

## LITTORAL MARINE MOLLUSKS OF CHINCOTEAGUE ISLAND, VIRGINIA.

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### INTRODUCTION.

During July, 1913, the writers made a short trip to Chincoteague, on the Atlantic shore of Accomac County, Virginia, for the purpose of ascertaining the local marine fauna. Owing to the inaccessibility of this strip of coast, generally known as the "Eastern Shore," collectors seem to have neglected it. At all events, there appear to be but few records and no critical lists published of the shallow water shells from any locality between Cape May, New Jersey, and Beaufort, North Carolina. Our chief desire was to find out of just what elements the molluscan fauna consisted—to see how many, if any, species of southern range lapped over from Hatteras, and what northern species still persisted in this faunal area. We were happy in our somewhat haphazard choice of a locality for we encountered at Chincoteague a greater variety of stations than likely can be found at any other one point along this section of the coast. There are, first, the interior sounds of very considerable extent. These are very shallow (4 to 12 feet), more or less thickly sown with oyster beds and with patches of eel grass, the bottom ranging from hard sand through varying degrees of hard clay to soft mud. Second, we found the unusual feature of a bight or protected cove formed by the southward drift at the southern end of Assateague Island, protected from heavy wave action by a long, curved sand spit. This bight has a soft mud bottom, with a temperature possibly 8° less than that of the open sea. The mud which we brought up with the dredge seemed almost icy to the touch. This condition is probably produced by cold springs seeping through the floor of the bight. This colder water of the bight yielded to our dredge *Yoldia limatula*, large and fine, and *Nucula proxima*, whereas just around the protective spit of sand, on the ocean side, we found dead Terebras of two species, some young *Busycon perversa* and a valve of *Cardium robustum*, a somewhat startling association of species. Then, lastly,

we had the open sea, which here presumably differs in no manner from other open-sea stations along the 200 miles or more of this coast. The bottom drops off very gradually to the edge of the continental shelf, some 75 or 100 miles out.

The open-sea stations we occupied were, as might be expected, very poor. The smooth, hard sand bottom seemed almost barren of life, and the softer patches that we explored contained only many dead shells—mostly small bivalves. We should admit, however, that our work in the open sea was scarcely a good test, although we made probably 20 hauls from the shore out some 4 or 5 miles, but the chart soundings indicated some more promising areas of pebbly bottom a few miles beyond what we considered the safety zone for a small motor boat.

The inner waters of the sound we found unexpectedly rich in molluscan life, the species, for the most part, not having been taken outside or in the bight.

We spent but two full working days, and were fortunate in securing an excellent boat and obliging skipper. The material has been identified with great care, all the critical species having been subjected to the most rigorous investigation. The following is the list of our catch:

#### LIST OF SPECIES COLLECTED.

OSTREA VIRGINICA Gmelin.

ANOMIA GLABRA Verrill.

PECTEN GIBBUS IRRADIANS Lamarck.

MYTILUS EDULIS Linnaeus.

SCAPHARCA TRANSVERSA Say.

The typical as well as a varietal form occurs.

SCAPHARCA CAMPECHENSIS PEXATA Say.

Some specimens referable to the form *holmesii* Kurtz.

ARCA (NOETIA) PONDEROSA Say.

NUCULA PROXIMA Say.

Assateague Bight only.

YOLDIA LIMATULA Say.

Assateague Bight only. These specimens all show a tendency to turn up the pointed end, giving a slightly concave dorsal line from the beak to the anterior tip.

LEDA ACUTA Conrad.

VENERICARDIA GRANULOSA Say = CARDITA BOREALIS Authors.

VENERICARDIA (PLEUROMERIS) TRIDENTATA Say.

ASTARTE CASTANEA Say.

CRASSATELLA (ERIPHILA) LUNULATA Conrad.

DIVARICELLA QUADRISULCATA Orbnigny.

PHACOIDES AURANTIA Deshayes.

One valve on beach (adventitious?).

