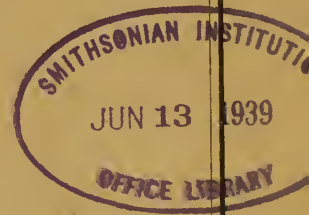


SMITHSONIAN MISCELLANEOUS COLLECTIONS
VOLUME 98, NUMBER 10

MOLLUSKS COLLECTED ON THE
PRESIDENTIAL CRUISE OF
1938

(WITH FIVE PLATES)

BY
PAUL BARTSCH
Curator, Division of Mollusks,
U. S. National Museum
AND
HARALD ALFRED REHDER
Assistant Curator, Division of Mollusks,
U. S. National Museum



(PUBLICATION 3535)

CITY OF WASHINGTON
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During President Franklin D. Roosevelt's cruise in the Pacific and Atlantic Oceans in 1938, on board the U.S.S. *Houston*, Dr. Waldo L. Schmitt, Curator of the Division of Marine Invertebrates of the United States National Museum, served as Naturalist. Among other things he made collections of mollusks in many rarely visited places, which resulted in the discovery of a new subgenus and a number of new species and subspecies, which are here described.

We also give a list of all the species collected, believing this to be of especial interest, since little is known of the marine fauna of the places in which they were obtained.

A particularly interesting fact presented by these collections is the Indo-Pacific relationship of the marine mollusks of Clipperton Island, which suggests a drift fauna.

TEREBRA (SUBULA) ROOSEVELTI, n. sp.

Plate 1, fig. 6

Shell of medium size, elongate-turritid; ground color yellowish on the early whorls, gradually passing into brilliant dark orange on the middle turns, again paling on the last whorl. The last 5 whorls have the part posterior to the groove marked by areas of blackish chestnut brown, which are of varying length; a little distance anterior to the groove a line of dots of the same color of varying size and spacing is present. The last whorl also has three rather broad, somewhat interrupted zones of pale brown separated by narrow paler lines; both of these elements are of about equal width, the darker bands being about two and one-half times as wide as the light lines. The first of these pale brown bands is immediately above the periphery, the second is

immediately above the basal angle, and the last is on the anterior half of the base. The outside of the columella is of the same color as the base; its inside, as well as the inside of the aperture, is yellowish, the outer lip showing the darker bands, described for the exterior, within. Nuclear whorls decollated. The postnuclear whorls are encircled by a deeply impressed groove at about two-fifths of the distance between their summit and the periphery anterior to the summit. They are crossed by low broad axial ribs, which in turn, as well as the intercostal spaces, are marked by fine incremental lines. Of these ribs 33 are present on the last whorl. The spiral sculpture is reduced to microscopic striations. The suture appears as deeply impressed as the groove anterior to it. Periphery well rounded. Base short, well rounded, marked by the continuations of the axial ribs and fine incremental lines, which extend to the columella. Columella short, thick, with a strong oblique fold which is separated from the base by a decided groove. Anteriorly to the fold the columella is somewhat twisted and marked by strong incremental lines. On the inside the columella shows a second low rounded fold bordering its anterior termination. Aperture auriculate, decidedly channeled anteriorly, the outer lip thin, somewhat contracted above the groove posteriorly.

The type, U.S.N.M. no. 472534, has 12.5 whorls remaining and measures: Length, 43.2 mm.; greater diameter, 14.1 mm.; lesser diameter, 14.0 mm. It was dredged on Socorro Island, Mexico, in 7-8 fathoms on sandy bottom, off the landing beach toward the rocky point forming the east side of the cove.

APLYSIA CEDROSENSIS, n. sp.

Plate 4, figs. 8-10; plate 5

Animal large, stout, rather broad and high. The color (in alcohol) is arranged as follows: The head, the foot, the sides of the body, and the exterior of the pleuropodia (or lateral lobes) are black; the dorsal area is gray from the rhinophores to the posterior edge of the mantle, except for a black area extending posteriorly from between the rhinophores for an inch and a half and becoming narrower, and a narrow irregular black patch extending along the middorsal line anterior to and over the mantle; the interior of the pleuropodia are irregularly maculated with black, as is the area about the mouth and buccal appendages. The skin is strongly wrinkled, especially the sole of the foot, the head regions, and the exterior of the pleuropodia. The head bears rather broad, folded buccal appendages. The rhinophores or tentacles are elongately conic and noticeably slit. The foot is broad

and strongly wrinkled, widening somewhat posteriorly and blunt at both ends. The pleuropodia are rather short and well separated in front, united posteriorly, forming a wall about the branchial cavity and mantle about an inch high. The mantle covers the shell completely and has a minute pore in the center. The posterior edge of the mantle is somewhat sinused on the right side, with a short erect fleshy crest slightly anterior to the sinus. The genital pore is conspicuous, slightly crescentic, situated a short distance in front and to the right of the anterior edge of the mantle; a marked genital groove runs anteriorly from it to below the right buccal appendage. The shell is large, thin, chitinous, concave, shieldshape, with a moderately large shallow sinus at the top where the edge is slightly thickened and reflexed. A thin deciduous calcareous layer is present on the ventral surface.

The type, U.S.N.M. no. 472859, measures: Length, 165 mm.; width, 90 mm.; height, 85 mm. (This is, of course, an alcoholic specimen slightly distorted in the process of preserving.) The shell measures: Height, 76 mm.; width, 57 mm. It was collected on the east side of Cedros Island, Lower California, along the shore to the north and south of the cannery.

This species resembles the Peruvian species *Aplysia nigra* d'Orbigny in having the lateral lobes united posteriorly, though not to as great an extent, and in the posterior edge of the mantle being sinused and bearing a fleshy crest. All the species heretofore described from North and Central America have the pleuropodia free behind, not united. There is no tail visible in our specimen.

CONUS ROOSEVELTI, n. sp.

Plate 1, figs. 4, 7

Shell small, spire broadly conic, moderately elevated, sides of the main part slightly convex on the posterior two-thirds and slightly concave on the anterior third. The spire is flesh-colored with dark spots between the knobs. The body of the last whorl presents a complex color scheme. The general ground color is bright, light chestnut brown, with a pale, moderately broad, submedian zone. The low, rather broad, spiral cords bear elongated low white tubercles, whose long axis coincides with the spiral sculpture. Between these white tubercles there is usually, but not always, a dark, more or less round, chestnut brown spot. The interior of the outer lip is brilliant chestnut brown with a yellowish zone below the posterior angle, and a yellowish submedian band and a series of dark spots near the edge.

