Type specimens of fossil “Architectibranchia” and Cephalaspidea (Mollusca, Heterobranchia) in the Academy of Natural Sciences of Philadelphia

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http://zoobank.org/09EC3F78-C68C-4F9C-A76D-008DDAE13B3E

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Abstract

The type specimens of fossil “Architectibranchia” and Cephalaspidea (Mollusca: Heterobranchia) deposited in the Academy of Natural Sciences of Philadelphia, USA, are listed herein. The collection includes types of circa 60 species, from the families: Acteonellidae, Acteonidae, Bullidae, Cylichnidae, Haminoeidae, Philinidae, Retusidae, Rhizoridae, Ringiculidae and Scaphandridae. The catalogue is presented in systematic order, with information on the original description, type locality, type stratum and age, catalog number in the collection, and current taxonomic status. Further taxonomic notes are offered when pertinent. Several species are illustrated here for first time. The new combinations Roxania hornii (Gabb, 1864) and Volvulella minutissima (Gabb, 1860) are proposed. Some species that have previously been assigned to Acteonidae are revised here, resulting in the following new combinations: Odostomia milium (Lea, 1846), Chrysallida sculpta (Lea, 1846) and Pyrgulina angulata (Lea, 1846). The list of taxa is also presented in other arrangements (alphabetically by specific epithets and by authorship and date) to facilitate locating information.

Key Words

Cenozoic
Cretaceous
type specimens

Introduction

The collection of fossil mollusks in the Academy of Natural Sciences of Philadelphia (ANSP; Philadelphia, PA, USA) houses about 80,000 lots, mostly of gastropods. Despite containing fossils from diverse localities worldwide, most stems from the Mesozoic and Cenozoic eras of the USA. The collection counts with diverse material (including type specimens) of several 19th and early 20th century paleontologists, such as Timothy A. Conrad, William M. Gabb, Henry C. Lea, Isaac Lea and Henry A. Pilsbry.

It is an international consensus that all museums should publish inventories of their type specimens. Since many invertebrate species have convoluted taxonomic histories often with inadequate descriptions and illustrations (or no illustration at all), and little modern taxonomic analysis, it is deemed that such catalogues will benefit or prompt future studies.

Some catalogues have been published regarding the Recent mollusks of the ANSP collection, focusing on specific authors or families (Borrero and Rosenberg 2015, Callomon 2015, Snyder and Callomon 2015), and the entire collection is presently searchable online. A catalogue of the ANSP invertebrate fossil types was published by Richards (1968), as well as more specific ones dealing with type specimens of a single author (e.g., Moore 1962, for Conrad’s types) or a restricted period (e.g., Johnson 1905, for the Cretaceous). These catalogues sometimes fail to cite the type specimens of some species, might present conflicting information, and, due to their broad scope, offer very
Material and methods

The present catalogue offers information on the original description of each species, the ANSP catalog number for the type material lots, type locality and stratum, age and current taxonomical status (following the most recent revisions, where they exist). At least one type specimen (holotype, lectotype or syntype) of each nominal species is figured here, with further type specimens figured only when they add information. Several species are figured here for the first time.

The type catalogue is arranged in three ways to facilitate locating information: (1) by current systematic position (with additional information and comments and, when necessary, proposed new combinations); (2) alphabetically by specific epithet; (3) by authorship and date of the nominal species.

Some species whose types are housed in the ANSP collection were originally classified in Architectibranchia or Cephalaspidea, but clearly do not belong to them. They are listed further below and, as some of them have never received a taxonomical reassessment, they are reclassified here.

The classification used here follows Bouchet et al. (2005, 2017), complemented (when available) by taxonomic revisions that deal specifically with the fossil taxa. The taxa represented in the ANSP collection are: Architectibranchia (Acteonellidae, Acteonidae, Ringiculidae) and Cephalaspidea (Bullidae, Cylichnidae, Haminoeidae, Philinidae, Retusidae, Rhizoridae, Scaphandridae).

Type localities and strata are provided as precisely as possible and when the original descriptions were not very precise, we added information from previous authors, specimens labels, or our own research (new information is always clearly indicated as such). Moreover, some locality and formation names were updated to conform to current conventions; the original names are also indicated. Likewise, the age of the strata are given with as much resolution as possible. However, several localities have not been studied in detail since then; in these cases, a coarser age span (e.g., period) is indicated.

Previous catalogues and species lists (e.g., Palmer 1937, Moore 1962, Richards 1968) often refer to the type specimens in different manners, without discussing the reasoning behind their choice. Herein, we indicated these previous assessments in quotation marks. One issue can be generalized here, though, regarding the use of the word “holotype” by previous catalogues when confronted by a single specimen in the collection. This practice is erroneous and all the original specimens are considered syntypes (even if there is only a single one) herein, unless explicitly indicated on the original description that a single specimen was available (in which case, it is a holotype).

Unfortunately, some of the types supposedly housed in the ANSP collection could not be found in the present study and are thus considered lost. They are: Acteon costellatus Conrad, 1833; Acteon modicellus Conrad, 1860; Bulla mortoni Forbes, 1845 and Retusa sulcata fossilis Pilsbury, 1922.

Systematic list of taxa

**List of taxa by systematic arrangement**

**Heterobranchia**

**Superfamily Acteonoidea** d’Orbigny, 1843  
**Family Acteonidae** d’Orbigny, 1843  
**Genus Acteocina** Gray, 1847  
**Acteocina cederstromi** Richards, 1947  
Figure 1A–B

**Acteocina cederstromi** Richards, 1947: 34, pl. 11, fig. 9.

**Type locality.** Bacons Castle, Virginia, depth 115 ft. (ca. 35 m); stratum: Yorktown Formation; age: Late Miocene to Middle Pliocene.

**Type material.** Holotype, ANSP IP16771 (as “type” in Richards 1968: 113).

**Current taxonomic status.** Acteocina candei (d’Orbigny, 1841) (Campbell 1993).

**Acteocina chowanensis** Richards, 1947  
Figure 1C–D

**Acteocina chowanensis** Richards, 1947: 34, pl. 11, fig. 10.

**Type locality.** Edenton, well 11 (as “well 3” in original description), depth 46–58 ft. (ca. 14–17.5 m), U. S. Marine Base, North Carolina, USA; stratum: Chowan River Formation; age: Pliocene.

**Type material.** Holotype, ANSP IP16754 (as “type” in Richards 1968: 113).

**Current taxonomic status.** Acteocina canaliculata (Say, 1826) (Mikkelsen and Mikkelsen 1984).

**Acteocina crassiplica** (Conrad, 1848)  
Figure 1E–F

**Bulla crassiplica** Conrad, 1848a: 282.

**Type locality.** Dr. Smith’s plantation, 6 miles northeast of Vicksburg, Warren County, Mississippi, USA; stratum: Vicksburg Group; age: Oligocene.


