

Four New Panamic Gastropods

by

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(Plate 5)

As areas of the Gulf of California and Panamic region become more accessible and as dredging operations become more frequent, mollusks new to science are certain to appear. There will be extensions of ranges, and doubtful species of early authors may be rediscovered. The four new species described in this paper were collected in this region during the past three years, obtained by shore collecting at low tide, from the trawling of the Ariel Expedition, from the nets of the shrimp fleets, and by dredging from my small outboard boat.

Genus *Trivia* BRODERIP, 1837Subgenus *Pusula* JOUSSEAUME, 1884*Trivia (Pusula) myrae* CAMPBELL, spec. nov.

(Plate 5, Figures 1 to 3)

DESCRIPTION:

The shell is minute, ovately globular, and dark brownish purple with the right side and extremities thickened and margined but not quite as rounded as the columellar portion. The shell is moderately produced at the extremities, and a fine, shallow, dorsal sulcus is crossed by eight ribs without interruption. There are 22 ribs on each side, nine of which are interrupted or intercalary and correspond to 15 sharp labial teeth, with 14 similar teeth extending over the columella and internal lobe. As the ribs enter the dorsal sulcus, the color is lighter, giving the impression of very slight beading. The ribs are narrow and sharp, equaling about one-half the width of the interspaces, which are filled with minute granulations that extend up on the sides but not to the crests of the ribs. The spire is completely obscured. Holotype: length 4.8 mm.; width 3.6 mm.; height 2.8 mm. Paratype I: length 4.5 mm.; width 3.4 mm.; height 2.9 mm. Paratype II: length 3.9 mm.; width 3 mm.; height 2.7 mm. Holotype: Stanford University Paleontological Type Collection No. 8'529; Paratype I: private collection of Dr. Donald Shasky. Paratype II: in my private collection.

TYPE LOCALITY:

The holotype and the two paratypes were

trawled off Loreto in the channel between Loreto, Baja California, and Carmen Island, Gulf of California, on the Ariel Expedition at an approximate depth of 25 fathoms on August 29, 1960. Lat. 26°01' N.; Long. 111°18' W.

HYPOTYPES:

Seven additional specimens were trawled off Monserrate Island, Gulf of California, on the Ariel Expedition at a depth of 40-80 fathoms on September 1, 1960. Two specimens were dredged off Punta Final, 10 miles south of San Luis Gonzaga Bay, Baja California, in approximately 30 fathoms by Dr. Donald Shasky, Mr. Gale Sphon, and myself.

Discussion

So far this species appears to be limited to the eastern shore of Baja California at moderate depths, 25-80 fathoms. Extensive dredging at Puerto Peñasco, Guaymas, Mazatlán, Salina Cruz and El Salvador, all on the mainland, has failed to produce this small *Trivia*. Considerable time has been spent reviewing the 23 or more species of *Trivia* that have been reported from the Eastern Pacific, and with the help of Dr. Keen, it was determined that there is no valid name to which this small species can be assigned. Of the recognized species of Panamic *Trivia*, *T. myrae* resembles *T. atomaria* Dall, 1902, which was dredged in Panama Bay at a depth of 18 fathoms. *Trivia atomaria* belongs to the subgenus *Cleotrivia*, which differs from *Pusula* in that the rib ends are not beaded on either side of the dorsal sulcus. *Trivia myrae* is further separated from *T. atomaria* by having produced extremities, slightly beaded ribs, and more numerous ribs. In comparison with *T. sanguinea* (Sowerby, 1832), *T. myrae* is much smaller, has fewer ribs, is much more globular, and has more produced extremities.

This new species of *Trivia* is named in honor of Dr. Myra Keen for her participation in the Ariel Expedition during which time this species was discovered, and for the many hours that she has devoted in helping me with problems regarding mollusks.

Genus *Nassarina* DALL, 1889Subgenus *Zanassarina* PILSBRY & LOWE, 1932*Nassarina* (*Zanassarina*) *anitae*

CAMPBELL, spec. nov.

