

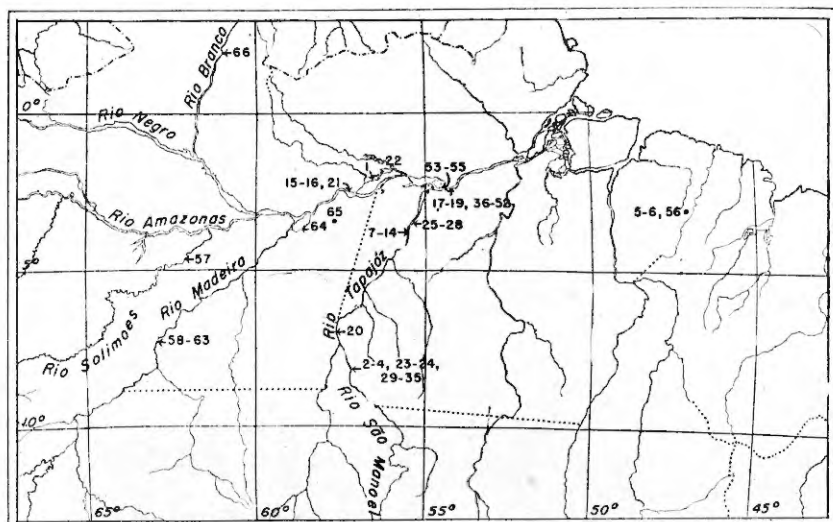
# ON FRESH WATER MOLLUSKS FROM THE AMAZONIAN REGION

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Dr. Harald Sioli, now connected with the Instituto Agronômico do Norte in Belém, Pará, Brazil, during several trips to various parts of the vast Amazonas basin, accumulated the collections here reported upon. Though not particularly interested in mollusks himself, he was engaged in the study of the fluviatile fauna as a whole and as a function of environmental conditions, and he carefully collected whatever snails and bivalves were caught in his dip net or dredges and thus brought together a rather rich collection. This proves to be very valuable on account of the exact data as to the individual stations, especially as to depth, and as to environment in general, and it is found to contain species new to the Amazon system and some even new to science. The trips of the years 1940-41 were sponsored by the German government, those of 1945 and 1946 by the Instituto Agronômico do Norte in Belém, whose director, Dr. Felisberto C. de Camargo, with laudable understanding, is encouraging Dr. Sioli to continue the investigations begun in 1940.

Dr. Sioli's localities are almost entirely situated in the Brazilian state of Pará, a few are in the state of Amazonas and only one in the Território do Rio Branco, close to the Venezuelan border. A complete list of these localities gives all the ecological information submitted, and makes it unnecessary to repeat these data in the faunistic list. The new species mentioned in this faunistic list are fully described at the end of this paper. The collection was sent to the Chicago Natural History Museum for identification, and is now equally divided between the Museum and Dr. Sioli.

I am indebted to Miss Margaret Bradbury, Artist in the Department of Zoology of the Chicago Natural History Museum, for the drawings used here for illustrations.



#### LIST OF DR. SIOLI'S LOCALITIES

##### State of Pará.

- 1) Alemquer, on shore, between Santarem and Obidos, in aquatic plants. July 15, 1946.
- 2) Barra do São Manoel, Lago do Tambaquí, close to affluent Varadouro, 5.50 m. depth. May 7, 1941.
- 3) Barra do São Manoel, Lago do Tambaquí, quiet corner, 4 m. depth. May 7, 1941.
- 4) Barra do São Manoel, Igarapé da Donna Victoria, between algae. October 5, 1941.
- 5) Igarapé Agua Branca, Açude Arraia, Colonia Estadual de Thomé-assú on the Rio Acará-pequeno, ab. 120 km. south of Belém; about 40 cm. depth; November 18, 1946.
- 6) Igarapé Agua Branca, Açude Arraia, Colonia Estadual de Thomé-assú on the Rio Acará-pequeno, about 120 km. south of Belém; about 40 cm. depth; between aquatic plants. November 20, 1946.

