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By HELEN DUSHANE AND JAMES H. MCLEAN

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DOROTHY M. HALMOS
Editor

THREE NEW EPITONIID GASTROPODS FROM THE PANAMIC PROVINCE

By HELEN DUSHANE[1] AND JAMES H. MCLEAN[2]

ABSTRACT: Three new Epitoniids are described from Mexico: *Epitonium (Asperiscala) huffmani* from the upper reaches of the Gulf of California, *Epitonium (Epitonium) shyorum* from Manzanillo, and *Amaea (Scalina) tehuanarum* from the Gulf of Tehuantepec.

Three striking new species of Epitoniidae are described herein. One has been unidentified in the Los Angeles County Museum of Natural History (LACM), another was dredged by Laura and Carl Shy off Manzanillo, Mexico, the third was taken in the Gulf of Tehuantepec during a reconnaisance trip made by Captain Xavier Mendoza and Dr. Donald Shasky.

ACKNOWLEDGMENTS

We are indebted to the collectors mentioned above for making the specimens available to us. Dr. Myra Keen has kindly read and criticized the manuscript. Photographs are by Mr. Mike Hatchimonji, museum photographer.

Epitonium (Asperiscala) huffmani, new species

Fig. 1

Diagnosis: An *Epitonium* distinguished from other west American species in having few, rapidly expanding whorls, brown ground color, numerous low axial ribs, and fine spiral ribs.

Description: Shell small, brown, periostracum lacking; nuclear whorls two, smooth, brown, glassy; third whorl white, axially ribbed; the following five whorls brown, strongly convex, rapidly enlarging, thin and fragile, with fine, white axial costae and white raised spiral threads between the costae, forming small, precise rectangles when intercepted by the costae; the final whorl lighter in color and the base of the shell fading to white adjacent to the columella; shell lacking a basal ridge; outer lip thin and white; umbilicus lacking; operculum missing in holotype. Dimensions (in mm): length 11, width 7 (holotype).

Type Locality: Cholla Bay, Bahía Adair, Sonora, Mexico, latitude 31° 21′ N, longitude 113° 40′ W, collected April 1937 by Al Huffman.

[1]Research Assistant, Invertebrate Zoology, Los Angeles County Museum of Natural History.
[2]Curator of Invertebrate Zoology, Los Angeles County Museum of Natural History.

Type Material: Holotype, LACM, Invertebrate Zoology Type Collection, cat. no. 1159.

Referred Material: An additional specimen having a fractured outer lip has been examined. It was collected by Mrs. Faye B. Howard in February 1967 at the outer side of San Carlos Bay, near Guaymas, Sonora, Mexico, latitude 27° 56′ N, longitude 111° 05′ W, and is now in the collection of the Santa Barbara Museum of Natural History. Dimensions (in mm): length 9, width 5.

Discussion: This species differs from any other known from the Panamic province. It is similar in proportion to, but lacks the umbilicus of *Epitonium* (*Asperiscala*) *billeeana* (DuShane and Bratcher, 1965), recently removed from the genus *Scalina* by DuShane (1967). In detail of sculpture the two species are only superficially similar.

Epitonium huffmani is named for Al Huffman who collected extensive material from the Gulf of California during the 1930's and whose collection is now in the Los Angeles County Museum of Natural History.

Epitonium (Epitonium) shyorum, new species

Fig. 2

Diagnosis: A small slender species differing from others in having tabulate, spinose whorls, angulate base, incomplete peritreme and 9 costae per whorl.

