HENRY V. HOWE AND HIS COLLECTION OF FORAMINIFERA AT LOUISIANA STATE UNIVERSITY

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Henry V. Howe, the founder of the current academic program in geology at Louisiana State University (LSU), and a renowned ostracod specialist, was also a distinguished foraminiferal paleontologist. His best work in that field, involving the discovery of many new species, was on the taxonomy of Eocene Foraminifera of Louisiana. The present H.V. Howe Type Collection of Microfossils began with Howe’s gift of slides to LSU. This collection, enriched by contributions from later workers, now includes over 580 slides of foraminiferal primary type specimens, with holotypes and syntypes of 361 species and 15 taxa labeled as “varieties.” Information regarding these specimens, including current nomenclature of the species, geologic age, stratigraphic level, and geographic location, is given in this report.

KEY WORDS: Foraminifera, Howe, Collections, History, Micropaleontology

INTRODUCTION

Henry Van Wagenen Howe (1896–1973), then 26 years old with a fresh Ph.D. from Stanford, was appointed an Assistant Professor of geology at Louisiana State University (LSU) in 1922. The terms of the appointment were unusual for someone at the beginning of an academic career. Howe came to a moribund department; the old program had come to an end three years previously with the passing of Frederick Emerson (1871–1919), its last professor (Howe and Moresi 1933). Howe (Fig. 1) was given a “mandate from the governor and the university president to build a creditable department of geology to aid the state in the development of its burgeoning petroleum industry” (Morgan 1974). He met the challenge by recruiting excellent faculty, encouraging field research on the geology of Louisiana parishes, and attracting many talented students. He was rewarded by the university with a series of promotions: Associate Professor in 1924, Full Professor and Department Head in 1925, Director, School of Geology in 1931, Dean of the College of Arts and Sciences in 1944, and Boyd Professor (the most distinguished rank for an LSU teacher) in 1965 (Braunstein 1957; Morgan 1974). At the same time, Howe created and fostered one of the best university research programs in micropaleontology, using stratigraphic records of Ostracoda and Foraminifera. He received many awards from learned societies, the most notable being the Sidney Powers Medal, the highest honor bestowed by the American Association of Petroleum Geologists (Fisk 1960; Morgan 1974). Howe retired from LSU in 1966 but continued to collaborate on publications and catalog his microfossil collections until his death in 1973 (Morgan 1974). In 1987, the two buildings on the LSU campus that currently house the departments of Geology-Geophysics and Geography-Anthropology were collectively named the Howe-Russell Geoscience Complex, honoring Howe and Richard J. Russell (1895–1971), his distinguished colleague (Morgan 1974, 1987).

Research on Foraminifera – Howe’s research and training efforts in micropaleontology fit well with the petroleum geology emphasis of his department because the size, abundance, durability, and diversity of microfossils make them useful in paleoenvironmental and geochronological analyses, and thus in petroleum exploration. By the mid-1940s, Howe’s work on ostracodes overshadowed that on foraminifers, and led to his worldwide reputation as an outstanding paleontologist, but in the 1920s and 1930s, he made significant contributions to the study of Gulf Coast Foraminifera. His primary interest at this time is reflected in his own publications and the thesis topics of his graduate students. For example, the very first graduate thesis completed in the new geology department was on Foraminifera from outcrops in Louisiana (Harris 1926).

The abundant and diverse Eocene Foraminifera (56–33.9 Ma, Cohen et al. 2013) in the Gulf Coastal Plain drew much attention from Howe in his early years at LSU. He was...
particularly impressed with the fossil content of the Jackson Formation (now Jackson Group), noting that “the bluffs on the western bank of the Ouachita River in Louisiana afforded by far the best known section of the formation” and that “[t]hese exposures are among the most prolific upper Eocene fossil collecting localities in the world” (Howe and Wallace 1932). He chose outcrops at Danville Landing for an intensive study of foraminiferal diversity and stratigraphic distribution. Howe and his coauthor, William E. Wallace, found a total of 115 foraminiferal species and “varieties” in this section (Lower and Upper Horizons); about a third of these taxa (40) were new to science (examples in Fig. 2). The abundance or rarity of some species in the stratigraphic section was used as a basis for separating the two Horizons. Among the new species, Howe and Wallace recognized two new genera, *Darbyella* and *Hopkinsina*.

Howe’s second monograph on Foraminifera was based on 167 Eocene samples from the Cook Mountain Formation and two from the Sparta Formation (Howe 1939). This material was gathered from six contiguous parishes in northwestern Louisiana by Howe (one sample) and several collaborators (168 samples). The emphasis, again, was on discovery; Howe described and illustrated 82 new species (examples in Fig. 2), about 48% of the entire assemblage. Through much of his career, Howe’s taxonomic work on foraminifers was focused on Eocene species, but he also studied the Oligocene record, and established a new genus, *Bitubulogenerina* (Howe 1934). His publications on the Oligocene, however, are mainly species lists (e.g., Howe 1928a, 1942).

To honor his contributions to foraminiferal research, at least 19 species were named after Howe by various authors (Ellis and Messina 1940 et seq.; Hayward et al. 2020). The holotypes of four of these species are in the Henry V. Howe Type Collection of Microfossils.

**THE COLLECTION**

The LSU repository of microfossils began with Howe’s numerous contributions, including specimens given to him by prominent micropaleontologists of his day. It has since been expanded by donations from LSU faculty, research staff, and graduate students, and also from other paleontologists. The collection is housed in the LSU Geoscience Complex and curated by the Museum of Natural Science. It has served as an important taxonomic resource for microfossil researchers in the United States and abroad, especially for those interested in Paleogene Foraminifera or in the geologic history of the Gulf Coastal Plain and Gulf of Mexico. Shells of Foraminifera (mounted on cardboard slides) comprise approximately 49% of the collection.

**History** – Before he retired, Howe officially donated his collections to the university. On May 25, 1964, the Louisiana State University Board of Supervisors accepted the Henry V. Howe Type Collection of Microfossils, declaring it to be of "national and international value." The Board expressed “its appreciation to Professor Howe for his generosity in making the University the repository for so famous a collection” (LSU Board of Supervisors 1964; Sen Gupta and Smith 2010). Harold V. (Andy) Andersen (1907–2000), Howe’s student and later colleague, was Curator of Geology Museums, and oversaw the installation of fire-resistant safes to house the slides as stipulated by Howe (Andersen 1999). Also, under Andersen’s direction, the Geology Department Museum Reference Collection of topotype foraminifers and ostracodes was created, picked from material collected by Howe and others. Some paratypes are included in this collection.

Over the years, multiple organizational changes have taken place. Between 1969 and 1970, the School of Geology was renamed the School of Geoscience, and the Geology Department Museum became part of the Museum of Geoscience, a division separate from the Department of Geology. In 1981–82, the Museum of Geoscience moved under the administration of the LSU Museum Complex when the School of Geoscience was dissolved (Hanor 1996; LSU Department of Geology and Geophysics 2019). In 1992, the Museum of Geoscience was abolished, and its collections transferred to the LSU Museum of Natural Science.
Types – The “types” in the collection include critical reference specimens needed in species identifications: (1) holotype, single specimen chosen by the author(s) of the species name to represent the species as the name-bearing type, (2) syntypes, which, if no holotype was chosen, collectively demonstrate the properties of the name-bearing type, and (3) paratypes, representative specimens other than the holotype, also chosen by the original authors (ICZN 1999). The microfossil collections of the LSU Museum of Natural Science include over 580 slides of such primary type Foraminifera. There are 361 foraminiferal species and 15 taxa labeled as “varieties” represented by name-bearing types (holotypes, syntypes) within the Howe Collection. The term “cotype,” used by authors of a few species in the Howe Collection, is not recognized in the latest version of the International Code of Zoological Nomenclature, but all of these specimens happen to be syntypes, and are labeled as such in Table 1. An additional eight species are represented in the collection by paratypes (Table 1).

The bulk of the foraminiferal material in the type collection is from Tertiary rocks and sediments of the U.S. Gulf Coast and the Gulf of Mexico. [Following the U.S. Geological Survey (2007), we retain the term “Tertiary” for the part of the Cenozoic Era/Eratem that is older than the Quaternary.] Of the species listed in Table 1, nearly 58% (221) are represented by Eocene individuals, and 25% (96) by Oligocene and Miocene individuals. Another 6% (22) are reported to be from the Tertiary Period, but the epoch is unknown. The Holocene primary type material consists of 36 species. These species are mostly from marginal marine or brackish-water habitats, the most notable being (1) 21 species from mudlumps at the mouths of the Mississippi River (Andersen 1961) and (2) ten species from a coastal marsh (Warren 1957). [The term “Recent” (used by Andersen 1951, 1961) is now invalid (Pillans and Gibbard 2012), and replaced by “Holocene.”]

We must note that the primary type slides are not the only foraminiferal material in the collection. As of August 2020, it also includes 6,243 slides of topotypes, homeotypes, figured specimens, and identified specimens that represent over 3,000 different species, subspecies, and “varieties” of Foraminifera. A separate stratigraphic collection contains numerous faunal assemblage slides.

RECORDS OF FORAMINIFERAL PRIMARY TYPES

Details concerning the foraminiferal holotypes and syntypes in the Howe Collection are given below. Paratypes are not included if the holotype was never part of the Howe Collection (i.e., Buccella insiteta, Cassidulina galvinensis, Eponides kleinpelli, Heronallenella boltovskoyi, Hyperammina kentuckyensis, Lepidocyclina californica, and Planulinoidea srivinavasi). These details include the catalog number, locality, geologic age, stratigraphic horizon, current nomenclature, and literature reference. Some taxonomic and geologic comments are presented, and discrepancies recognized. All original illustrations of holotypes and paratypes were compared with actual specimens; some inconsistencies are recorded. Locality information in quotation marks is taken directly from the published species description. Occasionally, this information is supplemented by unpublished data from theses, dissertations, field notes, and sample labels. The term “Howe Loc.” refers to a set of washed microfossil samples contributed by Howe and others. Catalog numbers of specimens in the H.V. Howe Type Collection are preceded by “HVH,” whereas the numbers in the reference collection are preceded by “LSUGDM.”