The early whorls are eroded and so do not reveal their sculpture. Those remaining have a series of heavy knoblike tubercles separated by spaces about as wide as the knobs, at the shoulder. Of these knobs 11 are present upon the last turn. The summit of the turns is marked by 6 low rounded spiral threads which vary in width and are separated by well-impressed lines. In addition, the spire is marked by well-developed incremental lines. The posterior half of the body of the last whorl is marked by rather wide and moderately deep grooves, which here separate low rounded spaces of double their width. From the middle anteriorly the relative width of the spiral grooves and cords changes, *i. e.*, the cords become narrow and more elevated, while the spaces between them widen and appear less incised, but all these spaces, whether the narrow incised grooves of the posterior part or the wider anterior fields, are crossed by numerous, strongly raised, hairlike threads, which extend feebly upon the spiral cords and which are more distantly spaced on the posterior portion than on the middle, and become decidedly crowded on the anterior third. Fourteen of the raised spiral bands are present between the shoulder and the columella. The columella bears 7 closely approximated, strong spiral cords. Aperture narrow, decidedly channeled anteriorly, scarcely so at the posterior angle; outer lip thin.

The type, U.S.N.M. no. 472854, measures: Length, 15.3 mm.; greater diameter, 9.6 mm.; lesser diameter, 8.5 mm. It was collected on Clipperton Island on rocks along the shore, south of the landing place. Two additional specimens bear U.S.N.M. no. 472549.

This species is a member of the *Conus miliaris* complex. It is darker than that species, the spiral grooves are more pronounced, and the nodulation is heavier.

CONUS MAGDALENENSIS, n. sp.

Plate 1, figs. 5, 9

Shell of medium size, with rather elevated spire with its lateral margins slightly concave and the sides almost straight. The narrow whorls on the spire are marked by alternating zones of dark brown and the flesh-colored ground color. The body of the whorls carries these alternating axial areas to the tip of the columella, but with an interruption produced by a spiral band of the ground color which encircles the turns almost at the middle between the shoulder and base. The dark chestnut-colored areas are in the form of broad fulgurations, some of whose points join those of adjacent zones. They are about as wide as the lighter areas separating them. Judging from the rem-

nants of the periostracum remaining, the living mollusk has its shell covered by a hairy golden coat. The inside of the aperture is bluish white, the inner edge of the outer lip showing a series of dark spots that have dark brown centers and paler edges. Early whorls eroded. The early turns of those remaining have a strong keel on the middle, which is produced by the fact that the summit of succeeding turns falls anterior to the shoulder. This keel is finely nodulose on the early whorls, the nodules gradually disappearing on the later turns. The keel itself becomes less marked on the later whorls where the summit of the succeeding turns approaches the angulated shoulder. The sculpture of the summit of the whorls consists of retractively curved incremental lines and some obsolete spiral striations. The sides of the last whorl are marked by lines of growth and obsolete spiral lirations, which develop into rather strong low spiral cords on the basal third. Aperture narrow, decidedly channeled anteriorly and posteriorly; outer lip protracted in the middle.

The type, U.S.N.M. no. 472521, has 10 whorls remaining and measures: Length, 33.6 mm.; greater diameter, 15.3 mm.; lesser diameter, 13.7 mm. It was dredged in Magdalena Bay, Lower California, in 10-15 fathoms on sandy, weedy bottom, at the entrance to the bay between Belcher Point and the anchorage.

This cone is related to *Conus regularis* Sowerby, from which it is distinguished by its higher spire and the light median bands of the body whorl.

MARGINELLA ROOSEVELTI, n. sp.

Plate 1, figs. 2-3

Shell large, ovate, shining, dorsal part deep brilliant orange with two faint spiral bands of a paler shade, fading to flesh-color with an orange flush, on the ventral side. In addition to this, 5 reddish chestnut-colored spots are present, distributed as follows: 1 at the apex, 1 on the back of the columella a little above the lip, 1 on the middle of the base, 1, the largest, a little posterior to the middle of the outer lip, and the fifth, also strong, halfway between this and the basal spot. The outer lip is thickened and white, excepting the 2 spots. Aperture narrow, decidedly channeled anteriorly and slightly so at the posterior angle. The columella bears 4 oblique folds on its basal two-fifths. The entire surface is glossy and devoid of sculpture.

The type, U.S.N.M. no. 472610, comes from a tide pool at Old Providence and measures: Length, 23.0 mm.; greater diameter, 13.3 mm.; lesser diameter, 11.2 mm.

Its large size and dark coloration distinguish it from *Marginella guttata* and allied forms.

ENGINA EARLYI, n. sp.

Plate 1, fig. 8

Shell broadly ovate, blackish chestnut brown, excepting the intercostal spaces, which are chestnut brown; the aperture is of brilliant orange color with a dark spot on the upper portion of the columellar callus and a more elongate, narrower one on the edge of the middle of the columella. Early whorls badly eroded, the later ones with a series of humplike nodules that occupy the anterior two-thirds of the turns and extend over the base as axial ribs gradually diminishing in size toward the tip of the base. Of these humps 8 are present on the last turn. In addition to this sculpture, the whorls are marked by spiral threads of somewhat variable width and spacing; of these 10 are present between the summit and periphery on the last turn. The base is slightly concave on the left margin and is marked by 5 spiral series of knobs which gradually and uniformly diminish in size from the periphery anteriorly. These knobs are about as wide as the spaces that separate them and are arranged in axial series. The base also bears spiral threads, which extend over the knobs and intercostal spaces; rather strong incremental lines are also present. Aperture half as long as the shell, elongate pear-shaped, decidedly channeled anteriorly; outer lip very thick, bearing a weak denticle below the posterior angle, and 5 stronger, equally spaced, denticles occupying its middle; the inner lip also bears 3 denticles on its median portion and there is also a denticle on the parietal wall a little distance from the outer lip. The inner lip extends over half of the columella as a heavy callus, which also covers the parietal wall.

The type, U.S.N.M. no. 472566, has 5.5 whorls remaining and measures: Length, 12.5 mm.; greater diameter, 8.4 mm.; lesser diameter, 6.3 mm. It, and another specimen, U.S.N.M. no. 472855, were collected in a tide pool in Sullivan Bay, James Island, Galápagos. It is named for Mr. Stephen Early, Secretary to the President.

NITIDELLA GUTTATA BAILEYI, n. subsp.

Plate 2, fig. 6

Shell ovate, turrated, early whorls pale brown, the later dark blackish brown; base chestnut brown. The entire surface is dotted with round spots of pale orange. Interior of aperture bluish white with the

peristome edged with brown. The whorls increase regularly in size and are marked only by fine incremental lines, excepting the columella which bears 9 rather strong spiral cords, and 7 fine threads near the tip. Aperture ovate, strongly channeled anteriorly; outer lip thick, bearing 10 elongated denticles having their long axis parallel with the spiral plane. The inner lip partly excavates the columella and parietal wall, leaving it as a smooth porcelaneous surface. There is a humpish callus on the parietal wall near the posterior angle.

