SMITHSONIAN MISCELLANEOUS COLLECTIONS
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NEW MOLLUSKS OF THE FAMILY TURRITIDAE

(With Eight Plates)

BY
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(Publication 3229)

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(With Eight Plates)

The first Johnson-Smithsonian Deep-Sea Expedition devoted its attention to the great deep of the Atlantic—the Puerto Rican Deep, a region faunally decidedly unexplored. The reason why this has been so becomes quite evident to the investigator making the attempt, for during our entire work there, which extended from January 30 to March 9, 1933, we encountered but 2 days of calm sea. The fact that we were able to work at all times was due to the large size of the *Caroline,* which has a length over all of 279 feet 10 inches, a beam of 38 feet, depth of hull 27 feet, draft 17½ feet, and also to the fact that she carries a 50-ton Sperry gyro-stabilizer, which keeps the yacht almost on an even keel at all times.

Most of the 109 stations covered during our cruise yielded mollusks, many of them members of the family Turritidae.

Almost all of the stations were on very rough bottom, and this was particularly true of those in the Mona Island Passage. Probably the most interesting haul was at station 92, which is near the place where the *Challenger* made her famous haul at her station 24, March 25, 1873. This was one of the four richest hauls made by the *Challenger* on her whole cruise. Our stations 36, 91, 93, 94, and 95 surround this *Challenger* station.

We have always felt the lack of types or topotypes of the numerous mollusks described by Watson from this station, and our hauls supplied these.

The National Museum is exceedingly rich in West Indian mollusks, having the large collections obtained by government investigators and many specimens acquired through private donations. It is therefore possible with this splendid material to subject our catch to a critical review.

The family Turritidae has for some time been a troublesome group whose genera have been variously interpreted by different authors.

Most of the difficulties have been due to the fact that authors have been loath to increase the number of genera in the family, which has already 326 generic names to its credit. Also, most authors have lacked the necessary genotypes to fix definitely the characters of each genus.

Realizing the confusion that has existed and still exists in the nomenclature of this family, I have been acquiring genotypes of it for the National Museum for some time and can now say that the Museum has specimens of almost all of them, or, where specimens are not available, photographs of them. It is this collection of genotypes that brings to light the woeful inadequacy of names, and in reviewing even as limited a fauna as that here in part discussed, it becomes necessary to add many new names.

In the examination of the turritids I find that the nuclear characters here as elsewhere yield useful elements in the definition of groups, but these are points which may be discussed in detail in the final paper, which will give an account of all the mollusks obtained in the Puerto Rican Deep, not merely the new forms here made known.

ELDRIDGEA, n. gen.

Type species.—Eldridgea johnsoni, new species.

Shell moderately large, ovate (early nuclear whorls unknown). The first of the remaining nuclear whorls apparently smooth. The early post-nuclear whorls strongly axially ribbed. Those succeeding marked by expanded foliations that take the place of ribs. These broadly expanded elements are best understood by examining the figures (pl. 1, figs. 1-3); they suggest the ornamentations of certain Boreotrophons. The outside of the expanded wings, the base, and the columella are marked by more or less equal and equally spaced spiral lirations. The inside of the foliations is smooth. Aperture large. Posterior sinus immediately below the summit; stromboid notch very shallow; inner lip appressed to the columella; parietal wall covered with a thin callus, which forms a nodule at the posterior angle.

This genus suggests *Clavus* Montfort = *Clavicantha* Swainson and *Tylotia* Melville, in which the ribs are spinose or slightly lamellosely expanded, but the present genus carries this to an extreme point.

ELDRIDGEA JOHNSONI, n. sp.

Plate 1, figs. 1-3

Shell moderately large, ovate, horn-colored, with the inside of the alations and the broad basal band white; interior of aperture porcelaneous with a pinkish tinge. A part of the first turn of the nuclear

whorl is lost; the remaining nuclear turn appears to be smooth. The early postnuclear whorls are marked by protractively slanting, axial ribs, of which 9 occur upon the first three turns and 10 upon the fourth. On the first three whorls these axial ribs are quite regular, being strongest on the middle of the turns and tapering toward the summit and the periphery. The spaces that separate them here are about as wide as the broad ribs. On the fourth postnuclear whorl they begin to be more oblique and tend toward the formation of a lamina at the tip. This becomes accentuated on the fifth turn, and on the succeeding turns it becomes increasingly more pronounced, gradually forming the broad winglike expansion that characterizes this species. There are 10 ribs on the fifth and sixth, 8 upon the seventh to ninth, and 12 upon the last turn. These alations are marked by incremental lines, and their outside, as well as the base and columella, are crossed by slender, wavy, spiral threads. The insides of the alations are smooth, barring incremental lines. Aperture moderately large and expanded, decidedly channeled anteriorly and at the posterior angle. Outer lip thin, protracted between the posterior channel and slender stromboid notch anteriorly. Inner lip reflected over the somewhat twisted columella as a heavy callus, which extends over the parietal wall and forms a slight lump near the posterior angle.

Type.—The unique type, U.S.N.M. no. 430852, was dredged at station 12, off the north coast of Puerto Rico, in 200 to 300 fathoms between latitude 18°31′ N., longitude 66°00′15″ W. and latitude 18° 30′30″ N., longitude 66°01′45″ W. It has 11.5 whorls remaining and measures: Length, 31 mm; greater diameter, including alations, 19.7 mm.

FENIMOREA, n. gen.

Type species.—Fenimorea janetae, new species.

Shell large; nuclear whorls well rounded, smooth. Postnuclear whorls with strong, broad axial ribs that are retractively bent and reduced in the depressed groove below the summit and extend anteriorly to the fasciole on the base. The finer sculpture on the ribs and intercostal spaces consists of decidedly wavy incised spiral lines and fine incremental lines, which vary in strength. The combination of these two elements gives to the surface a peculiar effect, resembling the scales on some butterfly wings; this sculpture extends to the basal fasciole. The fasciole itself and the area immediately posterior to it, as well as the rest of the columella, are marked by spiral threads. The aperture is moderately long and broad and strongly channeled an-

teriorly. The basal sinus is deep and reflected at the edge with a strong parietal callus; the stromboid notch is shallow.

This genus suggests *Elaeocyma* Dall, type *E. empyrosia* Dall, but differs from it in having the nuclear whorls rounded instead of carinated and the ribs stronger, and above all in the detailed fine sculpture described above.

The genus is represented by 11 species in our collection, of which only two have been named, namely *Fenimorea moseri,* Dall = *Pleurotoma* (*Drillia*) *moseri* Dall from the West Coast of Florida and *Drillia fucata,* Reeve from the Bahamas. The unnamed species come from:

East Coast of Florida (3)
West Coast of Florida (1)
Puerto Rico (2, 1 here described)
St. Thomas (1)
Barbados (2)

FENIMOREA JANETAE, n. sp.

Plate 1, figs. 4-7

The shell is rather large, with the posterior groove and an area about as wide as this groove, anterior to the groove, on the axial ribs, white. This is followed by a broad zone of chestnut-brown occupying about half the whorls between the summit and suture; this zone terminates a little below the periphery. Anterior to this is a fainter thread of brown and a little paler brown area in the groove just posterior to the fasciole. In addition to this, there are, in the lighter bands in the intercostal spaces, indications of pale brown markings. The broad brown band becomes enfeebled on the last portion of the last whorl. The interior of the aperture is bluish white with the dark band shining partly through this, and the callus on the columellar area is porcelaneous. The nuclear whorls are 1.5, small, well rounded and smooth; the postnuclear whorls are appressed at the summit with a depressed groove occupying the posterior third between the summit and suture, evenly rounded from the anterior termination of this to the periphery, and marked by strong, broad, rounded, axial ribs, which have their strongest development anterior to the sinus at the summit and become attenuated posteriorly in crossing the base, where they extend to the basal fasciole. Of these ribs, 10 are present on the first four whorls, 12 on the fifth to seventh, 14 on the eighth and ninth, and 16 on the tenth. The spaces separating the axial ribs are about as wide as the ribs. In addition to this sculpture the whorls are marked by slender spiral threads in the depressed area near the summit, of

which 11 are present on the last whorl. Anterior to the depressed area the threads are replaced by pitted impressed lines, which also cover the base. Between the threads and lines, under high magnification, still finer, closely spaced, microscopic spiral striations are present, and and the ribs and the intercostal spaces also bear fine incremental lines with microscopic axial incised lines between them. The heavier incremental lines terminating anteriorly in the spiral line of pits divide the space between the spiral lines into scalelike elements suggesting the scales of some butterfly wings, each scale being bordered by a deeper axial depression and marked by microscopic axial striations, as well as the microscopic spiral lines, the axial striations being a little stronger. The columella has a moderately strong basal fasciole, which is bordered posteriorly by three feeble spiral threads and crossed by two more, whereas anterior to the basal fasciole the columella bears about six feebly impressed spiral threads. The aperture is moderately large, rather broad, slightly channeled anteriorly with the posterior channel deeply incised and its wall reflected as a strong callus over the parietal wall. The stromboid notch at the anterior end of the outer lip is rather short and shallow; the space between the stromboid notch and the basal channel is clawlike. The parietal wall is covered by a moderately thick callus. There is a stronger varix about a quarter of a turn behind the aperture on the last whorl.

Type.—U.S.N.M. no 430249, obtained at station 26 in 33 to 40 fathoms on rough coral rock bottom between latitude 18°30′20″ N., longitude 66°22′05″ W. and latitude 18°30′30″ N., longitude 66°23′05″ W. It has 12 whorls and measures: Length, 37.8 mm; greater diameter, 14.3 mm.

DOUGLASSIA, n. gen.

Type species.—Douglassia enae, new species.

Shell of medium size. Nuclear whorls well rounded, smooth; postnuclear whorls with a broad concave area immediately below the summit, across which the axial ribs do not extend; the rest convex. Base rather short. Columella short with a feeble fasciole. Aperture rather large, deeply channeled anteriorly and posteriorly, the posterior channel being immediately below the summit; stromboid notch conspicuously reflected; columellar wall reflected as a heavy callus; parietal wall with a heavy callus that forms a knob at the posterior angle. The sculpture consists of strong axial ribs that extend from the anterior limit of the concave area, where they are strongest over the base, growing feebler anteriorly. Fine incremental lines are also present on the

ribs and in the intercostal spaces. The body of the whorls is marked by fine spiral lirations, while the columella has strong spiral cords.

The present genus suggests *Symatosyrinx* Dall, the type of which is *Pleurotoma lunata* Lea, which comes from the Yorktown Miocene at Petersburg, Va. It differs from it in having the nuclear whorls well rounded instead of carinated, the columella strongly lirate, the basal fasciole less pronounced, and in being smaller in every way.

DOUGLASSIA ENAE, n. sp.

Plate 2, figs. 1-3

Shell elongate-conic, wax-yellow with a broad pale-brown band at the periphery. Nuclear whorls 2.5, smooth, forming a pointed apex. The beginning of the postnuclear whorls has the axial riblets characteristic of the later postnuclear whorls, but here they are a little more slender and a little more closely approximated. The postnuclear whorls are marked by strong axial ribs that almost form cusps at the anterior termination of the posterior sinal region; they extend only very feebly across the sinal area, which occupies the posterior two fifths of the turns. On the last whorl these ribs are decidedly enfeebled on the base and evanesce at the junction with the columella. Of the axial ribs, 10 occur upon the first six whorls, 12 upon the seventh and the last turn. These ribs are about one third as wide as the spaces that separate them, the latter being broad and concave. In addition to the axial ribs the whorls are marked by rather strong incremental lines that have a decidedly sigmoid curve, being retractively slanting at the posterior sinal region and protractively anterior to this. The spiral sculpture consists of numerous, closely spaced, microscopic obsolete spiral lines. Base moderately well rounded. Columella short and stubby, marked by 12 rather strong sinuous spiral threads and finer spiral lines corresponding to those on the spire and base. Aperture moderately large and rather broad, decidedly channeled posteriorly and anteriorly with a feeble stromboid notch. The outer lip is protracted between the posterior angle and the stromboid notch into a clawlike element, while the inner lip is reflected over the columella as a heavy callus, which extends over the parietal wall and projects into the aperture at the posterior sinus as a decided knob. There is a heavy varix about one sixth of a turn behind the edge of the outer lip.