Species are listed alphabetically by their original names. Several standard sources, including the World Foraminifera Database (Hayward et al. 2020) and the Mikrotax database (Young et al. 2020), have been consulted concerning currently accepted names.

Three reported holotypes (Ceratobulimina limbata Hussey 1949; Listerella minuta Hussey 1949; and Miliola terquemi Andersen 1988) are not included in our species lists because the specimens are missing or destroyed, and no paratypes of the species are in the collections. Also not listed is Nordoplanulis elongata Hussey 1943, which was erroneously identified as a foraminifer (Loeblich and Tappan 1964).

TYPE SPECIMENS


HOLOTYPE: HVH 7735, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 10, 2 ft. above base of Paynes Hammock Formation” taken in a blue-green, argillaceous, loose sand bed with Ostrea blanpiedi, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 9, figs. 14–16.

PARATYPES: LSUGDM 982, Paynes Hammock Fm.; Loc. S19, sample 12, from 3.8 feet above the base of Paynes Hammock Formation, taken in an orange, coarse-grained sand bed; five specimens, not figured.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


PARATYPES from same sample as holotype: HVH 4325,
Table 1. Foraminiferal species in the Howe Collection represented by primary types. H, holotype; s, syntype; s*, syntype, but originally labeled cotype; p, paratype. Where possible, geologic ages (epochs) represented by the recorded stratigraphic units (formations, members, etc.) were taken from the National Geologic Database of the U.S. Geological Survey (https://ngmdb.usgs.gov/Geolex/search).

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<th>Author(s), date</th>
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PARATYPES from same sample as holotype: HVH 6422a, one specimen, figured: pl. 3, figs. 6, 7. LSUGDM 409, one specimen. LSUGDM 410, one specimen. LSUGDM 471, 39 specimens, not figured.

COMMENTS: Warren (1956, p. 133) provides additional information for Sample 3: depth 3.5 feet; salinity 28.6 ppt; pH 8.4; temperature 73°F; bottom: soft mud; lat. 29°20′10″ N, long. 89°33′04″ W. Warren (1956) figures HVH 6422 (pl. 1, fig. 29), LSUGDM 409 (pl. 1, figs. 27, 28), and LSUGDM 410 (pl. 1, fig. 30) under the name Ammobaculites sp. A.


HOLOTYPE: HVH 9, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 80,” (JH-96): “Glaucopithecus, very fossiliferous marl containing zone of argillaceous limestone concretions up to 10 inches in diameter. Taken three feet below Sample No. 79 (JH-95 B). Elevation—182 feet.” Sample No. 80 was taken about 22 feet “below top of slope in well-exposed cut on the southeast side of intersection of State Highway 6 and Couley-St. Maurice road in the SE¼ NW¼ SE¼ NE¼ sec. 20, T. 10 N., R. 5 W.,” Winn Parish, Louisiana. Collected by John Huner, Jr., between 1936 and 1938. Figured: pl. 1, fig. 15.

COMMENTS: Sample JH-96 is described in Huner (1939, p. 90) as from a “zone of hard very fossiliferous limestone concretions with greensand. Operculinoides sabinensis,” bed 11 of the section “in road cut along U.S. Highway 84 in the northwest corner of the SE¼ NE¼ sec 20, T. 10 N., R. 5 W., Winn Parish.” In Winn Parish, U.S. Highway 84 was formerly Louisiana Highway 6.


HOLOTYPE: HVH 8, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 39,” (Rob-5): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness. The lowest of these fossiliferous beds was at water level at the time collected.” Sample No. 39 is “from beneath the lowest iron ore ledge and collected at water level. Elevation—77± feet.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 5). Figured: pl. 1, figs. 13, 14.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

The specimen looks somewhat different from the figure (pl. 1, fig. 14) at the right edge.


HOLOTYPE: HVH 1919, Oligocene, Hackberry assemblage, sticky shale overlying Vicksburg; “Magnolia Petroleum Company, no. 1, H.B. Funchess, Jr., Jefferson County, Tex. [Texas], from core at 7752–7754 feet.” Figured: pl. 40, figs. 1a, 1b.

PARATYPE: HVH 1920, same sample as holotype, one specimen, figured: pl. 40, fig. 2.


PARATYPES from same sample as holotype: HVH 6423a, one specimen, figured: pl. 3, figs. 12, 13. LSUGDM 472, 51 specimens, not figured.
Ammotium fragile 118. Ammobaculites sp. B.

Ammotium multiloculatum 8: 32–33. Ammobaculites sp. B.

Ammotium palustre 26: 50–51. Ammobaculites sp. B.


It is not possible to accurately transcribe the entire document due to the complexity and density of the text. However, the key points can be summarized as follows:

- **Ammotium fragile**
  - HOLOTYPE: HVH 3983, Miocene; Harang wedge in cuttings at 8372–8402 feet, in the Gulf Refining Co.'s Delta Securities Co., Inc., No. 17, Bully Camp field, Lafourche Parish, Louisiana; SW¼ sec. 36, T. 19 S., R. 21 E.
  - COMMENTS: Smith (1948) lists this specimen as a monotype. The well location is shown in Figure 3 of Smith (1948, p. 35).

  - HOLOTYPE: HVH 6423 (pl. 1, fig. 10) and HVH 6423a (pl. 1, fig. 11) and HVH 6425 (pl. 1, fig. 13) and HVH 6425a (pl. 1, fig. 12) under the name Ammobaculites sp. A.
  - PARATYPES from same sample as holotype: HVH 6426a, one specimen, figured: pl. 3, fig. 8.


  - HOLOTYPE: HVH 6427, Holocene; Location No. 37: “Lat. 28°58′16.4″ N, Long. 89° 33′ 42″ W. Warren (1956) also figures HVH 6426 (pl. 1, fig. 16, 17) and LSUGDM 413 (pl. 1, fig. 18) under the name Ammotium sp. C.

  - HOLOTYPE: HVH 4321, Holocene; Location No. 37: “Lat. 28°58′16.4″ N, Long. 89°08′34.3″ W; South Pass mudlump No. 5, surface sample. (L.S.U. Geol. Mus. No. M-144)” “[L]ight-gray clay in the center of mudlump SP-5,” “west side of South Pass,” Mississippi River,
Henry V. Howe and His Collection of Foraminifera at Louisiana State University

No. 91


Paratypes from same sample as holotype: HVH 4322, one specimen, figured: pl. 16, fig. 4. LSUGDM 196, 11 specimens, not figured.

Comments: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N., Long. 89°08′34.4″ W.).” The material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).

Amphicoryna roedereri


Paratypes from same sample as holotype: HVH 4320, one specimen, figured: pl. 16, fig. 2. LSUGDM 197, eight specimens, not figured.

Comments: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N., Long. 89°08′34.4″ W.),” “the material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).”

Amphorina purii


Paratype: LSUGDM 217, same sample as holotype, one specimen, not figured.

Comments: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N., Long. 89°08′34.4″ W.).” The material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).

Accepted as Procerolagena purii (Andersen 1961) by Hayward et al. (2020).

Andersenia rumana


Holotype: HVH 8099, Lower Cretaceous, Barremian; “outcrops near Ostrov, on the shores of Lake Gîrlita,” “Southern Dobrogea, Rumania” [Romania]. Collected by Theodor Neagu. Figured: pl. 11, figs. 1–3.

Paratypes: HVH 8100, same locality as holotype, 14 specimens, figured: pl. 11, figs. 4, 7–9; pl. 12, figs. 1–9.

Comments: The holotype and paratype slides are labeled: “Shores of Lake Gîrlita, 8 km ENE of Ostrov, southern Dobrogea region of Rumania.” See Text Figure 1 of Neagu (1968, p. 121) for a map of the locality and section. Neagu (1968, p. 120) states that the material examined was reef marl from “a level containing many pachiodonts.”

Angulogerina danvillensis


Holotype: HVH 685, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper horizon” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 12, fig. 2.

Comments: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S. Geological Survey (2020) Geologic Names Committee Archives.

The genus Angulogerina Cushman 1927 is considered a junior synonym of Trifarina Cushman 1923 (Hayward et al. 2020); Angulogerina danvillensis = Trifarina danvillensis (Howe and Wallace 1932).

Angulogerina inflata

Hussey 1949, J. Paleontol. 23: 133.

Anomalina danvillensis was considered a junior synonym of Trifarina Cushman 1923 (Hayward et al. 2020); Anomalina inflata = Trifarina inflata (Huys 1949).


HOLOTYPE: HVH 111, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 36,” (Rob-2); “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 36 is “from beneath the next to the highest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 2). Figured: pl. 8, figs. 27, 28.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

The genus Angulogerina Cushman 1927 is considered a junior synonym of Trifarina Cushman 1923 (Hayward et al. 2020); Angulogerina mauricensis = Trifarina mauricensis (Howe 1939).


HOLOTYPE: HVH 2596, Eocene, Cane River Fm.; “from sample 151,” “Louisiana Oil and Ref. Co., Tremont No. 1, 115 feet south and 150 feet east of northwest cor. NW¼ NE¼ sec. 30, T. 10 N., R. 2 E., La Salle Parish,” Louisiana; “core samples ranging in depth from 1500 feet to 1566 feet.” Figured: pl. 26, figs. 9, 10.

COMMENTS: Hussey (1949, p. 115) describes sample 151 from core at depth 1511 feet as “light gray shale and glauconite.”


HOLOTYPE: HVH 7692, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 13, 4.5 ft. above base of Paynes Hammock Formation” taken in a gray-buff, calcareous, hard sand bed, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 6, figs. 4–6.

PARATYPES from same sample as holotype: HVH 7693, one specimen, figured: pl. 6, fig. 7. LSUGDM 974, six specimens, not figured.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.

Accepted as Reichelinella bacata (Poag 1966) by Hayward et al. (2020).


HOLOTYPE: HVH 8392, Miocene, Chipola Formation; “type locality of the Chipola Formation” “from the bank of Ten Mile Creek [Tennmile Creek], under the bridge on the Marianna-Clarksville [Clarksville] road (State Highway 73), 2376 feet S. of N.W. cor. Sec. 12, T. 1 N., R. 10 W., 22 miles south of Marianna, Calhoun County, Florida.” Collected by Alan H. Cheetham and H.V. Andersen. Figured: pl. 11, figs. 1–3.