The type, U.S.N.M. no. 472857, has 11 whorls and measures: Length, 13.0 mm.; greater diameter, 5.1 mm.; lesser diameter, 4.4 mm. It and a series of specimens, U.S.N.M. no. 472586, were collected in Elizabeth Bay, Albemarle Island, Galápagos. U.S.N.M. no. 472583 contains 2 specimens collected on Narborough Island, Galápagos.

This form is much darker than the typical *Nitidella guttata* Sowerby, which comes from Panama.

This is named for Commander C. A. Bailey, Executive Officer of the U.S.S. *Houston*.

TRITONALIA (OCINEBRINA) CARIBBAEA, n. sp.

Plate 1, fig. 1

Shell small, very elongate-ovate, brown, with the spiral zone of tubercles above and below the peripheral keel and the 3 median columellar cords white. Aperture brown within with the external white bands marking the peristome; the denticles within the outer lip are also white. Nuclear whorls eroded. Postnuclear whorls marked by broad low axial ribs, of which 9 are present on the last turn; strong incremental lines also cross the whorls. The spiral sculpture consists of 3 very strong keels, which grow consecutively stronger from the first at the summit anteriorly. These cords pass across the intercostal spaces and the axial ribs, rendering these nodulose at their intersection. The nodules have their long axis coinciding with the spiral sculpture. Lesser spiral threads mark the spiral cords and the spaces between them. Suture moderately strongly constricted. Periphery with a spiral cord as strong as those posterior to it and similarly marked. Base short, well rounded with a heavy nodulose spiral cord on its middle and the finer sculpture noted for the spire. Columella long, somewhat twisted and marked by 2 slender spiral threads near its insertion, followed by 3 heavier cords, then a series of finer, more closely approximated threads near its tip. All this spiral sculpture is rendered roughened by incremental lines. Aperture decidedly chan-

neled anteriorly; outer lip thick, marked at the edge by incremental lines bearing 5 denticles within the edge in the expanded portion of the aperture; inner lip appressed to the columella in its posterior half, free on the anterior part. Parietal wall glazed with a thin callus except near the outer lip where it develops into a low hump.

The type, U.S.N.M. no. 472617, has a little more than 6 whorls remaining and measures: Length, 8.1 mm.; greater diameter, 4.1 mm.; lesser diameter, 3.4 mm. It was collected on Old Providence Island.

ALVANIA NIGRESCENS, n. sp.

Plate 2, fig. 5

Shell minute, elongate-ovate, dark chestnut brown, a little paler on the outer and basal lip. Nuclear whorls about 2, well rounded, smooth. Postnuclear whorls moderately rounded, marked by strong axial ribs which are about as wide as the spaces that separate them and which are rendered decidedly tuberculated by the 3 spiral cords at their junction. There are 17 of these ribs on the last whorl. The spaces enclosed between the axial ribs and spiral cords are rounded pits. Suture strongly constricted. Periphery marked by a spiral cord a little less strong than those of the spire, bearing feeble tubercles. Base well rounded, slightly excavated at the columella and marked by 4 spiral cords, of which the first below the periphery is stronger than the rest, which are of equal strength. In addition to this, the entire base is marked by incremental lines. Aperture subcircular. Peristome double; the outer is present only on the outer and basal lip, thick and marked by concentric striations; the inner is slightly exerted.

The type, U.S.N.M. no. 472621, has 5.5 whorls and measures: Length, 3.1 mm.; diameter, 1.5 mm.

It was collected in a tide pool on Old Providence Island.

PEASIELLA ROOSEVELTI, n. sp.

Plate 2, figs. 1-3

Shell small, broadly conic, with zigzag axial bands of blackish brown, alternating with bluish white bands of the same width. These bands terminate at the periphery in large alternating light and dark spots. The base is marked by a broad band of alternating dark and light spots adjoining the periphery and 2 similar bands on the keels; in the middle one, however, the light areas are feebly tinged with brown. The columellar region is also pale brown. The interior of the

outer lip is brown variegated at the edge with light spots, which coincide with the external light areas. There is a broad light-spotted zone on the inside of the basal lip and a light spot at the base of the columella. Nuclear whorls 2, too eroded to show sculpture. Post-nuclear whorls strongly rounded, marked by 4 strong spiral keels, of which the first is a little below the summit and the fourth at the periphery, the other 2 dividing the whorls into equal spaces. These keels are feebly tuberculated. Of these tubercles, 12 are present upon the last whorl. In addition to this the entire surface of the whorls is marked by fine equal and equally closely spaced spiral threads, 47 of which are present between the summit and the periphery on the last whorl. Suture moderately impressed. Periphery strongly keeled. Base short, moderately convex, openly umbilicated and marked by 3 strong spiral keels that divide it into 4 equal areas, the fourth constituting the umbilicus. The 2 posterior keels are broad and rounded; the third, which borders the umbilicus, is sharp and more elevated. The entire base is also marked by spiral threads, of which about 35 are present between the periphery and the umbilical keel. On the base the incremental lines are a little more strongly developed than on the spire and furnish in combination with the spiral threads a suggestion of a reticulated pattern. The umbilical wall is marked by lines of growth only. Aperture broadly ovate; outer lip very strongly arched, thin at the edge, posterior half of columella straight, flattened, and decidedly expanded and flattened on the outer half. The parietal wall is covered by a thin callus.

The type, U.S.N.M. no. 472575, has 4.5 whorls and measures: Length, 3.2 mm.; greater diameter, 3.0 mm. It was collected in a tide pool in Sullivan Bay, James Island, Galápagos.

LITTORINA SCHMITTI, n. sp.

Plate 2, fig. 4

Shell broadly ovate with sharply pointed apex. The ground color is blackish chestnut with narrow spiral lines of white marking the grooves and more or less zigzag axial lines of white. On the base the white spiral lines are also present and white axial lines produce a checkerboard pattern. The outer edge of the columella is bright chestnut brown, a suffusion of which covers the parietal wall. The deep portion of the posterior half of the columella and the deep callus on the anterior half of the parietal wall are porcelain white with faint chestnut suffusion at the edge. The inside of the outer lip is marked by alternate spiral zones of dark chestnut brown separated by whitish

lines. Nuclear whorls exceedingly small, apparently smooth. The early postnuclear turns have 4 deep spiral grooves, which are of equal width and which separate the intervening spaces into 5 equal rounded cords, the first of which is at the summit. On the succeeding turns the incised spiral lines become less strong, and the spaces between them are broad, slightly rounded zones. Of these incised spiral grooves, 6 are present between the summit and the suture on the last whorl, and 4 more between the suture and the basal angle. In addition to this the whorls are marked by fine incremental lines and closely crowded microscopic spiral striations. Suture moderately conspicuous. Periphery obtusely angulated. Base marked by 8 equal and equally spaced incised spiral lines and the continuations of the same finer sculpture mentioned for the spire. Aperture broadly ovate, somewhat effuse at the junction of the basal lip and columella, and decidedly acute at the posterior angle; outer lip strongly arched and thin. Operculum moderately thin, corneous, having a little more than 3 whorls with excentric nucleus marked by fine incremental lines.