(Plate 5, Figure 4)

DESCRIPTION:

The shell is fusiform, basically brown with a peripheral orange-brown band that colors the interspaces as well as alternately coloring the fourth node on one axial rib and the third and fifth nodes on the next; the remaining nodes are white. The protoconch consists of three conical, convex whorls, followed by six subsequent whorls with two weak, subsutural spiral cords and three remaining strong spiral cords that intersect the 12 straight axial ribs which are narrower than the interspaces, forming more prominent nodes. The ribs of the convex whorls are obtusely angled by the third spiral cord. There are 13 additional spiral cords on the base of the body whorl, the last 12 being generally brown, which continue under the columellar callus corresponding to 10 weak plications on the columella. The siphonal canal is not differentiated, slightly recurved and deep. The anal sinus is shallow and the siphonal fasciole is not discernible. There are five denticles within the outer lip, the first more prominent than the remaining four. Length 10 mm.; width 4.5 mm.

Holotype: Stanford University Paleontological Type Collection No. 8'530.

Paratypes: To be deposited in the U. S. National Museum, California Academy of Sciences, Academy of Natural Sciences of Philadelphia, and the private collections of Dr. Donald Shasky, Mr. Mark Rogers, Mr. Gale Sphon, Mr. Todd Schowalter, and myself.

TYPE LOCALITY:

The holotype and seven paratypes were trawled off Cabo Haro, Guaymas, Mexico, by the shrimp boat, "General Yañez", in 30 fathoms by Captain Xavier Mendoza, Dr. Donald Shasky, Mr. Todd Schowalter, Mr. Ivan Thompson, and myself in December of 1959. Lat. 27°50'N.; Long. 110°55'W.

Sixteen additional paratypes were trawled off Cabo Haro, Guaymas, Mexico, during the Ariel Expedition in 10-25 fathoms on August 28, 1960. Eight hypotypes were collected by Dr. Shasky under rocks at low tide on the north shore of Bacochibampo Bay, Guaymas, Mexico, in December of 1958.

Discussion

This species seems related to *Nassarina xeno* Pilsbry and Lowe, 1932, and *N. poecila* Pilsbry and Lowe, 1932. The somewhat flattened subsutural region, slightly obtuse-angled ribs, usually 12 per whorl, five spiral cords, and absent siphonal fasciole distinguish it from *N. xeno*, which has 10 to 12 convex ribs, small scattered black spots, broad, rounded anal sinus, six spiral cords and weakly developed siphonal fasciole, and from *N. poecila*, which has blackish brown blotches above the periphery on part of the ribs, seven spiral cords of which the subsutural cord is larger, and only 10 ribs.

It differs from *Nassarina atella* Pilsbry and Lowe, 1932, which has seven spiral cords, the five peripheral ones being stronger, and anal sinus separated by a callus from the suture.

Nassarina pammicra Pilsbry and Lowe, 1932, is a slender black shell with more numerous small diminishing ribs which, on the last whorl, scarcely reach the suture.

This new species is named in honor of my wife, Anita Campbell, who participated in the trip aboard the "General Yañez".

Genus *Terebra* BRUGIÈRE, 1789Subgenus *Strioterebrum* SACCO, 1891*Terebra* (*Strioterebrum*) *berryi* p. 26

CAMPBELL, spec. nov.

(Plate 5, Figures 5, 6)

DESCRIPTION:

The shell is medium sized, slender, of light cream with brown spots between the subsutural nodes and brownish mottling of the whorls with exception of the protoconch and very early whorls, which are practically black. The four dark, glassy whorls of the protoconch are followed by 15 subsequent whorls. The early whorls have very narrow, slightly curved axial ribs, 14 in number, with scarcely any indication of a subsutural band. On later whorls the axial ribs are prominent, quite curved, and about equal to the interspaces and number about 16. There are three to four spiral grooves in the interspaces, usually not crossing the ribs, totaling 18 to 20 down over the base of the body whorl. The general surface is microscopically striolate, and the slightly convex axial ribs are mildly depressed or on an equal level with the subsutural band to form straight sides. The aperture is elongate and passes below into a short, open, slightly recurved canal with the

siphonal fasciole convex, bounded by a weak cord, and the columella straight with one weak plication. Length 32 mm.; width 7 mm.

Holotype: California Academy of Sciences, Department of Geology, Type Collection No. 12'352.

Paratype I: Private collection of Mrs. Helen DuShane. Length 23 mm.; width 5.5 mm. This specimen displays a common variation in Terebridae by having 21 axial ribs, but in all other respects it agrees with the holotype.

