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**New Species of Succinea from Tahiti, with
 Remarks on other Polynesian Species¹**

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The following descriptions of new species and notes on *Succinea* are based upon collections in Bernice P. Bishop Museum. Much new material has been brought together by recent explorations in Polynesia. During the Mangarevan Expedition (B. P. Bishop Mus., Bull. 133, 1935), investigations were made of the interior and higher altitudes of several volcanic islands which added many new forms to the fauna of this area.

***Succinea wallisi*, new species (fig. 1).**

Shell finely sculptured, depressed dorso-ventrally, thin, hyalescent. Whorls 2 to 2¼. Color light straw-yellow to brownish yellow (rare), nuclear whorls similarly colored. Columella oblique, spiral, and margined by a thin blade-like edge. Parietal wall thinly calloused. Aperture rather broadly ovate. Sculpture of numerous, irregular axial growth lines. Spiral sculpture of faint and rather broad incised lines barely visible with the unaided eye. Supra-peripheral shoulder not indicated. Measurements²:

	Length	Width
Holotype BBM	11.0	7.5 × 5.5
Paratype MCZ	10.8	6.8 × 4.0
Paratype BBM	10.4	6.6 × 3.8
Paratype MCZ	8.8	6.3 × 3.6

Holotype: BBM 87027, Society Islands, Papenoo Valley, Tahiti Nui (Greater Tahiti), alt. 50 to 500 ft. (L. H. MacDaniels, May 1927). Paratypes from same locality: BBM 87028; MCZ 146394.

¹ Mangarevan Expedition publication 38.

² All measurements are given in millimeters.

Additional paratypes from following localities in Tahiti Nui: BBM 89587, Papenoo Valley along Vai Tooru River, 6 km. inland, alt. 325 ft. (A. M. Adamson, Oct. 1928); BBM 89598, Anaroi Plateau, 12 km. inland, alt. 1,600 ft. (A. M. Adamson, Nov. 1928); BBM 142098, 145198, 145340, 145345, 145428, 145915, Mt. Aorai trail, alt. 4,600 to 6,300 ft. (Mangarevan Expedition, Sept. 1934); BBM 145647, slope of Mt. Orofena, alt. 4,000 ft. (Mangarevan Expedition, Sept. 1934); BBM 86951, north side of Tairapu Peninsula, near head of Pueu Valley, alt. 200 to 800 ft. (L. H. MacDaniels, May 1927).

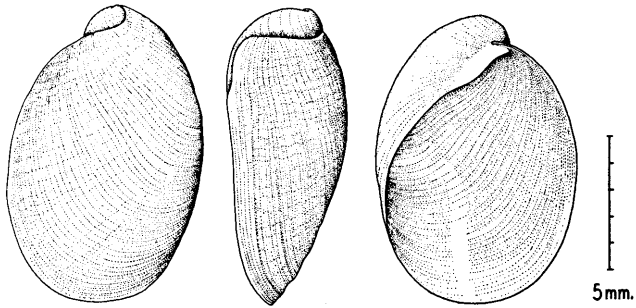


FIGURE 1.—*Succinea wallisi*, new species: BBM 87027.

This species is named for Captain Samuel Wallis, discoverer of Tahiti in 1767. It appears to be most abundant in the interior and higher portions of Tahiti, but it is not at all common, as only 39 specimens were collected at the above localities. *S. wallisi* is unlike any described species from Tahiti, and its very short, blunt spire and depressed form make it easily recognizable. *S. wallisi* is lower and narrower than *S. rotundata* Gould (BBM 16382) from Nuuanu Valley, Oahu; but the color, texture, and development of the spire are somewhat similar in the two species.

***Succinea wallisi* dolphin, new subspecies (fig. 2).**

Shell sculptured, depressed dorso-ventrally, thin. Whorls $2\frac{1}{4}$. Color yellowish straw, nuclear whorl tinged with brownish red. Columella set at an oblique angle, spiral when viewed from below, margined with a thin and narrow blade-like ridge along the outer side. Aperture ovate. Parietal wall thinly calcouled. Sculpture of rather coarse, axial costae, somewhat irregularly produced and with finer growth lines between them. Spiral sculpture of very faint incised lines. Above the periphery is a low shoulder which varies somewhat in degrees of development, accompanied by a shallow depression on different specimens,

giving, in profile, a flattened sinuous outline to the margin of the aperture. Measurements:

		Length	Width
Holotype	BBM	9.0	5.8 × 4.0
Paratype	MCZ	9.0	6.3 × 4.0
Paratype	BBM	9.2	5.7 × 4.5

Holotype: BBM 9715, Tahiti, Taiarapu Peninsula, Tautira Valley, Tii subvalley, alt. 200 to 1,500 ft. (L. H. MacDaniels, June 1927). Paratypes from same locality: BBM 86885; MCZ 146392.

