

A catalogue of types of bivalve mollusks in the Marine Biological Museum, Chinese Academy of Sciences (Qingdao)

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A listing of 51 nominal names of marine bivalve mollusks belonging to 24 families described from Chinese waters with data and comments on their types deposited in the Marine Biological Museum, Chinese Academy of Sciences (Qingdao) is given. Original drawings (if any) are provided as well photographs of types for 21 species.

Каталог типов двустворчатых моллюсков, хранящихся в Морском биологическом музее Китайской академии наук (Циндао)

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Приведен список 51 номинального названия морских двустворчатых моллюсков (24 семейства), описанных из прибрежных вод Китая, с данными и комментариями по типовому материалу, который хранится в Морском биологическом музее Китайской академии наук (г. Циндао). Даны оригинальные рисунки описанных видов, а также фотографии типов для 21 вида.

Chinese contribution to the study of marine bivalves is well known, and it was reviewed and summarized by Zhuang [1992], and partly by P. Valentich-Scott [2003]. Taxonomic studies in China started later than in western countries, and the period between the 1950s–1990s, after liberation of the country, was the time of intensive sampling and research on taxonomy, biology, ecology and fishe-

ries of bivalves – from the Xisha Islands and Tonkin (Beibu) Gulf in the south to the Yalu River mouth in the north. Collected material is mostly housed in the Institute of Oceanology, Chinese Academy of Sciences (Academia Sinica), Qingdao. Chinese malacologists published several important taxonomic monographs in the series «Fauna Sinica» such as those on the Pteriina [Wang, 2002], Protobran-

chia and Anomalodesmata [Xu, 1999], Mytiloida [Wang, 1997], and Veneridae [Zhuang, 2001] as well as a number of papers in magazines and collected scientific papers of research institutions. One important contribution to the Chinese molluscan fauna, a study on Tellinoidea, was made by the famous Russian malacologist O.A. Scarlato [1965]. Two catalogues of bivalve mollusks of the Chinese seas were published in the 1990s [Bernard et al., 1993; Xu, 1997]. Finally, a taxonomic review of the Chinese molluscan fauna, «Seashells of China», including 605 species of Bivalvia illustrated in color was published in English [Qi, 2004]. Another color book appeared earlier [Wang et al., 1988]. A very important latest contribution is «An Illustrated Bivalvia Mollusca Fauna of China Seas» [Xu, Zhang, 2008]. There are a number of regional guide-books on bivalves of China.

To date, Chinese malacologists have described more than 50 species of marine Bivalvia as new to science. Most of original descriptions contained drawings and rarely photographs. A majority of types of

these new species are currently stored in the Marine Biological Museum, Institute of Oceanology, Chinese Academy of Sciences. We undertook a compilation of the catalogue of all isolated types deposited in a special repository in the above museum. In the course of this work, we met some difficulties related to the status of types and the translation of original labels from Chinese into English. Illustrations to the catalogue include both drawings taken from original publications and photographs. The museum numbers of the type material were taken from original descriptions, but we provide also the registration numbers from labels which are often different. Measurements of shells are given as they appear in the original descriptions; in this case, we provide a reference to publications; otherwise we give our own measurements.

Abbreviations:

MBM CAS – Marine Biological Museum, Chinese Academy of Sciences, IOCAS, Qingdao

IOCAS – Institute of Oceanology, Chinese Academy of Sciences, Qingdao

Catalogue of the type specimens of bivalve mollusks in the MBM CAS, Qingdao

Class **Bivalvia**

Subclass **Protobranchia** Pelseneer, 1889

Order **Nuculoida** Dall, 1889

Superfamily **Nuculoidea** Gray, 1824

Family **Nuculidae** Gray, 1824

Nucula faba

Xu, 1999

Text-fig. 2B

Original description: Xu, 1999, p. 39 (Chinese), p. 225 (English), fig. 22 (as *Nucula* (*Leionucula*)).

Types and comments: Holotype no. 37951, dimensions: length 9.0 mm, height 6.5 mm, width 5.4 mm [after Xu, 1999]; collected from the East China Sea, 29°30' N, 122°15' E, depth 13 m, July 13, 1950; 1 paratype no. 37952; collected from Bohai Gulf, 38°06' N, 118°12' E, depth 13 m, July 25, 1959.

Superfamily **Nuculanoidea**

H. Adams et A. Adams, 1858

Family **Nuculanidae**

H. Adams et A. Adams, 1858

Nuculana sinensis

Xu, 1984

Text-fig. 2A

Original description: Xu, 1984, p. 169 (Chinese), p. 177 (English), fig. 3 (as *Nuculana (Sinoleda)*).

Types and comments: Holotype no. X79B-40 (no. 30942 in label), dimensions: length 6.2 mm, height 2.7 mm, width 1.2 mm [after Xu, 1984]; collected in the South China Sea, 18°30' N, 107°00' E, depth 60 m; 1 paratype no. V542A-19.

Nuculana forticostata

Xu, 1991

Text-fig. 8C

Original description: Xu, 1991, p. 83 (Chinese), p. 84 (English), fig. 2.

Types and comments: Holotype no. SSAV14-5 (no. 30935 in label), dimensions: length 4.2 mm, height 2.1 mm [after Xu, 1991]; collected from Nansha Islands, 6°52' N, 115°55' E, depth 185 m, muddy sandy bottom, July 29, 1988. Xu [1991] also mentioned that paratype no. SSAV19-3 is deposited in the South China Sea Institute of Oceanology, Guangzhou.

Family **Malletiidae**

H. Adams et A. Adams, 1858

Neilo bisculpta

Xu, 1991

Text-fig. 1B; Plate 1, figs. A, B

Original description: Xu, 1991, p. 82 (Chinese), p. 84 (English), fig. 1.

Types and comments: Holotype no. SSBIII9-23 (no. 30938 in label),

dimensions: length 14.5 mm, height 9.6 mm, width 5.1 mm [after Xu, 1991]; collected from Nansha Islands, 5°22' N, 112°05' E, muddy and sandy bottom, depth 136 m, April 30, 1986; Xu [1991] also mentioned that paratype no. SSBV26-28 is deposited in the South China Sea Institute of Oceanology, Guangzhou; another paratype (?) no. 30937 is in the MBM CAS.

Family **Tindariidae**

Verrill et Bush, 1897

Tindaria jinxiangae

Xu, 1990

Text-fig. 2C

Original description: Xu, 1990, p. 561 (Chinese), p. 562 (English), fig. 1.

Types and comments: Holotype no. V569 B-8 (no. 30943 in label), dimensions: length 4.5 mm, height 3.8 mm, width 2.4 mm [after Xu, 1990]; collected from the East China Sea, 26°20' N, 125°00' E, mud, depth 550 m, June 10, 1978.

Subclass **Pteriomorphia** Beurlen, 1944

Order **Mytiloida** Ferussac, 1822

Superfamily **Mytiloidea**

Rafinesque, 1815

Family **Mytilidae** Rafinesque, 1815

Crenella sinica

Wang et Qi, 1984

Original description: Wang, Qi, 1984, p. 227 (Chinese), p. 241 (English), pl. 1, fig. 11.

Types and comments: Holotype no. C90B-44a (no. 32854 in label), dimensions: length 5.6 mm, height 4.5 mm, width 3.4 mm [after Wang, Qi, 1984]; collected from Yellow Sea, 33°30' N, 123° E, December 6, 1959; there are three lots of paratypes in the collection