Type.—U.S.N.M. no. 430289, dredged at station 26 in 33 to 40 fathoms between latitude 18°30′20″ N., longitude 66°22′05″ W. and latitude 18°30′30″ N., longitude 66°23′05″ W. It has 6.5 whorls

remaining and measures: Length, 16.6 mm; diameter, 6.9 mm. The nucleus was described from one of two specimens, U.S.N.M. no. 430038, obtained at the same station. This specimen has 9 whorls and measures: Length, 11.4 mm; diameter, 4.7 mm. Another lot, U.S.N.M. no. 429205, contains seven specimens from station 104 taken in 80 to 120 fathoms between latitude 18°30′40″ N., longitude 66°13′20″ W. and latitude 18°30′10″ N., longitude 66°13′50″ W.

In the collection of the United States National Museum is also an undescribed species belonging here, which was labeled *Drillia thea* Dall, variety, from the west coast of Florida.

FUSISYRINX, n. gen.

Type species.—Fusisyrinx fenimorei, new species.

Shell rather fusus-like in appearance with the aperture almost equal to the rest of the shell and a strong, deeply cut sinus at the summit of the whorls. The columella is slender and but slightly twisted. The nuclear whorls ? . Postnuclear whorls with a few strong knoblike ribs, which extend from the anterior limit of the sutural sinus to the periphery. In addition to this there are strong lines of growth which pass over the ribs and intercostal spaces. The spiral sculpture consists of fine spiral threads in the sinus at the summit, succeeded anteriorly to the sinus by stronger spiral threads, between which finer spiral threads are present. This sculpture is also present on the slender columella, where the finer spiral threads are less numerous. Aperture very long, the anterior channel very slender and long, the posterior broad and deeply incised. The outer lip is slender at the edge, and the inner lip appears as a smooth callus and as if the shelly substance carrying the outer sculpture had been here resorbed. This also holds good on the parietal wall of the aperture.

FUSISYRINX FENIMOREI, n. sp.

Plate 2, figs. 4, 5

Shell very large, of fusus-like shape, milk-white, covered with a very thin translucent periostracum. Nuclear whorls decollated. Postnuclear whorls strongly rounded, marked by almost knoblike axial ribs, which extend from the anterior limit of the posterior sinus to the periphery. These ribs are almost as wide as the spaces that separate them. In addition to this the whorls are marked by sigmoid axial lines of growth. Of these ribs, 10 occur upon all but the penultimate and the last whorl, each of which has 12. The spiral sculp-

ture consists of fine threads, which in the sinus portion near the summit of the early turns are about as strong as the spiral threads anterior to this, but on the later whorls these spiral threads become less strongly developed, while those anterior to it increase in strength. The anterior portion of the whorls on the later turns are marked by rather coarse, definitely spaced threads, between which finer spiral threads are present, varying in number from one to four. This fine sculpture, combined with the lines of growth, gives a reticulated pattern to the spiral grooves between the spiral cords. Base short, well rounded, marked like the anterior portion of the spire. Columella very long, slender, marked by numerous slender, more or less equally spaced spiral threads, which become somewhat enfeebled near the tip. Between these stronger threads an occasional slender spiral thread is present. Aperture tear-shaped with a very long anterior channel. The posterior channel broad and deep, immediately below the summit. The inner lip smooth, appearing as if excavated below the surface of the sculptural portion of the shell.

Type.—U.S.N.M. no. 425356, collected at station 35 in 180 to 80 fathoms between latitude 18°23′40″ N., longitude 67°16′45″ W. and latitude 18°24′45″ N., longitude 67°14′15″ W. It has eight and one quarter whorls remaining and measures: Length, 71.1 mm; diameter, 20.4 mm.

A younger specimen, a topotype, U.S.N.M. no. 430653, has nine whorls remaining and measures: Length, 56 mm; diameter, 16.7 mm.

I have seen nothing in our turritid collection that compares with this group.

POLYSTIRA Woodring

The genus *Polystira* was created by W. P. Woodring in 1928[1] for certain large West Indian turritids. He named the largest of the recent species, generally known as *Pleurotoma albida* Perry, as type. Unfortunately, the mollusk so designated is not *Pleurotoma albida* Perry, which Perry states[2] "is frequently found at New Zealand and Lord Howe's Island." Perry's figure 4, plate 32, of this species does not agree with the West Indian material. It clearly resembles certain shells from North Australia in the collection of the National Museum. The name is, therefore, not applicable to the West Indian shell, which will have to carry the next available designation.

[1] Miocene mollusks from Bowden, Jamaica, pt. 2, p. 145, 1928.

[2] Conchology or the natural history of shells, London, 1811.

Lamarck in 1816, in his " Tableau Encyclopedique et Methodique ", figured on plate 439, as figure 2, the West Indian shell without naming it. Wood, in 1818, in his " Index Testaceologicus ", on page 125, names this species *Murex virgo,* referring to Lamarck's figure cited above. This appears to be the oldest available name for the type species.

The type of *Polystira* Woodring must therefore be *Murex virgo* Wood=*Polystira albida* Woodring, not Perry.

POLYSTIRA FLORENCAE, n. sp.

Plate 3, figs. 4-7

Shell rather large, fusiform, pale brown, excepting the large median keel between summit and suture and a broad area that extends over a little more than half of the posterior part of the columella, which are white. The tops of the other spiral keels are also a trifle paler than the spaces between them. The first 1.5 nuclear whorls are large, well rounded, and smooth. These are followed by about one half of a turn that is crossed by about 10 slightly retractively curved, axial ribs, which are about one fourth as wide as the spaces that separate them. The postnuclear whorls are marked by very strong spiral keels, of which the most conspicuous one is the second one below the summit, which bears the deeply narrow posterior sinus. The first keel occupies the space almost midway between the summit and this keel. Anterior to the strong keel, there are on each whorl two additional keels, one, the stronger, occupying the periphery of the whorls, another a little nearer to the strong second keel than the peripheral and slightly weaker than the peripheral. A slender spiral thread is present midway between the summit and the first, and between the second and third; and two are present between the third and fourth. The spaces between the keels are decidedly concave, and they are crossed by slender, axial riblets, which are retractively curved posterior to the strong keel and protractively curved anterior to it. In addition to this the whorls are marked by microscopic lines of growth and spiral striations. The base is short and marked by four keels, which grow consecutively weaker anteriorly. In the middle of the broad spaces between these keels is a slender spiral thread. A continuation of the axial sculpture of the spire is present here. The columella is rather long, slender, and marked by oblique spiral cords, which grow consecutively weaker anteriorly, becoming obsolete toward the anterior tip. This also holds good for the continuation of the axial sculpture, which likewise becomes enfeebled and obsolete.

Aperture narrow and long, the outer lip deeply incised to form the narrow sinus of the second keel and scalloped by the rest of the keels and cords. Inner lip thin, reflected over and appressed to the columella. The parietal wall is covered by a moderately thick callus.

Type.—U.S.N.M. no. 429760, collected at station 26, on rough bottom off the north coast of Puerto Rico, in 33 to 40 fathoms between latitude 18°30′20″ N., longitude 66°22′05″ W. and latitude 18°30′30″ N., longitude 66°23′05″ W. It has 12 whorls and measures: Length, 33.2 mm; greater diameter, 9.0 mm.

U.S.N.M. no. 430329 contains nine young specimens from the same station.

U.S.N.M. no. 429747 contains five young specimens dredged at station 10 in 120 to 160 fathoms between latitude 18°29′20″ N., longitude 66°05′30″ W. and latitude 18°30′24″ N., longitude 66°04′15″ W.

U.S.N.M. no. 430053 contains six specimens from station 104, on rough bottom off the north coast of Puerto Rico, in 80 to 120 fathoms between latitude 18°30′40″ N., longitude 66°13′20″ W. and latitude 18°30′10″ N., longitude 66°13′50″ W.

POLYSTIRA MACRA, n. sp.

Plate 3, figs. 8, 9, 13, 14

Shell slender, fusiform, pale cream-colored with the columella white. Nuclear whorls almost 2, the first 1.5 rather large, well rounded, smooth, the last half marked by eight slender, not strongly expressed, sinuous, rather distantly spaced, axial riblets. The postnuclear whorls are marked by strong spiral keels, of which the second carrying the sinus, is the strongest. The first is a little nearer to the summit than to the second. The other two keels ornament the anterior half of the whorls, the fourth one being at the periphery and the third midway between this and the strong keel. The spaces between these keels vary in width, that between the first and second being considerably narrower than that between the second and third, which equals the space between the third and fourth. All the spaces between the keels are deeply concave. There is a slender crenulated thread at the summit and another slender thread between the first and second spiral keel, a little nearer the second than the first. A feeble spiral thread is present about one fourth of the distance between the second and third keel anterior to the second keel, and a second thread doubly as strong as the last mentioned is a little nearer the third keel than the second. Another spiral thread occupies the space midway between the second and third. The axial sculpture consists of rather strong,

slender, closely spaced, axial riblets, which are retractively slanting posterior to the strong keel and protractive anterior to it. The base is moderately short, well rounded, and marked by four strong spiral cords, which are almost equally spaced, and by the continuations of the axial riblets. A slender thread occurs between the third and fourth. The columella is long and slender and marked by rather regularly spaced spiral threads, which extend to the very tip and which grow gradually weaker from the base anteriorly. The axial sculpture on the base is almost as strong as on the spire, while on the columella it becomes decidedly weakened and evanescent toward the tip. Aperture narrow, slender, with a deep narrow sinus on the outer lip corresponding to the second keel. The rest of the outer lip is rendered more or less sinuous by the external sculpture. The inner lip is appressed to the columella as a callus, and this callus extends over the parietal wall.

Type.—U.S.N.M. no. 430395, collected at station 101, off the north coast of Puerto Rico, in 190 to 300 fathoms between latitude 18°40′ 30″ N., longitude 64°50′ W. and latitude 18°45′40″ N., longitude 64°48′ W. It has 13.5 whorls and measures: Length, 32 mm; greater diameter, 6.7 mm.

U.S.N.M. no. 430526 contains 21 specimens from station 23 dredged in 260 to 360 fathoms between latitude 18°32′15″ N., longitude 66° 17′45″ W. and latitude 18°32′ N., longitude 66°21′15″ W.

U.S.N.M. no. 429582 contains three specimens dredged from station 32 in 200 to 280 fathoms between latitude 18°25′50″ N., longitude 67°14′55″ W. and latitude 18°23′50″ N., longitude 67°17′ 35″ W.

U.S.N.M. no. 429565 contains three specimens from station 25 obtained in 240 to 300 fathoms between latitude 18°32″15′ N., longitude 66°22′10″ W. and latitude 18°32′05″ N., longitude 66°22′10″ W.

U.S.N.M. no. 430584 contains two specimens from station 12 in 200 to 300 fathoms between latitude 18°31′ N., longitude 66°00′15″ W. and latitude 18°30′30″ N., longitude 66°01′45″ W.

All the specimens obtained came from off the north coast of Puerto Rico.

LEUCOSYRINX JANETAE, n. sp.