PARATYPES from same sample as holotype: HVH 8393, one specimen, figured: pl. 11, fig. 4. LSUGDM 984, nine specimens, not figured.

COMMENTS: Accepted as Reichelinella depressa (Poag 1966) by Hayward et al. (2020).


HOLOTYPE: HVH 2545, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115′ South and 150′ East of the Northwest corner of the N.W.¼, of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.”, La Salle Parish, Louisiana; “from Sample No. 162,” core at depth “1526′,” “gray silty shale with some greensand.” Figured: pl. 26, fig. 17.

HOLOTYPE: HVH 2029, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 37,” (Rob-3): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 37 is “from beneath the middle iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 3). Figured: pl. 10, figs. 13, 14.

PARATYPE: HVH 2029a, same sample as holotype, one specimen, not figured.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

**Asterigerinata frondiculata** Poag 1966, Micropaleontology 12: 412–413.

HOLOTYPE: HVH 7689, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 13, 4.5 ft. above base of Paynes Hammock Formation” taken in a gray-buff, calcareous, hard sand bed, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 5, figs. 31–33.

PARATYPES: LSUGDM 973, from same sample as holotype, seven specimens, not figured.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


HOLOTYPE: HVH 1312, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 55,” (JH-50): “Greenish-gray calcareous, glauconitic clay overlain on the surface by many fossiliferous clay ironstone concretions. Taken from drill hole two feet deep in ditch on west side of State Highway 480, about half a mile south of Calvin, in the NE¼ NW¼ NE¼ sec. 9, T. 11 N., R. 4 W. Elevation—163 feet.” Winn Parish, Louisiana. Collected by John Huner, Jr., between 1936 and 1938. Figured: pl. 9, figs. 15, 16.


HOLOTYPE: HVH 773, Tertiary; “from the west bank of Bucatunna Creek, NW¼ sect. 17, T. 8 [N.], R. 5 W., Wayne County, Mississippi.” Specimen is from material in the collection of Henry V. Howe; the collector’s name is not given. Figured: pl. 14 (pl. 1), figs. 5a, 5c.

COMMENTS: The holotype’s catalog card states that the published locality is incorrect; according to the card, the correct locality is “Rocky Branch [tributary] of Bucatunna Creek,” 200′ NE of SW cor. of Sec. 8, T. 8 N., R. 5 W., Wayne County, Miss.,” Paynes Hammock Fm., Roy Hazzard’s Locality B-3. The source of this information is unknown. Both the published and “corrected” localities match material in the museum’s microfossil samples collection:

Howe Loc. 121 is a Byram marl, Oligocene sample collected by Henry Howe in 1934 in the company of B.W. Blanpied, from the north line of sec. 17, T. 8 N., R. 5 W., on Bucatunna Creek, south of the mouth of Rocky Branch; Howe’s sample label describes it as “a shell marl below the Chickasawhay limestone.”

Howe Loc. 100 (CRB-3) is a sample collected by Howe in 1934 in the company of B.W. Blanpied at Roy Hazzard’s Locality B-3, approximately located 200 feet northeast of the SW corner of section 8, T. 8 N., R. 5 W., in the bed of Rocky Branch. According to Howe’s label, “this sample CRB-3, elevation 184′, is a bluish marl 100 feet west of fence.” The guidebook of the Shreveport Geological Society (1934, p. 49) lists the Rocky Branch Locality CRB-3 as upper Chickasawhay [=Paynes Hammock Formation].

**Biapertorbis anderseni** Poag 1966, Micropaleontology 12: 409.

HOLOTYPE: HVH 7671, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 13, 4.5 ft. above base of Paynes
Hammock Formation” taken in a gray-buff, calcareous, hard sand bed, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 4, figs. 18–20.

PARATYPES: LSUGDM 966, from same sample as holotype, nine specimens, not figured.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


HOLOTYPE: HVH 775, Tertiary; “Wood’s Bluff, Alabama.” Specimen is from material in the collection of Henry V. Howe; the collector’s name is not given. Figured: pl. 14 (pl. 1), fig. 7b.

PARATYPES: HVH 775a, same sample as holotype, one specimen, figured: pl. 14 (pl. 1), fig. 7a.

COMMENTS: Hadley (1935) does not designate paratypes in his publication. The specimen illustrated in figure 7a was originally mounted on the same slide as the holotype. As part of the type series, this figured specimen is, by ICZN definition, a paratype.

The material used by Hadley may have been from Howe Loc. 44A, a sample collected by Henry Howe in December 1923 from the Bashi marl at Woods Bluff, on the Tombigbee River, Clarke County, Alabama, from a fossiliferous exposure near water level when the river was low.


HOLOTYPE: HVH 2606, Eocene, Cane River Fm.; “from sample 137,” “Louisiana Oil and Ref. Co., Tremont No. 2, 312 feet east and 345 feet north of southwest cor. SW¼ sec. 29, T. 10 N., R. 2 E., La Salle Parish,” Louisiana; “core samples ranging in depth from 1468 feet to 1555 feet.” Figured: pl. 26, fig. 2.

COMMENTS: Hussey’s (1949, p. 115) locality differs slightly from his 1943 paper: “312’ 5” East” vs. “312 feet east.” Sample 137, core at depth 1503–1509 feet, is described by Hussey (1949, p. 115) as “light gray silty shale and greensand.”


PARATYPES: LSUGDM 149, same sample as holotype, 24 specimens, not figured.

COMMENTS: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N., Long. 89°08′34.4″ W.).” The material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).

Accepted as *Nummulopyrgo toddae* (Andersen 1961) by Hayward et al. (2020).


HOLOTYPE: HVH 4201, Holocene; “beach sand collected on the east side of South West Pass” of the Mississippi River, “approximately one mile south of Burwood, [Plaquemines Parish,] Louisiana.” [Accepted spelling is Southwest Pass.] Collected by Harold N. Fisk in 1948. Figured: text-figs. 2a, 2b.

PARATYPES from same sample as holotype: HVH 4202, one specimen, figured: text-figs. 2c, 2d. HVH 4203, three specimens, chitinous residue of paratype, figured: text-fig. 2e. HVH 4204, one specimen, not figured. LSUGDM 691, 40 specimens, not figured.

COMMENTS: Andersen (1961, p. 197, Loc. 5) gives the coordinates of the sample as Lat. 28°56′52″ N, Long. 89°24′40″ W. Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N., Long. 89°08′34.4″ W.).” The material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).

Accepted as *Nummulopyrgo toddae* (Andersen 1961) by Hayward et al. (2020).


HOLOTYPE: HVH 772, [Oligocene], Lower Chickasawhay; “Approximate location is NW corner of SWNE of South Pass, south road section 4, 9 N, 7 W, 4,100 feet southeast of road intersection with highway No. 45,” Wayne County, Mississippi. Collected by Henry V. Howe. Figured: pl. 14 (pl. 1), fig. 3.

COMMENTS: The holotype is from the Limestone Church locality (Loc. CC) of the Shreveport Geological Society’s (1934, p. 40) guidebook. In 1934 at this location, Henry V. Howe collected two samples from the Lower Chickasawhay Member (elevations 279 feet and 269 feet); Hadley does not specify the elevation of the holotype’s sample. Although Hadley
HOLOTYPE: HVH 117, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 86,” (JH-111): “Very fossiliferous, slightly glauconitic marl 12 feet thick. Taken five feet below top of slope leading down to creek branch, and in upper two feet of marl, in ditch on south side of improved road in the NE¼ SW¼ SW¼ sec. 28, T. 13 N., R. 3 W. ... Elevation—179 feet.” Winn Parish, Louisiana. Collected by John Huner, Jr., in 1936. Figured: pl. 8, fig. 36, 37.
COMMENTS: Huner’s (1939, p. 95) section description places his sample JH-111 in the Milams Member of the Cook Mountain Formation. The improved road is the lower Dodson road according to Howe Loc. 273A (JH-111).

Bitubulogenerina hiwanneensis Howe 1934, J. Paleontol. 8: 421.
HOLOTYPE: HVH 753, Oligocene, Red Bluff Fm. “Hiwannee, [Wayne County,] Mississippi.” Collector not listed. Figured: pl. 51, figs. 2a, 2b.
COMMENTS: Henry V. Howe and Karl E. Young, together and separately, collected microfossil material from the Red Bluff Fm. at the Hiwannee locality in the late 1920s and early 1930s.

Bitubulogenerina mauricensis Howe 1934, J. Paleontol. 8: 421.
COMMENTS: The earliest microfossil collecting dates at the St. Maurice locality in the LSUMNS include material collected by Henry Howe about 1926 from the middle of the exposure under the railroad bridge over Saline Bayou, and the samples collected in 1932 by Marion Roberts and Howe from below each of five ironstone ledges beneath the bridge.

Bitubulogenerina montgomeryensis Howe 1934, J. Paleontol. 8: 421.
HOLOTYPE: HVH 752, Eocene, basal Jackson; “Montgomery, [Grant Parish,] Louisiana.” Collector not listed. Figured: pl. 51, fig. 9a, 9b.

Bitubulogenerina vicksburgensis Howe 1934, J. Paleontol. 8: 420–421.
HOLOTYPE: HVH 750, Oligocene; “from the top of the limestone bed which causes the waterfalls of Mint Spring Bayou, Vicksburg, [Warren County,] Mississippi.” Collector not listed. Figured: pl. 51, figs. 7a, 7b.

COMMENTS: The bed sampled is the Glendon limestone.

HOLOTYPE: HVH 127, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 37,” (Rob-3): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ foot in thickness.” Sample No. 37 is “from beneath the middle iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 3). Figured: pl. 9, figs. 7, 8.
COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

HOLOTYPE: HVH 704, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper horizon” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 11, figs. 8a, 8b.
COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

Bolivina gladius Garrett 1942, J. Paleontol. 16: 462.
HOLOTYPE: HVH 2406, Miocene; “Stanolind Oil and Gas Company wells in the High Island field, Galveston County, Texas. This field is located near the eastern end of Bolivar Peninsula, in the most eastern extremity of Galveston County, and lies almost in the Gulf of Mexico”; specimen “from no. A-15 Smith, core at 6,169–6,175 feet.” Figured: pl. 70, figs. 8a, 8b.
HOLOTYPE: HVH 651, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions; “upper horizon” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 11, fig. 7.
COMMENTS: Howe and Wallace (1932, p. 57) state that this species occurs “frequently at both horizons,” but they do not specify the type horizon. The holotype slide has the label “upper bed.” In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

Bolivina gracilis Cushman and Applin var. danvillensis Howe and Wallace 1932 is a junior homonym of Bolivina danvillensis Howe and Wallace 1932. Cushman (1946, p. 26) proposed the new name Bolivina gracilis var. incisurata Cushman 1946.