Acteocina kirkwoodiana Richards & Harbison, 1944

Figure 1G–H

Acteocina kirkwoodiana Richards & Harbison, 1944: 9, figs 1, 5–6. Type locality. Brandywine Lighthouse well, depth 385 feet [ca. 117 m], Delaware Bay, New Jersey, USA; stratum: Kirkwood Formation; age: Miocene.

Type material. Paratype, ANSP IP15935, 1 shell (Richards and Harbison 1944: 14, fig. 1, 5; as “paratypes” in Richards and Harbison 1944: figs 1, 5; as “cotype” in Richards 1968: 148).

Current taxonomic status. —Acteocina kirkwoodiana Richards & Harbison, 1944.

Acteocina puruha Pilsbry & Olsson, 1941

Figure 1I–J

Acteocina puruha Pilsbry & Olsson, 1941: 13, pl. 8, fig. 1. Type locality. Punta Blanca, Ecuador; stratum: Canoa Formation; age: Late Pliocene.

Type material. Holotype, ANSP IP13684 (as “type” in Richards 1968: 179).

Current taxonomic status. Acteocina puruha Pilsbry & Olsson, 1941.

Acteocina subbullata Pilsbry & Johnson, 1917

Figure 1K–L

Acteocina subbullata Pilsbry & Johnson, 1917: 150–151. Type locality. Dominican Republic; stratum: “Santo Domingan Beds” (either Cercado or Gurabo Formations); age: Miocene/Pliocene.

Type material. Holotype, ANSP IP3193 (as “type” in Richards 1968: 192).


Acteocina weatherlli (Lea, 1833)

Figure 1M–N

Acteocina weatherlli Lea, 1833: 213, pl. 6, fig. 224.

Type locality. Monmouth Co., Deal, New Jersey, USA; stratum: uncertain; age: Miocene(?).

Type material. Syntype, ANSP IP14431, 1 shell (as “type” in Richards 1968: 205).

Current taxonomic status. Acteocina canaliculata (Say, 1826) (Mikkelsen and Mikkelsen 1984 as A. wetherlli [sic]).

Genus Acteon Montfort, 1810

Acteon biplicatus (Gabb, 1860)

Figure 10–P

Acteonina biplicata Gabb, 1860a: 93, pl. 2, fig. 13 [non d’Orbigny].

Type locality. —New Jersey, USA; stratum: “Lower Green Marls” (Navesink Formation); age: Cretaceous.

Type material. Syntypes, ANSP IP19466 (as “type” in Richards 1968: 107), 1 shell, ANSP 19467, 1 shell.


Acteon costellatus Conrad, 1833

Acteon costellatus Conrad, 1833b: 45.

Type locality. Claiborne Bluff, Alabama River, Monroe County, Alabama, USA; stratum: Gosport Sand (uppermost Claiborne Group); age: Eocene.

Type material. Lost (Harris 1895a: 13, Palmer 1937: 501, Moore 1962: 50).

Current taxonomic status. Acteon costellatus Conrad, 1833 is considered a species inquirenda (Salvador and Cunha 2016).

Acteon cretacea Gabb, 1862

Figure 1Q–R

Acteon cretacea Gabb, 1862: 318.

Type locality. Crosswicks, New Jersey, USA; stratum: “Lower Green Marls” (Navesink Formation); age: Cretaceous.

Type material. Syntypes, ANSP IP18778, 2 shells (as “types” in Richards 1968: 120).

*Acteon elegans* (Lea, 1833)

Figure 1S

*Monoptygma elegans* Lea, 1833: 203, pl. 6, fig. 217.

**Type locality.** Monroe Co., Claiborne Bluff, Alabama, USA; stratum: Gosport Sand (uppermost Claiborne Group); age: Eocene.

**Type material.** Holotype, ANSP IP6011 (as “lectotype” [error] in Palmer 1937: 499; as “type” in Richards 1968: 128).


*Acteon forbesiana* Whitfield, 1892

Figure 1T–U


**Type locality.** Walnford, New Jersey, USA; stratum: “Lower Green Marls” (Navesink Formation); age: Cretaceous.

**Type material.** Syntypes, ANSP IP18777, 4 shells (as “types” in Richards 1968: 113).


*Acteon gabbana* Whitfield, 1892

Figure 1O–P

*Actaeon gabbana* Whitfield, 1892: 156, pl. 19, figs 23–25.

**Type locality.** Tinton Falls, New Jersey, USA; stratum: “Lower Green Marls” (Navesink Formation); age: Cretaceous.

**Type material.** Syntypes (also of *Acteonina biplicata* Gabb, 1860), ANSP 19466 (as “type” in Richards 1968: 135), 1 shell, ANSP IP19467, 1 shell.

Current taxonomic status. *Acteon glans* Lea, 1846 (Weller 1907, Richards and Ramsdell 1962), nom. nov. pro *Acteonina biplicata* Gabb, 1860 [non d’Orbigny].

*Acteon glans* Lea, 1846

Figure 2A

*Acteon glans* Lea, 1846: 256, pl. 36, fig. 58.

**Type locality.** Petersburg, Dinwiddie County, Virginia, USA; stratum: Yorktown Formation; age: Late Miocene to Middle Pliocene.

**Type material.** Holotype, ANSP IP1517.

Current taxonomic status. *Acteon idoneus* Conrad, 1833

Figure 2B–C

*Acteon idoneus* Conrad, 1833: 45.

**Type locality.** Claiborne Bluff, Alabama River, Alabama, USA; stratum: Gosport Sand (uppermost Claiborne Group); age: Eocene.

**Type material.** Syntypes, ANSP IP30547 (as “lectotype” in Palmer 1937: 500; as “lectotype?” in Moore 1962: 65), 1 shell, ANSP IP53814, 5 shells (all as “syntypes” in Richards 1968: 144). The designation as lectotype by Palmer (1937) is likely mistaken (Moore 1962; Richards 1968).

Current taxonomic status. *Acteon lineatus* Lea, 1833

Figure 2D–E

*Acteon lineatus* Lea, 1833: 112, pl. 4, fig. 97.

**Type locality.** Claiborne, Alabama, USA; stratum: uncertain [likely Gosport Sand (uppermost Claiborne Group)]; age: Eocene.

**Type material.** Lectotype, ANSP IP5541, 1 shell (designation by Palmer 1937: 500; as “holotype” in Richards 1968: 152); paralectotypes, ANSP IP5442, 1 shell, ANSP IP5443, 1 shell, ANSP IP5444, 1 shell (each as “paratype” in Richards 1968: 152).

Current taxonomic status. *Acteon modicellus* Conrad, 1860

*Actaeon modicellus* Conrad, 1860: 287.

**Type locality.** Tippah County, Mississippi, USA; stratum: “dark gray marl”; age: Late Cretaceous.

**Type material.** Lost (Sohl 1964).

**Acteon nitens** Lea, 1846

Figure 2F

*Acteon nitens* Lea, 1846: 257, pl. 36, fig. 60.