Plate 3, figs. 3, 11, 12

Shell elongate, fusiform, yellowish white except the early nuclear whorls, which are pale brown. Nuclear whorls 1.7, the first smooth and well rounded, the second one with a faint submedian angulation. Postnuclear whorls well rounded, bearing a series of nodulelike ribs,

which are almost median on the whorls and evanesce at the sutural sulcus and on the anterior portion of the whorls. These nodules are cusped on the early turns and become broad and well rounded on the later whorls. Of these nodules, 12 occur upon the first four postnuclear turns, 14 upon the fifth to eighth, 16 upon the ninth, 20 upon the tenth to twelfth, and 25 on the last whorl. In addition to these axial nodules the whorls are marked by closely spaced, slender, sigmoid lines of growth, which have a retractive curve in the sinus at the summit and are protractive anteriorly. The spiral sculpture on the early postnuclear whorls is almost absent, at best merely indicated, but beginning with the fourth whorl and from there on it increases steadily in strength, eventually forming in the sinus at the summit a series of low, flattened cords of which 18 are present between the summit and the anterior termination of the sinus, those near the summit being more broadly and more strongly developed than those on the anterior portion. Anterior to the sinus the whorls are marked by rather wavy subequal and subequally spaced, somewhat flattened spiral threads of which 20 are present on the last whorl. Suture slightly constricted. Periphery well rounded. Base short, well rounded, marked like the spire with 10 spiral cords, which equal those on the spire in strength and spacing. Columella rather long, moderately slender, and marked with the same type of sculpture that characterizes the base. Aperture pyriform, strongly channeled anteriorly, and provided with a broad sinus at the posterior angle, the portion anterior to the sinus being drawn forward as a clawlike element but maintaining the same curvature as the main body whorl. Outer lip thin. Inner lip covered with a thick callus, which extends on to the parietal wall.

Type.—U.S.N.M. no. 429834, collected at station 96 in 270 to 330 fathoms between latitude 18°36′ N., longitude 65°05′30″ W. and latitude 18°37′15″ N., longitude 65°03′ W. It has lost one nuclear turn. The 15 whorls remaining measure: Length, 30.8 mm; diameter, 11.9 mm.

U.S.N.M. no. 429818 contains two topotypes obtained from station 96.

U.S.N.M. no. 430475 contains three specimens from station 84 in 300 to 350 fathoms between latitude 18°32′30″ N., longitude 65°18′30″ W. and latitude 18°39′ N., longitude 65°17′ W., one of which served for the description of the nucleus.

U.S.N.M. no. 430519 contains three additional specimens from station 23 in 260 to 360 fathoms between latitude 18°32′15″ N.,

longitude 66°17′45″ W. and latitude 18°32′ N., longitude 66°21′ 15″ W.

This species comes nearest to *Leucosyrinx verrilli,* from which it differs markedly by its more slender form and more numerous nodulose ribs.

FUSITURRICULA ENAE, n. sp.

Plate 3, figs. 1, 2, 10

Shell of medium size, fusiform, pale horn-colored, with the intercostal spaces pale chestnut-brown, and with a pale chestnut-brown median basal band, and the tip of the columella of the same color Nuclear whorls 1.5, smooth, well rounded. A few closely spaced wrinkles mark the transition of the nuclear turns to the postnuclear whorls. Postnuclear whorls moderately high. The first bears a strong median nodulose cord. On the second this cord tends to split and from there on develops into two nodulose cords, the nodules representing the axial ribs. The nodules on the first postnuclear whorl are cusplike, whereas those of the succeeding turns become increasingly more rounded and elongated, their long axes corresponding with the spiral sculpture. Of these nodules, 10 occur upon the first and second turn, 12 upon the third and fourth, 14 upon the fifth and sixth, and 16 upon the seventh and last turns. Anterior to the two nodulose spiral cords the whorls are marked by four almost equal and equally spaced spiral cords. Periphery and base well rounded. The latter is marked by five equal and equally spaced spiral threads. The entire base and the anterior portion of the whorls are in addition crossed by rather coarse lines of growth, which are particularly emphasized between the spiral cords. Columella long and attenuate, marked by 19 rather distantly spaced, somewhat flattened, low, spiral cords. Aperture very elongate, decidedly channeled anteriorly and with a very deeply cut sinus immediately below the summit. Outer lip thin. Inner lip slightly excavated, appearing as a white callus.

Type.—U.S.N.M. no. 430619, has 10 whorls and measures: Length, 23.5 mm; diameter, 7 mm. It was dredged at station 24 in 260 to 350 fathoms between latitude 18°32′30″ N., longitude 66°21′ W. and latitude 18°31′45″ N., longitude 66°19′15″ W.

U.S.N.M. no. 429666 contains two specimens from station 25 in 240 to 300 fathoms between latitude 18°32′15″ N., longitude 66°22′ 10″ W. and latitude 18°32′05″ N., longitude 66°22′10″ W.

U.S.N.M. no. 429823 contains one specimen from station 96 in 270 to 330 fathoms between latitude 18°36′ N., longitude 65°05′30″ W. and latitude 18°37′15″ N., longitude 65°03′ W.

U.S.N.M. no. 430494 contains two specimens from station 101 in 190 to 300 fathoms between latitude 18°40′30″ N., longitude 64°50′ W. and latitude 18°45′40″ N., longitude 64°48′ W.

U.S.N.M. no. 430931 contains two specimens dredged at station 23 in 260 to 360 fathoms between latitude 18°32′15″ N., longitude 66° 17′45″ W. and latitude 18°32′ N., longitude 66°21′15″ W.

GLYPHOSTOMA (GLYPHOSTOMA) EPICASTA, n. sp.

Plate 4, figs. 4, 7, 9

Shell rather large, elongate-conic, milk-white. Nuclear whorls almost 3, the first one well rounded, the other two with a strong submedian keel. Postnuclear whorls rather low, well rounded, marked by axial ribs that evanesce in the sulcus below the summit, and on the last whorls evanesce as they pass over the base. Of these ribs, 10 occur upon the first four, 12 upon the fifth and sixth, 14 upon the seventh and eighth, 18 upon the ninth, and 20 upon the last turn. In addition to the axial ribs the entire surface of the shell is well marked by lines of growth, which on the sulcus below the summit are strengthened to form a series of wrinkles more numerous than the axial ribs. The spiral sculpture consists of well-developed cords, which are slightly flattened and which are about one third as wide as the spaces that separate them. The intersection of the axial ribs and spiral cords is rendered nodulose, the long axes of the nodules coinciding with the spiral sculpture. Of these spiral cords, one is present on the first turn, two on the second to sixth, three on the seventh, and seven on the remaining. Beginning with the eighth whorl, finer spiral threads are apparent in the sulcus below the suture, and these increase in number with the turns. On the last turn there are six. Suture moderately constricted. Periphery well rounded. Base rather long, well rounded, marked like the posterior portion of the last whorl, five spiral threads being present. Columella rather long, marked by lines of growth and 11 spiral threads, which become consecutively a little less strong from the posterior anteriorly. The entire surface of the shell is rather coarsely granulatedly sculptured. Aperture rather long, decidedly channeled posteriorly and anteriorly. Outer lip reinforced by a strong varix a little beyond the edge, the portion of the lip between the varix and edge being reflected over the aperture as a clawlike element. The inner edge of the thickened varix within the aperture bears seven strong denticles. The inner lip is also denticulated. Here the denticles are less strong and more numerous. About 15 are present in the type. Columella well covered by a moderately thick callus, which is strength-

ened into a decided denticle opposite the posterior termination of the internal callus of the outer lip, thus almost constricting the posterior channel into a tube, the outer portion of the parietal callus from the denticle to the posterior angle of the aperture being decidedly thickened.

Type.—U.S.N.M. no 430507, dredged at station 23 in 260 to 360 fathoms between latitude 18°32′15″ N., longitude 66°17′45″ W. and latitude 18°32′ N., longitude 66°21′15″ W. It has almost 13 whorls and measures: Length, 31 mm; diameter, 10 mm.

U.S.N.M. no. 429580 contains two specimens from station 32 dredged in 200 to 280 fathoms between latitude 18°25′50″ N., longitude 67°14′55″ W. and latitude 18°23′50″ N., longitude 67°17′35″ W.

U.S.N.M. no. 429668 contains two specimens from station 25 dredged in 240 to 300 fathoms between latitude 18°32′15″ N., longitude 66°22′10″ W. and latitude 18°32′05″ N., longitude 66°22′10″ W.

U.S.N.M. no. 430536 contains one specimen from station 1 in 360 to 600 fathoms at latitude 18°33′45″ N., longitude 66°15′ W.

This species is the largest of the West Indian Glyphostomas.

GLYPHOSTOMA (GLYPHOSTOMA) ELSAE, n. sp.

Plate 4, figs. 1, 3, 6

Shell broadly conic, yellowish white, with the tip horn-colored and the spiral cords of the postnuclear whorls pale chestnut-brown, fading as they cross the ribs. On the base the spiral cords are interrupted by the much more numerous ribs, which gives them a catenated effect. The tip of the base is brown for about one fifth of its length, but an area of equal width posterior to this lacks the brown interrupted bands. The interior of the aperture is bluish white. Nuclear whorls three, the first well rounded, the other two marked by a strong acute spiral keel a little anterior to the middle of the whorls. Postnuclear whorls well rounded, marked by exceedingly strong, broad, almost humplike axial ribs, which become very attenuated in the posterior sinal region and evanesce at the suture. Of these ribs, 10 occur upon all but the last whorl, which has 12. The intercostal spaces are a little wider than the ribs. At the summit of the whorls in the posterior sinal region the shell is marked by rather strong, closely spaced, curved riblets, which give to this part a crenulated aspect. On the base additional riblets are intercalated so that one, two, or even three slender axial ribs may appear between the heavy knobs described above. These are of very regular strength and spacing and are rendered nodulose by the spiral threads. The yellowish white nodules furnish a decided contrast to the dark areas that separate

them. The spiral sculpture of the postnuclear whorls consists of three exceedingly feeble threads in the sinal region at the summit on the first two turns. On the third turn an additional thread is added and on the remaining turns, two more. The posterior of these threads render the later whorls finely nodulose. Anterior to the sinal groove three spiral threads are present on the first and second of the postnuclear whorls, and five on the remaining whorls except the last, which has six. Here too an additional slender spiral thread is present between the first and second and the second and third of the strong threads. The suture is given a somewhat false aspect by the appressing of the summit of the whorls against the preceding turn. Periphery well rounded. Base moderately long, marked by the slender axial riblets described above, which become evanescent a little anterior to the middle, and 21 spiral threads, which are of almost equal strength and spacing, the last three near the tip of the columella, however, being less strong and a little more closely spaced. The entire surface of the shell is covered with fine granules. Aperture moderately large and rather broad, strongly channeled anteriorly and posteriorly. Outer lip reinforced by a strong varix, from which the edge of the lip projects as a clawlike element that is bent inward. The callus on the inside of the lip marking the varix is finely denticulated. Fine denticles also mark the somewhat sinuous columellar margin of the aperture.

Type.—U.S.N.M. no. 430290, collected at station 26 in 33 to 40 fathoms between latitude 18°30′20″ N., longitude 66°22′05″ W. and latitude 18°30′30″ N., longitude 66°23′05″ W. It has 9.5 whorls and measures: Length, 14.3 mm; diameter, 6.5 mm.

This species is related to *Glyphostoma gabbi,* from which it differs markedly in its color pattern and detailed sculpture.

GLYPHOSTOMA (GLYPHOSTOMA) HERMINEA, n. sp.

