

NEW MARINE SHELLS FROM PANAMA.

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The United States National Museum has for a number of years been receiving mollusks collected by Mr. James Zetek in Panama. Most of these, however, have represented the larger, well-known species. It has been only recently that he has given attention to the securing of minute forms, among which no less than eight new species were discovered: Three *Epitoniums*,¹ which have already appeared in a paper by Dr. W. H. Dall,² and the five mollusks described in the present paper.

In addition to these there are fragments of several other species, which appear to belong to undescribed forms, diagnoses of which will be postponed until better material comes to hand.

CYLICHNELLA ZETEKI, new species.

Plate 88, fig. 4.

Shell small, thin, semitranslucent, bluish-white, or in dead shells cream-yellow. The early whorls always covered by the succeeding turns, so that in adult shells the last turn only is visible. Apex with a shallow umbilicus about one-fifth the diameter of the shell. Surface of the shell marked by slender lines of growth and very numerous, exceedingly fine, and exceedingly closely spaced spiral striations. In addition to this there are 12 strongly incised spiral grooves, which are subequal and subequally spaced and situated on the anterior two-fifths of the shell, and four incised spiral lines of similar spacing and similar strength situated on the posterior fifth of the shell. Aperture pyriform anteriorly, then forming a slender channel, which is almost of equal width from the anterior two-fifths to the posterior portion; outer lip thin, extending considerably posterior to the body whorl, strongly rounded at the posterior extremity, slightly concave in the middle, then strongly rounded anteriorly; columella

¹ *Epitonium zeteki*, *imbex*, and *thylax*.

² Notes on the Shells of the Genus *Epitonium* and its Allies of the Pacific Coast of America, Proc. U. S. Nat. Mus., vol. 53, pp. 486-487, 1917.

short, twisted, and truncated anteriorly to resemble a fold; a strong, oblique fold encircles the insertion of the columella; parietal wall covered by a thin callus.

The type (Cat. No. 216840, U.S.N.M.) and six specimens of this species were collected by Mr. James Zetek at Panama City, Panama. The type measures—length, 2.5 mm.; diameter, 1.2 mm.

ODOSTOMIA (CHRYSTALLIDA) ZETEKI, new species.

Plate 88, fig. 5.

Shell of medium size, elongate-ovate, bluish-white. Nuclear whorls deeply immersed in the first of the succeeding turns, which gives the apex a truncated appearance; postnuclear whorls appressed at the summit, the later ones overhanging, marked by exceedingly strong, very distantly spaced axial ribs, of which 16 occur upon the second and third, 14 upon the fourth, and 12 upon the penultimate turn. These ribs are well rounded and have a slightly retractive slant. The spiral sculpture consists of five raised bands, which are a little wider than the spaces that separate them. The first of these is at the appressed summit of the whorls, while the fifth is immediately posterior to the angulated periphery (for in the adolescent stage, as shown by the overhanging portion of the whorls the periphery is angulated, though this is not the case in the last whorl of the adult shell), while these raised threads pass upon the sides of the ribs they do not pass over their summit in sufficient strength to render these tuberculated. The spiral pits between the axial ribs and spiral threads appear as oblong impressions, their long diameter being parallel with the spiral sculpture. Suture rather poorly marked, not at all channeled. Periphery of the last whorl well rounded. Base slightly produced, well rounded, narrowly umbilicated, marked by the continuations of the axial ribs, which extend feebly almost to the umbilical region, and eight spiral threads, of which the first two below the periphery are as strong as those occurring on the spire, while the rest become successively weaker and more flat anteriorly. Aperture ear-shaped; posterior angle decidedly channeled; outer lip thin and slightly reflected; inner lip curved, somewhat sinuous and slightly reflected over the umbilicus; parietal wall covered by a very strong callus, which is free at the edge and renders the peristome complete by connecting the posterior angle of the aperture with the insertion of the columella.

The type (Cat. No. 216905, U.S.N.M.) was collected by Mr. Zetek at Panama City, in sand siftings and rock washings at low-water mark. It has 5.8 postnuclear whorls and measures—length, 2.8 mm.; diameter, 1.3 mm.

This species is at once distinguished from all the others so far described from the West Coast by its very strong axial ribs, which are more distantly spaced than in any other form.

HELIACUS PANAMENSIS, new species.

Plate 88, figs. 6, 7, 8.

Shell small, chestnut brown, lenticular. Nuclear whorls well rounded, smooth, separated by a strongly impressed suture. Post-nuclear whorls slightly rounded, marked by spiral cords and axial ribs, the junction of which forms nodules. The first spiral cord forms a shoulder that marks the highest elevation of the whorls. It is situated at some little distance anterior to the suture, which is located in a decidedly impressed groove. Following the nuclear turn, the whorls are sculptured with three spiral cords, of which one marks the summit as indicated, another the periphery, while the third is about midway between the two. As the whorls increase in size three additional cords make their appearance, first as slender threads, then increasing in size until they almost equal the median cord in strength. These three are located between the summit and the median cord. The first of these begins about a half turn behind the beginning of the postnuclear turn, and is situated a little posterior to the middle between the two. The second one begins about one and a fifth turns behind the beginning of the postnuclear turn and is a little nearer to the intercalated cord than the median. The last one has its inception about a half turn behind the aperture, and is about midway between the second intercalated cord and the median one. The axial ribs are well rounded and retractively slanting. There are 24 of these on the first whorl, 35 on the second, and 40 on the remaining half turn, on the latter part of which they are rather closely crowded. The spaces inclosed by the ribs and the spiral cords are well-impressed rhomboidal pits. Suture strongly channeled. Last whorl rendered keeled by a strong spiral cord, which is covered up in the preceding whorls. This is really the true peripheral cord, but on the preceding turns, the one anterior to it, is the last one visible.