**Type locality.** Petersburg, Dinwiddie County, Virginia, USA; stratum: Yorktown Formation; age: Late Miocene to Middle Pliocene.

**Type material.** Holotype, ANSP IP1516.

**Current taxonomic status.** *Acteon nitens* Lea, 1846.

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**Acteon novellus** Conrad, 1834

Figure 2G–H

*Acteon novellus* Conrad, 1834: 142.

**Type locality.** Suffolk, Virginia, USA; stratum: uncertain; age: Miocene/Pliocene(?).

**Type material.** Syntypes, ANSP IP1600, 1 shell (as “holotype” in Gardner 1948: 277, pl. 38, figs 24, 26), ANSP IP79768, 2 shells (all as “syntypes” in Moore 1962: 80; as “types” in Richards 1968: 165).

**Current taxonomic status.** — *Acteon novellus* Conrad, 1834 (Moore 1962).

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**Acteon ovoidea** Gabb, 1862

Figure 2I–L

*Actaeon ovoidea* Gabb, 1862: 319.

**Type locality.** New Jersey, USA; stratum: “Lower Green Marls” (Navesink Formation); age: Cretaceous.

**Type material.** Syntypes, ANSP IP56166, 1 shell, ANSP IP56167, 1 shell.

**Current taxonomic status.** *Acteon cretacea* Gabb, 1862 (Weller 1907, Richards and Ramsdell 1962).

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**Acteon politus** (Gabb, 1869)

Figure 2M–N

*Ringinella polita* Gabb, 1869: 174–175, 231, pl. 28, fig. 60.

**Type locality.** Colusa County, California, USA; stratum: Shasta Group (Shasta Formation); age: Cretaceous.

**Type material.** Lectotype, ANSP IP4266 (designation in Stewart 1926: 431, fig. 18); paralectotype, ANSP IP79514, 11 shells (as “types lot” in Richards 1968: 176).

**Current taxonomic status.** *Acteon politus* (Gabb, 1869) (Anderson 1958).

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**Acteon pomilius** Conrad, 1833

Figure 2O–P

*Acteon pomilius* Conrad, 1833b: 45.

**Type locality.** Claiborne Bluff, Alabama River, Monroe County, Alabama, USA; stratum: Gosport Sand (uppermost Claiborne Group); age: Eocene.

**Type material.** Syntypes, ANSP IP30546 (as “lectotype?” in Moore 1962: 88), ANSP IP53815, 5 shells (all as “syntypes” in Richards 1968: 177).

**Current taxonomic status.** *Acteon pomilius* Conrad, 1833 (Palmer and Brann 1966).

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**Acteon punctatus** Lea, 1833

Figure 2Q–R

*Acteon punctatus* Lea, 1833: 111, pl. 4, fig. 96.

**Type locality.** Claiborne Bluff, Alabama River, Monroe County, Alabama, USA; stratum: Gosport Sand (uppermost Claiborne Group); age: Eocene.

**Type material.** Syntypes, ANSP IP5537, 1 shell (as “holotype” in Richards 1968: 179, and in Palmer and Brann 1966: 482), ANSP IP5538, 1 shell, ANSP IP5539, 1 shell, ANSP IP5540, 1 shell (as “paratype” in Richards 1968: 179).

**Current taxonomic status.** Valid as *Acteon pomilius punctatus* Lea, 1833 (Palmer and Brann 1966), but possible synonym of *Acteon politus* Conrad, 1833 (Harris 1895a).

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**Acteon subovoides** Whitfield, 1892

Figure 2I–L

*Actaeon subovoides* Whitfield, 1892: 155, pl. 19, figs 14–16.

**Type locality.** New Jersey, USA; stratum: “Lower Green Marls” (Navesink Formation); age: Cretaceous.

**Type material.** Syntypes, ANSP IP56166 [also a syntype of *Actaeon ovoidea* Gabb, 1862].

**Current taxonomic status.** *Acteon cretacea* Gabb, 1862 (Weller 1907, Richards and Ramsdell 1962).

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**Acteon subtornatilis** Pilsbry & Johnson, 1917

Figure 2S–T

*Acteon subtornatilis* Pilsbry & Johnson, 1917: 150.

**Type locality.** Dominican Republic; stratum: “Santo Domingan Beds” (either Cercado or Gurabo Formations); age: Miocene/Pliocene.

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**Acteon subovoides** Whitfield, 1892: 155, pl. 19, figs 14–16.

**Type locality.** New Jersey, USA; stratum: “Lower Green Marls” (Navesink Formation); age: Cretaceous.

**Type material.** Holotype, ANSP IP56166 [also a syntype of *Actaeon ovoidea* Gabb, 1862].

**Current taxonomic status.** *Acteon cretacea* Gabb, 1862 (Weller 1907, Richards and Ramsdell 1962).

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**Acteon subtornatilis** Pilsbry & Johnson, 1917: 150.

**Type locality.** Dominican Republic; stratum: “Santo Domingan Beds” (either Cercado or Gurabo Formations); age: Miocene/Pliocene.
Type material. Holotype, ANSP IP3183 (as “type” in Pilsbry 1922: 310, 431, pl. 23, fig. 15; Richards 1968: 193).


Genus Nucleopsis Conrad, 1860
Nucleopsis subvaricatus (Conrad, 1860)

Figure 3A–B

Acteonina subvaricata Conrad, 1860: 294, pl. 47, fig. 22.

Type material. Holotype, ANSP IP30692 (designation in Palmer 1937: 503, pl. 90, fig. 18; see also Moore 1962: 100, Salvador and Cunha 2016: figs 2A–E); paralectotypes, ANSP IP30693, 2 shells (Richards 1968: 193; Salvador and Cunha 2016: figs 2F–G).

Type locality. Claiborne, Alabama, USA; stratum: likely Gosport Sand (uppermost Claiborne Group); age: Eocene.


Genus Rictaxis Dall, 1871
Rictaxis andersoni (Conrad, 1847)

Figure 3C–D

Actaeon andersoni Conrad, 1847: 287.

Type locality. Vicinity of Vicksburg, Warren County, Mississippi, USA; stratum: Vicksburg Group; age: Oligocene.

Type material. Holotype, ANSP IP13411 (Conrad 1848b: 117, pl. 11, fig. 37, Moore 1962: 38, Richards 1968: 100, MacNeil and Dockery 1984: 232, pl. 39, fig. 10).


Rictaxis oryza (Gabb, 1872)

Figure 3E–F

Actaeonidea oryza Gabb, 1872: 245.

Type locality. Cibao region, Dominican Republic; stratum: uncertain [likely either Cercado or Gurabo Formations]; age: Miocene/Pliocene.

Type material. Syntype, ANSP IP3181 (as “type” in Pilsbry 1922: 310, pl. 23, fig. 12; Richards 1968: 167).

Remarks. Type species of genus Actaeonidea Gabb, 1872, by monotypy.