- 7) Igarapé do Cassepá near Fordlandia, Rio Tapajóz, between aquatic plants. July 24, 1946.
- 8) Igarapé do Cassepá near Fordlandia, Rio Tapajóz, Between algae; August 6, 1946.
- 9) Affluent of Igarapé Pau d'água near Fordlandia, about 180 km. above Santarem, on the Rio Tapajóz, between rocks. July 24, 1946.
- 10) Affluent of Igarapé Pau d'água, in the current. July 24, 1946.
- 11) Igarapé Pau d'água at its mouth near Fordlandia; 3.30 m. depth. August 6, 1946.
- 12) Igarapé São João, affluent of Igarapé Pau d'água, near Fordlandia, about 180 km. above Santarem on the Rio Tapajóz; between aquatic plants. July 23, 1946.
- 13) Itaituba, Lower Rio Tapajóz, Igarapé Bom Jardim. 3.20 m. depth. August 13, 1946.
- 14) Itaituba, Lower Rio Tapajóz, Igarapé Bom Jardim; between roots. August 13, 1946.
- 15) Lago do tostão, between Alemquer and Obidos, 4.90 m. depth. July 16, 1946.
- 16) Lago do tostão, between Alemquer and Obidos, between floating roots. July 16, 1946.
- 17) Lago Grande Curuay, West of Santarem, South of the Amazon, Caraubal, 4.30 m. depth. June 8, 1946.
- 18) Lago Grande Curuay, West of Santarem, South of the Amazon, Caraubal, between roots. June 8, 1946.
- 19) Lago Grande Curuay, West of Santarem, South of the Amazon. Caraubal, 3 m. depth. June 7, 1946.
- 20) Missão São Francisco de Cururú, about its mouth into the upper Rio Tapajóz; flooded wood of Igapó, about 20 cm. depth. April 15, 1941.
- 21) Mouth of the Paraná-mirim between Obidos and Alemquer into the Paraná de Alemquer; between floating plants. July 17, 1946.
- 22) Paraná do Tapará, northern side branch of Amazonas falling into the Amazon at some distance below Santarem; between roots. July 15, 1946.
- 23) Rio Aniperí, right tributary of Rio São Manoel, close to its mouth and close to the shore; 4 m. depth. May 12, 1941.
- 24) Rio Aniperí, right tributary of Rio São Manoel, close to its mouth and close to the shore; between roots. May 12, 1941.
- 25) Rio Cupary, right affluent of lower Rio Tapajóz, near its mouth; July 29, 1946.

- 26) Rio Cupary, right affluent of lower Rio Tapajóz, near its mouth; on shore; July 29, 1946.
- 27) Rio Cupary, near mouth, 5 m. depth. July 29, 1946.
- 28) Rio Cupary, near mouth, at shore, between roots, July 29, 1946.
- 29) Rio Juruena, backwater 2 km. above mouth into the Rio São Manoel, 4.30 m. depth. May 5, 1941.
- 30) Rio Juruena, backwater on the Matto Grosso-bank, 3.70.m depth. May 14, 1941.
- 31) Rio Juruena, Lago de Perí, between roots. May 14, 1941.
- 32) Rio São Manoel near Barra do São Manoel, sand bank. June 27, 1942.
- 33) Rio São Manoel, sand bank in mid of stream, about 5 km. above Barra do São Manoel. About 20 cm. depth. May 12, 1941.
- 34) Rio São Manoel, backwater, 7 m. depth. May 6, 1941.
- 35) Rio São Manoel, narrow side branch, 4 m. depth. May 6, 1941.
- 36) Rio Tapajóz near Belterra, 6 m. depth. April 20, 1946.
- 37) Rio Tapajóz near Belterra, 3 m. depth. April 20, 1946.
- 38) Rio Tapajóz at Pindobal, 16 m. depth. June 21, 1946.
- 39) Rio Tapajóz at Pindobal, 16 m. depth. June 5, 1946.
- 40) Rio Tapajóz at Pindobal, 11 m. depth. June 21, 1946.
- 41) Rio Tapajóz at Pindobal, 18 m. depth. June 11, 1946.
- 42) Rio Tapajóz near Fordlandia, center of Lago Atím, about 180 km. above its mouth, 5 m. depth. August 2, 1946.
- 43) Rio Tapajóz, cataract Mangabal Grande; on rocks. July 2, 1942.
- 44) Rio Tapajóz, 3 km. above Santarem; sandy beach. November 15, 1940.
- 45) Rio Tapajóz near Santarem, off the bay of Corôa de areia, from shore down to several m. of depth. November 16, 1940.
- 46) Rio Tapajóz near Santarem, 28 m. depth. February 22, 1941.
- 47) Rio Tapajóz near Santarem, on sand bank Corôa de areia. 10-30 cm. depth. December 1, 1940.
- 48) Rio Tapajóz off bay Mapirí, close to shore; 2 m. depth. December 14, 1940.
- 49) Rio Tapajóz off bay Mapirí, 10.5 m. depth. November 24, 1940.
- 50) Rio Tapajóz, bay Mapirí; at shore of pebbles. December 4, 1940, and November 24, 1940.
- 51) Rio Tapajóz, bay Mapirí; 10.5 m. depth. November 24, 1940.
- 52) Rio Tapajóz, bay Mapirí; between floating plants. June 28, 1946.
- 53) Santarem, in branch Maicá of Amazon, on shore, 3 m. depth. June 24, 1946, and June 27, 1946.

