo*. ••1856 Wood & Hanley, No. 50: *Cardium unedo* Lin. Syst. ••1858 Adams & Adams, p. 459: *Hemicardia (Fragum) unedo* Linn. ••1869 ZR: Section, subtypical - 4. Semicordiformes: *fragum* (L.), *unedo* (L.), *donaciformis* (Spengl.), &c. [Ref. Graham-Ponton 1869]. ••1880 Martens: *Cardium (Hemicardium) unedo* Linné. ••1884 Grasset: *Hemicardium unedo*. L. ••1887 Fischer: *Hemicardium unedo* Linné. ••1889 Martens: *Cardium (Hemicardium) unedo* L., citing Chemnitz. ••1890 Paetel: *Hemicardium unedo* L. ••1891 Fischer: *Cardium unedo* Linné. ••1891 Römer: *Fragum unedo* L. ••1902 Dall: *Cardium unedo* Linnaeus. ••1902 Sherborn, p. 1016: *Cardium unedo* Linnaeus, 1758. ••1905 Hidalgo: *Hemicardium unedo* Linné. ••1895 Melvill & Standen: *Hemicardium (Fragum) unedo* Linné. ••1909 Lyngby: *Hemicardium (Fragum) unedo*. ••1939 Adam & Leloup: *Corculum (Fragum) unedo* (Linné 1758). ••1977 Wilson & Stevenson: *Fragum (Fragum) unedo* (Linnaeus, 1758). ••1932 Prasad: *Cardium (Fragum) unedo*. ••1945 ZR: *Cardium unedo* L. [Ref. Lamy 1945]. ••1960 Kuroda: *Fragum unedo* (Linné). ••1967 ZR: *Fragum unedo*, effect of myotropic substances on the heart [Ref. Kratzing & Ladd 1967]. ••1977 Fischer-Piette: *Corculum (Fragum) unedo* Linné. ••1977 Wilson & Stevenson: *Fragum (Fragum) unedo* (Linnaeus, 1758). *Hemicardium unedo* Linnaeus, 1758. ••1990 Abbott & Dance: *Fragum unedo*. ••1994 Chung-Hung & Hsi-Jen: *Fragum unedo* (Linné).

**unedo – unicolor**

••1995 Chung-Hung & Hsi-Jen: *Fragum unedo* (Linné). ••1981 ZR: *Fragum unedo* Linnaeus Senior synonym of *F. tegulatum* (Dautzenberg 1900). Ref. to Germain, p. 166. ••1982 ZR: *Fragum (Fragum) unedo* (Linnaeus 1758). Indian Ocean and Western Pacific. Ref. to Germain. ••1983 ZR: *Fragum unedo*. Japan. Ref. to Kawaguti. ••1985 ZR: *Fragum unedo*. Ref. to Ohno. ••1998 Poutiers: *Fragum unedo* (Linnaeus, 1758). ••1998 Schneider (1998b): *Fragum unedo* (Linné, 1758). Harbours photosymbiotic dinoflagellates. ••1999 Aungtonya *et al.*, PMBC-SP 19(2): 377: *Fragum unedo* (Linnaeus, 1758). ••1999 Higo *et al.*: *Fragum unedo* (Linnaeus, 1758). ••1999 Hylleberg, p. 401: *Fragum unedo* (Linné, 1758). ••1999 Knudsen & Hylleberg: Spengler, 1799 No. 40: *Cardium unedo* in Spengler (East Indies) = *Fragum rubrum* citing Chemnitz Tom. VI. Tab. 16 Fig. 168-169. ••2000 Hylleberg, p. 532: *Fragum unedo* (Linné, 1758) ••2000 Lutaenko, p. 372: *Fragum unedo* (L., 1758). ••2001 Vidal, p. 408: *Fragum unedo*. ••2003 Hylleberg & Kilburn, p. 178: *Fragum unedo* (Linnaeus, 1758). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: Nicobar Islands, Fiji Islands, Japan, Philippines. ••ZMUC 2 specimens, Spengler coll. East Indies. ••ZMUC wet collection: Eilat, Lontor Banda, Tonga Islands intertidal, Banda, Kei Islands. DESCRIPTIONS. ••1758 Linné: Shell subcordate: interstices crescent-shaped coloured [I have translated from Latin]. ••1799 Spengler: *Testa subcordata, sulcis lunulis coloratis*. ••1844 Reeve: shell somewhat heart-shaped, posterior side angulated; radiately ribbed, ribs about thirty in number, close-set, interstices on the posterior side slightly open at the margins; yellowish, ribs ornamented with bright pinkish-red, elevated cross ridges or small shields. The bright red ornamental sculpture of the ribs varies in its character and size from minute cross ridges to small oblong square elevated shields. ••2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes. ••My rib counts: Material at ZMUC: 27, 27, 27, 28, 28, 28, 29 ribs. DIMENSIONS. ••1799 Spengler: length 61 mm (2 Tom. 4 Lin.), width 52 mm (2 Tom.). ••1844 Reeve: Shell somewhat heart-shaped, posterior side angulated; radiately ribbed, about 30 close-set ribs, interstices on the posterior side slightly open at the margins; yellowish, ribs ornamented with bright pinkish-red, elevated cross ridges or small shields. ••1972 Cernohorsky: 60 mm. REMARKS. ••1844 Reeve: The bright red ornamental sculpture of the ribs varies in its character and size from minute cross ridges to small oblong square elevated shields, as in the specimen selected for illustration. HABITAT. ••1844 Reeve: found in sandy mud at low water. ••1999 Higo *et al.*: intertidal to 60 m, sand and mud. ••ZMUC: intertidal coral sand. DISTRIBUTION. ••1844 Reeve: Ceylon, Philippine Islands, &C. ••1856 Wood & Hanley: Ceylon, &c. ••1884 Grasset: Ceylon. ••1891 Römer: East Indies. ••1994 Hylleberg: Indo-Pacific. ••1999 Aungtonya *et al.*: Thailand, Andaman Sea. ••1999 Higo *et al.*: Tosa bay (southern Shikoku) and southwards, Philippines, South China Sea, Beibu gulf, Indonesia, Indo-Pacific. ••2000 Hylleberg: Vietnam and Cambodia. ••2003 Hylleberg & Kilburn: Vietnam. ••ZMUC: Nicobar Islands, Fiji Islands, Japan, Philippines, East Indies,

Banda, Tonga Islands, Kei Islands.

**unedo** Röding in Bolten, 1798. – The same as *Fragum unedo* (Linnaeus, 1758). ••1902 Sherborn, p. 1016: *Fragum (Gm.) unedo* Bolten, 1798. – *Cardium unedo*.

**unedo** Swainson, 1840. – The same as *Fragum unedo* (Linnaeus, 1758). RECORDS. ••1922-32 Sherborn, p. 6738: *Hemicardium* (Wood) *unedo* Swainson, 1840. – *Cardium unedo*.

**unedo beta** Gmelin, 1791 (variety). – Unknown status. RECORDS. ••1764 Knorr. ID by Gmelin 1791: *Cardium unedo* var. *beta*, Vergn. 2. t. 29. f. 3?. ••1791 Gmelin No. 14: *Cardium unedo* var. *beta*.

**ungheniensis**. – Combination to be revised: “*Cardium ungheniensis*. Cardacea. Fossil. RECORDS. ••1930 ZR: *Cardium ungheniensis*, fossil [Ref. Vascautau 1930].

**ungulata** Röding, 1798. – Synonym of *Hippopus hippopus* (Linnaeus, 1758). >> Regarding *Tridacnes ungulata*: Tridacnidae. Recent. RECORDS. ••1999 Higo *et al.*: *Tridacnes ungulata* Röding, 1798 = *Hippopus hippopus* (Linnaeus, 1758).

**Unicardium** d’Orbigny, 1850 (genus). – Cardacea. Fossil. RECORDS. ••1922-32 Sherborn, p. 6742: *Unicardium* d’Orbigny, 1850. ••1924 ZR: *Unicardium* [Ref. Cossmann 1924, p. 47].

**unicolor** Sowerby, 1840. [Figs. Part I p. 111, 115, 141. Part 3 p. 881]. – Synonym of *Acrosterigma simplex* (Spengler, 1799). OTHER JUDGEMENTS: *Cardium enode* Sowerby. – Not a synonym of *Cardium enode*. >> Regarding *Cardium unicolor*: Cardiidae. Neogene and Recent. TYPE LOCALITY. Isl. of Ticao, the Philippines (Sowerby, 1840). TYPE REPOSITORY. Natural History Museum, London. TYPE MATERIAL. Holotype missing. Six paired syntypes from Ticao (Philippines), in BMNH, Cuming coll., the largest of which fits the specimen cited and figured by Sowerby, and was selected as lectotype by Voskuil & Onyterwagt (1991: 116). RECORDS. ••1840 Sowerby, 178<sup>th</sup> part, fig. 42: *Cardium unicolor* nobis. ••1840 Sowerby, p. 107: *Cardium unicolor*. ••1840 Sowerby catalogue p. 4, No. 46: *Cardium unicolor* Sow. ••1840 Sowerby, corrected list, p. 8: *Cardium unicolor* (Sowerby No. 46). ••1845 Reeve: *Cardium unicolor*. ••1858 Adams & Adams, p. 455: *Cardium (Trachycardium) unicolor* Sow. ••1884 Grasset: *Cardium unicolor* Sow. ••1890 Paetel: *Cardium unicolor* Sow. ••1907 ZR: *Cardium (Trachycardium) unicolor* raised beach, Red Sea [Ref. Hall & Standen 1907]. ••1922-32 Sherborn, p. 6744: *Cardium unicolor* Sowerby, 1841. ••1928 Faustino: *Cardium unicolor* Sowerby. ••1931 ZR: *Cardium unicolor* with ref. to W.D. Smith (1931). ••1932 Prashad: *Cardium (Trachycardium) unicolor*. ••1960 Kuroda: *Trachycardium (Acrosterigma) unicolor* (Sowerby). ••1964 Spry: *Cardium (Vasticardium) (Regozara) unicolor* (Sowerby). ••1974 Habe & Kosuge: *Vasticardium unicolor* (Sowerby, 1840). ••1977 Fischer-Piette: *Cardium unicolor* Sowerby = *Cardium enode* Sowerby. ••1977 Habe: *Trachycardium (Vasticardium) unicolor* (Sowerby, 1840). ••1987 Cuif, Denis, Jaillard & Zhu: *Acrosterigma unicolor*. ••1987 ZR with ref. to Cuif *et al.*: *Acrosterigma unicolor*. ••1991 Abbott: *Trachycardium unicolor*. ••1992 Lamprell & Whitehead: *Acrosterigma unicolor*. ••1993 Vidal: *Cardium unicolor* not synonym of *Cardium enode* as suggested by Fischer-Piette. ••1995 Chung-

*unifasciatum* – *uniornatum*

Hung & Hsi-Jen: *Vasticardium unicolor* (Sowerby). ••1999 Higo *et al.*: *Acrosterigma* (*Vasticardium*) *unicolor* (Sowerby, 1841). ••1999 Vidal: *Trachycardium unicolor* Neogene fossils from Taiwan (Gu Zhi-wei *et al.*, 1976: 70). ••1999 Vidal: *Cardium unicolor* Sowerby, 1834 in Ranson 1967: 125 = *Acrosterigma seawati* Vidal. ••1999 Vidal: *Cardium unicolor* Sowerby, 1834: fig. 29: = *Acrosterigma simplex* (Spengler, 1799). ••1999 Vidal: *Cardium unicolor* Sowerby, 1834 in Sowerby 1841, p.107 = *Acrosterigma simplex* (Spengler, 1799). – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: 1 specimen. labeled Philippines coll. Cuming. DESCRIPTIONS ••1845 Reeve: shell oblong-ovate, somewhat attenuated towards the umbones, radiately ribbed, 48 rounded, smooth ribs, the anterior very finely crenulated; whitish, very obscurely spotted with purple, interior tinged with pink. DIMENSIONS. ••1840 Sowerby: long. 1.50 poll. (length 38 mm), lat. 1.10 poll. (width 28 mm), alt. 1.70 poll (height 43 mm). REMARKS. ••1840 Sowerby: a slightly mottled form is brought from the Brazils. ••1845 Reeve: The ribs of this species are very numerous considering the distinctness with which they are developed; and the interior of the shell is characteristically tinged in the interior with rose pink. HABITAT. ••1840 Sowerby: Sandy mud at 5 fathoms. ••1845 Reeve: found in sandy mud at low water. ••1999 Higo *et al.*: subtidal to 30 m, sand and mud. DISTRIBUTION. ••1845 Reeve: Isl. of Ticao, Philippines. ••1884 Grasset: Philippines. ••1994 Hylleberg: Central Indo-West Pacific, Australia. ••1999 Higo *et al.*: Tosa bay (southern Shikoku) and southwards, Philippines, South China Sea, Micronesia, Indo-Pacific. ••ZMUC: Philippines.

***unifasciatum*** Danilo & Sandri mss. – Synonym of *Acanthocardia tuberculata*. >> Regarding *Cardium unifasciata*: Cardiidae. Recent. RECORDS. ••1933 Coen: *Cardium unifasciata* Danilo & Sandri mss = *Eucardium* (*Rudicardium*) *tuberculatum* var. *spinosa* Coen. ••1937 Coen: *Cardium unifasciatum* Danilo & Sandri mss = *Cerastoderma* (*Rudicardium*) *tuberculatum torquatum* Coen.

***uniforme***. – See under *uniformis* Phillips, 1835.

***uniformis*** Phillips, 1835. – *Nomen nudum* accompanied by figure. Combination to be revised: “*Cardium*” *uniforme* Phillips, 1835. ?Cardiacea. Pre-Mesozoic. RECORDS. ••1922-32 Sherborn, p. 6755: *Corbis uniformis* Phillips, 1835 [n. *et f.*]. ••1922-32 Sherborn, p. 6755: *Unicardium* (Ph.) *uniforme* d’Orbigny, 1850. – *Corbis uniforme*. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium* (*Unicardium*) *uniforme* Phillips. Tourcien. Lombardy, B09996.

***unimaculatum*** Broderip & Sowerby, 1833. [Figs. Part 1 p. 106, 144. Part 3 p. 914]. – ?Synonym of *Corculum cardissa* (Linné, 1758). OTHER SUGGESTIONS. *Corculum dionaeum* (Broderip & Sowerby, 1829). >> Regarding *Cardium unimaculatum*: Cardiidae. Recent. TYPE REPOSITORY. 3 syntypes. BMNH London. TYPE LOCALITY. S. Pacific Ocean (Sowerby 1841). RECORDS. ••1833 Broderip & Sowerby: *Cardium unimaculatum*. ••1834 Sowerby, 46<sup>th</sup> part, fig. 1 double asterisk: *Cardium unimaculatum* nobis. ••1840 Sowerby, p. 7, No. 94: *Cardium unimaculatum* Sow., fig. 1 double asterisk =

*Cardium Cardissa* Linn. ••1845 Reeve, species 114: *Cardium unimaculatum* Broderip and Sowerby, 1838. Pro. Zool. Soc. ••1850 Jay: *Cardium unimaculatum* Brod. & Sowb. = *Cardium cardissa*. ••1858 Adams & Adams, p. 458: *Hemicardia unimaculata* Sow. ••1869 Römer: *Cardium unimaculatum* Sowerby, the west coast of Central America. ••1890 Paetel: *Hemicardium unimaculatum* Sow. et Broderip. ••1922-32 Sherborn, p. 6757: *Cardium unimaculatum* Sowerby, 1833. ••1947 Bartsch: *Cardium unimaculatum* Broderip and Sowerby, 1836 = *Corculum dionaeum* (Broderip and Sowerby, 1829). ••1977 Fischer-Piette: *Cardium unimaculatum* Sowerby = *Cardium cardissa* Linné. ••1977 Habe: *Corculum unimaculatum* Broderip & Sowerby, 1836 *sic* = *Corculum cardissa* (Linnaeus, 1758). ••1992 Lamprell & Whitehead: *Cardium unimaculatum* Broderip & Sowerby, 1833 = *Corculum dionaeum* (Broderip & Sowerby, 1829). ••1999 Higo *et al.*: *Cardium unimaculatum* Sowerby, 1833 = *Corculum cardissum* (Linnaeus, 1758). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1845 Reeve: Shell laterally heart-shaped, very convex in the middle, keeled, keel spinosely dentated, sides flatly compressed, anterior radiately grooved, posterior radiately flatly ridged, ridges armed down the middle with minute raised dots; whitish, sprinkled with opaque snowy spots, vividly stained around the posterior lunule with pink. REMARKS. ••1845 Reeve: *Cardium unimaculatum* Sowerby, Conch. Illus. f. 1\*\*, was corrected to show the young of the *Cardium cardissa*; it is, however, maturely grown shells. HABITAT. ••1845 Reeve: found in coral sand on the reefs. DISTRIBUTION. ••1845 Reeve: Isl. of Annaa, Pacific Ocean. ••1994 Hylleberg: Indo-Pacific.

***Uniocardium*** Capellini, 1880 (genus). – Lymnocardiiidae. Tertiary. RECORDS. ••1980. Vokes: *Uniocardium* Capellini, 1880. Subfamily uncertain.

***Uniocardium*** Capellini, 1880 (subgenus). – Lymnocardiiidae. Tertiary. RECORDS. ••1887 Fischer: *Uniocardium* Capellini, 1880 subgenus of genus *Limnocardium*, Stoliczka, em. 1870. ••1903 Andrussoff: Subgenus in genus *Didacna* to accommodate species from the Pontian basin. ••1905 Dollfus, commenting Andrussoff 1903: *Uniocardium* Capellini, species from Italy.

***uniornatum*** Vidal, 1999. [Figs. Part 3 p. 881]. – *Acrosterigma uniornatum* Vidal, 1999. Cardiidae. Recent. TYPE MATERIAL. Holotype: A right valve, Waterwitch Bank, 500 m. Paratype 1: A left valve from the same locality. Paratype 2: A right valve from the same locality. Paratype 3: A right valve from the same locality. Paratypes 4 to 25: Odd valves, same locality. Paratypes 26-27: Two valves, Waterwitch Bank, 580-600m. Paratypes 28 to 36: Odd valves, Waterwitch Bank, 275-295m. Paratype 37: One valve, Combe Bank 370m. Paratypes 38-39: Two odd valves, Combe Bank, 550-552m. Paratypes 40 to 44: Odd valves, Field Bank, 490-500 m. (Vidal 1999). TYPE LOCALITY. Three relatively shallow banks on the Melanesian Border Plateau, within and in the vicinity of Wallis and Futuna Territory, the south-western Pacific. TYPE REPOSITORY. Museum National d’Histoire Naturelle, Bouchet, Metivier, Richer de Forges coll. RECORDS. ••1999 Vidal, p. 293, Table 19, Figs. 7C-H, 8A: *Acrosterigma*

**uralicum – valahica**

*uniornatum* sp. nov. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: ornamentation of the ribs uniform on all the parts of the shell. On right valve cardinals show a great degree of fusion. DESCRIPTION. ••1999 Vidal: Shell ovoid, practically equilateral, never truncated posteriorly, moderately elongated and rather globose. Lunule well delineated, nearly similar on both valves, small, and slightly hollowed. External colour uniform: white on juvenile part, pale yellow on adult part. Interior white, very rarely with traces of pink; no umbonal rays visible. Hinge symmetrical and moderately angled. On right valve cardinals show a greater degree of fusion at their base than is typical for the genus. Mean rib number  $38.2 \pm 1.4$ , range 36-41. In posterior area, interstices thin, ribs flat with a central longitudinal furrow. Anterior smooth part narrower than posterior part, which bears elongated, thin, straight, oblique scales, often encroaching upon axial furrow and even anterior part. In median-posterior area, same features occur but posterior zone is slightly raised and ribs become slightly flattened triangles. Longitudinal furrow progressively becomes less distinct, and anterior smooth part of rib becomes its anterior flank. Scales remain about the same as on posterior slope. On anterior half, ribs become more rounded; scales become more numerous and change, first into posterior flank-ridges, then into moderately imbricated transverse top-ridges. MAXIMUM DIMENSIONS. ••1999 Vidal: Length 18.1, width 22.4, thickness (calculated) 15.2 mm. REMARKS. It is unclear whether this species lives at 500-600 m where the shells were dredged, or have rafted down from shallower depths. Anyhow, its depth range is probably greater than is usual for the genus. DISTRIBUTION. Known only from the vicinity of Wallis and Futuna Islands.

**uralicum.** – *Conocardium uralicum*. Conocardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 6763: *Conocardium* (Vern.) *uralicum* Keyserling, 1846. – *Cardium ouralicum* sic. ••1931 ZR: *Conocardium uralicum* with ref. to Heritsch (1931).

**ursaniense** Landes, 1940. – Changed combination: *Granocardium ursaniense* (Landes, 1940). Cardiidae. Fossil. RECORDS. ••1954 Keen: *Cardium (Etmocardium) ursaniense* Landes, 1940. ••1954 Keen: *Granocardium (Etmocardium) ursaniense* (Landes, 1940). ••1970 Speden: *Etmocardium ursaniense* Landes, 1940 and *Granocardium (Etmocardium) aff. whitei* (Dall) may be conspecific.

**ursicinum.** – Combination to be revised: "*Cardium*" *ursicinum*. Cardiidae. Fossil. RECORDS. ••1891 ZR: *Cardium ursicinum*, Lower Corallian of the Bernois Jura [Ref. Loriot 1891].

**ursina** (subspecies and variety). – See under *subodessae ursina* and *subodessae ursina*.

**ursina** Humphrey, 1797. – Synonym of *Hippopus hippopus* (Linnaeus, 1758). >> Regarding *Tridacna ursina*: Tridacnidae, Recent. RECORDS. ••1999 Higo et al.: *Tridacna ursina* Humphrey, 1797 = *Hippopus hippopus* (Linnaeus, 1758).

**urthensis** Chelidze, 1975. – *Paradacna urthensis* Chelidze, 1975. Lymnocypridae. Lower Pliocene. RECORDS. ••1975 ZR: *Paradacna urthensis* Chelidze, 1975 sp. nov. Georgia SSR, Zugdid region. Ref. to Chelidze, p. 199.

**urupense** (variety). – See under *bajarunasi urupense* var. Kolesnikov, 1929.

**uspensica** (subspecies). – See under *matschigarica uspensica*

**uspenskaiiae** Koles. – Changed combination: *Andrusovicardium uspenskaiiae* (Koles.). Lymnocypridae. Neogene. RECORDS. ••1986 Nevevskaya et al.: *Andrusovicardium uspenskaiiae* (Koles.) comb. nov. ••1987 ZR with ref. to Nevevskaya et al. p.192: *Andrusovicardium uspenskaiiae* (Koles.) comb. nov.

**ustrix** Gardner, 1926. – Combination to be revised: "*Cardium*" *ustrix* Gardner, 1926. Cardiidae. Tertiary. RECORDS. ••1926 ZR: *Cardium (Trachycardium) ustrix* Gardner, 1926 sp. n. Tertiary U.S.A.

**ustulatum** Schröter. – Unknown species. ZMUC: label in box with *muricatum* Schröter, 7: *Cardium ustulatum* = *muricatum*. It is probably a catalogue name.

**utcholokensis** Slodkewitsch, 1938. – Changed combination: *Profulvia utcholokensis* (Slodkewitsch, 1938). Cardiidae. Pliocene. TYPE LOCALITY. Kamtchatka. RECORDS. ••1973 Keen: *Fulvia utcholokensis* (Slodkewitsch, 1938) (Papyridea). ••1976 ZR: *Profulvia utcholokensis* (Slodkewitsch, 1938) Comb. nov. Transferred from *Papyridea*. Ref. to Kafanov, p. 482 [orig. p. 111]. ••1976 ZR: *Papyridea utcholokensis* Slodkewitsch, 1938 Referred to *Profulvia*. Ref. to Kafanov, p. 482 [orig. p. 111].

**uvutschensis** Ilyina, 1963. – Synonym of *Serripes groenlandicus* (Mohr, 1786). >> Regarding *Serripes uvutschensis*: Cardiidae. Upper Miocene. TYPE LOCALITY. Kamtchatka. RECORDS. ••1973 Keen: ? *Serripes uvutschensis* Ilyina, 1963. ••2000 Coan et al.: ? *Serripes* (?) *uvutschensis* Ilyina, 1963 = *Serripes (Serripes) groenlandicus* (Mohr, 1786).

**uyemurai** Kanehara, 1937. – Changed combination: *Ciliatocardium uyemurai* (Kanehara, 1937). Cardiidae. Pliocene. TYPE LOCALITY. Sakhalin Island. RECORDS. ••1937 Kanehara: *Cardium uyemurai*. ••1937 ZR: *Cardium (Ceratoderma) uyemurai* Kanehara, 1937b sp. n. Congi Series (Pliocene) Japan. ••1973 Keen: *Clinocardium uyemurai* (Kanehara, 1937). ••1974 ZR: *Ciliatocardium uyemurai* Kanehara, 1937 Comb. nov. Ref. to Kafanov, p. 1469.

**uzunlarica** Tschep. & Mih. – *Didacna uzunlarica* Tschep. & Mih. Lymnocypridae. Fossil. RECORDS. ••1989 Mikhailevskii: *Didacna uzunlarica* Tschep. & Mih.

## V

**valachica** Papaianopol. – *Pontalmyra valachica* Papaianopol. Lymnocypridae. Fossil. RECORDS. ••1987 Taktakishvili, p. 67: *Pontalmyra valachica* sic Papaianopol. *Pontalmyra valachica* sic Papaianopol.

**valahica** (spelling). – See under *valachica* Papaianopol. **valahica** Papaianopol, 1981. – *Pontalmyra valahica* Papaianopol, 1981. Lymnocypridae. Upper Miocene. RECORDS. ••1981 ZR: *Pontalmyra (Pontalmyra) valahica* Papaianopol, 1981 sp. nov. Romania. Ref. to Papaianopol, p. 17.

**valahica** Papaianopol, 1989. – *Pachydaena valahica* Papaianopol, 1989. Lymnocypridae. Pliocene. TYPE LOCALITY. Basin Dacique, Romania. RECORDS. ••1989 Papaianopol, p. 96, fig.: *Pachydaena (Pachydaena)*

*valahicus – variegatum*

- valahica* sp. nov.
- valahicus** Papaianopol, 1975. – *Dacicardium valahicus* sp. nov. Papaianopol, 1975. Lymnocardiiidae. Pliocene. RECORDS. ••1975 ZR: *Dacicardium valahicus* sp. nov. Papaianopol, 1975 Romania. Dealul Virful Coastei. Ref. to Papaianopol, p. 257. ••1978 ZR: *Dacicardium valahicus* Papaianopol, 1975. Description. Ref. to Papaianopol et al. p. 308.
- valdense** Pictet & Campiche, 1866. – Combination to be revised: “*Cardium*” *valdense* Pictet & Campiche, 1866. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium valdense* Pictet & Campiche, 1866; [1861-1871] ser. 4, p. 253, pl. 120, fig. 3
- Valenciennius** (genus). – Lymnocardiiidae. Pliocene. RECORDS. ••1955 Ebersin: *Valenciennius*. ••1975 ZR: *Valenciennius*. Systematic accounts of species. Romania. Ref. to Hanganu.
- valense** Boghachev, 1938. – New combination: *Lymnocardium valense* Boghachev, 1938. Lymnocardiiidae. Fossil. RECORDS. ••1939 ZR: *Limnocardium valense* Boghachev, 1938 sp. n.
- valida** Papaianopol, 1981. – *Pontalmyra valida* Papaianopol, 1981. Lymnocardiiidae. Upper Miocene. RECORDS. ••1981 ZR: *Pontalmyra (Pontalmyra) valida* Papaianopol, 1981 sp. nov. Romania. Ref. to Papaianopol, p. 31.
- validus** Papaianopol, 1975. – *Dacicardium validus* Papaianopol, 1975. Lymnocardiiidae. Pliocene. RECORDS. ••1978 ZR: *Dacicardium validus* Papaianopol, 1975. sp. nov. Romania. Ref. to Papaianopol et al. p. 311.
- vandeneckii** d’Orbigny, 1850. – Combination to be revised: “*Cardium*” *vandeneckii* d’Orbigny, 1850. RECORDS. ••1922-32 Sherborn, p. 6791: *Cardium vandeneckii* d’Orbigny, 1850
- vanhyningi** (subspecies). – See under *robustum vanhyningi* Clench & Smith, 1944.
- vaquerosensis** Arnold, 1908. – Changed combination: *Trachycardium vaquerosense* (Arnold, 1908). Cardiidae. Lower Miocene. RECORDS. ••1908 ZR: *Cardium (Trachycardium) vaquerosensis* Arnold, 1908 sp. n. Lower Miocene (Vaqueros formn.), California (San Mateo Co.). ••1944 Keen & Bentson: *Cardium (Trachycardium) vaquerosensis* Arnold, 1908 (n. sp.). ••1944 Keen & Bentson: *Trachycardium vaquerosense* (Arnold).
- varia** (variety). – See under *rudis* var. *varia*.
- Varicardium** (genus) Marwick, 1944. – Cardiidae. Fossil. RECORDS. ••1944 ZR: *Varicardium* gen. nov. Cardiidae type *Protocardium serum* Hutton Catal. Tert. Moll. 1873, p. 23, gen. also includes *Cardium patulum* Hutton tom. cit. p. 23 Ref. to Marwick 1944. ••1980 Vokes: *Varicardium* Marwick, 1944 in subfamily Protocardiinae.
- Varicardium** (subgenus). – RECORDS. ••1977 Popov: (*Varicardium*) Marwick, 1944. Subgenotype: *Cardium patulum* Hutton, 1873.
- varicostata** Branson, 1938. – *Dexiobia varicostata* Branson, 1938. Previously in Cardiacea. Carboniferous. RECORDS. ••1940 ZR: *Dexiobia varicostata* Branson, 1938 sp. n. Northview Siltstone King Butte, Missouri Mississippian (Carboniferous) U.S.A.
- varicosum** d’Orbigny, 1850. – Not a cardiid. RECORDS. ••1922-32 Sherborn, p. 6805: *Unicardium* (Sow.)
- varicosum* d’Orbigny, 1850. – *Venus varicosum* Sowerby, 1821.
- variegatum** Solander MS. – Synonym of *Vasticardium leucostomum* (Born). >> Regarding *Cardium variegatum*: Cardiidae. Recent. RECORDS. ••1817 Dillwyn: *Cardium variegatum* Solander’s MSS = *Cardium leucostomum* Born. ••1922-32 Sherborn, p. 6807: *Cardium variegatum* Solander, 1786 [n. n.].
- variegatum** Sowerby, 1840. [Figs. Part 1 p. 118, 138, 173. Part 3 p. 870]. – Changed combination: *Acrosterigma variegatum* (Sowerby, 1840). Cardiidae. Recent. RECORDS. TYPE MATERIAL. Three shells considered as syntypes in BMNH, not catalogued, Cuming collection, labeled from Ticao (Philippines) and another location (label illegible). The dimensions given by Sowerby for his figured specimen could fit the smallest specimen, but the colour pattern, the rib number (48 given), and the locality (Leyte given) do not match. The specimen figured by Vidal (1999, figs. 5A-C) better fits the figure, description and locality given by Reeve (1845: Sp. 75). TYPE LOCALITY. Ad insulam Leyte, the Philippines (Sowerby 1840). RECORDS. ••1840 Sowerby, 1811 part, fig. 57: *Cardium variegatum* nobis. ••1840 Sowerby, Proc. Z.S. London p. 107: *Cardium variegatum*. ••1840 Sowerby, catalogue p. 4, No. 45: *Cardium variegatum* Sow. ••1841. Sowerby, corrected list, p. 8: *Cardium variegatum* (Sowerby, No. 45). ••1845 Reeve: *Cardium variegatum*. ••1858 Adams & Adams, p. 455: *Cardium (Trachycardium) variegatum* Sow. ••1884 Grasset: *Cardium variegatum* Sow. ••1890 Paetel: *Cardium variegatum* Sow. ••1903 Hidalgo: *Cardium variegatum* Sowerby, 1840. ••1922-32 Sherborn, p. 6807: *Cardium variegatum* Sowerby, 1841. ••1928 Faustino: *Cardium variegatum* Sowerby. ••1952 Kuroda & Habe: “*variegatum* (Sowerby)” (non Solander) = *Trachycardium “variegatum* (Sowerby)”. ••1960 Kuroda: *Trachycardium (Acrosterigma) variegatum* (Sowerby). ••1977 Fischer-Piette: *Laevicardium variegatum* Sowerby. ••1977 Habe: *Trachycardium (Vasticardium) variegatum* (Sowerby, 1841). ••1991 Rao, Rao & Maitra: *Trachycardium variegatum* (Sowerby, 1840). ••1997 Kafanov: *Cardium variegatum* in Sowerby, 1834 p. 4, 8, fig. 57 – not syn. of *Papyridea (Papyridea) aspersa* Sowerby in Broderip et Sowerby, 1833. ••1999 Higo et al.: *Acrosterigma (Vasticardium) variegata* (Sowerby, 1841). ••1999 Vidal: *Acrosterigma variegatum* (Sowerby, 1840). ••2002 Hylleberg & Kilburn, p. 63: *Acrosterigma variegatum* (Sowerby, 1840). ID. by J. Vidal. ••2003 Hylleberg & Kilburn, p. 177: *Acrosterigma variegatum* (Sowerby, 1840). – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value. ••1999 Vidal: it cannot be confused with any other species because of its unique lunule: practically absent on left valve, wide on right valve, projecting from the margin. DESCRIPTIONS. ••1840 Sowerby: shell oval, subventricose, red-brown blotches, 48 ribs, anterior ones rounded, crenulated; posterior ones much angulated, the most posterior ribs somewhat flattened, with oblique tubercles [I have translated from Latin]. ••1845 Reeve: shell somewhat squarely ovate, depressed, posterior slightly angulated, radiately ribbed, 38 ribs, the extreme posterior ribs flatly obsolete,



*variegatum* – *vatonni*

slightly prickly, middle ribs peculiarly sharply angled, anterior ribs rounded, very finely crenated; white, profusely variegated with bright rose spots. •1999 Vidal: shell ovoid, almost equilateral (anterior dorsal margin slightly angled), not posteriorly truncated, nor elongated and moderately compressed. Lunule wide on right valve, projecting from the margin against left valve, and composed of two parts: a strongly hollowed part near margin, forming an elongated socket, and an elevated part behind that, forming a large rib-like ridge, both parts being concentrically finely ridged; practically no lunule on left valve. Exterior beige variegated with large irregular patches of orange, brown, and purple, which are visible interiorly. Hinge markedly asymmetrical and moderately angled. Mean rib number 40.2,  $\pm$  2.2, range 36-43 [never as many as 48, as indicated by Sowerby]. Anterior ribs of posterior shell much wider, with oblique scales straddling a very thin intermediate furrow. Ribs on median posterior part triangular with a slightly concave posterior side, and a small, entirely smooth crestal fold. Anteriorly ribs become progressively rounded, first a little retro-ridged then top-ridged on anterior half. Interstices always rounded, excepted in posterior part, and slightly narrower than ribs. DIMENSIONS. •1840 Sowerby: long. 1.70 poll. (length 43 mm), lat. 1.80 poll. (width 46 mm), alt. 1.20 poll (breadth 31 mm). •1999 Vidal: length 52.6 mm, width 58.1 mm, breadth (calculated) 37.0 mm. HABITAT. •1999 Higo *et al.*: recorded from 1 to 500 m depth; intertidal to 20 m, sand REMARKS. •1840 Sowerby: Ribs much closer than in *C. muricatum* (Sowerby 1840). •1845 Reeve: there is a peculiarity in the growth of this shell of which we find a similar indication in the *Cardium angulatum*; – a depressed square-like form, with the above described variation in the structure of the ribs. •1999 Vidal: *C. radula* is described as having the ribs angular on both sides, which is not the case with this species. *A. variegatum* is very constant in characters. It cannot be confused with any other species, particularly because of its unique lunule. DISTRIBUTION. •1845 Reeve: Isl. of Ticao, Philippines. •1884 Grasset: Philippines. •1999 Vidal: tropical western Pacific as far east as Wallis & Futuna; very abundant in the Philippines. •1999 Higo *et al.*: Okinawa islands and southwards, Philippines. South China Sea, Southeast Asia. •2002 Hylleberg & Kilburn: South India. •2003 Hylleberg & Kilburn: Vietnam. •Of authors: Thailand, Philippines, Japan.

***variegatum* of authors.** – Misidentification of *Papyridea aspersa*. RECORDS. •1997 Kafanov: *Cardium variegatum* auct. - in part syn. of *Papyridea (Papyridea) aspersa* Sowerby in Broderip et Sowerby, 1833.

***variegatum* of Mabile 1895.** – Misidentification of *Papyridea spinosum* var. *asperum* Sowerby. RECORDS. •1909 Lamy: *Cardium variegatum* in Mabile (1895)(non Sow.) = *Cardium (Papyridea) spinosum* Meuschen var. *asperum* Sowerby, Dall.

***variegatum* of Roemer.** – Misidentification of *Cardium maculosum* Wood. RECORDS. •1903 Hidalgo: *Cardium variegatum* in Roemer, fig. 7 = *Cardium maculosum* Wood.

***variegatum* b.** Solander, 1786 (variety). – Infrasubspecific. RECORDS. •1786 Solander, p. 17 no. 382: *Cardium variegatum*, var. *b. S.*

**\*varium.** – Homonymy to be noticed. *Cardium varium* from 2 sources: Sowerby, 1834. – Tscheltzov, 1965.

**varium** Sowerby, 1834. – [Fig. Part 1 p. 109]. Synonym of *Fulvia tenuicostata* (Lamarck). OTHER JUDGEMENTS: *Fulvia australis* (Sowerby, 1834). – *Papyridea papyraceum* Schröter [not available]. – *Fulvia tenuicostata* (Lamarck). >> Regarding *Cardium varium*: Cardiidae. Recent. TYPE LOCALITY. Swan River Australia. RECORDS. •1834 Sowerby, 49<sup>th</sup> part, No. 19: *Cardium varium* nobis. •1840 Sowerby, catalogue p. 1, No. 8: *Cardium varium* = *Cardium tenuicostata* Lam. •1977 Fischer-Piette: *Cardium varium* Sowerby = *Papyridea papyraceum* (Chemnitz) Schröter. •1994 Vidal: ? *Cardium varium* Sowerby, 1834 = *Fulvia (Fulvia) australis* (Sowerby, 1834).

**varium** Tscheltzov, 1965. Combination to be revised: “*Cardium*” *varium* Tscheltzov, 1965. Cardiacea. Pliocene. RECORDS. •1965 ZR: *Cardium varium* Tscheltzov, 1965 sp. nov. Akchagylian (Pliocene), Turkmenia, USSR.

**varnensis** (variety). – See under *rectidens* var. *varnensis* Coen, 1917.

**vasoevitschi** (spelling). – See under *vasoevitshi* Kolesnikov.

**vasoevitschi** Kolesnikov, 1929. – Synonym of *Replidacna tumidum* (Ali-Zade & Ribina). >> Regarding *C. vasoevitshi*: Cardiacea. Sarmatian. RECORDS. •1929 ZR: *Cardium vasoevitschi* Kolesnikov, 1929 sp. n. Sarmatian. •1977 ZR: *Cerastoderma (Inaequicostata) vasoevitshi* (Kolesnikov); syn. nov. *Cardium (Replidacna) tumidum* Ali-Zade & Ribina. Ref to Paramonova p. 70. [Transl. p. 320]. •1979 ZR: *Protractiforma vasoevitschi* (Kolesnikov). Referred to new subgenus *P. (Fischericardium)*. Ref. to Bagdasaryan, p. 44.

**Vasticardium** Iredale, 1927 (genus). – Cardiidae. Oligocene and Recent. RECORDS. •1927 ZR: *Vasticardium* Iredale, 1927b [gen. n.] type *Cochlea nebulosa* Martyn. •1978 Maxwell, p. 21: *Vasticardium* is a synonym of *Acrosterigma*. •1980 Vokes: *Vasticardium* Iredale, 1927 in subfamily Trachycardiinae. •1999 Vidal: *Vasticardium* Iredale, 1927: 75. •2001 Vidal, p. 407, *Vasticardium*. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. •2001 Vidal: tentacles numerous.

**Vasticardium** Iredale, 1927 (subgenus). – Cardiidae. Oligocene and Recent. GENOTYPE. Iredale (1927) designated *C. nebulosum* ex Martyn type species of subgenus *Vasticardium* of genus *Acrosterigma* Dall, 1900. Upgraded to generic level by authors. RECORDS. •1977 Popov: (*Vasticardium*) Iredale, 1927. Subgenotype: *Cochlea nebulosa* Martyn, 1792. •1999 Higo *et al.*: *Vasticardium* (subgenus) Iredale, 1927. Type species: *Vasticardium nebulosum* Iredale, 1927 (o. d.). – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: resembling *A. (Acrosterigma)* but eaves more strongly sculptured; posterior margin notched. Indo-Pacific-North and Central America-Europe (Moore *et al.* 1969).

**vatonni** Coquand, 1862. – Changed combination: *Protocardia vattoni* (Coquand). Cardiidae. Cretaceous. RECORDS. •1980 Ruhoff: *Cardium vattoni* Coquand, 1862 vol. 2: 207, pl. 11, fig. 5. •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the

- Paleontological Collection. *Protocardia vattoni* Coquand. Cenomanian. Algeria, B19034.
- vaughani** Stephenson, 1923. – New name. Combination to be revised: "*Cardium*" *nixicollis* Stephenson, 1923. *Cardiidae*. Cretaceous. RECORDS. ••1923 ZR: *Cardium vaughani* Stephenson, 1923 sp. n. Cretaceous U.S.A. ••1936 ZR: *Cardium* (*Protocardia*) *vaughani* Stephenson, 1923; see *Cardium nixicollis* Stephenson, 1923 nom. nov. ••2001 Schneider & Carter: *Pleuriocardia* (*Doehmocardia*?) *vaughani* (Stephenson, 1923). *Cardiidae*. Upper Cretaceous, North Carolina USA.
- vaughaniana** (subspecies). – See under *gurabica vaughaniana* Mansfield, 1932.
- venustum** Kolesnikov, 1929. – Changed combination: *Sarmaticardium venustum* (Kolesnikov). *Cardiidae*. RECORDS. ••1929 ZR: *Cardium venustum* Kolesnikov, 1929 sp. n. Sarmatian. ••1977 Popov: *Cerastoderma* (*Obsoletiforma*) *venustum*. ••1979 ZR: *Sarmaticardium venustum* (Kolesnikov) Comb. nov. Ref. to Bagdasaryan, p. 41.
- ventricosa** (mode). – See under *ventricosum* Bruguière, 1789.
- \*ventricosum**. – Homonymy to be noticed. *Cardium ventricosum* from 3 sources: Bruguière, 1789. – Orbigny, 1843. – Hall, 1847.
- ventricosum** Bruguière, 1789. [Figs. Part 1 p. 66, 91, 93. Part 3 p. 856]. – Synonym of *Trachycardium robustum* (Lightfoot in Solander, 1786). OTHER JUDGEMENTS: *Cardium maculatum* Gmelin, 1791. – *Cardium magnum* Born, 1780. – *Cardium obliquum* Spengler, 1799. >> Regarding *Cardium ventricosum*: *Cardiidae*. Recent. RECORDS. ••1789 Bruguière, p. 228, No. 25: *Cardium ventricosum* Nob. ••1798 Bruguière. ID by Lamarck, pl. 299. fig. 1. *Cardium ventricosum*. ••1815 Wood: *Cardium ventricosum* Brug. ••1817 Dillwyn: *Cardium ventricosum* Bruguière = *Cardium maculatum* Gmelin. ••1836 Bosc: *Cardium ventricosum*. ••1839 Anton: *Cardium ventricosum* Bruguière = *Cardium maculatum* Gmelin. ••1840 Sowerby, catalogue p. 5, No. 63: *Cardium ventricosum*, Brug. ••1844 Reeve, sp. 20: *Cardium ventricosum* Bruguière in Lamarck [1819] = *Cardium magnum* Born, 1780. ••1849 Roemer: *Cardium ventricosum* Brug. ••1850 Jay: *Cardium ventricosum* Brug. = *Cardium magnum* Born. ••1856 Wood & Hanley, No. 19: *Cardium ventricosum* Brug. ••1869 Römer: *Cardium ventricosum* Bruguière = *Cardium magnum* Born. ••1870 Mörch: *C. ventricosum* Brug. Jonas, junior synonym of *Cardium obliquum* Spgl. = *C. magnum* Born. ••1890 Paetel: *Cardium ventricosum* Brug. = *magnum* Born. ••1902 Dall: *Cardium ventricosum* Bruguière, 1789 = *Cardium robustum* Solander, 1786. ••1921 Maury: *ventricosum* Bruguière, 1789 = *Cardium* (*Cerastoderma*) *robustum* Solander, 1786. ••1902 Sherborn, p. 1035: *Cardium ventricosum* Bruguière, 1789. ••1945 ZR: *Cardium ventricosum* Brug. [Ref. Lamy 1945]. ••1953 Olsson & Harbison: *Cardium ventricosum* Bruguière, 1789 = *Cardium* (*Dinocardium*) *robustum* Solander, 1786. ••1967 Rehder: *Cardium ventricosum* Bruguière, 1789, p. 228 = *Dinocardium robustum* (Lightfoot, 1786). ••1974 Abbott: *Cardium ventricosa* Bruguière, 1789 = *Dinocardium robustum* (Lightfoot, 1786). ••1977 Fischer-Piette: *Cardium ventricosum* Bruguière = *Laevicardium robustum* Solander. – CHARACTERS AND OCCURRENCE – OF COLLECTIONS. ••ZMUC: 2 specimens from Galveston, Texas; 8 shells from St. Anna East Mexico coll. Caspersen 1870 ZMUC: 1 specimen labeled Lond. 1835. REMARKS. ••1939 McLean: *Cardium magnum* Born, 1780 in Reeve (1844 sp. 20) = *Cardium robustum*. DISTRIBUTION. ••1844 Reeve: *C. magnum*: Gulf of Mexico. ••1939 McLean: *C. robustum*: East coast of USA, Mexico. ••ZMUC: *C. ventricosum*: Galveston, Texas, St. Anna East Mexico.
- ventricosum** Hall, 1847. – Replaced by "*Cardium*" *halli*. Deshayes. Combination to be revised. >> Regarding *C. ventricosum*: *Cardiidae*. Silurian. RECORDS. ••1857 Deshayes, p. 49: *Cardium ventricosum* (*Edmondia*). Hall. 1847. – Replaced by *C. halli*. Desh.
- ventricosum** Orbigny, 1843. – New name: "*Cardium*" *insufflatum* Deshayes. Combination to be revised. >> Regarding *C. ventricosum*: *Cardiidae*. Cretaceous. RECORDS. ••1857. Deshayes, p. 49: *Cardium ventricosum*. d'Orb. non Brug. ••1857 Deshayes, p. 59: *Cardium insufflatum* Desh. New name for *Cardium ventricosum* d'Orbigny, 1843. ••1922-32 Sherborn, p. 6843: *Cardium ventricosum* d'Orbigny, 1844. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium ventricosum* d'Orbigny. Senonien. Algeria, B19825.
- ventricosum** Tolmachoff, 1927. – New name: *Conocardium ventriculosum* Branson, 1942. *Conocardiidae*. Paleozoic. RECORDS. ••1927 ZR: *Conocardium ventricosum* Tolmachoff, 1927 sp. n. Palaeozoic Arctic. ••1942 ZR: *Conocardium ventricosum* Branson, 1942 p. 387 Tolmachoff 1926 non Hall 1860 replaced by *Conocardium ventriculosum* nom. nov. Branson, 1942.
- ventriculosum** Branson, 1942. – *Conocardium ventriculosum* Branson, 1942. *Conocardiidae*. Fossil. RECORDS. ••1942 ZR: *Conocardium ventriculosum* nom. nov. Branson, 1942 p. 387, for *Conocardium ventricosum* Tolmachoff 1926 non Hall 1860.
- venusta** Talent, 1963. – *Cypricardinia venusta* Talent, 1963. *Cardiacea*. Devonian. RECORDS. ••1963 ZR: *Cypricardinia venusta* Talent, 1963 sp. nov. Kilgower Member, Tabberabbera Formation, Victoria, Australia, Devonian.
- \*venustum**. – Homonymy to be noticed. *Cardium venustum* from 3 sources: Deshayes, 1858. – Dunker, 1861. – Gabb, 1873.
- venustum** Deshayes, 1858. – Synonym of *Papyridea capsoides* (Bayan, 1873). >> Regarding *Cardium venustum*: *Cardiidae*. Eocene. RECORDS. ••1886 Cossmann: *Cardium venustum* Deshayes = *Papyridea capsoides* (Bayan, 1873). ••1922-32 Sherborn: *Cardium venustum* [In index only. Not located in text]. ••1980 Ruhoff: *Cardium venustum* Deshayes, 1858; [1856-1865] vol. 1: 575, pl. 55, figs. 22-24.
- venustum** Dunker, 1861. – Synonym of *Trigoniocardia medium* (Linné, 1758). >> Regarding *Cardium venustum*: *Cardiidae*. Recent. RECORDS. ••1861 Dunker: *Cardium venustum*. ••1902 Dall: *Cardium venustum* Dunker, 1861 = *Cardium medium* Linnaeus, 1758. ••1939 McLean: *Cardium venustum* Dunker, 1861 = *Trigoniocardia medium* Linné, 1758. ••1977 Fischer-Piette: *Cardium venustum* Dunker = *Corculum medium*

**venustum – verioti**

Linné. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1939 McLean: *C. medium*: North Carolina USA, West Indies, Brazil.

**venustum** Gabb, 1873. – Synonym of *Laevicardium serratum* (Linnaeus, 1758). OTHER JUDGEMENTS: New name *Laevicardium venustum* (Gabb, 1873). >> Regarding *Cardium venustum*: Cardiidae. Neogene. RECORDS. ••1873 Gabb: *Cardium venustum* Gabb, 1873. ••1902 Dall: *Cardium venustum* of Gabb, 1873 (not of Dunker, 1861) = *Cardium serratum* Linnaeus, 1758. ••1922 Pilsbry, p. 421-422, pl. 25, figs. 2, 7: *Cardium (Laevicardium) venustum* Gabb, 1873. ••1925 Woodring, p. 145: *Cardium venustum* Gabb. Dominican Republic. ••1939 McLean: *Cardium venustum* in Gabb, 1873 = *Laevicardium serratum serratum* (Linné, 1758). ••1989 Vokes, p.129: *Laevicardium venustum* (Gabb, 1873) nec Dunker 1861. ••1989 Vokes, p.129: *Cardium venustum* Gabb, 1873 preoccupied name. ••1989 Vokes, p.129: *Laevicardium venustum* (Gabb, 1873) preoccupied name. ••1989 Vokes, p.129: *Cardium venustum* Gabb, 1873 replaced by *Laevicardium venustum* nom. nov. **venzoi** Tavani, 1948. – New combination: *Protocardiavenzoi* Tavani, 1948. Cardiidae. Cretaceous. RECORDS. ••1948 ZR: *Cardium (Protocardia)venzoi* Tavani, 1948 sp. nov. Cretaceous Somaliland.

**Vepricardiini** Kafanov & Starobogatov, 1977 (tribus). – Cardiidae. RECORDS. ••1977 Kafanov et Starobogatov: Vepricardiini. ••1977 ZR: Vepricardiini Kafanov & Starobogatov Tribe nov. of Cardiidae, type genus *Vepricardium* Iredale, 1929. Ref. to Kafanov & Popov p. 62 [Transl. p. 312].

**Vepricardium** Iredale, 1929 (genus). – Cardiidae. Paleocene and Recent. GENOTYPE. *Vepricardium pulchricostatum* Iredale, 1929. Original designation. Recent, Australia. RECORDS. ••1929 ZR: *Vepricardium* gen. n. [type] *pulchricostatum* sp. n. Iredale, 1929a E. Australia. ••1977 ZR: *Vepricardium* Iredale, 1929. Designated type genus for new tribe Vepricardiini Kafanov & Starobogatov. Ref. to Kafanov & Popov p. 62 [Transl. p. 312]. ••1980 Vokes: *Vepricardium* Iredale, 1929 in subfamily Cardiinae. ••1995 Pacaud & Renard: *Vepricardium* Iredale, 1929 in subfamily Cardiinae. ••1998 Schneider: *Vepricardium*. No Paleogene cardiids belong to this genus. ••1999 Higo et al.: *Vepricardium* Iredale, 1929. Type species: *Vepricardium pulchricostatum* Iredale, 1929 (o. d.). ••2000 Vidal, p. 447: *Vepricardium* Iredale, 1929. Type species: *Vepricardium pulchricostatum* Iredale, 1929 = *Vepricardium multispinosum* (Sowerby, 1841). ••2001 Vidal, p. 407: *Vepricardium*. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: shell like *Bucardium* in outline (semicircular) but large. Posterior ribs not digitate, dorsal margins with smooth areas, Rib sculpture of close-set spines. Hinge plate rounding into anterior and posterior margins (Moore et al. 1969, emend. Hylleberg 1994). DESCRIPTIONS. ••1978 Maxwell: the genus *Vepricardium* has nearly equilateral valves with the posterior end well rounded to weakly truncate. ••2000 Vidal: ornaments of the ribs always situated along the posterior flank or on the posterior part of the top, consisting of rounded tubercles or festooned periostracal or calcareous insertions on the juveniles, becoming more or less elaborate

tubercles, spines and lamellae in the adults. Surface of ribs and interstices almost always covered by numerous pustules or tiny acute spines. ••2001 Vidal: tentacles numerous. Eyes on tip of tentacles. ••2002 Schneider: *Vepricardium* has a conical right anterior cardinal tooth that projects horizontally (i.e. into the socket of the hinge of the left valve) a greater distance than the height or width of the tooth. The tooth is directly above the right anterior cardinal socket and does not obscure the socket face. The tip of the right anterior cardinal tooth is sharp, and the right anterior cardinal tooth is not connected to the right posterior cardinal. The 'lunule flap' is strongly folded over the exterior shell surface anterior of the beak, covering the entire lunule, and the lunule flap has several nearly vertical ridges on its surface. The dorsal surface of the nymph is distinctly concave. The posterior end of the nymph has a sharp dorsal extension (nymph flare). The radial ribs are strongly expressed from the ventral margin all the way to the umbo. It has strong, sharp spines with notches on the posterodorsal portion of their spines. The adductor muscle scars are not impressed into the shell. *Vepricardium* has the right caecum located in the middle of the stomach floor. The lengths of the labial palps are more than half the length of the animal. REMARKS. ••2000 Vidal: *Vepricardium* is close to *Trachycardium* s. s., particularly to the subgenus *Dallocalardia* (Vidal 1999), close to *Fulvia* (Vidal 1994) and very close to the group of the Neogene *Cardium multicostatum* Brocchi, 1843 (Vidal 1999). DISTRIBUTION. Europe-Africa-East Indies-Australia.

