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THREE NEW LAND SHELLS FROM PERU

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CURATOR OF LOWER INVERTEBRATES

The new species of shells here described form part of a rather extensive collection of Peruvian land and fresh-water mollusks received by Chicago Natural History Museum from Dr. Wolfgang Weyrauch, now on the staff of the Museo "Javier Prado" at Lima, Peru. The collection was made during his stay at Tingo Maria in 1946 and 1947. Additional material that is still being received from Dr. Weyrauch indicates that a full report of his collections will add greatly to our knowledge of the Peruvian molluscan fauna. Such a report will necessarily be delayed, but the new forms will be described in preliminary papers, of which this is the first.

For the figures accompanying this article I am indebted to my colleague and friend, Dr. Rainer Zangerl, Curator of Fossil Reptiles, Department of Geology.

***Bulimulus (Peronaeus) subelatus* sp. nov.** Figure 38.

Type.—No. 29146, C.N.H.M., from Ambo near Huánuco, Department of Huánuco, Peru. Altitude 6,300 feet.

Diagnosis.—A species of *Bulimulus* with the typical apical sculpture of the subgenus *Peronaeus*, characterized by its small size (height about 12.5 mm.) and the pattern of brown streaks on creamy white ground color, and a brown umbilical band.

Comparisons.—*Bulimulus subelatus* belongs in the group of slender bulimuli from the high Andes of which *B. elatus* Philippi is a member, to which species *subelatus* is most closely related. While *elatus* reaches a height of 21 mm. and a width of 6 mm., *subelatus* only has a height of 12.5 mm. and a width of 4.5 mm. It furthermore differs from *elatus* in its higher and narrower aperture (height 4.4 mm.×width 2.4 mm.; *elatus*, height 6 mm.×width 3.5 mm.), and in having brown streaks reaching from suture to suture and a brown band in the umbilical chink; imperfect brown

lines, which gird the last whorl below the middle, are shown in some specimens only.

Description of type.—Shell narrowly perforate, conically turreted, irregularly plicatulate, becoming striatulate on the last whorl; rather solid. Color nearly cream-white, with the two apical whorls pale or purplish brown, the later whorls with irregularly and distantly set brown streaks; a broad brown band surrounding the umbilical chink. Whorls 8, rather flat, suture narrow, being more deeply cut between the penultimate and the last whorl, which is more obese than the preceding ones. Aperture straight, about one-third of the entire height of the shell, narrow, its margins straight, thin, its interior white with a rose-colored border at the edge.

Measurements of type.—Height 12.5 mm., width 4.5 mm., height of aperture 4.4 mm., width of aperture 2.4 mm.

Notes on paratypes.—No. 29147, C.N.H.M. Same data as type. The two largest of the paratypes have the following measurements respectively: height 12.3 and 11.8, width 4.3 and 4.5 mm. One of them does not show the inner rose-colored border of the aperture. It has traces of three brown infraperipheral bands on the last whorl; these bands are more obviously developed on another, somewhat smaller paratype.

Discussion.—Variation in size and shape is apparently rather limited, whereas the color pattern varies a good deal even in the seven specimens at hand. In one of them the apex is deeply brownish-purple and the rest of the shell uniformly white. In others, including the type, the apex is either pale brown or purplish-brown, with comparatively few brown streaks on the postnepionic shell, though all of them possess the broad brown band in the umbilical chink. Others again, in addition to the coloration feature named above, have a set of three narrow, more or less conspicuous bands below the middle of the last whorl, and one specimen has the brown streaks so closely set in its earlier whorls that brown seems to be the basic color, whereas on the last whorl white predominates.

***Bulimulus (Protoglyptus) subcostatus* sp. nov.** Figure 39.

Type.—No. 29148, C.N.H.M., from Jaën, Department of Cajamarca, Peru. Altitude 1,500–2,100 feet.

Diagnosis.—A species of *Bulimulus* with the typical apical sculpture of the subgenus *Protoglyptus*, characterized by a size (height about 12.5 mm.) much smaller than the smallest *Protoglyptus* known to science.

Comparisons.—Aside from its small size, in which *B. subcostatus* is unique within the subgenus *Protoglyptus*, this species seems to be most closely related to the Bolivian *B. rivasii* Orbigny, 1837 (Voy. Amér. Mérid. Mollusques, p. 276, pl. 34, figs. 8-10); it shares with the Bolivian species the general appearance in shape and coloration, but it is only two-thirds as large and is characterized, furthermore,



FIG. 38. *Bulimulus (Peronaeus) subelatus* sp. nov.
No. 29146, C.N.H.M.;
type, $\times 3.5$.



FIG. 39. *Bulimulus (Protoglyptus) subcostatus* sp. nov.
No. 29148, C.N.H.M.;
type, $\times 3.75$.

by the presence of hairlike riblets on the surface of the thick chalky shell, whereas *rivasii* is described as smooth and translucent.