- CARDIUM ROBUSTUM Solander—CARDIUM MAGNUM Born.  
 LÆVICARDIUM MORTONI Conrad.  
 VENUS MERCENARIA Linnaeus.  
 CHIONE CANCELLATA Linnaeus.  
 AGRIOPOMA CONVEXA Say. CYTHEREA CONVEXA Say. CALLOCARDIA MORRHUANA  
 Lindsay.  
 PETRICOLA PHOLADIFORMIS Lamarck.  
 DONAX VARIABILIS Say.  
 TAGELUS GIBBUS Spengler.  
 TAGELUS DIVISUS Spengler.  
 ANGULUS TENERA Say.  
 PSAMMACOMA TENTA Say.

Two fairly distinct forms of this occur which for the present may be called the southern and northern varieties.

- ABRA AEQUALIS Say.  
 SPISULA (HEMIMACTRA) SOLIDISSIMA Dillwyn.  
 SPISULA SOLIDISSIMA SIMILIS Say.  
 SPISULA SOLIDISSIMA RAVENELI Conrad.  
 MULINIA LATERALIS Say.  
 LABIOSA (RAETA) CANALICULATA Say.  
 LYONSIA HYALINA Conrad.  
 CORBULA CONTRACTA Say.  
 MYA ARENARIA Linnaeus.  
 ENSIS MINOR Dall.  
 PHOLAS (BARNEA) COSTATUS Linnaeus.  
 TORNATINA CANALICULATA Say.  
 CYLICHNELLA BIPPLICATA H. C. Lee.

Not *C. bidentata* Orbigny, generally accepted as synonymous.

- TEREBRA CONCAVA Say.  
 TEREBRA DISLOCATA Say.  
 CLATHURELLA JEWETTI Stearns (typical).  
 MANGILIA, CERINA Kurtz and Stimpson.  
 MANGILIA, species.

A single specimen of what will probably prove to be a new species was found on the beach at Assateague Bight. This shell is too worn to be properly described.

- MARGINELLA APICINA BOREALIS Verrill.  
 FULGUR PERVERSA Linnaeus.

Very young specimens only.

- FULGUR CARICA Linnaeus.  
 SYCOTYPUS CANALICULATUS Say.  
 TRITIA TRIVITTATA Say.  
 NASSA OBSOLETA Say.  
 NASSA VIBEX Say.

Exceptionally large race.

- COLUMBELLA (ANACHIS) AVARA Say (typical).

Large, solid, dingy colored, with 10 to 12 prominent ribs.

- COLUMBELLA (ASTYRIS) LUNATA Say.

Specimens from the same haul of the dredge vary greatly in color patterns from light with dark maculations to dark with light maculations to solid reddish brown; the latter is suggestive of Stimpson's

*C. dissimilis*. It seems useless to attempt any divisions into sub-species based upon color characters only.

**EUPLEURA CAUDATA** Say.

Exceptionally large.

**UROSALPINX CINEREUS** Say.

The enormous size of our specimens taken from the oyster beds at first led us to suspect a new species. Say's type, however, came from the Maryland shore and is much larger than the shells of this species from either north or south of this region. These, then, are probably typical *cinereus* and specimens from Long Island as well as those from Hatteras south belong to a much smaller race. Some of our shells measure 51.5 mm. long by 26.4 diameter, while the general average is not very much less. A few specimens (dead) dredged in the open sea are of the smaller race generally known to collectors (20.8 mm. long by 11.4 mm.).

**EPITONIUM VIRGINICUM**, new species.

Plate 13, fig. 1.

Shell very small, broadly conic, white. Nuclear whorls 4, well rounded, polished, separated by a strongly impressed suture. Post-nuclear whorls inflated, marked by very slender lamellar, retractive axial ribs, of which 36 occur upon the first, 48 upon the second, and 60 upon the last turn. The spaces between the axial ribs are a little more than twice as wide as the ribs, and are crossed by very fine spiral threads which run up on the sides of the ribs but do not cross their summit. Of these spiral threads about 20 occur between the sutures on the middle whorl. These threads are about one-half as wide as the spaces that separate them, and are a little more closely spaced at the summit than on the middle of the whorls. Suture strongly constricted. Periphery of the last whorl well rounded. Base well rounded, marked by the continuations of the axial ribs, which extend undiminished to the umbilical region, where they approach each other to such an extent that they become almost fused. Aperture very broadly and very regularly oval; outer lip thin, showing the external sculpture within; inner lip appressed to the body whorl, evenly curved; parietal wall covered with a thick yellowish callus.