- 54) Santarem, Laguinho of Amazon River, 2 m. depth. June 25, 1946.
- 55) Santarem, Laguinho of Amazon River, between roots of floating plants. July 3, 1946.
- 56) Thomé-assú in Rio Acará, on the shore. February 1, 1945.

#### State of Amazonas.

- 57) Lago Calado, near Manacapuru on the lower Rio Solimoes, between floating plants. August 14, 1941.
- 58) Lago Comprido, 20-50 cm. depth, Tres Casas near Humaitá, middle Rio Madeira. December 6, 1941.
- 59) Lago Matafome, near Tres Casas near Humaitá, middle portion of the Rio Madeira; 40 cm. depth. November 15, 1941.
- 60) Lago Matafome, near Tres Casas near Humaitá, between floating plants. November 15, 1941.
- 61) Lago Paxiuba, close to shore, and to surface. Tres Casas near Humaitá, middle portion of Rio Madeira. November 14, 1941.
- 62) Lago Paxiuba, close to shore, 20 cm. depth. November 14, 1941.
- 63) Lago das Tres Casas, center, 2.30 m. depth, near Tres Casas near Humaitá, middle portion of Rio Madeira, November 29, 1941, and November 30, 1941.
- 64) Paraná de Urariá in front of Sitio Sant'Anna, between aquatic plants. January 12, 1941.
- 65) Rio Maués-assú above Maués, 12.8 m. depth. January 25, 1941.

#### Territorio do Rio Branco.

- 66) Rio Branco at Boa Vista. Campos Geraes de Guiana, close to borders of British Guayana and of Venezuela; on stones of shore.

#### LIST OF SPECIES COLLECTED BY DR. SIOLI

1. **Aplexa (Stenophysa) rivalis** [Maton & Rackett]. Localities 28; 57.
2. **Tropicorbis (Obstructio) paparyensis** [F. Baker]. Localities 8, 15, 17, 18, 24, 28, 55; 57, 58, 60.

In some of the localities listed, this species has been collected as deep as 4.3 and 4.9 m. None of the specimens at hand show any of the obstructions found in those on which F. Baker based his description; this may be due to environmental factors, such as lack of estival drought or to the season in which our specimens were taken.

3. **Gyraulus (Drepanotrema) schubarti** HAAS. Localities 7; 60.

Found among floating roots, as well as at the depth of 4.3 m. This species was described only 11 years ago from the Brazilian states of Pernambuco, Parahyba and Ceara (Haas, p. 49; 1938) and not since recorded; it is thus found also in the basin of the Amazon.

4. **Gyraulus (Drepanotrema) depressissimus** [Moricand]. Locality 25.

