Mollusca Of The Moodys Branch Formation Mississippi

DAVID T. DOCKERY III

BULLETIN 120

MISSISSIPPI GEOLOGICAL, ECONOMIC AND TOPOGRAPHICAL SURVEY

WILLIAM HALSELL MOORE
Director and State Geologist

Jackson, Mississippi
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LETTER OF TRANSMITTAL

Office of the Mississippi Geological, Economic and Topographical Survey

Jackson, Mississippi
July 11, 1977

Mr. Gordon W. Gulmon, Chairman, and
Members of the Board
Mississippi Geological, Economic and
Topographical Survey

Gentlemen:

I am pleased to transmit to you Bulletin 120, entitled, "Mollusca of the Moodys Branch Formation, Mississippi," by David T. Dockery, III.

This bulletin is the result of several years of intensive work on this fauna, and there are twenty new species proposed in this report. The photographs are excellent quality and will be a basis of comparison with fauna by paleontologists worldwide.

The State has been famous for fossil specimens from the Moodys Branch Formation for over one hundred years, and the Mississippi Geological Survey is indeed fortunate to be able to present this important contribution to the paleontology of the Jackson Group.

Respectfully submitted,

William H. Moore
Director and State Geologist

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FIGURES

MOLLUSCA OF THE MOODYS BRANCH FORMATION, MISSISSIPPI

David T. Dockery III[1]

ABSTRACT

This monograph is a comprehensive review and study of the molluscan fauna of the Moodys Branch Formation in Mississippi. The systematic discussion for the gastropods follows a classification proposed by Taylor and Sohl (1962), and that for the cephalopods and bivalves follows the *Treatise on Invertebrate Paleontology* classification in part K (1964) and part N (v. 1 and 2, 1969; v. 3, 1971), respectively. Reference is made to 265 molluscan species, subspecies, and variations present in the Moodys Branch Formation within Mississippi, of which 213 are illustrated; 20 species are new. The text is accompanied by 28 plates containing 490 illustrations. Some of the shells were photographed under ultraviolet light to show the original color patterns.

The Moodys Branch molluscs lived in shallow-marine waters near a retrograde shoreline. This encroaching shoreline of the transgressive Jackson sea was a marine destructional phase of subsiding delta systems in the underlying Claiborne Group. Climatic conditions were tropical or subtropical, as suggested by the great variety of species and by the presence and diversity of such groups as the cypraeids. Three faunal provinces are recognized: (1) one containing the fauna of the type locality in Jackson, Mississippi, (2) another to the north in Yazoo County, Mississippi, containing a fauna similar to that of the Jackson Group (White Bluff Formation) in Arkansas, and (3) a third in the subsurface of southern Mississippi, which is characterized by *Camerina*, a foraminifer. Analysis of depositional evironments within the Jackson Group and upper Claiborne Group of Mississippi are included in cross sections along the general sedimentary strike and slope (figures 2 and 3).

INTRODUCTION

Timothy A. Conrad, in 1856, established the terms Claiborne, Jackson, and Vicksburg as formal stratigraphic units within the Gulf Coast Eocene, and placed them in their proper sequence. Presently, the Claiborne Group is recognized as middle Eocene, the Jackson Group as upper Eocene, and the Vicksburg Group as Oligocene in age. The Jackson division was named for Jackson, Mississippi, where Conrad collected fossil molluscs which he recognized as intermediate in age between the Claiborne and Vicksburg faunas. Drawings of these Jackson molluscs had been published two years earlier in Wailes' *Report on the Agriculture and Geology of Mississippi* (1854, p. 289, pls. 14-17). According to Wailes' description of the fossiliferous beds at Jackson, it seems that the Conrad collection was made from

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exposures of the Moodys Branch formation along Town Creek. This locality should be considered the type for Conrad's Jackson division.

Lowe (1915) proposed the name Moodys Branch for the basal fossiliferous sands of the Jackson Group. The type locality of the Moodys Branch Formation is along a section of Moodys Branch, a small tributary of the Pearl River, just south of the intersection of Poplar Boulevard and Peachtree Street in Jackson, Mississippi. Moodys Branch has since been straightened, and the type locality partially filled in. The alternate type locality is at "Fossil Gulch", a ravine along the nature trail at Riverside Park in Jackson.

The majority of specimens illustrated in this text were collected from the Town Creek locality in Jackson. Molluscs described and illustrated here should be a useful guide in the recognition of Jackson faunas elsewhere and in the correlation of the Jackson Group with other formal stratigraphic units.

ACKNOWLEDGMENTS

The writer wishes to express his appreciation to Dr. Emily H. Vokes, Dr. Katherine V. W. Palmer, Dr. Norman F. Sohl, and Mr. Frederic F. Mellen for reading the manuscript and giving constructive advice. Dr. Emily Vokes was the major advisor for this work, and Dr. Sohl helped with the systematics. Mr. Mellen advised largely in the geologic aspect of the manuscript. Dr. Palmer helped not only with the manuscript but contributed in a large way at the beginning of this work when the writer visited the Paleontological Research Institution in Ithaca, New York, to study the Institute's Jackson Eocene collections. Her enthusiasm and direction are partially responsible for the initiation of this paper.

Others who have made important contributions include Mr. James E. Allen who helped with the identification of many of the smaller gastropods and Mr. Crawford N. Cate who helped with the classification of the cypraeids. Dr. W. H. Norman, professor of biology at the University of Mississippi, was gracious to make the Biology Department's photographic facilities available for this project. The Biology Department's photographer, Mr. William C. Martin, also gave valuable assistance and instructions with the photographic work. Photographs exposed under ultraviolet light were taken by Drs. Emily and Harold Vokes.

Further appreciation is extended to Dr. Harold E. Vokes who often has taken considerable time to answer questions, and to the staff of the Mississippi Geological Survey who have advised and supported this project.

PREVIOUS WORK

The initial publication of the Moodys Branch Mollusca was Conrad's faunal list and plates in Wailes' (1854) *Report on the Agriculture and Geology of Mississippi*. Later Conrad (1865) described several

molluscan species which he mistakenly listed from Enterprise, Mississippi. These species are now known to be from exposures of the Moodys Branch Formation along Garland Creek in Clarke County, Mississippi.

Other early workers include Truman H. Aldrich and Otto Meyer whose descriptions and illustrations of Tertiary molluscs appear in E. A. Smith's (1886) Bulletin No. 1 of the Geological Survey of Alabama. Meyer described many small species that had been previously overlooked. Though he was a good paleontologist, Meyer (1885) will be remembered for his futile attempt to reverse the true sequence of the Claiborne, Jackson, and Vicksburg groups.

Later work concerning the Jackson Mollusca include William H. Dall's (1890, 1898, 1900, and 1903) review of the Tertiary fossils of the southern states, Thomas W. Vaughan's (1896) descriptions of Jackson species, Gilbert D. Harris' (1894) recognition of the Jackson Group in Arkansas, and Thomas L. Casey's (1904) descriptions of turrids. Charles W. Cooke, in 1918, listed 200 molluscan species from Jackson, Mississippi, and in 1926 described seventeen new species from the type locality of the Moodys Branch Formation at Jackson.

E. N. Lowe (1915) divided the Jackson "Formation" into three members, a lower Moodys Branch Green Marl Member, a middle Yazoo Clay Member, and an upper Madison Sand Member. Presently, the term Madison Sand Member has been dropped in favor of the Forest Hill Formation which is considered to be lower Oligocene. The Moodys Branch and Yazoo divisions are upper Eocene in age and are placed as formations in the Jackson Group.

The most comprehensive work on the Jackson Mollusca to date is that of Gilbert D. Harris and Katherine V. W. Palmer (1946, 1947) in volume 30 of the *Bulletins of American Paleontology* entitled *The Mollusca of the Jackson Eocene of the Mississippi Embayment (Sabine River to the Alabama River)*. This work summarizes the work of previously mentioned writers and includes descriptions of sixty-one new species or varieties and contains sixty-five plates. Later Palmer and Doris C. Brann (1965, 1966) catalogued the Mollusca from the Paleocene and Eocene of the southern and eastern United States.

STRATIGRAPHY

The Moodys Branch Formation forms the basal part of the Jackson Group and consists of fossiliferous, glauconitic sands, calcareous clays, and some limestones. These sediments grade upward into clays of the Yazoo Formation. The lower contact is erosional with the exception of a few localities where it may be gradational.

Along the outcrop, in eastern and central Mississippi, the Moodys Branch Formation is generally less than 20 feet (6 meters) in thickness and thickens northwestward to 43 feet (13 meters) in Yazoo County (Mellen, 1940, p. 16). The Pastoria Sand Member of the White Bluff Formation (lower Jackson Group) in the Desha Basin of Arkansas is

similar in lithology and fossil content to the Moodys Branch Formation in Yazoo County, Mississippi, and has a thickness up to 100 feet (30 meters) (Wilbert, 1953, p. 40).

To the east of Mississippi the terrigenous clastics of the Jackson Group grade laterally into the limestones of the Ocala Group in Georgia and Florida. West of Mississippi the Moodys Branch Formation maintains a relatively uniform thickness in Louisiana but thickens in Texas, where it grades into nonfossiliferous sands. In the subsurface of Mississippi, the terrigenous clastics of the Jackson Group grade into carbonates along the north limb of the Wiggins Uplift in the southeastern part of the State (see Figure 3).

Sediments of the lower Jackson Group (Moodys Branch Formation) along the outcrop of Mississippi (Figure 1)may be divided into two terrigenous clastic facies on the basis of fossil assemblages, sedimentary structures, lithology, and the thickness of the sedimentary sequence. A southern terrigenous facies extends across the southern portion of the Mississippi Embayment and includes exposures at Garland Creek in Clarke County, Mississippi, in Jackson, Mississippi, and in Montgomery, Louisiana. A northern terrigenous facies includes lower Jackson sediments in Yazoo County, Mississippi, and extends northward within the Mississippi Embayment to include portions of the White Bluff Formation in Arkansas. A third facies occurs in the subsurface of southeastern Mississippi and consists of carbonates similar to those of the underlying Cook Mountain Limestone (upper Claiborne Group) occurring in the same area (see Figure 3).

Northern Terrigenous Facies

Sediments of the northern terrigenous facies are well exposed along Techeva Creek in Yazoo County, Mississippi. Lower Jackson sedimens along this Creek show the following sequence (this sequence does not necessarily continue to other lower Jackson exposures in Yazoo County):

Bed	Description	Thickness Feet	Thickness Meters
3.	*Periarchus* bed: A fossiliferous, glauconitic, brown (weathered) to bluish-gray (fresh) clayey sand containing numerous *Periarchus lyelli* (Conrad)	6	2
2.	*Glycymeris* bed: A very fossiliferous, glauconitic clayey, bluish-gray sand containing large calcareous concretions and coquina layers of *Glycymeris idonea* (Conrad)	6	2
1.	Clay bed: A silty, dark to light gray clay containing lenses of well-preserved fossils and irregular, cylindrical burrows preserved as clay-ironstone bodies	4+	1.2+

The clay bed is not fossiliferous throughout but contains fossiliferous lenses. Irregular cylindrical burrows are preserved in this bed as clay-ironstone bodies (Figure 9). These bodies occur in layers and generally are horizontally oriented. The lower contact of this bed was not seen along Techeva Creek.

The *Glycymeris* bed is the most highly fossiliferous of the beds (figures 6 and 7) and commonly contains large, spherical, highly fossiliferous, calcareous concretions. One very peculiar feature of this bed is the presence of a 0.5- to 2-foot (0.2- to 0.7-meter) layer with concentrations of *Glycymeris* shells. Locally this layer is a coquina consisting largely of *Glycymeris idonea* (Conrad). Generally the variety of species which are common in this layer is limited and consists mainly of bivalves with disarticulated shells such as *Venericardia* (*Venericor*) *apodensata* Gardner and Bowles and *Diplodonta* (*Diplodonta*) *ungulina yazoocola* Harris. Shells within the coquina layers are generally large and sorted as to size. The *Glycymeris* coquina layer is remarkably persistent along Techeva Creek. Generally there is a single coquina layer within the *Glycymeris* bed, but at some localities as many as three layers occur. These layers show an irregular topography in relation to the bed in which they are contained. Occurrences of numerous *Glycymeris idonea* (Conrad) and *Diplodonta* (*Diplodonta*) *ungulina yazoocola* were also reported to occur at Sims Siding, eight miles north of Yazoo City, Mississippi (Harris, 1946, p. 50, 85-86).

Ophiomorpha, a fossil burrow (Figure 8), is common within the *Glycymeris* coquina layers. This fossil burrow is similar to that of the present-day callianassid shrimp.

Sediments within the *Glycymeris* bed are generally bioturbated and are massive in appearance. Some inclined laminations dipping to the west are preserved below the coquina layer. The basal portion of the *Glycymeris* bed becomes very clayey and contains an excellent variety of well-preserved fossils.

The *Periarchus* bed grades upward into the calcareous blocky clays of the Yazoo Formation and downward into the very fossiliferous sands of the *Glycymeris* bed. Weathered portions of this bed exhibit rows of calcareous nodules containing *Periarchus lyelli* (Conrad). Fossils other than *Periarchus* are poorly preserved.

Lower Jackson sediments in Arkansas have many similarities to the aforementioned sediments in Yazoo County, Mississippi. Many fossil molluscs which are common in the lower Jackson of Arkansas and Yazoo County, Mississippi, are rare or absent in sediments of the southern terrigenous facies. Two gastropods, *Mazzalina inaurata humerosa* Harris and *Bullia altilis* (Conrad) are restricted within the Jackson Group to the northern terrigenous facies and are common along Techeva Creek. Other similarities between the lower Jackson sediments of Arkansas and Yazoo County, Mississippi, include: (1) the occurrence of clay-ironstone bodies (burrows) (Wilbert, 1953, Figure

8), (2) cross-bedded glauconitic sands, (3) weathered greensands containing *Periarchus lyelli* (Conrad) and cemented by calcium carbonate (*idem*, p. 65), and (4) a sequence of lower Jackson fossiliferous sands generally greater than 20 feet (6 meters) thick.

Southern Terrigenous Facies

The southern terrigenous facies is present at the type locality of the Jackson Group in Jackson, Mississippi, and at Garland Creek, Mississippi, and Montgomery, Louisiana. At these localities the Moodys Branch Formation consists of a lower glauconitic sand and an upper glauconitic, highly calcareous, clayey sand. The combined thicknesses of these beds generally vary from 7 to 15 feet (3 to 5 meters). A zone of burrowing and reworking extends from the base of the Jackson sediments into the lignitic clays of the upper Claiborne Group. Calcareous, glauconitic, clayey sands in the upper part of the sequence grade upward into calcareous, blockly clays of the Yazoo Formation.

The lower Jackson faunal assemblages exposed along Town Creek at Jackson, Mississippi, and at Montgomery, Louisiana, are remarkably similar. A gastropod, *Vasum humerosum* Vaughan, which previously appeared to be restricted to Montgomery, Louisiana, was found by the writer to be present at the Town Creek exposure. Another gastropod, *Tornatellaea lata* (Conrad), found in great numbers in the basal glauconitic sands of the Moodys Branch Formation at Garland Creek, had not been reported from any other Jackson Group locality (Palmer, 1947, p. 461). However, several specimens of *Tornatellaea lata* were found later along a sewer excavation that crossed Town Creek and cut through the basal Moodys Branch sand. Also present along the excavation were greenish-gray, calcareous nodules about 0.5 foot (0.2 meter) in diameter with shells of encrusting organisms attached to the outside. These nodules appear to have formed penecontemporaneously with lower Jackson deposition. In cut section these nodules show overlapping whorls of calcareous, glauconitic, clayey sand. The outer surface of the nodules is smooth and hummocky, suggesting that clay and sand had been accreted about a rolling mass of sediment. Such nodules occur commonly at exposures of the Moodys Branch Formation at Montgomery, Louisiana.

The major portion of fossil species found at Montgomery, Louisiana, and Garland Creek, Clarke County, Mississippi, are common at Jackson, Mississippi. These three localities lie along an east-west line that extends across the lower portion of the Mississippi Embayment.

Southern Carbonate Facies

Carbonates of the lower Jackson Group are developed in the subsurface along the north limb of the Wiggins Uplift. These carbonates are similar to those in the upper part of the Claiborne Group (Cook Mountain Limestone) which underlie them, but they are equivalent stratigraphically to the Ocala Limestone, which crops out in Georgia

and Florida. Both the Claiborne and Jackson carbonates are characterized by the presence of *Camerina,* a foraminifer. *Camerina moodybranchensis* Gravell and Hanna is common in lower Jackson carbonates and is very similar in appearance to *Camerina barkeri* (Gravell and Hanna), which is common in the upper Claiborne carbonates. The Jackson and Claiborne carbonates in the subsurface of southeastern Mississippi are separated by a thin unit of terrigenous mud that is equivalent to the Cockfield Formation of the upper Claiborne Group.

DEPOSITIONAL ENVIRONMENTS

The following discussion on depositional environments is taken from the writer's unpublished master's thesis entitled *Depositional Systems in the Upper Claiborne and Lower Jackson Groups (Eocene) of Mississippi.* In this work three depositional systems were recognized in the upper Claiborne Group: (1) a carbonate shelf-bank system, (2) a deltaic system, and (3) a barrier bar system. The northern and southern terrigenous facies of the lower Jackson Group (Moodys Branch Formation) were considered to be a marine destructional phase of high-constructional elongate deltas in the upper Claiborne Group. The southern carbonate facies formed offshore as a response to decreased sediment input during the delta destructional phase.

Lower Jackson Destructional Shelf

The northern and southern terrigenous facies of the lower Jackson Group was formed as a destructional shelf facies by reworking of the upper surface of upper Claiborne delta systems. Marine processes reworked sediments of abandoned and subsiding upper Claiborne delta lobes to produce the marine characteristics exhibited in the lower Jackson Group. Differences in sedimentary structures and fauna within the northern and southern destructional shelf facies are related to the proximity of the strand line.

Sediments of the southern destructional shelf facies consist of reworking deltaic sediments deposited seaward of a retrograding shoreline. As a result, near-shore facies were either transported inland with the retrograding shoreline or were reworked in the offshore environment by wave turbulence and burrowing organisms. The resulting sedimentary sequence of terrigenous shelf sands is thin and highly glauconitic. Faunal assemblages within the southern destructional shelf sediments indicate deposition in a shallow-water, open-marine environment.

The northern destructional shelf facies was deposited in a near-shore environment. Cross-lamination and beds of *Glycymeris* coquinas indicate a shallow, high-energy environment. According to Thomas (1975, p. 221) large populations of living glycymerids occur sporadically in a narrow range of marine habitats which are physically rigorous and where faunal diversity is low. These large populations may occur in near-shore high-energy tidal or wave zones. *Ophiomorpha,* a fossil burrow which is common in the *Glycymeris* beds, is

also indicative of a near-shore environment. *Ophiomorpha* is similar to the burrow of the modern callianassid shrimp and is common within shoreface environments (Howard, 1972, p. 219). Palmer (1947, p. 277-278) described a fresh-water gastropod *Hemisinus jacksonius* Palmer in the northern destructional shelf facies in Arkansas. The presence of *Hemisinus* and of thick layers of oyster shells with abundant barnacle remains led Palmer (*idem*, p. 278) to conclude that the lower Jackson environment in Arkansas was similar to that of modern tidal flats.

The sedimentary sequence exposed along Techeva Creek indicates a change in the depositional environment from lagoon, to foreshore and beach, to open marine. Silty clays of the lower clay bed were deposited in a lagoonal environment which developed above subsiding delta-plain sediments. The fine-grained sediments (silts and clays) and the absence of *Periarchus* suggest a low-energy, brackish water environment. Sand and shell coquinas of the *Glycymeris* bed were deposited along high-energy beach-shoreface environments which migrated inland across previously deposited lagoonal muds, whereas sands and clays of the *Periarchus* bed were deposited in an open marine environment which developed seaward of the retrograding shoreline.

Lower Jackson Carbonate Shelf

The lower Jackson carbonate shelf was an offshore environment that formed above sediments of the environments previously occupied by the prodelta and shelf facies of upper Claiborne delta systems. As input of terrigenous clastics from upslope areas ceased, carbonate deposition similar to that in the upper Claiborne Group was resumed. The common occurrence of *Camerina*, as well as the mud and wackestone, in both the Claiborne and Jackson carbonate shelves suggests that they were similar in depositional environment.

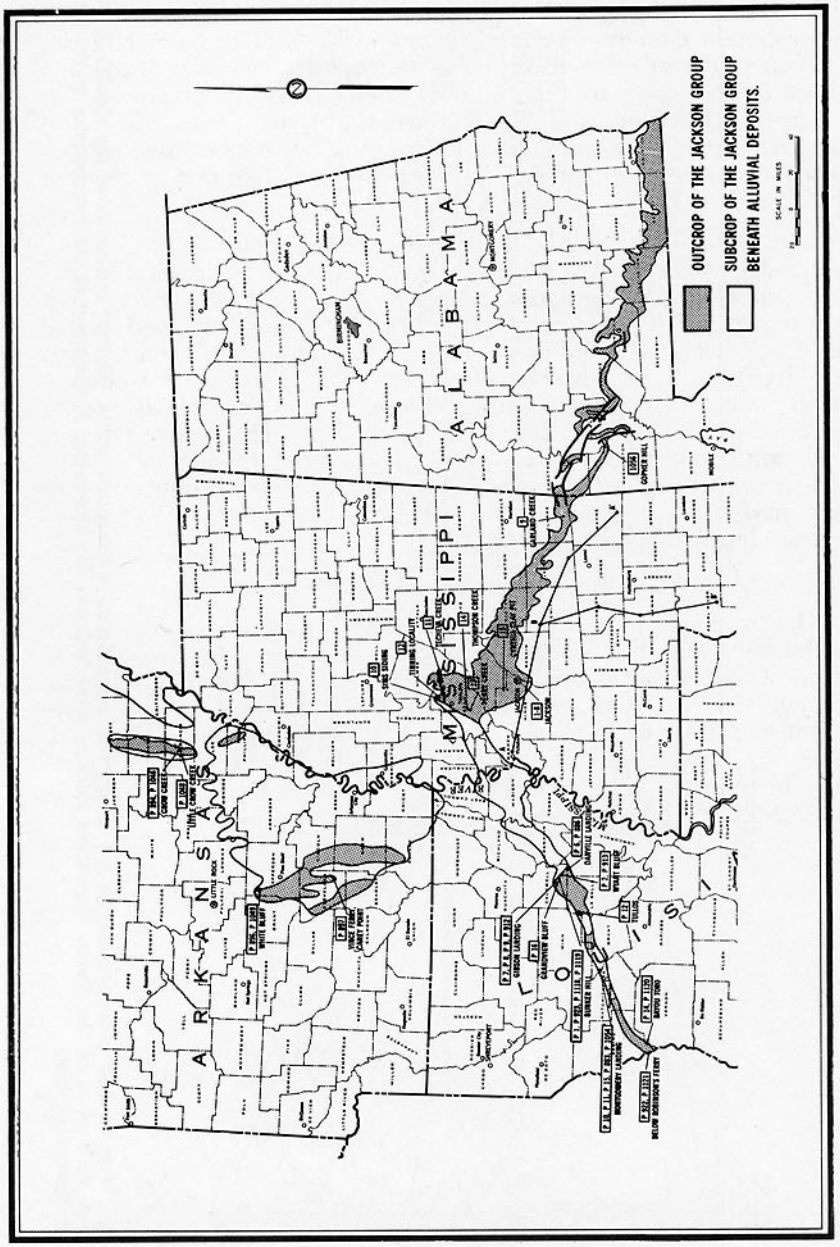


Figure 1. Outcrop and referenced fossil localities for the Jackson Group.

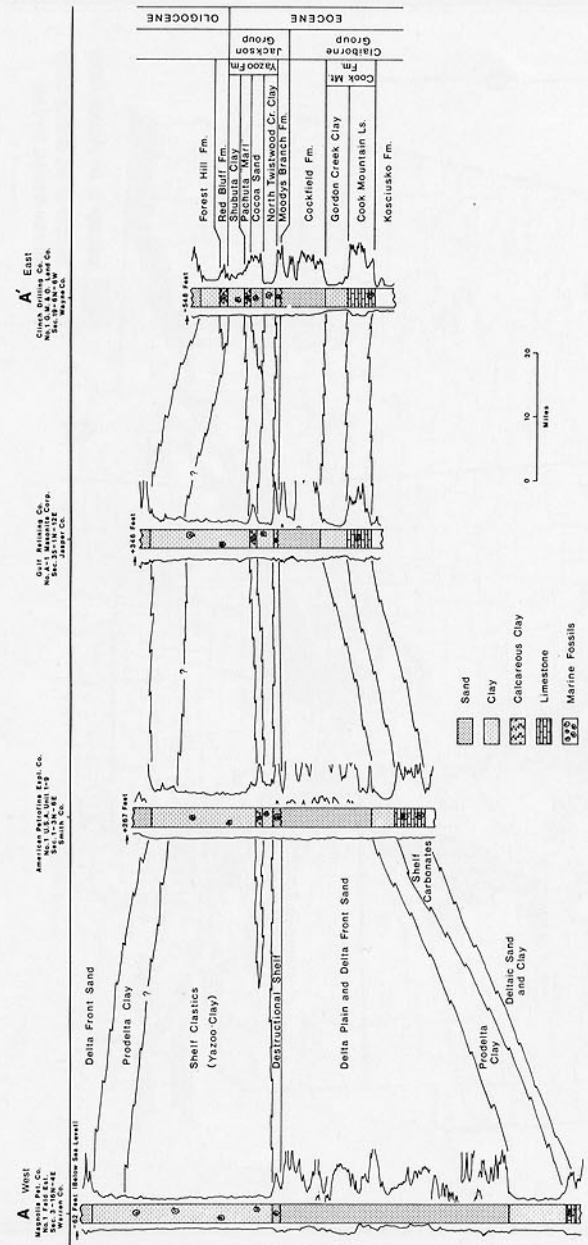


Figure 2. West to east cross section (A-A') along the approximate sedimentary strike. Deltaic sediments of the Cockfield Formation and shelf clays of the Yazoo Formation thicken westward into the Mississippi Embayment as shelf carbonates of the Cook Mountain Formation thin.

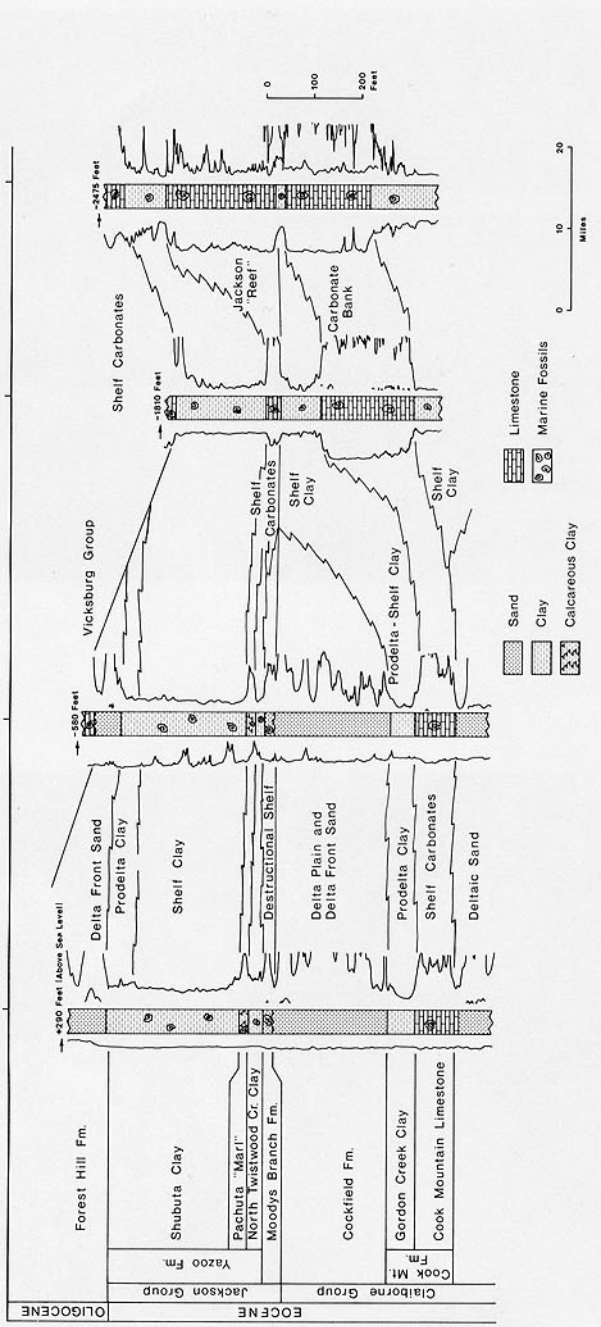


Figure 3. North to south cross section (B-B') along the approximate sedimentary slope. Deltaic sediments of the Cockfield Formation pinch out and shelf clays of the Yazoo Formation thin down slope as shelf carbonates of the Cook Mountain Formation and the Jackson Group thicken into a carbonate bank and "reef" respectively.

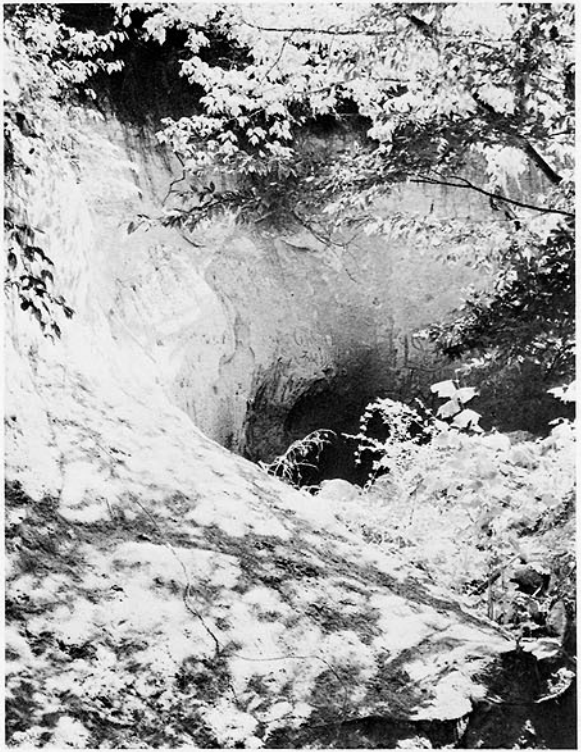


Figure 4. The Moodys Branch Formation at "Fossil Gulch", the alternate type locality at Riverside Park, Jackson, Mississippi.

Figure 5. The erosional contact of the fossiliferous sand of the Moodys Branch Formation (destructional shelf environment) and the underlying organic clay of the Cockfield Formation (delta plain environment) at "Fossil Gulch."

Figure 6. The Moodys Branch Formation at Techeva Creek just upstream from bridge north of Midway, Yazoo County, Mississippi. The *Glycymeris* coquina zone appears as a band in the far bluff; above it is the *Periarchus* bed. Michael Bograd, Survey geologist, is standing on a bench of the *Glycymeris* bed.

Figure 7. *Glycymeris* and *Venericardia* weathering from the *Glycymeris* bed along Techeva Creek just north of Midway, Mississippi (from bench shown in Figure 6).

Figure 8. *Ophiomarpha,* a fossil burrow, weathering from the *Glycymeris* bed along Techeva Creek just north of Midway, Mississippi (from bench shown in Figure 6).

Figure 9. Ironstone burrow fillings in the lower clay bed of the Moodys Branch Formation along Techeva Creek downstream from bridge in the SW/4, Sec. 32-T13N-R1E, Yazoo County, Mississippi.

OUTLINE OF SYSTEMATICS

Phylum MOLLUSCA
Class GASTROPODA
Subclass STREPTONEURA Spengel, 1881
Order ARCHAEOGASTROPODA Thiele, 1925
Superfamily FISSURELLACEA Fleming, 1822
Family FISSURELLIDAE Fleming, 1822

Diodora tenebrosa antica Palmer, 1947
Puncturella jacksonensis Meyer, 1887 — Pl. 1, fig. 1-2, 16.

Superfamily TROCHACEA Rafinesque, 1815
Family TROCHIDAE Rafinesque, 1815

Solariella cancellata jacksonia Palmer, 1947 — Pl. 1, fig. 8-9.

Order MESOGASTROPODA
Superfamily RISSOACEA Gray, 1847
Family RISSOIDAE Gray, 1847

Rissoina mississippiensis Meyer, 1886 — Pl. 1, fig. 3-5.
Ottoina kinkelini (Meyer, 1887)

Family VITRINELLIDAE Bush, 1897

Teinostoma (*Idioraphe*) *verrilli* Meyer, 1885 — Pl. 1, fig. 6-7.
Teinostoma moodiense Palmer, 1947
Tornus infraplicatus (Johnson, 1899) — Pl. 1, fig. 14-15.
Circulus ottonius Palmer, 1947 — Pl. 1, fig. 12-13.
Solariorbis quadrangularis (Meyer, 1887)
Solariorbis subangulatus (Meyer, 1886) — Pl. 1, fig. 10-11.

Superfamily ARCHITECTONICACEA Gray, 1850
Family ARCHITECTONICIDAE Gray, 1850

Architectonica (*Architectonica*) *bellistriata* Conrad, 1854 — Pl. 1, fig. 17-19.
Architectonica (*Architectonica*) sp.
Architectonica (*Architectonica*) *billmoorei*, n. sp. — Pl. 1, fig. 17-19.
Architectonica (*Granosolarium*) *ornata jacksonia* Palmer, 1947 — Pl. 2, fig. 3.
Architectonica (*Granosolarium*) *meekana subsplendida* Palmer, 1947 — Pl. 2, fig. 1.
Architectonica (*Solariaxis*) *acuta* Conrad, 1854 — Pl. 2, fig. 2, 5-6.
Architectonica (*Stellaxis*) *alveata* (Conrad, 1833) — Pl. 3, fig. 1.

Superfamily CERITHIACEA Fleming, 1822
Family TURRITELLIDAE Clarke, 1851

Turritella arenicola (Conrad, 1865) — Pl. 3, fig. 16-17.
Turritella alveata Conrad, 1854 — Pl. 3, fig. 5.
Turritella clevelandia Harris, 1894
Turritella perdita Conrad, 1865 — Pl. 3, fig. 8-9.
Turritella perdita jacksonensis Cooke, 1926 — Pl. 3, fig. 7.
Turritella rivurbana Cooke, 1926 — Pl. 3, fig. 6.
Mesalia vetusta (Conrad, 1833) — Pl. 3, fig. 10.

Family MATHILDIDAE Dall, 1889

Mathilda regularis (Meyer, 1886) — Pl. 3, fig. 11.

Family VERMETIDAE Rafinesque, 1815

Petaloconchus transcostatus, n. sp. — Pl. 3, fig. 18, 20.
Serpulorbis chavani Palmer, 1947 — Pl. 3, fig. 19.

Family CAECIDAE Gray, 1850

Caecum (*Micranellum*) *alterum* Meyer, 1887 — Pl. 3, fig. 21.

Family CERITHIIDAE Fleming, 1822

Bittium koeneni Meyer, 1886 — Pl. 3, fig. 4.

Family LITIOPIDAE H. and A. Adams, 1854

Litiopa spirata (Meyer, 1887)

Family CERITHIOPSIDAE H. and A. Adams, 1854

Seila constricta (H. C. Lea, 1841) — Pl. 3, fig. 15.
Cerithiella aldrichi (Meyer, 1886)
Cerithiella jacksonensis (Meyer, 1886) — Pl. 3, fig. 13-14.

Superfamily EPITONIACEA, S. S. Berry, 1910
Family EPITONIIDAE S. S. Berry, 1910

Tenuiscala aspersa (Meyer, 1887) — Pl. 3, fig. 2-3.
Cirsotrema (*Coroniscala*) *nassulum* (Conrad, 1833) — Pl. 4, fig. 3.
Cirsotrema (*Coroniscala*) *nassulum creolum* Palmer, 1947 — Pl. 4, fig. 2.
Cirsotrema ? sp. — Pl. 4, fig. 1.
Pliciscala pearlensis (Meyer, 1887) — Pl. 3, fig. 12.
Pliciscala cribrum (Cooke, 1926)

Acrilla unilineata (Heilprin, 1880) — Pl. 4, fig. 9.
Acirsa ? solumcostata, n. sp. — Pl. 4, fig. 14.

Superfamily MELANELLACEA Bartsch, 1917
Family MELANELLIDAE Bartsch, 1917

Melanella jacksonensis (de Gregorio, 1890) — Pl. 4, fig. 5.
Niso umbilicata (I. Lea, 1833) — Pl. 4, fig. 7.

Superfamily STROMBACEA Rafinesque, 1815
Family SERAPHSIDAE Jung, 1974

Seraphs sp. — Pl. 4, fig. 12.

Family STROMBIDAE Rafinesque, 1815

Dientomochilus (*Dasyostoma*) *rugostomum* (Johnson, 1899) — Pl. 4, fig. 8, 11.
Calyptraphorus stamineus (Conrad, 1856) — Pl. 4, fig. 6, 10.
Platyoptera extenta (Conrad, 1854) — Pl. 4, fig. 13; pl. 5, fig. 1-2, 5-6, 7-8.

Superfamily HIPPONICACEA Troschel, 1861
Family HIPPONICIDAE Troschel, 1861

Hipponix pygmaeus I. Lea, 1833 — Pl. 5, fig. 3-4.

Superfamily CREPIDULACEA Fleming, 1822
Family CAPULIDAE Ferrusac, 1821

Capulus americanus Conrad, 1854 — Pl. 5, fig. 11.

Family CALYPTRAEIDAE Fleming, 1822

Calyptraea (*Trochita*) *aperta* (Solander, 1766) — Pl. 5, fig. 10.
Calyptraea alta (Conrad, 1854) — Pl. 5, fig. 12.
Calyptraea glandaria, n. sp. — Pl. 5, fig. 9.

Family XENOPHORIDAE Philippi, 1853

Xenophora reclusa (Conrad, 1854) — Pl. 6, fig. 5.

Superfamily CYPRAEACEA Rafinesque, 1815
Family CYPRAEIDAE Rafinesque, 1815

Cypraeorbis ventripotens (Cossmann, 1903) — Pl. 6, fig. 2-4.
Austrocypraea towncreekensis, n. sp — Pl. 6, fig. 7.

Family OVULIDAE Fleming, 1822

Cypraea jacksonensis Johnson, 1899
Notoluponia healeyi (Aldrich, 1923) — Pl. 6, fig. 1.
Notoluponia ampla, n. sp. — Pl. 6, fig. 6.
Cypraedia fenestralis Conrad, 1854 — Pl. 7, fig. 7-8, 11.
Cypraedia pittsi, n. sp. — Pl. 7, fig. 4.
Jenneria ludoviciana (Johnson, 1899) — Pl. 7, fig. 9.
Transovula (Oxycypraea) producta, n. sp. — Pl. 7, fig. 10.

Superfamily NATICACEA Gray, 1840
Family NATICIDAE Gray, 1840

Natica permunda Conrad, 1854 — Pl. 7, fig. 1, 3.
Polinices weisbordi Palmer, 1937 — Pl. 7, fig. 2.
Euspira jacksonensis Palmer, 1947 — Pl. 7, fig. 5.
Sinum jacksonense, n. sp. — Pl. 7, fig. 6.
Globularia morgani (Johnson, 1899) — Pl. 8, fig. 2.

Superfamily TONNACEA Peile, 1926
Family CASSIDAE Swainson, 1832

Phalium taitii johnsoni Palmer, 1947 — Pl. 8, fig. 4-5.
Galeodea petersoni (Conrad, 1854) — Pl. 8, fig. 1.
Galeodea planotecta jacksonia Palmer, 1947
Galeodea (Gomphopages?) millsapsi Sullivan and Gardner, 1939 — Pl. 8, fig. 3, 6.

Family CYMATIIDAE Iredale, 1913

Distorsio (Personella) jacksonensis (Meyer, 1885) — Pl. 9, fig. 5.

Family FICIDAE Conrad, 1867

Ficus filia (Meyer, 1885) — Pl. 9, fig. 11.
Ficus merita (Palmer, 1947)

Order NEOGASTROPODA Wenz, 1938
Suborder STENOGLOSSA Troschel, 1848
Superfamily MURICACEA de Costa, 1776
Family MURICIDAE de Costa, 1776

Hexaplex (Hexaplex) marksi (Harris, 1894) — Pl. 9, fig. 6, 8.
Hexaplex (Hexaplex) katherinae E. H. Vokes, 1968
Hexaplex (Hexaplex) supernus (Palmer, 1947)
Typhis (Rugotyphis) dentatus Johnson, 1899 — Pl. 9, fig. 7.

Superfamily BUCCINACEA Rafinesque, 1815
Family COLUMBELLIDAE Swainson, 1840

Mitrella (Columbellopsis) parva (H. C. Lea, 1841) — Pl. 4, fig. 4.
Metula subgracilis Johnson, 1899 — Pl. 9, fig. 9.
Metula gentilicia Palmer, 1947

Family BUCCINIDAE Rafinesque, 1815

Tritiaria hilli (Harris, 1894)
Tritiaria magnocostata (Johnson, 1899) — Pl. 9, fig. 3.
Tritiaria jacksonensis (Johnson, 1899) — Pl. 9, fig. 4.
Buccitriton jacksonensis (Cooke, 1926)
Pseudoliva vetusta (Conrad, 1833)
Pseudoliva vetusta perspectiva Conrad, 1860 — Pl. 9, fig. 1.
Siphonalia jacksonia Harris, 1897

Family PYRAMIMITRIDAE Cossmann, 1901

Pyramimitra quadralirata, n. sp. — Pl. 9, fig. 10.

Family MELONGENIDAE Gill, 1867

Cornulina dalli (Harris, 1894) — Pl. 9, fig. 2.
Busycon (Echinofulgur) branneri (Harris, 1894) — Pl. 9, fig. 12.

Family NASSARIIDAE Iredale, 1916

Bullia altilis (Conrad, 1832) — Pl. 14, fig. 8, 9.

Family FASCIOLARIIDAE Gray, 1853

Levifusus moodianus Cooke, 1926
Latirus humilior (Meyer, 1885)
Latirus humilior urbanus Palmer, 1947 — Pl. 10, fig. 12.
Latirus humilior jacksonensis (Aldrich, 1885)
Latirus suturalis Johnson, 1899
Latirus liratus, n. sp. — Pl. 10, fig. 6.
Dolicholatirus leaensis (Harris, 1897) — Pl. 10, fig. 8.
Streptochetus limulus (Conrad, 1833) — Pl. 10, fig. 5.
Tritonoatractus pearlensis (Aldrich, 1885) — Pl. 10, fig. 3.
Tritonoatractus montgomeriensis (Vaughan, 1896) — Pl. 10, fig. 7.
Mazzalina inaurata oweni (Dall, 1890) — Pl. 10, fig. 1, 4.
Mazzalina inaurata humerosa Harris, 1894 — Pl. 10, fig. 2.
Fusinus insectoides (Harris, 1897) — Pl. 10, fig. 9, 11.
Clavilithes humerosus Conrad, 1854 — Pl. 10, fig. 10, 13.
Papillina dumosa (Conrad, 1854) — Pl. 11, fig. 6, 7.

Superfamily VOLUTACEA Rafinesque, 1815
Family OLIVIDAE Latreille, 1825

Agaronia media (Meyer, 1885) — Pl. 11, fig. 1-2.
Agaronia mississippiensis (Conrad, 1848) — Pl. 11, fig. 3.
Agaronia sp.

Family VASIDAE H. and A. Adams, 1854

Vasum humerosum Vaughan, 1896 — Pl. 11, fig. 5.

Family HARPIDAE Troschel, 1848

Harpa (Eocithara) jacksonensis Harris, 1897 — Pl. 11, fig. 4.

Family VOLUTIDAE Rafinesque, 1815

Athleta symmetricus (Conrad, 1854) — Pl. 12, fig. 10.
Cf. *Athleta triplicatus* (Meyer, 1887)
Caricella polita Conrad, 1854 — Pl. 12, fig. 3, 5, 8, 9.
Caricella subangulata Conrad, 1854 — Pl. 12, fig. 1-2, 4, 6, 7; pl. 13, fig. 9.
Caricella giganta, n. sp. — Pl. 13, fig. 1-2.
Caricella howei Palmer, 1947 — Pl. 13, fig. 7-8.
Caricella turneri Palmer, 1947 — Pl. 13, fig. 3-4.
Caricella (Reticulacella) fenestra, n. sp. — Pl. 13, fig. 5-6.
Lapparia dumosa (Conrad, 1854) — Pl. 14, fig. 4, 10.
Lapparia dumosa exiqua Palmer, 1937 — Pl. 14, fig. 13.
Lapparia dumosa (Conrad, 1854) var. — Pl. 14, fig. 7.
Lapparia fasciola n. sp. — Pl. 14, fig. 5, 6.

Family CANCELLARIIDAE Forbes and Hanley, 1853

Sveltella parva (I. Lea, 1833) — Pl. 14, fig. 2.
Bonellitia jacksonica (Cooke, 1926) — Pl. 14, fig. 3.
Unitas pearlensis (Meyer and Aldrich, 1887)

Family MARGINELLIDAE Fleming, 1828

Bullata semen jacksonensis (Meyer, 1885) — Pl. 14, fig. 1.

Suborder TOXOGLOSSA Troschel, 1848
Superfamily MITRACEA Swainson, 1831
Family MITRIDAE Swainson, 1831

Uromitra grantensis (Johnson, 1899) — Pl. 14, fig. 11, 12.
Fusimitra millingtoni (Conrad, 1854) — Pl. 14, fig. 14, 15, 16.
Conomitra jacksonensis Cooke, 1926 — Pl. 14, fig. 17.

Superfamily CONACEA Rafinesque, 1815
Family TURRIDAE Swainson, 1840

Coronia nodulina (Casey, 1904) — Pl. 15, fig. 3.
Coronia conjuncta (Casey, 1904) — Pl. 15, fig. 1.
Coronia montgomeryensis Harris, 1937 — Pl. 15, fig. 2.
Sinistrella americana (Aldrich, 1885) — Pl. 15, fig. 4.
Eopleurotoma julia (Cooke, 1926)
Eopleurotoma ? sp. — Pl. 15, fig. 7.
Pleuroliria jacksonella Casey, 1904 — Pl. 15, fig. 5.
Glyptotoma crassiplicata (Gabb, 1860) — Pl. 15, fig. 14.
Pleurofusia hilgardi (Casey, 1903) — Pl. 15, fig. 20.
Pleurofusia fluctuosa (Harris, 1937) — Pl. 15, fig. 19.
Pleurofusia collaris (Casey, 1903) — Pl. 15, fig. 13.
Paradrillia jacksonensis (Meyer, 1886) — Pl. 15, fig. 13.
Apiotoma palmerae, n. sp. — Pl. 15, fig. 21-22.
Eucheilodon crenocarinata Heilprin, 1880 — Pl. 15, fig. 23-24.
Hemisurcula perexilis (Aldrich, 1886) — Pl. 15, fig. 11-12.
Pseudotoma heilprini (Aldrich, 1885) — Pl. 15, fig. 17.
Pseudotoma axeli Harris, 1947 — Pl. 15, fig. 8-9.
Cochlespira columbaria (Aldrich, 1886) — Pl. 15, fig. 18.
Scobinella newtonensis Aldrich, 1911 subsp. — Pl. 15, fig. 16.
Scobinella louisianae Harris, 1937 — Pl. 15, fig. 15.
Cordiera ludoviciana (Vaughan, 1896) — Pl. 16, fig. 8.
Microdrillia cossmanni (Meyer, 1887)
Microdrillia ouachitae Harris, 1937 — Pl. 16, fig. 4-6, 7.
Eoclathurella obesula Casey, 1904
Eoclathurella jacksonica Casey, 1904 — Pl. 16, fig. 2.
Eoclathurella ornata, n. sp. — Pl. 16, fig. 3.
Eoclathurella ? sp. — Pl. 16, fig. 1.
Microsurcula nucleola Casey, 1904 var. — Pl. 15, fig. 10.
Cymatosyrinx dorseyi (Cooke, 1926) — Pl. 16, fig. 9-10.
Cymatosyrinx palmerae Harris, 1947 — Pl. 16, fig. 11, 14.
Conorbis alatoideus Aldrich, 1885 — Pl. 16, fig. 13.

Family CONIDAE Rafinesque, 1815

Conus tortilis Conrad, 1854 — Pl. 16, fig. 12, 15.

Family TEREBRIDAE H. and A. Adams, 1854

Terebra (*Mirula*) *jacksonensis* Cooke, 1926 — Pl. 17, fig. 6-8, 11-12.

Subclass EUTHYNEURA Spengel, 1881
Order ENTOMOTAENIATA Cossmann, 1896
Superfamily PYRAMIDELLACEA Gray, 1840
Family PYRAMIDELLIDAE Gray, 1840

Pyramidella (*Syrnola*) *meyeri* (Cossmann, 1893) — Pl. 17, fig. 15.
Turbonilla (*Strioturbonilla*) *major* Meyer, 1887 — Pl. 17, fig. 16-18.
Odostomia jacksonensis, n. sp. — Pl. 17, fig. 13-14.