The type, Cat. No. 252568, U.S.N.M., was dredged at Chincoteague, Virginia. It has a trifle more than three post-nuclear whorls, and measures: Length, 3 mm.; diameter, 1½ mm.

This little gem appears to be a full-grown individual, judging by the slight thickening of the lip.

**EPITONIUM SAYANA** Dall,

**EPITONIUM LINEATA** Say,

**EPITONIUM MULTISTRIATA** Say,

**MELANELLA OLEACEA** Kurtz and Stimpson—"EULIMA OLEACEA" Kurtz and Stimpson.

**TURBONILLA (PYRGISCUS) POWHATANI, new species.**

Plate 13, fig. 5.

Shell broadly conic, yellowish white. Nuclear whorls decollated. Post-nuclear whorls moderately well rounded, feebly shouldered at the summit, marked by strong, almost vertical axial ribs, of which 22 occur upon the third, 24 upon the fourth, 26 upon the fifth and seventh, and 28 upon the penultimate turn. These ribs are almost as wide as the spaces that separate them. Intercostal spaces crossed by 7 equal and equally spaced, strongly incised spiral lines. Suture strongly marked. Periphery of the last whorl well rounded. Base short, well rounded, marked by the continuations of the axial ribs, which extend to the umbilical chink, and 5 or 6 feebly incised, irregularly spaced spiral lines. Aperture oval; posterior angle acute; outer lip thin, showing the external sculpture within by transmitted light; inner lip somewhat twisted, slightly revolute; parietal wall covered with a moderately thick callus.

The type, Cat. No. 252574, U.S.N.M., was dredged at Chincoteague, Virginia. It has  $7\frac{1}{2}$  post-nuclear whorls, and measures: Length, 5 mm.; diameter, 1.8 mm.

**TURBONILLA (PYRGISCUS) POCAHONTASAE, new species.**

Plate 14, fig. 4.

Shell broadly conic, bluish white. Nuclear whorls  $2\frac{1}{2}$ , forming a depressed helicoid spire, the axis of which is almost at right angles to the axis of the succeeding turns, in the first of which it is partly immersed. Post-nuclear whorls very slightly rounded, moderately shouldered at the summit, marked by strong, slightly protractive, broad, well rounded, somewhat curved axial ribs, of which 18 occur upon all the whorls. The intercostal spaces are about twice as broad as the axial ribs. They are well rounded and shallow. They are marked by 5 broad spiral grooves and a number of fine incised lines. The space between the summit and the first broad groove is about twice as wide as that between any of the grooves. This space is crossed by 6 fine incised spiral lines, which are not quite equally spaced, the second and third and the fourth and fifth being a little closer to each other than the others. The space between the first broad groove and the second is crossed by a strongly incised fine spiral line, and the space between the third and fourth is likewise crossed by a fine incised line. Suture well impressed. Periphery of the last whorl feebly angulated, marking the termination of the axial ribs. Base very short, well rounded, marked by 19 well-incised fine spiral lines, which grow successively closer spaced from the periphery to the umbilical area. Aperture subquadrate; posterior angle obtuse; outer lip thin, showing the external sculpture within;

inner lip almost vertical, slightly revolute; parietal wall glazed with a thin callus.

The type, Cat. No. 252575 U.S.N.M., was dredged at Chincoteague, Virginia. It has 10 post-nuclear whorls, and measures: Length, 5.7 mm.; diameter, 1.8 mm.

**TURBONILLA (PYRGISCUS) TOYATANI, new species.**

Plate 14, fig. 5.

Shell broadly conic, wax yellow. Nuclear whorls decollated. Postnuclear whorls appressed at the summit, marked by almost vertical axial ribs, which are about two-thirds as broad as the spaces that separate them. Of these ribs 22 occur upon all but the last turn, which has 24. Intercostal spaces marked by 6 equal and equally spaced, rather broad, deeply incised spiral lines, the first of which is about  $1\frac{1}{2}$  times as far anterior to the summit of the whorls as it is separated from the second, and three very fine lines. Two of these fine spiral lines occur between the summit and the first deeply incised line, while the third occurs halfway between the first and second deep spirals. Suture well marked. Periphery of the last whorl feebly angulated, marking the termination of the axial ribs, which become evanescent here. Base moderately long, well rounded, marked by 13 incised spiral lines of somewhat varying strength and irregular distribution. The space between the first of these lines and the first line of pits on the spire is wider than any of the spaces between the strongly incised lines of the spire. Aperture ovate; posterior angle acute; outer lip thin, showing the external sculpture within; inner lip oblique, slightly curved, and somewhat reflected; parietal wall covered with a thin callus.