5. **Gyraulus (Drepanotrema) anatinus** [Orbigny]. Localities 17, 26, 30, 31, 55; 57, 58, 59, 61.

Found mostly near the surface of the water, but in some cases also at greater depths (localities 17: 4.3 m.; 30: 3.7 m).

6. **Burnupia (Anisancylus) culicoides** [Orbigny]. Localities 6, 11, 12, 52; 60.

Collected at the depth of 3.3 m. at locality 11.

7. **Burnupia (Hebetancylus) moricandi** [Orbigny]. Localities 14, 19, 20, 21, 26, 34, 36, 52, 55; 58, 59.

Collected at depths of 3 and 6 m. at localities 19 and 36 respectively.

8. **Burnupia (Hebetancylus) plagioxa** [Bourguignat]. Localities 5, 6.

9. **Burnupia (Uncancylus) barilensis** [Moricand]. Locality 57.

10. **Gundlachia (Gundlachia) bakeri** Pilsbry. Localities 5 and 16.

Only the ancyloid phase of this species was found by Dr. Sioli.

11. **Ampullarius (Ampullarius) gigas** Spix. Locality 50.

Two very young specimens on y.

12. **Ampullarius (Ampullarius) papyraceus** Spix. Locality 56.

13. **Ampullarius (Ampullarius) bridgesi** Reeve. Locality 63, at the depth of 2.3 m.

14. **Ampullarius (Limnopomus) crassus** Swainson. Localities 9, 10; 64.

15. **Doryssa transversa tapajozensis** Pilsbry. Localities 9, 10; 64.

16. **Potamopyrgus (Potamopyrgus) amazonicus** n. sp. Locality 36, at the depth of 6 m.

17. **Potamopyrgus (Aroa) latus** n. sp. Localities 9, 25, 37, 49, 50, 53.

Ranges from shallow water to depths of 3 m. (locality 37) and 10.5 m (locality 49).

18. **Littoridina pusilla** n. sp. Localities 15, 16, 17; 62.

Found in shallow water as well as at depths of 4.3 m. (locality 17) and 4.9 m. (locality 16).

19. **Littoridina siolii** n. sp. Localities 23, 29, 30, 34.

Collected only in deeper water, at depths from 3.7 m. (locality 30) to 7 m. (locality 34).

20. **Sioliella effusa** n. gen., n. sp. Localities 36 (at 6 m.) and 53 (at 3 m.).
21. **Sphaerium (Sphaerium) boliviense** [Sturany]. Localities 35 (4 m.); 63 (2.3 m.), 13 (3.2 m.).

It is strange that this species known only from the high Andes of Bolivia and Peru (4,500 m. alt.) [Sturany, p. 57; 1900. Haas, pp. 8-9; 1945], should be found in the lowland waters of the Amazon. However, after a careful comparison with the original description and figures as well, as with the Peruvian material in the Chicago Natural History Museum (N° 17741), I see myself compelled to identify the Amazonian shell with the Andean ones.

22. **Byssaenodonta bahiensis** [Spix]. Localities 17, 23; 63.

In shallow water as well as at the depths of 4 m. and more.

23. **Pisidium bejuma** H. B. Baker, Occ. Pap. Mus. Zool. Univ. Mich., 210, pp. 58-59, pl. 31, figs. 7-10; 1930.

Locality 65, at the depth of 12.8 m. This is the second time, to the best of my knowledge, that this Venezuelan species has been recorded.

24. **Pisidium pulchellum** Jenyns. Locality 35, at the depth of 5.5 m.

I rather hesitate to attribute the name of a European species to this Amazonian shell, but the single specimen at hand seems to agree completely in all essential characters of the shell with **pulchellum**, that I cannot but give it this name. It should be pointed out, however, that **pulchellum** has once been recorded from Methy Lake, Alaska and, hence, from the Western Hemisphere, but Sterki (1916, p. 472), the best expert on North American pisidia at that time, was unable to verify this record and did not include it in the list of verified North American species.

25. **Castalia lateriquadrata** SOWERBY. Localities 32, 33 (0.2 m.), 34 (7 m.), 35 (4 m.).