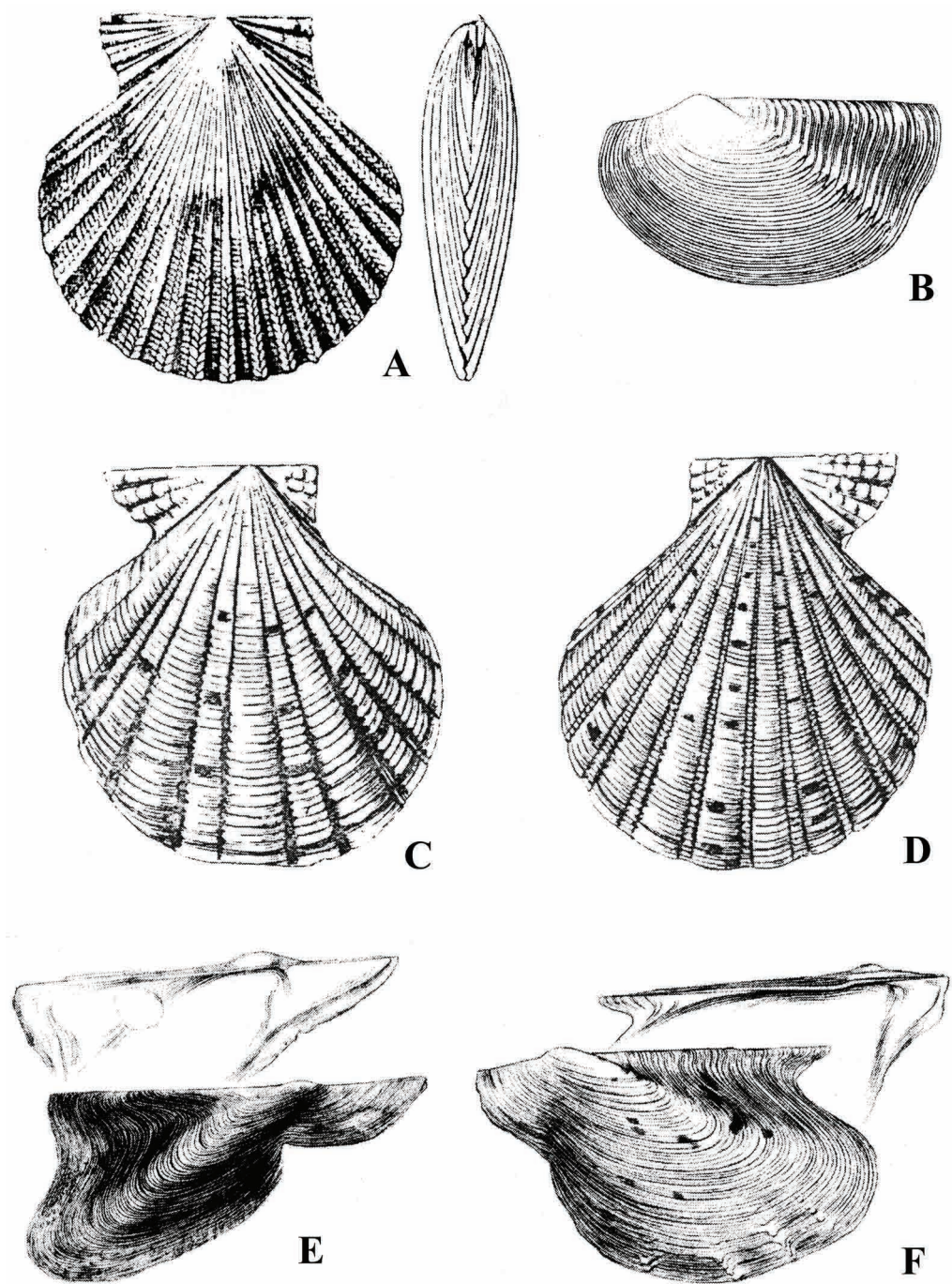


Fig. 1. Original illustrations of bivalve mollusks described from Chinese seas. **A** – *Cryptopecten complanus* Wang, 1983 [Wang, 1983a, fig. 1]; **B** – *Neilo biscalpta* Xu, 1991 [Xu, 1991, fig. 1]; **C, D** – *Semipallium xishaensis* Wang, 1985 [Wang, 1985, fig. 4]; **E** – *Pteria admirabilis* Wang, 2002 [Wang, 2002, fig. 54]; **F** – *Pteria bulliformis* Wang, 2002 [Wang, 2002, fig. 55].

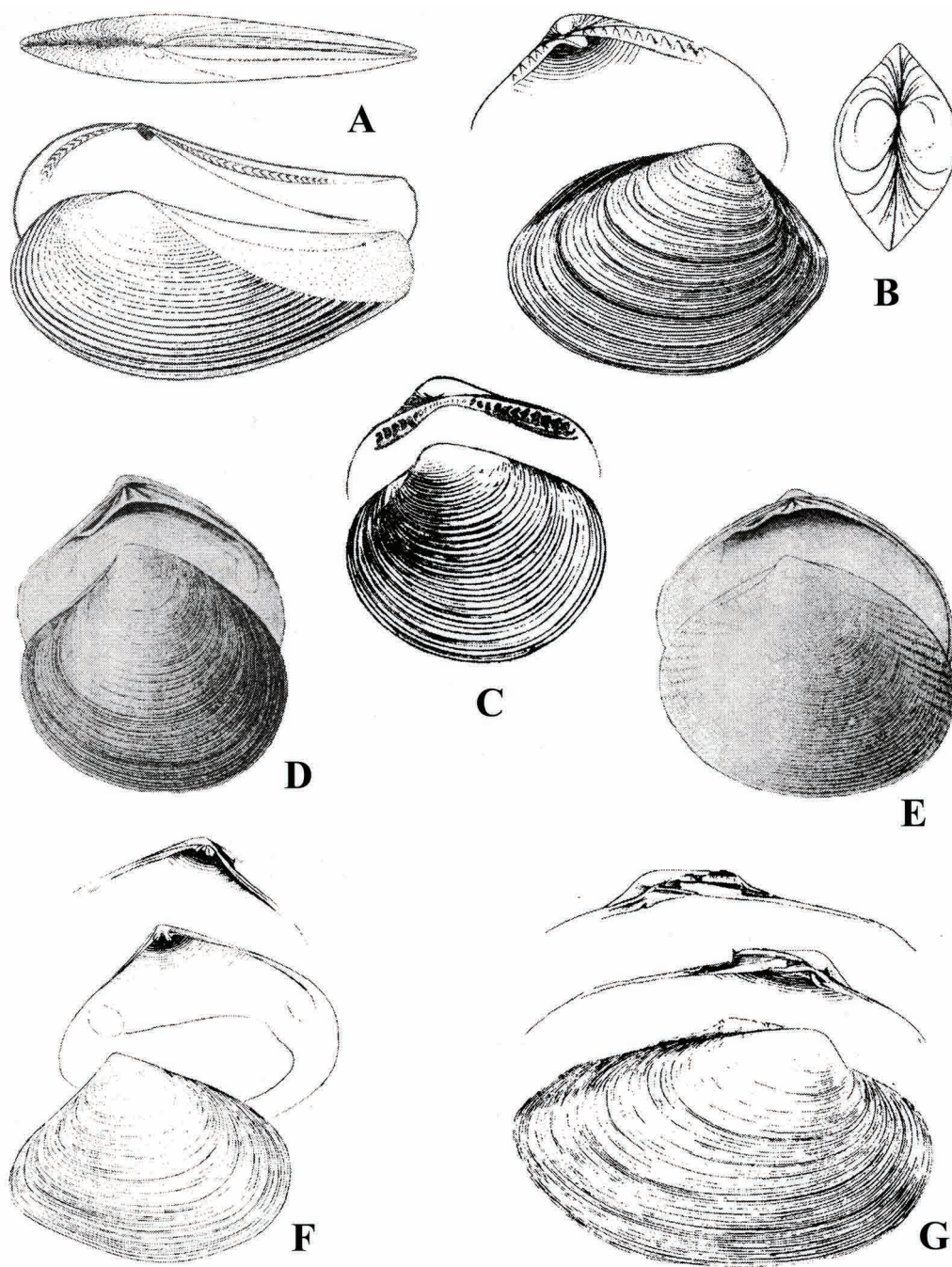


Fig. 2. Original illustrations of bivalve mollusks described from Chinese seas. **A** – *Nuculana sinensis* Xu, 1984 [Xu, 1984, fig. 3]; **B** – *Nucula faba* Xu, 1999 [Xu, 1999, fig. 22]; **C** – *Tindaria jinxingae* Xu, 1990 [Xu, 1990, fig. 1]; **D** – *Gouldia subtrigona* Zhuang, 1964 [Zhuang, 1964, pl. 3, fig. 6]; **E** – *Gouldia micronodulosa* Zhuang, 1964 [Zhuang, 1964, pl. 3, fig. 4]; **F** – *Abra sinica* Xu, 1996 [Xu, 1996, fig. 1]; **G** – *Calyptogena nanshaensis* Xu et Shen, 1991 [Xu, Shen, 1991, fig. 1].

of the MBM CAS with nos. 32915, 32914, and «32854» (same as holotype) (in total, 13 specimens); Wang and Qi [1984] enumerated three lots of paratypes with nos. C71B-43b, C12A-15c and C189-18d, all collected from Yellow Sea.

Lithophaga lepteces

Wang, 1997

Text-fig. 7C–E

Original description: Wang, 1997, p. 162 (Chinese), p. 240 (English), fig. 68 (as *Lithophaga (Labis)*).

Types and comments: Holotype no. M84-073 (no. 32272 in label), dimensions: length 20.7 mm, height 6.7 mm, width 6.6 mm [after Wang, 1997]; collected in Fujian, Dongshan, April 15, 1984; Wang [1997] also mentioned 1 paratype no. M84-074 but we did not find it in the collection.

Septifer pulcher

Wang, 1983

Text-fig. 7G, H

Original description: Wang, 1983c, p. 214 (Chinese), p. 220, pl. 1, fig. 4.

Types and comments: Holotype no. M11581, dimensions: length 6.0 mm, height 4.4 mm, width 4.3 mm [after Wang, 1983c]; collected from Zhao-shudao, Xisha Islands, South China Sea, April 7, 1975; Wang [1983c] also mentioned paratype no. M11582 from Huangguangjiao, Xisha Islands but we did not find it in the collection.

Septifer xishaensis

Wang, 1983

Text-fig. 7A–B

Original description: Wang, 1983c, p. 215 (Chinese), p. 221 (English), pl. 1, figs. 1, 2 (in the English text as «*S. xisnaensis*»).

Types and comments: Holotype no. M11583, dimensions: length 4.8 mm, height 4.0 mm, width 3.6 mm [after Wang, 1983c]; collected from Zhongjiandao, Xisha Islands, South China Sea, April 17, 1975.

Order **Ostreoida** Ferussac, 1822

Superfamily **Pectinoidea** Wilkes, 1810

Family **Pectinidae** Wilkes, 1810

Semipallium xishaensis

Wang, 1985

Text-fig. 1C, D; Plate 1, figs. C–F

Original description: Wang, 1985, p. 504 (Chinese), p. 506 (English), fig. 4 (as *Semipallium (Excellichlamys)*).

Types and comments: Holotype no. M25777, dimensions: length 20.5 mm, height 21.0 mm, width 7.4 mm [after Wang, 1985]; collected from the intertidal zone, Jinqing Isl., Xisha Islands, South China Sea, May 1, 1958.

Ctenamussium sinensis

Wang, 1980

Original description: Wang, 1980, p. 259 (Chinese), p. 261 (English), pl. 1, figs. 1–3.

