

CATALOG OF PHYSIDAE

Scope of the catalog is nominal taxa of living Physidae. Names of collectors have been completed or supplied, and dates when possible. Location of type specimens, type catalog, subsequent illustration of type, and discussion of type locality have been cited if available. The catalog is not, however, a guide to whether a given name may be preoccupied: the many Bulinidae described originally as *Physa* are excluded, and practically all fossil Physidae.

When possible, names have been placed in historical context by allocating them to an expedition, voyage, or major collector. References cited will enable the tracing of an itinerary and other published results from the same source. General works of value in this connection are by Dance (1986), Goetzmann (1959, 1966), Goodman (1972), Meisel (1924-1929), and Rice (1986). Discovering the whereabouts of a given personal collection is aided by the summaries by Dance (1986) and Sherborn (1940).

Museum Collections

Museums holding types of living Physidae have been listed below, with reference to relevant type catalogs. Additionally, some historic material in BMNH is listed. In only a few cases (BMNH, CAS, MACN, MCZ, SMNH) have all types been examined; otherwise they are cited from examination of some of the types, or more often from published literature. Many listings indicate merely that the types might be in the institution concerned. "Original material" herein means specimens that are the basis for a published name thought to be a *nomen nudum*. Invaluable guides to catalogs of types are by Kabat & Boss (1992, 1997).

Abbreviations

AMNH. New York, New York. American Museum of Natural History.

ANSP. Philadelphia, Pennsylvania. Academy of Natural Sciences of Philadelphia.
 BMNH. London, England. Natural History Museum.
 CAS. San Francisco, California. California Academy of Sciences.
 CM. Pittsburgh, Pennsylvania. Carnegie Museum of Natural History.
 CMN. Ottawa, Ontario, Canada. Canadian Museum of Nature.
 FMNH. Chicago, Illinois. Field Museum of Natural History.
 HJ. Jerusalem, Israel. Hebrew University of Jerusalem Museum.
 INBio. Santo Domingo de Heredia, Costa Rica. Instituto Nacional de Biodiversidad.
 IRSNB. Brussels, Belgium. Institut Royal des Sciences Naturelles de Belgique.
 LS. London, England. Linnean Society.
 MACN. Buenos Aires, Argentina. Museo Argentino de Ciencias Naturales "Bernardino Rivadavia."
 MCN. Porto Alegre, Brasil. Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul.
 MCZ. Cambridge, Massachusetts. Museum of Comparative Zoology, Harvard University.
 MHNG. Geneva, Switzerland. Muséum d'Histoire Naturelle de Genève.
 MHNP. Paris, France. Muséum National d'Histoire Naturelle.
 MHNT. Toulouse, France. Muséum d'Histoire Naturelle.
 MLP. La Plata, Argentina. Museo La Plata.
 MNHNC. Santiago, Chile. Museo Nacional de Historia Natural.
 MNS. Stuttgart, Germany. Staatliches Museum für Naturkunde.
 MSNG. Genoa, Italy. Museo Civico di Storia Naturale "Giacomo Doria."
 MTK. Dresden, Germany. Staatliches Museum für Tierkunde.
 MZSP. São Paulo, Brasil. Museu de Zoologia, Universidade de São Paulo.

- MZUF. Florence, Italy. Museo Zoologica "La Specola," Università di Firenze.
- NMW. Vienna, Austria. Naturhistorisches Museum Wien.
- PRI. Ithaca, New York. Paleontological Research Institution.
- RBCM. Victoria, British Columbia, Canada. Royal British Columbia Museum.
- SDMNH. San Diego, California. San Diego Museum of Natural History.
- SMF. Frankfurt, Germany. Senckenberg Museum.
- SMNH. Stockholm, Sweden. Swedish Museum of Natural History.
- UCM. Boulder, Colorado. University of Colorado Museum.
- UCR. San José, Costa Rica. Museo de Zoología, Universidad de Costa Rica.
- UMMZ. Ann Arbor, Michigan. University of Michigan Museum of Zoology.
- USNM. Washington, D. C. U.S. National Museum of Natural History.
- UTEP. El Paso, Texas. University of Texas at El Paso.
- ZIBM. Mexico, D. F. Departamento de Zoología, Instituto de Biología, Universidad Nacional Autónoma de México.
- ZIP. St. Petersburg, Russia. Zoological Institute, Academy of Sciences.
- ZMB. Berlin, Germany. Zoologisches Museum, Humboldt-Universität.
- ZMH. Hamburg, Germany. Zoologisches Staatsinstitut und Zoologisches Museum.
- ZMUC. Copenhagen, Denmark. Zoologisk Museum, University of Copenhagen.
- ZMZ. Zürich, Switzerland. Zoologisches Museum, Universität Zürich.
- ingtoni*, and *lordi utahensis*, all by Clench; *+humboldtiana* and *skinneri* Taylor.
- Paratypes: *elegans* Clench & Aguayo, 1932.
- Includes: **Kent Scientific Museum**; holotypes: *deformis* and *parkeri*, both by Currier.
- Includes: **University of Wisconsin** collection (Franzen, D. S. 1957. Types of mollusks described by F. C. Baker, Part II, University of Wisconsin. Nautilus 71:30-35).
Holotypes: *bayfieldensis*, *chetekensis*, *laphami*, *obruissoides*, all by Baker, 1928.
- Includes: **O. A. Crandall** collection; holotypes: *heterostropha alba*, *elliptica minor*, *rhomboidea*, *walkeri*, all by Crandall, 1901.
- Includes: **James Lewis** collection; holotype: *elongatina* Lewis, 1855.
- Includes: **Bryant Walker** collection (Walker, B. 1918. A synopsis of the classification of the fresh-water Mollusca of North America, north of Mexico, and a catalogue of the more recently described species, with notes. Misc. Publ. Univ. Mich. Mus. Zool. 6:1-213).
Holotypes: *ancillaria crassa* and *magnalacustris* Walker, 1901; paratypes *cornea* Preston, 1907.
- Berlin, Germany. Zoologisches Museum, Humboldt-Universität (ZMB) (Kiliass, R. 1961. Die Typen und Typoide der Mollusken-Sammlung des Zoologischen Museums in Berlin. Mitt. Zool. Mus. Berlin 37:159-167).
Holotypes (including lectotypes): *seychellana* and *venezuelensis* Martens; *?polakowskii* Clessin, 1886.
- Paratypes: *balteata* Preston, 1907; *mosambiquensis* Clessin, 1886; *obtusa* Clessin, 1885; *seychellana* Martens, 1869, *venezuelensis* Martens, 1860.

Museums

(Listed alphabetically by city)

- Ann Arbor, Michigan. University of Michigan Museum of Zoology (UMMZ).
Holotypes: *pomilia ariomus*, *barberi*, *botimeri*, *goodrichi*, *pomilia hendersoni*, *johsoni*, *michiganensis*, *rem-*

Original material: *margaritacea* Martens, 1873.

Includes: collections in Mexico by **F. Deppe and C. A. Uhde** (Martens, E. von. 1865. Ueber die mexikanischen Binnen-Conchylien aus den Sammlungen von Deppe und Uhde im Berliner Museum. Malak. Blätt. 12:1-78).

Holotypes: *mexicana* vars. *minima*, *minor*, *parva*, all by Martens, 1865.

Original material: *conspicua* and *ventricosa*, both by "Uhde" Martens, 1865; *mexicana ovalis* "Wiegmann" Martens, 1865.

Includes: collections by **Arthur and Aurel Krause**, Chukotka, eastern Siberia, and Alaska, 1881 (Krause, A. 1883. Über einige Land-schnecken von der Tschuktschen-halbinsel und aus dem südöstlichen Alaska. Sitz.-Ber. Ges. naturforsch. Freunde Berlin 1883:31-37). Syntypes: *picta* Krause, 1883.

Includes: material described by Martens in the **Biologia Centrali-Americana** (1890-1901).

Holotypes (including lectotypes): *fuliginea hoffmanni*, *impluviata laeta*, *fuliginea pliculosa*, *mexicana parva*, *princeps pallens*.

Paratypes: *fuliginea hoffmanni*, *impluviata laeta*, *princeps pallens*, *fuliginea pliculosa*.

Includes: **Friedrich Paetel** collection (Paetel, F. 1888-1890 [1887-1891]. Catalog der Conchylien-Sammlung..., ed. 4. Paetel, Berlin: 3 vols. [Dated from reviews in J. Conchyl. 35-39. See also review in Occ. Pap. Moll. 1:212]).

Original material: *aequata*, *bernardii*, *etruricus*, *hartwigi*, *acuta minutata*, all *nomina nuda* by Paetel, 1889.

Bordeaux, France. Musée d'Histoire Naturelle. May have original material of *nomina*

nuda proposed by Gassies, 1867 (Dance, 1986:212); *acuta* vars. *acutior* and *minor*.

Boulder, Colorado. University of Colorado Museum (UCM) (Wu, S.-K., & N. E. Brandauer. 1982. Type specimens of Recent Mollusca in the University of Colorado Museum. Nat. Hist. Invent. Colo. 7:1-47).

Paratypes: *columbiana* Hemphill, 1890; *costata* Newcomb, 1861; *mega-lochlamys* Taylor, 1988.

Brussels, Belgium. Institut Royal des Sciences Naturelles de Belgique (IRSNB).

Holotypes: *fontinalis aplexoides* Colbeau, 1868; *fontinalis curta* Van den Broeck, 1869; *hypnorum minor* De Malzine, 1867; *hypnorum rubra* van den Broeck, 1871.

Buenos Aires, Argentina. Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" (MACN).

Syntypes: *aspii* and *loosii* Holmberg, 1909.

Cambridge, Massachusetts. Museum of Comparative Zoology, Harvard University (MCZ) (Johnson, R. I. 1949. Jesse Wedgwood Mighels with a bibliography and a catalogue of his species. Occ. Pap. Moll. 1: 213-231. Johnson, R. I. 1964. The recent Mollusca of Augustus Addison Gould. Bull. U.S. Natl. Mus. 239:1-182. Johnson, R. I. 1996. Types of land and freshwater mollusks from the Hawaiian Islands in the Museum of Comparative Zoology. Bull. Mus. Comp. Zool. 155(4):159-214).

Holotypes (including lectotypes): *bermudezi* Aguayo, 1935; *elata* Gould, 1853; *elegans* Clench & Aguayo, 1932; *fragilis* Mighels, 1842; *gouldi* Clench, 1935; *plena* Clench, 1930; *salina* Clench, 1930; *spelunca* Turner & Clench, 1974; *vernalis* Taylor & Jokinen, 1985.

Paratypes: *nodulosa albina* Biese, 1949; *ambigua* Pease, 1870; *pomilia ariomus* Clench, 1925; *aurantia* Carpenter, 1857; *balteata* Preston, 1907; *berlandierianus* Binney, 1865; *billingsi* Heron, 1880; *bottimeri* Clench, 1924; *caliban* Vanatta, 1911; *cisternina* Morelet, 1851; *compacta* Pease, 1870; *costata* Newcomb, 1861; *ancillaria crassa* Walker, 1901; *cubensis* Pfeiffer, 1839; *elata* Gould, 1853; *elegans* Clench & Aguayo, 1932; *fragilis* Mighels, 1842; *gabbi* Tryon, 1863; *goodrichi* Clench, 1926; *grijalvae* Taylor *sp.n.*; *hawni* Lea, 1864; *pomilia hendersoni* Clench, 1925; *hordacea* Lea, 1864; *humerosa* Gould, 1855; *humerosa interioris* Pilsbry, 1932; *jalis-coensis* Taylor *sp.n.*; *jamaicensis* C. B. Adams, 1851; *johnsoni* Clench, 1926; *marci* F. C. Baker, 1924; *michiganensis* Clench, 1926; *microstriata* Chamberlin & Berry, 1930; *nodulosa* Biese, 1949; *oneida* F. C. Baker, 1919; *papaveroi* Leme, 1966; *parkeri* Currier, 1881; *plena* Clench, 1930; *plicata* De Kay, 1843; *remingtoni* Clench, 1930; *salina* Clench, 1930; *showalteri* Lea, 1864; *skinneri* Taylor, 1954; *spelunca* Turner & Clench, 1974; *triticea* Lea, 1856; *tryoni* Currier, 1867; *lordi utahensis* Clench, 1925; *venustula* Gould, 1847; *walkeri* Crandall, 1901.

Includes: **C. B. Adams** collection (Johnson, R. I., & K. J. Boss. 1972. The fresh-water, brackish, and non-Jamaican land mollusks described by C. B. Adams. Occ. Pap. Moll. 3:193-233). Lectotype: *jamaicensis* C. B. Adams, 1851.

Includes: material from **U.S.-Mexican Boundary Survey, 1849-1852**; holotype and paratypes: *virgata* Gould, 1855. Goetzmann, 1959:153; Meisel, 3:99.

Chicago, Illinois. Field Museum of Natural History (FMNH).

Includes: **University of Utah** collection (Roscoe, E. J. 1963. Primary type specimens in the University of Utah molluscan collection. Sterkiana 11:51-52).

Holotype and paratypes: *microstriata* Chamberlin & Berry, 1930.

Paratypes: *salina* Clench, 1930.

Copenhagen, Denmark. Zoologisk Museum, University of Copenhagen (ZMUC).

Holotypes: *bullata*, *gelatinus*, *turritus*, all by Müller, 1774.

Includes: collection of **King Christian Frederick** (Beck, H. H. 1837 [-1838]. Index molluscorum praesentis aevi musei Principis Augustissimi Christiani Frederici. Hafniae: 124 p. [For collation and dates see Kennard & Woodward, 1926:364]).

Original material: *abbreviata*, *fontinalis* vars. *canadensis*, *obtusata*, *producta*, and *subacuta*; *crassulus* vars. *minor* and *typica*; *acutus* vars. *minuta* and *normalis*; *hypnorum* vars. *normalis* and *rhenanus*; *maugeriae*, *medianus*, *rivalis* vars. *antillarum* and *brasiliana*, *suturalis*, *ventricosior*, all by Beck.

Douai, France. Muséum de Douai (Potiez, V. L. V., & A. L. G. Michaud. 1838. Galerie des mollusques, ou catalogue...du Muséum de Douai. Baillièrre, Paris, 1:1-560). Dance (1986:222) suggested the collection described by Potiez & Michaud may still be here.

Holotypes: *bullata*, *nana*, *oblonga*, *rivalis*.

Dresden, Germany. Staatliches Museum für Tierkunde (MTK).

Original material: *panamensis* and *peruviensis*, both by Anton, 1838.

El Paso, Texas. University of Texas at El Paso (UTEP).

- No types of Physidae, but contains useful local records.
- Florence, Italy. Museo Zoologica "La Specola," Università di Firenze (MZUF).
Holotype: *acuta brevispira* Paulucci, 1882. Dance, 1986:221.
- Frankfort, Germany. Senckenberg Museum (SMF).
Types destroyed in 1939-45 war: *burriana*, *acuta fusca* and *septentrionalis* Kobelt, 1880; *antonii*, *brasiliensis*, *buschi*, *charpentieri*, *dalmatina*, *hypnorum fasciata*, *panamensis* and *philippii* Küster; *mexicana*, *nitens*, and *solida* Philippi, 1841; *acuta var. thermalis* Boettger, 1913.
- Geneva, Switzerland. Muséum d'Histoire Naturelle de Genève (MHNG). See Cailliez, J. C. 1996. Notice sur les collections malacologiques du Muséum d'Histoire Naturelle de Genève. Muséum d'Histoire Naturelle, Genève: 50 p.
Includes: **Lamarck** collection (Mermod, G. 1952. Les types de la Collection Lamarck au Muséum de Genève, mollusques vivants, III. Rev. Suisse Zool. 59:23-97). Holotype: *subopaca* Lamarck, 1822.
Includes: **J.-R. Bourguignat** collection; holotypes: *acutespira*, *letourneuxi*, *lhotellerii*, *acuta minor*, *taslei*, all by Bourguignat.
- Genoa, Italy. Museo Civico di Storia Naturale "Giacomo Doria" (MSNG).
Holotype: *pisana* Issel, 1866.
- Hamburg, Germany. Zoologisches Staatsinstitut und Zoologisches Museum (ZMH).
Types destroyed in 1939-45 war: *berendti*, *mexicana coniformis*, *mexicana minor*, *nitens minor*, all by Strebel, 1874.
- Ithaca, New York. Paleontological Research Institution (PRI).
Includes: **Wesley Newcomb** collection (Clarke, A. H. 1960. Catalogue and illustrations of mollusks described by Wesley Newcomb, with a biographical resumé. Bull. Amer. Paleont. 41(188):131-160). Lectotype: *costata* Newcomb, 1861.
- Jerusalem, Israel. Hebrew University of Jerusalem Museum (HUJ).
Includes: **G. S. Coen** collection (Coen, G. S. 1945. Catalogo dei gasteropodi polmonati della collezione Coen. Script. Var. Pontif. Acad. Sci. 3:1-99). Perhaps includes original material on which were based the following names, all nude, ascribed to Monterosato: *Aplexa hypnorum vars. cornea*, *gratiosa*, *pulchella*, *Physa acuta vars. botanica*, *brevispira thermalis*, *brevispira vinacea*, *nostra*, *panormitana*, *P. californica*. In addition in the catalog there is the nude name *Aplexa hypnorum rubra* "Taylor."
- La Plata, Argentina. Museo La Plata (MLP).
No types of Physidae, but useful local records.
- Lausanne, Switzerland. Zoological Museum.
Holotype: *hypnorum major* Charpentier, 1837. Dance, 1986:207.
- London, England. Linnean Society (LS).
Includes: Collection of **Carolus Linnaeus** (Dance, S. P. 1967. Report on the Linnaean shell collection. Proc. Linn. Soc. London 178:1-24. Hanley, S. 1855. Ipsa Linnaei Conchylia. London: 556 p.).
Holotypes of *fontinalis* and *hypnorum* Linnaeus, 1758, have not survived.
- London, England. Natural History Museum (BMNH).
Holotypes: *cupreonitens* Cockerell, 1889.

Syntypes: *acuminata*, *amygdalus*, *subrotunda* and *ventricosa* Sowerby II, 1873; *balteata* and *cornea* Preston, 1907; *columbiana* Hemphill, 1890; *polaris* Westerlund, 1876.

Paratypes: *ancillaria crassa* Walker, 1901; *caliban* Vanatta, 1911; *elata* Gould, 1853; *nodulosa* and *nodulosa albina* Biese, 1949; *triticea* Lea, 1856; *virginea* Gould, 1847; *walkeri* Crandall, 1901; *ashmuni*, *chippevarum*, *grijalvae*, *jaliscoensis*, *petenensis*, *polita*, *sanctijohannis* spp.nn.

Includes: **Hugh Cuming** collection. See Clench, W. J. 1945. Some notes on the life and explorations of Hugh Cuming. Occ. Pap. Moll. 1(3):17-28. Dance, 1986:110-131.

Holotypes and syntypes: *peruviana* Gray, 1828; *salleana* Dunker, 1853; *vinosa* Gould, 1847.

Paratypes: *humerosa*, *virgata* Gould, 1855.

Parts of original sample: *margaritacea* "Shuttleworth" Martens, 1873; *obtusa* Clessin, 1885; *nitidula* Clessin, 1886.

Includes: collections by **Arthur Morelet, Central America, 1847**. Syntypes: *cisternina*, *fuliginea*, *impluviata* Morelet.

See the account of his explorations: Morelet, P. A. 1857. Voyage dans l'Amérique Centrale, l'île de Cuba, et le Yucatan. Paris: 2 vols. Also holotypes of *nicaraguana* Morelet and *lacustris* Clessin, 1886; from Morelet collection, but not collected by Morelet. On disposition of his collection, see Fulton, H. C. 1920. On type-specimens of the Morelet collection. Proc. Malac. Soc. London 14:4.

Includes: South American collection by **Alcide d'Orbigny, 1826-1833** (Gray, J. E. 1854. List of the shells of South America in the collection of the

British Museum, collected and described by M. Alcide d'Orbigny, in the "Voyage dans l'Amérique Méridionale." British Museum, London: 89 p.).

The Physidae that might be expected here seem not to have survived, not being listed by Gray: *abbreviata* Beck, 1838; *rivalis* var. *minor* d'Orbigny, 1837.

Includes: collections in Canada by **J. Richardson** (Sowerby, J. De C. 1836. Mollusca. In J. Richardson, Fauna Boreali-Americana, 3:315-316. London). Probable part of original sample: *canadensis* Beck, 1838.

Includes: collections by **H.M.S. Sulphur, 1836**, Commander E. Belcher, Surgeon R. B. Hinds. No types of Physidae, but one lot collected by Hinds at Guayaquil, Ecuador, not recorded by Carpenter (1857b). Rice, 1986:140.

Includes: collections by **Sir George Simpson, Hudson's Bay Company, 1841**. Specimens obtained by Simpson were given to Lady Katherine Douglas, who passed at least some to BMNH. Thence part of the freshwater material was sent to Isaac Lea; holotypes of species he described are in USNM (*q.v.*), with other parts of the samples in BMNH: *hordacea* and *venusta* Lea, 1864.

See Simpson, G. 1847. Narrative of a journey round the world, during the years 1841 and 1842. London, 2 vols.

Includes: collections by **H.M.S. Herald, 1845-1851**. No types, but Physidae from Rio de Janeiro, Brasil. Rice, 1986:85.

See Seemann, B. 1853. Narrative of the voyage of H.M.S. Herald during the years 1845-51, under the command of Captain Henry Kellett, R.N., C.B., being a circumnavigation of the globe and

- three cruises to the Arctic regions in search of Sir John Franklin. London, 2 vols.
- Includes: collections by **H.M.S. Rattlesnake, 1846-1850**. No types, but Physidae from Rio de Janeiro, Brasil. Rice, 1986:124.
- See MacGillivray, J. 1852. Narrative of the voyage of H.M.S. Rattlesnake commanded by the late Captain Owen Stanley, R.N., F.R.S. etc. during the years 1846-1850. London, 2 vols. More useful for details is: MacGillivray, J. 1846-1850. Voyage of H.M.S. Rattlesnake. Catalogue of Radiata and Mollusca. MS, 61 p., in Zoology Library of Natural History Museum, London.
- Includes: **Frederick Reigen** (Mazatlan) collection (Carpenter, P. P. 1857. Catalogue of the collection of Mazatlan shells, in the British Museum. British Museum (Natural History), London: 552 p.).
- Syntypes: *aurantia* Carpenter, 1857.
- Includes: collection by **British North American Boundary Commission, 1858-1862**; syntypes: *lordi* Baird, 1863.
- See Lord, J. K. 1866. The naturalist in Vancouver Island and British Columbia. London, 2 vols. More valuable for locality information is the reexamination by Carpenter of the collections (Carpenter, 1864:603-607).
- Includes: collection of **F. D. Godman, Biologia Centrali-Americana**. Some of the material was evidently used by Martens in the Biologia, but no type material from this source is in BMNH.
- Mexico, D. F. Departamento de Zoología, Instituto de Biología, Universidad Nacional Autónoma de México (ZIBM).
- Paratypes: *grijalvae*, *jaliscoensis*, *polita* spp.nm.
- New York, New York. American Museum of Natural History (AMNH).
- Includes: **John C. Jay** collection (Jay, J. C. 1850. A catalogue of the shells...contained in the collection of John C. Jay, ed. 4. R. Craighead, New York: 459 p.).
- Original material: *ventricosa* "Guilding" Jay, 1850.
- Ottawa, Ontario, Canada. Canadian Museum of Nature (formerly National Museum of Canada) (CMN) (Smith, M. F. I. 1981. Type specimens of molluscs in the National Museum of Natural Sciences, National Museums of Canada, Ottawa, Canada. Publ. Zool. Canada Natl. Mus. Nat. Sci. 15:1-36).
- Holotypes: *jennessi atearni* Clarke, 1973; *wrighti* Te & Clarke, 1985.
- Paratypes: *jennessi atearni* Clarke, 1973; *bottimeri* Clench, 1924; *gouldi* Clench, 1935; *hordacea* Lea, 1864; *johnsoni* Clench, 1926; *plena* Clench, 1926.
- Includes: collections by **Canadian Arctic Expedition, 1913-1918**; holotype and paratypes: *jennessi* Dall, 1919.
- Paris, France. Muséum National d'Histoire Naturelle (MHNP).
- Holotypes: *borbonica* Férussac, 1827; *carolita* Jousseaume, 1887; *castanea* vars. *globosa* and *major*; *porteri*, *gibbosa rubella*, and *waterloti* Germain; *dilucida*, *fontinalis major* and *rufula*, *gallica*, *hypnorum* vars. *intermedia* and *rufula*, *acuta major*, *massoti*, *salteli*, *thermalis*, all by Locard; *gualbertoi* Cousin, 1887.
- Paratypes: *impluviata* and *spiculata*, both by Morelet, 1849.
- Includes: species of **Mission Scientifique au Mexique et dans l'Amérique Centrale**, Rech. zool. 7 (1870-1902) (Chevallier, H. 1965. Les mollusques de l'Expédition du Mexique. J. Conchyl. 105:4-39).

Holotypes: *nitens acutalis* and *gigantea*, *aurantia bocourti*, *glandiformis*, and *gracilenta mexicana conoidea* and *tolucensis*, all by Fischer & Crosse, 1886.

Includes: Collections by **Eugène Simon, Venezuela, 1887-1888** (Jousseau, F. 1889. Voyage de M. Eugène Simon au Venezuela (Décembre 1887-Avril 1888); Mollusques. Mém. Soc. Zool. France 2:232-259). Holotype: *simoni*.

Includes: Collections by **Henri Gadeau de Kerville, Syria, 1908** (Germain, L. 1921-1922. Mollusques terrestres et fluviatiles de Syrie. Voyages Zoologiques d'Henri Gadeau de Kerville en Syrie (Avril-Juin 1908), 2-3).

Holotype: *syriaca*.

Philadelphia, Pennsylvania. Academy of Natural Sciences of Philadelphia (ANSP) (Baker, H. B. 1964. Type land snails in the Academy of Natural Sciences of Philadelphia, Part III, Limnophile and Thalassophile Pulmonata, Part IV, Land and fresh-water Prosobranchia. Proc. Acad. Nat. Sci. Phila. 116:149-193).

Holotypes (including lectotypes): *ancillaria* Say, 1825; *byersi* Crabb, 1927; *caliban* Vanatta, 1911; *diaphana*, *distinguenda*, *gabbi*, *lata*, *malleata*, *oleacea*, *politissima*, *primeana* Tryon; *globosa*, *integra*, *microstoma*, and *osculans* Haldeman; *?heterostropha* Say, 1817; *humerosa interioris*, *heterostropha peninsulae*, *osculans rhyssa*, *solidissima*, and *zionis* Pilsbry; *princeps* Phillips, 1846; *fontinalis succinea* Hesse, 1913; *tryoni* Currier, 1867; *lordi zomos* Baily & Baily, 1952.

Paratypes: *columbiana* Hemphill, 1890; *cornea* Preston, 1907; *elegans* Clench & Aguayo, 1932; *humerosa* Gould, 1855.

Original material: *purpurostoma ventricosa* Tate, 1870; *floridana* "Pilsbry MS" Te, 1980.

Includes: collection of **Major S. H. Long's Expedition to the Rocky Mountains, 1819-1820**; holotypes: *elongata* and *gyrina*, both by Say, 1821.

See James, E. 1905. Account of an expedition from Pittsburgh to the Rocky Mountains...in the years 1819, 1820...under the command of Maj. S. H. Long. Clark, Cleveland: 4 vols. Meisel, 2:394.

Includes: material from **Wyeth's Expedition across the Rocky Mountains, 1841**; holotype: *concolor* Haldeman, 1841. Holotype of *nuttalli* Lea, 1864, from this same source is in USNM, *q.v.* for references.

Includes: material from **U.S.-Mexican Boundary Survey, 1849-1852**; holotype: *virgata* Gould, 1855. Goetzmann, 1959:153; Meisel, 3:99.

Includes: material from **California Geological Survey, 1860-1867**, J. D. Whitney, State Geologist. The specimens were collected by the Paleontologist of the Survey, *W. M. Gabb*, who on account of personal antipathy did not turn the specimens over to *J. G. Cooper*, Zoologist of the Survey, but instead sent them to Tryon at ANSP. The result is the following list of holotypes, all of synonyms by Tryon: *coniformis*, *cooperi*, *occidentalis*, *propinqua*, and *sparsestriata*. Goetzmann, 1966:357 ff. Meisel, 3:158.

Includes: collection of **ANSP Expedition to Mexico, 1890**; holotype: *osculans patzcuarensis* Pilsbry, 1891.

For narrative of the expedition see Baker, F. C. 1895. A naturalist in Mexico. Oliphant, Chicago: 145 p.

Pittsburgh, Pennsylvania. Carnegie Museum of Natural History (CM). (Johnson, R. I. 1977. The Carnegie Museum, its collections and curators of mollusks. Occ. Pap. Moll. 4(58):242-244).

- Holotype: *hypnorum pilsbryi* Brooks, 1935.
Original material: *aplectoides* Sterki, 1900.
- Porto Alegre, Brasil. Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul (MCN). No types of Physidae, but contains useful local material.
- Rome, Italy. Museum of Zoology.
Original material: *foeniculum*, *fusca*, *heterostropha* vars. *gibbosa*, *minor*; and *nigricans callosa*; *mascotica*, *minima*, *thiarella*, *nomina nuda*; all by Rigacci & Rigacci, 1866. Dance, 1986:159.
- St. Petersburg, Russia. Zoological Institute, Academy of Sciences (ZIP). Holotypes: *amurensis*, *aphallica*, *arachleica*, *ampullacea chukchensis*, *hankensis*, *jarochnovitschae*, *khbarovskiensis*, *kuvaevi*, *moskvichevae*, *orientalis*, *streletzkajae*, *tei*, and *tuwaensis* by Starobogatov and co-authors; *hypnorum depressior* Middendorff, 1851; *kultukiana* Dybowski, 1913.
- San Diego, California. San Diego Museum of Natural History (SDMNH).
No types of Physidae, but contains useful local records.
- San Francisco, California. California Academy of Sciences (CAS).
Holotypes: *ashmuni*, *chippevarum*, *grijalvae*, *jaliscoensis*, *megalochlamys moreleti*, *natricina*, *pacifica*, *petenensis*, *polita*, *sanctijohannis*, *sinaloae*, *sinusdulcensis*, *sonomae*, *spathidophallus*, *tempisquensis* Taylor.
Paratypes: *microstriata* Chamberlin & Berry, 1930; *ashmuni*, *chippevarum*, *grijalvae*, *jaliscoensis*, *petenensis*, *polita*, *sanctijohannis* Taylor.
Includes: **Henry Hemphill** collection (Hemphill, H. 1890. Catalogue of North American shells collected and for sale by Henry Hemphill. San Diego, California: 1-21).
Holotype and paratypes: *hemphilli* sp.n.
Syntypes: *columbiana* and *heterostropha penicillata*, both by Hemphill, 1890.
- San José, Costa Rica. Universidad de Costa Rica, Museo de Zoología (UCR).
Paratypes: *pacifica*, *sanctijohannis* spp.nn.
- Santiago, Chile. Museo Nacional de Historia Natural (MNHNC).
Holotypes: *nodulosa* and var. *albina* Biese, 1949.
- Santo Domingo de Heredia, Costa Rica. Instituto Nacional de Biodiversidad (INBio).
Paratypes: *pacifica*, *sanctijohannis*, *sinusdulcensis*, *tempisquensis* spp.nn.
- São Paulo, Brasil. Museu de Zoologia, Universidade de São Paulo (MZSP).
Holotype: *papaveroi* Leme, 1966.
- Stockholm, Sweden. Swedish Museum of Natural History (SMNH).
Includes: collection of **C. A. Westerlund**; syntypes: *achaiae*, *fontinalis bulla grandis*, *hypnorum minor*, *fontinalis normalis*, *semiglobosa*, *fontinalis typica*, all by Westerlund.
Includes: collection of **Swedish Novaya Zemlya-Yenissei Expedition, 1875**; syntypes: *hypnorum polaris* and *sibirica*, both by Westerlund, 1876.
See Stuxberg, A. J. 1877. Erinrangar från Svenska Expeditionerna till Novaja Semlja och Jenissej 1875 och 1876. Stockholm: 112 p.
- Stuttgart, Germany. Staatliches Museum für Naturkunde (MNS).
Includes **Stephan Clessin** collection; syntypes: *elongata arctica*, *chilensis*,

guadeloupensis, *küsteri*, *mediana*, *nitidula*, *obtusata*, *polakowskii*, *stolli*, all by Clessin.