HOLOTYPE: HVH 125, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 86,” (JH-111): “Very fossiliferous, slightly glauconitic marl 12 feet thick. Taken five feet below top of slope leading down to creek branch, and in upper two feet of marl, in ditch on south side of improved road in the NE¼ SW¼ SW¼ sec. 28, T. 13 N., R. 3 W. ... Elevation—179 feet.” Winn Parish, Louisiana. Collected by John Huner, Jr., in 1936. Figured: pl. 9, figs. 3, 4.
COMMENTS: Huner’s (1939, p. 95) section description places his sample JH-111 in the Milams Member of the Cook Mountain Formation. The improved road is the lower Dodson road according to Howe Loc. 273A (JH-111).

HOLOTYPE: HVH 135, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 38,” (Rob-4): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 38 is “from beneath the next to the highest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 4).

HOLOTYPE: HVH 126, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 36,” (Rob-2): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W., Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 36 is “from beneath the next to the highest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 2). Figured: pl. 9, figs. 5, 6.
COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

HOLOTYPE: HVH 726, Eocene, Claiborne, Cook Mountain Fm.; “from beneath the next to the lowest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 4).
Figured: pl. 9, fig. 20, 21.
COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”
opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.


**HOLOTYPE:** HVH 1926, middle Tertiary, *Marginulina idiomorpha* zone; “Magnolia Petroleum Company, no. 1, H.B. Funchess, Jr., Jefferson County, Tex. [Texas], from core at 6,420–6,422 feet.” Figured: pl. 40, figs. 8a–8c.

**PARATYPES** from same sample as holotype: HVH 1927, one specimen, figured: pl. 40, fig. 9. HVH 1928, one specimen, figured: pl. 40, fig. 10.


**HOLOTYPE:** HVH 2569, Eocene, Cane River Fm.; “from Sample No. Ru-503-B-186,” “type locality of Cane River formation, ½ mile [north] of Natchitoches,” “Natchitoches Parish, Louisiana.” Collected by Justin M. Rukas between 1936 and 1938. Figured: pl. 27, figs. 18, 19.

**COMMENTS:** The new name *Bolivina rukasi* Hussey 1950, replaces *Bolivina striata* Hussey 1949, a homonym of *Bolivina (Bifarina) hungarica* var. *striata* (Vadász 1911); see Thalmann (1950b, p. 42) and Ellis and Messina (1940 et seq.).


**HOLOTYPE:** HVH 133, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 38,” (Rob-4): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ feet in thickness.” Sample No. 38 is “from beneath the next to the lowest iron ore ledge.” Collected by John Huner, Jr., on July 13, 1936. Figured: pl. 9, fig. 17.

**COMMENTS:** According to Howe Loc. 272, Huner collected his sample JH-62 along Emergency Conservation Work (E.C.W.) Road 21 on a slope leading down to Couley Creek, in a ditch on the northeast side of the road, SE¼ NE¼ NE¼ sec 22, T. 10 N., R. 5 W. Elevation—125 feet.” Winn Parish, Louisiana. Collected by John Huner, Jr., on July 13, 1936. Figured: pl. 9, fig. 17.


**HOLOTYPE:** HVH 133, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 61,” (JH-62): “Calcareaous fossiliferous clay containing lenses and stringers of glauconite. Taken in ditch 18 inches above base of slope leading down to Couley Creek along dirt road in the SE¼ NE¼ NE¼ NE¼ sec 22, T. 10 N., R. 5 W. Elevation—125 feet.” Winn Parish, Louisiana. Collected by John Huner, Jr., on July 13, 1936. Figured: pl. 9, figs. 18, 19.

**COMMENTS:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


**HOLOTYPE:** HVH 2407, Miocene; “Stanolind Oil and Gas Company wells in the High Island field, Galveston County, Texas. This field is located near the eastern end of Bolivar Peninsula, in the most eastern extremity of Galveston County, and lies almost in the Gulf of Mexico”; specimen “from no. A-15 Smith, core at 5,632–5,638 feet.” Figured: pl. 40, figs. 6a, 6b.


**HOLOTYPE:** HVH 7655, [Oligocene], Paynes Hammock Fm.; “Loc. CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ feet in thickness. The lowest of these fossiliferous beds was at water level at the time collected.” Sample No. 39 is “from beneath the lowest iron ore ledge and collected at water level. Elevation—77± feet.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 5). Figured: pl. 9, figs. 9, 10.

**COMMENTS:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”
the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 3, figs. 38, 39.

**Paratypes:** LSUGDM 963, from same sample as holotype, two specimens, not figured.

**Comments:** Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


**Holotype:** HVH 7659, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 11, 3.5 ft. above base of Paynes Hammock Formation” taken in a dark blue sand and clay bed, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 3, figs. 46, 47.

**Paratypes:** LSUGDM 964, Loc. CX, sample 11, from 2.6 feet above the base of the Paynes Hammock Formation, taken in an olive-green, arenaceous clay bed, in a section about 200 yards south of the bridge on Waynesboro-Laurel road (U.S. Hwy 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi. Collected by C. Wylie Poag; one specimen, not figured.

**Comments:** Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


**Holotype:** HVH 7673, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 10, 2 ft. above base of Paynes Hammock Formation” taken in a blue-green, argillaceous, loose sand bed with *Ostrea blanpiedii*, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 4, figs. 24–26.

**Paratypes:** LSUGDM 967, Loc. S19, sample 14, from 7 feet above the base of the Paynes Hammock Formation, taken in a blue-green, calcareous, sand bed; seven specimens, not figured.

**Comments:** Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


**Holotype:** HVH 113, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 38,” (Rob-4): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W., Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 38 is “from beneath the next to the lowest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 4). Figured: pl. 8, figs. 29, 30.

**Comments:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


**Holotype:** HVH 136, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 36,” (Rob-2): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W., Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 36 is “from beneath the next to the highest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 2). Figured: pl. 9, figs. 22, 23.

**Comments:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


**Holotype:** HVH 115, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 36,” (Rob-2): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6

HOLOTYPE: HVH 7653, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 10, 2 ft. above base of Paynes Hammock Formation” taken in a blue-green, argillaceous, loose sand bed with Ostrea blanpiedi, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 3, figs. 33, 34.  
PARATYPES: LSUGDM 961, from same sample as holotype, three specimens, not figured.  
COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.

PARATYPES: LSUGDM 232, same sample as holotype, 41 specimens, not figured.  
COMMENTS: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality mudlump SP-1 as “1200 feet southeast of a sand spit, Lower Mississippi River Delta.” The material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).  
Accepted as Eubuliminella morgani (Andersen 1961) by Hayward et al. (2020).


COMMENTS: The highway in Winn Parish referred to by Howe (1939, p. 11) as State Highway 6 today is U.S. Highway 84. According to the label of Howe Loc. 278, sample JH-36 was collected at elevation 165 feet.


HOLOTYPE: HVH 602, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fissiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 13, fig. 5.

PARATYPE: HVH 602A, same sample as holotype; one specimen, figured: pl. 13, figs. 4a, 4b (smaller 602B).

COMMENTS: Specimen 602A, the larger, “adult” of Howe and Wallace (1932, p 106, pl. 13, fig. 5) and 602B, the smaller specimen (pl. 13, figs. 4a, 4b), were originally mounted on the same cotype slide. Cotype HVH 602A = holotype HVH 602.

In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

**Cassidulina brocha** Poag 1966, Micropaleontology 12: 426, 428.

HOLOTYPE: HVH 7727, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 10, 2 ft. above base of Paynes Hammock Formation” taken in a blue-green, argillaceous, loose sand bed with *Ostrea blanpiedii*, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 8, figs. 33–35.

PARATYPES: LSUGDM 980, from same sample as holotype, ten specimens, not figured.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.

Accepted as *Globocassidulina brocha* (Poag 1966) by Hayward et al. (2020).

**Cassidulina parva** Hussey 1949, J. Paleontol. 23: 140.


COMMENTS: The new name *Cassidulina inconsipica* Hussey 1949, replaces *Cassidulina parva* Hussey 1949, a homonym of *Cassidulina subglobosa* var. *parva* Asano and Nakamura 1937; see Thalmann (1949, p. 101).

**Cassidulina rotulita** Poag 1966, Micropaleontology 12: 426.

HOLOTYPE: HVH 7728, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 12, 3.8 ft. above base of Paynes Hammock Formation” taken in an orange, coarse-grained sand bed, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 8, figs. 36–38.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


HOLOTYPE: HVH 2040, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 118,” core at depth “1482′,” “gray-brown shale and greensand.” Collected by John Huner, Jr., between 1936 and 1938. Figured: pl. 11, figs. 7, 8.

COMMENTS: The highway referred to as State Highway 5 by Howe (1939, p. 10) is U.S. Highway 167. Huner (1939, p. 106) describes his section in a “road cut along U.S. Highway 167 just north of Dodson”; his sample JH-20 is listed as from the Little Natches Member of the Cook Mountain Formation.

The holotype is very small and has some damage. Although sometimes confused with *Cassigerinella eocaenica*, Huber et al. (2006, p. 484, 486) show that the holotype of *C. winniana* Howe 1939 is a benthic foraminifer referable to genus *Cassidulina*. 

**Cassidulina eocaenica**, Huber et al. (2006, p. 484, 486) show that the holotype of *C. winniana* Howe 1939 is a benthic foraminifer referable to genus *Cassidulina*. 

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**Cassidulina inconspicua** Hussey 1949, replaces *Cassidulina parva* Hussey 1949, a homonym of *Cassidulina subglobosa* var. *parva* Asano and Nakamura 1937; see Thalmann (1949, p. 101).