Types and comments: Holotype no. V570B-52 (no. 9 in label), dimensions: length 11.92 mm, height 10.6 mm, width 2.2 mm [after Wang, 1980]; collected from East China Sea, 26°30' N, 124°00' E, depth 138 m, sand, June 11, 1978; 1 paratype no. 10 (in label). Wang [1980] enumerated 4 paratypes under nos. V563B-14, V554B-35, V485B-48, V557B-42 which are deposited in the author's collection.

Bractechlamys elegans

Wang, 1983

Text-fig. 8A, B

Original description: Wang, 1983b, p. 532 (Chinese), p. 533 (English), pl. 1, figs. 1–4.

Types and comments: Holotype no. M11585 (no. 7517-054 in label), dimensions: length 11.5 mm, height 12.4 mm, width 3.6 mm [after Wang, 1983b]; collected from South China Sea, intertidal zone of Yülin, Hainan Isl., April 14, 1975; 3 paratypes no. M11586 (no. 57-480 in label), collected from the intertidal zone of Xisha Isl., April 28, 1957.

Cryptopecten complanus

Wang, 1983

Text-fig. 1A; Plate 1, figs. F–J

Original description: Wang, 1983a, p. 402 (Chinese), p. 405 (English), fig. 1.

Types and comments: Holotype no. M11072, dimensions: length 14.8 mm, height 14.0 mm, width 4.0 mm [after Wang, 1983a]; collected from East China Sea, 31°5' N, 128° E (sic), depth 147 m, sand, May 30, 1978; 1 paratype no. M11073, collected from East China Sea, 27°5' N, 126° E (sic), depth 131 m, sand, July 5, 1976.

Propeamussium stella

Wang, 1984

Original description: Wang, 1984, p. 600 (Chinese), p. 602 (English), pl. 1, figs. 11–14 (as *Propeamussium* (*Propeamussium*)).

Types and comments: Holotype (?) no. M25778, dimensions: length 17.0 mm, height 17.0 mm, width 2.8 mm [after Wang, 1984]; collected from South China Sea, 19° N (sic), 112.5° E, depth 290 m, sand, April 19, 1959; 3 paratypes (?) no. M25779, collected from South China Sea, 19° N, 112.5° E, depth 290 m, April 6, 1960. Unfortunately, there are two specimens in one jar with indication «holotype», and they might be regarded as syntypes in future; Wang [1984] mentioned only one

paratype under no. M25779 but the jar contains 3 specimens.

Propeamussium gracilis

Wang, 1984

Original description: Wang, 1984, p. 601 (Chinese), p. 603 (English), pl. 1, figs. 5–10 (as *Propeamussium* (*Parvamussium*)).

Types and comments: Holotype no. M25775, dimensions: length 6.8 mm, height 7.4 mm, width 1.6 mm [after Wang, 1984]; collected from South China Sea, 19°30' N, 113° E (sic), depth 210 m, April 5, 1960; 3 (?) paratypes (3 valves, but two may represent a complete shell) no. M25776, collected from South China Sea, depth 242 m (Wang [1984] mentioned 1 specimen under this no.). Wang [l.c.] also mentioned 1 paratype under no. M25777 but we did not find it in the collection.

Subclass **Heterodonta** Neumayr, 1884

Order **Veneroida** H. et A. Adams, 1856

Superfamily **Glossoidae** Gray, 1847

Family **Vesicomidae**

Dall et Simpson, 1901

Calyptogena nanshaensis

Xu et Shen, 1991

Text-fig. 2G; Plate 3, figs. M–P

Original description: Xu, Shen, 1991, p. 164 (Chinese), p. 165 (English), fig. 1.

Types and comments: Holotype no. SSBII11-10 (no. 30934 in label), dimensions: length 66.4 mm, height 42.0 mm, width 26.6 mm [after Xu, Shen, 1991]; collected from Nansha Islands, 6°04' N, 113°37' E, depth 2626 m, June 5, 1985.

Superfamily **Veneroidae**

Rafinesque, 1815

Family **Veneridae** Rafinesque, 1815

Dosinia truncata Zhuang, 1964

Plate 2, figs I–L

Original description: Zhuang, 1964, p. 63 (Chinese), p. 104 (English), pl. 2, figs. 11, 12 (as *Dosinia (Phacosoma)*).

Types and comments: 2 paratypes no. M07336; collected from (?) South China Sea, Hainan Isl. (one of them is illustrated here). Holotype no. M07337 was deposited in the IOCAS [Zhuang, 1964] but now in the author's collection.

Gouldia micronodulosa

Zhuang, 1964

Text-fig. 2E

Original description: Zhuang, 1964, p. 72 (Chinese), p. 104 (English), pl. 3, fig. 4.

Types and comments: 1 paratype no. M07340, dimensions: length 7.2 mm, height 6.1 mm, width 3.5 mm; collected from South China Sea, off the coast of Swatow. Holotype no. M07338 was deposited in the IOCAS [Zhuang, 1964] but now in the author's collection.

Gouldia subtrigona

Zhuang, 1964

Text-fig. 2D

Original description: Zhuang, 1964, p. 73 (Chinese), p. 105 (English), pl. 3, fig. 6.

Types and comments: 9 possible paratypes no. 34056 (not mentioned in the original description: [Zhuang, 1964]). Holotype no. M07339 was deposited in the IOCAS [Zhuang, 1964] but now in the author's collection.

Periglypta compressa

Zhuang, 1964

Plate 2, figs. A–H

Original description: Zhuang, 1964, p. 78 (Chinese), p. 105 (English), pl. 10, figs. 6–8.

Types and comments: Holotype no. M07335, dimensions: length 77.34 mm, height 62.26 mm, width 42.16 mm [after Zhuang, 1964]; 1 paratype no. M07333; holotype and paratype collected from South China Sea, Hainan Isl., Hsinying, Sanya.

Superfamily **Tellinoidea**

Blainville, 1814

Family **Tellinidae** Blainville, 1814

Pseudarcopagia minuta

Scarlato, 1965

Original description: Scarlato, 1965, p. 72 (Chinese), p. 113 (Russian), pl. 6, fig. 9.

Types and comments: Holotype no. 11182, dimensions: length 7 mm, height 5.6 mm, width 3.7 mm [after Scarlato, 1965]; collected from South China Sea, Hainan Isl., Haikou. Scarlato [1965] mentioned that holotype is the only specimen present in the collection but he did not provide museum number.

Fabulina tsichungyeni

Scarlato, 1965

Plate 3, figs. I–L

Original description: Scarlato, 1965, p. 84 (Chinese), p. 114 (Russian), pl. 11, fig. 8.

Types and comments: Holotype no. 11182, dimensions: length 18.3 mm, height 11.3 mm, width 5 mm [after Scarlato, 1965]; collected from South China Sea, Hainan Isl., Sintsun, 1958; 5 paratypes no. 11258, collected from the same locality, July 9, 1957 (one of them is figured here). Scarlato [1965] did not provide museum number for holotype but there is indication «type» and «illustrated specimen» on the box, and measurements of the shell are identical as given by Scarlato [1965].

Family **Semelidae** Stoliczka, 1870

Abra sinica Xu, 1996

Text-fig. 2F

Original description: Xu, 1996, p. 200 (Chinese), p. 201 (English), fig. 1.

Types and comments: Holotype no. 11-1003 (no. 37960 in label), dimensions: length 8.0 mm, height 6.0 mm, width 2.4 mm; collected from Changjiang [Yangtze] River estuary, 31°30' N, 122°40' E, fine sandy bottom, depth 28 m, July 12, 1986; 1 paratype no. 10-982 (37961 in label), collected from Changjiang [Yangtze] River estuary, 32°00' N, 122°45' E, fine sandy bottom, depth 32 m, June 30, 1986.

Superfamily **Solenioidea** Lamarck, 1809

Family **Solenidae** Lamarck, 1809

Solen canaliculatus

Tchang et Hwang, 1964

Text-fig. 3A; Plate 3, figs. A–D

Original description: Tchang, Hwang, 1964, p. 195 (Chinese), p. 205 (English), pl. 2, fig. 5.

Types and comments: There are two lots: 1 specimen with soft parts (shell is not open) no. 08484, and 1 specimen (empty shell) no. L49B-40 (marked as paratype, illustrated here). Tchang et Hwang [1964] did not provide museum no. but indicated that holotype and paratype specimens are deposited in the IOCAS. We regard above two specimens as syntypes. Type locality: «South and East China Seas» [l.c.].

Solen arcuatus

Tchang et Hwang, 1964

Text-fig. 3C; Plate 3E–H

Original description: Tchang, Hwang, 1964, p. 197 (Chinese), p. 206 (English), pl. 2, fig. 2.

Types and comments: There are two lots: two specimens in wet collection no. 08483 and 1 specimen (empty shell) no. 08465 (marked as paratype, illustrated here). Tchang et Hwang [1964] did not provide museum no. but indicated that holotype and paratype specimens are deposited in the IOCAS. We regard above three specimens as syntypes. Type locality: «Tsingtao, Lienyun port (Jiangsu Province), Kanmen (Chekiang Province)» [l.c.].

Superfamily **Mactroidea**

Lamarck, 1809

Family **Mactridae** Lamarck, 1809

Meropesta sinojaponica

Zhuang, 1983

Text-fig. 8D; Plate 4, figs. A–D

Original description: Zhuang, 1983, p. 88 (Chinese), p. 90 (English), fig. 1.

Types and comments: Holotype no. M25771, dimensions: length 59 mm, height 38 mm, width 26 mm [after Zhuang, 1983]; collected from Yellow Sea, Shandong Province, Qingdao; 1 paratype no. M25772, collected from Fujian Province, Longhai County.