Toulouse, France. Muséum d'Histoire Naturelle (MHNT).

Holotypes: *elliptica*, *mediana*, *perrisiana*, *rivularia*, all by Dupuy.

Original material: *thermalis* Astre, 1921. May also have original material of *nomina nuda* proposed by Gassies, 1867 (Dance, 1986:212): *acuta* vars. *acutior* and *minor*.

Victoria, B. C., Canada. Royal British Columbia Museum (RBCM). No types of Physidae, but contains useful local records.

Vienna, Austria. Naturhistorisches Museum Wien (NMW).

Holotype: *acuta* Draparnaud, 1805.

Washington, D. C. U.S. National Museum of Natural History (USNM) (Johnson, R. I. 1964. The recent Mollusca of Augustus Addison Gould. Bull. U.S. Natl. Mus. 239:1-182).

Holotypes (including lectotypes): *+harpa* Taylor, 1981; *marci* Baker, 1924; *sartlandinensis* Mozley, 1934; *smithi* Baker, 1919; *+wattsi* Arnold, 1910.

Paratypes: *balteata* Preston, 1907; *cupreonitens* Cockerell, 1889; *elata* Gould, 1853.

Includes: **F. C. Baker** collection; holotype: *latchfordi* Baker, 1928.

Includes: **J. L. Berlandier** collection; holotype: *berlandierianus* Binney, 1865.

See Geiser, S. W. 1948. In defense of Jean Louis Berlandier, in Naturalists of the Frontier, ed. 2. Southern Methodist Univ., Dallas: 30-54.

Includes: **J. G. Jeffreys** collection; holotypes: *fontinalis* vars. *albina*, *curta*, *inflata*, and *oblonga*, all by Jeffreys, 1862.

Includes: **Isaac Lea** collection; holotypes: *altonensis*, *aurea*, *blandi*, *brevispira*, *carltoni*, *crocata*, *elliptica*, *febigeri*, *forsheyi*, *halei*, *inflata*, *niagarensis*, *nicklini*, *saffordi*, *showalteri*, *tenuissima*, *troostensis*, *whitei*, all by Lea.

Paratypes: *saffordi* Lea, 1864; *whitei* Lea, 1864.

Includes: collection of **U.S. Exploring Expedition, 1838-1842**; holotypes: *venustula* and *virginea*, both by Gould, 1847. For summaries of the collections see Carpenter (1857:208-213, 1864:529-532); and for historical background and summary of itinerary Johnson (1964:5-16). Meisel, 2:650.

Includes: collections by **Sir George Simpson, Hudson's Bay Company, 1841**. Specimens obtained by Simpson were given to Lady Katherine Douglas, who passed some to BMNH. Some freshwater material was sent to Isaac Lea; holotypes of species he described are in USNM, with other parts of the samples in BMNH: *hordacea* and *venusta*, both by Lea, 1864.

Includes: material from **Wyeth's Expedition across the Rocky Mountains, 1841**; holotype: *nuttalli* Lea, 1864. Holotype of *concolor* Haldeman, 1841, from this same source is in ANSP.

For narrative of the expedition see Townsend, J. K. 1839. Narrative of a journey across the Rocky Mountains to the Columbia River, and a visit to the Sandwich Islands, Chili, etc., with a scientific appendix. Perkins, Philadelphia: 352 p. On Nuttall's collections see Graustein, J. E. 1967. Thomas Nuttall, naturalist; explorations in America, 1808-1841. Harvard Univ., Cambridge: 481 p. (esp. 308-309).

Collection of **U.S.-Mexican Boundary Survey, 1849-1852**; holotype: *virgata* Gould, 1855. This would be expected

in USNM, but is at ANSP, or BMNH, or MCZ, depending on whose type designation one prefers. Goetzmann, 1959:153; Meisel, 3:99.

Includes: collections of **U.S. War Dept. Pacific Railroad Surveys, 1853-1855**; holotypes: *bullata* and *humerosa* Gould, 1855; *grosvenori* Lea, 1864. Goetzmann, 1959:262; Meisel, 3:189.

Includes: material from **California Geological Survey, 1854-1856**, John B. Trask, State Geologist; holotypes: *striata*, *traskii*, *triticea*, all by Lea. Meisel, 3:158.

Includes: collections of **G. K. Warren's Explorations in Nebraska and Dacotah, 1857**; holotypes: *smithsoniana* and *warreniana* Lea, 1864. Goetzmann, 1959:412; Meisel, 3:262.

Includes: material from **Kansas Geological Survey, 1864**; holotypes: *anatina*, *hawni*, *parva*, all by Lea, 1864. Meisel, 3:323.

Includes: material from **Rocky Mountain Scientific Exploring Expedition, 1867-1868**, J. W. Powell; holotype: *wolfiana* Lea, 1869. Goetzmann, 1966:534 ff.

Zürich, Switzerland. Zoologisches Museum, Universität Zürich (ZMZ).

Holotypes: *tenerifae* and vars. *fuerteventurae*, *gomerana*, *grancanariae*, *palmaensis*, all by Mousson, 1872. Dance, 1986:220.

Location/existence of types unknown

In some cases it is probable that no type was ever designated. *Nomina nuda* are included even though they have no nomenclatural standing, for the possible tracing of original material on which the name is based.

Adams & Adams: *venetzi*, *nomen nudum*.

Astre: *fontinalis junior*; *ruscinonensis*, *nomen nudum*.

Babor & Novák: *hypnorum parva*, *nomen nudum*.

Baker: *oneida*.

Brown: *fluviatilis*.

Cockerell: *virgata alba*, *heterostropha* var. *heterostrophella* with forms *brevis* and *elongata*; *elliptica decollata*, *fontinalis flava*, *acuta minima*; *hypnorum cuprella*, *nomen nudum*.

Costa: *solidior*.

Crosse & Fischer: *boucardi*, *bullula*, *strebeli*, *tapanensis*, *tehuantepecensis*.

Da Costa: *adversus*.

De Kay: *cylindrica*, *glabra*, *obesa*, *plicata*. Dance, 1986:176.

Donovan: *bullaoides*.

Fagot: *acroxa*, *ataxiaca*, *saint-simonis*.

Fischer & Crosse: *mexicana* vars. *acutissima* and *plicata*; *cisternina* vars. *abbreviata*, *gracilis* and *minor*; *tapanensis guatemalensis*; *berendti intermedia*.

Gmelin: *marmorata*.

Guilding: *marmorata*.

Haldeman: *fontana*.

Lea: *hildrethiana*.

Lesson: *margarita*.

Lessona: *stabilei*.

Licherdopol: *fontinalis major*, *nomen nudum*.

Mamo: *melitensis*, *nomen nudum*.

Martens: *impluviata gracilior*.

Massot: *cornea*.

Maton & Rackett: *rivalis*.

Menke: *striata*, *subarata*.

Mirolli: *tonollii*.

Moquin-Tandon: *acuta* vars. *gibbosa*, *minor*, *subacuta*, *ventricosa*; *fontinalis* vars. *inflata*, *lepida*, *minor*; *hypnorum pulchella*.

Morelet: *spiculata*, *squalida*.

Morretes: *janeirensis*, *nomen nudum*.

Pallary: *subopaca minor*, *subopaca nilotica*.

Parreyss: *fontinalis amnica*, *nomen nudum*.

Razoumowsky: *pellucida*.

Sampson: *albofilata*.

Schlesch: *acuta bulla*, *acuta castanea*; *hypnorum rubra*, *nomen nudum*.

Servain: *alixiana*, *coronadoi*, *martorelli*, *taciti*. Sganzi: *borbonica*.

Sowerby I: *rivalis* [This specimen is also the holotype of *rivalis antillarum* Beck].

Sowerby II: *maugeriae*.

Tappan: *sayi*.

Taylor: *harryi*.

Tristram: *purpurostoma*.

Villa & Villa: *acuminata*, *nomen nudum*.

Catalog of Names in Physidae

- abbreviata* Beck, 1838, *Aplexa*. Index moll. musei Christiani Frederici: 116. “*Physa rivalis*, var. D’Orb! Rep. Argentin.” [Argentina]. The only two localities in Argentina cited by d’Orbigny were near the Río Batel [not traced], Corrientes; and in Patagonia, not far from the Río Negro [locality doubtful]. Original material in ZMUC?
Aplexinae incertae sedis.
- abbreviata* Fischer & Crosse, 1886, *Aplecta cisternina* var. Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):95, pl. 30, fig. 9. Vicinity of Mérida [20°58’N, 89°37’W], Yucatán, Mexico, *Arthur Morelet*, II-III-1847.
 ?<*Mayabina polita* sp.n.
- achaiiae* Westerlund, 1881, *Physa*. K. Svensk. Vetensk. Akad., Öfversigt af Förhandlingar 1881(4):61. Patras [Pátrai; 38°15’N, 21°44’E], Greece; received from the Ottoman consul *Conéménos*. Three syntypes SMNH 4 491; four Westerlund collection 12:25.
 <*Haitia acuta* (Draparnaud, 1805).
- achatina* Gmelin, 1791, *Helix*. Syst. Nat., ed. 13:3665. “Habitat —.” Based on Schröter, 1779, *Geschicht. Flussconch.*: 291, pl. 6, figs. 15a,b, from an unknown locality. Listed as “forma” of *Aplexa hypnorum* (Linnaeus) by Westerlund (1885, *Fauna Paläarct. Reg. Binnenconch.* 5:58).
 <*Aplexa hypnorum* (Linnaeus, 1758).
- acroxa* Fagot, 1883, *Physa*. Bull. Soc. Hist. Nat. Toulouse 17:223. “Nous n’avons trouvé encore que trois exemplaires de cette espèce: l’un dans un vivier de la commune d’Avignonet [Avignonet-de-Lauragais, 43°22’N, 1°48’E], quartier de Craman; l’autre dans un vivier de la commune de Villefranche-Lauragais [Villefranche-de-Lauragais, 43°24’N, 1°44’E], et le troisième dans une fontaine de la commune d’Odars [43°31’W, 1°36’E], tous en compagnie des *Physa subopaca* et *Mamoi*” [all Dépt. Haute Garonne, France].
 <*Haitia acuta* (Draparnaud, 1805).
- acuminata* “Parreyss” Villa & Villa, 1841, *Physa*. Disp. syst. conchyl. coll. Ant. et Jo. Bapt. Villa: 32. St. Thomas, U.S. Virgin Islands. *Nomen nudum*.
 <*Stenophysa marmorata* (Guilding, 1828).
- acuminata* “Gray” Sowerby II, 1873, *Physa*. Conch. Icon., *Physa*, sp. 23, pl. 3, fig. 23. St. Thomas, U.S. Virgin Islands. Five syntypes BMNH 41.4.28.233-237, including the specimen figured by Sowerby.
 <*Stenophysa marmorata* (Guilding, 1828).
- acuta* Draparnaud, 1805, *Physa*. Hist. nat. moll. terr. fluv. France: 55, pl. 3, figs. 10-11. Adensamer, 1937, *Blätt. Aquar.-Terrarienk.* 48:131, fig. 2. France, “dans la Garonne et les rivières qui s’y jettent.” Holotype NMW 1820/XXVI/45.
 =*Haitia acuta* (Draparnaud, 1805).
- acutalis* Fischer & Crosse, 1886, *Aplecta nitens* var. Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):88, pl. 39, figs. 2-2a. Cazonas [20°43’N, 97°19’W], Veracruz, Mexico, *Auguste Sallé*, 1832-1835. Holotype in MHNP (Chevallier, 1965:25).
 <*Mexinauta nitens* (Philippi, 1841).
- acutespira* “Bourguignat” Servain, 1880, *Physa*. Étude moll. rec. Espagne et Portugal: 139. France (no precise locality). *Nomen nudum*.
 <*Physa fontinalis* (Linnaeus, 1758).
- acutespira* “Bourguignat” Servain, 1882, *Physa*. Cat. gén. moll. viv. France: 194, 346. “Dans le ruisseau au pied de la colline de Privas,” Dépt. de l’Ardèche,

- France. Holotype perhaps in MHNG.
<*Physa fontinalis* (Linnaeus, 1758).
- acutior* Gassies, 1867, *Physa acuta* var. Actes Soc. Linn. Bordeaux 26:127. "Les près salés, à La Teste [-de-Buch, 44°38'N, 1°09'W], Le Teich, Audenge [44°41'N, 1°31'W], etc. Arès [44°46'N, 1°08'W] (*M. Durieu*), Andernos [Andernos-les-Bains, 44°44'N, 1°6'W] (*Gassies*)," Dépt. Gironde, France. *Nomen nudum*. Original material perhaps in Bordeaux or Toulouse museums.
<*Haitia acuta* (Draparnaud, 1805).
- acutissima* Fischer & Crosse, 1886, *Physa mexicana* var. Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):100. "Lac de Mexico," *i.e.*, the former lake in the Valley of Mexico, D. F., *Léon Méhédin*, 1864-1866. Holotype not in MHNP (Chevallier, 1965:26).
<*Haitia mexicana* (Philippi, 1841).
- adversus* Costa, 1778, *Turbo*. Hist. nat. test. Brit.: 96, pl. 5, fig. 6. "It is found in some of our rivers and stagnant waters; as in the Thames, where I have got it in different places, from Wandsworth to Windsor; in several ponds and stagnant waters about London, and in Middlesex; also in like places in Surrey, and in the river Wandle."
<*Physa fontinalis* (Linnaeus, 1758).
- aequata* "Parreyss" Paetel, 1889, *Physa*. Cat. Conch.-Samml., ed. 4, 2:403. North America. *Nomen nudum*. Original material in ZMB.
Physinae *incertae sedis*.
- Afrophysa* Starobogatov, 1967. Trudy Zool. Inst. ANSSSR 42:289, 295. Type species (by original designation): *Physa waterloti* Germain, 1911, <*Afrophysa brasiliensis* (Küster, 1844). As genus of Physinae.
Genus of Aplexinae, Stenophysini.
- Alampetis* Martens, 1898. Biol. Centr.-Amer., Moll.: 368. As subgenus of *Physa*. Type species (F. C. Baker & Cahn, 1931, Bull. Natl. Mus. Canada 67:61) *Physa osculans* Haldeman, 1841, an unrecognizable species. Not of Thomson, 1878 (Coleoptera).
Physinae *incertae sedis*.
- Alampetista* Zilch, 1956. Arch. Moll. 85:85. Substitute for *Alampetis* Martens. Type species (Zilch, 1959-1960, in O. H. Schindewolf, Handb. Paläozool., Gastropoda, 2, Euthyneura: 91) *Physa osculans* Haldeman, 1841, an unrecognizable species.
Physinae *incertae sedis*.
- alba* Cockerell, 1902, *Physa virgata* mut. J. Malac. 9:138. Salt River, Tempe [33°24'53"N, 111°54'31"W], Maricopa County, Arizona, *T. D. A. Cockerell*, 1902. No types designated?
<*Haitia mexicana* (Philippi, 1841).
- alba* Crandall, 1901, *Physa heterostropha* var. Nautilus 15:29. Cedar Lake, near Capachet, New York, *Albert Baily*. The name Capachet has not been traced; there is a Cedar Lake in Herkimer County [West Winfield 7.5' map], and another in St. Lawrence County [Edwards 7.5' map]. Holotype in UMMZ.
<*Haitia acuta* (Draparnaud, 1805).
- albescens* "Mörch" Westerlund, 1897, *Physa hypnorum*. Acta Soc. Fauna et Flora Fenn. 13(7):111. Denmark at Praestö, Fuirendal, and Sorö. In his text concerning *Aplexa hypnorum*, Mörch (Vidensk Medd. Naturhist. For. Kjöbenhavn 1863:308) distinguished two forms: α "*albescens*," for *Helix marmorata* Gmelin, 1791; and β "*gracilis, nitidissima, obscure-fulva*," for *Helix achatina* Gmelin, 1791. Proposal of a new formal name was not intended.
<*Aplexa hypnorum* (Linnaeus, 1758).
- albina* Biese, 1949, *Physa nodulosa* forma. Bol. Mus. Nac. Hist. Nat. 23:239. Río Elqui, Algarobito [not traced], Prov. Coquimbo, Chile. Holotype in MNHNC; 3 paratypes BMNH

- 1950.1.3.191-193; 3 paratypes MCZ 185 757.
<*Haitia venustula* (Gould, 1847).
- albina* Jeffreys, 1862, *Physa fontinalis* var. Brit. Conchol. 1:99. Birkenhead [53°24'N, 3°02'W], Cheshire, England, Webster. Holotype in USNM.
<*Physa fontinalis* (Linnaeus, 1758).
- albofilata* "Ancey" Sampson, 1894, *Physa*. Ann. Rept. Geol. Surv. Arkansas 1891(2):194. West Leatherwood Creek, Eureka Springs [36°24'04"N, 93°44'16"W], Carroll County, Arkansas. No type selected?
<*Physella gyrina* (Say, 1821).
- alixiana* Servain, 1887, *Physa*. Bull. Soc. Malac. France 4:247. Lac de Grand-Lieu [47°06'N, 1°40'E], Dépt. Loire-Atlantique, France.
<*Aplexa hypnorum* (Linnaeus, 1758).
- altonensis* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:114; 1867, J. Acad. Nat. Sci. Phila. 6:164, pl. 24, fig. 82. Alton [38°53'26"N, 90°11'03"W], Madison County, Illinois, Henry C. Lea. Holotype presumably in USNM.
<*Physella gyrina* (Say, 1821).
- ambigua* Pease, 1870, *Limnaea*. Amer. J. Conch. 6:6, pl. 3, fig. 5. Hawaii. Four paratypes MCZ 73 469.
<*Haitia mexicana* (Philippi, 1841).
- Amecanauta g.n.* Type species *Amecanauta jaliscoensis sp.n.* Genus of Aplexinae, Amecanautini.
- amnica* "Ziegler" Parreyss, 1849, *Physa fontinalis* var. Ber. Mitt. Freund. Naturwiss. Wien 6:100. Laxenburg [40°04'N, 16°21'E], Niederösterreich, Austria. *Nomen nudum*.
<*Physa fontinalis* (Linnaeus, 1758).
- Amplexa* "Fleming" T. Brown, 1844. Illustr. recent conch. Great Britain and Ireland: 31. Error for *Aplexa*.
- ampularia* "Say" Hayden, 1859, *Physa*. In G. K. Warren, U.S. 35th Congress, sess. 2, House Docs. v. 2-3, pt. 1-2, no. 2:724. Probably error for *ancillaria* Say.
<*Physella ancillaria* (Say, 1825).
- ampullacea* Gould, in Binney, 1865, *Physa*. Smithson. Misc. Coll. 7(2)(serial no. 143):79. Substitute for *P. bullata* Gould, 1855, not of Potiez & Michaud, 1838.
<*Physella gyrina* (Say, 1821).
- Amuraplexa* Starobogatov & Prozorova, 1989. Biull. Otdel Biol. Moskovsk. Obshch. Ispyt. Prirod. 94:64. Type species (by original designation) *Aplexa (Amuraplexa) amurensis* Starobogatov & Prozorova, 1989. As subgenus of *Aplexa*.
Genus of Aplexinae, Aplexini.
- amurensis* Starobogatov & Prozorova, 1989, *Aplexa (Amuraplexa)*. Biull. Otdel Biol. Moskovsk. Obshch. Ispyt. Prirod. 94:65, figs. 1,4; 2,4. Swales and marshes at the village of Konstantinovka [48°35'N, 135°27'E], Khabarovsk region, Russia, V. A. Dvoryadkina, 12-VI-1987. Holotype in ZIP.
Type species of *Amuraplexa* Starobogatov & Prozorova, 1989.
- amygdalus* Sowerby II, 1873, *Physa*. Conch. Icon., *Physa*, sp. 63, pl. 8, fig. 63. "Texas." Holotype BMNH 1996179.
<*Physella gyrina* (Say, 1821).
- anatina* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:115; 1867, J. Acad. Nat. Sci. Phila. 6:171, pl. 24, fig. 94. Northern tributary of Arkansas River, Kansas, Frederick Hawn, Kansas Geological Survey, 1864. Holotype and paratype USNM 172 317 (Hibbard & Taylor, 1960, Contr. Univ. Mich. Mus. Paleont. 16:116).
<*Haitia mexicana* (Philippi, 1841).
- ancillaria* Say, 1825, *Physa*. J. Acad. Nat. Sci. Phila. 5:124. Delaware River, near Easton [40°41'18"N, 75°13'16"W], Northampton County, Pennsylvania, Benjamin Say. Holotype ANSP 20 895a (H. B. Baker, 1964:154).
=*Physella ancillaria* (Say, 1825).
- antillarum* Beck, 1838, *Aplexa rivalis*. Index moll. mus. Christiani Frederici: 116.

- “*Limnea rivalis*. Sow. g. S. g. VII. 9. I. Gouadaloupe” [*Limnea rivalis* Sowerby I, 1822, Genera of recent and fossil shells, *Limnea*, fig. 9; Island of Guadeloupe].
<*Stenophysa marmorata* (Guilding, 1828).
- antonii* Küster, 1844, *Physa*. In Martini & Chemnitz, 1837-1918, Syst. Conch.-Cab., ed. 2, 47:12, pl. 2, figs. 6-8. “Peru.” Holotype presumably destroyed in SMF in 1939-45 war.
Aplexinae incertae sedis.
- aphallica* Starobogatov & Zatravkin, 1989, *Aplexa (Amuraplexa) moskvichevae*. Biull. Otd. Biol. Moskovsk. Obshch. Ispytat. Prirod. 94:66, fig. 1,7. Ditch in unsown rice fields at the village of Vladimiro-Petrovka [44°40’N, 132°06’E], Lake Khanka region of Maritime Region, Russia, *Y. I. Starobogatov*, 19-IX-1956. Holotype in ZIP.
<*Amuraplexa amurensis* (Starobogatov & Prozorova, 1989).
- Aplecta* Herrmannsen, 1846. Indic. gen. malac. 1:65. Emendation of *Aplexa* Fleming, 1820. Not of Guenée, 1838.
- aplectoides* Sterki, 1900, *Physa*. Ann. Rept. Ohio Acad. Sci. 8:36. *Nomen nudum*. No locality, but evidently from Ohio. Later Sterki (1907:381) specified two localities in Ohio: Portage County, *Streator*, and Tuscarawas County, *Sterki*. Original material in CM.
<*Laurentiphysa vernalis* (Taylor & Jokinen, 1985).
- #*Aplexa* Fleming, 1820. In D. Brewster, Edinburgh Encyclopedia 14:617.
Genus of Aplexinae, Aplexini.
- Aplexus* Gray, in W. Turton, 1840. Man. shells Brit. Isl., ed. 2: 255. Emendation of *Aplexa*.
- Aplexinae Starobogatov, 1967. Trudy Zool. Inst. ANSSSR 42:289. As subfamily for *Aplexa*, *Stenophysa*, and *Sibirenauta*.
- aplexoides* Colbeau, 1868, *Physa fontinalis* var. Ann. Soc. Malac. Belgique 3:102, pl. 2, fig. 11. Saint-Gilles [50°49’N, 4°20’E] near Brussels, Belgium, *Ernest van den Broeck*. Holotype in IRSNB.
<*Physa fontinalis* (Linnaeus, 1758).
- arachleica* Starobogatov & Prozorova, 1989, *Physa (Mediterraneophysa)*. Biull. Otd. Biol. Moskovsk. Obshch. Ispytat. Prirod. 94:72, figs. 3,4; 4,4. Lake Arakhlei [52°12’N, 112°52’E], Chitinsk District, Russia, *I. M. Shapovalova*, 19-VI-1978. Holotype in ZIP.
=*Physa arachleica* Starobogatov & Prozorova, 1989.
- Archiphysa* g.n. Type species *Archiphysa lordi* (Baird, 1863). Genus of Physinae, Physellini.
- arctica* Clessin, 1885, *Physa elongata* var. Syst. Conch.-Cab., ed. 2, 336:287, pl. 41, fig. 5. Hudson Bay, Canada. Types MNS.
<*Sibirenauta elongatus* (Say, 1821).
- arctistropa* “Cristofori & Jan” Beck, 1838, *Physa*. Index moll. mus. Christiani Frederici: 117. Earlier publication not traced; probably a label error for *Physa heterostropa* (Say, 1817).
<*Haitia acuta* (Draparnaud, 1805).
- ariomus* Clench, 1925, *Physa pomilia*. Occ. Pap. Mus. Zool. Univ. Mich. 161:2, pl. 1, fig. 2. Gastonburg [32°12’26”N, 87°26’15”W], Wilcox County, Alabama. Holotype UMMZ 32 231, 15 paratypes MCZ 55 658.
<*Haitia pomilia* (Conrad, 1834).
- ashmuni* sp.n., *Archiphysa*. New Mexico, Cibola County: Ojo del Gallo, 4150 ft E, 1650 ft N, sec. 3, T. 10 N., R. 10 W [35°07’20”N, 107°52’32”W], 6450 ft, a former large spring in the small town of San Rafael, 23-X-1980. Holotype CAS146087, paratypes CAS 146088 (10), BMNH 20001307 (10).
- aspii* Holmberg, 1909, *Physa*. Apuntes de historia natural [Buenos Aires] 1:28. Laguna de los Murciélagos [not traced], Formosa, Argentina, *Otto Asp*, 5-X-1906. Seven syntypes in MACN, Holmberg collection 1 407.