The type, U.S.N.M. no. 472547, a male, has 7.4 whorls and measures: Length, 11.8 mm.; greater diameter, 8.2 mm.; lesser diameter, 6.5 mm. It, and a series of specimens, U.S.N.M. no. 472546, were collected at Clipperton Island on rocks at the shore south of the landing.

This species presents sexual dimorphism, the females being much larger. Large old specimens are usually badly eroded and fail to show the splendid color pattern displayed in the type. A large female has 5.3 whorls and measures: Length, 18.2 mm.; greater diameter, 11.8 mm.; lesser diameter, 10.5 mm.

This species is related to the Hawaiian *Littorina pintado* Wood, but is easily distinguished from this by its darker color and by having the spiral grooves less deep and more distantly spaced.

It is named for Dr. Waldo L. Schmitt, its discoverer.

HIPPONIX FIMBRIATA, n. sp.

Plate 2, figs. 7-9

Shell cup-shaped, *i. e.*, irregularly broadly conic, pale yellow, covered by a pale golden-yellow, much fimbriated periostracum. Interior porcelain white. The nucleus is very small consisting of a little more than 1 whorl, which is well rounded and microscopically granulose. The postnuclear part increases very rapidly in size and loses its coiling, forming a broadly flaring cuplike structure, whose exterior is marked by a series of concentric lamellae, whose edges are more or less free and somewhat fimbriated. The ventral margin, *i. e.*, peri-

stome, is rather broad with concentric lines. The interior is smooth, except the well-impressed muscle scar.

The type, U.S.N.M. no. 472853, measures: Length, 5.5 mm.; greater diameter, 11.5 mm.; lesser diameter, 9.9 mm. It, and a series of specimens, U.S.N.M. no. 472551, were collected on Clipperton Island on rocks along the shore south of the landing place.

The basal aspect of this species recalls *Hipponix serrata* of the western United States shores, but this has the lamellations more crowded and more irregular and lacks the radial sculpture of that species.

TEGULA (CHLOROSTOMA) BARKERI, n. sp.

Plate 2, figs. 10-12

Shell small, broadly conic, of blackish brown ground color, with numerous dots of bluish white on the spiral cords and 6 distantly spaced, oblique axial zones of bluish white on the last whorl, which are of irregular outline and extend from the summit to the periphery. On the base the spiral cords are marked by alternate elongate zones of light and dark, which are also arranged in a somewhat axial series. The spaces between the spiral cords and the immediate area near the umbilicus on the base are pale. The columella and parietal callus are strikingly bright jade green, and the interior of the outer lip is pearly gray. Nuclear whorls badly eroded. Postnuclear whorls well rounded, marked by strong, well-rounded and elevated cords, of which 4 are present upon the first, 5 upon the second, 7 upon the third, and 8 upon the last between the summit and the periphery. The cords, as well as the deep spaces that separate them, are marked by numerous, closely spaced hairlike, retractively slanting, axial threads, which are best shown in the grooves. Suture somewhat channeled. Periphery well rounded. Base moderately convex, openly umbilicated and marked by 11 spiral cords which are not quite equal or equally spaced; here also the fine axial threads are present. The umbilical wall is smooth excepting a submarginal spiral cord. Aperture subcircular, decidedly oblique; the strongly arched outer lip is rendered crenulated by the external sculpture; the inner lip is decidedly sinuous and bears a double denticle at the base of the columella; a lesser one is present a little anterior to these on the basal lip.

The type, U.S.N.M. no. 472589, has 5.2 whorls and measures: Length, 7.4 mm.; greater diameter, 9.4 mm.; lesser diameter, 7.7 mm. It and a little older specimen, U.S.N.M. no. 472856, were collected at

Elizabeth Bay, Albemarle Island, Galápagos. The larger specimen measures: Length, 8.6 mm.; greater diameter, 10.7 mm.; lesser diameter, 9.2 mm.

This species is related to *Tegula* (*Chlorostoma*) *snodgrassi* Pilsbry and Vanatta, which comes from Albemarle Island. It is, however, more depressed and of darker color with fewer light zones.

It is named for Capt. G. N. Barker, of the U.S.S. *Houston*.

PHLYCTIDERMA, n. subgen.

Shell similar to *Entodesma* but anteriorly more narrow, with the anterior half of the ventral margin more sinuous, and with surface sculptured with very fine, radially arranged, white pustules which become obsolete toward the margins.

Type.—*Lyonsia* (*Phlyctiderma*) *lucasana*, new species.

LYONSIA (PHLYCTIDERMA) LUCASANA, n. sp.

Plate 4, figs. 1-3

Shell of medium size, elongate, inflated, ventrally gaping, anteriorly subrectangular, posteriorly broader and more rounded. The anterior end is inflated and blunt, the area anterior to and below the umbones being somewhat concave. The umbones are rather prominent and almost terminal, and the anterior end from the umbones to the anterior ventral angle is about straight. The ventral margin is strongly sinuous anteriorly. The surface is white, covered with a thin pale brown periostracum arranged anteriorly in irregular vertical stripes coalescing posteriorly into a more solid patch; the whole surface is covered with radially arranged fine white tubercles evanescent toward the margins. The grosser sculpture consists of rounded concentric ridges crossed posteriorly by a few distant, low radial ridges occasionally bifurcating; toward the posterior and ventral margin the sculpture becomes rather irregular. Interior pearly, with an oval anterior muscle scar and a bipartite posterior muscle scar, the lower part being larger and suborbicular. Hinge teeth lacking; a narrow shelf for the ligament is present just below the dorsal edge posterior to the umbones.

The type, U.S.N.M. no. 472526, a single left valve, measures: Height, 9.9 mm.; length, 18.5 mm. It was dredged in 6-10 fathoms off Punta Gorda, Cape San Lucas, Lower California, Mexico.

This species seems closest in general appearance to *Lyonsia* (*Ento-*

desma?) *picta* Sowerby described from the Isla Muerte, Ecuador, but the color markings of this species are black on a brown base. Whether this species has the granular sculpture is not known.

CHAMA RUBROPICTA, n. sp.

Plate 3, figs. 6-10

Shell small, suborbicular, the left valve sessile and sharply angulate so that the anterior part is affixed to the substratum, and the posterior part rises vertically from the base. The left valve is distantly lamellose and fimbriated where it is attached; the rest of the surface shows irregular, discontinuous vertical ridges which are of an orange-scarlet color on a ground which is of a very pale pinkish blush, except near the base, where it is white; there are also present scattered lamellose spines. The right valve is slightly convex, closely fimbriately lamellose, with occasional semitubular or lamellose spines, and of a general scarlet color, except near the anterior dorsal edge, where it is white. The interior of the right valve is vivid scarlet, except for a white anterior portion; the left valve is white inside with a narrow pale orange-scarlet stripe running from the umbonal region to the dorsal edge. The left valve has a rather short stout cardinal tooth which is grooved on the dorsal edge; the right valve has a somewhat longer, narrower cardinal. The ligament is posterior to the umbones, slender and curved. The margins of both valves are denticulate, and the affixed portion of the left valve shows crowded low radial grooves which terminate at the marginal crenulations.