Paratype II: Private collection of Mr. Mark Rogers. Length 27 mm.; width 6 mm.

Paratype III: Private collection of Dr. S. Stillman Berry.

TYPE LOCALITY:

The holotype was collected at Puertecitos, Baja California, crawling in the sand at a very low tide by the DuShanes in April, 1958. Paratype I, collected by myself on March 3, 1958, Paratype II, collected by Mr. Rogers on April 11, 1960, and Paratype III in the Berry collection were taken at the same locality. Lat. 30° 25' N.; Long. 114° 39' W.

Discussion

There is no little confusion in the genus *Terebra* with regards to the Panamic area. I have collected more than 80 names from the literature for the 37 species as listed in "Sea Shells of Tropical West America". Fortunately, a good share of these names can safely be placed in synonymy. It is this background that causes some hesitance in describing this and the following species. The *Terebra* collections of the San Diego Museum of Natural History, Los Angeles County Museum, Stanford University, and the California Academy of Sciences were studied, and through the generosity of the respective curators, I was able to make color slides of each species at Stanford University and at the California Academy of Sciences. These have proved invaluable.

The first specimen of *Terebra berryi* was collected by the author along with numerous *T. variegata* Gray, 1834, at Puertecitos, Baja California. It was easily separated from *T. variegata*, but was regarded as a "freak". In October of 1960 the *Terebra* was shown to Dr. Berry who promptly produced a single specimen from his unnamed material that had been collected at Puertecitos. Friends who had collected in this area were then asked if they knew of any similar shells, and Mrs. DuShane had

the one chosen as the holotype, and Mr. Rogers had another, both collected at Puertecitos.

Terebra berryi can be compared to the most common species found at Puertecitos, *T. variegata* which has a prominent subsutural band set out like a collar, a well developed siphonal fasciole that is concave, and axial ribs that are flat and almost straight. *Terebra armillata* Hinds, 1844, is also found there, but its subsutural band is even more prominent and the shell is deep brown. Another species found at Puertecitos is *T. glauca* Hinds, 1844. It is dark gray-brown with its axial ribs distinctly beaded. *Terebra berryi* differs from these in that the subsutural band is slightly depressed, the axial ribs are convex and curved, and the siphonal fasciole is less developed and convex. *Terebra berryi* can be separated most easily by examination of the protoconch and early whorls which differ uniquely from the other species as is seen in figures 6, 9, 10. After comparison with descriptions, pictures, and specimens of other Panamic species, it was felt that *T. berryi* should be described as new.

This new species is named in honor of Dr. S. Stillman Berry for his great contributions to the knowledge of malacology and for his generosity of time as well as material.

CAMPBELL 61-124-126

Terebra (Strioterebrum) ninfae p. 27

CAMPBELL, spec. nov.

(Plate 5, Figures 7, 8)

DESCRIPTION:

The shell is minute, medium to dark red-brown with a tan peripheral band. The three and one-half glassy whorls of the protoconch are followed by six whorls of the teleoconch. The first two whorls following the protoconch are transparent white with brownish subsutural bands. There are 12 convex, narrow, arched, axial ribs with sharp, round, beaded nodes on the subsutural band. On the subsequent whorls the axial ribs develop into a row of whitish peripheral nodes axially lengthened, narrower than the interspaces, and there is a continuous series of fine incised spiral grooves, two in the interspaces of the band and eight on the rest of the whorl between subsutural bands, intersecting the ribs, continuing down over the body whorl to total 16. The general surface is covered with microscopic striulae with the aperture elongate, canal open and recurved, and the columella is bent to the left with a single plication weakly entering the aperture. Length 6.2 mm.; width 2 mm.

Holotype: California Academy of Sciences, Department of Geology, Type Collection No. 12'353.

Paratypes: To be deposited in the Academy of Natural Sciences of Philadelphia, and in the private collections of Captain Mendoza, Dr. Shasky, and myself.

TYPE LOCALITY:

The holotype and three paratypes were trawled by the shrimp boat, "Cameronera No. 20", in 15-20 fathoms while working in the area between Puerto Madero and 30 miles north of the Guatemala border, Chiapas, Mexico, in January, 1961. Seven additional paratypes were trawled from this area by the same boat in 14-20 fathoms during March, 1961. Specimens supplied by Captain Mendoza. Lat. 14°55'N.; Long. 92°15'W.