Genus Tornatellaea Conrad, 1860
Tornatellaea bella Conrad, 1860

Figure 3G–H

Tornatellaea bella Conrad, 1860: 294, pl. 47, fig. 23

Type locality. Alabama(?), USA; stratum: uncertain [likely Gosport Sand (uppermost Claiborne Group)]; age: Eocene.

Type material. Lectotype, ANSP IP30691 (designation by Palmer 1937: 502, pl. 90, fig. 21; as “holotype” in Richards 1968: 177; see also Moore 1962: 41, Salvador and Cunha 2016: fig. S1N–O).

Remarks. Type species of genus Tornatellaea, by monotypy.


Tornatellaea impressa (Gabb, 1864)

Figure 3I–J

Acteon impressus Gabb, 1864: 142, pl. 21, fig. 106.

Type locality. North fork of Cottonwood Creek, Shasta County, California, USA; stratum: uncertain [likely Shasta Formation]; age: Early Cretaceous.

Type material. Lectotype, ANSP IP4286 (designation by Stewart 1926: 434, pl. 24, fig. 8); paralectotypes, ANSP IP79476, 6 shells (Richards 1968: 144).


Genus Volvaria Lamarck, 1801
Volvaria reticulata Johnson, 1899

Figure 3K–L

Volvaria reticulata Johnson, 1899: 71, pl. 1, fig. 1.

Type locality. Moseley’s Ferry, Brazos River, Burleson Co., Texas, USA; stratum: Stone City Beds (middle Claiborne Group); age: Middle Eocene.

Type material. Holotype, ANSP IP6467 (as “type” in Richards 1968: 182).


Family Acteonellidae Gill, 1871 ♦
Genus Acteonella d’Orbigny, 1843
Acteonella oviformis Gabb, 1869

Figure 3M–N

Acteonella oviformis Gabb, 1869: 173, 232, pl. 28, fig. 58.
Type locality. Cottonwood Creek, Shasta County, California, USA; stratum: uncertain [either Shasta or Chico Formations]; age: Cretaceous.

Type material. Holotype, ANSP IP4323 (Stewart 1926: 432, pl. 21, fig. 13; Richards 1968: 168).


Superfamily Ringiculoidea Philippi, 1853
Family Ringiculidae Philippi, 1853
Genus Avellana d’Orbigny, 1843
Avellana bullata (Morton, 1834)
Figure 3O–P
Tornitella? bullata Morton, 1834: 48, pl. 5, fig. 3.

Type locality. Merchantville, New Jersey, USA; stratum: uncertain [likely Navesink Formation]; age: Cretaceous.

Type material. Syntypes, ANSP IP289, 1 shell, ANSP IP19702, 1 shell (as “type” in Whitfield 1892: 163, pl. 20, figs 3–4; Richards 1968: 108; Richards and Ramsdell 1962: 93).


Avellana costata (Johnson, 1898)
Figure 3Q–R

Cimulia costata Johnson, 1897: 264 [nomen nudum].
Cimulia costata Johnson, 1898: 462, fig. 1.

Type locality. Mount Laurel well, New Jersey, USA; stratum: uncertain [likely Navesink Formation]; age: Cretaceous.

Type material. Syntypes, ANSP IP691, 1 shell, ANSP IP79408, 2 shells (as “type” in Richards and Ramsdell 1962: 94).

Current taxonomic status. Avellana costata (Johnson, 1898) (Richards and Ramsdell 1962).

Genus Biplica Popoeoe, 1957
Biplica obliqua (Gabb, 1864)
Figure 35–T

Cimulia obliqua Gabb, 1864: 111, pl. 19, fig. 64.

Type locality. Tuscan Springs, Tehama Co., California, USA; stratum: uncertain; age: Late Cretaceous.

Type material. Lectotype, ANSP IP4263 (designation by Stewart 1926: 436, pl. 24, fig. 14; see also Richards 1968: 166; Popoeoe 1957: 435).

Current taxonomic status. Biplica obliqua (Gabb, 1864) (Popoeoe 1957).

Biplica mathewsonii (Gabb, 1864)
Figure 3U–V

Cimulia mathewsonii Gabb, 1864: 111, 225, pl. 19, fig. 65.

Type locality. Bull’s Head Point, Martinez, California, USA; stratum: uncertain [likely Chico Formation]; age: Cretaceous.

Type material. Lectotype, ANSP IP4262 (designation by Stewart 1926: 437, pl. 24, fig. 11).

Remarks. Popoeoe (1957: 434) points out that Gabb’s material from Bull’s Head Point could represent a non-Cretaceous locality/horizon or be Paleogene material mixed with Gabb’s Cretaceous specimens.

Current taxonomic status. Biplica mathewsonii (Gabb, 1864) (Popoeoe 1957).

Genus Cinulia Gray, 1840

Cinulia naticoides (Gabb, 1860)
Figure 4A–B
Actaenia naticoides Gabb, 1860c: 299, pl. 48, fig. 2.

Type locality. Mullica Hill, New Jersey, USA; stratum: uncertain [likely Navesink Formation]; age: Cretaceous.

Type material. Syntypes, ANSP IP18784, 2 shells (as “type” in Richards 1968: 164).


Cinulia rectilabrum Gabb, 1869
Figure 4C–D

Cimulia rectilabrum Gabb, 1869: 264, pl. 35, fig. 10.

Type locality. Arivechi, Eastern Sonora, Mexico; stratum: uncertain [either Cañada de Tarachi or El Potrero Grande Units]; age: Late Cretaceous.

Type material. Syntype(?), ANSP IP4753 (as “type?” in Richards 1968: 181).

Current taxonomic status. Cinulia rectilabrum Gabb, 1869 (Stanton 1947).

Genus Ringicula Deshayes, 1838

Ringicula hypograpta Brown & Pilsbry, 1912
Figure 4G–E

Ringicula hypograpta Brown & Pilsbry, 1912: 505, text fig. 2.
Type locality. Scott’s locality 3, excavation of the lower locks at Gatun, Canal Zone, Panama; stratum: Gatun Formation; age: Late Miocene.

Type material. Holotype, ANSP IP3841 (as “type” in Richards 1968: 143).


Ringicula lata (Conrad, 1865)
Figure 4G–H

Actaeon (Nucleopsis) latus Conrad, 1865a: 34.

Type locality. Alabama(?), USA; stratum: uncertain; age: Early Eocene(?).

Type material. Syntype, ANSP IP30695, 1 shell (as “holotype” in Palmer 1937: 502, Richards 1968: 150; as “probable holotype” in Moore 1962: 69; see also Salvador and Cunha 2016: fig. S1K–M).


Ringicula mississippiensis Conrad, 1848
Figure 4I–J

Ringicula mississippiensis Conrad, 1848a: 287.

Type locality. Dr. Smith’s plantation, 6 miles northeast of Vicksburg, Warren County, Mississippi, USA; stratum: Vicksburg Group; age: Oligocene.