Plate 4, figs. 2, 5, 8

Shell elongate-conic, rather broad, yellowish white. Nucleus decollated. Early postnuclear whorls somewhat worn, those remaining marked by broad, stout, slightly retractively slanting axial ribs, which are about as wide as the spaces that separate them and which evanesce at the sulcus immediately below the summit and likewise gradually evanesce on the base. Of these ribs, 10 occur upon the first to third and 12 on the remaining turns. On the sinus below the summit the axial sculpture consists of numerous rather closely spaced curved riblets, which render this part slightly crenulated. The spiral sculpture consists of rather strongly developed, somewhat flattened cords, which in

passing over the axial ribs render these nodulose, the long axes of the nodules coinciding with the spiral sculpture. Of these spiral cords, two occur on the third and fourth, four on the fifth, five on the sixth, and six on the last whorl between the summit and the periphery. In addition to this there are fine spiral threads on the channel, at the summit of which three occur on the fifth, four on the sixth, and five on the last whorl. On this there are also some finer spiral threads between some of the spiral cords. Suture well constricted. Periphery well rounded. Base moderately long, marked by the continuation of axial ribs and six spiral cords. Columella moderately long, marked in the posterior half by the feeble continuation of the axial ribs and 11 spiral threads, which grow consecutively weaker from the posterior anteriorly. In addition to this the entire surface of the shell is marked by fine lines of growth and densely placed granulations. Aperture moderately long, decidedly channeled both anteriorly and posteriorly. Outer lip reinforced by a strong callus a little behind the edge, the edge being produced into a clawlike element. The inside of the callus within the aperture bears seven strong denticles. Inner lip also denticulated, the denticles not so strongly developed as on the outer lip. The anterior portion of the inner lip is abraded so that the actual count of the denticles cannot be made. Parietal wall covered by a callus that is developed into a strong denticle opposite the posterior termination of the callus of the outer lip, which renders the posterior sinus almost tubular.

Type.—The unique type, U.S.N.M. no. 430354, was collected at station 102 in 90 to 500 fathoms between latitude 18°50′30″ N., longitude 64°43′ W. and latitude 18°51′ N., longitude 64°33′ W. It has eight whorls remaining and measures: Length, 16 mm; diameter, 6.5 mm.

GLYPHOSTOMA (GLYPHOSTOMOPS), n. subgen.

Type species.—*Glyphostoma* (*Glyphostomops*) *hendersoni*, new species.

Shell similar to *Glyphostoma* but lacking the denticulations on the columella and within the aperture on the varicial callus.

GLYPHOSTOMA (GLYPHOSTOMOPS) HENDERSONI, n. sp.

Plate 5, figs. 2, 5, 8

Shell moderately large, elongate-conic, milk-white. Nuclear whorls 2.5, the last one with a moderately strong angulation one third of the distance between the summit and the periphery, posterior to the

periphery. Postnuclear whorls moderately well rounded, marked by somewhat sinuous, retractively slanting axial ribs, of which 12 occur upon the first, second, and third, 14 upon the fourth, 16 upon the fifth, 18 upon the sixth, and 20 upon the last whorl. These ribs become somewhat attenuated on the shoulder near the summit, where they are somewhat bent to correspond to the posterior channel. In addition to this the whorls are marked by rather strong spiral cords, of which one occurs upon the first, two upon the second and third, three upon the fourth, and four upon the remaining turns excepting the last, which has five. These cords are of about equal strength, and the first of them is about one fourth the distance between the summit and suture anterior to the summit. The intersection of the axial ribs and spiral cords form elongate nodules having their long axes parallel to the spiral cords. In addition to this the entire surface of the axial ribs and intercostal spaces are marked by lines of growth. Suture moderately constricted. Periphery well rounded. Base moderately long, marked like the spire, bearing four nodulose cords. Columella rather long, moderately stout, marked by 17 spiral cords and threads, which grow progressively weaker anteriorly, the last six being very feebly indicated. Aperture rather large, outer lip with a very strong varix a little behind its edge, from which a clawlike element projects into the aperture, bearing the external sculpture on its outer surface. This structure, together with a rather strong denticle on the parietal wall, gives to the posterior channel an almost tubular effect. Inner lip covered with a thick callus, which is reflected over the columella and the parietal wall.

Type.—U.S.N.M. no. 411799, collected by Mr. Henderson's yacht *Eolis* at station 153, 3½ miles southeast of Fowey Light. It has 9.5 whorls and measures: Length, 12.4 mm; diameter, 4.5 mm.

There are 65 additional lots in the collection of the National Museum from various stations along the Florida coast.

GLYPHOSTOMA (GLYPHOSTOMOPS) OENOA, n. sp.

Plate 5, figs. 1, 3, 4

Shell small, slender, shiny, pale yellow. Nuclear whorls a little more than three, the first well rounded, the second with a very feeble angulation, and the third with a submedian carina. Postnuclear whorls marked by 10 irregularly developed, protractively slanting axial ribs, which evanesce in the sinus at the summit and at the periphery. These irregular callus-like ribs are about one third as wide as the spaces that separate them. In addition to this axial sculpture the whorls are

marked by fine lines of growth. The spiral sculpture consists of a raised, slightly submedian cord on the first turn, which at its junction with the axial ribs renders this sharply nodulose. This keel has a tendency to bifurcation, which becomes complete on the next turn, where two nodules are present, and on the last turn an additional nodule appears on the periphery. In addition to these spiral cords the entire surface of spire and base is marked by closely spaced microscopic spiral striations. Suture moderately constricted. Periphery well rounded. Base moderately long, marked by a feeble spiral thread below the periphery and another near the columella. The columella is slender and marked by eight poorly expressed spiral threads. The aperture in the only specimen at hand is fractured. I am therefore unable to give a description of the features covering this part of the shell. The inner lip is decidedly sigmoid.

Type.—U.S.N.M. no. 429437, collected at station 37 in 160 to 200 fathoms between latitude 18°13′50″ N., longitude 67°39′20″ W. and latitude 18°11′55″ N., longitude 67°42′50″ W. It has eight whorls remaining and measures: Length, 9.1 mm; diameter, 3 mm.

Its characters are nearest to those of an undescribed species from the south side of Cuba. It is also distantly related to *Glyphostoma* (*Glyphostomops*) *hendersoni*.

COMPSODRILLIA PETERSONI, n. sp.

Plate 5, figs. 6, 7, 9

Shell very elongate-conic, bluish white. Nuclear whorls 2.5, the first two well rounded, smooth, the last half crossed by a number of distantly spaced axial riblets. Postnuclear whorls well rounded, the first with two nodulose spiral threads, the second with three, of which the median is the strongest. These remain throughout the length of the shell. In addition to this the appressed summit of the shell appears as a spiral cord. The posterior sinus is narrow and located immediately below the spiral cord at the summit. In addition to the strong spiral cords finer spiral threads are present both in the sinal sulcus near the summit and on and between the ribs anterior to this. In addition to the spiral sculpture the whorls are marked by axial ribs which have their beginning in the nodulose spiral threads on the first postnuclear whorl. These axial ribs are slightly protractively slanting. They extend but very slightly posteriorly to the posterior sulcus, and evanesce anteriorly on the base of the last whorl. They are more than twice the width of the spaces that separate them. Of these, 10 occur upon the first to seventh, 12 upon the eighth to tenth, and 14

upon the last whorl. These ribs and the spaces that separate them are marked by lines of growth, which also extend across the posterior sulcus and over the base and columella and give to the general surface a finely reticulated clothlike sculpture. Suture slightly impressed. Base well rounded, marked by four strong nodulose spiral cords like the spire and the intervening spiral threads. Columella rather long, twisted, with an obscure indication of an umbilicus at its tip, marked by seven strong, broad, rounded, very nodulose spiral cords, and six slender threads on the anterior tip. Between and on the strong cords on the columella finer threads are present. Aperture rather long, strongly channeled anteriorly and posteriorly, the posterior channel almost forming a tube, since the outer lip and the parietal callus bend forward, partly closing it. The outer lip bears a strong varix one fifth of a turn behind its edge, and beyond this is drawn into a clawlike element, which bends in very slightly toward the aperture. The inner lip is strongly developed and projects considerably beyond the columella and extends as a rather thickened callus over the parietal wall, forming a decided knob at the termination of the posterior angle of the aperture.

Type.—U.S.N.M. no. 429821, dredged at station 96 in 270 to 330 fathoms between latitude 18°36′ N., longitude 65°05′30″ W. and latitude 18°37′15″ N., longitude 65°03′ W. It has lost the nucleus and first postnuclear turn. The 12 whorls measure: Length, 27.6 mm; diameter, 6.7 mm.

U.S.N.M. no. 430514 contains three specimens dredged at station 23 in 260 to 360 fathoms between latitude 18°32′15″ N., longitude 66° 17′45″ W. and latitude 18°32′ N., longitude 66°21′15″ W. From one of these the nucleus and first postnuclear whorl were described.

This species is most nearly related to *Compsodrillia tristicha,* Dall (=*Drillia tristicha,* Dall), which came from between the Mississippi Delta and Cedar Keys from a depth of 196 fathoms, but is easily distinguished from it by its much more slender form and detail of sculpture.

COMPSODRILLIA DISTICHA, n. sp.

Plate 6, figs. 6-8

Shell elongate-conic, covered with a very pale, ashy, dehiscent periostracum, which in the type is absent on the base and columella and gives the shell a decidedly bicolored effect, the shell itself appearing white. Nuclear whorls 2.5, well rounded, smooth, the last half crossed by a small number of axial riblets. First postnuclear whorl with two nodulose spiral cords. On the next turn these split into two and three

tuberculated cords, the third one almost falling into the suture, being appressed to the cord at the summit of the succeeding turns. These remain inconspicuous on the succeeding turns, while the other two occupying the middle portion of the shell become decidedly pronounced. The cord at the summit forms an abrupt sloping shoulder, and the space between this and the first strong spiral cord constitutes the sulcus marking the posterior channel of the shell. In addition to these spiral cords the cords themselves and the spaces that separate them are marked by strong spiral threads. This is also true of the sulcus at the summit, the base, and partly so of the columella. The axial sculpture consists of very heavy, broad, low, rounded ribs which are about twice as wide as the spaces that separate them. These ribs are rendered nodulose by the two strong spiral cords. They are also marked, as well as the intercostal spaces, by slender lines of growth that extend over the entire surface of the shell. Of these ribs, 12 are present on all the whorls. Suture slightly constricted. Periphery well rounded. Base short, marked by three strong spiral cords. Columella moderately long, slightly curved and marked by nine strong spiral cords, between and on which slender spiral threads are present. Aperture moderately long, channeled posteriorly and anteriorly. Unfortunately, the outer lip is fractured in the unique type so that it is impossible accurately to describe this, and the shell is not sufficiently mature to have differentiated the heavy varix behind the aperture characteristic of the group. The inner lip constitutes the heavy callus that extends upon the parietal wall.

Type.—The type, U.S.N.M. no. 429401, has 11.7 whorls and measures: Length, 26.6 mm; diameter, 7.4 mm. It was dredged at station 67 in 180 to 280 fathoms between latitude 18°30′12″ N., longitude 65°45′48″ W. and latitude 18°32′18″ N., longitude 65°46′12″ W.

This species is easily differentiated from *Compsodrillia tristicha* by the fact that only two of the strong spiral keels are apparent on the whorls.

COMPSODRILLIA NANA, n. sp.

Plate 6, figs. 1-3

Shell small, elongate-conic, yellowish white. The first one-half nuclear turn well rounded, smooth, the last half marked by a few rather distantly spaced, slightly protractively slanting axial riblets. Postnuclear whorls well rounded, the first marked by three slender spiral cords, of which the anterior two increase more rapidly in size than the first one, which remains rather feeble. The summit of the whorls is

marked by a smooth spiral cord representing the portion appressed to the preceding turn. On the later whorls the sinal sulcus at the summit is crossed by two slender spiral threads anterior to the cord at the summit which divides the space between this cord and the first strong nodulose cord into nearly equal portions. There is also a slender spiral cord between the first and second strong nodulose cords on the antepenultimate turn and two on the last whorl. There are two slender spiral cords between the second nodulose cord and the nodulose cord at the periphery which shows weakly in the suture of the whorls. The axial sculpture consists of strong, broad, rounded, protractively slanting ribs, which are about twice as wide as the spaces that separate them. The junction of these ribs with the stronger spiral cords produces nodules. Suture well impressed. Periphery marked by a nodulose spiral cord, the major portion of which, however, falls immediately below the periphery. Base short, well rounded, marked by two nodulose spiral cords. Columella rather short and stumpy, marked by nine subequal, closely spaced, feebly nodulose spiral cords. Aperture rather short, decidedly channeled anteriorly and posteriorly, the posterior channel falling in the posterior angle of the aperture. There is a strong varix a little behind the edge of the outer lip, and the outer lip between the channel at the summit and its base is protracted into a clawlike element, which, however, does not infringe upon the aperture. The inner lip is reflected as a distinct wall upon the columella and forms a heavy callus on the parietal wall.