**Cassidulina subglobosa** var. *parva* Asano and Nakamura 1937; see Thalmann (1949, p. 101).
**Cassidulina woodsi** Smith 1948, La. Geol. Surv., Geol. Bull. 26: 64.


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35). The catalog number HVH4002 was inadvertently assigned to two different specimens in the collection when two authors were granted blocks of numbers that overlapped. A suffix has been added to the originally published number 4002 to give this specimen a unique identifier: HVH 4002A.


PARATYPES: LSUGDM 256, same sample as holotype, four specimens, not figured.

COMMENTS: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N., Long. 89°08′34.4″ W.).” The material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).


HOLOTYPE: HVH 608, Eocene, Cane River Fm.; “from the mouth of Chickasawhay River above the highway bridge 2½ miles south of Waynesboro,” Wayne County, Mississippi, “from material immediately above the bed containing *Ostrea blanpiedi*.” Locality CW of the Shreveport Geological Society’s (1934, p. 48) guidebook; collected by Henry V. Howe in June 1934. Figured: pl. 48, figs. 8a–8c.

PARATYPE: HVH 1895, [Oligocene, Paynes Hammock Fm.], “Upper Chickasawhay”; “from the south bank of Chickasawhay River above the highway bridge 2½ miles south of Waynesboro,” Wayne County, Mississippi, “from material immediately above the bed containing *Ostrea blanpiedi*.” Locality CW of the Shreveport Geological Society’s (1934, p. 48) guidebook; collected by Henry V. Howe in June 1934. Figured: pl. 48, figs. 8a–8c.

COMMENTS: “Paynes Hammock” is the name later applied to the “upper Chickasawhay” of the 1934 Shreveport Geological Society’s guidebook (MacNeil 1944). Ellis (1939, p. 423) states that geologists’ opinions differed over whether the Chickasawhay beds were either Miocene or Oligocene. The U.S. Geological Survey (2019) considers the Paynes Hammock Formation to be upper Oligocene.

**Cibicides discorbsiformis** Hussey 1949, J. Paleontol. 23: 142.

HOLOTYPE: HVH 2601, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115′ South and 150′ East of the Northwest corner of the N.W.¼, of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.;” La Salle Parish, Louisiana, “from Sample No. 169,” core at depth “1534½;” mostly greensand, ‘salt and pepper’ sand.” Figured: pl. 27, figs. 22, 23.

**Cibicides glabratust** Hussey 1949, J. Paleontol. 23: 142.

HOLOTYPE: HVH 2597, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115′ South and 150′ East of the Northwest corner of the N.W.¼, of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.;” La Salle Parish, Louisiana, “from Sample No. 174,” core at depth “1544;” “salt and pepper’ sand and silty shale.” Figured: pl. 29, figs. 10, 11.

**Cibicides hazzardi** Ellis 1939, J. Paleontol. 13: 424.

HOLOTYPE: HVH 1895, [Oligocene, Paynes Hammock Fm.], “upper Chickasawhay”; “from the south bank of Chickasawhay River above the highway bridge 2½ miles south of Waynesboro,” Wayne County, Mississippi, “from material immediately above the bed containing *Ostrea blanpiedi*.” Locality CW of the Shreveport Geological Society’s (1934, p. 48) guidebook; collected by Henry V. Howe in June 1934. Figured: pl. 48, figs. 8a–8c.

PARATYPE: HVH 1896, same sample as holotype, one specimen, figured: pl. 48, fig. 9.

COMMENTS: “Paynes Hammock” is the name later applied to the “upper Chickasawhay” of the 1934 Shreveport Geological Society’s guidebook (MacNeil 1944). Ellis (1939, p. 423) states that geologists’ opinions differed over whether the Chickasawhay beds were either Miocene or Oligocene. The U.S. Geological Survey (2019) considers the Paynes Hammock Formation to be upper Oligocene.

The Shreveport Geological Society’s (1934, p. 48 and map) guidebook places the collecting locality at the NE corner of NW¼, NW¼ section 25, T. 8 N., R. 7 W. Although the bridge has been moved slightly upstream since 1934, the Waynesboro, MS, USGS topographic quadrangle map (U.S. Geological Survey 1982), shows that the bend in the river where samples were collected is in SW section 24. Howe’s sample (Howe Loc. 85; Loc. CW-2 of the 1934 guidebook) was collected from “elevation 127–128 feet and is a sandy claystone with echinoid fragments and spines”; it was taken 0.2 mile west (upstream) of the south end of the bridge in 1934.

**Cibicides hilgardi** Garrett 1941, J. Paleontol. 15: 155–156.

SYNTYPES: HVH 1974, Eocene, Tallahatta Fm.; “Sample no. 108-D.—Taken at Hatchetigbee Bluff” on Tombigbee River, Washington County, Alabama,
“from the same bed as sample no. 106-C, but lying 100 yards down-stream”; “[g]reensand marl at base of the Tallahatta formation.” Collected by Julius B. Garrett with C.F. Washburn; one specimen, figured: pl. 26, figs. 13a–13c.


**Cibicides hypoconoides** Hussey 1943, *J. Paleontol.* 17: 167.

**HOLOTYPE:** HVH 2598, Eocene, Cane River Fm.; “from sample Ru. 518-J,” “Natchitoches Parish, Louisiana,” “NW¼, NE½, NE½ Sec. 6, T. ? N., R. 6 W., in center of negro settlement, 40-foot hole extending from 12 feet above *D. advena* zone to 8 feet below it.” Sample 207 of Hussey (1943) collected by Justin M. Rukas between 1936 and 1938. Figured: pl. 26, figs. 6–8.

**COMMENTS:** *D. advena* zone = *Discocyclina advena* zone. Hussey (1943) published a question mark for the township number. Grover Murray, in a 1959 personal communication with Ellis and Messina (1952 et seq., entry for *Brachycythere bernardi* Murray and Hussey), describes Rukas locality 518 as a “hand dug well at Chestnut, in the NW¼, NE¼, NE¼ sec. 6, T. 12 N., R. 6 W., Natchitoches Parish.”


**HOLOTYPE:** HVH 2058, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 89,” (JH-117): “Glaucnritic marl occurring between two zones of argillaceous fossiliferous limestone concretions approximately three feet apart. Taken in ditch on north side of State Highway 547, 1.6 miles by road north and approximately three feet apart. Taken in ditch on north side of tracks of T. & P. RR., NW¼ SW¼ SE¼ of sec. 20, T. 8 M. [sic], R. 8 W., *D. advena* zone,” “Natchitoches Parish, Louisiana.” Collected by Justin M. Rukas between 1936 and 1938. Figured: pl. 29, figs. 16, 17.

**Cibicides mammiformis** Hussey 1949, *J. Paleontol.* 23: 142.

**HOLOTYPE:** HVH 2599, Eocene, Cane River Fm.; “from Sample No. Ru. 226-190,” “about 0.6 miles west of Provencal on north side of tracks of T. & P. RR., NW¼ SW¼ SE¼ of sec. 20, T. 8 M. [sic], R. 8 W., *D. advena* zone,” “Natchitoches Parish, Louisiana.” Collected by Justin M. Rukas between 1936 and 1938. Figured: pl. 29, figs. 16, 17.


**HOLOTYPE:** HVH 2055, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 37” (Rob-3): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” “Winn Parish, Louisiana.” “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ feet in thickness.” Sample No. 37 is “from beneath the middle iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 3). Figured: pl. 13, figs. 4, 5.

**COMMENTS:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

Accepted as *Cibicidina mauroicenensis* (Howe and Roberts 1939) by Hayward et al. (2020).

**Cibicides mcguirti** Hussey 1949, *J. Paleontol.* 23: 143.

**HOLOTYPE:** HVH 2602, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115′ South and 150′ East of the Northwest corner of the N.W.¼, of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.,” “La. Oil and Ref. Co., Tremont No. 1, 115′ South and 150′ East of the Northwest corner of the N.W.¼, of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.,” “Salt Marsh, *Discocyclina advena* zone. “T. 8 N.” = T. 8 N. In the explanation of pl. 29, figs. 16, 17, the holotype slide is erroneously referred to as slide no. 2590, and the locality is mistakenly referred to as sample no. 10.


**HOLOTYPE:** HVH 2055, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 37” (Rob-3): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” “Winn Parish, Louisiana.” “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ feet in thickness.” Sample No. 37 is “from beneath the middle iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 3). Figured: pl. 13, figs. 4, 5.

**COMMENTS:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

Accepted as *Cibicidina mauroicenensis* (Howe and Roberts 1939) by Hayward et al. (2020).

**Cibicides molacus** Hussey 1949, *J. Paleontol.* 23: 143.

**HOLOTYPE:** HVH 2602, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115′ South and 150′ East of the Northwest corner of the N.W.¼, of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.,” “La. Oil and Ref. Co., Tremont No. 1, 115′ South and 150′ East of the Northwest corner of the N.W.¼, of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.,” “Salt Marsh, *Discocyclina advena* zone. “T. 8 N.” = T. 8 N. In the explanation of pl. 29, figs. 16, 17, the holotype slide is erroneously referred to as slide no. 2590, and the locality is mistakenly referred to as sample no. 10.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


HOLOTYPE: HVH 709, Eocene, Jackson, [possibly Danville Landing Fm.;] bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 14, fig. 6a–6c.

COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

Cibicides steini Garrett 1942, J. Paleontol. 16: 463.
HOLOTYPE: HVH 2408, Miocene; “Stanolind Oil and Gas Company wells in the High Island field, Galveston County, Texas. This field is located near the eastern end of Bolivar Peninsula, in the most eastern extremity of Galveston County, and lies almost in the Gulf of Mexico”; specimen “from no. A-15 Smith, core at 6,169–6,176 feet.” Figured: pl. 70, figs. 5a–5c.

COMMENTS: The text states that the specimen came from the core at 6,169–6,176 feet; the slide label says “core 6,169–6,175 feet.”

Cibicides submammiformis Hussey 1949, J. Paleontol. 23: 143.