- Aplexinae *incertae sedis*.
- ataxiaca* Fagot, 1883, *Physa*. Bull. Soc. Hist. Nat. Toulouse 17:222. Campagne-les-Bains, between Quillan and Limoux, Dépt. Aude, France. Type species of *Paraplexa* Starobogatov, 1989.
<*Paraplexa cornea* (Massot, 1845).
- athearni* Clarke, 1973, *Physa jennessi*. Malacologia 13:365, pl. 24, figs. 4-6. Horseshoe Lake, about 10 miles SE of Jasper, Alberta, Canada, *H. D. Athearn*, 21-VII-1965. Holotype CMN 46 384, 36 paratypes 32 483.
<*Physella gyrina* (Say, 1821).
- aurantia* Carpenter, 1857, *Aplexa*. Mazatlan Cat.:179. Bequaert & Clench, 1936, Carnegie Inst. Washington Publ. 457:68, pl. 1, figs. 7-8. Described from the collection assembled at Mazatlán, Sinaloa, Mexico, by *Frederick Reigen* in 1848-1850; the source of the specimens is further south along the coast, most likely Acapulco [16°5'N, 99°55'W]. 22 syntypes in BMNH: 815 (5), 816 (5), 817 (5), 818 (5), 819 (2). Four syntypes MCZ 55 580.
=*Mexinauta aurantia* (Carpenter, 1857).
- aurata* "Draparnaud" Paetel, 1889, *Physa*. Cat. Conch.-Samml., ed. 4, 2:403. "Tirol." Probably error for *Haitia acuta* (Draparnaud, 1805).
- aurata* Lea, 1838, *Physa*. Trans. Amer. Phil. Soc. 6:18, pl. 23, fig. 106. Hot Springs [37°59'58"N, 79°49'55"W], 2238 ft, Bath County, Virginia, *P. H. Nicklin*. For information on the springs see Waring (1965:43). Holotype presumably in USNM.
<*Physella gyrina* (Say, 1821).
- Austrinauta g.n.* Type species *Physa elata* Gould, 1853. Genus of Aplexinae, Austrinautini.
- balteata* Preston, 1907, *Physa*. Ann. & Mag. Nat. Hist., ser. 7, 20:497, fig. 19. Oaxaca [17°03'N, 96°43'W], Mexico. Three syntypes BMNH 1908.6.13.178-180; 4 syntypes MCZ 183 541; 1 syntype USNM 202 520; 2 syntypes ZMB 59 623 (Kilias, 1961).
<*Haitia mexicana* (Philippi, 1841).
- barberi* Clench, 1925, *Physa*. Occ. Pap. Univ. Mich. Mus. Zool. 164:2, figs. 1-3. Canal embankment, West Palm Beach [26°42'54"N, 80°03'13"W], Palm Beach County, Florida, *M. D. Barber*. Holotype UMMZ 32 540. Described as Pleistocene, but most likely modern material dragged up from the canal in the process of cleaning or deepening it.
<*Haitia pomilia* (Conrad, 1834).
- bayfieldensis* F. C. Baker, 1928, *Physella*. Bull. Wisc. Geol. Nat. Hist. Surv. 70(1):442, pl. 27, figs. 1-7. Pike Creek, near Bayfield, Bayfield County, Wisconsin. Holotype Univ. Wisconsin 4 592 (Franzen, 1957:32), now in UMMZ.
<*Physella gyrina* (Say, 1821).
- berendti* "Dunker" Strebel, 1874, *Physa*. Abhandl. Naturwiss. Ver. Hamburg 6(1):55, pl. 7, fig. 29. Vicinity of Veracruz [32°25'N, 115°05'W], Veracruz, Mexico. Holotype destroyed in ZMH.
<*Haitia mexicana* (Philippi, 1841).
- Beringophysa* Starobogatov & Budnikova, 1976. Trudy Biol.-Pochvenn. Inst. Dal'nevost. Nauchn. Tsent. ANSSSR, n. ser., 36:82. Type species (by original designation): *Physa ampullacea chukchensis* Starobogatov & Budnikova, 1976. As subgenus of *Physa*. Genus of Physinae, Physini.
- Berinophysa* "Starobogatov" Vaught, 1989. Classn. liv. Moll.: 76. Error for *Beringophysa*.
- berlandierianus* Binney, 1865, *Bulinus*. Amer. J. Conch. 1:51, pl. 7, fig. 8; 1865, Smithson. Misc. Coll. 7(2)(serial no. 143): 155, fig. 258. "Texas, in the region of Matamoras," *i.e.*, near Brownsville [25°54'04"N, 97°29'50"W], Cameron County, *J. L.*

- Berlandier*, 1830-1851. Holotype presumably in USNM; 2 paratypes MCZ 45 323.
<*Mexinauta nitens* (Philippi, 1841).
- bermudezi* Aguayo, 1935, *Physa*. Mem. Soc. Cub. Hist. Nat. 9:119, pl. 9, fig. 1. Pálpite [22°19'32"N, 81°11'07"W], near Ciénaga de Zapata, Prov. Matanzas, Cuba. Holotype MCZ 110 746.
?<*Haitia cubensis* (Pfeiffer, 1839).
- bernardii* "Récluz" Paetel, 1889, *Physa*. Cat. Conch.-Samml., ed. 4, 2:404. No locality. *Nomen nudum*. Original material in ZMB.
Physidae incertae sedis.
- billingsii* Heron, 1880, *Physa*. Trans. Ottawa Field-Nat. Club 1:62, fig. 5. Billings' Bridge, near Ottawa [45°25'N, 75°42'W], Ontario, Canada. One cotype MCZ 41 182.
<*Haitia integra* (Haldeman, 1841).
- binneyana* Ancy, 1886, *Physa*. Le Naturaliste 3:358. Substitute for *P. diaphana* Tryon, 1865, not *P. diaphana* Krauss, 1848.
<*Physella gyrina* (Say, 1821).
- blandii* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:116; 1867, J. Acad. Nat. Sci. Phila. 6:168, pl. 24, fig. 88. California, no precise locality, *Thomas Bland*. Holotype USNM 170 766.
<*Physella gyrina* (Say, 1821).
- bocourti* Fischer & Crosse, 1886, *Aplecta aurantia* var. *Miss. Sci. Mex. Amér. Centr., Rech. zool.* 7(2):86, pl. 30, figs. 1, 1a. The figured specimen is in MHNP, from Cobán [15°29'N, 90°19'W], Depto. Alta Verapaz, Guatemala (Chevallier, 1965:25), *M.-F. Bocourt, Commission Scientifique du Mexique*, 1864-1866; it is presumably the holotype, although not so called by Chevallier.
<*Mexinauta impluviatus* (Morelet, 1849).
- borbonica* Férussac, 1827, *Physa*. Bull. Sci. Nat. Géol. 10:408. "L'île Bourbon" [Réunion]. *Nomen nudum*. Original material in MHNP. A true *Physa* from study by H. Watson (Connolly, 1925, *J. Conchol.* 17:258).
<*Haitia acuta* (Draparnaud, 1805).
- borbonica* Sganzi, 1842, *Physa*. Mém. Soc. Hist. Nat. Strasbourg 3(2):18. Île de Bourbon [Réunion].
<*Haitia acuta* (Draparnaud, 1805).
- borbonicensis* "Férussac" Germain, 1921, *Bullinus (Isidora)*. Faune malac. terr. fluv. Iles Mascareignes: 233. Emendation of *Physa borbonica* Férussac.
<*Haitia acuta* (Draparnaud, 1805).
- botanica* "Monterosato" Coen, 1945, *Physa acuta*. Script. Var. Pont. Acad. Sci. 3:13. Botanical garden of Palermo [38°07'N, 13°21'E], Sicily, Italy. *Nomen nudum*. Original material perhaps in HNJ.
<*Haitia acuta* (Draparnaud, 1805).
- bottimeri* Clench, 1924, *Physa*. Nautilus 38:12, fig. 4. Comanche Springs [30°52'53"N, 102°52'42"W], Fort Stockton, Pecos County, Texas, *L. J. Bottimer*. Holotype UMMZ 31 617; 1 paratype MCZ 53 866, 5 paratypes MCZ 86 375; 1 paratype CMN 43 303.
<*Haitia mexicana* (Philippi, 1841).
- boucardi* Crosse & Fischer, 1882, *Physa*. J. Conchyl. 29:334. Fischer & Crosse, 1870-1902, *Miss. Sci. Mex. Amér. Centr., Rech. zool.* 7(2):102, pl. 30, figs. 4, 4a. "In lacu Mexico," *i.e.*, the former lake in the Valley of Mexico, D. F., *Adolphe Boucard*. Holotype not in MHNP (Chevallier, 1965:26).
<*Haitia mexicana* (Philippi, 1841).
- brasiliiana* Beck, 1838, *Aplexa rivalis*. Index moll. mus. Christiani Frederici: 116. "L.Tr.VIII.IV.2.-Turt.m.112?Rio Janeiro." [Maton & Rackett, 1807, *Trans. Linn. Soc. London* 8:126, pl. 4, fig. 2. Turton, 1831, *Man. land and fw. shells British Ids.*: 128, sp. 112? Rio de Janeiro, 22°54'S, 43°15'W, Brasil]. Original material in ZMUC.
?<*Afrophysa brasiliensis* (Küster, 1844)

- brasiliensis* "Koch" Küster, 1844, *Physa*. Syst. Conch.-Cab., ed. 2, 47:10, pl. 1, figs. 18-20. "In Brasilien," herein restricted to Porto Alegre, Rio Grande do Sul. Holotype presumably destroyed in SMF during 1939-45 war.
=*Afrophysa brasiliensis* (Küster, 1844).
- brevis* Cockerell, 1889, *Physa* var. *heterostrophella* form. Rept. Colo. Biol. Assoc. 13:1, fig. 2. Westcliffe [38°08'05"N, 105°27'55"W, 7888 ft], Custer County, Colorado. No type selected?
<*Physella gyrina* (Say, 1821).
- brevispira* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:116; 1867, J. Acad. Nat. Sci. Phila. 6:173, pl. 24, fig. 98. Ottawa River, Ontario, Canada, *E. Billings*. Holotype presumably in USNM.
<*Haitia integra* (Haldeman, 1841).
- brevispira* Paulucci, 1882, *Physa acuta* var. Bull. Soc. Malac. Ital. 8:317. "Conviene col tipo a Cagliari [39°13'N, 9°06'E] in un fosso presso la ferrovia, rio Sixerri, Zinnigas nelle sorgenti, nei dintorni di Sarroch, S. Lucia e nel Flumendosa presso S. Vito," Sardinia, Italy. Holotype in MZUF.
<*Haitia acuta* (Draparnaud, 1805).
- bullata* Müller, 1774, *Planorbis*. Verm. terr. fluv. 2:167. Frederiksdal, Randers, Denmark. Holotype in ZMUC.
<*Physa fontinalis* (Linnaeus, 1758).
- bullata* Schlesch, 1907, *Physa acuta* var. Ann. Soc. Roy. Zool. Malac. Belgique 41:185. Botanical garden, Copenhagen [55°40'N, 12°35'E], Denmark.
<*Haitia acuta* (Draparnaud, 1805).
- bullaeoides* Donovan, 1803, *Helix*. Nat. hist. Brit. shells 5: pl. 168, fig. II. Lincolnshire, England, *Duchess of Portland*.
<*Physa fontinalis* (Linnaeus, 1758).
- bullaeoides* Donovan: Turton, 1819, *Helix*. Conch. Dict.: 27. Error or emendation of *bullaeoides* Donovan, 1803.
<*Physa fontinalis* (Linnaeus, 1758).
- bullata* Gould, 1855, *Physa*. Proc. Boston Soc. Nat. Hist. 5:128. "Oregon." Locality specified more precisely by W. Cooper, 1859, U.S. War Dept. Pac. RR Surv. 12 (book 2, pt. 1):378, as Lake Oyosa, *i.e.*, Osoyoos Lake, British Columbia-Washington, *J. G. Cooper, Pacific RR Surveys*, 1853-1854. Lectotype (Johnson, 1964:49, pl. 44, fig. 4) USNM 9 170. Not *P. bullata* Potiez & Michaud, 1838; substitute *P. ampullacea* Gould, in Binney, 1865.
<*Physella gyrina* (Say, 1821).
- bullata* Potiez & Michaud, 1838, *Physa*. Gal. moll. Mus. Douai 1:223, pl. 22, figs. 13-14. "Hab...." Holotype still in Muséum de Douai, France?
Physinae incertae sedis.
- bullatus* "Crosse et Fischer" Paetel, 1889, *Aplexus*. Cat. Conch.-Samml., ed. 4, 2:409. Error for *bullula*.
=*Mayabina bullula* (Crosse & Fischer, 1882).
- bullula* Crosse & Fischer, 1882, *Aplecta*. J. Conchyl. 29:334. Fischer & Crosse, 1870-1902, Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):91, pl. 39, figs. 6-6b. Tuxpan [20°57'N, 97°24'W], Veracruz, Mexico, *Auguste Sallé*, 1832-1835. Holotype not in MHNP (Chevallier, 1965:25).
=*Mayabina bullula* (Crosse & Fischer, 1882).
- burriana* Kobelt, 1880, *Physa*. Icon. Land- u. Süsww.-Moll. 7:21. Published in synonymy of *P. acuta* var. *fusca* from Spain. Original material probably destroyed in SMF in 1939-45 war.
<*Haitia acuta* (Draparnaud, 1805).
- buschii* Küster, 1850, *Physa*. Syst. Conch.-Cab., ed. 2, 90:28, pl. 4, figs. 21-23. Santa Cruz [Out of the many places with this name a possible source would seem to be Santa Cruz on the island of La Palma or another on Tenerife in the Canary Islands, if the comparison by Küster with *P. acuta* is accepted as indicating a similarity].

- Holotype presumably destroyed in SMF in 1939-45 war.
<*Haitia acuta* (Draparnaud, 1805).
- byersi* Crabb, 1927, *Physa gyrina*. Amer. Nat. 61:56. *Nomen nudum*; and yet a lectotype, ANSP 142 547a, was designated by H. B. Baker (1964:154).
<*Physella gyrina* (Say, 1821).
- caliban* Vanatta, 1911, *Physa*. Proc. Acad. Nat. Sci. Phila. 62:668, fig. 1. Pembroke Marsh, Hamilton [32°17'N, 64°46'W], Bermuda. Holotype ANSP 100 334a (H. B. Baker, 1964:154); 3 paratypes MCZ 55 250, 3 paratypes BMNH 1911.4.25.19-21.
?<*Haitia acuta* (Draparnaud, 1805).
- californica* "Monterosato" Coen, 1945, *Physa*. Script. Var. Pont. Acad. Sci. 3:13. "California." *Nomen nudum*. Original material perhaps in H.U.J.
?<*Haitia mexicana* (Philippi, 1841).
- canadensis* Beck, 1838, *Bulinus fontinalis*. Index moll. mus. Christiani Frederici: 117. Canada. *Nomen nudum*. Original material in ZMUC. This is a very early date for specimens to have reached Europe from the interior of Canada. In BMNH (uncat.) is a single specimen of *Physa skinneri* mounted on stiff paper and with the last whorl broken away, credited to "Bear Lake, N. America, Dr. J. Richardson." This is evidently part of the material recorded as *P. fontinalis* by J. De C. Sowerby (1836, in J. Richardson, Fauna Boreali-Americana, 3:315) from along the canoe route from Methy Lake to Bear Lake, North West Territories, collected by Richardson before 1828. It is plausible that part of Richardson's material reached Copenhagen and is the basis for Beck's name.
<*Physa skinneri* Taylor, 1954.
- canariensis* Bourguignat, 1856, *Physa*. Rev. Mag. Zool., sér. 2, 8:235. Proposed for *Physa fontinalis* as identified from the Canary Islands by Webb & Berthelot (1833) and by d'Orbigny (1839).
<*Physa fontinalis* (Linnaeus, 1758).
- canarium* "Bourguignat" Paetel, 1889, *Physa*. Cat. Conch.-Samml., ed. 4, 2:404. Error for *canariensis*.
<*Physa fontinalis* (Linnaeus, 1758).
- Caribnauta* g.n. Type species *Caribnauta harryi* nom.nov. Genus of Aplexinae, Austrinautini.
- carltonii* Lea, 1869, *Physa*. Proc. Acad. Nat. Sci. Phila. 21:125; 1874, J. Acad. Nat. Sci. Phila., ser. 2, 8:63, pl. 21, fig. 19. Near Antioch [38°00'18"N, 121°48'17"W], Contra Costa County, California, *H. P. Carlton* (Carlton, 1870, Proc. Calif. Acad. Sci., ser. 1, 4:50-52). Holotype USNM 119 905, despite H. B. Baker (1964:154) and Amer. J. Conch. 6:330.
<*Physella gyrina* (Say, 1821).
- carolita* Jousseau, 1887, *Aplecta*. Bull. Soc. Zool. France 12:184, pl. 3, fig. 5. San Nicolás, Cantón Mejía, Prov. Pichincha, Ecuador, *Charles Martin*. Holotype presumably in MHNP.
=*Mayabina carolita* (Jousseau, 1887).
- castanea* Schlesch, 1907, *Physa acuta* var. Ann. Soc. Roy. Zool. Malac. Belgique 41:185. Botanical garden, Copenhagen [55°40'N, 12°35'E], Denmark.
<*Haitia acuta* (Draparnaud, 1805).
- charpentieri* Küster, 1850, *Physa*. Syst. Conch.-Cab., ed. 2, 90:23, pl. 4, figs. 4-6. Baltimore [39°17'25"N, 76°36'45"W], Baltimore County, Maryland. Holotype presumably destroyed in SMF in 1939-45 war.
<*Haitia acuta* (Draparnaud, 1805).
- chetekensis* F. C. Baker, 1928, *Physella*. Bull. Wisc. Geol. Nat. Hist. Surv. 70(1):440, pl. 27, figs. 8-13. Moose Ear Creek, between Taber and Chetek Lakes, Barron County, Wisconsin. Holotype Univ. Wisconsin 4 595 (Franzen, 1957:32), now in UMMZ.

- <*Physella gyrina* (Say, 1821).
- Chiapaphysa* g.n. Type species *Chiapaphysa grijalvae* sp.n. Genus of Physinae, Physellini.
- chilensis* Clessin, 1886, *Physa*. Syst. Conch.-Cab., ed. 2, 339:369, pl. 54, fig. 3. "Chile;" but locality probably in error. From collection of Arthur Morelet, but no material in B M N H. Types MNS.
Apexinae *incertae sedis*.
- chippevarum* sp.n., *Laurentiphysa*. Wisconsin, Ashland County: ditch on N side of highway 77, 1.85 mi W of highway 13, SW 1/4 SE 1/4 sec. 31, T. 43 N., R. 2 W., 1530 ft, 7, 14-VII-1992 (T92-803). Holotype CAS 146089, paratypes CAS 146090 (10), BMNH 20001309 (10).
- chukchensis* Starobogatov & Budnikova, 1976, *Physa* (*Beringophysa*) *ampullacea*. Trudy Biol.-Pochvenn. Inst. Dal'nevostochn. Nauchn. Tsentr ANSSSR, n. ser., 36:84, fig. 5, I. Ust'-Chaun [68°47'N, 170°30'E], Chukotka, Russia, *E. Streletskaia*, 1973. Holotype presumably in ZIP. Type species of *Beringophysa* Starobogatov & Budnikova, 1976.
<*Beringophysa jennessi* (Dall, 1917).
- cisternina* Morelet, 1851, *Physa*. Test. Noviss. 2:15. Fischer & Crosse, 1870-1902, Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):94, pl. 30, fig. 7. Mérida [20°58'N, 89°37'W], Yucatán, Mexico, Arthur Morelet, II-III-1847. Five syntypes BMNH 1893.2.4.666-670; 9 syntypes MCZ 4 385, from R. E. Call collection, received from Morelet.
<*Mayabina spiculata* (Morelet, 1849).
- clarkei* Ingersoll, 1875, *Physa*. Bull. U.S. Geol. Geogr. Surv. Terr., ser. 2, 1:135; 1876, Ann. Rep. U.S. Geol. Geogr. Surv. Terr. 8:401. No locality, but apparently from the western United States. *Nomen nudum*.
Physinae *incertae sedis*.
- columbella* "Hemphill" Keep, 1904, *Physella*. West Amer. Shells: 152. Error for *P. columbiana* Hemphill.
- columbiana* "Hemphill" Keep, 1887, *Physella*. West Coast Shells: 120. No adequate differentia or precise locality given; *nomen nudum*, despite the text and Coan (1985, Veliger 28:212).
- columbiana* Hemphill, 1890, *Physa*. Nautilus 4:27. Henderson, 1936, Nautilus 49:pl. 7, fig. 3; 1936, Univ. Colo. Studies 23:269, fig. 2a. Columbia River, Astoria [46°11'17"N, 123°49'48"W], Clatsop County, Oregon, Henry Hemphill, XI-1877. Syntypes CAS 1 356-1 363, from the Hemphill collection, labeled "Types" by Hemphill. Lectotype (H. B. Baker, 1964:154) ANSP 17 237a. Paratypes UCM 21 826 (Wu & Brandauer, 1982:7); 2 syntypes BMNH 1900.6.26.1865-1866.
=*Physella columbiana* (Hemphill, 1890).
- compacta* Pease, 1870, *Limnaea*. Amer. J. Conch. 6:6, pl. 3, fig. 4. Oahu, Hawaii. Three cotypes MCZ uncat.
<*Haitia mexicana* (Philippi, 1841).
- concolor* Haldeman, 1841, *Physa*. Monogr. FW univ. Moll. U.S. 3: cover p. 3; 1843, *Ibid.* 6 (*Physa*): 30, pl. 2, fig. 10. "Oregon," i.e., Oregon Territory of that time, Thomas Nuttall, 1834. Holotype ANSP 280 018 (H. B. Baker, 1964:154).
<*Physella gyrina* (Say, 1821).
- coniformis* Strebelt, 1874, *Physa mexicana* var. Abh. Naturwiss. Ver. Hamburg 6(1):52, pl. 6, fig. 26g. Lago de Pátzcuaro [19°35'N, 101°35'W], Michoacán, Mexico, C. A. Uhde, circa 1830-1845. Holotype destroyed in ZMH. Not *P. coniformis* Tryon, 1866.
<*Haitia patzcuarensis* (Pilsbry, 1891).
- coniformis* Tryon, 1866, *Physa*. Amer. J. Conch. 2:6, pl. 2, fig. 5. Humboldt River, "Oregon" [Nevada], W. M.

- Gabb*, California Geological Survey. Holotype ANSP 17 276a (H. B. Baker, 1964:154).
- <*Physella gyrina* (Say, 1821).
- conoidea* Fischer & Crosse, 1886, *Physa mexicana* var. Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):100, pl. 39, figs. 8a-b. "lac de Mexico," i.e., the former lake in the Valley of Mexico, D. F., *Léon Méhédin*, 1864-1866; and Puebla, Puebla, Mexico. Figured specimen and presumed holotype in MHNH (Chevallier, 1965:26).
- <*Haitia mexicana* (Philippi, 1841).
- conspicua* "Uhde" Martens, 1865, *Physa*. Malak. Blätt. 12:57. Veracruz [32°25'N, 115°05'W], Veracruz, Mexico, C. A. Uhde, circa 1830-1845. Published in synonymy of *Physa nitens* Philippi, 1841. Original material in ZMB.
- <*Mexinauta nitens* (Philippi, 1841).
- cooperi* Tryon, 1865, *Physa*. Amer. J. Conch. 1:224, pl. 23, fig. 9. Spring in Crane Lake Valley [Crane Lake is now Cowhead Lake], Modoc County, California, W. M. Gabb, California Geological Survey, 1864. Holotype ANSP 329 338 (H. B. Baker, 1964:154, as 17 298a).
- <*Physella gyrina* (Say, 1821).
- cornea* Massot, 1845, *Physa*. Bull. Soc. Agric., Sci. Litt. Pyrénées-Orientales 6(2):236, fig. 4. Perpignan [42°41'N, 2°53'E], Dépt. Pyrénées-Orientales, France.
- =*Paraplexa cornea* (Massot, 1845).
- cornea* "Monterosato" Coen, 1945, *Aplexa hypnorum*. Script. Var. Pont. Acad. Sci. 3:13. Castel Goffredo [45°18'N, 10°28'E], Mantova, Italy. *Nomen nudum*. Original material perhaps in HNJ.
- <*Paraplexa cornea* (Massot, 1845).
- cornea* Preston, 1907, *Physa*. Ann. & Mag. Nat. Hist., ser. 7, 20:497, fig. 20. Mérida [8°36'N, 71°08'W], Mérida, Venezuela. Three syntypes BMNH 1908.6.13.181-183; 2 paratypes ZMB 59622 (Kilias, 1961); 2 paratypes UMMZ 116 566; cotypes ANSP 98 903 (H. B. Baker, 1930, Occ. Pap. Mus. Zool. Univ. Mich. 210:41), not cited by H. B. Baker (1964).
- Aplexinae incertae sedis*.
- coronadoi* Servain, 1880, *Physa*. Étude moll. rec. Espagne et Portugal: 138. Alluvia of Río Guadalaviar, near Valencia [39°28'N, 0°22'W], Spain.
- <*Physa fontinalis* (Linnaeus, 1758) (Germain, 1930-1931:509).
- costata* Newcomb, 1861, *Physa*. Proc. Calif. Acad. Sci. 2:104. Clarke, 1960, Bull. Amer. Paleont. 41(188):147, pl. 17, fig. 3. Clear Lake, Lake County, California, J. A. Veatch. Lectotype (Clarke, 1960) Cornell Univ. 30 828a, now in PRI; 6 paratypes MCZ 85 810; paratypes UCM 20 791 (Wu & Brandauer, 1982:7). Type species of *Costatella* Dall, 1870.
- =*Costatella costata* (Newcomb, 1861).
- Costatella* Dall, 1870. Ann. Lyc. Nat. Hist. N.Y. 9:355. Type species (by original designation): *Physa costata* Newcomb, 1861. As subgenus of *Physa*. Genus of Physinae, Physellini.
- Costella* "Dall" Meek, 1876. Rep. U.S. Geol. Survey Terr. 9:604. Error for *Costatella*.
- crandalli* F. C. Baker, 1906, *Physa*. Trans. Acad. Sci. St. Louis 16:8. Substitute for *P. rhomboidea* Crandall, 1901, not of Meek & Hayden, 1856.
- <*Haitia mexicana* (Philippi, 1841).
- crassa* Walker, 1901, *Physa ancillaria* var. Nautilus 14:98. Higgins Lake [44°28'30"N, 84°43'00"W], Roscommon County, Michigan. Holotype formerly B. Walker collection 1 471 (Winslow, 1926:16), now in UMMZ; 6 paratypes MCZ 28 196, 5 paratypes MCZ 52 899, 6 paratypes MCZ 180 825; 2 paratypes BMNH 1942.6.20.6-7. ?<*Haitia integra* (Haldeman, 1841).
- crassula* Dillwyn, 1817, *Bulla*. Descr. cat. rec. shells 1:487. Based on several

- published sources; "Inhabits Virginia. Lister. West Indies. *Chemnitz*." Evidently a composite species, and not recognizable.
Physidae incertae sedis.
- crocata* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:114; 1867, J. Acad. Nat. Sci. Phila. 6:169, pl. 24, fig. 90. LaFayette [34°42'17"N, 85°16'55"W], Walker County, Georgia, *Rev. George White*. Holotype USNM 134 813 (Clench & Turner, 1956, Bull. Fla. State Mus., Biol. Sci., 1:145).
 <*Physella gyrina* (Say, 1821).
- cubensis* Pfeiffer, 1839, *Physa*. Arch. Naturg. 5(1):354. Küster, 1850, Syst. Conch.-Cab., ed. 2, 90:22, pl. 3, figs. 17-19. Clench, 1936, Mem. Soc. Cub. Hist. Nat. 10:339, pl. 25, fig. 2. Cuba [probably in the vicinity of La Habana, 23°08'N, 82°22'W], *C. Pfeiffer*, 1839. Five cotypes MCZ 73 619.
 =*Haitia cubensis* (Pfeiffer, 1839).
- cuprella* Cockerell, 1889, *Physa hypnorum* var. J. Conchol. 6:63. Sussex, England. *Nomen nudum*.
 <*Aplexa hypnorum* (Linnaeus, 1758).
- cupreonitens* Cockerell, 1889, *Physa*. J. Conchol. 6:63. 1889, Rep. Colo. Biol. Assoc. 13:1, fig. 1. Hot springs at Wells-ville [38°29'12"N, 105°54'34"W, 6844 ft], Fremont County, Colorado, *T. D. A. Cockerell*. Holotype BMNH 1890.9.29.1, from Cockerell and labeled "type specimen." Paratype USNM 102 609. For references to the thermal spring see Waring (1965:25).
 <*Haitia mexicana* (Philippi, 1841).
- curta* Jeffreys, 1862, *Physa fontinalis* var. Brit. Conch. 1:99. Clonony Barracks [Clonony, County Offaly, 53°14'N, 7°55'W], Ireland, *T. Brown*. Holotype in USNM.
 <*Physa fontinalis* (Linnaeus, 1758).
- curta* Van den Broeck, 1869, *Physa fontinalis* var. Ann. Soc. Malac. Belgique 4:90, pl. 2, figs. 5a, b. Saint-Gilles [50°49'N, 4°20'E], near Brussels, Belgium. Holotype in IRSNB.
 <*Physa fontinalis* (Linnaeus, 1758).
- cylindrica* De Kay, 1843, *Physa*. Zool. N. Y. 5:77, pl. 5, fig. 84. Red Creek, Wayne County, New York, *Dr. Wesley Newcomb*.
 <*Physella gyrina* (Say, 1821).
- dalmatina* Küster, 1844, *Physa*. Syst. Conch.-Cab., ed. 2, 47:17, pl. 2, figs. 17-19. Three localities in Dalmatia, Croatia: See von Boccagnazo bei Zara (=Bokanjacko Blato, north of Zadar), the Salona at Spalato [=Split, 43°31'N, 16°27'E], and in marshes of the Cettina (=Cetina) at Almissa [not traced]. Holotype presumably destroyed in SMF in 1939-45 war.
 =*Physa dalmatina* Küster, 1844.
- decollata* Cockerell, 1888, *Physa elliptica* var. Science-Gossip 24:163. Close to White Earth Creek, Powderhorn [38°16'37"N, 107°05'43"W], Gunnison County, Colorado, *T. D. A. Cockerell*, 12-X-1887. No type designated?
 <*Physella gyrina* (Say, 1821).
- deformis* Currier, 1867, *Physa*. Amer. J. Conch. 3:112, pl. 6, fig. 1. Grand Rapids [42°57'48"N, 85°40'05"W], Kent County, Michigan. Holotype formerly Kent Scientific Museum 410 (Winslow, 1926, Occ. Pap. Mus. Zool. Univ. Mich. 181:16), presumably in UMMZ.
 <*Physella gyrina* (Say, 1821).
- depressor* Middendorff, 1851, *Physa hypnorum* var. Sibir. Reise 2(1):298, pl. 30, figs. 18-19. Ichl; and near Falchudda Lake [neither locality traced], Taimyr Peninsula, Russia, *A. T. von Middendorff*, 27-VI-1843. Holotype in ZIP.
 =*Sibirenauta depressior* (Middendorff, 1851).
- diaphana* Tryon, 1865, *Physa*. Amer. J. Conch. 1:224, pl. 23, fig. 11. Oakland [37°48'16"N, 122°16'11"W], Alameda County, California, *Rev. Joseph Rowell*. Holotype ANSP 17 316a (H.