**Vepricardium** Iredale, 1929 (subgenus). – Cardiidae. Paleocene and Recent. RECORDS. ••1995 Pacaud & Renard: (*Vepricardium*) Iredale, 1929.

**Vepricardium** in Iredale & MacMichael 1962. – Printer's error. RECORDS. ••1962 Iredale & MacMichael, p. 21: *Cardium Vepricardium* Iredale. [*Vepricardium* is not a species].

**vera** Kvaliashvili, 1978. – *Digressodacna vera* Kvaliashvili, 1978. Lymnocardiidae. Pliocene. RECORDS. ••1978 ZR: *Digressodacna vera* Kvaliashvili, 1978 sp. nov. Georgia SSR. Ref. to Kvaliashvili p. 79.

**verbeeki** Martin, 1879. – Combination to be revised: "*Cardium*" *verbeeki* Martin, 1879. Cardiidae. Upper Miocene. TYPE LOCALITY. Tjilangangsch., Java, Indonesia. TYPE REPOSITORY. ?Geologischen Reichs-Museum, Leiden, the Netherlands. RECORDS. ••1919 Martin: *Cardium verbeeki* Mart.

**verecunda** Papaianopol, 1978. – *Caladacna verecunda* Papaianopol, 1978. Lymnocardiidae. Upper Miocene. RECORDS. ••1978 ZR: *Caladacna verecunda* sp. nov. Romania. Ref. to Papaianopol, I. p. 138. fig'd.

**verecunda** Papaianopol, 1981. – *Pontalmyra verecunda* Papaianopol, 1981. Lymnocardiidae. Upper Miocene. RECORDS. ••1981 ZR: *Pontalmyra (Crassadacna) verecunda* sp. nov. Romania. Ref. to Papaianopol, p. 41.

**\*verioti**. – Homonymy to be noticed. *Cardium verioti* from 2 sources: Buvignier, 1852. – Loriol & Cotteau, 1867.

**verioti** Buvignier, 1852. – Combination to be revised: "*Cardium*" *verioti* Buvignier, 1852. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium verioti* Buvignier, 1852; atlas p. 16, pl. 16, figs. 1-5.

**verioti** Loriol & Cotteau, 1867. – Combination to be

## verneuili – vicksburgense

- revised: "*Cardium*" *verioti* Loriol & Cotteau, 1867. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium verioti* Loriol & Cotteau, 1867; vol. 21: 561, pl. 9, f. 8.
- verneuili** Deshayes, 1838. – Combination to be revised: "*Cardium*" *verneuili* Deshayes, 1838. *Cardiidae*. Miocene. RECORDS. ••1886 Fischer: *Cardium verneuili* Deshayes. ••1922-32 Sherborn, p. 6860: *Cardium verneuili* Deshayes, 1838. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium verneuilli(i)*. URSS, the Crimean, B32855, -6.
- verneuilianum** d'Orbigny, 1845. – Combination to be revised: "*Cardium*" *verneuilianum* d'Orbigny, 1845. *Cardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 6861: *Cardium verneuilianum* d'Orbigny, 1845.
- verrucosa meridionalis** Strougo, 1976. – *Acanthocardia verrucosa meridionalis* Strougo, 1976. *Cardiidae*. Upper Eocene. RECORDS. ••1976 ZR: *Acanthocardia (Agnocardia) verrucosa meridionalis* Strougo, 1976 subsp. nov. Egypt, Maadi. Ref. to Strougo, p. 106.
- \*verrucosum**. – Homonymy to be noticed. *Cardium verrucosum* from 2 sources: Deshayes, 1829. – Andrzejoswky, 1835.
- verrucosum** Andrzejoswky 1835. – Replaced by "*Cardium*" *podolicum* Deshayes. Combination to be revised. >> Regarding "*C.*" *verrucosum*: *Cardiacea*. Fossil. RECORDS. ••1857. Deshayes, p. 49: *Cardium verrucosum*. Andr. 1835. – Replaced by *C. podolicum*. Desh.
- verrucosum** Deshayes, 1829. – Changed combination: *Freneixicardia verrucosum* (Deshayes, 1829). OTHER JUDGEMENTS: *Cardium asperulum* Brongniart. >> Regarding *Cardium verrucosum*: *Cardiidae*. Eocene of France. Eocene of Egypt, and Rupelian (Lower Oligocene) of Italy. RECORDS. ••1829 Deshayes: *Cardium verrucosum*. Lutetian (Middle Eocene) (*vide* Schneider 2002). ••1835 Lamarck: *Cardium verrucosum* Desh. = *C. asperulum* Brongniart non Lamarck. ••1857. Deshayes, p. 49: *Cardium verrucosum* Deshayes, 1830 sic. ••1886 Cossmann: *Cardium verrucosum* Deshayes. ••1922-32 Sherborn, p. 6865: *Cardium verrucosum* Deshayes, 1829. ••1977 Popov: *Bucardium (Vepricardium) verrucosum*. *Bucardium (Agnocardia) verrucosum* (Deshayes, 1829). ••1995 Le Renard *et al.*: *Vepricardium (s. str.) verrucosum [Cardium verrucosum]* Deshayes, 1829. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Trachycardium verrucosum* Deshayes. Lutetian. France (Bassin de Paris). ••2002 Schneider: *Freneixicardia verrucosa* (Deshayes, 1829).
- verruculosum** Deshayes. – Combination to be revised: "*Cardium*" *verruculosum* Deshayes. *Cardiidae*. Fossil. RECORDS. ••1839 Anton: *Cardium verruculosum* Deshayes.
- vertebratum** Jonas, 1844. – *Vasticardium vertebratum* (Jonas, 1844). OTHER JUDGEMENTS: *Laevicardium flavum* Linnaeus auctorum. – Not a synonym. >> Regarding *Cardium vertebratum*: *Cardiidae*. Recent. HABITAT. 8-10 fathoms (Melvill & Standen 1906). DISTRIBUTION. Australia (Grasset 1884); Red Sea, Australia (Hylleberg 1994). RECORDS. ••1844 Jonas, p. 33: *Cardium vertebratum*. ••1858 Adams & Adams, p. 454: *Cardium (Pectunculus) vertebratum* Jonas. ••1867 Mitchell:
- Cardium vertebratum* Jonas. ••1870 Mörch: *C. vertebratum* Jonas junior synonym of *Cardium flavum* L. ••1872 Tryon: *Cardium vertebratum* Jonas. ••1884 Grasset: *Cardium vertebratum*. Rv. ••1890 Paetel: *Cardium vertebratum* Jon. ••1906 Melvill & Standen, p. 837: *Cardium (Trachycardium) vertebratum* Jonas. ••1922-32 Sherborn, p. 6873: *Cardium vertebratum* Jonas, 1844. ••1928 Melvill: *Cardium vertebratum* Jonas. ••1977 Fischer-Piette: *Cardium vertebratum* Jonas = *Laevicardium flavum* Linné auctorum. ••1992 Oliver: *Trachycardium vertebratum*. ••1997 Vidal: *Vasticardium vertebratum* (Jonas, 1844). ••1999 Vidal: *Vasticardium vertebratum* (Jonas, 1844).
- verveceum** Loriol, 1868. – Changed combination: *Protocardia verveceum* Loriol, 1868. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium verveceum* Loriol, 1868; ser. 4: 28, pl. 2, fig. 6. ••1958 ZR: *Protocardia vervecea* from the Cretaceous Arzier, Swiss Jura, a re-description [Ref. Roessinger 1958].
- veselinovici** Brusina. – New combination: *Lymnocardium veselinovici* (Brus.). *Lymnocardiidae*. Fossil. RECORDS. ••1987 Taktakishvili: *Limnocardium veselinovici* Brus.
- veslense** Staadt in Cossmann & Pissarro, 1913. – *Parvicardium veslense* Staadt in Cossmann & Pissarro, 1913. *Cardiidae*. Fossil. RECORDS. ••1992 Renard: *Cardium (Plagiocardium) veslense* Staadt in C. & P., 1913: pl. LXIII fig. 69-30. ••1995 Le Renard *et al.*: *Parvicardium veslense [Cardium veslense]* Staadt in Cossmann & Pissarro, 1913. ••1995 Pacaud & Renard: *Parvicardium veslense*.
- vesta** Rigaux & Sauvage, 1868. – Combination to be revised: "*Cardium*" *vesta* Rigaux & Sauvage, 1868. *Cardiidae*. Fossil. RECORDS. ••1980 Ruhoff: *Cardium vesta* Rigaux & Sauvage, 1868, vol. 3: 74, pl. 6, figs. 15-16.
- vetustum** Papaianopol, 1984. – *Dacicardium vetustum* Papaianopol, 1984. *Lymnocardiidae*. Upper Miocene. RECORDS. ••1984 ZR: *Dacicardium vetustum* sp. nov. Romania. Ref. to Papaianopol p. 75.
- vexatum** – *Conocardium vexatum*. *Conocardiidae*. Fossil. RECORDS. ••1889 ZR: *Conocardium vexatum* with fig. [Ref. Barrois].
- viatorium** Olsson, 1964. – *Laevicardium viatorium* Olsson, 1964. *Cardiidae*. Neogene. RECORDS. ••1964 ZR: *Laevicardium viatorium* Olsson, 1964 sp. nov. Esmeraldas formation, Neogene, Punta Gorda, Ecuador.
- vicaryi** Palmer, 1973. – *Protocardia vicaryi* Palmer, 1973. *Cardiidae*. Lower Cretaceous. RECORDS. ••1973 ZR: *Protocardia vicaryi* Palmer, 1973 sp. nov. England, Devon, Haldon Hills p. 176. Ref. to Palmer.
- vicinum** Fuchs, 1870. – *Euxinocardium vicinum* (Fuchs, 1870). *Lymnocardiidae*. Fossil. RECORDS. ••1987 Anaya: *Euxinocardium vicinum* Fuchs. ••1987 Taktakishvili: *Limnocardium vicinum* (Fuchs). ••1991 Müller & Magyar: *Lymnocardium vicinum* (Fuchs 1870).
- vicksburgense** Conrad, 1847. – Combination to be revised: "*Cardium*" *vicksburgense* Conrad, 1847. *Cardiidae*. Fossil. RECORDS. ••1857 Deshayes: *Cardium vicksburgensis*. ••1922-32 Sherborn, p. 6896: *Cardium vicksburgense* Conrad, 1847. ••1982 ZR: *Cardium vicksburgense* Conrad 1848. Neotype designated. Ref.

**victor – villeneuvianum**

to Dockery, p. 74.

**victor** Angas, 1872. [Figs. Part 3 p. 904]. – Changed combination: *Ctenocardia victor* (Angas, 1872). Cardiidae. Recent. TYPE LOCALITY. Mauritius. TYPE REPOSITORY. Holotype, BMNH reg. no. 1872.5.18.3 (Wilson & Stevenson 1977). RECORDS. ••1872 Angas, p. 612, pl. 42, fig. 9: *Cardium victor*. ••1872 ZR: *Cardium (Ctenocardia) victor* sp. n. Angas, 1872. Mauritius. ••1880 Martens: *Cardium victor* Angas. The lunule is conspicuously different in the R and L valves. The species stands rather isolated among cardiids, is, however, somewhat related to *C. multispinosum* Sow., *fimbriatum* Wood and *asiaticum* Desh. ••1890 Paetel: *Hemicardium (Fragum) victor* Ang. ••1904 Smith: *Cardium (Ctenocardia) victor*. ••1909 Melvill: *Cardium (Ctenocardia) victor* Angas. ••1932 Prashad: *Cardium (Ctenocardia) victor*. ••1937 Viader: *Cardium victor*, Angas. ••1946 Abrard: *Cardium (Ctenocardium) victor* Angas. ••1977 Fischer-Piette: *Corculum (Ctenocardia) victor* Angas. ••1977 Wilson & Stevenson: “*Cardium*” *victor* Angas, 1872; must remain in doubt. ••1977 Wilson & Stevenson: *Cardium (Ctenocardia) victor* Angas, 1872. ••1988 Drivas & Jay: *Ctenocardia victor* (Angas, 1872). ••1990 Abbott & Dance: *Ctenocardia victor*. ••1991 Matsukuma, Okutani & Habe: *Ctenocardia victor* (Angas, 1872). ••1992 Lamprell & Whitehead: *Ctenocardia (Ctenocardia) victor*. ••1999 Higo *et al.*: *Ctenocardia victor* (Angas, 1872). ••2001 Vidal, p. 408: *Ctenocardia victor*. – CHARACTERS AND OCCURRENCE – CHARACTERS of diagnostic value: shell squarish, inflated, 41–52 strong ribs armed with long pointed dorsally recurved spines which are longer at the keel; interstices and intermediate ribs with fine arcuate sculpture. DESCRIPTIONS. ••1977 Wilson & Stevenson: shell quadrate, umbo approximately central, touching, prosogyrate. Angled umbonal keel marks posterior slope, anterior and ventral margins rounded, posterior margin nearly straight with pointed serration, anterior and ventral margins with truncated serration. Lunule ovate with 2 spinose ribs in each valve; escutcheon long, narrow, slightly wider in right valve, single spinose rib in each valve. Ribs 48 (41–52) Anterior to umbonal keel, each 2<sup>nd</sup> or 3<sup>rd</sup> rib bears long, pointed spines which curve dorsally. At anterior end spines thicker, shorter and dorso-ventrally flattened at their ends. Longest spines on ribs along the keel. Ribs on posterior slope with short, fine, pointed spines. Interstices and spineless median ribs with numerous thin and fragile concentric lamellae, some of which run up and coalesce on sides of spines. Hinge line sinuous. Laterals approximately equidistant from umbo. LV; anterior cardinal very strong, long pointed and curved dorsally, separated by deep cleft from the weak, low and pointed posterior cardinal. Laterals: One large anterior and one + one, weak posterior teeth. RV; anterior cardinal small and joined by saddle with large, pointed, dorsally curved posterior cardinal. Anterior laterals: one + one, ventral tooth large, truncated, curved from shell cavity; dorsal tooth weak. One large posterior dorsal tooth. ••2001 Vidal: only the exhalant aperture is tube-shaped. Inhalant siphon open towards the foot aperture. No eyes. DIMENSIONS. ••1988 Drivas & Jay: ant.-post. 42.5 mm, umbo-ventr. 57 mm. REMARKS. ••1909: Melvill obtained a large and fine specimen,

peculiarly oblique in form, which might be characterised as var. *pulcherrima*. HABITAT. ••1904 Smith: 3 fathoms, off south coast of Ceylon. ••1988 Drivas & Jay: Réunion, western Indian Ocean, in 60–80 m depth. ••1909 Melvill: 28–30 fathoms, coral-rock-rubble, broken shell, to a depth of 78 fathoms. ••1999 Higo *et al.*: 10–100 m, sand. DISTRIBUTION. ••1994 Hylleberg: East Africa, Japan, Australia. ••1999 Higo *et al.*: Okinawa islands and southwards, Philippines, southeast Asia, northern Australia.

**victor pulcherrima** Melvill, 1909 (variety). No evidence of subspecific status. Identical with *Ctenocardia victor* (Angas, 1872). >> Regarding *Cardium victor* var. *pulcherrima*: Cardiidae. Recent. TYPE LOCALITY. Providence, western Indian Ocean, 50–78 fathoms (Melvill 1909). REMARKS. Melvill(1909) obtained a large and fine specimen, peculiarly oblique in form, which might be characterised as var. *pulcherrima*. RECORDS. ••1909 Melvill, p. 135: *Cardium (Ctenocardia) victor* Angas var. *pulcherrima*.

**victoriae** Tate, 1887. – Combination to be revised: “*Cardium*” *victoriae* Tate. Cardiidae. Eocene. RECORDS. ••1897 Harris: *Cardium victoriae* Tate, 1887. ••1903 Dennant & Clark: *Cardium victoriae* Tate.

**vidali** Cossmann & Peyrot, 1911. – Changed combination: *Acanthocardia vidali* (Cossmann & Peyrot, 1911). Cardiidae. Neogene. RECORDS. ••1911 ZR: *Cardium vidali* Cossmann & Peyrot, 1911 sp. n. France. Neogene. ••1977 Popov: *Acanthocardia (Acanthocardia) vidali* (Cossmann & Peyrot, 1911).

**vidali** Poorten & Dekker, 2002. – *Vepricardium vidali* Poorten & Dekker, 2002. Cardiidae. Recent. RECORDS. ••2002 Poorten & Dekker: *Vepricardium vidali* spec. nov.

**viennensis** Papp, 1953. – *Monodacna viennensis* Papp, 1953. Lymnocardidae. Fossil. RECORDS. ••1956 ZR: *Monodacna viennensis* Papp, 1953 sp. nov.

**Vietnamicardium** Vu-Khuc, 1977 (genus). – Synonym of *Tulongocardium*. >> Regarding *Vietnamicardium*: Cardiidae. Fossil. RECORDS. ••1980 Vokes: *Vietnamicardium* Vu-Khuc, 1977. Fossil. ••1977 ZR: *Vietnamicardium* gen. nov. of Cardiidae. Type species *Cardium vietnamicum* Vu-Huc 1965, Upper Triassic. Ref. to Vu-Huc, D. p. 678. ••1995 Schneider: *Vietnamicardium* Scott, 1978 Cretaceous. ••1995 Schneider: *Vietnamicardium* synonymized with *Tulongocardium* since there are no autapomorphies (characters unique to a taxon) to distinguish the two genera. ••1995 Schneider: *Vietnamicardium* type species *V. vietnamicum* Vu-Khuc in Vu-Khuc *et al.* 1965

**vietnamicum** Vu-Huc, 1965. – *Vietnamicardium vietnamicum* (Vu-Huc, 1965). Cardiidae. Upper Triassic. RECORDS. ••1976 Ma *et al.* p. 256: *Cardium vietnamicum* Vukhuc, 1965. ••1977 ZR: *Cardium vietnamicum* Vu-Huc, 1965. Designated type species for new genus *Vietnamicardium*. Ref. to Vu-Huc, D. p. 678. ••1995 Schneider: *Vietnamicardium* type species *V. vietnamicum* Vu-Khuc in Vu-Khuc *et al.* 1965.

**vigeni** Bagdasaryan, 1979. – *Sarmaticardium vigeni* Bagdasaryan, 1979. Cardiacea. Upper Miocene. RECORDS. ••1979 ZR: *Sarmaticardium vigeni* Bagdasaryan, 1979. Sp. nov. Ukraine. Ref. to Bagdasaryan, p. 41.

**villeneuvianum** Matheron, 1843. – Combination to be

*villicum* – *virginium*

- revised: "*Cardium*" *villeneuvianum* Matheron, 1843. *Cardiidae*. Cretaceous. RECORDS. ••1922-32 Sherborn, p. 6903: *Cardium villeneuvianum* Matheron, 1843. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium villeneuvianum* Matheron. Senonien. France, S09263, -4, B17626.
- villicum*** Papaianopol, 1982. – New combination: *Limnocardium villicum* Papaianopol, 1982. *Lymnocardidae*. Upper Miocene. TYPE LOCALITY. Pontien et Dacien. Basin Dacique, Romania. RECORDS. ••1982 Papaianopol, p. 194, fig.: *Limnocardium (Euxinocardium) villicum* sp. nov.
- villmarensis*** d'Archiac & Verneuil, 1842. – Changed combination: *Conocardium villmarensis* d'Orbigny, 1850. *Conocardiidae*. Fossil. RECORDS. ••1922-32 Sherborn, p. 6904: *Cardium villmarensis* d'Archiac & Verneuil, 1842. ••1922-32 Sherborn, p. 6904: *Conocardium* (A & V) *villmarensis* d'Orbigny, 1850. – *Cardium villmarensis*.
- viminea*** (mode). – See under *vimineum* Martyn.
- vimineum*** Martyn, 1784. *Non* binominal. – Not available. RECORDS. ••1784 Martyn, p. 50, pl. 47, fig. 3: *Cardium viminea*. ••1858 Adams & Adams, p. 455: *Cardium (Trachycardium) vimineum* Mart. ••1869 Dunker, p. 112: *Cardium vimineum* sic (*fide* Fischer-Piette 1977). ••1890 Paetel: *Cardium vimineum* Mrts. ••1977 Fischer-Piette, p. 155: *Cardium vimineum* sic = species insufficiently known. – CHARACTERS AND OCCURRENCE. – DISTRIBUTION. China.
- vincenti*** Cossmann, 1891. – Combination to be revised: "*Cardium*" *vincenti* Cossmann, 1891. *Cardiidae*. Oligocene. RECORDS. ••1891 ZR: *Cardium vincenti*. Oligocene of Etampes [Ref. Cossmann 1891].
- vinculum*** Papaianopol, 1982. – New combination: *Limnocardium vinculum* Papaianopol, 1982. *Lymnocardidae*. Upper Miocene. TYPE LOCALITY. Pontien et Dacien. Basin Dacique, Romania. RECORDS. ••1982 Papaianopol, p. 183, fig.: *Limnocardium (Euxinocardium) vinculum* sp. nov.
- vindinense*** d'Orbigny, 1844. – Combination to be revised: "*Cardium*" *vindinense* d'Orbigny, 1844. *Cardiidae*. Fossil. RECORDS. ••1871 Stoliczka, 30: *C. vindinense (Acanthocardium)* sic. ••1922-32 Sherborn, p. 6911: *Cardium vindinense* d'Orbigny, 1844.
- vindobonense***. – Homonymy to be noticed. *Cardium vindobonense* from 3 sources: Hoernes in Partsch, 1848. – Schwetz, 1913. – Possibly Laskarev (?year).
- vindobonense*** Hoernes in Partsch, 1848. – Combination to be revised: "*Cardium*" *vindobonense* Partsch. *Cardiidae*. Miocene. RECORDS. ••1922-32 Sherborn, p. 6911: *Cardium vindobonense* M. Hoernes (ex Partsch MS), 1848. ••1965 ZR: *Cardium vindobonense* figd. Sarmatian, Yugoslavia [Ref. Spajic 1965]. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium vindobonense* Partsch. Austria; former Czechoslovakia. B31085, B31396.
- vindobonensis*** Laskarev. – Changed combination: *Cerastoderma vindobonensis* (Laskarev). *Cardiidae*. Miocene. RECORDS. ••1998 Schultz: *Cerastoderma vindobonensis vindobonensis* (Laskarev).
- vindobonense*** Schwetz, 1913. – Combination to be revised: "*Cardium*" *vindobonense* Schwetz, 1913. *Cardiidae*. Tertiary. RECORDS. ••1913 ZR: *Cardium vindobonense* Schwetz, 1913 sp. n. Tertiary, Kertsch.
- vindobonense breviformis*** Papp, 1954 – Combination to be revised: "*Cardium*" *vindobonense breviformis* Papp, 1954. *Cardiidae*. Sarmatian. RECORDS. ••1949 ZR: *Cardium vindobonense breviformis* 'n. sp.' [nomen nud.] [Ref. Papp 1949]. ••1954 ZR: *Cardium vindobonense breviformis* Papp, 1954 subsp. nov. Sarmatian, Vienna. ••1965 ZR: *Cardium vindobonense breviformis* figd. Sarmatian, Yugoslavia [Ref. Spajic 1965].
- vindobonense jekeliusi*** Papp, 1954. – Combination to be revised: "*Cardium*" *vindobonense jekeliusi* Papp, 1954. *Cardiidae*. Sarmatian. RECORDS. ••1949 ZR: *Cardium vindobonense jekeliusi* 'n. sp.' [nomen nud.] [Ref. Papp 1949]. ••1954 ZR: *Cardium vindobonense jekeliusi* Papp, 1954 subsp. nov. Sarmatian, Vienna. ••1965 ZR: *Cardium vindobonense jekeliusi* figd. Sarmatian, Yugoslavia [Ref. Spajic 1965].
- violacea*** Martyn, 1784. *Non* binominal. – Not available. Not a cardiid. RECORDS. ••1784 Martyn: *Cardium violacea*.
- viquesneli*** Pavlovic, 1929. – New combination: *Limnocardium viquesneli* Pavlovic, 1929. *Lymnocardidae*. Pontian. RECORDS. ••1928 ZR: *Limnocardium viquesneli* [Ref. Pavlovitch 1928]. ••1929 ZR: *Limnocardium viquesneli* Pavlovic, 1929 sp. n. Pontian Serbia.
- virescens*** Gmelin, 1791. – Not a cardiid. RECORDS. ••1742 Gualtieri, pl. 84, fig. A: Concha cordiformis. ••1742 Gualtieri. ID by Gmelin 1791: *Cardium virescens* t. 84. f. A. ••1791 Gmelin, p. 3256, No. 48.: *Cardium virescens*. ••1815 Wood: *Cardium virescens* L. ••1815 Wood: *Cardium virescens* Linn. Gmel., inside silverish. ••1817 Dillwyn: *Cardium virescens* Gmelin should be ignored. ••1828 Wood: *Cardium virescens* Gmelin. ••1856 Wood & Hanley, No. 46: *Modiola virescens* Gmel. 3256, from Gualt. 84, f. A. (= *M. marmorata*, Forbes). Execrable copy. ••1902 Sherborn, p. 1050: *Cardium virescens* Gmelin, 1790 sic. ••1977 Fischer-Piette: *Cardium virescens* Gmelin = species insufficiently known. – CHARACTERS AND OCCURRENCE – REMARKS. ••1977 Fischer-Piette: Gmelin referred to Gualtieri, but the illustrated species has silvery interior surface. This character was also mentioned by Wood. ••1856. Wood & Hanley: since silvery coatings do not occur in cardiids, the species *virescens* must belong to another family. DISTRIBUTION. Britain &c.
- virgatum*** Papaianopol, 1982. – New combination: *Limnocardium virgatum* Papaianopol, 1982. *Lymnocardidae*. Pliocene. TYPE LOCALITY. Pontien et Dacien. Basin Dacique, Romania. RECORDS. ••1982 Papaianopol, p. 197, fig.: *Limnocardium (Euxinocardium) virgatum* sp. nov.
- virginium*** Linné, 1758. – *Fulvia aperta* (Bruguière, 1789). OTHER JUDGEMENTS: *Fulvia bullata* (Linnaeus, 1758). – *Cerastoderma glaucum* (Bruguière, 1789). – Dubious species. – Genus *Maetra*. >> Regarding *Cardium virginium*: Recent. TYPE LOCALITY. Mediterranean (Smith 1945). TYPE REPOSITORY. Unknown. RECORDS. ••1758 Linné, p. 682, No. 81: *Cardium virginium*. ••1767 Linné, p. 1124, No. 93: *Cardium virginium* Linné. ••1786 Schröter, No. XXI:

***virineum beta* – *virile***

- Cardium virineum*. Linn. XII. pag. 1124. Spec. 93. ••1791 Gmelin, p. 3253, No. 25: *Cardium virineum* Linné. ••1789 Bruguière, dubious species, p. 235. *Cardium virineum* Linn. pag. 1124, num. 93. ••1815 Wood: *Cardium virineum* L. is a doubtful species completely confused by Gmelin. ••1815 Wood: *C. virineum* of Linné agrees with *Cardium glaucum*, except that longitudinal ribs are wanting in *virineum*. ••1817 Dillwyn: *Cardium virineum* Linnaeus = *Cardium glaucum* Poiret. ••1850 Jay: *Cardium virineum* Gmel. = *Cardium rugatum* Gron. ••1855 Hanley: *Cardium virineum* Linné. ••1869 Römer: *Cardium virineum* L. ed. X, N. 81, is a *Mactra*. ••1902 Sherborn, p. 1052: *Cardium virineum* Linnaeus, 1758. ••1926 ZR: *Cardium virineum* Lin. [Ref. Salisbury & Woodward 1926]. ••1945 Smith: *Cardium virineum* Linné, 1758; Gmelin 1790, p. 3253 syn. = *Fulvia bullata* Linné. ••1952 Dodge: *Cardium virineum* Linné. ••1977 Fischer-Piette: *Cardium virineum* Linné. ••1994 Vidal: ?*Cardium virineum* Linné, 1758 = *Fulvia (Fulvia) aperta* (Bruguière, 1789). – CHARACTERS AND OCCURRENCE – REMARKS. ••1977 Fischer-Piette: Dodge (1952) stated that the name *virineum* cannot be retained owing to the vagueness of its diagnosis, but “that the shell known as *Cardium apertum (Fulvia aperta)* is probably the species which Linnaeus described, and that the latter is not a synonym of *Solen bullatus* Linné”.
- virineum beta*** Gmelin, 1791 (variety). [Figs. Part 1 p. 135]. – Synonym of *Fulvia aperta* (Bruguière, 1789). OTHER JUDGEMENTS: *Fulvia bullata* (Linnaeus, 1758). – *Cardium rugatum* Gronovius, 1781 [not available]. >> Regarding *Cardium virineum* var. *B*: *Cardiidae*. Recent. TYPE LOCALITY. Indian and American Oceans. RECORDS. ••1781 Gronovius zoop. t. 18. f. 5. ID by Gmelin 1791: *Cardium virineum* var. *beta*. ••1782 Chemnitz. ID by Gmelin 1791: *Cardium virineum* var. *beta* t. 18. f. 181. ••1791 Gmelin No. 25: *Cardium virineum* var. *B*. ••1817 Dillwyn: *Cardium virineum* var. *beta* Gmelin = *Cardium rugatum* Gronovius. ••1839 Anton: *Cardium virineum* var. *b*. Gmelin = *Cardium apertum* Chemnitz. ••1844 Reeve: *Cardium virineum* var. *B*. Gmelin, 1791 = *Cardium rugatum* Gronovius, 1781. ••1874 Lischke: *Cardium virineum* var. *beta*. Gmelin = *Cardium rugatum* Meuschen, 1781. ••1945 Smith: *Cardium virineum* var. *beta* Chemnitz, 1782 syn. = *Fulvia bullata* Linné. ••1977 Wilson & Stevenson: *Cardium virineum* var. *B*. Gmelin, 1791 = *Fulvia aperta* (Bruguière, 1789). ••1979 Richardson et al.: *Cardium virineum* var. *B* Gmelin, 1791 = *Fulvia aperta* (Bruguière, 1789).
- virginiana*** Conrad, 1864. – *Protocardia virginiana* Conrad, 1864. *Cardiidae*. Recent. RECORDS. ••1980 Ruhoff: *Protocardia virginiana* Conrad, 1864; p. 211.
- virginianum*** Conrad, 1839. – Changed combination: *Planicardium virginianum* (Conrad, 1839). Neogene. *Cardiidae*. Type species of *Planicardium* Olsson (1967). Classifications according to Schneider (2202): *Cardium (Cerastoderma) virginianum*, section *Cerastoderma* (Dall 1900, Mansfield 1932). *Cerastoderma virginianum* (Gardner 1944). *Planicardium virginianum* (Campbell et al. 1975. Stanley 1986). *Chesacardium virginianum* (Ward 1992). RECORDS. ••1863 Conrad: *Cardium (Cerastoderma) virginianum* Conrad, 1839. (*vide* Schneider 2002). ••1922-32 Sherborn, p. 6930: *Cardium virginianum* Conrad, 1838. ••2002 Schneider: *Planicardium virginianum* (Conrad, 1839).
- virgo*** Reeve, 1845. [Figs. Part 1 p. 144]. – New name and changed combination: *Ctenocardia perornata* (Iredale, 1929). OTHER JUDGEMENTS: *Cardium fornicatum* Sowerby, 1840. >> Regarding *Cardium virgo*: TYPE LOCALITY. ••1999 Higo et al.: none designated. TYPE MATERIAL. ••1977 Wilson & Stevenson: not located. *Cardiidae*. Recent. RECORDS. ••1845 Reeve: *Cardium virgo*. ••1858 Adams & Adams, p. 459: *Hemicardia (Ctenocardia) virgo* Reeve. ••1884 Grasset: *Hemicardium virgo*. Rv. ••1890 Paetel: *Hemicardium virgo* Rv. ••1909 Lyngge: *Cardium virgo* Reeve, 1845 = *Cardium fornicatum* Sowerby, 1840. ••1922-32 Sherborn, p. 6931: *Cardium virgo* Reeve, 1845. ••1977 Fischer-Piette, No. 142: *Cardium virgo* Reeve = *Cardium fornicatum* Sowerby. ••1977 Wilson & Stevenson, p. 26: *Cardium virgo* Reeve, 1845; has been renamed *Ctenocardia perornata* (Iredale, 1929). ••1992 Lamprell & Whitehead: *Ctenocardia (Ctenocardia) virgo*. ••1999 Higo et al.: *Ctenocardia virgo* (Reeve, 1845). ••2003 Hylleberg & Kilburn, p. 177: *Ctenocardium virgo* (Reeve) = *Ctenocardia perornatum* (Iredale, 1929). – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1845 Reeve: shell somewhat square heart-shaped, posteriorly concavely angulated, radiately ribbed, ribs about 38 in number, narrow, compressed, very closely scaled, middle ribs with the scales more erect, interstices between the ribs transversely elevately striated, pure snowy white without, blood-red within. ••Of authors: shell rounded squarish, thick, anterior end rounded, posterior slope angulated, concave; 38 ribs very closely scaled, middle ribs with the scales more erect, interstices transversely striped. Colour white, internally and externally, but yellow or rose colours may occur centrally and posteriorly internally. Shell length to 35 mm. REMARKS. ••1845 Reeve: Care should be taken not to mistake this very delicate and beautiful shell for a white variety of the *Cardium hystrix*, to which it is most nearly allied. ••1977: Wilson & Stevenson: *C. virgo* Reeve and *C. fornicata* Sowerby are conspecific. However, the type illustration and descriptions given by Reeve (1845) are close to *perornata* Iredale (= *C. imbricatum* Sowerby), and certainly do not match the species *C. fornicata* which is an easily identifiable species that should not be confused with any other cockle. HABITAT. ••1999 Higo et al.: 10-80 m, mud and sand. DISTRIBUTION. ••1845 Reeve: unknown. ••1884 Grasset: China. ••1992 Lamprell & Whitehead: Northern to North Western Australia. ••1994 Hylleberg: Indo-Pacific, Australia. ••1999 Higo et al.: Taiwan and southwards, Philippines, South China Sea, Beibu gulf, Hainan, Thailand, Australia.
- virgulata*** Martyn, 1784. *Non* binominal. – Not available. Not a *cardiid*. RECORDS. ••1784 Martyn: *Cardium virgulata*.
- virile*** Dall, 1898. – Changed combination: *Trachycardium virile* (Dall, 1898). *Cardiidae*. Oligocene. RECORDS. ••1898 Dall: *Cardium (Trachycardium) virile* Dall, 1898 n. sp. ••1977 Vokes: “*Trachycardium*” *virile* (Dall)

**virmineum** (error). – Printer's mistake for *vimineum* Martyn in Fischer-Piette 1977.

**visterniceniensis** Gillet, 1938. – New combination: *Lymnocardium visterniceniensis* Gillet, 1938. Lymnocardiidae. Miocene. RECORDS. ••1939 ZR: *Lymnocardium visterniceniensis* Gillet, 1938 sp. n. Sarmatian [Miocene] Roumania.

**visternicense chisinau** Simionescu & Barbu, 1940 (forma). – Upgraded. New combination: *Lymnocardium visternicense chisinau* Simionescu & Barbu, 1940. Cardiidae. Sarmatian. RECORDS. ••1946 ZR: *Cardium visternicense* n. f. *chisinau* Simionescu & Barbu, 1940 Sarmatian fossil, Rumania.

**vitellinum** Reeve, 1844. [Figs. Part 1 p. 130. Part 3 p. 930]. – Synonym of *Laevicardium crassum* (Gmelin, 1791). OTHER JUDGEMENTS: *Cardium laevigatum* Pennant. – *Cardium oblongum* Chemnitz [not available]. – *Cardium norvegicum* Spengler, 1799. – *Laevicardium brasilianum* (Lamarck). >> Regarding *Cardium vitellinum*: Cardiidae. Recent. TYPE REPOSITORY. 3 syntypes. 1978126. BMNH London. TYPE LOCALITY. Unknown (Reeve 1844). RECORDS. ••1844 Reeve, p. 168: *Cardium vitellinum*. ••1844 Reeve, Conch. Icon. sp. 37: *Cardium vitellinum*. ••1856 Wood & Hanley: *C. vitellinum* Reeve I. Car. f. 37 = *Cardium laevigatum* Penn. ••1858 Adams & Adams, p. 457: *Laevicardium vitellinum*, Reeve. ••1867 Hidalgo: *Cardium vitellinum*, Reeve (juv., 1844, fig. 37) = *Cardium oblongum* Chemnitz. ••1867 Weinkauff: *Cardium vitellinum* Reeve = *Cardium norvegicum* Spengler. ••1868 ZR: *Cardium vitellinum* = *Cardium norvegicum* (Spengl.) = *Cardium laevigatum* of Pennant not Linné [Ref. Römer 1868]. ••1869 Römer: *Cardium vitellinum* Reeve fig. 37 = *Cardium norvegicum* Spengler. ••1888 Kobelt: *Cardium vitellinum* Reeve = *Cardium norvegicum* Spengler. ••1889 Martens: *Cardium vitellinum* Reeve (p. 13: Kap Verden, Bonavista, 86 m, coarse sand). ••1890 Paetel: *Laevicardium vitellinum* Rv. ••1912 Dautzenberg & Fischer: *Cardium vitellinum* Reeve 1844 = *Cardium* (*Laevicardium*) *norvegicum* Spengler 1799. ••1917 Hidalgo: *Cardium vitellinum* Reeve = *Cardium norvegicum* Spengler. ••1922-32 Sherborn, p. 6954: *Cardium vitellinum* Reeve, 1844. ••1953 Olsson & Harbison: *Laevicardium vitellinum* (Reeve, 1844). ••1958 Abbott: *Laevicardium vitellinum* Reeve (in Olsson and Harbison 1953). ••1969 Work: *Laevicardium vitellinum* (Reeve, 1843) in Olsson & Harbison 1953: 107 = *Laevicardium laevigatum* (Linnaeus, 1758). ••1977 Popov: *Laevicardium vitellinum* (Reeve, 1845). ••1977 Fischer-Piette: *Cardium vitellinum* Reeve = *Laevicardium brasilianum* Lamarck. ••1977 Fischer-Piette: *Laevicardium vitellinum* Rve in Hall & Standen 1907 = *Laevicardium crassum* Gmelin. ••1977 Fischer-Piette, p.12: *Cardium vitellinum* Rve in Martens 1889 = *Laevicardium crassum* Gmelin. – CHARACTERS AND OCCURRENCE – DESCRIPTIONS. ••1844 Reeve, sp. 37: shell obliquely ovate, rather thin, radiately striated; yellowish white, copiously freckled with numerous small pinkish-brown spots, covered with a yellow epidermis; margins crenulated within (Descriptions in Latin as well as in English). REMARKS. *Cardium vitellinum* is less ventricose than the related *C. oviputamen* and farther

distinguished by its different tinge and style of colouring. DISTRIBUTION. ••1844 Reeve: unknown. ••Of authors: South East USA, Brazil.

**vitrea** Eichwald, 1829. [Figs. Part 1 p. 122]. – Changed combination: *Adacna vitrea* (Eichwald, 1829). Lymnocardiidae. Recent. TYPE LOCALITY. Caspian Sea. RECORDS. ••1829 Eichwald: *Glycimeris vitrea*. ••1838 Eichwald: *Adacna vitrea* m. ••1838 Eichwald: *Glycimeris vitrea* Zool. spec. ••1841 Eichwald: *Glycimeris vitrea* Eichwald, 1829. ••1841 Eichwald: *Adacna vitrea*. ••1849 Middendorff: *Pholadomya vitrea* Eichw. (*vide* Andrussoff 1903). ••1858 Adams & Adams, p. 460: *Adacna vitrea*, Eichw. ••1866 Issel: *Adacna vitrea*, Eichwald, 1842. ••1876 ZR: *Adacna vitrea* (Eichw.) [Ref. Grimm 1876]. ••1876 ZR: *Monodacna vitrea* Eichw.) [Ref. Vest 1876]. ••1877 Grimm: *Adacna vitrea* Eichwald. ••1890 Paetel: *Adacna vitrea* Eichw. ••1890 Woodward: *Adacna vitrea*, Eichwald - Caspian, Aral. ••1903 Andrussoff: *Glycimeris vitrea* Eichwald, 1829. ••1903 Andrussoff: Eichwald, 1838 moved *Glycimeris vitrea* to genus *Adacna*. ••1922-32 Sherborn, p. 6956: *Adacna vitrea* Eichwald, 1838. – *Glycimeris vitrea* Eichwald, 1829. ••1968 Logvinenko & Starobogatov: *Hypanis vitrea vitrea* (Eichwald). ••1974 Starobogatov: *Hypanis vitrea vitrea* (Eichwald). ••1978 ZR: *Hypanis vitrea vitrea*. Spawning. Larval numbers in plankton, relationships, Caspian Sea. Ref. to Galperina. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1969 Nordsieck: Black Sea.

**vitrea bergi** Starobogatov, 1974. – *Hypanis vitrea bergi* Starobogatov. Lymnocardiidae. Recent. TYPE LOCALITY. Caspian Sea. RECORDS. ••1974 Starobogatov, p. 245, fig. 212: *Hypanis vitrea bergi* Starobogatov subsp. nov. ••1978 ZR: *Hypanis vitrea bergi* Starobogatov, 1978 subsp. nov. Aral Sea. Ref. to Starobogatov, p. 245.

**vitrea euxinica** Nevevsckaya, 1963 (variety). – *Adacna vitrea euxinica* Nevevsckaya, 1963. Lymnocardiidae. Quaternary. RECORDS. ••1963 ZR: *Adacna vitrea euxinica* Nevevsckaya, 1963 subsp. nov. Quaternary, Black Sea basin. ••1969 Nordsieck: *Adacna vitrea* (Eichwald, 1829) var. *euxinica* Nevevsck.

**vitrea glabra** Ostroumoff. – *Hypanis vitrea glabra* (Ostroumoff). Lymnocardiidae. Recent. TYPE LOCALITY. Caspian Sea. RECORDS. ••1968 Logvinenko & Starobogatov: *Hypanis vitrea glabra* (Ostroumoff). ••1974 Starobogatov: *Hypanis vitrea glabra* (Ostroumoff).

**vitrea minima** auct. (variety). – Changed combination: *Hypanis minima minima* (Ostroumoff, 1907). OTHER JUDGEMENTS: *Hypanis vitrea glabra* (Ostroumoff). >> Regarding *Adacna vitrea* var. *minima*: Lymnocardiidae. Recent. TYPE LOCALITY. Caspian Sea. RECORDS. ••1968 Logvinenko & Starobogatov: *Adacna vitrea* var. *minima* auct. non Ostroumoff, 1907 = *Hypanis vitrea glabra* (Ostr.). ••1974 Starobogatov: *Adacna vitrea* var. *minima* auct. = *Hypanis minima minima* (Ostroumoff, 1907).

**vittatum** (variety). – See *tuberculatum* var. *vittatum* Brusina, 1865.

**vlamingi** Wilson & Stevenson, 1977. [Figs. Part 3 p. 871]. – Synonym of *Acrosterigma impolitum* (Sowerby, 1833). >> Regarding *Acrosterigma vlamingi*: Cardiidae. Recent. TYPE LOCALITY. South Passage, Shark Bay, Western Australia. TYPE REPOSITORY. Holotype,



*vlastoides – vulgaris*

Western Australian Museum, 1029-66. TYPE MATERIAL. Holotype in WAM 1029-66, a single left valve from Shark Bay, Western Australia. Eight paratypes, all from the central West coast of Western Australia, from Abrolhos Islands to Shark Bay (Vidal 1999). DIMENSIONS. Length 24.2, height 27.4, width (calculated) 16.6 mm (Vidal 1999). DISTRIBUTION. West Australia (Hylleberg 1994). RECORDS. •1977 Wilson & Stevenson, p. 92-95, pl. 6, figs. 21-22, text fig. 16: *Acrosterigma vlamingi* sp. nov. •1978 ZR: *Acrosterigma vlamingi* sp. nov. Western Australia. Ref. to Wilson *et al.* p. 92, fig'd. •1992 Lamprell & Whitehead: *Acrosterigma vlamingi*. •1999 Vidal: Wilson & Stevenson 1977, p. 92, pl. 6, figs 21-22: *Acrosterigma vlamingi* = *Acrosterigma impolitum* (Sowerby, 1833).

*vlastoides* Reed, 1915. – *Shanina vlastoides* Reed, 1915. Cardacea. Ordovician. •1915 ZR: *Shanina vlastoides* Reed, 1915 gen. & sp. nov. Ordovician Shan States.

*vodopici* Brusina 1902. – Changed combination: *Prosodacna vodopici* (Brusina 1902). Lymnocoardiidae. Pannonian. REMARKS. •1991 Müller & Magyar, p. 368: *Prosodacna vodopici* (Brusina 1902).

*voesendorfense* Papp, 1951. – New combination: *Lymnocardium voesendorfense* (Papp, 1951). Lymnocoardiidae. Pannonian. REMARKS. The relationship with *Monodacna voesendorfensis* Papp, 1953 remains to be determined. RECORDS. •1948 ZR: *Limnocardium voesendorfensis* Papp, 1948 'n. sp.' [nomen nud.]. •1951 ZR: *Limnocardium voesendorfense* Papp, 1951 sp. nov. Pannonian Vienna Basin.

*voesendorfensis* Papp, 1953. – *Monodacna voesendorfensis* Papp, 1953. Lymnocoardiidae. Fossil. RECORDS. •1956 ZR: *Monodacna voesendorfensis* Papp, 1953 sp. nov.

*vogdti* Andrussov, 1902. – Combination to be revised: "*Cardium*" *vogdti* Andrussov, 1902. Cardiidae. Neogene. REMARKS. The relationship with "*Cardium vogdti*" Andrussov, 1961 and 1963 remains to be determined. RECORDS. •1905 Dollfus, commenting Andrussov 1902: *Cardium vogdti* n. sp. tend s towards *Cerastoderma*. •1961 ZR: *Cardium vogdti* Andrussov, 1961 "sp. nov." [in a table] Miocene Caspian region, Russia. •1963 ZR: *Cardium vogdti* Andrussov, 1963 sp. nov. Neogene, Russia.

*vogeli*. – *Protocardium vogeli*. Cardiidae. Upper Cretaceous. RECORDS. •1966 Rasmussen: *Protocardium vogeli* (Faxe Lime, Denmark).

*volarovici* Andrussov, 1923. – *Apscheronia volarovici* Andrussov, 1963. Lymnocoardiidae. Pliocene. RECORDS. •1930 ZR: *Apscheronia volarovici* Andrussov, 1923 sp. n. •1963 ZR: *Apscheronia volarovici* Andrussov, 1963 sp. nov. Apsheron layers, Pliocene, Russia.

*volaticum* Papaianopol, 1982. – New combination: *Lymnocardium volaticum*. Lymnocoardiidae. Upper Miocene. TYPE LOCALITY. Pontien et Dacien. Basin Dacique, Romania. RECORDS. •1982 Papaianopol, p. 193, fig.: *Limnocardium (Euxinocardium) volaticum* sp. nov.

*volgensis* (subspecies). – See under *catillus volgensis* Svitoc, 1967.

*volhynicum* Grishkevich, 1967. – Combination to be revised: "*Cardium*" *volhynicum* Grishkevich, 1967. Cardiidae. Upper Sarmatian. RECORDS. •1967 ZR:

*Cardium volhynicum* Grishkevich, 1967 sp. nov. Upper Sarmatian, Volhyno-Podolia, USSR.

*voltzii* Leymerie, 1846. – Changed combination: *Pleurocardia voltzi* (Leymerie, 1846). Cardiidae. Cretaceous. RECORDS. •1922-32 Sherborn, p. 6975: *Cardium voltzii* de Leymerie, 1841 [n.n.]. •1922-32 Sherborn, p. 6975: *Cardium voltzii* de Leymerie, 1846 •1978 Scott: *Pleurocardia (Pleurocardia) voltzi* (Leymerie). •1978 Scott: *Cardium voltzi* Leymerie. •1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Cardium voltzi* Leymerie. Aptien. France (Yonne), S07314, -15, S06041, R50326.

*voskoboinikovi* (spelling). – See under *voskobojnikovi*. *voskobojnikovi* Andrusov, 1964. – Changed combination: *Pontalmyra voskobojnikovi* (Andrusov, 1964). Lymnocoardiidae. Tertiary. RECORDS. •1964 ZR: *Didacna voskobojnikovi* Andrusov, 1964 sp. nov. Tertiary, USSR. •1987 Taktakishvili: *Didacna voskoboinikovi* Andrus. – *Pontalmyra voskoboinikovi* (Andrus.)

*voskuili* Healy & Lamprell, 1992. – Synonym of *Fulvia papyracea* (Bruguière, 1789). >> Regarding *Fulvia voskuili*: Cardiidae. Recent. DISTRIBUTION. North East Australia. RECORDS. •1992 Healy & Lamprell: *Fulvia voskuili*. •1994 Vidal: *Fulvia voskuili* Healey & Lamprell, 1992 = *Fulvia (Fulvia) papyracea* (Bruguière, 1789).

*vostreysi* (subspecies). – See under *laqueatum vostreysi* Ward, 1992.

*vroomi* Aartsen, Menkhorst, & Gittenberger, 1984. – *Parvicardium vroomi* Aartsen, Menkhorst, & Gittenberger, 1984. Cardiidae. Recent. REMARKS. *Parvicardium vroomi* is related to *Cardium transversale* Deshayes, 1854. RECORDS. •1984 Aartsen, Menkhorst, & Gittenberger: *Parvicardium vroomi*. •1984 ZR: *Parvicardium vroomi* nom. nov. for *Cardium transversale* Deshayes, 1854 nec Roemer 1849. Ref. to van Aartsen *et al.* •1998 Macedo *et al.*: *Parvicardium vroomi* van Aartsen, Menkhorst & Gittenberger, 1984. •2000 Aartsen & Goud: *Parvicardium vroomi* van Aartsen, Menkhorst & Gittenberger, 1984. Replacement name for *Cardium transversale* Deshayes 1855. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. Mediterranean, Canary Islands (Aartsen, Menkhorst, & Gittenberger, 1984).

*vulgare* (mode). – See under *vulgaris*.

*vulgare* Chemnitz, 1782. *Non* binominal. – Not available. Cardiidae. RECORDS. •1782 Chemnitz, Tab. 19 Fig. 194: *Cardium vulgare, edule* Lin.

*vulgaris* Costa, 1778. – Synonym of *Cerastoderma edule* (Linné, 1758). >> Regarding *Cardium vulgaris*: Cardiidae. Recent. DISTRIBUTION. UNKNOWN. RECORDS. •1678 Lister, pl. 5, fig. 34: *Cardium vulgaris* = *edule* (fide Spengler 1799). •1778 da Costa: *Cardium vulgaris*. •1788 Schröter: *Cardium vulgare*. [Reference to Chemnitz (1782) fig. 198]. •1803 Montagu: *Cardium vulgare* Da Costa p. 180 = *Cardium edule* Lin. •1817 Dillwyn: *Cardium vulgare* da Costa = *Cardium edule* Linnaeus. •1856 Wood & Hanley: *C. vulgare* Da Cos. = *Cardium edule* Lin. •1859 Sowerby: *C. vulgare* = *Cardium edule*, Linn. •1867 Weinkauff: *Cardium vulgare* Pennant, da Costa = *Cardium edule*

*vulgaris* – *wamillatum*

Linné. ••1886 Locard: *Cardium vulgare*, da Costa, 1787 = *Cardium edule*, Linné, 1767. ••1888 Kobelt: *Cardium vulgare* de Costa sic = *Cardium edule* Linné. ••1890 Paetel: *Cardium vulgare* D. Cost. = *edule* L. ••1902 Sherborn, p. 1063: *Cardium vulgare* da Costa, 1778. ••1969 Nordisiek: *Cerastoderma vulgare* (da Costa, 1778). ••1977 Fischer-Piette: *Cardium vulgare* da Costa = *Cardium edule* Linné.

*vulgaris* Sinz. – *Didacnomya vulgaris*. Lymnocardiiidae. Fossil. RECORDS. ••1964 Davidaschvili & Kitovani: *Didacnomya vulgaris* Sinz. ••1967 Ebersin: *Didacnomya vulgaris* (Sinz.). ••1977 Popov: *Didacnomya vulgaris*.

*vulgaris*. – *Lunulacardium vulgare*. Probably not in Cardiidae. ?Lunulacardiidae. Fossil. RECORDS. ••1922-32 Sherborn, p. 648: *Lunulacardium vulgare* [In index only. Not located in text].

*vulgaris*. – *Monodacna vulgaris*. Lymnocardiiidae. Pliocene. RECORDS. ••1929 ZR: *Monodacna* (*Didacnomya*) *vulgare* Pliocene [Ref. Krestovnikov 1929].

*vulgaris* Lister, 1678. *Non* binominal. – See under *vulgaris* Costa, 1778.

*vulgaris planior* Krestovnikov, 1929 (variety). – Upgraded. *Monodacna vulgaris planior* Krestovnikov, 1929. Lymnocardiiidae. Pliocene. RECORDS. ••1929 ZR: *Monodacna* (*Didacnomya*) *vulgare* var. *planior* Krestovnikov, 1929 nov. Pliocene S. Russia [Ref. Krestovnikov 1929].

*vulgaroides* Chelidze, 1975. – *Didacnomya vulgaroides* Chelidze, 1975. Lymnocardiiidae. Lower Pliocene. RECORDS. ••1975 ZR: *Didacnomya vulgaroides* Chelidze, 1975 sp. nov. Georgia SSR, Khobis region. Ref. to Chelidze, p. 195.

*vulgatum*. – Synonym of *Cerastoderma edule* (Linné, 1758). Cardiidae. Fossil. RECORDS. ••1844 Philippi: *Cardium vulgatum* = *Cardium edule* L. [fossil].

*Vulgodacna* Iredale, 1937 (genus). – Tridacnidae. Recent. RECORDS. ••1937 ZR: *Vulgodacna* Iredale, 1937 gen. n. Tridacnidae, type *Tridacna maxima* var. *fossor* Hedley (*Vulgodacna fossor*). ••1999 Higo *et al.*: *Vulgodacna* Iredale, 1937 = *Flodacna* (subgenus) Iredale, 1937. Tridacnidae.