Heterocardia elliptica

Zhuang, 1983

Text-fig. 8E

Original description: Zhuang, 1983, p. 89 (Chinese), p. 91 (English), fig. 2.

Types and comments: Holotype no. M25773, dimensions: length 46 mm, height 34 mm, width 17 mm [after Zhuang, 1983]; collected from South China Sea, Nanao Island.

Family **Mesodesmatidae**

Gray, 1840

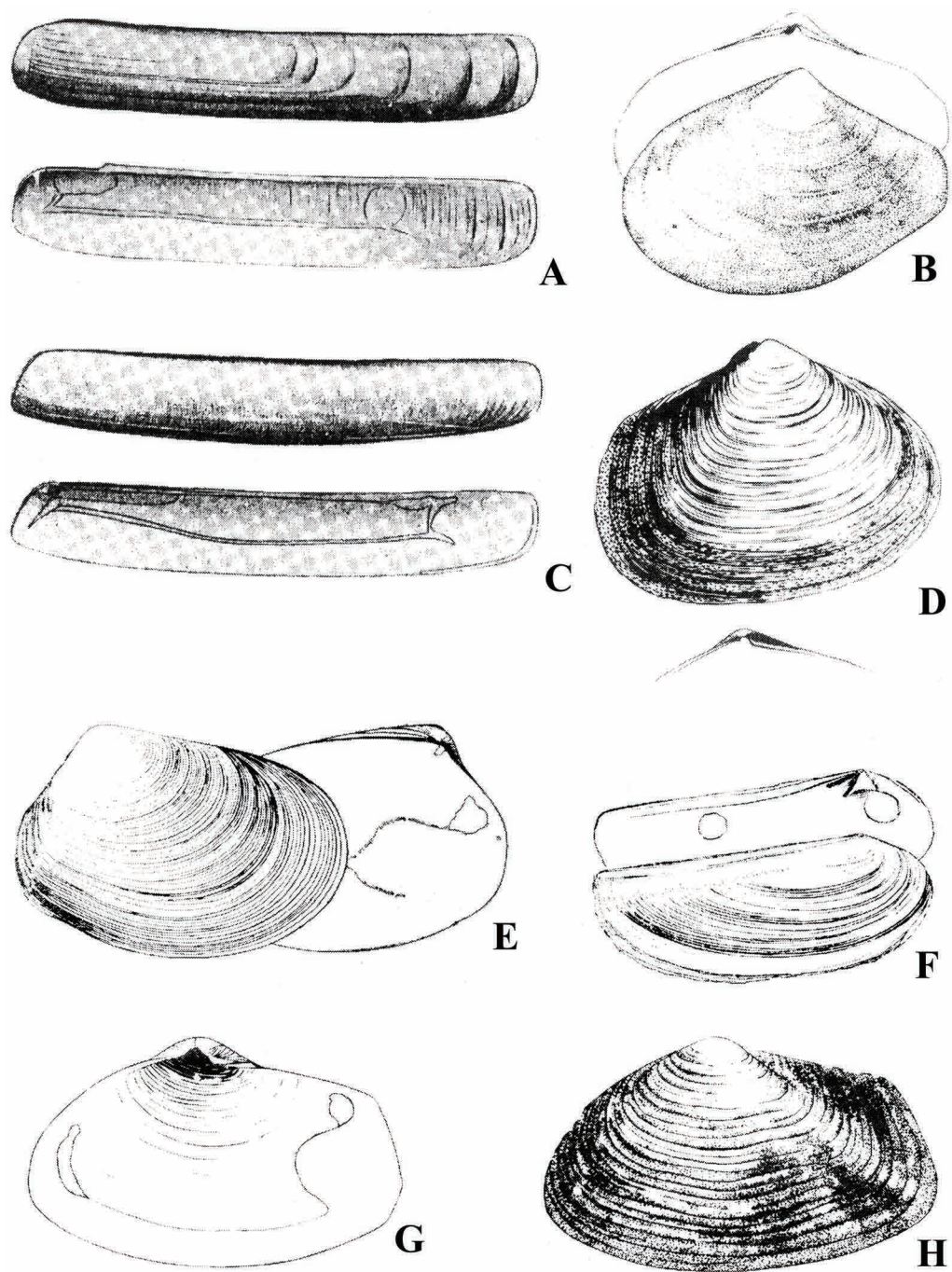


Fig. 3. Original illustrations of bivalve mollusks described from Chinese seas. **A** – *Solen canaliculatus* Tchang et Hwang, 1964 [Tchang, Hwang, 1964, pl. 2, fig. 5]; **B** – *Asthenothaerus huanghaiensis* Xu, 1989 [Xu, 1989, fig. 3]; **C** – *Solen arcuatus* Tchang et Hwang, 1964 [Tchang, Hwang, 1964, pl. 2, fig. 2]; **D** – *Thracia ovata* Xu, 1989 [Xu, 1989, fig. 2]; **E** – *Trigonothracia jinxiangae* Xu, 1980 [Xu, 1980, fig. 1]; **F** – *Pandora sinica* Xu, 1992 [Xu, 1992c, fig. 1a]; **G, H** – *Thracia hainanensis* Xu, 1989 [Xu, 1989, fig. 1].

Monterosatus sinensis

Xu et Li, 2000

Text-fig. 8F

Original description: Xu, Li, 2000, p. 384 (Chinese), p. 385 (English), fig. 1.

Types and comments: Holotype no. M30951, dimensions: length 10.2 mm, height 7.0 mm, width 3.8 mm [after Xu, Li, 2000]; collected from the South China Sea, Beibu Gulf (Gulf of Tonkin), 20°45' N, 109°15' E, depth 21 m, December 14, 1959.

Anapella retroconvexa

Zhuang, 1978

Original description: Zhuang, 1978, p. 70 (Chinese), p. 73 (English), pl. 1, figs. 7, 8.

Types and comments: Paratype no. 11562, length 31.4 mm; collected from Ya Xian. We did not find holotype in the type collection, although Zhuang [1978] stated that it is deposited in the IOCAS; it originates from Naozhou Isl.

Order **Myoida** Goldfuss, 1820

Superfamily **Myoidea**

Lamarck, 1809

Family **Myidae** Lamarck, 1809

Tugonia huanghaiensis

Xu, 1987

Text-fig. 6E; Plate 5, figs A–D

Original description: Xu, 1987, p. 437 (Chinese), p. 441 (English), fig. 1a.

Types and comments: Holotype no. 73M-030 (no. 30940 in label), dimensions: length 19.8 mm, height 14.5 mm, width 12.2 mm [after Xu, 1987]; collected from Yellow Sea, Jiaozhou Bay, intertidal zone, October 30, 1973; 1 paratype no. 56M-101 (no. 30939 in label), dimensions: length 16.2 mm, height

11.5 mm, width 9.6 mm [after Xu, 1987], collected from Jiangsu Province, Rudong, intertidal zone, June 10, 1956.

Tugonia sinensis

Xu, 1987

Text-fig. 6D

Original description: Xu, 1987, p. 438 (Chinese), p. 441 (English), fig. 1b.

Types and comments: Holotype no. 84M-185, dimensions: length 19.0 mm, height 13.0 mm, width 11.0 mm [after Xu, 1987]; collected from Huian, Fujian Province, intertidal zone, July 17, 1984.

Family **Corbulidae** Lamarck, 1818

Potamocorbula rubromuscula

Zhuang et Cai, 1983

Text-fig. 5E; Plate 2, figs. M, N

Original description: Zhuang, Cai, 1983, p. 66 (Chinese), p. 68 (English), fig. 14.

Types and comments: In type collection, there are two boxes marked as «holotype» (no. 3) and «paratypes» (no. 4); however, the former one contains two closed shells, and the latter one – five specimens. Zhuang and Cai [1983] mentioned that holotype (type locality – South China Sea, Shantow) is deposited in the IOCAS, and the paratype (South China Sea, Chaoyang) is in the Zhanjiang Fisheries College, Guangdong Province. We illustrate one specimen from the first box which measurements are close to holotype [Zhuang, Cai, 1983] – length 21 mm, height 13 mm, width 7 mm.

Superfamily **Pholadoidea**

Lamarck, 1809

Family **Pholadidae** Lamarck, 1809

Barnea elongata

Tchang, Tsi et Li, 1960

Text-fig. 4F, G, H; Plate 4, figs. E–I

Original description: Tchang et al., 1960, p. 68 (Chinese), p. 84 (French), fig. 5 (as *Barnea (Anchomasa)*).

Types and comments: In Chinese text, holotype and paratype were mentioned without numbers. We found two lots (2 specimens, complete shells) under nos. 06982 (labelled as paratype) and 06975 (possible paratype) which can be regarded as syntypes.

Zirfaea minor

Tchang, Tsi et Li, 1960

Text-fig. 4I, J

Original description: Tchang et al., 1960, p. 71 (Chinese), p. 85 (French), fig. 8.

Types and comments: We found two lots: no. 09076 (1 specimen, complete shell) and no. 09103 (4 specimens, complete shells), but status of these types is unclear (? syntypes).

Pholadidea dolichothyra

Tchang, Tsi et Li, 1960

Text-fig. 4E

Original description: Tchang et al., 1960, p. 72 (Chinese), p. 85 (French), fig. 9 (as *Pholadidea (Monoplax)*).

Types and comments: There are three lots – no. 14 (3 specimens, complete shells), no. 11466 (2 specimens) and 11467 (1 specimen, complete shell) marked as paratypes or possible paratypes (? syntypes). No numbers for types were given in the original description.