Cibicides umbilicatus Hussey 1949, J. Paleontol. 23: 142.
HOLOTYPE: HVH 2600, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115’ South and 150’ East of the Northwest corner of the N.W.¼, of the N.E.½ of Sec. 30, T. 10 N., R. 2 E.” “La Salle Parish, Louisiana, “from Sample No. 174,” core at depth “1544;” “salt and pepper’ sand and silty shale.” Figured: pl. 29, figs. 18, 19.

COMMENTS: According to Thalmann (1949, p. 101), Hussey proposed the new name Cibicides rhsmithi to replace Cibicides umbilicatus Hussey 1949, a homonym of Cibicides umbilicata Broten 1948.

HOLOTYPE: HVH 2061, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 2.” (JBG-19): “A bluff on the left bank of Sabine River, at Goodwin’s shool, behind the house of Mr. S.J. Speight, near the southwest corner of sec. 31, T. 5 N., R. 12 W.”, Sabine Parish, Louisiana. “The locality is near the old site of Columbus and may be reached by taking an old wagon road 100 yards north of Mr. Speight’s house. This road leads in about 300 yards to the river bank. The locality is a low bluff, by the shoals, about 300 yards downstream, and exposes about eight feet of section from water level up. The section exposed is a mali with a one-foot compact lime bed near the middle. ... The shoals are produced by slumping and the stratigraphic relations are greatly confused.” Sample No. 2 is “from 0–1 foot above limestone ledge.” Collected by Julius B. Garrett in summer 1932. Figured: pl. 13, figs. 20–22.

COMMENTS: Garrett collected from the Milams Member of the Cook Mountain Formation (Andersen 1960, p. 90). Toledo Bend Reservoir later covered the sample location; construction of the lake began in 1964. An alternate spelling, “Godwin Shoals,” is used on the labels of H.V. Howe’s samples from this locality.

Cibicides williamsoni Garrett 1941, J. Paleontol. 15: 156.
HOLOTYPE: HVH 1976, [Paleocene], Nanafalia Fm.; “Sample no. 102-B.—Sandy, glauconitic, fossiliferous marl in roadcut on the Camden-Fatama road, lying 4.1 miles southeast of the courthouse at Camden, Wilcox County, Ala. [Alabama]. This locality is Nanafalia in age, and lies in the Grampian Hills. Sample taken about five feet below top of exposure.” Collected by Julius B. Garrett with C.F. Washburn. Figured: pl. 26, figs. 15a–15c.

PARATYPES: HVH 1997, same sample as holotype, four specimens, not figured.

PARATYPES from same sample as holotype: HVH 4231, one specimen, figured: pl. 2, figs. 10a, 10b. LSUGDM

**HOLOTYPE:** HVH 2500, Eocene, Cane River Fm.; “from sample Ru 468” [Hussey Sample 187], “from a hand dug well 42 feet deep at Limekiln Church, NW¼ sec. 85, T. 9 N., R. 7 W., greensand marl section,” “Natchitoches Parish, Louisiana.” Collected by Justin M. Rukas between 1936 and 1938. Figured: pl. 26, fig. 12.

**PARATYPE:** HVH 2501, from same sample as holotype, one specimen, figured: pl. 26, figs. 5–6.

**COMMENTS:** The locality of the paratype is not given in Hussey (1943). The slide label for HVH 2501 lists the locality as Rukas sample Ru 468.


**HOLOTYPE:** HVH 3984, Miocene; “Harang wedge in cuttings at 8247–8278 feet, in the Gulf Refining Co.’s Delta Securities Co., Inc., No. 17, Bully Camp field, Lafourche Parish, Louisiana,” SW¼ sec. 36, T. 19 S., R. 21 E. Figured: pl. 9, figs. 5–6.

**COMMENTS:** The well location is shown in Figure 3 of Smith (1948, p. 35).


**HOLOTYPE:** HVH 664, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 3, “[f]ossiliferous blue clay, weathering dark brown to yellow. The shells are scattered through the whole mass and occasionally occur in thin beds with light brown sand”; “lower bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 4, figs. 1a–1c.

**COMMENTS:** “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravel, table opposite p. 30; see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives. The precise stratigraphic occurrence of this holotype at Danville Landing is uncertain because contradictory information is given in Howe and Wallace (1932: upper bed, p. 11; genus in both beds, p. 24) and on the holotype slide (lower bed).

The two generic names *Dalbyella* Howe and Wallace 1932 and *Robulus* de Montfort 1808 are junior synonyms of *Lenticulina* Lamarck 1804 (Loeblich and Tappan 1964, 1987). Thus, *Dalbyella danvillensis* and *Robulus danvillensis* are subjective secondary homonyms of *Lenticulina danvillensis* (Howe and Wallace 1932).


**HOLOTYPE:** HVH 2551, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312’ 5″ East and 345’ North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 115,” core at depth “1479.5,” “brown silty shale.” Figured: pl. 26, fig. 29.


**HOLOTYPE:** HVH 2551, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312’ 5″ East and 345’ North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 115,” core at depth “1479.5,” “brown silty shale with some glauconite.” Figured: pl. 26, fig. 24.

**COMMENTS:** The lithologic description of Sample 115 in Hussey’s (1940, p. 144) dissertation is “brown silty shale.”


**HOLOTYPE:** HVH 54, Eocene, Claiborne, Cook Mountain


HOLOTYPE: HVH 51, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 39,” (Rob-5): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness. The lowest of these fossiliferous beds was at water level at the time collected.” Sample No. 39 is “from beneath the lowest iron ore ledge and collected at water level. Elevation—77± feet.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 5). Figured: pl. 5, fig. 15.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


HOLOTYPE: HVH 649, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper horizon” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 6, fig. 4.

COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.


HOLOTYPE: HVH 59, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 5,” (Ru-207): “Brown glauconitic calcareous, fossiliferous clays. Sample collected in the limestone boulder bed in road cut on the east side of State Highway 39, 2.3 miles south of Provencal in the SW¼ NE¼ sec. 4, T. 7 N., R. 8 W. Elevation—200 feet.” Natchitoches Parish, Louisiana. Collected by Justin M. Rukas between 1936 and 1938. Figured: pl. 6, fig. 6.

Dentalina paradoxa  Hussey 1949, J. Paleontol. 23: 126.


COMMENTS: “D. advena zone” = Discocyclina advena zone. The sample number is 188, not 1888 as published in explanation of pl. 26, fig. 23 of Hussey (1949, p. 117).


HOLOTYPE: HVH 718, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line.

HOLOTYPE: HVH 2404, Miocene; “Stanolind Oil and Gas Company wells in the High Island field, Galveston County, Texas. This field is located near the eastern end of Bolivar Peninsula, in the most eastern extremity of Galveston County, and lies almost in the Gulf of Mexico”; specimen “from no. 1 Gordon-Viterbo, core at 4,875–4,895 feet.” Figured: pl. 70, figs. 1a–1c.

PARATYPE: HVH 2405, same sample as holotype, one specimen, figured: pl. 70, fig. 2.


HOLOTYPE: HVH 6755, Miocene; “Magnolia Petroleum Co. State Lease 883, no. 1-A, Block 46 Field, Vermilion offshore Area,” off the coast of Vermilion Parish, Louisiana. “Cuttings from 12,970–13,000 feet.” Figured: text-figs. 3a–3c.

PARATYPES from same locality and depth as holotype: HVH 6756, one specimen, not figured. LSUGDM 1097, one specimen, not figured.


HOLOTYPE: HVH 1953, middle Tertiary, Discorbis zone; “Stanolind Oil and Gas Company no. B-2 Pipkin, Big Hill prospect, Jefferson County, Texas,” “from core at 5,647–5,651 feet.” Figured: pl. 66, figs. 2a–2c.

PARATYPE: HVH 1954, middle Tertiary, Discorbis zone; Stanolind Oil and Gas Company no. B-2 Pipkin, Big Hill prospect, Jefferson County, Texas, from core at 5,544–5,549 feet; one specimen, figured: pl. 66, figs. 3a, 3b.

COMMENTS: The catalog number of paratype HVH 1954 was published as no. 1594.


COMMENTS: According to Howe Loc. 272, Huner collected his sample JH-62 along Emergency Conservation Work (E.C.W.) Road 21 on a slope leading down to Couley Creek, in a ditch on the northeast side of the road, SE¼, NE¼, NE¼ sec 22, T. 10 N., R. 5 W.


HOLOTYPE: HVH 139, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 39” (Rob-5): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness. The lowest of these fossiliferous beds was at water level at the time collected.” Sample No. 39 is “from beneath the lowest iron ore ledge and collected at water level. Elevation—77 feet.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 5). Figured: pl. 9, figs. 28–30.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


HOLOTYPE: HVH 7669, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 13, 4.5 ft. from [above] base of Paynes Hammock Formation” taken in a gray-buff, calcereous, hard sand bed, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 4, figs. 15, 16.

PARATYPES from same sample as holotype: HVH 7670, one specimen, figured: pl. 4, fig. 17. LSUGDM 965, one specimen, not figured.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


HOLOTYPE: HVH 1955, middle Tertiary, Discorbis zone; “Stanolind Oil and Gas Company no. B-2 Pipkin, Big
Discorbis parva

Discorbis petalana
HOLOTYPE: HVH 2578, Eocene, Cane River Fm.; “from Sample No. Ru. 518-J-207,” “NW ¼ NE ¼ NW ¼ of sec. 6, R. 6 W., in center of negro settlement, 40′ hole extending from 12′ above D. advena zone to 8′ below it;” “Natchitoches Parish, Louisiana.” Collected by Justin M. Rukas between 1936 and 1938. Figured: pl. 27, figs. 20, 21.
COMMENTS: “D. advena zone” = Discocyclina advena zone. Hussey (1943, 1949) does not list the township number, and the section quadrants published in 1943 and 1949 do not agree. Grover Murray, in a 1959 personal communication with Ellis and Messina (1952 et seq., entry for Brachycythere bernardi Murray and Hussey), describes Rukas locality 518 as “a hand dug well at Chestnut, in the NW¼ NE¼ NW¼ of Sec. 30, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana.”