- B. Baker, 1964:154). Not *P. diaphana* Krauss, 1848; substitute *P. binneyana* Ancey, 1886.
<*Physella gyrina* (Say, 1821).
- dilucida* "Letourneux" Servain, 1880, *Physa*. Étude moll. rec. Espagne et Portugal: 139. "Iles Ioniennes." *Nomen nudum*. <*Haitia acuta* (Draparnaud, 1805) (Germain, 1930-1931:510).
- dilucida* "Letourneux" Locard, 1893, *Physa*. Coquilles eaux douces France: 52. "Rennes (Aude)," France. Holotype in MHNP.
<*Haitia acuta* (Draparnaud, 1805).
- distinguenda* Tryon, 1865, *Physa*. Amer. J. Conch. 1:225, pl. 23, fig. 6. Stockton [37°57'28"N, 121°17'23"W], San Joaquin County, California, *Rev. Joseph Rowell*. Holotype ANSP 329 327 (as 17 288a, H. B. Baker, 1964:154).
<*Haitia mexicana* (Philippi, 1841).
- dorbigneyi* "Tryon," *Physa heterostropha* var. Hemphill, 1890, Cat. N. Amer. shells: 19. California. Error for *dorbigniana*. <*Haitia mexicana* (Philippi, 1841).
- dorbigniana* Lea, 1867, *Physa*. J. Acad. Nat. Sci. Phila. 6:166, pl. 24, fig. 85. Substitute for *P. striata* Lea, 1864, not *P. striata* d'Orbigny, 1841.
<*Haitia mexicana* (Philippi, 1841).
- Echemythes* Gistel, 1848. Naturg. Thierr. Schul.: X, not p. VIII. Unnecessary substitute for *Physa*.
- elata* Gould, 1853, *Physa*. Boston J. Nat. Hist. 6:379, pl. 14, fig. 4. Johnson, 1964, Bull. U.S. Natl. Mus. 239:71, pl. 44, fig. 9. "Lower California," *Major William Rich*. Lectotype (Johnson, 1964) MCZ 169 130; 2 paratypes MCZ 169 131; 2 paratypes USNM 56 414; 3 probable paratypes BMNH 41.2.11.3-5; from *Major William Rich*, probably obtained by him from *Frederick Reigen* at Mazatlán, Sinaloa, in 1848. No such form has been found in Baja California subsequently, and it seems certain that the specimens were from the mainland of Mexico, probably from south of Mazatlán. Type species of *Austrinauta* g.n. =*Austrinauta elatus* (Gould, 1853).
- elegans* Clench & Aguayo, 1932, *Physa*. Proc. New England Zool. Club 13:37. Clench, 1936, Mem. Soc. Cub. Hist. Nat. 10:342, pl. 25, fig. 1. Lake Miragoane, two miles SE of Miragoane [18°27'N, 73°06'W], Haiti, *W. J. Eyerdam*, VII-1927. Holotype MCZ 83 736, paratypes MCZ 83 738, ANSP, UMMZ. Type species of *Haitia* Clench & Aguayo, 1932. =*Haitia elegans* (Clench & Aguayo, 1932).
- elliptica* Lea, 1834, *Physa*. Trans. Amer. Phil. Soc. 5:115, pl. 19, fig. 83. "Hab....," *Henry C. Lea*. Holotype presumably in USNM.
<*Physella gyrina* (Say, 1821).
- elliptica* "Parreyss" Dupuy, 1850, *Physa*. Hist. nat. moll. terr. eau douce France: 455. Published in synonymy of *Physa acuta*. Original material in MHNT.
<*Haitia acuta* (Draparnaud, 1805).
- elongata* Cockerell, 1889, *Physa* var. *heterostrophella* form. Rep. Colo. Biol. Assoc. 13:1, fig. 3. Westcliffe [38°08'05"N, 105°27'55"W, 7888 ft], Custer County, Colorado. No type selected?
<*Physella gyrina* (Say, 1821).
- elongata* Say, 1821, *Physa*. J. Acad. Nat. Sci. Phila. 2:171. Shores of Illinois, *Thomas Say*, *Major S. H. Long's Expedition to the Rocky Mountains*, VI-1819. Holotype ANSP 21 208a (H. B. Baker, 1964:154).
Thomas Say, Zoologist to the Expedition, stayed at St. Louis, Missouri, from June 9-21, 1819, and "shores of Illinois" is evidently just across the Mississippi River.
= *Sibirenauta elongatus* (Say, 1821).
- elongatina* Lewis, 1855, *Physa*. Proc. Boston Soc. Nat. Hist. 5:122. Massachusetts

- and New York; no precise localities. Holotype in UMMZ.
<*Sibirenauta elongatus* (Say, 1821).
- Enydra* Hübner: Dall, 1905, Harriman Alaska Exped., Alaska ser., 13:99. Error for *Exydra*.
- etruricus* "Porro" Paetel, 1889, *Aplexus*. Cat. Conch.-Samml., ed. 4, 2:410. Etruria [Italy]. *Nomen nudum*. The locality is well south of the range of *Aplexa*. Original material in ZMB.
?<*Paraplexa cornea* (Massot, 1845).
- #*Exydra* Huebner, 1810. Epistola 1. [See C. J. Menke, Geographische Uebersicht, etc. Zeitschr. Malak. 5:55-56].
<*Physa* Draparnaud, 1801.
- fasciata* Küster, 1844, *Physa hypnorum* var. Syst. Conch.-Cab., ed. 2, 47:14. Hesse, Germany. Holotype presumably destroyed in SMF in 1939-45 war.
Aplexa hypnorum (Linnaeus, 1758).
- febigerii* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:114; 1867, J. Acad. Nat. Sci. Phila. 6:174, pl. 24, fig. 99. Logan County, Ohio, *Major G. L. Febiger*. Holotype presumably in USNM.
<*Physella gyrina* (Say, 1821).
- flava* Cockerell, 1893, *Physa fontinalis* var. Brit. Nat. 3:81. Herne Bay [51°23'N, 1°08'E], Kent, England, *F. G. Fenn* and *S. C. Cockerell*. No type selected?
<*Physa fontinalis* (Linnaeus, 1758).
- floridana* "Pilsbry MS" Te, 1980, *Physella hendersoni*. Arch. Moll. 110:184. *Nomen nudum*. No locality except that implied by the name. Original material in ANSP?
<*Haitia pomilia* (Conrad, 1834).
- fluviatilis* T. Brown, 1827, *Physa*. Illustr. conch. Gt. Brit. Ireland, expl. pl. 41, figs. 83-84. "This shell was found by me in a stream at Clonoony, King's County, Ireland [Clonoony, County Offaly, 53°14'N, 7°55'W], and is quite distinct from *P. fontinalis*. In Lady Jardine's cabinet."
<*Physa fontinalis* (Linnaeus, 1758).
- fluviatilis* Féruccac, 1807, *Physa*. Essai méth. conchyl.: 59. Unnecessary substitute for *Physa acuta* Draparnaud, 1805.
<*Haitia acuta* (Draparnaud, 1805).
- fluviatilis* Turton, 1819, *Bulla*. Conch. Dict.: 27. New name for *Helix bullaeoides* Donovan, 1803, transferred from *Helix*.
<*Physa fontinalis* (Linnaeus, 1758).
- foeniculum* Rigacci & Rigacci, 1866, *Physa*. Cat. conch. coll. Rigacci: 31. No locality. *Nomen nudum*. Original material perhaps in Museum of Zoology, Rome, Italy.
Physidae incertae sedis.
- fontana* Haldeman, 1841, *Physa*. Mon. FW univalve Moll. U.S., 2: cover p. 3; 1843, *Ibid.* 6:26. Cold springs in Pennsylvania. Holotype not found in ANSP (H. B. Baker, 1964:154). Synonymized by Haldeman (1842-1845) with *Physa heterostropha* (Say, 1817).
<*Haitia acuta* (Draparnaud, 1805).
- fontinalis* Linnaeus, 1758, *Bulla*. Syst. Nat., ed. 10, 1:727. Sowerby I, 1821-1834, Gen. shells, *Limnea*, fig. 8. Linnaeus specified only "Habitat in Lacuum plantis subaquaticis" in his description of 1758, but cited the Fauna Suecica (1746, no. 1302) where he stated "Habitat ... praesertim Upsaliae." The type locality therefore can be accepted as the vicinity of Uppsala [59°52'N, 17°38'E], Sweden. Holotype not in LS (Hanley, 1855, *Ipsa Linn. Conch.*: 208). Type species of *Physa* Draparnaud, 1801.
=*Physa fontinalis* (Linnaeus, 1758).
- forsheyi* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:114; 1867, J. Acad. Nat. Sci. Phila. 6:172, pl. 24, fig. 95. Near Rutersville [29°56'51"N, 96°47'49"W], Fayette County, Texas, *Prof. C. G. Forshey*. Holotype presumably in USNM.
<*Haitia mexicana* (Philippi, 1841).
- fragilis* De Kay, 1840, *Physa*. N. Y. State Assembly Doc. 50:32. *Nomen nudum*.
<*Physella gyrina* (Say, 1821).
- fragilis* De Kay, 1843, *Physa*. Zool. N. Y. 5:80, pl. 5, figs. 89a-b. West Point

- [41°23'29"N, 73°57'23"W], Orange County, New York. Published in synonymy of *Physa aurea* Lea.
<*Physella gyrina* (Say, 1821).
- fragilis* Mighels, 1841, *Physa*. Cat. marine fluv. terr. shells Maine: no. 142. Maine (list only). *Nomen nudum*.
<*Physella ancillaria* (Say, 1825).
- fragilis* Mighels, in Mighels & Adams, 1842, *Physa*. Boston J. Nat. Hist. 4:44, pl. 4, fig. 12. Johnson & Boss, 1972, Occ. Pap. Moll. 3:203, pl. 38, fig. 6. [Cited as of Mighels only in Mighels & Adams, 1843, Proc. Boston Soc. Nat. Hist. 1:49]. Monmouth [44°14'19"N, 70°02'10"W], Kennebec County, Maine, *N. T. True*. Lectotype (Johnson & Boss, 1972) MCZ 177 004; 1 paratype MCZ 85 808; 2 paratypes MCZ 156 449.
<*Physella ancillaria* (Say, 1825).
- fuerteventurae* Mousson, 1872, *Physa tenerifae* var. Neue Denkschr. Allg. Schweiz. Ges. 25(1):138. "Punta di Yandia, Fuerteventura (*Fritsch*), Rio Palmas, même île (*Wollaston*), Lac Januvio, Lanzarote (*Wollaston*)" [Canary Islands]. Holotype in ZMZ.
<*Haitia acuta* (Draparnaud, 1805).
- fuliginea* Morelet, 1851, *Physa*. Test. Noviss. 2:16. Antigua [14°34'N, 90°44'W], Depto. Antigua, Guatemala, *Arthur Morelet*, 1847. Two syntypes BMNH 1893.2.4.663-665.
<*Mexinauta impluviatus* (Morelet, 1849).
- fuliginosa* "Morelet" Fischer & Crosse, 1886, *Aplecta*. Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):89, pl. 30, figs. 5-5a. Error or emendation of *Physa fuliginea* Morelet.
<*Mexinauta impluviatus* (Morelet, 1849).
- fusca* "Rossmässler" Rigacci & Rigacci, 1866, *Physa*. Cat. conch. coll. Rigacci: 31. No locality. *Nomen nudum*. Original material perhaps in Museum of Zoology, Rome, Italy.
<*Haitia acuta* (Draparnaud, 1805).
- fusca* "Rossmässler" Kobelt, 1880, *Physa acuta* var. Iconogr. europ. Land- und Süsww.-Moll. 7:21, fig. 1914. Cartagena [37°36'N, 0°59'W], Spain, *Willkomm*. Holotype presumably destroyed in SMF in 1939-45 war.
<*Haitia acuta* (Draparnaud, 1805).
- gabbii* Tryon, 1863, *Physa*. Proc. Acad. Nat. Sci. Phila. 116:154, pl. 1, fig. 14. Mountain Lake [37°47'17"N, 122°28'12"W], San Francisco, California, *Rev. Joseph Rowell*. Holotype ANSP 123 705a (H. B. Baker, 1964:154); 2 paratypes MCZ 40 573; 1 paratype MCZ 47 196.
<*Physella gyrina* (Say, 1821).
- gallica* "Bourguignat" Locard, 1893, *Physa*. Coq. eaux douces France: 50. "Var, Charente, Aude, Charente-Infér., Loire-Infér., Rhône, Isère," France. Holotype in MHNP. "=*exactement acuta*" (Germain, 1930-1931:510).
<*Haitia acuta* (Draparnaud, 1805).
- gelatinosa* Gmelin, 1791, *Bulla*. Syst. Nat., ed. 13: 3428. Emendation of *Planorbis gelatinus* Müller, 1774.
<*Physa fontinalis* (Linnaeus, 1758).
- gelatinus* Müller, 1774, *Planorbis*. Verm. terr. fluv. 2:170. No locality cited, but presumably in Denmark. Holotype in ZMUC. Cited as a synonym of *Aplexa hypnorum* by Germain (1930-1931:512) and by Kennard & Woodward (1926:100). This seems impossible because of the following features of the description: (1) depressed spire, (2) ventricose shell, (3) broad spire with whorls obsolete except for the last, that (4) forms the whole shell; (5) the gray and not black body (6) thrice as large as the shell, (7) into which it cannot withdraw, and (8) the mantle covering the greatest part of the very fragile little shell.
<*Physa fontinalis* (Linnaeus, 1758).
- gibbosa* Moquin-Tandon, 1843, *Physa acuta* var. *Mém. Acad. Sci. Toulouse*, sér. 2,

- 6:179. Fonsorbes [43°32'N, 1°14'E], Dépt. Haute-Garonne, France, *Reyniés*. <*Haitia acuta* (Draparnaud, 1805).
- gibbosa* Rigacci & Rigacci, 1866, *Physa heterostropha* var. Cat. conch. coll. Rigacci: 31. "America." *Nomen nudum*. Original material perhaps in Museum of Zoology, Rome, Italy. <*Haitia acuta* (Draparnaud, 1805).
- gibbosa et minutissima* Massot, 1872, *Physa*. Bull. Soc. Agric., Sci. Litt. Pyrénées-Orientales 19:112 [non-binomial]. La Preste [Les Bains de La Preste, 42°24'N, 2°24'E], Dépt. Pyrénées-Orientales, France. <*Haitia acuta* (Draparnaud, 1805).
- gigantea* Fischer & Crosse, 1886, *Aplecta nitens* var. Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):89, pl. 39, figs. 3-3a. Subfossil, Veracruz [32°25'N, 115°05'W], Veracruz, Mexico, *Auguste Sallé*, 1832-1835. The name *gigantea* occurs only on the plate caption, not in the text. Figured specimen and presumed holotype in MHNP (Chevallier, 1965:25). <*Mexinauta nitens* (Philippi, 1841).
- glabra* De Kay, 1843, *Physa*. Zool. N.Y. 5:80, pl. 5, fig. 88. Lake Champlain, New York, *Dr. Budd*. <*Sibirenauta elongatus* (Say, 1821).
- glandiformis* Fischer & Crosse, 1886, *Aplecta aurantia* var. Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):86, pl. 33, figs. 1-1a. Near Acapulco [16°5'N, 99°55'W], Guerrero, Mexico, *Auguste Sallé*, 1832-1835. Holotype in MHNP (Chevallier, 1965:25). <*Mexinauta aurantia* (Carpenter, 1857).
- globosa* Germain, 1903, *Physa castanea*. Bull. Soc. Sci. Nat. Ouest France, sér. 2, 3:183. "La Maine, en Reculée" [Promenade de Reculée, Angers (47°28'N, 0°33'W), Dépt. Maine-et-Loire], France. Holotype presumably in MHNP. <*Haitia acuta* (Draparnaud, 1805).
- globosa* Haldeman, 1841, *Physa*. Proc. Acad. Nat. Sci. Phila. 1:78; 1842, J. Acad. Nat. Sci. Phila. 8:200; 1843, Mon. FW univalve Moll. U.S. 6:38, pl. 5, figs. 10-12. Mouth of Nolichucky River, Greene County, Tennessee. Holotype ANSP 280 017 (H. B. Baker, 1964:155). Type species of *Physella* Haldeman, 1843. =*Physella globosa* (Haldeman, 1841).
- gomerana* Mousson, 1872, *Physa tenerifae* var. Neue Denkschr. Allg. Schweiz. Ges. 25(1):138. "Gomera (*Fritsch*), San Sebastian, même île (*Fritsch*)" [Canary Islands]. Holotype in ZMZ. <*Haitia acuta* (Draparnaud, 1805).
- goodrichi* Clench, 1926, *Physa*. Occ. Pap. Mus. Zool. Univ. Mich. 168:1, pl. 1, figs. 1-2. South Fork of Powell River, Big Stone Gap [36°52'54"N, 82°44'50"W], Wise County, Virginia. Holotype UMMZ 29 520; 2 paratypes MCZ 51 118. <*Physella gyrina* (Say, 1821).
- gouldi* Clench, 1935, *Physa*. Nautilus 49:30; 48:pl. 7, fig. 5. Mouse River, 6 miles north of Towner, McHenry County, North Dakota, *Neal Weber*, 28-VI-1933. Holotype MCZ 103 282, 4 paratypes CMN 54 870. <*Physella gyrina* (Say, 1821).
- gracilentia* Fischer & Crosse, 1886, *Aplecta aurantia* var. Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):87, pl. 39, figs. 4-4a. Cobán [15°29'N, 90°19'W], Depto. Alta Verapaz, Guatemala, *M.-F. Bocourt*, *Commission Scientifique du Mexique*, 1864-1866. Holotype in MHNP (Chevallier, 1965:25). =*Mexinauta gracilentus* (Fischer & Crosse, 1886).
- gracilior* Martens, 1898, *Physa impluviata* var. Biol. Centr.-Amer., Mollusca: 360. Environs of San José [9°56'N, 84°05'W], Costa Rica, *Pierre Biolley*. Holotype not listed in ZMB by Kiliias (1961).

- <*Mayabina pliculosa* (Martens, 1898).
gracilis Fischer & Crosse, 1886, *Aplecta cisternina* var. Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):95, pl. 30, figs. 10-10b. Mérida [20°58'N, 89°37'W], Yucatán, Mexico, *Arthur Morelet*, II-III-1847. Holotype not in MHNP (Chevallier, 1965:26). Not *Physa prisca* var. *gracilis* Noulet, 1854, a synonym of *Aplexa prisca* (Noulet) (Wenz, W., 1923, *Gastropoda extramarina tertiaria V*; in Pompeckj, J. F., (ed.), *Fossilium catalogus*, I, Animalia, 22:1716).
 <*Mayabina polita* sp.n.
grancanariae Mousson, 1872, *Physa tenerifae* var. *Neue Denkschr. Allg. Schweiz. Ges.* 25(1):139. "El Monte, Gran Canaria (*Wollaston*)" [Canary Islands]. Holotype in ZMZ.
 <*Haitia acuta* (Draparnaud, 1805).
grandis Westerlund, 1885, *Physa fontinalis* var. *bulliformis*. *Fauna Paläarct. Reg. Binnenconch.* 5:55. Sweden, no precise locality. Unique holotype SMNH, Westerlund collection 12:22, from Ronneby [56°12'N, 15°18'E], Sweden.
 <*Physa fontinalis* (Linnaeus, 1758).
gratiosa "Monterosato" Coen, 1945, *Aplexa hypnorum*. *Script. Var. Pont. Acad. Sci.* 3:14. Interlaken [46°41'N, 7°51'E], Canton Berne, Switzerland. *Nomen nudum*. Original material perhaps in HUJ.
 <*Aplexa hypnorum* (Linnaeus, 1758).
grijalvae sp.n., *Chiapaphysa*. Mexico, Chiapas: Río Suchiapa, 2 km SE of Suchiapa, 16°36.4'N, 93°5.0'W, 7-II-1988 (T88-502). Holotype CAS 114 818, paratypes CAS 114 787 (10), BMNH 20001308 (10), MCZ 302 595 (4), ZIBM CNMO 1161 (10).
 Type species of *Chiapaphysa* g.n.
grosvenorii Lea, 1864, *Physa*. *Proc. Acad. Nat. Sci. Phila.* 16:114; 1867, *J. Acad. Nat. Sci. Phila.* 6:175, pl. 24, fig. 100. "Santa Rita Valley, Kansas? *Mr. H. C. Grosvenor*." Holotype and paratypes USNM 170 753 (Hibbard & Taylor, 1960, *Contr. Mus. Paleont. Univ. Mich.* 16:116). The locality is probably Santa Rita Creek, Haskell County, Oklahoma, where the Whipple party of the Pacific Railroad Surveys collected in 1853.
 <*Haitia mexicana* (Philippi, 1841).
guadeloupensis "Grateloup" Clessin, 1885, *Physa*. *Syst. Conch.-Cab.*, ed. 2, 336:291, pl. 42, fig. 12. Guadeloupe. Types MNS.
 <*Stenophysa marmorata* (Guilding, 1828).
gualbertoi Cousin, 1887, *Aplecta*. *Bull. Soc. Zool. France* 12:261, pl. 4, fig. 3. Germain, 1910, *Miss. Serv. Géogr. Armée Arc Mérid. Équator.*, 1899-1906, 9(3), pl. 4, figs. 5-6 (no text entry). Mapasinga [Mapasingue, 2°09'S, 79°54'W], Prov. Manabí, Ecuador, *Gualberto Perez*. Holotype presumably in MHNP.
 <*Mexinauta peruvianus* (Gray, 1828).
guatemalensis Fischer & Crosse, 1886, *Aplecta tapanensis* var. *Miss. Sci. Mex. Amér. Centr., Rech. zool.* 7(2):94. Plateau of Guatemala, *M.-F. Bocourt, Commission Scientifique du Mexique*, 1864-1866. Holotype not in MHNP (Chevallier, 1965:25).
 ?<*Mayabina tapanensis* (Crosse & Fischer, 1882).
gyrina Say, 1821, *Physa*. *J. Acad. Nat. Sci. Phila.* 2:171. Binney, 1865, *Smithson. Misc. Coll.* 7(2)(serial no. 143):77, fig. 130. Boyer Creek, Pottawatomie County, Iowa, *Thomas Say, Major S. H. Long's Expedition to the Rocky Mountains*, 1819-1820. Lectotype (H. B. Baker, 1964:155) ANSP 20 968a, designated without reference to the specimen identified and illustrated by Binney as type. The expedition made winter camp at Engineer Cantonment on the Nebraska side of the Missouri River, "five miles below Council

- Bluff and three miles above the mouth of Boyer's river," on Sept. 19, 1819.
= *Physella gyrina* (Say, 1821).
- Haitia* Clench & Aguayo, 1932. Proc. New England Zool. Club 13:37. Type species *Physa (Haitia) elegans* Clench & Aguayo, 1932. As subgenus of *Physa*. Genus of Physinae, Haitiini.
- halei* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:114; 1867, J. Acad. Nat. Sci. Phila. 6:165, pl. 24, fig. 83. Alexandria [31°18'40"N, 92°26'42"W], Rapides Parish, Louisiana, *Josiah M. Hale*. Holotype presumably in USNM.
<*Haitia mexicana* (Philippi, 1841).
- hankensis* Starobogatov & Prozorova, 1989, *Physa (Ussuriphysa)*. Biull. Otdel. Biol. Moskovsk. Obshchest. Ispytat. Prirod. 94:72, figs. 3,5; 4,5-6. Pool near Kaktokovsk lake [not traced], Khabarovsk region, Russia, *I. M. Moskvicheva* and *Y. I. Starobogatov*, 28-VIII-1972. Holotype in ZIP.
= *Physa hankensis* Starobogatov & Prozorova, 1989.
- +*harpa* Taylor, in Taylor & Smith, 1981, *Physa (Costatella)*. Contr. Mus. Paleont. Univ. Mich. 25:368, pl. 16, figs. 1-12. SE 1/4 sec. 16, T. 13 N., R. 2 W., Box Elder County, Utah; Cache Valley Formation, Pliocene. Holotype USNM 305 783.
= *Costatella harpa* (Taylor, 1981).
- harryi nom.nov.*, *Caribnauta*. Stream west of Las Piedras, Municipio Las Piedras, Puerto Rico. New name for *Physa marmorata* Guilding as identified by Harry & Hubendick (1964). Type species of *Caribnauta g.n.*
- hartwigi* "Dunker" Paetel, 1889, *Physa*. Cat. Conch.-Samml., ed. 4, 2:405. "Parana" [Río Paraná, Argentina - Brasil - Paraguay; or the city of Paraná, Entre Ríos, Argentina]. *Nomen nudum*. Original material in ZMB.
Aplesinae *incertae sedis*.
- havanensis* "Pfeiffer" Clench, 1936, *Physa*. Mem. Soc. Cub. Hist. Nat. 10:339. Published as synonym of *P. cubensis* Pfeiffer, 1839.
<*Haitia cubensis* (Pfeiffer, 1839).
- hawonii* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 6:165, pl. 24, fig. 84. Verdigris River, Kansas, *Frederick Hawn*, *Geological Survey of Kansas*, 1864. Holotype and paratypes USNM 29 183 (Hibbard & Taylor, 1960, Contr. Mus. Paleont. Univ. Mich. 16:116); 2 paratypes MCZ 55 625.
<*Physella gyrina* (Say, 1821).
- hemphilli sp.n.*, *Physella*. Coeur D'Alene Lake, Kootenai County, Idaho, *Henry Hemphill*. Holotype CAS 116 331, five paratypes CAS 114 825 (formerly H. Hemphill collection 6788), 14 paratypes CAS 114 824, ex Stanford University, ex Hemphill collection.
- hendersoni* Clench, 1925, *Physa pomilia*. Occ. Pap. Mus. Zool. Univ. Mich. 161:4, pl. 1, fig. 3. Yemassee [32°41'24"N, 80°51'03"W], Hampton County, South Carolina, *John B. Henderson, Jr.* Holotype UMMZ; 3 paratypes MCZ 51 151.
<*Haitia pomilia* (Conrad, 1834).
- heterostropha* Say, 1817, *Lymnaea*. Article "Conchology," in W. Nicholson, British Encyclopedia, American edition, 2: no pagination, pl. 1, fig. 6. Delaware River [presumably near Philadelphia, Pennsylvania]. Holotype not positively identifiable in ANSP (H. B. Baker, 1964:155).
<*Haitia acuta* (Draparnaud, 1805).
- heterostrophella* Cockerell, 1889, *Physa heterostropha var.* Rep. Colo. Biol. Assoc. 11:3 [*nomen nudum*]; 1889, *Ibid.* 13:1, figs. 2-3. Westcliffe [38°08'05"N, 105°27'55"W, 7888 ft], Custer County, Colorado. BMNH 1896.9.4.67-74, with no identification, is labeled as from "West Cliff," Colorado, *T. D. A. Cockerell*; this series is probably from the original material.
<*Physella gyrina* (Say, 1821).

- hildrethiana* Lea, 1841, *Physa*. Proc. Amer. Phil. Soc. 2:32; 1844, Trans. Amer. Phil. Soc. 9:7. Binney, 1865, Smithsonian. Misc. Coll., 7(2)(serial no. 143):78, fig. 132. A lake in Illinois, Dr. S. P. Hildreth. Holotype not in USNM (Hibbard & Taylor, 1960, Contr. Mus. Paleont. Univ. Mich. 16:119).
<*Physella gyrina* (Say, 1821).
- hoffmanni* Martens, 1898, *Physa fuliginea* var. Biol. Centr.-Amer., Moll.: 360, pl. 20, figs. 5, 5a, 6. Laguna Redonda, near Candelaria, Costa Rica, Carl Hoffmann, 1856. Lectotype (Kilias, 1961) ZMB 51 236a, fig. 5. One paratype ZMB 51 236b, 13 paratypes ZMB 51 298. Laguna Redonda was not traced, but there are two places Candelaria in Prov. Alajuela: 10°02' N, 84°25' W; and 10°07' N, 84°24' W; and another in Prov. San José: 9°48' N, 84°20' 30" W.
<*Mayabina pliculosa* (Martens, 1898).
- hordacea* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:116; 1867, J. Acad. Nat. Sci. Phila. 6:176, pl. 24, fig. 102. Taylor, 1960, U.S. Geol. Surv. Prof. Pap. 337:64, pl. 3, figs. 1-4. Vancouver Island [45°37' 32" N, 122°39' 25" W], Clark County, Washington, Sir George Simpson, Hudson's Bay Company, 1841. Holotype USNM 170 764, labeled Columbia River at Vancouver, Washington, from Lady Douglas; 111 paratypes, USNM 170 764; 3 paratypes MCZ 55 263, 2 paratypes MCZ uncat; 7 paratypes CMN 55 081. The following three lots are probably paratypes received from Lea, although not so labeled: UMMZ 115664 (one specimen), from James Lewis collection by way of Bryant Walker collection, labeled only "Oregon;" UMMZ 124596 (8 specimens), from G. W. Taylor by way of Bryant Walker collection, labeled "Vancouver Island, British Columbia;" UMMZ 193163 (six specimens), labeled "Vancouver Island." *Physinae incertae sedis*.
- +*humboldtiana* Taylor, in Taylor & Smith, 1981, *Physa (Costatella)*. Contr. Mus. Paleont. Univ. Mich. 25:367, pl. 13, figs. 1-7, pl. 14, figs. 1-9. West end of western tip of Mopung Hills, NW 1/4 sec. 7, T. 23 N., R. 29 E., Churchill County, Nevada; Pliocene. Holotype UMMZ 250 118.
=*Costatella humboldtiana* (Taylor, 1981).
- humerosa* Gould, 1855, *Physa*. Proc. Boston Soc. Nat. Hist. 5:128; 1856, U.S. War Dept. Pacific RR Rep., 5(2), appendix, art. 3: 331, pl. 11, figs. 1-5. Pleistocene or Holocene, Colorado Desert, California, W. P. Blake, R. S. Williamson party of U.S. War Dept. Pacific Railroad Surveys, 1853. Syntypes USNM 50, 170 780; 1 syntype MCZ 45 300, 9 syntypes MCZ 169 187 (Johnson, 1964:89). Three specimens, BMNH uncat., from Cuming collection, are labeled "*Physa humerosa*, Gould. type. Gran Jornada. N. Mexico;" one was figured by Sowerby, 1873-1874, fig. 41. Lectotype (H. B. Baker, 1964:155) ANSP 17 279.
<*Haitia mexicana* (Philippi, 1841).
- #*hypnicola* Chatenier, 1888, *Physa*. Bull. Soc. Sci. Nat. Drôme. Emendation of *hypnorum* Linnaeus (1758), but the locality cited is Chavannes [45°05' N, 4°51' E], Dépt. de la Drôme, France.
=*Aplexa hypnorum* (Linnaeus, 1758).
- hypnorum* Linnaeus, 1758, *Bulla*. Syst. nat., ed. 10: 727. Linnaeus gave as locality only "Habitat in Europae Muscis humentibus," but cited the Fauna Suecica (1746), no. 1303, where he stated "Habitat in sylvis." The type locality is thus in Sweden. Holotype not in LS (Hanley, 1855, *Ipsa* Linn. conch.: 208; Dance, 1967, Proc. Linn.

- Soc. London, 178:21). Type species of *Aplexa* Fleming, 1820.
 =*Aplexa hypnorum* (Linnaeus, 1758).
- impluvialis* "Morelet" Paetel, 1889, *Aplexus*. Cat. Conch.-Samml., ed. 4, 2:410. Error for *impluviata*.
- impluviata* Morelet, 1849, *Physa*. Test. noviss. 1:18. Fischer & Crosse, 1870-1902, Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):91, pl. 30, fig. 3, pl. 39, fig. 5. Guatemala City [13°40'N, 88°13'W], Guatemala, Arthur Morelet, 1847. Three syntypes BMNH uncat.; three in MHNP (Chevallier, 1965:25).
 =*Mexinauta impluviatus* (Morelet, 1849).
- inflata* Jeffreys, 1862, *Physa fontinalis* var. Brit. conch. 1:98. It is not clear whether Jeffreys intended to propose the variety as new, or merely adopted the name from Moquin-Tandon (1855). Original material in USNM.
 <*Physa fontinalis* (Linnaeus, 1758).
- inflata* Lea, 1841, *Physa*. Proc. Amer. Phil. Soc. 2:32; 1844, Trans. Amer. Phil. Soc. 9:7. Binney, 1865, Smithson. Misc. Coll., 7(2)(serial no. 143):88, fig. 152. "A small stream which crosses the road in a gap in the main chain of the Alleghany Mountains between the Salt Sulphur and the Sweet Springs in Virginia", P. H. Nicklin. The locality is between the towns of Salt Sulphur Springs [37°34'13"N, 80°33'30"W, 1896 ft] and Sweet Springs [37°37'42"N, 80°14'30"W, 2029 ft], Monroe County, West Virginia. Holotype presumably in USNM.
 <*Physa heterostropha* (Say, 1817) (Binney, 1865:85).
 <*Haitia acuta* (Draparnaud, 1805).
- inflata* Moquin-Tandon, 1855, *Physa fontinalis* var. Hist. nat. moll. terr. fluv. France 2:451, pl. 32, fig. 13. Nantes [47°13'N, 1°33'W], Dépt. Loire-Atlantique, France.
 <*Physa fontinalis* (Linnaeus, 1758).
- influviata* "Morelet" Sowerby II, 1873, *Physa*. Conch. Icon., *Physa*, sp. 16, pl. 2, fig. 16. Misreading of label of *impluviata*.
- integra* Haldeman, 1841, *Physa*. Monogr. FW univalve Moll. U.S. 3: cover p. 3; 1843, *Ibid.* 6:33, pl. 4, figs. 7-8. Indiana; sent by Mrs. Say, hence likely from the vicinity of New Harmony [38°07'47"N, 87°56'06"W], Posey County. Holotype ANSP 280 023a (H. B. Baker, 1964:155).
 =*Haitia integra* (Haldeman, 1841).
- interioris* Ferriss, 1920, *Physa humerosa*. Nautilus 34:7. *Nomen nudum*.
 <*Haitia mexicana* (Philippi, 1841).
- interioris* "Ferriss" Pilsbry, 1932, *Physa humerosa*. Nautilus 45:139, pl. 11, fig. 12. West branch of Navajo Creek, Cocconino County, Arizona, J. H. Ferriss. Holotype ANSP 45 871a (H. B. Baker, 1964:155); 1 paratype MCZ 47 854, 3 paratypes MCZ 86 383.
 <*Haitia mexicana* (Philippi, 1841).
- intermedia* Fischer & Crosse, 1886, *Physa berendti* var. Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):104, pl. 39, figs. 7-7b. Putla [Putla de Guerrero, 17°02'N, 97°56'W; despite the name it is in Oaxaca], Oaxaca, Mexico, Auguste Sallé, 1832-1835.
 <*Haitia mexicana* (Philippi, 1841).
- intermedia* Locard, 1880, *Physa hypnorum*. Études var. malac. Bassin Rhône 1:317, pl. 2, fig. 31. "Les environs de Lyon [45°45'N, 4°51'E, Dépt. Rhône]," France. Holotype in MHNP.
 <*Paraplexa cornea* (Massot, 1845).
- jaliscoensis* sp.n., *Amecanauta*. Mexico, Jalisco: Roadside ditch on W side of Mex. 200 opposite entrance to "Modulo de Abasto" de Puerto Vallarta, 2.2 km NE of entrance to airport, 20°41.48'N, 105°13.95'W, 16-IX-1987 (T87-901). Holotype CAS 114 813, paratypes CAS 114 800 (10), BMNH 20001306 (10), MCZ 302 596 (4), ZIBM CNMO 1159 (10).
 Type species of *Amecanauta* g.n.