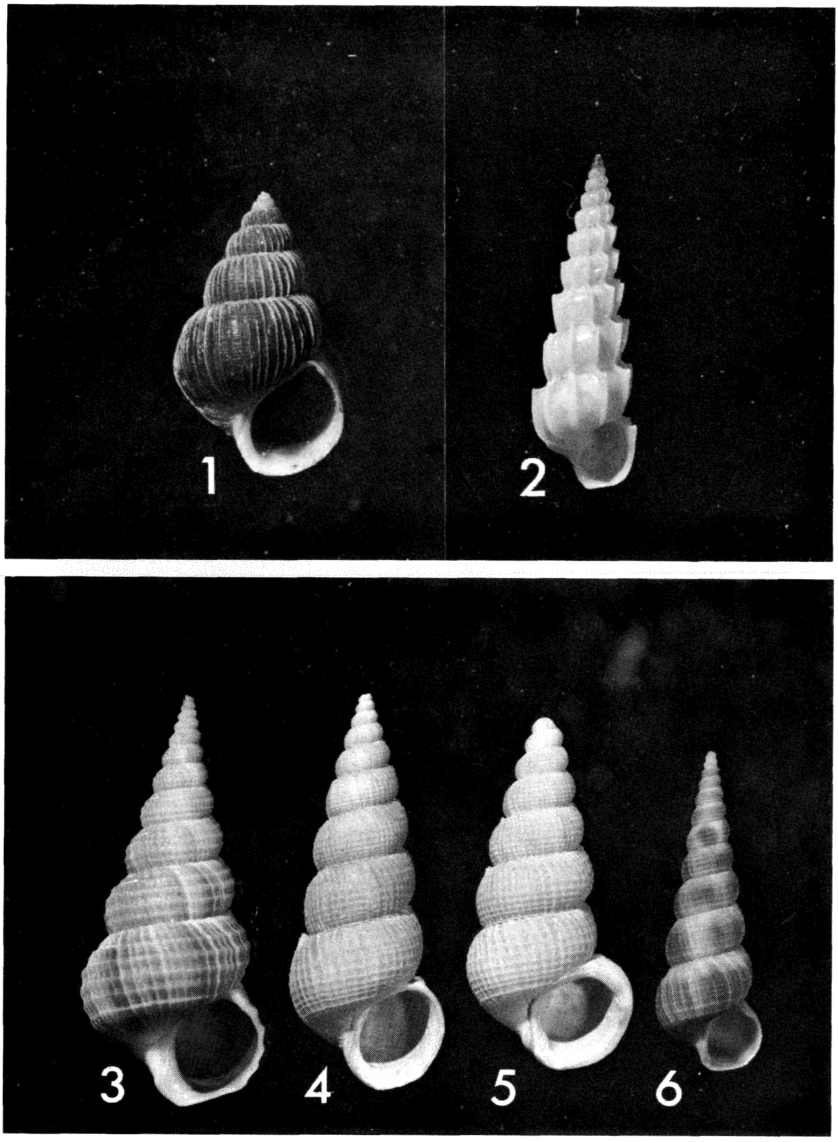
Description: Shell small, white, tall, with 8 to 9 flaring costae, continuous from whorl to whorl, with an angular spine at the shoulder of each whorl; the ribs least pronounced on the lower portion of the body whorl; nuclear whorls 3, smooth, convex, brown, and glassy; postnuclear whorls 10; suture distinct but not deeply impressed; umbilicus lacking; surface area between costae lacking spiral sculpture; whorls flat sided, angulate at the shoulder and at the base; basal disk or cord lacking; aperture oval, but lip reflecting angulate outline of the costae, with a right angled spine on the shoulder; inner lip lacking; operculum missing in type. Dimensions (in mm): length 12; width 4 (holotype).

Type Locality: Manzanillo, Colima, Mexico, latitude 19° 03′ N, longitude 104° 20′ W. Dredged in 12 to 13 fms (21 to 25 m), broken shell and sand bottom, by Laura and Carl Shy, November 1965; 6 specimens.

Type Material: Holotype, LACM, Invertebrate Zoology Type Collection, cat. no. 1160; 1 paratype, Stanford University; 1 paratype, California Academy of Sciences; 2 paratypes, Shy collection; 1 paratype, DuShane collection.

Referred Material: One specimen in the LACM collection was dredged by the *Velero III* at Station 682-37, 15 March 1937, off Concepcion Bay, Baja California, Mexico, at latitude 26° 53′ N, longitude 111° 52′ W in 12 fms (21 m). The specimen has 9 costae and 10 whorls; all but one of the nuclear whorls are missing. Dimensions (in mm): length 10; width 3.

Discussion: *Epitonium shyorum* does not suggest comparison with other



Figures 1-6. 1. *Epitonium* (*Asperiscala*) *huffmani*, new species. Holotype, LACM 1159. X 4. 2. *Epitonium* (*Epitonium*) *shyorum*, new species. Holotype, LACM 1160. X 4. 3. *Amaea* (*Scalina*) *ferminiana* (Dall). Gulf of Tehuantepec, Mexico. DuShane coll. X 1.5. 4. *Amaea* (*Scalina*) *tehuanarum*, new species. Holotype, LACM 1161. X 1.5. 5. *A. tehuanarum*. Paratype, DuShane coll. X. 1.5. 6. *Amaea* (*Scalina*) *brunneopicta* (Dall). Gulf of Tehuantepec, Mexico. DuShane coll. X. 1.5.

Panamic species. The characteristic stepped outline of the shell and the absence of the inner lip readily distinguish it.

The name honors Laura and Carl Shy of Westminister, California, who are contributing much to our knowledge through their finds of rare Panamic mollusks.

Amaea (Scalina) tehuanarum, new species

Figs. 4, 5

Diagnosis: An *Amaea* distinguished from the 2 other Panamic species in having intermediate proportions, a thickened mature lip, and a convex outline to the overall slope of the shell.