The type, Cat. No. 252572, U.S.N.M., was dredged at Chincoteague, Virginia. It has 10 post-nuclear whorls, and measures: Length, 5.3 mm.; diameter, 1.5 mm.

**TURBONILLA (PYRGISCUS) VIRGINICA, new species.**

Plate 13, fig. 4.

Shell elongate-conic, wax yellow with a darker golden yellow band, which occupies the space bounded by the third and fourth incised spiral grooves. Nuclear whorls decollated, the 3 succeeding badly worn, the remainder well rounded, ornamented with retractive, rounded, moderately strong, axial ribs, which are about two-thirds as broad as the spaces that separate them. Of these ribs 22 occur upon the fourth and fifth, 26 upon the sixth, and 28 upon the penultimate whorl. In addition to the axial sculpture, the whorls are marked by 5 equal and almost equally spaced, strongly incised spiral lines, the first one of which is at a little greater distance below the summit than the space which separates the first and second

incised lines. The space between the summit and the first incised line is crossed by 3 very fine equal and equally spaced spiral striations. The incised lines pass up on the sides of the ribs but do not cross the summit. In addition to the above sculpture, the entire surface of the shell is marked with microscopic lines of growth and spiral striations. Suture strongly impressed. Periphery of the last whorl well rounded. Base moderately long, well rounded, marked by the continuations of the axial ribs, which disappear shortly after passing the periphery, and 15 incised spiral lines of somewhat varying width. There is a plain band between the fifth spiral line of the spire and the first incised line of the base a little broader than the band at the summit. Aperture ovate; posterior angle acute; outer lip thin, showing the external sculpture within; inner lip thin, somewhat sigmoid, and slightly revolute; parietal wall covered with a thin callus.

The type, Cat. No. 252573, U.S.N.M., was dredged at Chincoteague, Virginia. It has 8 post-nuclear whorls, having lost the nucleus and probably the first post-nuclear turn, and measures: Length, 4.2 mm.; diameter, 1.4 mm.

Another specimen, in not quite as good condition as the type, has 9 post-nuclear whorls, and measures: Length, 6.2 mm.; diameter, 1.7 mm.

**TURBONILLA (PYRGISCUS), species?**

A specimen apparently of an undescribed species, but too poor to serve for description.

**TURBONILLA (PYRGISCUS), species?**

The above remarks apply also here.

**ODOSTOMIA (CHRYSALIDA) TOYATANI, new species.**

Plate 13, fig. 2.

Shell small, elongate-ovate, bluish white. Nuclear whorls obliquely immersed in the first of the succeeding turns, above which only half of the last volution projects. Post-nuclear whorls feebly rounded, shouldered at the summit, marked by somewhat retractive axial ribs, which are about as broad as the spaces that separate them. Of these ribs, 20 occur upon the first, 22 upon the second and third, and 24 upon the last turn. In addition to the axial ribs, the whorls are crossed by 4 spiral cords which equal the axial ribs in strength and render the junction of the axial ribs and the spiral cords nodulous. The first of these cords is at the summit, and the fourth bounds the peripheral sulcus. The spaces inclosed between the axial ribs and the spiral cords are strongly impressed, rectangular pits, having the long axis parallel with the spiral sculpture. Suture channeled. Periphery of the last whorl marked by a strong sulcus. Base moderately long, slightly umbilicated, marked by 9 spiral cords, which diminish regu-

larly in size from the peripheral sulcus to the umbilical region. Aperture oval; posterior angle acute; outer lip thin, showing the external sculpture within; inner lip curved and somewhat revolute, adnate posteriorly to the base; parietal wall glazed with a moderately thick callus.

The two specimens of this species, Cat. No. 252578, U.S.N.M., were dredged at Chincoteague Bay, Virginia. One of these, the type, has 5 postnuclear whorls, and measure: Length, 2.2 mm.; diameter, 1 mm.

*ODOSTOMIA (CHRYSALLIDA)*, species?

A specimen which we are unable to refer to any of the known forms, but which is too poor to serve as type for a new species.