Type material. Lectotype, ANSP IP13414 (designation by Moore 1962: 77; as “lectotype” in MacNeil and Dockery 1984: 235, Moore 1962: 77; as “holotype” in Richards 1968: 161); paralectotypes, ANSP IP13415, 8 shells (as “paratype” in Richards 1968: 161; MacNeil and Dockery 1984: 235; see also Conrad 1848b: 117, pl. 11, fig. 36).

**Ringicula trapaquara** Harris, 1895

*Ringicula trapaquara* Harris, 1895a: 76, pl. 8, fig. 7.

**Type locality.** Moseleys Ferry, Brazos River, Texas; stratum: lower Claiborne Formation; age: Eocene.

**Type material.** Syntypes, ANSP IP6468, 8 shells (as *R. trapaquaria* [sic], “paratype” in Richards 1968: 198).

**Current taxonomic status.** *Ringicula trapaquara* Harris, 1895 (Palmer 1937).

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**Ringicula varia** Gabb, 1864

*Ringicula varia* Gabb, 1864: 112, pl. 29, fig. 222a-b.

**Type locality.** Cow Creek, Shasta County, California, USA; stratum: Chico Formation; age: Cretaceous.

**Type material.** Lectotype, ANSP IP4264 (designation by Stewart 1926: 435, pl. 24, fig. 3; see also Richards 1968: 202).

**Current taxonomic status.** Uncertain, as “*Ringicula* varia” Gabb, 1864 (Stewart 1930).

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**Order Cephalaspidea** P. Fischer, 1883

**Superfamily Bulloidea** Gray, 1827

**Family Bulidae** Gray, 1827

**Genus Roxania** Leach, 1847

**Roxania hornii** (Gabb, 1864), new comb.

*Bulla hornii* Gabb, 1864: 143, pl. 29, fig. 235.

**Type locality.** Kern County, California, USA; stratum: Tejon Formation; age: Eocene.

**Type material.** Holotype, ANSP IP4232 (Stewart 1926: 439, pl. 29, fig. 9; Richards 1968: 142).

**New taxonomic status.** *Roxania hornii* (Gabb, 1864) new comb. This species was placed in the genus *Abderospira* Dall, 1898 (e.g., Stewart 1926, Keen and Bentson 1944), which is now considered a synonym of *Roxania* (Valdés 2008).

**Genus Bulla** Linnaeus, 1758

**Bulla macrostoma** Gabb, 1860

*Bulla macrostoma* Gabb, 1860c: 301, pl. 48, fig. 15.

**Type locality.** Prairie Bluff, Alabama, USA; stratum: uncertain (“white limestone”); age: Cretaceous.
Type locality. Claiborne Bluff, Alabama River, Monroe County, Alabama, USA; stratum: Gosport Sand (uppermost Claiborne Group); age: Middle Eocene.

Type material. Lectotype, ANSP IP30548 (designation by Palmer and Brann 1966: 878; as “lectotype?” in Moore 1962: 62); paralectotypes, ANSP IP53816, 3 shells, ANSP IP53817, 1 shell, ANSP IP30549, 8 shells (all as “probable syntypes” in Richards 1968: 136).

Current taxonomic status. Retusa (Cylichnina) galba (Conrad, 1833) (Palmer and Brann 1966).

Retusa sthillairii (Lea, 1833)

Figure 5I–J

Bulla St. Hillairii Lea, 1833: 98, pl. 4, fig. 78.

Type locality. Monroe Co., Claiborne Bluff, Alabama, USA; stratum: Gosport Sand (uppermost Claiborne Group); age: Eocene.

Type material. Lectotype, ANSP IP30548 (designation by Palmer and Brann 1966: 878; as “lectotype?” in Moore 1962: 62); paralectotypes, ANSP IP53816, 3 shells, ANSP IP53817, 1 shell, ANSP IP30549, 8 shells (all as “probable syntypes” in Richards 1968: 136).

Current taxonomic status. Retusa (Cylichnina) galba (Conrad, 1833) (Palmer and Brann 1966).

Retusa subspissa (Conrad, 1846)

Figure 5K

Bulla subspissa Conrad, 1846: 20, pl. 1, fig. 29.

Type locality. Calvert Cliffs, Maryland, USA; stratum: Calvert Formation; age: Miocene.

Type material. Syntype, ANSP IP30641, 1 shell (as “probable holotype” in Moore 1962: 100; as “type?” in Richards 1968: 193).

Current taxonomic status. Retusa subspissa (Conrad, 1846), but possible synonym of Retusa conulus (Dehayses, 1824) (Martin 1904).

Family Rhizoridae Dell, 1952
Genus Volvulella Newton, 1891

Volvulella cylichnoides (Pilsbry & Johnson, 1917)

Figure 5L


Type locality. Dominican Republic; stratum: “Santo Domingan Beds” (either Cercado or Gurabo Formations); age: Miocene/Pliocene.
Type material. Holotype, ANSP IP3177 (as “type” in Richards 1968: 121); paratype, ANSP IP79027, 1 shell.

Current taxonomic status. Volvulella cylindroides (Pilsbry & Johnson, 1917), but could be a synonym of Retusa yaquensis Maury, 1917 (Pilsbry 1922).

Volvulella cylindrica (Gabb, 1872)

Figure 5M–N

Volvula cylindrica Gabb, 1872: 246 [non Carpenter, 1865; non E.A. Smith, 1871].

Type locality. Dominican Republic; type stratum: uncertain [likely either Cercado or Gurabo Formations]; age: Miocene/Pliocene.

Type material. Syntype, ANSP IP3179, 1 shell (as “type” in Richards 1968: 121).

Current taxonomic status. Volvulella persimilis (Mörch, 1875) (Dall 1889, Pilsbry 1922).

Volvulella micratracta Brown & Pilsbry, 1912

Figure 6A

Volvula micratracta Brown & Pilsbry, 1912: 504, text fig. 1.

Type locality. Scott’s locality 3, excavation of the lower locks at Gatun, Canal Zone, Panama; stratum: Gatun Formation; age: Late Miocene.

Type material. Holotype, ANSP IP3842 (as “type” in Richards 1968: 158).


Volvulella minutissima (Gabb, 1860), new comb.

Figure 6B

Volvula minutissima Gabb, 1860b: 386–387, pl. 67, fig. 52.

Type locality. Caldwell County, Texas, USA; stratum: uncertain; age: Eocene.

Type material. Syntype, ANSP IP13267, 1 shell (as “type” in Richards 1968: 159).

New taxonomic status. Volvulella minutissima (Gabb, 1860), new comb. Harris (1895b) considered the species valid. The genus Volvula Newton, 1891 is a replacement name for Volvula A. Adams, 1850 non Gistel, 1848 (Valdés 2008).