The type, U.S.N.M. no. 472553, measures: Height, 11 mm.; length, 9.1 mm. It was collected on rocks to the south of the landing place on Clipperton Island.

CTENA CLIPPERTONENSIS, n. sp.

Plate 3, figs. 1-5

Shell white, broadly transversely oval to subcircular, moderately inflated, with the umbones prominent and anterior to the middle. The anterior end is slightly flattened, the posterior end broadly rounded. Lunule broadly ovate. The sculpture consists of a few, closely spaced, rounded radial riblets, crossed by crowded concentric rounded lamellae, which render the riblets nodulose; the radial and concentric sculpture is of equal strength and is only brought out clearly under magnification. The interior is white with the muscle scars well defined, the anterior one being suborbicular, the posterior one elongate

and subrescentic. The ligament is rather stout and lies in a deep groove which runs from the umbones halfway to the anterior end. The hinge of the left valve consists of a stout cardinal with a much smaller cardinal posterior to it and partly fused with the dorsal margin; there is a stout pointed posterior lateral and a smaller anterior lateral, both separated from the margin of the shell by more or less deep grooves. The right valve has a short cardinal with a smaller one anterior to it and partly fused to the ligamental nymph; the laterals are paired, the larger pointed one on the inside, and the smaller one near the margin, the two separated by a deep groove; the posterior laterals are somewhat stouter than the anterior ones.

The type, U.S.N.M. no. 472552, measures: Height, 13.7 mm.; length, 14.7 mm.; diameter, 7.8 mm. It was collected on Clipperton Island, on rocks to the south of the landing place.

This species differs from the Hawaiian *Ctena bella* Conrad and its Pacific analogs by being not as orbicular and by possessing far less conspicuous sculpture, both the radial and concentric sculpture being lower, more obscure, and of equal strength.

BRACHIDONTES MULTIFORMIS HOUSTONIUS, n. subsp.

Plate 4, figs. 4-7

Shell small, inflated, elongately triangular, the umbones anterior, terminal, the dorsal margin straight, slightly compressed, the ventral side broad and somewhat concave, the posterior portion broad and rounded. The color is deep blackish purple, except for the ventral side and for some distance posterior to the umbones, where the shell is yellowish olive green. The prodissoconch is a smooth, elongate, rectangular purplish shell. Following this the shell is ornamented with many fine radial riblets separated from each other by spaces as wide as the riblets, and crossed by finer concentric lirae, which render the ribs distinctly nodulose in the earlier half of the shell's growth; in the later half the spiral sculpture becomes more or less obscure and the radial ribs consequently lose their pronounced nodulousness. The interior is a purplish blue, except toward the ventral margin, where it is bluish white. At the anterior end are two purple tubercles, the upper one considerably larger than the lower one. The dorsal margin is strongly denticulate, the denticulations increasing in size toward the posterodorsal angle. The anterior part of the ventral margin, and the posterior margin are crenulated by the ends of the radial ribs. The ligament lies on a long, rather deeply situated shelf.

The type, U.S.N.M. no. 472858, measures: Height, 5.9 mm.; length, 8.9 mm.; diameter, 4.9 mm. It, and three other specimens,

U.S.N.M. no. 472580, were collected along the shore in Sullivan Bay, James Island, Galápagos Islands.

This is the finely sculptured race that inhabits the Galápagos Islands, the typical *Brachidontes multiformis* Carpenter from Panama being more coarsely sculptured.

Cedros Island, Lower California, Mexico.

Collections were made on the east side of the island, along the shore, north and south of the cannery, July 17, 1938.

Aplysia cedrosensis, new species
Littorina planaxis Philippi
Acmaea limatula Carpenter
Nuttalina fluxa Carpenter
Brachidontes stearnsianus Pilsbry and Raymond

Magdalena Bay, Lower California, Mexico.

The specimens were dredged inside the north point of the entrance to the bay, between Belcher Point and the anchorage in 10–15 fathoms on sandy, weedy bottom, July 18, 1938.

Conus magdalenensis, new species
Strombina gibberula Sowerby
Crucibulum spinosum Sowerby (young)
Crepidula arenata Broderip
Crepidula mummaria Gould
Lucapinella callomarginata Carpenter
Transnella puella Carpenter
Lacvicardium elenense Sowerby

Cape San Lucas, Lower California, Mexico.

The specimens were dredged off Punta Gorda in 6–10 fathoms, and in San Jose del Cabo Bay, July 19, 1938.

Fissurella rugosa Sowerby
Lyonsia (Phlyctiderma) lucasana, new species
Tivela delesserti Deshayes
Chama corrugata Broderip
Cardita affinis Sowerby
Septifer cumingii Dunker

Socorro Island, Mexico.

Collections were made along shore at the landing place in Braithwaite Bay, July 20, 1938.

Bulla punctulata A. Adams
Terebra roosevelti, new species

Olivella dama Mawe
Nitidella guttata Sowerby
Cerithium uncinatum Gmelin
Cerithium gemmatum Hinds
Cardita crassicosata Valenciennes? (young)
Tivela delesserti Deshayes (young)
Chione undatella Sowerby
Cardium pristipleura Dall (young)
Melina janus Carpenter

Clipperton Island, Pacific Ocean.

Collections were made on the rocks to the south of the landing place, July 21, 1938.

Opeas opanum Pfeiffer
Conus roosevelti, new species
Morula nodus Bory St. Vincent (young)
Magilus robillardii Lienard
Drupa vicina Linné
Hipponix fimbriata, new species
Hipponix barbata Sowerby
Littorina schmitti, new species
Nerita plicata Linné
Ctena clippertonensis, new species
Chama rubropicta, new species
Acar species? (young)

James Island, Galapagos Islands.

Collections were made along shore and in tide pools in Sullivan Bay, July 24, 1938.

Onchidella steindachneri Semper
Conus nux Broderip
Persicula phrygia Sowerby
Alvania duncani Bartsch
Rissoina species? (young)
Engina species?
Engina carleyi, new species
Engina panamensis Bartsch
Latirus tuberculatus Broderip
Cantharus ringens Wood
Cantharus sanguinolentus Duclos
Coralliophila costata Blainville? (young)
Coralliophila parva E. A. Smith
Purpura columellaris Lamarck
Purpura patula Linné
Purpura crassa Blainville
Vermetus species (fragment)
Cerithium adustum Kiener

Pcasiella roosevelti, new species
Hipponix barbata Sowerby
Cheilea corrugata cepacea Broderip
Melina quadrangularis Reeve
Brachidontes multiformis houstonius, new subspecies
Septifer cumingianus Dunker
Barbatia reczeana d'Orbigny

Narborough Island, Galápagos Islands.