*ODOSTOMIA (MENESTHO) IMPRESSA* Say.

Two specimens.

*ODOSTOMIA (EVALEA) VIRGINICA*, new species.

Plate 13, fig. 3.

Shell small, elongate-conic, bluish white, with a narrow pale yellow band a little anterior to the summit. Nuclear whorls decidedly obliquely immersed in the first of the succeeding turns, above which the tilted edge of the last volution only projects. Post-nuclear whorls moderately well rounded, weakly shouldered at the summit, marked by decidedly retractive lines of growth and exceedingly fine spiral striations. A slender spiral thread is situated a little posterior to the suture, forming a slight angulation from which the whorls bend a little more abruptly to the inferior suture. Suture strongly impressed, base of the last whorl moderately long, somewhat inflated, strongly rounded and openly umbilicated. Aperture oval; posterior angle obtuse; outer lip thin; inner lip decidedly oblique, curved and somewhat revolute; parietal wall glazed with a thin callus.

The type and 4 specimens were dredged at Chincoteague, Virginia.

The type, Cat. No. 252576, U.S.N.M., has 6 post-nuclear whorls and measures: Length, 2.7 mm.; diameter, 1.2 mm.

*ODOSTOMIA (EVALEA) POCAHONTASAE*, new species.

Plate 13, fig. 6.

Shell small, quite regularly conic, semitranslucent, bluish white, with a narrow pale yellow band a little anterior to the summit. Nuclear whorls obliquely immersed in the first of the succeeding turns, above which the titled edge of the last volution only projects. Post-nuclear whorls flattened, feebly shouldered at the summit, the sides of the succeeding turns forming a perfectly straight line, marked by exceedingly fine protractive lines of growth, and microscopic spiral striations only. Suture rendered slightly channeled by the weak shoulder at the summit of the whorls. Periphery of the last whorl decidedly angulated. Base short, well rounded, narrowly umbilicated, marked by lines of growth and fine spiral striations. Aperture



ovate; posterior angle acute; outer lip thin; inner lip slightly curved and somewhat revolute, provided with a strong, oblique fold at its posterior extremity; parietal wall glazed with a thin callus.

The type, Cat. No. 252577, U.S.N.M., has 7 post-nuclear whorls and measures: Length, 2.4 mm.; diameter, 1 mm., and it was dredged at Chincoteague Bay, Virginia.

*TRIPHORIS PYRRHA*, new species.

Plate 14, fig. 1.

Shell broadly conic, white. Nuclear whorls 4, the first half of the first turn smooth, the rest marked by 2 spiral cords and numerous very fine axial threads. Post-nuclear whorls well rounded, the first 4 marked with 2 tuberculated spiral cords, of which one is immediately below the summit and the other a little posterior to the periphery. Beginning with the fifth whorl a third spiral thread makes its appearance between the two, and on the last turn attains a size equal to the one posterior to the periphery. In addition to the spiral cords, weak axial riblets are present, which render the spiral cords tuberculated, 16 tubercles appearing on the first and second whorl, 18 upon the third and fourth, 20 upon the remaining. Suture somewhat channeled. Periphery of the last whorl marked by a strong spiral cord, which is separated from the supraperipheral spiral cord by a sulcus as wide as that which separates the supraperipheral cord from the median. This sulcus is crossed by the continuations of the axial riblets, which stop at its posterior margin. Base moderately produced, marked by two spiral cords, one at the insertion of the columella and the other halfway between this and the peripheral cord. Aperture irregular, decidedly channeled anteriorly (outer lip fractured, thin); inner lip appressed to the base, and fused with the heavy callus which covers the parietal wall and renders the peritreme complete.

The type, Cat. No. 252571, U.S.N.M., was dredged at Chincoteague. It has 7 post-nuclear whorls, and measures: Length, 2.7 mm.; diameter, 0.9 mm.

*TRIPHORIS NIGROCINCTA* C. B. Adams.

*DIASTOMA VIRGINICA*, new species.

Plate 14, fig. 3.