Base well rounded, openly umbilicated, marked on the anterior half by four equal and equally spaced spiral cords, while the inner half bears three additional spiral cords, of which the one bordering the umbilicus is very broad. The two anterior to this are about twice as strong as the four anterior to these two, and they are also spaced about doubly as wide as the four preceding. Near the aperture a slender spiral thread appears between these two. The axial sculpture of the base is a continuation of the axial ribs on the upper surface, which extend strong and undiminished to the umbilicus. Here, however, we usually have two ribs fused in the cord bordering the umbilicus with a strong callus between, forming a series of very strong nodules. The junction of the four anterior spiral keels of the base and the axial ribs forms well-rounded nodules, while those of the two succeeding spiral turns are about twice as strong and those of the cord

bordering the umbilicus are about four times as strong as those on the four anterior cords. The parietal wall bordering the umbilicus is concave and crossed by the axial ribs. Aperture subcircular; peristome rendered sinuous by the spiral sculpture; parietal wall covered by a thin callus.

The type (Cat. No. 216838, U.S.N.M.), was collected by James Zetek at Punta Paitilla, near Panama City, Panama, in siftings from sand and worm burrows. It measures—greater diameter, 3.8 mm.; lesser diameter, 3 mm.; altitude, 1.2 mm.

DISCOPSIS PANAMENSIS, new species.

Plate 88, figs. 9, 10, 11.

Shell lenticular, thin, semitranslucent, bluish-white. Nuclear whorls two, strongly rounded, forming an elevated mucronate apex; succeeding turns one and three-fourths, decidedly depressed, gently rounded. The part following the nuclear turn is ornamented by two strong, spiral cords, one of which is at the periphery and the other halfway between this and the summit, where it forms a decidedly strong angle. Soon after this various other spiral cords make their appearance at intervals, resulting eventually in 10 subequal and subequally spaced cords between the suture and the peripheral keel. These cords are rendered nodulose by the somewhat irregularly developed and distributed, decidedly protractedly bent axial riblets which pass undiminished from the summit of the whorls to the periphery. Suture strongly channeled. Periphery rendered angulated by the limiting cords. Base with a very broad funnel-shaped umbilicus, well rounded, the greatest convexity falling on the posterior limit of the anterior third, marked by the irregular axial riblets and numerous very fine closely spaced incised spiral lines which pass equally over the intercostal spaces and ribs. This sculpture passes over the parietal wall into the umbilicus. Aperture very large, pyriform, decidedly oblique; outer lip rendered sinuous by the external sculpture, which is also apparent through the mass of the shell; inner lip evenly curved; parietal wall very narrow, almost crossed by the two ends of the aperture.

The type (Cat. No. 216839, U.S.M.N.) was collected by Mr. James Zetek at Punta Paitilla, near Panama City, Panama, from sand and worm burrow siftings. The type measures—greater diameter, 2.3 mm.; lesser diameter, 1.8 mm.; altitude, 1 mm.

DISCOPSIS ARGENTEA, new species.

Plate 88, figs. 1, 2, 3.

Shell small, discoid, thin, semitranslucent. Nuclear whorls three, smooth, small, forming a quite elevated spire, the axis of which is obliquely tilted to that of the succeeding turns. Postnuclear whorls

two, well rounded above, the first one and a half marked with a strong keel about one-third of the distance between the suture and the periphery, anterior to the suture. This keel becomes enfeebled on the last half of the last whorl and practically completely disappears before the edge of the aperture is attained. In addition to this keel the upper surface is marked by rather distantly spaced, slender, recurvedly slanting axial riblets, of which 19 occur upon the first turn and 22 upon the last; these riblets are about one-sixth as wide as the spaces that separate them in the region of the keel and much more distantly spaced at the periphery. In addition to the axial sculpture, the whorls are marked on the upper side by slender, raised spiral threads, which are separated by fine, incised lines; of these threads 50 occur between the summit and the periphery of the last whorl. Sutures strongly impressed. Periphery of the last whorl strongly carinated. Base very broadly, openly unbilicated, marked by the continuations of the axial riblets which become condensed within the umbilicus and somewhat irregularly spaced. The spiral sculpture on the base is even finer than on the upper surface. In fact, it is so fine that we have found it best not to indicate it in our sketch. Aperture very large, oblique; with a decided angle at the periphery and another at the junction of the columella and the basal lip; parietal wall very narrow, covered by a thin callus.

The type (Cat. No. 216920, U.S.N.M.) comes from shell siftings of sand and worm burrows collected at Punta Paitilla, near Panama City. It measures—altitude, 1 mm.; diameter, 2.2 mm.

EXPLANATION OF PLATE 88.

FIGS. 1, 2, and 3. *Discopsis argentea*.

4. *Cylichnella zeteki*.

5. *Odostomia (Chrysallida) zeteki*.

6, 7, and 8. *Heliacus panamensis*.

9, 10, and 11. *Discopsis panamensis*.



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