Type.—U.S.N.M. no. 430562, collected at station 13 in 200 to 300 fathoms between latitude 18°31′05″ N., longitude 66°02′15″ W. and latitude 18°30′30″ N., longitude 66°04′05″ W. It has 7.5 whorls and measures: Length, 8.7 mm; diameter, 3.1 mm.

DARBYA, n. gen.

Type species.—Darbya lira, new species.

Shell elongate-conic. Nuclear whorls well rounded, smooth. The early postnuclear whorls with a single median row of cusps, the later ones with heavy knoblike axial ribs anterior to the sulcus at the summit, which are crossed by strongly developed, low, well-rounded, weakly nodulose, spiral cords anterior to the sulcus. The entire surface is marked by fine lines of growth, which are retractively slanting in the sulcus and protractively slanting on the rest of the turn. Suture strongly appressed. Base well rounded. Columella short, thickened to form a broad fold opposite the varix of the outer lip; this fold is separated from the parietal wall by a deep concave channel. The

outside of the columella is marked by a few strong spiral cords. Aperture very strongly channeled posteriorly and anteriorly. The posterior channel falls immediately below the summit and is deeply incised. A strong varix is present about half a turn behind the edge of the outer lip which is protracted to form a clawlike element anterior to the sinus. The inner lip appears as a heavy callus, which is reflected over the columella and extends up on the parietal wall.

DARBYA LIRA, n. sp.

Plate 6, figs. 4, 5; plate 7, figs. 6, 8

Shell elongate-conic, pale yellow, with a faint brown band encircling the whorls a little anterior to the sinal sulcus at the summit. Nuclear whorls 1.5, smooth, well rounded. Postnuclear whorls well rounded, marked on the first three turns by a submedian row of distantly spaced cusps. On the succeeding whorls these cusps become elongated into ribs that extend from the sinal sulcus at the summit anteriorly to the suture, becoming weaker toward the suture. Of these ribs, 10 occur upon the first whorl, 12 upon the second and third, and 14 upon the remaining whorls except the last, which has 16. The spaces that separate these ribs are a little less wide than the ribs. In addition to this there are numerous fine lines of growth, which slope retractively in the sulcus at the summit and protractively anteriorly. The sulcus at the summit is without spiral sculpture, whereas in the region anterior to it both ribs and intercostal spaces are crossed by rather strong, low, rounded, spiral cords, of which four occur upon the fifth to seventh, five upon the eighth, seven upon the ninth, and eight upon the last whorl between the summit and suture. These spiral cords are more or less equal. Suture rendered conspicuous by the slightly sloping shoulder of the summit of the whorls. Periphery well rounded. Base short, marked by the feeble continuation of the axial ribs and by seven spiral cords which are of unequal strength. Columella short and stubby with a strong, broad fold opposite the varix on the outer lip which is separated from the parietal wall by a concave groove; marked by seven rather broad spiral cords, which are separated by narrow channels. Aperture short, decidedly channeled anteriorly and posteriorly, the posterior channel being deeply notched and at the summit of the shell. There is a broad varix half a whorl behind the aperture, the outer lip being protracted between the sinus and the basal portion. The inner lip is appressed to the columella as a heavy callus which extends over the parietal wall.

Type.—U.S.N.M. no. 430930, collected at station 23 in 260 to 360 fathoms between latitude 18°32′15″ N., longitude 66°17′45″ W. and latitude 18°32′ N., longitude 66°21′15″ W. It has 12 whorls and measures: Length, 22.6 mm; diameter, 6.2 mm.

U.S.N.M. no. 430505 contains three specimens from the same station.

U.S.N.M. no. 430534 contains one specimen from station 1 in 400 fathoms, latitude 18°33′45″ N., longitude 66°15′ W.

U.S.N.M. no. 430660 contains one specimen from station 35 in 180 to 80 fathoms between latitude 18°23′40″ N., longitude 67°16′45″ W. and latitude 18°24′45″ N., longitude 67°14′15″ W.

LEPTODRILLIA SPLENDIDA, n. sp.

Plate 7, figs. 2, 5, 7

Shell small, elongate-conic, shiny. Nuclear whorls 1.5, well rounded, smooth. Postnuclear whorls moderately well rounded with strongly developed axial ribs, which begin weakly at the summit of the whorls and become strongest at about the anterior termination of the posterior third, again gradually weakening on the base and evanescing on the columella. These ribs on the early whorls are cusped at their highest elevation. On the later whorls the cusps become less pronounced. Ten occur upon all but the last whorl, which has twelve. There is a very strong varix a little distance behind the outer lip. The lines of growth are exceedingly fine, and the spiral sculpture is absent on all but the columella, thus giving to the entire surface of the shell a decidedly glassy appearance. On the anterior two thirds of the columella nine slender spiral threads are present. Aperture rather broad, decidedly channeled anteriorly and posteriorly. The posterior channel is at the summit of the whorl and is deeply incised. The outer lip from the channel to the slender notch anteriorly is protracted into a clawlike element. Inner lip appressed to the columella as a heavy callus that extends over the parietal wall and forms a decided knob over the posterior angle.

Type.—U.S.N.M. no. 429368, dredged at station 56, Samaná Bay, in 17 fathoms between latitude 19°10′15″ N., longitude 69°27′20″ W. and latitude 19°10′15″ N., longitude 69°28′05″ W. It has a little more than eight whorls and measures: Length, 9.5 mm; diameter, 3.1 mm.

U.S.N.M. no. 429752 contains four specimens from station 10, in 120 to 160 fathoms between latitude 18°29′20″ N., longitude 66°05′30″ W., and latitude 18°30′24″ N., longitude 66°04′15″ W.

This species differs from *Leptodrillia loria* in being in every way larger and in having much larger nuclear whorls.

LEPTODRILLIA LORIA, n. sp.

Plate 7, figs. 1, 3, 4

Shell small, elongate-conic, vitreous, semitranslucent. Nuclear whorls 1.5, well rounded, smooth. Postnuclear whorls moderately well rounded, marked by rather strong, almost vertical axial ribs, which become weak toward the summit and which attain their largest development on the posterior third of the whorls. On the first postnuclear whorl these ribs are cusped; on the later ones they become less elevated. On the last whorl they extend but feebly across the base and evanesce on the columella. These ribs are about two thirds as wide as the spaces that separate them. Eight are present on the first, and 10 on all but the last whorl, which has 12. In addition to the axial ribs the whorls are marked by fine incremental lines on the spire as well as the base. Suture well impressed. Periphery well rounded. Base moderately long, well rounded. Spiral sculpture is absent on the spire and base and present on the short, stout columella, which is crossed by nine spiral threads. Aperture rather large, strongly channeled anteriorly and posteriorly. The posterior sinus is deeply notched and immediately below the summit. There is a slender stromboid notch a little posterior to the anterior termination of the outer lip. The space between this and the posterior sinus is protracted into a clawlike element. The inner lip is appressed to the columella as a callus which extends up over the parietal wall, where it develops into a conspicuous nodule near the posterior angle.

Type.—U.S.N.M. no. 430701 dredged at station 106 in 150 to 195 fathoms between latitude 18°31′20″ N., longitude 66°16′30″ W., and latitude 18°31′30″ N., longitude 66°18′20″ W. It has 7.5 whorls and measures: Length, 6.8 mm; diameter, 2.5 mm.

The present species differs from *Leptodrillia splendida* in being in every way smaller and in having a much smaller nucleus.

SYNTOMODRILLIA Woodring

Type species.—*Syntomodrillia woodringi,* new species = *S. lissotropis* Woodring 1928, not *Drillia lissotropis,* Dall 1889.

In 1928 Dr. Woodring described the genus *Syntomodrillia,*[3] citing *Drillia lissotropis* Dall as type. Dall in 1881[4] described *Drillia lissotropis* as follows:

Shell small, slender, somewhat bluntly tipped, with six whorls, shining with the lustre of paraffine; nucleus rather large, bullate, smooth, translucent, shin-

[3] Miocene mollusks from Bowden, Jamaica, pt. 2, pp. 160-161, 1928.

[4] Bull. Mus. Comp. Zool., pp. 58-59, 1881.

ing; remaining whorls with transverse, stout, shouldered ribs (on the last whorl eleven) becoming obsolete anteriorly, and succeeded by a few (four or five) revolving riblets at the anterior extreme of the canal; suture appressed; lines of growth not evident; whorls rather inflated in appearance; notch very slight; aperture small and unusually short; pillar very short, straight, and pointed. Lon. of shell 4.5; of last whorl 2.25; of aperture, 1.25. Lat. of last whorl, 1.75 mm. Defl. about 27°.

Station 20, 220 fms.

This very likely grows to larger size, and is notable for its peculiar translucent waxy lustre.

In 1889 in the same publication, he figures it on plate 11, figure 34, and on pages 91, 92 he states:

Pleurotoma (*Mangilia*) *lissotropis* Dall, Bull. M. C. Z., IX. p. 58, August, 1881.
? Pleurotoma (*Mangelia*) *hypsela* Watson, Journ. Linn. Soc., XV. p. 433, Oct., 1881. Chall. Gastr., p. 341, pl. xxi. fig. 4, 1885.

Habitat. Station 20, 220 fms., Gulf of Mexico; off Havana, in 127 fms.; Station 273, near Barbados, in 103 fms.; Stations 282 and 290, off Barbados, in 154 and 73 fms., coral; Station 134, near Santa Cruz, in 248 fms., coarse sand. Range of temperatures, 54°.5 to 71° F.

Mr. Watson's specimen is not sufficiently perfect to decide with certainty, but it looks very much like the present species. The examination of better material since the first description was made shows this species to have the regular *Drillia* aperture and nucleus, and it is therefore referred to that genus. The curvature and number of the ribs vary slightly, and the spaces between are indifferently perfectly smooth, or finely spirally striate, especially toward the anterior end of the shell. . . . . These shells are so very small and polished that it is extremely difficult for an artist in pure line-work to represent them adequately. Only lithography with its delicate mutations of shade can do it properly. For this reason our figures of this species are less satisfactory than most of these which represent rougher and larger shells.

Critically examining the material in the collection of the United States National Museum, I find that Dr. Dall in his last report embraced three species under this name, one belonging to the genus *Leptadrillia* Woodring, another to *Syntomodrillia* Woodring, and a third to an unnamed genus. Woodring, in selecting a specimen for his genotype, unfortunately chose the specimen having the " spiral sculpture consisting of fine threads on pillar and of microscopic threads between ribs of later whorls," (Woodring), which applies not to *Drillia lissotropis* Dall as defined in 1881, but to *Drillia lissotropis* Dall in part, as emended by him in 1889. It is the *Drillia lissotropis* Woodring 1928, an undescribed species, which I now call *Syntomodrillia woodringi.*

SYNTOMODRILLIA WOODRINGI, n. sp.

Plate 8, figs. 5, 7, 9

1889. *Drillia lissotropis* Dall, Bull. Mus. Comp. Zool. pp. 91-92, in part. Not *Drillia lissotropis* Dall, 1881, ibid., pp. 58-59.
1928. *Drillia lissotropis*, Woodring, Miocene mollusks from Bowden, Jamaica, pt. 2, pp. 160-161.