Collections were made along the shore, July 25, 1938.

Nitidella guttata baileyi, new subspecies
Columbella fuscata Sowerby
Columbella castanea Sowerby
Cerithium adustum Kiener

Albemarle Island, Galápagos Islands.

Shells taken from the anchor chain in Tagus Cove, in 50 fathoms, July 26, 1938.

Fusinus dupetitthouarsi Kiener (young)

Albemarle Island, Galápagos Islands.

Collections were made in Elizabeth Bay at the south end of the black beach, north of the mangroves, north of the two "red" islands, July 26, 1938.

Onchidella steindachneri Semper
Bulla sp. (broken)
Columbella castanea Sowerby
Nitidella guttata baileyi, new subspecies
Purpura columellaris Lamarck
Purpura patula Linné
Tegula (Omphalius) cooksoni E. A. Smith
Tegula (Chlorostoma) snodgrassi Pilsbry and Vanatta
Tegula (Chlorostoma) barkeri, new species
Chiton (Radsia) sulcatus Wood

Charles Island, Galápagos Islands.

The specimens were collected by the crew along the shore of Post Office Bay, July 27, 1938.

Bulimulus (Nacsiotus) ustulatus Sowerby
Bulimulus (Nacsiotus) nux Broderip
Conus diadema Sowerby
Conus purpurascens Broderip
Purpura patula Linné
Chiton (Radsia) goodallii Broderip

Cocos Island, Costa Rica.

Bottom sample, Chatham Bay, August 3, 1938.

Marginella minor C. B. Adams
Lithophaga attenuata Deshayes

Old Providence Island.

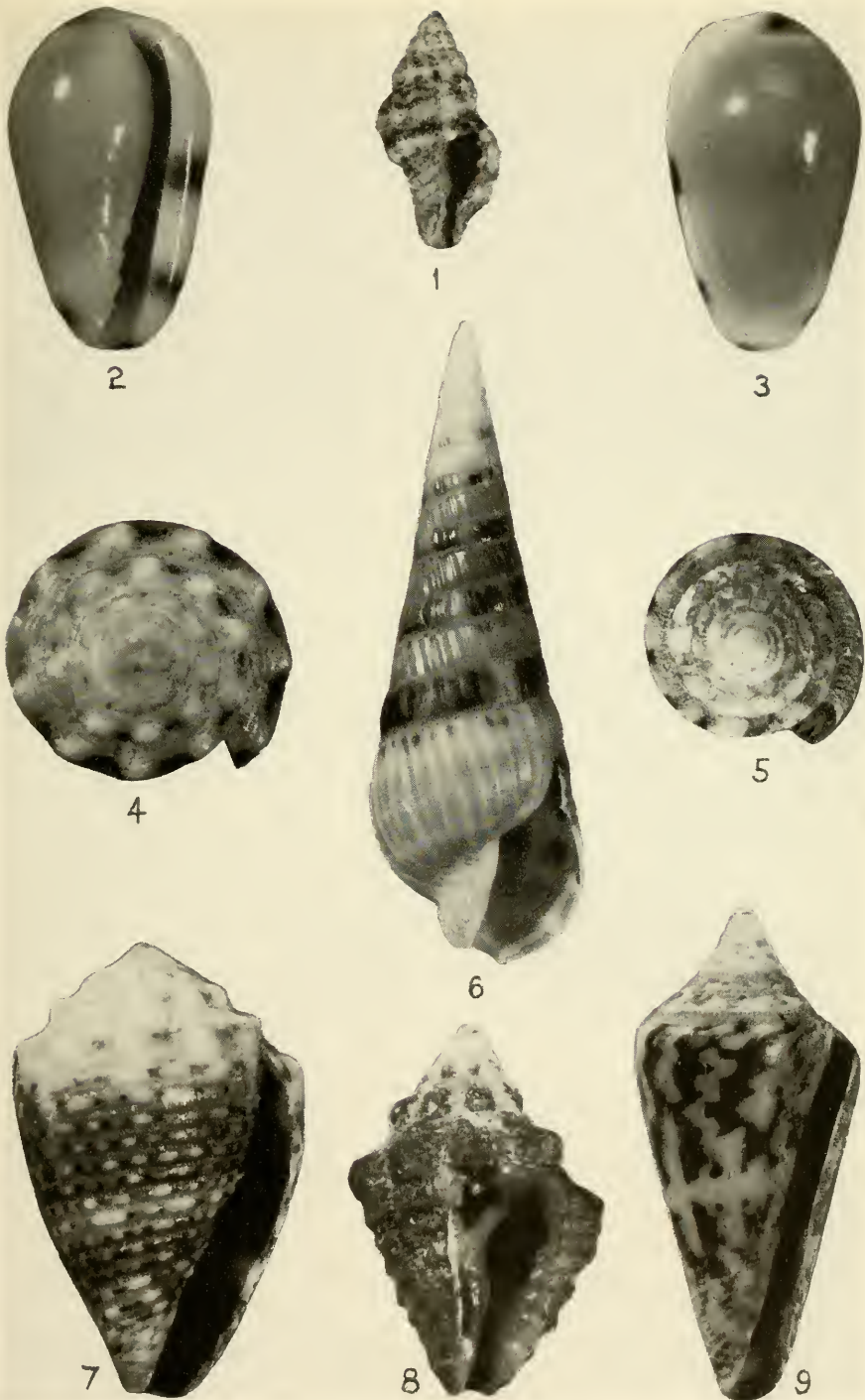
The specimens were dredged in 7-8 fathoms, August 6, 1938.

Columbella mercatoria Linné
Murex (Phyllonotus) pomum Gmelin
Strombus gigas Linné (young)
Modulus modulus Linné
Cerithium algicola C. B. Adams
Cerithium literatum Born
Alaba terraricosa C. B. Adams
Tegula (Omphalius) fasciata Born
Astraca brevispina Lamarck
Astraea longispina Lamarck
Ctena orbiculata Montagu (young)
Trachycardium muricatum Linné
Navicula zebra Swainson (young)

Old Providence Island, Caribbean Sea.