Order CEPHALASPIDEA P. Fischer, 1883
Superfamily ACTEONACEA d'Orbigny, 1842
Family ACTEONIDAE d'Orbigny, 1842

Acteon idoneus Conrad, 1833 — Pl. 17, fig. 2.
Acteon annectens Meyer, 1885 — Pl. 17, fig. 1.
Tornatellaea lata (Conrad, 1834) — Pl. 17, fig. 19-20.

Superfamily CYLICHACEA A. Adams, 1850
Family CYLICHNIDAE A. Adams, 1850

Scaphander jacksonensis Palmer, 1947 — Pl. 18, fig. 10.
Lithophysema grande (Aldrich, 1886) — Pl. 18, fig. 9.
Mnestia meyeri (Cossmann, 1893) — Pl. 17, fig. 3-4.
Abderospira oviformis (Meyer, 1886)
Cylichna (*Cylichnella*) *bitruncata* (Meyer, 1886) — Pl. 17, fig. 5.

Family PHILINIDAE Gray, 1850

Philine (*Megistostoma*) *dockeryi* Allen, 1970 — Pl. 18, fig. 8.

Superfamily BULLACEA Rafinesque, 1815
Family RETUSIDAE Thiele, 1926

Retusa (*Cylichnina*) *jacksonensis* (Meyer, 1886) — Pl. 17, fig 9-10.

Order NOTASPIDEA
Superfamily TYLODINACEA Gray, 1847
Family UMBRACULIDAE Dall, 1889

Umbraculum planulatum (Conrad, 1854) — Pl. 18, fig. 11.

Order PTEROPODA Cuvier, 1804
Suborder THECOSTOMATA de Blainville, 1824

Clio (*Creseis*) *corpulenta* (Meyer, 1887) — Pl. 18, fig. 6-7.
Clio (*Creseis*) *simplex* (Meyer, 1886)
Clio (*Creseis*) *hastata* (Meyer, 1886)

Class CEPHALOPODA
Subclass NAUTILOIDEA Agassiz, 1847
Order NAUTILIDA Agassiz, 1847
Superfamily NAUTILACEA de Blainville, 1825
Family ATURIIDAE Chapman, 1857

Aturia alabamensis (Morton, 1834) — Pl. 19, fig. 1-4.

Class SCAPHOPODA
Family DENTALIIDAE Gray, 1834

Dentalium (*Antalis*) *danvillense* Palmer, 1947
Dentalium (*Antalis*) *mississippiense jacksonense* Palmer, 1947 — Pl. 18, fig. 1.
"*Dentalium bitubatum*" Meyer, 1886
Fustiaria (*Laevidentalium*) *danai* (Meyer, 1885) — Pl. 18, fig. 2.
Fustiaria (*Laevidentalium*) *subcompressa* (Meyer, 1885) — Pl. 18, fig. 3.

Family SIPHONODENTALIIDAE Simroth, 1894

Cadulus juvenis Meyer, 1886
Cadulus (*Polyschides*) *jacksonensis* Meyer, 1885 — Pl. 18, fig. 4.
Cadulus (*Polyschides*) *margarita* Palmer, 1947 — Pl. 18, fig. 5.

Class BIVALVIA
Subclass PALAEOTAXODONTA Korobkov, 1954
Order NUCULOIDA Dall, 1889
Superfamily NUCULACEA Gray, 1824
Family NUCULIDAE Gray, 1824

Nucula (*Nucula*) *magnifica yazooensis* Harris, 1946
Nucula (*Nucula*) *spheniopsis* Conrad, 1865 — Pl. 20, fig. 6-7.

Superfamily NUCULANACEA H. and A. Adams, 1858
Family NUCULANIDAE H. and A. Adams, 1858

Nuculana linifera Conrad, 1865
Hilgardia multilineata (Conrad, 1854) — Pl. 20, fig. 3-4.
Yoldia (*Calorhadia*) *mater* (Meyer, 1885) — Pl. 20, fig. 1.
Yoldia (*Calorhadia*) *reginajacksonis* (Harris, 1897) — Pl. 20, fig. 5.
Yoldia (*Orthoyoldia*) *rubamnis* Harris, 1946 — Pl. 20, fig. 9.

Subclass PTERIOMOPHIA Beurlen, 1944
Order ARCOIDA Stoliczka, 1871
Superfamily ARCACEA Lamarck, 1809
Family ARCINAE Lamarck, 1809

Barbatia (*Barbatia*) *seraperta* Harris, 1946 — Pl. 20, fig. 11-12.

Barbatia (Acar) aspera (Conrad, 1854) — Pl. 20, fig. 2.
Barbatia (Cucullaearca) cuculloides (Conrad, 1833) — Pl. 20, fig. 8, 10.

Superfamily LIMOPSACEA Dall, 1895
Family LIMOPSIDAE Dall, 1895

Limopsis (Pectunuculina) radiata Meyer, 1885 — Pl. 21, fig. 2.

Family GLYCYMERIDIDAE Newton, 1922
Subfamily GLYCYMERIDINAE Newton, 1922

Glycymeris (Glycymeris) idonea (Conrad, 1833) — Pl. 21, fig. 1, 5.
Glycymeris (Glycymeris) filosa (Conrad, 1854) — Pl. 21, fig. 3-4, 6, 7.

Order MYTILOIDA Ferussac, 1822
Superfamily HYTILACEA Rafinesque, 1815
Family HYTILIDAE Rafinesque, 1815
Subfamily CRENELLINAE H. and A. Adams, 1857

Arcoperna filosa Conrad, 1865

Subfamily LITHOPHAGINAE H. and A. Adams, 1857

Lithophaga (Lithophaga) sp. — Pl. 21, fig. 8.

Superfamily PINNACEA Leach, 1819
Family PINNIDAE Leach, 1819

Atrina jacksoniana Dall, 1898 — Pl. 21, fig. 9, 12.

Order PTERIOIDA Newell, 1965
Suborder PTERIINA Newell, 1965
Superfamily PTERIACEA Gray, 1847
Family PTERIIDAE Gray, 1847

Pteria limula vanwinkleae Harris, 1946 — Pl. 21, fig. 10-11.

Superfamily PECTINACEA Rafinesque, 1815
Family PECTINIDAE Rafinesque, 1815

Eburneopecten (Eburneopecten) scintillatus Conrad, 1865
Eburneopecten (Eburneopecten) frontalis (Dall, 1898) — Pl. 22, fig. 3-4.
Eburneopecten (Eburneopecten) subminutus (Aldrich, 1903)
Chlamys (Aequipecten) nupera (Conrad, 1854) — Pl. 22, fig. 1-2.

Suborder OSTREINA Ferussac, 1822
Superfamily OSTREACEA Rafinesque, 1815
Family GRYPHAEIDAE Vyalov, 1936
Subfamily PYCNODONTEINAE Stenzel, 1959

Pycnodonte (*Pyconodonte*) *trigonalis* (Conrad, 1854) — Pl. 22, fig. 6-7.

Family OSTRIDAE Rafinesque, 1815
Subfamily OSTRINAE Rafinesque, 1815

Crassostrea alabamiensis (I. Lea, 1833) — Pl. 22, fig. 5.

Subclass HETERODONTA Neumayr, 1884
Order VENEROIDA H. and A. Adams, 1856
Superfamily LUCINACEA Fleming, 1828
Family LUCINIDAE Fleming, 1828
Subfamily MYRTEINAE Chavan, 1969

Gonimyrtea curta (Conrad, 1865) — Pl. 23, fig. 3-4.
Gonimyrtea subcurta (Harris, 1946) — Pl. 23, fig. 1.

Subfamily MILTHINAE Chavan, 1969

Saxolucina (*Plastomiltha*) *gaufia* Harris, 1946 — Pl. 23, fig. 16.

Family UNGULINIDAE H. and A. Adams, 1857

Diplodonta (*Diplodonta*) *ungulina yazoocola* Harris, 1946 — Pl. 23, fig. 5.
Timothynus bulla (Conrad, 1865) — Pl. 23, fig. 2.
Timothynus deflatus Harris, 1946

Superfamily CHAMACEA Lamarck, 1809
Family CHAMIDAE Lamarck, 1809

Chama (*Cipliacella*) *radiata*, n. sp. — Pl. 23, fig. 12-13, 15.

Superfamily LEPTONACEA Gray, 1847
Family ERYCINIDAE Deshayes, 1850

Erycina zitteli Meyer, 1887

Superfamily CARDITACEA Fleming, 1820
Family CARDITIDAE Fleming, 1828
Subfamily CARDITAMERINAE Chavan, 1969

Pleuromeris inflatior jacksonensis (Meyer, 1885) — Pl. 23, fig. 7-8.
Pleuromeris sp.

Subfamily VENERICARDIINAE Chavan, 1969

Venericardia (*Rotundicardia*) *diversidentata* Meyer, 1885 — Pl. 23, fig. 6, 9-11.
Venericardia (*Venericor*) *apodensata* Gardner and Bowles, 1939 — Pl. 24, fig. 15-16.

Superfamily CRASSATELLACEA Ferussac, 1822
Family ASTARTIDAE d'Orbigny, 1844
Subfamily ASTARTINAE d'Orbigny, 1844

Astarte pretriangulata, n. sp. — Pl. 24, fig. 3, 5.

Subfamily ERIPHYLINAE Chavan, 1952

Lirodiscus (*Lirodiscus*) *jacksonensis* (Meyer, 1885) — Pl. 24, fig. 1-2, 4.

Family CRASSATELLIDAE Ferussac, 1822
Subfamily CRASSATELLINAE Ferussac, 1822

Crassatella sp.
Bathytormus clarkensis postclarkensis (Harris, 1919) — Pl. 24, fig. 7.
Bathytormus flexurus (Conrad, 1854) — Pl. 24, fig. 6.
Bathytormus flexurus productus (Conrad, 1863)

Superfamily CARDIACEA Lamarck, 1809
Family CARDIIDAE Lamarck, 1809
Subfamily PROTOCARDIINAE Keen, 1951

Nemocardium (*Nemocardium*) *nicolletti* (Conrad, 1841) — Pl. 25, fig. 13-15.

Subfamily LAEVICARDIINAE Keen, 1936

Laevicardium gardnerae Cooke, 1926

Superfamily MACTRACEA Lamarck, 1809
Family MACTRIDAE Lamarck, 1809
Subfamily MACTRINAE Lamarck, 1809

Mactra inornata Meyer, 1885
Spisula jacksonensis Cooke, 1926 — Pl. 25, fig. 4-5.
Spisula mississippiensis (Conrad, 1847) subsp.
Spisula (*Symmorphomactra*) *praetenuis* (Conrad, 1833) — Pl. 25, fig. 11.

Superfamily TELLINACEA de Blainville, 1814
Family TELLINIDAE de Blainville, 1814
Subfamily TELLININAE de Blainville, 1814

Tellina (*Arcopagia*) *trumani garlandica* Harris, 1946 — Pl. 25, fig. 12.
Tellina (*Arcopaginula*) *eburneopsis* Conrad, 1865 — Pl. 25, fig. 10.
Tellina vicksburgensis moodiana Cooke, 1926 — Pl. 25, fig. 6-7.
Tellina (*Eurytellina*) *vaughani* Cooke, 1926 — Pl. 25, fig. 2-3.
Tellina (*Eurytellina*) *spillmani* Dall, 1900
Tellina (*Eurytellina*) *linifera* Conrad, 1865 — Pl. 25, fig. 1.
Tellina pearlensis Meyer, 1887

Family PSAMMOBIIDAE Fleming, 1828
Subfamily PSAMMOBIINAE Fleming, 1828

Gari (*Gobraeus*) *jacksonensis* Harris, 1946 — Pl. 25, fig. 8.

Family SEMELIDAE Stoliczka, 1870

Abra (*Syndosmya*) *nitens jacksonia* Harris, 1946 — Pl. 25, fig. 9.

Superfamily ARCTICACEA Newton, 1891
Family KELLIELLIDAE Fischer, 1887

Kelliella boettgeri Meyer, 1886
Alveinus minutus Conrad, 1865

Superfamily VENERACEA Rafinesque, 1815
Family VENERIDAE Rafinesque, 1815
Subfamily VENERINAE Rafinesque, 1815

"Venus" (indet.) *jacksonensis* Meyer, 1887

Subfamily PITARINAE Stewart, 1939

Pitar (*Pitar*) *securiformis* (Conrad, 1865) — Pl. 26, fig. 5-6.
Pitar (*Katherinella*) *trigoniata* (Lea, 1833) — Pl. 26, fig. 9.
Callista (*Callista*) *annexa* (Conrad, 1865) — Pl. 26, fig. 1-4, 7.
Callista (*Costacallista*) *pearlensis* (Harris, 1897)

Order MYOIDA Stoliczka, 1870
Suborder MYINA Stoliczka, 1870
Superfamily MYACEA Lamarck, 1809
Family CORBULIDAE Lamarck, 1818
Subfamily CORBULINAE Gray, 1823

Corbula (*Bicorbula*) *pearlensis* Meyer, 1886
Corbula (*Caryocorbula*) *densata* (Conrad, 1854) — Pl. 27, fig. 11-13.

Corbula (*Caryocorbula*) *willistoni* Meyer, 1885 — Pl. 27, fig. 1-4.
Corbula (*Caryocorbula*) *willistoni arkansia* Harris, 1946 — Pl. 27, fig. 5-6.
Caestocorbula wailesiana Harris, 1898 — Pl. 27, fig. 7-10.

Superfamily GASTROCHAENACEA Gray, 1840
Family GASTROCHAENIDAE Gray, 1840

Gastrochaena (*Gastrochaena*) *mississippiensis* Harris, 1946 — Pl. 28, fig. 3-5, 8.

Superfamily HIATELLACEA Gray, 1824
Family HIATELLIDAE Gray, 1824

Panopea (*Panopea*) *oblongata* Conrad, 1848 — Pl. 28, fig. 7, 9.

Suborder PHOLADINA H. and A. Adams, 1858
Superfamily PHOLADACEA Lamarck, 1809
Family TEREDINIDAE Rafinesque, 1815

Teredo mississippiensis Conrad, 1854 — Pl. 28, fig. 6.

Subclass ANOMALODESMATA Dall, 1889
Order PHOLADOMYOIDA Newell, 1965
Superfamily PANDORACEA Rafinesque, 1815
Family PERIPLOMATIDAE, Dall, 1895

Periploma equalum, n. sp. — Pl. 28, fig. 1.

Superfamily POROMYACEA Dall, 1886
Family POROMYIDAE Dall, 1886

Poromya mississippiensis Meyer and Aldrich, 1887

Family VERTICORDIIDAE Stoliczka, 1871

Verticordia (*Verticordia*) *cossmanni* Dall, 1903 — Pl. 28, fig. 2.

GASTROPOD SHELL MORPHOLOGY

Most of the new species described in this text are gastropods. For this reason a brief discussion and illustration of gastropod shell morphology is included.

Gastropods are the most diverse group within the Mollusca. The gastropod shell is typically a coiled, cone-like tube, and the shape is dependent on the nature of coiling and the rate of expansion. Several groups such as the Hipponicidae, Capulidae, Calyptraeidae, and Fissurellidae have the coil reduced or absent to form a low, cap-like shell designed for clinging to hard substraits. Other gastropods have the shell greatly reduced, as in the Philinacea, or absent as in the Nudibranchia. The pteropods have a narrow, conical or boat-shaped shell that is streamlined for swimming.

The largest subclass of the gastropods is the Streptoneura, which contains three orders of marine gastropods: (1) Archaeogastropoda, (2) Mesogastropoda, and (3) Neogastropoda. These groups have a shell that is sufficiently large to house the viseral mass and to provide a retreat for the head and foot. The apical whorls of the shell are termed the protoconch and are usually clearly demarcated from the later whorls that comprise the teleoconch. Other gastropod shell features that will be mentioned in the descriptions to follow are illustrated in Figure 1. The shell illustrated is a neogastropod, *Vasum humerosum* Vaughan, which has the high spire and well developed neck that is characteristic for the majority of this group.

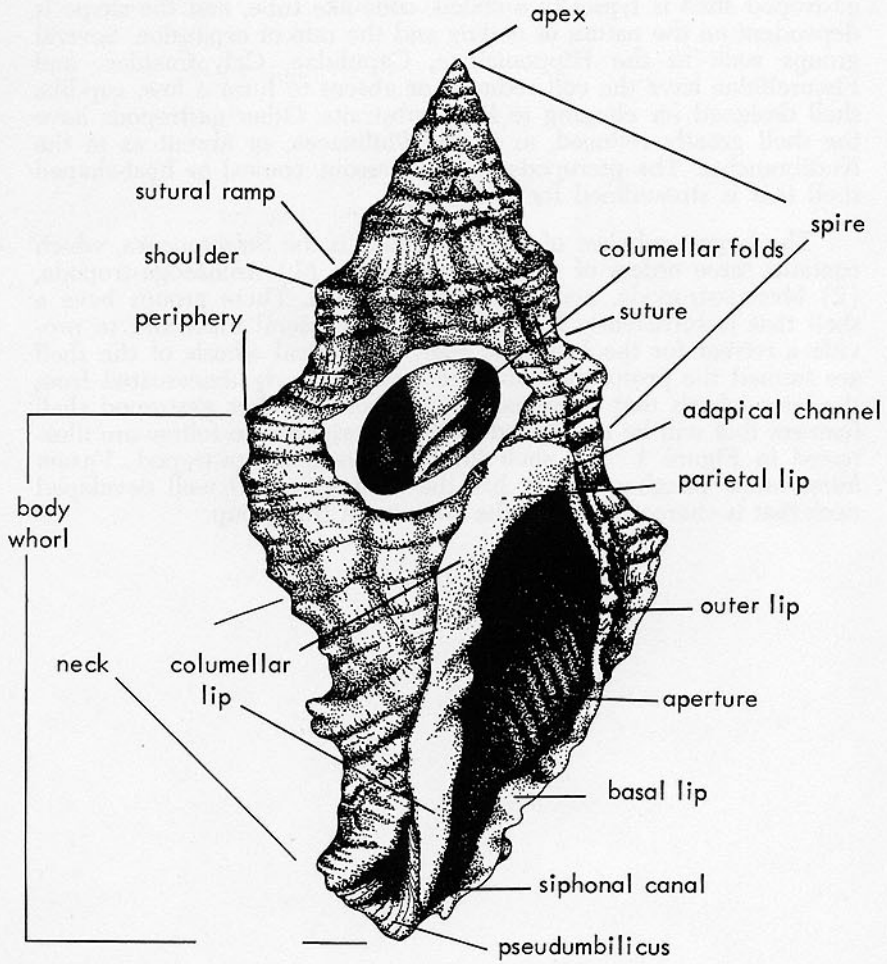


Figure 10. Gastropod shell morphology. Illustration of Vasum humerosum Vaughan from the Moodys Branch Formation, Jackson, Mississippi.

SYSTEMATICS

Phylum MOLLUSCA
Class GASTROPODA
Subclass STREPTONEURA Spengel, 1881
Order ARCHAEOGASTROPODA Thiele, 1925
Superfamily FISSURELLACEA Fleming, 1822
Family FISSURELLIDAE Fleming, 1822

Genus DIODORA Gray, 1821

Diodora tenebrosa antica Palmer

1947. *Diodora tenebrosa antica* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 219-220, pl. 27, fig. 15, 16.

1966. *Diodora tenebrosa antica* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 632.

Type locality: Jackson Eocene, Louisiana locality P9.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Jackson Eocene, locality P9.

Genus PUNCTURELLA Lowe, 1827

Puncturella jacksonensis Meyer

Plate. 1, figures 1, 2, 16A, 16B

1887. *Puncturella jacksonensis* Meyer, Senckenberg. naturf. Gesell., p. 6, pl. 1, fig. 15.

1966. *Puncturella jacksonensis* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 866.

Discussion.—One large specimen of this species (plate 1, figures 16A and 16B) closely resembles *Puncturella (Atir) altior* (Meyer and Aldrich, 1886) of the Claiborne Group but lacks the spines exhibited by *P. altior* at the intersection of radial costae and collabral threads. The interior of the large P. *jacksonensis* is partially filled with consolidated sediment so that the callus is not visible. It has some tertiary radial costae developed along the margin. Grooves on the inner margin opposite the primary and secondary costae are more pronounced than those of *P. altior.*

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2.

Superfamily TROCHACEA Rafinesque, 1815
Family TROCHIDAE Rafinesque, 1815

Genus SOLARIELLA S. Wood, 1842
Solariella cancellata jacksonia Palmer

Plate 1, figures 8, 9

1947. *Solariella cancellata jacksonia* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 229-230, pl. 27, fig. 8-10.

1966. *Solariella cancellata jacksonia* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 913.

Discussion.—The subspecies differs from *S. cancellata s. s.* of the Claiborne Group in having two rather than three prominent nodose spiral cords on the upper surface and is not as strongly sculptured. Palmer 1947, p. 230, also recognized the occurrence of *S. cancellata s. s.* in the Moodys Branch Formation at Jackson, Mississippi

Type locality: Moodys Branch Formation, locality 4.

Occurrence: Mississippi: Moodys Branch Formation, localities 1. 2, 4.

Order MESOGASTROPODA
Superfamily RISSOACEA Gray, 1847
Family RISSOIDAE Gray, 1847

Genus RISSOINA d'Orbigny, 1840
Rissoina mississippiensis Meyer

Plate 1, figures 3, 4, 5

1886. *Rissoina Mississippiensis* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 69, pl. 2, fig. 17.

1966. *Rissoina mississippiensis* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 886.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Genus OTTOINA Palmer, 1947
Ottoina kinkelini (Meyer)

1887. *Scalaria Kinkelini* Meyer, Senckenberg. naturf. Gesell., p. 5, pl. 1, fig. 14.

1947. *Ottoina kinkelini* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 267, pl. 30, fig. 9.

1966. *Ottoina kinkelini* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 812.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Family VITRINELLIDAE Bush, 1897
Genus TEINOSTOMA H. and A. Adams, 1853

Teinostoma moodiense Palmer

1947. *Teinostoma moodiense* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 221-222, pl. 28, fig. 1, 3.

1966. *Teinostoma moodiense* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 943.

Type locality: Moodys Branch Formation, locality 4.

Genus TORNUS Turton and Kingston, 1830

Tornus infraplicatus (Johnson)

Plate 1, figures 14, 15

1899. *Adeorbis infraplicatus* Johnson, Acad. Nat. Sci. Philadelphia, Proc., v. 51, p. 81, pl. 2, fig. 13, 14.

1947. *Tornus infraplicatus* (Johnson). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 231, pl. 27, fig. 17, 18.

1966. *Tornus infraplicatus* (Johnson). Palmer and Brann, Bull. Amer. Paleo., v. 48, No. 218, pt. 2, p. 955.

Discussion.—The form illustrated agrees with Johnson's original description, but differs from the specimen illustrated by Palmer (1947, pl. 27, fig. 17, 18). On Palmer's specimen, the base is raised around the umbilicus and has a broad spiral furrow marginal to the periphery. Instead of a strong medial spiral cord on apical side Palmer's specimen has a spiral groove.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Genus CIRCULUS Jeffreys, 1865

Circulus ottonius Palmer

Plate 1, figures 12, 13

1887. *Solarium delphinuloides* Meyer, Senckenberg. naturf. Gesell., p. 4, pl. 1, fig. 1, 3a.

1937. *Circulus delphinuloides* (Meyer). Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 54.

1947. *Circulus ottonius* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 231-232, pl. 27, fig. 3, 4.

1966. *Circulus ottonius* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 577.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Genus SOLARIORBIS Conrad, 1865
Solariorbis quadrangularis (Meyer)

1887. *Adeorbis quadrangularis* Meyer, Senckenberg. naturf. Gesell., p. 4, pl. 1, fig. 1, 1a.

1937. *Solariorbis quadrangularis* (Meyer). Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 51.

1947. *Solariorbis quadrangularis* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 232-233, pl. 27, fig. 1, 2.

1966. *Solariorbis quadrangularis* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 917.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 4.

Solariorbis subangulatus (Meyer)
Plate 1, figures 10, 11

1886. *Adeorbis subangulatus* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 67, pl. 2, fig. 28.

1947. *Solariorbis subangulatus* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 233-234, pl. 27, fig. 5, 6, 7.

1966. *Solariorbis subangulatus* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 917.

Type locality: Moodys Branch Formation, locality 4.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 4.

Superfamily ARCHITECTONICACEA Gray, 1850
Family ARCHITECTONICIDAE Gray, 1850

Genus ARCHITECTONICA Roeding in Bolten, 1798
Architectonica (Architectonica) bellistriata Conrad
Plate 1, figures 17, 18A, 18B, 19A, 19B

1854. *Architectonica bellistriata* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 17, fig. 2a, 2b.

1947. *Architectonica* (*Architectonica*) *bellistriata* Conrad. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 268-269, pl. 32, fig. 16-19.

1966. *Architectonica* (*Architectonica*) *bellistriata* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 500.

Discussion.—Conrad described this species as having three impressed spiral lines on the base with the one nearest the umbilicus being profound. Of the approximately 30 specimens examined this is true for most, but only the groove adjacent to the umbilicus is distinct on some, as is the case for the specimen figured in Plate 1, figure 18B.

The color pattern as shown under ultraviolet light is illustrated in Plate 1, figure 17.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3. Louisiana: Moodys Branch Formation, locality P1, Danville: Landing Member, locality P886. Arkansas: White Bluff Formation, locality 897.

Architectonica (Architectonica) sp.

1947. *Architectonica (Architectonica) trilirata* (Conrad), var. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 268-269, pl. 32, fig. 16-19.

1966. *Architectonica (Architectonica)* sp. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 500.

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Architectonica (Architectonica) billmoorei, n. sp.
Plate 2, figures 4, 7

Description.—Protoconch with one and one half whorls; teleoconch with six and one half whorls; early whorls with three nodose spiral cords; three additional nodose spiral cords occurring after one and one half whorls; shell becoming smooth with spiral cords indistinct after four and one half whorls; latter whorls with microscopic spiral striations; central portion of whorls convex, and whorls concave above suture and marginal to the perifery; carinate with an acute, smooth, rounded cord; umbilical side depressed along periphery; distinct spiral groove adjacent to the umbilicus; umbilical margin nodose; nodes doubling in number and less distinct on peripheral side of spiral groove; umbilical side otherwise smooth except for microscopic spiral striations and prosocline lines.

Discussion.—This species differs greatly from other *Architectonica* species within the Eocene of the Southeastern United States. It resembles *A. bellistriata* in its nodose umbilical margin and adjacent spiral cord and differs in being acutely carinate, in having nodose early whorls and smooth latter whorls, and in lacking spiral grooves above the suture. This species is known from five specimens.

Holotype: PRI* 8231; greatest diameter 29 mm., height 14 mm.

Type locality: Moodys Branch Formation, locality 1.

*Paleontological Research Institution, Ithica, New York

Subgenus GRANOSOLARIUM Sacco, 1892

Architectonica (Granosolarium) ornata jacksonia Palmer

Plate 2, figures 3A, 3B

1947. *Architectonica* (*Granosolarium*) *ornata jacksonia* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 270-271, pl. 33, fig. 2-4, 13.

1966. *Architectonica* (*Granosolarium*) *ornata jacksonia* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 506.

Type locality: Moodys Branch Formation, Louisiana locality P10.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2. Louisiana: Moodys Branch Formation, localities P1, P10.

Architectonica (Granosolarium) meekana subsplendida Palmer

Plate 2, figures 1A, 1B

1947. *Architectonica* (*Granosolarium*) *meekana subsplendida* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 271-273, pl. 33, fig. 1, 5-8.

1966. *Architectonica* (*Granosolarium*) *meekana subplendida*, Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 505.

Type locality: Moodys Branch Formation, Louisiana locality P10.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3; Yazoo Formation, localities 5, 13. Louisiana: Moodys Branch Formation, localities P10, P883; Danville Landing Member, localities P6, P20.

Subgenus SOLARIAXIS Dall, 1892

Architectonica (Solariaxis) acuta Conrad in Wailes

Plate 2, figures 2, 5, 6

1854. *Architectonica acuta* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 17, fig. 1a, 1b.

1947. *Architectonica* (*Solariaxis*) *acuta* Conrad. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 275-276, pl. 33, fig. 9-11, pl. 65, fig. 1, 2.

1966. *Architectonica* (*Solariaxis*) *acuta* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 497.

Discussion.—*A. acuta* is the most common species of *Architectonica* found in the Moodys Branch Formation at Jackson, Mississippi. It closely resembles *A. elaborata* (Conrad, 1833) of the Claiborne Group.

The color pattern of *A. acuta* consists of a single spiral band below the suture as is illustrated in Plate 2, figure 2.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3. Louisiana: Moodys Branch Formation, localities P1, P8, P10, P15, P16, P883, P912, P1054; Danville Landing Member, localities P6, P886.

Subgenus STELLAXIS Dall, 1892
Architectonica (Stellaxis) alveata (Conrad)
Plate 3, figures 1A, 1B

1833. *Solarium alveatum* Conrad, *Fossil Shells Tert. Form.*, v. 1, No. 3, p. 31.

1937. *Architectonica alveata* (Conrad). Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 173, pl. 19, fig. 8-18.

1947. *Architectonica* (*Stellaxis*) *alveata* (Conrad). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 276-277, pl. 32, fig. 9-11.

1966. *Architectonica* (*Stellaxis*) *alveata* (Conrad), n. subsp. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 499.

Discussion.—Palmer 1947, p. 277, did not recognize any modification between the Jackson and Claiborne forms of *A. alveata* but in 1966, p. 499 listed the Jackson form as a new unnamed subspecies. The author can find no characterizing differences and places the Jackson form as *A. alveata.*

Type locality: Gosport Sand (upper Claiborne Group), Claiborne Bluff, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2; Cook Mountain Formation (Claiborne Group), locality P729. Louisiana: Moodys Branch Formation, localities P10, P15, P883; Danville Landing Member, localities P20, P886, P1120; Cook Mountain Formation, localities P741, P747. Alabama: Gosport Sand, locality P104 and Little Stave Creek. Texas: Claiborne Group, localities P733, P767, P776. South Carolina: Claiborne Group, locality P707.

Superfamily CERITHIACEA Fleming, 1822
Family TURRITELLIDAE Clarke, 1851

Genus TURRITELLA Lamarck, 1799
Turritella arenicola (Conrad)
Plate 3, figures 16, 17

1865. *Mesalia* ? *arenicola* Conrad, Amer. Jour. Conch., v. 1, p. 141, pl. 10, fig. 11.

1939. *Turritella arenicola* (Conrad). Bowles, Jour. Paleont., v. 13, No. 3, p. 275, pl. 31, fig. 5-7.

1966. *Turritella arenicola* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 981.

Type locality: Moodys Branch Formation, locality 9.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3, 9. Louisiana: Moodys Branch Formation, localities P6, P10; Yazoo Formation, locality P2; Danville Landing Member, locality P20.

Turritella alveata Conrad in Wailes

Plate 3, figure 5

1854. *Turritella alveata* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, pl. 17, fig. 7.

1966. *Turritella alveata* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 980.

Discussion.—*T. alveata* is the most common species of *Turritella* in the Moodys Branch Formation at Jackson, Mississippi, where it occurs in greater numbers than any other large gastropod.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9. Louisiana: Moodys Branch Formation, localities P1, P7, P8, P9, P10, P16, P883, P912, P1054, P1119; Danville Landing Member, locality P6. Arkansas: White Bluff Formation, locality P897.

Turritella clevelandia Harris

1894. *Turritella clevelandia* Harris, Ann. Rept. Geol. Survey Arkansas for 1892, v. 2, p. 170, pl. 6, fig. 9.

1947. *Turritella clevelandia* Harris. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 290-292, pl. 36, fig. 1-6.

1966. *Turritella clevelandia* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 984-985.

Type locality: White Bluff Formation, White Bluff, Jefferson County, Arkansas.

Occurrence: Mississippi, Moodys Branch Formation, locality 10. Louisiana: Moodys Branch Formation, locality P1; Danville Landing Member, localities P6, P18, P20, P886; Arkansas: White Bluff Formation, localities P894, P896, P897, P1048, P1049.

Turritella perdita Conrad
Plate 3, figures 8, 9

1865. *Turritella perdita* Conrad, Amer. Jour. Conch., v. 1, p. 141, pl. 10, fig. 10.

1966. *Turritella perdita* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 1000.

Type locality: Moodys Branch Formation, locality 9.

Occurrence: Mississippi: Moodys Branch Formation, locality 9. Louisiana: Moodys Branch Formation, localities P10, P11, P883, P1127.

Turritella perdita jacksonensis Cooke
Plate 3, figure 7

1926. *Turritella jacksonensis* Cooke, Washington Acad. Sci., Jour., v. 16, No. 5, p. 136, fig. 8.

1949. *Turritella perdita jacksonensis* Cooke. Stenzel and Turner, Type Invertebrate Fossils North America, Eocene, Gastropoda 48, Card No. 76, fig. 1, 9.

1966. *Turritella perdita jacksonensis* Cooke. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 1001.

Discussion.—This subspecies differs from *T. perdita s. s.* in having more rapidly expanding whorls and a more deeply impressed suture. *T. perdita jacksonensis* is very common at Jackson, Mississippi.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities, 1, 2, 3; Yazoo Formation, locality 5. Louisiana: Moodys Branch Formation, localities P11, P883.

Turritella rivurbana Cooke
Plate 3, figure 6

1926. *Turritella rivurbana* Cooke, Washington Acad. Sci., Jour., v. 16, No. 5, p. 136, fig. 10.

1966. *Turritella rivurbana* Cooke. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 1004.

Type locality: Moodys Branch Formation, locality 1.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2; Yazoo Formation, locality 5.

Genus MESALIA Gray, 1842
Mesalia vetusta (Conrad)

Plate 3, figure 10

1833. *Melania ? vetusta* Conrad, *Fossil Shells Tert. Form.*, v. 1, No. 3, p. 35.

1865. *Mesalia vetusta* (Conrad). Conrad, Amer. Jour. Conch., v. 1, p. 33.

1966. *Mesalia vetusta* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 762.

Discussion.—This species is abundant in the Gosport Sand (upper Claiborne Group) of Alabama and is common in coquina layer of *Glycymeris idonea* along Techeva Creek, Yazoo County, Mississippi.

Type locality: Gosport Sand, Claiborne Bluff, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, localities 10, 11. Louisiana: Moodys Branch Formation, localities P883, P1054. Arkansas: White Bluff Formation, White Bluff. Alabama: Gosport Sand, Claiborne Bluff and Little Stave Creek.

Family MATHILDIDAE Dall, 1889

Genus MATHILDA Semper, 1865
Mathilda regularis (Meyer)

Plate 3, figure 11

1886. *Eglisia regularis* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 63, pl. 2, fig. 3.

1887. *Mathilda regularis* (Meyer). Meyer, Senckenberg. naturf. Gesell., p. 5, pl. 1, fig. 12.

1966. *Mathilda* sp. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 751.

Type locality: Red Bluff Formation, Red Bluff, Wayne County, Mississippi.

Occurrence: Mississippi; Moodys Branch Formation, locality 1; Red Bluff Formation (Oligocene), Red Bluff. Alabama: Gosport Sand (Palmer 1947, p. 235).

Family VERMETIDAE Rafinesque, 1815

Genus PETALOCONCHUS H. C. Lea 1843
Petaloconchus transcostatus, n. sp.

Plate 3, figures 18A, 18B, 20

Description.—Shell attached; coils in close contact; end of tube extending out from coil; surface with rounded transverse costae and faint

longitudinal cords; early coils with two internal lirae on columellar wall.

Discussion.—This is the first record of *Petaloconchus* in the Eocene. Previously it has been recorded from the Miocene to Recent (Davies 1971, p. 313). The new species is placed in the genus *Petaloconchus* due to the presence of internal lirae on the columellar wall. It is similar to the Recent species *P. montereyensis* Dall in the nature of its coiling, but differs in having more prominent transverse costae.

Holotype: PRI 8232; diameter of tube, 1.5 mm.

Type locality: Moodys Branch Formation, locality 1.

Occurrence: Mississippi: Moodys Branch Formation, locality 1; Mint Spring Member (Oligocene) ?, U.S.G.S. locality 14203 (USNM specimen 498345).

Genus SERPULORBIS Sasso, 1827
Serpulorbis chavani Palmer

Plate 3, figure 19

1947. *Serpulorbis chavani* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 299-300, pl. 38, fig. 10-12.

1966. *Serpulorbis chavani* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 901-902.

Type locality: Moodys Branch Formation, Louisiana locality P11.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, localities P1, P10, P11, P15, P16, P883, P1054.

Family CAECIDAE Gray, 1850

Genus CAECUM Fleming, 1813
Subgenus MICRANELLUM Bartsch, 1920
Caecum (Micranellum) alterum Meyer

Plate 3, figure 21

1887. *Caecum alterum* Meyer, Senckenberg. naturf. Gesell., p. 6, pl. 1, fig. 8.

1947. *Caecum (Micranellum) alterum* Meyer. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 279, pl. 35, fig. 6.

1966. *Caecum (Micranellum) alterum* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 546.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, Jackson and locality 11.

Family CERITHIIDAE Fleming, 1822

Genus BITTIUM Leach in Gray, 1847

Bittium koeneni Meyer

Plate 3, figure 4

1886. *Bittium Koeneni* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 70, pl. 2, fig. 12.

1966. *Bittium koeneni* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 528.

Discussion.—This species probably occurs in greater numbers at Jackson localities than any other gastropod species.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2; Red Bluff Formation (Oligocene), Red Bluff, Wayne County (Meyer 1886, p. 70).

Family LITIOPIDAE H. & A. Adams, 1854

Genus LITIOPA Rang, 1829

Litiopa spirata (Meyer)

1887. *Cerithioderma spirata* Meyer, Senckenberg. naturf. Gesell., p. 8, pl. 1, fig. 7.

1892. *Litiopa spirata* (Meyer). Dall, Wagner, Free Inst. Sci., Trans., v. 3, p. 2, p. 292-293.

1966. *Litiopa spirata* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 741.

Discussion.—This species is known only from the type which according to Palmer, 1947, was missing from Meyer's collection at John Hopkins University.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Family CERITHIOPSIDAE H. & A. Adams, 1854

Genus SEILA A. Adams, 1861

Seila constricta (H. C. Lea)

Plate 3, figure 15

1841. *Terebra constricta* H. C. Lea, Amer. Jour. Sci., (ser. 1), v. 40, p. 100, pl. 1, fig. 18.

1892. *Seila constricta* (H. C. Lea). Dall, Wagner Free Inst. Sci., Trans., v. 3, pt. 2, p. 267.

1966. *Seila* sp. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 901.

Discussion.—Specimens found in the Moodys Branch Formation at locality 1 appear to be the same as those of the Claiborne Group. The Claiborne lectotype is 6 mm high. One Jackson specimen consisting only of the five lower whorls has a projected height of 20 mm.

Type locality: Gosport Sand, Claiborne Bluff, Alabama River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Alabama: Gosport Sand, Claiborne Bluff.

Genus CERITHIELLA Verrill, 1882

Cerithiella aldrichi (Meyer)

1886. *Cerithiopsis Aldrichi* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 71, pl. 2, fig. 14.

1947. *Cerithiella aldrichi* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 177, pt. 2, p. 304-305.

1966. *Cerithiella* sp. Palmer and Brann, Bull. Amer. Paleont., v. 48, pt. 2, p. 570.

Discussion.—Meyer originally listed this species from Red Bluff, Mississippi, Jackson, Mississippi, and Claiborne, Alabama. This is the only basis for listing *C. aldrichi* as occurring in the Moodys Branch Formation at Jackson as the writer has not found it there.

Type locality: Red Bluff Formation (Oligocene), Red Bluff, Mississippi.

Occurrence: Mississippi: Red Bluff Formation, Red Bluff; Moodys Branch Formation, Jackson?; Cook Mountain Formation (Claiborne Group), Newton and Wautubee? Alabama: Claiborne Group, Claiborne, Alabama?

Cerithiella jacksonensis (Meyer)

Plate 3, figures 13, 14

1886. *Cerithiopsis Jacksonensis* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 71, pl. 2, fig. 13.

1937. *Cerithiella jacksonensis* (Meyer). Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 225.

1966. *Cerithiella jacksonensis* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 569.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Superfamily EPITONIACEA S. S. Berry, 1910
Family EPITONIIDAE S. S. Berry, 1910

Genus TENUISCALA de Boury, 1887
Tenuiscala aspersa (Meyer)

Plate 3, figures 2, 3

1887. *Eglisia aspersa* Meyer, Senckenberg. naturf. Gesell., p. 5, pl. 1, fig. 2.

1947. *Tenuiscala aspersa* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 236-237.

1966. *Tenuiscala aspersa* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 945.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 7.

Genus CIRSOTREMA Morch, 1852
Subgenus CORONISCALA de Boury, 1909
Cirsotrema (Coroniscala) nassulum (Conrad)

Plate 4, figure 3

1833. *Scalaria nassula* Conrad, *Fossil Shells Tert. Form.*, v. 1, No. 3, p. 31.

1854. *Scalaria nassuta* (sic) Conrad. Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 16, fig. 6.

1937. *Cirsotrema (Coroniscala) nassula* (Conrad). Palmer, Bull. Amer. Paleont., v. 7, No. 32, pl. 10, fig. 23.

1966. *Cirsotrema (Coroniscala)* sp. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 581.

Discussion.—Conrad (1833, p. 31) recorded 20 costae on the body whorl of the holotype which is from the Claiborne Group of Alabama. The author has found two specimens at Jackson that have 22 costae on the body whorl. Palmer (1937, p. 97) stated that the species probably includes individuals with a greater number of costae.

Type locality: Gosport Sand (Upper Claiborne Group), Claiborne Bluff, Alabama River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 9.

Cirsotrema (Coroniscala) nassulum creolum Palmer

Plate 4, figure 2

1947. *Cirsotrema (Coroniscala) nassulum creolum* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 242-243, pl. 23, fig. 17.

1966. *Cirsotrema (Coroniscala) nassulum creolum* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 579-580.

Type locality: Moodys Branch Formation, Louisiana locality P10.

Occurrence: Mississippi: Moody's Branch Formation, localities 1, 2, 7. Louisiana: Moodys Branch Formation, locality P10.

Cirsotrema ? sp.

Plate 4, figure 1

Description.—Shall small; suture impressed; whorls with numerous prominent transverse costae and five faint spiral lirae; irregularly varicose; base with marginal cord.

Occurrence: Mississippi: Moody's Branch Formation, locality 1.

Genus PLICISCALA de Boury, 1887

Pliciscala pearlensis (Meyer)

Plate 3, figures 12A, 12B

1887. *Scalaria pearlensis* Meyer, Senckenberg. naturf. Gesell., p. 4, pl. 1, fig. 9.

1912. *Pliciscala pearlensis* (Meyer). Cossmann, Essais Paleoconch. comp., v. 9, p. 83.

1966. *Pliciscala pearlensis* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 845.

Discussion.—This species differs from *P. cribrum* in that it lacks a strong cord along the basal margin.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Pliciscala cribrum (Cooke)

1926. *Epitonium cribrum* Cooke, Washington Acad. Sci., Jour., v. 16, No. 5, p. 137, fig. 11.

1947. *Pliciscala cribrum* (Cooke). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 244, pl. 28, fig. 13.

1966. *Pliciscala cribrum* (Cooke). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 845.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Genus ACRILLA H. Adams, 1860

Acrilla unilineata (Heilprin)

Plate 4, figure 9

1880. *Scalaria unilineata* Heilprin, U. S. Natl. Mus., Proc., v. 3, p. 150, fig. 5.

1947. *Acrilla unilineata* (Heilprin). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 244-245, pl. 28, fig. 5, 12, 20.

1966. *Acrilla unilineata* (Heilprin). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 476.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Danville Landing Member, Danville Landing.

Genus ACIRSA Morch, 1857
Acirsa ? solumcostata, n. sp.
Plate 4, figure 14

Description.—Protoconch with about two and one half whorls; teleoconch with nine slightly convex whorls; spire high and slender; whorls with slender transverse cords and a spiral lira below the suture, whorls otherwise smooth; body whorl with twelve transverse cords that terminate abruptly at the angular basal margin and with very faint spiral threads; base with faint spiral threads and two closely spaced lirae at the margin; aperture ovate with inner lip slightly callous.

Discussion.—This species differs from *A. whitneyi* in the Claiborne Group of Alabama in its slender spire, greater sutural slope, and in its lack of a strong varix and of strong spiral threads.

Holotype: PRI 8233; height 5.5 mm, width 1 mm.

Type locality: Moodys Branch Formation, locality 1.

Superfamily MELANELLACEA Bartsch, 1917
Family MELANELLIDAE Bartsch, 1917

Genus MELANELLA Bowdich, 1822
Melanella jacksonensis (de Gregorio)
Plate 4, figure 5

1890. *Eulima aciculata jacksonensis* de Gregorio, Ann. Geol. Paleont., v. 7, p. 161, pl. 16, fig. 4.

1947. *Melanella jacksonensis* (de Gregorio). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 224-225, pl. 26, fig. 16.

1966. *Eulima jacksonensis* de Gregorio. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 667.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 4.

Genus NISO Risso, 1826
Niso umbilicata (I. Lea)
Plate 4, figure 7

1833. *Pasithea umbilicata* I. Lea, Cont. Geology, p. 103, pl. 4, fig. 85.

1850. *Niso umbilicata* (I. Lea). d'Orbigny, Prodrome de Paleontologie Stratigraphique. . ., v. 3, p. 343.

1937. *Niso umbilicata* (I. Lea). Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 66, pl. 6, fig. 22-25.

1966. *Niso umbilicata* (I. Lea). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 798-799.

Discussion.—Variations of this species occur in the Wilcox and Claiborne groups of Alabama and in the Danville Landing Member of the Yazoo Formation (upper Jackson Group) of Louisiana.

Type locality: Gosport Sand, Claiborne Bluff, Alabama River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Alabama: Gosport Sand, Claiborne Bluff, Alabama River.

Superfamily STROMBACEA Rafinesque, 1815
Family SERAPHSIDAE Jung, 1974
Genus SERAPHS Montfort, 1810
Seraphs sp.
Plate 4, figure 12

Description.—Shell smooth; inner lip callous; margin of outer lip extending toward apex.

Occurrence: Moodys Branch Formation, locality 7.

Family STROMBIDAE Rafinesque, 1815
Genus DIENTOMOCHILUS Cossmann, 1904
Subgenus DASYOSTOMA Stewart, 1927
Dientomochilus (Dasyostoma) rugostomum (Johnson)
Plate 4, figure 8, 11A, 11B

1899. *Rimella rugostoma* Johnson, Acad. Nat. Sci. Philadelphia, Proc., v. 51, p. 76, pl. 2, fig. 10.

1927. *Ectinochilus* (*Dasyostoma*) *rugostoma* (Johnson). Stewart, Acad. Nat. Sci. Philadelphia, Proc., v. 78, p. 368.

1938. *Dientomochilus rugostoma* (Johnson). Wrigley, Malacol. Soc. London, Proc., v. 23, pt. 2, p. 75.

1947. *Dientomochilus (Dasyostoma) rugostomum* (Johnson). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 310-311, pl. 42, fig. 4, 5.

1966. *Dientomochilus (Dasyostoma) rugostomum* (Johnson). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 630.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 7. Louisiana: Moodys Branch Formation, locality P10.

Genus CALYPTRAPHORUS Conrad, 1857
Calyptraphorus stamineus (Conrad)

Plate 4, figures 6, 10A, 10B

1856. *Rostellaria staminea* Conrad, Acad. Nat. Sci. Philadelphia, Proc., v. 7, p. 260.

1865. *Calyptraphorus stamineus* (Conrad). Conrad, Amer. Jour. Conch., v. 1, p. 31.

1966. *Calyptraphorus stamineus* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 550.

Discussion.—*C. stamineus* is very common at most Moodys Branch outcrops and is an excellent guide fossil. It closely resembles *C. velatus* of the Claiborne Group but differs in that its varicose outer lip is of rather uniform thickness where as *C. velatus* is thickened on the upper part and in that it lacks the callus extension of the apex which *C. velatus* commonly exhibits.

The immature and mature forms of *Calyptraphorus* differ greatly. In early growth the shell is ornamented with spiral and transverse elements as show in plate 4, figure 6. At maturity the shell is entirely covered by callus (plate 4, figures 10A, 10B), and the outer lip is varicose. A broad basal notch separates the outer lip from a long spine-like neck. The adapical channel is extended in an arch across the back of the shell, and the callus along the margin of the channel is thickened.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moody Branch Formation, localities 1, 2, 3, 7, 9, 11, 12. Louisiana: Moodys Branch Formation, localities P1, P7, P8, P9, P10, P15, P16, P883, P912, P1054, P1119; Danville Landing Member, localities P6, P886. Arkansas: White Bluff Formation, localities P894, P897, P1046.

Genus PLATYOPTERA Conrad, 1854
Platyoptera extenta (Conrad in Wailes)

Plate 4, figures 13A, 13B; Plate 5, figures 1, 2A, 2B, 5, 6, 7, 8

1854. *Rostellaria extenta* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 16, fig. 3.

1865. *Platyoptera extenta* (Conrad). Conrad, Amer. Jour. Conch., v. 1, p. 31.

1966. *Platyoptera extenta* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 826.