- jamaicensis* C. B. Adams, 1851, *Physa*. Contr. Conch. 9:174. Johnson & Boss, 1972, Occ. Pap. Moll. 3:206, pl. 38, fig. 4. Tank at Malvern [17°58'N, 77°42'W], in the Santa Cruz Mountains, St. Elizabeth Parish, Jamaica. Lectotype (Johnson & Boss) MCZ 155 985; 58 lectoparatypes MCZ 278 326. =*Haitia jamaicensis* (C. B. Adams, 1851).
- janeirensis* "Beck" Morretes, 1949, *Physa*. Arq. Mus. Parana. 7:123. Rio de Janeiro, Brasil. *Nomen nudum*. Not assignable to a described species at this time.
- jarochnovitschae* Starobogatov & Zatravkin, 1989, *Physa* (*Ussuriphysa*). Biull. Otdel Biol. Moskovsk. Obshch. Ispytat. Prirod. 94:73, figs. 3,7; 4,7. Delta of Kolyma River at Pokhodsk [69°06'N, 160°59'E], Yakutsk Autonomous Republic, Russia, S. A. Buturlin, 27-VI-1905. Holotype in ZIP. <*Physa hankensis* Starobogatov & Prozorova, 1989.
- jennessi* Dall, 1919, *Physa*. Rep. Canad. Arctic Exped., 1913-1918, 8(A):20, pl. 2, fig. 2. Clarke, 1973, Malacologia 13:362, pl. 24, fig. 3. Ponds near Bernard Harbour [68°47'N, 114°47'N], District of Mackenzie, Northwest Territories, Canada, *Diamond Jenness, Canadian Arctic Expedition*, VII-1916. Holotype CMN 4 020, 3 paratypes 4 019. =*Beringophysa jennessi* (Dall, 1919).
- johnsoni* Clench, 1926, *Physa*. Occ. Pap. Mus. Zool. Univ. Mich. 168:2, fig. 3. Middle spring, Hot Sulphur Springs, Banff [51°10'N, 115°34'W], Alberta, Canada, *Owen Bryant*. Holotype UMMZ 33 066; 8 paratypes MCZ 55 308; large series of paratypes, MCZ 55 595; 2 paratypes CMN 11 670. For references to the thermal springs see Waring (1965:56). <*Physella gyrina* (Say, 1821).
- junior* Astre, 1921, *Physa fontinalis* var. Bull. Soc. Hist. Nat. Toulouse 49:249. Oise valley, France. <*Physa fontinalis* (Linnaeus, 1758).
- khabarovskiensis* Starobogatov & Prozorova, 1989, *Physa* (*Ussuriphysa*). Biull. Otdel Biol. Moskovsk. Obshch. Ispytat. Prirod. 94:73, fig. 3,6. Pool near Kak-tokovsk lake [not traced], Khabarovsk region, Russia, I. M. Moskvicheva and Y. I. Starobogatov, 28-VIII-1972. Holotype in ZIP. <*Physa hankensis* Starobogatov & Prozorova, 1989.
- kultukiana* Dybowski, 1913, *Physa*. Ann. Mus. Zool. Acad. Sci. St.-Petersbourg 17:207, pl. 5, fig. 30. Kultuk [51°44'N, 103°42'E], Lake Baikal, Irkutsk District, Russia. Lectotype in ZIP (Starobogatov & Streletskaia, 1967:234). Type species of *Sibirenauta* Starobogatov & Streletskaia, 1967. ?<*Sibirenauta depressior* (Middendorff, 1851).
- küsteri* Clessin, 1886, *Physa*. Syst. Conch.-Cab., ed. 2, 339:409, pl. 3, figs. 1-2. Locality unknown; probably not recognizable. Types MNS. *Physinae incertae sedis*.
- kuvaevi* Starobogatov & Prozorova, 1989, *Physa* (*Beringophysa*). Biull. Otdel Biol. Moskovsk. Obshch. Ispytat. Prirod. 94:74, figs. 3,8; 4,8. Lake near Anadyr [64°45'N, 177°29'E] airport, Chukotsk Autonomous Region, Russia, L. L. Budnikova, 23-VII-1974. Holotype in ZIP. <*Beringophysa jennessi* (Dall, 1917).
- lacustris* Clessin, 1886, *Physa*. Syst. Conch.-Cab., ed. 2, 338:344, pl. 48, fig. 9. Lago Coatepeque [13°52'N, 89°33'W], Depto. Santa Ana, El Salvador; from collection of *Arthur Morelet*. Holotype and a paratype BMNH 93.2.4.1370-1371. A note on the box containing the specimens says "Type on left." Possibly only an ecophenotype of *Haitia mexicana*

- (Philippi, 1841).
 =*Haitia lacustris* (Clessin, 1886).
- laeta* Martens, 1898, *Physa impluviata* var. Biol. Centr.-Amer., Mollusca: 359, pl. 20, figs. 2-3. Vera Paz, Guatemala, *Osbert Salvin*. Lectotype (Kilias, 1961) ZMB 51 234a, fig. 3. Two paratypes ZMB 51 234b.
 =*Mexinauta laetus* (Martens, 1898).
- laphami* F. C. Baker, 1928, *Physella*. Bull. Wisc. Geol. Nat. Hist. Surv. 70(1):420, pl. 25, figs. 1-5. Hancock [44°08'01"N, 89°31'23"W, 1089 ft], Waushara County, Wisconsin, *D. S. Bullock*. Holotype Univ. Wisconsin 4 578a (Franzen, 1957:32), now in UMMZ.
 =*Archiphysa laphami* (F. C. Baker, 1928).
- lata* Tryon, 1865, *Physa*. Amer. J. Conch. 1:227, pl. 23, fig. 7. Juniata River, Hollidaysburg [40°25'38"N, 78°23'21"W], Blair County, Pennsylvania, *W. M. Gabb*. Holotype ANSP 21 034 (H. B. Baker, 1964:155).
 <*Haitia acuta* (Draparnaud, 1805).
- latchfordi* F. C. Baker, 1928, *Physella*. Bull. Wisc. Geol. Nat. Hist. Surv. 70(1):423, pl. 25, figs. 7-8. Meach Lake [45°31'N, 75°52'W], Ottawa County, Quebec, Canada, *F. R. Latchford*. Holotype formerly F. C. Baker collection 1 340, presumably now in USNM.
 =*Archiphysa latchfordi* (F. C. Baker, 1928).
- Laurentiphysa* g.n. Type species *Physa vernalis* Taylor & Jokinen, 1985. Genus of Physinae, Physini.
- lepida* Moquin-Tandon, 1855, *Physa fontinalis* var. Hist. nat. moll. terr. fluv. France 2:451. Nantes [47°13'N, 1°33'W], Dépt. Loire-Atlantique, France.
 <*Physa fontinalis* (Linnaeus, 1758).
- letourneuxi* Bourguignat, 1879, *Physopsis*. Descr. div. espèces terr. fluv. Afrique: 16. "Damahour [Damanhūr, 31°02'N, 30°28'E, Prov. Al-Buhayra]," Egypt. Holotype in MHNG. Listed as *Physa* by Pilsbry & Bequaert (1927, Bull. Amer. Mus. Nat. Hist. 53:147).
 <*Haitia acuta* (Draparnaud, 1805).
- lhotelleriei* "Bourguignat" Pallary, 1909, *Physa subopaca* var. Mém. Inst. Égyptien 6:46, pl. 3, fig. 40. Ramleh; Gabbari; Matarich; ancienne fontaine de la Place de l'Opéra au Caire, Egypt. Emendation or error for *lhotellerii* Bourguignat.
 <*Haitia acuta* (Draparnaud, 1805).
- lhotellerii* Bourguignat, 1879, *Physopsis*. Descr. div. espèces terr. fluv. Afrique: 17. "Damahour [Damanhūr, 31°02'N, 30°28'E, Prov. Al-Buhayra]," Egypt. Holotype in MHNG. Listed as *Physa* by Pilsbry & Bequaert (1927, Bull. Amer. Mus. Nat. Hist. 53:147).
 <*Haitia acuta* (Draparnaud, 1805).
- loosii* Holmberg, 1909, *Physa*. Apuntes de historia natural [Buenos Aires] 1:28. Ciénaga at the foot of Sierra Pie de Palo, Depto. Santa Lucía [more likely now in Depto. San Martín], San Juan, Argentina, *Dr. Paul Loos*. Eight syntypes in MACN, Holmberg collection 1 404.
Aplexinae incertae sedis.
- lordi* Baird, 1863, *Physa*. Proc. Zool. Soc. London 1863:68. Binney, 1865, Smithson. Misc. Coll. 7(2)(serial no. 143):76, figs. 125-126. Sowerby II, 1873, Conch. Icon., *Physa*, sp. 28, pl. 4, figs. 28a-b. "Lake Osoyoos, British Columbia," Canada, *J. K. Lord*, *Northwest Boundary Survey*, 1859-1860. The correct locality is probably Pend Oreille River, Seneacquoten [48°09'06"N, 116°45'16"W, 2101 ft], Bonner County, Idaho. Three syntypes BMNH 1863.2.4.1. Type species of *Archiphysa* g.n.
 =*Archiphysa lordi* (Baird, 1863).
- magnalacustris* Walker, 1901, *Physa ancillaria* var. Nautilus 14:97. Frankfort

- [44°38'01"N, 86°14'04"W], Benzie County, Michigan. Holotype formerly B. Walker collection 9 214 (Winslow, 1926:17), now in UMMZ.
<*Physella vinosa* (Gould, 1847).
- major* Charpentier, 1837, *Physa hypnorum*. Nouv. Mém. Soc. Helv. Sci. Nat. 1: 19, pl. 2, fig. 12b. "Un petit marais au bord du Rhône, près du hameau du Diabley en Vallais," Switzerland. Holotype perhaps in Zoological Museum, Lausanne, Switzerland. Not of d'Orbigny, 1837.
<*Paraplexa cornea* (Massot, 1845).
- major* Germain, 1903, *Physa castanea*. Bull. Soc. Sci. Nat. Ouest France, sér. 2, 3:183. "La Maine, à la tour Guilloux, à Angers [47°28'N, 0°33'W, Dépt. Maine-et-Loire]," France. Holotype presumably in MHNP.
<*Haitia acuta* (Draparnaud, 1805).
- #*major* Licherdopol, 1903, *Physa fontinalis*. Catalogul colec_ilor expuse la Congresul Asoc. Romîne pentru înaintarea _tiin_elor. Bucure_ti. *Nomen nudum*. See Grossu, 1955, Fauna Rep. Pop. Romîne: 94.
<*Physa fontinalis* (Linnaeus, 1758).
- major* Locard, 1880, *Physa acuta*. Études var. malac. Bassin Rhône 1:314, pl. 2, fig. 33. "La Mouche au sud de Lyon [45°45'N, 4°51'E, Dépt. Rhône]," France. Holotype in MHNP.
<*Haitia acuta* (Draparnaud, 1805).
- major* Locard, 1880, *Physa fontinalis*. Études var. malac. Bassin Rhône 1:312. "Saint-Fons [45°42'N, 4°52'E], Rhône," France. Holotype in MHNP.
<*Physa fontinalis* (Linnaeus, 1758).
- major* d'Orbigny, 1837, *Physa rivalis* var. Voy. Amér. MÉR. 5(3):341. Unnecessary substitute for *Physa peruviana* Gray, 1828.
=*Mexinauta peruvianus* (Gray, 1828).
- major* Westerlund, 1885, *Physa hypnorum forma*. Fauna Paläarct. Reg. Binnenconch. 5:58. No locality. No type material in SMNH.
<*Aplexa hypnorum* (Linnaeus, 1758).
- malleata* Tryon, 1865, *Physa*. Amer. J. Conch. 1:225, pl. 23, fig. 14. "Hell Gate River, Oregon," most likely Columbia River in northeast Washington; no collector indicated on label of type. Holotype ANSP 17 300a (H. B. Baker, 1964:155).
<*Physella gyrina* (Say, 1821).
- mamoi* Benoit, 1875, *Physa*. Bull. Soc. Malac. Ital. 1:159. Malta. Published in synonymy of *Physa acuta* Draparnaud, 1805.
<*Haitia acuta* (Draparnaud, 1805).
- marci* F. C. Baker, 1924, *Physa*. Nautilus 38:15, fig. 5. "Little Valientia Spring (hot sulphur spring), Santa Barbara National Forest, California," Jerry Baxter, submitted through M. H. Dall. Headquarters officials of the Santa Barbara District, Los Padres National Forest, suggested the locality is probably a hot spring in SW 1/4 sec. 4, T. 5 N., R. 26 W., Santa Barbara County, in a tributary of Little Caliente Canyon, known as Little Caliente Spring. Holotype USNM 359 544; 3 paratypes MCZ 47 465 ex USNM 359 546.
<*Haitia mexicana* (Philippi, 1841).
- margarita* Lesson, 1840, *Physa*. Rev. Zool. 1840:356. "Terra-Novae insula" [Newfoundland, Canada], A. Lesson. On advice from J. E. Maunder, Newfoundland Museum, St. John's, Newfoundland, this name
<*Physella gyrina* (Say, 1821)
- margaritacea* "Shuttleworth" Martens, 1873, *Physa*. Festschr. Feier hundertjährig. Besteh. Gesellsch. naturforsch. Fr. Berlin: 199. Antigua, Haines. Published in synonymy of *Physa rivalis* Maton, in the broad sense of a species of the Antilles and South America. Three specimens, BMNH uncat., no collector cited, from the Cuming collection are labeled *Physa margaritacea* Shuttl. and are

- probably part of the original collection on which the name was based.
 <*Stenophysa marmorata* (Guilding, 1828).
- marmorata* Gmelin, 1791, *Helix*. Syst. Nat., ed. 13, 1(6):3665. Based on Schröter, 1779, *Gesch. Flussconch.*: 290, pl. 6, fig. 9. Strasbourg [48°35'N, 7°45'E], Dépt. Bas-Rhin, France.
 <*Aplexa hypnorum* (Linnaeus, 1758).
- marmorata* Guilding, 1828, *Physa*. Zool. J. 3:534. St. Vincent, West Indies.
 =*Stenophysa marmorata* (Guilding, 1828).
- martinidella* "Jousseume" Cousin, 1887, *Aplecta*. Bull. Soc. Zool. France 12:262, pl. 3, fig. 5. San Nicolás, Cantón Mejía, Prov. Pichincha, Ecuador.
 = *Mayabina carolita* (Jousseume, 1887).
- martorelli* Servain, 1880, *Physa*. Étude moll. rec. Espagne et Portugal: 139. "Pedralbas à Sarria, près Barcelone," Cataluna, Spain.
 <*Haitia acuta* (Draparnaud, 1805).
- mascotica* Rigacci & Rigacci, 1866, *Physa*. Cat. conch. coll. Rigacci: 31. No locality. *Nomen nudum*. Original material perhaps in Museum of Zoology, Rome, Italy.
Physidae incertae sedis.
- massoti* "Penchinat" Locard, 1893, *Physa*. Coq. eaux douces France: 52. La Preste [Les Bains de La Preste, 42°24'N, 2°24'E] (Pyrénées-Orientales), France. Holotype in MHNP. <*P. acuta* Draparnaud (Germain, 1930-1931: 510).
 <*Haitia acuta* (Draparnaud, 1805).
- maugeriae* "Gray" Beck, 1838, *Aplexa*. Index moll. mus. Christiani Frederici: 117. Mexico. *Nomen nudum*. Original material in ZMUC.
 <*Mexinauta princeps* (Phillips, 1846).
- maugeriae* "Quoy" Sowerby II, 1873, *Physa*. Conch. Icon., *Physa*, sp. 11, pl. 2, fig. 11. "Jamaica," in error; most likely from the Yucatan Peninsula, Mexico. Bequaert & Clench, 1936, Carnegie Inst. Wash. Publ. 457:69, pl. 1, figs. 1-4. Holotype not in BMNH. It is possible that the erroneous attribution to "Quoy" is a misreading of a label "Gray."
 <*Mexinauta princeps* (Phillips, 1846).
- Mayabina g.n.* Type species *Physa spiculata* Morelet, 1849. Genus of Aplexinae, Amecanautini.
- mediana* "Férussac" Clessin, 1886, *Physa*. Syst. Conch.-Cab., ed. 2, 339:370, pl. 54, fig. 10. Lima [12°03'S, 77°03'W], Prov. Lima, Peru. From Morelet collection, but no material in BMNH. Types MNS.
 ?<*Haitia venustula* (Gould, 1847).
- mediana* "Parreys" Dupuy, 1850, *Physa*. Hist. nat. moll. terr. eau douce France: 457. Published in synonymy of *Physa subopaca* Lamarck, 1822. Original material in MHNT.
 <*Haitia acuta* (Draparnaud, 1805).
- medianus* "Férussac" Beck, 1838, *Bulinus*. Index moll. mus. Christiani Frederici: 118. "A. mer. Lima" [America meridionalis, Lima (12°03'S, 77°03'W), Prov. Lima, Peru]. *Nomen nudum*. Original material in ZMUC.
 ?<*Haitia venustula* (Gould, 1847).
- Mediterraneophysa* Starobogatov & Budnikova, 1976. Trudy Biol.-Pochvenn. Inst. Dal'nevostochn. Nauchn. Tsentr, ANSSSR, n. s., 36:82. Type species (by original designation) *Physa taslei* Bourguignat. As subgenus of *Physa*.
 <*Physa* Draparnaud, 1801.
- megachlamys* "Taylor" Wu & Brandauer, 1982, *Physa*. Nat. hist. invent. Colorado 7:7. *Nomen nudum*.
- megalochlamys* Taylor, 1988, *Physa*. Malac. Rev. 21:55, figs. 3a-j. Lily pond beside US highway 26-89-187, NW 1/4 sec. 19, T. 45 N., R. 114 W., 6815 ft, Teton County, Wyoming, *D. W. Taylor*,

- 23-VII-1963. Holotype CAS 114 779, paratypes UCM 30 260 (Wu & Brandauer, 1982:7).
- melitensis* Mamo, in Caruana, 1867, *Physa*. Enum. moll. Gaulo-Melitensium: 41. Floriana Gardens, Malta. *Nomen nudum*.
<*Haitia acuta* (Draparnaud, 1805).
- mexicana* Philippi, 1841, *Physa*. Syst. Conch.-Cab., ed. 2, 32:5, pl. 1, figs. 3-4. "In Mexiko," probably near the capital. Holotype presumably destroyed in SMF in 1939-45 war.
=*Haitia mexicana* (Philippi, 1841).
- Mexinauta* g.n. Type species *Physa nitens* Philippi, 1841. Genus of Aplexinae, Amecanautini.
- michiganensis* Clench, 1926, *Physa*. Occ. Pap. Mus. Zool. Univ. Mich. 168:4, pl. 1, fig. 4. Stream 1 mile west of Geddes [42°16'01"N, 83°40'04"W], Washtenaw County, Michigan, W. J. Clench, IV-1923. Holotype UMMZ 33 068; 20 paratypes MCZ 51 177.
Haitia integra (Haldeman, 1841).
- microstoma* Haldeman, 1840, *Physa*. Monog. FW univalve Moll. U.S. 1(Suppl.):2; 1843, *Ibid.* 6:39, pl. 4, figs. 13-15. Kentucky and Ohio (no precise locality). Holotype ANSP 280 019a (H. B. Baker, 1964:155).
=*Physella microstoma* (Haldeman, 1840).
- microstriata* Chamberlin & Berry, 1930, *Aplexa*. Bull. Univ. Utah 21(2)[Biol. Ser., 1(3)]:7. Fish Lake, Sevier County, Utah, 8 843 ft, E. G. Berry, 1928-1929. Holotype FMNH 178 747 (dry shell), paratypes FMNH 178 748 (some in alcohol); 3 badly broken paratypes MCZ 47 314; two paratypes in poor condition in alcohol, CAS 28 001. Type species of *Utahphysa* g.n.
=*Utahphysa microstriata* (Chamberlin & Berry, 1930).
- minima* "Kutschig" Brusina, 1866, *Physa*. Verhandl. Zool.-bot. Ges. Wien, 16, Beigabe: 128. Krka [43°37'45"N, 16°45'16"E], Dalmatia, Croatia, Freyer; in collection of Carlo Kutschig de Cjeikovatz. "La credo una giovane *Physa fontinalis*."
<*Physa fontinalis* (Linnaeus, 1758).
- minima* Cockerell, 1889, *Physa acuta* var. J. Conchol. 6:63. Hot spring at Salut, near Bigorre, Dépt. Hautes-Pyrénées, France, C. F. Ancey. For references to the thermal springs (Bagnères-de-Bigorre, 43°04'N, 0°09'E) see Waring (1965:118).
<*Haitia acuta* (Draparnaud, 1805).
- minima* Martens, 1865, *Physa mexicana* var. Malak. Blätt. 12:58. Jalapa [17°43'N, 92°49'W], Veracruz, Mexico, Ferdinand Deppe, circa 1824-1825. Holotype in ZMB.
<*Haitia mexicana* (Philippi, 1841).
- minima* "Frey." Rigacci & Rigacci, 1866, *Physa*. Cat. conch. coll. Rigacci: 31. No locality. *Nomen nudum*. Original material perhaps in Museum of Zoology, Rome, Italy.
Physidae incertae sedis.
- minor* Beck, 1838, *Bulinus crassulus*. Index moll. mus. Christiani Frederici: 117. "Lac. Ontario. an *Physa arctistrophæ*. Chr. et J?" *Nomen nudum*. Original material in ZMUC.
Physinae incertae sedis.
- minor* Benoit, 1875, *Physa elliptica* var. Bull. Soc. Malac. Ital. 1:159. Malta. Published in synonymy of *Physa acuta* Draparnaud, 1805.
<*Haitia acuta* (Draparnaud, 1805).
- minor* Bourguignat, 1864, *Physa acuta* var. Malac. Algérie 2:170, pl. 10, figs. 35-36. Mostaganem [35°51'N, 0°07'E], Algeria, Brondel. Holotype presumably in MHNG.
<*Haitia acuta* (Draparnaud, 1805).
- minor* Crandall, 1901, *Physa elliptica*. Nautilus 15:55. Grand Rapids, Kent County, Michigan, L. H. Streng. Types formerly B. Walker collection 14 469 (Walker, 1918:110), now in UMMZ. Preoccupied many times.
<*Physa skinneri* Taylor, 1954.

- minor* De Malzine, 1867, *Aplexus hypnorum*. Mém. Soc. Sci., Arts Lett. Hainaut, sér. 3, 1:352. "Le bois l'Abbesse," Belgium. Holotype in IRSNB.
<*Aplexa hypnorum* (Linnaeus, 1758).
- minor* Fischer & Crosse, 1886, *Aplexa cister-nina* var. Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):94, pl. 30, fig. 8. Mérida [20°58'N, 89°37'W], Yucatán, Mexico, Arthur Morelet, II-III-1847. Preoccupied many times.
<*Mayabina polita* sp.n.
- minor* Gassies, 1867, *Physa acuta* var. Actes Soc. Linn. Bordeaux 26(sér. 3, 6):127. Pinchourlin, Lége [46°53'N, 1°36'W, Dépt. Loire-Atlantique] (*M. A. Lafont*), Loire-Inférieure, France. *Nomen nudum*. Original material perhaps in Bordeaux or Toulouse museums.
<*Haitia acuta* (Draparnaud, 1805).
- minor* Martens, 1865, *Physa mexicana* var. Malak. Blätt. 12:57. Several localities were cited, none as type locality: "Río de Colipa, bei der Stadt Colipa [19°55'N, 96°42'W, Veracruz], im März 1829, *Deppe*...; Río de Octopan..., ebenfalls im März 1829, *Deppe*...; Mexico und Veracruz, *Uhde*..." Holotype in ZMB.
<*Haitia mexicana* (Philippi, 1841).
- minor* Moquin-Tandon, 1855, *Physa acuta* var. Hist. nat. moll. terr. fluv. France 2:452. Dijon [47°19'N, 5°01'E, Dépt. Côte d'Or], Poitiers [46°35'N, 0°20'E, Dépt. Vienne], Bordeaux [44°50'N, 0°34'W, Dépt. Gironde], France.
<*Haitia acuta* (Draparnaud, 1805).
- minor* Moquin-Tandon, 1855, *Physa fontinalis* var. Hist. nat. moll. terr. fluv. France 2:451. "Dans les Vosges," France.
<*Physa fontinalis* (Linnaeus, 1758).
- minor* d'Orbigny, 1837, *Physa rivalis* var. Voy. Amér. MÉR. 5(3):342. "Nous l'avons rencontrée aux environs de Rio de Janeiro, dans les petits ruisseaux, principalement près de Saint-Christophe et de la baie de Bota fogo. Nous l'avons aussi recueillie, en assez grande abondance, à la source de la petite rivière voisine du Cerro, dans la baie de Montevideo, dans les fossés des lieux ombragés, parmi les plantes cryptogames. Nous l'avons trouvée, encore, près du Rio-Batel, province de Corrientes, et, enfin, en Patagonie, non loin du Rio negro." The type locality is restricted herein to the small stream near the Cerro, a place identified by Formica Corsi (1900-1901) as Arroyo Pantanoso. No material was listed by Gray (1854:25).
Aplexinae incertae sedis.
- minor* Pallary, 1920, *Physa subopaca* var. J. Conchyl. 65:139. Fom Sefrou and Ain Sfa (Beni Znassen), Fès, Morocco.
<*Haitia acuta* (Draparnaud, 1805).
- minor* Rigacci & Rigacci, 1866, *Physa heterostropha* var. Cat. conch. coll. Rigacci: 31. "Betlehem" [Bethlehem, Pennsylvania, 40°37'33"N, 75°22'15"W, Northampton County]. *Nomen nudum*. Original material perhaps in Museum of Zoology, Rome, Italy.
<*Haitia acuta* (Draparnaud, 1805).
- minor* Strebel, 1874, *Physa mexicana*. Abh. Naturwiss. Ver. Hamburg 6(1):51, pl. 6, fig. 26e. Mexico, D. F. Holotype destroyed in ZMH.
<*Haitia mexicana* (Philippi, 1841).
- minor* Strebel, 1874, *Physa nitens*. Abh. Naturwiss. Ver. Hamburg 6(1):50, pl. 6, fig. 25f. Laguna Redonda, Candelaria, Costa Rica, Carl Hoffmann, 1856. Holotype destroyed in ZMH. The locality was not explicitly allocated to a country, but Martens (1890-1901) credited it to Costa Rica; see *hoffmanni*.
<*Mayabina pliculosa* (Martens, 1898).
- minor* Westerlund, 1885, *Physa hypnorum forma*. Fauna Paläarct. Reg. Binnenconch. 5:58. No locality cited. Fourteen syntypes SMNH, Westerlund