26. **Diplodon (Diplodon) suavidicus** [Lea]. Localities 34 (7 m.), 44, 48 (2 m.).

Some of the specimens at hand are only 3 to 5 mm. long, but can be classified beyond doubt on account of the peculiar umbonial sculpture characteristic of the species.

27. **Triplodon (Triplodon) rugosissimus** [Sowerby]. Localities 44, 50.

Young specimens only, but perfectly recognizable.

28. **Priscodon symmatophorus symmatophorus** [Meuschen]. Localities 32, 35 (4 m.). Young specimens.



29. **Prisodon alatus** [Sowerby]. Localities 36, 41, 45, 46, 49.

Found at depths ranging between 6 m. (locality 36) and 28 m. (locality 46). Among specimens of average size, there are some very young ones, not larger than 20 mm, which have the anterior and posterior shell projections comparatively larger than in older specimens, and which are distinguished also by the brilliant bronze gloss of their outer surface.

30. **Monocondylaea paraguayana jaspidea** [Hupe]. Localities 42, at the depth of 5 m., and 45.31. **Anodontites (Anodontites) trapezeus** [Spix]. Locality 44.32. **Anodontites (Anodontites) obtusus** [Spix]. Locality 45.

Among the 32 species listed above, 5 are entirely new to science and one represents a new genus. Some of the genera involved had never before been reported from the basin of the Amazon, such as **Potamopyrgus**, **Littoridina**, **Sphaerium**, and **Pisidium**. Dr. Sioli's collections however, not only add new genera and species to the Amazonian fauna, but increase our knowledge of the environmental conditions under which even the better known representatives of this interesting fauna live. It is seen that certain species are confined to the surface or close to the surface of the water, and that the same species can live either on sand, or between pebbles or rocks, or in roots of water plants, or between floating plants. Other species are tolerant of a great variation of their vertical distribution, inasmuch as they may live close to the surface of the water, or at moderate depths of 4-7 m., or at depths of 10 to 28 m., which are unusual for fresh water mollusks. In this connection, it is worth stressing the fact that even pulmonate gastropods, such as planorbids and ancyliids, have been collected by Dr. Sioli in the living state, at depths of 4 and more m.; it would be interesting to study the histology of their lung cavities, since there is a possibility that a secondary gill may have been developed.

**Sioliella** n. gen.

A genus of littoridine hydrobiids characterized by its comparatively large size, its broadly ovate shape and by its large aperture, provided with a projecting point at the base and a rounded sinus on the left. Genotype: *Sioliella effusa* n. sp.



**Sioliella effusa** n. sp.

(Figures 1, 2)

Type—No. 29209 C.N.H.M. Rio Tapajóz at Belterra, Pará, Brazil. Collected by Dr. Harald Sioli, April 20, 1946.

**Description of type.**—Shell broadly ovate with pointed spire, thin, smooth, with a yellowish brown conchinc layer. Whorls 6, hardly swollen but the big last one, which is very ventrose; suture conspicuous, but not very well marked. Aperture large and high with a continuous, straight peristome, broadly effuse below, the columellar margin receding into a well curved sinus, the angle between the basal and columellar margins forming a decided projection; the outer edge of the peristome narrowly bordered with black. Umbilicus reduced to a narrow chink. Operculum unknown.

**Comparisons.**—There are two more genera of South American amnicolids that share the apertural features with the new genus **Sioliella**, **Potamolithus** and **Pterides**, including **Idiopyrgus** as a sub-genus. In **Pterides** plus **Idiopyrgus** the peristome is always more or less expanded and does not develop a projection at the end of the sinus, whereas those species of **Potamolithus**, such as **P. bisinatus obsoletus** PILSBRY, possess both sinuses and projections, have this projection at the angle between the outer and the basal margin of the aperture, whereas in **Sioliella**, these features are developed at the angle of the basal and columellar margins. Thus it is with these species of **Potamolithus** that **Sioliella effusa** shows most similarity; on the other hand there are so many distinguishing features in our proposed novelty that there can be little doubt that it should rank as a distinct genus.