Pholadidea acutithyra

Tchang, Tsi et Li, 1960

Text-fig. 4A–C

Original description: Tchang et al., 1960, p. 73 (Chinese), p. 85 (French), fig. 10 (as *Pholadidea (Monoplax)*).

Types and comments: There are three lots – no. 09087 (2 specimens, dry complete shells), no. 09085 (3 specimens) and again no. «09087» (more than 20 specimens, wet) marked as paratypes or possible paratypes (? syntypes). No numbers for types were given in the original description.

Martesia pygmaea

Tchang, Tsi et Li, 1960

Text-fig. 4D

Original description: Tchang et al., 1960, p. 75 (Chinese), p. 86 (French), fig. 13.

Types and comments: There is one lot – no. 09105 (1 specimen), presumably holotype. No numbers for types were given in the original description.

Family **Teredinidae** Rafinesque, 1815

Teredo bitubula Li, 1965

Original description: Li, 1965, p. 3 (Chinese), p. 6 (French), pl. 2, figs. 1a–e (as *Teredo (Bitubuloteredo)*).

Types and comments: 2 paratype lots nos. M12023 and M12021; holotype no. M12019 [according to Li, 1965] is not located in the type collection.

Teredo schizoderma

Li, 1965

Original description: Li, 1965, p. 4 (Chinese), p. 7 (English), pl. 2, figs. 3a–d (as *Teredo (Lyrodus)*).

Types and comments: Holotype no. M12024; dimensions of shell: length 3.6 mm, height 3.5 mm (for pallets sizes, see Li, 1965); collected from South China Sea, Hainan Isl., «Yahsien Sanya»; paratypes – 4 lots, nos. M12001, M12004, M12005, M12006, same locality. Li [1965] also mentioned paratypes lots nos. M12025–12097 but we did not locate them.

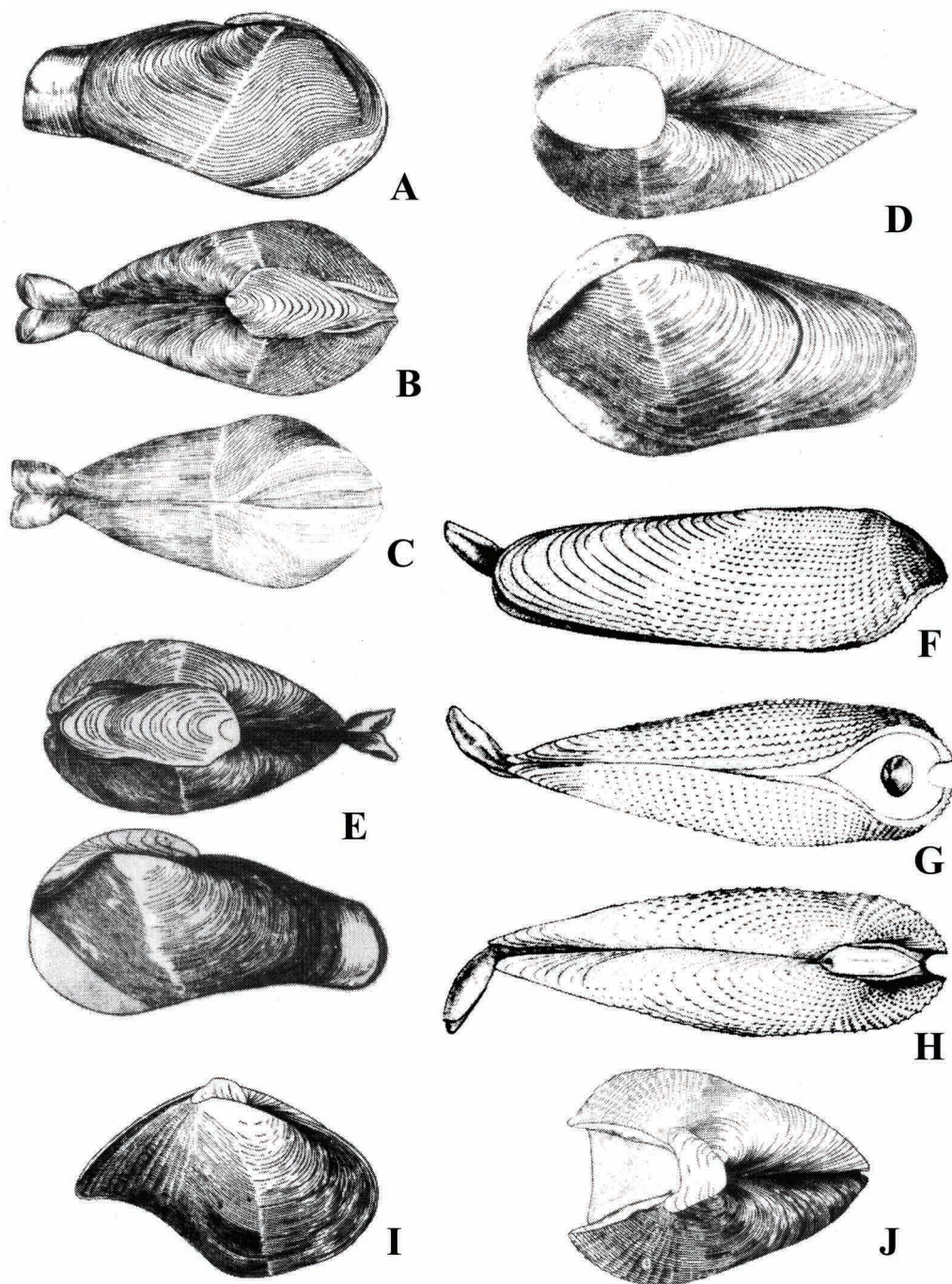


Fig. 4. Original illustrations of bivalve mollusks described from Chinese seas. **A–C** – *Pholadidea acutithyra* Tchang, Tsi et Li, 1960 [Tchang et al., 1960, fig. 10]; **D** – *Martesia pygmaea* Tchang, Tsi et Li, 1960 [Tchang et al., 1960, fig. 13]; **E** – *Pholadidea dolichothyra* Tchang, Tsi et Li, 1960 [Tchang et al., 1960, fig. 9]; **F–H** – *Barnea elongata* Tchang, Tsi et Li, 1960 [Tchang et al., 1960, fig. 5]; **I, J** – *Zirfaea minor* Tchang, Tsi et Li, 1960 [Tchang et al., 1960, fig. 8].

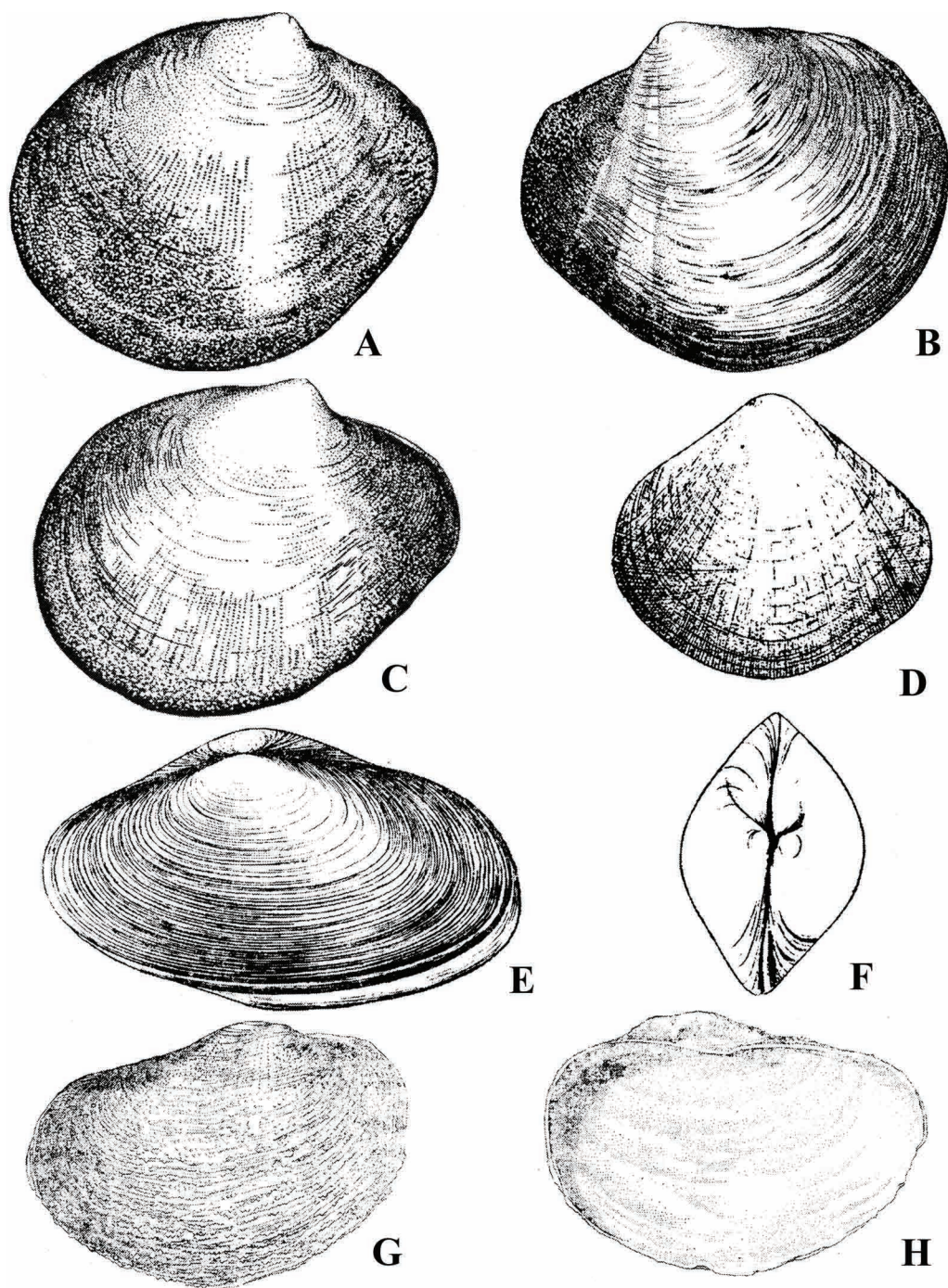


Fig. 5. Original illustrations of bivalve mollusks described from Chinese seas. **A** – *Periploma multigranulosum* Xu, 1999 [Xu, 1999, fig. 90]; **B** – *Periploma beibuwanensis* Xu, 1999 [Xu, 1999, fig. 92]; **C** – *Periploma nanshaensis* Xu, 1999 [Xu, 1999, fig. 93]; **D, F** – *Poromya sinica* Xu, 1999 [Xu, 1999, fig. 123]; **E** – *Potamocorbula rubromuscula* Zhuang et Cai, 1983 [Zhuang, Cai, 1983, fig. 14]; **G, H** – *Pholadomya sinica* Xu, 1992 [Xu, 1992, fig. 1].