*vulva* Jousseume, 1898. [Figs. Part 3 p. 852]. – Synonym of *Clinocardium buelowi* (Rolle, 1896). >> Regarding *Cardium vulva*: Cardiidae. Recent. TYPE LOCALITY. Japan. TYPE REPOSITORY. Holotype in the Paris Museum. REMARKS. *Clinocardium californiense buelowi* in Kira (1962) = *Clinocardium californiense* (Deshayes, 1839) (Kuroda *et al.* 1971). DISTRIBUTION. North Japan, Alaska. RECORDS. ••1898 Jousseume, p. 81: *Cardium vulva*. ••1898 ZR: *Cardium vulva* Jousseume, 1898 n. sp. Japan. ••1952 Kuroda & Habe: *vulva* Jousseume = *Clinocardium buelowi* (Rölle sic). ••1971 Kuroda, Habe & Oyama: *Cardium vulva* Jousseume, 1898 = *Clinocardium californiense buellowi* sic (Rolle). ••1977 Fischer-Piette: *Cardium vulva* Jousseume = *Corculum californiense* Deshayes. ••1977 Habe: *Cardium vulva* Jousseume, 1898 = *Clinocardium* (*Keenocardium*) *buellowi* sic (Rolle, 1896). ••1978 ZR: *Cardium vulva* Jousseume, 1898. New synonym of *C. (Keenocardium) buellowi* Rolle, 1896. Ref. to Habe, T. p. 194. ••1980 Keen: *Cardium vulva* = *Clinocardium buelowi* (Rolle, 1896). ••1999

Higo *et al.*: *Cardium vulva* Jousseume, 1898 = *Clinocardium* (*Keenocardium*) *buellowi* (Rolle, 1896). **utskitsi**. – *Prosodacna utskitsi*. Lymnocardiiidae. Pannonian. RECORDS. ••1966 ZR: *Prosodacna utskitsi*, Pannonian, Mecsek Mts. Yugoslavia, pl. [Ref. Bartha 1966].

**vösendorfense** (invalid spelling). – See under *voesendorfense*.

W

*wadei* Stephenson, 1941. – Changed combination: *Pachycardium wadei* Stephenson, 1941. Cardiidae. Cretaceous. RECORDS. ••1946 ZR: *Cardium* (*Pachycardium*) *wadei* Stephenson, 1941 Navarro formations, Cretaceous, Texas, N. edge of Corsicana, Nacatoch sand. ••1947 ZR: *Cardium* (*Pachycardium*) *wadei* Stephenson, 1941 sp. nov. Upper Cretaceous, Navarro Group Texas.

*wagnerianum* (subspecies). – See under *laevigatum wagnerianum* Olsson and Harbison 1953.

*wailandi* Woodring, 1925. – *Acrosterigma wailandi* (Woodring, 1925). Cardiidae. Miocene. TYPE LOCALITY. Bowden, Jamaica (Vidal 1999). RECORDS. ••1999 Vidal: *Acrosterigma wailandi* (Woodring, 1925)

*waiparana* Freneix & Grant-Mackie, 1978. – *Schedocardia?* *waiparana* Freneix & Grant-Mackie. Cardiidae. Upper Cretaceous. RECORDS. ••1978 Freneix & Mackie, p. 514, Figs. 25, 26: *Schedocardia* (?) *waiparana* n. sp. ••1978 ZR: *Schedocardia?* *waiparana* Freneix, 1978 sp. nov. New Zealand. Ref. to Freneix *et al.* p. 54. ••1992 Schneider: *Schedocardia?* *waiparana* Freneix & Grant-Mackie.

*waitakiense* Suter, 1907. – Changed combination: *Hedecardium waitakiense* (Suter, 1907). Cardiidae. Chattian (Middle Oligocene). Marwick (1944) designated *C. waitakiense* type species of subgenus *Hedecardium* of genus *Vepricardium*. Upgraded to generic level by authors. TYPE LOCALITY. South Canterbury, New Zealand. RECORDS. ••1907 Suter: *Cardium* (*Trachycardium*) *waitakiense* Suter, 1907. ••1907 ZR: *Cardium* (*Trachycardium*) *waitakiense* Suter, 1907 n. sp. Oamaru series, New Zealand. ••1926 McClelland: *Cardium waitakiense* Suter, 1907 n. sp. ••1944 ZR: *Cardium waitakiense* Suter Oligocene, designated genotype of *Hedecardium* by Marwick, 1944a. ••1969 Moore *et al.*: *Vepricardium* (*Hedecardium*) *waitakiense* (Suter, 1907). ••1977 Popov: *Hedecardium waitakiense* (Suter, 1907). *Cardium waitakiense* Suter, 1907. Type of *Hedecardium* Marwick, 1944. ••1978 Maxwell: *Hedecardium* (*Hedecardium*) *waitakiense* (Suter, 1907). ••1998 Schneider: *Hedecardium waitakiense* (Suter, 1907). Type species of *Hedecardium*. Cardiidae. Oligocene. ••2002 Schneider: *Hedecardium* (*Hedecardium*) *waitakiense* (Suter, 1907).

*waltonianum* Dall, 1900. – Combination to be revised: "*Cardium*" *waltonianum* Dall, 1900. Cardiidae. Fossil. RECORDS. ••1930 Stewart: *C. waltonianum* Dall. ••2002 Schneider: citing Dall (1900): *Cardium* (*Cerastoderma*) *waltonianum* sp. nov. section *Cerastoderma*.

*wamillatum* Furon, 1948. – Combination to be revised: "*Cardium*" *wamillatum* Furon, 1948. Cardiidae. Eocene. RECORDS. ••1950 ZR: *Cardium*

*wapeti* – *whitleyi*

- (*Trachycardium*) *wamillatum* Furon, 1948 sp. nov. Eocene, Togo.
- wapeti** Cox, 1961. – *Protocardia wapeti* Cox, 1961. Cardiidae. Cretaceous. RECORDS. ••1961 ZR: *Protocardia wapeti* Cox, 1961 sp. nov. Nanutarra formation Western Australia, Cretaceous.
- warrenana** Meek & Hayden, 1860. – *Tancredia warrenana* Meek & Hayden, 1860. Cardiacea. Jurassic. RECORDS. ••1860 Meek & Hayden: *Tancredia warrenana* Meek & Hayden, 1860.
- wassoewitschi** Ebersin, 1967. – *Didacnomya wassoewitschi* Ebersin, 1967. Lymnocardiiidae. Pliocene. RECORDS. ••1967 Ebersin: *Didacnomya wassoewitschi* sp. n. ••1967 ZR: *Didacnomya wassoewitschi* Ebersin, 1967 sp. nov. figs. Pliocene, USSR.
- wateleti** Deshayes, 1858. – Changed combination: *Nemocardium wateleti* (Deshayes, 1858). Cardiidae. Eocene. RECORDS. ••1930 Stewart: *C. waltonianum* Dall. ••1886 Cossmann: *Protocardium wateleti* (Deshayes). ••1899 Sacco, p. 57: *Nemocardium wateleti* (Deshayes) Eocene (also spelled *watheleti* by Sacco). ••1977 Popov: *Nemocardium (Nemocardium) wateleti* (Deshayes, 1858). ••1980 Ruhoff: *Cardium wateleti* Deshayes, 1858; [1856-1865] vol. 1: 570, pl. 54, figs. 16-18. ••1995 Le Renard *et al.*: *Nemocardium (s. str.) wateleti* [*Cardium wateleti*] Deshayes, 1858. ••1995 Pacaud & Renard: *Nemocardium (Nemocardium) wateleti*. ••1999 Jacques Vidal (pers. com.) MNHN, Paris: Fossils from the Paleontological Collection. *Nemocardium wateleti* Deshayes. Yprésien. France (Bassin de Paris), B52859 to -61.
- watsoni** Richards, 1947. – Combination to be revised: "*Cardium*" *watsoni* Richards, 1947. ?Conocardiidae. Permian. RECORDS. ••1947 ZR: *Cardium watsoni* Richards, 1947 sp. nov. Coniacian Permian Andes.
- waylandi** Woodring, 1925. – New combination: *Trachycardium waylandi* (Woodring, 1925). Cardiidae. Miocene. TYPE LOCALITY. Jamaica. RECORDS. ••1925 Woodring, p. 139, Pl. 19, Figs. 3-4: *Cardium (Trachycardium) waylandi* Woodring, 1925.
- waynense** (subspecies). – See under *diversum waynense* Mansfield, 1940.
- waynense** Mansfield, 1940. *Nemocardium waynense* Mansfield, 1940. Cardiidae. Middle Oligocene. RECORDS. ••1954 Keen: *Nemocardium (Nemocardium) waynense* Mansfield, 1940.
- weaveri** Anderson & Martin, 1914. – Changed combination: *Nemocardium weaveri* (Anderson & Martin, 1914). Cardiidae. Lower Oligocene and Cenozoic. RECORDS. ••1914 ZR: *Cardium weaveri* Anderson & Martin, 1914 sp. n. Cenozoic California. ••1954 Keen: *Nemocardium (Nemocardium) weaveri* (Anderson & Martin, 1914). ••1977 Popov: *Nemocardium (Habecardium) weaveri* (Anderson & Martin, 1914).
- weberi** Beet, 1953. – *Corculum weberi* Beet, 1953. Cardiidae. Mio-Pliocene. RECORDS. ••1956 ZR: *Corculum (Ctenocardia) weberi* Beet, 1953 sp. nov. Mio-Pliocene Waisioe, Buton Malay Arch.
- weisenense** Papp. – Synonym of "*Cardium*" (*Replidacna*) *aurelianium* Jekelius. Cardiacea. Fossil. RECORDS. ••1977 ZR: *Cerastoderma (Inaequicostata) weisenense* (Papp) syn. nov. *Cardium (Replidacna) aurelianium* Jekelius. Ref to Paramonova p. 70 [Transl. p. 320].
- welleri** Stephenson, 1941. – Changed combination: *Granocardium welleri* (Stephenson, 1941). Cardiidae. Fossil. RECORDS. ••1947 ZR: *Cardium (Ethmocardium) welleri* Stephenson, 1941 sp. nov. Upper Cretaceous, Navarro Group Texas. ••1954 Keen: *Cardium (Ethmocardium) welleri* Stephenson, 1941. ••1954 Keen: *Granocardium (Ethmocardium) welleri* (Stephenson, 1941).
- wenonah** Weller, 1907. – Changed combination: *Pleurocardia wenonah* (Weller). Cardiidae. Cretaceous. RECORDS. ••1954 Keen: *Cardium wenonah* Weller, 1907 (*Criocardium wenonah*). ••1978 Scott: *Cardium wenonah* Weller. ••1978 Scott: *Pleurocardia (Dochmocardia) wenonah* (Weller).
- whitei** Dall, 1900. – Changed combination: *Granocardium whitei* Dall, 1900 (Meek & Hayden, 1857). OTHER JUDGEMENTS: *Granocardium speciosum* Adams and Reeve. – Not a synonym of *Cardium speciosum* Adams and Reeve. >> Regarding *Cardium whitei*: Cardiidae. Cretaceous. RECORDS. ••1900 Dall: *Cardium whitei* Dall not a synonym of *Cardium speciosum* Adams and Reeve. ••1902 Dall: *Cardium whitei* Dall type of subgenus *Ethmocardium* White, 1880. ••1954 Keen: *Cardium whitei* Dall, 1900. ••1954 Keen: *Granocardium (Ethmocardium) whitei* (Dall, 1900). ••1969 Moore *et al.*: *C. whitei* = *Granocardium (Ethmocardium) speciosum* (Meek & Hayden, 1857). ••1970 Speden: *Cardium speciosum* Adams & Reeve = *Cardium (Ethmocardium) whitei* Dall, 1900. ••1993 Jaillard *et al.*: *Granocardium (Ethmocardium) whitei*. ••1998 Schneider: *Granocardium (Ethmocardium) whitei* (Dall, 1900) USNM 315529 (holotype).
- whitei** (aff.) Dall, 1900. – Synonym of ?*Ethmocardium ursaniense* Landes (1940). >> Regarding *whitei* aff.: Cardiidae. Cretaceous. RECORDS. ••1970 Speden: *Granocardium (Ethmocardium) aff. whitei* (Dall). *Ethmocardium ursaniense* Landes (1940) may be conspecific.
- whitfieldi** Weller. – Changed combination: *Pleurocardia whitfieldi* (Weller). Cardiidae. Cretaceous. RECORDS. ••1963 ZR: *Cardium whitfieldi*, first record in Delaware, Upper Cretaceous [Ref. Richards & Shapiro 1963]. ••1978 Scott: *Cardium whitfieldi* Weller. ••1978 Scott: *Pleurocardia (Pleurocardia) whitfieldi* (Weller). Cardiidae
- whitleyi** Iredale, 1929. – Synonym of *Fragum scruposum* (Deshayes, 1855). OTHER JUDGEMENTS: *Fragum fragum* (Linnaeus). >> Regarding *Fragum whitleyi*: Cardiidae. Recent. Type locality. Australia. TYPE REPOSITORY. Australian Museum, Sydney. Syntypes C057817. RECORDS. ••1929 Iredale, p. 264, pl. 30, fig. 14: *Fragum whitleyi* sp. nov. ••1929 ZR: *Fragum whitleyi* Iredale, 1929b sp. n. N. Queensland. ••1977 Fischer-Piette, No. 149: *Cardium whitleyi* Iredale = *Corculum fragum* Linné. ••1977 Wilson & Stevenson: *Fragum whitleyi* Iredale, 1929. ••1992 Lamprell & Whitehead: *Fragum whitleyi* Iredale, 1929 = *Fragum (Fragum) scruposum* Deshayes, 1855. – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1994 Hylleberg: Red Sea, Indo-Pacific. [Figs. Part 3 p. 908]. Tridacnidae
- whitleyi** Iredale, 1937. [Figs. Part 3 p. 908]. – Synonym

- of *Tridacna derasa* (Röding, 1798). >> Regarding *Tridacna whiteleyi*: Tridacnidae. Recent. RECORDS. ••1937 ZR: *Persikima whiteleyi* Iredale, 1937 sp. n. Tridacnidae, type, Middleton Reef, S. Pacific. ••1963 ZR: *Tridacna whiteleyi* found to house commensal shrimps of the genus *Archistus* in the Swain Reefs, Australia, [Ref. McMichael 1963]. ••1999 Higo *et al.*: *Persikima whiteleyi* Iredale, 1937 = *Tridacna (Flodacna) derasa* (Röding, 1798).
- wiesenense** Papp, 1954. – Combination to be revised: “*Cardium*” *wiesenense* Papp, 1954. Cardiidae. Sarmatian. RECORDS. ••1954 ZR: *Cardium wiesenense* Papp, 1954 sp. nov. Sarmatian, Vienna.
- wilckensi** Zinsmeister, 1984. – *Lahillia wilckensi* Zinsmeister, 1984. Cardiidae. Upper Eocene. RECORDS. ••1984 ZR: *Lahillia wilckensi* Zinsmeister, 1984 sp. nov. Antarctica. Ref. to Zinsmeister. ••1995 Schneider: *Lahillia wilckensi* Zinsmeister, 1984. USNM 365500 (holotype).
- wilcoxi** Dall 1900. – *Trigoniocardia wilcoxi* Dall, 1900. Cardiidae. Tertiary. RECORDS. ••1900 Dall: *Trigoniocardia wilcoxi*. ••1953 Olsson & Harbison: *Trigoniocardia (Trigoniocardia) wilcoxi* (Dall, 1900). ••1958 Abbott: *Trigoniocardia wilcoxi* Dall 1900. ••1977 Vokes p. 177: *Trigoniocardia wilcoxi* Dall, 1900.
- williami** Fischer-Piette, 1977. – Synonym of *Microcardium panamense* (Dall, 1908). >> Regarding *Microcardium williami*: Cardiidae. Recent. RECORDS. ••1977 Fischer-Piette, p. 4: *Microcardium williami* new name for *Microcardium panamense* (Dall, 1908). ••1977 ZR: *Microcardium williami* Fischer-Piette, 1977 nom. nov. for *Microcardium panamensis* (Dall, 1908) nec *Cardium panamense* Sowerby, 1833. Ref. to Fischer-Piette, E. p. 4. – CHARACTERS AND OCCURRENCE – REMARKS. ••1980: Keen claimed that *Microcardium williami* is an unnecessary new name for a supposed homonym: *Protocardia panamensis* Dall, 1908, versus *Cardium panamense* Sowerby, 1833, species that now fall not only in different genera but in different subfamilies. HABITAT. ••1971 Keen & McLean: 333 m. DISTRIBUTION. Panama (Keen & McLean 1971).
- wilmarensis** d’Archiac. *Conocardium wilmarensis* d’Archiac. Conocardiidae. Fossil. Original classification in Cardiidae. RECORDS. ••1859 Chenu: *Conocardium wilmarensis*, d’Archiac.
- wilsoni** (subspecies). – See also under *elongatum wilsoni* Voskuil & Onverwagt, 1991.
- wilsoni** Voskuil & Onverwagt, 1991. [Figs. Part 3 p. 872]. – Changed combination: *Vasticardium wilsoni* (Voskuil & Onverwagt 1991). Cardiidae. Recent. TYPE LOCALITY. Broome, western Australia. TYPE REPOSITORY. Holotype NNM (No. 56583), Leiden, Holland; paratype No. 4 (WAM No. 732-66) from Rosemary Isl. Western Australia; paratype No. 12 (NNM No. 56584) from Fiji; paratype No. 13 (NNM No. 56585) from the Moluccas. REMARKS. See also *Vasticardium elongatum wilsoni*. RECORDS. ••1991 Voskuil & Onverwagt: *Trachycardium wilsoni*. ••1992 Lamprell & Whitehead: *Acrosterigma wilsoni*. ••1991 Voskuil & Onverwagt: *Trachycardium wilsoni*. ••1993 Vidal: *Trachycardium wilsoni* Voskuil & Onverwagt, 1991 = *Acrosterigma elongatum* (Bruguière, 1789). ••1993 Vidal: *Acrosterigma wilsoni* (Voskuil & Onverwagt, 1991); downgraded to subspecies *A. elongatum wilsoni*. ••1999 Vidal: *Trachycardium wilsoni* Voskuil & Onverwagt, 1991 = *Vasticardium elongatum* (Bruguière 1789). – CHARACTERS AND OCCURRENCE – DISTRIBUTION. ••1994 Hylleberg: North West Australia.
- winkleri lukas** Stevanovic, 1982. – New combination: *Lymnocardium winkleri lukas* (Stevanovic, 1982). Lymnocardiidae. Upper Miocene. RECORDS. ••1982 ZR: *Lymnocardium winkleri lukas* Stevanovic, 1982 subsp. nov. Yugoslavia. Ref. to Stevanovic, p. 128.
- witchelli** Lycett, 1863. – Combination to be revised: “*Cardium*” *witchelli* Lycett, 1863. Cardiidae. Fossil. RECORDS. ••1980 Ruhoff: *Cardium witchelli* Lycett, 1863; p. 55, pl. 40, fig. 36.
- wolfarti** Chenu. [Figs. Part 1 p. 152]. – *Tridacna wolfarti* Chenu. Tridacnidae. Fossil. RECORDS. ••1845 Chenu pl. 8 f. 5: *Tridacna wolfarti* Chenu fossil Lower Hesse, Germany.
- woodringi** Loel & Corey, 1932. – New combination: *Trachycardium woodringi* (Loel & Corey, 1932). Cardiidae. Miocene. RECORDS. ••1933 ZR: *Cardium (Trachycardium) woodringi* Loel & Corey, 1932 Miocene California [Ref. Loel & Corey 1932]. ••1944 Keen & Bentson: *Cardium (Trachycardium) woodringi* Loel & Corey, 1932 (n. sp.).
- woodsii** Marwick, 1944. – *Ethmocardium woodsii* (Marwick, 1944). Cardiidae. Upper Cretaceous. RECORDS. ••1944 ZR: *Ethmocardium woodsii* Marwick, 1944a sp. nov. Selinquin Rapids, Piriapan, Upper Cretaceous, = *Cardium* sp. 2 Woods N.Z. Geol. Surv. Pal. Bull. p. 38 pl. 18 f. 4, 5. ••1954 Keen: *Ethmocardium woodsii* Marwick, 1944. ••1954 Keen: *Granocardium (Ethmocardium) woodsii* (Marwick, 1944). ••1978 Freneix & Mackie: *Granocardium (Ethmocardium) woodsii* (Marwick). ••1978 Freneix & Mackie: *Ethmocardium woodsii* (Marwick 1944, p. 259, pl. 36. fig. 21).
- woolnoughi** Bell, 1917. – Combination to be revised: “*Cardium*” *woolnoughi* Bell, 1917. Cardiidae. Pliocene. RECORDS. ••1917 ZR: *Cardium woolnoughi* Bell, 1917 n. sp. Pliocene England.
- wopfneri** Ludbrook, 1966. – *Protocardia wopfneri* Ludbrook, 1966. Cardiidae. Albian. RECORDS. ••1966 ZR: *Protocardia wopfneri* Ludbrook, 1966 sp. nov. Albian, S. Australia.

- xanthocheilum** Carpenter, 1857. – Synonym of *Trachycardium quadragenarium* (Conrad, 1837). >> Regarding *Cardium xanthocheilum*: Cardiidae. Recent. RECORDS. ••1857 Carpenter, (Gould ms.) p. 232: *Cardium xanthocheilum*. ••1864 Carpenter: *Cardium xanthocheilum* Gld. = *Cardium quadragenarium* Conr. ••1872 Carpenter: *Cardium xanthocheilum*. ••1901 Dall: *Cardium xanthocheilum* (Gould MS.) Carpenter, 1856 = *Cardium quadragenarium* Conrad, 1837. ••1977 Fischer-Piette: *Cardium xanthocheilum* Carpenter = *Laevicardium quadragenarium* Conrad. ••2000 Coan *et al.*: *C. xanthocheilum* Carpenter, 1857 = *Trachycardium (Dallocardia) quadragenarium* (Conrad, 1837).
- xiangyunensis** Chen, 1976. – Combination to be revised: “*Cardium*” *xiangyunensis* Chen, 1976. Cardiidae. Upper Triassic. TYPE LOCALITY. Yunnan, China.

**yagatagensis – zavalui**

RECORDS. ••1976 Ma *et al.* p. 256, pl. 23, figs. 5-10, 17: *Cardium xiangyunensis* Chen, 1976 sp. nov.

## Y

**yagatagensis** (error). – Printer's mistake for *yakatagensis* in ZR for 1972 with ref to Clark, 1932.

**Yagudinella** Kafanov, 1975 (genus). – Cardiidae. Fossil. RECORDS. ••1975 Kafanov: *Yagudinella*. ••1977 Vokes: *Yagudinella* Kafanov, 1975. ••1980 Vokes: *Yagudinella* Kafanov, 1975. ••1975 ZR: *Yagudinella* Kafanov, 1975 gen. nov. of Cardiidae. Type species *Cardium (Serripes) notabile* Saverby (*sic* = Sowerby) 1915. Ref. to Kafanov, p. 147. ••1980 ZR: *Yagudinella* Kafanov 1975. Key to species & subspecies. Ref. to Kafanov. ••1998 Schneider (1998b): *Yagudinella*. ••1999 Higo *et al.*: *Yagudinella* Kafanov, 1975 = *Serripes* Gould, 1841.

**Yagudinella** Kafanov, 1975 (subgenus). – Cardiidae. Fossil. RECORDS. ••2000 Coan *et al.*: Subgenus *Yagudinella* Kafanov, 1975.

**yakatagensis** Clark, 1932. – Changed combination: *Clinocardium yakatagensis* (Clark, 1932). Cardiidae. Upper Oligocene. RECORDS. ••1954 Keen: *Cardium (Cerastoderma) yakatagensis* Clark, 1932. ••1972 ZR: *Clinocardium yagatagensis sic* (Clark, 1932). Combination nov. Transferred from *Cardium (Cerastoderma sic)* [Ref. Addicott 1972]. ••1974 ZR: *Ciliatocardium yakatagense* (Clark, 1932). Comb. nov. Ref. to Kafanov, p. 1469.

**yamasakii** Makiyama, 1934. – Changed combination: *Clinocardium yamasakii* (Makiyama, 1934). Cardiidae. Oligocene. ?Miocene. RECORDS. ••1934 Makiyama: *Cardium yamasakii*. ••1935 ZR: *Cardium (Cerastoderma) yamasakii* Makiyama, 1934 sp. n. Oligocene Japan. ••1973 Keen: *Clinocardium yamasakii* (Makiyama, 1934). ••1974 ZR: *Ciliatocardium yamasakii*. Makiyama 1934. Comb. nov. Ref. to Kafanov, p. 1469.

**yatsushiroensis** Hayami, 1965. – *Nemocardium yatsushiroensis* Hayami, 1965. Cardiidae. Cretaceous. RECORDS. ••1965 ZR: *Nemocardium yatsushiroense* Hayami, 1965 sp. nov. Albian, Yatsushiro formation, Kumamoto Pref. Japan. ••1973 Keen: *Nemocardium (Nemocardium) yatsushiroense* Hayami, 1965 Lower Cretaceous. ••1986 Scott: *Nemocardium yatsushiroensis* Hayami, 1965.

**Yavorskiella** Khalfin, 1950 (genus). – [Ambonychiaea, not mentioned in the ZR]. RECORDS. ••1969 ZR: *Yavorskiella* Khalfin, 1950 in subfamily Aenigmoconchiidae Betekhtina & Sukov, 1969 [Ref. Betekhtina & Sukov, 1969]

**yakatagensis** Clark, 1932. – Changed combination: *Clinocardium ykatagense* (Clark, 1932). Cardiidae. Fossil. RECORDS. ••1936 ZR: *Clinocardium ykatagense* (Clark, 1932) [Ref. Keen 1936].

**yokoyamai** Cossmann, 1924. – Combination to be revised: “*Cardium*” *yokoyamai* Cossmann, 1924. Cardiidae. Pliocene. RECORDS. ••1924 ZR: *Cardium yokoyamai* Cossmann, 1924 Pliocene. India.

**yokoyamai** Otuka, 1935. – *Serripes yokoyamai* Otuka, 1935. Cardiidae. Middle Miocene to Lower Pliocene. RECORDS. ••1935 ZR: *Serripes yokoyamai* Otuka, 1935 sp. n. Miocene Japan. ••1973 Keen: *Serripes yokoyamai*

Otuka, 1935. [Middle Miocene to Lower Pliocene]. ••1975 ZR: *Serripes yokoyamai* Otuka, (CHECK) 1935 Referred to *Yagudinella*. Ref. to Kafanov, p. 147. ••1975 ZR: *Yagudinella yokoyamai* (Otuka, 1935) comb. nov. transferred from *Serripes*. Ref. to Kafanov, p. 147. ••1977 Popov: *Serripes yokoyamai* Otuka, 1935. ••1978 Kafanov: *Yagudinella yokoyamai* (Otuka 1935).

**yokoyamai** Takeda, 1953. – *Nemocardium yokoyamai* Takeda, 1953. Cardiidae. Oligocene. RECORDS. ••1953 ZR: *Nemocardium yokoyamai* Takeda, 1953 sp. nov. Oligocene, Japan. ••1954 Keen: *Nemocardium (Arctopratalum) yokoyamai* Takeda, 1953. ••1960 ZR: *Nemocardium yokoyamai* Takeda; lectotype designated [Ref. Oyama *et al.* 1960]. ••1973 Keen: *Nemocardium (Nemocardium) yokoyamai* Takeda, 1953. ••1977 Habe: *Arctopratalum yokoyamai* Takeda, 1953.

**yoshidense** Kanno, 1958. – *Laevicardium yoshidense* Kanno, 1958. Cardiidae. Upper Oligocene. RECORDS. ••1960 ZR: *Laevicardium yoshidense* Kanno, 1958 sp. nov. p. 176, pl. 2, figs. 5-7; Nenokami, Hikokubo, Yoshida-machi, Japan, Upper Oligocene. ••1973 Keen: *Laevicardium yoshidense* Kanno, 1958.

**yukatagensis** Clark, 1932. – Combination to be revised: “*Cardium*” *yukatagensis* Clark, 1932. Cardiidae. Oligocene. RECORDS. ••1932 ZR: *Cardium (Cerastoderma) yukatagensis* Clark, 1932 sp. n. Oligocene S. Alaska.

**yunnanensis** Chen, 1976. – *Myophoricardium yunnanensis* Chen, 1976. Cardiidae. Fossil. RECORDS. ••1976 Ma *et al.* p. 260: *Myophoricardium yunnanensis* Chen sp. nov.

## Z

**zaccagnai** Regny, 1922. – Combination to be revised: “*Cardium*” *zaccagnai* Regny, 1922. Cardiidae. Cretaceous. RECORDS. ••1922 ZR: *Cardium zaccagnai* Vinassa de Regny, 1922 sp. n. Cretaceous Tripoli. ••1924 ZR: *Cardium zaccagnai* Vinassa de Regny, 1924 sp. n. Cretaceous Tripoli.

**Zagrabicardium** Basch, 1990 (genus). – Lymnocardiidae. Fossil. RECORDS. GENOTYPE. Basch (1990 p. 26) designated *Cardium riegelei* Hörnes, 1870 type species of subgenus (*Zagrabicardium*) of genus *Limnocardium*.

**zagrabiense** Brusina, 1874. – New combination: *Limnocardium zagrabiense* (Brusina, 1874). Lymnocardiidae. Fossil. RECORDS. ••1977 Popov: *Limnocardium zagrabiense*. ••1990 Basch: *Limnocardium (Hungarocardium) zagrabiense* (Brusina, 1874).

**Zamphiridacna** Motas in Andreescu, 1974 (genus). – Lymnocardiidae. Tertiary. RECORDS. ••1974 ZR: *Zamphiridacna* Motas. Referred to new subfamily Prosodacninae. Ref. to Andreescu, p. 128. ••1980 Vokes: *Zamphiridacna* Motas in Andreescu, 1974. Subfamily uncertain. ••1980 ZR: *Zamphiridacna* Motas 1974. Key to species. Ref. to Andreescu.

**zavalui** Liteanu & Schoverth, 1964. – *Horiocardna zavalui* Liteanu & Schoverth, 1964. Lymnocardiidae. Fossil. REMARKS. Representatives of genus *Horiocardna* Sabba from Dack in eastern Bulgaria. RECORDS. ••1964 ZR: *Horiocardna zavalui* Liteanu & Schoverth, 1964 sp. nov. Zavalu, Rumania, Dacian. ••1987 Lutskanov: *Horiocardna zavalui* Liteanu & Schoverth, 1960. ••1987

- Lutskanov: *Horiodacna zavalui*.
- zecki** Oppenheim, 1919. – Combination to be revised: "*Cardium*" *zecki* Oppenheim, 1919. *Cardiidae*. Eocene. RECORDS. ••1919 ZR: *Cardium zecki* Oppenheim, 1919 sp. n. Eocene, Togo.
- zetes** Loriol, 1889. – Combination to be revised: "*Cardium*" *zetes* Loriol, 1889. *Cardiidae*. Fossil. RECORDS. ••1889 ZR: *Cardium zetes* De Loriol, 1889 n. sp. with fig.
- zhidkova** Kafanov, 1994. – *Ciliatocardium zhidkova* Kafanov, 1994. *Cardiidae*. Fossil. RECORDS. ••1994 Kafanov in Arkhipova *et al.*: *Ciliatocardium zhidkova*.
- zhuzhunae** Popov, 1982. – *Cerastoderma zhuzhunae* Popov, 1982. *Cardiidae*. Oligocene. RECORDS. ••1982 ZR: *Cerastoderma zhuzhunae* Popov, 1982 sp. nov. Georgia SSR. Ref. to Popov *et al.* p. 42.
- zlatarskii** Andrussov. – *Pseudocatillus zlatarskii* (Andrussov). *Lymnocardidae*. Fossil. RECORDS. ••1967 Ebersin: *Pseudocatillus zlatarskii* (Andrus.).
- zlatarskii** Wassoievic & Eberzin, 1930. – *Monodacna zlatarskii* Wassoievic & Eberzin, 1930. *Lymnocardidae*. Pliocene. RECORDS. ••1931 ZR: *Monodacna zlatarskii* Wassoievic & Eberzin, 1930 sp. n. URSS Pliocene.
- zonariaeforme** Schaueroth, 1865. – *Unicardium zonariaeforme* Schaueroth, 1865. *Cardiacea*. Fossil. RECORDS. ••1980 Ruhoff: *Unicardium zonariaeforme* Schaueroth, 1865; p. 130, pl. 3, fig. 11.
- zonata** (mode and variety). – See under *zonatum* Brown, 1844 and *papillosum zonata* Monterosato.
- \*zonatum**. – **Homonymy to be noticed.** *Cardium zonatum* from 2 sources: Brown, 1827. – Leach, 1852.
- zonatum** Brown, 1827. – Synonym of *Cerastoderma edule* (Linné, 1758). >> Regarding *Cardium zonatum*: *Cardiidae*. Recent. TYPE LOCALITY. Devonshire coast. REMARKS. BROWN (1844): May be distinguished from the young of *C. edule* by being invariably much thinner, and more inflated; smoother, and its colour of a gamboge-yellow, and zoned. Its habitat is at the mouth of rivers, where the water is brackish; and it never reaches an inch in diameter. RECORDS. ••1827 Brown; *Cardium zonatum* Brown, First ed. ••1844 Brown, 2<sup>nd</sup> ed. p. 88, pl. 35, fig. 8: *Cardium zonatum*. ••1852 Leach: *Cardium zonatum* Brown. ••1859 Sowerby: *C. zonatum* = *Cardium edule*, Linn. ••1867 Weinkauff: *Cardium zonatum* Brown = *Cardium edule* Linné. ••1869 Römer: *Cardium zonatum* Brown = *Cardium edule* L. ••1890 Paetel: *Cardium zonatum* Brown. = *edule* L. ••1917 Hidalgo: *Cardium zonatum* Brown = *Cardium edule* Linné. ••1922-32 Sherborn, p. 7049: *Cardium zonatum* Brown, 1827. ••1977 Fischer-Piette: *Cardium zonatum* Brown = *Cardium edule* Linné.
- zonatum** Leach, 1852. – Synonym of *Parvicardium ovale* (Sowerby). >> Regarding *Cardium zonatum*: *Cardiidae*. Recent. RECORDS. ••1852 Leach, p. 319: *Cardium zonatum* Leach, 1852. ••1867 Weinkauff: *Cardium zonatum* Leach = *Cardium fasciatum* Montagu. ••1888 Kobelt: *Cardium zonatum* Leach (1852) = *Cardium fasciatum* Montagu.
- zonatum beta** Leach, 1852 (variety). Infrasubspecific. >> Regarding *Cardium zonatum* var. *beta*: No evidence of subspecific status. *Parvicardium ovale* (Sowerby). *Cardiidae*. Recent. RECORDS. ••1852 Leach: *Cardium zonatum* var. *beta* L.
- zorritensis** Spieker, 1922. – New combination: *Trachycardium zorritensis* (Spieker, 1922). *Cardiidae*. Tertiary. RECORDS. ••1922 ZR: *Cardium (Trachycardium) zorritensis* Spieker, 1922 Tertiary, Peru.
- zujovici** Brusina, 1897. – New combination: *Lymnocardium zujovici* (Brusina, 1897) non Fuchs. *Lymnocardidae*. Pontian. RECORDS. ••1953 ZR: *Lymnocardium zujovici* Brus. non Fuchs Pontian, Serbia. ••1979 ZR: *Lymnocardium zujovici* Brusina, 1897. Neotype. Ref. to Stevanovic, p. 336.
- zuzica** (variety). – See *planicostata* var. *zuzica* Chelidze, 1957.

*These sentences are extracted from pages 388-389 in  
G. Schenk & A.M. Keen 1940. (Ref in Part 1 p. 310)*

**We need illustrations of unfigured or little-known species.**

Proper identification of specimens obviously must precede all attempts to delimit the geographical distribution of species.

Species must bear correct names if check lists are to be meaningful.

Taxonomic revisions of more species and genera should be undertaken.

We need, in short, nomenclatural stability to prevent the continual shuttling of species from one generic allocation to another.

Nomenclatural sadists tend to keep the names of genera in perpetual chaos.

O.A.L Mørch: an important curator of the Shell Collections of the University of Copenhagen [Universitetsmuseets Conchyliensamlinger] and the Royal Natural History Museum [Kgl. naturhistoriske Museum].



In 1844 Mørch became amanuensis of Dr. Beck who was in charge of the shell collection of King Christian 8, who reigned from 1839 to 1848 [many specimens shown on the present Plates have C VIII written on the inside]. Thanks to the knowledge achieved by Mørch regarding the old cardiids dating back to Chemnitz (1782), Spengler (1799), and the King's Collection, scientists of present times are able to trace these shells in the collection of the Zoological Museum the University of Copenhagen (ZMUC).

Mørch had great knowledge and he was critical with a good sense for shapes and variations. He was also good at making order in collections. *E.g.*, he wrote "Sp." in ink inside the shells when he had traced the material Spengler worked with. Mørch's labels are also an invaluable source of information. If it had not been for Mørch we would have had a hard time allocating much of the old material at ZMUC to the right source of origin. Mørch, or Mörch as his name also is spelled, lived from 1828 to 1875.

The picture of Otto Andreas Lowson Mørch is extracted from a biography written in Danish by Jonas Collin: *Konchyliologen O.A.L. Mørch. En biografisk Skizze* (38 pp).



## The Plates

I have taken photos of specimens deposited at museums of natural history in Austria (Vienna), Belgium (Brussels), Denmark (Copenhagen) France (Paris), United Kingdom (London) and Thailand (Phuket Marine Biological Center).

In addition to my own records the present Plates show species provided by courtesy of the following people and institutions:

Australian Museum Sydney. Photographer of the Museum by courtesy of Peter Middelfart.

Natural History Museum, London. B/W and colour pictures. Photographer of the Museum by courtesy of Kathie Way & Amelia MacLellan.

Zoological Museum, Copenhagen. Photographer of the Museum by courtesy of Tom Schiøtte.

*Legend: abbreviated names of photographers*

A. le G. = Arnou le Goff for Museum National d'Histoire Naturelle, Paris

G.D. = G. Dajoz for Museum d'Histoire Naturelle Genève. B/W pictures by courtesy of Godtfred Høpner Petersen

G.H.P. = Godtfred Høpner Petersen, Zoological Museum University of Copenhagen

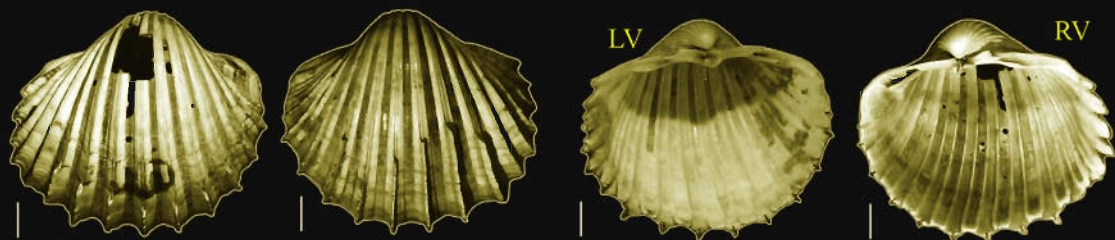
H.T. = Harry Taylor for the Natural History Museum, London

J.H. = Jorgen Hylleberg, Marine Ecology, Aarhus University

J.V. = Jacques Vidal, Museum National d'Histoire Naturelle, Paris

L.K. = Lisa Kirkendale for the Natural History Museum, London

P.S.D. = P.S. Dance for the Linnean Society of London



*costatum* Linnaeus, 1758. *Cardium*. SYNTYPES at Lin. Soc. of London. Hanley (1855) isolated 2 specimens (unmatched valves). Phot. by S.P.D.

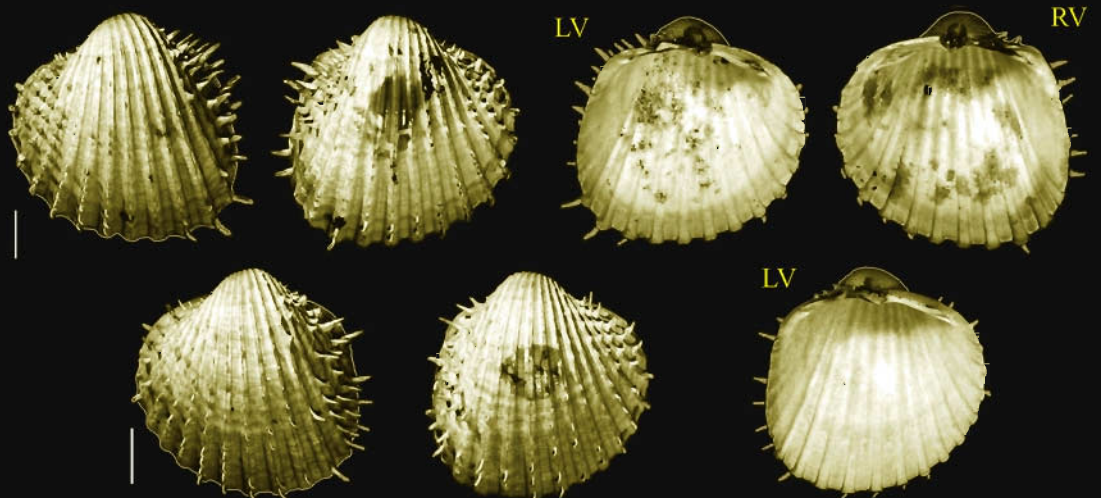


*indicum* Lamarck, 1819. *Cardium*. TYPE at MNHN, Paris, left valve only. ID by Lamarck (original label). Phot. by J.H.



*Card. ringens.*  
Nº 4.  
de la Côte de Guinée

*ringens* Bruguière, 1789. Combination changed from *Cardium* to *Ringicardium*. ID by Spengler 1799 No. 4 (original label). From the coast of Guinea. ZMUC, Copenhagen. Phot. by J.H.



*aculeatum* Linnaeus, 1758. Combination changed from *Cardium* to *Acanthocardia*. SYNTYPES at Lin. Soc. of Lond. ID by Hanley (1855). Phot. by S.P.D.

Sp.



*aculeatum* A. Linnaeus, 1758. Combination changed from *Cardium* to *Acanthocardia*. ID by Spengler 1799 No. 5 A (original label). ZMUC. Phot. by J.H.

Card. aculeatum, Linn. 78.  
No. 5. A.

*aculeatum* var. B. Spengler, 1799. Combination changed from *Cardium* to *Acanthocardia*. ID by Spengler 1799 No 5 (original label). ZMUC. Phot. by J.H.

Cardium ~~spengleri~~ aculeatum var. B. No. 5.

Sp.



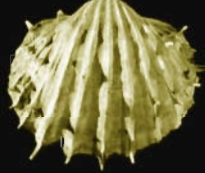
variété C. de Cardium aculeatum No. 5.  
Aus dem Mittelf. Mus.

*aculeatum* var. C. Spengler, 1799. Combination changed from *Cardium* to *Acanthocardia*. ID by Spengler 1799 No 5 C (original label). ZMUC. Phot. by J.H.

RV



RV



*ciliare* Linnaeus, 1758. ID by Lamarck. *Cardium ciliare* = *Acanthocardia aculeata*. Genève 1085/42. Phot. by G.D.

*aculeatum* Linnaeus, 1758. Combination changed from *Cardium* to *Acanthocardia*. ID by Lamarck. Genève 1085/46. Phot. by G.D.

Museum de Genève. Collection Lamarck.  
Cardium aculeatum L.  
Localité Europe 1085/46 M14



LV



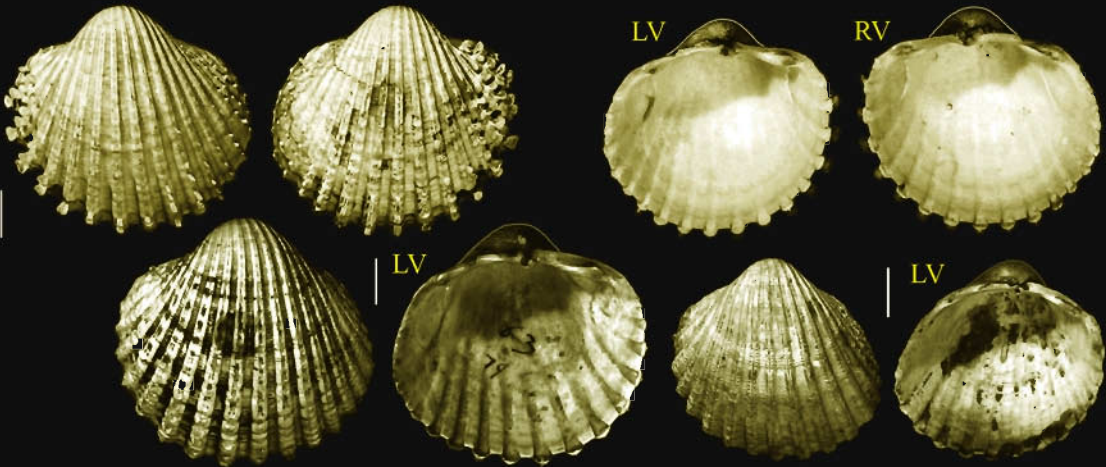
RV



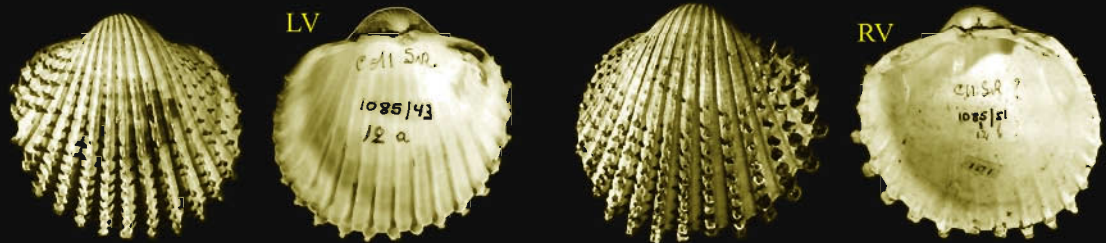
*aculeatum* Linnaeus, 1758 cf. *Cardium ciliare*. Combination changed from *Cardium* to *Acanthocardia*. From the shell cabinet of the Danish King Christian 8 (C VIII written inside shells). ZMUC, Copenhagen. Phot. by J.H.



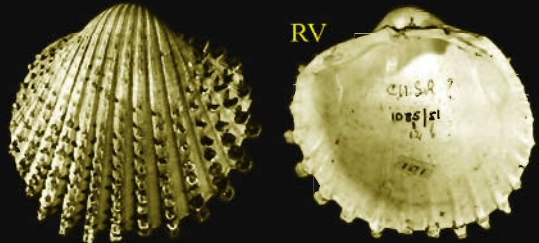
*deshayesii* Payraudeau, 1826. SYNTYPE at MNHN, Paris. Combination changed from *Cardium* to *Acanthocardia*. From Corsica, the Mediterranean. Phot. by A. le G.



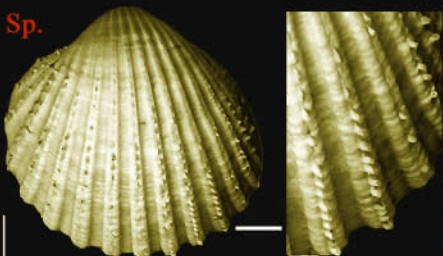
*echinatum* Linnaeus, 1758. SYNTYPES at Lin. Soc. London. Combination changed from *Cardium* to *Acanthocardia*. ID by Hanley (1855) who isolated 1 complete specimen and 2 valves. The largest single valve is marked 63/79 in ink. Phot. by S.P.D.



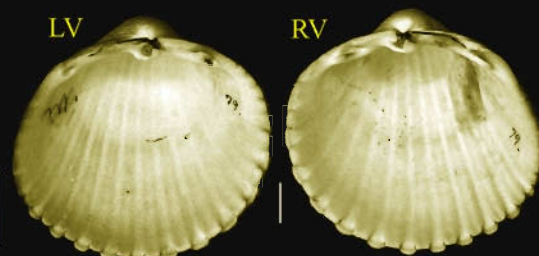
*echinatum* var. [a] Lamarck. Combination changed from *Cardium* to *Acanthocardia*. ID by Lamarck. MHN, Genève 1085/43. 12-a. Phot. by G.D.



*echinatum* var. [b] Lamarck. Combination changed from *Cardium* to *Acanthocardia*. ID by Lamarck. MHN, Genève 1085/51. 12-b. Phot. by G.D.



*Cardium echi-*  
*natum*  
No. 6.



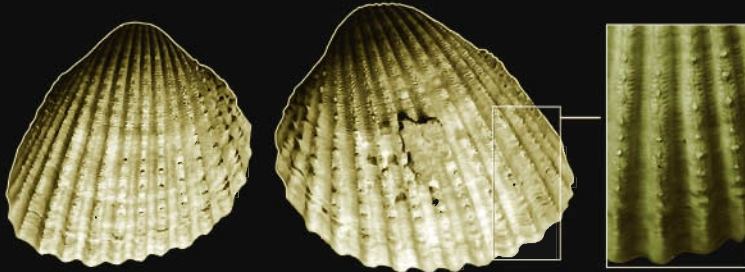
*echinatum* Linnaeus, 1758. Combination changed from *Cardium* to *Acanthocardia*. ID by Spengler 1799 No. 6 (original label). ZMUC, Copenhagen. Phot. by J.H.



*bucarda a papillon  
& echinatum Lin*

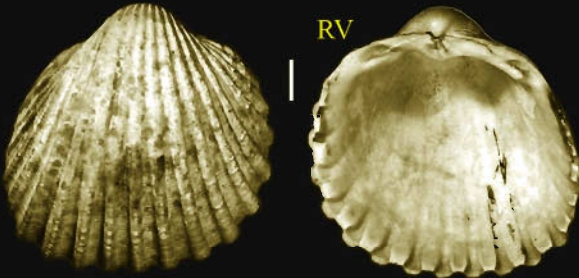
LV

*echinatum* Linnaeus, 1758. Combination changed from *Cardium* to *Acanthocardia*. ID by Lamarck (original label). Lamarck coll. at MNHN, Paris. View of left valve. Phot. by J.H.



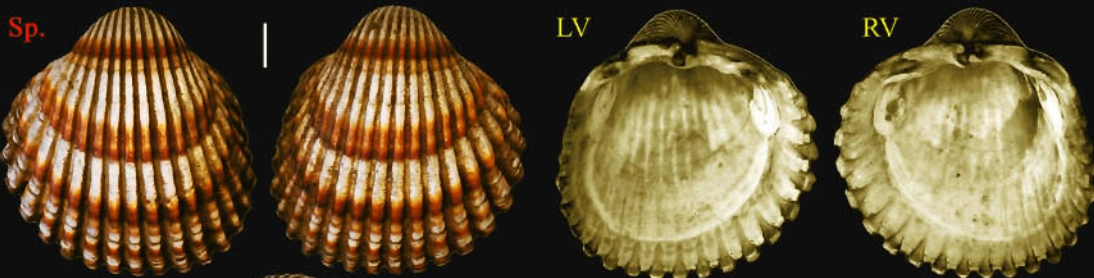
*Cardium echinatum* in  
*Cardium tuberculatum* d.  
insidit nomen per Lamarck.

*echinatum* Linnaeus, 1758. Combination changed from *Cardium* to *Acanthocardia*. ID by Lamarck (not the original label). Lamarck coll. at MNHN, Paris. Phot. by J.H.



RV

*tuberculatum* Linnaeus, 1758. TYPE at Lin. Soc. of London. Combination changed from *Cardium* to *Acanthocardia*. ID by Hanley (1855). Phot. by S.P.D.



Sp.

LV

RV



RV

*Cardium tuberculatum*  
Lin: 81.  
No. 8.

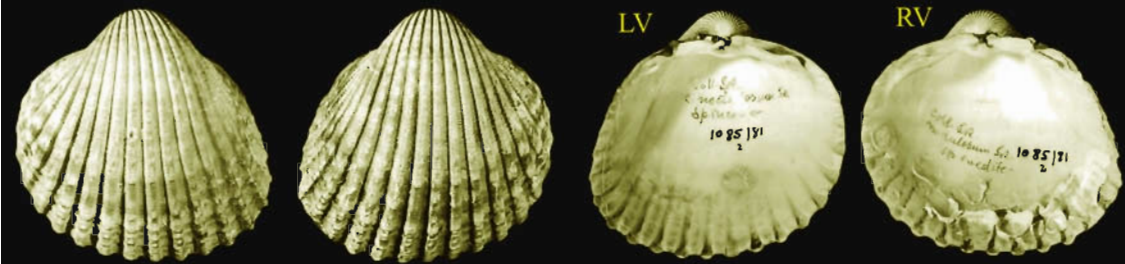


*tuberculatum* Linnaeus, 1758. Combination changed from *Cardium* to *Acanthocardia*. ID by Spengler 1799 No 8 (original label). ZMUC, Copenhagen. Phot. by J.H.



*nodulosum* Lamarck. Original label by Lamarck, name not published. ID by staff at MHN, Genève = *Acanthocardia tuberculata* (Linnaeus, 1758). 1085/81-1. From the Mediterranean. Phot. by G.D

*Acanthocardia nodulosum*  
*Cardium nodulosum*



*nodulosum* Lamarck. ID by Lamarck, name not published. ID by staff at MHN, Genève (label) = *Acanthocardia tuberculata* (Linnaeus, 1758). 1085/81-2. From the Mediterranean. Phot. by G.D.

*Cardium nodulosum* Lamarck  
= *tuberculatum* Linnaeus  
Localité: ...  
1085/81



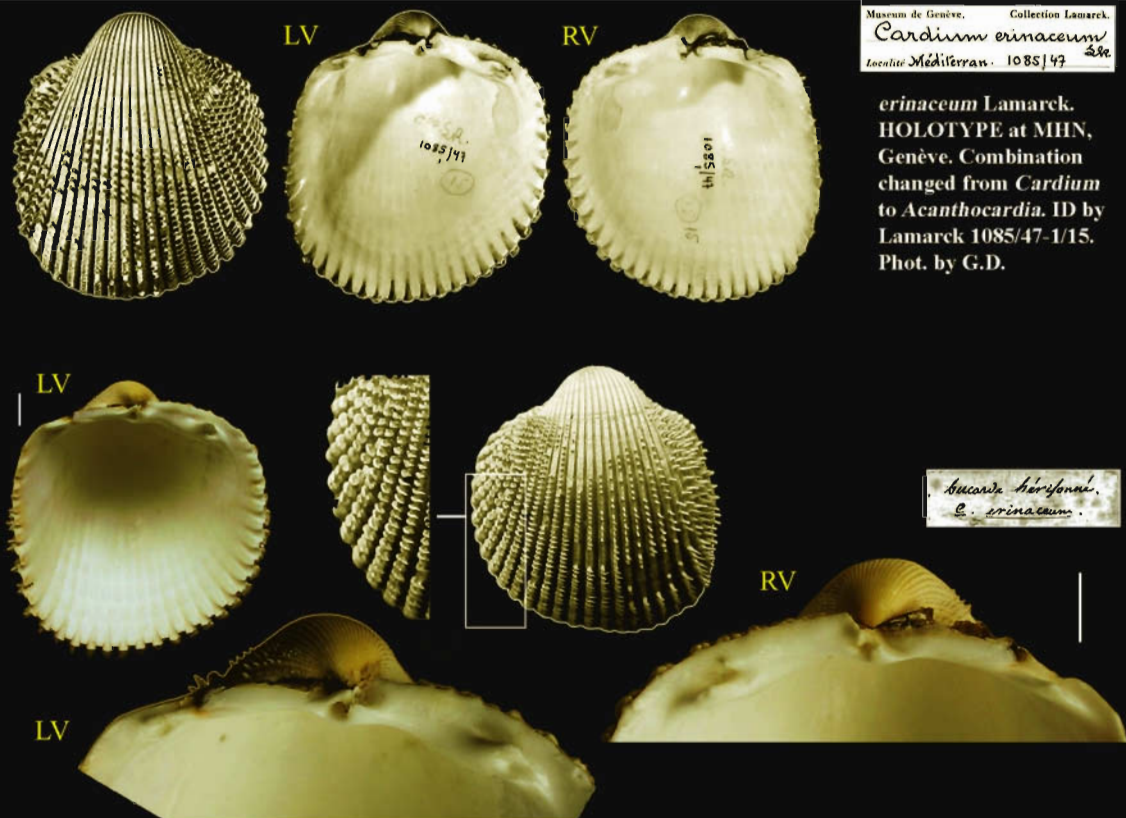
*tuberculatum* Linnaeus, 1758. Combination changed from *Cardium* to *Acanthocardia*. ID by Lamarck, not the original label. MNHN, Paris. Phot. by J.H.