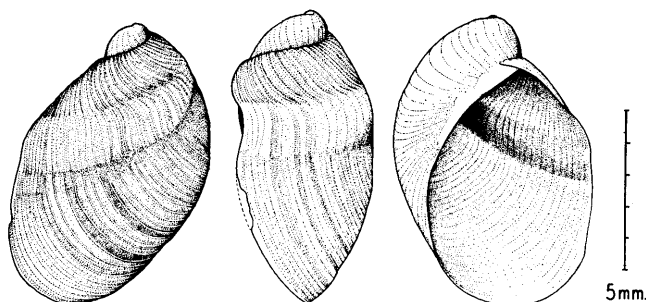


FIGURE 2.—*Succinea wallisi dolphini*, new subspecies: BBM 9715.

This subspecies is named for the ship *Dolphin*, commanded by Captain Wallis. A single lot of only five specimens was collected. It differs from the preceding form in its smaller size, coarser sculpture of the axial costae, and less elongate shape. The shells are slightly thicker and more opaque than those of the typical form and the nuclear whorls are also more extended proportionately.

Succinea amoi, new species (fig. 3).

Shell greatly depressed dorso-ventrally, very finely sculptured, thin, hyalescent. Whorls $1\frac{1}{2}$, greatly expanding beyond the first $\frac{3}{4}$ whorl. Color dull straw-yellow. Columella oblique, its outer margin greatly expanded into a blade-like edge. Aperture elliptical to subovate. Sculpture of very fine axial costae which appear to be concentric, owing to the modified shape of the shell, and are crossed by fine and only faintly indicated spiral incised lines. Certain of the axial costae are grouped into noticeable ridges, which may indicate resting periods. Measurements:

		Length	Width
Holotype	BBM	9.2	5.7 × 1.5
Paratype	MCZ	10.5	6.3 × 2.0

Holotype: BBM 145634, Tahiti, Papenoo Valley, slope of Mt. Orofena, alt. 4,000 ft. (Mangarevan Expedition, Sept. 1934). Paratype from same locality, MCZ 146393. Additional paratypes: BBM 87004, Papenoo Valley, lower slope of Mt. Orofena, alt. 500 to 2,000

ft. (L. H. MacDaniels, May 1927) ; BBM 144951-52, Papenoo Valley, alt. 3,250 ft. (Mangarevan Expedition, Sept. 1934).

This species is named for Amo, high chief of Papara, Tahiti, at the time of Wallis' visit. Much flatter than the preceding species, it may present a parallel in development similar to that evolved among the Hawaiian Succineidae. In relationship, *S. amoi* seems nearest to *S. wallisi*, differing quite materially by being very much flatter dorso-ventrally, having much finer axial sculpture and a reduced columellar area with a greatly expanded edge. The development of this columellar margin is quite similar, though greater, to that found on *Catinella explanata* Gould and other closely related forms of Kauai, Hawaiian Islands. Until the soft parts are examined, however, it would be best to retain *amoi* in *Succinea*, rather than express a relationship that is only indicated by the shells. *S. amoi* has a superficial resemblance to *S. paropsis* Cooke from Oahu, Hawaiian Islands, but is flatter, proportionately narrower, and more attenuate toward the apex. The columella is proportionately much shorter. Viewed from above, the surface lacks entirely the irregular, shallow anastomosing depressions characteristic of *S. paropsis*.

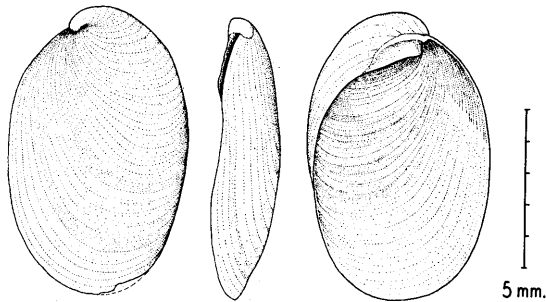


FIGURE 3.—*Succinea amoi*, new species: BBM 145634.