- collection 12:27, from Stockholm [59°20'N, 18°03'E], Sweden.
<*Aplexa hypnorum* (Linnaeus, 1758).
- minuta* Beck, 1838, *Bulinus acutus*. Index moll. mus. Christiani Frederici: 116. "Michd. C. xvi. 19-20. Gall. m." [Michaud, A. L. G., 1831, Complément de l'Histoire naturelle des mollusques terrestres et fluviatiles de la France, de J. P. R. Draparnaud, pl. 16, figs. 19-20. *Gallia meridionalis*, i.e., southern France]. Original material in ZMUC?
<*Haitia acuta* (Draparnaud, 1805).
- minuta* "Parreyss" Paetel, 1889, *Physa acuta* var. Cat. Conch.-Samml., ed. 4, 2:403. Egypt. *Nomen nudum*. Original material in ZMB.
<*Haitia acuta* (Draparnaud, 1805).
- mirollii* nom.nov., *Physa*. New name for *Physa fontinalis* as identified by Mirolli (1958, Mem. Ist. Ital. Idrobiol. "Dott. Marco de Marchi" 10:245, pl. 24, figs. 1-5; pl. 26, figs. 1-3) from Lago Maggiore and adjacent Lago di Merigo, Italy.
- moreleti* sp.n., *Haitia*. Guatemala, Depto. El Petén: Marshy border of L. Petén-Itzá, Santa Elena, 16°55.30'N, 89°53.40'W, 110 m, 21-XI-1991 (T91-2104, 2109). Holotype CAS 114 821, paratypes CAS 000000 (10).
- mosambiquensis* Clessin, 1886, *Physa*. Syst. Conch.-Cab., ed. 2, 339:366, pl. 54, fig. 1. Tete [16°13'S, 33°35'E], Mozambique, southeast Africa, *Peters*. Connolly, 1939, Ann. S. Afr. Mus. 33:475, fig. 41. Six cotypes ZMB 8 484 (Kilias, 1961). Senior synonym of *Physa waterloti* Germain, 1911 (Connolly, 1945, J. Conchol. 22:167). <*Afrophysa brasiliensis* (Küster, 1844).
- moskvicevae* Starobogatov & Zatravkin, 1989, *Aplexa* (*Amuraplexa*). Biull. Otdel Biol. Moskovsk. Obshchest. Ispytat. Prirod. 94:66, figs. 1,6; 2,6. Overflows of the river Artemovka [near Artëm, 43°22'N, 132°13'E], southern Maritime Region, Russia, V. A. *Dvoryadkina*, 1973. Holotype in ZIP.
<*Amuraplexa amurensis* (Starobogatov & Prozorova, 1989).
- nana* Potiez & Michaud, 1838, *Physa*. Gal. moll. Mus. Douai 1:225, pl. 22, figs. 17-18. Bourbon [Réunion], *Matheiron*. Holotype still in Muséum de Douai, France?
<*Haitia acuta* (Draparnaud, 1805).
- natricina* Taylor, 1988, *Physa*. Malac. Rev. 21:67, fig. 6a-n. Rapids along east side of Snake River, SW 1/4 SE 1/4 sec. 21, T. 6 S., R. 13 E., Gooding County, Idaho, D. W. Taylor, 27-VII-1980. Holotype CAS 114 795.
=*Haitia natricina* (Taylor, 1988).
- Nauta* Leach, in Turton, 1831. Man. land and fresh-water shells British Islands: 129. Cited as *Nauta Hypnorum* Leach in synonymy of *Physa hypnorum* (Linnaeus, 1758).
=*Aplexa* Fleming, 1820.
- niagarensis* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:114; 1867, J. Acad. Nat. Sci. Phila. 6:173, pl. 24, fig. 97. Niagara River, New York. Holotype presumably in USNM. *Physinae incertae sedis*.
- nicaraguana* Morelet, 1851, *Physa*. Test. noviss. 2:16. Martens, 1890-1901, Biol. Centr.-Amer., Mollusca: 366, pl. 20, figs. 4, 4a. Lake Nicaragua, Nicaragua. One syntype BMNH 1893.2.4.610, from collection of Arthur Morelet.
=*Mexinauta nicaraguanus* (Morelet, 1851).
- nicklinii* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:114; 1867, J. Acad. Nat. Sci. Phila. 6:175, pl. 24, fig. 101. Callaghan [37°48'43"N, 80°04'28"W], Alleghany County, Virginia, P. H. *Nicklin*. Holotype presumably in USNM.
<*Physella gyrina* (Say, 1821).
- nigricans callosa* Rigacci & Rigacci, 1866,

- Physa heterostropha* var. Cat. conch. coll. Rigacci: 31. "Ohio." [Non-binomial]. Original material perhaps in Museum of Zoology, Rome, Italy. *Physinae incertae sedis*.
- nilotica* Pallary, 1902, *Physa subopaca* var. Bull. Inst. Égyptien, sér. 4, 3:89, pl. 2, fig. 1. "Dans les marais avoisinant le Nil blanc, à la hauteur de Gebelein" [In the marshes bordering the White Nile, at the level of Gebelein [now Al-Jabalayn, 12°36'N, 32°48'E, Province of An-Nil Al-Azraq, Sudan], Dr. Innes Bey.
<*Haitia acuta* (Draparnaud, 1805).
- nitens* Philippi, 1841, *Physa*. Syst. Conch.-Cab., ed. 2, 32:5, pl. 1, figs. 1-2. "In Mexiko," probably in the vicinity of Veracruz [32°25'N, 115°05'W], Veracruz. Holotype presumably destroyed in SMF in 1939-45 war. Type species of *Mexinauta* g.n.
=*Mexinauta nitens* (Philippi, 1841).
- nitidula* Clessin, 1886, *Physa*. Syst. Conch.-Cab., ed. 2, 338:339, pl. 47, fig. 9. Honduras, from the Morelet collection, probably D. Dyson. Types MNS. BMNH 93.2.4.1361-1364 and another lot (uncat.) from the Cuming collection, labeled only "Honduras" with no collector, are probably from the original sample of the species.
=*Mayabina nitidula* (Clessin, 1886).
- nodulosa* Biese, 1949, *Physa*. Bol. Mus. Nac. Hist. Nat. 23:237, fig. 13. Río Illapel, Illapel [31°37'51"S, 71°09'55"W], Prov. Coquimbo, Chile. Holotype in MNHNC; 26 paratypes BMNH 1950.1.3.196-205; 21 paratypes MCZ 185 755. <*Aplexa venustula* (Gould) (Weyrauch, 1964, Arch. Moll. 93:169). <*Haitia venustula* (Gould, 1847).
- normalis* Beck, 1838, *Aplexa hypnorum*. Index moll. mus. Christiani Frederici: 116. "C.IX.882-3b.-Schr.Fl.VI,15.Dania. a. *stagnalis*. Turt. 113. - S. G. VII. b. *fluviatilis*. Drp.III.12-13. - Pf.IV.29." [Chemnitz, J. H. 1786. Neues Syst. Conchylien-Cabinet 9(1): 34, pl. 103, figs. 882-883b; Danube at Vienna. Schröter, J. S. 1779. Die Geschichte der Flussconchylien...: 291, pl. 6, figs. 15a-b. Locality unknown; Denmark was supplied by Beck. a. *stagnalis*. Turton, W. 1831. Manual land & FW shells Brit. Ids.: 128, fig. 113. Sowerby, G. B. 1820-1834. Genera of shells (7), fig. 10. b. *fluviatilis*. Draparnaud, J. P. R. 1805. Hist. nat. moll. terr. fluv. France: 55, pl. 3, figs. 12-13. Pfeiffer, C. 1821. Naturgeschichte Deutsch. Land- und Süßwasser-Moll. (1):97, pl. 4, fig. 29]. Original material in ZMUC?
<*Aplexa hypnorum* (Linnaeus, 1758).
- normalis* Beck, 1838, *Bulinus acutus*. Index moll. mus. Christiani Frederici: 117. "*Physa acuta*. Drp. etc. Drp. III. 10-11. Eur. m." [Draparnaud, J. P. R. 1805, Hist. nat. moll. terr. fluv. France, pl. 3, figs. 10-11. Europa meridionalis]. Original material in ZMUC?
=*Haitia acuta* (Draparnaud, 1805).
- normalis* Westerlund, 1871, *Physa fontinalis*. Nova Acta Reg. Soc. Sci. Ups., ser. 3, 8(1):120. Sweden and Norway, no precise locality. Twenty probable syntypes in SMNH, Westerlund collection 12:22, from Ronneby [56°12'N, 15°18'E], Sweden.
<*Physa fontinalis* (Linnaeus, 1758).
- nostra* "Monterosato" Coen, 1945, *Physa acuta*. Script. Var. Pont. Acad. Sci. 3:13. Villa Igea, Palermo [38°07'N, 13°21'E], Sicily, Italy. *Nomen nudum*. Original material perhaps in HUI.
<*Haitia acuta* (Draparnaud, 1805).
- nuttallii* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:116; 1867, J. Acad. Nat. Sci. Phila. 6:171, pl. 4, fig. 93. "Lewis' River, Oregon" [Snake River, Idaho], Thomas Nuttall, 1834. Holotype USNM 170 770.
<*Physella gyrina* (Say, 1821).
- oarium* "Bourguignat" Servain, 1880, *Physa*. Étude moll. rec. Espagne et Portugal: 139. Italy. *Nomen nudum*.

- Physinae incertae sedis.*
- obesa* De Kay, 1843, *Physa*. Zool. N. Y. 5:78, pl. 5, fig. 86. Mohawk and Hoo-sic Rivers, Rensselaer County, New York, *Dr. Budd.*
<*Physella gyrina* (Say, 1821).
- oblonga* Jeffreys, 1862, *Physa fontinalis* var. Brit. conch. 1:99. Anglesea, England [?Anglesey, Wales], *J. de C. Sowerby*; and Naas [53°13'N, 6°39'W], County Kildare, Ireland, *Humphreys*. Holotype in USNM.
<*Physa fontinalis* (Linnaeus, 1758).
- oblonga* Potiez & Michaud, 1838, *Physa*. Gal. moll. Mus. Douai 1:226, pl. 22, figs. 19-20. "Hab...?" Holotype still in Muséum de Douai, France? Not recognizable.
Physidae incertae sedis.
- oblonga* Westerlund, 1871, *Physa fontinalis*. Nova Acta Reg. Soc. Sci. Upsal., ser. 3, 8(1):120. No locality. No type designated?; none in SMNH.
<*Physa fontinalis* (Linnaeus, 1758).
- obrussoides* F. C. Baker, 1928, *Physella*. Bull. Wisc. Geol. Nat. Hist. Surv. 70(1):445, pl. 27, figs. 25-29. Hatchery Bay, Winnebago Lake, Oshkosh [44°01'29"N, 88°32'33"W], Winnebago County, Wisconsin. Holotype Univ. Wisconsin 4 598 (Franzen, 1957:32), now in UMMZ.
<*Physella gyrina* (Say, 1821).
- obtusa* Clessin, 1885, *Physa*. Syst. Conch.-Cab., ed. 2, 336:292, pl. 42, fig. 5. Honduras, probably *D. Dyson*. Types MNS. One cotype ZMB 51 240 (Kilias, 1961). Three lots, BMNH uncat., from the Cuming collection, include 11 specimens labeled only "Honduras" with no collector. These are probably part of the original sample.
=*Mayabina obtusa* (Clessin, 1885).
- obtusata* Beck, 1838, *Bulinus fontinalis*. Index moll. mus. Christiani Frederici: 117. "C. IX. 877-8. pessima. O. Müll. Nf. XV. X. 1013. Schr. Fl. VI. 16.-S. g. VII. 8. W. I. XVIII. 27. bon. -Turt. 110. Dania." [Chemnitz, J. H. 1786. Neues Syst. Conchylien-Cabinet 9(1):30, pl. 103, figs. 877-878, very bad. Müller, O. F. 1781. Naturforscher 15; "X. 1013" I cannot decipher. Schröter, J. S. 1779. Die Geschichte der Fluss-conchylien...:269, pl. 6, figs. 16a-b. Sowerby, G. B. 1820-1834. Genera of shells (7), fig. 8. Wood, W. 1825. Index Testaceologicus: 87, pl. 18, fig. 37, good. Turton, W. 1831. Manual land & FW shells Brit. Ids.: 127, fig. 110. Denmark]. Original material in ZMUC?
<*Physa fontinalis* (Linnaeus, 1758).
- occidentalis* Tryon, 1865, *Physa*. Amer. J. Conch. 1:226, pl. 23, fig. 8. Umpqua River, Oregon, *W. M. Gabb*, *California Geological Survey* [locality from label of holotype]. Holotype ANSP 17 255.
<*Physella gyrina* (Say, 1821).
- oleacea* Tryon, 1866, *Physa*. Amer. J. Conch. 2:6, pl. 2, fig. 6. Bridgeport [34°56'51"N, 85°42'52"W], Jackson County, Alabama, from *Charles M. Wheatley*. Holotype ANSP 58 302a (H. B. Baker, 1964:155). <*Physa crocata* Lea (Clench & Turner, 1956, Bull. Fla. State Mus., Biol. Sci., 1:145).
<*Physella gyrina* (Say, 1821).
- oneida* F. C. Baker, 1919, *Physa*. Nautilus 33:11. Oneida Lake, Brewerton [43°14'17"N, 76°08'28"W], Onondaga County, New York. Four paratypes MCZ 51 418.
<*Haitia integra* (Haldeman, 1841).
- opaca* "Lamarck" Coen, 1945, *Physa*. Script. Var. Pont. Acad. Sci. 3:13. "Attica," Greece. Probably error for *Physa subopaca* Lamarck, 1822.
<*Haitia acuta* (Draparnaud, 1805).
- orbignyana* "Lea" Keep, 1904, *Physa gabbi* var. W. Amer. Shells: 315. Error for *P. dorbigniana* Lea, 1867.
<*Haitia mexicana* (Philippi, 1841).
- orbignyi* Mazé, 1883, *Aplecta*. J. Conchyl. 31:31. New name for *Physa acuta* as

- identified by d'Orbigny (1841), not *P. acuta* Draparnaud, 1805.
<*Haitia cubensis* (Pfeiffer, 1839).
- orientalis* Starobogatov & Prozorova, 1989, *Aplexa* (*Amuraplexa*). Biull. Otdel. Biol. Moskovsk. Obshchest. Ispytat. Prirod. 94:65, figs. 1,5; 2,5. Swales and marshes at the village of Konstantinovka [48°35'N, 135°27'E], Khabarovsk region, Russia, V. A. *Dvoryadkina*, 12-VI-1987. Holotype in ZIP.
<*Amuraplexa amurensis* (Starobogatov & Prozorova, 1989).
- osculans* Haldeman, 1841, *Physa*. Monog. FW univalve Moll. U.S. 2:cover p. 3; 1841, *Ibid.* 3:cover p. 4; 1843, *Ibid.* 6:29, pl. 2, figs. 11-13. "Middle, Eastern and Western States", as first given; but "Mexico? India?" in 1843, *Dr. M. Burrough.* Lectotype (H. B. Baker, 1964:155) ANSP 280 022a (Haldeman, pl. 2, fig. 11). Without a reliable and precise locality this species is not recognizable.
Physinae incertae sedis.
- ovalis* "Wiegmann" Martens, 1865, *Physa mexicana*. Malak. Blätt. 12:58. Jalapa [17°43'N, 92°49'W], Veracruz, Mexico, *Ferdinand Deppe*, circa 1824-1825. Published in synonymy of *P. mexicana* var. *minima* Martens. Original material in ZMB.
<*Haitia mexicana* (Philippi, 1841).
- ovata* "Draparnaud" Rigacci & Rigacci, 1866, *Physa*. Cat. conch. coll. Rigacci: 31. "Lione" [Lyon, 45°45'N, 4°51'E, Dépt. Rhône] France]. Probably error for *acuta* Draparnaud.
<*Haitia acuta* (Draparnaud, 1805).
- pacifica* sp.n., *Chiapaphysa*. Costa Rica, Prov. Guanacaste: Río Tenorito, Hacienda La Pacifica, 10°29.02'N, 85°9.58'W, 7-XI-1991 (T91-905). Holotype CAS 114 784, paratypes CAS 000000 (10), INBio (10), UCR (10).
- pallens* Martens, 1898, *Physa princeps* var. Biol. Centr.-Amer., Mollusca: 364, pl. 19, figs. 21-22. Yucatán, Mexico.
- Lectotype (Kilias, 1961) ZMB 51 239a, fig. 21. One paratype ZMB 51 239b, fig. 22.
<*Mayabina spiculata* (Morelet, 1849).
- palmaensis* Mousson, 1872, *Physa tenerifae* var. Neue Denkschr. Allg. Schweiz. Ges. 25(1):138. "Palma (*Blauner, Wollaston, Fritsch*)," Canary Islands. Holotype in ZMZ.
<*Haitia acuta* (Draparnaud, 1805).
- panamensis* "Megerle von Mühlfeldt" Anton, 1838, *Physa*. Verz. Conch.: 49. Panama. *Nomen nudum*. Martens (1890-1901:365) implied that the correct locality may be in Bahia, Brasil. Original material in MTK?
Aplexinae incertae sedis.
- panamensis* "Megerle von Mühlfeldt" Küster, 1844, *Physa*. Syst. Conch.-Cab., ed. 2, 47:11, pl. 2, figs. 3-5. Panama. Holotype presumably destroyed in SMF in 1939-45 war.
Aplexinae incertae sedis.
- panormitana* "Monterosato" Coen, 1945, *Physa acuta*. Script. Var. Pont. Acad. Sci. 3:13. Palermo [38°07'N, 13°21'E], Sicily, Italy. *Nomen nudum*. Original material perhaps in HUJ.
<*Haitia acuta* (Draparnaud, 1805).
- papaveroi* Leme, 1966, *Physa*. Pap. Avuls. Depto. Zool. Secr. Agric. Brasil 19:270, figs. 2, 5. Parque D. Pedro II, São Paulo [23°32'S, 46°37'W], Brasil, *Nelson Papavero*. Holotype MZSP 16 043; paratypes MCZ uncat. *Haitia incertae sedis.*
- Paraplexa* Starobogatov, 1989. Biull. Otdel. Biol. Moskovsk. Obshchestv. Ispytat. Prirody 94:63. Type species (by original designation): *Physa ataxiaca* Fagot, "1844" [1883]. As subgenus of *Aplexa*.
Genus of *Aplexinae*, *Aplexini*.
- parkeri* Currier, 1868, *Physa*. Misc. Publ. Kent Sci. Inst. 1:7. Houghton Lake, Roscommon County, Michigan. *Nomen nudum.*

- parkeri* Currier, in DeCamp, 1881, *Physa*. Misc. Publ. Kent Sci. Inst. 5:15, pl. 1, fig. 3. Houghton Lake [44°18'53"N, 84°45'53"W], Roscommon County, Michigan. Holotype formerly B. Walker collection 11 997 (Winslow, 1926:16), now in UMMZ; 3 paratypes MCZ 51 020, 1 paratype MCZ 51 026, 3 paratypes MCZ 232 143.
=*Archiphysa parkeri* (Currier, 1881).
- parva* Babor & Novák, 1909, *Aplexa hypnorum* mut. Nachr. Deutsch. malak. Ges. 41:154. Bohemia, Czech Republic; no precise locality. *Nomen nudum*.
<*Aplexa hypnorum* (Linnaeus, 1758).
- parva* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:115; 1867, J. Acad. Nat. Sci. Phila. 6:177, pl. 24, fig. 104. Verdigris River, Kansas, *Frederick Hawn, Geological Survey of Kansas*, 1864. Holotype and paratype USNM 172 321; other paratypes USNM 29 201, 172 322, from Rock Creek, Jefferson County, Kansas (Hibbard & Taylor, 1960, Contr. Mus. Paleont. Univ. Mich., 16:116).
<*Haitia mexicana* (Philippi, 1841).
- parva* Martens, 1865, *Physa mexicana* var. Malak. Blätt. 12:58. Orizaba [18°51'N, 97°06'W], Veracruz, Mexico, C. A. Uhde, circa 1830-1845. Holotype in ZMB.
<*Haitia mexicana* (Philippi, 1841).
- patzcuarensis* Pilsbry, 1891, *Physa osculans*. Nautilus 5:9; 1891, Proc. Acad. Nat. Sci. Phila. 43:323, pl. 15, fig. 5. L. Pátzcuaro [19°35'N, 101°35'W], Michoacán, Mexico, F. C. Baker, *ANSP Expedition to Mexico*, 1-V-1890. Holotype ANSP 61 629, not mentioned by H. B. Baker (1964).
=*Haitia patzcuarensis* (Pilsbry, 1891).
- pellucida* Razoumowsky, 1789, *Helix*. Hist. nat. Jorat... 1:276. L. Geneva, Switzerland. <*Physa fontinalis* (Linnaeus, 1758) (Kennard & Woodward, 1926:97).
<*Physa fontinalis* (Linnaeus, 1758).
- penicillata* Hemphill, 1890, *Physa heterostropha* var. Cat. N. Amer. shells: 19, no. 1572. California. *Nomen nudum*. A set in the Henry Hemphill collection (CAS 6 381) is labeled "*Physa virgata* Gld. var. *penicillata* H. Potrero Valley, San Diego Co. Cal. Coll. by HH."
- <*Haitia mexicana* (Philippi, 1841).
- peninsulae* Pilsbry, 1899, *Physa heterostropha*. Nautilus 13:70. Miami [25°46'26"N, 80°11'38"W], Dade County, Florida, S. N. Rhoads. Lectotype (H. B. Baker, 1964:155) ANSP 82 862a, from head of Miami River.
Haitia incertae sedis.
- peninsulae* "Pilsbry" Rhoads, 1899, *Physa heterostropha*. Nautilus 13:48. Several localities in peninsular Florida. *Nomen nudum*.
- peninsulare* "Pilsbry" Thompson, 1984, *Physella cubensis*. FW snails Florida: 81. Error for *peninsulae*.
- perla* Müller, 1781, *Bulinus*. Naturforscher 15:6. New name for *Planorbis bulla* Müller, 1774.
<*Physa fontinalis* (Linnaeus, 1758).
- perrisiana* Dupuy, 1849, *Physa*. Cat. extramar. Gall. testac.: 4. France (no precise locality). Holotype in MHNT. Synonymized with *P. subopaca* Lamarck by Dupuy (1847-1852, Hist. nat. moll. terr. eau douce France: 457).
<*Haitia acuta* (Draparnaud, 1805).
- peruviana* Gray, 1828, *Physa*. Spic. zool. 1:5, pl. 6, fig. 10. "Inhab. Swamps between Lima and Callao," Peru, *Rev. W. Hannah*. Holotype BMNH 1950.5.24.3, figured herein, Pl. 3, fig. 8. Three paratypes 1950.5.24.4-6. BMNH uncat., a series of 7 specimens from the Cuming collection and labeled only "Peru," may be part of the original sample.
=*Mexinauta peruvianus* (Gray, 1828).
- peruviensis* "Megerle von Mühlfeldt" Anton, 1838, *Physa*. Verz. Conch.: 48. Peru.

- Nomen nudum*. Based on *P. spiculata* "according to the typical specimen of Anton, now in the Dresden Museum" (Martens, 1890-1901:367); but at this early date there were probably no specimens of that species in any European collections. Original material in MTK? *Aplexinae incertae sedis*.
- petenensis* sp.n., *Mayabina*. Guatemala, Depto. El Petén: Aguada at NE side of La Libertad, 16°47.30'N, 90°6.49'W, 200 m, 22-XI-1991 (T91-2401). Holotype CAS 114 811, paratypes CAS 114 823 (10), BMNH 20001310 (10).
- Petrophysa* Pilsbry, 1926. Proc. Acad. Nat. Sci. Phila. 77:328. Type species (by original designation) *Physa zionis* Pilsbry, 1926. As "subgenus or section" of *Physa*.
Genus of Physinae, Physellini.
- philippii* Küster, 1844, *Physa*. Syst. Conch.-Cab., ed. 2, 47:19, pl. 3, figs. 3-6. "In Nordamerika." Holotype presumably destroyed in SMF in 1939-45 war. Not recognizable.
Physinae incertae sedis.
- Physa* Draparnaud, 1801. Tabl. moll. terr. fluv. France: 52. Type species (designation by International Commission on Zoological Nomenclature, Opinion 94 and Direction 72): *Physa fontinalis* (Linnaeus, 1758).
Genus of Physinae, Physini.
- Physacea Dall, 1870. Ann. Lyc. Nat. Hist. N. Y. 9:355. As "group" for Physidae and Chiliniidae.
- Physacea Harry & Hubendick, 1964. Medd. Zool. Avd. Göteborgs Mus. 136:10. As superfamily with sole family Physidae.
- Physadae Haldeman, 1843. Monog. FW univalve moll. U.S. 6:5, 14. As family including *Physa*, *Limnea*, *Planorbis*, *Ancylus*.
- Physella* Haldeman, 1843. Monogr. FW univalve Moll. U.S. 6:14. Type species (by monotypy) *Physa globosa* Haldeman, 1841. As subgenus of *Physa*.
Genus of Physinae, Physellini.
- Physidae Fischer & Crosse, 1886. Miss. Sci. Mex., Rech. Zool., 7(2):82. As family for *Aplecta* and *Physa*, excluding *Bulininae*. This is the modern concept of the family.
- Physina* Rafinesque, 1815. Anal. Nature: 144. Unnecessary substitute for *Physa*.
- Physina Gray, in Turton, 1840. Man. land and FW shells Brit. Is: 251. As group (rank unspecified), coordinate with *Planorbina*, including *Physa* and *Aplexus*.
- Physinae Starobogatov, 1967. Trudy Zool. Inst. ANSSSR 42:289. This is the earliest ranking as subfamily.
- Physodon* Haldeman, 1843. Monogr. FW univalve Moll. U.S. 6:14. Type species (by monotypy) *Physa microstoma* Haldeman, 1840. As subgenus of *Physa*. Not of Mueller & Henle, 1839 (Pisces).
<*Physella* Haldeman, 1843.
- Physoidea Fitzinger, 1833. Beitr. Landesk. Oesterreich's u. d. Enns 3:110. As "Gruppe" for *Physa*, *Rivicola*, *Hemithalamus*, *Anisus*, and *Planorbis*.
- Phyza* Risso, 1826. Hist. nat. princ. prod. Europe mérid.: 96. Emendation of *Physa*.
- picta* Krause, 1883, *Physa hypnorum*. Sitz. Ges. naturf. Freunde Berlin 1883:33. Martens, 1885, Conch. Mitt. 2:184, pl. 33, figs. 25-27. Tundra pond north of Lavrentija Zaliv [Lawrence Bay, 63°35'N, 171°00'W], and mouth of a small stream entering the west end of that bay, Chukotka, Russia, *Aurel* and *Arthur Krause*, 1881. Four syntypes ZMB 36 330.
=*Sibirenauta pictus* (Krause, 1883).
- pilsbryi* Brooks, 1935, *Aplexa hypnorum*. Nautilus 48:100; 1936, *Ibid.* 50:14, fig. 1. Pond near Whiterocks River at Paradise Creek (about sec. 36, T. 3 N., R. 17 E.; original data are irreconcilable), Uintah County, Utah, *E. R. Eller*; *Carnegie Museum Utah Expedition*, 1933. Holotype CM 62.26773.

- <*Sibirenauta elongatus* (Say, 1821).
pisana Issel, 1866, *Physa*. Mem. Soc. Ital. Sci. Nat. 2(1):26. Ditch a little way from the Porta a Lucca, near Pisa [43°43'N, 10°23'E], Pisa, Toscana, Italy. Holotype in MSNG.
 <*Haitia acuta* (Draparnaud, 1805).
plena Clench, 1930, *Physa*. Occ. Pap. Boston Soc. Nat. Hist. 5:311, fig. 3. Reed Spring, Centerville [37°26'06"N, 90°57'30"W, 742 ft], Reynolds County, Missouri, P. S. Remington. Holotype MCZ 51 850; 34 paratypes MCZ 51 851; 1 paratype CMN 14 786.
 <*Physella gyrina* (Say, 1821).
plicata De Kay, 1843, *Physa*. Zool. N.Y. 5:78, pl. 5, fig. 85. Pond on New-York island [Manhattan Island], New York City, New York. One syntype MCZ 298 325 ex C. B. Adams.
 <*Haitia acuta* (Draparnaud, 1805).
plicata Fischer & Crosse, 1886, *Physa mexicana* var. *Miss. Sci. Mex. Amér. Centr.*, Rech. zool. 7(2):100, pl. 30, figs. 11-11b (not 12-12b; corrected by Chevallier, 1965). Near México, D. F., *Léon Méhédin*. Holotype not in MHNP (Chevallier, 1965:26).
 <*Haitia mexicana* (Philippi, 1841).
pliculosa Martens, 1898, *Physa fuliginea* var. *Biol. Centr.-Amer., Mollusca*: 361, pl. 20, figs. 11, 11a, 12. Lectotype (Kilias, 1961) ZMB 51 237a, figs. 11, 11a, Río Reventazón at Ujarrás [9°50'N, 83°50'W], Prov. Cartago, Costa Rica, *Pierre Biolley*. One paratype ZMB 51 237b, fig. 12.
 =*Mayabina pliculosa* (Martens, 1898).
polakowskii Clessin, 1886, *Physa*. Syst. Conch.-Cab., ed. 2, 338:352, pl. 49, fig. 12. Guatemala, *H. Polakowsky*, 1877. Holotype formerly in ZMB, but not listed by Kilias (1961). Other type material MNS.
 <*Haitia mexicana* (Philippi, 1841).
polaris Westerlund, 1876, *Physa hypnorum* var. *Nachr. Deutsch. malak. Ges.* 8:100; 1877, *Handl. K. Svensk. Vetensk.-Akad.* 14(12):56, fig. 12. Martens, 1885, *Conch. Mitt.* 2:184, pl. 33, figs. 28-29. Schaitanskoj, lat. 71°65' [near Mys Schaytanskiy, 72°05'N, 82°20'E]; Mesenkin [not traced], 71°20'; Vorogovo, 60°50' [61°02'N, 89°35'E]; all along the Yenisei, Krasnoyarsk District, Russia, A. *Nordenskiöld* and A. *Stuxberg*, *Swedish Novaya Zemlya-Yenisei Expedition*, 1875. Four syntypes SMNH 1 653 from Schaitanskoj. Three specimens, BMNH 1908.6.13.188-190, are labeled only "Eastern Siberia." They were purchased from H. B. Preston, agree well with Westerlund's illustration, and are accepted as probable syntypes.
 ?<*Sibirenauta depressior* (Middendorff, 1851).
polita sp.n., *Mayabina*. Mexico, Tabasco: Pasture pool 50 m W Río Tulija, 1.5 km S of Mex. 186 toward Zopo Norte, 17°39.6'N, 92°24.7'W, 22-II-1988 (T88-3602). Holotype: CAS 114 783. Paratypes CAS 114 817 (10), BMNH 20001311 (10), ZIBM CNMO 1160 (10).
politissima Tryon, 1865, *Physa*. Amer. J. Conch. 1:226, pl. 23, fig. 13. Sacramento [38°34'54"N, 121°29'36"W], Sacramento County, California, *Rev. Joseph Rowell*. Holotype ANSP 329 342.
 <*Haitia mexicana* (Philippi, 1841).
pomilia Conrad, 1834, *Physa*. Amer. J. Sci. 25:343; 1866, *Amer. J. Conch.* 2:278, pl. 15, figs. 1-3. Randons Creek, near Claiborne [31°32'24"N, 87°30'56"W], Monroe County, Alabama. Holotype probably lost at ANSP; mentioned by Tryon (1870-1871, *Monogr. FW univalve Moll. U.S.*: 152), but not listed by H. B. Baker (1964).
 =*Haitia pomilia* (Conrad, 1834).
porteri Germain, 1913, *Physa*. Rev. Chil. Hist. Nat. 17:161, fig. 20. "Dans les eaux