Volvulella ornata (Pilsbry & Johnson, 1917)

Figure 6C–D


Type locality. Dominican Republic; stratum: “Santo Domingan Beds” (either Cercado or Gurabo Formations); age: Miocene/Pliocene.

Type material. Holotype, ANSP IP3178 (as “type” in Richards 1968: 167); paratypes, ANSP IP81665, 6 shells.

Remarks. Pilsbry and Johnson (1917) did not clearly indicate which one of their specimens is the holotype, merely indicating the presence of a “Type”. Judging by the conventions used elsewhere in their paper, we here consider the holotype to be the specimen measured by these authors. Besides the holotype, Pilsbry and Johnson (1917) mentioned seven specimens, one of which is presently missing.


Volvulella parallela (Pilsbry & Johnson, 1917)

Figure 6E

Volvula parallela Pilsbry & Johnson, 1917: 151.

Type locality. Dominican Republic; stratum: “Santo Domingan Beds” (either Cercado or Gurabo Formations); age: Miocene/Pliocene.

Type material. Holotype, ANSP IP3188 (as “type” in Richards 1968: 169); paratypes, ANSP IP79026, 2 shells.


Volvulella tritica (Olsson & Harbison, 1953)

Figure 6F

Volvula tritica Olsson & Harbison, 1953: 163, pl. 25, figs 3–3a.

Type locality. St. Petersburg, Pinellas County, Florida, USA; stratum: North St. Petersburg Beds; age: Pleistocene.

Type material. Holotype, ANSP IP19104; paratypes, ANSP IP79270, 2 shells (all as “types” in Richards 1968: 199).


Superfamily Haminoeoidae Pilsbry, 1895
Family Haminoeidae Pilsbry, 1895
Genus Atys Montfort, 1810

Atys cinctorii Pilsbry & Johnson, 1917

Figure 6G

Atys cinctorii Pilsbry & Johnson, 1917: 152.

Type locality. Dominican Republic; stratum: “Santo Domingan Beds” (either Cercado or Gurabo Formations); age: Miocene/Pliocene.
Type material. Holotype, ANSP IP3185 (as “type” in Richards 1968: 113).


Superfamily Cylichnoidae H. Adams & A. Adams, 1854
Family Cylichnidae H. Adams & A. Adams, 1854
Genus *Cylichna* Lovén, 1846

*Cylichna cylindrus* (Lea, 1846)

Figure 6I–J

Bulla cylindrus Lea, 1846: 250–251, pl. 35, fig. 43.

Type locality. Petersburg, Dinwiddie County, Virginia, USA; stratum: Yorktown Formation; age: Late Miocene to Middle Pliocene.

Type material. Syntypes, ANSP IP1554, 1 shell (Gardner 1948: 279, pl. 38, fig. 27; as “type” in Richards 1968: 122), ANSP IP79382, 1 shell (Gardner 1948: 279, pl. 38, fig. 28).
**Type locality.** Claiborne, Alabama, USA; stratum: Claiborne Group; age: Eocene.

**Type material.** Syntypes, ANSP IP6007, 1 shell (as “holotype” in Richards 1968: 123), ANSP IP6008, 1 shell (as “paratype” in Richards 1968: 123).

**Current taxonomic status.** *Cylichna* (Mnestia) *dekayi* (Lea, 1833) (Glibert 1962).

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**Type locality.** Texas, USA; stratum: uncertain; age: Eocene.

**Type material.** Syntype, ANSP IP13266, 1 shell (as “type” in Richards 1968: 148).

**Current taxonomic status.** *Cylichna* (Acrotrema) *kellogii* (Gabb, 1860) (Gardner 1945).

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**Type locality.** Burlington County, New Jersey, USA; stratum: “Lower Green Marls” (Navesink Formation); age: Cretaceous.

**Type material.** Holotype, ANSP IP18782 (as “type” in Richards 1968: 181).

**Current taxonomic status.** *Cylichna recta* (Gabb, 1860) (Wade 1926, Richards and Ramsdell 1962).

---

**Type locality.** Martinez, California, USA; stratum: uncertain; age: Eocene.

**Remarks.** This was coined as a new name for *Megistostoma striatum* Gabb, 1864, when transferred to the genus *Philine* [non striata Deshayes, 1824]. However, the name *P. gabbiana* (Stoliczka, 1868) has precedence over it (see below).

**Current taxonomic status.** *Philine (Megistostoma) gabbiana* (Stoliczka, 1868) (Keen and Bentson 1944).

---

**Type locality.** Martinez, California, USA; stratum: uncertain; age: Eocene.

**Type material.** Syntypes ANSP IP4216 (of *M. striatum* Gabb, 1864), 2 shells (lost).

**Remarks.** This species of *Megistostoma* Gabb, 1864. The correct epithet is *striatum* (not *striata*), since the ending -*stoma* is neuter.

**Current taxonomic status.** *Philine (Megistostoma) gabbiana* (Stoliczka, 1868) (Keen and Bentson 1944), new name for *M. striatum* Gabb, 1864 (see above).

---

**Type locality.** New Jersey, USA; stratum: uncertain [likely Navesink Formation]; age: Cretaceous.

**Remarks.** This was a new name for *Megistostoma striatum* Gabb, 1864, when transferred to the genus *Philine* [non striata Deshayes, 1824]. However, the name *P. gabbiana* (Stoliczka, 1868) has precedence over it (see below).

**Current taxonomic status.** *Philine (Megistostoma) gabbiana* (Stoliczka, 1868) (Keen and Bentson 1944).
Type material. Holotype not found; could be in Charles Lyell’s fossil collections (John Sime, pers. comm.), presently in the Natural History Museum (London, UK) and Oxford University Museum of Natural History (Oxford, UK).


*Ellipsoscapha occidentalis* (Meek & Hayden, 1856)  
*Figure 6N*  
*Bulla occidentalis* Meek & Hayden, 1856 (non A. Adams, 1850): 69.

Type locality. Yellowstone River (150 miles above its mouth), near Glendive, Montana, USA; stratum: Pierre Shale; age: Late Cretaceous.

Type material. Syntypes, ANSP IP17139, 2 shells.

Current taxonomic status. *Ellipsoscapha occidentalis* (Meek & Hayden, 1856) (Sohl 1967). Substitution of the junior primary homonym is not mandatory if the conditions of Article 23.9.5 ICZN (1999) are met, but a request for a ruling of the Commission under its plenary powers to validate the junior homonymous name would be necessary.

Genus *Scaphander* Montfort, 1810  
*Scaphander costatus* (Gabb, 1864)  
*Figure 6O–P*  
*Cylichna costata* Gabb, 1864: 143, pl. 2, fig. 107.

Type locality. Martinez, Contra Costa County, California, USA; stratum: Tejon Formation s. l.; age: Eocene.

Type material. Lectotype, ANSP IP4338 (designation by Stewart 1926: 437, pl. 27, fig. 3; see also Richards 1968: 118); paralectotypes, ANSP IP79477, 8 shells.