Discussion.—Several specimens of this rare species have been found in the upper clayey part of the Moodys Branch Formation at Town Creek. Figure 7, plate 5, shows the color pattern as photographed under ultraviolet light. The purpose of the large callous node on the inner lip is unknown. One young specimen (figure 8, plate 5) was found with the wing partially extended across the back and without the callous spire, longitudinal ridge, and node.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurence: Mississippi: Moodys Branch Formation, localities 1, 2; basal Yazoo Formation, locality 3. Louisiana: Moodys Branch Formation, localities P1, P7, Montgomery Landing (*Fide* James E. Allen). Alabama: Moodys Branch Formation, locality P1056.

Superfamily HIPPONICACEA Troschel, 1861
Family HIPPONICIDAE Troschel, 1861

Genus HIPPONIX Defrance, 1819
Hipponix pygmaeus I. Lea
Plate 5, figures 3, 4

1833. *Hipponix pygmaea* I. Lea, Cont. Geology, p. 95, pl. 3 ,fig. 75.

1947. *Hipponix pygmaeus* I. Lea. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 265-266, pl. 3, fig. 1-3.

1966. *Hipponix*, n. sp. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 710.

Discussion.—Palmer and Brann (1966, p. 710) listed the Jackson forms of *Hipponix* as a new species. The author can find no characterizing differences between the Jackson form and *H. pygmaeus* of the Claiborne Group.

Type locality: Gosport Sand, Claiborne Bluff, Alabama River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9; Cook Mountain Formation, Clarke County. Louisiana: Moodys Branch Formation, locality P883. Alabama: Gosport Sand, Claiborne Bluff. Texas: Stone City Formation, localities P725, P727.

Superfamily CREPIDULACEA Fleming, 1882
Family CAPULIDAE Ferrusac, 1821

Genus CAPULUS Montfort, 1810
Capulus americanus Conrad
Plate 5, figures 11A, 11B

1854. *Capulus Americanus* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 15, figs. 1a, 1b.

1947. *Capulus americanus* Conrad. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 263-264, pl. 32, fig. 8, 12-15.

1966. *Capulus americanus* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 558.

Discussion.—Young specimens of *Capulus* may be distinguished from the similar cap-shaped shells of *Hipponix* by their coiled protoconch.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9. Louisiana: Moodys Branch Formation, localities P10, P11, P15, P883, P912; Yazoo Formation, localities P2, P913; Danville Landing Member, locality P6. Texas: Moodys Branch Formation, locality P1121.

Family CALYPTRAEIDAE Fleming, 1822

Genus CALYPTRAEA Lamarck, 1799
Subgenus TROCHITA Schumacher, 1817
Calyptraea (Trochita) aperta (Solander in Brander)
Plate 5, figure 10

1766. *Trochus apertus* Solander *in* Brander, Fossilia Hantoniensia, p. 9, pl. 1, fig. 1, 2.

1899. *Calyptraea aperta* (Solander). Harris, Bull. Amer. Paleont., v. 3, No. 11, pt. 2, p. 84, pl. 11, fig. 13-16.

1966. *Calyptraea aperta* (Solander *in* Brander). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 547.

Discussion.—This species differs from *C. alta* and *C. glandaria* in that the whorls are distinguishable on the latter portion of the teleoconch. *C. aperta* generally exhibits a very low conical form at Jackson, Mississippi, with high forms being rare.

Type locality: Upper Eocene, England.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9; Cook Mountain Formation, localities P726, P728, P729, P731,

P803. Louisiana: Moodys Branch Formation, localities P11, P15, P883, P912; Yazoo Formation, localities P2, P913; Danville Landing Member, locality P6; Cook Mountain Formation, locality P730. Texas: Moodys Branch Formation, locality P1121; Stone City Formation, localities P725, P733. Alabama: Gosport Sand, locality P104; Lisbon Formation, localities P103, P734. South Carolina: Localities P707, P708. Europe: Eocene-Miocene.

Calyptraea alta (Conrad)

Plate 5, figures 12A, 12B, 12C

1854. *Trochita alta* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 15, fig. 3a, 3b.

1947. *Calyptraea alta* (Conrad). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 263, pl. 31, fig. 1, 3.

1966. *Calyptraea alta* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 547.

Discussion.—At Jackson, Mississippi, this species generally exhibits a high conical form while at Montgomery Landing, Louisiana, it exhibits a low conical form.

Type locality: Moodys Branch Formation, locality 1.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2; Yazoo Formation, locality 5. Louisiana: Moodys Branch Formation, localities P11, P833.

Calyptraea glandaria, n. sp.

Plate 5, figures 9A, 9B

Description.—Shell conical, thick, and highly elevated; protoconch with about one and one half whorls; individual whorls of teleoconch indistinguishable; exterior of shell somewhat lumpy with growth rugae becoming more prominent toward the base and with faint irregular radial ridges; spiral shelf of interior with a high spiral slope and with shallow umbilicus.

Discussion.—This species is similar to *C. alta* but lacks radial lirations. The heights to width ratio of the holotype is greater than that exhibited by *C. alta*, but this feature may have a large variation within the species.

Holotype: PRI 8234; height 31 mm, greatest width 22 mm, greatest width of aperture 19 mm.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Family XENOPHORIDAE Philippi, 1853

Genus XENOPHORA de Waldheim, 1807

Xenophora reclusa (Conrad in Wailes)

Plate 6, figures 5A, 5B

1854. *Phorus reclusus* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 17, fig. 6a, 6b.

1890. *Xenophora reclusa* Conrad. de Gregorio, Ann. Geol. Paleont., v. 7, p. 144.

1947. *Xenophora trochiformis* (Born). Palmer, Bull. Amer. Paleont., v. 30, No. 177, pt. 2, p. 258-259, pl. 30, fig. 15-18.

1966. *Xenophora reclusa* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 1025.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2; Yazoo Formation, locality 5. Louisiana: Moodys Branch Formation, localities P1, P7, P8, P10, P1119.

Superfamily CYPRAEACEA Rafinesque, 1815
Family CYPRAEIDAE Rafinesque, 1815

Genus CYPRAEORBIS Conrad, 1865

Cypraeorbis ventripotens (Cossmann)

Plate 6, figures 2A, 2B, 3, 4

1854. *Cypraea pinguis* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, pl. 17, p. 289, fig. 3a, 3b.

1903. *Cypraea (Luponia) ventripotens* Cossmann, Essais Paleoconch. comp., v. 5, p. 161.

1927. *Cypraeorbis (Cypraeorbis) ventripotens* (Cossmann). Schilder, Archive Naturgesch., 91, v. A, No. 10, p. 98.

1947. *Cypraeorbis ventripotens* (Cossmann). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 318-319, pl. 40, fig. 11, 12, 15, 16.

1966. *Cypraeorbis ventripotens* (Cossmann). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 628.

Discussion.—The base and basal margin of the shell has a lighter colored callus than does the dorsal side. Under ultraviolet light the dorsal side shows a spotted pattern (see plate 6, figure 3), and the base has two symmetrical spots on each side of the aperture (see plate 6, figure 4). This color pattern is similar to that of the Recent species *Talparia (Arestorides) argus* (Linne').

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2. Louisiana: Moodys Branch Formation, localities P10, P883; Yazoo Formation locality P2.

Genus AUSTROCYPRAEA Cossmann, 1903

Austrocypraea towncreekensis n. sp.

Plate 6, figures 7A, 7B

Description.—Shell bulbous, inflated about the outer lip, and produced at the basal aperture; dorsal surface with intersecting, low, rounded spiral and transverse lirae; aperture curved inward at apex with a deep adapical cannal; inner lip with 24 short lirations (teeth); outer lip with 21 teeth; shell folded at basal portion of inner and outer lips with folds flaring outward; abapical canal deeply notched and constricted by folds on the basal inner and outer lips.

Discussion.—This species is similar to *A. contusa* of the Oligocene in Australia but differs in being less bulbous, in having intersecting lirations on the dorsal side, and in the prominent flaring outward of the basal inner and outer lips. This is the first record of this genus, which is from the middle Oligocene of Australia, occurring in the Eocene of the Southeastern United States.

Holotype: PRI 8235; height 30.5 mm, width 19 mm.

Type locality: Upper portion of the Moodys Branch Formation, north bank of Town Creek under the Gulf, Mobile, and Ohio railroad bridge.

Family OVULIDAE Fleming, 1822

Genus CYPRAEA Linne', 1758

Cypraea jacksonensis Johnson

1899. *Cypraea jacksonensis* Johnson, Acad. Nat. Sci. Philadelphia, Proc., v. 51, p. 77.

1947. *Cypraea jacksonensis* Johnson. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 317, pl. 39, fig. 18.

1966. *Cypraea jacksonensis* Johnson. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 623.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, Jackson. Louisiana: Moodys Branch Formation, locality P10.

Genus NOTOLUPONIA Schilder, 1935

Notoluponia healeyi (Aldrich)

Plate 6, figures 1A, 1B

1923. *Cypraea healeyi* Aldrich, Biol. Soc. Washington, Proc., v. 36, p. 199.

1966. *Cypraea healeyi* Aldrich. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 623.

Type locality: Red Bluff Clay (Oligocene), Red Bluff, Wayne County, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2; Red Bluff Clay, Red Bluff. Louisiana: Moodys Branch Formation, localities P1, P10, P883.

Notoluponia ampla n. sp.

Plate 6, figures 6A, 6B, 6C

Description.—Shell large, rounded; dorsal side with numerous, closely set growth lines; aperture very wide, curved inward at apex; inner lip with short lirae beginning on central portion and continuing toward base; apertural face smooth; body whorl abruptly thickened along outer lip; outer lip with numerous closely set teeth.

Discussion.—The trival name of this species, *ampla* (large, spacious) is descriptive of the aperture. This species differs from *N. murraviana elegantior* of the Pliocene in Australia, in its size, the width of its aperture, and in lacking teeth on the upper portion of the inner lip. About five partially complete specimens have been found in the upper portion of the Moodys Branch Formation at Town Creek.

Holotype: PRI 8236; height of broken shell 62 mm, estimated original height 85 mm (estimated measurement taken from a partially complete specimen having the outer lip and dorsal portion of the last whorl complete), width 63 mm.

Type locality: Upper portion of the Moodys Branch Formation, north bank of Town Creek under the Gulf, Mobile, and Ohio railroad bridge.

Genus CYPRAEDIA Swainson, 1840

Cypraedia fenestralis Conrad in Wailes

Plate 7, figures 7A, 7B, 8, 11

1854. *Cypraea (Cypraedia) fenestralis* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 17, fig. 5a, 5b.

1865. *Cypraedia fenestralis* Conrad. Conrad, Amer. Jour. Conch., v. 1, p. 31.

1966. *Cypraedia fenestralis* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 626.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, localities P8, P10, P853.

Cypraedia pittsi, n. sp.
Plate 7, figures 4A, 4B

Description.—Shell ovate, with 30 prominent spiral lirations on early portion of body whorl at inner lip, latter portion with intervening spiral threads; aperture narrow with adapical portion curved inward; outer lip somewhat inflated with 30 prominent lirations forming teeth along the inner margin; some lirations on outer lip bifurcate away from the aperture, many join with prominent lirations of body whorl and a few terminate on abaxial portion of the lip; lirae on adapical portion of inner lip with intervening smaller lirae.

Discussion.—This species differs from *Cypraedia fenestralis* in that it lacks prominent transverse lirations. The species is named in honor of the late collector Mr. Leslie P. Pitts.

Holotype: PRI 8237; height 43 mm, width 29 mm.

Type locality: Moodys Branch Formation, locality 1.

Genus JENNERIA Jousseaume, 1884
Jenneria ludoviciana (Johnson)
Plate 7, figures 9A, 9B

1899. *Cypraea ludoviciana* Johnson, Acad. Nat. Sci. Philadelphia, Proc., v. 51, p. 77, pl. 2, fig. 6.

1927. *Cypropterina (Jenneria) ludoviciana* (Johnson). Schilder, Archiv. Naturgesch., 91, v. A, No. 10, p. 72.

1966. *Cypraea ludoviciana* Johnson. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 624.

Discussion.—One specimen was found at Jackson in the upper portion of the Moodys Branch Formation at locality 7.

Type locality: Moodys Branch Formation, Montgomery Landing, Red River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, locality 7. Louisiana: Moodys Branch Formation, Montgomery Landing.

Genus TRANSOVULA Gregorio, 1880
Subgenus OXYCYPRAEA Schilder, 1927
Transovula (Oxycypraea) producta, n. sp.
Plate 7, figures 10A, 10B

Description.—Shell slender; dorsal side with numerous closely set wavy spiral threads; aperture straight, narrow; shell depressed along

inner lip; inner lip with 23 lirations (teeth); outer lip with 17 lirations (teeth) which extend completely across lip and eleven which extend partially across.

Discussion.—This species most closely resembles *T. transovuloides* from the Claiborne Group of Alabama but differs in that the anterior and posterior ends are not curved upward.

Holotype: PRI 8238; height 15.5 mm, width 5.5 mm.

Type locality: Moodys Branch Formation, locality 2.

Superfamily NATICACEA Gray, 1840
Family NATICIDAE Gray, 1840

Genus NATICA Scopoli, 1777
Natica permunda Conrad in Wailes

Plate 7; figures 1, 3

1854. *Natica permunda* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 16, fig. 2.

1966. *Natica permunda* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 791.

Discussion.—One specimen (plate 7, figure 3) was found with its calcareous operculum inside the aperture. *N. permunda* is the most common species of the Naticidae which occurs in the Moodys Branch Formation at Jackson and is also abundant in the Yazoo Clay at the Miss-Lite clay pit in Cynthia, Mississippi. At the latter locality the species exhibits a small form similar to those that occur in the Danville Landing Member at Danville Landing, Louisiana.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9; Yazoo Formation, locality 15. Louisiana: Moodys Branch Formation, localities P1, P7, P8, P9, P10, P11, P15, P16, P883, P1054, P1119; Yazoo Formation, locality P2; Danville Landing Member, localities P6, P14, P886. Texas: Moodys Branch Formation, locality P922.

Genus POLINICES Montfort, 1810
Polinices weisbordi Palmer

Plate 7; figures 2A, 2B

1937. *Polinices weisbordi* Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 122, pl. 12, fig. 7, 10.

1947. *Polinices weisbordi* Palmer. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 248-250, pl. 29, fig. 7-11.

1966. *Polinices weisbordi* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 847-848.

Discussion.—The largest specimens of this species reported were in the Moodys Branch Formation at Jackson, Mississippi. Palmer (1947, p. 25) recorded a specimen from locality 5 with a height of 27 mm.; another specimen figured in this text and found in the upper clayey portion of the Moodys Branch Formation at Town Creek has a height of 30 mm. *P. weisbordi* is abundant in the Yazoo Clay at the Miss-Lite clay pit at Cynthia where the species is small and similar in form to those that occur in the Danville Landing Member at Danville Landing, Louisiana.

Type locality: Moodys Branch Formation, Montgomery Landing, Red River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3; Yazoo Formation localities 5, 15. Louisiana: Moodys Branch Formation, localities P1, P8, P10, P11, P12, P15, P23, P883, P1054, P1118; Yazoo Formation, localities P2, P913; Danville Landing Member, localities P6, P14, P886. Arkansas: White Bluff Formation, locality P897.

Genus EUSPIRA Agassiz, 1839

Euspira jacksonensis Palmer

Plate 7, figures 5A, 5B

1947. *Euspira jacksonensis* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 251-252, pl. 29, fig. 16-19.

1966. *Euspira jacksonensis* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, p. 669.

Discussion.—This species resembles *N. permunda* but may easily be distinguished by the lack of a funicle and by its impressed suture.

Type locality: Moodys Branch Formation, locality 1.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9. Louisiana: Moodys Branch Formation, localities P1, P8, P9, P10, P11, P12, P15, P883, P1054. Texas: Moodys Branch Formation, localities P922, P1121.

Genus SINUM Roeding in Bolten, 1798

Sinum jacksonense, n. sp.

Plate 7, figures 6A, 6B

Description.—Shell thin and fragile; protoconch with three smooth whorls; teleoconch with one and one-half whorls having numerous closely spaced wavy spiral lirations that are slightly offset at intersections with growth lines; spire flattened; spiral suture impressed; umbilicus open and deep, not constricted by callus; callus weakly developed on parietal lip.

Discussion.—This species is similar to *S. declive* of the Claiborne Group but has a deeper, nonconstricted umbilicus, a more flattened spire and body whorl, and a more greatly impressed spiral suture. One specimen resembles *S. beatricae* of the Claiborne Group in the flatness of its form. *S. jacksonense* also resembles *S. danvillense* of the Upper Eocene Danville Landing Member, but the body whorl of the former, as viewed on the apertural face, is less inflated, and the umbilicus is not constricted by callus.

Holotype: PRI 8239; height 13 mm, width 10.5 mm.

Type locality: Moodys Branch Formation, locality 1.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2. Louisiana: Moodys Branch Formation, locality P10?

Genus GLOBULARIA Swainson, 1840

Globularia morgani (Johnson)

Plate 8, figure 2

1899. *Ampullina morgani* Johnson, Acad. Nat. Sci. Philadelphia, Proc., v. 51, p. 80, pl. 2, fig. 12.

1927. *Globularia morgani* (Johnson). Stewart, Acad. Nat. Sci. Philadelphia, Proc., v. 78, p. 330.

1966. *Globularia morgani* (Johnson). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, p. 702.

Type locality: Moody's Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2.

Superfamily TONNACEA Peile, 1926

Family CASSIDAE Swainson, 1832

Genus PHALIUM Link, 1807

Phalium taitii johnsoni Palmer

Plate 8, figures 4, 5

1947. *Phalium taitii johnsoni* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 328-329, pl. 42, fig. 12, 13.

1966. *Phalium taitii johnsoni* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 824.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2.

Genus GALEODEA Link, 1807

Galeodea petersoni (Conrad in Wailes)

Plate 8, figures 1A, 1B

1854. *Morio Petersoni* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 17, fig. 9a, 9b.

1856. *Galeodia Petersoni* (Conrad). Conrad, Acad. Nat. Sci. Philadelphia, Proc., v. 7, p. 262.

1926. *Galeodia petersoni* (Conrad). Schenck, Univ. California Pub., Geol. Sci., v. 16, No. 4, p. 81, pl. 14, fig. 3, 4.

1966. *Galeodia petersoni* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, p. 695.

Discussion.—This species is fairly common in the upper clayey portion of the Moodys Branch Formation at Town Creek but is rare at other localities.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9; Yazoo Formation, locality 3. Texas: Moodys Branch Formation, locality P1121.

Galeodea planotecta jacksonia Palmer

1947. *Galeodea planotecta jacksonia* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 331-333, pl. 42, fig. 14.

1966. *Galeodea planotecta jacksonia* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, p. 696.

Type locality: Moodys Branch Formation, locality 1.

Subgenus GOMPHOPAGES Gardner, 1939

Galeodea (Gomphopages ?) millsapsi Sullivan and Gardner

Plate 8, figures 3A, 3B, 3C, 6

1939. *Galeodea (Gomphopages ?) millsapsi* Sullivan and Gardner *in* Gardner, U. S. Geol. Survey Prof. Paper 193-B, p. 26, pl. 8, fig. 2, 3, 6.

1966. *Galeodea (Gomphopages ?) millsapsi* Sullivan and Gardner. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, p. 695.

Discussion.—This species is not common, but several specimens have been found in the upper portion of the Moodys Branch Formation at Town Creek in Jackson, Mississippi.

Type locality: Moodys Branch Formation, locality 1.

Family CYMATIIDAE Iredale, 1913

Genus DISTORSIO Roeding in Bolten, 1798
Subgenus PERSONELLA Conrad, 1865
Distorsio (Personella) jacksonensis (Meyer)

Plate 9, figure 5

1885. *Distortrix Jacksonensis* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 464, 468.

1947. *Distorsio (Personella) septemdentata jacksonensis* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 336-337, pl. 44, fig. 7-9.

1966. *Distorsio (Personella) jacksonensis* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 635.

Family FICIDAE Conrad, 1867

Genus FICUS Roeding in Bolten, 1798
Ficus filia (Meyer)

Plate 9, figure 11

1885. *Fulgur filius* Meyer, Amer. Jour. Sci., (3rd ser.), v. 29, p. 465, 468.

1887. *Ficus filia* Meyer, Senckenberg. naturf. Gesell., p. 8, pl. 1, fig. 10.

1966. *Ficus filia* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 680.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3. Louisiana: Moodys Branch Formation, locality P1.

Ficus merita Palmer

1947. *Fiscus merita* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 326-327, pl. 48, fig. 4-6.

1966. *Ficus merita* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 681.

Type locality: Moodys Branch Formation, Creole Bluff, Montgomery, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, Creole Bluff and localities P10, P883, P1118.

Order NEOGASTROPODA Wenz, 1938
Suborder STENOGLOSSA Troschel, 1848
Superfamily MURICACEA da Costa, 1776
Family MURICIDAE da Costa, 1776

Genus HEXAPLEX Perry, 1810
Subgenus HEXAPLEX Perry, 1810
Hexaplex (Hexaplex) marksi (Harris)

Plate 9, figures 6, 8A, 8B

1894. *Murex marksi* Harris, Ann. Rept. Geol. Survey Arkansas for 1892, v. 2, p. 167, pl. 6, fig. 10.

1947. *Murex (Phyllonotus) engonatus marksi* Harris. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 339-341, pl. 44, fig. 14-17.

1968. *Hexaplex (Hexaplex) marksi* (Harris). E. H. Vokes, Tulane Stud. Geol., v. 6, No. 3, p. 98, 100, pl. 2, fig. 3a, 3b.

Type locality: White Bluff Formation, one mile northeast of Pansy, Cleveland County, Arkansas.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9, 11. Louisiana: Moodys Branch Formation, P1, P8, P10, P15, P118, P883. Arkansas: White Bluff Formation, one mile northeast of Pansy, Cleveland County.

Hexaplex (Hexaplex) katherinae E. H. Vokes

1947. *Murex vanuxemi* Conrad. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 338-339, pl. 44, fig. 10-13.

1966. *Murex* sp. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 785.

1968. *Hexaplex (Hexaplex) katherinae* E. H. Vokes, Tulane Stud. Geol., v. 6, No. 3, p. 100, pl. 1, fig. 4a, 4b.

Type locality: Moodys Branch Formation, locality 1.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, localities P1, P7, P8, P912.

Hexaplex (Hexaplex) supernus (Palmer)

1947. *Murex (Phyllonotus) engonatus supernus* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 341-342, pl. 44, fig. 1-5.

1966. *Murex (Phyllonotus) engonatus supernus* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 782.

1968. *Hexaplex (Hexaplex) supernus* (Palmer). E. H. Vokes, Tulane Stud. Geol., v. 6, No. 3, p. 100, pl. 2, fig. 2a, 2b.

Type locality: Danville Landing Member of the Yazoo Formation, locality P1120.

Occurrence: Mississippi: Moodys Branch Formation, locality 1; Yazoo Formation, locality 15. Louisiana: Danville Landing Member, localities P6, P14, P20, P886, P1120.

Genus TYPHIS montfort, 1810
Subgenus RUGOTYPHIS Vella, 1961
Typhis (Rugotyphis) dentatus Johnson
Plate 9, figures 7A, 7B

1899. *Typhis dentatus* Johnson, Acad. Nat. Sci. Philadelphia, Proc., v. 51, p. 76, pl. 1, fig. 13.

1944. *Typhis (Typhina) dentatus* Johnson. Keen, Jour. Paleont., v. 18, No. 1, p. 55, 64.

1966. *Typhis (Typhina) dentatus* Johnson. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 1009.

1969. *Typhis (Rugotyphis) dentatus* Johnson. Gertman, Tulane Stud. Geol. Paleont., v. 7, No. 4, p. 150, pl. 2, fig. 1a, 1b.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Superfamily BUCCINACEA Rafinesque, 1815
Family COLUMBELLIDAE Swainson, 1840

Genus MITRELLA
Subgenus COLUMBELLOPSIS Bucquoy, Dautzenberg, and Dollgus, 1883
Mitrella (Columbellopsis) parva (H. C. Lea)
Plate 4, figures 4A, 4B

1841. *Buccinum parvum* H. C. Lea, Amer. Jour. Sci., (ser. 1), v. 40, p. 100, pl. 1, fig. 17.

1937. *Mitrella (Columbellopsis) parva* (H. C. Lea). Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 277-278, pl. 37, fig. 2, 3, pl. 84, fig. 7.

1966. *Mitrella (Columbellopsis) parva* (H. C. Lea). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 776.

Type locality: Gosport Sand, Claiborne Bluff, Alabama River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Alabama: Gosport Sand, Claiborne Bluff.

Genus METULA H. and A. Adams, 1853

Metula subgracilis Johnson

1899. *Metula subgracilis* Johnson, Acad. Nat. Sci. Philadelphia, Proc., v. 51, p. 75, pl. 2, fig. 2.

1947. *Metula subgracilis* Johnson. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 345-346, pl. 45, fig. 7, 8.

1966. *Metula subgracilis* Johnson. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 766.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, Jackson. Louisiana: Moodys Branch Formation, locality P883.

Metula gentilicia Palmer

Plate 9, figure 9

1947. *Metula gentilicia* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 346-347, pl. 45, fig. 12, 13.

1966. *Metula gentilicia* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 765.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3.

Family BUCCINIDAE Rafinesque, 1815

Genus TRITIARIA Conrad, 1865

Tritiaria hilli (Harris)

1894. *Phos hilli* Harris, Ann. Rept. Geol. Survey Arkansas for 1892, v. 2, p. 167, pl. 6, fig. 6.

1928. *Tritiaria hilli* (Harris). Woodring, Carnegie Inst. Washington, Pub. No. 385, p. 259.

1947. *Tritiaria hilli* (Harris). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 350-351, pl. 45, fig. 6.

1966. *Tritiaria hilli* (Harris). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 963.

Type locality: White Bluff Formation, near Vince Bluff, Arkansas.

Occurrence: Mississippi: Moodys Branch Formation, locality 3. Louisiana: Moodys Branch Formation, localities P1, P8, P883; Danville Landing Member, localities P6, P886.

Tritiaria magnocostata (Johnson)

Plate 9, figure 3

1896. ? *Phos* cf. *hilli* Harris, Vaughan, U. S. Natl. Mus. Bull., No. 142, p. 50.

1899. *Phos hilli magnocostatus* Johnson, Acad. Nat. Sci. Philadelphia, Proc., v. 51, p. 75, pl. 1, fig. 10.

1947. *Tritiaria magnocostata* (Johnson). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 351, pl. 45, fig. 16, 17.

1966. *Tritiaria magnocostata* (Johnson). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 963.

Type locality: Moodys Branch Formation, Montgomery Landing, Red River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, localities P10, P1054.

Tritiaria jacksonensis (Johnson)

Plate 9, figure 4

1899. *Phos hilli jacksonensis* Johnson, Acad. Nat. Sci. Philadelphia, Proc., v. 51, p. 76, pl. 1, fig. 11.

1947. *Tritiaria jacksonensis* (Johnson). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 351-352, pl. 45, fig. 15.

1966. *Tritiaria jacksonensis* (Johnson). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 963.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Genus BUCCITRITON Conrad, 1865

Buccitriton jacksonensis (Cooke)

1926. *Alectrion jacksonensis* Cooke, Washington Acad. Sci., Jour., v. 16, No. 5, p. 136, fig. 7.

1947. *Buccitriton jacksonensis* (Cooke). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 353-354, pl. 45, fig. 14.

1966. *Buccitriton jacksonensis* (Cooke). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 535.

Type locality: Moodys Branch Formation, locality 3.

Genus PSEUDOLIVA Swainson, 1840

Pseudoliva vetsuta (Conrad)

1833. *Monoceros vetusta* Conrad, *Fossil Shells Tert. Form.*, v. 1, No. 4, p. 44.

1865. *Pseudoliva (Buccinorbis) vetusta* (Conrad). Conrad, Amer. Jour. Conch., v. 1, No. 1, p. 22, 191.

1890. *Pseudoliva vetusta* (Conrad). de Gregorio, Ann. Geol. Paleont., v. 7 and 8, p. 109, pl. 8, fig. 41, 45, 46, 47.

1947. *Pseudoliva vetusta* (Conrad). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 355-356, pl. 46, fig. 1-6.

1966. *Pseudoliva vetusta* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 855.

Type locality: Gosport Sand (upper Claiborne Group), Claiborne Bluff, Alabama River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, Jackson. Louisiana: Moodys Branch Formation, localities P15, P883; Cook Mountain Formation, locality P741. Arkansas: White Bluff Formation, localities P894, P1046. Alabama: Gosport Sand, locality P104; Claiborne Group, localities P103, P734. Texas: Weches Formation, localities P727, P745, P758, P766. South Carolina; McBean Formation, locality P707. Virginia: McBean Formation, locality P843.

Pseudoliva vestusta perspectiva Conrad in Gabb

Plate 9, figures 1A, 1B

1854. *Gastridium vetustum* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 17, fig. 4.

1860. *Pseudoliva perspectiva* Conrad *in Gabb*, Acad. Nat. Sci. Philadelphia, Jour., (2nd Ser.), v. 4, pt. 4, p. 381, pl. 67, fig. 29.

1937. *Pseudoliva vetusta perspectiva* Conrad *in* Gabb. Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 313, pl. 42, fig. 1, 2, pl. 85, fig. 4.

1966. *Pseudoliva vetusta perspectiva* Conrad *in* Gabb. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 859.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moody's Branch Formation, localities 1, 2, 3, 9; Yazoo Formation, localities 3, 15. Louisiana: Moodys Branch Formation, localities P1, P7, P8, P10, P11, P15, P16, P883, P912, P923, P1054, P1118, P1119; Yazoo Formation, localities P2, P913; Danville Landing Member, localities P6, P20, P886, P1120. Texas: Moodys Branch Formation, locality P922.

Genus SIPHONALIA A. Adams, 1863
Siphonalia jacksonia Harris

1897. *Siphonalia jacksonia* Harris, Acad. Nat. Sci. Philadelphia, Proc., v. 48, p. 473, pl. 19, fig. 2.

1947. *Siphonalia jacksonia* Harris. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 366-367, pl. 48, fig. 1, 2.

1966. *Siphonalia jacksonia* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 909.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Family PYRAMIMITRIDAE Cossmann, 1901

Genus PYRAMIMITRA Conrad, 1865
Pyramimitra quadralirata, n. sp.

Plate 9, figure 10

1947. *Pyramimitra terebraeformis* (Conrad, 1848). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 352, pl. 45, fig. 10, 11.

1966. *Pyramimitra* sp. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 871.

Description.—Shell small, high spired; protoconch with two whorls; teleoconch with ten whorls; first two whorls of teleoconch with transverse cords; latter whorls with broad, rounded transverse cords, four prominent spiral lirae, and a spiral thread just below the impressed suture; body whorl with six or seven transverse cords and eight prominent lirae above the neck; a nineth lira occurring on the neck joints with the first columellar fold on the inner lip; lower neck with three or four additional small lirae; columellar lip with two folds; outer lip crenulate.

Discussion.—This species differs from *P. terebraeformis,* which occurs in the Gosport Sand (Claiborne Group) of Alabama, in that it has more prominent transverse cords and spiral lirae, and its whorls are more rapidly expanding. *P. quadralirata* is common in the Moodys Branch Formation at Town Creek, Jackson, Mississippi.

Holotype: PRI 8240; height 7 mm, width 2.5 mm.

Type locality: Moodys Branch Formation, locality 1.

Family MELONGENIDAE Gill, 1867

Genus CORNULINA Conrad, 1853
Cornulina dalli (Harris)

Plate 9, figure 2

1894. *Mazzalina dalli* Harris, Ann. Rept. Geol. Survey Arkansas for 1892, v. 2, p. 166, pl. 7, fig. 7.

1947. *Cornulina dalli* (Harris). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 360-363, pl. 47, fig. 7-15.

1966. *Cornulina dalli* (Harris). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 603.

Type locality: White Bluff Formation, Vince Bluff, Saline River, Arkansas.

Occurrence: Mississippi: Moodys Branch Formation, locality 2. Arkansas: White Bluff Formation, localities P894, P897, P1046. Texas: Jackson Group, Peeler's ranch, and southeast of Campbellton, Atascosa County.

Genus BUSYCON Roeding in Bolten, 1798
Subgenus ECHINOFULGUR Olsson and Harbison, 1953
Busycon (Echinofulgur) branneri (Harris)

Plate 9, figures 12A, 12B

1894. *Levifusus branneri* Harris, Ann. Rept. Geol. Survey Arkansas for 1892, v. 2, p. 163, pl. 6, fig. 8.

1966. *Levifusus branneri* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 730.

Discussion.—This species bears a close resemblance to *Busycon (Echinofulgur) echinatum* (Dall) from the Pliocene of Florida. The major differences are that *B. branneri* has a higher spire and weaker (not as thick) columellar lip. *B. branneri* occurs commonly in ironstone concretions in the lower portion of the Moodys Branch Formation along Techeva Creek, Yazoo County, Mississippi.

Type locality: White Bluff Formation, Wadsworth's well, Drew County, Arkansas.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 7, 11, 12. Louisiana: Moodys Branch Formation, localities P1, P10; Danville Landing Member, locality P6. Arkansas: White Bluff Formation, Wadworth's well, Drew County.

Family NASSARIIDAE Iredale, 1916

Genus BULLIA Gray, 1834
Bullia altilis (Conrad)

Plate 14, figures 8, 9

1832. *Ancillaria altile* Conrad, *Fossil Shells Tert. Form.*, v. 1, No. 1, p. 24, pl. 10, flg. 2.

1937. *Bullia altilis* (Conrad). Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 287-289, pl. 39, fig. 7, 8, 9.

1966. *Bullia altilis* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 542-543.

Type locality: Gosport Sand (Claiborne Group), Claiborne Bluff, Alabama River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, locality 11. Arkansas: White Bluff Formation, localities P894, P1046. Alabama: Gosport Sand, locality P104; Cook Mountain Formation, locality P778.

Family FASCIOLARIIDAE Gray, 1853

Genus LEVIFUSUS Conrad, 1865

Levifusus moodianus Cooke

1926. *Levifusus moodianus* Cooke, Washington Acad. Sci., Jour., v. 16, No. 5, p. 137, fig. 12.

1947. *Levifusus moodianus* Cooke. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 372, pl. 49, fig. 1-3.

1966. *Levifusus moodianus* Cooke. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 732.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Genus LATIRUS Montfort, 1810

Latirus humilior (Meyer)

1885. *Turbinella humilior* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 464, 468.

1886. *Latirus humilior* (Meyer). Meyer, Geol. Survey Alabama, Bull., v. 1, pt. 2, p. 74, pl. 2, fig. 20, 20a.

1947. *Latirus humilior* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 373, pl. 50, fig. 14, 15.

1966. *Latirus humilior* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 722.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Latirus humilior urbanus Palmer

Plate 10, figures 12A, 12B

1947. *Latirus humilior urbanus* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 373-374, pl. 50, fig. 3-6.

1966. *Latirus humilior urbanus* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 723.

Discussion.—This species is common in the upper clayey portion of the Moodys Branch Formation at Town Creek but is rare at other Jackson, Mississippi, localities.

Type locality: Moodys Branch Formation, locality 1.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2. Louisiana: Moodys Branch Formation, localities P1, P10, P15, P883, P923. Texas: Moodys Branch Formation, locality P1121. Arkansas: White Bluff Formation, locality P897.

Latirus humilior jacksonensis (Aldrich)

1885. *Fasciolaria jacksonensis* Aldrich, Cincinnati Soc. Nat. Hist., Jour., v. 8, p. 150, pl. 2, fig. 12.

1937. *Latirus jacksonensis* (Aldrich). Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 343.

1947. *Latirus humilior jacksonensis* (Aldrich). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 375-376, pl. 50, fig. 8-10.

1966. *Latirus humilior jacksonensis* (Aldrich). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 722.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, Jackson. Louisiana: Moodys Branch Formation, localities P1, P8, P10, P883, P1054.

Latirus suturalis Johnson

1899. *Latirus suturalis* Johnson, Acad. Nat. Sci. Philadelphia, Proc., v. 51, p. 73, pl. 1, fig. 6.

1947. *Latirus suturalis* Johnson. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 376-377, pl. 49, fig. 6.

1966. *Latirus suturalis* Johnson. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 726.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Latirus liratus, n. sp.

Plate 10, figure 6

Description.—Shell coarsely sculptured with transverse cords and spiral lirae; transverse cords slightly offset in abapical direction from the corresponding cord above suture; whorls with seven spiral lirae; body whorl with nine transverse cords and 14 spiral lirae and intervening threads; columellar lip with three folds; inner lip with eight lirae, which extend back into the aperture.

Discussion.—This species somewhat resembles *L. humilor* in its shape but has much more prominent transverse cords and spiral lirations. *L. liratus* is known from one specimen.

Holotype: PRI 8241; height 11 mm, width 5 mm.

Type locality: Moodys Branch Formation, locality 1.

Genus DOLICHOLATIRUS Bellardi, 1884
Dolicholatirus leaensis (Harris)
Plate 10, figures 8A, 8B

1897. *Latirus leaensis* Harris, Acad. Nat. Sci. Philadelphia, Proc., v. 48, p. 472, pl. 18, fig. 13.

1901. *Dolicholathirus leanus* (*sic*) (Harris). Cossmann, Essais Paleoconch. comp., v. 4, p. 24.

1947. *Latirus (Dolicholathirus) leaensis* Harris. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 377, pl. 50, fig. 1, 2.

1966. *Latirus (Dolicholathirus) leaensis* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 724.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2. Louisiana: Moodys Branch Formation, localities P1, P883. Texas: Moodys Branch Formation, locality P922.

Genus STREPTOCHETUS Cossmann, 1889
Streptochetus limulus (Conrad)
Plate 10, figure 5

1833. *Fusus limulus* Conrad, Amer. Jour. Sci., (ser. 1), v. 23, p. 43.

1893. *Streptochetus limula* (Conrad). Cossmann, Ann. Geol. Paleont., v. 12, p. 36.

1966. *Streptochetus limulus* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 925.

Type locality: Gosport Sand (Claiborne Group), Claiborne Bluff, Alabama River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, base of bluff on south bank of Techeva Creek about 300 feet east of bridge, SW¼, NE¼, Sec. 9, T. 12N., R. 1 E., Yazoo County; Cook Mountain Formation (Claiborne Group), Hickory, Newton County. Alabama: Gosport Sand, Claiborne Bluff.

Genus TRITONOATRACTUS Cossmann, 1901
Tritonoatractus pearlensis (Aldrich)
Plate 10, figure 3

1885. *Fusus pearlensis* Aldrich, Cincinnati Soc. Nat. Hist., Jour., v. 8, p. 152, pl. 3, fig. 17a, 17b.

1901. *Ptychatractus* (*Tritonoatractus*) *pearlensis* (Aldrich). Cossmann, Essais Paleoconch. comp., v. 4, p. 54, pl. 4, fig. 16, 17.

1947. *Tritonatractus pearlensis* (Aldrich). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 378-379, pl. 51, fig. 8, 9.

1966. *Tritonatractus pearlensis* (Aldrich). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 964.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9. Louisiana: Moodys Branch Formation, localities P10, P1054, P1119; Danville Landing Member, localities P6, P886.

Tritonoatractus montgomeriensis (Vaughan)

Plate 10, figures 7A, 7B

1896. *Fusus montgomeriensis* Vaughan, U. S. Geol. Survey, Bull., No. 142, p. 35, pl. 3, fig. 2.

1947. *Tritonoatractus pearlensis montgomeriensis* (Vaughan). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 379-380, pl. 51, fig. 4-7.

1966. *Tritonoatractus pearlensis montgomeriensis* (Vaughan). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 965.

Discussion.—This species may be easily distinguished from *T. pearlensis* by its nonvaricose shell and by its carina. *T. montgomeriensis* is common in the upper clayey portion of the Moodys Branch Formation at Town Creek, Jackson, Mississippi.

Type locality: Moodys Branch Formation, Montgomery, Louisiana.

Occurrences: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, localities P8, P10, P11, P15, P883; Danville Landing Member, localities P6, P886. Arkansas: White Bluff Formation, locality P1046.

Genus MAZZALINA Conrad, 1860

Mazzalina inaurata oweni (Dall)

Plate 10, figures 1A, 1B, 4A, 4B

1890. *Mazzalina Oweni.* Dall, Wagner Free Inst. Sci., Trans., v. 3, pt. 1, p. 35, pl. 9, fig. 1.

1894. *Mazzalina inaurata oweni* (Dall). Harris, Ann. Rept. Geol. Survey Arkansas for 1892, v. 2, p. 165, pl. 7, fig. 1.

1966. *Mazzalina inaurata oweni* (Dall). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 753.

Type locality: White Bluff Formation, White Bluff, Arkansas.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 7, 11; Yazoo Formation, locality 15. Louisiana: Moodys Branch Formation, localities P1, P10, P883, P1054; Yazoo Formation, locality

P2; Danville Landing Member, localities P6, P14, P20, P886, P1120, one mile north of Rosefield, Catahoula Parish. Arkansas: White Bluff Formation, localities P894, P896, P1046.

Mazzalina inaurata humerosa Harris

Plate 10, figures 2A, 2B

1894. *Mazzalina inaurata humerosa* Harris, Ann. Rept. Geol. Survey Arkansas for 1892, v. 2, pl. 7, fig. 4.

1966. *Mazzalina inaurata humerosa* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 752.

Type locality: White Bluff Formation, well at Rison, Arkansas.

Occurrence: Mississippi: Moodys Branch Formation, locality 11. Arkansas: White Bluff Formation, localities P896, P1046, P1049.

Genus FUSINUS Rafinesque, 1815

Fusinus insectoides (Harris)

Plate 10, figures 9A, 9B

1897. *Fusus insectoides* Harris, Acad. Nat. Sci. Philadelphia, Proc., v. 48, p. 472, pl. 18, fig. 11.

1947. *Fusinus insectoides* (Harris). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 385, pl. 49, fig. 4, 5.

1966. *Fusinus insectoides* (Harris). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 686.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Genus CLAVILITHES Swainson, 1840

Clavilithes humerosus Conrad in Wailes

Plate 10, figures 10, 13

1854. *Clavilithes humerosus* Conrad *in* Wailes, Rept. Agr. Geol. Mis. sissippi, p. 289, pl. 15, fig. 2.

1947. *Clavilithes humerosus* Conrad. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 386-388, pl. 53, fig. 5-12.

1966. *Clavilithes humerosus* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 584.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9, 12. Louisiana: Moodys Branch Formation, localities P1, P7, P8, P10, P15, P16, P883, P912, P1054, P1119. Arkansas: White Bluff Formation, locality P897.

Genus PAPILLINA Conrad, 1855
Papillina dumosa (Conrad in Wailes)

Plate 11, figures 6, 7A, 7B

1854. *Strepsidura dumosa* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 17, Fig. 10a, 10b.

1947. *Papillina dumosa* (Conrad). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 389-390, pl. 52, figs. 12-15.

1966. *Papillina dumosa* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 814.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2. Louisiana: Moodys Branch Formation, localities P1, P7, P10, P16, P1054, P1119. Arkansas: White Bluff Formation, locality P897.

Superfamily VOLUTACEA Rafinesque, 1815
Family OLIVIDAE Latreille, 1825

Genus AGARONIA Gray, 1839
Agaronia media (Meyer)

Plate 11, figures 1A, 1B, 2A, 2B

1885. *Oliva media* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 465, 468.

1947. *Agaronia media* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 407-410, pl. 63, fig. 7, 9-13.

1966. *Agaronia media* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 486.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9; Yazoo Formation, locality 3. Louisiana: Moodys Branch Formation, locality P1, P912. Texas: Moodys Branch Formation, locality P1121. Arkansas: White Bluff Formation, locality P897.

Agaronia mississippiensis (Conrad)

Plate 11, figures 3A, 3B

1848. *Oliva mississippiensis* Conrad, Acad. Nat. Sci. Philadelphia, Proc., v. 3, p. 289.

1947. *Agaronia mississippiensis* (Conrad). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 410, pl. 63, figs. 17-19.

1966. *Agaronia mississippiensis* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 487.

Type locality: Vicksburg Group, Vicksburg, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 11 (base of bluff on south bank of Techeva Creek about 300 feet east of bridge, SW¼, NE¼, Sec. 9, T. 12 N., R. 1 E., Yazoo County); Vicksburg Group, Vicksburg. Louisiana: Moodys Branch Formation, localities P11, P883.

Agaronia sp.

1947. *Agaronia* sp. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 410-411, pl. 63, fig. 5, 6.

1966. *Agaronia* sp. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 487.

Occurrence: Mississippi: Moodys Branch Formation, locality 9.

Family VASIDAE H. and A. Adams, 1854

Genus VASUM Roeding in Bolten, 1798

Vasum humerosum Vaughan

Plate 11, figures 5A, 5B

1896. *Vasum humerosum* Vaughan, U. S. Geol. Survey, Bull., No. 142, p. 34, pl. 2, figs. 7, 8.

1966. *Vasum humerosum* Vaughan. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 1012.

1966. *Vasum humerosum* Vaughan. E. H. Vokes, Tulane Stud. Geol., v. 5, No. 1, p. 4-5, pl. 1, fig. 1.

Type locality: Moodys Branch Formation, Red River at Montgomery, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, localities P10, P1054.

Family HARPIDAE Troschel, 1848

Genus HARPA Pallas, 1774

Subgenus EOCITHARA Fischer, 1883

Harpa (Eocithara) jacksonensis Harris

Plate 11, figures 4A, 4B

1897. *Harpa jacksonensis* Harris, Acad. Nat. Sci. Philadelphia., Proc., v. 48, p. 472, pl. 18, fig. 10.

1947. *Harpa (Eocithara) jacksonensis* Harris. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 397-398, pl. 56, fig. 19, 20.

1966. *Harpa (Eocithara) jacksonensis* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 704.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, locality P883.

Family VOLUTIDAE Rafinesque, 1815

Genus ATHLETA Conrad, 1853

Athleta symmetricus (Conrad in Wailes)

Plate 12, figures 10A, 10B, 10C

1854. *Volutalithes* (sic) *symmetrica* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 15, fig. 6; *Volutalithes* (sic) *dumosa* Conrad, p. 289, pl. 16, fig. 1.

1907. *Athleta petrosa* (Conrad). Smith, Acad. Nat. Sci. Philadelphia, Proc., v. 59, p. 234.

1947. *Athleta petrosa* (Conrad). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 391-393, pl. 53, fig. 1-4.

1964. *Athleta petrosa symmetrica* (Conrad). Fisher, Rodda, and Dietrich, Univ. Texas Pub. No. 6413, p. 47-49, pl. 8, fig. 7, 10, 11, pl. 10, fig. 1-5.

1966. *Athleta symmetricus* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 517.

Discussion.—This species is common and obtains a large size in the upper clayey portion of the Moodys Branch Formation at Town Creek, Jackson, Mississippi. The color pattern as illustrated in plate 12, figure 10A consists of several narrow spiral bands. This color pattern also occurs in the Claiborne Group species *Athleta sayana mica* (de Gregorio) from the Gosport Sand at Little Stave Creek in Clarke County, Alabama, while *Athleta petrosa* (Conrad) from this same locality has a pattern of closely spaced rectangular dots arranged in spiral bands. The dimensions of the specimen figured in plate 12 (height 70 mm, width 35 mm) are much larger than the maximum dimension of height 54 mm and width 27 mm recorded by Fisher, Rodda, and Dietrich (1964, p. 48).

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 11; Yazoo Formation, locality 15. Louisiana: Moodys Branch Formation, localities P1, P7, P8, P10, P11, P15, P912, P1054, P1118, P1119; Yazoo Formation, Tullos Member, locality P12; Danville Landing Member, localities P6, P14, P886, P1120. Texas: Moodys Branch Formation, localities P922, P1121 (For other Texas localities see Fisher, Rodda, and Dietrich, 1964, p. 49). Arkansas: White Bluff Formation, localities P896, P897, P1046.

Cf. Athleta triplicatus (Meyer)

1887. *Odontopolys triplicata* Meyer, Senckenberg. Naturf. Gesell., p. 7, pl. 1, fig. 6.

1966. Cf. *Athleta triplicatus* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 517.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Genus CARICELLA Conrad, 1835

Caricella polita Conrad in Wailes

Plate 12, figures 3, 5, 8, 9

1854. *Caricella polita* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 16, fig. 4.

1966. *Caricella polita* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 563.

Discussion.—This species is often difficult to distinguish from *C. subangulata*. The latter has a more elevated spire and an angular shoulder. However, there is a large variation in this angulation and some forms of *C. subangulata* have rounded shoulders with little angulation similar to that of *C. polita*. Both *C. polita* and *C. subangulata* are closely related in form to *C. pyruloides* from the Gosport Sand of Alabama. The color pattern of *C. polita* and *C. subangular* consists of numerous rectangular spots aligned in revolving rows. Occasionally the corners of these spots are extended toward the aperture as is illustrated in figures 3, 6, and 9 of plate 12. This extension of the corners forms a zigzag pattern as shown in figure 6, plate 12.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2. Louisiana: Moodys Branch Formation, localities P7, P8, P10, P15, P883, P1054, P1119.

Caricella subangulata Conrad in Wailes

Plate 12, figures 1A, 1B, 2, 4, 6, 7A, 7B; Plate 13, figure 9.

1854. *Caricella subangulata* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 15, fig. 8.