**Dimensions of type.**—Height 6.6 mm., width 4 mm., height of aperture 3.5 mm., width of aperture 2.9 mm.

**Notes on the paratype.**—No 29210, from Santarém, Maicá, Pará, Brazil. 3 m. depth. Collected by Dr. Harald Sioli, July 27, 1946. A very young shell, only 1.8 mm. high, but displaying already the typical apertural features.

**Discussion.**—The assignment of the genus **Sioliella** to the littoridine tribe of the hydrobiids has been made on geographical reasons mainly. The shape of its shell reminds, in fact, vividly of that of some Bulimidae, but since no member of this family is known from the neotropical region, it is safer to regard **Sioliella** as a somewhat conchologically aberrant littoridine genus. It can be expected that when

the structure of the operculum and the anatomy become known, *sioliella* will fall into its proper place in the system.

***Littoridina pusilla* n. sp.**

(Figure 3)

**Type.**—Nº 29205 Chicago Natural History Museum. From Lago do tostão, Pará, Brazil; 4.90 m. depth. Collected by Dr. Harald Sioli, July 16, 1946.

**Diagnosis.**—A species of *Littoridina* characterized by its smallness and slenderness.

**Comparisons.**—Similar in shape to *Littoridina australis* ORBIGNY which is, however, much larger; it is by no means impossible that the new Amazonian form is a northern race of *australis*, which is known only from Southern South America to the Brazilian state of São Paulo in the North.

**Description of type.**—Shell slender, turreted, transparent, thin, yellowish, rimate, with about 7 whorls which are almost flat and separated by a shallow suture; only the last whorl slightly obese. Aperture narrowly pear-shaped, peristome simple, continuous.

**Measurements of type.**—Height 2.5 mm., width 1.4 mm., height of aperture 1.4 mm., width of aperture 1 mm.

**Notes on paratypes.**—12 paratypes, Nº 29206, and 12 in Dr. Sioli's collection are from the type locality; 1 specimen, Nº 29207, from Lago Faiuba, Amazonas, Brazil, 20 cm. depth, November 14, 1941; 2 specimens, Nº 29235, and 2 in Dr. Sioli's collection, from Lago do tostão, Pará, Brazil, 4.70 m. depth, collected July 16, 1946; 2 specimens, Nº 29208, and one in Dr. Sioli's collection, from Lago Grande Curuay, Pará, Brazil, 4.30 m. depth, June 8, 1946.

**Discussion.**—There is, apparently, very little variation in this species, all the specimens studied agreeing perfectly with the type.

***Littoridina siclii* n. sp.**

(Figure 4)

**Type.**—Nº 29192 Chicago Natural History Museum. From Rio São Manoel, Remanso, Pará. Depth 7 m. Collected May 6, 1941.

**Diagnosis.**—A species of *Littoridina*, characterized by the bay color of its outer surface and by the presence of a maroon, narrow peripheral band and of an umbilical blotch of the same color.

**Comparisons.**—Apparently not closely related to any other known species of *Littoridina*, *L. charuana* Orbigny being nearest in shape, but differing by the uniformly olive-colored bandless cuticle.

**Description of type.**—Shell narrowly rimate, almost imperforate, ovate-pyramidal, moderately thick, covered with a thin lusterless conchinc layer of bay color which presents a peripheral (in the spire submarginal), narrow band, and a narrow umbilical blotch. Whorls 7, slightly and evenly swollen, separated by a deep suture. Aperture pear-shaped, peristome not expanded, continuous; its outer edge shows a narrow maroon band.