- saumâtres de la Province de Antofagasta," Chile, *Carlos E. Porter* [The illustration was evidently reversed in printing; although it looks like a *Lymnaea*, the shell is described as sinistral]. Holotype presumably in MHN. = *Haitia porteri* (Germain, 1913).
- primeana* Tryon, 1865, *Physa*. Amer. J. Conch. 1:227, pl. 23, fig. 12. Long Island, New York, *Temple Prime*. Holotype ANSP 21 040a (H. B. Baker, 1964:155).
<*Haitia acuta* (Draparnaud, 1805).
- princeps* Phillips, 1846, *Physa*. Proc. Acad. Nat. Sci. Phila. 3:66, pl. 1, fig. 11. Yucatan [Peninsula], Mexico, *B. M. Norman*. Holotype ANSP 21 184a (H. B. Baker, 1964:155). See Norman, B. M. 1843. Rambles in Yucatan. New York, 304 p. = *Mexinauta princeps* (Phillips, 1846).
- producta* Beck, 1838, *Bulinus fontinalis*. Index moll. mus. Christiani Frederici: 117. "an *Helix bullaoides*. Donovan? M. et Rq. Donovan. CLXVIII. 2? Gall.m.ad Monspeulanum. *Bulla fluviatilis*. Turton, W. 1819. Conchol. Dict.: 27. Brown, T. 1827. Illustr. conchol. Gt. Brit. & Ireland, pl. 41, fig. 83]. Original material in ZMUC?
<*Physa fontinalis* (Linnaeus, 1758).
- propinqua* Tryon, 1865, *Physa*. Amer. J. Conch., 1:223, pl. 23, fig. 5. Jordan Creek, Owyhee County, Idaho, *W. M. Gabb*, *California Geological Survey*, 1864. Holotype ANSP 17 278a (H. B. Baker, 1964:155).
<*Physella gyrina* (Say, 1821).
- Pterophysa* "Pilsbry" Starobogatov, 1967. *Trudy Zool. Inst. ANSSSR* 42:289. Error for *Petrophysa*.
- pulchella* "Monterosato" Coen, 1945, *Aplexa hypnorum*. Script. Var. Pont. Acad. Sci. 3:14. Innsbruck [47°16'N, 11°24'E], Austria. *Nomen nudum*. Original material perhaps in H.U.J.
<*Aplexa hypnorum* (Linnaeus, 1758).
- pulchella* Moquin-Tandon, 1855, *Physa hypnorum* var. Hist. nat. moll. terr. fluv. France 2:456. Dijon [47°19'N, 5°01'E], Dépt. Côte d'Or, France, *Arthur Morelet*.
<*Aplexa hypnorum* (Linnaeus, 1758).
- pumila* "Conrad" H. Adams & A. Adams, 1855, *Physa*. Gen. Rec. Moll. 2:257. Emendation or error for *Physa pomilia* Conrad.
- pumilis* Robins, 1971, *Physa*. The Biologist 53:139, 150. Emendation or error for *Physa pomilia* Conrad.
- pumilus* Beck, 1838, *Bulinus*. Index moll. mus. Christiani Frederici: 117. Emendation or error for *Physa pomilia* Conrad.
- purpurostoma* Tristram, 1861, *Physa*. Proc. Zool. Soc. London 1861:231. Lake of Dueñas, Depto. Antigua, Guatemala, *Osbert Salvin*, 1857 [The shrunken remnant of the lake is now Laguneta Quilisimapa]. Holotype not found in BMNH.
<*Mexinauta impluviatus* (Morelet, 1849).
- remingtoni* Clench, 1930, *Physa*. Occ. Pap. Boston Soc. Nat. Hist. 5:312, fig. 4. Round Spring [37°16'57"N, 91°24'27"W], 12 miles north of Eminence, Shannon County, Missouri, *P. S. Remington*, 7-VI-1925. Holotype UMMZ 32 663; 11 paratypes MCZ 50 964.
<*Physella gyrina* (Say, 1821).
- rhenanus* Beck, 1838, *Aplexa hypnorum*. Index moll. mus. Christiani Frederici: 116. "C. IX. 882-3a. Austria. *Helix marmorata*. Gm. Schr. Fl. VI, 9. German." [Chemnitz, J. H. 1786. Neues Syst. Conchylien-Cabinet 9(1):30, pl. 103, figs. 882-883a. Austria. *Helix marmorata*. Gmelin. Schröter, J. S. 1779. Geschichte der Flussconchylien...: 290,

- pl. 6, fig. 9. Germany]. Original material in ZMUC?
 <*Aplexa hypnorum* (Linnaeus, 1758).
- rhomboidea* Crandall, 1901, *Physa*. Nautilus 15:44, pl. 2, figs. 6-7. Muddy Creek, Sedalia [38°42'16"N, 93°13'41"W], Pettis County, Missouri, O. A. Crandall. Holotype in UMMZ. Not *P. rhomboidea* Meek & Hayden, 1856; substitute *P. crandalli* F. C. Baker, 1906.
 <*Haitia mexicana* (Philippi, 1841).
- rhyssa* Pilsbry, 1899, *Physa osculans*. Proc. Acad. Nat. Sci. Phila. 51:401. Saltillo [25°25'N, 101°00' W], Coahuila, Mexico, S. N. Rhoads, 1899. Lectotype (H. B. Baker, 1964:155) ANSP 77 218a; nine paratypes MCZ 86 378 from "Topo Chico."
 <*Haitia mexicana* (Philippi, 1841).
- rivalis* Maton & Rackett, 1807, *Bulla*. Trans. Linn. Soc. London 8:126, pl. 4, fig. 2. Hampshire, England, Mr. James Hay.
 <*Haitia acuta* (Draparnaud, 1805).
- rivalis* Potiez & Michaud, 1838, *Physa*. Gal. moll. Mus. Douai 1:226, pl. 22, figs. 21-22. Lima [12°03'S, 77°03'W], Prov. Lima, Peru. Holotype still in Muséum de Douai, France?
 Aplexinae *incertae sedis*.
- rivalis* Sowerby I, 1822, *Lymnea*. Gen. recent and fossil shells, *Limnea*, fig. 9 and explanation of plate. Guadeloupe, Lesser Antilles.
 <*Stenophysa marmorata* (Guilding, 1828).
- rivalis* "J. de C. Sowerby," *Physa*. Cited by Binney (1865, Smithson. Misc. Coll. 7(2)(serial no. 143):96) under "Spurious species of *Physa*" as if a name proposed by J. de C. Sowerby (1836, in J. Richardson, Fauna Bor.-Amer. 3:315), but only Sowerby's identification of Canadian specimens under this name.
- Rivicola* Fitzinger, 1833. Beitr. Landesg. Oesterreich's u. d. Enns 3:110. Sole species *Rivicola fontinalis* Fitzinger, = *Bulla fontinalis* Linnaeus, 1758.
 <*Physa* Draparnaud, 1801.
- rivularia* Dupuy, 1849, *Physa*. Cat. extramar. Gall. test.: 4. France (no precise locality). Holotype in MHNT. Synonymized with *P. subopaca* Lamarck by Dupuy (1847-1852, Hist. nat. moll. terr. eau douce France: 457).
 <*Haitia acuta* (Draparnaud, 1805).
- rubella* Germain, 1903, *Physa gibbosa*. Bull. Soc. Sci. Nat. Ouest France, sér. 2, 3:184. "La tour Guilloux à Angers [47°28'N, 0°33'W]," Dépt. Maine-et-Loire, France. Holotype presumably in MHNP.
 <*Haitia acuta* (Draparnaud, 1805).
- rubra* "Taylor" Coen, 1945, *Aplexa hypnorum*. Script. Var. Pont. Acad. Sci. 3:14. England. *Nomen nudum*. Original material perhaps in HNJ.
 <*Aplexa hypnorum* (Linnaeus, 1758).
- rubra* "Tryon" Schlesch, 1937, *Aplexa hypnorum* var. Festschr. 60. Geburtst. Embrik Strand 3:257. Kleboniskes [Kleboniškiiai] near Kaunas [54°54'N, 23°54'E], Lithuania. *Nomen nudum*.
 <*Aplexa hypnorum* (Linnaeus, 1758).
- rubra* Van den Broeck, 1871, *Physa hypnorum* var. Ann. Soc. Malac. Belgique 6:xlvi. "Fossés des polders vers Selzaete" [Zelzate, 51°12'N, 3°48'E], Belgium. Holotype presumably in IRSNB.
 <*Aplexa hypnorum* (Linnaeus, 1758).
- rufula* Locard, 1880. *Physa fontinalis*. Études var. malac. Bassin du Rhône 1:312. "Les environs de Grenoble [45°10'N, 5°43'E, Dépt. Isère]," France. Holotype in MHNP.
 <*Physa fontinalis* (Linnaeus, 1758).
- rufula* Locard, 1880, *Physa hypnorum*. Études var. malac. Bassin du Rhône 1:317. No precise locality. Holotype in MHNP.
 <*Paraplexa cornea* (Massot, 1845).
- ruscionensis* "Loutr." Astre, 1921, *Physa*. Bull. Soc. Hist. Nat. Toulouse, 49:249; TL presumably in France. *Nomen nudum*. The author cited is

- perhaps G. Loutrel, but no publication of the name has been traced.
Physinae incertae sedis.
- saffordii* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:115; 1867, J. Acad. Nat. Sci. Phila. 6:167, pl. 24, fig. 87. Lebanon [36°12'29"N, 86°17'28", 531 ft], Wilson County, Tennessee, *J. M. Safford*. Holotype presumably in USNM. Paratypes USNM 29 188, 119 928, from Verdigris River, Kansas (Hibbard & Taylor, 1960, Contr. Mus. Paleont. Univ. Mich., 16:116).
 <*Physella gyrina* (Say, 1821).
- saint-simonis* Fagot, 1883, *Physa*. Bull. Soc. Hist. Nat. Toulouse 17:224. "Le canal du Midi, aux écluses de Gardouch, de Laval, et de Renneville, près Villefranche, où elle est assez commune, mais localisée" [France]. Synonym of *Physa acuta* Draparnaud (Germain, 1930-1931:510).
 <*Haitia acuta* (Draparnaud, 1805).
- salina* Clench, 1930, *Physa*. Occ. Pap. Boston Soc. Nat. Hist. 5:309, figs. 1-2. Brackish spring, Skeen's Ranch, Promontory, Box Elder County, Utah, ex *R. E. Call*, collector not identified, 1877. Holotype MCZ 79 387; 3 paratypes MCZ 4 239; paratype in University of Utah collection (Roscoe, 1963:52), now in FMNH.
 <*Physella gyrina* (Say, 1821).
- salleana* Dunker, 1853, *Physa*. Proc. Zool. Soc. London 1853:53. Crosse, 1891, J. Conchyl. 39:159. "Savana de Bavara" [savanna in the vicinity of Bávaro, 18°43'N, 68°27'W], Prov. La Altagracia, Dominican Republic, *Auguste Sallé*, 1849-1851. Two syntypes BMNH uncat. from Cuming collection, labeled *Physa salleana* Dunker, St. Domingo, *Sallé*. *Sallé*'s trip was financed at least in part by Hugh Cuming (Clench, 1945:27).
 <*Stenophysa marmorata* (Guilding, 1828).
- salteli* "Saint-Simon" Locard, 1893, *Physa*. Coq. eaux douces France: 50. Livinhac-le-Haut [44°35'N, 2°14'E], Dépt. Aveyron, France. Holotype in MHNP. Synonym of *Physa acuta* Draparnaud (Germain, 1930-1931:510).
 <*Haitia acuta* (Draparnaud, 1805).
- sanctijohannis* sp.n., *Mayabina*. Costa Rica, Prov. Limón: Barra del Colorado, 10°46.37'N, 83°35.27'W, 11-XI-1993 (T93-3002). Holotype CAS 114 790; paratypes CAS 114 780 (11), BMNH 20001312 (10), INBio (10), UCR (10).
- sartlandinensis* Mozley, 1934, *Physa*. Smithsonian Misc. Coll. 92(2):7, pl. 1, fig. 6. Lake Sartlan, Novosibirsk District, Russia. Holotype USNM 469 613.
 <*Physa dalmatina* Küster, 1844.
- sayi* de Blainville, 1826, *Physa*. Dict. Sci. Nat. 40:145. Unnecessary substitute for *Limnaea heterostropha* Say, 1817.
 <*Haitia acuta* (Draparnaud, 1805).
- sayii* "Tappan" Kirtland, 1838, *Physa*. Ann. Rep. Geol. Surv. Ohio 2:174, 200. *Nomen nudum*.
 <*Physella gyrina* (Say, 1821).
- sayii* Tappan, 1839, *Physa*. Amer. J. Sci. 35:269, pl. 3, fig. 3. Lake Pipin, Franklin Township, Portage County, Ohio, *Benjamin Tappan*, V-1837.
 <*Physella gyrina* (Say, 1821).
- semiglobosa* Westerlund, 1871, *Physa*. Nova Acta Reg. Soc. Sci. Upsal., ser. 3, 8(1):120. Nacka [59°18'N, 18°10'E] near Stockholm, Sweden, *G. Eisen*. Two syntypes SMNH 4 489; five syntypes SMNH 4 490.
 <*Physa fontinalis* (Linnaeus, 1758).
- semiopaca* Annandale, 1922, *Physa*. Ind. J. Med. Res. 10:488-490.
 Error for *subopaca* Lamarck, 1822.
 <*Haitia acuta* (Draparnaud, 1805).
- septentrionalis* Kobelt, 1880, *Physa acuta* var. Icon. Land- u. Süßwasser-Moll. 7:21, fig. 1915. Ostend [Oostende, 51°13'N, 2°55'E], Belgium, *Koch*. Holotype presumably destroyed in SMF in 1939-45 war.

- <*Haitia acuta* (Draparnaud, 1805).
seychellana Martens, 1869, *Physa*. In C. C. von der Decken, Reisen in Ost-Afrika 3(1):60, pl. 2, fig. 3. Seychelles. Lectotype (Kiliyas, 1961) ZMB 9 596a, fig. 3. Fifteen paratypes ZMB 9 596b. Synonymized by Martens (1880, in Möbius, Beitr. Meeresfauna Mauritius u. Seychellen: 209) with *Physa borbonica* Férussac, 1827.
 <*Haitia acuta* (Draparnaud, 1805).
showalterii Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:115; 1867, J. Acad. Nat. Sci. Phila. 6:170, pl. 24, fig. 92. Uniontown [32°26'58"N, 87°30'51"W, 305 ft], Perry County, Alabama, E. R. Showalter. Holotype presumably in USNM; 6 paratypes MCZ 45 300.
 <*P. pomilia* Conrad (Clench & Turner, 1956, Bull. Fla. State Mus., Biol. Sci., 1:143).
 <*Haitia pomilia* (Conrad, 1834).
Sibirenauta Starobogatov & Streletskaia, 1967. Trudy Zool. Inst. ANSSSR 42:234. Type species (by original designation): *Physa kultukiana* B. Dybowski. As genus.
 Genus of Aplexinae, Aplexini.
sibirica Westerlund, 1876, *Physa* (*Isidora*?). Nachr. Deutsch. malak. Ges. 8:100; 1877, Handl. K. Svensk. Vetensk.-Akad., 14(12):55, fig. 13. Bukhta Sopchnaya Karga [71°54'N, 82°43'E], Taimyr Peninsula, Russia, A. Stuxberg, Swedish Novaya Zemlya-Yenisei Expedition, 22-VIII-1875. One syntype SMNH 1 651 and three syntypes Westerlund collection 12:31, representing two species of *Sibirenauta*.
 =*Sibirenauta sibiricus* (Westerlund, 1876).
simoni Jousseume, 1889, *Physa*. Mém. Soc. Zool. France 2:253, pl. 9, figs. 3, 4. Laguna de Espino, near Caracas, Venezuela. The locality has apparently been destroyed by growth of Caracas. I have not been able to trace its precise location. Holotype presumably in MHNP. ?<*Stenophysa marmorata* (Guilding, 1828).
sinaloae sp.n., *Ultraphysella*. Mexico, Sinaloa: pool at road 2.5 mi from Villa Unión toward Siqueiros, 23°13.4'N, 106°12.5'W, 21-I-1971 (T71-1001). Holotype CAS 146096.
sinusdulcensis sp.n., *Tropinauta*. Costa Rica, Prov. Puntarenas: Stream 3 km SE Golfito, 8°36.68'N, 83°8.48'W, 6-XI-1992 (T92-5703). Holotype CAS 146095, paratypes INBio. Type species of *Tropinauta* g.n.
skinneri Taylor, 1954, *Physa*. Occ. Pap. Mus. Zool. Univ. Mich. 557:9; 1960, U.S. Geol. Surv. Prof. Pap. 337:63, pl. 3, figs. 9-11. Berends fauna, SE corner sec. 6, T. 5 N., R. 28 E., Beaver County, Oklahoma; Pleistocene, C. W. Hibbard and party, 24-VII-1950. Holotype UMMZ 181 292; paratypes MCZ.
smithi F. C. Baker, 1919, *Physa*. Bull. Amer. Mus. Nat. Hist. 41:535, fig. 3. Largest Teller Lake (now simply Teller Lake), sec. 12, T. 2 S., R. 74 W. [39°53'24"N, 105°36'50"W], Gilpin County, Colorado, Frank Smith, 30-VIII-1916. Holotype USNM 573 241. Not *P. smithi* Clessin, 1885; substitute *P. smithiana* F. C. Baker, 1920.
 <*Physella gyrina* (Say, 1821).
smithiana F. C. Baker, 1920, *Physa*. Nautilus 33:142. New name for *P. smithi* F. C. Baker, 1919, not of Clessin, 1885.
 <*Physella gyrina* (Say, 1821).
smithsoniana Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:115; 1867, J. Acad. Nat. Sci. Phila. 6:169, pl. 24, fig. 91. Loup River, Nebraska, F. V. Hayden, Warren's Explorations in Nebraska and Dacotah, 1857. Holotype presumably in USNM.
 <*Physella gyrina* (Say, 1821).
solida Philippi, 1841, *Physa*. Syst. Conch.-Cab., ed. 2, 32:6, pl. 1, figs. 5-6. New

- Orleans [29°58'N, 90°07'W], Jefferson Parish, Louisiana. Holotype presumably destroyed at SMF in 1939-45 war.
 ?<*Haitia mexicana* (Philippi, 1841).
- solidior* A. Costa, 1882, *Physa*. Atti Acc. Sci. Fis. Mat. Napoli 9(11):41. "Confluenti del Flumendosa nelle valli del Genargento," Sardinia, Italy.
 <*Haitia acuta* (Draparnaud, 1805).
- solidissima* Pilsbry, 1920, *Physa*. Proc. Acad. Nat. Sci. Phila. 71:219, pl. 11, fig. 8. Guadalajara, Mexico [evidently from Laguna Chapala], *McConnell* and *Crawford*. Holotype ANSP 107 482 (H. B. Baker, 1964:155).
 =*Haitia? solidissima* (Pilsbry, 1920).
- sonomae* sp.n., *Archiphysa*. Sonoma County, California, artificial pond 4300 ft W, 2500 ft S, sec. 30, T. 9 N., R. 9 W., A. G. *Smith*, 16-IX-1967. Holotype CAS 114 807, 3 paratypes CAS 114 803.
- sowerbyana* d'Orbigny, 1841, *Physa*. In Sagra, Hist. Île de Cuba, Moll. 1:190, pl. 13, figs. 11, 13. New name for *Lymnea rivalis* Sowerby I, 1822, preoccupied in *Physa* by *P. rivalis* as used by Dillwyn (1817). For discussion of name see H. B. Baker (1931, *Nautilus* 44:106). Type species (by original designation) of *Stenophysa* Martens, 1898.
 <*Stenophysa marmorata* (Guilding, 1828).
- sparsestriata* Tryon, 1865, *Physa*. Amer. J. Conch. 1:224, pl. 23, fig. 10. San Joaquin Valley, California, *W. M. Gabb*, *California Geological Survey*. Holotype ANSP 329 329 (H. B. Baker, 1964:155, as 17287a).
 <*Haitia mexicana* (Philippi, 1841).
- spathidophallus* sp.n., *Stenophysa*. Singapore, in a ditch from Seletar Reservoir, 100 m W of Upper Thompson Road, 13-XII-1985 (T85-1403). Holotype CAS 114 804; 3 paratypes MCZ 302 597.
- speculosa* "Morelet" Martens, 1873, *Physa*. Festschr. Feier hundertjährig. Besteh. Ges. naturforsch. Freunde Berlin: 199. Error for *spiculata* Morelet, 1849.
- spelunca* Turner & Clench, 1974, *Physa*. *Nautilus* 88:82, figs. 2-9, 11, 14, 16-17, 19. Lower Kane Cave, near Kane, about 12 miles east of Lovell, on east side of Big Horn River, Big Horn County, Wyoming, *Dr. John R. Holsinger*, 18-VI-1969. Holotype MCZ 280 016; paratypes MCZ 234 786, 280 017, 280 019.
 =*Haitia spelunca* (Turner & Clench, 1974).
- spiculata* Morelet, 1849, *Physa*. Test. Noviss. 1:18. Fischer & Crosse, 1870-1902, *Miss. Sci. Mex. Amér. Centr., Rech. zool.* 7(2):93, pl. 27, fig. 13, pl. 30, fig. 15. Campeche [19°51'N, 90°32'W], Campeche, Mexico, *Arthur Morelet*, 1847. Seven paratypes in MHNP (Chevallier, 1965:25). Type species of *Mayabina* g.n.
- squalida* Morelet, 1851, *Physa*. Test. Noviss. 2:16. Fischer & Crosse, 1870-1902, *Miss. Sci. Mex. Amér. Centr., Rech. zool.* 7(2):105, pl. 30, figs. 14-14a. Marshes of Río Usumacinta around Balancán [17°48'W, 91°32'W], Tabasco, Mexico, *Arthur Morelet*, 1847.
 <*Haitia mexicana* (Philippi, 1841).
- stabilei* Lessona, 1880, *Physa*. Mem. Accad. Naz. Lincei, Classe Scenz. Fis. Mat. Nat., ser. 3, 7:370, pl. 4, fig. 12. Lago d'Azeglio, Piemonte, Italy, *Carlo Pollonera*.
 <*Physa fontinalis* (Linnaeus, 1758).
- staffordi* "Lea" Paetel, 1889, *Physa*. Cat. Conch.-Samml., ed. 4, 2:408. Error for *saffordi*.
 <*Physella gyrina* (Say, 1821).
- Stenophysa* Martens, 1898. *Biol. Centr.-Amer., Mollusca*: 362. Type species (by original designation): *Physa sowerbyana* d'Orbigny, 1841. As subgenus of *Physa*.
 Genus of Aplexinae, Stenophysini.
- stolli* Clessin, 1885, *Physa*. *Syst. Conch.-Cab.*, ed. 2, 336:293, pl. 42, fig. 11.

- Guatemala, *O. Stoll*. Types MNS. See the account of his travels: Stoll, O. 1886. Guatemala; Reisen und Schilderungen aus den Jahren 1878-1883. F. A. Brockhaus, Leipzig, 518 p.
<*Mexinauta impluviatus* (Morelet, 1849).
- strebeli* Crosse & Fischer, 1882, *Physa*. J. Conchyl. 29:335. Fischer & Crosse, 1870-1902, Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):103. Veracruz [32°25'N, 115°05'W], Veracruz, Mexico.
<*Haitia mexicana* (Philippi, 1841).
- streletzkajae* Starobogatov & Budnikova, 1976, *Physa*. Trudy Biol.-Pochvenn. Inst. Dal'nevostochn. Nauchn. Tsentr ANSSSR 36:84, fig. 5, II. Vakarevo [64°53'N, 171°37'E], Chukotka, Russia, *E. Streletskaya*, 1972. Holotype presumably in ZIP.
=*Physa streletzkajae* Starobogatov & Budnikova, 1976.
- striata* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:115. "Salt Lagoon, near Monterey [36°36'01"N, 121°53'37"W]," California, *J. B. Trask, California Geological Survey*, 1854. Holotype USNM 119 907. Not *P. striata* d'Orbigny, 1841; substitute *P. dorbigniana* Lea, 1867.
<*Haitia mexicana* (Philippi, 1841).
- striata* Menke, 1828, *Physa*. Synops. meth. moll. Museo Menkeano: 79; 1830, ed. 2: 132. Near Goshen [42°26'25"N, 72°48'00W, 1450 ft], Hampshire County, Massachusetts.
<*Haitia acuta* (Draparnaud, 1805).
- subacuta* Beck, 1838, *Bulinus fontinalis*. Index moll. mus. Christiani Frederici: 117. "Drp.III.8-9.-L.Tr.VIII.IV.1. Pf.IV.28. - Sturm.VI,IV.10. German. Gall." [Draparnaud, J. P. R. 1805. Hist. nat. moll. terr. fluv. France: 54, pl. 3, figs. 8-9. Maton, W. G. & T. Rackett. 1807. Trans. Linn. Soc. London 8: pl. 4, fig. 1. Pfeiffer, C. 1821. Naturgeschichte Deutsch. Land- u. Süßsw. Moll.: 94, pl. 4, fig. 28. Sturm, J. 1819. Deutschlands Fauna 6(4):10, figs. 10a-f. Germany. France]. Original material in ZMUC?
<*Physa fontinalis* (Linnaeus, 1758).
- subacuta* Moquin-Tandon, 1855, *Physa acuta* var. Hist. nat. moll. terr. fluv. France 2:452. Dépt. Sarthe, France, *C. J. Goupil*.
<*Haitia acuta* (Draparnaud, 1805).
- subarata* Menke, 1828, *Physa*. Synops. meth. moll. Museo Menkeano: 79; 1830, ed. 2: 132. Near Cincinnati [39°09'43"N, 84°27'25"W], Hamilton County, Ohio.
<*Physella ancillaria* (Say, 1825).
- subflava* Clench, 1926, *Physa fontinalis*. J. Conchol. 18:12. Substitute for *P. fontinalis inflata* Moquin-Tandon, 1855, not *P. inflata* Lea, 1841.
<*Physa fontinalis* (Linnaeus, 1758).
- subglobosa* "Westerlund" Clessin, 1886, *Physa*. Syst. Conch.-Cab., ed. 2, 339:374. Error for *semiglobosa* Westerlund, 1871.
<*Physa fontinalis* (Linnaeus, 1758).
- subopaca* Lamarck, 1822, *Physa*. Hist. nat. anim. s. vert. 6(2):157. Delessert, 1841, Rec. coq. Lamarck: pl. 30, figs. 3a-c. Mermod, 1952, Rev. Suisse. Zool. 59:61, fig. 122. Montpellier [43°36'N, 3°53'E], Dépt. Hérault, France, *M. Chabrier*. Holotype in MHNG.
<*Haitia acuta* (Draparnaud, 1805).
- subrotunda* Sowerby II, 1873, *Physa*. Conch. Icon., *Physa*, sp. 87, pl. 10, fig. 87. "Hab. North America." Four syntypes BMNH 1996180.
<*Physella ancillaria* (Say, 1825).
- succinea* Hesse, 1913, *Physa fontinalis forma*. Nachr. Deutsch. malak. Ges. 45:70. Lectotype (H. B. Baker, 1964:155) ANSP 282 730a, from Canal of Marotza at "Phillipol" [Philippopolis, now Plovdiv, 42°09'N, 24°45'E], Bulgaria.
<*Physa dalmatina* Küster, 1844.