1966. *Caricella subangulata* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 565.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9, 11. Louisiana: Moodys Branch Formation, localities P10, P883, P1054. Arkansas: White Bluff Formation, localities P897, P1046.

Caricella giganta, n. sp.

Plate 13, figures 1A, 1B, 2

Description.—Shell large; protoconch forming a large dome-shaped cap; whorls of teleoconch smooth; spire consisting of three whorls, latter whorls flattened toward apex; shoulder angular; columellar lip with four folds.

Discussion.—This species resembles *C. subangulata* in its size and in the angulation of its shoulder, but has a much larger protoconch and flatter spine. The protoconch of the specimen illustrated in Plate 13, figure 2 is 12 mm in diameter. Four incomplete specimen of this species have been found in the upper clayey portion of the Moodys Branch Formation of Town Creek, Jackson, Mississippi.

Holotype: PRI 8242; height (shell incomplete) 70 mm, width 39 mm.

Type locality: Moodys Branch Formation, on the north bank of Town Creek below the Gulf, Mobile, and Ohio railroad bridge, Jackson, Mississippi.

Caricella howei Palmer

Plate 13, figures 7, 8

1947. *Caricella howei* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 396, pl. 54, fig. 7, 8.

1966. *Caricella howei* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 562.

Type locality: Moodys Branch Formation, Bunker Hill, Ouachita River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, locality 1; Yazoo Formation, locality 15. Louisiana: Moodys Branch Formation, localities P10, P883, P1119; Danville Landing Member, locality P886.

Caricella turneri Palmer

Plate 13, figures 3A, 3B, 4

1947. *Caricella turneri* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 396-397, pl. 54, figs. 3, 5.

1966. *Caricella turneri* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 565-566.

Discussion.—Palmer's holotype for *C. turneri* is a young specimen with reticulate ornamentation. The mature specimen illustrated in Plate 13, figures 3A, 3B shows that the whorls become smooth and bulbous with age. In this sense, *C. turneri* more closely resembles *C. doliata* from the Claiborne Group of Alabama than it does *C. reticulata* from the Red Bluff Formation, Mississippi.

Type locality: Moodys Branch Formation, Creola Bluff, Montgomery, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, localities P1, P883.

Subgenus RETICULACELLA, new subgenus

Diagnosis.—Whorls of mature forms with prominent reticulating transverse and spiral lirations, otherwise like *Caricella;* type species—*C. (R.) fenestra.*

Caricella (Reticulacella) fenestra, n. sp.

Plate 13, figures 5A, 5B, 6A, 6B

Description.—Protoconch with one and three-fourths whorls, bulbous, latter three-fourths whorl with five spiral threads; teleoconch with three and one-half whorls having eight spiral lirae and numerous transverse lirations; body whorl with 21 or more spiral lirations; interspaces between the first five to eight lirae below suture smooth, other lirae with intervening threads; whorls with low shoulders; columellar lip with four distinct folds.

Discussion.—This species resembles *C. reticulata,* from the Red Bluff Formation of Mississippi, in its reticulate sculpture, but is more coarsely sculptured and has a lower shoulder.

Holotype: PRI 8243; height 31.5 mm, width 11.5 mm.

Type locality: Upper clayey portion of the Moodys Branch Formation, north bank of Town Creek below the Gulf, Mobile, and Ohio railroad bridge.

Genus LAPPARIA Conrad, 1855

Lapparia dumosa (Conrad in Wailes)

Plate 14, figures 4, 10A, 10B

1854. *Mitra dumosa* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 15, fig. 4.

1856. *Mitra (Lapparia) dumosa* Conrad. Conrad, Acad. Nat. Sci. Philadelphia, Proc., v. 7, p. 260.

1865. *Lapparia dumosa* Conrad. Conrad, Amer. Jour. Conch., v. 1, p. 24.

1966. *Lapparia dumosa* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 717-718.

Description.—Protoconch with two and one-half whorls; teleoconch with five whorls having prominent spiral threads; last three and one-half whorls with single row of spines; body whorl with eight to nine large spines; columellar lip with four folds; siphonal fasciole broad, rounded.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3. Louisiana: Moodys Branch Formation: localities P1, P7, P10, P15, P16, P883, P1054, P1119. Texas: Moodys Branch Formation: localities P922, P1121.

Lapparia dumosa exiqua Palmer
Plate 14, figure 13

1937. *Lapparia dumosa exiqua* Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 387, pl. 62, fig. 2, 5.

1966. *Lapparia dumosa exiqua* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 718.

Discussion.—This subspecies is similar to *L. dumosa s. s.* in size and form but differs in its short rounded spines.

Type locality: Moodys Branch Formation, one-half mile below Gibson Landing, Ouachita River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3. Louisiana: Moodys Branch Formation, localities P1, P7, P8, P9, P10, P15, P16, P883, P912, P1054, P1118, P1119.

Lapparia dumosa (Conrad in Wailes) var.
Plate 14, figures 7A, 7B

Description.—Protoconch with two and one-half whorls, teleoconch with five and one-half whorls having faint spiral threads which decrease in prominence away from the apex; last three whorls with single row of spines; body whorl with seven spines, previous whorl with eight spines; columellar lip with four folds.

Discussion.—This variation is more slender in form than *L. dumosa s. s.* and bears a resemblance to *L. mooreana* from the Claiborne of Texas, Louisiana, and Mississippi. Also it has less prominent spines and spiral threads than does *L. dumosa s. s.*

Occurrence: Mississippi: Moodys Branch Formation, Garland Creek, Clarke County.

Lapparia fasciola, n. sp.
Plate 14, figures 5, 6

Description.—Protoconch with two whorls; teleoconch with five whorls; last four whorls with single row of small spines; early whorls with faint spiral threads, latter whorls becoming smooth; body whorl with nine to twelve spines; columellar lip having four folds with the lower fold being least prominent; siphonal fasciole large.

Discussion.—This species differs from *L. dumosa* in its smaller size, small spines, large siphonal fasciole, and in its lack of prominent spiral threads.

Holotype: PRI 8244; height 30.5 mm, width 13 mm.

Type locality: Moodys Branch Formation, Tinnin locality, NW¼, NE¼, Sec. 20, T. 13 N., R. 1 W., Yazoo County.

Family CANCELLARIIDAE Forbes & Hanley, 1853

Genus SVELTELLA Cossmann, 1889

Sveltella parva (I. Lea)

Plate 14, figure 2

1833. *Cancellaria parva* I. Lea, Cont. Geol., p. 142, pl. 5, fig. 141.

1893. *Sveltella parva* (I. Lea). Cossman, Ann. Geol. Paleont., v. 12, p. 41.

1966. *Sveltella parva* (I. Lea). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 939.

Type locality: Gosport Sand (Claiborne Group), Claiborne Bluff, Alabama River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Cook Mountain Formation, locality P741. Alabama: Gosport Sand, Claiborne Bluff. South Carolina: McBean Formation, about 3 miles west, northwest of Orangeburg.

Genus BONELLITIA Jousseaume, 1887

Section ADMETULA Cossman, 1889

Bonellitia jacksonica (Cooke)

Plate 14, figures 3A, 3B

1926. *Cancellaria jacksonica* Cooke, Washington Acad. Sci., Jour., v. 16, No. 5, p. 134, fig. 4.

1947. *Bonellitia jacksonica* (Cooke). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 412, pl. 63, fig. 2, 3, 8, 16.

1966. *Bonellitia jacksonica* (Cooke). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 530.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1, 2, 3. Louisiana: Moodys Branch Formation, localities P10, P1118. Arkansas: White Bluff Formation, locality P897.

Genus UNITAS Palmer, 1947
Unitas pearlensis (Meyer and Aldrich)

1887. *Cancellaria pearlensis* Meyer and Aldrich *in* Meyer, Senckenberg. naturf. Gesell., p. 7, pl. 1, fig. 4.

1893. *Uxia pearlensis* (Meyer and Aldrich). Cossmann, Ann. Geol. Paleont., v. 12, p. 42.

1947. *Unitas pearlensis* (Meyer and Aldrich). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 414, pl. 63, fig. 4.

1966. *Unitas pearlensis* (Meyer and Aldrich). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 1011.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Family MARGINELLIDAE Fleming, 1828
Genus BULLATA Jousseaume, 1875
Bullata semen jacksonensis (Meyer)

Plate 14, figures 1A, 1B

1885. *Marginella incurva jacksonensis* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 465.

1937. *Persicula (Bullata) semen* (I. Lea). Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 422, pl. 67, fig. 13, 14, 16-19; pl. 90, fig. 15.

1966. *Bullata semen jacksonensis* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 541.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3. Texas: Moodys Branch Formation, locality P1121.

Suborder TOXOGLOSSA
Superfamily MITRACEA Swainson, 1831
Family MITRIDAE Swainson, 1831
Genus UROMITRA Bellardi, 1887
Uromitra grantensis (Johnson)

Plate 14, figures 11, 12

1899. *Mitra grantensis* Johnson, Acad. Nat. Sci. Philadelphia, Proc., v. 51, p. 71, pl. 1, fig. 2.

1947. *Uromitra grantensis* (Johnson). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 398-399, pl. 56, fig. 11, 12.

1966. *Uromitra grantensis* (Johnson). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 1012.

Type locality: Moodys Branch Formation, Montgomery Landing (lower bed), Red River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, locality P1054.

Genus FUSIMITRA Conrad, 1855

Fusimitra millingtoni (Conrad in Wailes)

Plate 14, figures 14A, 14B, 15, 16

1854. *Mitra millingtoni* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 26, fig. 5.

1865. *Fusimitra conquista* (Conrad). Conrad, Amer. Jour. Conch., v. 1, p. 25.

1947. *Fusimitra conquista* (Conrad). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 399-401.

1966. *Fusimitra millingtoni* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 683.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2. Louisiana: Moodys Branch Formation, localities P1, P7, P10, P15, P883, P1054, P1119; Danville Landing Member, locality P6. Arkansas: White Bluff Formation, locality P896. Texas: Moodys Branch Formation, locality P1121.

Genus CONOMITRA Conrad, 1865

Conomitra jacksonensis Cooke

Plate 14, figure 17

1926. *Conomitra jacksonensis* Cooke, Washington Acad. Sci., Jour., v. 16, No. 5, p. 134, fig. 6.

1966. *Conomitra jacksonensis* Cooke. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 593-594.

Type locality: Moodys Branch Formation, locality 4.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 4. Louisiana: Moodys Branch Formation, locality 1054; Danville Landing Member, locality P886. Arkansas: White Bluff Formation, locality P897.

Superfamily CONACEA Rafinesque, 1815

Family TURRIDAE Swainson, 1840

Genus CORONIA de Gregorio, 1890

Coronia nodulina (Casey)

Plate 15, figure 3

1904. *Gemmula nodulina* Casey, Acad. Sci. St. Louis, Trans., v. 14, No. 5, p. 137.

1947. *Gemmula (Coronia) nodulina* Casey. Harris *in* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 419, pl. 57, fig. 2.

1948. *Coronia nodulina* (Casey). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 610.

Discussion: *C. nodulina* has larger and more prominent nodes than *C. montgomeryensis.* This difference is not well illustrated in Plate 15, figures 2 and 3.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3.

Coronia conjuncta (Casey)

Plate 15, figure 1

1904. *Gemmula conjuncta* Casey, Acad. Sci. St. Louis, Trans., v. 14, No. 5, p. 135.

1947. *Gemmula (Coronia) conjuncta* Casey. Harris *in* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 420, pl. 57, fig. 15.

1948. *Coronia conjuncta* (Casey). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 608.

Type locality: Jackson Group, south of Montgomery, Red River, T. S. Kimbrel estate.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Jackson Group, south of Montgomery, Red River.

Coronia montgomeryensis Harris

Plate 15, figure 3

1937. *Gemmula childreni montgomeryensis* Harris, Paleont. Amer., v. 2, No. 7, p. 12, pl. 1, fig. 25.

1947. *Gemmula (Coronia) montgomeryensis* Harris. Harris *in* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 420, pl. 57, fig. 17.

1966. *Coronia montgomeryensis* (Harris). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 610.

Type locality: Danville Landing Member, Danville Landing, Ouachita River.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Danville Landing Member, Danville Landing, Ouachita River.

Genus SINISTRELLA Meyer, 1887

Sinistrella americana (Aldrich)

Plate 15, figure 4

1885. *Triforis americanus* Aldrich, Cincinnati Soc. Nat. Hist., Jour., v. 8, No. 2, p. 151, pl. 3, fig. 16.

1887. *Sinistrella americana* (Aldrich). Meyer, Senckenberg. Naturf. Gesell., p. 18.

1966. *Sinistrella americana* (Aldrich). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 905.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2. Louisiana: Jackson Group, Bunker Hill Landing, Ouachita River; Danville Landing Member, Danville Landing, Ouachita River. Arkansas: White Bluff Formation, ¾ mile above Vince Bluff, Saline River.

Genus EOPLEUROTOMA Cossman, 1889

Eopleurotoma julia (Cooke)

1926. *Pleurotoma julia* Cooke, Washington Acad. Sci., Jour., v. 16, p. 134, fig. 3.

1947. *Eopleurotoma julia* (Cooke). Harris *in* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 427, pl. 58, fig. 16.

1966. *Eopleurotoma julia* (Cooke). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, p. 427.

Type locality: Moodys Branch Formation, locality 3.

Eopleurotoma ? sp.

Plate 15, figure 7

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Genus PLEUROLIRIA de Gregorio, 1890

Pleuroliria jacksonella Casey

Plate 15, figure 5

1904. *Pleuroliria jacksonella* Casey, St. Louis Acad. Sci., Trans., v. 14, p. 131.

1966. *Pleuroliria jacksonella* Casey. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 831.

Type locality: Moodys Branch Formation, Montgomery Landing, Red River.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River.

Genus GLYPTOTOMA Casey, 1904
Glyptotoma crassiplicata (Gabb)

Plate 15, figure 14

1860. *Scobinella crassiplicata* Gabb, Acad. Nat. Sci. Philadelphia, Jour., (ser. 2), v. 4, pt. 4, p. 380, pl. 67, fig. 19.

1937. *Bathytoma (Glyptotoma) crassiplicata* (Gabb). Harris, Paleont. Amer., v. 2, No. 7, p. 23, pl. 3, fig. 27-30.

1966. *Glyptotoma crassiplicata* (Gabb). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 702-703.

Discussion.—This species resembles *Gemmula pulchella* Shuto from the Takanabe Member (Lower Pliocene) of Japan (see Powell, 1964, p. 255, pl. 195, fig. 4, 5).

Type locality: Gabb's type is either from the Wheelock Member (Cook Mountain Formation) in Robertson County, Texas, or from the Stone City Formation at Stone City Bluff, Brazos River (see Palmer and Brann, 1966, p. 703).

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Cook Mountain Formation, Sabine River near Columbus. Texas: Wheelock Member, Robertson County; Stone City Formation, Stone City Bluff, Brazos River.

Genus PLEUROFUSIA de Gregorio, 1890
Pleurofusia hilgardi (Casey)

Plate 15, figure 20

1903: *Pleurotoma hilgardi* Casey, Acad. Nat. Sci. Philadelphia, Proc., v. 55, p. 270.

1904. *Pleurofusia hilgardi* (Casey). Casey, St. Louis Acad. Sci., Trans., v. 14, p. 152.

1966. *Pleurofusia hilgardi* (Casey). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 829.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3.

Pleurofusia fluctuosa (Harris)

Plate 15, figures 19A, 19B

1937. *Turricula fluctuosa* Harris, Paleont. Amer., v. 2, No. 7, p. 81, pl. 12, fig. 1.

1947. *Turricula (Pleurofusia) fluctuosa* Harris. Harris *in* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 430, pl. 59, fig. 11, 12.

1966. *Pleurofusia fluctuosa* (Harris). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 828-829.

Type locality: Moodys Branch Formation, Bunker Hill Landing, Ouachita River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9. Louisiana: Moodys Branch Formation, Bunker Hill Landing.

Pleurofusia collaris (Casey)

Plate 15, figure 13

1903. *Pleurotoma collaris* Casey, Acad. Nat. Sci. Philadelphia, Proc., v. 55, p. 270.

1904. *Pleurofusia collaris* (Casey). Casey, St. Louis Acad. Sci., Trans., v. 14, p. 127, 152.

1966. *Pleurofusia collaris* (Casey). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 828.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3.

Genus PARADRILLIA Makiyama, 1940

Paradrillia jacksonensis (Meyer)

Plate 15, figure 6

1886. *Pleurotoma jacksonensis* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 75, pl. 2, fig. 10.

1947. *Scobinella? jacksonensis* (Meyer). Harris in Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 437, pl. 60, fig. 19.

1966. *Scobinella? jacksonensis* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 898.

Discussion.—This species resembles *Paradrilla serana* (P. J. Fischer) from the Pliocene of Ceram, Indonesia, and from the Neogene, upper part of the Dingle Formation, Panay Island, Philippines (see Powell, 1969, p. 319, pl. 248, fig. 4).

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Genus APIOTOMA Cossmann, 1889

Apiotoma palmerae, n. sp.

Plate 15, figures 21A, 21B, 22

Description.—Shell with high spire and long neck; teleoconch with eight whorls; whorls convex above suture and depressed in the

selenizone; first three whorls with faint opisthocline nodes and spiral threads; latter whorls with numerous spiral threads slightly nodose at intersections with opisthocline growth lines; one spiral thread just below suture and three prominent, broadly spaced threads in the depressed selenizone; sutural ramp and shoulder with narrow, closely spaced threads; spiral threads below shoulder prominent and broadly spaced; lower portion of inner lip with slight callus.

Discussion.—This species closely resembles *A. pirulata* (Deshayes) from the Eocene of the Paris Basin and *A. pritchardi* Powell from the Oligocene of Torquay, Victoria, Australia (see Powell, 1969, p. 345-346, pl. 265, fig. 1, 2). *A. palmerae* differs from the latter two species mentioned in its more depressed selenizone, which produces a slight subsutural collar, and in its rounded shoulder. This species is named for Dr. Katherine Van Winkle Palmer, who for many years has been the director of the Paleontological Research Institution at Ithaca, New York.

Holotype: PRI 8245; height 36 mm, width 12 mm.

Type locality: Moodys Branch Formation, locality 1.

Genus EUCHEILODON Gabb, 1860

Eucheilodon crenocarinata Heilprin

Plate 15, figures 23, 24

1880. *Eucheilodon creno-carinata* Heilprin, U. S. Natl. Mus., Proc., v. 3, p. 150, pl. 4, fig. 4.

1966. *Eucheilodon crenocarinata* Heilprin. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 665.

Discussion.—This species closely resembles *Apiotoma haydeni* (Cox) from the Hangu shales (Eocene) of the Samana Range, India (see Powell, 1969, p. 351, pl. 269). The carina of *E. crenocarinatus* may be coarsely nodose (Plate 15, figure 24) or smooth (Plate 15, figure 23).

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2; Yazoo Formation, locality 15. Louisiana: Moodys Branch Formation, locality P10; Danville Landing Member, Danville Landing, Ouachita River.

Genus HEMISURCULA Casey, 1904

Hemisurcula perexilis (Aldrich)

Plate 15, figures 11, 12

1886. *Pleurotoma perexilis* Aldrich, Alabama Geol. Survey, Bull., No. 1, p. 30, pl. 3, fig. 2.

1947. *Sullivania perexilis* (Aldrich). Harris *in* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 433, pl. 60, fig. 1-3.

1966. *Sullivania perexilis* (Aldrich). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 929.

Discussion.—Powell (1969, p. 225) placed the genus *Sullivania* on his list of "doubtful or rejected taxa" and suggested that this genus is close to *Hemisurcula.*

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3.

Genus PSEUDOTOMA Bellardi, 1875

Pseudotoma heilprini (Aldrich)

Plate 15, figures 17A, 17B

1885. *Pleurotoma heilprini* Aldrich, Cincinnati Soc. Nat. Hist., Jour., v. 8, No. 2, p. 29, pl. 1, fig. 15.

1893. *Pseudotoma heilprini* (Aldrich). Cossmann, Ann. Soc. roy. Malacol. Belgique, App. No.. 1, p. 43.

1966. *Pseudotoma heilprini* (Aldrich). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 863.

Discussion.—This species resembles *Austrotoma minor* (Finlay) from the lower Miocene, White Rock River, New Zealand and *Belophos woodsi* (Tate) from the Oligocene in Torquay, Victoria, Australia. (See Powell, 1969, pl. 285, fig. 1-4). The genus *Pseudotoma* is probably closely related to the two previously mentioned genera.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 11.

Pseudotoma axeli Harris

Plate 15, figures 8, 9

1947. *Pseudotoma axeli* Harris *in* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 434-435, pl. 60, fig. 4, 5, 7a, 8.

1966. P*seudotoma axeli* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 862.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3.

Genus COCHLESPIRA Conrad, 1865
Cochlespira columbaria (Aldrich)

Plate 15, figures 18A, 18B

1886. *Pleurotoma (Ancistrosyrinx) columbaria* Aldrich, Geol. Survey Alabama, Bull., No. 1, pt. 1, p. 31, pl. 6, fig. 9.

1904. *Cochlespira columbaria* (Aldrich). Casey, Acad. Sci. St. Louis, Trans., v. 14, No. 5, p. 144.

1947. *Ancistrosyrinx columbaria* (Aldrich). Harris *in* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 436, pl. 60, fig. 10-12.

1966. *Ancistrosyrinx columbaria* (Aldrich). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 495.

Discussion.—Powell (1969, p. 394) placed *Ancistrosyrinx* as a synonym of *Cochlespira*. *C. columbaria* is very similar to the Recent species *Cochlespira elegans* (Dall), which is the type for *Ancistrosyrinx*.

Type locality: Moodys Branch Formation, Dry Creek, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, Dry Creek, Jackson and localities 1, 2. Louisiana: Moodys Branch Formation, Bunker Hill Landing, Ouachita River.

Genus SCOBINELLA Conrad, 1847
Scobinella newtonensis Aldrich subsp.

Plate 15, figure 16

1911. *Scobinella newtonensis* Aldrich, Bull. Amer. Paleont., v. 5, No. 22, p. 5, pl. 2, fig. 2.

1947. *Scobinella newtonensis* Aldrich. Harris *in* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 436, pl. 60, fig. 13.

1966. *Scobinella newtonensis* Aldrich subsp. Palmer and Brann, Bull. Amer. Paleont., v. 48, pt. 2, No. 218, p. 899.

Type locality: Cook Mountain Formation, Newton, Mississippi (type for S. *newtonensis s. s.*).

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, Red River, Montgomery, Louisiana (occurrence for S. *newtonensis* var.).

Scobinella louisianae Harris

Plate 15, figures 15A, 15B

1937. *Scobinella louisianae* Harris, Paleont. Amer., v. 2, p. 93, pl. 13, fig. 21.

1966. *Scobinella louisianae* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 899.

Type locality: Moodys Branch Formation, Montgomery, Red River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 9. Louisiana: Moodys Branch Formation, Montgomery, Red River.

Genus CORDIERA Rouault, 1848
Cordiera ludoviciana (Vaughan)

Plate 16, figures 8A, 8B

1896. *Borsonia ludoviciana* Vaughan, U. S. Geol. Survey, Bull., No. 142, p. 34, pl. 12, fig. 9.

1937. *Cordiera ludoviciana* (Vaughan). Harris, Paleont. Amer., v. 2, p. 84, pl. 12, fig. 9.

1966. *Cordiera ludoviciana* (Vaughan). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 601.

Type locality: Moodys Branch Formation, Montgomery, Red River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, locality 1, 2. Louisiana: Moodys Branch Formation, Montgomery, Red River.

Genus MICRODRILLIA Casey, 1903
Microdrillia cossmanni (Meyer)

1887. *Pleurotoma cossmanni* Meyer, Senckenberg. naturf. Gesell., p. 9, pl. 1, fig. 5.

1903. *Microdrillia cossmanni* (Meyer). Casey, Acad. Nat. Sci. Philadelphia, Proc., v. 55, p. 276.

1966. *Microdrillia cossmanni* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 767.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Microdrillia ouachitae Harris

Plate 16, figures 4, 5, 6, 7

1937. *Microdrillia ouachitae Harris*, Palaeont. Amer., v. 2, No. 7, p. 114, pl. 15, fig. 31, 32.

1966. *Microdrillia ouachitae* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 769.

Type locality: Danville Landing Member, Danville Landing, Ouachita River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Danville Landing Member, Danville Landing, Ouachita River.

Genus EOCLATHURELLA Casey, 1904

Eoclathurella obesula Casey

1904. *Eoclathurella obesula* Casey, St. Louis Acad. Sci., Trans., v. 14, No. 5, p. 167.

1947. *Clathurella (Eoclathurella) obesula* Casey. Harris *in* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 441, pl. 61, fig. 13, 14.

1966. *Eoclathurella obesula* Casey. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 644.

Type locality: Moodys Branch Formation, Montgomery, Red River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, Jackson, Mississippi. Louisiana: Moodys Branch Formation, Montgomery, Red River.

Eoclathurella jacksonica Casey

Plate 16, figure 2

1904. *Eoclathurella jacksonica* Casey, St. Louis Acad. Sci., Trans., v. 14, No. 5, p. 167.

1966. *Eoclathurella jacksonia* Casey. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 643.

Type locality: Jackson Group, estate of T. W. Kimbrel, 1½ miles south of Montgomery, Red River.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Jackson Group, 1½ miles south of Montgomery, Red River.

Eoclathurella ornata, n. sp.

Plate 16, figure 3

Description.—Protoconch with three whorls; teleoconch with four whorls; whorls nodose at intersections of spiral lirae and opisthocline cords; outer lip varicose and crenulate with three or four folds between adapical channel and siphonal canal; adapical channel strongly notched.

Discussion.—This species differs from *E. obesula* in its more numerous transverse ribs and in its nodose sculpture. *E. ornata* is similar to *E. jacksonica* but has stronger transverse ribs.

Holotype: PRI 8246; height 5 mm, width 2 mm.

Type locality: Moodys Branch Formation, locality 1.

Eoclathurella ? sp.
Plate 16, figure 1

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Genus MICROSURCULA Casey, 1904
Microsurcula nucleola Casey, variation
Plate 15, figure 10

1904. *Microsurcula nucleola* Casey, Acad. Sci. St. Louis, Trans., v. 14, No. 5, p. 155.

Discussion: *M. nucleola s. s.* is from the Claiborne Group of Sabine Parish, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

Genus CYMATOSYRINX Dall, 1889
Cymatosyrinx dorseyi (Cooke)
Plate 16, figures 9, 10

1926. *Drillia dorseyi* Cooke, Washington Acad. Sci., Jour., v. 16, p. 133, fig. 2.

1947. *Cymatosyrinx dorseyi* (Cooke). Harris *in* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 442, pl. 61, fig. 16.

1966. *Cymatosyrinx dorseyi* (Cooke). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 622.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3.

Cymatosyrinx palmerae Harris

1947. *Cymatosyrinx palmerae* Harris *in* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 442, pl. 61, fig. 17.

1966. *Cymatosyrinx palmerae* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, N. 218, pt. 2, p. 622.

Type locality: Danville Landing Member, Danville Landing, Ouachita River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Danville Landing Member, Danville Landing, Ouachita River.

Genus CONORBIS Swainson, 1840
Conorbis alatoideus Aldrich

Plate 16, figures 13A, 13B

1885. *Conus (Conorbis) alatoideus* Aldrich, Cincinnati Soc. Nat. Hist., Jour., v. 8, No. 2, p. 149, pl. 2, fig. 11.

1947. *Conorbis alatoideus* Aldrich. Harris *in* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 443-444, pl. 61, fig. 18-25.

1966. *Conorbis alatoideus* Aldrich. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 595.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Moodys Branch Formation, localities 1, 2, 3. Louisiana: Moodys Branch Formation, Gibson Landing and Bunker Hill Landing, Ouachita River.

Family CONIDAE Rafinesque, 1815

Genus CONUS Linne', 1758
Conus tortilis Conrad in Wailes

Plate 16, figures 12A, 12B, 12C

1854. *Conus tortilis* Conrad *in* Wailes. Rept. Agr. Geol. Mississippi, p. 289, pl. 15, fig. 5.

1947. *Conus* (*Lithoconus*) *sauridens* (Conrad). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 444-446.

1966. *Conus tortilis* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, p. 2, p. 598.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 11. Louisiana: Moodys Branch Formation, localities P1, P7, P8, P9, P10, P15, P16, P883, P1054, P1119; Danville Landing Member, locality P6. Arkansas: White Bluff Formation, locality P897.

Family TEREBRIDAE H. and A. Adams, 1854

Genus TEREBRA Lamarck, 1799
Subgenus MIRULA Palmer, 1942
Terebra (Mirula) jacksonensis Cooke

Plate 17, figures 6, 7, 8, 11, 12

1926. *Terebra jacksonensis* Cooke, Washington Acad. Sci., Jour., v. 16, No. 5, p. 133, fig. 1.

1947. *Terebra (Mirula) jacksonensis* Cooke. Palmer, Bull, Amer. Paleont., v. 30, No. 117, pt. 2, p. 447-448, pl. 62, fig. 1-4, 6-8.

1966. *Terebra (Mirula) jacksonensis* Cooke. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 947.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3; Yazoo Formation, locality 3. Louisiana: Moodys Branch Formation, locality P1. Arkansas: Moodys Branch Formation, localities P896, P1049.

Subclass EUTHYNEURA Spengel, 1881
Order ENTOMOTAENIATA Cossmann, 1896
Superfamily PYRAMIDELLACEA Gray, 1840
Family PYRAMIDELLIDAE Gray, 1840

Genus PYRAMIDELLA Lamarck, 1799
Subgenus SYRNOLA A. Adams, 1860
Pyramidella (Syrnola) meyeri (Cossmann)

Plate 17, figure 15

1893. *Syrnola Meyeri* Cossmann, Ann. Geol. Paleont., v. 12, p. 23, pl. 1, fig. 27.

1947. *Pyramidella (Syrnola) meyeri* (Cossmann). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 225-226, pl. 28, fig. 7.

1966. *Pyramidella (Syrnola) meyeri* (Cossmann). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 868.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3.

Genus TURBONILLA Leach in Risso, 1826
Subgenus STRIOTURBONILLA Sacco, 1892
Turbonilla (Strioturbonilla) major Meyer

Plate 17, figures 16, 17, 18

1887. *Turbonilla major* Meyer, Acad. Nat. Sci. Philadelphia, Proc., v. 39, p. 51, pl. 3, fig. 3.

1947. *Turbonilla (Strioturbonilla) major* Meyer. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 229, pl. 28, fig. 6, 11.

1966. *Turbonilla (Strioturbonilla) major* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 973.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3.

Genus ODOSTOMIA Fleming, 1817

Odostomia jacksonensis, n. sp.

Plate 17, figures 13, 14

Description.—Shell small, elongate, consisting of five whorls with microscopic spiral lines; suture impressed; aperture elongate with single fold at middle of columellar lip; callus of inner lip partially covering the umbilicus.

Discussion.—The elongate shell of *O. jacksonensis* somewhat resembles that of *O. carolina* Palmer from the McBean Formation (middle Eocene) of South Carolina, but differs in that its whorls are more inflated.

Holotype: PRI 8247; height 6 mm, width 2 mm.

Type locality: Moodys Branch Formation, locality 1.

Order CEPHALASPIDEA P. Fischer, 1883

Superfamily ACTEONACEA d'Orbigny, 1842

Family ACTEONIDAE d'Orbigny, 1842

Genus ACTEON Montfort, 1810

Acteon idoneus Conrad

Plate 17, figure 2

1833. *Acteon idoneus* Conrad, *Fossil Shells Tert. Form.*, v. 1, No. 3, p. 45.

1947. *Acteon idoneus* Conrad. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 453-454, pl. 63, fig. 14, 15.

1966. *Acteon idoneus* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 481.

Discussion.—This species differs from *A. annectens* Meyer in that the upper portion of the whorls are smooth.

Type locality: Gosport Sand (Claiborne Group), Claiborne Bluff, Alabama River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3; Cook Mountain Formation, locality P731. Louisiana: Cook Mountain Formation, locality P741. Texas: Claiborne Group, localities P723, P725, P727. Arkansas: White Bluff Formation, localities P896 (var.), P897. Alabama: Gosport Sand, Claiborne Bluff, Alabama River, Alabama.

Acteon annectens Meyer

Plate 17, figure 1

1885. *Actaeon annectens* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, No. 174, p. 466, 468.

1937. *Acteon annectens* Meyer. Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 498, pl. 74, fig. 30.

1966. *Acteon annectens* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 480.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3. Louisiana: Moodys Branch Formation, locality P10.

Genus TORNATELLAEA Conrad, 1860
Tornatellaea lata (Conrad in Morton)

Plate 17, figures 19A, 19B, 20A, 20B

1834. *Actaeon latus* Conrad, App. *in* Morton, Synopsis Organic Remains Cretaceous Group, p. 4.

1865. *Tornatellaea lata* (Conrad). Conrad, Amer. Jour. Conch, v. 1, p. 145, 192, 212, pl. 20, fig. 13.

1966. *Tornatellaea lata* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 953-954.

Discussion.—*T. lata* is abundant in the lower sands of the Moodys Branch Formation along Garland Creek in Clarke County, Mississippi, but has not previously been reported from any other exposures of the Jackson Group. Several specimens of this species were found in the dredge piles of a recent sewer excavation across Town Creek in Jackson, Mississippi. Only the upper portion of the Moody Branch Formation is naturally exposed along Town Creek. The sewer excavation probably exposed specimens of *T. lata* that occurred in the basal sands of the Moodys Branch Formation in the Town Creek area.

Type locality: Claiborne Group, Alabama (type locality not differentiated).

Occurrence: Mississippi: Moodys Branch Formation, localities 7, 9. Alabama: Gosport Sand, Little Stave Creek, Clarke County, Baker's Bluff, Washington County, Bladon Springs Road, ¾ mile east of Fail Post Office, Choctaw County. New Jersey: Middle Eocene: Shark River, Monmouth County.

Superfamily CYLICHACEA A. Adams, 1850
Family CYLICHNIDAE A. Adams, 1850

Genus SCAPHANDER Montfort, 1810
Scaphander jacksonensis Palmer

Plate 18, figures 10A, 10B

1947: *Scaphander jacksonensis* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 449-450, pl. 64, fig. 6, 7.

1966. *Scaphander jacksonensis* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 893.

Type locality: Moodys Branch Formation, locality 1.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9; Yazoo Formation, locality 3, 5.

Genus LITHOPHYSEMA Stewart, 1927
Lithophysema grande (Aldrich)

Plate 18, figures 9A, 9B

1886. *Haminea grandis* Aldrich, Geol. Survey Alabama, Bull., No. 1, pt. 1, p. 35, pl. 3, fig. 1.

1927. *Lithophysema grandis* (Aldrich). Stewart, Acad. Nat. Sci. Philadelphia, Proc., v. 78, p. 438.

1966. *Lithophysema grande* (Aldrich). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 740-741.

Type locality: Tullos Member of the Yazoo Formation, Bunker Hill Landing, Ouachita River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2. Louisiana: Moodys Branch Formation, localities P1, P5, P7, P8, P10, P883, P1054. Texas: Claiborne Group: near top of south side of Angelina River bank at Marion on north line of Angelina County; Angelina River 2 miles above Marion; Jackson Group, locality P744.

Genus MNESTIA H. and A. Adams, 1854
Mnestia meyeri (Cossmann)

Plate 17, figures 3, 4

1893. *Volvullella Meyeri* Cossmann, Ann. Geol. Paleont., v. 12, p. 49, pl. 1, figs. 38-39.

1937. *Mnestia meyeri* (Cossmann). Palmer, Bull. Amer. Paleont., v. 7, No. 32, p. 483.

1966. *Mnestia meyeri* (Cossmann). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 777.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3.

Genus ABDEROSPIRA Dall, 1896
Abderospira oviformis (Meyer)

1886. *Cylichna oviformis* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 77, pl. 2, fig. 32.

1947. *Abderospira oviformis* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 457, pl. 64, fig. 21, 22.

1966. *Abderospira oviformis* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, p. 474.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3. Louisiana: Moodys Branch Formation, locality P10.

Genus CYCLICHNA Loven, 1846
Subgenus CYLICHNELLA Gabb, 1873
Cylichna (Cylichnella) bitruncata (Meyer)
Plate 17, figures 5A, 5B

1886. *Bulla bitruncata* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 76, pl. 2, fig. 24.

1947. *Cylichnella bitruncata* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 458, pl. 64, fig. 19, 20.

1966. *Cylichna (Cylichnella) bitruncata* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 620.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3.

Family PHILINIDAE Gray, 1850

Genus PHILINE Ascanius, 1772
Subgenus MEGISTOSTOMA Gabb, 1864
Philine (Megistostoma) dockeryi Allen
Plate 18, figures 8A, 8B

1970. *Philine (Megistostoma) dockeryi* Allen, Tulane Stud. Geol. Paleont., v. 8, No. 2, p. 76, pl. 1, fig. 8-9.

Type locality: Moodys Branch Formation, locality 1 (not Riverside Park locality).

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2.

Superfamily BULLACEA Rafinesque, 1815
Family RETUSIDAE Thiele, 1926

Genus RETUSA Brown, 1827
Subgenus CYLICHNINA Monterosato, 1884
Retusa (Cylichnina) jacksonensis (Meyer)
Plate 17, figures 9, 10

1886. *Cylichna jacksonensis* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 77, pl. 2, fig. 25.

1947. *Cylichnina jacksonensis* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 450-451, pl. 64, fig. 3, 4.

1966. *Retusa (Cylichnina) jacksonensis* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 878.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3. Louisiana: Moodys Branch Formation, localities ?P10, ?P883, P912. Texas: Moodys Branch Formation, locality P922.

Order NOTASPIDEA
Superfamily TYLODINACEA Gray, 1847
Family UMBRACULIDAE Dall, 1889

Genus UMBRACULUM Schumacher, 1817
Umbraculum planulatum (Conrad)

Plate 18, figures 11A, 11B

1854. *Umbrella planulata* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 14, fig. 1a, 1b.

1896. *Umbraculum planulatum* (Conrad), Tryon and Pilsbry, Manual Conch, v. 16, p. 177.

1966. *Umbraculum planulatum* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 1010.

Type locality: Moodys Branch Formation, locality 1.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 11. Louisiana: Moodys Branch Formation, localities P10, P11, P883.

Order PTEROPODA
Suborder THECOSTOMATA

Genus CLIO Linne', 1758
Subgenus CRESEIS Rang, 1828
Clio (Creseis) corpulenta (Meyer)

1887. *Styliola corpulenta* Meyer, Senkenberg. naturf. Gesell., p. 9, pl. 2, fig. 16.

1947. *Clio (Creseis) corpulenta* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 462-463, pl. 62, fig. 25, 26.

1966. *Clio (Creseis) corpulenta* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, p. 357.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Clio (Creseis) simplex (Meyer)
Plate 18, figures 6, 7

1886. *Styliola simplex* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 78, pl. 3, fig. 10.

1892. *Creseis simplex* (Meyer). Dall, Wagner Free Inst. Sci., Trans., v. 3, pt. 2, p. 430.

1947. *Clio (Creseis) simplex* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 463, pl. 62, fig. 23, 24.

1966. *Clio (Creseis) simplex* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 358.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3.

Clio (Creseis) hastata (Meyer)

1886. *Styliola hastata* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 78.

1944. *Clio (Creseis) hastata* (Meyer). Shimer and Shrock, Index Fossils North America, p. 517, pl. 213, fig. 32-34.

1966. *Clio (Creseis) hastata* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 357.

Type locality: Vicksburg Group: Vicksburg, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, near Jackson and locality 9; Vicksburg Group; Vicksburg; Red Bluff Formation, Red Bluff.

Class CEPHALOPODA
Subclass NAUTILOIDEA Agassiz, 1847
Order NAUTILIDA Agassiz, 1847
Superfamily NAUTILACEA de Blainville, 1825
Family ATURIIDAE Chapman, 1857

Genus ATURIA Bronn, 1838
Aturia alabamensis (Morton)
Plate 19, figures 1, 2, 3A, 3B, 3C, 4

1834. *Nautilus Alabamensis* Morton, Synopsis Org. Remains Cretaceous Group, p. 33, pl. 18, fig. 3.

1865. *Aturia alabamensis* (Morton). Conrad, Amer. Jour. Conch., v. 1, p. 15.

1966. *Aturia alabamensis* (Morton). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 373.

Discussion.—This species is not common, but specimens are frequently found in the upper clayey portion of the Moodys Branch Formation along Town Creek, Jackson, Mississippi. Recent sewer excavation exposed several well-preserved specimens in this area.

Type locality: Jackson Group: near Claiborne, Monroe County, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2 (fragments), 7, 14. Other occurrences include: The Yazoo Formation in Alabama, the Ocala Group in Florida and the Castle Hayne Formation in North Carolina (see Miller, 1947, p. 82-83).

Class SCAPHOPODA
Family DENTALIIDAE Gray, 1834
Genus DENTALIUM Linne', 1758
Subgenus ANTALIS H. and A. Adams, 1854
Dentalium (Antalis) danvillense Palmer, 1947

1947. *Dentalium (Antalis) danvillense* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 210-212, pl. 26, fig. 23-27.

1966. *Dentalium (Antalis) danvillense* Palmer. Palmer and Brann. Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 366.

Type locality: Danville Landing Member, locality P6.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Danville Landing Member, localities P6, P20, P886, P1120.

Dentalium (Antalis) mississippiense jacksonense Palmer
Plate 18, figure 1

1947. *Dentalium (Antalis) mississippiense jacksonense* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 212-213, pl. 26, fig. 20-22.

1966. *Dentalium (Antalis) mississippiense jacksonense* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 368.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9; Yazoo Formation, localities 3, 5. Louisiana: Moodys Branch Formation, localities P1, P7, P8, P883, P912, P1119. Texas: Moodys Branch Formation, locality P1121.

"Dentalium bitubatum" Meyer

1886. *Dentalium bitubatum* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 64, pl. 3, fig. 1.

1947. *"Dentalium bitubatum"* Meyer. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 215, pl. 26, fig. 7.

1966. *"Dentalium bitubatum"* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 366.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Genus FUSTIARIA Stolizka, 1868
Subgenus LAEVIDENTALIUM Cossmann, 1888
Fustiaria (Laevidentalium) danai (Meyer)

Plate 18, figure 2

1885. *Dentalium Danai* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 462, 468.

1947. *Dentalium (Laevidentalium) danai* (Meyer). Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 213-214, pl. 26, fig. 12, 13, 18.

1966. *Fustiaria (Laevidentalium) danai* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 371.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2.

Fustiaria (Laevidentalium) subcompressa (Meyer)

Plate 18, figure 3

1885. *Dentalium subcompressum* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 462, 468.

1947. *Dentalium (Laevidentalium) subcompressum* Meyer. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 214-215, pl. 26, fig. 6, 25.

1966. *Fustiaria (Laevidentalium) subcompressa* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 371.

Discussion.—This species differs from *F. (L.) danai* in that it is slightly oval in cross section.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1; Vicksburg Group, Vicksburg; Red Bluff Formation, Red Bluff.

Family SIPHONODENTALIIDAE Simroth, 1894

Genus CADULUS Philippi, 1844
Cadulus juvenis Meyer

1886. *Cadulus juvenis* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 66, pl. 3, fig. 4.

1947. *Cadulus* (*Cadulus*) *juvenis* Meyer. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 216, pl. 26, fig. 14.

1966. *Cadulus juvenis* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 216.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Subgenus POLYSCHIDES Pilsbry and Sharp, 1898

Cadulus (Polyschides) jacksonensis Meyer

Plate 18, figure 4

1885. *Cadulus jacksonensis* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 462, 468.

1947. *Cadulus* (*Polyschides*) *jacksonensis* Meyer. Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 216-217, pl. 26, fig. 1-5.

1966. *Cadulus* (*Polyschides*) *jacksonensis* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 362.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3. Louisiana: Moodys Branch Formation, localities P10, P883.

Cadulus (Polyschides) margarita Palmer

Plate 18, figure 5

1947. *Cadulus* (*Polyschides*) *margarita* Palmer, Bull. Amer. Paleont., v. 30, No. 117, pt. 2, p. 217-218, pl. 26, fig. 8-11.

1966. *Cadulus* (*Polyschides*) *margarita* Palmer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 362.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3. Louisiana: Moodys Branch Formation, locality P912. Texas: Moodys Branch Formation, localities P922, P1121.

Class BIVALVIA

Subclass PALAEOTAXODONTA Korobkov, 1954

Order NUCULOIDA Dall, 1889

Superfamily NUCULACEA Gray, 1824

Family NUCULIDAE Gray, 1824

Genus NUCULA Lamarck, 1799

Subgenus NUCULA Lamarck, 1799

Nucula (Nucula) magnifica yazooensis Harris

1946. *Nucula magnifica yazooensis* Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 62-63, pl. 14, fig. 19, 20.

1965. *Nucula* (*Nucula*) *magnifica yazooensis* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 210.

Type locality: Moodys Branch Formation, locality 10.

Nucula (Nucula) spheniopsis Conrad
Plate 20, figures 6, 7

1865. *Nucula spheniopsis* Conrad, Amer. Jour. Conch. v. 1, p. 140, pl. 10, fig. 13.

1965. *Nucula* (*Nucula*) *spheniopsis* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 213.

Type locality: Moodys Branch Formation, locality 9.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9.

Superfamily NUCULANACEA H. & A. Adams, 1858
Family NUCULANIDAE H. & A. Adams, 1858

Genus NUCULANA Link, 1807
Nuculana linifera Conrad

1865. *Nuculana linifera* Conrad, Amer. Jour. Conch., v. 1, p. 139, pl. 10, fig. 8.

1946. *Nuculana linifera* ? Conrad. Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 60, pl. 14, fig. 8.

1965. *Nuculana linifera* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 219.

Type locality: Moodys Branch Formation, locality 9.

Genus HILGARDIA Harris, 1946
Hilgardi multilineata (Conrad in Wailes)
Plate 20, figures 3A, 3B, 4A, 4B

1854. *Leda multilineata* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 14, fig. 4.

1946. *Nuculana* (*Hilgardi*) *multilineata* (Conrad). Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 59, pl. 14, fig. 2-6.

1965. *Nuculana* (*Hilgardi*) *multilineata* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 221.

1969. *Hilgardi multilineata* (Conrad). Puri, Treatise Invert. Paleont., pt. N, v. 1, p. N237, fig. A7, 7a, 7b, 7c.

Discussion.—This species is very common in the Moodys Branch Formation at Jackson, Mississippi.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrences: Mississippi: Moodys Branch Formation, localities 1, 2, 9. Louisiana: Moodys Branch Formation, Montgomery Landing and "at various localities on the Ouachita River". Arkansas: White Bluff Formation, Vince Bluff on the Saline River and Cross Roads Church about 5 miles NW of Kingsland.

Genus YOLDIA Moller, 1842
Subgenus CALORHADIA Stewart, 1930
Yoldia (Calorhadia) mater (Meyer)

Plate 20, figures 1A, 1B

1885. *Leda mater* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 460.

1939. *Calorhadia mater* (Meyer). Gardner, Jour. Paleont., v. 13, p. 341.

1965. *Calorhadia* (? *Calorhadia*) *mater* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 65.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrences: Mississippi: Moodys Branch Formation, localities 7, 9. Arkansas: White Bluff Formation, Vince Ferry on the Saline River and Cross Roads Church about 5 miles NW of Kingston. Texas: Rio Grande embayment (Gardner).

Yoldia (Calorhadia) reginajacksonis (Harris)

Plate 20, figure 5

1897. *Leda regina-jacksonis* Harris, Acad. Nat. Sci. Philadelphia, Proc., v. 48, p. 470, pl. 18, fig. 3.

1946. *Nuculana regina-jacksonis* (Harris). Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 54-56, pl. 13, fig. 5-7, 10, 11.

1965. *Calorhadia* (*Calorhadia*) *reginajacksonis* (Harris). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 67.

Discussion.—One variation of this species from Danville Landing, Louisiana, which is figured by Harris and Palmer (1946, pl. 13, fig. 10), is similar to forms that are common in the Yazoo Formation at the Miss-Lite clay pit, Cynthia, Mississippi. The faunas of these two localities are similar in many aspects, one of which is the abundance of *Turritella arenicola danvillensis* Stenzel and Turner at each locality.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2; Yazoo Formation, locality 15. Louisiana: Danville Landing Member, Danville Landing. Arkansas: White Bluff Formation, White Bluff.

Subgenus ORTHOYOLDIA Verrill & Bush, 1897
Yoldia (Orthoyoldia) rubamnis Harris

Plate 20, figure 9

1946. *Yoldia psammotaea* ? *rubamnis* Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 58, pl. 14, fig. 1.

1965. *Orthoyoldia rubamnis* (Harris). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 227.

Type locality: White Bluff Formation, White Bluff, Arkansas River, Arkansas.

Occurrence: Mississippi: Moodys Branch Formation, locality 9. Arkansas: White Bluff Formation, White Bluff.

Subclass PTERIOMORPHIA Beurlen, 1944
Order ARCOIDA Stoliczka, 1871
Superfamily ARCACEA Lamarck, 1809
Family ARCINAE Lamarck, 1809

Genus BARBATIA Gray, 1842
Subgenus BARBATIA Gray, 1842
Barbatia (Barbatia) seraperta Harris

Plate 20, figures 11, 12A, 12B

1946. *Barbatia* (*Jacksonarca*) *seraperta* Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 46, pl. 11, fig. 4, 3.