*Cardium tuberculatum* Linnaeus  
*Cardium tuberculatum* Lam. var.  
individus nomen per Lamarck.



*rusticum* Linnaeus, 1758. ID by Lamarck, not the original label = *Acanthocardia tuberculata* (Linnaeus, 1758). MNHN, Paris. Phot. by J.H.

*Cardium rusticum* Linnaeus  
*Cardium tuberculatum* Linnaeus

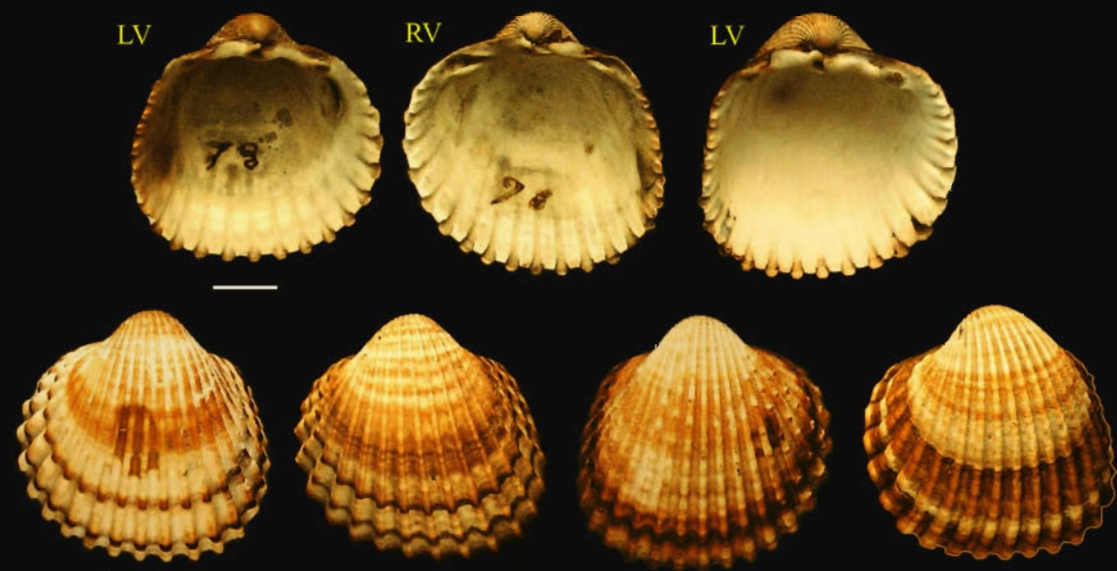


Museum de Genève. Collection Lamarck.  
*Cardium erinaceum*  
 Locauté Méditerran. 1085/47 28e

*erinaceum* Lamarck.  
 HOLOTYPE at MNH,  
 Genève. Combination  
 changed from *Cardium*  
 to *Acanthocardia*. ID by  
 Lamarck 1085/47-1/15.  
 Phot. by G.D.

*Acanthocardia* *erinaceum*.

*erinaceum* Lamarck. ID by Lamarck, original label. Combination changed from *Cardium* to *Acanthocardia*. MNHN, Paris. Phot. by G.D.



*rusticum* Linnaeus, 1758. SYNTYPES (total of 9 valves) at Lin. Soc. of London. ID by Hanley (1855). Combination changed from *Cardium* to *Acanthocardia*. Syn. of *A. tuberculata*. Phot. by S.P.D.

Sp.

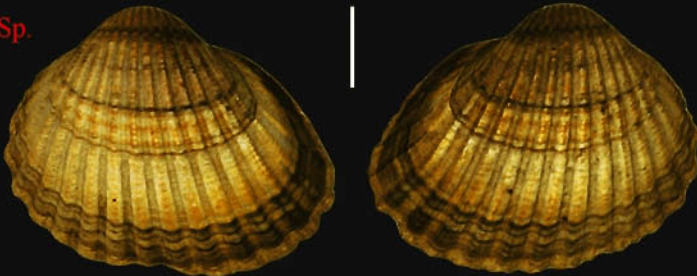


*rusticum* Linnaeus, 1758. Combination changed from *Cardium* to *Cerastoderma*. ID by Spengler 1799 No. 20 (original label). From the Mediterranean. Label by ?Mørch with ref. to L[innaeus], Ch[emnitz], Reg[enuss], and Sp[engler]. ZMUC, Copenhagen. Phot. by J.H.

*Cardium rusticum*  
Lin: 91.  
No. 20.  
Zool. Institut f. Man.

*Card. rusticum* L.  
desf. 1 & 11 177. 79  
C. f. 179. - Sp. n. 20  
Mm. 20

Sp.



*rusticum* Linnaeus, 1758. Combination changed from *Cardium* to *Cerastoderma*. Rewritten label by staff with ref. to Ch[emnitz] (original). From the Mediterranean. Spengler coll. at ZMUC, Copenhagen. Phot. by J.H.

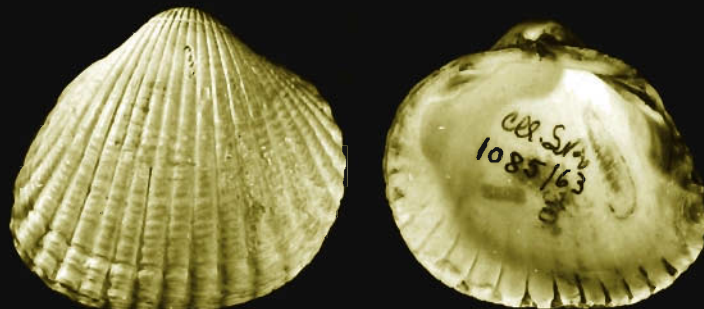
Zoologisk Museum, København  
*Cardium rusticum* L. Ch  
loc. Mitteländmeere  
Original. Ch. II. f. 197.  
Datum:  
Legit: Spengler.  
Don. Journal



*Buccarde rustique .  
C. rusticum .*

*Cardium lamarkii . Au  
C. rusticum . L. (non L.)  
individus nomme par Lamark*

*rusticum* Linnaeus, 1758. Combination changed from *Cardium* to *Cerastoderma*. ID by Lamarck (original label). Glued on cardboard together with *C. edule*. Phot. by J.H.

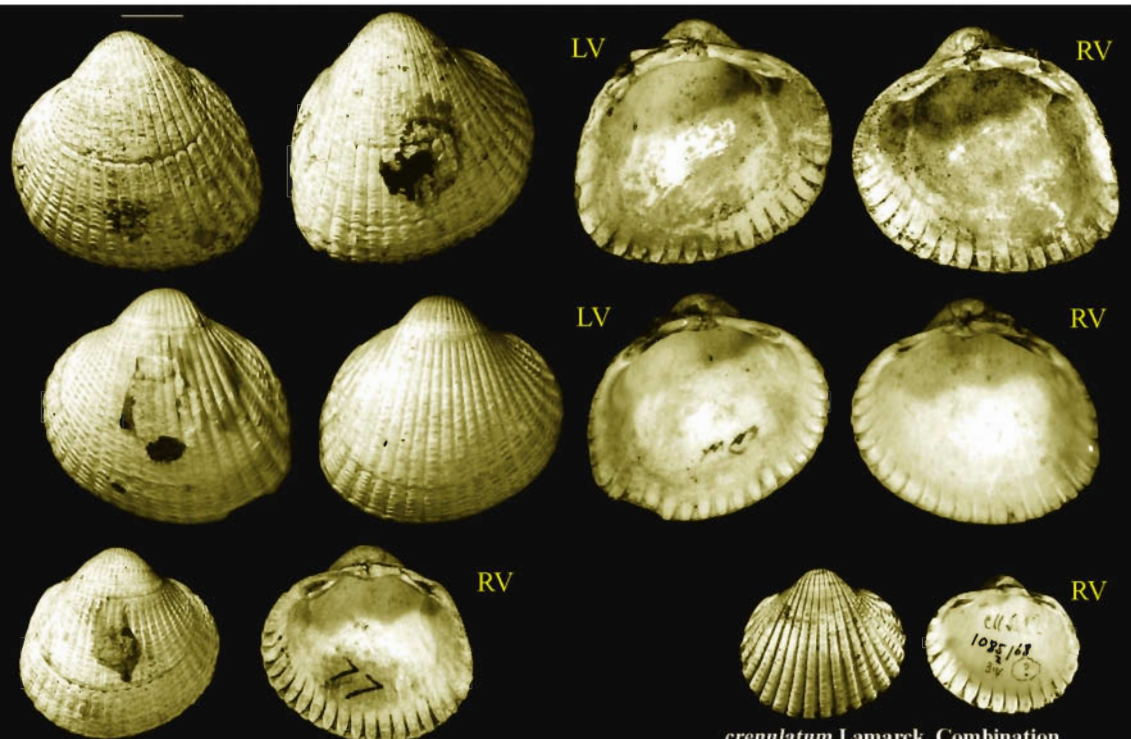


Museum de Genève. Collection Lamarck.  
*Cardium rusticum* Sp. (Lam.)  
(*edule* Sp.)  
Localité Méditer. 1085/63 M30

*Cardium rusticum*  
1085/63  
*Cardium tuberculatum*  
*C. rusticum* Lam. (ch. orig.)  
L. Europe

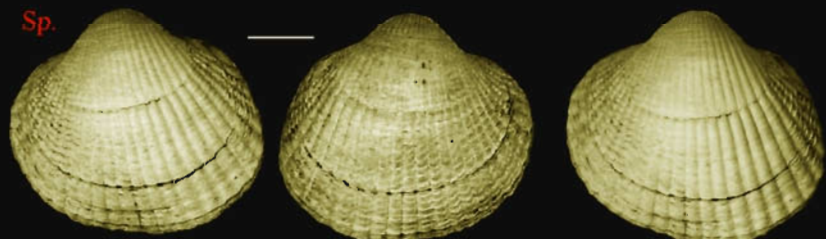
*rusticum* Linnaeus, 1758. Combination changed from *Cardium* to *Cerastoderma*. ID by Lamarck at MHN, Genève # 1085/63. ID by staff: *Cerastoderma edule* [correct] *Acanthocardia tuberculata* [err.]. Phot. by G.D.



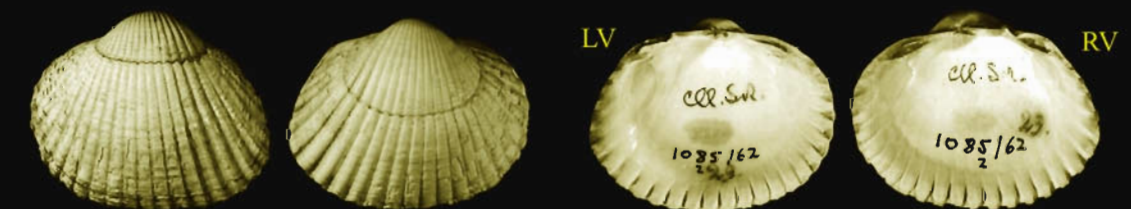
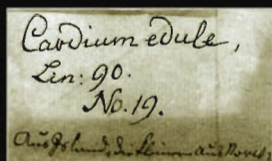


*edule* Linnaeus, 1758. Combination changed from *Cardium* to *Cerastoderma*. SYNTYPES at Linn. Soc. of London. Hanley (1855) has isolated two complete specimens (one marked *edule*) and one valve marked 77. Phot. by S.P.D.

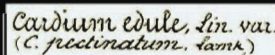
*crenulatum* Lamarek. Combination changed from *Cardium* to *Cerastoderma*. TYPE material at MHN, Genève # 1085/68 L. 34. ID by staff: *Cerastoderma edule* Lin. var. [correct]. Phot. by G.D.

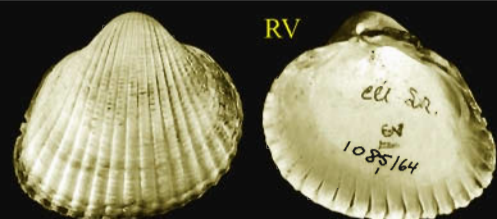


*edule* Linnaeus, 1758. Combination changed from *Cardium* to *Cerastoderma*. ID by Spengler 1799 No. 19 (original label). ZMUC, Copenhagen. Phot. by J.H.

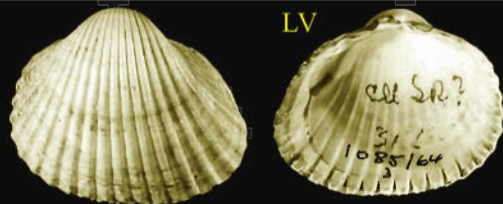


*pectinatum* Lamarek. Combination changed from *Cardium* to *Cerastoderma*. TYPE material at MHN, Genève # 1085/62, 2-29. ID by staff: *Cerastoderma edule* Lin. var. Phot. by G.D.





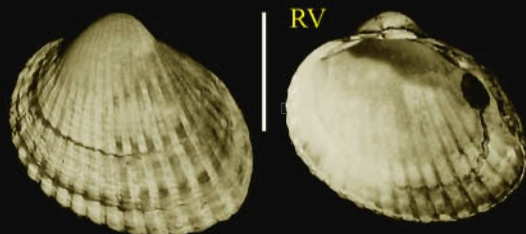
*edule* Linnaeus, 1758. Combination changed from *Cardium* to *Cerastoderma*. ID by Lamarck. MHN, Genève, # 1085/64-1. Phot. by G.D.



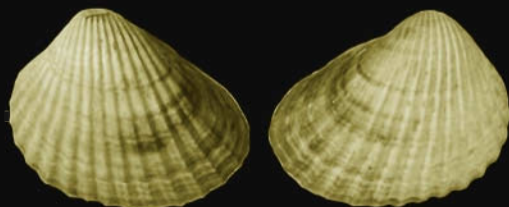
*edule* Linnaeus, 1758. Combination changed from *Cardium* to *Cerastoderma*. ID by ?Lamarck. MHN, Genève, # 1085/64-2 ID by staff: *C. glaucum* [correct]. Phot. by G.D.



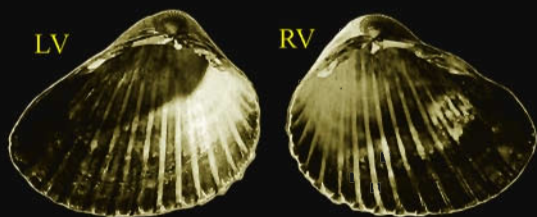
*edule* var. Lamarck. TYPE material at MHN, Genève, # 1085/65-1. Combination changed from *Cardium* to *Cerastoderma*. ID by Lamarck: *C. edule* var. Phot. by G.D.



*belticum* Reeve, 1845. Combination changed from *Cardium* to *Cerastoderma*. One of three SYNTYPES at BMNH, London. Syn. of *C. glaucum* (Bruguère, 1789). Phot. by the Museum.



*lamarckii* Reeve, 1845. Combination changed from *Cardium* to *Cerastoderma*. HOLOTYPE at BMNH, London. Syn. of *C. glaucum* (Bruguère, 1789). Phot. by the Museum.



*eichwaldii* Reeve, 1845. Combination changed from *Cardium* to *Cerastoderma*. Possible TYPE at BMNH, London. Phot. by the Museum.



*Cardium lamarckii* Reeve  
*Card. edule* L.  
 individu nommé par Lamarck

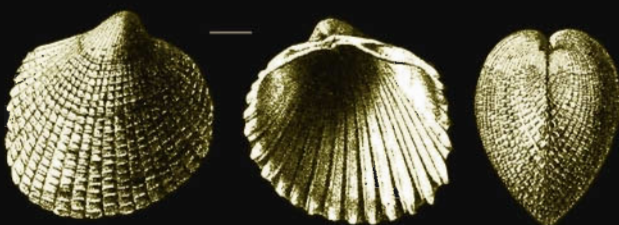
*lamarckii* Reeve, 1845. Combination changed from *Cardium* to *Cerastoderma*. MNHN, Paris. ID by Lamarck: *C. edule*. ID by staff: *C. lamarckii* Reeve. Phot. by J.H.



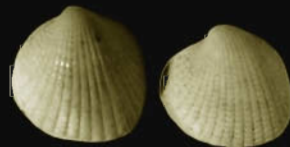
*marcoticum* Pallyary, 1926. Combination changed from *Cardium* to *Cerastoderma*. LECTOTYPE at MNHN, Paris. Figured by Savigny 1827. Suggestion by authors: downgraded to *Cerastoderma glaucum marcotica* (Pallyary, 1912). Phot. by A. le G.



*isthmicum* Isсел, 1869. Combination changed from *Cardium* to *Cerastoderma*. SYNTYPE at MNHN, Paris. Figured by Savigny 1817: Description de l'Egypte. Phot. by A. le G.



*sueziensis* Isсел, 1869. Combination changed from *Cardium* to *Parvicardium*. Figs. from drawing by Smith 1885.



*sueziensis* Isсел, 1869. Combination changed from *Cardium* to *Parvicardium*. Gen. coll at MNHN, Paris. Phot by G.H.P.



*vulva* Jousseume, 1898. Combination changed from *Cardium* to *Clinocardium*. LECTOTYPE at MNHN Paris. From Japan. Synonym of *Clinocardium buelowi* (Rolle, 1896). Phot. A. le G.

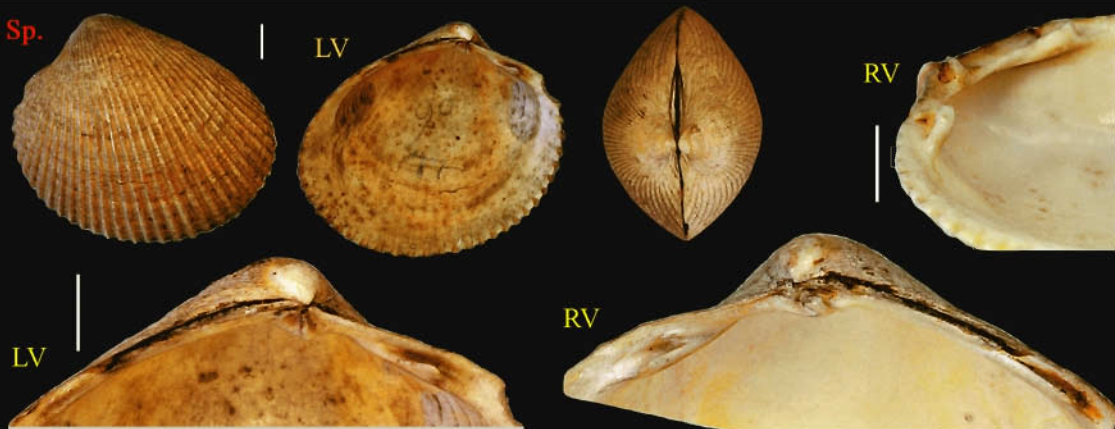


*nuttallii* Conrad, 1837. Combination changed from *Cardium* to *Clinocardium*. Remarkable orange colour. From Alaska. Wet collection at ZMUC, Copenhagen. Phot. by J.H.

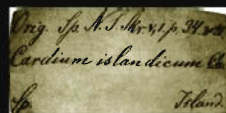
*californiense* Deshayes, 1839. Combination changed from *Cardium* to *Clinocardium*. From drawing Plate 47 by Deshayes 1841.



*arcticum* Sowerby, 1834. Combination changed from *Cardium* to *Ciliatocardium*. 2 possible SYNTYPES at BMNH, London. Syn. of *Ciliatocardium ciliatum* (Fabricius, 1780). Phot. by the Museum.



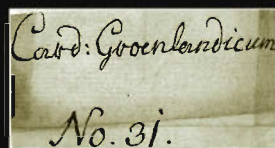
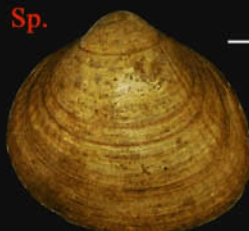
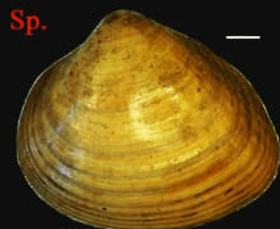
*islandicum* with ref to Ch[emnitz]. Combination changed from *Cardium* to *Ciliatocardium ciliatum* (Fabricius, 1780). Label by Mörch: Spengler 1799 No. 21. (Spengler's original label missing). From Iceland. ZMUC, Copenhagen. Phot. by J.H.



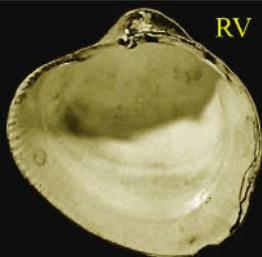
*laperousii* Deshayes, 1839. Combination changed from *Cardium* to *Serripes*. Fig. from Deshayes 1841.



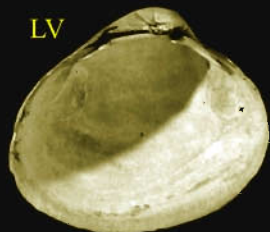
*groenlandicum* Bruguière, 1789. Combination changed from *Cardium* to *Serripes*. TYPE at MHN, Genève, # 1085/66. ID by Lamarck. Phot. by G.D.



*groenlandicum* Bruguière, 1789. Combination changed from *Cardium* to *Serripes*. ID by Spengler 1799 No. 31 (original label). From Greenland. There are two boxes with Spengler labels at the ZMUC, Copenhagen. Phot. by J.H.



*notabile* Sowerby, 1915. Combination changed from *Cardium* to *Serripes*. HOLOTYPE at BMNH, London. Phot. by the Museum.



*fabricii* Deshayes, 1854. Combination changed from *Cardium* to *Serripes*. Possible SYNTYPE at BMNH, London. Phot. by the Museum.

*isocardia* Linnaeus, 1758. Combination changed from *Cardium* to *Trachycardium*. ID by Lamarek at MNHN, Paris. Phot. by J.H.



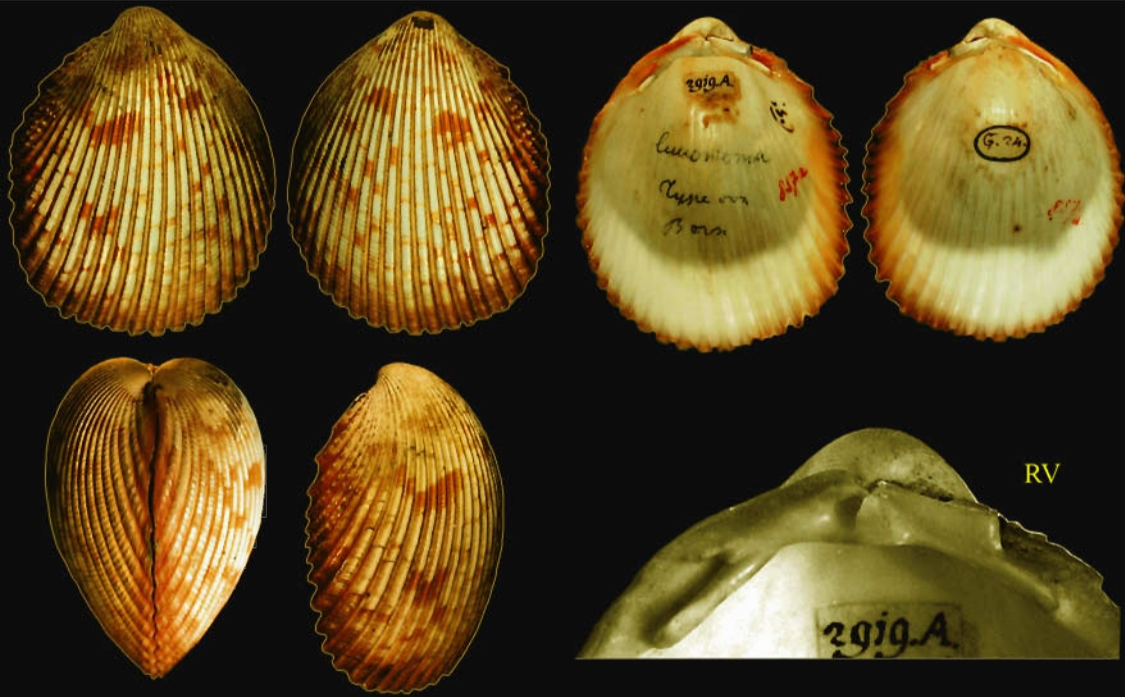
*isocardia* Linnaeus, 1758. Combination changed from *Cardium* to *Trachycardium*. ID by Spengler 1799 No. 9 (original label). From the coast of Guinea [W. Africa err. loc.]. ZMUC, Copenhagen. Phot. by J.H.



*Card. isocardia*,  
Linn: 82.  
No. 9.  
From the Coast of Guinea



*delicatum* Smith, 1915. Combination changed from *Cardium* to *Trachycardium*. 14 SYNTYPES (valves) at BMNH, London. Drawing of type from Smith 1915. Phot. by H.T.



*leucostomum* Born, 1780. HOLOTYPE at NMW, Vienna. Combination changed from *Cardium* to *Trachycardium*.  
Hinge of right valve enlarged. Phot. J.V.



*leucostomum* Born, 1780. Combination changed from *Cardium* to *Trachycardium*. Spengler's (1799) species No. 14.  
Present ID by Mörch. ZMUC, Copenhagen. Phot. J.H.



*magnum* Born, 1780. HOLOTYPE at NMW, Vienna. Syn of *Dinocardium robustum*. Phot. by J.H.

Coast of N. and S. Carolina. Expt. E. Coast U.S. Wm. Stimpson.

*magnum* Born, 1780 = *Dinocardium robustum*. From N. & S. Carolina (original label). ZMUC, Copenhagen. Phot. by J.H.



Phot. by J.H.



Sp.

RV

LV

*Cardium obliquum*  
Litt. 918 fig. 165.  
No. 12.  
N. Carolina. Stimpson



*obliquum* Spengler, 1799. HOLOTYPE at ZMUC, Copenhagen. ID by Spengler 1799 No 12 (original label). *Cardium obliquum* Spengler = *Cardium ventricosum* Bruguière = *Dinocardium robustum*. Phot. by J.H.



RV



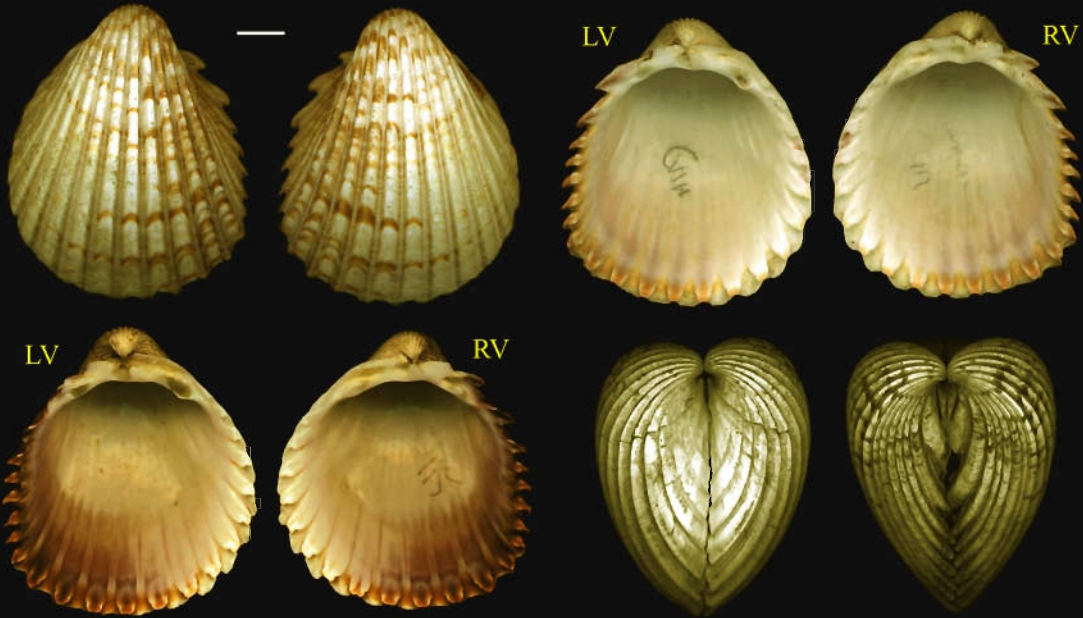
*obovale*, Sowerby

*obovale* Broderip & Sowerby, 1833. *Cardium obovale* = *Trigonocardia obovale*. 2 SYNTYPES at BMNH, London. From Xipixapi, W. Columbia. Phot. by L.K.

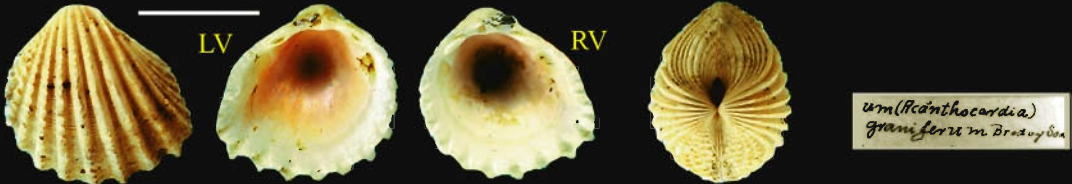


Type *ovuloides*, Reeve

*ovuloides* Reeve, 1845. 3 SYNTYPES at BMNH London. Hinge view of largest specimen. Synonym of *Trigonocardia obovale* (Broderip & Sowerby, 1833). Phot. by L.K.



*panamense* Sowerby, 1833. See also p. 924. Combination changed from *Cardium* to *Trachycardium*. From the shell cabinet of the Danish King Christian 8 (C VIII written inside shells). ZMUC, Copenhagen. Phot. by J.H.



*graniferum* Broderip & Sowerby, 1829. Combination changed from *Cardium* to *Trigoniocardia*. ZMUC, Copenhagen. Phot. by J.H.



*exochum* Melvill, 1906. Combination changed from *Cardium* to *Trachycardium*. TYPE at BMNH, London. Phot. by J.V.

*mindanense* Reeve, 1844. See also p. 858. Combination changed from *Cardium* to *Trachycardium* HOLOTYPE at BMNH, London. Wrong Locality. Misidentification of *Trachycardium consors*. Shells should come from Florida or the Caribbean. Phot. by J.V.







*mindanense* Reeve, 1844. Combination changed from *Cardium* to *Trachycardium*. Gen. coll. at BMNH, London. ID by Reeve: *Cardium mindanense* (err.), probably = *Vasticardium rubicundum* (Reeve, 1844). Phot. by J.V.



*muricatum* Linnaeus, 1758. Combination changed from *Cardium* to *Dalloccardia*. SYNTYPES at Lin. Soc. of London. ID by Hanley (1855). Phot. by S.P.D.



*Bucarde muriqué.  
capd. muricatum.*

*muricatum* Linnaeus, 1758. Combination changed from *Cardium* to *Dalloccardia*. ID by Lamarck (original label). MNHN, Paris. Phot. by J.H.



*Cardium muricatum.  
var. [2]  
Bresil Riojanira de la Lande. 1837.*

*muricatum* var. [2]. Lamarck. Combination changed from *Cardium* to *Dalloccardia*. TYPE material at MNHN, Paris. From Brazil. Phot. by J.H.



LV

*angulatum* Lamarck, 1819. Combination changed from *Cardium* to *Vasticardium*. HOLOTYPE at MHN, Genève, # 1085/44. ID by Lamarck. Phot. by J.V.

*Vasticardium angulatum*  
*Cardium angulatum*

*angulatum* Lamarck, 1819. Combination changed from *Cardium* to *Vasticardium*. ID by Lamarck (original label). MNHN, Paris. Phot. by J.H.



*Cardium magnum*  
Linn: 86.  
De l'Inde, Tranquebar.  
No. 13.

*magnum* var. *b*. Spengler, 1799. HOLOTYPE at ZMUC, Copenhagen. *Cardium magnum* var *b* = *Vasticardium angulatum*. From Tranquebar, Coromandel Coast. ID by Spengler 1799 No. 13 (original label). Phot. by J.H.

*compunctum* Kira, 1954. *Vasticardium*. SYNTYPE at OCM(NH). Phot. by courtesy of J.V.



LV



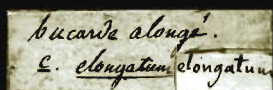
RV



*assimile* Reeve, 1844. Combination changed from *Cardium* to *Vasticardium*. 3 SYNTYPES at BMNH, London. Phot. by J.V.



*elongatum elongatum* Bruguière, 1789. Combination changed from *Cardium* to *Vasticardium*. ID by Lamarck as *C. elongatum* (original label). MNHN, Paris. Phot. by J.H.



*elongatum enode* Vidal, 1993. *Vasticardium* NEOTYPE at MNHN, Paris. From Port Vila, Vanuatu. Phot. by A. le G.



*enode* Sowerby, 1840. Comb. changed from *Cardium* to *Vasticardium*. HOLOTYPE at BMNH, London, marked: type *enode*, Sowerby. Phot. by G.H.P.

*elongatum* Bruguière, 1789. Comb. changed from *Cardium* to *Vasticardium*. Gen coll. at BMNH, London, marked: *elongatum* Brug. Phot. by G.H.P.

*elongatum* Bruguière, 1789. Comb. changed from *Cardium* to *Vasticardium*. Gen. coll. at BMNH, London. Probably figured by Reeve 1844 # 46. Phot. by J.V.



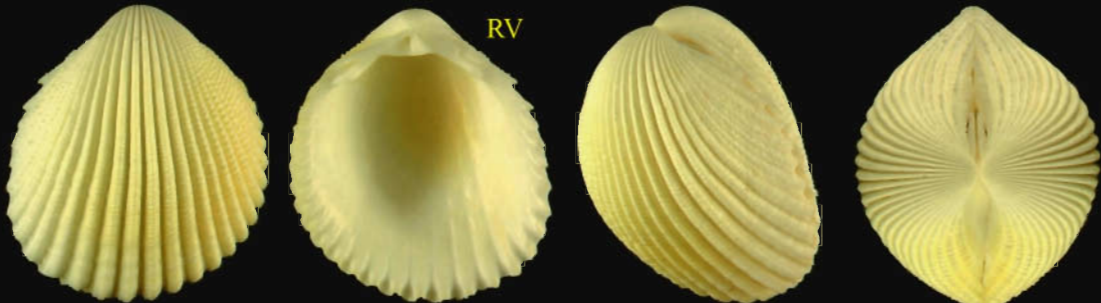
*elongatum* Bruguière, 1789. Comb. changed from *Cardium* to *Vasticardium*. HOLOTYPE at MNHN, Genève, 1085/54 - 21. Posterior slope enlarged. ID by Lamarck. Phot. by J.V.



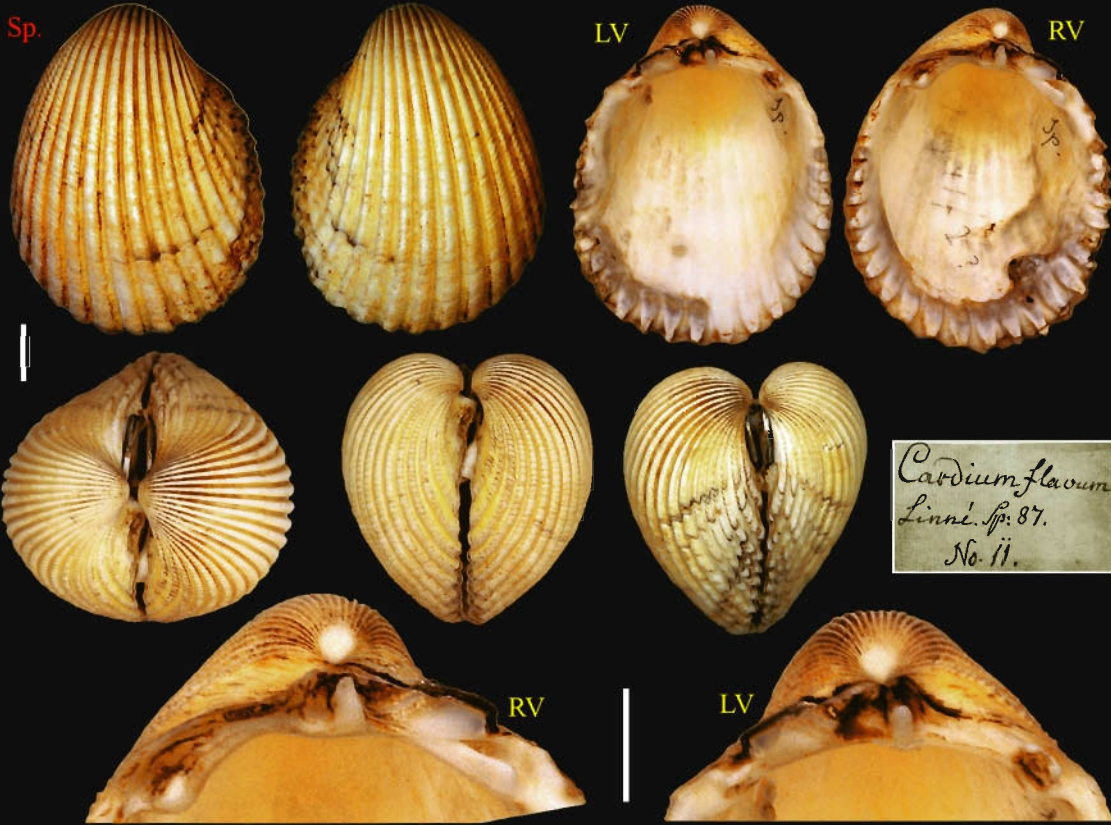
*fidele* Vidal, 1992. *Vasticardium*. HOLOTYPE at MNHN, Paris. From Okinawa Isl., Japan. Phot. by A. le G.



*flavum* Linnaeus, 1758. Comb. changed from *Cardium* to *Vasticardium*. HOLOTYPE at Lin. Soc. of London. ID by Hanley (1855). Phot by S.P.D.

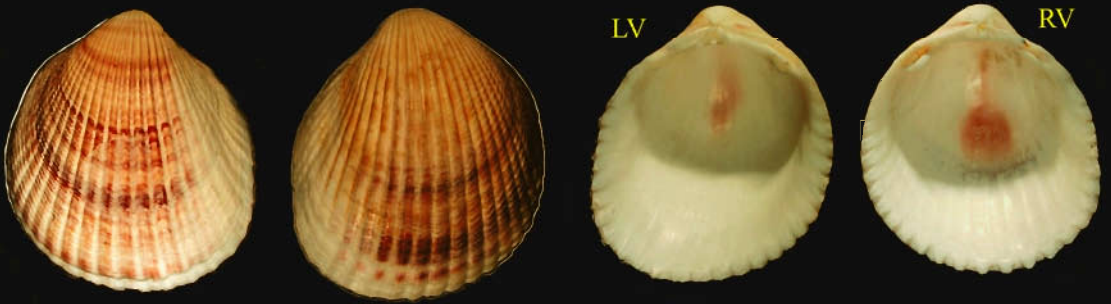


*flavum subrugosum* Sowerby, 1838. *Vasticardium*. NEOTYPE at MNHN, Paris. From Phuket, Thail. Phot. by A. le G.



*Cardium flavum*  
 Linné. Sp. 87.  
 No. 11.

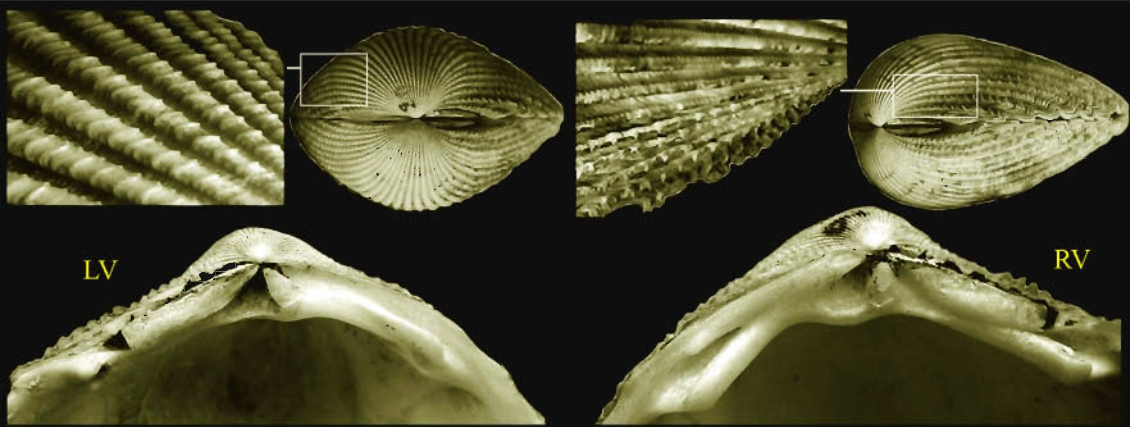
*flavum* Linnaeus, 1758. Comb. changed from *Cardium* to *Vasticardium*. ID by Spengler 1799 No. 11 (original label). ZMUC, Copenhagen. Phot. by J.H.



*gratiosum* Deshayes, 1855. Comb. changed from *Cardium* to *Vasticardium*. SYNTYPES at BMNH, London. Phot. by J.V.



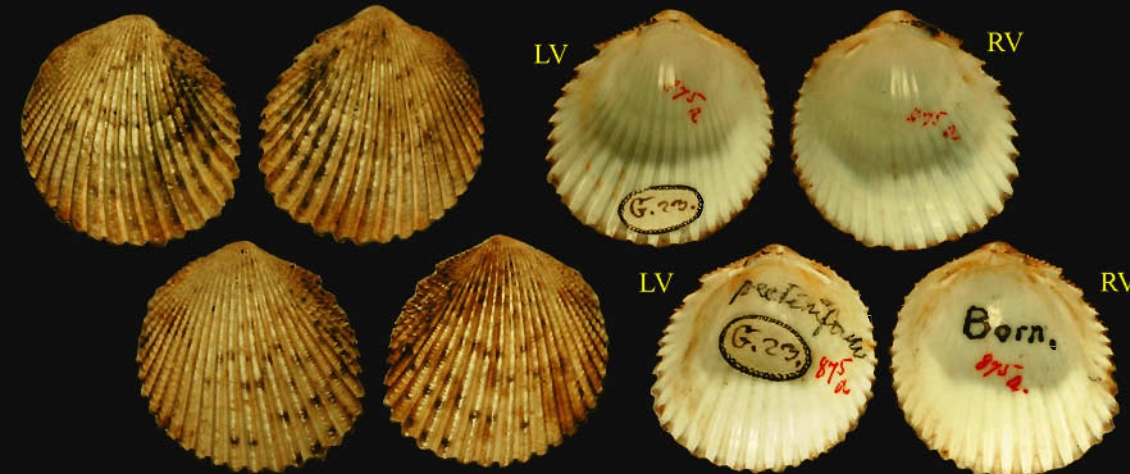
*lomboke* Vidal, 2003. *Vasticardium*. HOLOTYPE at MNHN, Paris. From Lombok Isl., Indonesia. Phot. by A. le G.



*flavum* Born, 1780. Comb. changed from *Cardium* to *Vasticardium*. ID by Lamarck. Syn of *V. pectiniforme* (Born). MNHN, Paris. Phot. by J.H.



*rugosum* Lamarck, 1819. Comb. changed from *Cardium* to *Vasticardium*. Syn of *V. pectiniforme* (Born). MNHN, Paris. Phot. by J.H.



*pectiniforme* Born, 1780. Comb. changed from *Cardium* to *Vasticardium*. 2 SYNTYPES at NMW, Vienna. Phot. by J.H.



*indioceanum* Vidal, 1993. *Vasticardium*. HOLOTYPE at MNHN, Paris. From Mombassa, Kenya. Phot. by A. le G.



*lacunosum* Reeve, 1845. *Vasticardium*. NEOTYPE at MNHN, Paris. From Al Fintas Kuwait. Phot. by A. le G.

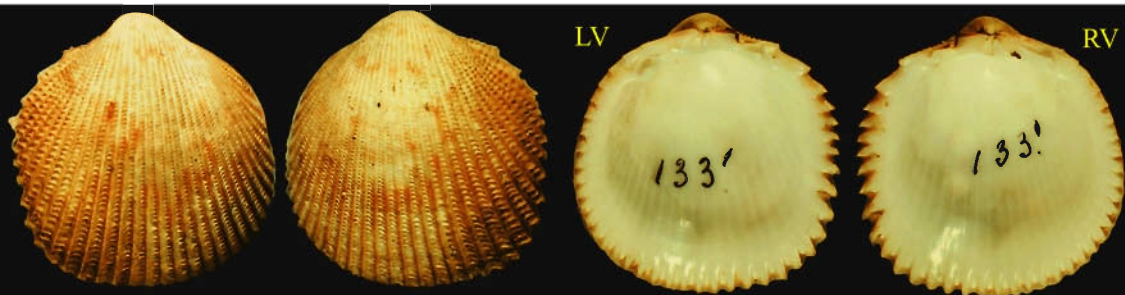


*peregrinum* Jousseaume, 1888. Comb. changed from *Cardium* to *Vasticardium*. SYNTYPE at MNHN, Paris. From the Red Sea. Phot. by A. le G.



*kerslakeae* Healey & Lamprell, 1992. Comb. changed from *Acrosterigma* to *Vasticardium*. HOLOTYPE at AMS, Sydney. Phot. by the Museum.

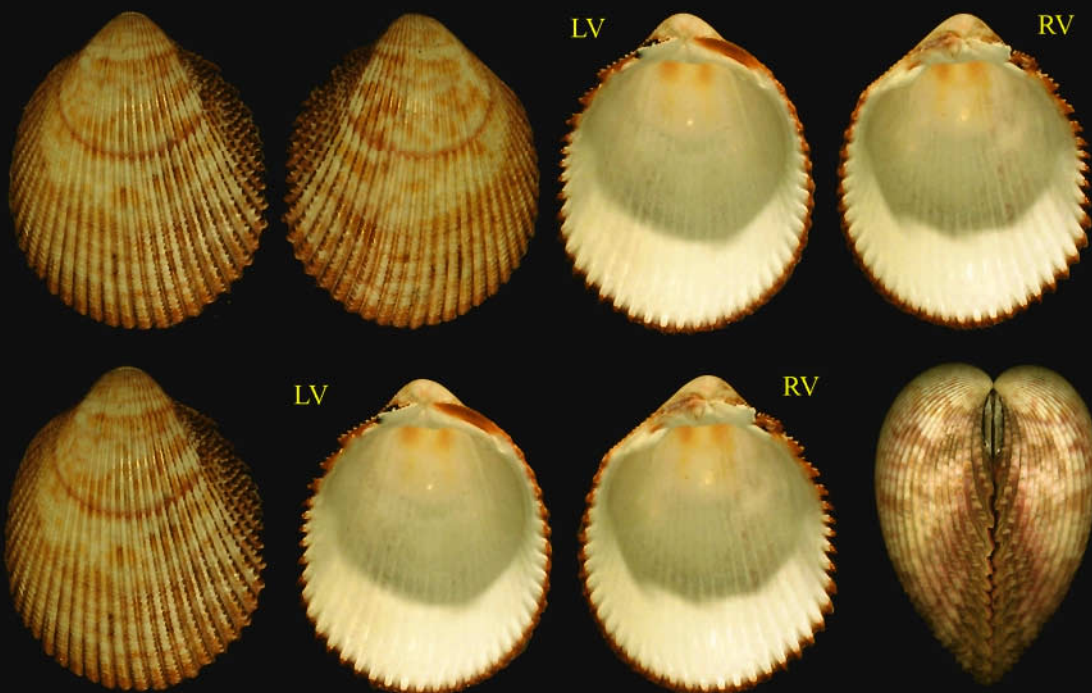
*olivifer* Iredale, 1936. Comb. changed from *Regozara* to *Vasticardium*. HOLOTYPE at AMS, Sydney. Phot. by the Museum.



*sewelli* Prashad, 1932. Comb. changed from *Cardium* to *Vasticardium*. HOLOTYPE at ZMA, Amsterdam. Siboga Stat. 133. Phot. by J.V.

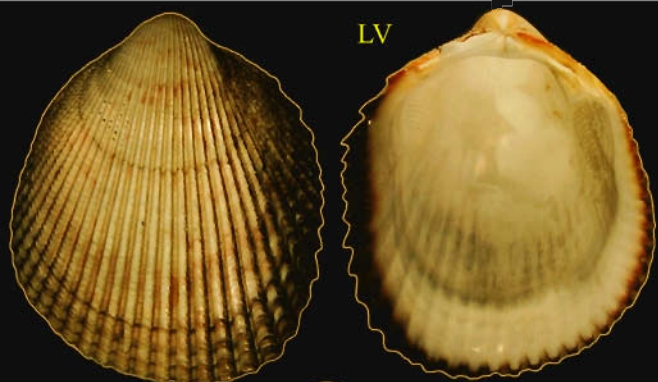


*sorenseni* Powell, 1958. Comb. changed from *Trachycardium* to *Vasticardium*. HOLOTYPE Auckland Museum. Phot. by J.V.

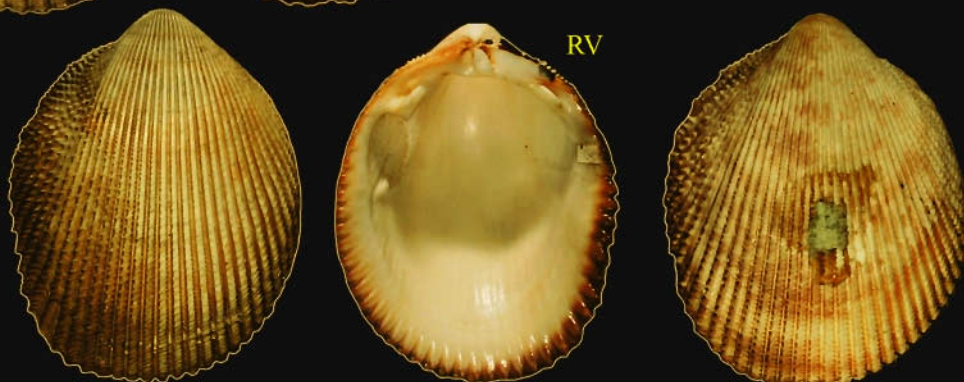


*rubicundum* Reeve, 1844. See also p. 926. Comb. changed from *Cardium* to *Vasticardium* 3 SYNTYPES at BMNH, London. Hinge view of largest spec. Phot. by J.H.





*philippinense* Hedley, 1899 (Deshayes MS).  
Comb. changed from *Cardium* to *Vasticardium*. One of 3 specimens at BMNH, London. Phot. by J.V.



*orbita* Broderip & Sowerby, 1833. Comb. changed from *Cardium* to *Vasticardium*. 2 of 3 SYNTYPES at BMNH, London (figured by Sowerby 1834 # 13, and Reeve 1845 # 85). From the Isl. of Annaa, Pacific O. Phot. by J.V.



*varietel* sp.  
*Cardium leuco-*  
*stomum.*  
No 14.  
Niquebar.

19. a.



*leucostomum* var. B Spengler, 1799. Comb. changed from *Cardium* to *Acrosterigma*. ID by Spengler No. 14 B (original label). From the Nicobar Isl. ID by Mörch: *Cardium leucostomum* var. B = *C. oxigonum* Sow R 77. ZMUC, Copenhagen. Phot. by J.H.

*okinawense* Kira, 1959.  
*Vasticardium*. Specimen  
 from Kira Collection.  
 Phot. by Matsukuma,  
 Japan c/o J.V.



LV



RV



LV



RV



*mendanense* Sowerby, 1896. Comb. changed from *Cardium* to *Vasticardium*. HOLOTYPE at BMNH, London.  
 Phot. by J.V.



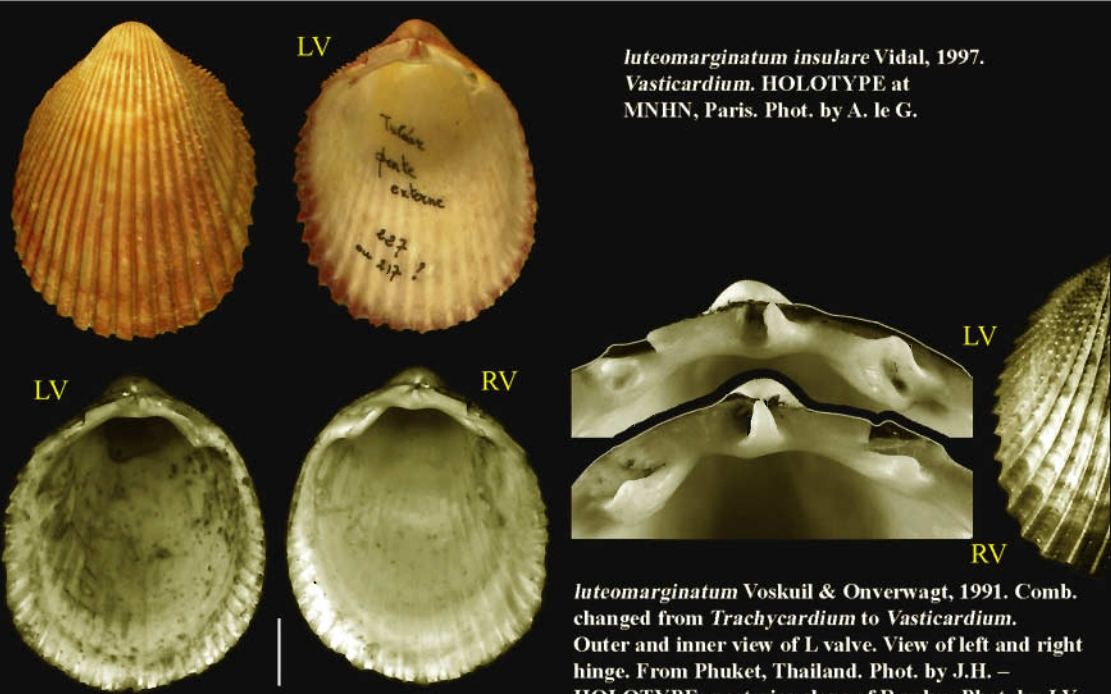
LV



RV



*subelongatum* Sowerby, 1840. Comb. changed from *Cardium* to *Vasticardium*. SYNTYPES at BMNH, London.  
 Probably specimen figured by Reeve. Phot. by J.V.