Shell small, fusiform, yellowish white, shining. Nuclear whorls 2.5, smooth, well rounded; the early postnuclear whorls marked by almost nodulose axial ribs, which are largest posterior to the periphery and give to these whorls a somewhat crenulated aspect. These ribs gradually grow longer on the succeeding turns, and on the last turn they extend over the base to the columella. They are strongest on the middle of the shell and become less strong anteriorly. There are 10 on the first and second postnuclear whorls, 12 on the third to sixth, and 16 upon the last. On the last whorl there is a decided hump a little behind the aperture. The spaces separating the axial ribs are about as wide as the ribs, or a little wider. They are crossed on the spire by slender, spiral threads, which are confined to the anterior two thirds of the turns between the summit and the suture. Of these, six occur upon the fourth, seven upon the fifth and last whorl between the summit and the periphery, and eight between the periphery and the insertion of the columella on the well-rounded base. The columella is of moderate length crossed by nine almost equal spiral threads, which are much stronger than those on the base. Aperture moderately long and rather broad, decidedly channeled at the posterior angle of the aperture and also anteriorly; outer lip thin, decidedly channeled at the posterior angle, and protracted between the channel and its anterior limitation; inner lip reflected over and appressed to the columella as a thick callus that extends up over the parietal wall, where it forms a lump near the posterior angle of the aperture.

Type.—U.S.N.M. no. 87477c, dredged by the *Blake* at station 273 in 103 fathoms off Barbados. It has 8.7 whorls and measures: Length, 18.2 mm; diameter, 3.1 mm.

SYNTOMODRILLIA CAROLINAE, n. sp.

Plate 8, figs. 1, 4, 8

Shell small, elongate-conic, horn-colored with a pinkish flush. Nuclear whorls a little more than 2, forming a conspicuous slender apex, whose whorls are well rounded and smooth. Postnuclear whorls

rather strongly rounded, marked by strong, slightly sinuous axial ribs, which become slightly enfeebled near the summit of the whorls but extend conspicuously across the posterior sulcus. These ribs are about as wide as the spaces that separate them. Twelve occur upon the first to third, 14 upon the fourth, and 16 upon the last turn, on which they extend across the base to the columellar area, where they become evanescent. In addition to the ribs the entire surface is marked by rather well developed incremental lines. The spiral sculpture is absent on all the whorls but the last. On this, five slender, feeble spiral threads are present anterior to the sutural sinus. Suture well impressed. Base moderately long, well rounded, marked by seven feebly developed spiral cords that grow stronger from the periphery anteriorly. Columella short and stubby, marked by five strong spiral cords. Aperture decidedly channeled anteriorly and posteriorly, the posterior channel deep and slightly thickened at the edge. There is a strong varix about one fourth of a turn behind the aperture. Outer lip protractive from the posterior sinus to the anterior notch, inner lip reflected over the columella as a heavy callus that has almost the aspect of a distinct lip, parietal wall covered by a heavy callus that develops into a strong nodule near the posterior angle.

Type.—U.S.N.M. no. 430853, collected from station 10 in 120 to 160 fathoms between latitude 18°29′20″ N., longitude 66°05′30″ W. and latitude 18°30′24″ N., longitude 66°04′15″ W. It has 7.2 whorls and measures: Length, 6.2 mm; diameter, 2.2 mm.

U.S.N.M. no. 430999 contains two topotypes from the same locality.

This species is closely related to *Syntomadrillia woodringi,* from which it can at once be distinguished by its much stouter and fewer spiral cords on the columella and by its more slender nuclear whorls.

SYNTOMODRILLIA TANTULA, n. sp.

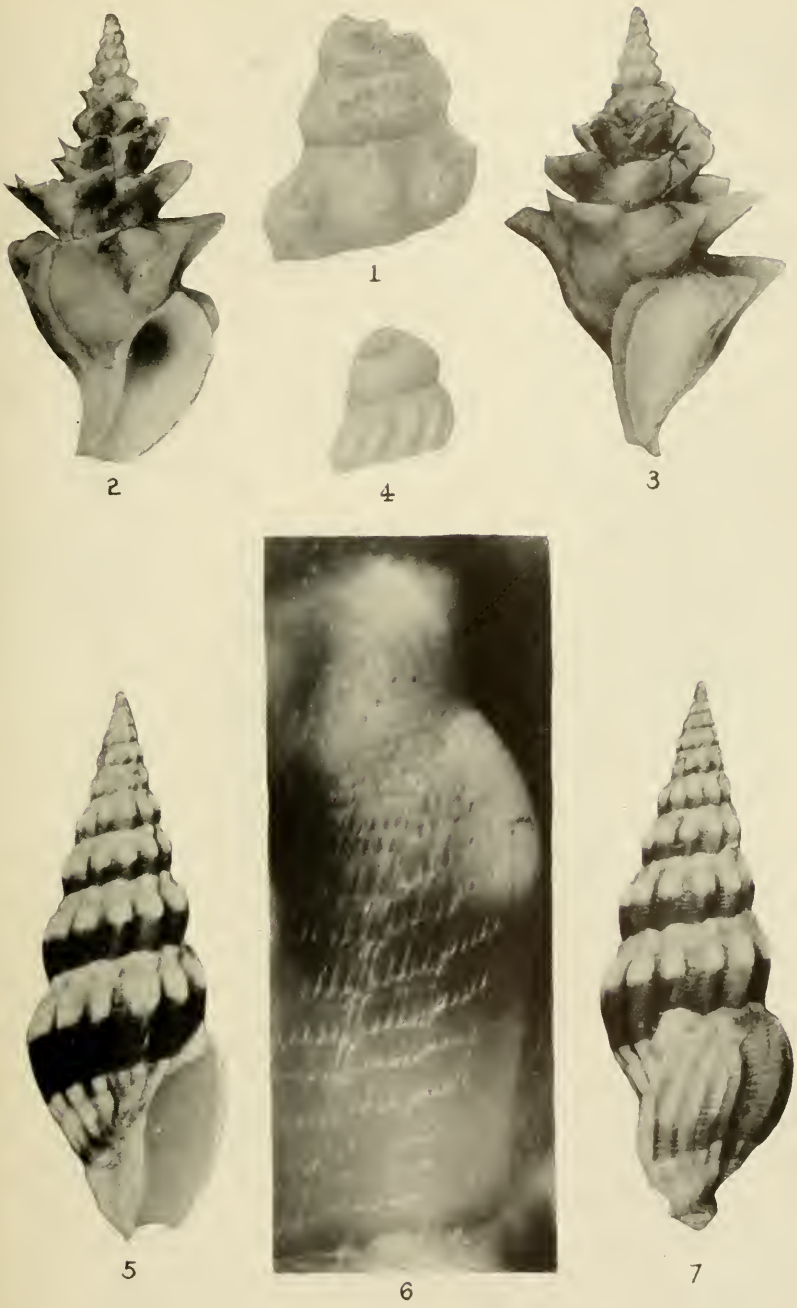
Plate 8, figs. 2, 3, 6

Shell small, elongate-conic, pale wax-yellow. Nuclear whorls 1.6, smooth. Postnuclear whorls marked by strong, slightly protractively slanting axial ribs which extend over the posterior sinus, where they become slightly retractively curved but not interrupted. Anteriorly they extend over the rounded periphery and base to the columella. These axial ribs are about as wide as the spaces that separate them. Ten are present on the first three postnuclear whorls, 12 on the fourth, and 14 on the last turn. The spiral sculpture consists of well-incised lines anterior to the posterior sinus, no spiral sculpture being noticed on the latter. Of these lines, 5 are present on the second, 6 on the

third, 10 on the fourth, and 19 on the last whorl and base. On the columella the spaces between these lines form moderately strong threads which increase in size from the insertion of the columella toward its tip. Nine of them are present. Aperture moderately large, decidedly channeled anteriorly and posteriorly; the posterior channel is very deeply incised. The outer lip is protracted anterior to the posterior channel into a clawlike element. There is a very heavy varix a little behind the outer lip on the last turn. The inner lip is reflected over the columella as a heavy callus that extends over the parietal wall and extends as a decided knob opposite the outer lip.

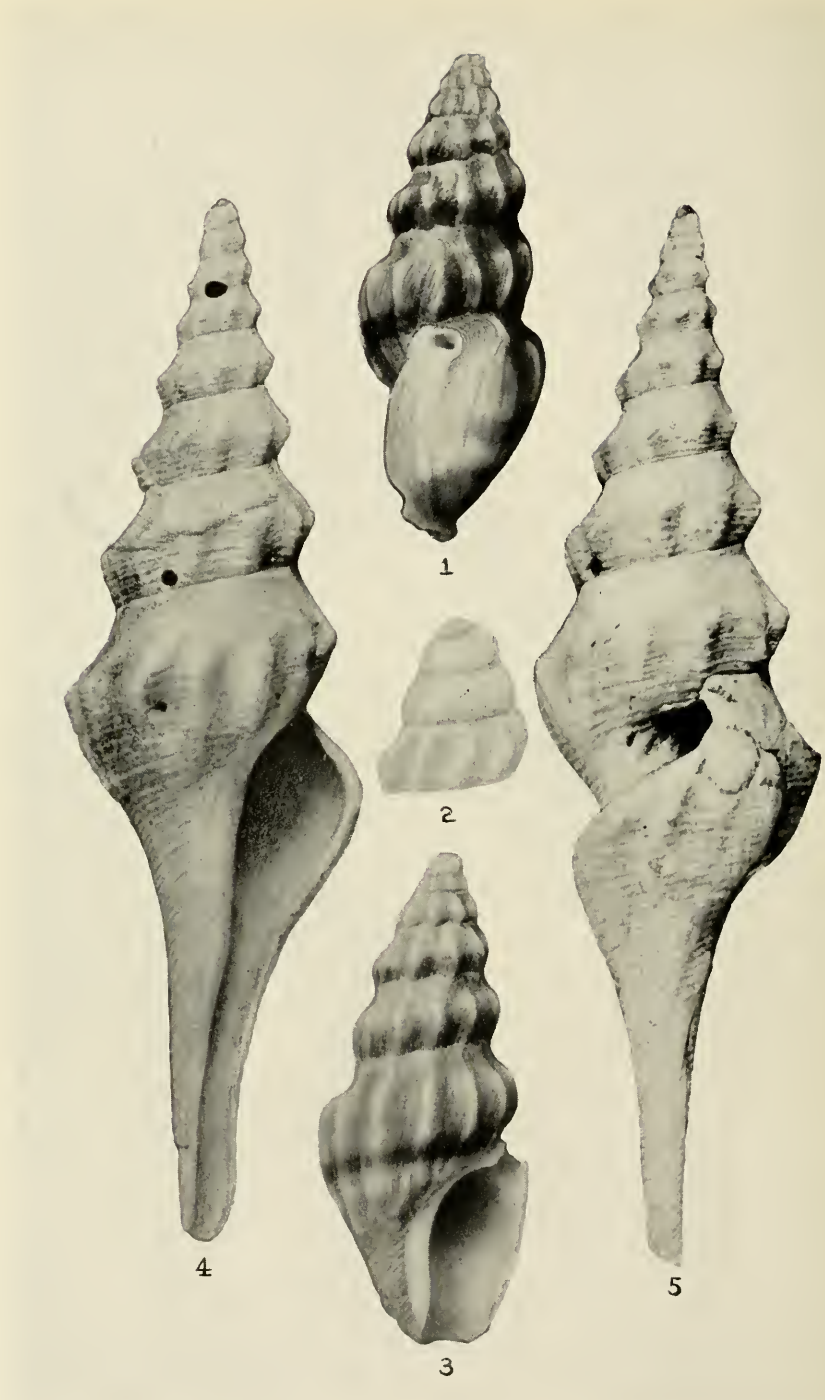
Type.—U.S.N.M. no. 430164, dredged at station 16, off the north coast of Puerto Rico in 38 to 95 fathoms between latitude 18°29′40″ N., longitude 66°08′30″ W. and latitude 18°31′00″ N., longitude 66°10′15″ W. It has 7.6 whorls and measures: Length, 7.1 mm; diameter, 2.8 mm.