1965. *Barbatia* (*Jacksonarca*) *seraperta* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 47.

Type locality: Moodys Branch Formation, locality 4.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 4.

Subgenus ACAR Gray, 1857
Barbatia (Acar) aspera (Conrad in Wailes)

Plate 20, figures 2A, 2B

1854. *Navicula aspera* Conrad *in* Wailes, Rept. Agri. Geol. Mississippi, p. 298, pl. 14, fig. 5.

1946. *Barbatia* (*Acar*) *aspera* Conrad). Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 47-48, pl. 11, fig. 12, 13.

1965. *Barbatia* (*Acar*) *aspera* (Conrad). Harris and Palmer, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 43.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 2; Cook Mountain Formation, Clarke County, and Hickory, Mississippi. Texas: Weches Formation, Smithville, Colorado River.

Subgenus CUCULLAEARCA Conrad, 1865
Barbatia (Cucullaearca) cuculloides (Conrad)

Plate 20, figures 8A, 8B, 10

1833. *Arca cuculloides* Conrad, *Fossil Shells Tert. Form.*, v. 1, No. 3, p. 37.

1865. *Cucullaearca cuculloides* (Conrad). Conrad, Amer. Jour. Conch, v. 1, No. 2, p. 11.

1935. *Barbatia* (*Cucullaearca*) *cuculloides* (Conrad). Reinhart, Mus. Hist. Nat. Belg., Bull., t. 11, No. 13, p. 27.

1965. *Barbatia* (*Cucullaearca*) *cuculloides* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 44.

Type locality: Moodys Branch Formation, Claiborne upper bluff, Alabama River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 7. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River. Alabama: Moodys Branch Formation, Claiborne upper bluff.

Superfamily LIMOPSACEA Dall, 1895
Family LIMOPSIDAE Dall, 1895

Genus LIMOPSIS Sassi, 1827
Subgenus PECTUNUCULINA d'Orbigny, 1843
Limopsis (Pectunuculina) radiata Meyer

Plate 21, figures 2A, 2B

1885. *Limopsis radiata* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 459.

1965. *Limopsis radiata* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 173.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, Gibson Landing and Bunker Hill Landing, Ouachita River.

Family GLYCYMERIDIDAE Newton, 1922
Subfamily GLYCYMERIDINAE Newton, 1922

Genus GLYCYMERIS da Costa, 1778
Subgenus GLYCYMERIS da Costa, 1778
Glycymeris (Glycymeris) idonea (Conrad)

Plate 21, figures 1A, 1B, 5A, 5B

1833. *Pectunuculus idoneus* Conrad, *Fossil Shells Tert. Form.*, v. 1, No. 3, p. 39.

1901. *Glycymeris idoneus* (Conrad). Clark and Martin, Systematic paleontology, Eocene, Mollusca, *in* Maryland Geol. Survey, Eocene, p. 152.

Discussion.—This species occurs in an extensive coquina layer along Techeva Creek, which may be observed for a distance of about three miles. *G. idonea* dominates the fauna in this layer, and the shells are somewhat sorted to size. Species associated with *G. idonea* consist largely of bivalves and show a low diversity. According to Harris (1946, p. 50) this species also occurs in great numbers and dominates the fauna at Sims Siding. Thomas (1975, p. 221) stated concerning living glycymerid species that, "Although isolated individuals may be quite widely distributed, large populations occur sporadically in a narrow range of habitats. These environments are physically rigorous, and harbour faunas of low diversity, including few bivalve species at any one time and place." The *Glycymeris* shell coquinas along Techeva Creek were probably deposited in the high energy wave or tidal zone of a shoreface environment.

Type locality: Gosport Sand, Claiborne Bluff, Alabama River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9, 10, 11, 14. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River. Alabama: Gosport Sand, Claiborne Bluff.

Glycymeris (Glycymeris) filosa (Conrad in Wailes)
Plate 21, figures 3, 4A, 4B, 6, 7A, 7B

1854. *Glossus filosus* Conrad *in* Wailes, Rept. Agri. Geol. Mississippi, p. 289, pl. 14, fig. 8.

1898. *Glycymeris filosa* (Conrad). Dall, Wagner Free Inst. Sci., Trans. v. 3, pt. 4, p. 607.

1965. *Glycymeris filosa* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 151.

Discussion.—This species is common at Montgomery Landing, Jackson, and Garland Creek localities. In Moodys Branch exposures north of Jackson *G. filosa* is absent and *G. idonea* is common.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 7, 9. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River.

Order MYTILOIDA Ferussac, 1822
Superfamily HYTILACEA Rafinesque, 1815
Family HYTILIDAE Rafinesque, 1815
Subfamily CRENELLINAE H. & A. Adams, 1857

Genus ARCOPERNA Conrad, 1865
Arcoperna filosa Conrad, 1865

1865. *Arcoperna filosa* Conrad, Amer. Jour. Conch., v. 1, p. 10.

1946. *Volsella* (*Arcoperna*) *filosa* (Conrad). Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 43, pl. 10, fig. 13.

1965. *Arcoperna filosa* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 36.

1969. *Acroperna filosa* Conrad. Tron Soot-Ryen, *Treatise Invert. Paleont.*, pt. N, v. 1, p. N275, fig. C19, 2.

Type locality: Moodys Branch Formation, locality 9.

Subfamily LITHOPHAGINAE H. & A. Adams, 1857

Genus LITHOPHAGA Roeding in Bolten, 1798
Subgenus LITHOPHAGA Roeding in Bolten, 1798
Lithophaga (Lithophaga) sp.

Plate 21, figure 8

Discussion.—Several specimens were found to have bored into a shell of *Pycnodonte* (*Pycnodonte*) *trigonalis* (Conrad). Figure 8, plate 21 is an internal mold.

Occurrence: Lower Yazoo Formation at the construction site for additions to the University Hospital, 2500 North State Street, Jackson, Mississippi.

Superfamily PINNACEA Leach, 1819
Family PINNIDAE Leach, 1819

Genus ATRINA Gray, 1842
Atrina jacksoniana Dall

Plate 21, figures 9, 12

1898. *Atrina jacksoniana* Dall, Wagner Free Inst. Sci., Trans., v. 3, pt. 4, p. 662.

1965. *Atrina jacksoniana* Dall. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 41.

Discussion.—This species is very common in the upper part of the Moodys Branch Formation and the basal Yazoo Formation.

Type locality: Moodys Branch Formation, locality 9.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9. Louisiana: Moodys Branch Formation, Wooley's Bluff, Sabine Parish and Creole Bluff, Red River. Georgia: Ocala Group, Clinchfield Quarry in Houston County.

Order PTERIOIDA Newell, 1965
Suborder PTERIINA Newell, 1965
Superfamily PTERIACEA Gray, 1847
Family PTERIIDAE Gray, 1847

Genus PTERIA Scopoli, 1777
Pteria limula vanwinkleae Harris
Plate 21, figures 10, 11

1946. *Pteria limula vanwinkleae* Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 37-38, pl. 10, fig. 1-4.

1965. *Pteria limula vanwinkleae* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 286.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River; Gibson Landing, Ouachita River, "Jackson beds on the Sabine River".

Superfamily PECTINACEA Rafinesque, 1815
Family PECTINIDAE Rafinesque, 1815

Genus EBURNEOPECTEN Conrad, 1865
Subgenus EBURNEOPECTEN Conrad, 1865
Eburneopecten (Eburneopecten) scintillatus Conrad
Plate 22, figures 3A, 3B, 4A, 4B

1865. *Pecten (Eburneopecten) scintillatus* Conrad, Amer. Jour. Conch., v. 1, p. 140, pl. 10, fig. 4.

1939. *Eburneopecten scintillatus* Conrad. Gardner, Jour. Paleont., v. 13, p. 341.

1965. *Eburneopecten scintillatus* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 135.

1969. *Eburneopecten (Eburneopecten) scintillatus* Conrad. Hertlein, *Treatise Invert. Paleont.*, pt. N, v 1, p. N352, fig. C75, 1a, 1b.

Type locality: Moodys Branch Formation, locality 9.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9.

Eburneopecten (Eburneopecten) frontalis (Dall)

1896. *Pecten rogersi* Clarke, U. S. Geol. Survey, Bull., No. 141, p. 151.

1898. *Pecten* (*Pseudamusium*) *frontalis* Dall, Wagner Free Inst. Sci. Philadelphia, Trans., v. 3, pt. 4, p. 753, new name for *P. rogersi* Clarke, 1886.

1965. *Eburneopecten frontalis* (Dall). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 135.

Type locality: Moodys Branch Formation, locality 9.

Eburneopecten (Eburneopecten) subminutus (Aldrich)

1903. *Pecten* (*Pseudamusium*) *subminutus* Aldrich, Nautilus, v. 16, No. 9, p. 100, pl. 4, figs. 16, 17.

1965. *Eburneopecten subminutus* (Aldrich). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 136.

Type locality: Red Bluff Formation, Red Bluff, Chickasawhay River, Wayne County, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, Jackson; Red Bluff Formation, Red Bluff.

Genus CHLAMYS Roeding in Bolten, 1798
Subgenus AEQUIPECTEN Fisher, 1798
Chlamys (Aequipecten) nupera (Conrad)

Plate 22, figures 1A, 1B, 2A, 2B

1854. *Pecten nuperus* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, pl. 14, fig. 11.

1936. *Chlamys* (*Chlamys*) *nuperus* (Conrad). Tucker, Amer. Midland Nat., v. 17, p. 1000, pl. 10, fig. 6.

1965. *Chlamys nupera* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 86.

Discussion.—*C. nupera* is commonly associated with bryozoans, *Pycnodonte* (*P.*) *trigonalis* (oyster), and *Periarchus lyelli* (echinoid) at Jackson, Mississippi, exposures of the Moodys Branch Formation and lower Yazoo Formation where there are few other species. This low diversity is partially the result of selective solution of aragonitic shells.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, common at Jackson. Louisiana: Moodys Branch Formation, Montgomery Landing. Georgia: lower Jackson Group, Russell Springs. Florida: lower Jackson Group, Arredondo.

Suborder OSTREINA Ferussac, 1822
Superfamily OSTREACEA Rafinesque, 1815
Family GRYPHAEIDAE Vyalov, 1936
Subfamily PYCNODONTEINAE Stenzel, 1959

Genus PYCNODONTE de Waldheim, 1835
Subgenus PYCNODONTE de Waldheim, 1835
Pycnodonte (Pycnodonte) trigonalis (Conrad in Wailes)

Plate 22, figures 6A, 6B, 7, 8A, 8B

1854. *Ostrea trigonalis* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 14, fig. 10.

1965. *Gigantostrea trigonalis* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 149-150.

Discussion.—A variation of this species (Plate 22, figures 6A, 6B, 7) is common in the Gosport Sand (Upper Claiborne Group) at Little Stave Creek, Alabama. *P. trigonalis* is most abundant in the upper portion of the Moodys Branch Formation and in the lower portion of the Yazoo Formation.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 6, 7, 8, 14; Yazoo Formation, common in the lower portion throughout its outcrop belt. Louisiana: Moodys Branch Formation, Creola Bluff, Montgomery, Red River. Cf. North Carolina: lower Jackson Group, two miles south of Kornegay, Duplin County, Broadhurst Bridge, Wayne County. Cf. Florida: lower Jackson Group, Dixie Lime Products, Reddick, Marion County.

Family OSTRIDAE Rafinesque, 1815
Subfamily OSTRINAE Rafinesque, 1815

Genus CRASSOSTREA Sacco, 1897
Crassostrea alabamiensis (I. Lea)

Plate 22, figure 5

1833. *Ostrea alabamiensis* I. Lea, Contr. Geol., p. 91, pl. 3, fig. 71.

1957. *Crassostrea alabamiensis* (Lea). Stenzel, Krause, and Twining, Univ. Texas Pub. 5704, p. 97.

1965. *Crassostrea alabamiensis* (Lea). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 111.

Discussion.—*C. alabamiensis* is common in the *Glycymeris* coquina beds along Techeva Creek. Wilbert (1953, p. 123) lists *Ostrea alabamiensis* ? as occurring in the Pastoria Sand Member of the White Bluff Formation in Arkansas.

Type locality: Gosport Sand, Claiborne Bluff, Alabama River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, locality 11. Alabama: Gosport Sand, Claiborne Bluff. Cf. Arkansas: Pastoria Sand Member of the White Bluff Formation.

Subclass HETERODONTA Neumayr, 1884
Order VENEROIDA H. & A. Adams, 1856
Superfamily LUCINACEA Fleming, 1828
Family LUCINIDAE Fleming, 1828
Subfamily MYRTEINAE Chavan, 1969

Genus GONIMYRTEA Marwick, 1929

Gonimyrtea curta (Conrad)

Plate 23, figures 3A, 3B, 4A, 4B

1865. *Cyclas curta* Conrad, Amer. Jour. Conch., v. 1, p. 139, 212, pl. 20, fig. 14.

1946. *Lucina* (*Myrtea* ?) *curta* (Conrad). Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 89, pl. 19, fig. 19-23.

1965. *Myrtea* ? *curta* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 202.

Discussion.—This is the most abundant molluscan species at Jackson and Garland Creek localities.

Type locality: Moodys Branch Formation, locality 9.

Occurrence: Mississippi: Moodys Branch Formation, common at Jackson and Garland Creek localities. Arkansas: White Bluff Formation, Vince Bluff, Saline River, Texas: Jackson beds on the Sabine River.

Gonimyrtea subcurta (Harris)

Plate 23, figures 1A, 1B

1946. *Lucina* (*Myrtea* ?) *subcurta* Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 89-90, pl. 20, fig. 1-5.

1965. *Myrtea* ? *subcurta* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 202.

Discussion.—This species closely resembles *G. curta* but may be easily distinguished by its crenulate perifery as illustrated in figure 1B, plate 23.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, Jackson and Garland Creek localities.

Subfamily MILTHINAE Chavan, 1969

Genus SAXOLUCINA Stewart, 1930
Subgenus PLASTOMILTHA Stewart, 1930
Saxolucina (Plastomiltha) gaufia Harris

Plate 23, figures 16A, 16B

1946. *Lucina* (*Plastomiltha*) *gaufia* Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 91, pl. 20, fig. 9-13.

1965. *Saxolucina* (*Plastomiltha*) *gaufia* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 293.

Type locality: Moodys Branch Formation, Gopher Hill (Bakers Bluff) above St. Stephens Bluff, Tombigbee River, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 9. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River. Alabama: Moodys Branch Formation, Gopher Hill.

Family UNGULINIDAE H. & A. Adams, 1857

Genus DIPLODONTA Bronn, 1831
Subgenus DIPLODONTA Bronn, 1831
Diplodonta (Diplodonta) ungulina yazoocola Harris

Plate 23, figures 5A, 5B

1946. *Diplodonta ungulina yazoocola* Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 85-86, pl. 19, fig. 9, 10, 10a.

1965. *Diplodonta* (*Diplodonta*) *ungulina yazoocola* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, p. 131.

Discussion.—This species is common in the *Glycymeris* coquina layer along Techeva Creek where its shells very little in size. Harris (1946, p. 85-86) also noted a lack of variation in size at Sims Siding.

Type locality: Moodys Branch Formation, "at the escarpment in the pasture lot behind the buildings on the east side of the railway at Sims Siding some eight miles north of Yazoo City, Miss." (Harris and Palmer 1946, p. 85-86).

Occurrence: Moodys Branch Formation, localities 10, 11.

Genus TIMOTHYNUS Harris, 1946
Timothynus bulla (Conrad)

Plate 23, figures 2A, 2B

1865. *Sphaerella bulla* Conrad, Amer. Jour. Conch., v. 1, p. 138, pl. 10, fig. 9.

1946. *Timothynus bulla* (Conrad). Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 86-88, pl. 19, fig. 12-16.

1965. *Timothynus bulla* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 317.

Type locality: Moodys Branch Formation, locality 9.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9. Louisiana: Jackson Group, Tullos, Winn Parish; Danville Landing Member, Danville Landing, Ouachita River. Arkansas: White Bluff Formation, Vince Bluff to Kingsland, Saline River.

Timothynus deflatus Harris

1946. *Timothynus deflatus* Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 88, pl. 19, fig. 17, 18.

1965. *Timothynus deflatus* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 317.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Superfamily CHAMACEA Lamarck, 1809
Family CHAMIDAE Lamarck, 1809
Genus CHAMA Linne', 1758
Subgenus CIPLIACELLA Vincent, 1928
Chama (Cipliacella) radiata, n. sp.

Plate 23, figures 12, 13, 15A, 15B

1946. *Chama mississippiensis* Conrad ? Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 92, pl. 20, fig. 14, 15.

1965. *Chama* sp. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 79.

Description.—Hinge structure and general shape typical of *Chama;* attachment scar obscure; exterior of right valve with radial rows of low spines consisting of raised single folds on the shell surface, concentric alignment of spines secondary in importance; posterior adductor scar of left valve prominent and located on a longitudinal elevation on the shell's interior; exterior of left valve with radial rows of spines and some squamose ornamentation on the dorsal portion; radial orientation of spines on left valve most prominent in young specimens.

Discussion.—This species closely resembles *C. (Cipliacella) mississippiensis* Conrad but differs in the prominence of radial sculpture on the right valve. The left valve shows variation that depends largely on the size and shape of its attachment base.

Holotype: PRI 8249; left valve—length 20 mm, height 24.5 mm. Paratype: PRI 8248; right valve—length 12 mm, height 9.5 mm.

Type locality: Moodys Branch Formation, locality 2.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2. Louisiana: Moodys Branch Formation, Montgomery Landing Red River.

Superfamily LEPTONACEA Gray, 1847
Family ERYCINIDAE Deshayes, 1850

Genus ERYCINA Lamarck, 1805
Erycina zitteli Meyer, 1887

1887. *Erycina zitteli* Meyer, Senckenberg. naturf. Gesell., p. 11, pl. 2, fig. 9.

1946. *Erycina zitteli* Meyer. Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 84-85, pl. 19, fig. 8.

1965. *Erycina zitteli* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 142-143.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Superfamily CARDITACEA Fleming, 1820
Family CARDITIDAE Fleming, 1828
Subfamily CARDITAMERINAE Chavan, 1969

Genus PLEUROMERIS Conrad, 1867
Pleuromeris inflatior jacksonensis (Meyer)

Plate 23, figues 7, 8

1885. *Venericardia inflatior* var. *Jacksonensis* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 460.

1946. *Venericardia* (*Pleuromeris*) *inflatior* Meyer. Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 75-76, pl. 17, fig. 18-18b.

1965. *Venericardia inflatior jacksonensis* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p 332

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 9.

Pleuromeris sp.

1885. *Venericardia parva* var. *Jacksonensis* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 460.

1946. *Venericardia* (*Pleuromeris*) *parva* var. *jacksonensis* Meyer. Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 75, pl. 17, fig. 19-20.

1965. *Venericardia* (*Pleuromeris*) sp. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 348.

Occurrence: Moodys Branch Formation, Jackson, Mississippi.

Subfamily VENERICARDIINAE Chavan, 1969

Genus VENERICARDIA Lamarck, 1801
Subgenus ROTUNDICARDIA Heaslip, 1968
Venericardia (Rotundicardia) diversidentata Meyer

Plate 23, figures 6, 9, 10A, 10B, 11A, 11B

1854. *Cardita tetrica* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289 (name only).

1885. *Venericardia diversidentata* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 460.

1965. *Venericardia diversidentata* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 328.

1968. *Venericardia (Rotundicardia) diversidentata* Meyer. Heaslip, Paleont. Amer., v. 6, No. 39, p. 95, pl. 23, fig. 3-8.

Discussion.—Variations of this species range from individuals with strongly nodose ribs and wide interspaces (plate 23, figures 10A, 10B, 14A, 14B) to a form with slightly nodose ribs and narrow interspaces (plate 23, figure 9).

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, very common at Jackson and Garland Creek. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River.

Subgenus VENERICOR Stewart, 1930
Venericardia (Venericor) apodensata Gardner and Bowles

Plate 24, figures 15A, 15B, 16A, 16B

1939. *Venericardia (Venericor) apodensata* Gardner and Bowles, U. S. Geol. Survey Prof. Paper 189-F, p. 192-193, pl. 37, fig. 13; plate 43, fig. 8; plate 45, figures 15, 16.

1965. *Venericardia (Venericor) apodensata* Gardner and Bowles. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 323.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 7, 11, 13, gully south of the road east of flag station on Yazoo and Mississippi Valley Railroad. For localities in Arkansas, Louisiana, and Texas see Gardner and Bowles, 1939.

Superfamily CRASSATELLACEA Ferussac, 1822
Family ASTARTIDAE d'Orbigny, 1844
Subfamily ASTARTINAE d'Orbigny, 1844

Genus ASTARTE J. Sowerby, 1816

Astarte pretriangulata, n. sp.

Plate 24, figures 3, 5

Description.—Shell trigonal, thick; beak pointed; dorsal lateral margins of umbo angular sloping inward to hinge plate; cardinals prominent; anterior and posterior adductors scars prominent and elevated; inner margin crenulate; surface covered with broad concentric ribs.

Discussion.—This species differs from *A. triangulata* of the Red Bluff Formation in that it has elevated adductor scars, and the concentric ribs are much broader.

Holotype: PRI 8250; right valve; length 6.25 mm, height 5.5 mm.

Type locality: Moodys Branch Formation, locality 1.

Subfamily ERIPHYLINAE Chavan, 1952

Genus LIRODISCUS Conrad, 1869
Subgenus LIRODISCUS Conrad, 1869

Lirodiscus (Lirodiscus) jacksonensis (Meyer)

Plate 24, figures 1A, 1B, 2A, 2B, 4

1854. *Astarte parilis* Conrad *in* Wailes, Rept. Agric. and Geol. Mississippi, p. 289, pl. 14, fig. 2 (not Conrad, 1853).

1885. *Astarte Sulcata* var. *jacksonensis* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 460.

1946. *Lirodiscus jacksonensis* (Meyer). Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 77-78, pl. 18, fig. 1-5, 8-10.

1965. *Lirodiscus jacksonensis* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 175.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3, 9. Louisiana: Moodys Branch Formation, Montgomery, along the Ouachita River (Gibson, Bunker Hill, and Grand View landings). Arkansas: White Bluff Formation, Vince Bluff, Cleveland County. Alabama: Moodys Branch Formation, Claiborne Bluff.

Family CRASSATELLIDAE Ferussac, 1822
Subfamily CRASSATELLINAE Ferussac, 1822

Genus CRASSATELLA Lamarck, 1799

Crassatella sp.

1946. *Crassatella* sp. Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 80, pl. 18, fig. 20-21.

1965. *Crassatella* sp. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 107.

Occurrence: Mississippi: Moodys Branch Formation, locality 9.

Genus BATHYTORMUS Stewart, 1930

Bathytormus clarkensis postclarkensis (Harris)

Plate 24, figure 7

1919. *Crassatellites flexurus postclarkensis* Harris, Bull. Amer. Paleont., v. 6, No. 31, p. 100, 103.

1965. *Bathytormus clarkensis postclarkensis* (Harris) Palmer and Brann, Bull. Amer. Paleon., v. 48, No. 218, pt. 1, p. 50.

Type locality: Tullos Member of the Yazoo Formation, Bunker Hill Landing, Ouachita River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, localities 9, 11. Louisiana: Yazoo Formation, Bunker Hill Landing. Arkansas: White Bluff Formation, Vince Ferry, Saline River.

Bathytormus flexurus (Conrad in Wailes)

Plate 24, figures 6, 8, 9, 10, 11A, 11B, 12, 13, 14

1854. *Crassatella flexura* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, pl. 14, fig. 7.

1965. *Bathytormus flexura* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 50.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River. Texas: Moodys Branch Formation, Robinsons Ferry ?, Sabine River.

Bathytormus flexurus productus (Conrad)

1863. *Crassatella producta* Conrad, Acad. Nat. Sci. Philadelphia, Proc., v. 14, p. 289.

1919. *Crassatellites flexurus productus* (Conrad). Harris, Bull. Amer. Paleont., v. 6, No. 31, p. 100.

1946. *Crassatella flexura producta* (Conrad). Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 81, pl. 18, fig. 29, 36.

1965. *Bathytormus flexurus productus* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 51.

Type locality: Moodys Branch Formation, locality 9.

Superfamily CARDIACEA Lamarck, 1809
Family CARDIIDAE Lamarck, 1809
Subfamily PROTOCARDIINAE Keen, 1951

Genus NEMOCARDIUM Meek, 1876
Subgenus NEMOCARDIUM Meek, 1876
Nemocardium (Nemocardium) nicolletti (Conrad)
Plate 25, figures 13A, 13B, 14A, 14B, 15

1841. *Cardium nicolletti* Conrad, Acad. Nat. Sci. Philadelphia, Proc., v. 1, p. 33.

1946. *Protocardia* (*Nemocardium*) *nicolletti* (Conrad). Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 92-94, pl. 20, fig. 16-19.

1965. *Nemocardium* (*Nemocardium*) *nicolletti* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 205.

Type locality: Moodys Branch Formation, Ouachita River near Monroe, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9. Louisiana: Moodys Branch Formation, Bunker Hill and Gibson Landing, Ouachita River; Danville Landing Member, Danville Landing.

Subfamily LAEVICARDIINAE Keen, 1936
Genus LAEVICARDIUM Swainson, 1840
Laevicardium gardnerae Cooke

1926. *Cardium* (*Laevicardium*) *gardnerae* Cooke, Washington Acad. Sci., Jour., v. 16, No. 5, p. 138, fig. 17a, b.

1965. *Laevicardium gardnerae* (Cooke). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 163.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Superfamily MACTRACEA Lamarck, 1809
Family MACTRIDAE Lamarck, 1809
Subfamily MACTRINAE Lamarck, 1809

Genus MACTRA Linne', 1767
Mactra inornata Meyer

1885. *Mactra inornata* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 461, 467.

1965. *Mactra inornata* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 189.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Genus SPISULA Gray, 1837
Spisula jacksonensis Cooke

Plate 25, figures 4, 5.

1926. *Spisula jacksonensis* Cooke, Washington Acad. Sci., Jour., v. 16, p. 137, fig. 14a, b, c.

1965. *Spisula jacksonensis* (Cooke). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 298.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9.

Spisula mississippiensis (Conrad) subsp.

1897. *Mactra mississippiensis* Conrad, 1847, var. Harris, Acad. Nat. Sci. Philadelphia, Proc., v. 48, p. 290.

1946. *Spisula mississippiensis* (Conrad). Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 106, pl. 23, fig. 2.

1965. *Spisula mississippiensis* (Conrad) subsp., Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 298.

Occurrence: Mississippi: Moodys Branch Formation, Jackson.

Subgenus SYMMORPHOMACTRA Dall, 1894
Spisula (Symmorphomactra) praetenuis (Conrad)

Plate 25, figure 11

1833. *Mactra praetenuis* Conrad, *Fossil shells Tert. Form.*, v. 1, No. 4, p. 42.

1898. *Spisula praetenuis* (Conrad). Dall, Wagner Free Inst. Sci., Trans., v. 3, pt. 4, p. 896.

1965. *Spisula* cf. *praetenuis* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 299.

Type locality: Gosport Sand, Claiborne Bluff, Alabama.

Occurrence: Mississippi: Moodys Branch Formation, locality 2. Louisiana: Moodys Branch Formation, Montgomery Landing. Arkansas: White Bluff Formation, Crow Creek, White Bluff on south bank of Arkansas River. Alabama: Gosport Sand, Claiborne Bluff. Florida: Ocala Group, Ocala Lime Rock Corp. quarry east side Highway 314 east of Kendrick. Georgia: Ocala Group, 4 miles from Perry in Houston County, Fort Gaines.

Superfamily TELLINACEA de Blainville, 1814
Family TELLINIDAE de Blainville, 1814
Subfamily TELLININAE de Blainville, 1814

Genus TELLINA Linne', 1758
Subgenus ARCOPAGIA Brown, 1827
Tellina (Arcopagia) trumani garlandica Harris
Plate 25, figure 12

1946. *Tellina trumani* var. *garlandica* Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 100-101, pl. 22, fig. 1, 2, 3.

1965. *Tellina trumani garlandica* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 312.

Type locality: Moodys Branch Formation, locality 9.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 9.

Subgenus ARCOPAGINULA Lamy, 1918
Tellina (Arcopaginula) eburneopsis Conrad
Plate 25, figure 10

1865. *Tellina* (*Angulus*) *eburneopsis* Conrad, Amer. Jour. Conch., v. 1, p. 138, pl. 10, fig. 17.

1965. *Tellina eburneopsis* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, pt. 1, p. 304.

Type locality: Moodys Branch Formation, locality 9.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9, 11. Louisiana: Moodys Branch Formation, Bunker Hill Landing, Ouachita River. Arkansas: White Bluff Formation, Cleveland County.

Tellina vicksburgensis moodiana Cooke
Plate 25, figures 6, 7

1926. *Tellina vicksburgensis* var. *moodiana* Cooke, Washington Acad. Sci., Jour., v. 16, No. 5, p. 137, fig. 15a, b.

1965. *Tellina vicksburgensis moodiana* Cooke. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 312.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3.

Subgenus EURYTELLINA Fischer, 1887

Tellina (Eurytellina) vaughani Cooke

Plate 25, figures 2A, 2B, 3A, 3B

1926. *Tellina vaughani* Cooke, Washington Acad. Sci., Jour., v. 16, p. 138, fig. 16a, b.

1965. *Tellina vaughani* Cooke. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 312.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 3.

Tellina (Eurytellina) vaughani Cooke var.

1946. *Tellina vaughani* Cooke "var." Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 103, pl. 22, fig. 17.

1965. *Tellina vaughani* Cooke variation. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 312.

Occurrence: Moodys Branch Formation, locality 3.

Tellina (Eurytellina) spillmani Dall

1865. *Tellina* (*Angulus*) *albaria* Conrad, Amer. Jour. Conch., v. 1, p. 138, pl. 11, fig. 7. Not *T. albaria* Conrad, 1849, p. 725.

1900. *Tellina* (*Arcopagia*?) *spillmani* Dall, Wagner Free Inst. Sci., Trans., v. 3, pt. 5, p. 1015. New name for *T. albaria* Conrad, 1865, p. 138.

1946. *Tellina spillmani* Dall. Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 104, pl. 22, fig. 20.

1965. *Tellina spillmani* Dall. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 310.

Type locality: Moodys Branch Formation, locality 9.

Tellina (Eurytellina) linifera Conrad

Plate 25, figures 1A, 1B

1865. *Tellina* (*Tellinella*) *linifera* Conrad, Amer. Jour. Conch., v. 1, p. 138, pl. 10, fig. 16, 18.

1946. *Tellina (Tellinella) linifera* Conrad. Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 99, pl. 21, fig. 15-18.

1965. *Tellina linifera* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 306.

Type locality: Moodys Branch Formation, locality 9.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9; Jackson Group, 1½ miles above Shubuta on Chickasawhay River. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River. Arkansas: White Bluff Formation, Vince Ferry, Saline River. Alabama: Jackson Group, Little Stave Creek.

Tellina pearlensis Meyer

1887. *Tellina pearlensis* Meyer, Senckenberg. Naturf. Gesell., (no page), pl. 2, fig. 3.

1946. *Tellina pearlensis* Meyer. Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 104, pl. 22, fig. 18.

1965. *Tellina pearlensis* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 307-308.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Family PSAMMOBIIDAE Fleming, 1828
Subfamily PSAMMOBIINAE Fleming, 1828

Genus GARI Schumacher, 1817
Subgenus GOBRAEUS Brown, 1844
Gari (Gobraeus) jacksonensis Harris

Plate 25, figures 8A, 8B

1946. *Gari jacksonense* Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 97, pl. 21, fig. 12-14.

1965. *Gari jacksonense* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 145-146.

Type locality: Moodys Branch Formation, Montgomery Landing, Red River, Louisiana.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River. Florida: Inglis Formation (lower Ocala Group), below Florida Power Corp. power plant at Inglis, Withlacoochee River.

Family SEMELIDAE Stoliczka, 1870

Genus ABRA Lamarck, 1818
Subgenus SYNDOSMYA Recluz, 1843
Abra (Syndosmya) nitens jacksonica Harris

Plate 25, figures 9A, 9B

1946. *Abra nitens* (Lea) var. *jacksonica* Harris. Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 105, pl. 22, fig. 22-24.

1965. *Abra (Abra) nitens jacksonica* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 23.

Type locality: Moodys Branch Formation, locality 3.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 3.

Superfamily ARCTICACEA Newton, 1891
Family KELLIELLIDAE Fischer, 1887

Genus KELLIELLA Sars, 1870
Kelliella boettgeri Meyer

1886. *Kelliella ? boettgeri* Meyer, Alabama Geol. Survey, Bull., No. 1, p. 83, pl. 3, fig. 15.

1946. *Kelliela boettgeri* Meyer. Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 83-84, pl. 19, fig. 6, 6a.

1965. *Kelliela boettgeri* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 162.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Genus ALVEINUS Conrad, 1865
Alveinus minutus Conrad

1965. *Alveinus minutus* Conrad, Amer. Jour. Conch., v. 1, p. 138, pl. 10, fig. 2.

1946. *Alveinus minutus* Conrad. Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 83, pl. 19, fig. 5, 5a.

1965. *Alveinus minutus* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 27.

1969. *Alveinus minutus* Conrad. Keen, *Treatise Invert. Paleont.*, pt. N, v. 2 (of 3), p. N653, fig. E130, 11.

Type locality: Moodys Branch Formation, locality 9.

Occurrence: Mississippi: Moodys Branch Formation, locality 9. Louisiana: Jackson Group, Gibson Landin, Ouachita River. Alabama: Gosport Sand, Claiborne Bluff, Alabama River, Little Stave Creek, Gopher Hill, Tombigbee River.

Superfamily VENERACEA Rafinesque, 1815
Family VENERIDAE Rafinesque, 1815
Subfamily VENERINAE Rafinesque, 1815

Genus VENUS Linne', 1758
"Venus" (indet.) jacksonensis Meyer

1887. *Venus jacksonensis* Meyer, Senckenberg. naturf. Gesell., p. 195, pl. 33, fig. 9.

1946. *"Venus" jacksonensis* Meyer. Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 96, pl. 21, fig. 9a copy Meyer.

1965. *"Venus"* (indet.) *jacksonensis* Meyer. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 349.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Subfamily PITARINAE Stewart, 1930

Genus PITAR Romer, 1857
Subgenus PITAR Romer, 1857
Pitar (Pitar) securiformis (Conrad)

Plate 26, figures 5A, 5B, 6A, 6B

1865. *Dione securiformis* Conrad, Amer. Jour. Conch., v. 1, p. 137, pl. 10, fig. 1.

1946. *Pitar securiformis* (Conrad). Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 94, pl. 21, fig. 1-3.

1965. *Pitar (Pitar) securiformis* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 274.

Discussion.—It is interesting to note that *Pitar* dominates over *Callista* in number of individuals at Moodys Branch exposures in Jackson, Mississippi. The opposite of this is true in the Gosport Sand (upper Claiborne Group) of Alabama where *Callista* is one of the most abundant genera. *P. (P.) securiformis* is common at Jackson, but rare in the Moodys Branch Formation along Tesheva Creek where *P. (K.) trigoniata* is common.

Type locality: Moodys Branch Formation, locality 9.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9, 10; Yazoo Formation, Miss-Lite Clay Quarry at Cynthia. Louisiana: Jackson Group, Bunker Hill; Ouachita River, one-half mile below Gibson's Landing, Ouachita River; Danville Landing Member, Danville Landing, Ouachita River. Arkansas: White Bluff Formation, Vince Bluff, Saline River.

Subgenus KATHERINELLA Tegland, 1929
Pitar (Katherinella) trigoniata (I. Lea)

Plate 26, figures 9A, 9B

1833. *Cytherea trigonata* I. Lea, Contr. Geol., p. 67, pl. 2, fig. 44.

1946. *Pitar trigoniata* (Lea). Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 95, pl. 21, fig. 4, 5.

1965. *Katherinella trigoniata* (Lea). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 160-161.

Type locality: Gosport Sand (upper Claiborne Group), Claiborne Bluff, Alabama River.

Occurrence: Mississippi: Moodys Branch Formation, localities 7, 11. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River. Arkansas: White Bluff Formation, Crow Creek near Forrest City, White Bluff, Arkansas River. Alabama: Gosport Sand, Claiborne Bluff, Alabama River; Lisbon Formation, base of Claiborne Bluff. Georgia: McBean Formation, Fort Gaines, 2.9 miles south of Perry. South Carolina: McBean Formation, five miles north of Orangeburg.

Genus CALLISTA Poli, 1791
Subgenus CALLISTA Poli, 1791
Callista (Callista) annexa (Conrad)

Plate 26, figures 1A, 1B, 2, 3A, 3B, 3C, 4, 7

1865. *Dione annexa* Conrad, Amer. Jour. Conch., v. 1, p. 137, pl. 10, fig. 5.

1929. *Callista annexa* (Conrad). Palmer, Paleont. Amer., v. 1, p. 283, pl. 45, fig. 17, 20.

1965. *Callista* (*Callista*) *annexa* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 58.

Discussion.—The differences in sculpture between this species and *C.* (*Costacallista*) *pearlensis* is similar to those differences between *C.* (*Costacallista*) *aequorea* and *C.* (*Costacallista*) *mortoni* of the Gosport Sand in Alabama. *C.* (*C.*) *annexa and C.* (*C.*) *aequorea* are sculptured around the beak with evenly spaced concentric ridges, which become irregularly spaced and flattened toward the margin. This sculpture is stronger on *C.* (*C.*) *aequorea than on C.* (*C.*) *annexa*. The concentric ridges of *C.* (*C.*) *pearlensis* and *C.* (*C.*) *mortoni* remain regularly spaced and prominent throughout growth. In each case the species having irregularly spaced concentric ridges are most abundant. The color pattern of *C.* (*C.*) *aequorea* (plate 26, figure 8) is similar to that of *C.* (*C.*) *annexa* (plate 26, figures 1B, 3C, 4, 7).

Type locality: Moodys Branch Formation, locality 9.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9, 11. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River; Jackson Group, Gibson Landing and Bunker Kill, Ouachita River; Danville Landing Member, Danville Landing, Ouachita River. Florida: Ocala Group, New Lebanon dolomite pit, SW¼, NE½, Sec. 12, T. 16 S., R. 16. E., Levy County, roadmetal pit 2.9 miles south of north limits of Gulf Hammock, just southwest of State Road 55 in SW¼, Sec. 34, T. 14 S., R. 16 E.

Subgenus COSTACALLISTA Palmer, 1927
Callista (Costacallista) pearlensis (Harris)

1897. *Meretrix pearlensis* Harris, Acad. Nat. Sci. Philadelphia, Proc., v. 48, p. 470, pl. 18, fig. 4, 5.

1927. *Callista* (*Costacallista*) *pearlensis* (Harris). Palmer, Paleont. Amer., v. 1, No. 5, p. 87, pl. 15, fig. 10, 12, 15.

1965. *Callista* (*Costacallista*) *pearlensis* (Harris). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 51.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River.

Order MYOIDA Stoliczka, 1870
Suborder MYINA Stoliczka, 1870
Superfamily MYACEA Lamarck, 1809
Family CORBULIDAE Lamarck, 1818
Subfamily CORBULINAE Gray, 1823

Genus CORBULA Bruguiere, 1797
Subgenus BICORBULA Fischer, 1887
Corbula (Bicorbula) pearlensis Meyer

1886. *Corbula pearlensis* Meyer, Geol. Survey Alabama, Bull., No. 1, pt. 2, p. 83, pl. 3, figs. 16, 16a.

1946. *Corbula* (*Biocorbula*) *pearlensis* Meyer. Harris, Bull. Amer. Paleont., v. 30, No. 117, p. 117, pl. 25, fig. 1, 2.

1965. *Biocorbula pearlensis* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 51.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Subgenus CARYOCORBULA Gardner, 1926

Corbula (Caryocorbula) densata (Conrad in Wailes)

Plate 27, figures 11A, 11B, 12, 13A, 13B

1854. *Corbula densata* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 14, fig. 9.

1946. *Corbula* (*Caryocorbula*) *densata* (Conrad). Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 115-116, pl. 24, fig. 11-15, 17-21.

1965. *Caryocorbula densata* (Conrad). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 76.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 9, 10. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River; Jackson Group, Gibson's Landing, Ouachita River. Alabama: Gosport Sand, Claiborne Bluff, Alabama River. Arkansas: White Bluff Formation, Crow Creek. Florida: Ocala Group, Inglis, Gulf Hammock.

Corbula (Caryocorbula) willistoni Meyer

Plate 27, figures 1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B

1885. *Corbula willistoni* Meyer, Amer. Jour. Sci., (ser. 3), v. 29, p. 462.

1965. *Caryocorbula willistoni* (Meyer). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 78.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurence: Mississippi: Moodys Branch Formation, Jackson and localities 10, 11. Louisiana: Jackson Group; Wyant's Bluff, Ouachita River; Danville Landing Member, Danville Landing, Ouachita River. Arkansas: White Bluff Formation, Crow Creek.

Corbula (Caryocorbula) willistoni arkansia Harris

Plate 27, figures 5A, 5B, 6A, 6B

1946. *Corbula* (*Caryocorbula*) *willistoni*, var. *arkansia* Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 116-117, pl. 25, fig. 22-25.

1965. *Caryocorbula willistoni arkansia* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 78.

Type locality: White Bluff Formation, White Bluff, Arkansas River.

Occurrence: Mississippi: Moodys Branch Formation, locality 11. Louisiana: Jackson Group, Bayou Toro. Arkansas: White Bluff, Arkansas River, Crow Creek.

Genus CAESTOCORBULA Vincent, 1910
Caestocorbula wailesiana Harris in Dall
Plate 27, figures 7, 8, 9, 10

1854. *Corbula bicarinata* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 14, fig. 3.

1898. *Corbula wailesiana* Harris *in* Dall, Wagner Free Inst. Sci., Trans., v. 3, pt. 4, p. 846.

1965. *Caestocorbula wailesiana* (Harris *in* Dall). Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 57.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 15. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River: Jackson Group, Gibson Landing, Ouachita River; Danville Landing Member, Danville Landing, Ouachita River. Texas: Jackson Group, Bayou Toro, Wolley's Bluff on the Sabine River below Robinson's Ferry. Arkansas: White Bluff Formation, Vince Bluff, Sabine River.

Superfamily GASTROCHAENACEA Gray, 1840
Family GASTROCHAENIDAE Gray, 1840

Genus GASTROCHAENA Spengler, 1783
Subgenus GASTROCHAENA Spengler, 1783
Gastrochaena (Gastrochaena) mississippiensis Harris
Plate 28, figures 3A, 3B, 4A, 4B, 5A, 5B, 8

1946. *Gastrochaena mississippiensis* Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 120, pl. 25, fig. 7-11.

1965. *Gastrochaena mississippiensis* Harris. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 78.

Discussion.—This species burrows into shells, rocks, and unconsolidated sediment. The burrow is vase-shaped and is encased with shell material. The exterior is irregular, and two tubular canals occur at the tapering end as is illustrated in plate 28, figure 4B. Commonly this species burrows into shells as shown in figure 8, plate 28. These burrows may be recognized from the borings of other organisms by their smooth shell sheath, their large size, and by the occurrence of two terminal canals. Valves of the specimens illustrated in plate 28 figures 3A, 3B, 5A, and 5B were taken from burrows in a concretion, which appears to have been indurated penecontemporaneously with deposition.

Type locality: Moodys Branch Formation, locality 1.

Occurrence: Mississippi: Moodys Branch Formation, locality 1, 2.

Superfamily HIATELLACEA Gray, 1824
Family HIATELLIDAE Gray, 1824

Genus PANOPEA Menard, 1807
Subgenus PANOPEA Menard, 1807
Panopea (Panopea) oblongata Conrad

Plate 28, figures 7A, 7B, 9

1848. *Panopea oblongata* Conrad, Acad. Nat. Sci., Philadelphia, Proc., v. 3, p. 290.

1965. *Panopea oblongata* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 251.

Discussion.—This species is common in the upper clayey portion of the Moodys Branch Formation at Jackson, Mississippi.

Type locality: Vicksburg Group (Oligocene), Vicksburg, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2; Vicksburg Group, Vicksburg.

Suborder PHOLADINA H. & A. Adams, 1858
Superfamily PHOLADACEA Lamarck, 1809
Family TEREDINIDAE Rafinesque, 1815

Genus TEREDO Linne', 1758
Teredo mississippiensis Conrad, 1854

Plate 28, figure 6

1854. *Teredo mississippiensis* Conrad *in* Wailes, Rept. Agr. Geol. Mississippi, p. 289, pl. 16, fig. 8.

1965. *Teredo mississippiensis* Conrad. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 315.

Type locality: Moodys Branch Formation, locality 1.

Occurrence: Mississippi: Moodys Branch Formation, localities 1, 2, 14. Louisiana: Moodys Branch Formation, Montgomery Landing, Red River; Jackson Group, Ouachita River in Caldwell and Catahoula Parishes.

Subclass ANOMALODESMATA Dall, 1889
Order PHOLADOMYOIDA Newell, 1965
Superfamily PANDORACEA Rafinesque, 1815
Family PERIPLOMATIDAE Dall, 1895

Genus PERIPLOMA Schumacher, 1817
Periploma equalum, n. sp.

Plate 28, figures 1A, 1B

Description.—Shell thin, nacreous; almost equivalve; valves symmetrical about hingeline and somewhat inflated; exterior with very fine concentric striae.

Discussion.—This species is known from one specimen having both valves. The hingement area is not visible *P. equalum* resembles *P. collardi turgida,* from the Jackson Eocene of Arkansas, in its outline with the exception that the posterior portion of the shell is extended. Also the valves of *P. equalum* are inflated and are symmetrical about the hinge line.

Holotype: PRI 8251; height 16 mm, length 20 mm, diameter 10 mm.

Type locality: Moodys Branch Formation, locality 2.

Superfamily POROMYACEA Dall, 1886
Family POROMYIDAE Dall, 1886

Genus POROMYA Forbes, 1844
Poromya mississippiensis Meyer and Aldrich

1887. *Poromya mississippiensis* Meyer and Aldrich *in* Meyer, Senckenberg. naturf. Gesell., p. 10, pl. 2, figs. 1a, 1b.

1946. *Poromya mississippiensis* Meyer and Aldrich. Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 118-119, pl. 25, fig. 3-5.

1965. *Poromya mississippiensis* Meyer and Aldrich. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, p. 282.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, Jackson and Garland Creek.

Family VERTICORDIIDAE Stoliczka, 1871

Genus VERTICORDIA J. de C. Sowerby, 1844

Subgenus VERTICORDIA J. de C. Sowerby, 1844

Verticordia (Verticordia) cossmanni Dall

Plate 28, figures 2A, 2B

1903. *Verticordia* (*Trigonulina*) *cossmanni* Dall, Wagner Free Inst. Sci., Trans., v. 3, pt. 6, p. 1512.

1946. *Verticordia* (*Trigonulina*) *cossmanni* Dall. Harris, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 112, pl. 23, fig. 23.

1965. *Verticordia* (*Trigonulina*) *cossmanni* Dall. Palmer and Brann, Bull. Amer. Paleont., v. 48, No. 218, pt. 1, p. 350.

Type locality: Moodys Branch Formation, Jackson, Mississippi.

Occurrence: Mississippi: Moodys Branch Formation, locality 1.