Subclass **Anomalodesmata** Dall, 1889

Order **Pholadomyoida** Newell, 1965

Superfamily **Pholadomyoidea**

Gray, 1847

Family **Pholadomyidae** Gray, 1847

Pholadomya sinica

Xu, 1992

Text-fig. 5G, H; Plate 5, figs. L, N, O, P

Original description: Xu, 1992b, p. 211 (Chinese), p. 213 (English), fig. 1 (as *Pholadomya* (*Nipponopanacca*)).

Types and comments: Holotype no. 30933, dimensions: length 12.0 mm, height 8.0 mm, width 6.0 mm [after Xu, 1992b]; collected from the East China Sea, Okinawa Trough by Zheng Tiemin.

Superfamily **Pandoroidea**

Rafinesque, 1815

Family **Pandoridae** Rafinesque, 1815

Pandora sinica Xu, 1992

Text-fig. 3F

Original description: Xu, 1992c, p. 285 (Chinese), p. 287 (English), fig. 1 (as *Pandora* (*Frenamya*)).

Types and comments: Holotype no. 30949, dimensions: length 12.0 mm, height 5.2 mm [after Xu, 1992c]; collected from China coast, 31°15' N, 122°40' E, depth 43 m, August 9, 1985; 1 paratype no. 30950, dimensions: length 11.5 mm, height 5.2 mm [after Xu, 1992c]; collected from China coast, 30°45' N, 122°45' E, depth 27 m, November 21, 1985.

Family **Lyonsiidae** P.-H. Fischer I, 1886

Sinolyonsia sinica Xu, 1992

Text-fig. 6G

Original description: Xu, 1992a, p. 153, fig. 1.

Types and comments: Holotype no. 30931, dimensions: length 2.0 mm, height 1.6 mm [after Xu, 1992a]; collected from Bohai Sea, Huanghe River delta, fine sand, depth 29 m, by Zhang Zhinan; 1 paratype no. 30932, same locality.

Superfamily **Thracioidea**

Stoliczka, 1870

Family **Thraciidae** Stoliczka, 1870

Trigonothracia jinxingae

Xu, 1980

Text-fig. 3E; Plate 5, figs. E–H

Original description: Xu, 1980, p. 337 (Chinese), p. 339 (English), fig. 1.

Types and comments: Holotype no. F9A-2 (no. 25 in label), dimensions: length 16.2 mm, height 11.0 mm, width 6.8 mm [after Xu, 1980]; collected in East China Sea, 30°15' N, 122°30' E, muddy bottom, depth 25 m, October 22, 1959; 1 paratype no. V262A-6 (no. 26 in label), broken shell, dimensions [after Xu, 1980]: length 14.5 mm, height 10.0 mm, width 5.8 mm; collected in East China Sea, 32°30' N, 122°15' E, muddy bottom, depth 27 m, January 17, 1959.

Thracia hainanensis

Xu, 1989

Text-fig. 3G, H; Plate 5, figs. I, J, K, M

Original description: Xu, 1989, p. 33, fig. 1 (as *Thracia* (*Thracia*)).

Types and comments: Holotype no. 55-843 (no. 30947 in label), dimensions: length 41.0 mm, height 28.5 mm, width 10.1 mm [after Xu, 1989]; collected in South China Sea, Xinying, Hainan Isl., coarse sandy bottom, intertidal zone, May 26, 1956; 1 paratype no. 30948, same locality.

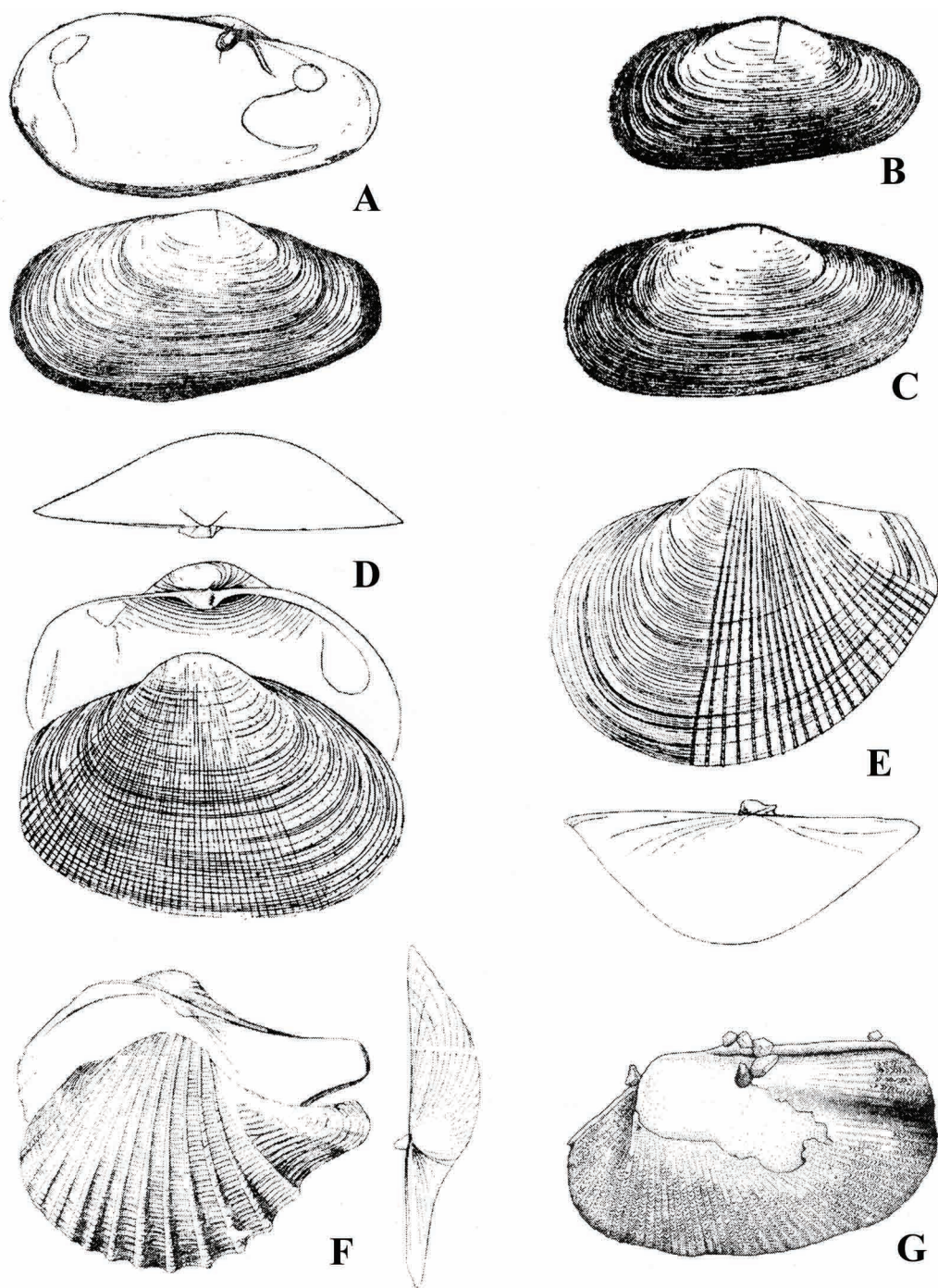


Fig. 6. Original illustrations of bivalve mollusks described from Chinese seas. **A–C** – *Laternula nanshaiensis* Zhuang et Cai, 1982 [Zhuang, Cai, 1982, fig. 3]; **D** – *Tugonia sinensis* Xu, 1987 [Xu, 1987, fig. 1b]; **E** – *Tugonia huanghaiensis* Xu, 1987 [Xu, 1987, fig. 1a]; **F** – *Cardiomya sinica* Xu, 1980 [Xu, 1980, fig. 2]; **G** – *Sinolyonsia sinica* Xu, 1992 [Xu, 1992a, fig. 1].