The only other species from the central Pacific with which *S. amoi* might be confused is *S. putamen* Gould from Upolu, Samoa, which, when adult, is more than twice the size of *S. amoi*. Juvenile specimens of *S. putamen* (BBM 186644), which are about equal in size to adult specimens of *S. amoi*, are much more rounded, proportionately wider, with wider and slightly more immersed nuclear whorls, and possess a longer and proportionately narrower columella.

***Succinea bernardii* Récluz (fig. 4).**

Succinea bernardii Récluz, Jour. de Conch. 3: 413, pl. 12, figs. 13-14, 1852 (Les îles de l'Océanie). v. Martens, Malak. Blätt. 6: 58, 1859. Pfeiffer, Mon. Hel. Viv. 4: 807, 1859 (s. g. *Amphibulima*, Taiti); 5: 26, 1868; 7: 35, 1876. Garrett, Acad. Nat. Sci. Philadelphia, Jour. 9: 111, 1884.

Otina? bernardii v. Martens [in Troschel], Archiv. für Natur. 1: 149-150, pl. 4, fig. 3, 1858. v. Martens, Malak. Blätt. 6: 58, 1859.

Omalonyx bernardi [sic], H. and A. Adams, Genera Recent Moll. 2: 131, 1858.

Velutina bernardi [sic] "Petit" v. Martens, Malak. Blätt. 6: 58, 1859.

Succinea bernardia [sic] Pease, Zool. Soc. London, Proc., 472, 1871 (? Tahiti).

Lithotis bernardii Paetel, Cat. Conchyl.-Samm. 2: 220, 1889.

Camptonyx (Camptonyx) bernardii Thiele, Handb. 2: 493, 1931.

The above synonymy is complete as far as we have been able to trace it.

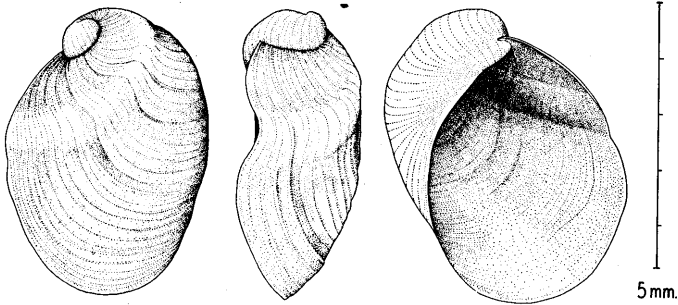


FIGURE 4.—*Succinea bernardii* Récluz: BBM 9716.

In 1852, C. Récluz described and figured *S. bernardii* as occurring on "Les îles de l'Océanie", upon material in the collection of Petit de la Saussaye obtained from Bernardi. Subsequently, Pfeiffer (1859) redescribed it and gave the locality as "Taiti", based upon shells from the Cuming collection. In 1858, E. v. Martens also published upon this species and placed it with a query in *Otina*. In 1859, he published it under its present name, though in the text he refers it with a question to *Otina*. The specimen was purchased from a "dealer" under the

name of *Velutina bernardi* Petit. Probably all the specimens seen by Récluz, Pfeiffer, and v. Martens were from Cuming. From this time on, the species was "lost" as indicated by both Garrett and Pease, who question the locality. All subsequent writers have shifted this species from one genus to another on the basis of the published record and not upon any new material. The figures given by Récluz appear to be considerably overdrawn, an attempt on the part of the artist to emphasize the depression and the shouldered condition found in this species.

The Mangarevan Expedition obtained this species on the slopes of Mt. Orofena, Papenoo Valley, at a waterfall, alt. 4,500 ft., Sept. 1934 (BBM 9716, 145655; MCZ 146391). As the locality given by Récluz was very indefinite, we have selected the station above as the type locality for this species. Possibly Cuming's material came from the same valley, as a few of Cuming's "lost" species have been relocated on the higher altitudes of Tahiti, behind (south of) Papeete.

In checking some Hawaiian species of *Succinea* for comparison with *S. wallisi* described above, an interesting error was found in Gould's report. We have checked this error from the large series of localized material in the Bishop Museum collection. A transposition had taken place on plate 2 (Atlas of the Mollusca of the United States Explor. Exped.); that is, figures 14-14d, labeled *Succinea rotundata* Gould from Oahu, are *S. cepulla* Gould, known only from Hawaii. Conversely, figs. 15-15b, labeled, *S. cepulla*, are the Oahu species, *S. rotundata*. This error has been repeated in the literature on the misidentification of these two species.