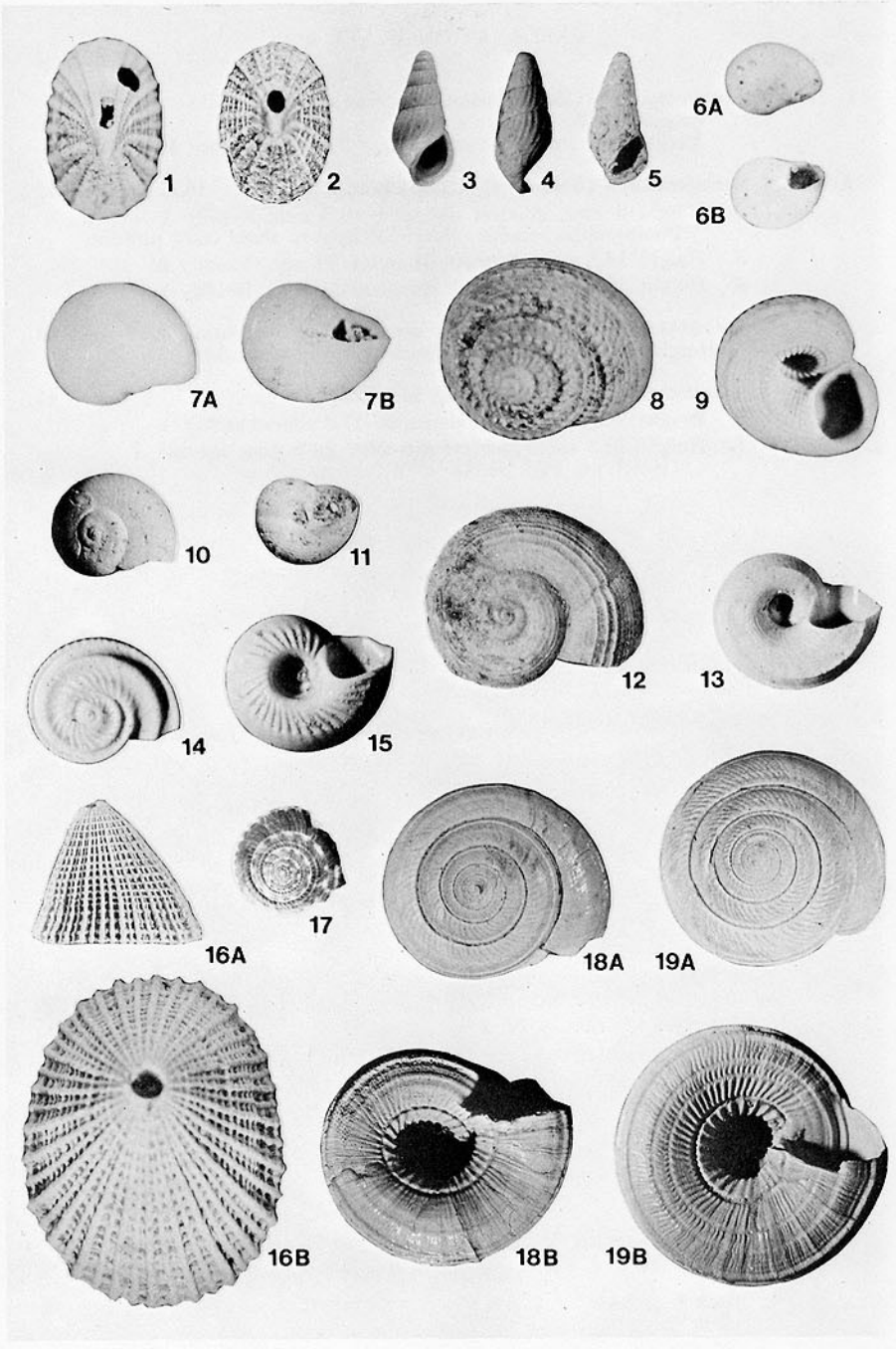
EXPLANATION PLATE 1

Figure		Page
1-2, 16	**Puncturella jacksonensis** Meyer, 1887	37
	1. Length 3 mm, height 1.5 mm; locality 1.	
	2. Holotype, USNM 638819; Jackson, Mississippi.	
	16. Length 20.5 mm, height 16 mm; locality 1.	
3-5	**Rissonia mississippiensis** Meyer, 1886	38
	3. Height 2.5 mm; locality 1.	
	4. Height 3 mm; locality 1.	
	5. Holotype, USNM 638819; Jackson, Mississippi.	
6-7	**Teinostoma (Idioraphe) verrilli** Meyer, 1885	39
	6. Meyer's type, U.S.N.M. 638707; Jackson, Mississippi.	
	7. Greatest diameter 2.5 mm; locality 1.	
8-9	**Solariella cancellata jacksonia** Palmer, 1947	38
	8. Greatest diameter 3.5 mm; locality 1.	
	9. Greatest diameter 3.5 mm; locality 1.	
10-11	**Solariorbis subangulatus** (Meyer, 1886)	40
	10. Greatest diameter 3 mm; locality 1.	
	11. Greatest diameter 2.5 mm; locality 1.	
12-13	**Circulus ottonius** Palmer, 1947	39
	12. Greatest diameter 5 mm; locality 1.	
	13. Greatest diameter 4 mm; locality 1.	
14-15	**Tornus infraplicatus** (Johnson, 1899)	39
	14. Greatest diameter 3 mm; locality 1.	
	15. Greatest diameter 3.5 mm; locality 1.	
17-19	**Architectonica (Architectonica) bellistriata** Conrad in Wailes, 1854	40-41
	17. Height 11 mm, greatest diameter 20 mm; locality 1. Photographed under ultraviolet light to show color pattern.	
	18. Height 11 mm, greatest diameter 21.5 mm; locality 1.	
	19. Height 13 mm, greatest diameter 22.5 mm; locality 1.	

Revisions: See Addendum for references.

Figure 16. *Diodora tenebrosa veatchi* Palmer, 1947

Plate 1



EXPLANATION PLATE 2

Figure — Page

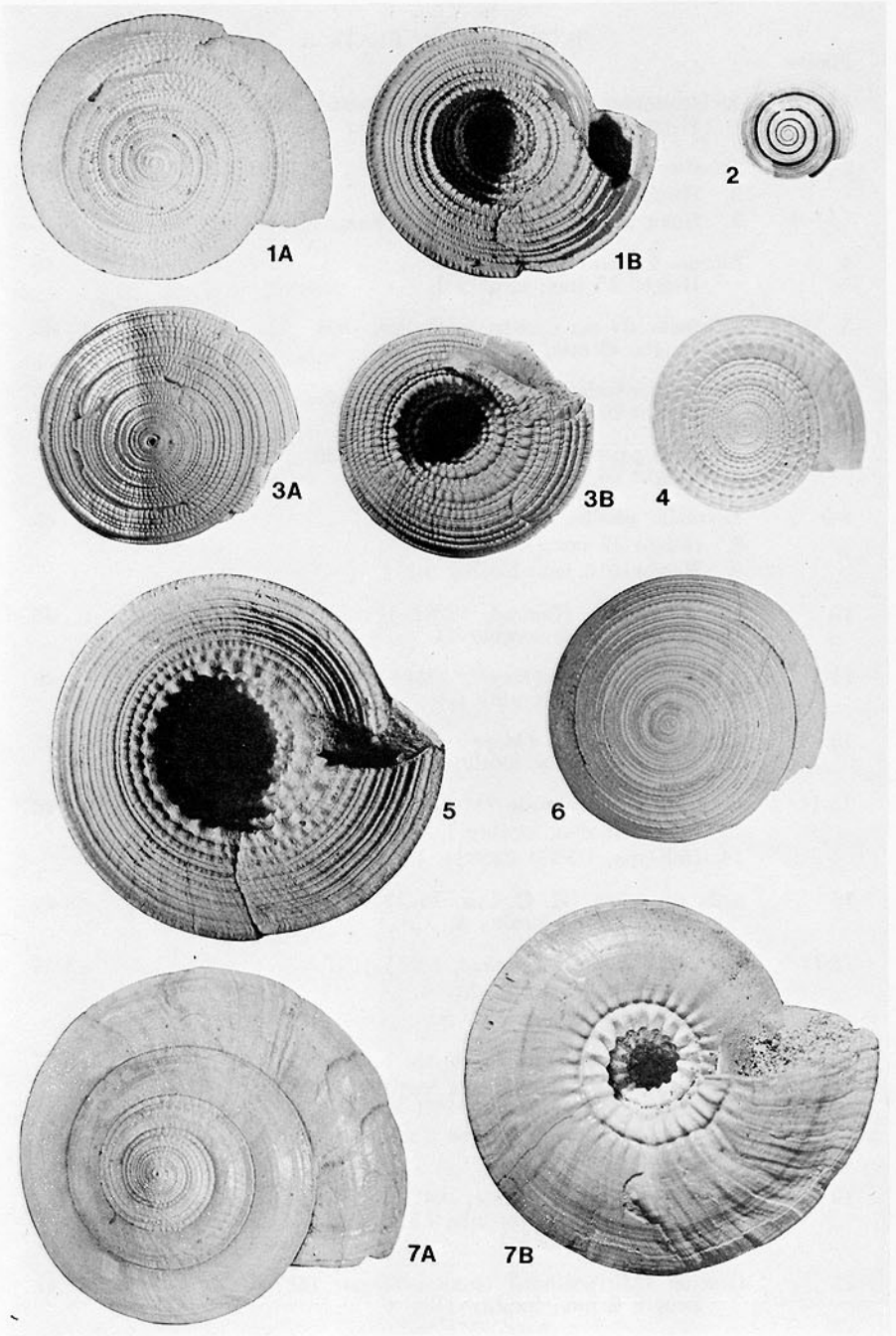
1 **Architectonica (Granosolarium) meekana subsplendida** Palmer, 1947 42
Height 9.5 mm, greatest diameter 22 mm; locality 1.

2, 5-6 **Architectonica (Solariaxis) acuta** Conrad in Wailes, 1854 42-43
2. Height 8 mm, greatest diameter 19.5 mm; locality 1. Photographed under ultraviolet light to show color pattern.
5. Height 14.5 mm, greatest diameter 28 mm, locality 2.
6. Height 15.5 mm, greatest diameter 29 mm, locality 1.

3 **Architectonica (Granosolarium) ornata jacksonia** Palmer, 1947 42
Height 10.5 mm, greatest diameter 19 mm; locality 1.

4, 7 **Architectonica (Architectonica) billmoorei,** n. sp. 41
4. Height 7 mm, greatest diameter 17.5 mm; locality 1.
7. Height 13.5 mm, greatest diameter 29.5 mm; locality 1 (Holotype, PRI 8231)

Plate 2



EXPLANATION PLATE 3

Figure		Page
1	**Architectonica (Stellaxis) alveata** (Conrad, 1833) Height 11.5 mm, greatest diameter 24.5 mm; locality 1.	43
2-3	**Tenuiscala aspersa** (Meyer, 1887) 2. Height 10.5 mm; locality 1. 3. Holotype, USNM 638869; Jackson, Mississippi.	50
4	**Bittium koeneni** Meyer, 1886 Height 3.5 mm; locality 1.	48
5	**Turritella alveata** Conrad in Wailes, 1854 Height 45 mm; locality 1.	44
6	**Turritella rivurbana** Cooke, 1926 Height 29.5 mm; locality 1.	45
7	**Turritella perdita jacksonensis** Cooke, 1926 Height 28.5 mm; locality 1.	45
8-9	**Turritella perdita** Conrad, 1865 8. Height 37 mm; locality 9. 9. Height 40.5 mm; locality 9.	45
10	**Mesalia vetusta** (Conrad, 1833) Height 7 mm; locality 11.	45
11	**Mathilda regularis** (Meyer, 1886) Height 7 mm; locality 1.	46
12	**Pliciscala pearlensis** (Meyer, 1887) Height 16.5 mm; locality 1.	51
13-14	**Cerithiella jacksonensis** (Meyer, 1886) 13. Height 28 mm; locality 1. 14. Holotype, USNM 638824; Jackson, Mississippi.	49
15	**Seila constricta** (H. C. Lea, 1841) Height 5 mm; locality 1.	48-49
16-17	**Turritella arenicola** (Conrad, 1865) 16. Height 25.5 mm; locality 9. 17. Height 24 mm; locality 9.	43-44
18, 20	**Petaloconchus transcostatus** n. sp. 18. Diameter of tube 1.5 mm, length of tubular mass 16.5 mm; locality 1 (Holotype, PRI 8232). 20. Greatest diameter of tube 2 mm, length of tubular mass 17 mm; locality 1.	46-47
19	**Serpulorbis chavani** Palmer, 1947 Greatest diameter of tube 7.5 mm, length of tubular mass 26 mm; locality 1.	47
21	**Caecum (Micranellum) alterum** Meyer, 1887 Length 2 mm; locality 11.	47

Revisions: See Addendum for references.

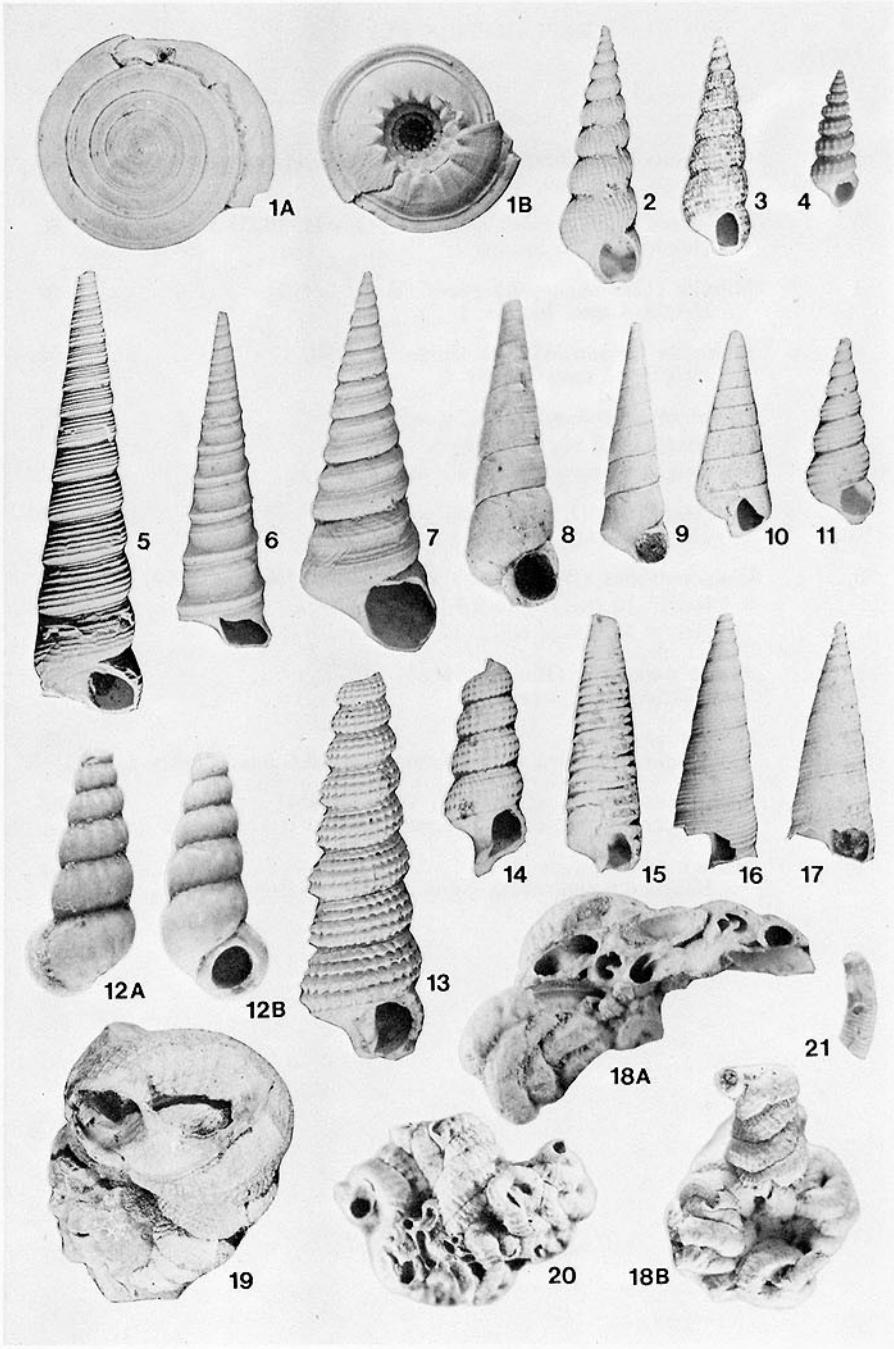
Figure 5. *Palmerella alveata* (Conrad in Wailes, 1854)

Figure 6. *Haustator rivurbana* (Cooke, 1926)

Figure 7. *Haustator perdita jacksonensis* (Cooke, 1926)

Figures 16-17. *Palmerella arenicola* (Conrad, 1865)

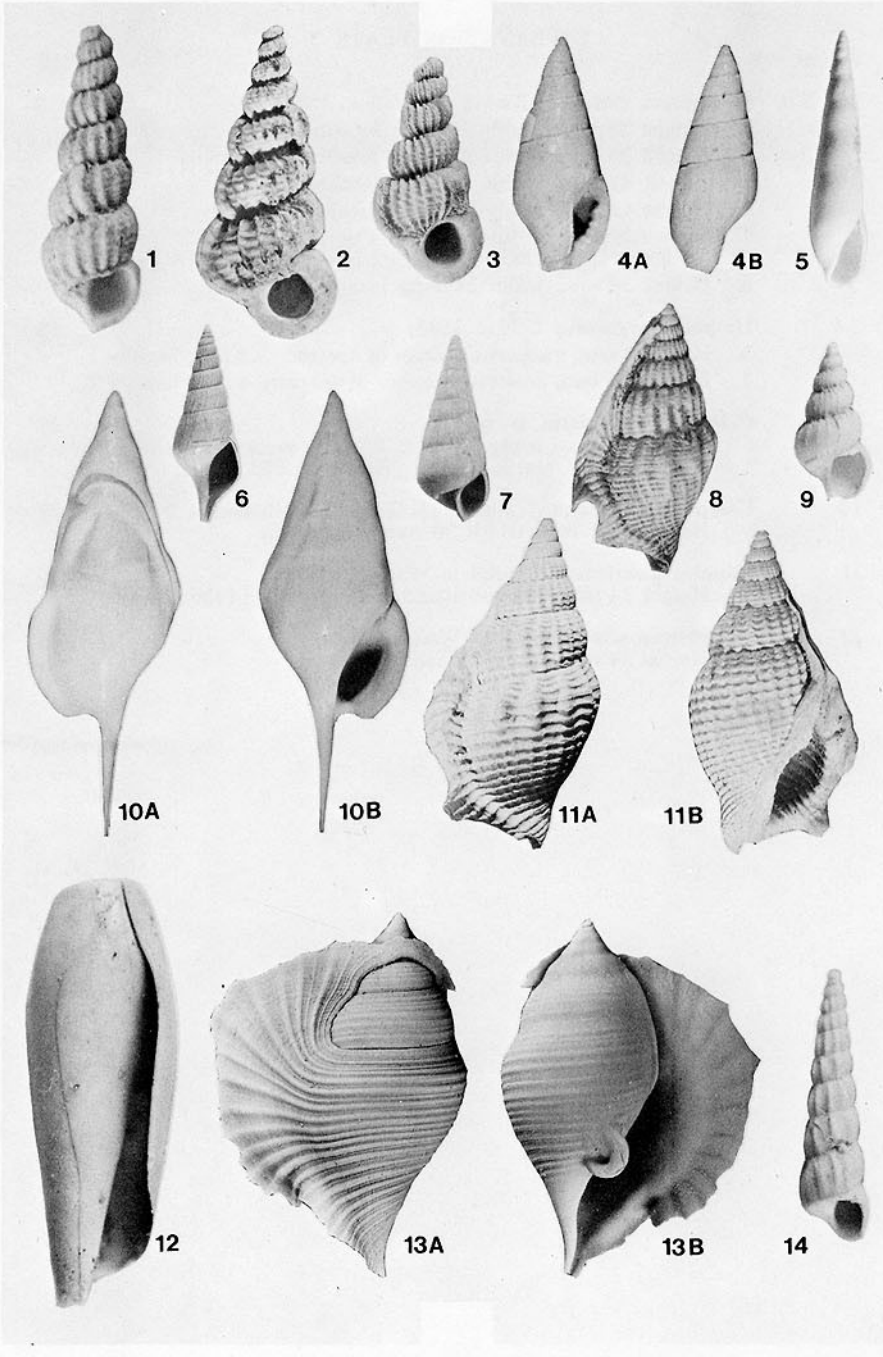
Plate 3



EXPLANATION PLATE 4

Figure		Page
1	**Cirsotrema ?** sp. Height 4 mm; locality 1.	51
2	**Cirsotrema (Coroniscala) nassulum creolum** Palmer, 1947 Height 39.5 mm; locality 2.	50-51
3	**Cirsotrema (Coroniscala) nassulum** (Conrad, 1833) Height 26 mm; locality 1.	50
4	**Mitrella (Columbellopsis) parva** (H. C. Lea, 1841) Height 4 mm; locality 1.	68
5	**Melanella jacksonensis** (de Gregorio, 1890) Height 7.5 mm; locality 1.	52
6, 10	**Calyptraphorus stamineus** (Conrad, 1856) 6. Height 22.5 mm; locality 1. 10. Height 57 mm, width 19 mm; locality 1.	54
7	**Niso umbilicata** (I. Lea, 1833) Height 5.5 mm, locality 1.	53
8, 11	**Dientomochilus (Dasyostoma) rugostomum** (Johnson, 1889) 8. Height 19 mm, width 9.5 mm; locality 1. 11. Height 23.5 mm, width 12 mm; locality 1.	53-54
9	**Acrilla unilineata** (Heilprin, 1880) Height 4 mm; locality 1.	51-52
12	**Seraphs** sp. Height of broken shell 14 mm, width 5.5 mm; locality 1.	53
13	**Platyoptera extenta** (Conrad in Wailes, 1854) Height 40 mm, width 29.5 mm; locality 1.	54-55
14	**Acirsa ? solumcostata,** n. sp. Height 5.5 mm, width 1 mm; locality 1 (Holotype, PRI 8233).	52

Plate 4



EXPLANATION PLATE 5

Figure — Page

1-2, 5-6, 7-8 **Platyoptera extenta** (Conrad in Wailes, 1854) 54-55
1. Height 38 mm, width 28 mm; locality 1.
2. Height 35 mm, width 25 mm; locality 1.
5. Height 41 mm, width 36 mm; locality 1.
6. Height 42 mm, width 34.5 mm; locality 1.
7. Same specimen as illustrated in Plate 4, figure 13. Photographed under ultraviolet light to show color pattern.
8. Height 39 mm, width 21 mm, locality 1.

3-4 **Hipponix pygmaeus** I. Lea, 1833 55
3. Height 2 mm, greatest diameter of aperture 3.5 mm; locality 1.
4. Height 2.5 mm, greatest diameter of aperture 4 mm; locality 1.

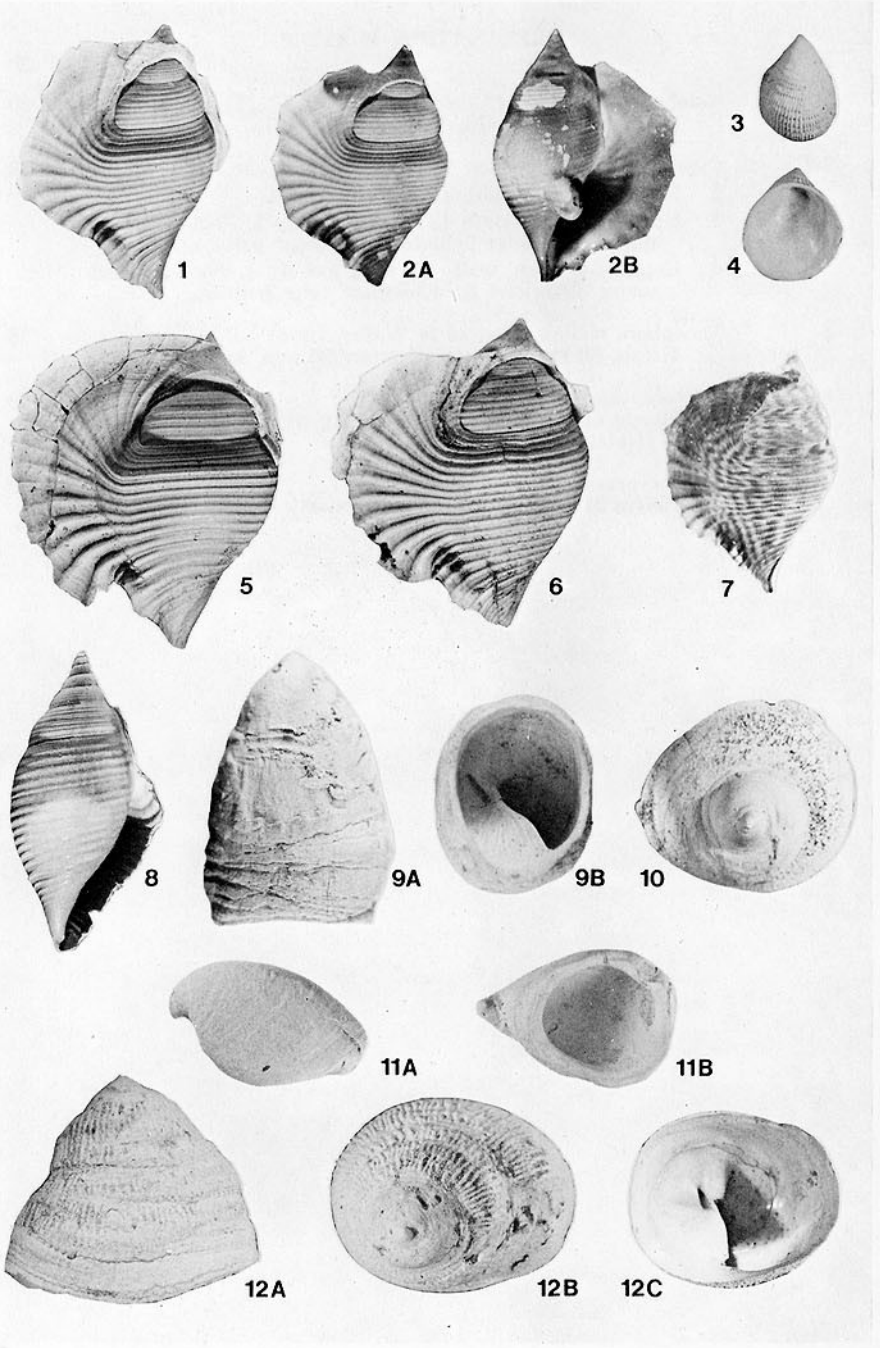
9 **Calyptraea glandaria,** n. sp. 57
Height 31 mm, greatest width 22 mm, greatest width of aperture 19 mm; locality 1 (Holotype, PRI 8234).

10 **Calyptraea (Trochita) aperta** (Solander in Brander, 1766) 56-57
Height 11.5 mm, width 30 mm; locality 1.

11 **Capulus americanus** Conrad in Wailes, 1854 56
Height 14 mm, greatest diameter of aperture 14 mm; locality 2.

12 **Calyptraea alta** (Conrad in Wailes, 1854) 57
Height 24 mm, width 27 mm; locality 1.

Plate 5



EXPLANATION PLATE 6

Figure		Page
1	**Notoluponia healeyi** (Aldrich, 1923) ..... Height 23 mm, width 16 mm; locality 1.	60
2-4	**Cypraeorbis ventripotens** (Cossmann, 1903) ..... 2. Height 21 mm, width 15 mm; locality 2. 3. Height 28 mm, width 19.5 mm; locality 1. Photographed under ultraviolet light to show color pattern. 4. Height 24.5 mm, width 17 mm; locality 1. Photographed under ultraviolet light to show color pattern.	58-59
5	**Xenophora reclusa** (Conrad in Wailes, 1854) ..... Height 20 mm, greatest diameter 35 mm, locality 2.	58
6	**Notoluponia ampla**, n. sp. ..... Height of broken specimen 55 mm, width 65 mm; locality 1 (Holotype, PRI 8236).	60
7	**Austrocypraea towncreekensis**, n. sp. ..... Height 31 mm, width 19.5 mm; locality 1 (Holotype, PRI 8235).	59

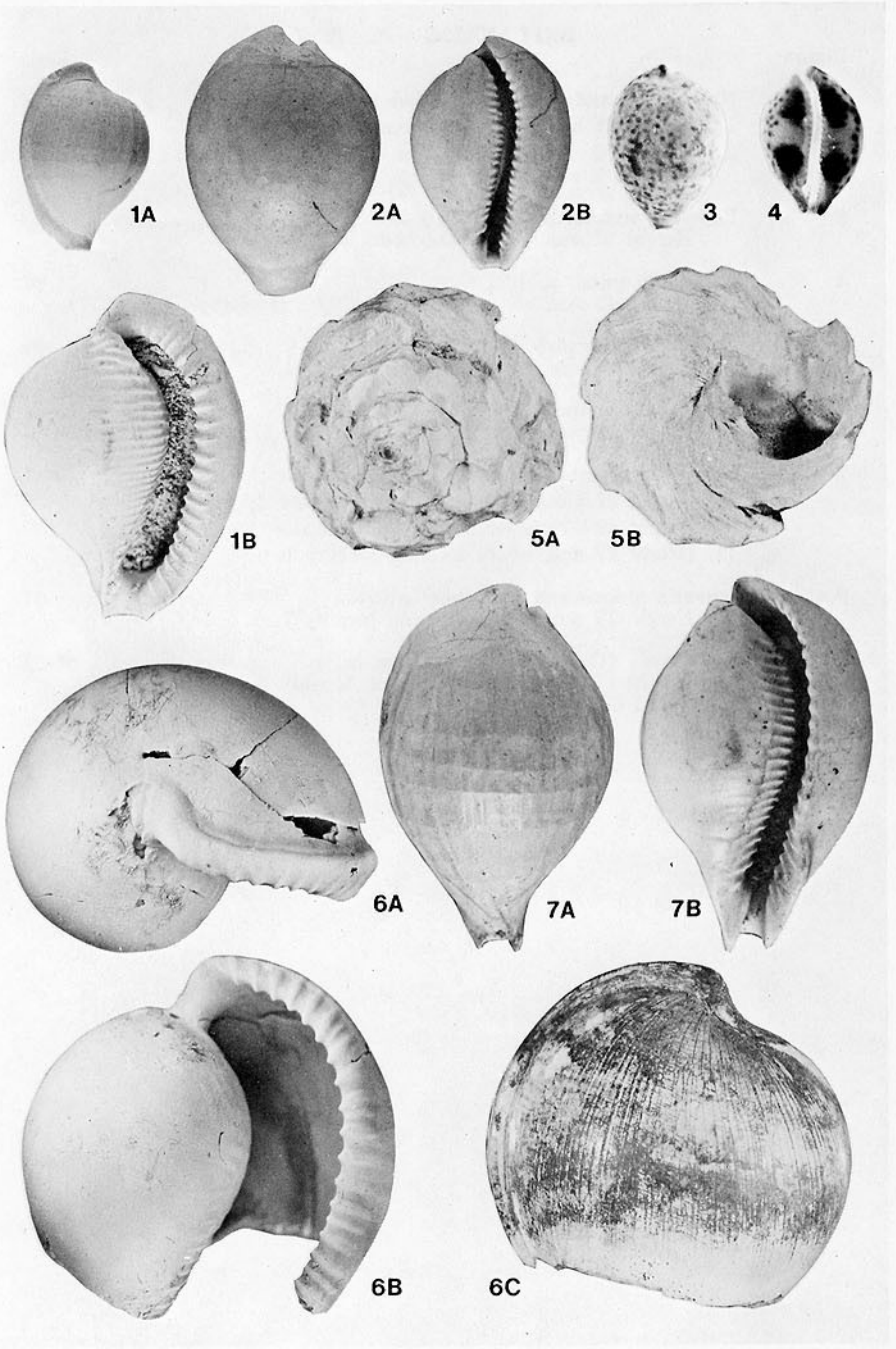
Revisions: See Addendum for references.

Figure 1. *Sulcocypraea healeyi* (Aldrich, 1923)

Figure 6. *Sphaerocypraea jacksonensis* (Johnson, 1899)

Figure 7. *Cypraeorbis towncreekensis* (Dockery, 1977)

Plate 6



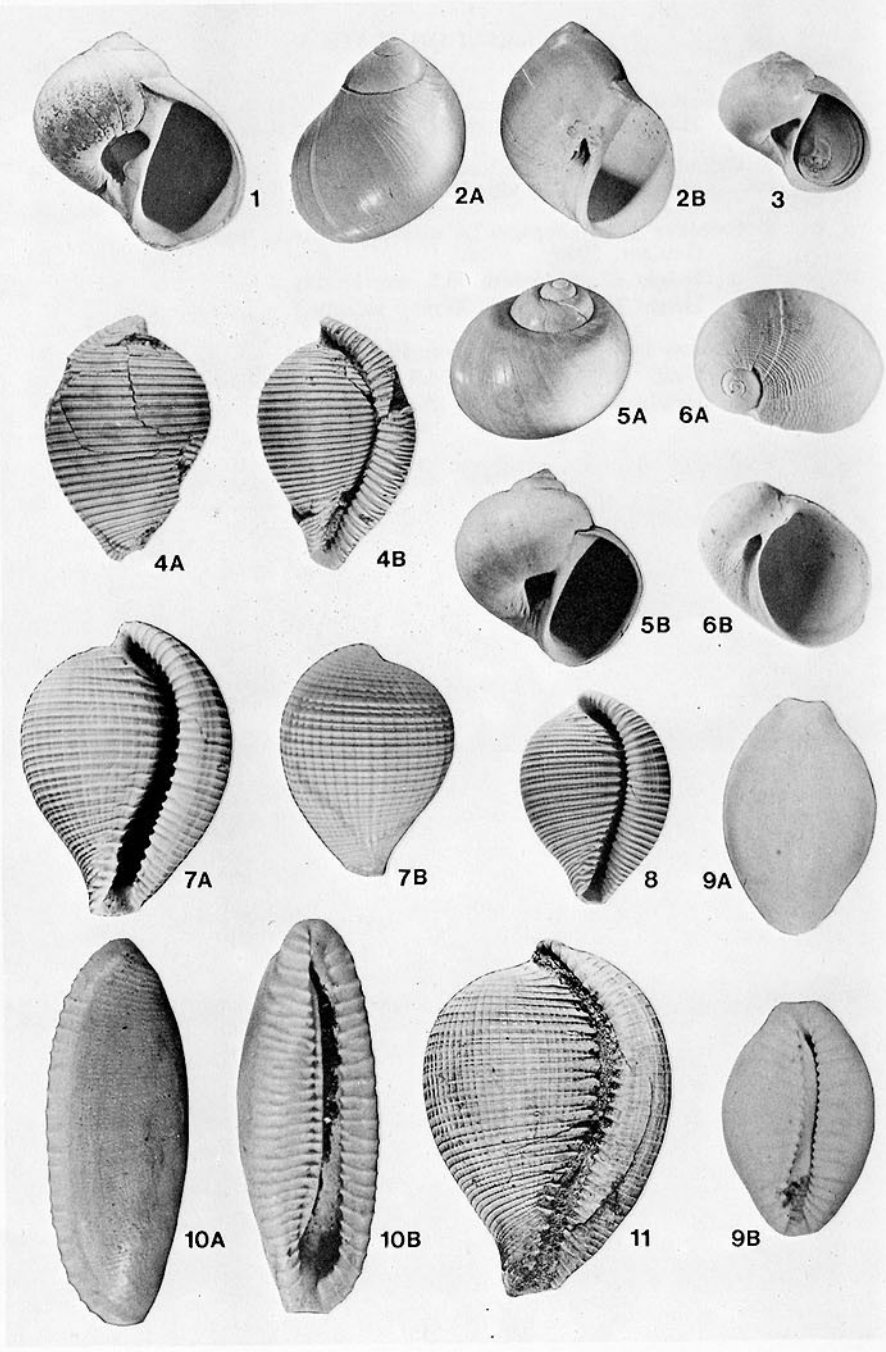
EXPLANATION PLATE 7

Figure		Page
1, 3	**Natica permunda** Conrad in Wailes, 1854	62
	1. Height 27 mm, width 52.5 mm; locality 2.	
	3. Height 18 mm, width 20 mm; height of operculum 13 mm, width 8 mm; locality 1.	
2	**Polinices weisbordi** Palmer, 1937	62-63
	Height 31 mm, width 22.5 mm; locality 1.	
4	**Cypraedia pittsi, n. sp.**	61
	Height 43 mm, width 29 mm; locality 1 (Holotype, PRI 8237).	
5	**Euspira jacksonensis** Palmer, 1947	63
	Height 26 mm, width 23 mm; locality 1.	
6	**Sinum jacksonense n. sp.**	63-64
	Height 13 mm, width 10.5 mm; locality 1 (Holotype, PRI 8239).	
7-8, 11	**Cypraedia fenestralis** Conrad in Wailes, 1854	60-61
	7. Height 32.5 mm, width 24 mm; locality 1.	
	8. Height 40.5 mm, width 29.5 mm; locality 1.	
	11. Height 47 mm, width 33 mm; locality 1.	
9	**Jenneria ludoviciana** (Johnson, 1899)	61
	Height 17 mm, width 11 mm; locality 7.	
10	**Transovula (Oxycypraea) producta, n. sp.**	61-62
	Height 15.5 mm, width 4.5 mm; locality 2 (Holotype, PRI 8238).	

Revisions: See Addendum for references.

Figure 4. *Cypraedia (Eucypraedia) multicarinata* (Dall, 1890)

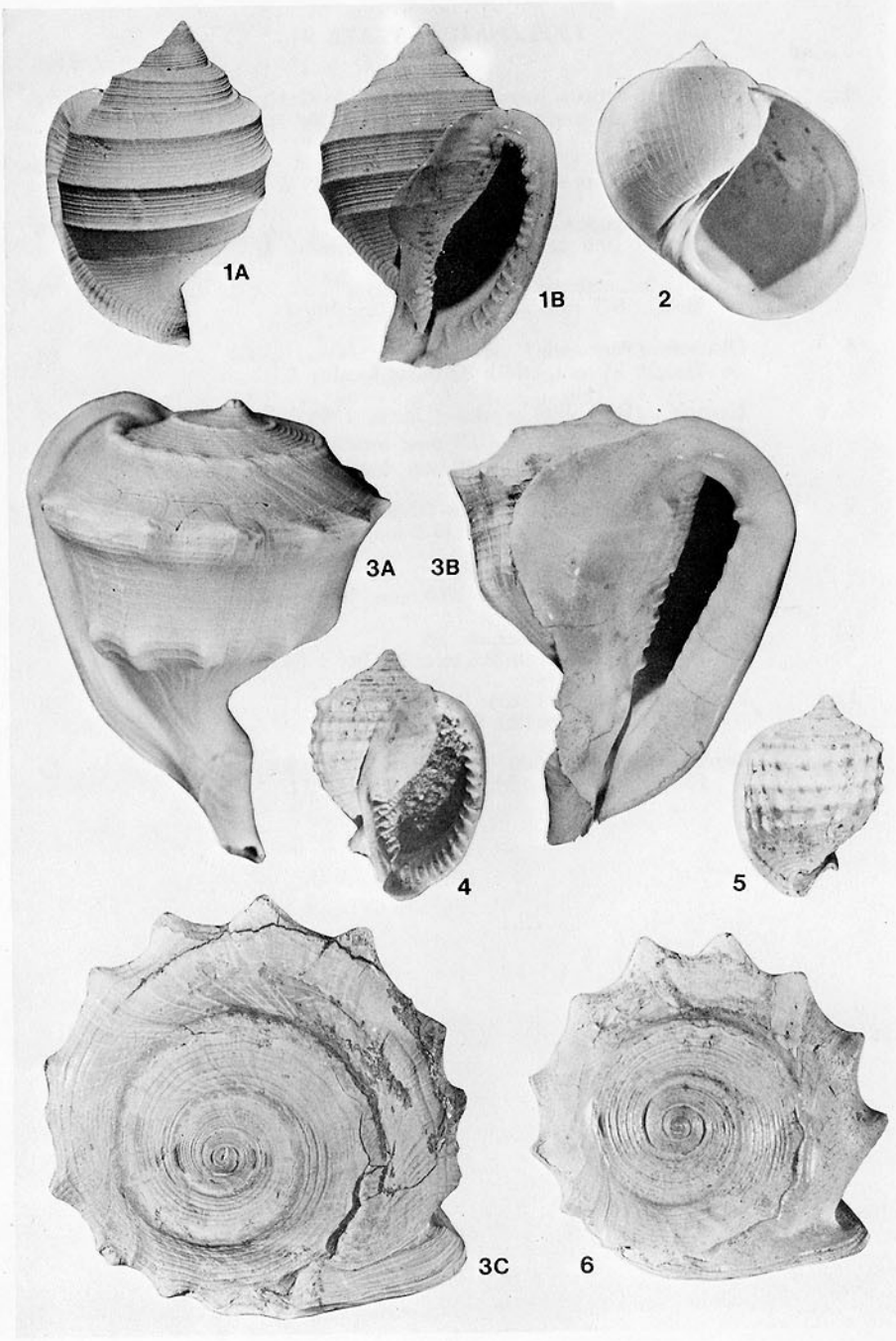
Plate 7



EXPLANATION PLATE 8

Figure		Page
1	**Galeodea petersoni** (Conrad in Wailes, 1854) ..... Height 28.5 mm, width 21 mm; locality 1.	65
2	**Globularia morgani** (Johnson, 1899) ..... Height 35 mm, width 33.3 mm; locality 1.	64
3, 6	**Galeodea (Gomphopages ?) millsapsi** Sulllivan and Gardner, 1939 ..... 3. Height 87 mm, width 59.5 mm; locality 1. 6. Height 78 mm, width 56 mm; locality 1.	65
4, 5	**Phalium taitii johnsoni** Palmer, 1947 ..... 4. Height 32.5 mm, width 24.5 mm; locality 2. 5. Height 29.5 mm, width 21 mm; locality 1.	64

Plate 8



EXPLANATION PLATE 9

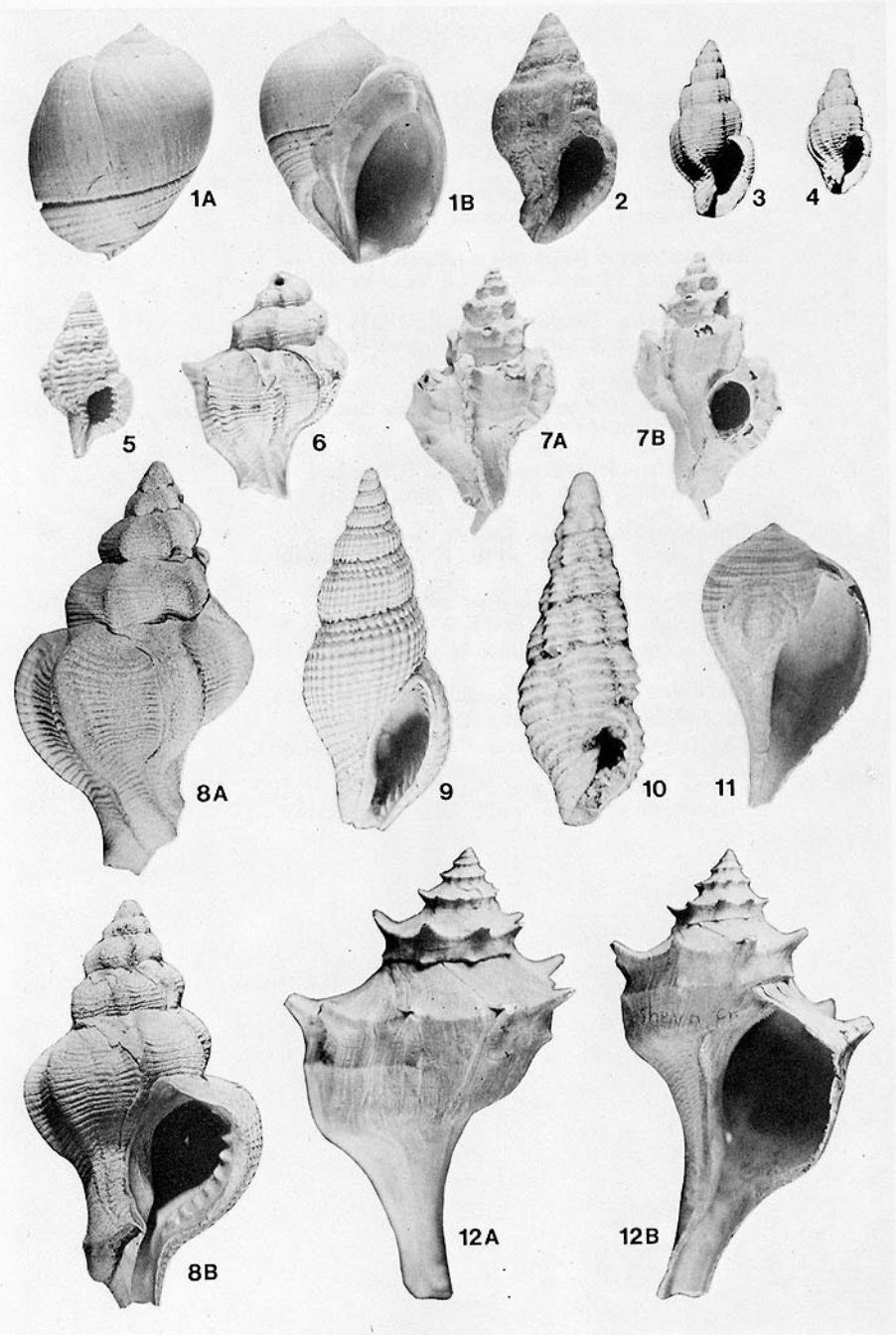
Figure		Page
1	**Pseudoliva vetusta perspectiva** Conrad in Gabb, 1860 Height 37 mm, width 29 mm; locality 1.	71
2	**Cornulina dalli** (Harris, 1894) Height 27 mm, width 10.5 mm; locality 2.	72-73
3	**Tritiaria magnocostata** (Johnson, 1899) Height 10.5 mm, width 5.5 mm; locality 1.	70
4	**Tritiaria jacksonensis** (Johnson, 1899) Height 6.5 mm, width 3.5 mm; locality 1.	70
5	**Distorsio (Personella) jacksonensis** (Meyer, 1885) Height 14 mm, width 8.5 mm; locality 1.	66
6, 8	**Hexaplex (Hexaplex) marksi** (Harris, 1894) 6. Height 29 mm, width 22 mm; locality 1. 8. Height 34 mm, width 20 mm; locality 1.	67
7	**Typhis (Rugotyphis) dentatus** Johnson, 1899 Height 32.5 mm, width 17.5 mm; locality 1.	68
9	**Metula subgracilis** Johnson, 1899 Height 15 mm, width 15.5 mm; locality 2.	69
10	**Pyramimitra quadralirata**, n. sp. Height 7 mm, width 2.5 mm; locality 1 (Holotype, PRI 8240).	72
11	**Ficus filia** (Meyer, 1885) Height 37 mm, width 22 mm; locality 1.	66
12	**Busycon (Echinofulgur) branneri** (Harris, 1894) Height 80 mm, width 46 mm; locality 11.	73

Revisions: See Addendum for references.

Figure 5. *Sassia (Personella) jacksonensis* (Meyer, 1885)

Figure 12. *Levifusus branneri* Harris, 1894

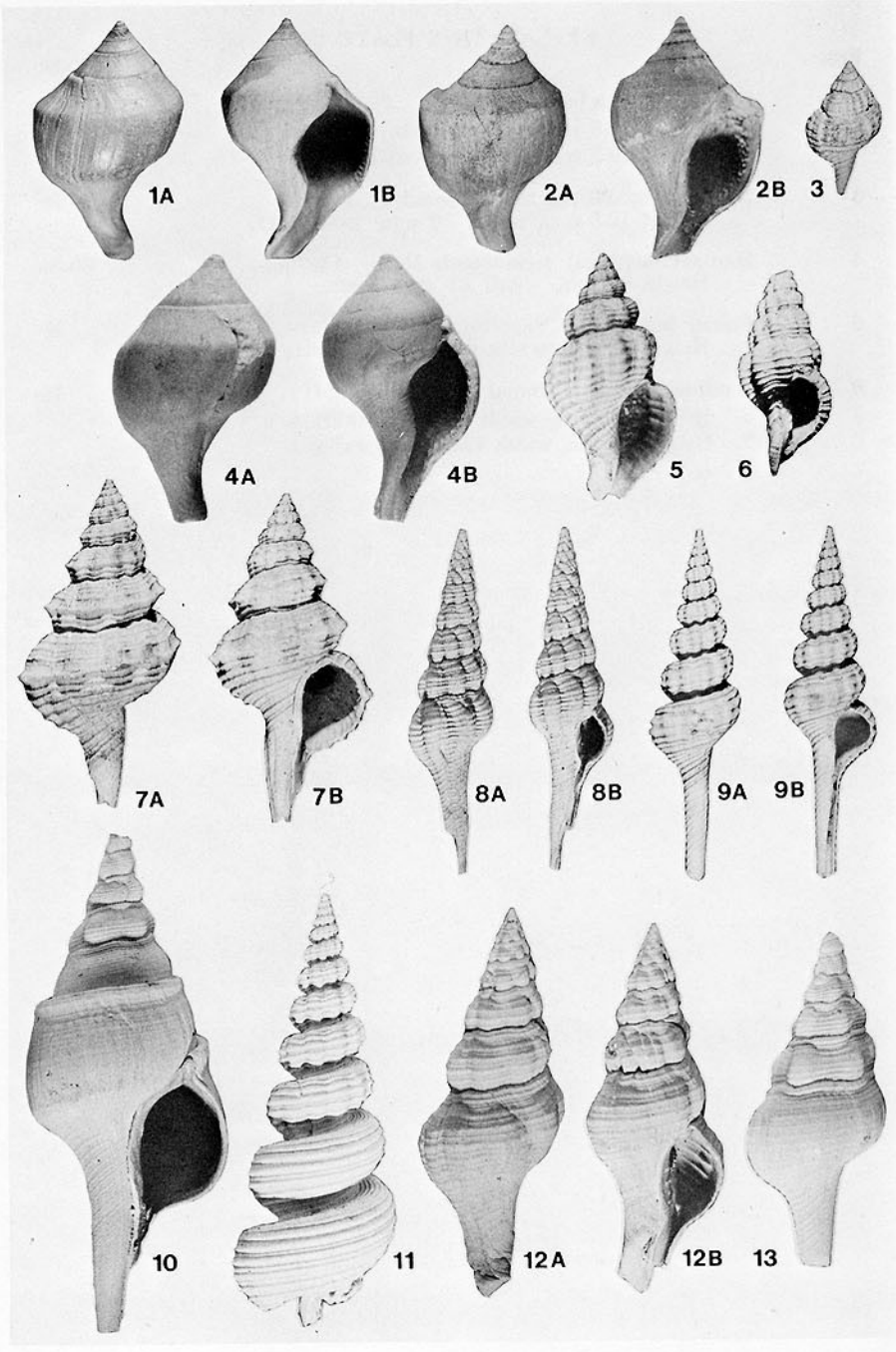
Plate 9



EXPLANATION PLATE 10

Figure		Page
1, 4	**Mazzalina inaurata oweni** (Dall, 1890)	77-78
	1. Height 31 mm, width 18.5 mm; locally 11.	
	4. Height 36 mm, width 22 mm; locality 1.	
2	**Mazzalina inaurata humerosa** Harris, 1894	78
	Height 17 mm, width 11 mm; locality 11.	
3	**Tritonoatractus pearlensis** (Aldrich, 1885)	76-77
	Height 14 mm, width 7.5 mm; locality 2.	
5	**Streptochetus limulus** (Conrad, 1833)	76
	Height 20.5 mm, width 10 mm; locality 11.	
6	**Latirus liratus**, n. sp.	75
	Height 10.5 mm, width 4.5 mm; locality 1 (Holotype, PRI 8241).	
7	**Tritonoatractus montgomeriensis** (Vaughan, 1896)	77
	Height 30 mm, width 15 mm; locality 1.	
8	**Dolicholatirus leaensis** (Harris, 1897)	76
	Height 44.5 mm, width 11.5 mm; locality 1.	
9, 11	**Fusinus insectoides** (Harris, 1897)	78
	9. Height 33.5 mm, width 9 mm; locality 1.	
	11. Height of broken shell 31 mm, width 10.5 mm; locality 1.	
10, 13	**Clavilithes humerosus** Conrad in Wailes, 1854	78
	10. Height 68 mm, width 28.5 mm; locality 1.	
	13. Height 42.5 mm, width 17.5 mm; locality 1.	
12	**Latirus humilior urbanus** Palmer, 1947	74-75
	Height 47.5 mm, width 18.5 mm; locality 1.	