Discorbis rukasi
HOLOTYPE: HVH 2035, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 19;” (Ru-274 F): “Yellow calcareous clays, 300 feet east and downstream from Sample No. 14 in creek bank.” [Sample No. 14 was “collected just east of the bridge.”] “4.9 miles north of Flora in center of sec. 16, T. 8 N., R. 7 W.,” Natchitoches Parish, Louisiana. Collected by Justin M. Rukas between 1936 and 1938. Figured: pl. 10, fig. 25.
PARATYPE: HVH 2036, same sample as holotype, one specimen, figured: pl. 10, fig. 26.

Discorbis washburni
Garrett 1941, J. Paleontol. 15: 155.
HOLOTYPE: HVH 1935, [Paleocene], Nanafalia Fm.; “Sample no. 112.D.—Gray, fossiliferous clay, taken from the face of a low bluff on the west bank of Tombigbee River at Lott’s Landing, Choctaw County, Ala. [Alabama]. This lies about one-half mile north of the bridge on Alabama Highway 10 (Butler-Dixon Mills Highway). Sample taken about 8 feet below top of exposure, and is Nanafalia in age.” Collected by Julius B. Garrett with C.F. Washburn. Figured: pl. 26, figs. 10a–10c.
PARATYPES: HVH 1996, same sample as holotype, nine specimens, not figured.

Discorbis washburni
Garrett 1941, J. Paleontol. 15: 155.
HOLOTYPE: HVH 1935, [Paleocene], Nanafalia Fm.; “Sample no. 112.D.—Gray, fossiliferous clay, taken from the face of a low bluff on the west bank of Tombigbee River at Lott’s Landing, Choctaw County, Ala. [Alabama]. This lies about one-half mile north of the bridge on Alabama Highway 10 (Butler-Dixon Mills Highway). Sample taken about 8 feet below top of exposure, and is Nanafalia in age.” Collected by Julius B. Garrett with C.F. Washburn. Figured: pl. 26, figs. 10a–10c.
PARATYPES: HVH 1996, same sample as holotype, nine specimens, not figured.

Ellipsoidalina (?) mauricensis
HOLOTYPE: HVH 130, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 39;” (Rob-5): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ feet in thickness. The lowest of these fossiliferous beds was at water level at the time collected.” Sample No. 39 is “from beneath the lowest iron ore ledge and collected at water level. Elevation—77± feet.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 5). Figured: pl. 9, figs. 12, 13.
COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

Accepted as Parafissurina mauricensis (Hove and Roberts 1939) by Hayward et al. (2020).

Elphidium latispatium
HOLOTYPE: HVH 7699, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 11, 3.5 ft. above base of Paynes Hammock Formation” taken in a dark blue sand and
Ellis 1939, Elphidium rota
Smith 1948, La. Geol. Surv., Entosolenia boutoncapitata

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


HOLOTYPE: HVH 1893, [Oligocene, Paynes Hammock Fm.], “upper Chicksawhay;” from the south bank of the Chickasawhay River above the highway bridge 2½ miles south of Waynesboro,” Wayne County, Mississippi, “from material immediately above the bed containing Ostrea blanpiedi.” Locality CW of the Shreveport Geological Society’s (1934, p. 48) guidebook; collected by Henry V. Howe in June 1934. Figured: pl. 48, figs. 6a, 6b.

PARATYPE: HVH 1894, same sample as holotype, one specimen, figured: pl. 48, fig. 7.

COMMENTS: “Paynes Hammock” is the name later applied to the “upper Chicksawhay” of the 1934 Shreveport Geological Society’s guidebook (MacNeil 1944). Ellis (1939, p. 423) states that geologists’ opinions differed over whether the Chickasawhay beds were either Miocene or Oligocene. The U.S. Geological Survey (2019) considers the Paynes Hammock Formation to be upper Oligocene.

The Shreveport Geological Society’s guidebook (1934, p. 48 and map) places the collecting locality at the NE corner of NW¼, NW¼ section 25, T. 8 N., R. 7 W. Although the bridge has been moved slightly upstream since 1934, the Waynesboro, MS, USGS topographic quadrangle map (U.S. Geological Survey 1982), shows that the bend in the river where samples were collected is in SW section 24. Howe’s sample (Howe Locality 85; Loc. CW-2 of the 1934 guidebook) was collected from “elevation 127–128 feet and is a sandy claystone with echinoid fragments and spines”; it was taken 0.2 mile west (upstream) of the south end of the bridge in 1934.


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35). The genus Entosolenia Williamson 1848 is considered a subjective junior synonym of Oolina d’Orbigny 1839 (Hayward et al. 2020); Entosolenia boutoncapitata = Oolina boutoncapitata (Smith 1948).


COMMENTS: The genus Entosolenia Williamson 1848 is considered a subjective junior synonym of Oolina d’Orbigny 1839 (Hayward et al. 2020); Entosolenia vasiformis = Oolina vasiformis (Hussey 1949).


HOLOTYPE: HVH 7677, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 10, 2 ft. above base of Paynes Hammock Formation” taken in a blue-green, argillaceous, loose sand bed with Ostrea blanpiedi, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 4, figs. 36–38.

PARATYPES: LSUGDM 968, from same sample as holotype, two specimens, not figured.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


HOLOTYPE: HVH 7678, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 12, 3.8 ft. above base of Paynes Hammock Formation” taken in an orange, coarse-grained sand bed, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 4, figs. 39–41.

PARATYPES: LSUGDM 969, from same sample as holotype, seven specimens, not figured.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.

**HOLOTYPE:** HVH 2582, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312’ 5” East and 345’ North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 116,” core at depth “1480’,” “brown silty shale with some lignite.” Figured: pl. 28, figs. 11, 12.

**COMMENTS:** The explanation of plate 28 (Hussey 1949, p. 133) erroneously lists the locality as sample no. 1, instead of sample 116.


**ALLOTYPE [PARATYPE]:** HVH 1411; **HOLOTYPE:** HVH 1410, [Miocene], “Sample No. 126-A.—Green, sandy, glauconitic, fossiliferous marl taken from the bottom of a small ravine lying on the west bank of the Chickasawhay River and about 100 yards south of the highway bridge at Enterprise, Clarke County, Miss. [Mississippi]. This is the Enterprise marl of E.N. Lowe.” Collected by Julius B. Garrett with C.F. Washburn. Figured: pl. 26, figs. 12a–12c.

**COMMENTS:** “Enterprise marl” is a term no longer used for a basal member of the Lisbon Formation in Mississippi; see “Enterprise Green Marl” in the U.S.G.S. (2020) Geologic Names Committee Archives.


**COMMENTS:** The well location is shown in Figure 3 of Smith (1948, p. 35).

The catalog number HVH 4001 was inadvertently assigned to two different specimens in the collection when two authors were granted blocks of numbers that overlapped. A suffix has been added to the originally published number 4001 to give this specimen a unique identifier: HVH 4001A.


**HOLOTYPE:** HVH 603, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[i]light yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 13, figs. 8a–8c.

**COMMENTS:** In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravel (opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.


**COMMENTS:** Hussey proposed the new name *Eponides inornata* to replace *Eponides simplex* Hussey 1949, a homonym of *Eponides simplex* (White 1928); see Thalmann (1949, p. 101).


PARATYPES: LSUGDM 959, from same sample as holotype, two specimens, not figured.

COMMENTS: Ellis and Messina (1940 et seq.) state that the type specimens were collected from 7 feet above the base of the bluff, instead of the described 5 feet. Poag's (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


HOLOTYPE: HVH 7648, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 12, 3.8 ft. above base of Paynes Hammock Formation” taken in an orange, coarsely-grained sand bed, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 3, figs. 25, 26.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


PARATYPES: LSUGDM 960, from same sample as holotype, one specimen, not figured.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.

**Frondicularia elegantissima** Hussey 1949, *J. Paleontol.* 23: 125.

HOLOTYPE: HVH 2556, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115’ South and 150’ East of the Northwest corner of the N.W.¼ of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 158,” core at depth “1519’,” “tight to dark gray silty shale and greensand.” Figured: pl. 26,

**HOLOTYPE:** HVH 712, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 10, figs. 9a–9c.

**COMMENTS:** The spelling of the genus as “*Globigirna*” on p. 74 is a typographical error; the correct spelling of *Globigerina danvillensis* is on p. 100.

In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

The species name is accepted as *Dipsidripella danvillensis* (Howe and Wallace 1932) by Huber et al. (2006, p. 496–499, 501) and Young et al. (2020). Huber et al. (2006), however, mistakenly give the original combination as *Globorotalia danvillensis*.


**HOLOTYPE:** HVH 716, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper horizon” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 10, figs. 7a, 7b.

**COMMENTS:** In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

The holotype specimen is damaged and has a hole in one chamber. Accepted as *Globoturborotalita ouachitaensis* (Howe and Wallace 1932) by Young et al. (2020).


**COMMENTS:** According to Howe Loc. 272, Huner collected his sample JH-62 along Emergency Conservation Work (E.C.W) Road 21 on a slope leading down to Couley Creek, in a ditch on the northeast side of the road, SE¼, NE¼, NE¼ sec 22, T. 10 N., R. 5 W.


**HOLOTYPE:** HVH 2594, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312′ 5″ East and 345′ North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 137,” core at depth “1503′–1509′,” “light gray silty shale and greensand.” Figured: pl. 29, figs. 4, 5.

**COMMENTS:** According to Young et al. (2020), *Globorotalia inflata* Hussey is poorly understood; it may belong to the genus *Turborotalia*, and the species could be a senior synonym of *Turborotalia pomeroli* (Toumarkine and Bolli 1970).


**HOLOTYPE:** HVH 2595, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312′ 5″ East and 345′ North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 123,” core at depth “1486′,” “chocolate-brown shale and greensand with some lignite.” Figured: pl. 29, figs. 6, 7.

**COMMENTS:** The explanation of plate 29, figs. 6 and 7 (Hussey 1949, p. 140), refers to sample no. 181 instead of no. 123.


**HOLOTYPE:** HVH 2508, Eocene, Cane River Fm.; “from sample 118,” “Louisiana Oil and Ref. Co., Tremont No. 2, 312 feet east and 345 feet north of southwest cor. SW¼ sec. 29, T. 10 N., R. 2 E., La Salle Parish,” Louisiana; “core samples ranging in depth from 1468 feet to 1555 feet.” Figured: pl. 26, fig. 13.