Description: Shell large, thin but strong, light brown, with 9 to 10 gradually enlarging postnuclear whorls (nuclear whorls missing); the first three or four whorls showing a decided angulation at the periphery, the following whorls markedly convex; sculpture strongly cancellate throughout, with 9 spiral ribs on the fourth whorl, increasing to 15 on the penultimate whorl; ribs more closely spaced and narrow below the deeply impressed suture, fine spiral striae between the spiral ribs; axial sculpture of 38-40 thin, white costae, raised into aculeated lamellae at the suture and reflected toward the direction of growth; fine axial striae between the axial costae; base of shell set off by a ridge consisting of a spiral cord of regular strength; base of shell with about 14 thin, closely spaced spiral cords, crossed by the much reduced axial ribs; umbilicus lacking; aperture simple, white; lip greatly thickened by one or more coalesced axial ribs; columella heavier and slightly deflected at its lower portion, with, on some specimens, a slight twisting behind the columellar lip; peritreme discontinuous and attached on the inner face of the last whorl, with cancellate sculpture of the base often seen showing through the glazed surface within the peritreme; operculum missing in type lot. Dimensions (in mm): length 39.5; width 15 (holotype).

Type Locality: Gulf of Tehuantepec, Mexico; dredged in 59-68 meters, mud bottom, latitude 15° 58′ N, longitude 95° 00′ W, Donald Shasky and Xavier Mendoza, July 1963; 13 specimens, none live-collected.

Type Material: Holotype, LACM, Invertebrate Zoology Type Collection, cat. no. 1161, paratype, cat. no. 1162. Additional paratypes will be distributed to Stanford University, California Academy of Sciences, Santa Barbara Museum of Natural History, United States National Museum, and to the Shasky and DuShane private collections.

Referred Material: One specimen in the LACM collection was trawled in 30 fathoms off Punta San Telmo, in the southwestern part of the Gulf of California, latitude 25° 18′ N, longitude 110° 57′ W, by Lloyd Findley, 10 July 1965. The specimen was live-collected, has 10 postnuclear whorls, and has a paucispiral operculum of three whorls. It measures (in mm) length 44, width 17. Another specimen in the Museum collection was dredged by the *Velero III*

at Station 539-36, March 1936, off the spit at Bahía de Los Angeles, Baja California, at latitude 28° 53′ 40″ N, longitude 113° 32′ 45″ W, in one fathom, sand bottom. The specimen has 8 postnuclear whorls and measures (in mm) length 39, width 15.5. These two specimens are darker than those of the type series, none of which were collected alive, indicating that the color has probably faded in the type series.

Discussion: *Amaea tehuanarum* is closely related to *Amaea brunneopicta* (Dall, 1908: 316, pl. 8, fig. 10), *Amaea ferminiana* (Dall, 1908: 318, pl. 8, fig. 8), but differs from both of these species in proportions. The shell is broader than *A. brunneopicta* and narrower than *A. ferminiana*. Both *A. ferminiana* and *A. brunneopicta* have evenly tapering shells while that of *A. tehuanarum* is rapidly inflated, giving a convex outline to the overall slope of the shell. In addition, the thickened lip of *A. tehuanarum* is lacking in specimens examined of either of the two species of Dall, each of which has a thin fragile lip. *Amaea ferminiana* reaches twice the length of *A. tehuanarum*.

Although Keen (1958: 278), treated the two species of Dall as differing only subspecifically, they differ consistently in proportion and have generally been accepted as valid species. Specimens have been seen from many localities at which both species occur. Both *A. ferminiana* and *A. brunneopicta* occur in the Gulf of Tehuantepec along with *A. tehuanarum*. Specimens of *A. ferminiana* (fig. 3) and *A. brunneopicta* (fig. 6) from this locality are illustrated here for comparison.

Although Keen (1958: 278) treated *Scalina* as a full genus, we are following Clench and Turner (1950: 242) in regarding it as a subgenus of *Amaea*. The genus *Amaea* H. and A. Adams, 1853, type species *Scalaria magnifica* Sowerby (Kira, 1962: 30, pl. 14, fig. 20), shows, on the type species, a weak basal ridge without having the basal sculpture greatly different from that on the body whorl. In the subgenus *Scalina* Conrad, 1865, type species *Scalina staminea* Conrad (Palmer, 1937: 102, pl. 8, fig. 16), a stronger basal ridge is apparent, the basal area is markedly concave, and the basal sculpture is radically different from that on the body whorl. As shown by Palmer (1937) and Clench and Turner (1951: 287), *Ferminoscala* Dall, 1908, type species *Epitonium (Ferminoscala) ferminianum* Dall, is a synonym of *Scalina*. Clench and Turner (1950) placed the Caribbean species *Amaea retifera* Dall in the subgenus *Scalina* (inadvertently as *Ferminoscala*) since the basal ridge and concave base is quite apparent in that species, but we feel that the Caribbean species *Amaea mitchelli* Dall should also have been assigned by them to the subgenus *Scalina*, rather than to *Amaea s. str.* It is clearly a species analogue of *A. ferminiana* and differs chiefly in having less pronounced axial and spiral sculpture.

Amaea tehuanarum is named for a group of Zapotec Indians, the Tehuanos, who inhabit the region of the Isthmus of Tehuantepec. The Tehuanas are the women of the tribe who control the market places, have a dignity

of bearing and a great self sufficiency (Covarrubias 1947: 39, 246). They are famous for their caracol skirts made from handwoven material, dyed purple with the secretion from the rock shell *Purpura patula pansa* Gould.

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