Shell elongate-conic. The early whorls are chestnut brown, the succeeding turns flesh colored, mottled and variegated with brown; in some specimens the chestnut brown extends over the entire shell. Nuclear whorls two and one-half, well rounded, smooth. The first 3 post-nuclear whorls rather well rounded; the succeeding turns less so, while the later ones are almost flat. The whorls are marked with

poorly developed axial ribs which are almost obsolete on the early turns, where they are merely indicated. Of these ribs, 14 occur upon the third and fourth, 16 upon the fifth, 18 upon the sixth, and 20 upon the remaining turns. The intercostal spaces are fully twice as broad as the ribs, and are crossed by 4 low spiral bands between the sutures, which are a little wider than the spaces that separate them, rendering the axial ribs feebly nodulous at the junction with the ribs. On the last 2 turns the second spiral cord below the summit splits, thus forming 5 spiral cords on these whorls. Beginning with the fifth whorl the cord anterior to the periphery makes its appearance in the suture as a small spiral band, becoming more and more exposed in the succeeding turns. The spaces inclosed between the the axial ribs and the spiral cords are shallow, impressed, squarish pits on the middle whorls, and elongate pits having their long diameter parallel with the spiral sculpture, on the early turns and the last 2 whorls. Suture moderately impressed. Periphery of the last whorl well rounded. Base moderately long, well rounded, marked by the feeble continuations of the axial ribs and 9 spiral cords, which grow successively narrower from the periphery to the umbilical area. These cords are separated by grooves about half as wide as the cords. A strong varix, forming a decided callus, is present diametrically opposite the aperture on the last turn. The spiral cords, preceding and extending partly upon this callus, are tinged with dark chestnut brown. Aperture decidedly patulus, ear shaped, slightly channeled posteriorly and decidedly anteriorly; outer lip thin, decidedly expanded, evenly rounded, flesh colored with a checkerboard pattern of brown, when viewed by transmitted light, which is formed by squarish brown spots marking the intercostal portion of the spiral cords; inner lip reflected, somewhat sigmoid; parietal wall covered by a thick callus, rendering the peritreme complete.

The type, Cat. No. 252569, U.S.N.M., and about 2,000 specimens were collected on the eel grass at Chincoteague Bay. The type has 11 whorls, and measures: Length, 8.3 mm.; diameter at the aperture, 3 mm.; and 2.2 mm. at the antepenultimate whorl.

There are several species of *Diastoma* tied up under the names of *Bittium nigrum* Totten, and *Diastoma varium* Pfeiffer. It would be out of place in the present paper to discuss this subject at length, as it is to be dealt with shortly in a forthcoming monograph upon these small shells by Dr. Paul Bartsch, in which the synonymy as well as the systematic relationship of these shells will be completely discussed. The present species is more nearly related to *Diastoma varium* Pfeiffer, a truly West Indian species, than it is to the mollusk which has been known to us under that name from the shores of the South Atlantic States.

## CERITHIOPSIS (CERITHIOPSIS) VIRGINICA, new species.

Plate 14, fig. 2.

Shell minute, dark chestnut brown, except the apex, which is yellowish white. Nuclear whorls 4, well rounded, smooth. Post-nuclear whorls well rounded, marked by strong axial ribs, of which 16 occur upon all the whorls but the last, which has 18. In addition to the axial ribs, the whorls are marked by 3 strong spiral cords of which the first, which is a little less strong than the rest, is at the summit. The junctions of the axial ribs and the spiral cords form strong tubercles, which are slightly elongate on the first two cords below the summit, while on the last cord they are truncated posteriorly, sloping gently anteriorly. The spaces inclosed between the spiral cords and the axial ribs are rectangular pits on all the whorls but the last; on which they are well rounded. Suture strongly constricted. Periphery of the last whorl marked by a strong somewhat flattened keel, to which the axial ribs extend. Base moderately produced, marked by two spiral cords, one at the insertion of the columella, and another halfway between this and the peripheral cord. Aperture irregular, decidedly channeled anteriorly; posterior angle acute; outer lip thin, showing the external sculpture within.

The type, Cat. No. 252570, U.S.N.M., was dredged on eel grass in the Bay at Chincoteague, Virginia. It has 6 post-nuclear whorls, and measures: Length, 2.9 mm.; diameter, 1 mm.

LITTORINA IRRORATA Say.

CREPIDULA FORNICATA Linnaeus.

CREPIDULA CONVEXA Say.

CREPIDULA PLANA Say.

NATICA PUSILLA Say.

POLYNICES HEROS Say.