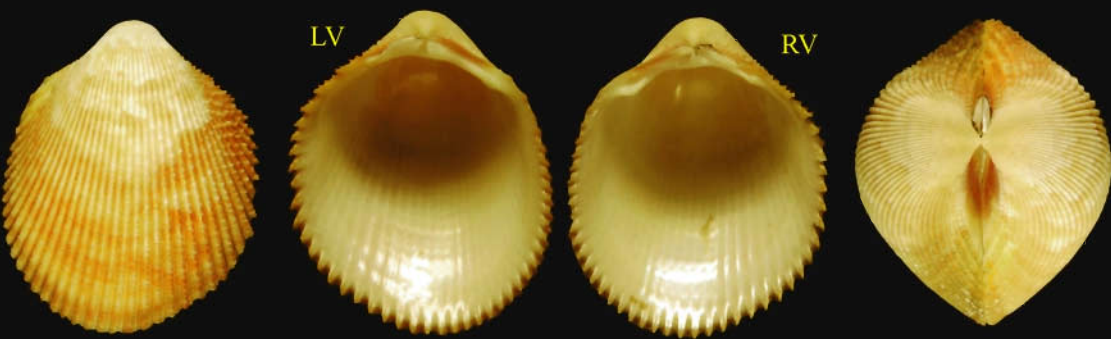
*luteomarginatum insulare* Vidal, 1997.  
*Vasticardium*. HOLOTYPE at MNHN, Paris. Phot. by A. le G.

*luteomarginatum* Voskuil & Onverwagt, 1991. Comb. changed from *Trachycardium* to *Vasticardium*. Outer and inner view of L valve. View of left and right hinge. From Phuket, Thailand. Phot. by J.H. – HOLOTYPE: posterior slope of R valve. Phot. by J.V.

Inner view of L & R valves. Very old specimen at ZMUC, Copenhagen. ID by R. Voskuil. Phot. by J.H.



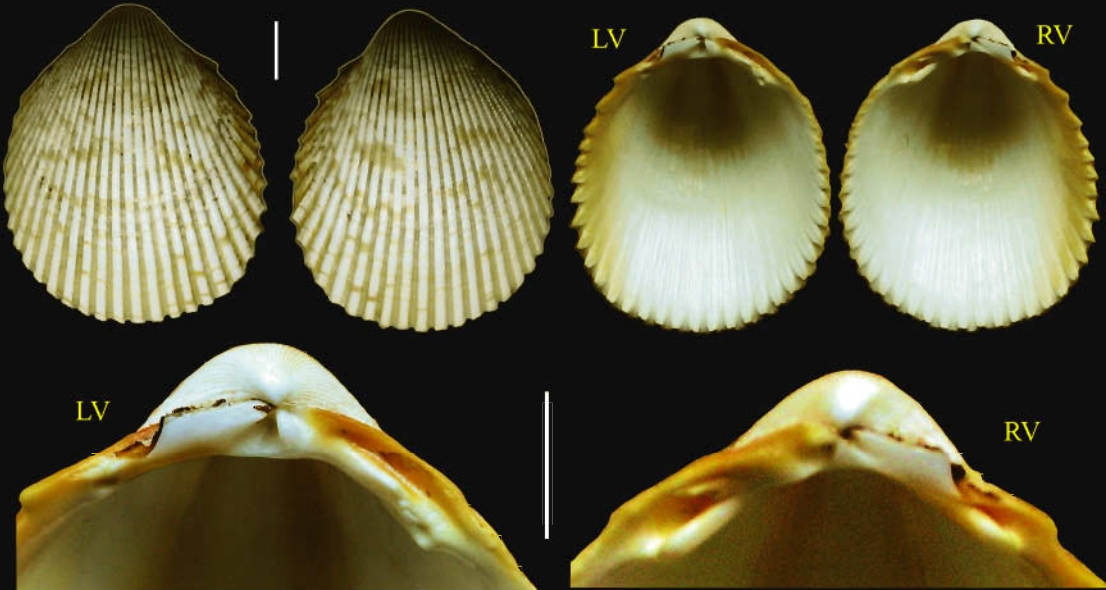
*subassimile* Vidal, 2003. *Vasticardium*. HOLOTYPE at MNHN, Paris. From the Indo-Pacific. Phot. by A. le G.



*thomassini* Vidal, 1998. *Vasticardium*. PARATYPE at MNHN, Paris. From Madagascar. Phot. by A. le G.



*marerubrum* Voskuil & Onverwagt, 1991. *Vasticardium*. HOLOTYPE. Phot. by J.V.



*marmoreum* Lamarck. ID by Lamarck. Combination changed. *Cardium marmoreum* syn. of *Trachycardium leucostomum* (Born, 1780). MNHN, Paris. Phot. by J.H.



*papuanum* Vidal, 1996. *Vasticardium*. PARATYPE at MNHN, Paris. From Papua New Guinea. Phot. by A. le G.



LV



RV



*marmoratum* var. [2] Lamarck, 1819. TYPE. ID by Lamarck: *Cardium marmoratum* [2] var. *testa majore*; ano lanceolato glabro. ID by MHN, Genève: *Cardium leucostomum* Born. Cat. no. 1085/53-20. Specimen from Ceylon (Sri Lanka) alex macleay, according to label. Phot. by J.V.



LV



RV



*marmoratum* var. [2] Lamarck, 1819. TYPE. ID by Lamarck: *Cardium marmoratum* [2] var. ID by Voskuil & Onverwagt (1991 p. 61): *Trachycardium luteomarginatum* Voskuil & Onverwagt, 1991. Mus Genève Cat. no. 1085/53-20. Phot. by J.V.



*rugosum* type 1 and 2. Comb. changed from *Cardium* to *Vasticardium*. Mus. Genève 1085-55, 1085-56. ID by Lamarck. Phot. by J.V.

*translatum* Prashad, 1932. Comb. changed from *Cardium* to *Vasticardium*. HOLOTYPE at ZMA, Amsterdam. Siboga Sta. 47. Phot. by J.V.

*variegatum* Sowerby, 1840. Comb. changed from *Cardium* to *Vasticardium*. 2 of the 3 SYNTYPES at BMNH. Phot. by J.V



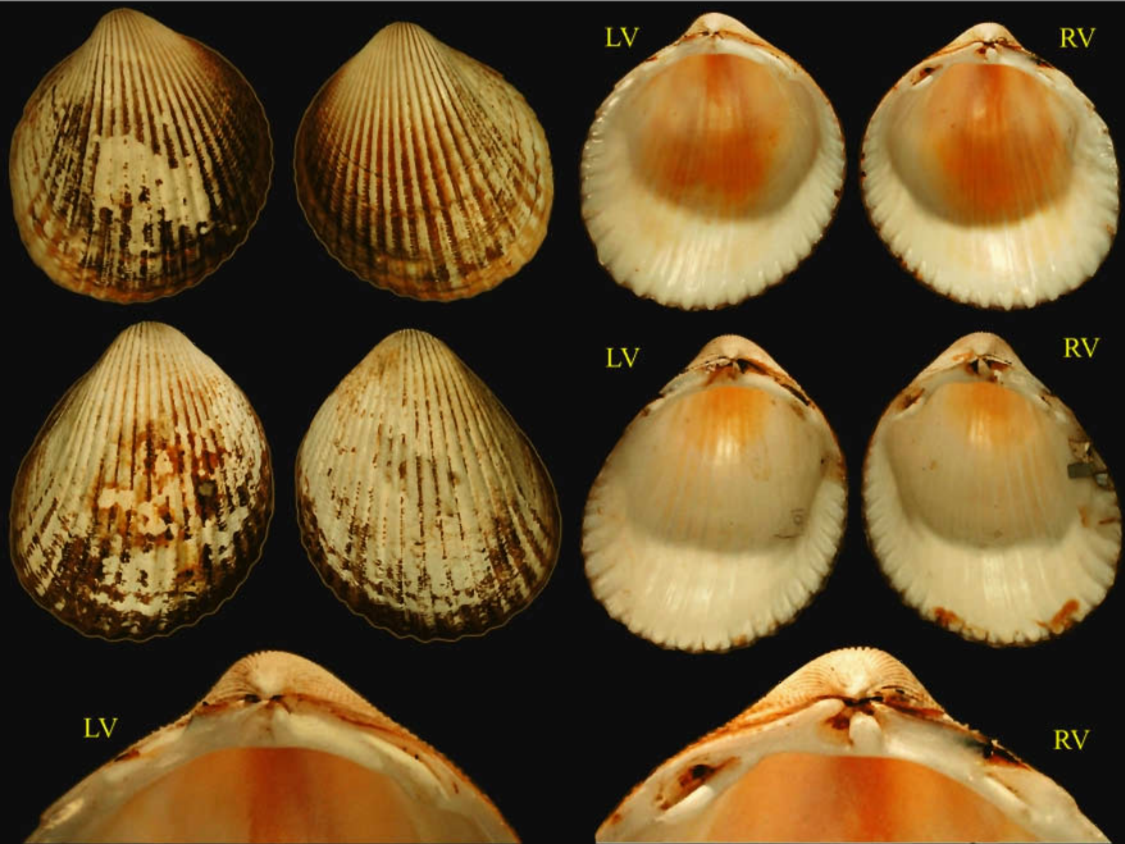
RV



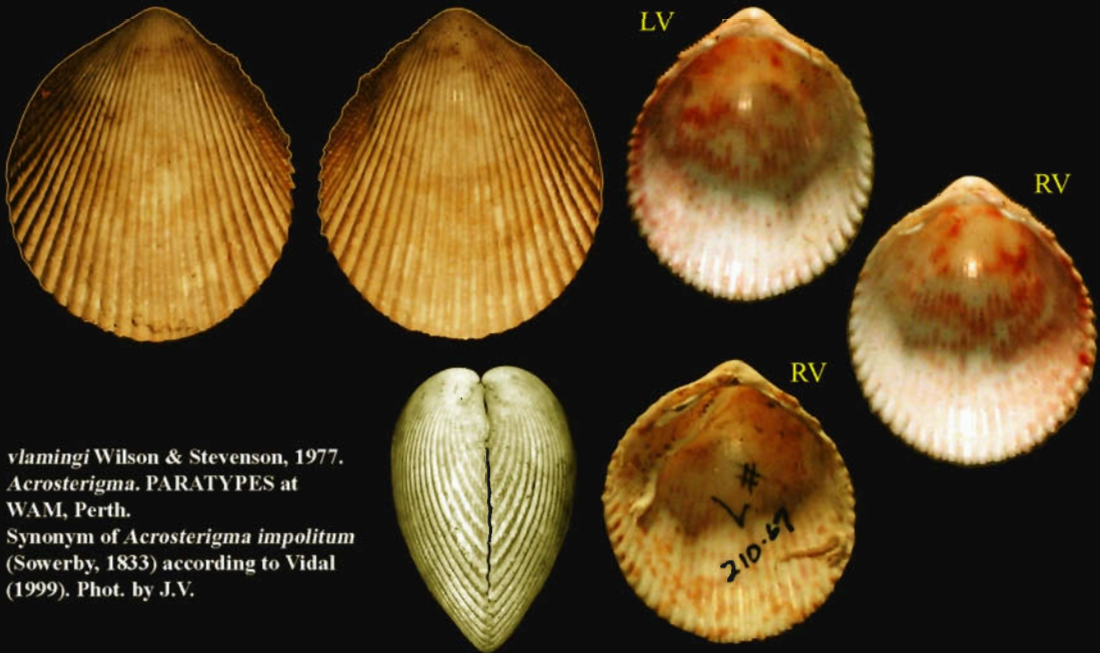
LV



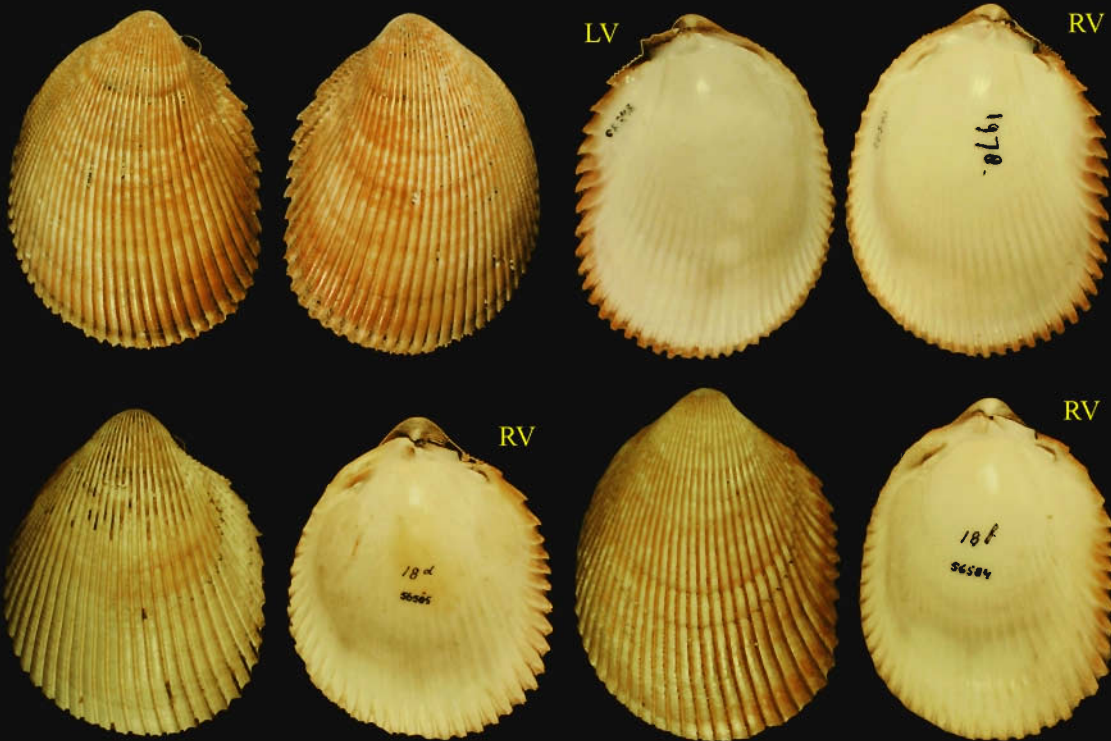
RV



*tumidum* Deshayes, 1854. Comb. changed from *Cardium* to *Vasticardium*. SYNTYPES at BMNH, London.  
Phot. by J.V.



*vlamingi* Wilson & Stevenson, 1977.  
*Acrosterigma*. PARATYPES at  
WAM, Perth.  
Synonym of *Acrosterigma impolitum*  
(Sowerby, 1833) according to Vidal  
(1999). Phot. by J.V.



*wilsoni* Voskuil & Onverwagt, 1991. Comb. changed from *Trachycardium* to *Vasticardium*. HOLOTYPE 56583/1. PARATYPE (18 d) from Moluccas. PARATYPE (18 f) from Fiji Isl. Phot. by J.V.



*abrothense* Vidal, 1999. *Acrosterigma*. Type series WAM, Perth. Phot. by J.V.



*arenicolum* Reeve, 1845. Comb. changed from *Cardium* to *Acrosterigma*. 2 of 3 SYNTYPES at BMNH, London. Synonym of *Acrosterigma maculosum* (Wood, 1815). Phot. by J.V.



LV



RV



*beauforti* Prasad, 1932. Comb. changed from *Cardium* to *Acrosterigma*. HOLOTYPE at ZMA, Amsterdam. Siboga Sta. 133. Syn. of *Acrosterigma impolitum* (Sowerby, 1833). Phot. by J.V.



LV



RV



RV



LV



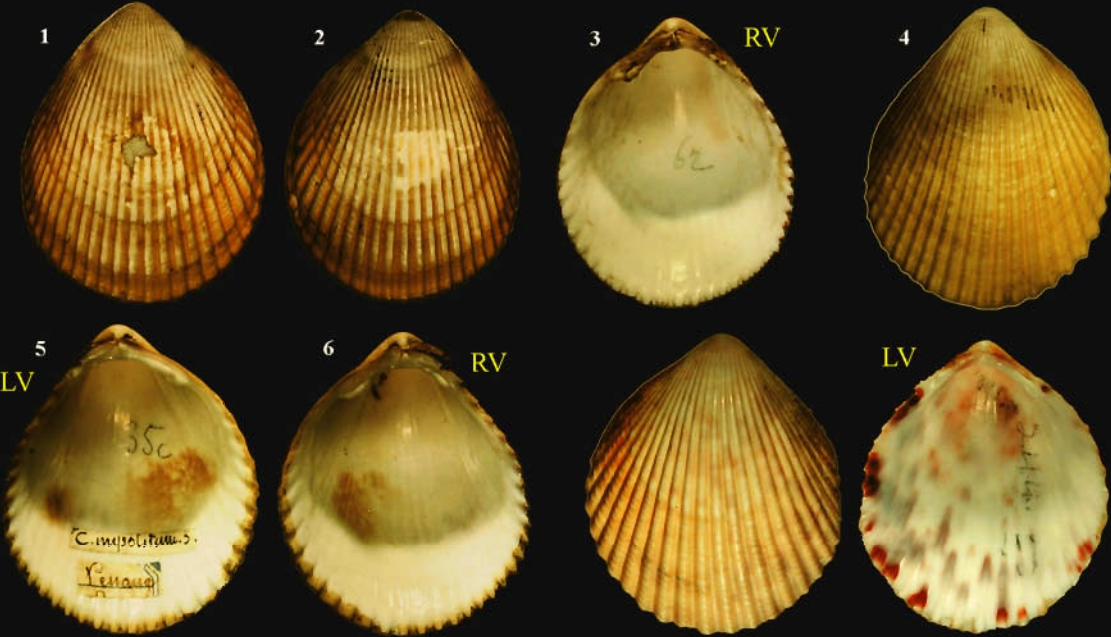
*elongatum cipangense* Vidal, 1999. Comb. changed from *Acrosterigma* to *Vasticardium*. HOLOTYPE at MNHN, Paris. From Tosa, Japan. Phot. by A. le G.

*elongatum coralense* Vidal, 1993. Comb. changed from *Acrosterigma* to *Vasticardium*. HOLOTYPE at MNHN, Paris. From New Caledonia. Phot. by A. le G.





*couvrili* Fischer-Piette, 1977. Comb. changed from *Laevicardium* (*Trachycardium*) to *Acrosterigma*. HOLOTYPE at MNHN, Paris. From Gabon, 20 m. Syn. of *Acrosterigma impolitum* (Sowerby, 1833). Phot. by A. le G.



*impolitum* Sowerby, 1833. Comb. changed from *Cardium* to *Acrosterigma*. Figs. 1-3: Two of 3 SYNTYPES at BMNH, London. (Probably Reeve # 80 and Sowerby # 66). Figs. 4-6: *Acrosterigma impolitum* from Penang [ex Calypso 1954]. Phot. by J.V.

*dampierense* Wilson & Stevenson 1977. *Acrosterigma*. Type series. AMS, Sydney. Phot. by J.V.



*foveolatum* Sowerby, 1840. Comb. changed from *Cardium* to *Acrosterigma*. TYPE material at BMNH, London. Figured by Reeve 1845, sp. 87. Syn. of *Acrosterigma cygnorum* (Deshayes, 1855). Phot. by J.V.



*dianthinum* Melvill & Standen,  
1899.

Comb. changed from *Cardium*  
to *Acrosterigma*. Type material  
at BMNH, London. Phot. by J.V.



*discus* Vidal, 1999. *Acrosterigma*. PARATYPE at MNHN, Paris. From Mauritius. Phot. by A. le G.



*Cardium*  
*fucatum*  
No. 16.  
From Spengler's  
Sole P. for Guinea

*fucatum* Spengler, 1799. Comb. changed from *Cardium* to *Acrosterigma*. HOLOTYPE at ZMUC, Copenhagen. ID by Spengler No. 16 (original label). From the coast of Guinea [W. Africa]. East India corrected by Spengler. Phot. by J.H.



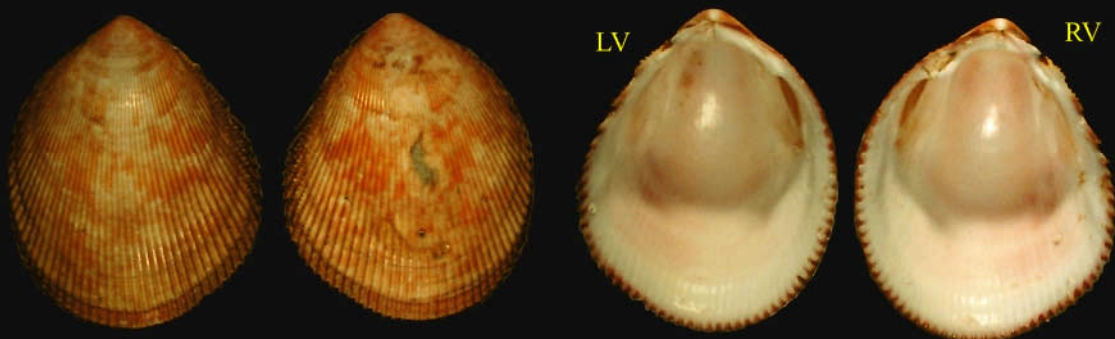
*hobbsae* Vidal, 1999. *Acrosterigma*. PARATYPE at MNHN, Paris. From Mactan Isl., the Philippines.  
Phot. by A. le G.



*lacunosum* Reeve, 1845. See also p. 864. Comb. changed from *Cardium* to *Vasticardium*. HOLOTYPE at BMNH, London. Phot. by J.V.



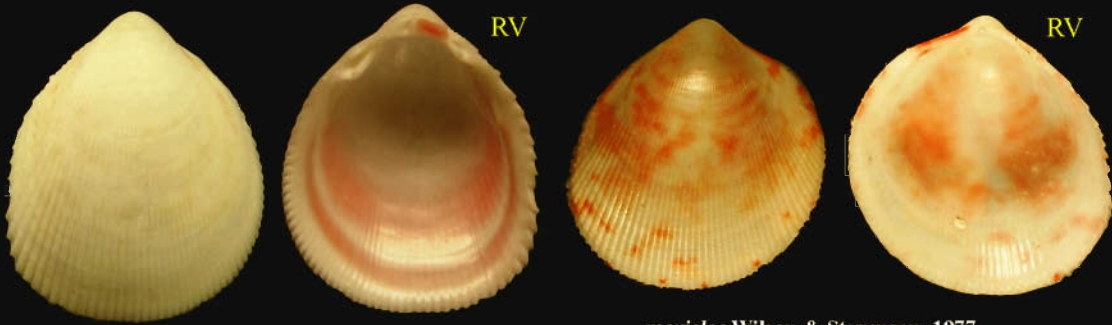
*maculatum* Sowerby, 1840. New name for *Cardium maculosum* Sowerby, 1834. One of 3 SYNTYPES. *A. maculatum* = *Acrosterigma pristipleura* (Dall, 1901). From the Gulf of Mexico. BMNH, London. Phot. by J.V.



*maculosum* Wood, 1815. Comb. changed from *Cardium* to *Acrosterigma*. Specimen from Ceylon. BMNH, London. Phot. by J.V.



*maculosum* Wood, 1815. Comb. changed from *Cardium* to *Acrosterigma*. One of 2 specimens from St. Helena. BMNH, London. Phot. by J.V.



*maculosum howense* Vidal, 1999. *Acrosterigma*.  
HOLOTYPE at MNHN, Paris. From New  
Caledonia, 60 m. Phot. by A. le G.

*marielae* Wilson & Stevenson, 1977.  
*Acrosterigma*. TYPE series at WAM, Perth.  
Phot. by J.V.



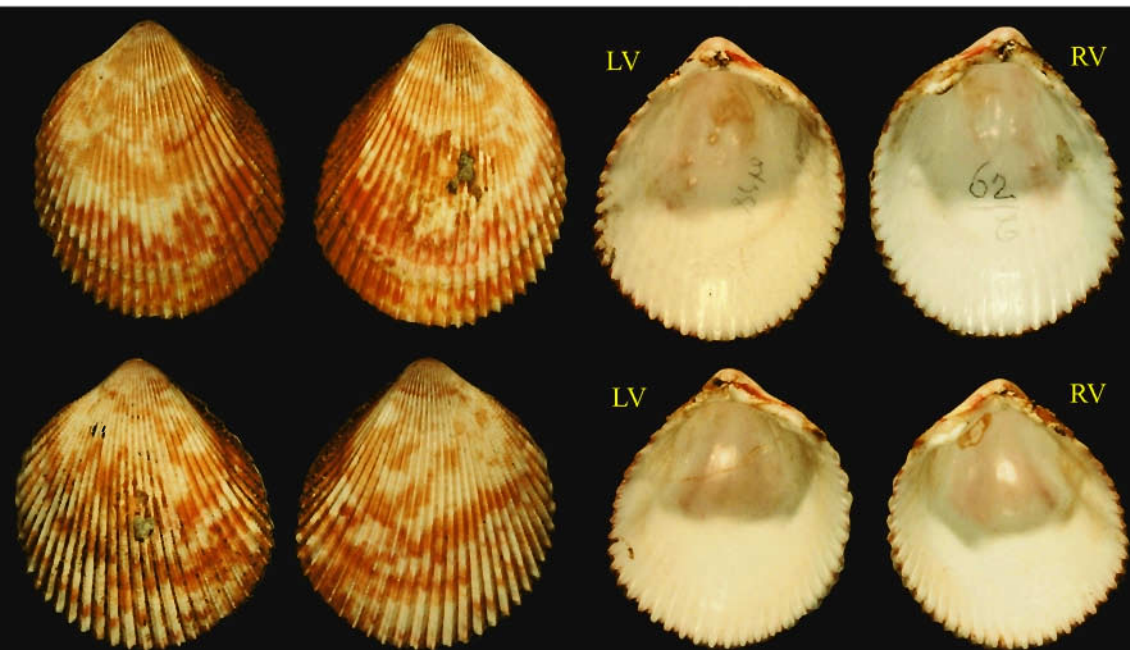
*mauritianum* Deshayes, 1855. Comb. changed from *Cardium* to *Acrosterigma*. SYNTYPES at BMNH,  
London. From Mauritius. Phot. by J.V.



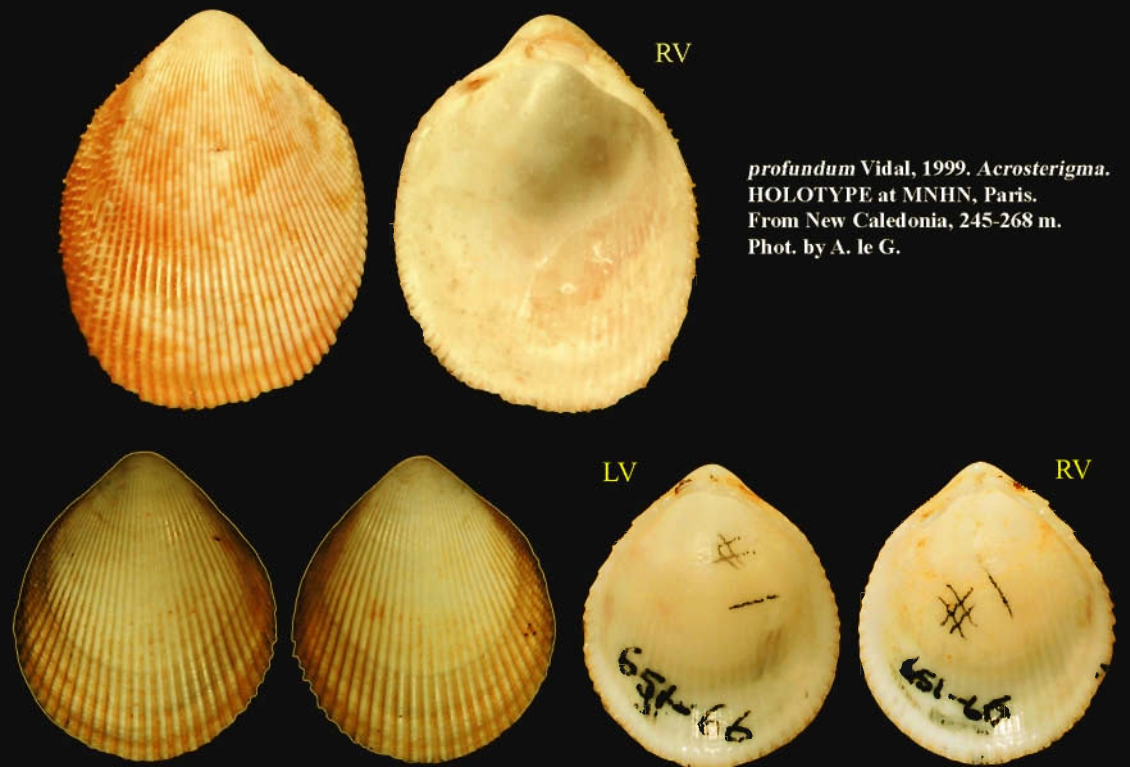
*nebulosum* Reeve, 1845 (see also p. 927). Comb. changed from *Cardium* to *Acrosterigma*. HOLOTYPE  
at BMNH, London. The label also shows *C. unicolor* Sow. Maldive Isl. Phot. by J.V.



*selene* Vidal, 1999. *Acrosterigma*. HOLOTYPE at MNHN, Paris. From New Caledonia, 40-50 m.  
Phot. by A. le G.

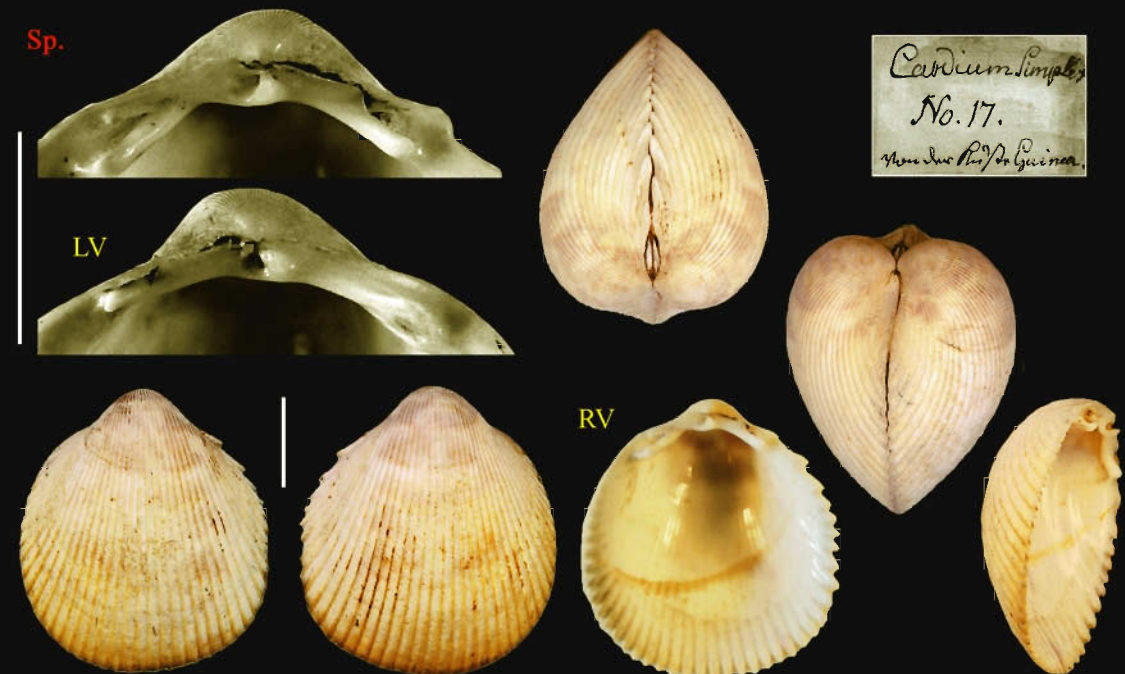


*oxygonum* Sowerby, 1834. Comb. changed from *Cardium* to *Acrosterigma*. SYNTYPES at BMNH, London. (Compare with Part 1 pp. 107, 139). Phot. by J.V.



*profundum* Vidal, 1999. *Acrosterigma*. HOLOTYPE at MNHN, Paris. From New Caledonia, 245-268 m. Phot. by A. le G.

*rosemariensis* Wilson & Stevenson, 1977. *Acrosterigma*. PARATYPE at WAM, Perth. Phot. by J.V.





*soyeri* Fischer-Piette, 1977. Comb. changed from *Laevicardium* to *Acrosterigma*. HOLOTYPE at MNHN, Paris. From Corsica, Mediterranean (incorrect loc.). Identical with *Acrosterigma simplex* according to Vidal (1999). Phot. by A. le G.



Card: striatum  
No. 29.  
aus der Südsee

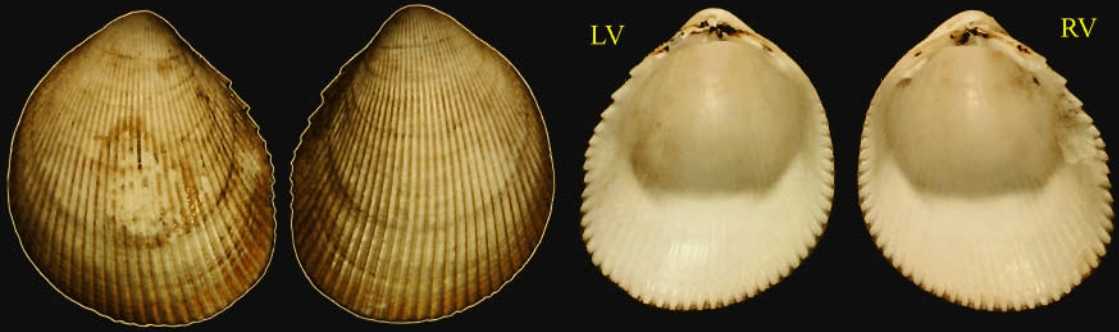
Orig. Sp. N. S. Moerh. p. 15 n. 29.  
Cardium striatum Sp. 29.  
Sp. Lydskov

*striatum* Spengler, 1799. Comb. changed from *Cardium* to *Fulvia*. SYNTYPES at ZMUC, Copenhagen. ID by Spengler 1799 No. 29 (original label). Label by Mörch. From the South Sea. Syn of *Fulvia australis* (Sowerby, 1834). Phot. by J.H.

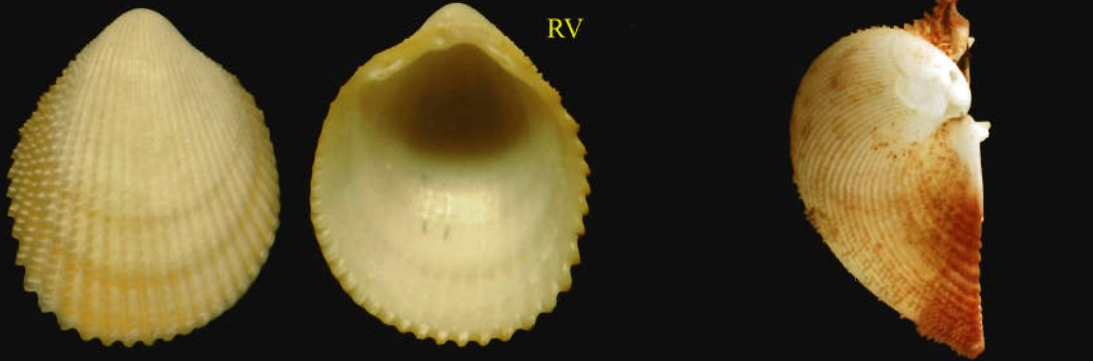


*seurati* Vidal, 1999. *Acrosterigma*. PARATYPE at MNHN Paris. From Tuamotu Archipelago. Seurat coll. Phot. by A. le G.

*suluanum* Vidal, 1999. *Acrosterigma*. SYNTYPE at ZMUC, Copenhagen. Phot. by J.H.

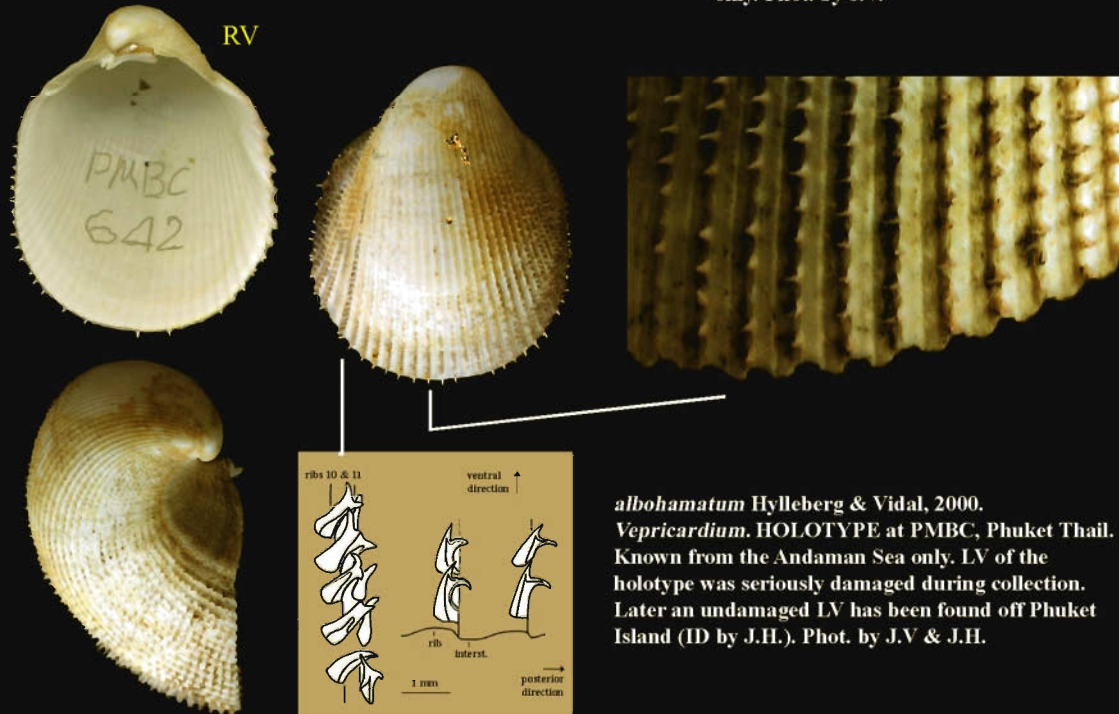


*unicolor* Sowerby, 1840. Comb. changed from *Cardium* to *Acrosterigma*. Possible TYPE at BMNH, London. According to label, the dimensions of this specimen fit Fig. 42 of Sowerby 1840. (See Part 1 p. 115). Phot. by J.V.



*uniornatum* Vidal, 1999. *Acrosterigma*. PARATYPE at MNHN, Paris. South West Pacific, 500 m. Phot. A. le G.

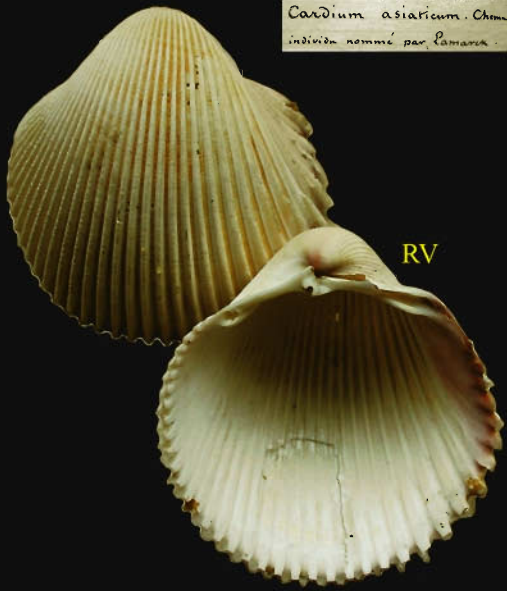
*rubrohamatum* Voskuil & Onverwagt, 1988. *Vepricardium*. Known from the Philippines only. Phot. by J.V.



*albohamatum* Hylleberg & Vidal, 2000. *Vepricardium*. HOLOTYPE at PMBC, Phuket Thail. Known from the Andaman Sea only. LV of the holotype was seriously damaged during collection. Later an undamaged LV has been found off Phuket Island (ID by J.H.). Phot. by J.V & J.H.



*Cardium asiaticum* Chm.  
individu nommé par Lamarck.



RV



LV



RV



*asiaticum* Bruguière, 1789. Comb. changed from *Cardium* to *Vepricardium*. ID by Lamarck. MNHN, Paris. Phot. by J.H.

*asiaticum*. Hinge line of LV & RV. From Phuket, Thailand. Phot. by J.H.

*asiaticum*. Detail of posterior zone with disappearance of lamellae. Phot. by J.V.



Sp.



LV



RV

*lamellatum* Spengler, 1799. HOLOTYPE at ZMUC, Copenhagen. ID by Spengler No. 2 (original label). From Nicobar Isl. Syn. of *Vepricardium asiaticum* Brug. Phot. by J.H.

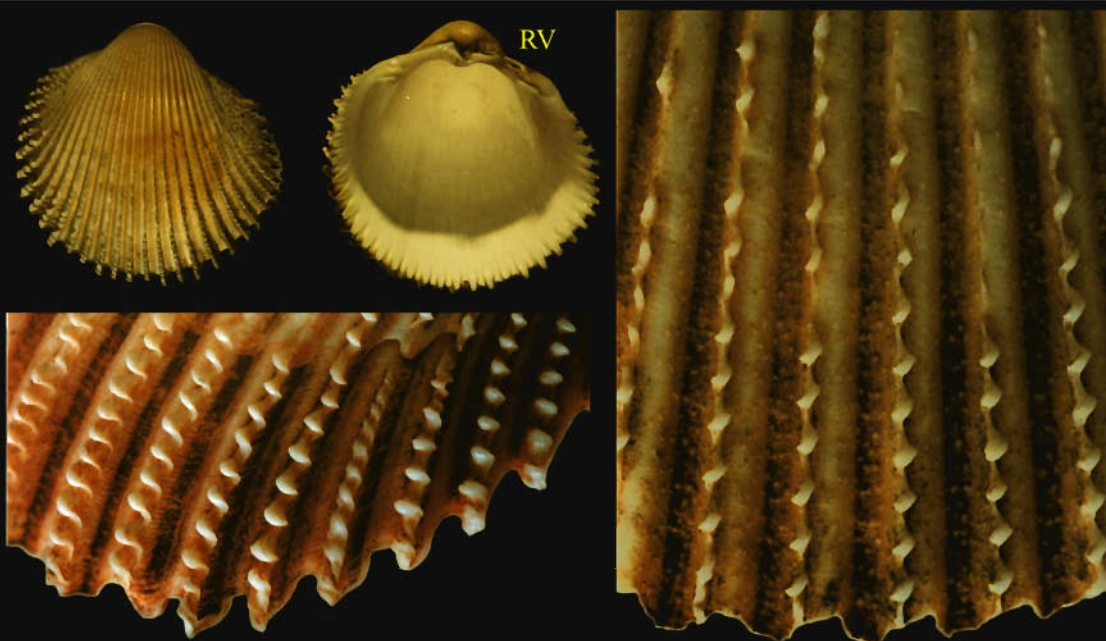


RV

*Cardium Lamella*,  
Linn.  
No. 2.  
avis. Niquebar.

*Cardium lima* Ggghoy. M.H.  
*C. asiaticum* Brug.  
*C. lamellatum* Spf. 1799  
L. N. H. G. Sp. 2

*lima* Spengler in Schröter, 1786. TYPE material at ZMUC, Copenhagen. Not mentioned by Spengler 1799. Label by Mörch, who isolated a specimen from the store (magaz.) marked alpha: *lima* alpha = *lamellatum* = *asiaticum*. Phot. by J.H.



*burnupi* Sowerby, 1897. Comb. changed from *Cardium* to *Vepricardium*. One of 4 SYNTYPES at the BMNH, London. Detail of median part of specimen from Madagascar with comma-like scales, and of the posterior part with helicoidal ornamentation. Phot. by J.V.

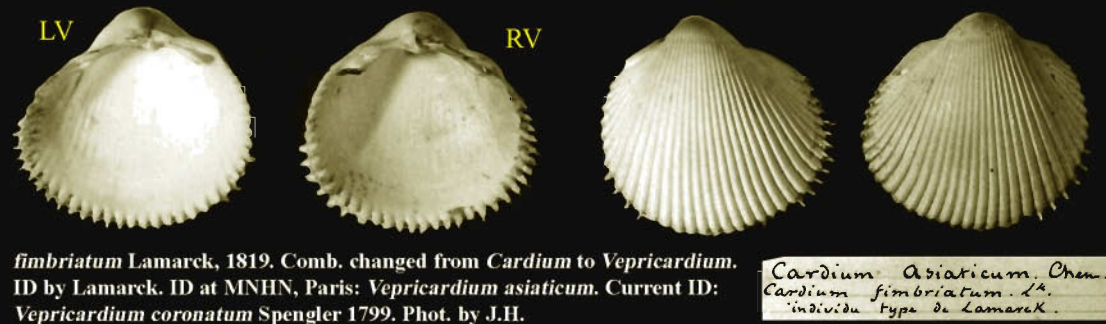


*coronatum* Spengler 1799. Comb. changed from *Cardium* to *Vepricardium*. Specimen from Hainan Is., China. Outer an inner views. Lunule and anterior part. Details of anterior part. Phot. by J.V.





*coronatum* Spengler, 1799. Comb. changed from *Cardium* to *Vepricardium*. Possible SYNTYPES at ZMUC, Copenhagen. ID by Spengler No. 3 (original label). From Nicobar Is. Phot. by J.H.



*rudentis* (Fischer-Piette, 1977). *Vepricardium* HOLOTYPE. From West Africa. MNHN Paris as *Laevicardium* (*Vepricardium*) *rudentis*. Phot. by A. le G.



*mirabile* Deshayes, 1854. Comb. changed from *Cardium* to *Vepricardium*. One of 3 SYNTYPES at BMNH, London, & drawings after Smith 1915. Phot. by J.V.



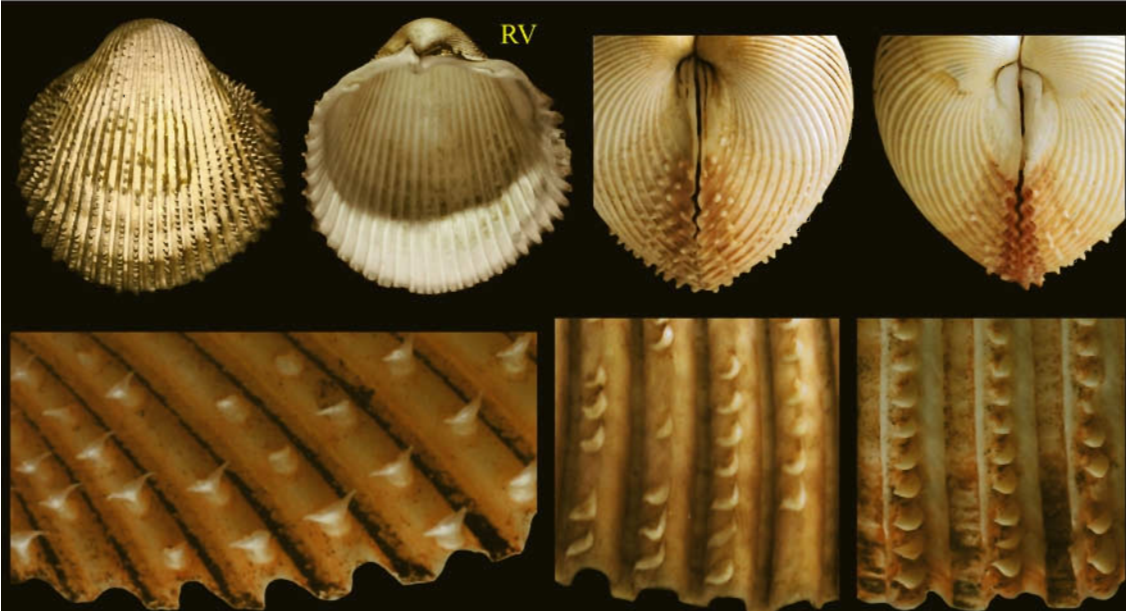
*incarnatum* Reeve, 1844. Comb. changed from *Cardium* to *Vepricardium*. One of 3 SYNTYPES at BMNH, London. (2 paired and 1 single valve).

Lunule is enlarged to allow comparison with Smith's drawing of *Vepricardium mirabile*.

Ornamentation of posterior part is enlarged (specimen from Manila Bay, the Philippines). Phot. by J.V.



*pulchricostatum* Iredale, 1929. Comb. changed from *Cardium* to *Vepricardium*. HOLOTYPE at AMS, Sydney. Hinge line of RV enlarged. Phot. by the Museum.



*multispinosum* Sowerby, 1838. Comb. changed from *Cardium* to *Vepricardium*. One of 3 SYNTYPES at BMNH, London. Lunule of specimen from China (left) and same view of specimen from Port Hedland, W. Australia. Enlarged views of ornamentation of medio-posterior parts of Australian specimens. Phot. by J.V.



*sinense* Sowerby, 1838. Comb. changed from *Cardium* to *Vepricardium*. Specimen from China. Lunule shown. Posterior part is enlarged. Phot. by J.V.



*ballieni* Vidal, 1994. *Fulvia*. HOLOTYPE at MNHN, Paris. Sandwich Isl. (coll. M. Ballien, 1876). Phot. by A. le G.



*bohollensis* Vidal, 1994. *Fulvia*. PARATYPE at MNHN, Paris. From the Philippines. Phot. by A. le G.



*caparti* Nicklès, 1955. Comb. changed from *Cardium* to *Europicardium*. PARATYPE at MNHN, Paris. From West Africa. Phot. by A. le G.



Zoologisk Museum, København.	
<i>Cardium caparti</i> Nicklès	
Loc. 4459' N. 9°26' V.	
Off Liberia.	
Datum: 9-1-1946	Typed!
Legit: Atlantide. St. 67.	
Det. Nicklès	Journal 7/1946

*caparti* Nicklès, 1955. Comb. changed from *Cardium* to *Europicardium*

TYPE  
ZMUC, Copenhagen. Phot. by J.H.



*fragilis congoensis* Cosel, 1995. *Fulvia*. PARATYPE at MNHN, Paris. From Congo, Africa. Phot. by A. le G.



*fragilis congoensis* Cosel, 1995. *Fulvia*. TYPE material at ZMUC, Copenhagen. Phot. by J.H.



*fragile* Forskål in Niebuhr, 1775. Comb. changed from *Cardium* to *Fulvia*. HOLOTYPE at ZMUC, Copenhagen. Phot. by J.H.



*fragile* Reeve, 1845. Comb. changed from *Cardium* to *Fulvia*. One of 2 SYNTYPES at BMNH, London. Phot. by the Museum.



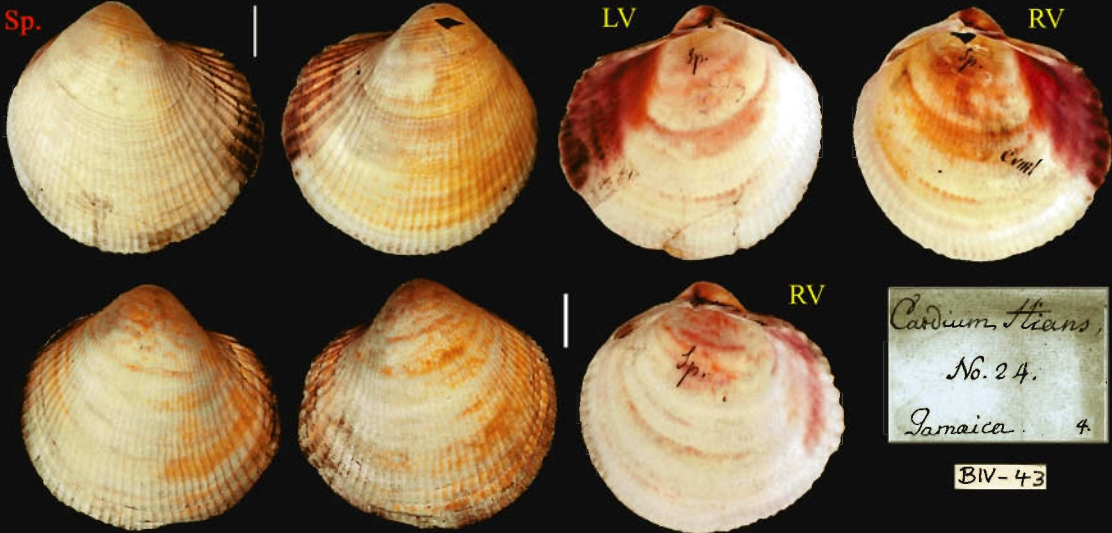
*dulce* Deshayes, 1863. Comb. changed from *Cardium* to *Fulvia*. PARALLECTOTYPE at MNHN, Paris. From Reunion Isl. Phot. by A. le G.



*festivum* Deshayes, 1855. Comb. changed from *Cardium* to *Microfragum*. 3 SYNTYPES (2 pairs and 1 valve) at BMNH, London. Phot. by L.K.



*fragiformis* Vidal, 1994. *Fulvia* PARATYPE at MNHN, Paris. From New Caledonia. Phot. by A. le G.



*hians* Spengler 1799. Comb. changed from *Cardium* to *Fulvia*. TYPE material at ZMUC, Copenhagen. From the shell cabinet of the Danish King Christian 8 (C VIII written inside shells). ID by Spengler 1799 No. 24 (original label). From Jamaica (err.). Syn. of *Fulvia aperta* (Bruguière, 1789). Phot. by J.H.

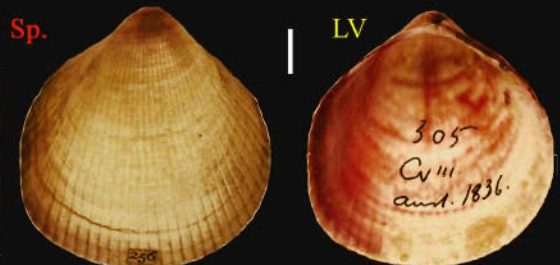
*Card. Papyraceum*  
No. 25.  
Jamaica.

*papyraceum* Bruguière 1789. Comb. changed from *Cardium* to *Fulvia*. ID by Spengler 1799 No. 25 (original label). TYPE material at ZMUC, Copenhagen. From Jamaica (err.). Phot. by J.H.



*papyraceum* Bruguière 1789. Comb. changed from *Cardium* to *Fulvia*. ID by Mörch with ref. to Ch[emnitz], Sp[engler] and Brug[ière]. TYPE material at ZMUC, Copenhagen. Phot. by J.H.

12. orig!  
*Cardium*  
*papyraceum*  
Ch. et Sp. et Brug.  
C. 1784  
D.V. n. 20  
amstel. 1736







*laevigatum* Linnaeus, 1758. Comb. changed from *Cardium* to *Fulvia*. SYNTYPES at Lin. Soc. of London. ID by Hanley (1855) who isolated 2 complete specimens and one valve. One complete specimen is marked 88 on the outside (shown here). *C. laevigatum* in Syst. Nat. Ed. 12 (1767), p. 1123 has No. 88. It is identical with *C. papyraceum* (see p. 889). Phot. by S.P.D.



*hungerfordi* Sowerby, 1901. Comb. changed from *Cardium* to *Fulvia*, SYNTYPES at BMNH, London. Photo by J.V.