Plate 10



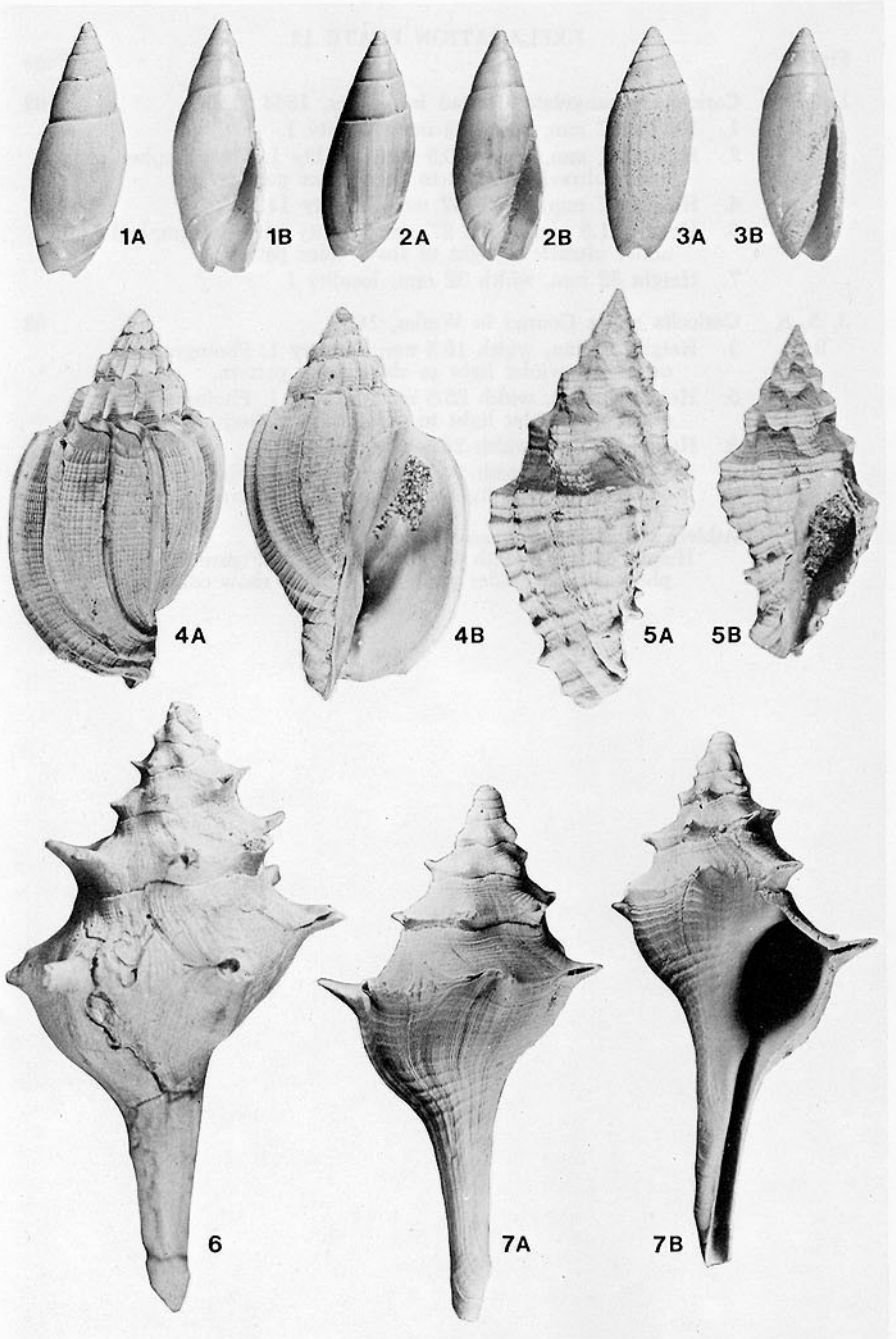
EXPLANATION PLATE 11

Figure		Page
1, 2	**Agaronia media** (Meyer, 1885)	79
	1. Height 20.5 mm, width 7 mm; locality 7.	
	2. Height 19.5 mm, width 7 mm; locality 7.	
3	**Agaronia mississippiensis** (Conrad, 1848)	79-80
	Height 18.5 mm, width 7.5 mm; locality 11.	
4	**Harpa (Eocithara) jacksonensis** Harris, 1897	80-81
	Height 49 mm, width 24 mm; locality 1.	
5	**Vasum humerosum** Vaughan, 1896	80
	Height 49 mm, width 24 mm; locality 1.	
6, 7	**Papillina dumosa** (Conrad in Wailes, 1854)	79
	6. Height 122 mm, width 52 mm; locality 1.	
	7. Height 90 mm, width 45.5 mm; locality 1.	

Revisions: See Addendum for references.

Figure 3. *Oliva (Strephonella) affluens* (Casey, 1903)

Plate 11



EXPLANATION PLATE 12

Figure — Page

1, 2, 4, 6, 7 — **Caricella subangulata** Conrad in Wailes, 1854 82

1. Height 67 mm, width 42 mm; locality 1.
2. Height 51 mm, width 30.5 mm; locality 1. Photographed under ultraviolet light to show color pattern.
4. Height 57 mm, width 37 mm; locality 11.
6. Height 41.5 mm, width 27 mm; locality 11. Photographed under ultraviolet light to show color pattern.
7. Height 52 mm, width 32 mm; locality 1.

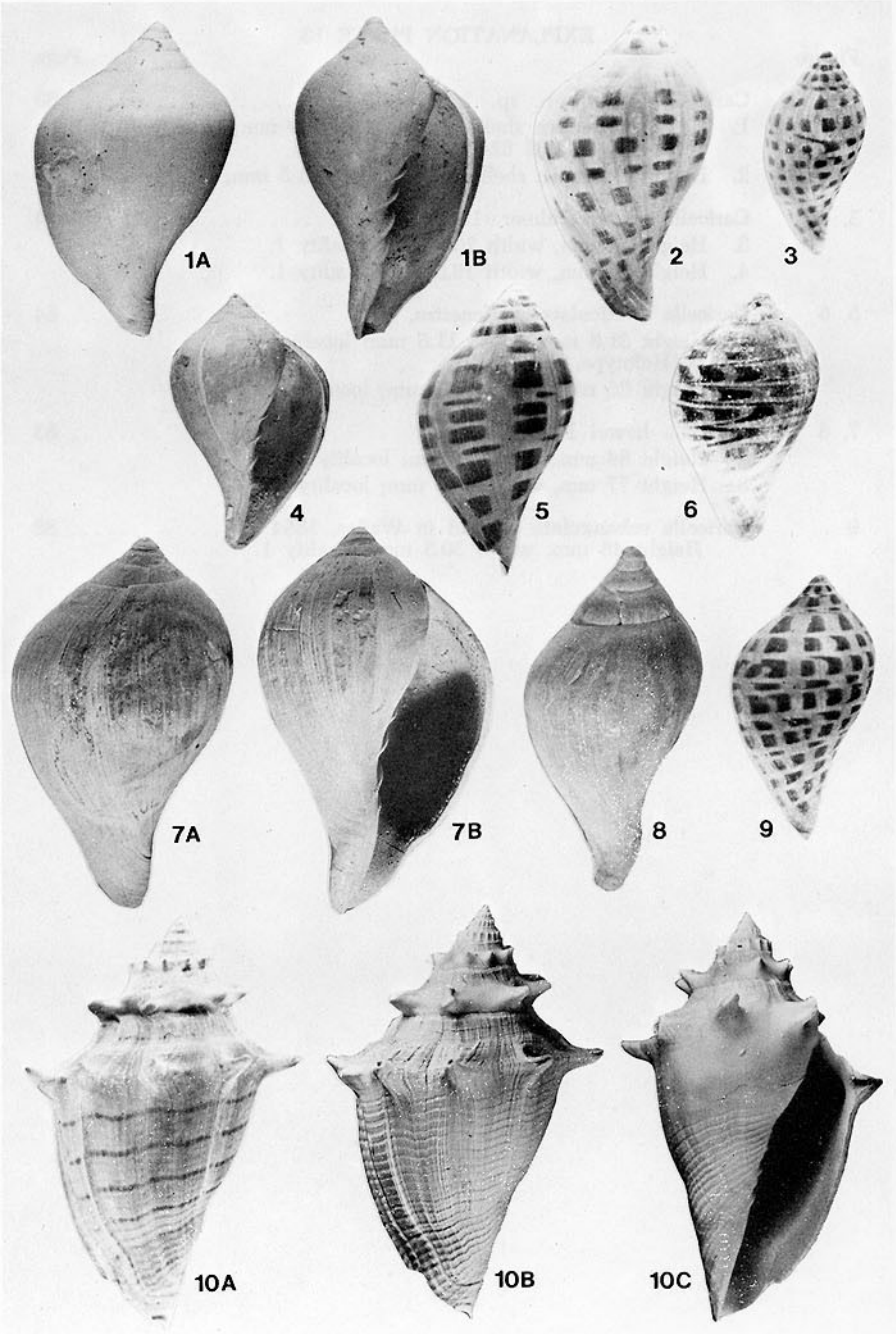
3, 5, 8, 9 — **Caricella polita** Conrad in Wailes, 1854 82

3. Height 34 mm, width 16.5 mm; locality 1. Photographed under ultraviolet light to show color pattern.
5. Height 48 mm, width 25.5 mm; locality 1. Photographed under ultraviolet light to show color pattern.
8. Height 50 mm, width 26.5 mm; locality 1.
9. Height 44 mm, width 24.5 mm; locality 1. Photographed under ultraviolet light to show color pattern.

10 — **Athleta symmetricus** (Conrad in Wailes, 1854) 81

Height 66 mm, width 43 mm; locality 1. Figure 10C photographed under ultraviolet light to show color pattern.

Plate 12



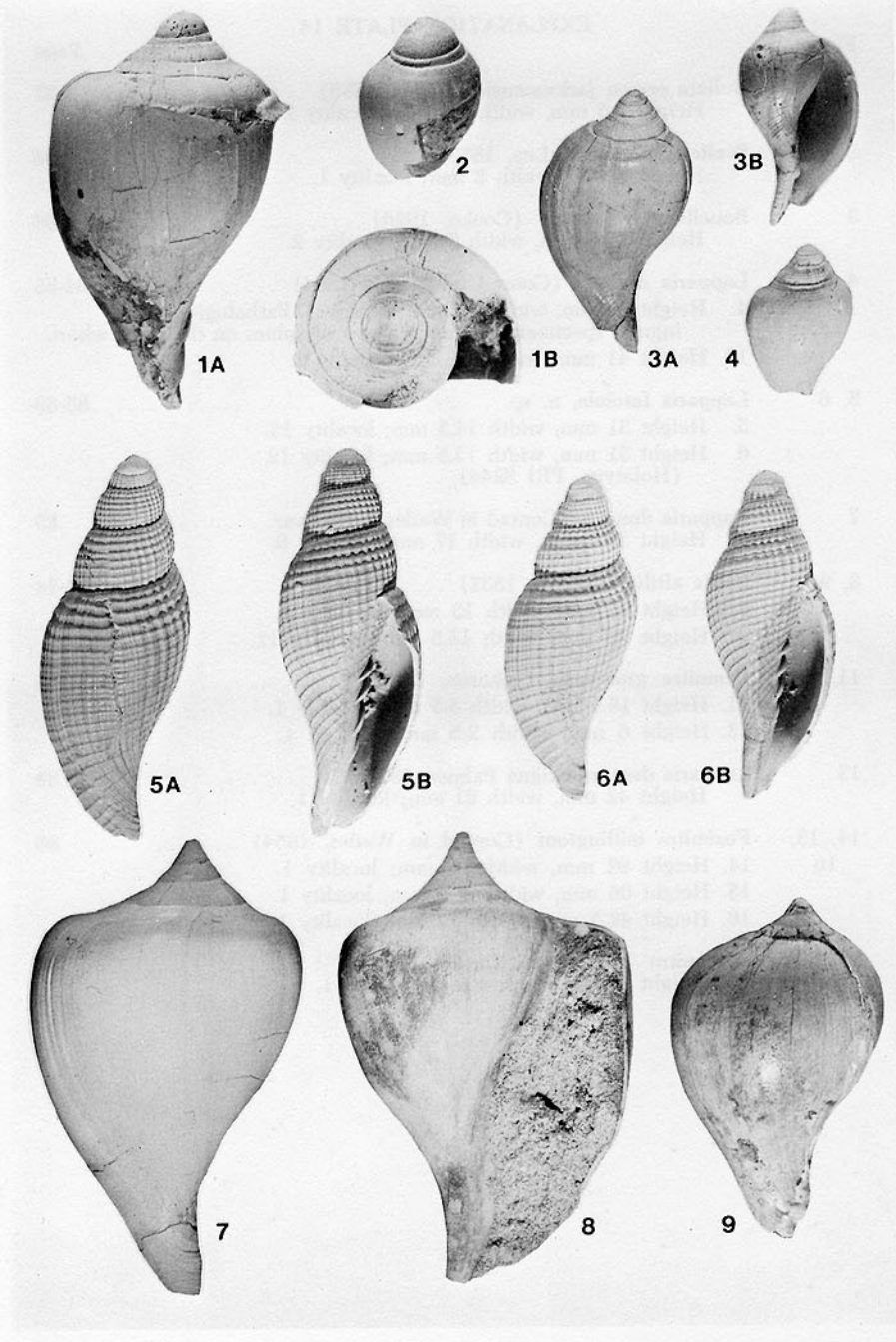
EXPLANATION PLATE 13

Figure		Page
1, 2	**Caricella giganta**, n. sp.	83
	1. Height of broken shell 70 mm, width 39 mm; locality 1 (Holotype, PRI 8242).	
	2. Height of broken shell 28 mm, width 21.5 mm; locality 1.	
3, 4	**Caricella turneri** Palmer, 1947	83-84
	3. Height 36 mm, width 20.5 mm; locality 1.	
	4. Height 23 mm, width 16.5 mm; locality 1.	
5, 6	**Caricella (Reticulacella) fenestra**, n. sp.	84
	5. Height 31.5 mm, width 11.5 mm; locality 1 (Holotype, PRI 8243).	
	6. Height 26 mm, width 10.5 mm; locality 1.	
7, 8	**Caricella howei** Palmer, 1974	83
	7. Height 84 mm, width 49 mm; locality 1.	
	8. Height 77 mm, width 49.5 mm; locality 1.	
9	**Caricella subangulata** Conrad in Wailes, 1854	82
	Height 48 mm, width 30.5 mm; locality 1.	

Revisions: See Addendum for references.

Figures 5-6. *Caricella (Atraktus) fenestra* Dockery, 1977

Plate 13



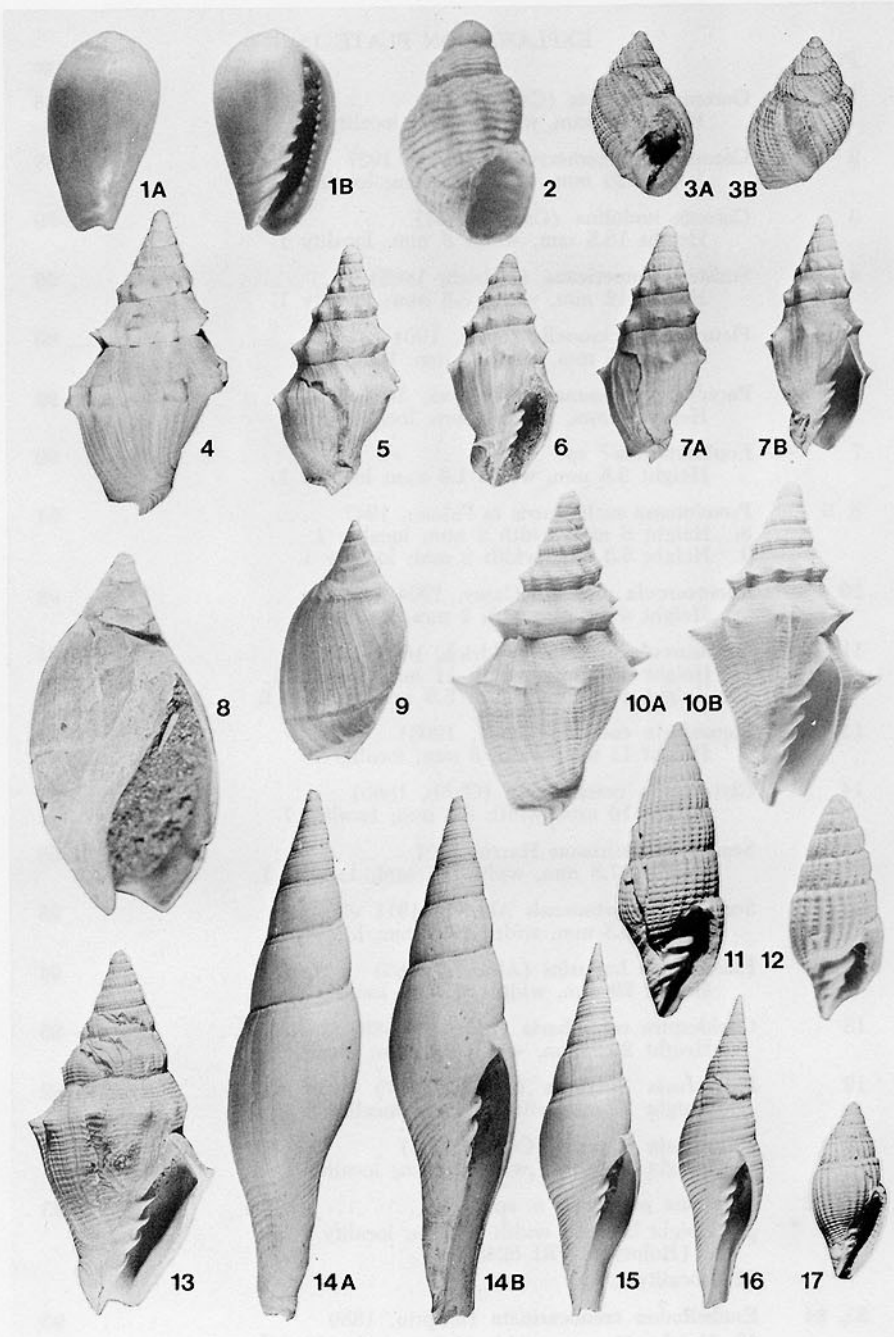
EXPLANATION PLATE 14

Figure		Page
1	**Bullata semen jacksonensis** (Meyer, 1885) Height 5.5 mm, width 3.5 mm; locality 2.	87
2	**Sveltella parva** (I. Lea, 1833) Height 3 mm, width 2 mm; locality 1.	86
3	**Bonellitia jacksonica** (Cooke, 1926) Height 12.5 mm, width 7 mm; locality 2.	86
4, 10	**Lapparia dumosa** (Conrad in Wailes, 1854) 4. Height 39 mm, width 22 mm; locality 1. Pathologic or injured specimen with double row of spines on the body whorl. 10. Height 41 mm, width 24 mm; locality 1.	84-85
5, 6	**Lapparia fasciola**, n. sp. 5. Height 31 mm, width 14.5 mm; locality 12. 6. Height 31 mm, width 13.5 mm; locality 12 (Holotype, PRI 8244).	85-86
7	**Lapparia dumosa** (Conrad in Wailes, 1854) var. Height 39.5 mm, width 17 mm; locality 9.	85
8, 9	**Bullia altilis** (Conrad, 1832) 8. Height 25 mm, width 13 mm; locality 11. 9. Height 29 mm, width 15.5 mm; locality 11.	73-74
11, 12	**Uromitra grantensis** (Johnson, 1899) 11. Height 15.5 mm, width 5.5 mm; locality 1. 12. Height 6 mm, width 2.5 mm; locality 1.	87-88
13	**Lapparia dumosa exigua** Palmer, 1937 Height 42 mm, width 21 mm; locality 1.	85
14, 15, 16	**Fusimitra millingtoni** (Conrad in Wailes, 1854) 14. Height 92 mm, width 23 mm; locality 1. 15. Height 66 mm, width 18.5 mm; locality 1. 16. Height 42.5 mm, width 12 mm; locality 1.	88
17	**Conomitra jacksonensis** Cooke, 1926 Height 9 mm, width 4 mm; locality 1.	88

Revisions: See Addendum for references.

Figures 14-16. *Mitra (Fusimitra) millingtoni* (Conrad *in* Wailes, 1854)

Plate 14



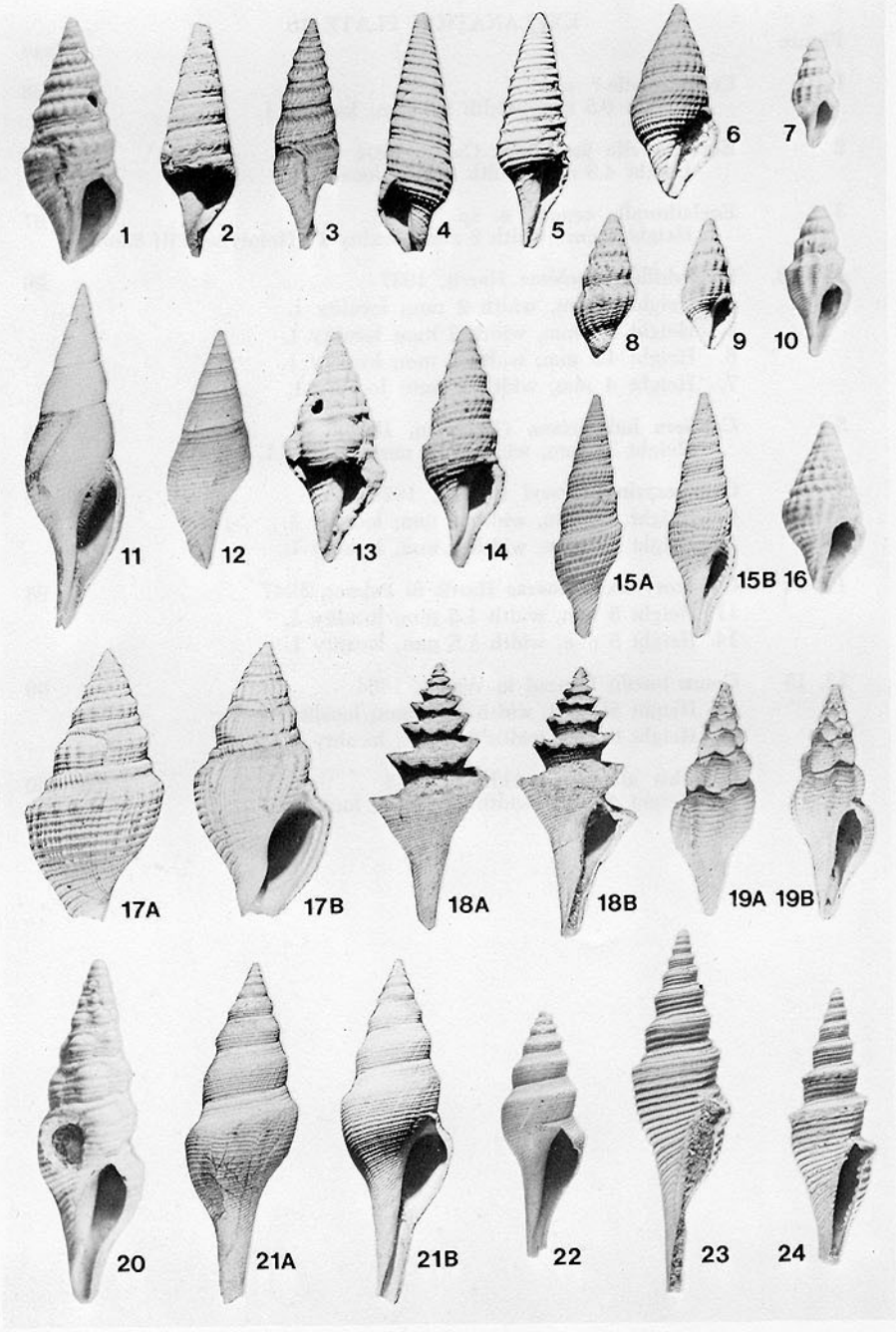
EXPLANATION PLATE 15

Figure		Page
1	**Coronia conjuncta** (Casey, 1904) Height 7.5 mm, width 3 mm; locality 1.	88
2	**Coronia montgomeryensis** Harris, 1937 Height 16 mm, width 5.5 mm; locality 1.	89
3	**Coronia nodulina** (Casey, 1904) Height 18.5 mm, width 5 mm; locality 1.	88-89
4	**Sinistrella americana** (Aldrich, 1885) Height 12 mm, width 3.5 mm; locality 1.	90
5	**Pleuroliria jacksonella** Casey, 1904 Height 10 mm, width 3 mm; locality 1.	90
6	**Paradrillia jacksonensis** (Meyer, 1886) Height 7 mm, width 3 mm; locality 1.	92
7	**Eopleurotoma** ? sp. Height 3.5 mm, width 1.5 mm; locality 1.	90
8, 9	**Pseudotoma axeli** Harris in Palmer, 1947 8. Height 6 mm, width 2 mm; locality 1. 9. Height 5.5 mm, width 2 mm; locality 1.	94
10	**Microsurcula nucleola** Casey, 1904 var. Height 4.5 mm, width 2 mm; locality 1.	98
11, 12	**Hemisurcula perexilis** (Aldrich, 1886) 11. Height 38.5 mm, width 11 mm; locality 1. 12. Height 17.5 mm, width 5.5 mm; locality 2.	93-94
13	**Pleurofusia collaris** (Casey, 1903) Height 11 mm, width 5 mm; locality 1.	92
14	**Glyptotoma crassiplicata** (Gabb, 1860) Height 10 mm, width 3.5 mm; locality 1.	91
15	**Scobinella louisianae** Harris, 1937 Height 27.5 mm, width 7.5 mm; locality 1.	95-96
16	**Scobinella newtonensis** Aldrich, 1911 var. Height 5.5 mm, width 2.75 mm; locality 1.	95
17	**Pseudotoma heilprini** (Aldrich, 1885) Height 29 mm, width 14 mm; locality 1.	94
18	**Cochlespira columbaria** (Aldrich, 1886) Height 20.5 mm, width 9.5 mm; locality 2.	95
19	**Pleurofusia fluctuosa** (Harris, 1937) Height 17 mm, width 6 mm; locality 2.	91-92
20	**Pleurofusia hilgardi** (Casey, 1903) Height 10.5 mm, width 3 mm; locality 1.	91
21, 22	**Apiotoma palmerae**, n. sp. 21. Height 36 mm, width 12 mm; locality 1 (Holotype, PRI 8245). 22. Locality 1.	92-93
23, 24	**Eucheilodon crenocarinata** Heilprin, 1880 23. Height 41 mm, width 11.5 mm; locality 1. 24. Height 31.5 mm, width 10 mm; locality 1.	93

Revisions: See Addendum for references.

Figures 11-12. *Sullivania perexilis* (Aldrich, 1886)

Plate 15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EXPLANATION PLATE 16

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1	**Eoclathurella ?** sp. Height 6.5 mm, width 2.5 mm; locality 1.	98
2	**Eoclathurella jacksonica** Casey, 1904 Height 4.5 mm, width 2 mm; locality 1.	97
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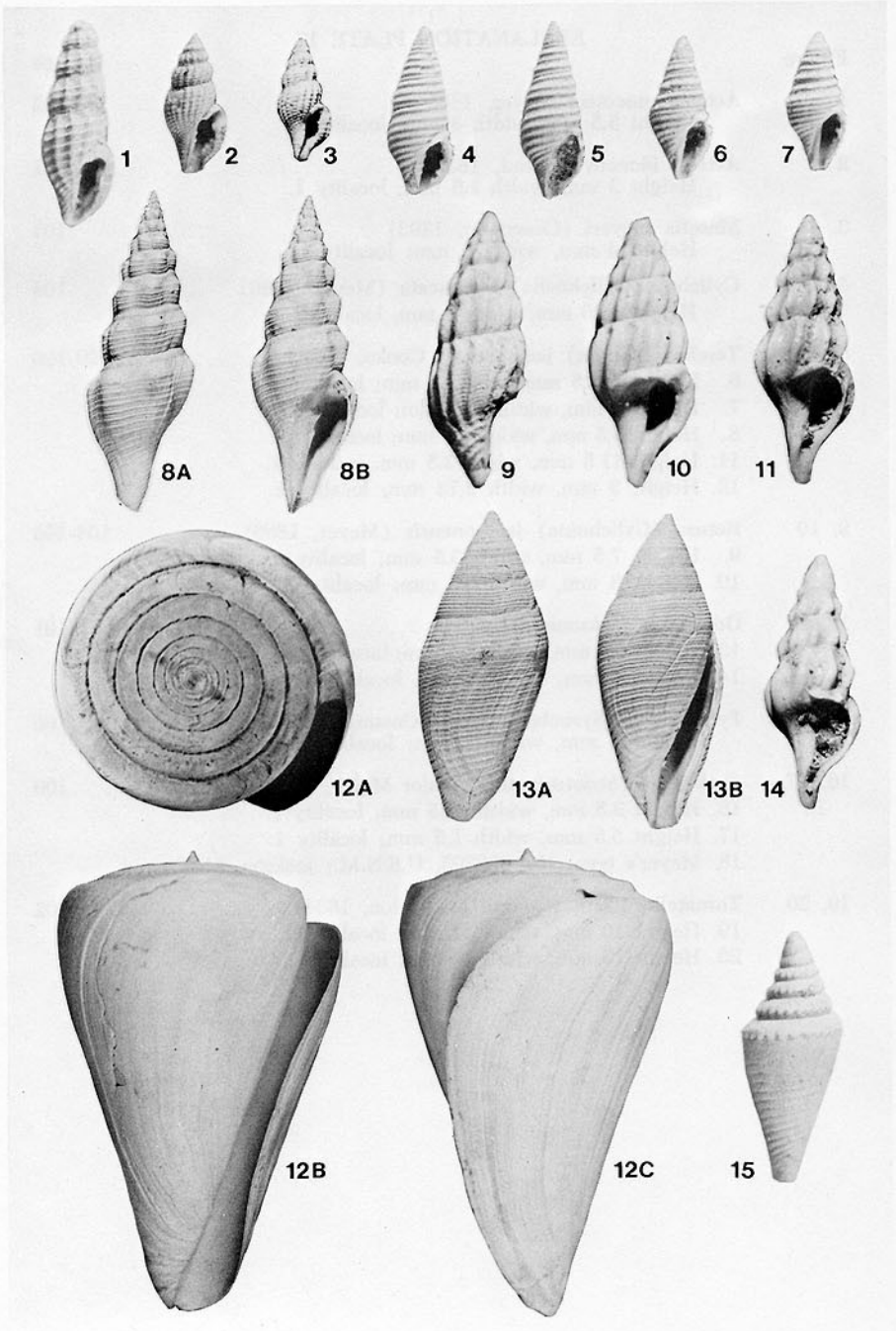
9, 10	**Cymatosyrinx dorseyi** (Cooke, 1926) 9. Height 5.5 mm, width 2 mm; locality 1. 10. Height 5.5 mm, width 2 mm; locality 1.	98
11, 14	**Cymatosyrinx palmerae** Harris in Palmer, 1947 11. Height 5 mm, width 1.5 mm; locality 1. 14. Height 5 mm, width 1.5 mm; locality 1.	98
12, 15	**Conus tortilis** Conrad in Wailes, 1854 12. Height 88 mm, width 54.5 mm; locality 1. 15. Height 6 mm, width 2.5 mm; locality 1.	99
13	**Conorbis alatoideus** Aldrich, 1885 Height 44 mm, width 17.5 mm; locality 1.	99

Plate 16



EXPLANATION PLATE 17

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1	**Acteon annectens** Meyer, 1885 Height 5.5 mm, width 3 mm; locality 1.	101-102
2	**Acteon idoneus** Conrad, 1833 Height 3 mm, width 1.5 mm; locality 1.	101
3, 4	**Mnestia meyeri** (Cossmann, 1893) Height 4 mm, width 2 mm; locality 1.	103
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13, 14	**Odostomia jacksonensis,** n. sp. 13. Height 5.5 mm, width 2.5 mm; locality 1 (Holotype, PRI 8247). 14. Height 5 mm, width 2 mm; locality 1.	101
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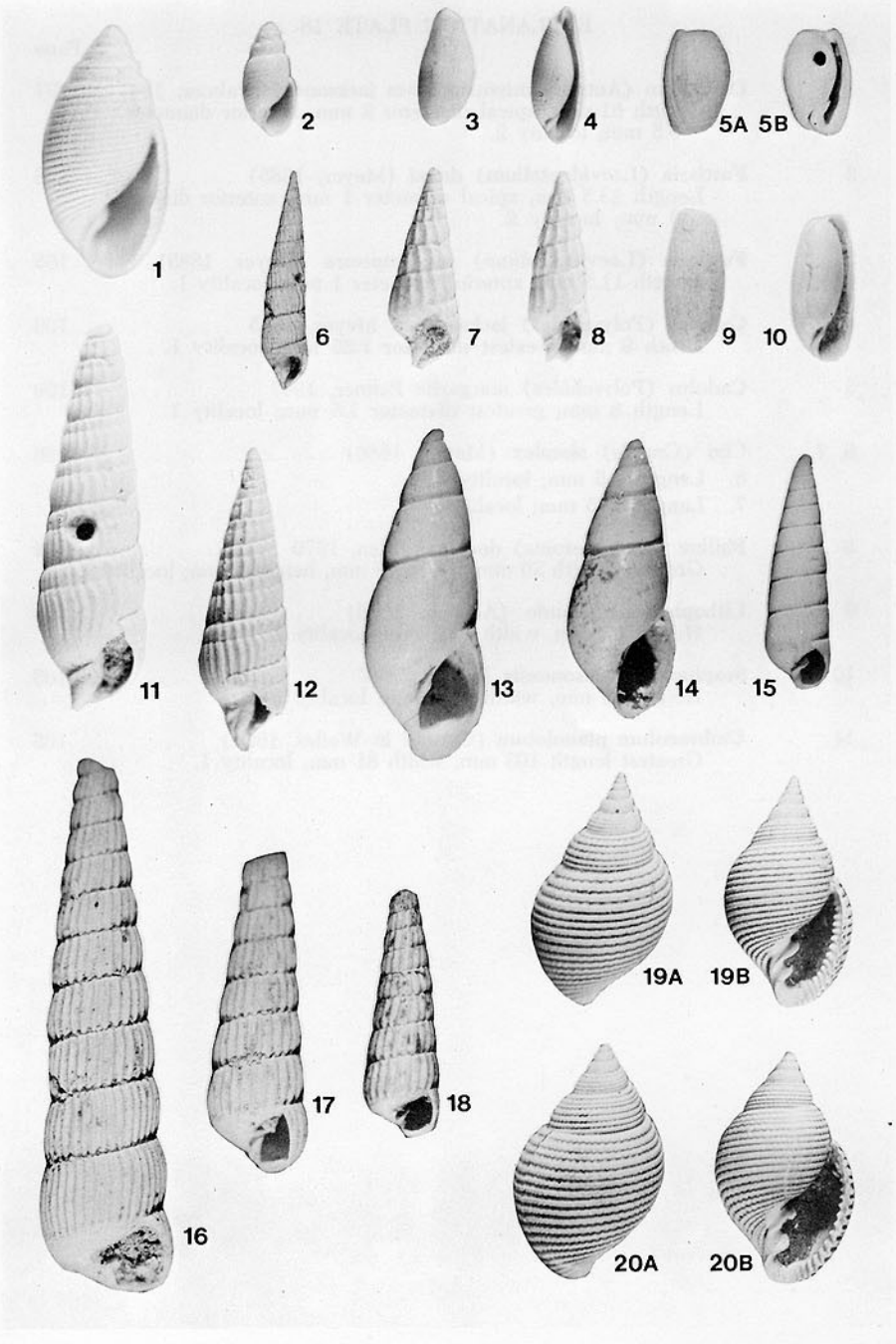
16, 17, 18	**Turbonilla (Strioturbonilla) major** Meyer, 1887 16. Height 9.5 mm, width 2.25 mm; locality 1. 17. Height 5.5 mm, width 1.5 mm; locality 1. 18. Meyer's type, No. 638895, U.S.N.M.; Jackson, Mississippi.	100
19, 20	**Tornatellaea lata** (Conrad in Morton, 1834) 19. Height 19 mm, width 11 mm; locality 7. 20. Height 19 mm, width 12 mm; locality 7.	102

Plate 17



EXPLANATION PLATE 18

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1	**Dentalium (Antalis) mississippiense jacksonense** Palmer, 1947. Length 61 mm, apical diameter 2 mm, anterior diameter 6.5 mm; locality 2.	107
2	**Fustiaria (Laevidentalium) danai** (Meyer, 1885). Length 23.5 mm, apical diameter 1 mm, anterior diameter 3 mm; locality 2.	108
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4	**Cadulus (Polyschides) jacksonensis** Meyer, 1885. Lenth 9 mm, greatest diameter 1.25 mm; locality 1.	109
5	**Cadulus (Polyschides) margarita** Palmer, 1947. Length 8 mm, greatest diameter 1.5 mm; locality 1.	109
6, 7	**Clio (Creseis) simplex** (Meyer, 1886). 6. Length 4.5 mm; locality 1. 7. Length 3.75 mm; locality 1.	106
8	**Philine (Megistostoma) dockeryi** Allen, 1970. Greatest length 20 mm, width 16 mm, height 5 mm; locality 2.	104
9	**Lithophysema grande** (Aldrich, 1886). Height 62 mm, width 51.5 mm; locality 1.	103
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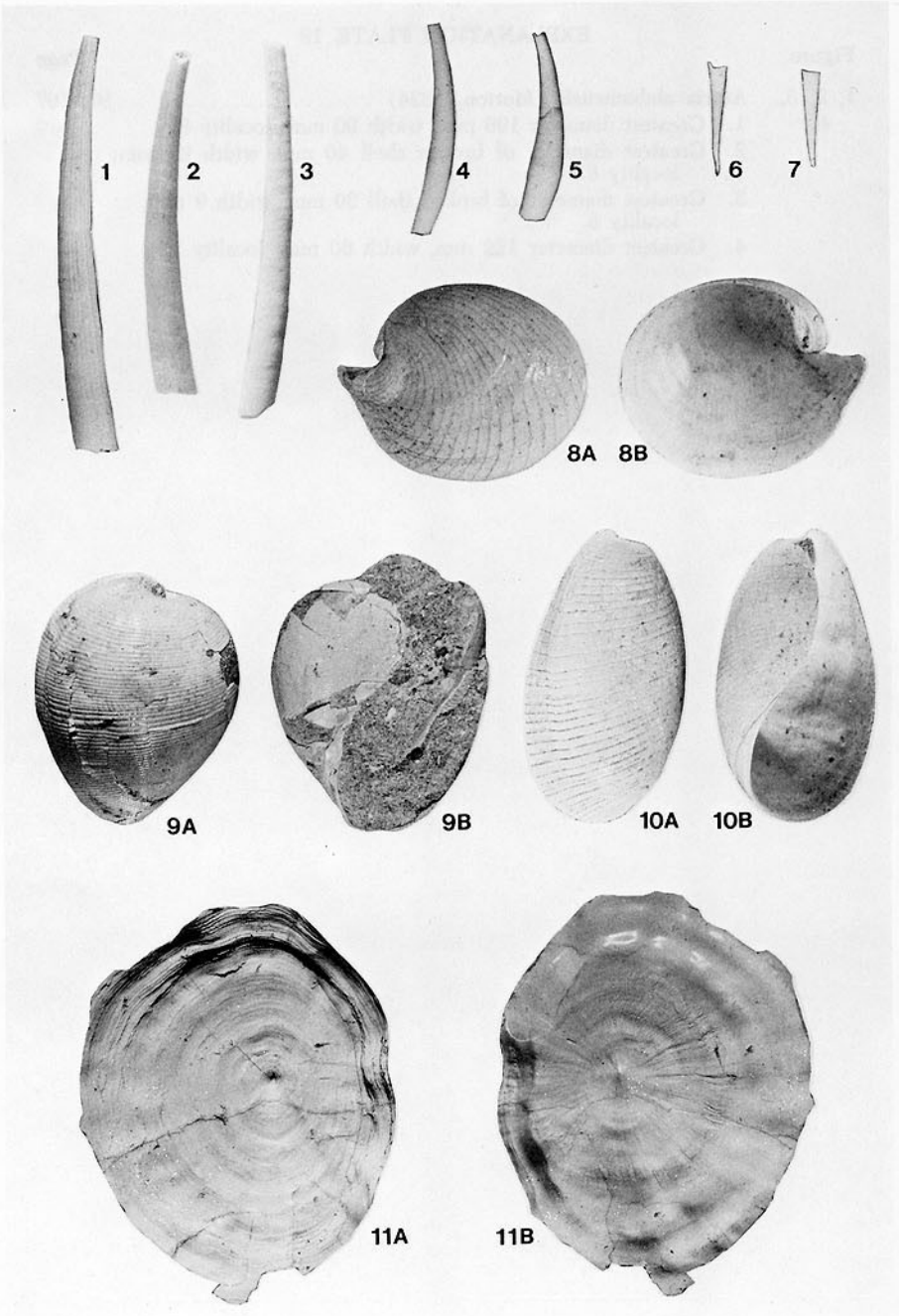
11	**Umbraculum planulatum** (Conrad in Wailes, 1854). Greatest length 103 mm, width 81 mm; locality 1.	105

Revisions: See Addendum for references.

Figures 6-7. *Creseis simplex* (Meyer, 1886)

Plate 18



EXPLANATION PLATE 19

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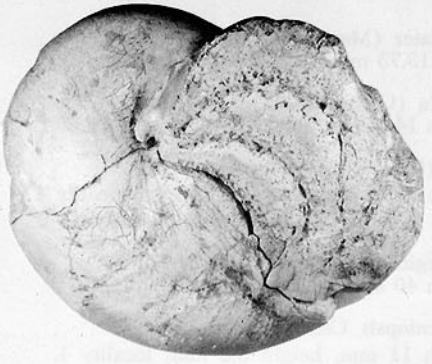
1, 2, 3, 4	**Aturia alabamensis** (Morton, 1834)	106-107

1. Greatest diameter 196 mm, width 90 mm; locality 8.
2. Greatest diameter of broken shell 40 mm, width 25 mm; locality 8.
3. Greatest diameter of broken shell 20 mm, width 9 mm; locality 8.
4. Greatest diameter 122 mm, width 60 mm; locality 1.

Plate 19



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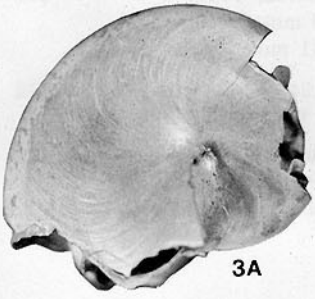

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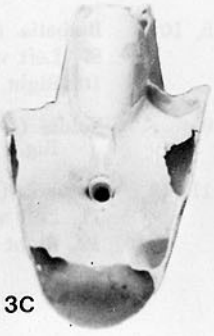

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1	**Yoldia (Calorhadia) mater** (Meyer, 1885) ..... Left valve; length 13.75 mm, height 5 mm; locality 7.	111
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6, 7	**Nucula (Nucula) spheniopsis** Conrad, 1865 ..... 6. Right valve; length 11 mm, height 8.5 mm; locality 1. 7. Left valve; length 11 mm, height 8.5 mm; locality 1.	110
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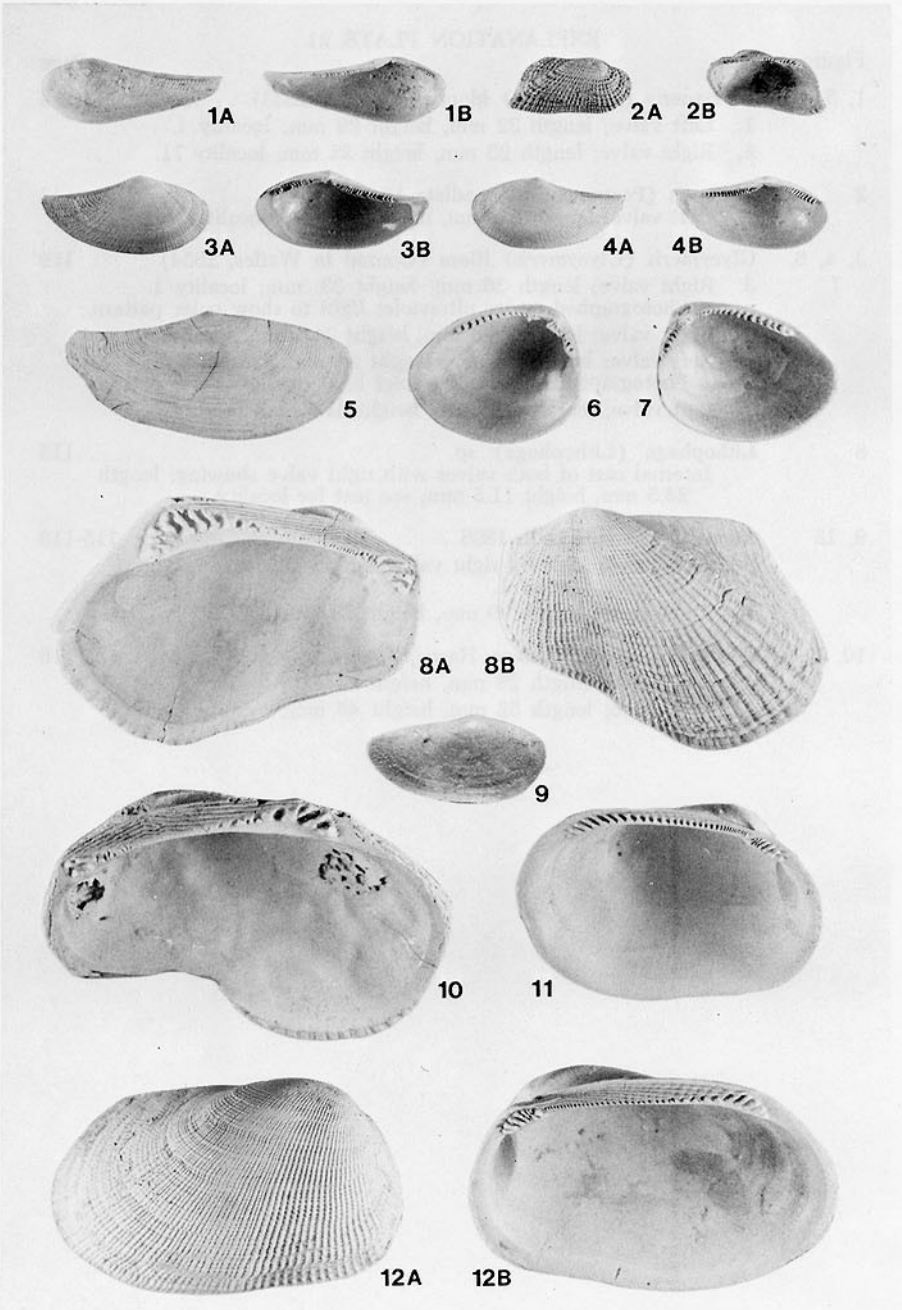
Plate 20



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1, 5	**Glycymeris (Glycymeris) idonea** (Conrad, 1833)	113-114
	1. Left valve; length 32 mm, height 29 mm; locality 1.	
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	6. Left valve; length 33 mm, height 32 mm; locality 1. Photographed under ultraviolet light to show color pattern.	
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8	**Lithophaga (Lithophaga)** sp.	115
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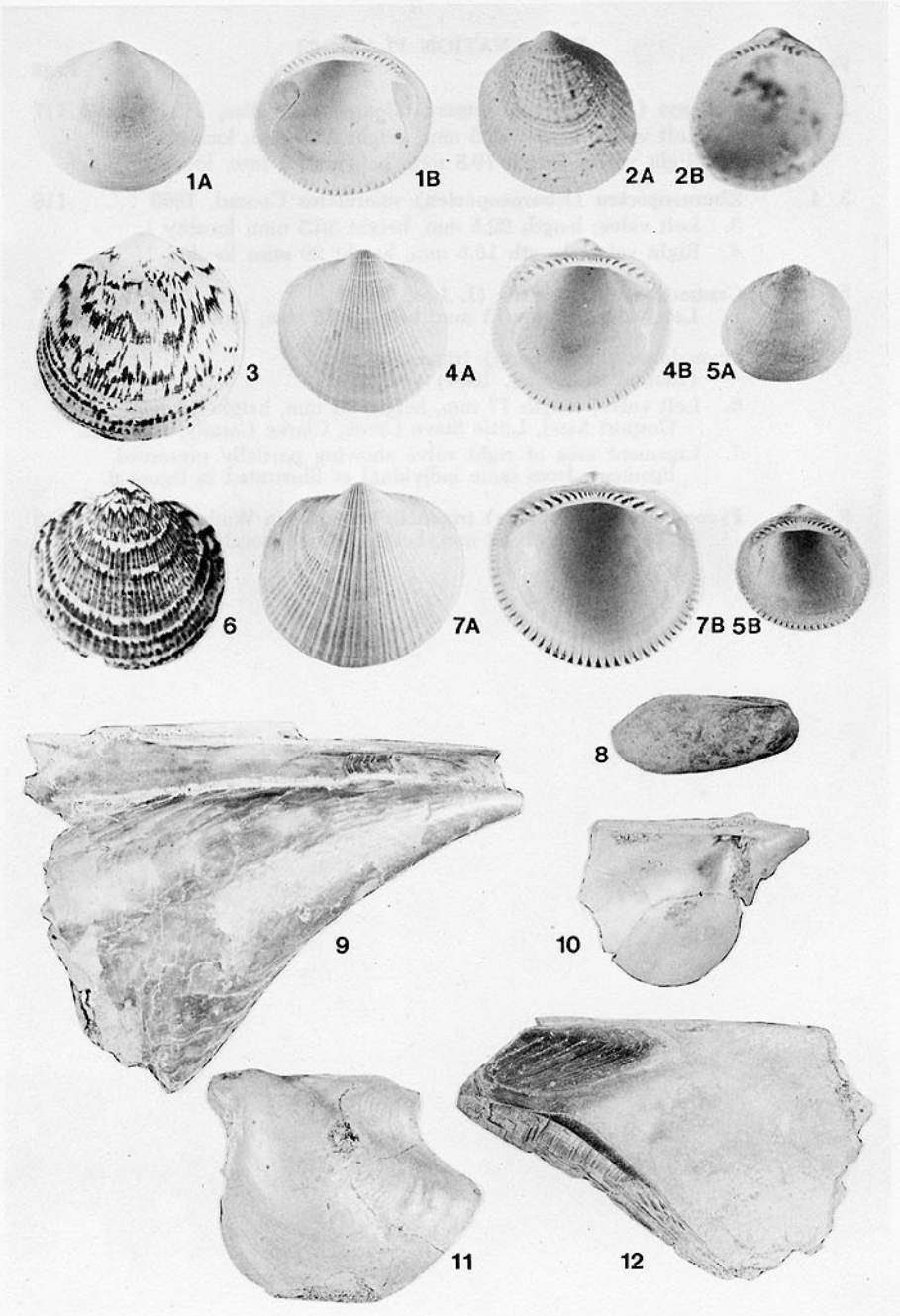
9, 12	**Atrina jacksoniana** Dall, 1898	115-116
	9. Both valves showing right valve; length 165 mm, height 104 mm; locality 1.	
	12. Right valve; length 99 mm, height 60 mm; locality 1.	
10, 11	**Pteria limula vanwinkleae** Harris, 1946	116
	10. Left valve; length 28 mm, height 21 mm; locality 1.	
	11. Left valve; length 52 mm, height 46 mm; locality 1.	