Shore, reef, and tide-pool collecting, August 6, 1938

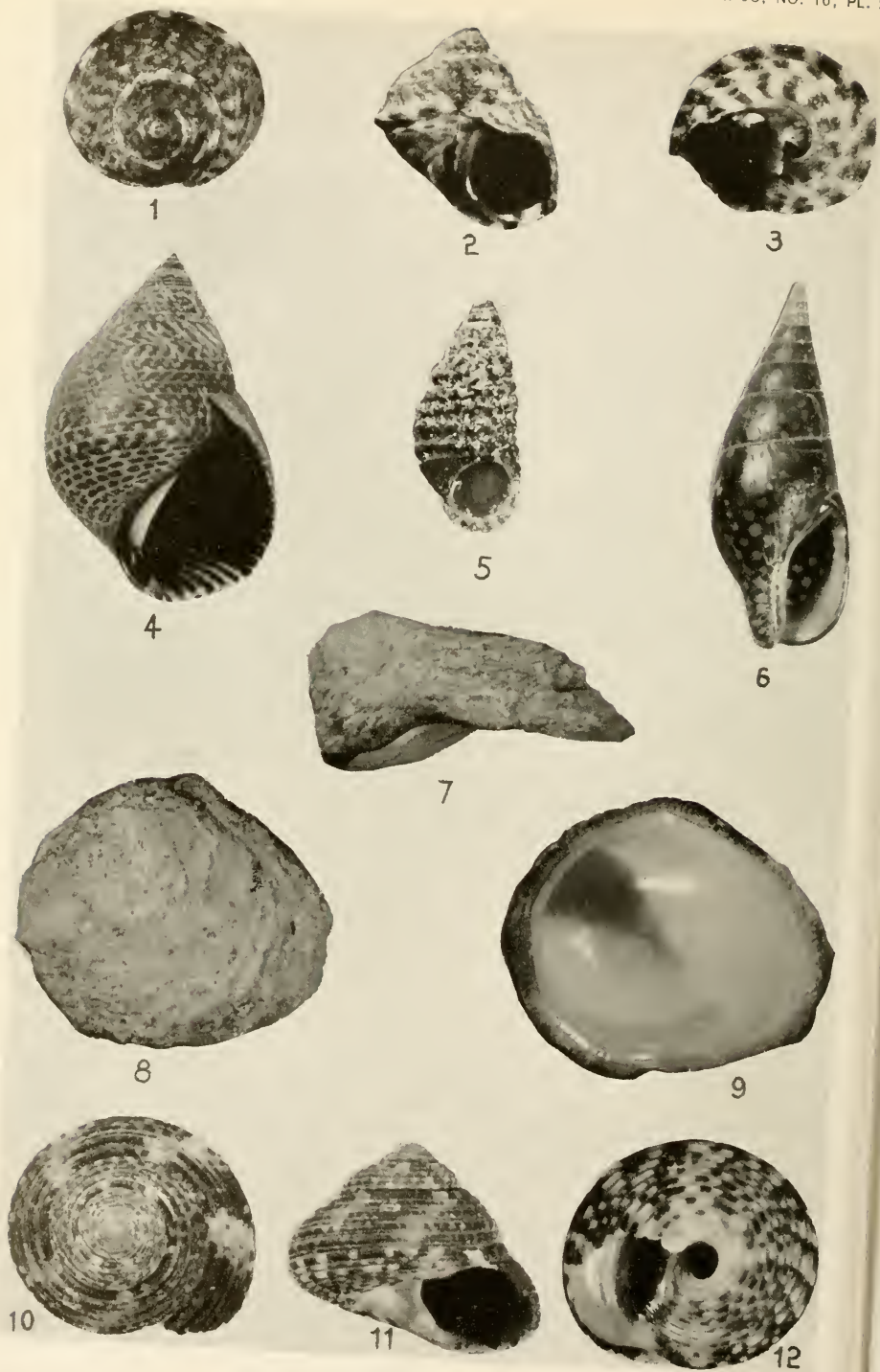
Marginella (Volvaria) avena Kiener
Marginella roosevelti, new species
Anachis pulchella Blainville
Columbella mercatoria Linné
Nassarius consensa Ravenel
Tritonalia (Ocinebrina) caribbaca, new species
Purpura deltoidea Lamarck
Strombus costatus Gmelin
Strombus gigas Linné
Alvania nigrescens, new species
Rissoina dubiosa C. B. Adams
Hipponix antiquata Linné
Cerithium minimum Gmelin
Cerithium algicola C. B. Adams
Tegula (Omphalius) fasciata Born
Tegula (Chlorostoma) indusii Gmelin
Astrea longispina Lamarck
Livona pica Linné
Chama macrophylla Gmelin
Pinna carnea Gmelin
Isognomon listeri Hanley
Acar conradiana adamsi E. A. Smith
Navicula umbonata Lamarck (young)
Barbatia barbata Linné



NEW SPECIES OF MOLLUSKS

- 1, *Tritonalia (Ocinebrina) caribbaca*, $\times 4$.
 2-3, *Marginella roosevelti*, $\times 2$.
 4, *Conus roosevelti*, $\times 4$.
 5, *Conus magdalencensis*, $\times 2$.

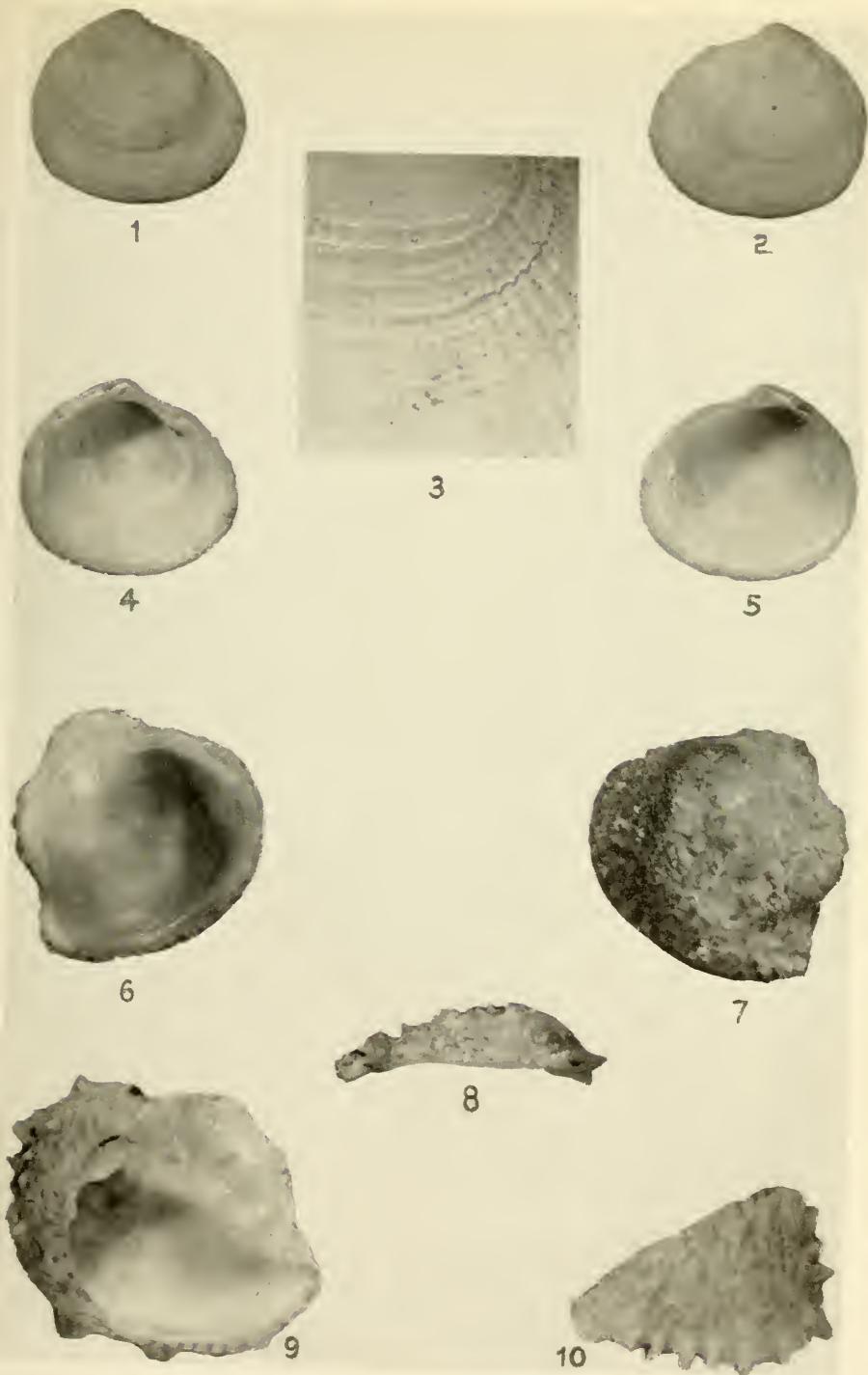
- 6, *Terebra roosevelti*, $\times 2$.
 7, *Conus roosevelti*, $\times 4$.
 8, *Engina curlyi*, $\times 4$.
 9, *Conus magdalencensis*, $\times 2$.