Another specimen, U.S.N.M. no. 430854, not quite complete, is from the same station.



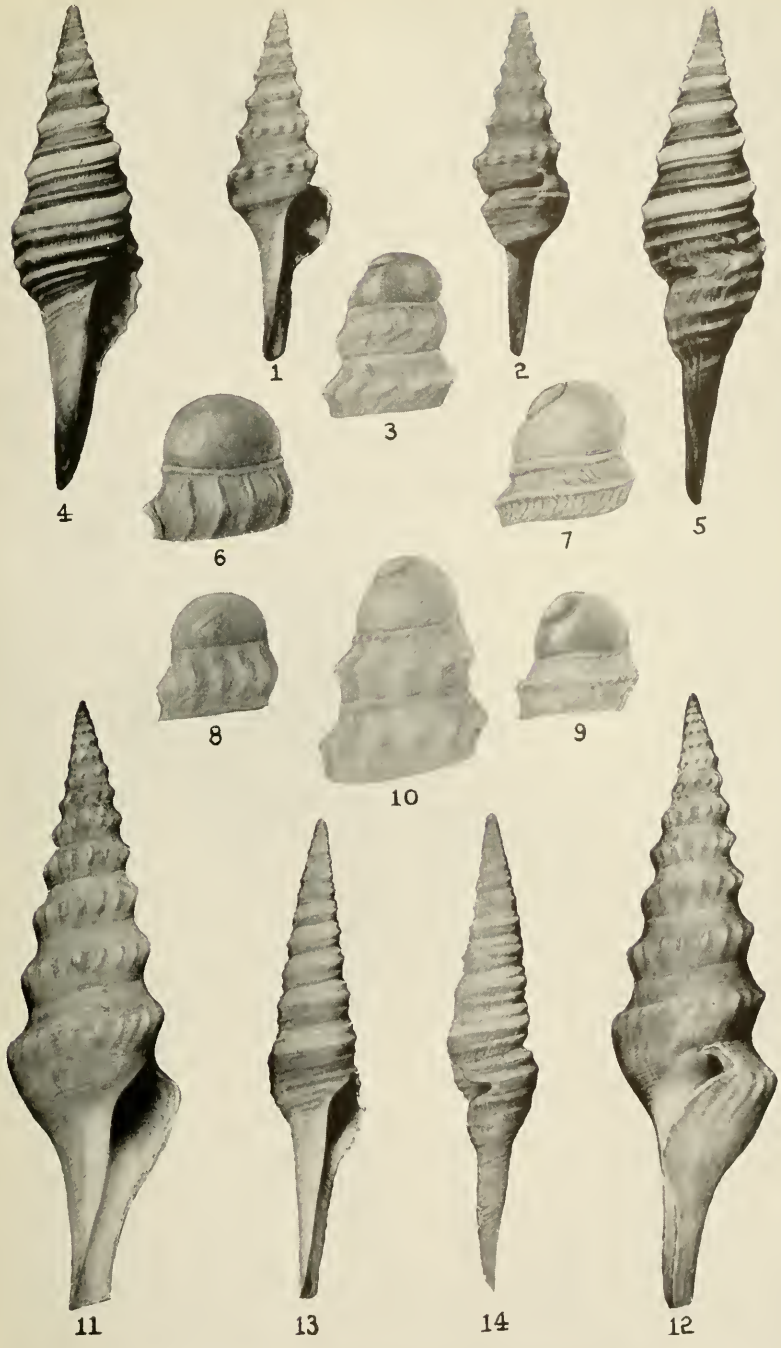
NEW MOLLUSKS OF THE FAMILY TURRITIDAE

1-3. *Eldridgea johnsoni.*
4-7. *Fenimorea janetae.*



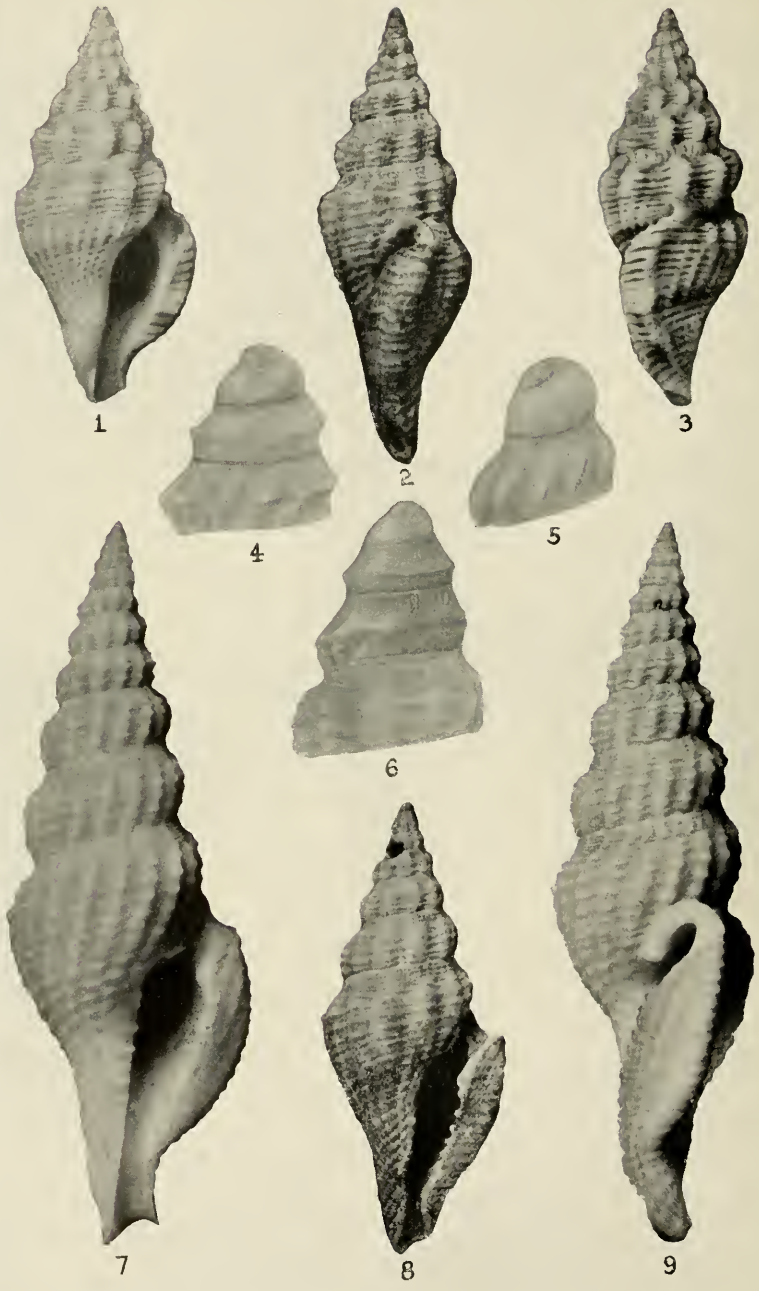
NEW MOLLUSKS OF THE FAMILY TURRITIDAE

1-3, *Douglassia evae.*
4, 5, *Fusisyrinx fenimorei.*



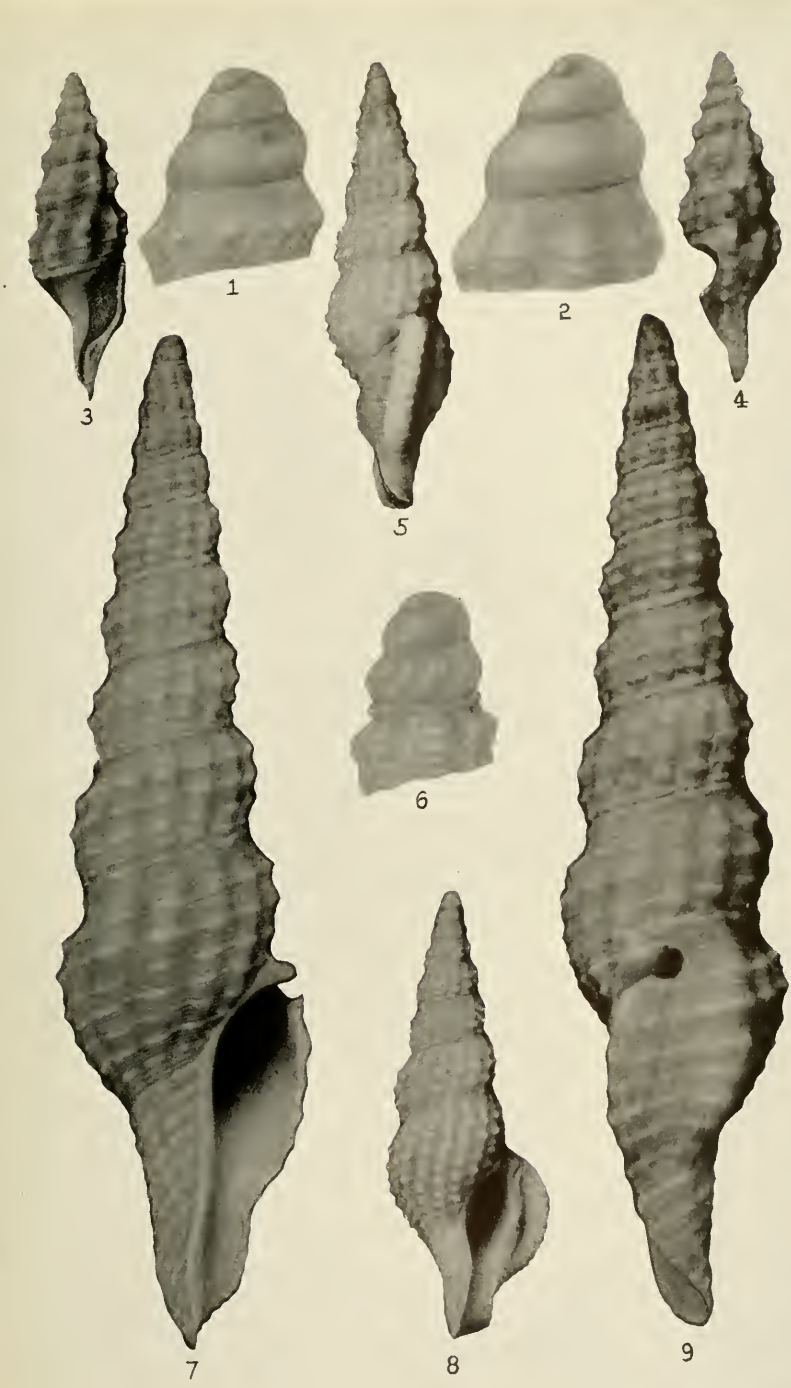
NEW MOLLUSKS OF THE FAMILY TURRITIDAE

1, 2, 10, *Fusiturricula enae.*
3, 11, 12, *Leucosyrinx janetae.*
4-7, *Polystira florencae.*
8, 9, 13, 14, *Polystira macra.*