POLYNICES DUPLICATA Say.

SIGARETUS PERSPECTIVUS Say.

FISSURELLA ALTERNATA Say.

## EXPLANATION OF PLATES.

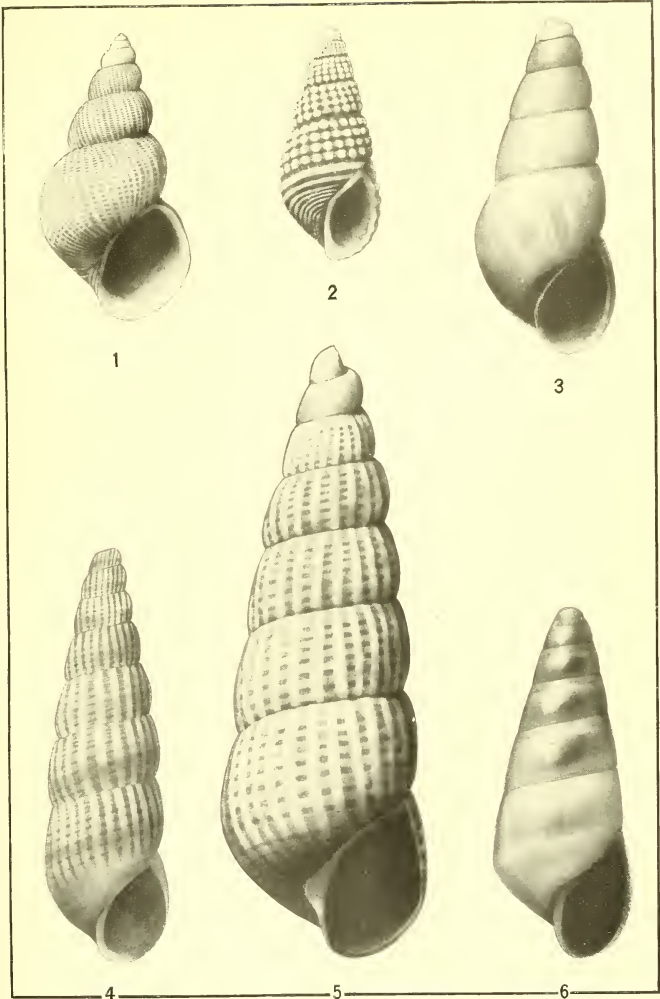
## PLATE 13.

- Fig. 1. *Epitonium virginicum*, new species, type 3 mm.
2. *Odostomia (Chrysallida) toyatani*, new species, type 2.2 mm.
3. *Odostomia (Evalca) virginica*, new species, type 2.7 mm.
4. *Turbonilla (Pyrgiscus) virginica*, new species, type 4.2 mm.
5. *Turbonilla (Pyrgiscus) powhatani*, new species, type 5 mm.
6. *Odostomia (Evalca) pocahontasae*, new species, type 2.4 mm.

## PLATE 14.

- Fig. 1. *Triphoris pyrrrha*, new species, type 2.7 mm.
2. *Cerithiopsis (Cerithiopsis) virginica*, new species, type 2.9 mm.
3. *Diastoma virginica*, new species, type 8.3 mm.
4. *Turbonilla (Pyrgiscus) pocahontasae*, new species, type 5.7 mm.
5. *Turbonilla (Pyrgiscus) toyatani*, new species, type 5.3 mm.





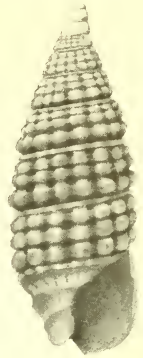
MOLLUSKS OF CHINCOTEAGUE, VA.

FOR EXPLANATION OF PLATE SEE PAGE 421.

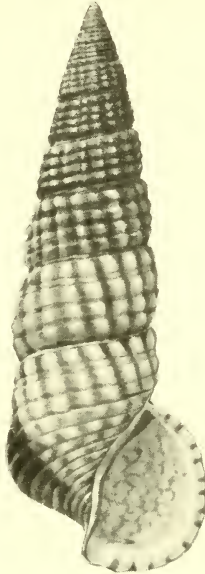




1



2



3



4



5

MOLLUSKS OF CHINCOTEAGUE, VA.

FOR EXPLANATION OF PLATE SEE PAGE 421.