Remarks. Type species of subgenus *Mirascapha* Stewart, 1927.

Current taxonomic status. *Scaphander* (*Mirascapha*) costatus (Gabb, 1864) (Squires 1984). Species transferred to other gastropod groups  
Here are listed the species (with type material in the ANSP collection) that were originally classified in “Architectibranchia” and Cephalaspidea, but that actually do not belong to them. Some of them have already undergone taxonomical revision and are listed concisely in Table 1, while others are reclassified below.

Panpulmonata  
Superfamily *Pyramidelloidea* Gray, 1840  
Family *Pyramidellidae* Gray, 1840  
Genus *Chrysallida* Carpenter, 1856  
*Chrysallida sculpta* (Lea, 1846), new comb.  
*Figure 6Q–R*  
*Acteon sculptus* Lea, 1846: 257, pl. 36, fig. 59.

Type locality. Petersburg, Dinwiddie County, Virginia, USA; stratum: Yorktown Formation; age: Late Miocene to Middle Pliocene.

Type material. Syntypes, ANSP IP1515, 2 shells (as “types” in Richards 1968: 186).

Taxonomical reassessment. This species is better classified in the genus *Chrysallida* due to the following conchological features (Robba 2013): a weak or absent col umellar fold, teleoconch sculpture consisting of collabral ribs and spiral cords of similar strength. Most species of *Chrysallida* are strongly sculptured, as the present specimens, with the ribs forming nodes where crossing the spiral cords and tending to fade away near the base.

Genus *Odostomia* Fleming, 1813  
*Odostomia milium* (Lea, 1846), new comb.  
*Figure 6S*  
*Acteon milium* Lea, 1846: 257, pl. 36, fig. 61.

Type locality. Petersburg, Dinwiddie County, Virginia, USA. Type stratum: Yorktown Formation. Age: Late Miocene to Middle Pliocene.

Type material. Syntypes, ANSP IP1520, 1 shell, ANSP IP79385, 1 shell (lost, not found in the vial).

Taxonomical reassessment. This species is better classified in the genus *Odostomia* due to the following conchological features (Robba 2013): overall ovate-conical shell with moderately convex whorls, suture with a blunt subsutural margin, slit-like umbilicus, and prominent columellar fold.

Genus *Pyrgulina* A. Adams, 1863  
*Pyrgulina angulata* (Lea, 1846), new comb.  
*Figure 6T*  
*Acteon angulatus* Lea, 1846: 256, pl. 36, fig. 57.

Type locality. Petersburg, Dinwiddie County, Virginia, USA. Type stratum: Yorktown Formation. Age: Late Miocene to Middle Pliocene.

Type material. Holotype, ANSP IP1521.

Taxonomical reassessment. This species is better classified in the genus *Pyrgulina* due to the following conchological features (Robba 2013): elongated (somewhat
Table 1. Species (with type material in the ANSP collection) that were originally classified in Architectibranchia and Cephalaspidea, but that after revision were reclassified in other groups. The species are arranged in alphabetical order of the specific epithets, with information on their original description, type specimens in the ANSP collection, current taxonomic status, and references of such status. Abbreviations: Hol = holotype; Lec = lectotype; Pal = paralectotype(s); Par = paratype(s); Syn = syntype(s).

<table>
<thead>
<tr>
<th>Original description</th>
<th>Type material (ANSP)</th>
<th>Current taxonomic status</th>
<th>Family</th>
<th>Reference(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>calata, “Acteonina” Stewart, 1926: 325, pl. 21, fig. 12</td>
<td>4287 (Hol)</td>
<td>Pseudomelanidae</td>
<td>Squires and Saul (2004)</td>
<td></td>
</tr>
<tr>
<td>cura, Globocnochon Gabb, 1862: 319</td>
<td>31393 (Hol)</td>
<td>Tylostoma elevatum (Shumard, 1853)</td>
<td>Tylostomatidae</td>
<td>Stanton (1947)</td>
</tr>
<tr>
<td>elevatus, Acteon Lea, 1833: 113, pl. 4, fig. 98</td>
<td>5545 (Lec): 5546 to 5549 (Pal)</td>
<td>Pyramidella larvata Conrad, 1833</td>
<td>Pyramidellidae</td>
<td>Palmer (1937), Palmer and Brann (1966)</td>
</tr>
<tr>
<td>globosus, Acteon Lea, 1846: 255, pl. 36, fig. 55</td>
<td>1518 (Syn)</td>
<td>Iseilica globosa (Lea, 1846)</td>
<td>Amathinidae</td>
<td>Lee (2015)</td>
</tr>
<tr>
<td>granulatus, Acteon Lea, 1846: 255, pl. 36, fig. 54</td>
<td>1533 (Syn)</td>
<td>Odostomia granulatus (Lea, 1846)</td>
<td>Pyramidellidae</td>
<td>Holmes (1860)</td>
</tr>
<tr>
<td>laevis, Actaeon Lea, 1841: 94, pl. 1, fig 4</td>
<td>lost (Hol)</td>
<td>Odostomia laevis (Lea, 1847)</td>
<td>Pyramidellidae</td>
<td>Palmer (1937)</td>
</tr>
<tr>
<td>luteus, Solidus Conrad, 1858: 534, pl. 35, fig. 10</td>
<td>lost (Hol)</td>
<td>Eocteon luteus (Conrad, 1858)</td>
<td>Acteoninidae</td>
<td>Stephenson (1955), Sohl (1964)</td>
</tr>
<tr>
<td>magnicollis, Acteon Lea, 1841: 94, pl. 1, fig. 5</td>
<td>13158 (Hol)</td>
<td>Odostomia (Eavlea) melanella (Lea, 1833)</td>
<td>Pyramidellidae</td>
<td>Palmer (1937)</td>
</tr>
<tr>
<td>melanellus, Acteon Lea, 1833: 113, pl. 4, fig. 99</td>
<td>5550 (Lec): 5551 to 5557 (Pal)</td>
<td>Odostomia (Eavlea) melanella (Lea, 1833)</td>
<td>Pyramidellidae</td>
<td>Palmer (1937)</td>
</tr>
<tr>
<td>pygmaeus, Acteon Lea, 1833: 114, pl. 4, fig. 101</td>
<td>5559 (Hol)</td>
<td>Pyramidella larvata Conrad, 1833</td>
<td>Pyramidellidae</td>
<td>Palmer (1937), Palmer and Brann (1966)</td>
</tr>
<tr>
<td>simplex, Acteon Lea, 1843: 8</td>
<td>1519 (Syn)</td>
<td>Odostomia simplex (Lea, 1843)</td>
<td>Pyramidellidae</td>
<td>Ward and Blackwelder (1987)</td>
</tr>
<tr>
<td>situatus, Acteon Lea, 1833: 113, pl. 4, fig. 100</td>
<td>5558 (Hol)</td>
<td>Odostomia (Eavlea) melanella alveata (Lea, 1835)</td>
<td>Pyramidellidae</td>
<td>Palmer (1937), Palmer and Brann (1966)</td>
</tr>
<tr>
<td>turbinatus, Acteon Lea, 1843: 256, pl. 36, fig. 56</td>
<td>1522 (Syn)</td>
<td>Odostomia turbinatus (Lea, 1846)</td>
<td>Pyramidellidae</td>
<td>Ward and Blackwelder (1987)</td>
</tr>
</tbody>
</table>