Plate 21



EXPLANATION PLATE 22

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	1. Left valve; length 20.5 mm, height 23.5 mm; locality 1.	
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8	**Pycnodonte (Pycnodonte) trigonalis** (Conrad in Wailes, 1854)	118
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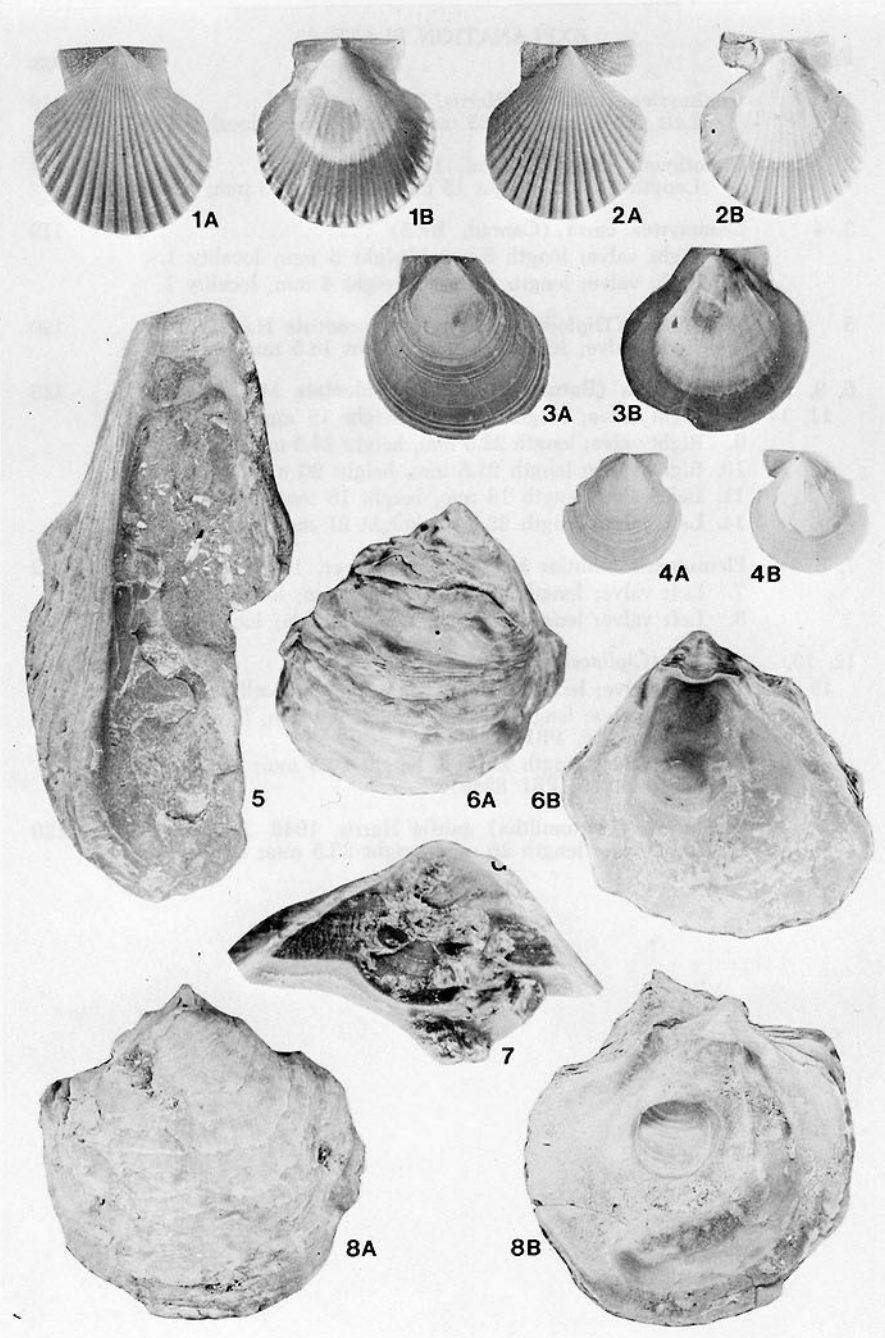
Revisions: See Addendum for references.

Figures 6-8. *Pcynodonta (Pcynodonta) trigonalis* (Conrad in Wailes, 1854)

Plate 22



EXPLANATION PLATE 23

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1	**Gonimyrtea subcurta** (Harris, 1946) Left valve; length 4.25 mm, height 4 mm; locality 1.	119
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5	**Diplodonta (Diplodonta) ungulina yazoocola** Harris, 1946 Right valve; length 18 mm, height 18.5 mm; locality 11.	120
6, 9, 10, 11, 14	**Venericardia (Rotundicardia) diversidentata** Meyer, 1885 6. Right valve; length 19 mm, height 18 mm; locality 1. 9. Right valve; length 22.5 mm, height 22.5 mm; locality 1. 10. Right valve; length 21.5 mm, height 20 mm; locality 1. 11. Left valve; length 18 mm, height 18 mm; locality 1. 14. Left valve; length 22 mm, height 21 mm; locality 1.	123
7, 8	**Pleuromeris inflatior jacksonensis** (Meyer, 1885) 7. Left valve; length 4 mm, height 4 mm; locality 1. 8. Left valve; length 3.5 mm, height 4 mm; locality 1.	122
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Revisions: See Addendum for references.

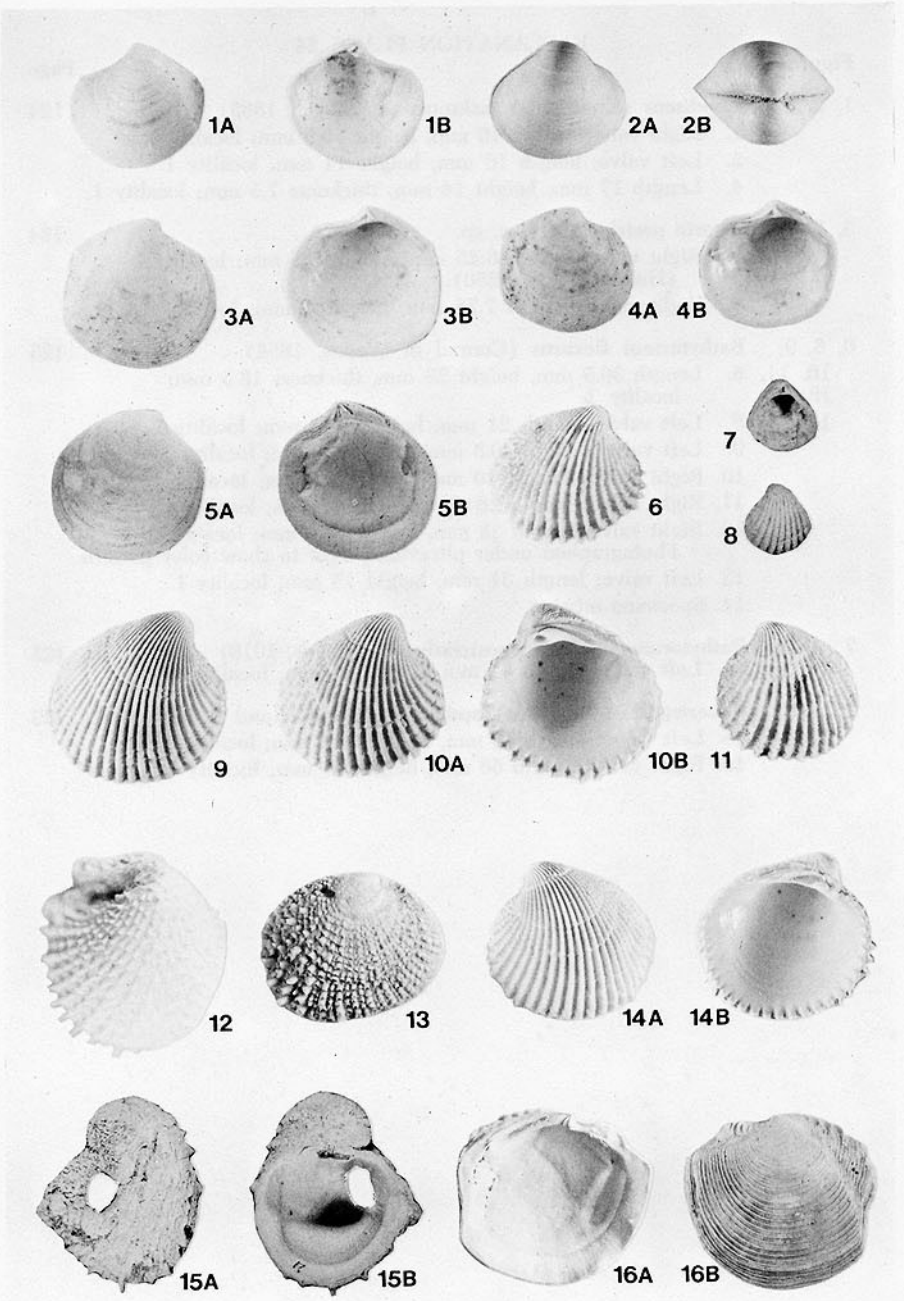
Figure 1. *Lucina (Callucina?) subcurta* Harris, 1946

Figures 3-4. *Lucina (Callucina?) curta* (Conrad, 1865)

Figures 12-13, 15. *Chama (Psilopus) mississippiensis* Conrad, 1848

Figure 16. *Miltha (Plastomiltha?) gaufia* Harris, 1946

Plate 23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EXPLANATION PLATE 24

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1, 2, 4	**Lirodiscus (Lirodiscus) jacksonensis** (Meyer, 1885)	124
	1. Right valve; length 16 mm, height 13.5 mm; locality 1.	
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	10. Right valve; length 40 mm, height 23 mm; locality 1.	
	11. Right valve; length 28 mm, height 19 mm; locality 1.	
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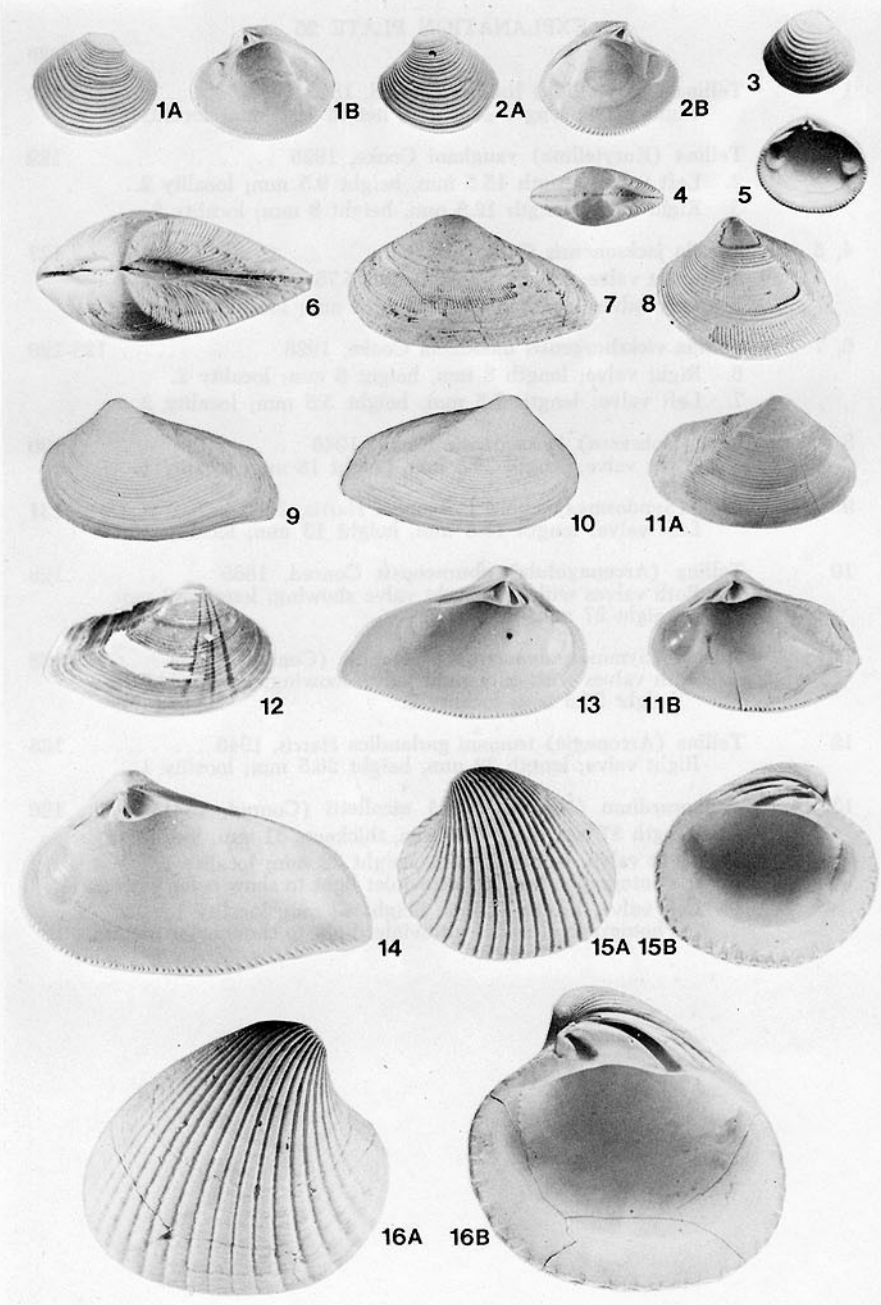
Revisions: See Addendum for references.

Figures 3, 5. *Lirodiscus (Lirodiscus) pretriagulata* (Dockery, 1977)

Plate 24



EXPLANATION PLATE 25

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1 — **Tellina (Eurytellina) linifera** Conrad, 1865 129-130
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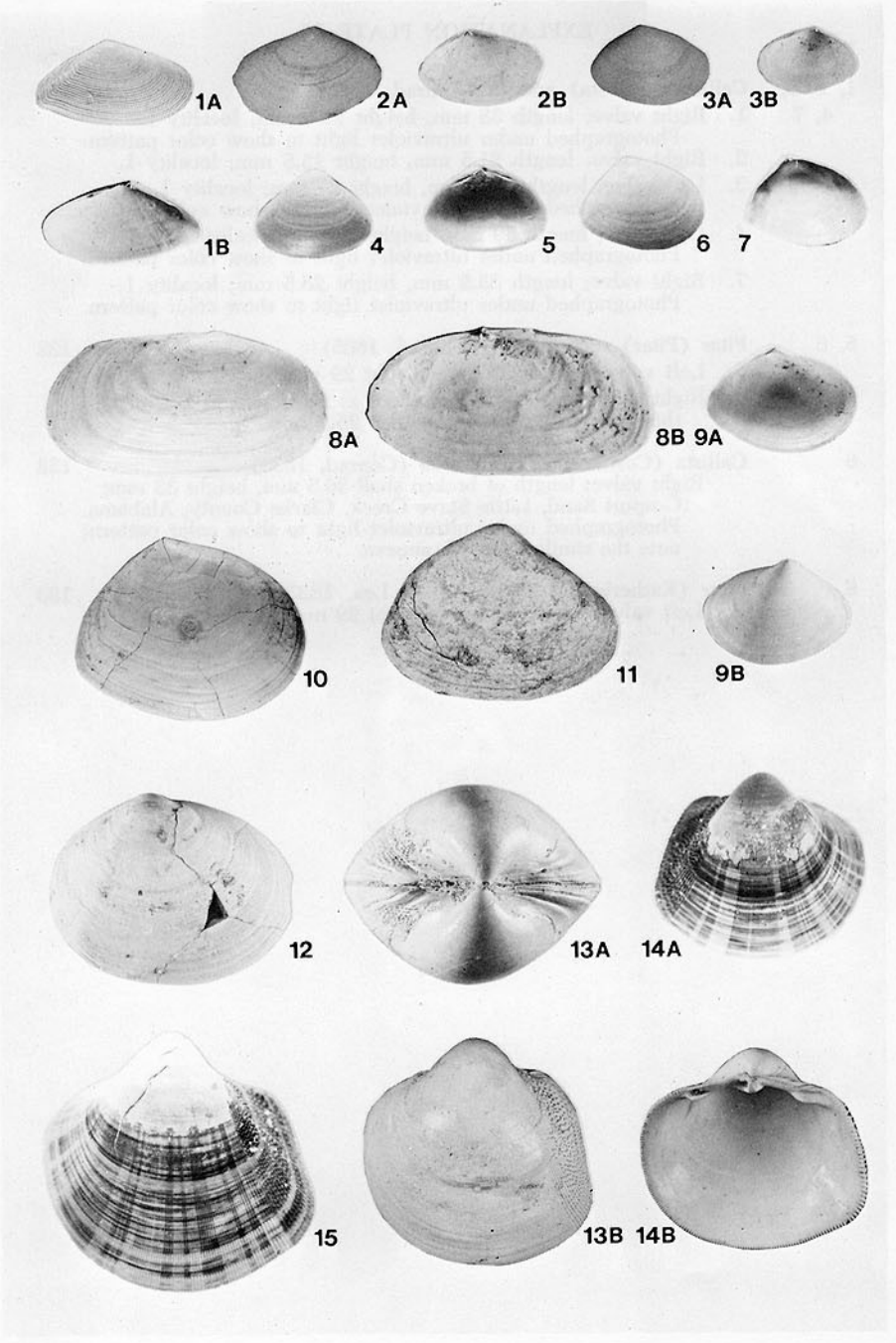
Plate 25



EXPLANATION PLATE 26

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1, 2, 3, 4, 7 — **Callista (Callista) annexa** (Conrad, 1865) 133-134

1. Right valve; length 38 mm, height 26.5 mm; locality 1. Photographed under ultraviolet light to show color pattern.
2. Right valve; length 21.5 mm, height 15.5 mm; locality 1.
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4. Left valve; length 39 mm, height 27 mm; locality 1. Photographed under ultraviolet light to show color pattern.
7. Right valve; length 35.5 mm, height 25.5 mm; locality 1. Photographed under ultraviolet light to show color pattern.

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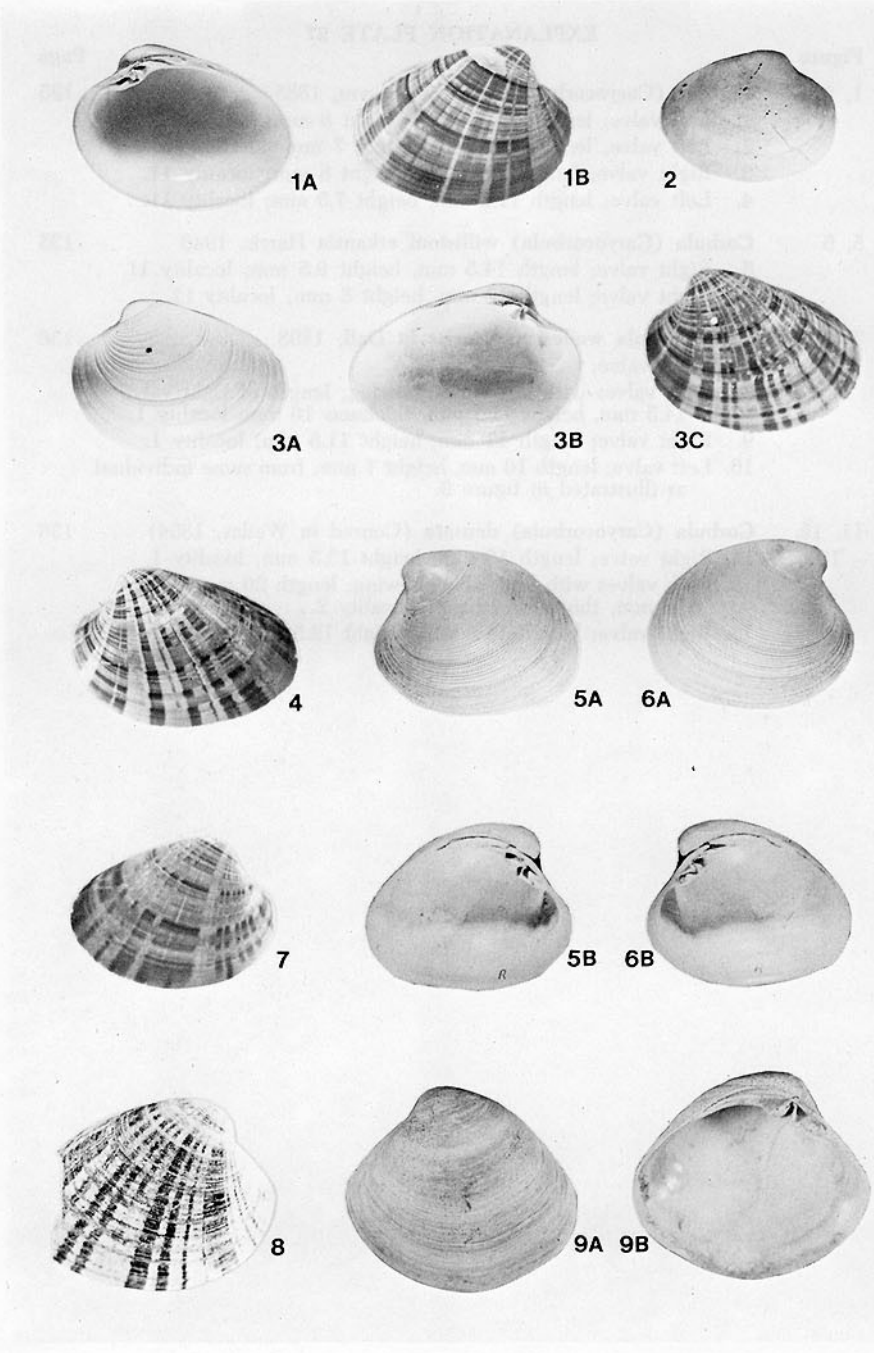
8 — **Callista (Costacallista) aequorea** (Conrad, 1833) 133

Right valve; length of broken shell 36.5 mm, height 33 mm; Gosport Sand, Little Stave Creek, Clarke County, Alabama. Photographed under ultraviolet light to show color pattern; note the similarity to **C. annexa.**

9 — **Pitar (Katherinella) trigoniata** (I. Lea, 1833) 133

Left valve; length 34 mm, height 29 mm; locality 11.

Plate 26



EXPLANATION PLATE 27

Figure — Page

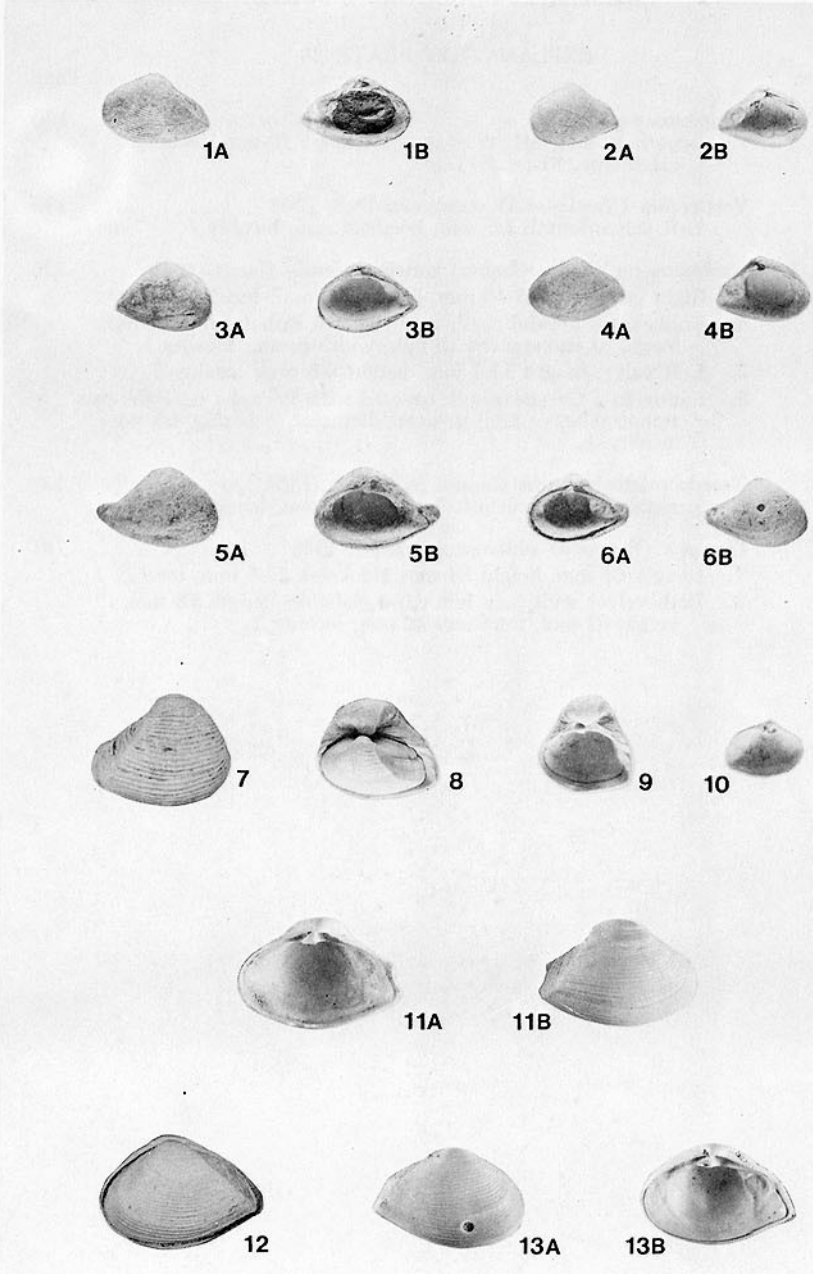
1, 2, 3, 4 — **Corbula (Caryocorbula) willistoni** Meyer, 1885 135
1. Left valve; length 12.75 mm, height 8 mm; locality 11.
2. Left valve; length 10.5 mm, height 7 mm; locality 11.
3. Right valve; length 11.5 mm, height 8 mm; locality 11.
4. Left valve; length 11.5 mm, height 7.5 mm; locality 11.

5, 6 — **Corbula (Caryocorbula) willistoni arkansia** Harris, 1946 135
5. Right valve; length 14.5 mm, height 9.5 mm; locality 11.
6. Right valve; length 12 mm, height 8 mm; locality 11.

7, 8, 9, 10 — **Caestocorbula wailesiana** Harris in Dall, 1898 136
7. Right valve;
8. Both valves with left valve showing; length of right valve 14.5 mm, height 11.5 mm, thickness 10 mm; locality 1.
9. Right valve; length 11 mm, height 11.5 mm; locality 1.
10. Left valve; length 10 mm, height 7 mm; from same individual as illustrated in figure 9.

11, 12, 13 — **Corbula (Caryocorbula) densata** (Conrad in Wailes, 1854) 135
11. Right valve; length 19 mm, height 13.5 mm; locality 1.
12. Both valves with left valve showing; length 20 mm, height 14 mm, thickness 10 mm; locality 2.
13. Right valve; length 18.5 mm, height 12.5 mm; locality 1.

Plate 27



EXPLANATION PLATE 28

Figure		Page
1	**Periploma equalum,** n. sp. ..... Length 16 mm, height 16 mm, thickness 10 mm; locality 2 (Holotype, PRI 8251).	138
2	**Verticordia (Verticordia) cossmanni** Dall, 1903 ..... Left valve; length 3.5 mm, height 4 mm; locality 1.	139
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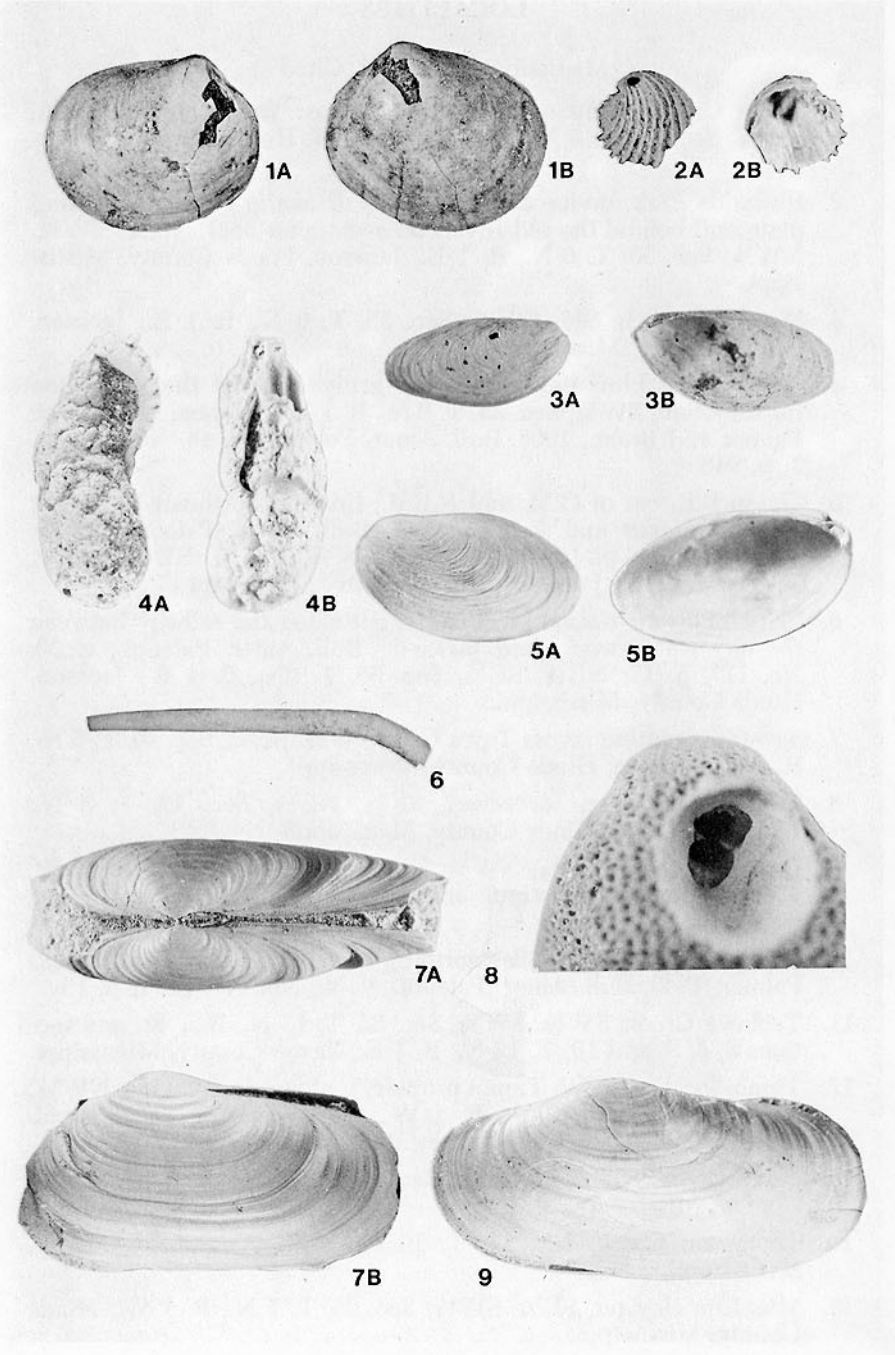
7, 9	**Panopea (Panopea) oblongata** Conrad, 1848 ..... 7. Length 68 mm, height 34 mm, thickness 25.5 mm; locality 1. 9. Both valves with only left valve showing; length 78 mm, height 37 mm, thickness 22 mm; locality 1.	137

Plate 28



LOCALITIES

Mississippi Localities Cited

1. Town Creek, along a northwest-southeast stretch in the SE¼, SW¼, Sec. 10, T. 5 N., R. 1. E., Jackson, Hinds County, Mississippi.
2. Riverside Park, ravine along valley wall of the Pearl River flood plain and behind the old Riverside swimming pool, NE¼, NW¼, NW¼, Sec. 36, T. 6 N., R. 1 E., Jackson, Hinds County, Mississippi.
3. Moodys Branch, S½, SW¼, Sec. 35, T. 6 N., R. 1 E., Jackson, Hinds County, Mississippi.
4. "... the first bluff below the first bridge east of the institution for the blind, SW¼, Sec. 35, T. 6 N., R. 1 E." Jackson, Mississippi. Palmer and Brann, 1966, Bull. Amer. Paleont., v. 48, No. 218, pt. 2, p. 913.
5. "... in R.R. cut of G.M. and N.R.R., first cut northeast of freight station." Harris and Palmer, 1946, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 12. Probably in NW¼, NW¼, NE¼, Sec. 2, T. 5 N., R. 1 E., Jackson, Hinds County, Mississippi.
6. "The highly bryozonal layer in the cut along the railway between the city water works and Jackson." Bull. Amer. Paleont., v. 30, No. 117, p. 17; NE¼, SE¼, Sec. 35, T. 6N., R. 1 E., Jackson, Hinds County, Mississippi.
7. Sewer excavation across Town Creek, W½, SE¼, Sec. 10, T. 5 N., R. 1 E., Jackson, Hinds County, Mississippi.
8. Tunnel excavation for sewer, SE¼, NE¼, Sec. 10, T. 5 N., R. 1 E., Jackson, Hinds County, Mississippi.
9. Garland Creek, NW¼, NW¼, NW¼, Sec. 28, T. 1 N., R. 16 E., Clarke County, Mississippi, and about one mile up stream along right fork.
10. "Sims Siding about 8 miles north of Yazoo City, Miss." Harris and Palmer, 1946, Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 13.
11. Techeva Creek, SW¼, SW¼, Sec. 32, T. 13 N., R. 1 E., and sections 5, 4, 9, and 10, T. 12 N., R. 1 E., Yazoo County, Mississippi.
12. Tinnin locality (J. W. Tinnin property), along deep ravine, NW¼, NE¼, Sec. 20, T .13 N., R. 1 W., Yazoo County, Mississippi. Mellen, 1940, Miss. Geol. Survey Bull. No. 39, p. 16.
13. Perry Creek, SW cor. NW¼, Sec. 13, T. 10 N., R. 3 W., Yazoo County, Mississippi.
14. Thompson Creek, Sec. 12, T. 10 N., R. 3 W., Yazoo County, Mississippi.
15. Miss-Lite clay pit, SE¼, SW¼, Sec. 25, T. 7 N., R. 1 W., Hinds County, Mississippi.

Localities Outside Mississippi
Listed in the Paleontological Research Institution Station Book

Localities without asterisk are Jackson Eocene localities listed in Bull. Amer. Paleont., v. 30, No. 117, pt. 1, p. 10-13; those with asterisk are Claiborne Eocene localities listed in Bull. Amer. Paleont., v. 7, No. 32, p. 10-11.

P1. Bunker Hill Landing, Ouachita River, Caldwell Parish, Louisiana.

P2. Wyant Bluff, Caldwell Parish, Louisiana.

P6. Danville Landing, Ouachita River, Catahoula Parish, Louisiana.

P7. One mile above Gibson Landing, Ouachita River, Caldwell Parish, Louisiana.

P8. One-half mile below Gibson Landing, Ouachita River, Louisiana.

P9. Gibson Landing, Ouachita River, Louisiana.

P10. Montgomery Landing, Red River, Grant Parish, Louisiana.

P11. Upper bed, Montgomery Landing, Red River, Grant Parish, Louisiana.

P12. Tullos, La Salle Parish, Louisiana.

P14. Bayou Toro, SE/4, NW/4 sec. 6, T. 3 N., R. 11 W., Vernon Parish, Louisiana.

P15. Montgomery Landing, lower bed, Red River, Grant Parish, Louisiana.

P16. Grandview Bluff, Ouachita River, Caldwell Parish, Louisiana.

P103*. Lower bed at the base of the bluff, on the Alabama River at Claiborne, Monroe County, Alabama.

P104*. "Feruginous sand" bed at Claiborne, on the Alabama River, Monroe County, Alabama (Gosport Sand).

P707*. About 3 miles W. N. W. of Orangeburg, South Carolina.

P708*. Abount 6 miles W. N. W. of Orangeburg, South Carolina.

P723*. Moseley's Ferry, on the Brazos River, Burleson County, Texas.

P725*. Sabine River, Texas side, opposite SW corner of SE/4 sec. 35, T. 5 N., R. 13 W., Sabine County, Texas.

P726*. Indian Mound, 3 miles east of Newton, on the A. and V. Railroad, Newton County, Mississippi.

P727*. Little Brazos River, 2 and ½ miles above Stone City, Brazos County, Texas.

P728*. Hickory, Newton County, Mississippi.

P729*. About 8 miles west of Enterprise, Clarke County, Mississippi.

P730*. Hammett's Branch, SW/4 sec. 30, T. 18 N., R. 6 W., about 2 miles northeast of Mt. Lebanon, Louisiana.

P731*. Wautubbee, Clarke County, Mississippi.

P733*. Smithville, Bastrop County, Texas.

P734*. Lisbon, Alabama River, Monroe County, Alabama.

P741*. East bank Ouachita River, Lapiniere Landing, Louisiana.

P745*. Near top of south side of Angelina River, bank at Marion, on the north line of Angelina County, Texas.

P747*. Well at Monroe, Ouachita Parish, Louisiana.

P748*. About 2 miles south of Hickory, Newton Couny, Mississippi.

P758*. H. W. Berryman Place 2 and ½ miles from Linwood, 11 miles from Rusk, Angelina County, Texas.

P766*. Big branch of Cedar Creek, east of Mr. Pollard's farm, 3 miles N.W. of Stone City, Burleson County, Texas.

P767*. South bank of the Colorado River about 200 yards west of bridge at Smithville, Bastrop County, Texas.

P778*. Lisbon Landing on west bank of Alabama River about 6 and ½ miles above a toll bridge at Claiborne, Monroe County, Alabama.

P803*. Two miles northeast of Newton, on route 15, Newton County, Mississippi.

P854*. Newcastle, Hanover County, Virginia.

P883. Montgomery, about one-half mile below the ferry, on the Red River, Grant Parish, Louisiana.

P886. Danville Landing, Ouachita River, at E. D. Blyght house, Catahoula Parish, Louisiana.

P894. Crow Creek, beneath, above and below road bridge on Highway 70 about 2 miles east of Forrest City, St. Francis County, Arkansas.

P896. On west bank of Arkansas River, at White Bluff, Jefferson County, Arkansas.

P897. Vince Ferry, Saline River, about 18 miles southeast of Rison, Cleveland County, Arkansas.

P912. Gibson Landing, Ouachita River, at the water's edge ¾ mile below the landing, Caldwell Parish, Louisiana.

P913. Wyant Bluff, west bank of Ouachita River, about 15 miles south of Columbia on Highway 106, Caldwell Parish, Louisiana.

P922. Sabine River, Texas side opposite center sec. 6, T. 3 N., R. 12 W., Sabine County, Texas.

P923. Bunker Hill, in road near top of the hill from Ouachita River, Caldwell Parish, Louisiana.

P1046. Crow Creek, at bridge, St. Francis County, Arkansas.

P1048. Little Crow Creek, south of railroad and highway on Crow Creek, about 2 miles east of Forrest City, Arkansas.

P1049. White Bluff, south bank Arkansas River, mostly upstream from locality P896, Jefferson County, Arkansas.

P1054. Lower layer (Moodys Branch "marl"), Red River, near Montgomery, Louisiana.

P1056. Gopher Hill, above St. Stephens, first hard ledge above "*Scutella* bed", Washington County, Alabama.

P1118. From ravines in little stream ½ to 1 mile back of Bunker Hill, Ouachita River, Caldwell Parish, Louisiana.

P1119. Bunker Hill bluff on Ouachita River, Caldwell County, Louisiana.

P1120. Bayou Toro, "first bluff", Vernon Parish, Louisiana.

P1121. One mile below Robinson's Ferry, Sabine River, Sabine County, Texas.

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ADDENDUM
REFERENCES FOR REVISIONS

Plate 1, Figure 16. *Diodora tenebrosa veatchi* Palmer, 1947

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Plate 3, Figure 5. *Palmerella alveata* (Conrad *in* Wailes, 1854)

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Dockery, D. T., III, and P. Lozouet, 2003, *Ibid*, p. 328.

Plate 3, Figure 6. *Haustator rivurbana* (Cooke, 1926)

Allmon, W. D., 1996, *Ibid*, p. 78 and pl. 10, fig. 3.

Dockery, D. T., III, and P. Lozouet, 2003, *Ibid*, p. 327.

Plate 3, Figure 7. *Haustator perdita jacksonensis* (Cooke, 1926)

Allmon, W. D., 1996, *Ibid*, p. 74-76, pl. 8, fig. 1-9.

Dockery, D. T., III, and P. Lozouet, 2003, *Ibid*, p. 327.

Plate 3, figures 16-17. *Palmerella arenicola* (Conrad, 1865)

Allmon, W. D., 1996, *Ibid*, p. 46-47, pl. 5, fig. 3-6.

Dockery, D. T., III, and P. Lozouet, 2003, *Ibid*, p. 328.

Plate 6, Figure 1. *Sulcocypraea healeyi* (Aldrich, 1923)

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Plate 6, Figure 6. *Sphaerocypraea jacksonensis* (Johnson, 1899)

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Plate 6, Figure 7. *Cypraeorbis towncreekensis* (Dockery, 1977)

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Plate 7, Figure 4. *Cypraedia (Eucypraedia) multicarinata* (Dall, 1890)

Dolin, L., 1991, *Cypraedia (Eucypraedia) multicarinata* (Dall, 1890); a Late Eocene Ovulidae from Florida, Mississippi, Colombia, and Peru. Studies on Paleogene Cypraeoidea (Mollusca: Gastropoda) from the Gulf Coast Basin–III: Mississippi Geology, v. 12, no. 3-4, December 1991, p. 28-31.

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Plate 9, Figure 5. *Sassia (Personella) jacksonensis* (Meyer, 1885)

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Plate 9, Figure 12. *Levifusus branneri* Harris, 1894

MacNeil, F. S., and D. T. Dockery III, 1984, *Ibid*, p.148-149 [discussion of *Levi fusus* and *Busycon*].

Dockery, D. T., III, and P. Lozouet, 2003, *Ibid*, p. 327.

Plate 11, Figure 3. *Oliva (Strephonella) affluens* (Casey, 1903)

Dockery, D. T., III, and P. Lozouet, 2003, *Ibid*, p. 328.

Plate 13, figures 5-6. *Caricella (Atraktus) fenestra* Dockery, 1977

MacNeil, F. S., and D. T. Dockery III, *1984*, *Ibid*, p. 151.

Dockery, D. T., III, and P. Lozouet, 2003, *Ibid*, p. 326.

Plate 14, figures 14-16. ***Mitra (Fusimitra) millingtoni*** **(Conrad in Wailes, 1854)**

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Plate 15, figures 11-12. ***Sullivania perexilis*** **(Aldrich, 1886)**

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Plate 18, figures 6-7. ***Creseis simplex*** **(Meyer, 1886)**

MacNeil, F. S., and D. T. Dockery III, *1984*, *Ibid*, p. 243.
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Plate 22, figures 6-8. ***Pycnodonta (Pycnodonta) trigonalis*** **(Conrad in Wailes, 1854)**

Dockery, D. T., III, 1980, *Ibid*, p. 159-160, pl. 63, fig. 3.
Dockery, D. T., III, and P. Lozouet, 2003, *Ibid*, p. 326.

Plate 23, Figure 1. ***Lucina (Callucina?) subcurta*** **Harris, 1946**

Bretsky, S. S., 1976, Evolution and classification of the Lucinidae (Mollusca; Bivalvia): Palaeontographica Americana, v. 8, no. 50, p. 214-337, pl. 25 -36 [p. 258, 260].
Dockery, D. T., III, 1980, *Ibid*, p. 164, pl. 63, fig. 6.
Dockery, D. T., III, and P. Lozouet, 2003, *Ibid*, p. 330.

Plate 23, figures 3-4. ***Lucnina (Callucina?) curta*** **(Conrad, 1865)**

Bretsky, S. S., 1976, *Ibid*, p. 259-260.
Dockery, D. T., III, 1980, *Ibid*, p. 163, pl. 64, fig. 3-4.
Dockery, D. T., III, and P. Lozouet, 2003, *Ibid*, p. 330.

Plate 23, figures 12-13, 15. ***Chama (Psilopus) mississippiensis*** **Conrad, 1848**

Dockery, D. T., III, 1982, Lower Oligocene Bivalvia of the Vicksburg Group in Mississippi: Mississippi Bureau of Geology, Bulletin 123, 261 p., 62 pl. [p. 62].
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Plate 23, Figure 16. ***Miltha (Plastomiltha?) gaufia*** **Harris, 1946**

Bretsky, S. S., 1976, *Ibid*, p. 291.
Dockery, D. T., III, and P. Lozouet, 2003, *Ibid*, p. 330.

Plate 24, figures 3, 5. ***Lirodiscus (Lirodiscus) pretriagulata*** **(Dockery, 1977)**

Dockery, D. T., III, 1980, *Ibid*, p. 174, p. 65, fig. 3-4, 5-6.
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