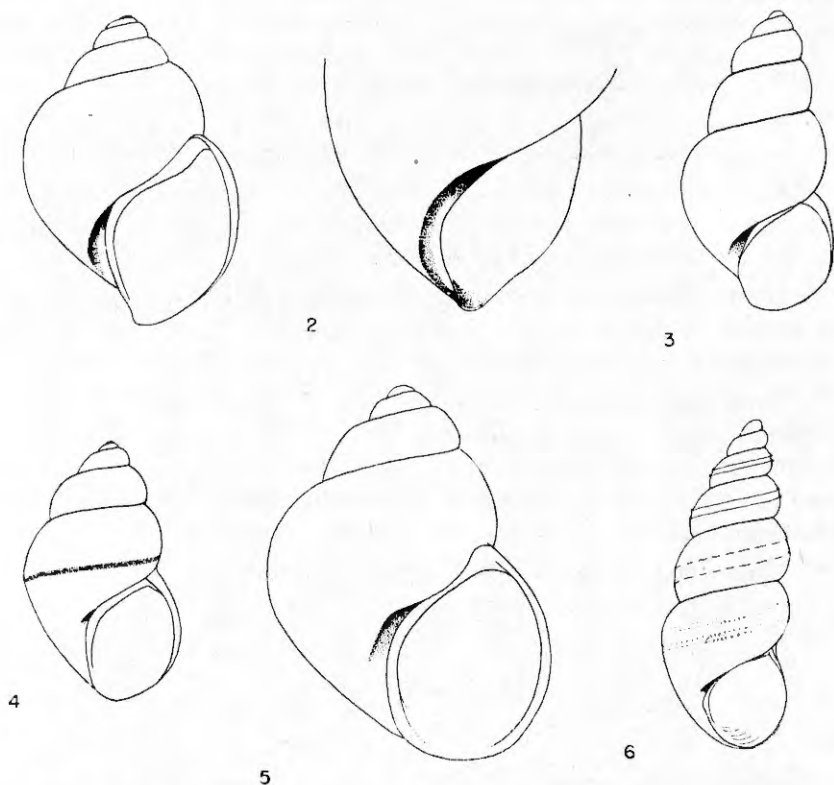


Fig. 1. *Sioliella effusa* n. gen. et sp., C.N.H.M. N° 29209; type, x 6. Front view.—Fig. 2. *Sioliella effusa*, type, x 10. Lateral view of aperture.—Fig. 3. *Littoridina pusilla* n. sp., C.N.H.M. N° 29205; type, x 17. Front view.—Fig. 4. *Littoridina siolii* n. sp., C.N.H.M. N° 29192; type, x 7. Front view.—Fig. 5. *Potamopyrgus (Aroa) latus* n. sp., C.N.H.M. N° 29202, x 17. Front view.—Fig. 6. *Potamopyrgus (Potamopyrgus) amazonicus* n. sp., C.N.H.M. N° 29197, x 7. Front view.

**Measurements of type.**—Height 5 mm., width 3.1 mm., height of aperture 2.1 mm., width of aperture 1.5 mm.

**Notes on paratypes.**—1 specimen from the type locality in the collection of Dr. Harald Sioli; 1 specimen, C.N.H.M. N° 29195, from the Rio Aniperí near its mouth, Pará, Brazil, and one from the identical locality in Dr. Sioli's collection; 2 specimens from the Rio Juruena, Remanso, Matto Grosso, Brazil, N° 29194, and 2 from the same locality in Dr. Sioli's collection; 1 specimen, N° 29193, from the Rio Aniperí, 2 km. above its mouth, Pará, Brazil.

**Discussion.**—The entire material studied showed a very small and almost negligible degree of variation, both in coloration and in dimensions.

***Potamopyrgus (Aroa) latus* n. sp.**

(Figure 5)

**Type.**—N° 29202 Chicago Natural History Museum. From the Rio Tapajós at Santarem, bay Mapire, Pará, Brazil; on the shore. Collected by Dr. Harald Sioli December 4, 1940.

**Diagnosis.**—A species of the subgenus *Aroa* H. B. Baker of *Potamopyrgus* Stimpson, characterized by the low conic, broad shape of its shell.

**Comparisons.**—This Amazonian species is closely related to the Venezuelan *P. ernesti ernesti* Martens and *P. ernesti vivens* H. B. Baker, and constitutes, together with these, a group of smooth, low shelled species of the otherwise turreted and often sculptured genus *Potamopyrgus*.