Discussion

Due to the small size of the first four shells that were received, I thought that they were the young of one of the larger nodulosed *Terebra*. Using microscopy, the protoconchs and early whorls were compared with *T. tuberculosa* Hinds, 1844 (Pl. 5, fig. 14), and *T. cracilenta* Li, 1930 (Pl. 5, fig. 12), but *T. ninfae* was found to be very different as seen in figures 8, 11-14. Several weeks later seven more specimens of *T. ninfae* were received from Captain Mendoza, and they too were uniformly of the same small size.

Terebra ninfae resembles *T. roperi* Pilsbry and Lowe, 1932 (Pl. 5, fig. 12), except that *T. roperi* is much larger, light brown with a dark base and protoconch, has traces of two impressed spiral lines in the concavity of the whorls, and a concave siphonal fasciole, while *T. ninfae* is dark red-brown with a clear glassy protoconch and early whorls, and a convex siphonal fasciole. *Terebra ninfae* differs from *T. bridgesi* Dall, 1908 (Pl. 5, fig. 11), by having a peripheral row of nodes that are in line with the nodes on the subsutural band while *T.*

bridgesi is purple with a broad, white peripheral band and has the sutural band distinctly set off by a strongly constricted sulcus with the ribs on the band alternating with the ribs on the whorl.

This new species is named in honor of Sra. Ninfa Mendoza, wife of Captain Xavier Mendoza. CALIFORNIA 1961 p. 27

Acknowledgment

Appreciation is expressed to Mr. and Mrs. John Q. Burch for the kind use of their library; to Drs. Hanna and Hertlein and the California Academy of Sciences, Dr. S. Stillman Berry, Dr. Donald Shasky, Mr. Mark Rogers, and Captain Xavier Mendoza for making study material available; to Dr. Myra Keen who has helpfully provided suggestions regarding historical and taxonomic problems, and to the several other persons and institutions mentioned in the text.

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Explanation of Plate 5

- Figure 1: *Trivia myrae* CAMPBELL, spec. nov. Dorsal view of holotype. Figure 2: Same specimen, ventral view.
Figure 3: Same specimen, side view. Figure 4: *Nassarina anitae* CAMPBELL spec. nov. Holotype.
Figure 5: *Terebra berryi* CAMPBELL, spec. nov. Holotype. Figure 6: Drawing of protoconch of the holotype.
Figure 7: *Terebra ninfae* CAMPBELL, spec. nov. Holotype. Figure 8: Drawing of protoconch of the holotype.
Figure 9: *Terebra armillata* HINDS, 1844. Drawing of protoconch. Figure 10: *Terebra variegata* GRAY, 1834. Drawing of protoconch. Figure 11: *Terebra bridgesi* DALL, 1908. Drawing of protoconch. Figure 12: *Terebra cracilenta* LI, 1930. Drawing of protoconch. Figure 13: *Terebra roperi* PILSBRY & LOWE, 1932. Drawing of protoconch. Figure 14: *Terebra tuberculosa* HINDS 1844. Drawing of protoconch.
(See text for actual measurements)



Figure 1



Figure 2



Figure 3



Figure 4

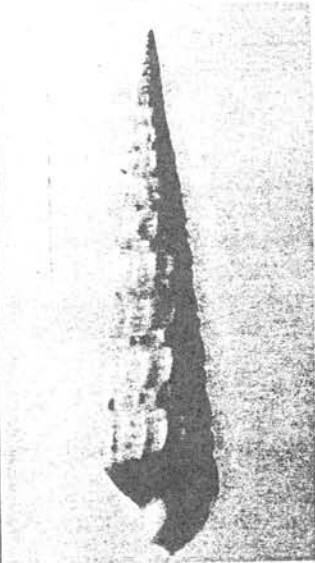


Figure 5



Figure 6



Figure 7

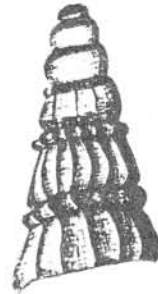


Figure 8



Figure 9



Figure 10



Figure 11



Figure 12

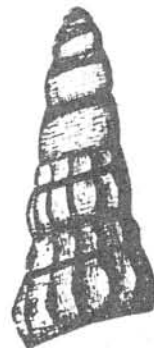


Figure 13



Figure 14