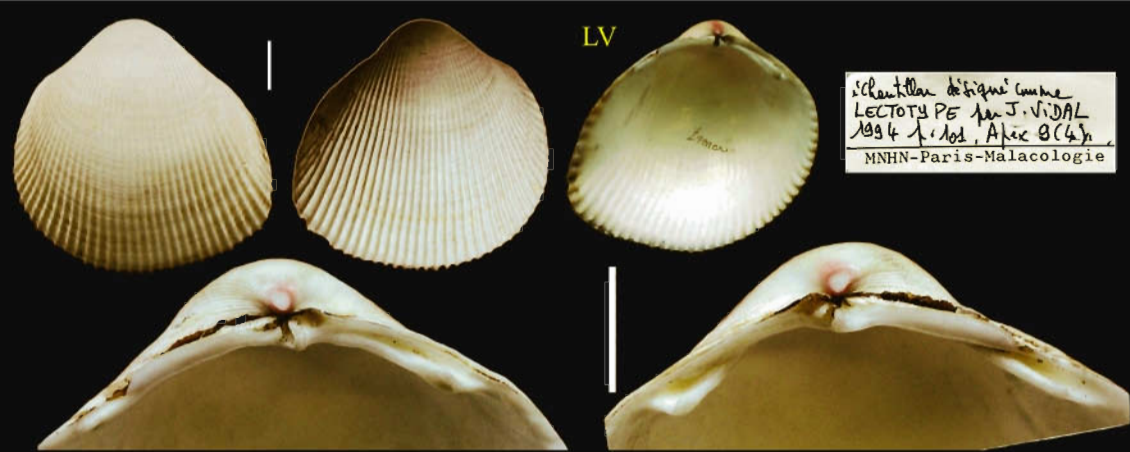
*Parvicardium coll.*  
*hudsoniense* Deshayes, 1855. Comb. changed from *Cardium* to *Parvicardium*. Possible HOLOTYPE at BMNH, London where labels indicate = *C. minimum* Phil. and *Corculum ciliatum* Fabricius (latter ID by Fischer-Piette 1975). Phot. by L.K.



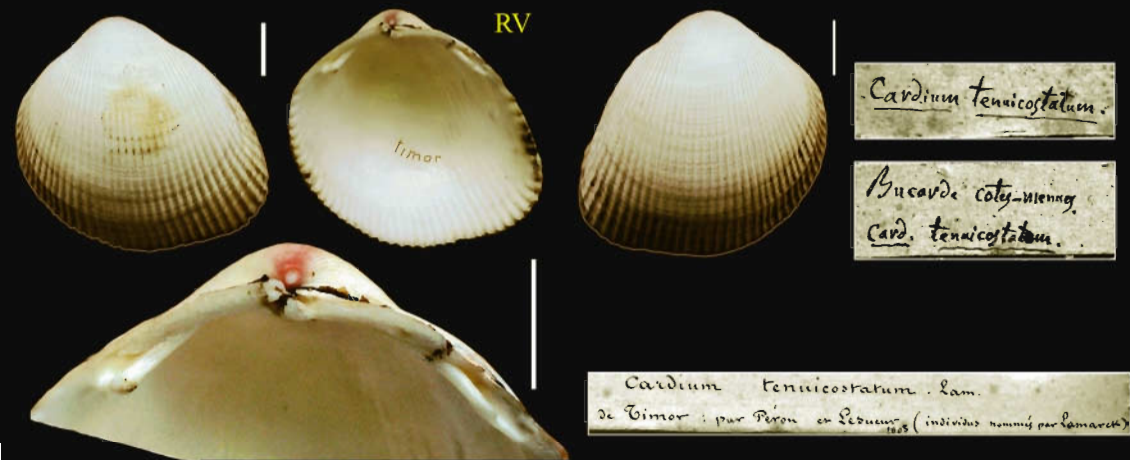
*lineonotata* Vidal, 1994. *Fulvia*. PARATYPE at MNHN, Paris, as *Fulvia* (L.) *lincolata* (sic). From New Caledonia. Phot. by A. le G..



*scalata* Vidal, 1999. *Fulvia*. HOLOTYPE at MNHN, Paris. From New Caledonia. Phot. by A. le G.



*tenuicostatum* Lamarck, 1819. Comb. changed from *Cardium* to *Fulvia*. LECTOTYPE at MNHN, Paris. Phot. by J.H.

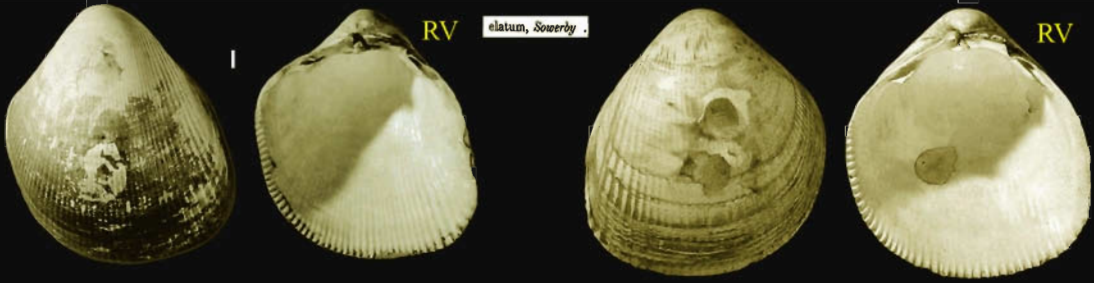


*tenuicostatum* Lamarck, 1819. Comb. changed from *Cardium* to *Fulvia*. ID by Lamarck (original label). MNHN. From Timor. Phot. by J.H.



*tenuicostatum* var. Lamarek. Comb. changed from *Cardium* to *Fulvia*. ID by Lamarck (original label). Published records not seen. MNHN. Phot. by J.H.

*Cardium tenuicostatum*  
var.



*elatum* Sowerby, 1833. Comb. changed from *Cardium* to *Laevicardium*. SYNTYPES at BMNH, London. Phot. by G.H.P.



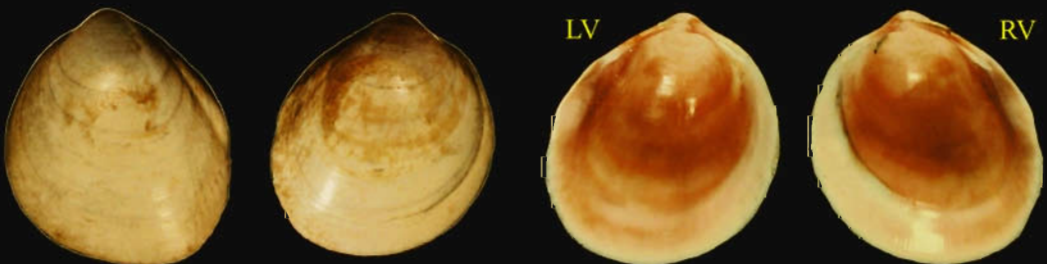
*elenensis* Sowerby, 1840. Comb. changed from *Cardium* to *Laevicardium*. LECTOTYPE at BMNH, London. From St. Elena, Columbia. Phot. by J.V.



*gaillardi* Fischer-Piette, 1977. *Laevicardium*. HOLOTYPE at MNHN, Paris. Misidentification: = *Acrosterigma cygnorum* (Deshayes, 1855). From New Zealand (err. probably Australia). Phot by A. le G.



*interrogatorium* Fischer-Piette, 1977. *Clinocardium* HOLOTYPE at MNHN, Paris. From ?California. Phot. by A. le G.



*lobulatum* Deshayes, 1854. Comb. changed from *Cardium* to *Laevicardium*. SYNTYPES at BMNH, London. Phot. by J.V.

*laevigatum* Linnaeus, 1758.  
Comb. changed. ID by Lamarck:  
*C. laevigatum* (original label).  
ID by MNHN: *Laevicardium*  
*serratum* Linnaeus [correct ID]. Phot by J.H.

bucarse life.  
*C. laevigatum*

Note: *C. laevigatum* Linnaeus, 1758 is a *Fulvia*  
[see TYPE p. 890]. The ID of *C. laevigatum* by  
Spengler and Lamarck = *Laevicardium serratum*  
(Linnaeus, 1758) [see TYPE p. 894].



*Cardium serratum* Lin  
*Cardium laevigatum* L.  
(individu nomini per Lamarck)

*Cardium* Linnaeus, 1758. Comb. changed. ID by Lamarck:  
*C. laevigatum*. ID by MNHN: *Laevicardium serratum*.  
Phot by J.H.



Sp.



LV



RV



*Cardium laevigatum*  
Linné. 88.  
No. 28.  
Museum des Muséum de Guinée  
Museum des Muséum de Guinée

*laevigatum* Linnaeus, 1758. Comb. changed from *Cardium* to *Laevicardium*. ID by Spengler 1799 No. 28 (original label). From the coast of Guinea [W. Africa]. Phot. by J.H.

Sp.



RV

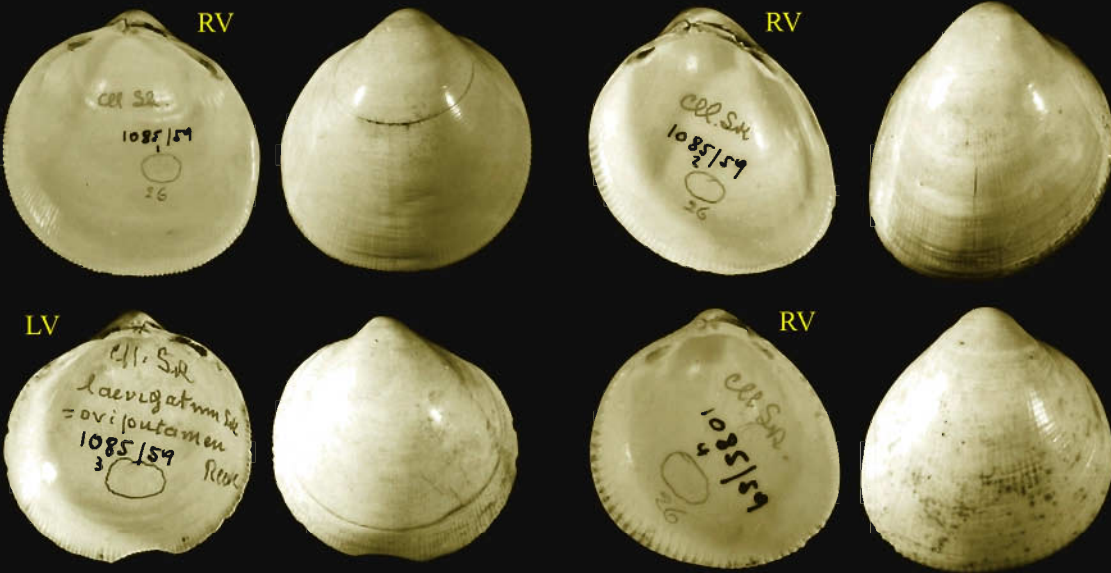


variété de  
*Card: laevigatum*  
Linné.  
No. 28.  
Museum des Muséum de Guinée

*laevigatum* var. Spengler, 1799. Comb. changed from *Cardium* to *Laevicardium*. ID by Spengler 1799 No. 28 (original label). From the coast of Guinea [W. Africa]. The number "17" is written in the style of Schumacher. "org" is written in the style of Mörch. Phot. by J.H.



*serratum* Linnaeus, 1758. Comb. changed from *Cardium* to *Laevicardium*. SYNTYPES at Lin. Soc. of London. ID by Hanley (1855) who isolated 3 valves, one of which is marked 89 superimposed on 73. Phot by S.P.D.



1085/59

*Cardium serratum*, Lin. non Lamk. var. (*C. laevigatum*, Gmel. Lamk.) Amer. centrale

*serratum* Linnaeus, 1758. Comb. changed from *Cardium* to *Laevicardium*. Specimens in the Lamarck Collection.

ID's by MHN, Genève: *Cardium serratum* Lin. non Lamk. var. # 1085/59-1. MHN # 1085/59-2.

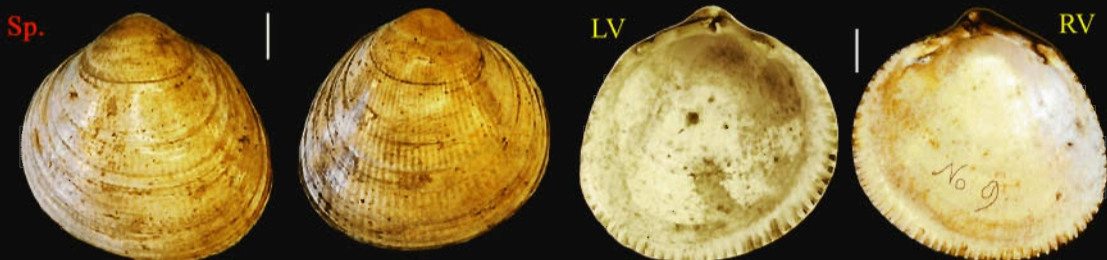
MHN # 1085/59-3 (*C. oviputamen* Reeve). MHN # 1085/59-4. From Central America. Phot. by G.D.



*oviputamen* Reeve, 1844. Comb. changed from *Cardium* to *Laevicardium*. TYPE material at University Museum of Zoology, Cambridge. Phot by J.V.

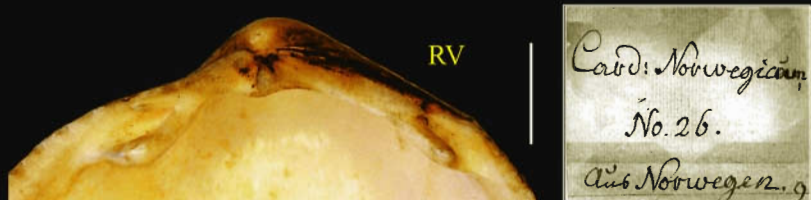


*pristis* Valenciennes in Bory St Vincent, 1827. Comb. changed from *Cardium* to *Laevicardium*. HOLOTYPE at MNHN, Paris. American Atlantic species. Phot. by J.H.



Orig. Sp. N. S. Skov v. i. p. 42. n. 26.  
*Cardium norvegicum* Sp. 26.  
 No. 9. Norge

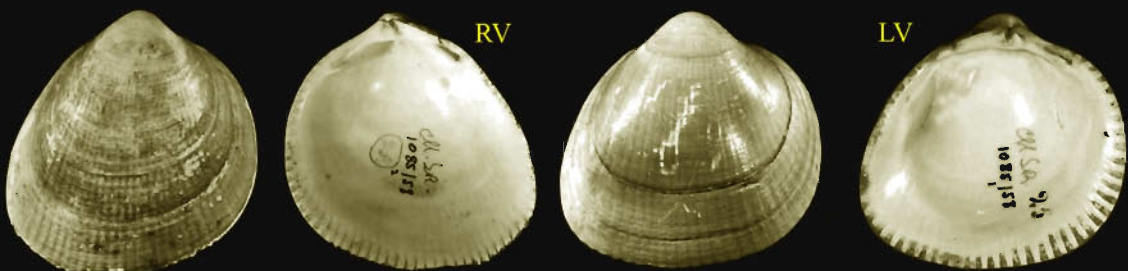
Label by Mörch



*norvegicum* Spengler, 1799. Comb. changed from *Cardium* to *Laevicardium*. TYPE material at ZMUC, Copenhagen. ID by Spengler 1799 No. 26 (9) original label. From Norway. Phot. by J.H.



*norvegicum* var. Spengler, 1799. Comb. changed from *Cardium* to *Laevicardium*. TYPE material at ZMUC, Copenhagen. ID by Spengler 1799 No. 26. Ref to Schröter p. 57. Plate 2 fig. 12 [= *C. crassum* Gmelin, 1791]. From the Mediterranean. Phot. by J.H.



*norvegicum* Spengler, 1799.

Comb. changed from *Cardium* to *Laevicardium*. ID by Lamareck:

*Cardium norvegicum*, Spengler <sup>Mors</sup> <sup>à l'usage</sup> <sup>non Lam</sup>  
~~*Cardium serratum* Lamk. non Lam. *Clavigatum* Penn.~~

Museum de Genève, 1799 Collection Lamareck.  
*Cardium serratum* var. St.  
 Localité Europe 1085/58 25

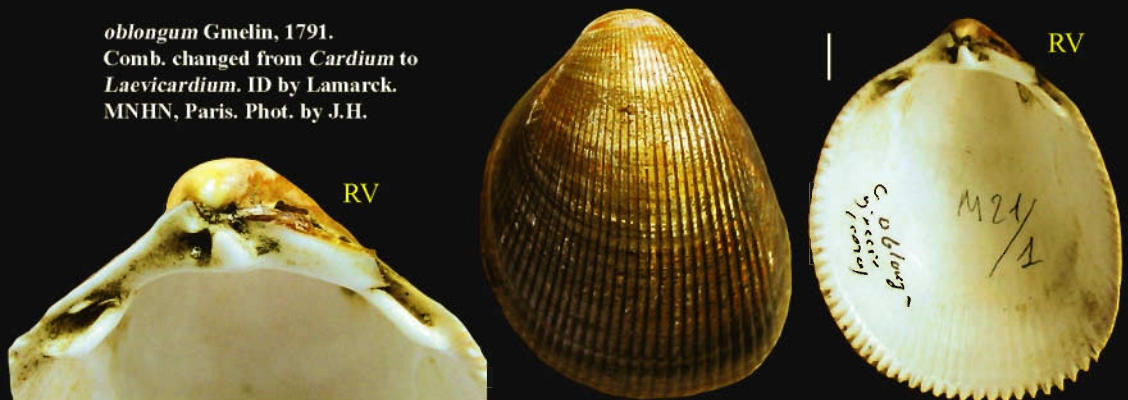
*Cardium serratum*. Other ID's: *L. laevigatum* Pennant = *L. norvegicum* Spengler. = *L. crassum* (Gmelin).

MHN, Genève # 1085/58. 25. Phot. by G.D.

*oblongum* Gmelin, 1791.

Comb. changed from *Cardium* to *Laevicardium*. ID by Lamareck.

MNH, Paris. Phot. by J.H.



Orig. Sp. et. descript. 16 n° 30  
*Cardium politum* Sp.  
 La. L. Gmelin

*Cardium*  
*politum*.  
 No. 30.  
 Orig. Descript. 16 n° 30

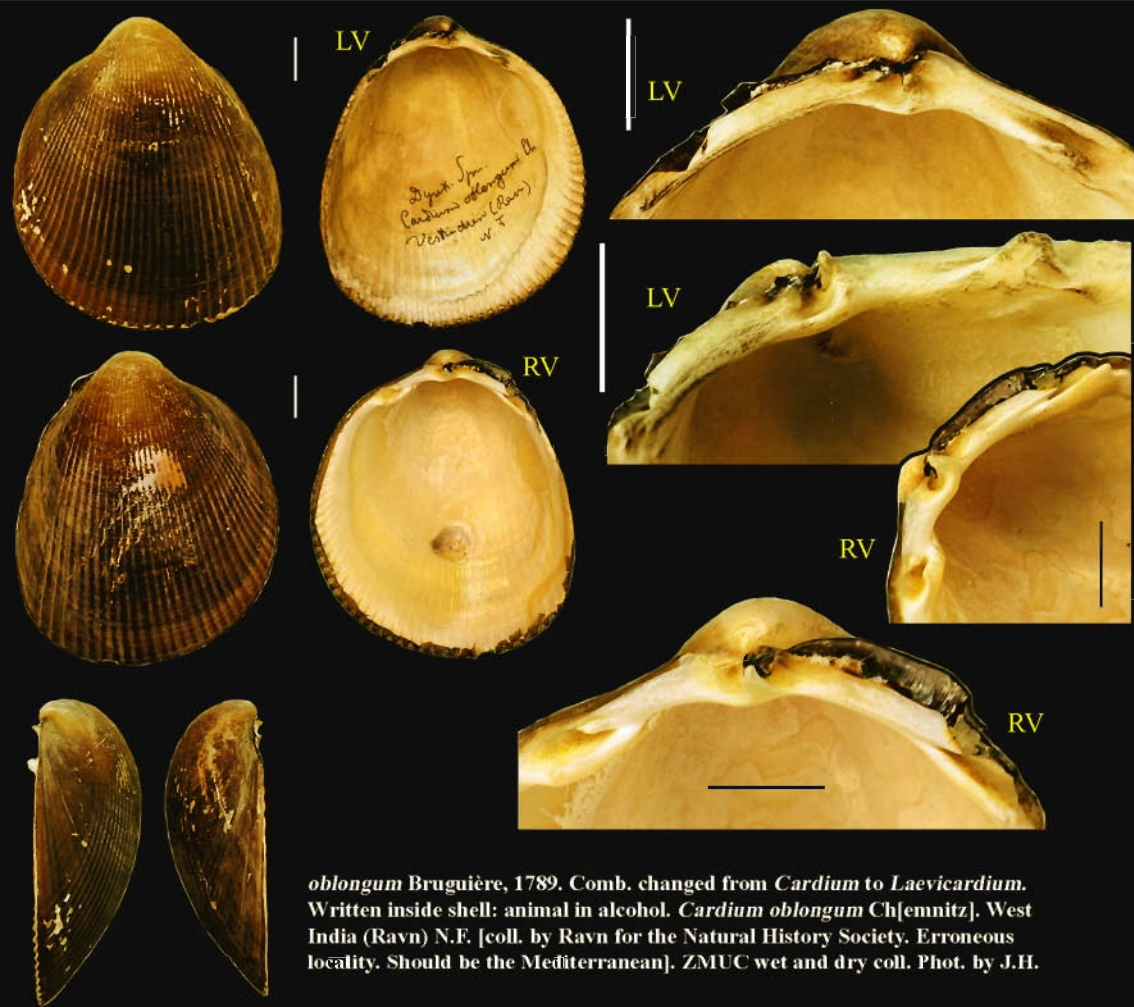
Label by Mörch



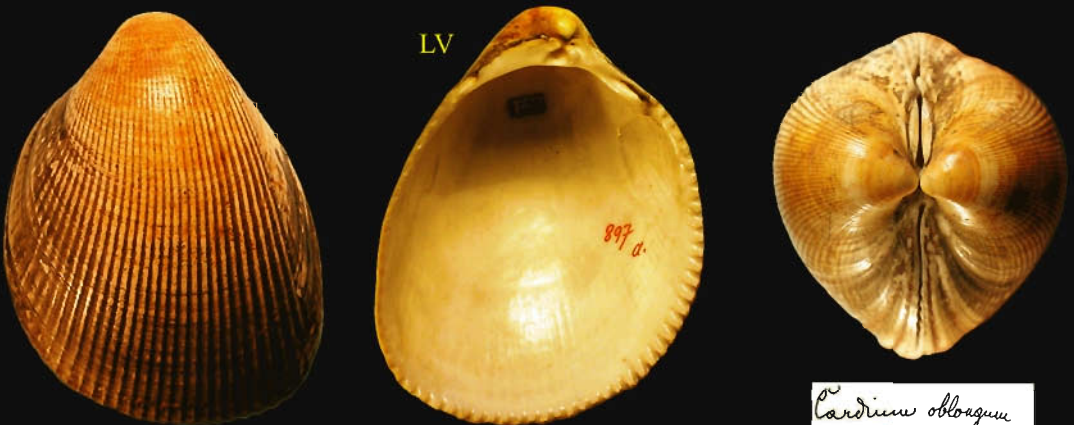
*politum* Spengler, 1799. Comb. changed from *Cardium* to *Laevicardium*. HOLOTYPE at ZMUC, Copenhagen.

ID by Spengler 1799 No. 26 (original label). From the South Seas 12. Label by Mörch with the same information. [It is a juvenile *Laevicardium norvegicum* (Spengler, 1799). In comparison, Spengler's label for *C. donaceum* (see p. 919) states Norway as the locality but it should be South Seas. Localities have occasionally been mixed by Spengler, who did not collect himself]. Phot. by J.H.





*oblongum* Brugière, 1789. Comb. changed from *Cardium* to *Laevicardium*.  
Written inside shell: animal in alcohol. *Cardium oblongum* Ch[emnitz]. West  
India (Ravn) N.F. [coll. by Ravn for the Natural History Society. Erroneous  
locality. Should be the Mediterranean]. ZMUC wet and dry coll. Phot. by J.H.



*flavum* Born 1780. Comb. changed from *Cardium* to *Laevicardium*.  
HOLOTYPE at NMW, Vienna. *C. flavum* Born = *C. oblongum* Brugière, 1789.  
Phot. by J.H.

*Cardium oblongum*  
1780 a. 1/2 Chem.  
= *C. flavum* Born  
non L.  
Original Exempl

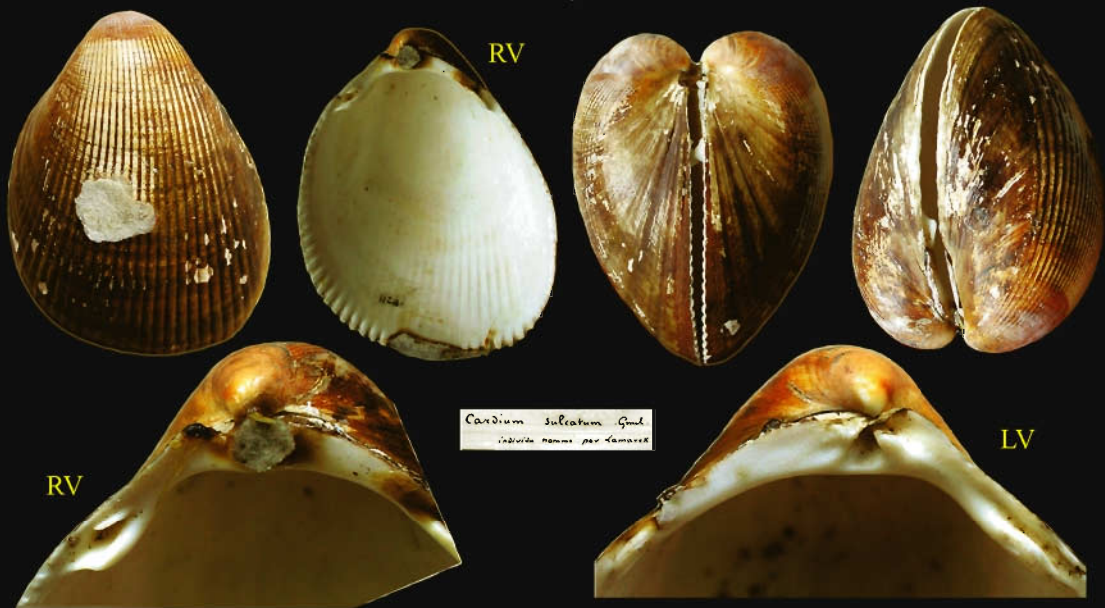




*Cardium obsoletum*  
No. 15.  
A. Mörch's manus.

Orig. sp. K. Thors. p. 28 tab B  
*Cardium obsoletum* Sp. n.  
*Cardium oblongum* Ch.  
Sp. H. Müller

*obsoletum* Spengler, 1799. Comb. changed from *Cardium* to *Laevicardium*. TYPE material at ZMUC, Copenhagen. ID by Spengler No. 15 (original label). From the Mediterranean. Label by Mörch: *Laevicardium oblongum*. Phot. by J.H.



*Cardium sulcatum* Lam.  
indivisa nomen per Lamarck

*sulcatum* Lamarck, 1819. Comb. changed from *Cardium* to *Laevicardium*. ID by Lamarck. Syn. of *Laevicardium oblongum*. MNHN, Paris. Phot. by J.H.



*sulcatum* Lamarck, 1819. Comb. changed from *Cardium* to *Laevicardium*. The Lamarck Collection 1085/57 No. 24. ID by staff at MNH, Genève: *C. flavum* Born = *C. sulcatum* Lamk. = *C. oblongum* Chemnitz. Phot. by G.D.

*Cardium oblongum* Lam.  
*C. flavum* Born = *C. sulcatum* Lamk. comb.



*aeolicum* Born, 1778. Comb. changed from *Cardium* to *Lyrocardium*. HOLOTYPE at NMW, Vienna.  
*C. aeolicum* ID by Born and Lamarek = *Lyrocardium pectinatum* (Linnaeus, 1758). Phot. by J.H.

*bucarde Double-face*  
*C. Aeolicum*

*aeolicum* Born, 1778.  
 Comb. changed from  
*Cardium* to *Lyrocardium*.  
 ID by Lamarck  
 (original label). MNHN,  
 Paris. Phot. by J.H.



Sp.



*pectinatum* Linnaeus, 1758. Comb. changed from *Cardium*  
 to *Lyrocardium*. ID by Spengler 1799 No. 18 (original label).  
 Ref to Solander in the Portland Catalogue. From Guinea  
 (W. Africa). Phot. by J.H.

*Cardium pectinatum*  
 Lin: 92. of *Pinus Anspicab.*  
*Trip. Solander in Portland-*  
*Catalogue No. 3494. Guinea*  
*No. 18.*



RV



RV

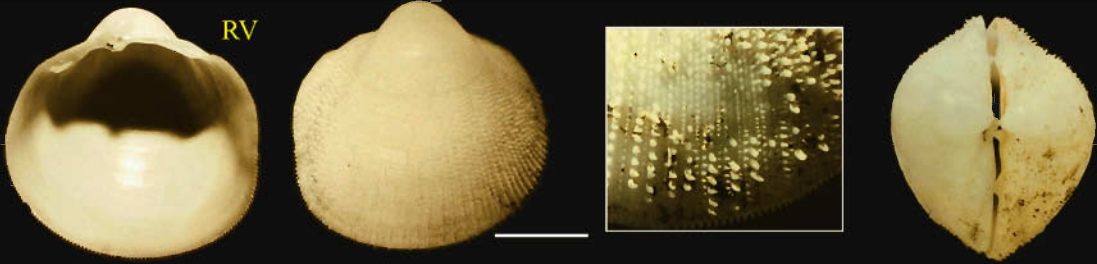
*pectinatum* Linnaeus, 1758. Comb. changed from *Cardium* to *Lyrocardium*. SYNTYPES (3 valves) at Lin. Soc. of  
 London. ID by Hanley (1855). One shell has ref. to Bonanno 2 f. 91 [see p. 38]. Phot. by S.P.D.

*kalamantanum*  
 Adams & Reeve, 1850.  
 Comb. changed from  
*Cardium* to *Lyrocardium*.  
 HOLOTYPE at BMNH.  
 Phot. by J.V.



LV

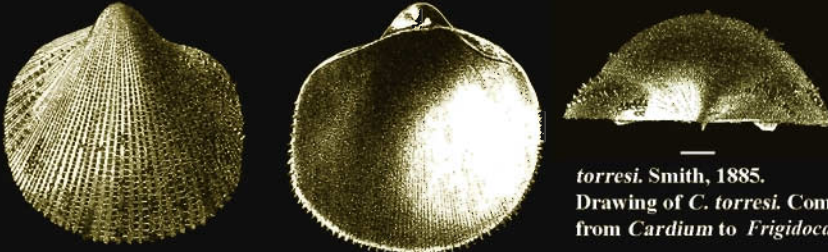




*centumviratum* Melvill & Standen, 1906. Comb. changed from *Cardium* to *Nemocardium*. SYNTYPES at BMNH, London. Phot. by J.V.



*probatum* Iredale, 1927. Comb. changed from *Cardium* to *Pratulum*. SYNTYPES at AMS, Sydney. Phot. by the Museum.



*torresi*. Smith, 1885.  
Drawing of *C. torresi*. Comb. changed from *Cardium* to *Frigidocardium*. After Smith 1885.



*torresi* Smith, 1885.  
Comb. changed from *Cardium* to *Frigidocardium*. TYPE material at BMNH, London. Phot. by J.V.

*thetidis* Hedley, 1902.  
Comb. changed from *Cardium* to *Pratulum*.  
SYNTYPES at AMS, Sydney.  
Phot by the Museum.

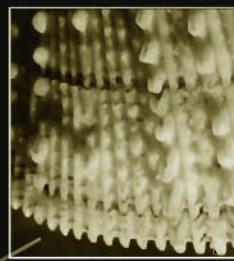




*aequiliratum* Poutiers, 1981. *Microcardium*. HOLOTYPE at MNHN, Paris. From the Philippines, 187-195 m. Phot by A. le G.



*tenuilamellosum* Poutiers, 1981. *Microcardium*. HOLOTYPE at MNHN Paris. From the Philippines, 184-193 m. Phot. by J.H.



*exasperatum* Sowerby, 1838. *Frigidocardium*. LECTOTYPES and PARALECTOTYPES at BMNH, London. Phot. by J.V.



*fraseri* Garrard, 1963. *Plagiocardium*. HOLOTYPE at AMS, Sydney. Phot. by the Museum.



*latum* Bruguière, 1789. Comb. changed from *Cardium* to *Plagiocardium*. ID by Lamarck. Gen. coll. at MNHN, Paris. Phot. by J.H.

*Cardium latum* Bon.  
indivus nomen per Lamarck

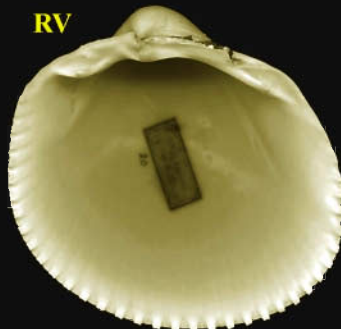
Sp.



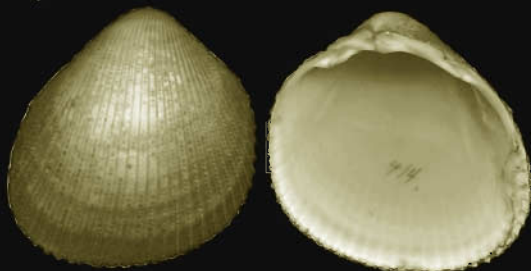
*Cardium latum*  
Born.  
No. 22.  
Tranquebar.

*latum* Born, 1778. Comb. changed from *Cardium* to *Plagiocardium*. ID by Spengler 1799 No. 22 (original label). ZMUC. Phot. by J.H.

RV



*pseudolima*  
Lamarck, 1819.  
Comb. changed from  
*Cardium* to *Plagiocar-*  
*dium*. ZMUC, Copen-  
hagen. Phot. by J.H.



*setosum* Redfield, 1848. Comb. changed  
from *Cardium* to *Plagiocardium setosum*.  
From China. ZMUC, Copenhagen. Phot. by J.H.

China  
*Cardium setosum* Redf.



LV



RV



*adamsii* Adams & Reeve, 1850. HOLOTYPE at BMNH, London. Comb. changed from *Cardium* to *Ctenocardia*. From Borneo. Syn. of *Ctenocardia fornicatum* (Sowerby, 1840). Phot. by L.K.

type of *adamsii*

*fornicatum* Sowerby, 1840. Comb. changed from *Cardium* to *Ctenocardia*. 3 possible TYPE specimens at BMNH, London. This lot is probably mixed, the largest specimen corresponds to figs. in Sowerby and may be the type. Phot. by L.K.

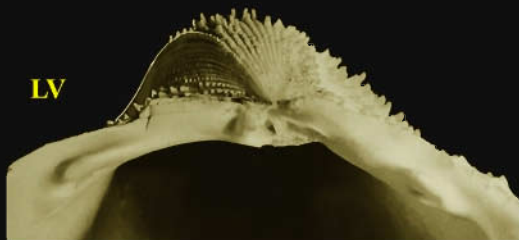
LV



LV



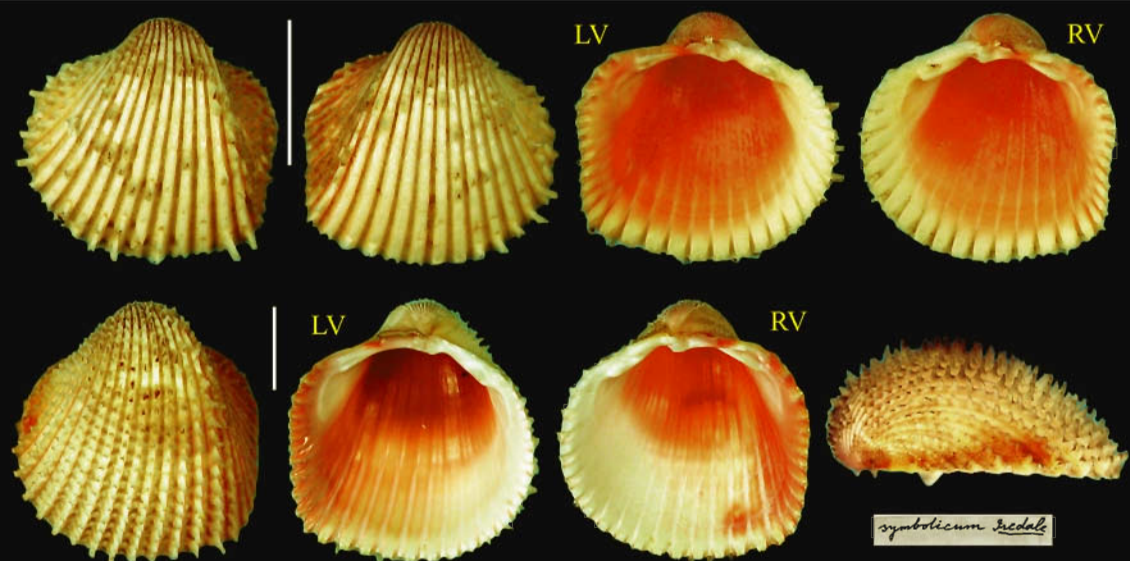
LV



RV



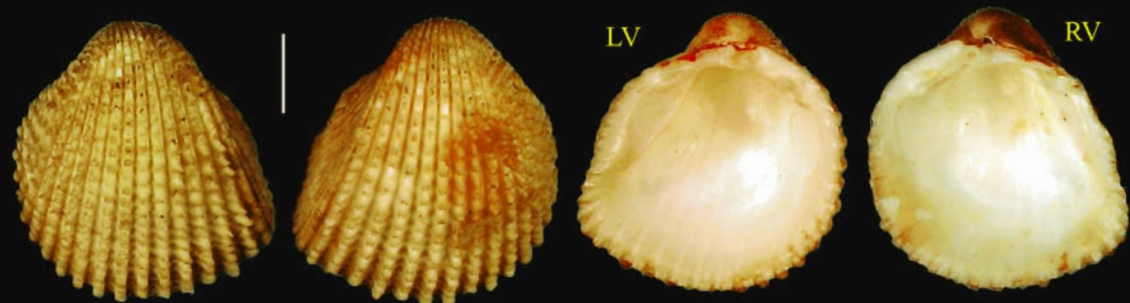
*hystrix* Reeve, 1844. Comb. changed from *Cardium* to *Ctenocardia*. SYNTYPE at BMNH, London. Hinge line. Phot. by the Museum.



*hystrix* Reeve, 1844. Comb. changed from *Cardium* to *Ctenocardia*. 3 SYNTYPES at BMNH, London.  
Non *C. hystrix* Solander. New name *Ctenocardia symbolica* (Iredale, 1929). Phot. by L.K.



*imbricatum* Sowerby 1840. Comb. changed from *Cardium* to *Ctenocardia*. = *C. perornatum*.  
HOLOTYPE at BMNH, London. Marked # 86. From Swan River. Phot. by L.K.



*imbricatum* Sowerby 1840.  
Comb. changed from *Cardium* to *Ctenocardia*. = *C. perornatum*.  
PARATYPE at BMNH, London. From Swan River, Australia.  
Phot. by L.K.

British Museum (Natural History)

HOLOTYPE 1971 22 / 1

*Cardium imbricatum*

*perornatum* Iredale

*imbricatum*, Sowerby



*victor* Angas, 1872. Comb. changed from *Cardium* to *Ctenocardia*. HOLOTYPE at BMNH, London. Mauritius, in stomach of fish. Phot. by L.K.

British Museum (Natural History)  
~~*Trogonocardia (Americardia) victor*~~  
*(Angas,*  
 1872.5.18.3.



*speciosum* Adams & Reeve, 1848. Comb. changed from *Cardium* to *Americardia*. TYPE at BMNH, London. Ref. to Samarang pl. 22 f. 9. Phot. by L.K.

*speciosum* ad Reeve  
 Samarang pl. 22 f. 9  
 Type  
 China/Seam (Adams)  
 St Helena Strait  
 (Turton)  
 74.12.11.392



*planicostatum* Sowerby, 1833. Comb. changed from *Cardium* to *Americardia*. HOLOTYPE at BMNH, London. According to labels: *C. planicostatum* = *C. magnificentum* Deshayes = *Americardia planicostata*. From Guacomayo, C. America. Identical with *Americardia guanacastensis* (Hertlein & Strong, 1947). Phot. by L.K.

*planicostatum*, Sowerby  
 B.M. (N.H.) reg. no: 20020251  
*Cardium planicostatum*  
 Sowerby.  
 HOLOTYPE.  
 loc. Guacomayo  
 Central America.  
*Planicostatum* loc non found  
*Card. magnificentum* Sowerby.

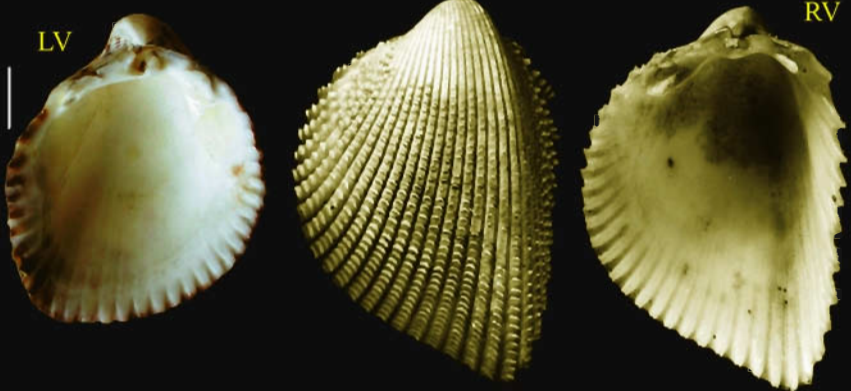


*Card. medium*  
 Linné 77.  
 No. 38.  
 Handl. R. in Guinea

*medium* Linnaeus, 1758. Comb. changed from *Cardium* to *Americardia*. ID by Spengler 1799 No. 38 (original label). ZMUC, Copenhagen. From the coast of Guinea [W. Africa]. Phot. by J.H.

*Americardia biguttata*  
*Cardium medium*

*medium* Linnaeus, 1758. Comb. changed from *Cardium* to *Americardia*. ID by Lamarek (original label). MNHN, Paris. Phot. by J.H.



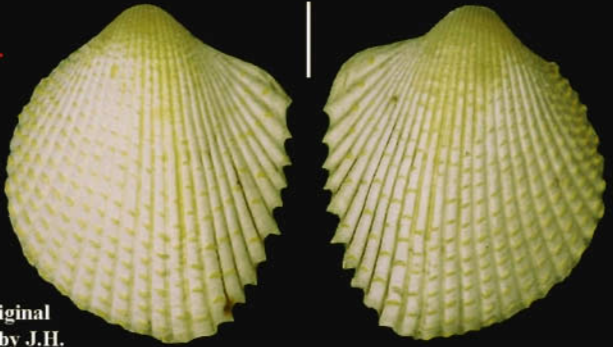
*fragum* Linnaeus, 1758. Comb. changed from *Cardium* to *Fragum*. HOLOTYPE at Lin. Soc. of London. ID by Hanley (1855). Phot. by S.P.D.

*imbricatum* Born, 1780. Comb. changed from *Cardium* to *Fragum* = *Fragum fragum* (Linnaeus, 1758). HOLOTYPE at NMW, Vienna. Phot. by J.V.

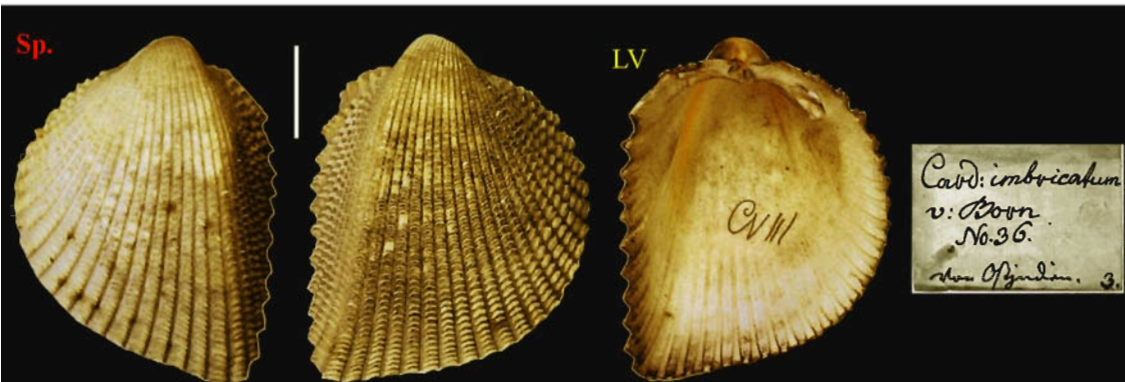
Yellow variety of *Fragum unedo* (Linnaeus, 1758)

*Card. fragum*  
 83. Linné  
 No. 39.  
 Handl.

*fragum* Linnaeus, 1758. Comb. changed from *Cardium* to *Fragum*. ID by Spengler 1799 No. 39 (original label). From East India. ZMUC, Copenhagen. Phot. by J.H.





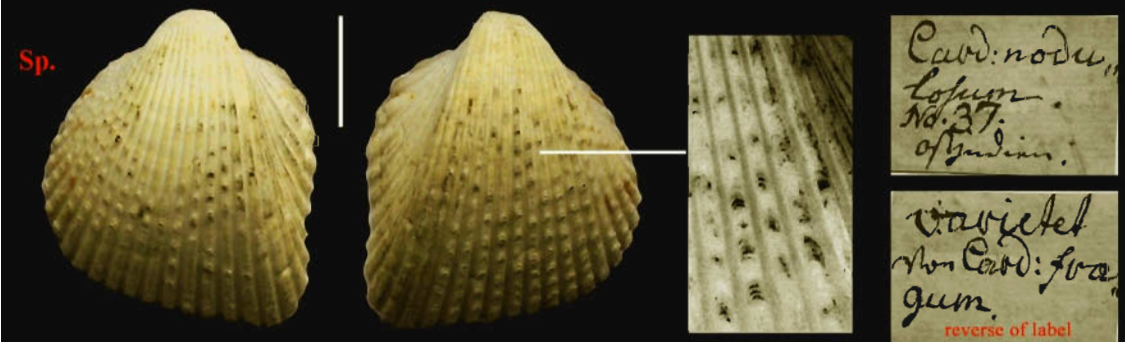


Card: imbricatum  
v: Born  
No. 36.  
non Offendin. 3.

*imbricatum* Born, 1780. Comb. changed from *Caracum* to *fragum*. Syn. of *Fragum fragum* (Linnaeus, 1758). ID by Spengler 1799 No. 36 (original label). From the shell cabinet of the Danish King Christian 8 (C VIII written inside shells). From East India. 3. ZMUC, Copenhagen. Phot. by J.H.



*mundum* Reeve, 1845. See also p. 931. Comb. changed from *Cardium* to *Fragum*. 3 SYNTYPES at BMNH, London. Numbered specimen is Reeve's fig. 63. From Lord Hood's Is. Phot. by L.K.



Card: nodu,  
Lopum  
No. 37.  
offendin.

varietal  
non Card: fragum.  
reverse of label

*nodulosum* Spengler 1799. Comb. changed. Not in the genus *Fragum*. HOLOTYPE at ZMUC, Copenhagen. ID by Spengler 1799 No. 37: Variety of *Cardium fragum* Linnaeus (original label). From East India.

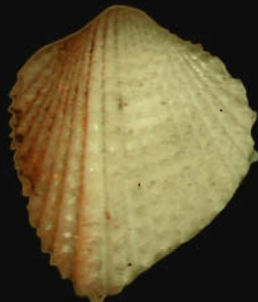
Uncertain status. ?genus *Americardia*

No markings inside shells as usually done when Mörch has confirmed the ID. Phot. by J.H.



B.M.(N.H.) reg. no: 1910.3.17.20  
*Cardium (Fragum)*  
*roseolum* Melvill 1909  
 HOLOTYPE.  
 loc. Cargados Carajos.  
 28 fm.  
 1 spec. Acc. no.  
 Melvill, 1909, Trans.  
 Linn. Soc. 13: 134, pl. 5  
 fig. 14.

*roseolum* Melvill, 1909. Comb. changed  
 from *Cardium* to *Fragum*. HOLOTYPE  
 at BMNH London. From Carajos, 28 fm.  
 Phot. by L.K.



*scruposum* Deshayes, 1855.  
 Comb. changed from *Cardium* to *Fragum*.  
 3 SYNTYPES (valves) at BMNH London.  
 Phot. by L.K.

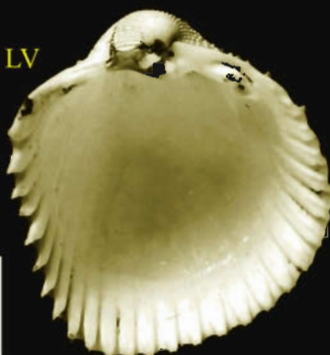


*tegulatum* Dautzenberg, 1900. Comb. changed from *Cardium* to *Fragum*. SYNTYPE at MNHN, Paris.  
 Phot. by A. le G.

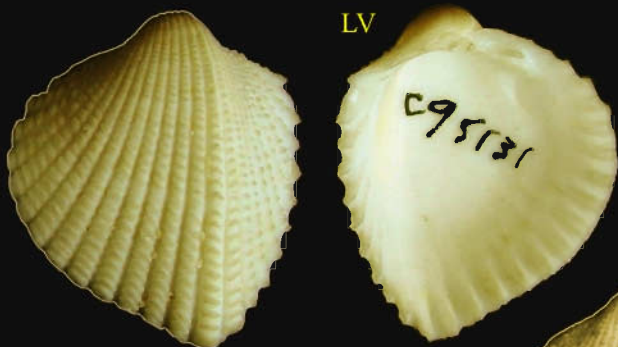


*unedo* Linnaeus, 1758. Comb. changed from *Cardium* to *Fragum*. ID by Spengler 1799  
 No. 40 (original label) From the East Indies. ZMUC, Copenhagen. Phot. by J.H.

*Cardium unedo*  
 Lin. 84.  
 No. 40.  
 Spengler

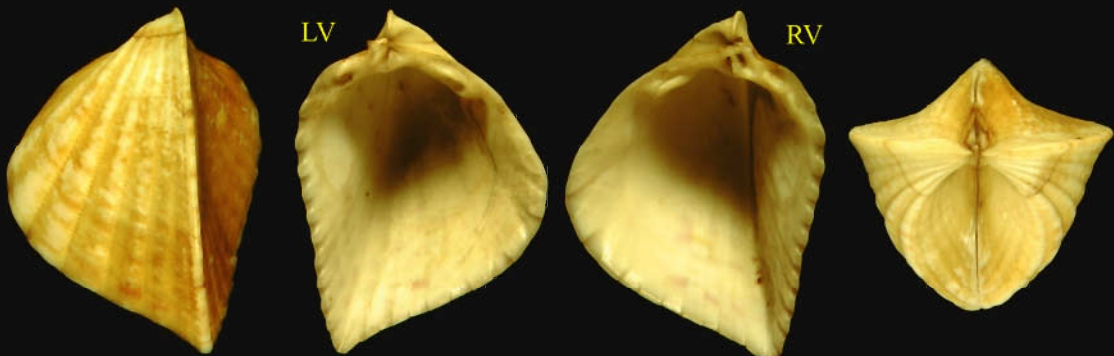
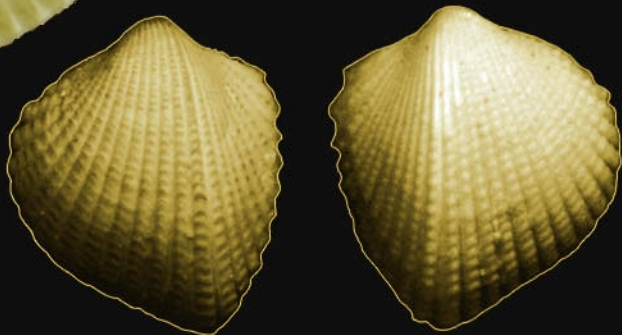


*unedo* Linnaeus, 1758. Comb.  
 changed from *Cardium* to *Fragum*.  
 HOLOTYPE at Lin. Soc. of London.  
 ID by Hanley (1855).  
 Phot. by S.P.D.

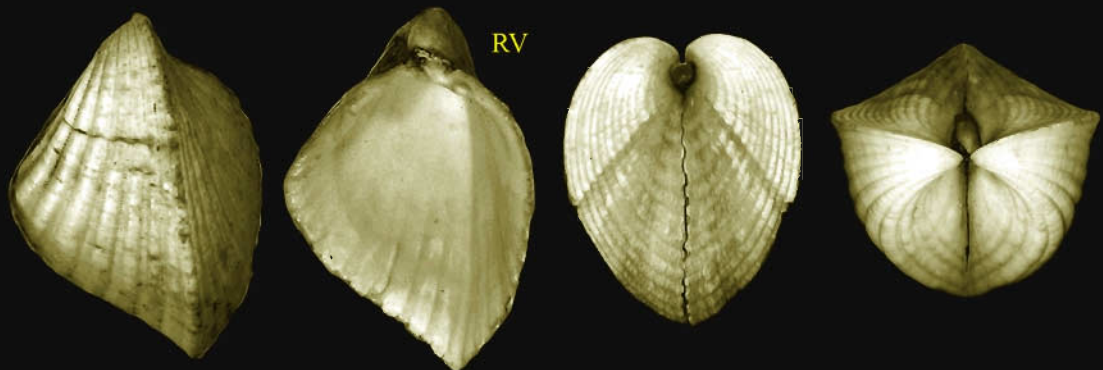


*whitleyi* Iredale, 1929. Comb. changed from *Cardium* to *Fragum*. SYNTYPE at AMS, Sydney. Phot. by the Museum.

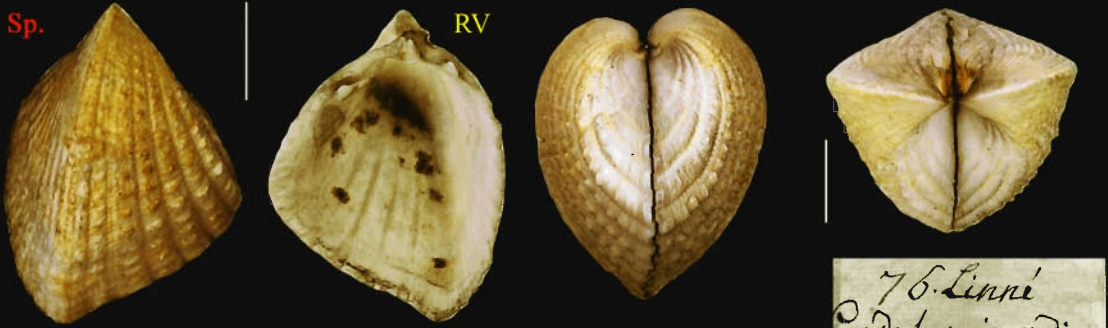
*whitleyi* Iredale, 1929. Comb. changed from *Cardium* to *Fragum*. SYNTYPES at AMS, Sydney. Specimens with scales on carina (left) and knobs (right). Phot. by J.V.