**Description of type.**—Shell rather thick, widely conical, rimate, covered with a colorless olive-drab conchinc layer. Whorls  $5\frac{1}{2}$ , the first ones moderately, the last decidedly swollen, separated by a marked suture. Aperture almost higher than the spire, pear-shaped, pointed above; peristome straight, sharp at the outer margin, blunt at the basal margin, continuous by means of a conspicuous parietal pad.

**Measurement of type.**—Height 2.9 mm., width 2.7 mm. height of aperture 1.7 mm., width of aperture 1.4 mm.

**Notes on the paratypes.**—5 specimens, n° 29203, from the type locality, and an additional 5 in Dr. Sioli's collection; 1 specimen N° 29258, from Santarem, Maica, Pará, Brazil, collected by Dr. Sioli

June 27, 1946; 2 specimens, N° 29204, from the mouth of Rio Cupary, Pará, and one from the same locality in Dr. Sioli's collection, all collected by him June 29, 1946.—4 specimens, N° 29199, from the Rio Tapajóz, at Belterra, Pará, at 6 m. depth and another 4 from the same locality in Dr. Sioli's collection, all collected April 20, 1946; 1 specimen, N° 29200, from the Rio Tapajóz at Santarém, bay Mapirí, and another specimen from the same locality in Dr. Sioli's collection, collected November 24, 1940; 1 specimen, N° 29201, from an affluent of Igarapé Pau d'água, Pará, Brasil, collected July 24, 1946.

**Discussion.**—The specimens from the Rio Tapajóz at Belterra, N° 29199, are larger than the type, measuring 4.1 mm. in height and 3.2 mm. in width, thus being a trifle more slender; otherwise they differ from it only in having a dark covering of the conchinc layer due to environmental conditions.

**Potamopyrgus (Potamopyrgus) amazonicus** n. sp.

(Figure 6)

**Type.**—N° 29197 Chicago Natural History Museum. From the Rio Tapajóz at Belterra, Pará, Brazil. 6 m. depth. Collected by Dr. Harald Sioli April 20, 1946.

**Diagnosis.**—A species of typical **Potamopyrgus** characterized by its slender shape, the convexity of its whorls and its type of sculpture, which consists of two sharp keels on the earlier whorls gradually fading out toward the sixth whorl, beyond which the shell is smooth.

**Comparisons.**—**Potamopyrgus fagundes** Haas from Recife, Pernambuco, Brazil, is the only species with which the Amazonian **Potamopyrgus** needs be compared. Despite many features that separate the two species named, there are some common to both of them, and only to them, thus segregating these two kinds from the bulk of the genus **Potamopyrgus**; the slender, narrow, almost awl-like shape of the shell and the exceedingly shallow and roundish aperture. A subgeneric name should perhaps be given to this group, but I hesitate to do so before the anatomy of the species involved is known.

**Description of type.**—Shell elongated, turreted, thick, with about 7 whorls, covered by a blackish brown conchinc layer. Whorls constricted towards the sutures, swollen at the periphery, the fourth and fifth provided with two sharp subperipheral keels and subbasal one, which gradually fade out so that the sixth and seventh whorls

are practically smooth; suture deep. Aperture small, obliquely ovate, pointed above, peristome simple, straight, continuous; umbilicus entirely closed.

**Measurement of type.**—Height 6.4 mm., width 2.6 mm., height of aperture 1.3 mm., width of aperture 1.3 mm.

**Notes on the paratypes.**—2 paratypes (N° 29198) and 2 paratypes in Dr. Sioli's collection from the type locality, April 20, 1946. Some of them show traces of the keels even on the sixth, the penultimate whorl.

**Discussion.**—*Potamopyrgus amazonicus* and *P. fagundes* are the representatives of a group within the genus that differ basically from the *Potamopyrgus* of Southern Brazil and the La Plata countries as well as from those of Venezuela and the Caribbean Islands, *P. amazonicus* being, furthermore, the first member of this genus from the Amazonas-system. As pointed out under comparisons, subgeneric rank could be attributed to this group of NE Brazil, if the study of its anatomy supports the conchological indications.

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