NEW SPECIES OF MOLLUSKS

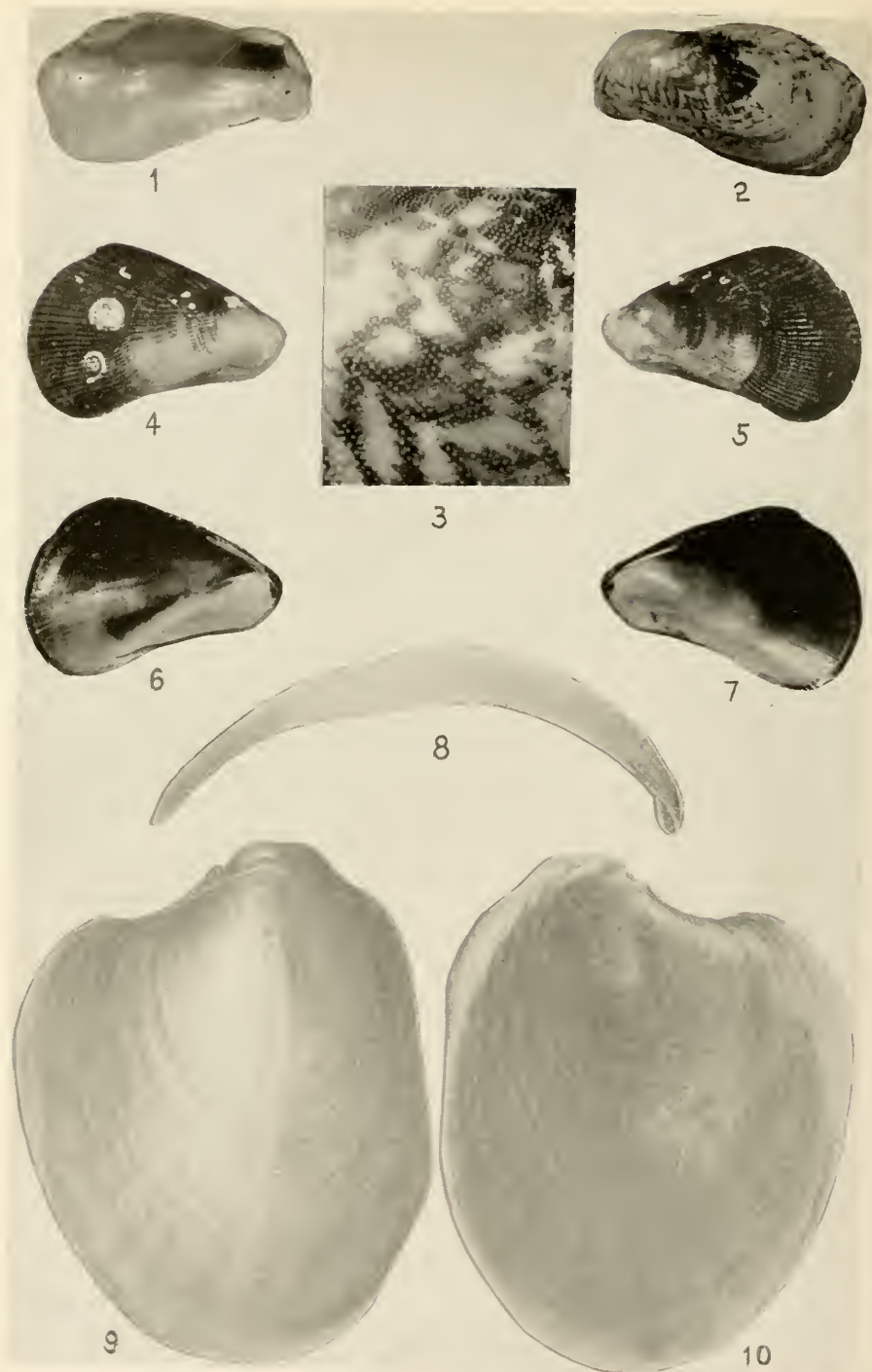
1-3, *Peasiella roosevelti*, $\times 10$.
 4, *Littorina schmitti*, $\times 4$.
 5, *Alvania nigrescens*, $\times 10$.

6, *Nitidella guttata baileyi*, $\times 4$.
 7-9, *Hipponix fimbriata*, $\times 4$.
 10-12, *Tegula (Chlorostoma) barkeri*, $\times 4$.



NEW SPECIES OF MOLLUSKS

- 1-2, 4-5, *Ctena clippertonensis*, $\times 2$.
 3, *Ctena clippertonensis*, detail of sculpture, $\times 10$.
 6-10, *Chama rubropicta*, $\times 4$.



NEW SPECIES OF MOLLUSKS

- 1-2, *Lyonsia* (*Phlyctiderma*) *lucasana*, $\times 2$.
 3, *Lyonsia* (*Phlyctiderma*) *lucasana*, detail of sculpture, $\times 10$.
 4-7, *Brachidontes* *multiformis houstonius*, n. subsp., $\times 4$.
 8-10, *Aplysia cedrosensis*, shell, natural size.



NEW SPECIES OF MOLLUSKS

Aplysia cedrosensis, natural size.