*guichardi* Bernardi, 1857. Comb. changed from *Cardium* to *Hemicardium*. SYNTYPE at MNHN, Paris. From New Caledonia. Phot. by A. le G.

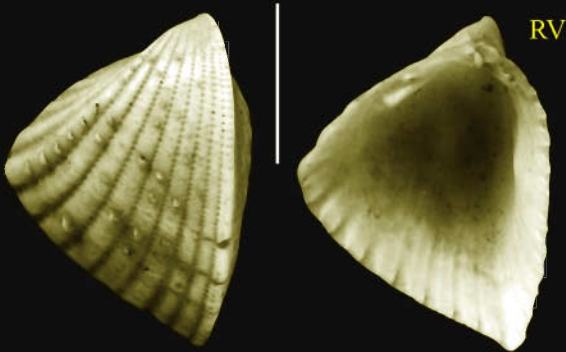


*guichardi* Bernardi, 1857. Comb. changed from *Cardium* to *Hemicardium*. Dautzenberg Coll. MNHN, Brussels. Phot. by J.H.

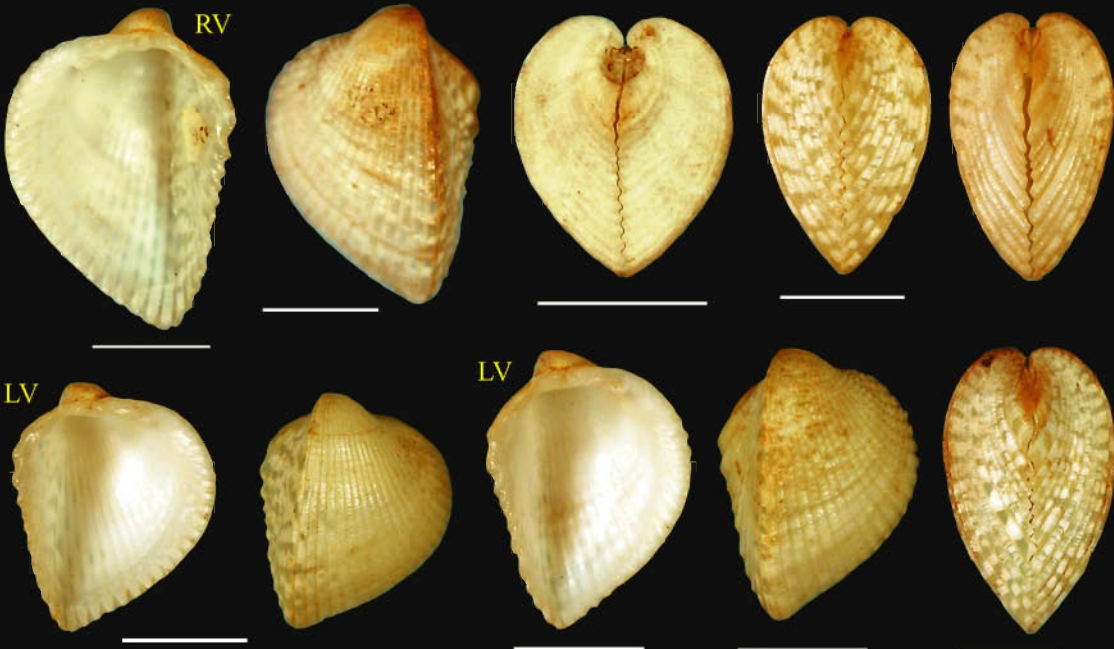


*hemicardium* Linnaeus, 1758. Comb. changed from *Cardium* to *Hemicardium*.  
ID by Spengler 1799. No. 34 (original label). From Tranquebar [coast of East India].  
Phot. by J.H.

76. Linné  
Card: hemicardium  
No. 34.  
Tranquebar.



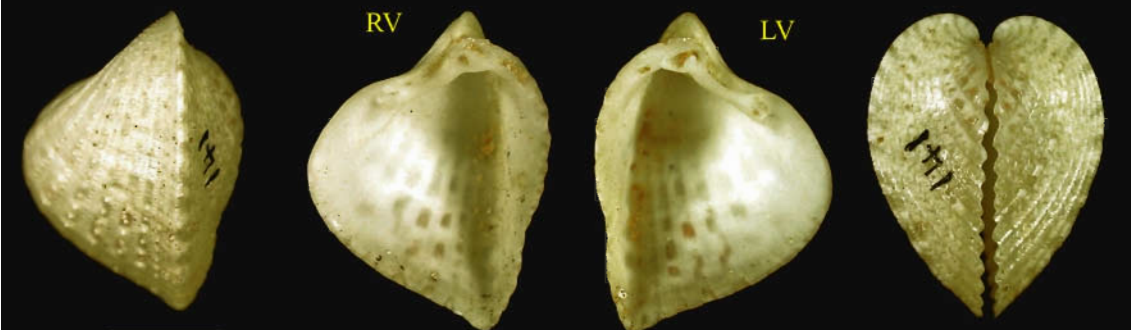
*hemicardium* Linnaeus, 1758.  
Comb. changed from *Cardium* to *Hemicardium*.  
HOLOTYPE at Lin. Soc. of London.  
ID by Hanley (1855).  
Phot. by S.P.D.



*nivale* Reeve, 1845. See also p. 931. Comb. changed from *Cardium* to *Fragum*. 4 SYNTYPES at BMNH,  
London. From Catanaun, Philippines. Phot. by L.K.



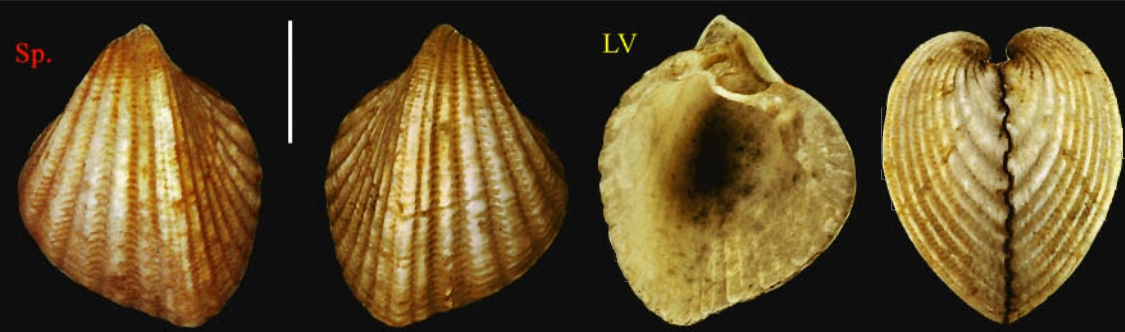
*tumoriferum* Lamarck, 1819. Comb. changed from *Cardium* to *Hemicardium*. ID by MNHN, Paris. Coll. by Lesson Lesueur 1803 in New Holland [= Australia]. Phot. by J.H.



*subretusum* Sowerby, 1834. Comb. changed from *Cardium* to *Lunulicardia*. Gen. coll. at BMNH. London: *C. subretusum* Acc. No. 2371. From the coast of Sudan. [Probably an undescribed species]. Phot. by L.K.

Coast of Sudan  
Leg. W. Reed; Pres. H. E. J. Biggs  
Acc. No. 2371

British Museum (Natural History)  
FRAGUM SUBRETUSUM



Card: retusum  
 Lin: 75.  
 No. 34. 35  
 Aus dem rothen Meer

Zoologisk Museum, København  
 Cardium retusum, L. Sp.  
 See Original. Fa. N. G. S. S. A. p. 57/1655.  
 Pontalieri Ch. II. p. 180. Fig. det  
 Datum: 1794 Hav  
 Legit: ~~Spengler~~ ? Forsskål  
 Non SPENGLER. Journal.

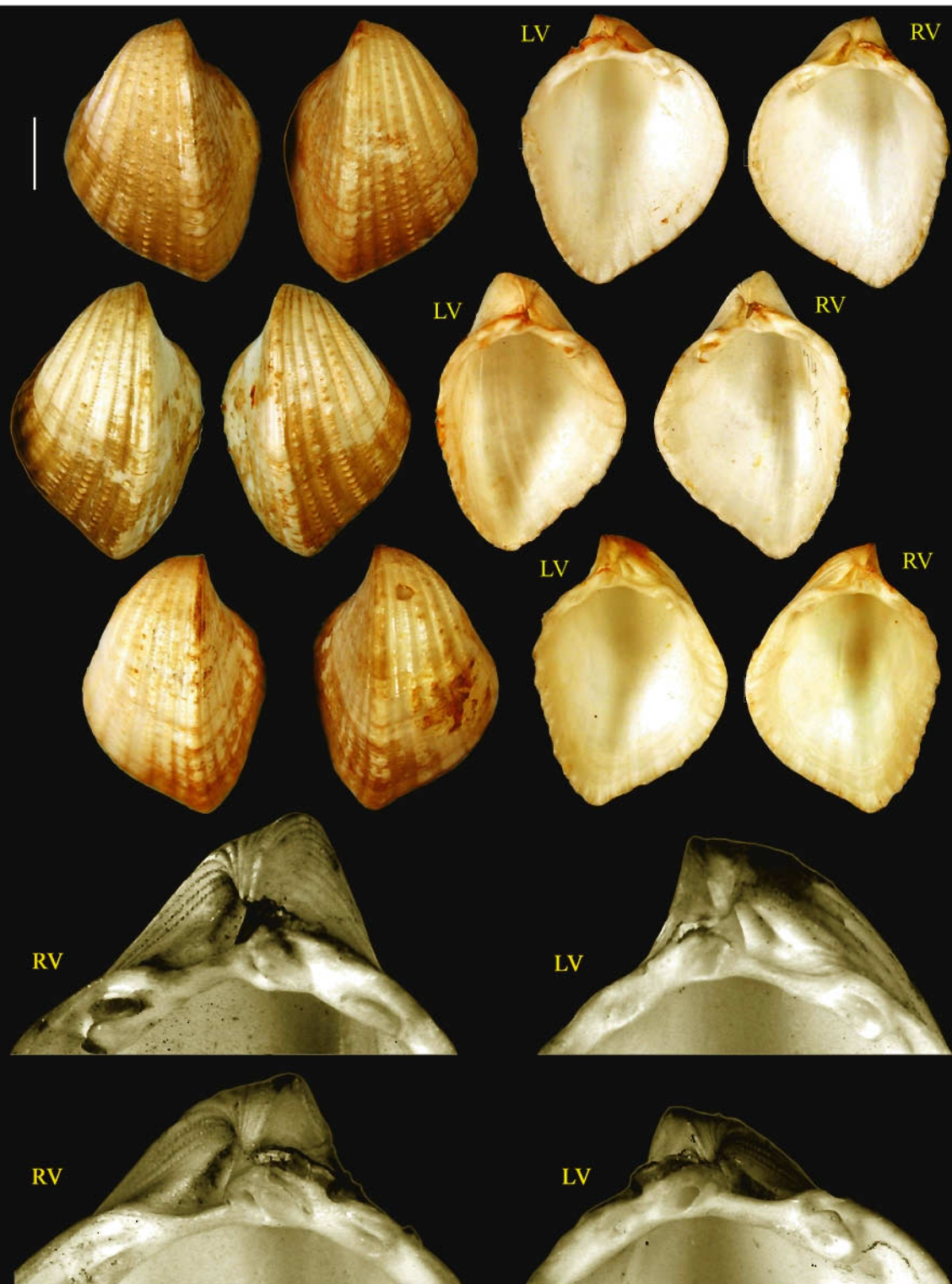
*retusum* Linnaeus, 1758.  
 Comb. changed from *Cardium*  
 to *Lunulicardia*. ID by  
 Spengler 1799 No. 35 (original  
 label). From the Red Sea.  
 ZMUC, Copenhagen. Phot. by J.H.

*retusum* Linnaeus, 1758. See also p. 932. Comb. changed  
 from *Cardium* to *Lunulicardia*. HOLOTYPE at the Lin. Soc.  
 of London. ID by Hanley (1855). Phot. by S.P.D.



Lunulicardia Varietas  
 latiflora Cardium  
 retusum, No. 35.  
 Non Int. N. G. S. S. A. p. 57/1655  
 del.

*retusum* variety Spengler 1799. Comb. changed from *Cardium* to *Lunulicardia*. ID by Spengler 1799 No. 35  
 (original label). A very rare variety from the Coromandel coast [E. India]. ZMUC, Copenhagen. Phot. by J.H.



*subretusum* Sowerby, 1834. Comb. changed from *Cardium* to *Lunulicardia*. 3 SYNTYPES at BMNH London. Figured Conch. Illus. f. 24. Phot. by L.K.

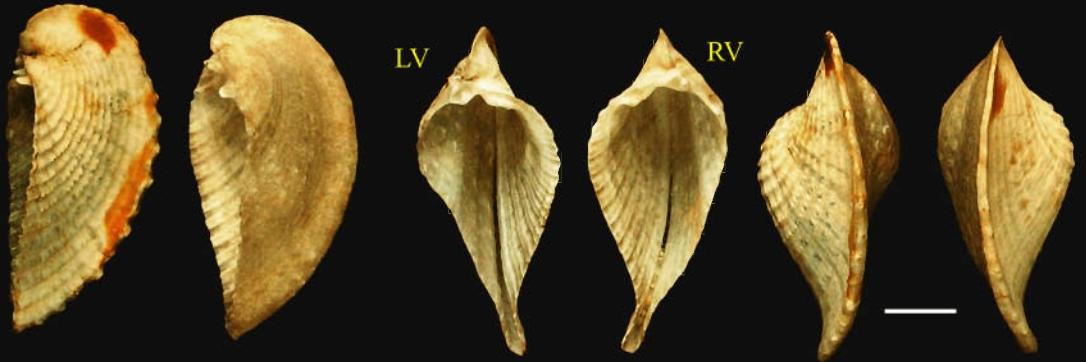
RV



*aequale* Deshayes, 1854. Comb. changed from *Cardium* to *Corculum*. HOLOTYPE at BMNH, London. Phot. by L.K.

*Card. Aequale Desh.*

HOLOTYPE  
Deshayes, 1854, Proc  
Zool. Soc. Lond. 332.

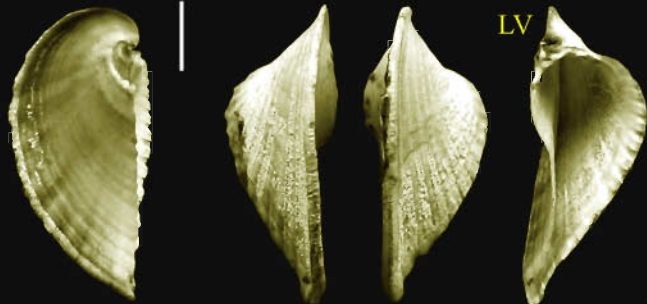


*cardissa* Linnaeus, 1758. Comb. changed from *Cardium* to *Corculum*. HOLOTYPE at Linn. Soc. of London. ID by Hanley (1855). Phot. by S.P.D.



*Brucardis cœur de Venise*  
L. *Cardissa*

*cardissa* Linnaeus, 1758. Comb. changed from *Cardium* to *Corculum*. ID by Lamarck (original label). Lamarck coll. at MNHN, Paris. Phot. by J.H.



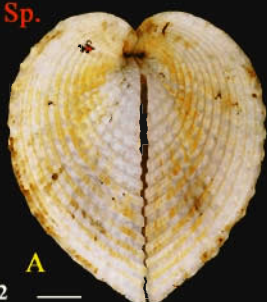
*Brucardis cœur de Junon*  
L. *junonia*

*junoniae* Lamarck. Comb. changed from *Cardium* to *Corculum*. ID by Lamarck (original label). Lamarck coll. at MNHN, Paris. Phot. by J.H.

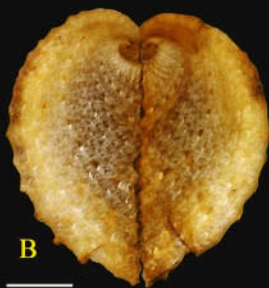


*Cardium Cardiffa*  
Lin. 74.a.  
No. 32.  
Tranquebar.

Sp.



A



B



C

*cardiffa* Linnaeus, 1758.  
Comb. changed from  
*Cardium* to *Corculum*.  
ID by Spengler 1799 No. 32  
(original label). From Tranquebar.  
ZMUC, Copenhagen. Phot. by J.H.

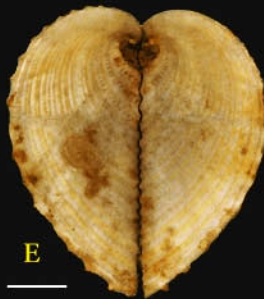
*cardiffa* var. B. and var. C. Spengler 1799.  
HOLOTYPE at ZMUC, Copenhagen.  
Spengler's original label. Phot. by J.H.

varietet. D. & C.  
Nors Card: Cardiffa.

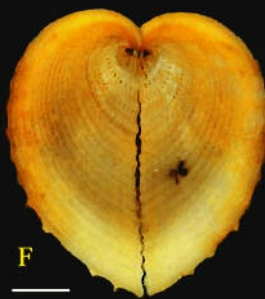
Sp.



D



E



F

*cardiffa* var. D. and var. E. and var. F. Spengler 1799. HOLOTYPE at ZMUC,  
Copenhagen. ID by Spengler 1799 No. 32, varieties. Phot. by J.H.



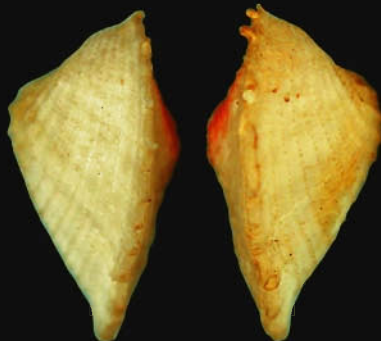
H

Sp.



*replicatum*  
Spengler, 1799.  
Comb. changed from  
*Cardium* to *Corculum*.  
HOLOTYPE at ZMUC,  
Copenhagen. ID by Spengler  
1799 No. 33, with ref. to Chem-  
nitz 1782 calling it *Cardium*  
*monstrorum*, etc. [non binominal]. Phot. by J.H.

*cardiffa* var. H.  
Not mentioned  
by Spengler 1799 but  
it is his species accord-  
ing to label at ZMUC,  
Copenhagen.  
Phot. by J.H.

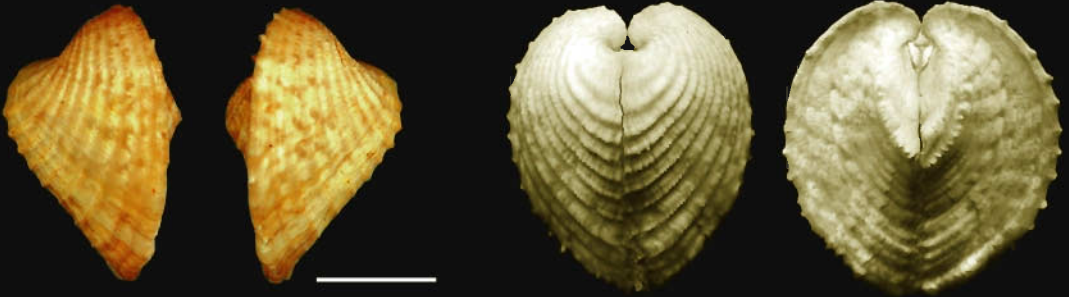


LV

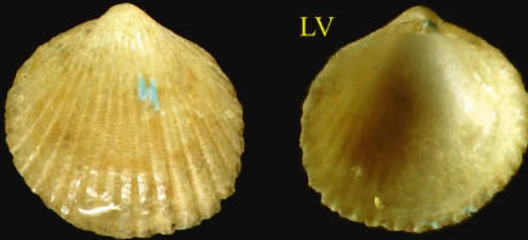


*unimaculatum*, Sowerb.

*unimaculatum* Broderip & Sowerby, 1833. Comb. changed from *Cardium*  
to *Corculum*. 2 SYNTYPES at BMNH, London. From the Isl. of Annaa.  
Phot. by L.K.

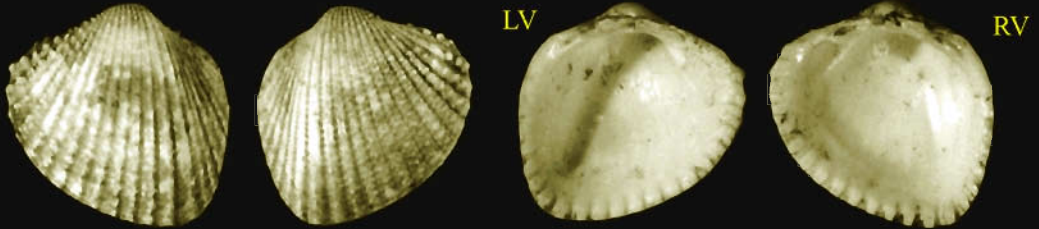


*productum* Deshayes, 1854. Comb. changed from *Cardium* to *Corculum*. 2 SYNTYPES at BMNH, London. From Torres Straits. Phot. by L.K. (colour) and J.V. (b/w).



LV

*auri* Fischer-Piette, 1977. Comb. changed from *Corculum* to *Parvicardium* HOLOTYPE at MNHN, Paris as *Corculum (Trigoniocardia) auri*. From the Gulf of Guinea, 50 m. Synonym of *Parvicardium papillosum* (Poli, 1791). Phot. by A. le G.



LV

RV

*exiguum* Gmelin, 1791. Comb. changed from *Cardium* to *Parvicardium*. Lamarck Collection at MHN, Genève. Phot. by G.D.



RV

*omanense* Melvill & Standen, 1906. Comb. changed from *Cardium* to *Parvicardium*. One of 2 SYNTYPES at BMNH, London. Phot. by J.V.

*roseum* Lamarck, 1819. Comb. changed from *Cardium* to *Parvicardium*. HOLOTYPE at Lamarck Collection, MHN, Genève # 1085/70. 35. Phot. by G.D.



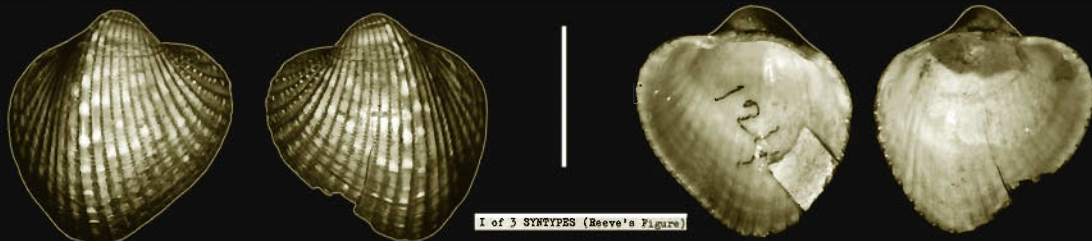
LV

LV

RV

RV

*svedense* Reeve, 1845. Comb. changed from *Cardium* to *Cerastoderma*. SYNTYPES at BMNH. Phot. by the Museum.



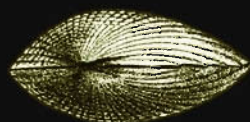
*stellatum* Reeve, 1845. Comb. changed from *Cardium* to *Parvicardium*. 3 SYNTYPES at BMNH, London. Hinge view of numbered specimen (Reeve's fig). Many synonyms proposed by authors. Phot. by the Museum



*subangulatum* Scacchi, 1833. *Nomen nudum*. LECTOTYPE at MNHN, Paris. From Gulf of Naples, Italy. Phot. by A. le G.



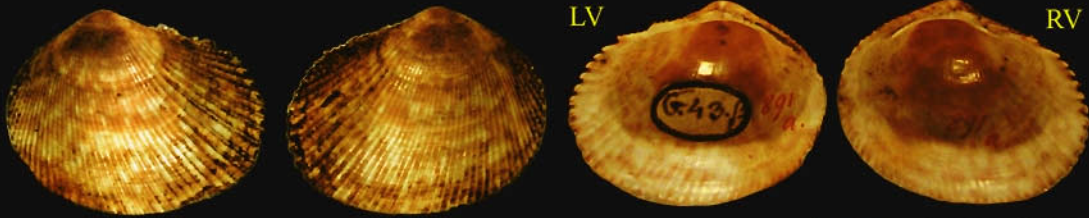
*levisulcatum* Smith, 1903. Comb. changed from *Cardium* to *Parvicardium*. LECTOTYPE (valve) and 4 PARALECTOTYPES at BMNH London. From the Maldives. Drawing from Smith 1903. Phot. by L.K.



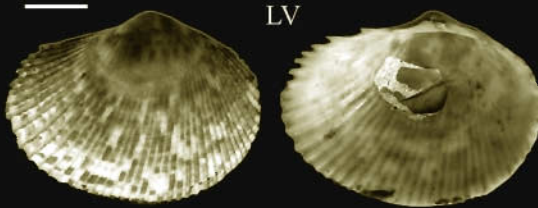
*semisulcata* Gray, 1825. Comb. changed from *Cardium* to *Papyridea*. HOLOTYPE at BMNH, London. [? worn *C. ringiculum* Sow. f. 11. Compare p. 108]. Phot. by J.V.



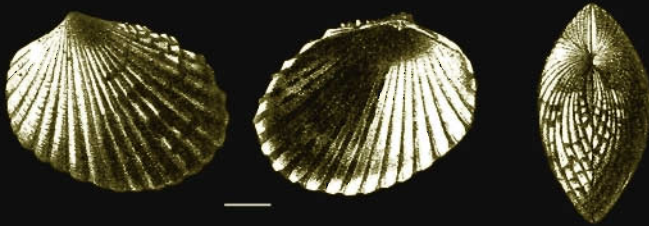
*natalense* Krauss, 1848. Comb. changed from *Cardium* to *Fulvia*. After drawing by Krauss (1848).



*latum* Born, 1778. Comb. changed from *Cardium* to *Papyridea*. HOLOTYPE at NMW, Vienna. ID by Born: *Cardium latum* [= *Papyridea soleniforme* Brugière]. Phot. by J.V.



*bullatum* Lamarck, 1819. Comb. changed from *Cardium* to *Papyridea*. ID by Lamarck (original label). [= *Papyridea soleniforme* Brugière]. Lamarck coll. at MNHN, Paris. Phot by. J.H.



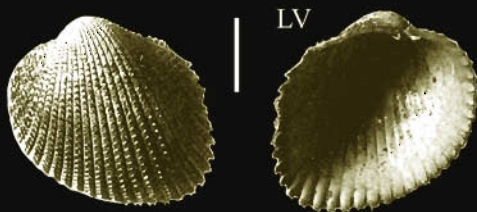
*transversale* Deshayes, 1854. Comb. changed from *Cardium* to *Parvicardium*. Drawing from Smith 1885.



*carditaforme* Reeve, 1845. (see also p. 933). Comb. changed from *Cardium* to *Afrocardium*. HOLOTYPE at BMNH, London. Phot. by J.V.

*crenelloides* Melvill, 1909. Comb. changed from *Cardium* to *Afrocardium*. TYPE at BMNH, London. Phot. by J.V.

*euglyptum* Sowerby, 1914. Comb. changed from *Cardium* to *Afrocardium*. HOLOTYPE at BMNH, London. Phot. by J.V.



*ebaranum* Yokoyama, 1927. Comb. changed from *Cardium* to *Afrocardium*. Author's illustration 1927.



*rubescens* Smith, 1911. Comb. changed from *Cardium* to *Afrocardium*. 2 SYNTYPES at BMNH, London. From Christmas Is. Phot. by L.K.



*richardi* Audouin, 1826. Comb. changed from *Cardium* to *Afrocardium*. LECTOTYPE at MNHN, Paris. Fig. in Savigny 1817: Description de l'Égypte pl. 9 f. 14. as *C. richardi*. Phot. by A. le G.

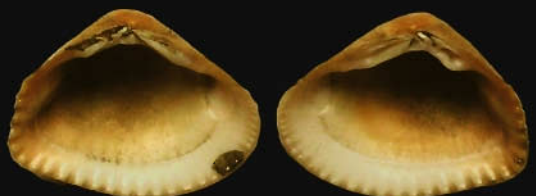
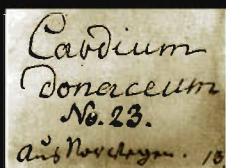


*skeeti* Hedley, 1906. Comb. changed from *Cardium* to *Afrocardium*. Primary TYPE at AMS, Sydney. Phot. by J.V.

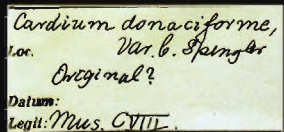
*shepstonense* Tomlin, 1931. Comb. changed from *Cardium* to *Afrocardium*. HOLOTYPE at BMNH, London. Phot. by J.V.



*donaceum* Spengler 1799. Comb. changed from *Cardium* to *Hemidonax*. HOLOTYPE at ZMUC, Copenhagen. ID by Spengler 1799 No. 23 (original label). Spengler's states Norway as the locality but it should be the South Seas. Localities have occasionally been mixed by Spengler, who did not collect himself. Compare with p. 896. Phot. by J.H.



*donaceum* var. *B* Spengler 1799. Comb. changed from *Cardium* to *Hemidonax*. HOLOTYPE at ZMUC, Copenhagen. ID by Spengler 1799 No. 23. Without locality. Phot. by J.H.





*Cardium fasciatum* Montagu. [= *C. ovale* Sowerby]

a & b. A specimen of the short, strongly ventricose form. Færøes. 20-30 fm

c & d. A specimen of the somewhat elongated, much tumid form.

West Iceland (Ønundarfjörður), ca. 12 fm.

e. A specimen with tubercles not only on the anterior and posterior area, but also on the middle area. West Iceland (Ønundarfjörður), ca. 12 fm.

f. That form which was confused by Mörch with *C. edule* L. Færøes.

g. The same half from in front.

h. The same half from behind.

i. A specimen with an oblique cordiform contour. Færøes, 135 m.

k. A specimen from behind showing an intercostal sculpture in the form of a fine picking. West Iceland (Ønundarfjörður), ca. 12 fm.

Drawings from  
A.S. Jensen (1912):  
The Danish Ingolf  
Expedition.

Note the characteristic oblique  
scales on anterior ribs (g).  
K.W. Ockelmann, pers. comm.



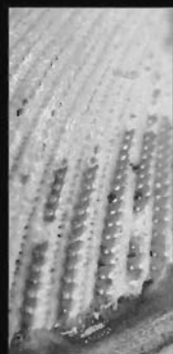
Bucarde de Bordeaux  
card. Burdigalinum.  
Bourguay.

*burdigalinum* Lamarck, 1819.  
HOLOTYPE at MNHN, Paris.  
ID by Lamarck: fossil *Cardium burdigalinum* (original label)  
= *Ringicardium burdigalinum*.  
Phot by. J.H.



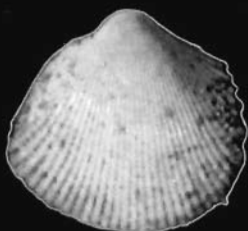
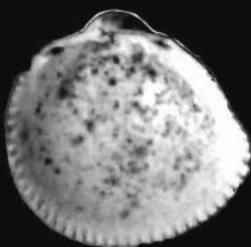
Bucarde diluvien.  
Cardium diluvianum.

*diluvianum* Lamarck, 1819. HOLOTYPE at MNHN, Paris.  
ID by Lamarck: fossil *Cardium diluvianum* (original label).  
Phot by. J.H.



Bucarde poruleux.  
Cardium porulosum.

*porulosum* Solander in Brander, 1766. MNHN, Paris. ID by Lamarck: fossil *Cardium porulosum* (original label).  
= *Orthocardium porulosum*. Phot by. J.H.



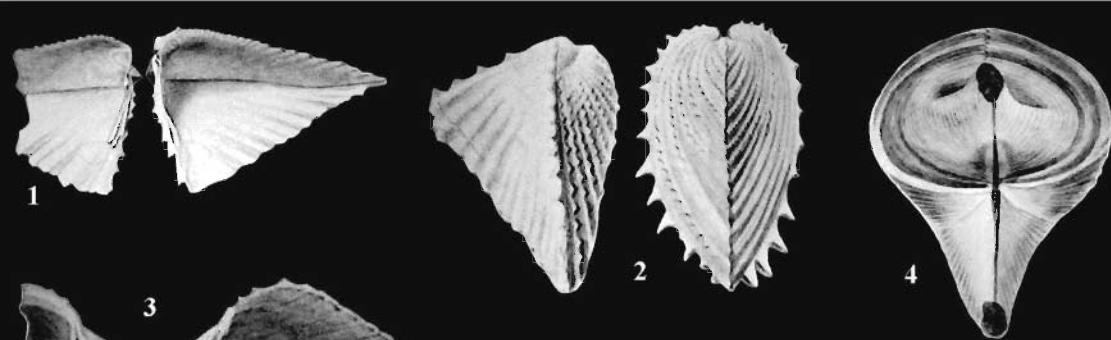
Bucarde oblique.  
Cardium obliquum.

*obliquum* Lamarck, 1805. HOLOTYPE at MNHN, Paris. ID by Lamarck: fossil *Cardium obliquum* (original label).  
= *Loxocardium obliquum*. Phot by. J.H.

*Cardium*  
*manthelaniense*  
Dollfus & Dautzenberg  
Manthelau  
Types Journ. Coust.  
1888 pl. XII f. 2, 2<sup>a</sup> 1<sup>o</sup>  
2<sup>c</sup>



*manthelaniense* Dollfus & Dautzenberg, 1888.  
SYNTYPE at MNHN, Paris. *Cardium manthelaniense*.  
Syn. of fossil *Acanthocardia andreae* (Dujardin, 1837). Phot by. A. le G.

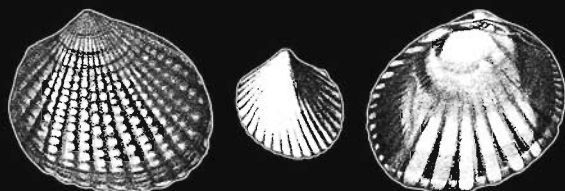
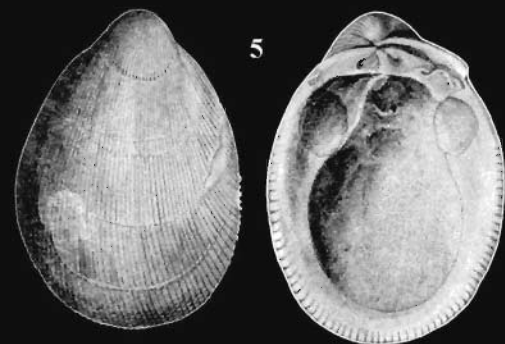


Figs. 1-2: *aviculare* Lamarck, 1805. ID by Deshayes 1857, pl. 25 f. 7-9. = *Lithocardium aviculare*.

Fig. 3: *cardissa* Linnaeus, 1858. ID by Deshayes 1857, pl. 25 f. 5-6. = *Corculum cardissa*.

Fig. 4: *hibernicum* Sowerby, 1815. ID by Deshayes 1857, pl. 25 f. 10. = *Conocardium hibernicum*.

Fig. 5: *intercostatum* Dujardin. ID by Deshayes 1857, pl. 26 f. 6-7. = *Acanthocardia intercostatum*.

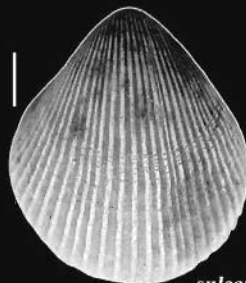


*radula* Deshayes, 1832. ID by Deshayes 1832, pl. 18 f. 15-17. = *Cerastoderma radula*  
Deshayes, 1832. ID by Deshayes 1832, pl. 18 f. 15-17. = *Cerastoderma radula*.



*Buccarde rhomboides* 1819  
*cardium rhomboides*  
Halm. Linn. M. Linn.

*rhomboides* Lamarck, 1819. ID by Lamarck (original label). HOLOTYPE at MNHN, Paris. = *Cerastoderma rhomboides*.  
Phot. J.H.



*Buccarde Sulcatinae*  
*cardium Sulcatinae*  
J. Magister

*sulcatinum* Lamarck, 1819. ID by Lamarck (original label). HOLOTYPE at MNHN, Paris. Not in Cardiidae. Syn. of *Spondylus spinosus* Desh. Phot. by J.H.



*L. divaricata*, L.  
= *Cardium arcuatum*  
British.  
Muss. Montagu.

Type *Card. arcuatum* Mont.

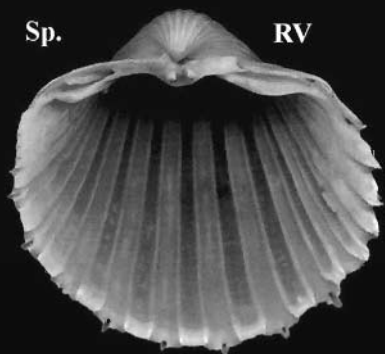
*divaricata* Linné  
British.

Sowerby has it =  
*divaricata* ?

*arcuatum* Montagu, 1803 *Cardium*. HOLOTYPE at BMNH, London. Not in Cardiidae. Phot. by L.K.

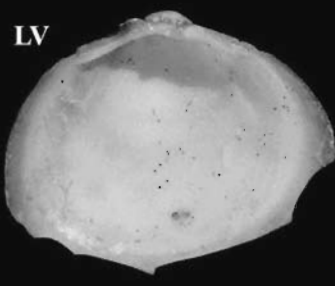
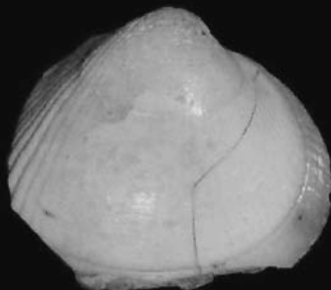


Sp. RV



*Cardium costatum*  
No. 79. L. No. 1  
Conque Exotique  
Droit d'ain Chyborg & Mals  
Doubled, Non for the Spengler  
Havafund Saisio Spengler  
Non du Rist Guisee.

*costatum* Linnaeus, 1758.  
*Cardium*.  
ID by Spengler 1799  
No. 1 (original label).  
From the coast of Guinea  
(W. Africa). Phot. by J.H.

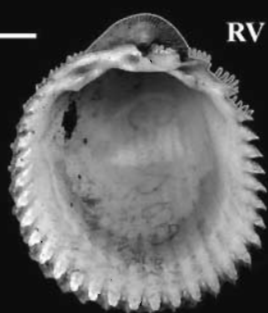
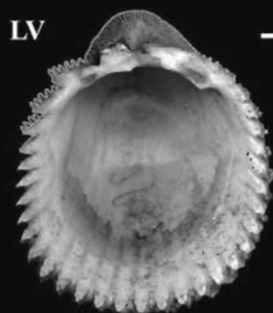


LV

*boreale* Reeve, 1845. HOLOTYPE at BMNH, London. Synonym of *Serripes groenlandicus* (Bruguère, 1789).  
Phot. by the Museum.



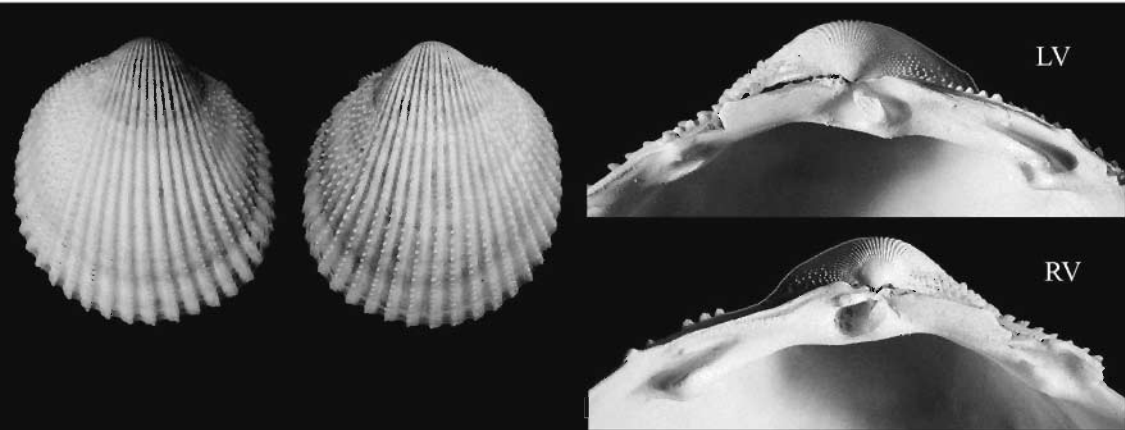
*consors* Sowerby, 1833. Comb. changed from *Cardium* to *Trachycardium*. 1 of 3 SYNTYPES at BMNH, London (inside views of L & R valves). Phot. by G.H.P.



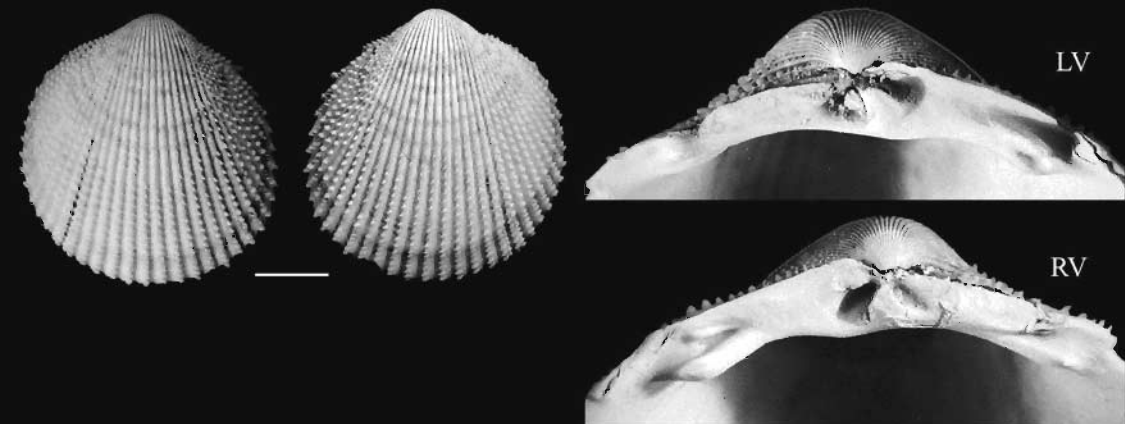
LV RV

*squamosum* Gm  
*Cardium consors*  
Gualt. t. 71 f. N.  
Cons. . H. Cuming  
Small. Ligne bader consors. and (fend)

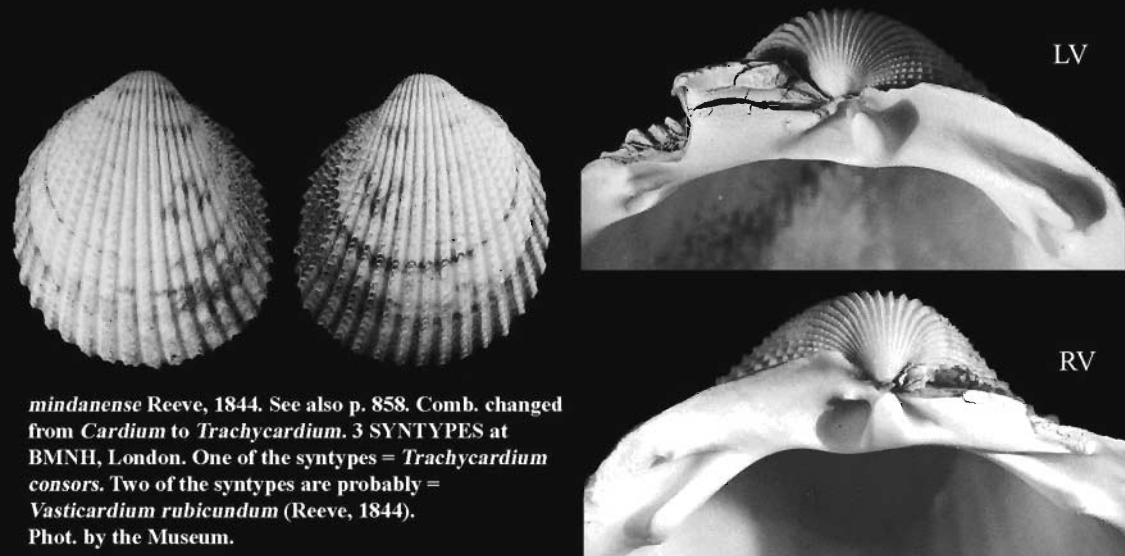
*consors* Sowerby, 1833.  
ZMUC, Copenhagen.  
The label reads:  
*squamosum* Gm [Gmelin 1791].  
*Cardium consors*. Gualt[ieri] t 71 f N  
[See Figs. in Part 1, p. 48]. Com.  
H. Cuming. Gualt. looks more like *consors*  
than *Isocard[ia]*. Phot. by J.H.



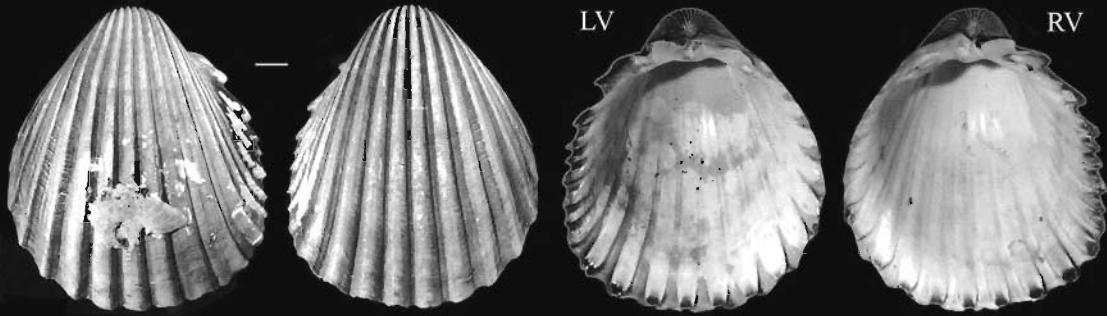
*lima* Reeve, 1845. Comb. changed from *Cardium* to *Trachycardium*. 2 SYNTYPES at BMNH, London. Hinge of Reeve's fig. of *C. lima*. Misidentification of *Trachycardium senticosum* (Sowerby, 1833). Phot. by the Museum.



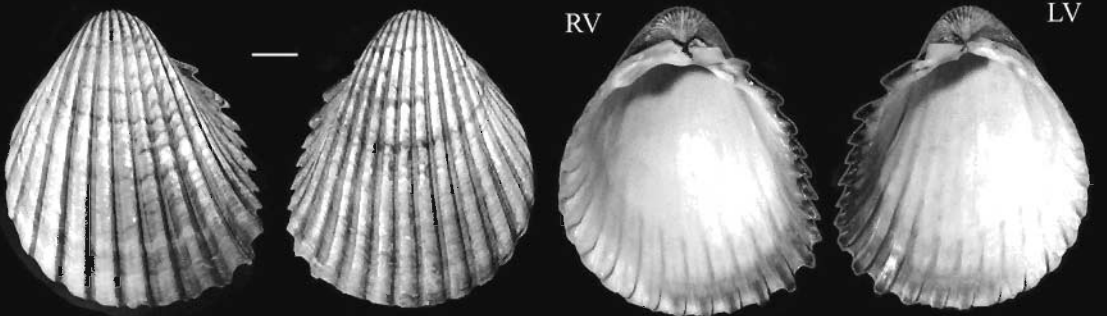
*rastrum* Reeve, 1845. Comb. changed from *Cardium* to *Trachycardium*. TYPE at BMNH, London. This specimen is possibly *Cardium rastrum* Reeve. Phot. by the Museum.



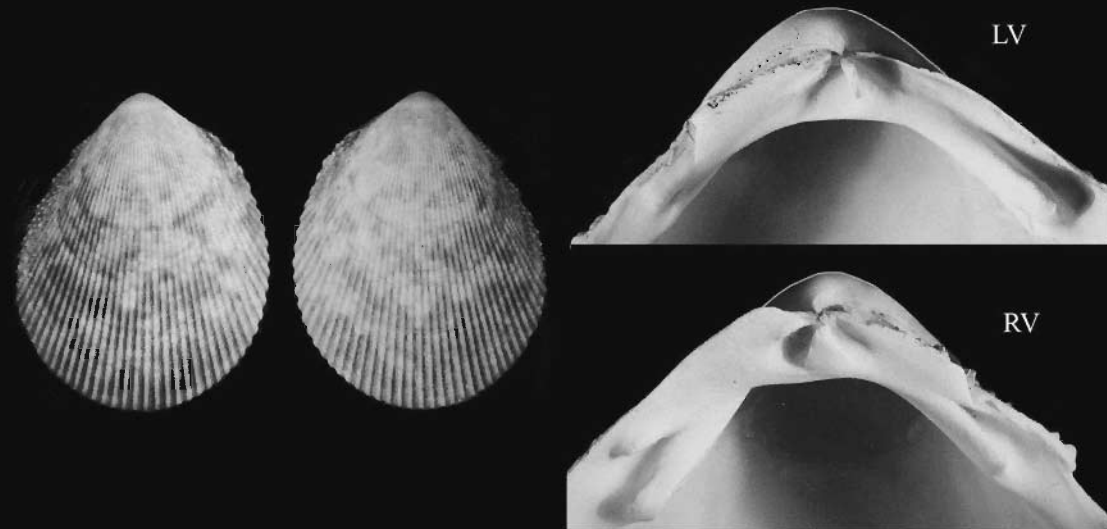
*mindanense* Reeve, 1844. See also p. 858. Comb. changed from *Cardium* to *Trachycardium*. 3 SYNTYPES at BMNH, London. One of the syntypes = *Trachycardium consors*. Two of the syntypes are probably = *Vasticardium rubicundum* (Reeve, 1844). Phot. by the Museum.



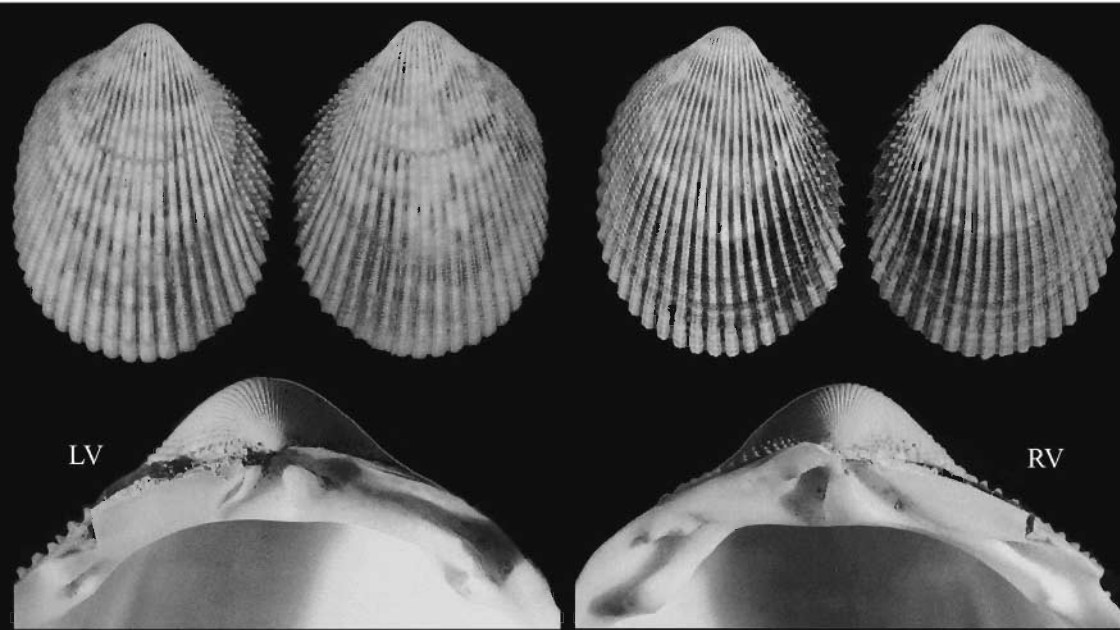
*panamense* Sowerby, 1833. See also p. 857. Comb. changed from *Cardium* to *Trachycardium*. HOLOTYPE at BMNH, London. Phot. by the Museum.



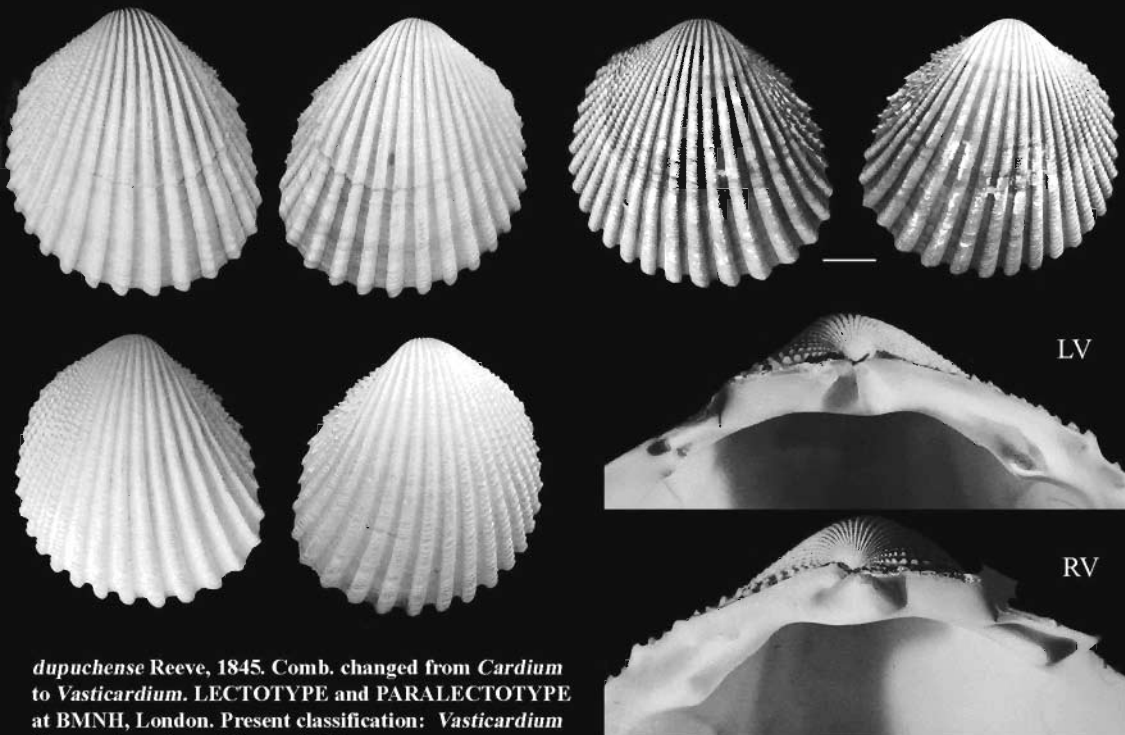
*procerum* Sowerby in Broderip & Sowerby, 1833. Comb. changed from *Cardium* to *Trachycardium*. One of 2 SYNTYPES at BMNH, London. Phot. by the Museum.