Description of type.—Shell elongated-conic, thick, cretaceous, densely and irregularly ribbed with hairlike ribs. Whorls $7\frac{1}{2}$, rather flat, and separated by a superficial but well-defined suture. Nepionic whorls 2, purplish brown, with the typical *Protoglyptus*-sculpture; remaining whorls white and ornamented with brownish streaks of varying width that follow the growth lines and extend from suture to suture. Last whorl a little rounded. Umbilicus deep but narrow, its wall rose-colored, outwardly bordered by a narrow brown belt. Aperture ovate, narrow, its margins straight except the columella, which is folded back over the umbilicus; inside of aperture showing the outside colors, but the margin bordered with rose.

Measurements of type.—Height 12.4 mm., width 5 mm., height of aperture 5 mm., width of aperture 2.8 mm.

Notes on paratypes.—Some of the paratypes, No. 29149, C.N.H.M., are somewhat stouter than the type, and some have the apical

whorls pale and corneous instead of purplish brown. The ornamentation with brown streaks is occasionally less distinct than in the type, and in some cases the streaks on the last whorls are interrupted by one or two white spiral bands.

Discussion.—*Bulimulus (Protoglyptus) subcostatus* is at present the only species of *Protoglyptus* known from Peru. Three other

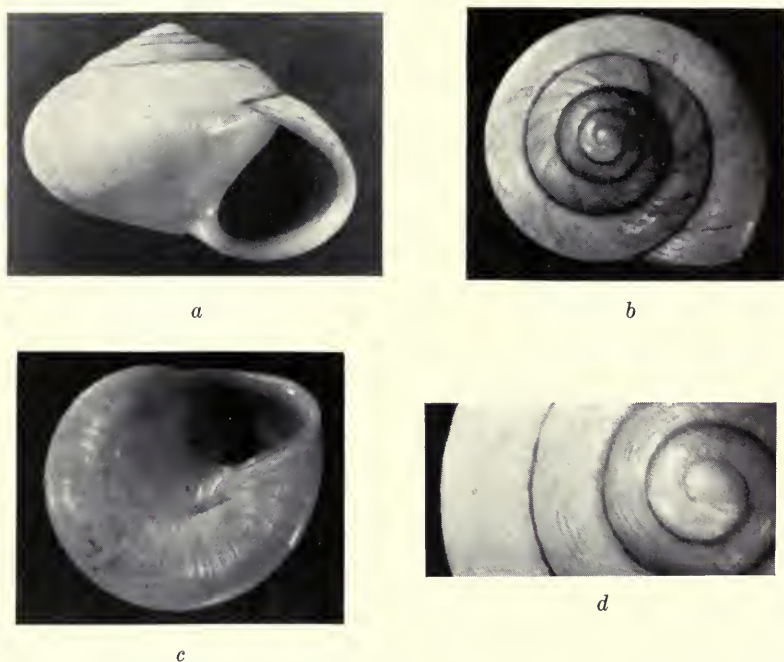


FIG. 40, a-d. *Helicina (Helicina) weyrauchi* sp. nov. No. 29142, C.N.H.M., type. a, front view, $\times 7.5$; b, from above, $\times 7$; c, from below, $\times 7$; d, from above, showing spiral shell sculpture, $\times 12$.

species have been described from the Andes of Bolivia and Argentina, and most of the remaining species are confined to the east side of South America. Two species of *Bulimulus*—*glyptocephalus* Pilsbry and *sarcochrous* Pilsbry—which have also been described from Peru, show in their apical sculpture some special features that make them stand apart from typical *Protoglyptus*.

Helicina (Helicina) weyrauchi sp. nov. Figure 40.

Type.—No. 29142, C.N.H.M., from Jaën, Department of Cajamarca, Peru. Altitude about 15,000 feet.

Diagnosis.—A very small species of typical *Helicina*, characterized by its small size (height about 5 mm.) and its yellowish and white color.

Comparisons.—Of the comparatively few Andean species of *Helicina*, the Colombian *Helicina sylvatica* Orbigny is closest to the new *H. weyrauchi*. It differs from that species by being constantly higher (width 7 mm., height 6 mm., compared to 6.8 and 5.1, respectively), by having half a whorl more, and by its color, which is described as yellowish, whereas that of *weyrauchi* is yellowish only on the three first whorls, becoming chalky white later. It may be stated at this place that the original figure of *sylvatica* (Orbigny, 1837, Voy. Amér., Moll., pl. 46, fig. 20) shows a shell only 4.6 mm. in width, whereas the description on page 359 says 7 mm.

Description of type.—Shell depressedly conic, with a rather pointed apex, somewhat polished, with the three first whorls yellowish and the following $1\frac{1}{2}$ whorls of chalky white. Whorls $4\frac{1}{2}$, slowly and regularly increasing, rather flat, separated by a deep, almost channelled suture. Apex smooth, the following whorls slightly spirally grooved, the second half of the last almost smooth on the upper side and finely spirally striated below. Aperture small, the apertural and umbilical features as well as the operculum typical of the genus.

Measurements of type.—Height 5.1 mm., width 6.8 mm., height of aperture 3.5 mm., width of aperture 2.5 mm.

Notes on paratypes.—No. 29143, C.N.H.M. Same data as the type.

Discussion.—There seems to be little variation in size and shape, the paratypes No. 29143 showing almost exactly the same measurements as the type.

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