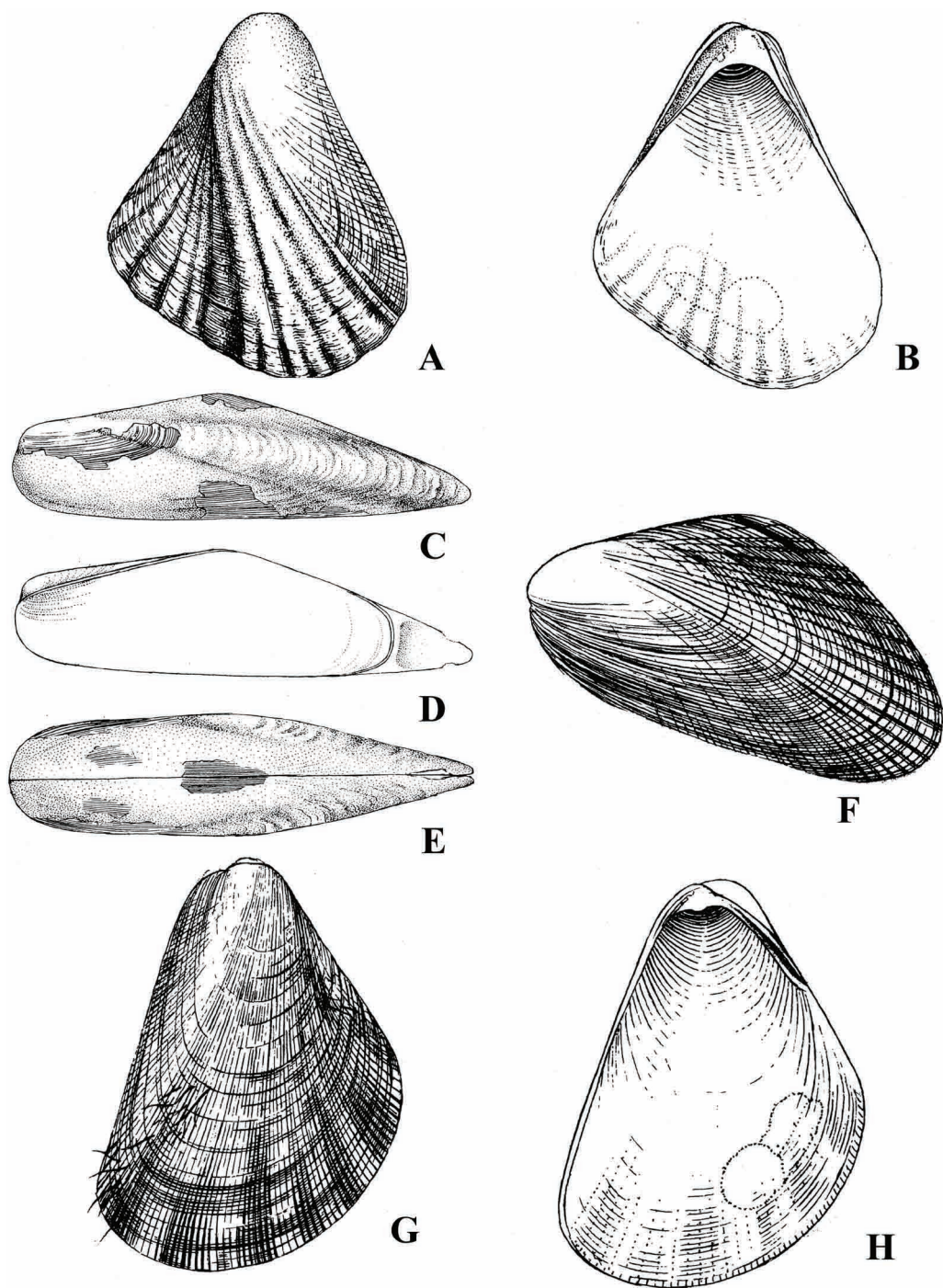


Fig. 7. Original illustrations of bivalve mollusks described from Chinese seas. **A, B** – *Septifer xishaensis* Wang, 1983 [Wang, 1997, fig. 29]; **C–E** – *Lithophaga lepteces* Wang, 1997 [Wang, 1997, fig. 68a, b, c]; **F** – *Hormomya sinensis* Wang, 1983 [Wang, 1997, fig. 34]; **G, H** – *Septifer pulcher* Wang, 1983 [Wang, 1997, fig. 28].

Thracia ovata Xu, 1989

Text-fig. 3D

Original description: Xu, 1989, p. 34, fig. 2 (as *Thracia* (*Crassithracia*)).

Types and comments: According to Dr. Xu Fengshan, the holotype specimen (no. V38A-6) was completely broken and only label left; dimensions: length 6.0 mm, height 4.4 mm [after Xu, 1989]; collected in the northern Huanghai (Yellow) Sea, 38°40' N, 121°45' E, fine sand, depth 46 m, October 17, 1958.

Asthenothaerus huanghaiensis

Xu, 1989

Text-fig. 3B

Original description: Xu, 1989, p. 35, fig. 3.

Types and comments: Holotype no. V32A-5 (no. 30945 in label), dimensions: length 7.0 mm, height 5.0 mm, width 3.0 mm [after Xu, 1989]; collected in the northern Huanghai Sea, 37°52' N, 122°21' E, October 17, 1958; 1 paratype no. V32A-5 (no. 30946 in label), same locality.

Family **Laternulidae** Hadley, 1918

Laternula nanhaiensis

Zhuang et Cai, 1982

Text-fig. 6A–C; Plate 6, figs. I–L

Original description: Zhuang, Cai, 1982, p. 556 (Chinese), p. 561 (English), fig. 3.

Types and comments: Status of the material is unclear: there are two boxes with 2 specimens (one shell is open and mantle line is outlined) (no. 1 in label) and 2 specimens (no. 2 in label) marked as «holotype» and «paratypes», respectively. According to Zhuang and Cai [1982, p. 561], holotype from He pu (no. L80720) is deposited in the IOCAS, and paratype from Zhanjiang

(no. L80721) is deposited in the Zhanjiang Fisheries College. The dimensions for the open shell from the former box are not coincided with that of indicated by the authors (l.c.) for the holotype. Until further clarification is made, we regard material from the MBM CAS as syntypes and illustrate one shell from the first box.

Family **Periplomatidae** Dall, 1895

Periploma multigranosum

Xu, 1999

Text-fig. 5A; Plate 6, figs. D–G

Original description: Xu, 1999, p. 135 (Chinese), p. 226 (English), fig. 90.

Types and comments: Holotype no. 37953, dimensions: length 15.0 mm, height 12.6 mm, width 5.8 mm [after Xu, 1999]; collected from South China Sea, 18°00' N, 111°30' E, muddy bottom, depth 145 m, May 7, 1960; 1 paratype no. 37954, collected from South China Sea, 18°00' N, 111°00' E, muddy bottom, depth 173 m, August 4, 1960.

Periploma beibuwanensis

Xu, 1999

Text-fig. 5B; Plate 6, figs. A, B, C, H

Original description: Xu, 1999, p. 137 (Chinese), p. 226 (English), fig. 92.

Types and comments: Holotype no. 37955, dimensions: length 30.3 mm, height 22.3 mm, width 11.4 mm [after Xu, 1999]; collected from South China Sea, Beibu Gulf [Gulf of Tonkin], 20°30' N, 109°30' E, depth 14 m, October 9, 1960; 1 paratype no. 37956, dimensions: length 23.2 mm, height 18.4 mm, width 9.4 mm [after Xu, 1999]; collected from South China Sea, Beibu Gulf [Gulf of Tonkin], 19°00' N, 105°45' E, depth 16 m, December 9, 1959.