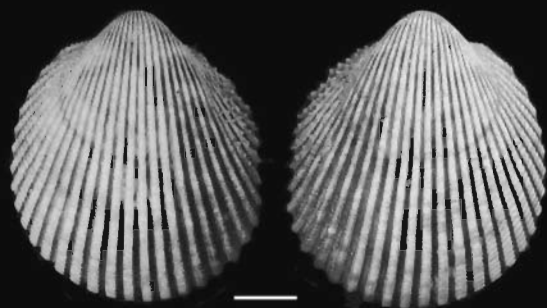
*arenicolum* Reeve, 1845. See also p. 872. Comb. changed from *Cardium* to *Acrosterigma*. One of 3 SYNTYPES at BMNH, London. Synonym of *Acrosterigma maculosum* (Wood, 1815). Phot. by the Museum.



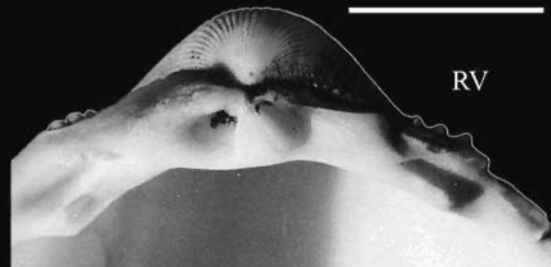
*assimile* Reeve, 1844. See also p. 859. Comb. changed from *Cardium* to *Vasticardium*. Two of 3 SYNTYPES at BMNH, London. Phot. by the Museum.



*dupuchense* Reeve, 1845. Comb. changed from *Cardium* to *Vasticardium*. LECTOTYPE and PARALECTOTYPE at BMNH, London. Present classification: *Vasticardium flavum dupuchense* (Reeve, 1845). Phot. by the Museum.

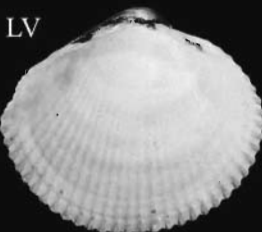
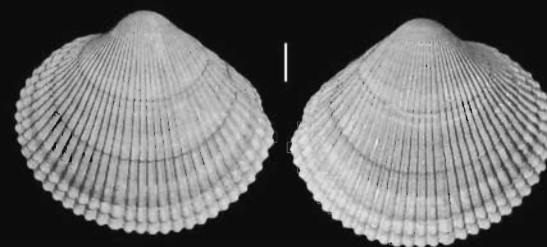


LV



RV

*lacunosum* Reeve, 1845. See also p. 872 and 876.  
Comb. changed from *Cardium* to *Trachycardium*  
HOLOTYPE at BMNH, London.  
Phot. by the Museum.

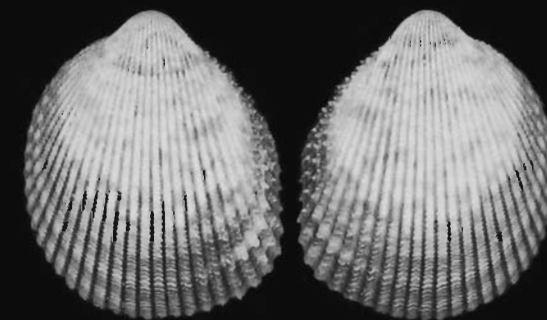


LV



RV

*pseudofossile* Reeve, 1844. Comb. changed from *Cardium* to *Clinocardium* 2 SYNTYPES at BMNH,  
London. Synonym of *Clinocardium californiense* (Deshayes, 1839). Phot. by the Museum.

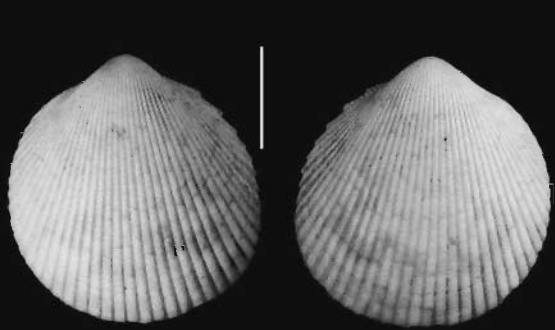
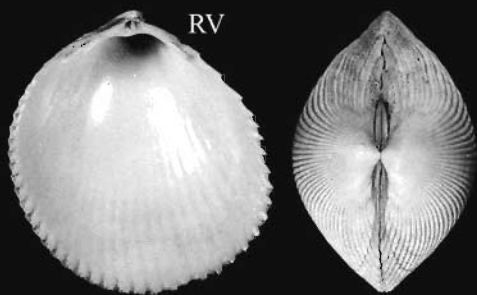
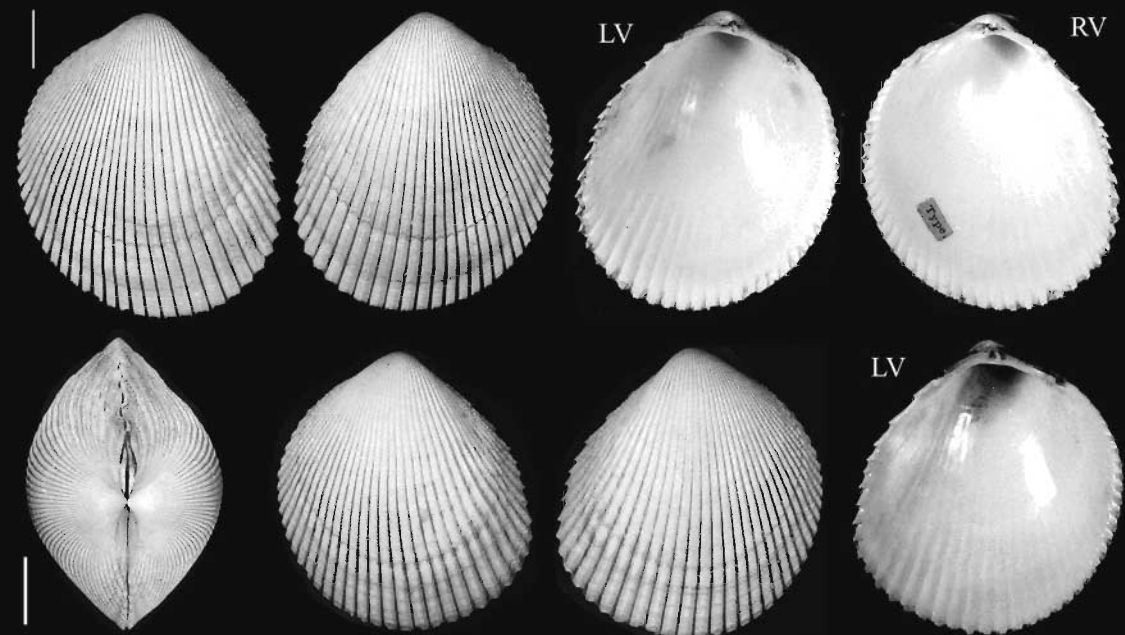


LV



RV

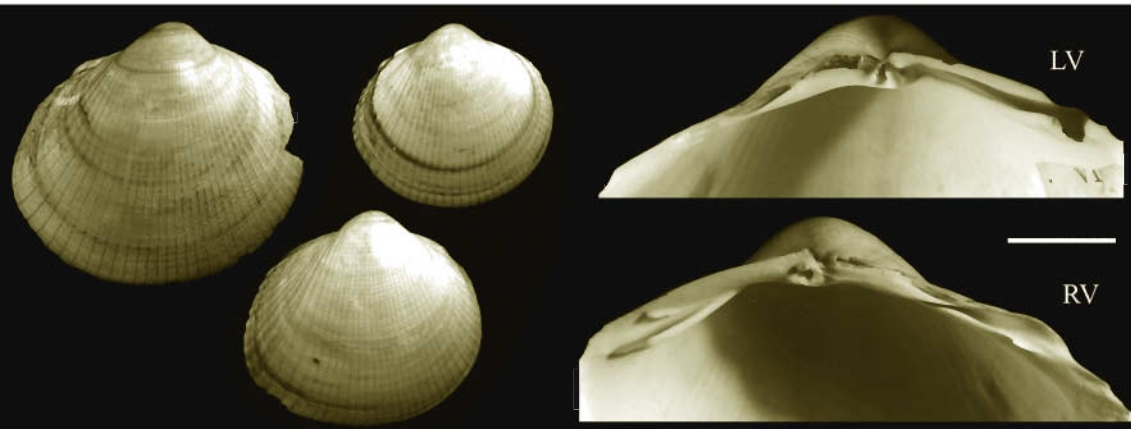
*rubicundum* Reeve, 1844. See also p. 865.  
Comb. changed from *Cardium* to  
*Vasticardium* 3 SYNTYPES at BMNH,  
London. Phot. by the Museum.



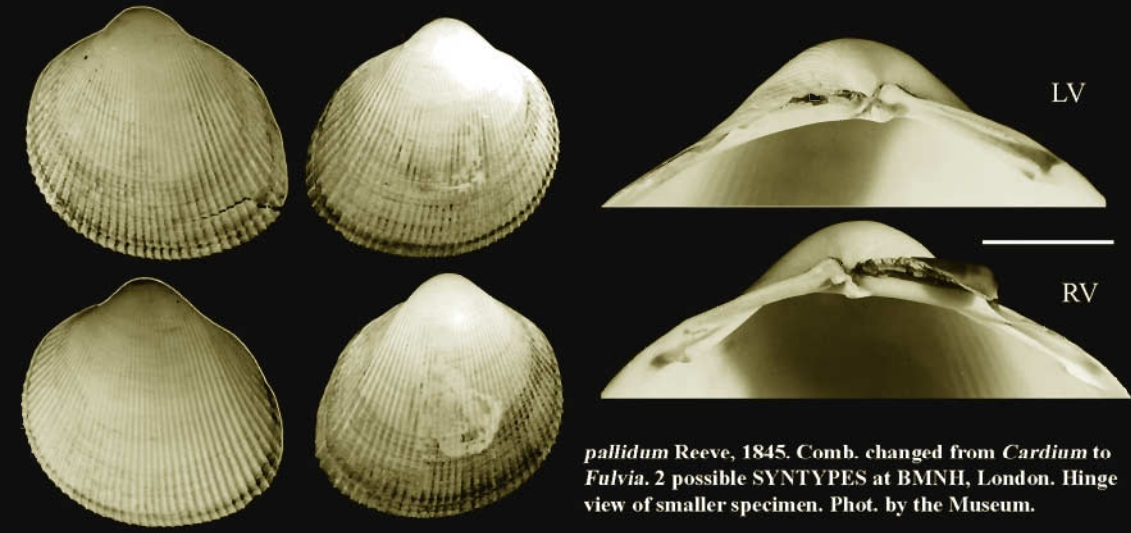
*cygnorum* Deshayes, 1855. Comb. changed from *Cardium* to *Acrosterigma*. HOLOTYPE and 2 PARATYPES at BMNH, London.

According to label, "Paratype (1) is possibly the measured specimen of *C. foveolatum* Sowerby, 1841. Phot. by the Museum.

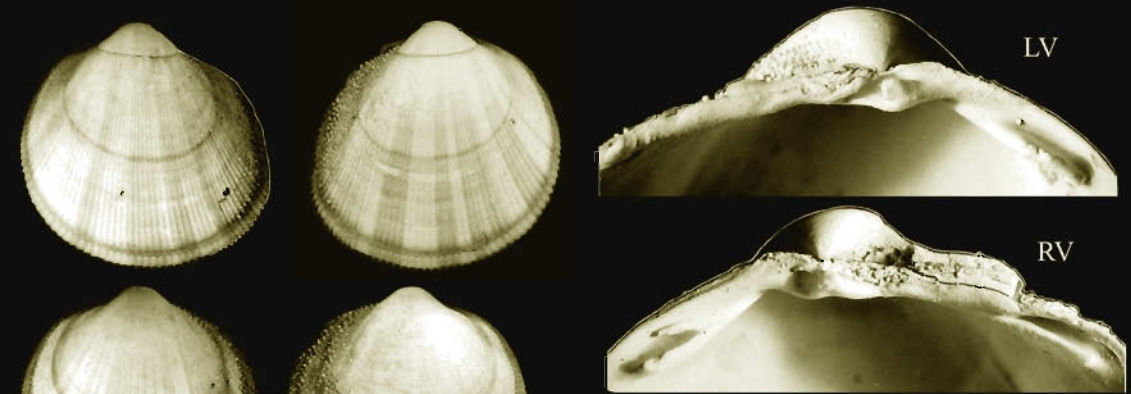
*nebulosum* Reeve, 1845. See also p. 877  
Comb. changed from *Cardium* to *Acrosterigma*.  
HOLOTYPE at BMNH, London.  
Phot. by the Museum.



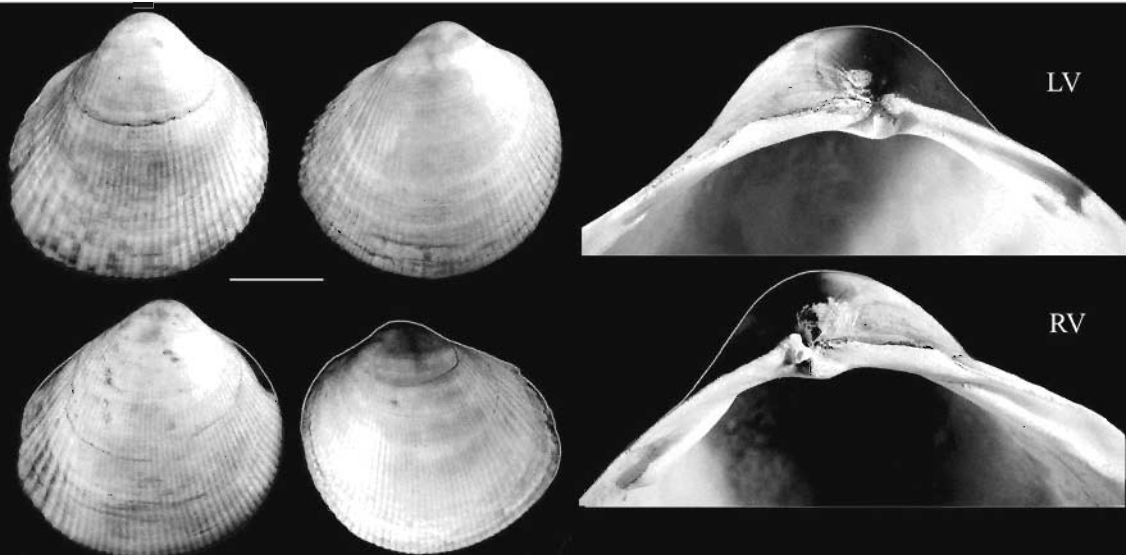
*muticum* Reeve, 1844. Comb. changed from *Cardium* to *Fulvia*. 3 SYNTYPES. BMNH, London. Hinge view of Reeve's fig. Phot. by the Museum.



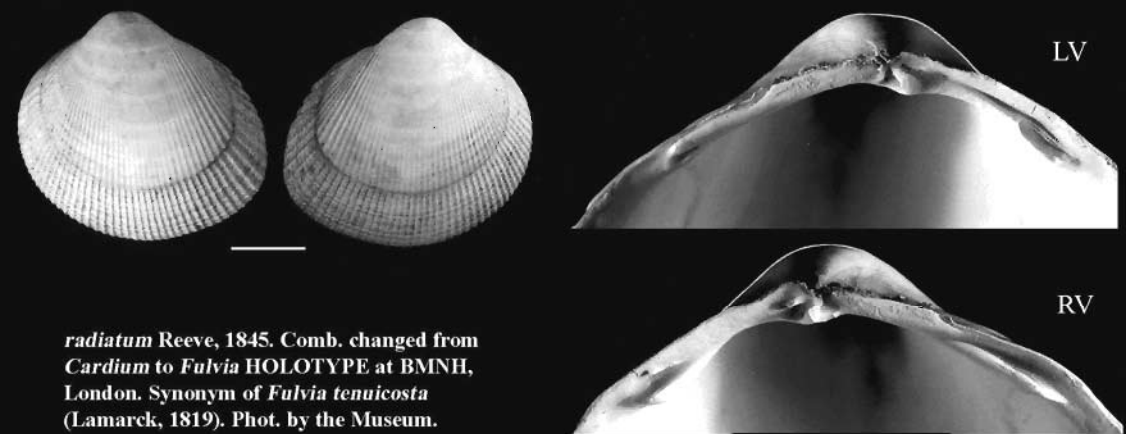
*pallidum* Reeve, 1845. Comb. changed from *Cardium* to *Fulvia*. 2 possible SYNTYPES at BMNH, London. Hinge view of smaller specimen. Phot. by the Museum.



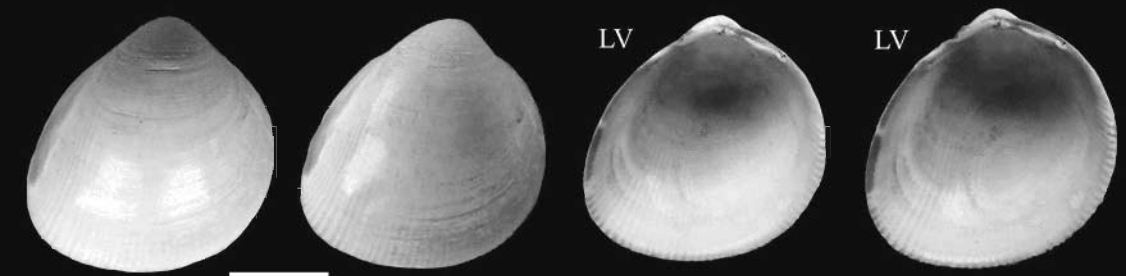
*pulchellum* Reeve, 1844. Comb. changed from *Cardium* to *Microcardium* 3 SYNTYPES at BMNH, London. Hinge view of medium sized specimen (Reeve's fig). Synonym of *Nemocardium pulchellum* (Gray, 1843). Phot. by the Museum.



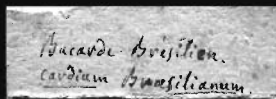
*pulchrum* Reeve, 1845. Comb. changed from *Cardium* to *Fulvia*. 3 SYNTYPES at BMNH, London. Hinge view of smallest specimen (Reeve's fig). Synonym of *Fulvia australis* (Sowerby, 1834). Phot. by the Museum.



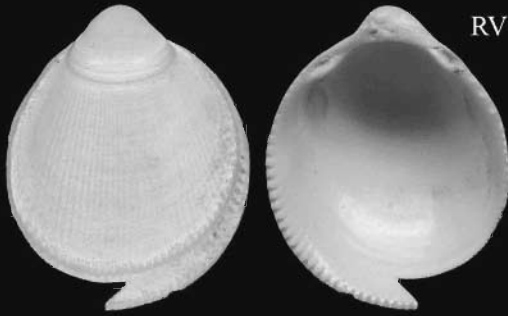
*radiatum* Reeve, 1845. Comb. changed from *Cardium* to *Fulvia* HOLOTYPE at BMNH, London. Synonym of *Fulvia tenuicosta* (Lamarck, 1819). Phot. by the Museum.



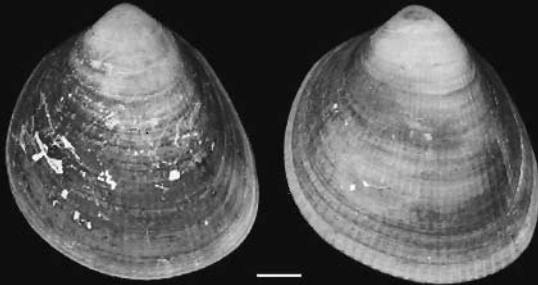
*brasilianum* Lamarck, 1819. Comb. changed from *Cardium* to *Laevicardium*. TYPE material at MNHN, Paris, according to note on label by G. Høpner Petersen. Lamarck's original label. Phot. by J.H.



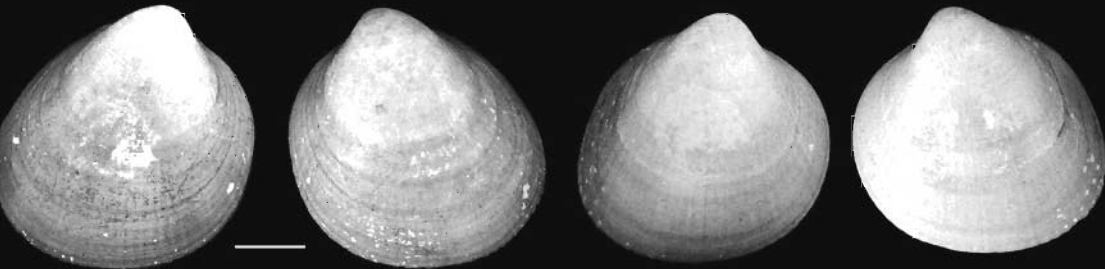
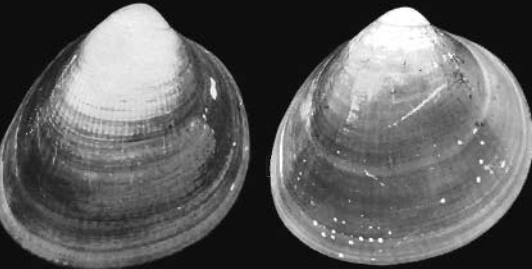




*nemo* Fischer-Piette, 1977. *Laevicardium*. HOLOTYPE at MNHN, Paris. Type locality not given. Dubious species. Keen (1980): species insufficiently known. Phot. by A. le G.



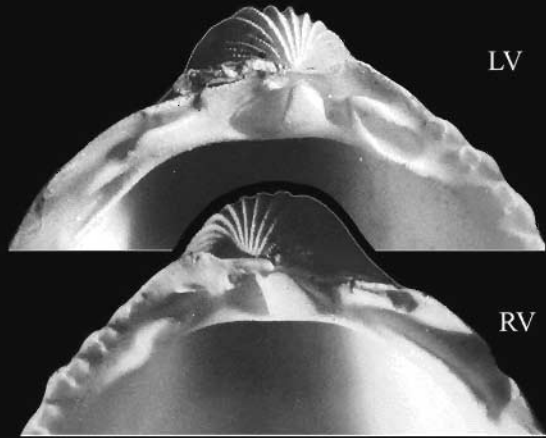
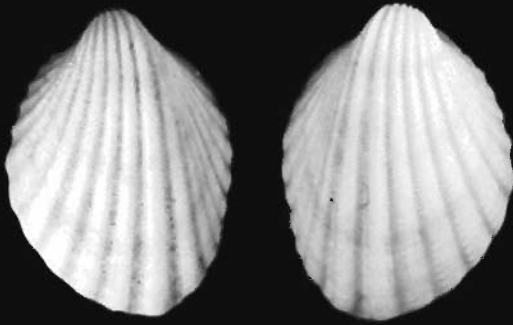
*pennanti* Reeve. Comb. changed from *Cardium* to *Laevicardium*. Two of 3 SYNTYPES at BMNH, London. Hinge view of medium size specimen (Reeve's fig). Synonym of *Laevicardium crassum* (Gmelin, 1791). Phot. by the Museum.



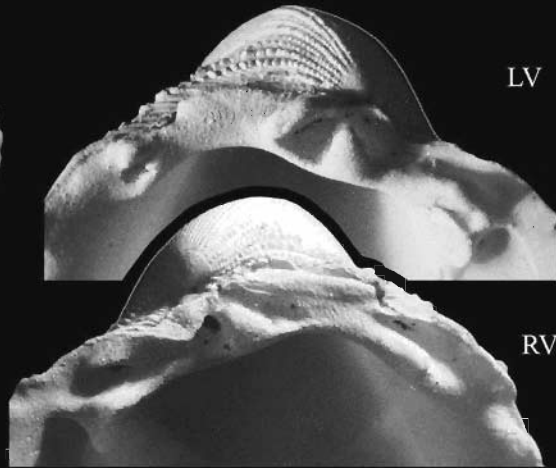
British Museum (Natural History)  
*Cardium vitellinum*  
Syntypes Reeve



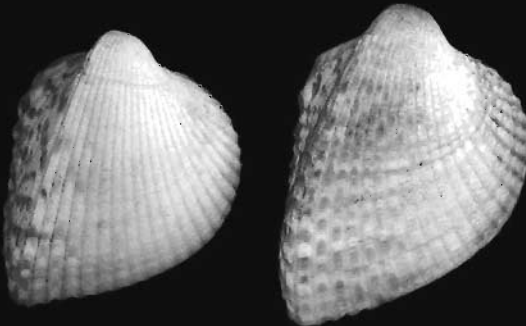
*vitellinum* Reeve, 1844. Comb. changed from *Cardium* to *Laevicardium*. Two of 3 SYNTYPES at BMNH, London. Hinge view of largest specimen (Reeve's fig). Synonym of *Laevicardium crassum* (Gmelin, 1791). Phot. by the Museum.



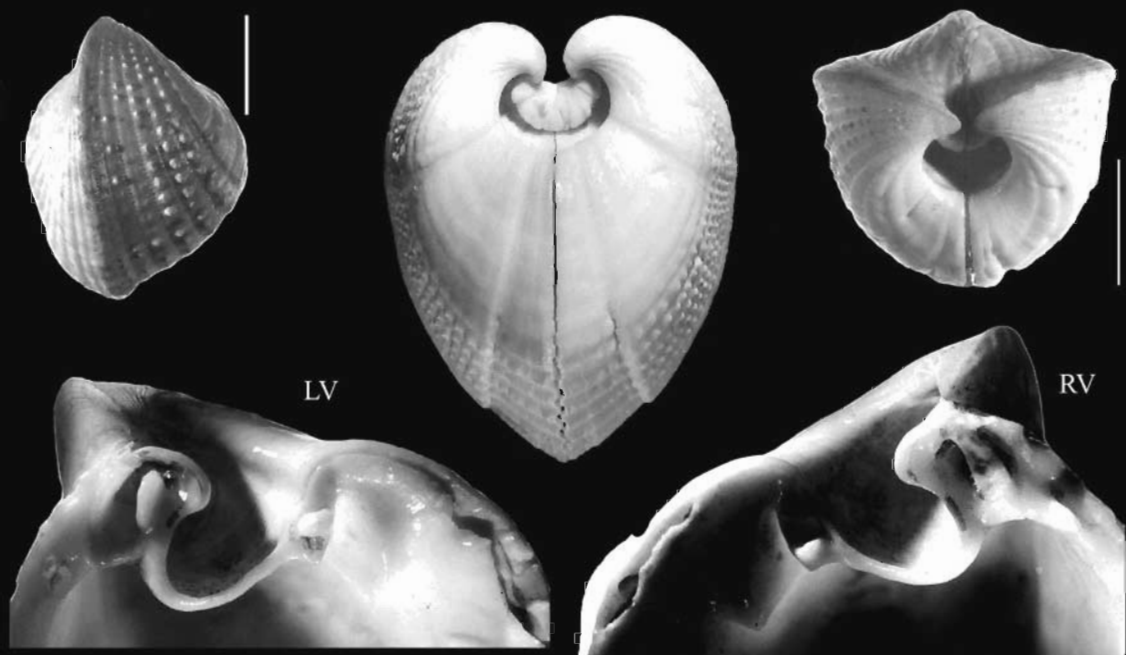
*ovuloides* Reeve, 1845. See also p. 856. One of 3 SYNTYPES at BMNH, London. Hinge view of largest specimen. Synonym of *Trigoniocardia obovalis* (Broderip & Sowerby, 1833). Phot. by the Museum.



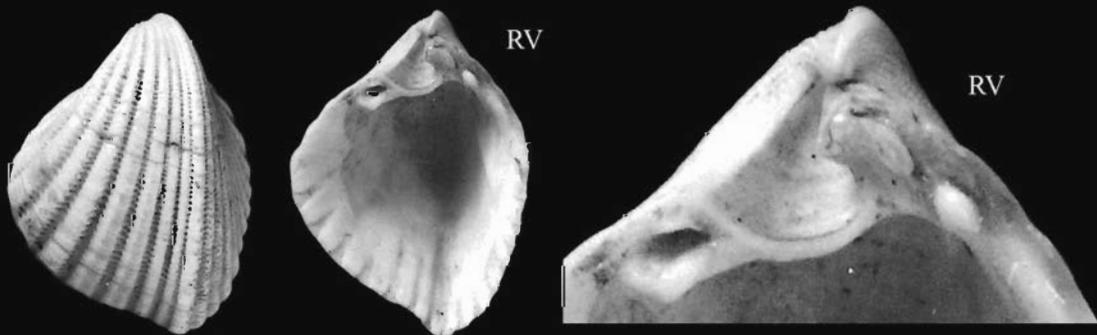
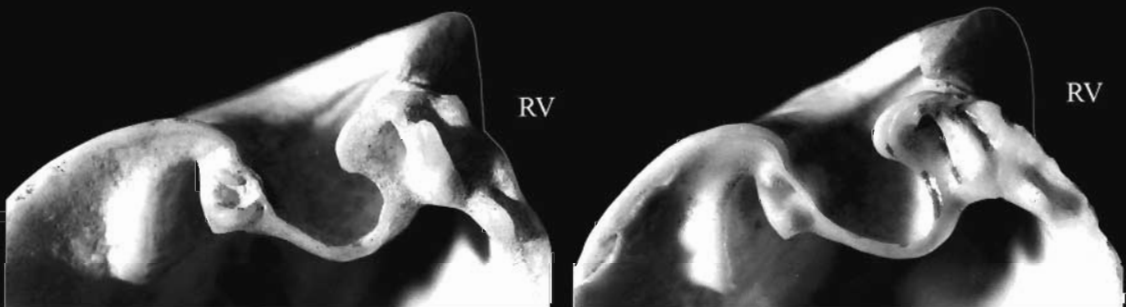
*mundum* Reeve, 1845. See also p. 906. Comb. changed from *Cardium* to *Fragam*. One of 3 SYNTYPES at BMNH, London. Numbered specimen and hinge view show Reeve's fig. 63. From Lord Hood's Is. Phot. by the Museum.



*nivale* Reeve, 1845. See also p. 909. Comb. changed from *Cardium* to *Fragam*. Two of 4 SYNTYPES at BMNH, London. From Catanaun, Philippines Hinge view of Reeve's fig. Phot. by the Museum.



*auricula* Forsskål. Comb. changed from *Cardium* to *Lunulicardia*. SYNTYPES at ZMUC, Copenhagen. Phot. by the Museum.



*retusum* Linnaeus, 1758. See also p. 911. Comb. changed from *Cardium* to *Lunulicardia*. HOLOTYPE at the Lin. Soc. London. Phot. by S.P.D.



RV

1957. 9. 20. 568.  
*Cardium papillosum*  
 Sierra Leone.  
 dredge. 10 m.  
 - 11. 55. W. A. F. R. I.  
 (coll. A. R. Longhurst)

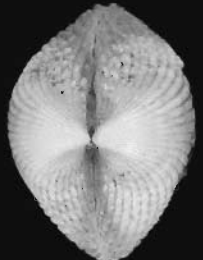
*papillosum* Poli, 1791. Comb. changed from *Cardium* to *Parvicardium*. BMNH, London. [Probably an undescribed species]. Phot. by L.K.



LV



RV



*polii* Payraudeau, 1826. Comb. changed from *Cardium* to *Parvicardium*. HOLOTYPE at MNHN, Paris. Syn of *Parvicardium papillosum* (Poli, 1791). Phot. by A. le G.



LV



RV

*quadrarium* Reeve, 1845. Comb. changed from *Cardium* to *Parvicardium*. HOLOTYPE at BMNH, London. Phot. by the Museum.

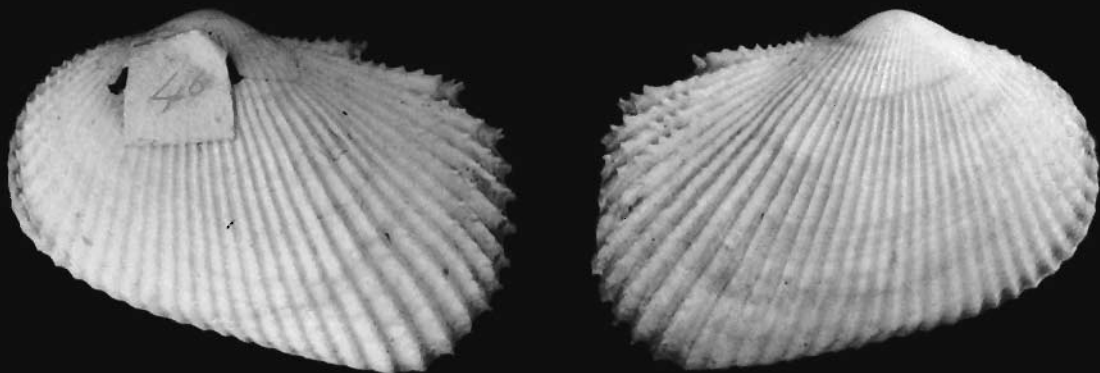


RV



LV

*carditaforme* (Reeve, 1845). Comb. changed from *Cardium* to *Afrocardium*. HOLOTYPE (paired shells) at BMNH, London. Hinge view of holotype. Phot. by the Museum.



British Museum (Natural History)  
*Cardium hiulcum* Reeve  
Syntypes



LV

RV



*hiulcum* Reeve, 1845. Comb. changed from *Cardium* to *Papyridea*. Two of 3 SYNTYPES at BMNH, London. Phot. by the Museum.

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Specimens identified by Spengler and Lamarck are marked as [Spengler's ID] and [Lamarck's ID] respectively. TYPE is short for any kind of type illustrated on the Plates. Bold script refers to photographs of type material.

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*elenensis* Sowerby, 1840. TYPE. – 892  
*elongatum* Bruguière, 1789. – 860  
*elongatum* Bruguière, 1789. TYPE. – 861  
*elongatum cipangense* Vidal, 1999. TYPE. – 873  
*elongatum coralense* Vidal, 1993. TYPE. – 873  
*elongatum elongatum* Bruguière, 1789. – 860  
*elongatum enode* Vidal, 1993. TYPE. – 860  
*enode* Sowerby, 1840. TYPE. – 860  
*erinaceum* Lamarck. – 848  
*erinaceum* Lamarck. TYPE. – 848  
*euglyptum* Sowerby, 1914. TYPE. – 917  
*exasperatum* Sowerby, 1838. TYPE. – 901  
*exiguum* Gmelin, 1791. – 915  
*exochum* Melvill, 1906. TYPE. – 857
- F
- fabricii* Deshayes, 1854. TYPE. – 854  
*fasciatum* Montagu, 1803. – 919  
*festivum* Deshayes, 1855. TYPE. – 888  
*fidele* Vidal, 1992. TYPE. – 861  
*fimbriatum* Lamarck, 1819. TYPE. – 884  
*flavum* Born 1780. – 898  
*flavum* Born 1780. TYPE. – 897  
*flavum* Born, 1780. [Lamarck's ID]. – 863  
*flavum dupuchense* Reeve, 1845. – 925  
*flavum* Linnaeus, 1758. [Spengler's ID]. – 862  
*flavum* Linnaeus, 1758. TYPE. – 861  
*flavum subrugosum* Sowerby, 1838. TYPE. – 861  
*fornicatum* Sowerby, 1840. – 902  
*fornicatum* Sowerby, 1840. TYPE. – 902  
*foveolatum* Sowerby, 1840. TYPE. – 874  
*foveolatum* Sowerby, 1841. – 927  
*fragiformis* Vidal, 1994. TYPE. – 889  
*fragile* Forskål in Niebuhr, 1775. TYPE. – 888  
*fragile* Reeve, 1845. TYPE. – 888  
*fragilis congoensis* Cosel, 1995. TYPE. – 887, 888  
*fragum* Linnaeus 1758. – 906  
*fragum* Linnaeus, 1758. [Spengler's ID]. – 905  
*fragum* Linnaeus, 1758. TYPE. – 905  
*fraseri* Garrard, 1963. TYPE. – 901  
*fucatum* Spengler, 1799. TYPE. – 875
- G
- gaillardii* Fischer-Piette, 1977. TYPE. – 892  
*glaucum* Bruguière, 1789. – 851  
*glaucum mareotica* Pallary, 1912. TYPE. – 851  
*graniferum* Broderip & Sowerby, 1829. – 857  
*gratiosum* Deshayes, 1855. TYPE. – 862  
*groenlandicum* Bruguière, 1789. – 922  
*groenlandicum* Bruguière, 1789. [Spengler's ID]. – 853
- groenlandicum* Bruguière, 1789. TYPE. – 853  
*guanacastensis* Hertlein & Strong, 1947. – 904  
*guichardi* Bernardi, 1857. – 908  
*guichardi* Bernardi, 1857. TYPE. – 908
- H
- hemicardium* Linnaeus, 1758. [Spengler's ID]. – 909  
*hemicardium* Linnaeus, 1758. TYPE. – 909  
*hians* Spengler 1799. TYPE. – 889  
*hibernicum* Sowerby, 1815. – 921  
*hiulcum* Reeve, 1845. TYPE. – 934  
*hobbsae* Vidal, 1999. TYPE. – 875  
*hudsoniense* Deshayes, 1855. TYPE. – 890  
*hungerfordi* Sowerby, 1901. TYPE. – 890  
*hystrix* Reeve, 1844. TYPE. – 902, 903  
*hystrix* Solander. – 903
- I
- imbricatum* Born, 1780. [Spengler's ID]. – 906  
*imbricatum* Born, 1780. TYPE. – 905  
*imbricatum* Sowerby 1840. TYPE. – 903  
*impolitum* Sowerby, 1833. – 871, 873, 874  
*impolitum* Sowerby, 1833. TYPE. – 874  
*incarnatum* Reeve, 1844. TYPE. – 885  
*indicum* Lamarck, 1819. TYPE. – 843  
*indioceanum* Vidal, 1993. TYPE. – 864  
*intercostatum* Dujardin. – 921  
*interrogatorium* Fischer-Piette, 1977. TYPE. – 892  
*islandicum* Bruguière, 1789. [Spengler's ID]. – 853  
*isocardia* Linnaeus, 1758. [Lamarck's ID]. – 854  
*isocardia* Linnaeus, 1758. [Spengler's ID]. – 854  
*isthmicum* Issel, 1869. TYPE. – 852
- J
- junoniae* Lamarck. [Lamarck's ID]. – 913
- K
- kalamantanum* Adams & Reeve, 1850. TYPE. – 899  
*kerslakae* Healey & Lamprell, 1992. TYPE. – 864
- L
- lacunosum* Reeve, 1845. TYPE. – 864, 876, 926  
*laevigatum* Linnaeus, 1758. [Lamarck's ID]. – 893  
*laevigatum* Linnaeus, 1758. [Spengler's ID]. – 893  
*laevigatum* Linnaeus, 1758. TYPE. – 890  
*laevigatum* Pennant, 1777 – 896  
*laevigatum* var. Spengler, 1799. TYPE. – 893  
*lamarckii* Reeve, 1845. [Lamarck's ID]. – 851  
*lamarckii* Reeve, 1845. TYPE. – 851  
*lamellatum* Spengler, 1799. TYPE. – 882  
*laperousii* Deshayes, 1841. – 853  
*latum* Born, 1778. [Spengler's ID]. – 902  
*latum* Born, 1778. TYPE. – 917  
*latum* Bruguière, 1789. [Lamarck's ID]. – 901  
*leucostomum* Born, 1780. – 869, 870  
*leucostomum* Born, 1780. [Spengler's ID]. – 855  
*leucostomum* Born, 1780. TYPE. – 855  
*leucostomum* var. B Spengler, 1799. – 866

*levisulcatum* Smith, 1903. TYPE. – 916  
*lima* Reeve, 1845. TYPE. – 923  
*lima* Spengler in Schröter, 1786. TYPE. – 882  
*lineonotata* Vidal, 1994. TYPE. – 890  
*lobulatum* Deshayes, 1854. TYPE. – 892  
*lomboke* Vidal, 2003. TYPE. – 862  
*luteomarginatum* Voskuil & Onverw., 1991. – 868  
*luteomarginatum insulare* Vidal, 1997. TYPE. – 868  
*luteomarginatum marerubrum* Vosk. & O., 1991. – 869

## M

*maculatum* Sowerby, 1840. TYPE. – 876  
*maculosum howense* Vidal, 1999. TYPE. – 877  
*maculosum* Sowerby, 1834. – 876  
*maculosum* Wood, 1815. – 872, 924  
*maculosum* Wood, 1815. TYPE. – 876  
*magnificum* Deshayes. – 904  
*magnum* Born, 1780 – 856  
*magnum* Born, 1780. TYPE. – 856  
*magnum* var. *b.* Spengler, 1799. TYPE. – 859  
*manthelaniense* Dollfus & Dautz., 1888. TYPE. – 920  
*mareoticum* Pallary, 1926. TYPE. – 851  
*marerubrum* Voskuil & Onverwagt, 1991. TYPE. – 869  
*marielae* Wilson & Stevenson, 1977. TYPE. – 877  
*marmoreum* Lamarck. – 869  
*marmoreum* var. [2] Lamarck, 1819. TYPE. – 870  
*mauritianum* Deshayes, 1855. TYPE. – 877  
*medium* Linnaeus, 1758. [Lamarck's ID]. – 905  
*medium* Linnaeus, 1758. [Spengler's ID]. – 905  
*mendanense* Sowerby, 1896. TYPE. – 867  
*mindanense* Reeve, 1844. TYPE. – 857, 858, 923  
*minimum* Philippi, 1836 – 890, 915  
*mirabile* Deshayes, 1854. TYPE. – 885  
*multispinosum* Sowerby, 1838. TYPE. – 886  
*mundum* Reeve, 1845. TYPE. – 906, 931  
*muricatum* Linnaeus, 1758. [Lamarck's ID]. – 858  
*muricatum* Linnaeus, 1758. TYPE. – 858  
*muricatum* var. [2]. Lamarck. – 858  
*muticum* Reeve, 1844. TYPE. – 928

## N

*natalense* Krauss, 1848. – 916  
*nebulosum* Reeve, 1845 TYPE. – 877, 927  
*nemo* Fischer–Piette. 1977. TYPE. – 930  
*nivale* Reeve, 1845. TYPE. – 909, 931  
*nodulosum* Lamarck. – 847  
*nodulosum* Spengler 1799. TYPE. – 906  
*norvegicum* Spengler, 1799. [Lamarck's ID]. – 896  
*norvegicum* Spengler, 1799. TYPE. – 895  
*norvegicum* var. Spengler, 1799. TYPE. – 895  
*notabile* Sowerby, 1915. TYPE. – 854  
*nutallii* Conrad, 1837. – 852

## O

*obliquum* Lamarck, 1805. TYPE. – 920  
*obliquum* Spengler, 1799. TYPE. – 856

*oblongum* Bruguière, 1789. – 897, 898  
*oblongum* Gmelin, 1791. [Lamarck's ID]. – 896  
*obovale* Broderip & Sowerby, 1833. TYPE. – 856, 931  
*obsoletum* Spengler, 1799. TYPE. – 898  
*okinawense* Kira, 1959. – 867  
*olivifer* Iredale, 1936. TYPE. – 864  
*omanense* Melvill & Standen, 1906. TYPE. – 915  
*orbita* Broderip & Sowerby, 1833. TYPE. – 866  
*ovale* Sowerby, 1840. – 919  
*oviputamen* Reeve, 1844. – 894  
*oviputamen* Reeve, 1844. TYPE. – 894  
*ovuloides* Reeve, 1845. TYPE. – 856, 931  
*oxygonum* Sowerby, – 866  
*oxygonum* Sowerby, 1834. TYPE. – 878

## P

*pallidum* Reeve, 1845. TYPE. – 928  
*panamense* Sowerby, 1833. – 857  
*panamense* Sowerby, 1833. TYPE. – 924  
*papillosum* Poli, 1791. – 933  
*papillosum* Poli, 1791. – 915  
*papuanum* Vidal, 1996. TYPE. – 869  
*papyraceum* Bruguière 1789. – 890, 893  
*papyraceum* Bruguière 1789. [Spengler's ID]. – 889  
*papyraceum* Bruguière 1789. TYPE. – 889  
*pectinatum* Lamarck, 1819. TYPE. – 850  
*pectinatum* Linnaeus, 1758. [Spengler's ID]. – 899  
*pectinatum* Linnaeus, 1758. TYPE. – 899  
*pectiniforme* Born, 1780. – 863  
*pectiniforme* Born, 1780. TYPE. – 863  
*pennanti* Reeve. TYPE. – 930  
*peregrinum* Jousseume, 1888. TYPE. – 864  
*perornatum* Iredale, 1929. TYPE. – 903  
*philippinense* Hedley, 1899 (Deshayes MS). – 866  
*planicostatum* Sowerby, 1833. TYPE. – 904  
*polii* Payraudeau, 1826. TYPE. – 933  
*politum* Spengler, 1799. TYPE. – 896  
*porulosum* Solander in Br., 1766. [Lamarck's ID]. – 920  
*pristipleura* Dall, 1901. – 876  
*pristis* Valenciennes in B. St Vincent, 1827. TYPE. – 895  
*probatum* Iredale, 1927. TYPE. – 900  
*procerum* Sowerby in Brod. & S., 1833. TYPE. – 924  
*productum* Deshayes, 1854. TYPE. – 915  
*profundum* Vidal, 1999. TYPE. – 878  
*pseudofossile* Reeve, 1844. TYPE. – 926  
*pseudolima* Lamarck, 1819. – 902  
*pulchellum* Reeve, 1844. TYPE. – 928  
*pulchricostatum* Iredale, 1929. TYPE. – 885  
*pulchrum* Reeve, 1845. TYPE. – 929

## Q

*quadrarium* Reeve, 1845. TYPE. – 933

## R

*radiatum* Reeve, 1845. TYPE. – 929  
*radula* Deshayes, 1832. – 921



*rastrum* Reeve, 1845. TYPE. – 923  
*replicatum* Spengler 1799. TYPE. – 914  
*retusum* Linnaeus, 1758. – 910  
*retusum* Linnaeus, 1758. [Spengler's ID]. – 911  
*retusum* Linnaeus, 1758. TYPE. 911, 932  
*retusum* var. Spengler 1799. [Spengler's ID]. 911  
*rhomboides* Lamarck, 1819. TYPE. – 921  
*richardi* (Audouin, 1826). TYPE. – 918  
*ringens* Bruguière, 1789. [Spengler's ID]. – 843  
*robustum* Lightfoot in Solander, 1786 – 856  
*roseariensis* Wilson & Stevenson 1977. TYPE. – 878  
*roseolum* Melvill, 1909. TYPE. – 907  
*roseum* Lamarck, 1819. TYPE. – 915  
*rubescens* Smith, 1911. TYPE. – 917  
*rubicundum* Reeve, 1844. – 858, 923  
*rubicundum* Reeve, 1844. TYPE. – 865, 926  
*rubrohamatum* Voskuil & Onverwagt, 1988. – 881  
*rudentis* Fischer-Piette, 1977. TYPE. – 884  
*rugosum* Lamarck, 1819. [Lamarck's ID]. – 863  
*rugosum* var. 1 and 2. [Lamarck's ID]. – 870  
*rusticum* Linnaeus, 1758. – 849  
*rusticum* Linnaeus, 1758. [Lamarck's ID]. – 847, 849  
*rusticum* Linnaeus, 1758. [Spengler's ID]. – 849  
*rusticum* Linnaeus, 1758. TYPE. – 848

## S

*scalata* Vidal, 1999. TYPE. – 890  
*scruposum* Deshayes, 1855. TYPE. – 907  
*selene* Vidal, 1999. TYPE. – 877  
*semisulcata* Gray, 1825. TYPE. – 916  
*senticosum* Sowerby, 1833. – 923  
*serratum* Linnaeus, 1758–896  
*serratum* Linnaeus, 1758. – 893  
*serratum* Linnaeus, 1758. [Lamarck's ID]. – 894  
*serratum* Linnaeus, 1758. [Spengler's ID]. – 879  
*serratum* Linnaeus, 1758. TYPE. – 894  
*setosum* Redfield, 1848. – 902  
*seurati* Vidal, 1999. TYPE. – 880  
*sewelli* Prashad, 1932. TYPE. – 865  
*shepstonense* Tomlin, 1931. TYPE. – 918  
*simplex* Spengler, 1799. – 880  
*simplex* Spengler, 1799. TYPE. – 879  
*sinense* Sowerby, 1838. – 886  
*skeeti* Hedley, 1906. TYPE. – 918  
*soleniforme* Bruguière, 1789. – 917  
*sorenseni* Powell. TYPE. – 865  
*soyeri* Fischer-Piette, 1977. TYPE. – 880  
*speciosum* Adams & Reeve, 1848. TYPE. – 904  
*spinus* Deshayes. – 921  
*squamosum* Gmelin 1791. – 922  
*stellatum* Reeve, 1845. TYPE. – 916

*striatum* Hedley, 1902. TYPE. – 900  
*striatum* Spengler, 1799. TYPE. – 880  
*subangulatum* Scacchi, 1833. TYPE. – 916  
*subassimile* Vidal, 2003. TYPE. – 868  
*subelongatum* Sowerby, 1840. TYPE. – 867  
*subretusum* Sowerby, 1834. TYPE. – 912  
*suediense* Reeve, 1845. TYPE. – 915  
*sueziensis* Issel, 1869. – 852  
*sulcatinum* Lamarck, 1819. TYPE. – 921  
*sulcatum* Lamarck, 1819. [Lamarck's ID]. – 898  
*sulcatum* Lamarck, 1819. TYPE. – 898  
*suluanum* Vidal, 1999. TYPE. – 880  
*symbolica* Iredale, 1929. TYPE. – 903

## T

*tegulatum* Dautzenberg, 1900. TYPE. – 907  
*tenuicosta* Lamarck, 1819. – 929  
*tenuicostatum* Lamarck, 1819. [Lamarck's ID] – 891  
*tenuicostatum* Lamarck, 1819. TYPE. – 891  
*tenuicostatum* var. Lamarck. [Lamarck's ID]. – 891  
*tenuilamellosum* Poutiers, 1981. TYPE. – 901  
*thomassini* Vidal, 1998. TYPE. – 868  
*torresi* Smith, 1885. TYPE. – 900  
*torresi*. Smith, 1885. – 900  
*translatum* Prashad, 1932. TYPE. – 870  
*transversale* Deshayes, 1854. – 917  
*tuberculatum* Linnaeus, 1758. – 847, 849  
*tuberculatum* Linn., 1758. [Lamarck's ID]. – 846, 847  
*tuberculatum* Linnaeus, 1758. [Spengler's ID]. – 846  
*tuberculatum* Linnaeus, 1758. TYPE. – 846  
*tumidum* Deshayes, 1854. TYPE. – 871  
*tumoriferum* Lamarck, 1819. – 910

## U

*unedo* Linnaeus, 1758. – 905  
*unedo* Linnaeus, 1758. [Spengler's ID]. – 907  
*unedo* Linnaeus, 1758. TYPE. – 907  
*unicolor* Sowerby, 1840. TYPE. – 881  
*unimaculatum* Broderip & Sowerby, 1833. TYPE. – 914  
*uniornatum* Vidal, 1999. TYPE. – 881

## V

*variegatum* Sowerby, 1840. TYPE. – 870  
*ventricosum* Bruguière, 1789. – 856  
*victor* Angas, 1872. TYPE. – 904  
*vitellinum* Reeve, 1844. TYPE. – 930  
*vlamingi* Wilson & Stevenson, 1977. TYPE. – 871  
*vulva* Jousseaume, 1898. TYPE. – 852

## W

*whitleyi* Iredale, 1929. TYPE. – 908  
*wilsoni* Voskuil & Onverwagt, 1991. TYPE. – 872

## RECTIFICATIONS

### Corrections regarding Part 1:

p. 44	fig. No. 9:	correct	<i>C. cardissa</i>	into	<i>C. isocardia</i>
p. 146	ex Plate 1:	correct	<i>Tridacna giga</i>	into	<i>Tridacna gigas</i>
p. 351	legend:	correct	Vignette	into	Vignette

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ZOOLOGISK MUSEUM, KØBENHAVN.

*Trachycardium elongatum* Brug.

Loc. *Philippines*

Datum: *before 1848*

Legit: *H. Cuming* (C VIII)

*Vasticardium elongatum* (Bruguière, 1789)

The British malacologist Hugh Cuming (1791-1865) collected and sold shells, many of which ended up in cabinets, for example of the Danish King Christian 8 (C VIII written inside the shells). The specimens are now deposited in Copenhagen at the ZMUC. The shells are from the Phillipines. Reeve (1844 fig. 46) illustrated the species [See Part 1 p. 132]. I made the pictures on a flatbed scanner (Agfa StudioScan IIsi) and converted the colours to gray scale.

About the lexical approach:

Part 1 is dealing with early records of the superfamily Cardiacea (true cockles and giant clams). It is illustrated with many colour plates and facsimile prints from rare books. Emphasis is on Linnaeus (1758) and Gmelin (1791) who gave reference to species illustrated in the literature of those days, but they never themselves illustrated any species. This has given rise to much confusion over time. There are annotated references and selected biographic information encompassing authors of about 3,500 publications.

Parts 2 & 3 are dealing with valid names, synonyms and homonyms of about 6,000 world-wide taxa of living and fossil species. They contain original descriptions, comments, and pictures of type specimens (92 plates in part 3). The species described by Spengler (1799) are illustrated for the first time. The taxa are catalogued alphabetically with many cross references.

About the author:

J. Hylleberg was born in 1935. He obtained his BSc from the University of Aarhus, Denmark, his MSc from the University of Copenhagen, Denmark (Elsinore Marine Laboratory under the guidance of Dr G. Thorson). He defended his dr phil degree at the University of Gothenburg, Sweden. Since 1970 he has been a lecturer in Marine Ecology at Aarhus University. He has been a visiting scientist in Sweden (Kristineberg), Finland (Aabo), and USA (Friday Harbor). He founded the MSc education in Marine Sciences at Aarhus University and established the associated follow-up

research activity known as the Tropical Marine Mollusc Programme (TMMP). He has 25 years experience in tropical marine biology. He started in Thailand in 1979 and continued with joint activities in India, Indonesia, Cambodia and Vietnam. He has published works on various aspects of marine ecology: digestive enzymes, food- and feeding, resource partitioning, niche overlap in marine molluscs, functional anatomy, taxonomy of polychaetes, sipunculans, and molluscs. He has published 4 text books on marine ecology in Danish and one in English together with H. Riis-Vestergaard. He coined the concept of gardening in benthos-feeders, using American lug-worms as models. In recognition of his activities the Royal Thai order "Commander of the Crown of Thailand", the Royal Danish order "Ridder af Dannebrog" (Danish knighthood), and a decoration given for meritorious services to the Vietnamese Ministry of Fisheries, have been bestowed on him.



This is the last publication from the TMMP. The activity is concluded.