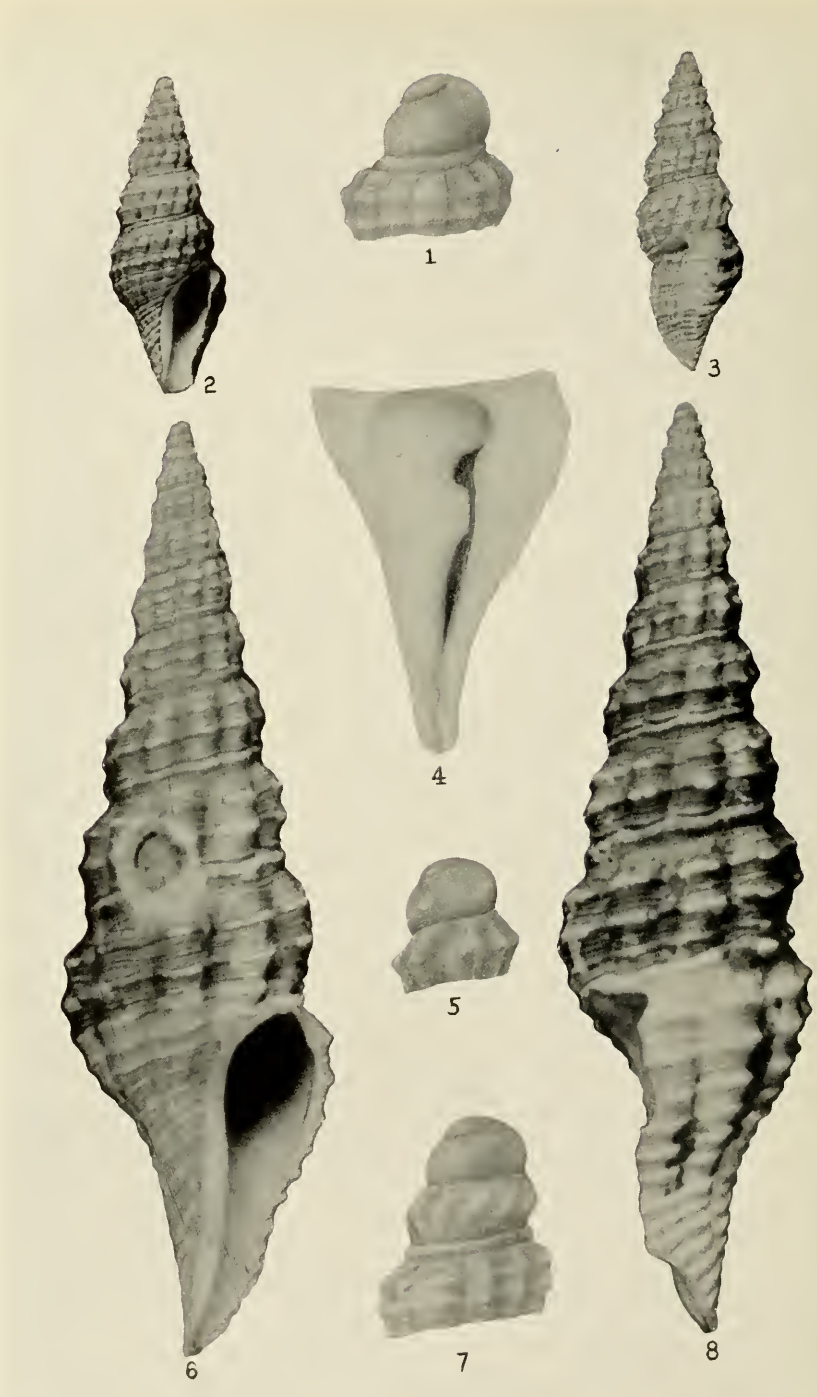
NEW MOLLUSKS OF THE FAMILY TURRITIDAE

1, 3, 6, *Glyphostoma (Glyphostoma) elsae.*
2, 5, 8, *Glyphostoma (Glyphostoma) herminea.*
4, 7, 9, *Glyphostoma (Glyphostoma) epicasta.*



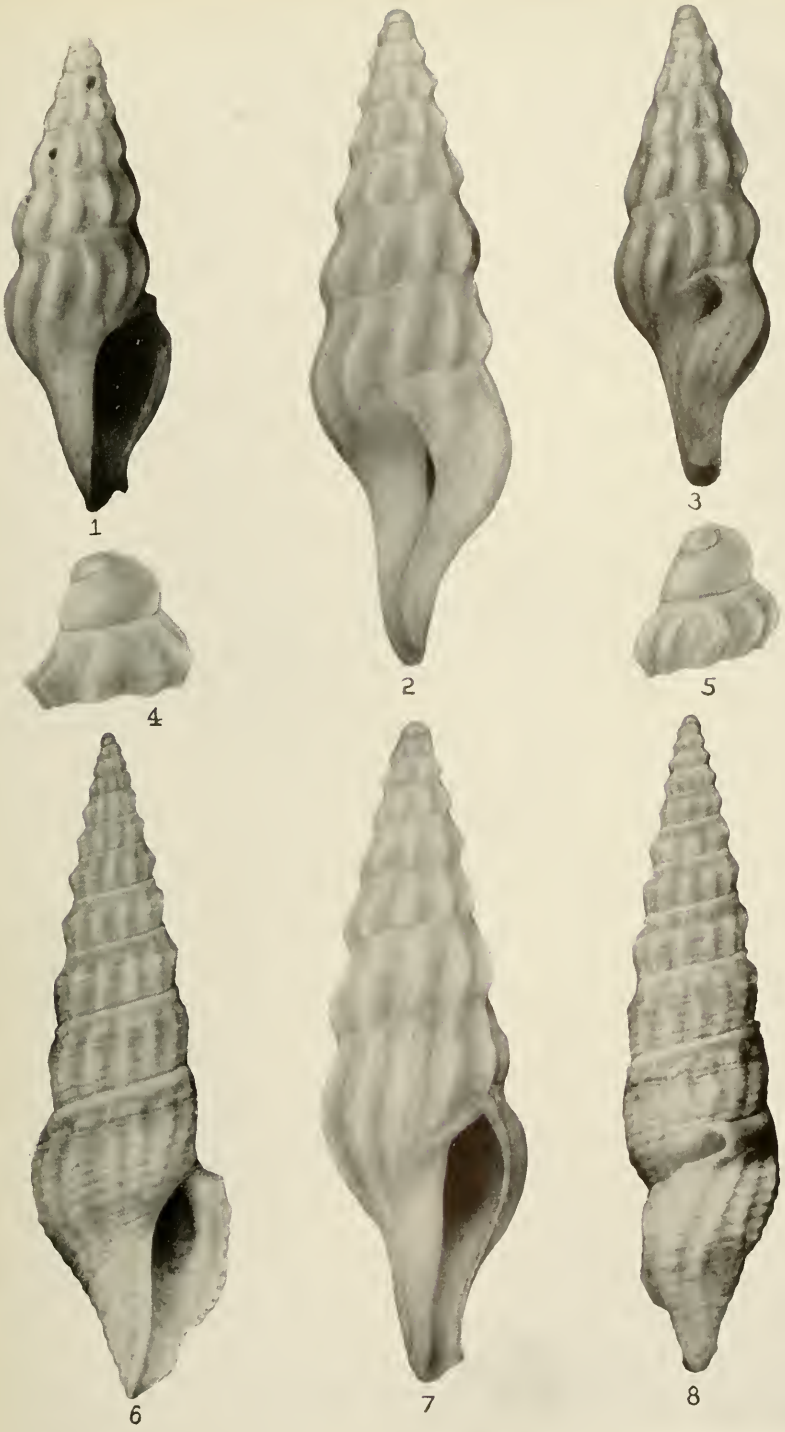
New Mollusks of the Family Turritidae

1, 3, 4. *Glyphostoma (Glyphostomops) oenoa.*
2, 5, 8. *Glyphostoma (Glyphostomops) hendersoni.*
6, 7, 9. *Compsodrillia petersoni.*



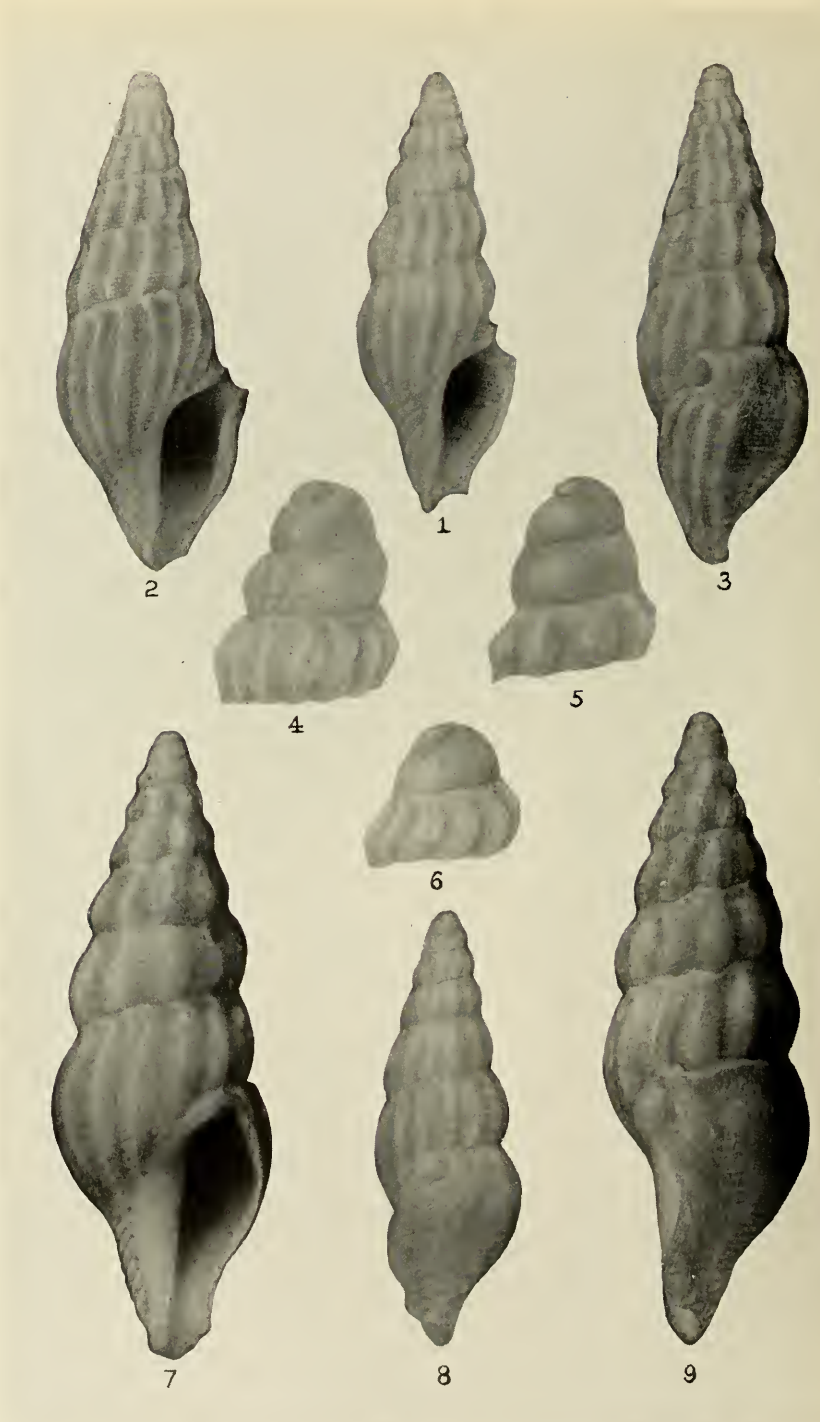
NEW MOLLUSKS OF THE FAMILY TURRITIDAE

1-3, *Compsodrillia nana.*
4, 5, *Darbya lira.*
6-8, *Compsodrillia disticha.*



NEW MOLLUSKS OF THE FAMILY TURRITIDAE

1, 3, 4, *Leptodrillia loria.*
2, 5, 7, *Leptodrillia splendida.*
6, 8, *Darbya lira.*



NEW MOLLUSKS OF THE FAMILY TURRITIDAE

1, 4, 8, *Syntomodrillia carolinae.*
2, 3, 6, *Syntomodrillia tantula.*
5, 7, 9, *Syntomodrillia woodringi.*