cyllindrus, Bulla Lea, 1846: 250. Cylichna cyllindrus (Lea, 1846), Cylichnidae.
dekayi, Bulla Lea, 1833: 200. Cylichna (Mnestia) dekayi (Lea, 1833), Cylichnidae.
gabbi, Philine (Megistostoma) Cossmann, 1895: 127. Philine (Megistostoma) gabbiiana (Stoliczka, 1868), Philinidae.
gabhana, Bullaea Stoliczka, 1868: 434. Philine (Megistostoma) gabbiiana (Stoliczka, 1868), Philinidae.
gabla, Volvarya Conrad, 1833a: 34. Retusa gabla (Conrad, 1833), Retusidae.
impressus, Acteon Gabb, 1864: 142. Tornatellaea impressa (Gabb, 1864), Acteonidae.
kellogii, Bulla Gabb, 1860b: 386. Cylichna (Acroptera) kellogii (Gabb, 1860), Cylichnidae.
latus, Actaeon (Nucleopsis) Conrad, 1865a: 34. Ringicula lata (Conrad, 1865), Ringiculidae.
mathewsonii, Cinulia Gabb, 1864: 111. Biplica mathewsonii (Gabb, 1864), Ringiculidae.
obliqua, Cinulia Gabb, 1864: 111. Biplica obliqua (Gabb, 1864), Ringiculidae.
occidentalis, Bulla Meek & Hayden, 1856: 69. Ellipsoscaphe occidentalis (Meek & Hayden, 1856). Scaphandridae.
polita, Ringinella Gabb, 1869: 174. Acteon politus (Gabb, 1869), Acteonidae.
rectilabrum, Cinulia Gabb, 1869: 264. Cinulia rectilabrum (Gabb, 1869), Ringiculidae.
striata, Megistostoma Gabb, 1864: 144. Philine (Megistostoma) gabbiiana (Stoliczka, 1868), Philinidae.
trapaquara, Ringicula Harris, 1895a: 76. Ringicula trapaquara (Harris, 1895a), Ringiculidae.
weatherli, Acteon Lea, 1833: 213. Acteocina canaliculata (Say, 1826), Acteonidae.
List of taxa by authorship

Here the list of types is arranged by author (alphabetically) and date; see “References” section for full citation. Species appear in their original generic allocation; see text for current systematic status and placement. An “*” indicates that the type material is lost.

Brown, A. P. & Pilsbry, H. A.

1912 hypograpta, Ringicula
1912 micracta, Volvulella

Conrad, T. A.

1833a galba, Volvaria
1833b costellatus, Acteon*
1833b idoneus, Acteon
1833b pomilus, Acteon
1834 novellus, Acteon
1846 subspissa, Bulla
1848a andersoni, Actaeon
1848a crassiplica, Bulla
1848a mississipiensis, Ringicula
1858 cretacea, Bullopsis
1860 bella, Tornatellaea
1860 modicellus, Actaeon*
1860 subvaricata, Acteonina
1865a latus, Actaeon (Nucleopsis)

Cossmann, M.

1895 gabbii, Philine (Megistostoma)

Forbes, E.

1845 mortoni, Bulla*

Gabb, W. M.

1860a biplicata, Acteonina
1860b kellogii, Bulla
1860b minutissima, Volvula
1860c macrostoma, Bulla
1860c naticoides, Actaenia
1860c recta, Bulla
1862 cretacea, Acteon
1862 curta, Globiconcha
1862 ovoidea, Actaeon
1864 costata, Cylichna
1864 hornii, Bulla
1864 impressus, Acteon
1864 mathewsonii, Cinulia
1864 obliqua, Cinulia
1864 striata, Megistostoma
1864 varia, Ringicula
1869 oviformis, Acteonella
1869 polita, Ringinella
1869 rectilabrum, Cinulia
1873 cylindrica, Volvula
1873 oryza, Acteonidea

Harris, G. D.

1895a trapaquara, Ringicula

Johnson, C. W.

1898 costata, Cinulia
1898 reticulata, Volvaria

Lea, H. C.

1846 cylindrus, Bulla
1846 glans, Acteon
1846 nitens, Acteon

Lea, I.

1833 dekayi, Bulla
1833 elegans, Monoptygma
1833 lineatus, Acteon
1833 punctatus, Acteon
1833 sthilarii, Bulla
1833 weatherli, Acteon

Meek, F. B. & Hayden, F. V.

1856 occidentalis, Bulla

Morton, S. G.

1834 bullata, Tornitella?

Olsson, A. A. & Harbison, A.

1953 tritica, Volvula

Pilsbry, H. A.

1922 fossilis, Retusa sulcata*

Pilsbry, H. A. & Johnson, C. W.

1917 biforis, Retusa
1917 cinctorii, Atys
1917 cylichnoides, Volvula
1917 ornata, Volvula
1917 parallela, Volvula
1917 subbullata, Acteocina
1917 subtornatilis, Acteon
1917 sulculorum, Atys

Pilsbry, H. A. & Olsson, A. A.

1941 puruha, Acteocina

Richards, H. G.

1947 cederstromi, Acteocina
1947 chowanensis, Acteocina

Richards, H. G. & Harbison, A.

1944 kirkwoodiana, Acteocina

Stoliczka, F.

1868 gabbiana, Bullaea

Whittfield, R. P.

1892 forbesiana, Actaeon
1892 gabbana, Actaeon
1892 subovoides, Actaeon
Acknowledgements

We are deeply grateful to Francisco Borrero and Paul Callomon (ANSP) for helping with images; to Gary Rosenberg (ANSP) for helping with nomenclature; to John Sime (ANSP) for helping with curatorial matters; to Cathy Buckwalter and Alexandra Capone (ANSP) for helping in tracking down some of the old literature; and to Paul Callomon (ANSP), Alexander Nützel (Bayerische Staatssammlung für Paläontologie und Geologie, Germany) and Luiz R. L. Simone (Museu de Zoologia da Universidade de São Paulo, Brazil) for the helpful comments that greatly improved this article. The comprehensive coverage of crucial literature associated with this study was only possible due to initiatives facilitating online open-access to older scientific works, most notably the Biodiversity Heritage Library and the Internet Archive projects. This work was partly supported by a doctoral grant from CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico, Brazil) to R.B.S. (proc. #245575/2012-0) and a post-doc grant from CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, Brazil) to C.M.C. (proc. #8739/13-7).

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