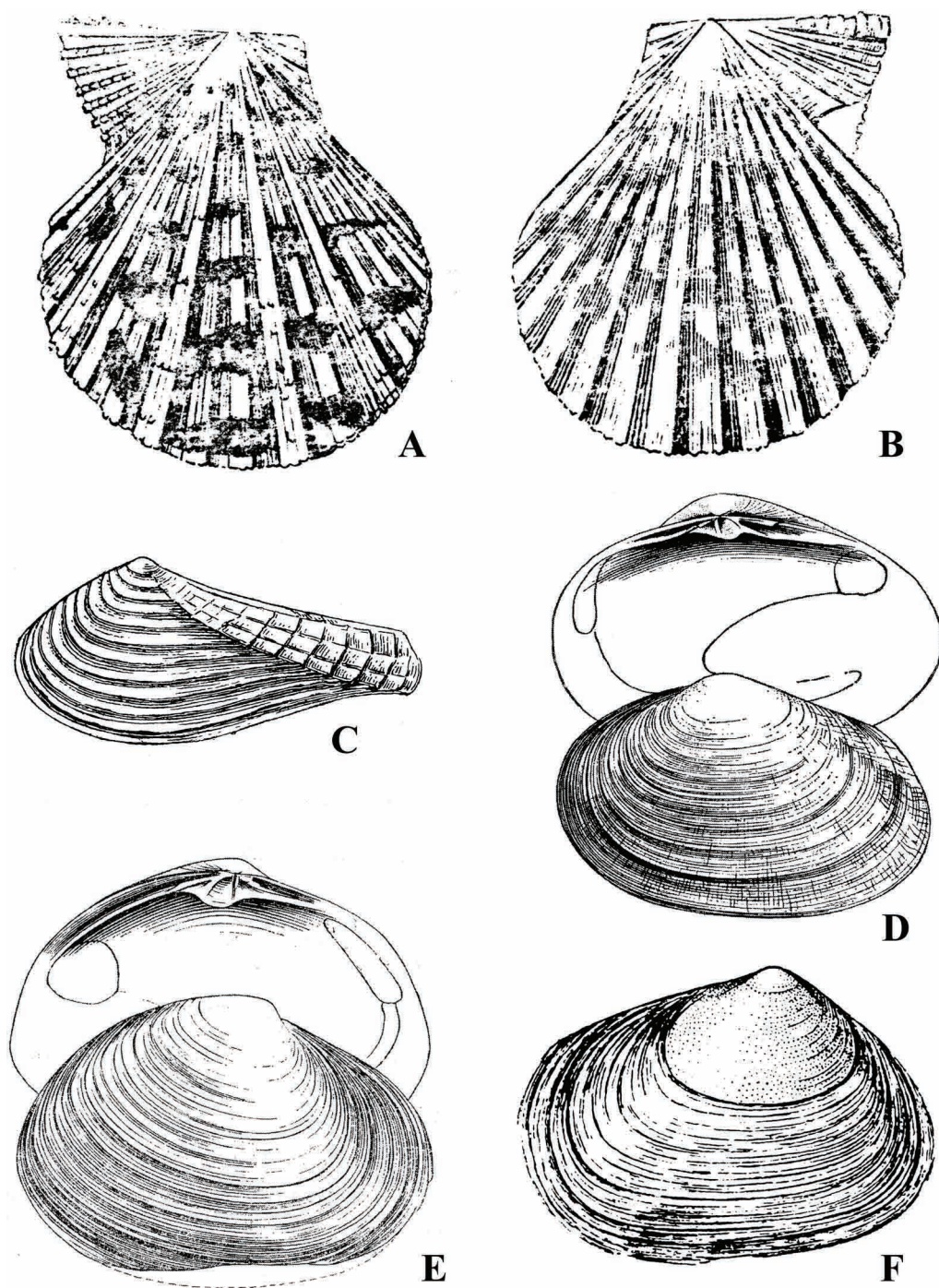


Fig. 8. Original illustrations of bivalve mollusks described from Chinese seas. **A, B** – *Bractechlamys elegans* Wang, 1983 [Wang, 1983b, pl. 1, figs. 1, 3]; **C** – *Nuculana forticostata* Xu, 1991 [Xu, 1991, fig. 2]; **D** – *Meropesta sinojaponica* Zhuang, 1983 [Zhuang, 1983, fig. 1]; **E** – *Heterocardia elliptica* Zhuang, 1983 [Zhuang, 1983, fig. 2]; **F** – *Monterosatus sinensis* Xu et Li, 2000 [Xu, Li, 2000, fig. 1].

Periploma nanshaensis

Xu, 1999

Text-fig. 5C; Plate 4, figs. J–L

Original description: Xu, 1999, p. 138 (Chinese), p. 227 (English), fig. 93.

Types and comments: Holotype no. 37957, dimensions: length 18.4 mm, height 13.8 mm, width 7.7 mm [after Xu, 1999]; collected from South China Sea, 05°35' N, 114°51' E, depth 200 m, July 29, 1988.

Order **Septibranchia** Pelseneer, 1888

Superfamily **Cuspidarioidea**

Dall, 1886

Family **Cuspidariidae**

Dall, 1886

Cardiomya sinica

Xu, 1980

Text-fig. 6F; Plate 6, figs. M–P

Original description: Xu, 1980, p. 338 (Chinese), p. 339 (English), fig. 2.

Types and comments: Holotype no. V557B-39 (no. 22 in label), dimensions: length 14.0 mm, height 10.7 mm, width 7.6 mm [after Xu, 1980]; collected in East China Sea, 28°30' N, 125°00' E, fine sandy bottom, depth 104 mm, September 21, 1976.

List of species not found in the type collection

Below is given a list of species whose types were said to be deposited in the MBM CAS (as IOCAS) but we did not find them in the type collection.

Amusium pleuronectes nanshaensis Wang et Chen, 1991 (Pectinidae) – holotype and 2 paratypes [Wang, Chen, 1991]

Hormomya sinensis Wang, 1983 – holotype [Wang, 1983c] (Text-fig. 7F)

Pteria admirabilis Wang, 2002 (Pteriidae) – holotype and paratype [Wang, 2002] (Text-fig. 1E)

Pteria bulliformis Wang, 2002 (Pteriidae) – holotype [Wang, 2002] (Text-fig. 1F)

Katelsia eugibba Zhuang, 1964 (Veneridae) – holotype [Zhuang, 1964]

Poromya sinica Xu, 1999 (Poromyidae) – holotype and paratype [Xu, 1999] (Text-fig. 5D, F)

Teredo remiformis Li, 1965 (Teredinidae) – holotype (Li, 1965]

It is likely that types can be found in future in the general collection.

In addition, Scarlato [1965] described five species from Hainan Isl. without indication where types were deposited: *Donax* (*Chion*) *semigranosus tropicus* Scarlato, 1965 (Donacidae), *Sanguinolaria* (*Hainania*) *tchangsii* Scarlato, 1965 (Psammobiidae), *Abrina magna* Scarlato, 1965 (Semelidae), *Abrina hainanensis* Scarlato, 1965 (Semelidae), *Cadella delta hainanensis* Scarlato, 1965 (Tellinidae). Most likely, types of these species are in the Zoological Institute, Russian Academy of Sciences (St.-Petersburg) but part of them can be found in the general collection of the MBM CAS.

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Explanation of the Plates

Plate 1

A, B – *Neilo bisculpta* Xu, 1991: **holotype**, MBM CAS no. SSBIII9-23 (30938 in label), length 14.5 mm; **C–F** – *Semipallium xishaensis* Wang, 1985: **holotype**, MBM CAS no. 25777, length 20.5 mm; **G, I** – *Cryptopecten complanus* Wang, 1983: **holotype**, MBM CAS no. M11072, length 14.8 mm; **H, J** – *Cryptopecten complanus* Wang, 1983: **paratype**, MBM CAS no. M11073, length 10.8 mm; **K–N** – *Heterocardia elliptica* Zhuang, 1983: **holotype**, MBM CAS no. 25773, length 46 mm.

Plate 2

A–D – *Periglypta compressa* Zhuang, 1964: **paratype**, MBM CAS no. M07333, length 33.5 mm; **E–H** – *Periglypta compressa* Zhuang, 1964: **holotype**, MBM CAS no. M07335, length 77.34 mm; **I–L** – *Dosinia truncata* Zhuang, 1964: **paratype**, MBM CAS no. M07336, length 21.2 mm; **M, N** – *Potamocorbula rubromuscula* Zhuang et Cai, 1983: **syntype** (?), MBM CAS no. 3 (as indicated in label), length 20.9 mm.

Plate 3

A–D – *Solen canaliculatus* Tchang et Hwang, 1964: **syntype** (? – possible paratype), MBM CAS L49B-40, length 25.4 mm; **E–H** – *Solen arcuatus* Tchang et Hwang, 1964: **syntype** (? – possible paratype), MBM CAS no. 08465, length 39.2 mm; **I–L** – *Fabulina tsichungyeni* Scarlato, 1965: **paratype**, MBM CAS no. 11258, length 15.1 mm; **M–P** – *Calypptogena nanshaensis* Xu et Shen, 1991: **holotype**, MBM CAS no. SSBII11-10 (30934 in label), length 66.4 mm.

Plate 4

A–D – *Meropesta sinojaponica* Zhuang, 1983: **holotype**, MBM CAS no. M25771, length 59 mm; **E–H** – *Barnea elongata* Tchang, Tsi et Li, 1960: **syntype** (? – possible paratype), MBM CAS no. 06982, length 46.1 mm; **I** – *Barnea elongata* Tchang, Tsi et Li, 1960: **syntype** (? – possible paratype), MBM CAS no. 06975, length 55.3 mm; **J–L** – *Periploma nanshaensis* Xu, 1999: **holotype**, MBM CAS no. 37957, length 18.4 mm.

Plate 5

A–D – *Tugonia huanghaiensis* Xu, 1987: **holotype**, MBM CAS no. 030 (30940 in label), length 19.8 mm; **E–H** – *Trigonothracia jinxiangae* Xu, 1980: **holotype**, MBM CAS no. F9A-2 (25 in label), length 16.2 mm; **I–K, M** – *Thracia hainanensis* Xu, 1989: **holotype**, MBM CAS no. 55-843 (30947 in label), length 41.0 mm; **L, N–P** – *Pholadomya sinica* Xu, 1992: **holotype**, MBM CAS no. 30933, length 12.0 mm.

Plate 6

A–C, H – *Periploma beibuwanensis* Xu, 1999: **holotype**, MBM CAS no. 37955, length 30.3 mm; **D–G** – *Periploma multigranosum* Xu, 1999: **holotype**, MBM CAS no. 37953, length 15.0 mm; **I–L** – *Laternula nanhaensis* Zhuang et Cai, 1982: **syntype**, MBM CAS (without no.), length 41.3 mm; **M–P** – *Cardiomya sinica* Xu, 1980: **holotype**, MBM CAS no. V557B-39 (22 in label), length 14.0 mm.

Plate 1



A



B



C



D



E



F



G



H



I



J



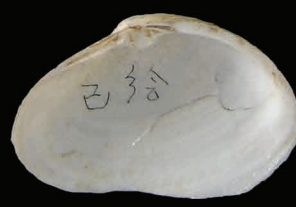
K



L



M



N

Plate 2



A



B



C



D



E



F



G



H



I



J



K



L



M



N

Plate 3



A



B



C



D



E



F



G



H



I



J



K



L



M



N



O



P

Plate 4



A



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C



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I



J



K



L

Plate 5



Plate 6



A



B



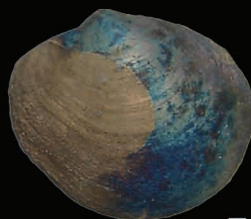
C



D



E



F



G



H



I



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K



L



M



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O