- suturalis* Beck, 1838, *Aplexa*. Index moll. mus. Christiani Frederici: 117. Mexico. *Nomen nudum*. Original material in ZMUC? Listed by Martens (1865:57, 1890-1901:357) in synonymy of *Mexinauta nitens* (Philippi, 1841).
- syriaca* Germain, 1911, *Physa*. Bull. Mus. Natl. Hist. Nat. 17:64; 1921, *Voy. zool.* Henri Gadeau de Kerville en Syrie 2:429, pl. 16, figs. 11-12, 22-25. River Barada, Hidachariyé [not traced], Syria, *H. Gadeau de Kerville*. Holotype presumably in MHNP.
<*Haitia acuta* (Draparnaud, 1805).
- taciti* "Bourguignat" Servain, 1880, *Physa*. Étude moll. rec. Espagne et Portugal: 139. France (no precise locality). *Nomen nudum*.
<*Physa fontinalis* (Linnaeus, 1758).
- taciti* "Bourguignat" Servain, 1882, *Physa*. Cat. moll. France: 194, 346. "Dans l'Erdre, à Nantes [47°13'N, 1°33'W, Dépt. Loire-Atlantique], dans la Loire-Inférieure," France.
<*Physa fontinalis* (Linnaeus, 1758).
- tapanensis* Crosse & Fischer, 1882, *Aplecta*. J. Conchyl. 29:334. Fischer & Crosse, 1870-1902, *Miss. Sci. Mex. Amér. Centr., Rech. zool.* 7(2):93, pl. 30, figs. 6-6b. Tapan [San Pedro Tapanatepec, 16°21'N, 94°12'W], Oaxaca, Mexico, *Francisco Sumichrast*. Holotype not in MHNP (Chevallier, 1965:25).
=*Mayabina tapanensis* (Crosse & Fischer, 1882).
- taslei* Bourguignat, 1860, *Physa*. Malac. terr. fluv. Bretagne: 70, pl. 1, figs. 19-20. "Très-commune dans un petit ruisseau provenant de la fontaine de Limoges, à 2 kilomètres de Vannes," Dépt. Morbihan, Brittany, France. Holotype presumably in MHNG.
=*Physa taslei* Bourguignat, 1860.
- tehuantepecensis* Crosse & Fischer, 1882, *Physa*. J. Conchyl. 29:335. Fischer & Crosse, 1870-1902, *Miss. Sci. Mex. Amér. Centr., Rech. zool.* 7(2):106, pl. 27, figs. 15a-b. Isthmus of Tehuantepec, Mexico, *Francisco Sumichrast*. Holotype not in MHNP (Chevallier, 1965:26).
<*Haitia mexicana* (Philippi, 1841).
- tei* Starobogatov & Prozorova, 1989, *Physa* (*Beringophysa*). *Biull. Otdel Biol. Moskovsk. Obschest. Ispytat. Prirod.* 94:74, fig. 3,9. Lake near Anadyr [64°45'N, 177°29'E] airport, Chukotsk Autonomous Region, Russia, *L. L. Budnikova*, 23-VII-1974. Holotype in ZIP.
<*Beringophysa jenessi* (Dall, 1917).
- tempisqueusis* *sp.n.*, *Mayabina*. Costa Rica, Prov. Guanacaste: Parque Nacional Palo Verde, edge of marshes 100 m E of W end of airstrip, 10°20.68'N, 85°20.60'W, 16-XI-1992 (T92-7503). Holotype CAS 146092, paratypes CAS 000000 (10), INBio (10).
- tenerifae* Mousson, 1872, *Physa*. *Neue Denkschr. Allg. Schweiz. Ges.* 25(1):137. "Ténérife, Laguna de Sta-Cruz (*Webb et Berthelot, d'Orbigny, Blauner, Wollaston, Reiss*)" [Canary Islands]. Holotype in ZMZ.
<*Haitia acuta* (Draparnaud, 1805).
- tenuissima* Lea, 1864, *Physa*. *Proc. Acad. Nat. Sci. Phila.* 16:114; 1867, *J. Acad. Nat. Sci. Phila.* 6:167, pl. 24, fig. 86. Alexandria [31°18'40"N, 92°26'42"W], Rapides Parish, Louisiana, *Josiah M. Hale*. Holotype presumably in USNM.
?
<*Haitia mexicana* (Philippi, 1841).
- thermalis* Boettger, 1913, *Physa acuta* var. *Nachr. Deutsch. malak. Ges.* 45:161, unnumbered figure. Thermally influenced water in the Pipe, a stagnant arm of the Oder River, Oppeln, Silesia, Germany [now Opole, 50°41'N, 17°55'E, Slaska, Poland]. Holotype presumably destroyed in SMF in 1939-45 war.
<*Haitia acuta* (Draparnaud, 1805).
- thermalis* "Dupuy" Astre, 1921, *Physa acuta* var. *Bull. Soc. Hist. Nat. Toulouse*

- 49:261. Barbotan-les-Thermes, Dépt. Gers, France. Two specimens in the Muséum de Toulouse were listed as "types" described by Dupuy (1847-1852, Hist. nat. moll. terr. eau douce France), but this name was not used in that work. *Nomen nudum*. For references to the thermal springs see Waring (1965:118).
<*Paraplexa cornea* (Massot, 1845).
- thermalis* "Fagot" Locard, 1893, *Physa*. Coq. eaux douces France: 53. "Eaux thermales de Campagne (Aude)" [Campagne-sur-Aude, 42°55'N, 2°12'E, Dépt. Aude], France. =*Aplexa hypnorum* (Linnaeus) (Germain, 1931, Faune de France 22:513).
<*Paraplexa cornea* (Massot, 1845).
- thermalis* "Monterosato" Coen, 1945, *Physa acuta brevispira*. Script. Var. Pont. Acad. Sci. 3:13. "Sorgenti termali di Giers" [= Gers? If so, the locality is the same as that of *thermalis* Astre]. Non-binomial. *Nomen nudum*. Original material perhaps in HNJ.
<*Haitia acuta* (Draparnaud, 1805).
- thiarella* Rigacci & Rigacci, 1866, *Physa*. Cat. conch. coll. Rigacci: 31. "America." *Nomen nudum*. Original material perhaps in Museum of Zoology, Rome, Italy.
Physinae incertae sedis.
- tolucensis* Fischer & Crosse, 1886, *Physa mexicana* var. Miss. Sci. Mex. Amér. Centr., Rech. zool. 7(2):100, pl. 30, figs. 13-13a. Toluca [19°17'N, 99°40'W], México, Mexico, *Adolphe Boucard*, 1864-1867. Holotype in MHNP (Chevallier, 1965:26).
<*Haitia mexicana* (Philippi, 1841).
- tonollii* Mirolli, 1958, *Physa*. Mem. Istit. Ital. Idrobiol. Dott. Marco de Marchi 10:248, pl. 30-33. Lago di Mergozzo and Lago Maggiore, Italy. Holotype not designated?
Haitia incertae sedis.
- traskii* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:115; 1867, J. Acad. Nat. Sci. Phila. 6:163, pl. 24, fig. 80. Los Angeles River, Los Angeles, California, *Dr. John B. Trask, California Geological Survey*, 1855-1856. Holotype USNM 119 946.
<*Haitia mexicana* (Philippi, 1841).
- triticea* Lea, 1856, *Physa*. Proc. Acad. Nat. Sci. Phila. 8:80; 1867, J. Acad. Nat. Sci. Phila. 6:176, pl. 24, fig. 103. Shasta County, California, *Dr. John B. Trask, California Geological Survey*, 1855. Holotype USNM 134 807; 2 paratypes MCZ 85 813; 6 probable paratypes BMNH uncat.
<*Physella gyrina* (Say, 1821).
- troostensis* Lea, 1841, *Physa*. Proc. Amer. Phil. Soc. 2:32. Near Nashville [36°09'57"N, 86°47'04"W, 440 ft], Davidson County, Tennessee, *Dr. Gerard Troost*. Holotype presumably in USNM. Emended to *P. troostiana* Lea, 1844.
<*Physella gyrina* (Say, 1821).
- troostiana* Lea, 1844, *Physa*. Trans. Amer. Phil. Soc. 9:7. Binney, 1865, Smithsonian. Misc. Coll. 7(2)(serial no. 143):93, fig. 159. Emendation of *P. troostensis* Lea, 1841.
<*Physella gyrina* (Say, 1821).
- Tropinauta g.n.* Type species *Tropinauta sinusdulcensis* sp.n. Genus of Aplexinae, Amecanautini.
- tryoni* Currier, 1867, *Bulinus*. Amer. J. Conch. 3:112, pl. 6, fig. 2. Grand Rapids [42°58'N, 85°40'W], Kent County, Michigan. Holotype ANSP 21 200a (H. B. Baker, 1964:155); 13 paratypes MCZ 61 547.
<*Sibirenauta elongatus* (Say, 1821).
- turrita* A. E. de Férussac, 1814, *Physa*. Mém. Géol.: 62. Substitute for *Helix hypnorum* Linné. =*Aplexa hypnorum* (Linnaeus, 1758).
- turrita* "J. De C. Sowerby", *Physa*. Cited by Binney (1865:96, 100) under "Spurious species of *Physa*" as if a name proposed by J. De C. Sowerby (1836, Mollusca, in J. Richardson, Fauna

- Bor.-Amer. 3:315), but only Sowerby's identification of Canadian specimens under this name.
- turritus* Müller, 1774, *Planorbis*. Verm. terr. fluv. 2:169. Frederiksdal, Randers, Denmark. Holotype in ZMUC.
<*Aplexa hypnorum* (Linnaeus, 1758).
- tuwaensis* Starobogatov & Zatravkin, 1989, *Sibirenauta*. Biull. Otdel Biol. Moskovsk. Obshchestv. Ispytat. Prirody 94:68, figs. 1,9; 2,8. Toora-Khem [52°28'N, 96°09'E], Tuvinsk Autonomous Region, Russia, V. A. Gundrizera, 7-VI-1981. Holotype presumably in ZIP. *Aplexinae incertae sedis*.
- typica* Beck, 1838, *Bulinus crassulus*. Index moll. mus. Christiani Frederici: 117. "List. H. CXXXV. 35. *Physa heterostropha*. Say! C. IX. 879-80. Fl. Missouri." [Lister, M. 1685. Hist. synops. meth. conchyl., pl. 135, fig. 35. *Physa heterostropha*. Say! Chemnitz, J. H. 1786. Neues Syst. Conchylien-Cabinet 9(1):33, pl. 103, figs. 879-880. Missouri River]. Original material in ZMUC? The locality "Missouri River" was supplied by Beck; the locality given by Chemnitz is West Indies.
<*Physella gyrina* (Say, 1821).
- typica* Westerlund, 1871, *Physa fontinalis*. Nova Acta Reg. Soc. Sci. Upsal., ser. 3, 8(1):120. Sweden and Norway, no precise locality. Six syntypes SMNH, Westerlund collection 12:22, from Höje å Skåne, Sweden.
<*Physa fontinalis* (Linnaeus, 1758).
- Ultraphysella g.n.* Type species *Ultraphysella sinaloae sp.n.* Genus of Physinae, Physellini.
- Ussuriphysa* Starobogatov & Prozorova, 1989. Biull. Otdel. Biol. Moskovsk. Obshchestv. Ispytat. Prirody 94:71. Type species (by original designation): *Physa hankensis* Starobogatov & Prozorova, 1989. As subgenus of *Physa*.
<*Physa* Draparnaud, 1801.
- utahensis* Clench, 1925, *Physa lordi*. Occ. Pap. Mus. Zool. Univ. Mich. 161:8, pl. 1, fig. 5. Utah Lake 2 miles south of Lehi, Utah County, Utah; Holocene; *J. Henderson* and *L. E. Daniels*, 1916 (sta. 127). Holotype UMMZ, 3 paratypes MCZ 50 982.
<*Physella gyrina* (Say, 1821).
- Utahphysa g.n.* Type species *Aplexa microstriata* Chamberlin & Berry, 1930. Genus of Physinae, Physellini.
- venetzi* "Charpentier" H. Adams & A. Adams, 1855, *Physa*. Gen. Rec. Moll. 2:257. *Nomen nudum*. Cited by Westerlund (1885, Fauna paläarkt. Reg. Binnenconch. 5:56), as variety of *Physa acuta* Draparnaud, from southern France.
<*Haitia acuta* (Draparnaud, 1805).
- venezuelensis* Martens, 1860, *Physa*. Malak. Blätt. 6:66; 1873, Festschr. Feier hundertjährig. Besteh. Ges. naturf. Freunde Berlin: 199, pl. 2, fig. 11. Kiliass, 1961, Mitt. Zool. Mus. Berlin 37:162, fig. 2; the figured specimen (ZMB 4 049a) designated as lectotype. Five paratypes ZMB 4 049b. Laguna von Lagunilla, Venezuela, *Engel*. The data of locality and collector were revised by Ernst (1877, Estud. fauna y flora Venezuela: 329) as "Lagunilla, cerca de Mérida (Ernst)" [Lagunillas, Mérida, Venezuela, 8°30'30"N, 71°23'13"W]. *Aplexinae incertae sedis*.
- ventricosa* "Guilding" Jay, 1850, *Physa*. Catalog, ed. 4: 272. St. Vincent, Lesser Antilles. *Nomen nudum*. Original material in AMNH.
<*Stenophysa marmorata* (Guilding, 1828).
- ventricosa* Moquin-Tandon, 1855, *Physa acuta* var. Hist. nat. moll. terr. fluv. France 2:452. Toulouse [43°36'N, 1°26'E], Dépt. Haute-Garonne, France, "dans le canal du Languedoc," *J. B. Noulet*.
<*Haitia acuta* (Draparnaud, 1805).
- ventricosa* "Guilding" Sowerby II, 1873, *Physa*. Conch. Icon., *Physa*, sp. 74, pl. 9, fig. 74. St. Vincent, Lesser Antilles. BMNH 1839.9.15.122-137, 15 syntypes, purchased from Guilding. On

- the bottom of the box containing the specimens is a note, "Con. Ic. f. 74," but none matches Sowerby's figure well.
- <*Stenophysa marmorata* (Guilding, 1828).
- ventricosa* Tate, 1870, *Physa purpurostoma* var. Amer. J. Conch., 5:158. San Nicolas, Nicaragua [not traced, but probably in Depto. Chontales]. *Nomen nudum*. Original material in ANSP. *Aplexinae incertae sedis*.
- ventricosa* "Uhde" Martens, 1865, *Physa*. Malak. Blätt. 12:58. L. Pátzcuaro [19°35'N, 101°35'W], Michoacán, Mexico, C. A. Uhde, circa 1830-1845. Published in synonymy of *Physa osculans* Haldeman (1841). Original material in ZMB.
- <*Haitia patzcuarensis* (Pilsbry, 1891).
- ventricosior* Beck, 1838, *Aplexa*. Index mollus. Christiani Frederici: 116. Panama. *Nomen nudum*. Martens (1890-1901:360) could obtain no information about this, "even from the conchologist of the Copenhagen Museum." *Aplexinae incertae sedis*.
- ventrosior* "Morelet" Martens, 1898, *Physa cisterna* var. Biol. Centr.-Amer., Mollusca: 362. As pointed out by Bequaert & Clench (1936, Carnegie Inst. Washington Publ. 457:70) Morelet "did not propose this name, but used the word only as a descriptive term of his 'var. β ventrosior, spira minore.' " ?<*Mayabina polita* sp.n.
- venusta* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:116; 1867, J. Acad. Nat. Sci. Phila. 6:168, pl. 24, fig. 89. Near Fort Vancouver [45°37'32"N, 122°39'25"W], Clark County, Washington, Sir George Simpson, Hudson's Bay Company, 1841. Holotype USNM 126 541.
- <*Physella gyrina* (Say, 1821).
- venustula* Gould, 1847, *Physa*. Proc. Boston Soc. Nat. Hist. 2:215; 1852, U.S. Explor. Exped. 12:115, pl. 8, figs. 134-134b. Lima [12°03'S, 77°03'W], Prov. Lima, Peru, Joseph Couthouy, U.S. Exploring Expedition, 1839. Holotype USNM 5 534, 1 paratype MCZ 151 790 (Johnson, 1964:166).
- =*Haitia venustula* (Gould, 1847).
- vernalis* Taylor & Jokinen, 1985, *Physa*. FW Invert. Biol. 5:190, figs. 1-3, 6. "Bluebird Pond," Windham Township, Windham County, Connecticut. Holotype MCZ 294 071. Type species of *Laurentiphysa* g.n.
- =*Laurentiphysa vernalis* (Taylor & Jokinen, 1985).
- vinacea* "Monterosato" Coen, 1945, *Physa acuta brevispira*. Script. Var. Pont. Acad. Sci. 3:13. Cagliari [39°13'N, 9°06'E], Sardinia, Italy. Non-binomial. Original material perhaps in HUI.
- <*Haitia acuta* (Draparnaud, 1805).
- vinosa* Gould, 1847, *Physa*. Proc. Boston Soc. Nat. Hist. 2:263, unnumbered figure. Lake Superior region, C. T. Jackson. F. C. Baker (1928) cited the type locality as "Michipicoten, Lake Superior," probably from specimens collected subsequently by Agassiz. One specimen, BMNH uncat., from the Cuming collection measures 18.34 x 12.98 mm and is labeled "Type." The measurements are close to those given by Gould, and this specimen is probably the holotype. It was figured by Sowerby (1873-1874, fig. 15).
- =*Physella vinosa* (Gould, 1847).
- virgata* Gould, 1855, *Physa*. Proc. Boston Soc. Nat. Hist. 5:128. Johnson, 1964, Bull. U.S. Natl. Mus. 239:168, pl. 44, fig. 5. Gila River, Arizona, and San Diego, California, Dr. T. H. Webb, U.S.-Mexican Boundary Survey, 1852. Holotype ANSP 17 244a (H. B. Baker, 1964:155). Lectotype (Johnson, 1964) MCZ 72 995, 1 paratype MCZ 85 812, 5 paratypes MCZ 225 226. Lectotype (Wu, 1989) ANSP 17 244.

- BMNH uncat., from Cuming collection, includes five specimens from Gila River, labeled "*Physa virgata* Gould type;" these are accepted as paratypes. BMNH 1950.5.24.7-9, from the Cuming collection, includes three specimens of which one was figured by Sowerby (1873-1874, fig. 48); this is labeled "Type."
- <*Haitia mexicana* (Philippi, 1841).
- virginea* Gould, 1847, *Physa*. Proc. Boston Soc. Nat. Hist. 2:215; 1852, U.S. Explor. Exped. 12:120, pl. 9, figs. 138-138a. "Rio Sacramento," by error; actually from Mountain Lake [37°47'17"N, 122°28'12"W], San Francisco, California, *U.S. Exploring Expedition*, 1841. Holotype USNM 5 538, reduced to fragments (Johnson, 1964:169). One paratype BMNH uncat. Identification of the locality is possible by the summary published by Carpenter (1857:212-213), in which *Physa virginea* is cited from San Francisco but not from the Sacramento trip, and more so by the record of "*Physa* (elongate), from behind Presidio."
- <*Physella gyrina* (Say, 1821).
- vitrea* "Frey." Rigacci & Rigacci, 1866, *Physa*. Cat. conch. coll. Rigacci: 31. No locality. *Nomen nudum*. Original material perhaps in Museum of Zoology, Rome, Italy.
- Physidae incertae sedis*.
- walkeri* Crandall, 1901, *Physa*. Nautilus 15:57, pl. 2, fig. 5. Petoskey [45°22'24"N, 84°57'19" W], Emmet County, Michigan. Holotype formerly B. Walker collection 3 483 (Winslow, 1926:17), now in UMMZ; 2 paratypes MCZ 50 933, 3 paratypes BMNH 1942.6.20.9-11.
- <*Haitia integra* (Haldeman, 1841).
- warreniana* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:115; 1867, J. Acad. Nat. Sci. Phila. 6:164, pl. 24, fig. 81. Loup River, Nebraska, *F. V. Hayden, Warren's Explorations in Nebraska and Dacotah*, 1857. Holotype presumably in USNM.
- <*Physella gyrina* (Say, 1821).
- waterloti* Germain, 1911, *Physa (Aplecta)*. Bull. Mus. Natl. Hist. Nat. 17:322, fig. 57. Porto Novo [6°29'N, 2°37'E], Dahomey, West Africa, *M. Waterlot*. Holotype presumably in MHNP. Synonym of *Physa mosambiquensis* Clessin (Connolly, 1945, J. Conchol. 22:167).
- Type species (by original designation) of *Afrophysa* Starobogatov, 1967.
- <*Afrophysa brasiliensis* (Küster, 1844).
- +*wattsi* Arnold, 1910, *Physa*. U.S. Geol. Surv. Bull. 396:97, pl. 30, fig. 6. USGS locality 4732, SW 1/4 NE 1/4 sec. 30, T. 21 S., R. 17 E., Fresno County, California; basal Tulare Formation, Pliocene. Holotype USNM 165 503.
- =*Costatella wattsi* (Arnold, 1910).
- whitei* Lea, 1864, *Physa*. Proc. Acad. Nat. Sci. Phila. 16:114; 1867, J. Acad. Nat. Sci. Phila. 6:172, pl. 24, fig. 96. LaFayette [34°42'17"N, 85°16'55"W, 823 ft], Walker County, Georgia, *Rev. George White*. Holotype presumably in USNM. Paratype USNM 119 896, from Verdigris River, Kansas (Hibbard & Taylor, 1960, Contr. Mus. Paleont. Univ. Mich. 16:116).
- <*Physella gyrina* (Say, 1821).
- wolfiana* Lea, 1869, *Physa*. Proc. Acad. Nat. Sci. Phila. 21:125; 1874, J. Acad. Nat. Sci. Phila., ser. 2, 8:63, pl. 21, fig. 20. Hot Sulphur Springs [40°04'23"N, 106°06'47"W], Grand County, Colorado, *J. W. Powell, Rocky Mountain Scientific Exploring Expedition*, 1868. Holotype USNM 119 907. For references to the thermal springs see Waring (1965:25).
- <*Physella gyrina* (Say, 1821).
- wrighti* Te & Clarke, 1985, *Physella (Physella)*. Canad. Field-Nat. 99:295,

figs. 1a-1e. Alpha Stream, Liard Hot Springs Provincial Park, British Columbia, Canada, A. H. Clarke, 20-VII-1979. Holotype CMN 86 709. For references to the thermal springs see Waring (1965:56).

<*Physella gyrina* (Say, 1821).

zionis Pilsbry, 1926, *Physa*. Proc. Acad. Nat. Sci. Phila. 77:326, pl. 11, figs. 3-6. Zion Canyon [37°09'54"N, 113°00'40"W], Washington County, Utah, H. A. Pilsbry. Holotype ANSP 140 235a (H. B. Baker, 1964:155). Type species of *Petrophysa* Pilsbry, 1926.

=*Petrophysa zionis* (Pilsbry, 1926).

zomos Baily & Baily, 1952, *Physa lordi*. Nautilus 65:89, pl. 4, fig. 4. Middle of west side of Pyramid Lake, Washoe County, Nevada, in drift, J. L. and R. I. Baily, 1949. Holotype ANSP 187 699a (H. B. Baker, 1964:155).

=*Archiphysa zomos* (Baily & Baily, 1952).

GLOSSARY

Abbreviations used herein are given following the name of the structure; most are shown in Fig. 3, terminology of the reproductive system. Definitions are as used here, and in some cases do not apply outside the Physidae.

Actophila. An order of Heterobranchia including the marine or strand-dwelling families Ellobiidae and Otinidae, and the terrestrial Carychiidae. Formed in contrast to Hygrophila, Thalassophila, and others.

albumen gland (GA). A compact gland, showing little variation throughout the family, secreting the nutrient medium that surrounds the ova in the egg capsules. It drains into the reproductive system where male and female tracts separate. No distinct duct is present.

aphally. The condition of lacking a penis, without effects of parasitism.

Architectibranchia. An order of Heterobranchia including the marine families Acteonidae (living) and Acteonellidae (extinct).

Basommatophora. A former name for pulmonate gastropods, mostly freshwater, bearing eyes at the bases of the tentacles. The group included what are called herein Lymnaeacea, Physacea, and Planorbacea, as well as other families. Formed in contrast to Stylommatophora, pulmonate land snails bearing eyes at the tips of the tentacles.

Bulinidae. A family of Planorbacea, the superfamily including also Planorbidae. Most of the former "Ancyliidae" are now merged into Bulinidae.

bursa copulatrix (BC). A sac storing spermatozoa received from the partner in copulation. It discharges by way of the bursal duct. Also, spermatheca.

bursal duct (DBC). The duct leading from the bursa copulatrix to the upper end of the vagina. Also, spermathecal duct.

caecum (C). An evagination from the upper portion of oviduct I. Also, fertilization pocket or carrefour.

capsular string. Strings issuing from the inner capsular wall, either short and forming partial partitions within the capsule, or complete partitions. Short capsular strings are found in most Lymnaeidae, and are recorded herein for the first time in Physidae, in *Sibirenauta elongatus*. Complete partitions are known only in *Myxas glutinosa* (Lymnaeidae).

capsule. The spawn mass, containing a few or many eggs.

Chiliniidae. A freshwater family restricted to southern South America. The deviated apex, color pattern of chevrons, and possession of more than one columellar fold in some species hint at affinities with some Acteonidae and Acteonellidae (Architectibranchia).

- Radular characters are shared with Physidae.
- clade. A phyletic series, not a level of organization. Contrast grade.
- columella. The central column of the shell, formed by the junction of successive inner lips. It may be nearly straight, or of obviously spiral form.
- columellar fold. A low, elongate ridge on the columella at the aperture and sometimes extending a short distance within. Sometimes, columellar plait.
- columellar muscle. The principal muscle of the body, with origins in the head-foot and insertion on the columella.
- digestive gland. The gland in the apical part of the body that drains into the stomach. It envelops the ovotestis, that lies along the columellar surface. Formerly sometimes liver.
- distal retractor (of the penial sheath)(MRSD). The muscle band running from the columellar muscle to the distal end of the penial sheath; or, less often, from a common retractor band (MRS) to the distal end of the penial sheath.
- egg capsule. The spherical to ovoid body including the egg and albumen within, and covered by several layers of membrane.
- egg string. A thread-like continuation of the external membrane around the egg. It may or may not connect two eggs.
- Ellobiidae. A family of Actophila, mostly of marine or strand habitats, but entering tidal fresh waters close to the coast in tropical regions.
- female duct (DF). That part of the female tract between the hermaphroditic duct and the albumen gland.
- female tract. That portion of the reproductive system from its separation into male and female portions to the female pore.
- grade. A level of organization, not a phyletic series. Contrast clade.
- hermaphroditic duct (DH). The duct leading from the common collecting canal of the ovotestis to the separation of male and female tracts. Outpocketings along the duct, of varied size, spacing, and structure, are the seminal vesicles (VS).
- holotype. The single specimen to which a species name is tied. *See* lectotype.
- Hygrophila. The order of Heterobranchia including the freshwater groups Lymnaeacea, Physacea, and Planorbacea. Also, Limnophila.
- initial tip. The end of the spawn capsule laid first. The terminal tail is the opposite end.
- Lancidae. A family of Lymnaeacea, the superfamily including also the Lymnaeidae, found in the northwestern United States, with two genera, *Lanx* and *Fisherola*.
- lectotype, lectoparatype. If no holotype was selected by the author describing a species, a later author may designate a specimen to function as holotype; this specimen is the lectotype, and the remainder of the type series is lectoparatypes. Confusion may arise through the eagerness of some curators to claim holotypes or lectotypes in their respective museums; in several cases I have found multiple types designated for one species.
- Lymnaeidae. A world-wide family of Lymnaeacea, the superfamily including also the Lancidae, with either one or many genera according to different classifications.
- macrosculpture. Shell sculpture visible to the naked eye. Contrast microsculpture.
- male tract. That portion of the reproductive system from its separation into male and female portions to the male pore.
- mantle. The characteristic molluscan structure that envelops the body within the shell, and that may be reflected over the outer surface of the shell to a varied extent. Within the upper part of the shell it is a simple epithelium, but at the shell margin it is thickened as the mantle collar, and especially when extensively reflected over the shell may serve a respiratory function.

- mantle projections. The scallops, or triangular or elongate ornament along the external mantle margin. Also sometimes, digitations.
- microsculpture. Shell sculpture not visible to the naked eye. Contrast macrosculpture.
- oviduct (OD). The female tract from albumen gland to vagina. It is divided into three segments, histologically distinct, that are enlargements or outpocketings of the duct. OD I is a short, slightly swollen segment bearing one or more caeca on its upper portion. OD II is a many-folded segment, shorter than OD III, which is swollen, with a large lumen, and forms the greater part of the female tract.
- ovotestis (OT). The organ embedded in the digestive gland that produces both ova and spermatozoa. It drains through a common collecting canal into the hermaphroditic duct.
- pallium gelatinosum. A gelatinous, slimy outer coat of the spawn mass, found in Lanicidae, Lymnaeidae, and Physidae of the Hygrophila, perhaps also in Siphonariidae (Thalassophila).
- paragonoporal angle (APG). The angle in the vas deferens where it leaves the body wall and enters the cavity of the head-foot, dividing VD III from VD IV.
- parietal callus. The layers of calcareous shell deposited on the inner side of the aperture over the periostracum of the previous whorl, and sometimes extending well beyond the aperture.
- penial canal. The continuation of the vas deferens within the penis leading to the male pore.
- penial complex. The structures associated with the penis: penial sheath and preputium; and, more loosely, also the retractor muscles of the penial sheath.
- penial retractors. The retractor muscles of the penial sheath.
- penial sheath. The structure between the vas deferens and preputium that encloses the penis. The penial sheath may be muscular and undivided, or glandular in part; when divided into two clearly separate sacs, it consists of a muscular part of the sheath (SPM), and a glandular part of the sheath (SPG).
- penial stylet. A firm or even rigid and conical tip of the penis.
- penis (PEN). The male intromittent organ, enclosed within the penial sheath.
- periostracum. The external proteinaceous layer of the shell.
- periostracal callus. A feature peculiar to *Austrinauta*. A thin periostracal layer applied as a secondary callus on the ventral surface of the shell adjacent to the calcareous parietal callus, giving the surface a luster.
- periphery. The trace around the shell of the point on the outer lip farthest from the axis of coil.
- physid muscle (phm). A muscle peculiar to Physidae, acting in opposition to the columellar muscle. Its origin is in an oval area on the roof of the pulmonary cavity, on the right side of the animal about 1/4 whorl within the aperture. For fuller description, see Harry & Hubendick (1964:11).
- pilaster. In the retracted state the preputium contains two lengthwise internal pillars, the pilasters, formed by folding of the wall of the preputium; these disappear when the preputium is everted.
- Planorbidae. A family of Planorbacea, the superfamily including also Bulinidae.
- pneumostome (PN). The external opening of the pulmonary cavity, surrounded by sphincter muscles.
- post-tentacular flap. A flap of tissue at the posterior base of the tentacle and continuous with it. Presumably it has a sensory function, as yet unstudied.
- preputial gland (G PREP). A gland on the posterior mid-face of the preputium that is characteristic of the subfamily Physinae.
- preputium (PREP). The eversible sleeve joined at its proximal end to the penial

- sheath, and at its distal end surrounding the male pore, through which the preputium and penial sheath are extended in copulation.
- presarcobelum. A term introduced by Starobogatov & Budnikova (1976) for a structure in *Beringophysa jennessi* (revised nomenclature). It is described as a muscular thickening of the end of the penial sheath around the sarcobelum. I have seen no specimens to verify or deny its presence.
- prostate (G PROS). The collection of follicles that discharge into the upper part of the vas deferens, separating VD I from VD II. Unlike other families of Hygrophila, the prostate is not distinct from the vas and has no special duct.
- prostatic chamber. A structure known only in *Sibirenauta*, consisting of an enlargement of the vas in the apical end of the prostate.
- prostatic follicles. The tubular or finger-like diverticula set along the vas deferens that secrete the prostatic fluid; collectively, they form the prostate.
- prostatic vas deferens. The segment of the vas deferens receiving the secretion of follicles of the prostate.
- protractor muscle (MP). A muscle that contracts to draw forward a structure; herein, especially the muscles that draw the preputium toward the anterior end of the body.
- proximal retractor (of the penial sheath) (MRSP). The muscle band running from the columellar muscle to the proximal end of the penial sheath; or, less often, from a common retractor band (MRS) to the proximal end of the penial sheath.
- Pulmonata. A former category for all gastropods with lung but without gills, at one time divided into Basommatophora, Stylommatophora, and Soleolifera (or Systellommatophora).
- retractor muscle (MR). A muscle that contracts to draw back a structure; herein, especially the muscles that draw the preputium backward. Contrast protractor.
- sarcobelum (SAR). The structure forming the tip of the everted preputium, through which the penis passes in copulation. When the preputium is retracted, the sarcobelum lies within its proximal end, and varies in form from subhemispherical to pyriform or narrowly elongate.
- seminal vesicles (VS). See hermaphroditic duct.
- Siphonariidae. A world-wide family of marine, patelliform, pulmonate gastropods of the order Thalassophila. General shape and color pattern of some species show similarities to Lancidae.
- stylet see penial stylet.
- terminal bulb. The muscular swelling of the distal part of the penial sheath next to the preputium, found in *Caribnauta* and *Laurentiphysa*.
- terminal tail, or *exitus terminalis*. The characteristic termination of the spawn capsule, that may be prolonged into a spout, tube, or tapering thread.
- Thalassophila. An order of Heterobranchia including two families of patelliform marine gastropods, Gadiniidae and Siphonariidae. Also, Patelliformia.
- topotype. A specimen of a given species from the type locality of that species.
- type locality. In principle, the locality where the type specimen was collected. Problems of definition can arise for various reasons. The locality as first published may be in error. Or the author may have given several localities for the species, even if only one species was represented. Or the original material or concept may have been a mixture of species. In the interest of stabilizing nomenclature, a designation of lectotype from a single locality may be needed, or the restriction of type locality to one of the original localities even when no type material survives.
- vagina (V). As defined herein, the terminal portion of the female tract below junction of the bursal duct and

oviduct III. A histological definition would make the vagina longer, but would not be recognizable in gross dissection.

vas deferens (VD). The duct leading spermatozoa from the separation of male and female tracts to the penis. Within the penis, it is called the penial canal. The vas deferens is divided into four segments: VD I, from origin of the vas to the prostate; VD II, from the prostate to entrance of the vas into the body wall; VD III, within the body wall; VD IV, from the body wall and within the cavity of the head-foot to the penis.

ventral pore (PV). This structure was discovered by Paraense (1986). It is a pore lying close to the junction of the hermaphroditic duct and vas deferens. Paraense found it in *Stenophysa marmorata* at the junction of those two ducts, where it occurs also in *Sibirenauta elongatus*. In *St. spathidophallus* it is rather between that junction on the one hand, and the junction of the albumen gland and oviduct on the other. I have not searched for the pore in other species.

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