**PARATYPES:** HVH 2509, from same sample as holotype, two specimens, not figured.

**COMMENTS:** The species name was originally spelled as *Goësella gibbosa* Hussey. Hussey’s (1949, p. 115) locality differs slightly from his 1943 paper: “312′ 5″ East” vs. “312 feet east.” Sample 118, core at depth 1482 feet, is described by Hussey (1949, p. 115) as “gray-brown shale and greensand.”

14: 61–62.


dark gray silty shale and greensand.” Figured: pl. 26, fig. 28.

COMMENTS: The explanation of plate 26 (Hussey 1949, p. 117) erroneously lists the locality as sample number 149 instead of number 158.


**HOLOTYPE:** HVH 2559, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115’ South and 150’ East of the Northwest corner of the N.W.1/4, of the N.E.1/4 of Sec. 30, T. 10 N., R. 2 E.” La Salle Parish, Louisiana, “from Sample No. 149,” core at depth “1507½,” “glaucconitic shale and sand, *D. advena* zone.” Figured: pl. 26, fig. 19.

COMMENTS: “*D. advena* zone” = *Discocyclus advena* zone.


**HOLOTYPE:** HVH 606, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 13, figs. 3a–3c.

COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives. Accepted as *Valvulinera danvillensis* (Howe and Wallace 1932) by Hayward et al. (2020).


**HOLOTYPE:** HVH 2580, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115’ South and 150’ East of the Northwest corner of the N.W.1/4, of the N.E.1/4 of Sec. 30, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 175,” core at depth “1545′,” “salt and pepper’ sand and silty shale.” Figured: pl. 28, figs. 6, 7.


**HOLOTYPE:** HVH 1972, [Paleocene], Nanafalia Fm.; “Sample no. 112-D.—Gray, fossiliferous clay, taken from the face of a low bluff on the west bank of Tombigbee River at Lott’s Landing, Choctaw County, Ala. [Alabama]. This lies about one-half mile north of the bridge on Alabama Highway 10 (Butler-Dixon Mills Highway). Sample taken about 8 feet below top of exposure, and is Nanafalia in age.” Collected by Julius B. Garrett with C.F. Washburn. Figured: pl. 26, figs. 11a–11c.

**PARATYPES:** HVH 1998, same sample as holotype, three specimens, not figured.


**HOLOTYPE:** HVH 1930, Oligocene, Hackberry assemblage, sticky shale overlying Vicksburg; “Superior Oil Company, no. 1, D. Hebert, Hackberry field, Cameron Parish, La. [Louisiana], from core at 6,006–6,026 feet.” Figured: pl. 40, figs. 12a–12c.

**PARATYPE:** HVH 1931, same sample as holotype, one specimen, figured: pl. 40, fig. 13.


**HOLOTYPE:** HVH 1956, middle Tertiary, *Discorbis* zone; “Stanolind Oil and Gas Company no. B-2 Pipkin, Big Hill prospect, Jefferson County, Texas,” “from core at 5,647–5,651 feet.” Figured: pl. 66, figs. 5a–5c.

**Hantkenina danvillensis** Howe and Wallace 1934, *J. Paleontol.* 8: 37.

**HOLOTYPE:** HVH 599, Eocene, Jackson, [possibly Danville Landing Fm.]; “at Danville Landing on the Ouachita River, Catahoula Parish, Louisiana.” Collected by Henry V. Howe. Figured: pl. 5, figs. 14, 17.

COMMENTS: Howe and Wallace (1934) do not state from which bed the holotype was collected; however, the specimen’s catalog card lists the upper horizon (bed 2) of Howe and Wallace (1932, pp. 8, 10). Spraul (1962, p. 344), who discussed the species with Howe, confirms that the upper bed (bed 2) at Danville Landing is its type locality. The species name is now accepted as *Cribrohantkenina inflata* (Howe 1928); see Spraul (1962, p. 347, pl. 1, figs. 2a, 2b) and Coxall and Pearson (2006, p. 226, pl. 8.3).


**HOLOTYPE:** HVH 585, [reworked upper Eocene; see Howe in Thalmann (1942, p. 813) and Spraul (1962, p. 343)]; Howe (1928b, p. 14): “from the limestones at the base of the Oligocene section”; “Old Fort St. Stephens Bluff, [Washington County,] Alabama.” Collected by Henry V. Howe. Figured: text-fig. 2.

COMMENTS: Howe (1928b) published the holotype’s catalog number as Louisiana State University Museum, No. H. 16, but the H.V. Howe Type Collection number is 585.

Howe collected the material used for his 1928 *Hantkenina* study from where he thought it would be “high enough up the bluff to be free from any Eocene contamination”; he found the new species “in the basal limestones overlying the typical Red Bluff Clay” (Howe 1928b, p. 13). However, in a personal communication to Thalmann (1942, p. 813), Howe states that, “when collecting the sample in 1924, he landed on the contact between the Vicksburg and the Jackson
formation at the type locality. The basal Vicksburg beds apparently contain reworked Jackson [Eocene] fossils.” According to Howe’s letter to Thalmann (1942, p. 814), “the original sample is labeled ‘immediately below base of lime section,’” and, in Howe’s view, “corresponds with Bed 3 of Cooke’s section” (which is identified as “Red Bluff clay” in Cooke (1926, p. 283)). Spraul (1962, p. 343) states that “[t]he exact location of the type locality according to Howe (personal communication) is the same as Cooke’s ‘Bed number 1’” (identified as “Jackson formation (?)” in Cooke (1926, p. 283)). Howe subsequently discovered aperture details in topotype specimens that resulted in the placement of the species in the subgenus Cribrohantkenina by Thalmann (1942, pp. 812–813). The species name is now accepted as Cribrohantkenina inflata (Howe); see Coxall and Pearson (2006, p. 226, pl. 8.3).


HOLOTYPE: HVH 605, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River]. Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 10, figs. 1a, 1b.

COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

The species name is now accepted as Cribrohantkenina inflata (Howe); see Coxall and Pearson (2006, p. 226, pl. 8.3).


HOLOTYPE: HVH 7740, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 12, 3.8 ft. above base of Paynes Hammock Formation” taken in an orange, coarse-grained sand bed, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 9, figs. 29–31.

PARATYPES: LSUGDM 983, from same sample as holotype, eight specimens, not figured.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.

Haplophragmoides complanata Hussey 1949, J. Paleontol. 23: 118.


COMMENTS: The figure does not completely match the specimen.


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35).


HOLOTYPE: HVH 4503, Holocene; “from sediments deposited in brackish water environments, a marsh sample” “from Barataria Bay, at Manila Village, [Jefferson Parish,] Louisiana, Sample BB-1.” Collected by WW. Anderson, Conservation Department, New Orleans, Louisiana. Figured: pl. 4, figs. 8a, 8b.

PARATYPES from same sample as holotype: HVH 421, one specimen, not figured. LSUGDM 690, 11 specimens, not figured.


HOLOTYPE: HVH 2, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 38,” (Rob-4): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 38 is “from beneath the next to the lowest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 4). Figured: pl. 1, figs. 3–5.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad...
bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35).


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35).


HOLOTYPE: HVH 4209, Holocene; “from sediments deposited in brackish water environments,” “bottom sample” “from Dog Lake, twenty miles south of Dulac, [Terrebonne Parish,] Louisiana, Sample DL-1.” Collected by S.E. Roper. Figured: pl. 4, fig. 7a, 7b.

PARATYPES: LSUGDM 688, from same sample as holotype, 21 specimens, not figured.


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35).


HOLOTYPE: HVH 7623, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 13, 4.5 ft. above base of Paynes Hammock Formation” taken in a grey-buff, calcareous, hard sand bed, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 2, figs. 12, 13.

PARATYPES: LSUGDM 956, from same sample as holotype, three specimens, figured: pl. 2, fig. 14.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


SYNTYPES: HVH 1962, [Paleocene], Nanafalia Fm.; “Sample no. 102-B.—Sandy, glauconitic, fossiliferous marl in roadcut on the Camden-Fatama road, lying 4.1 miles southeast of the courthouse at Camden, Wilcox County, Ala. [Alabama]. This locality is Nanafalia in age, and lies in the Grampian Hills. Sample taken about five feet below top of exposure.” Collected by Julius B. Garrett with C.F. Washburn; one specimen, figured: pl. 26, figs. 1a, 1b.

HVH 1963, [Paleocene], Nanafalia Fm.; “Sample no. 102-B.—Gray, glauconitic, fossiliferous marl in roadcut in the Hatchetigbee Bluff on Tombigbee River, Washington County, Ala. [Alabama]. This lies about one-half mile north of the bridge on Alabama Highway 10 (Butler-Dixon Mills Highway). Sample taken about 8 feet below top of exposure, and is Nanafalia in age.” Collected by Julius B. Garrett with C.F. Washburn; one specimen, figured: pl. 26, fig. 2.

HVH 1964, Sample no. 102-B; one specimen, figured: pl. 26, fig. 3.

HVH 1965, Sample no. 112-D; one specimen, figured: pl. 26, fig. 4.

COMMENTS: The genus *Hemicristellaria* Sherborn 1893 is a synonym of *Hemirobulina* Stache 1864 (Hayward et al. 2020); *Hemicristellaria brantlyi* = *Hemirobulina brantlyi* (Garrett 1941).


SYNTYPES: HVH 1966, Eocene, base of Tallahatta Fm.; “Sample no. 106-C.—Light greenish gray, glauconitic marl with casts. This bed is about 3 feet thick, occurring in the face of the steep, main bluff at Hatchetigbee Bluff on Tombigbee River, Washington County, Ala. [Alabama]. This bed lies just at the base of the Tallahatta formation.” Collected by Julius B. Garrett with C.F. Washburn; one specimen, figured: pl. 26, fig. 5.


HVH 1968, same sample as HVH 1967; one specimen, figured: pl. 26, figs. 7a, 7b.

COMMENTS: In the explanation of plate 26 for this species, Garrett (1941, p. 154) lists the occurrence as “Hatchetigbee formation, Ala. and Miss.” although sample no. 106-C was collected from a bed that “lies just at the base of the Tallahatta formation.”
The genus *Hemicristellaria* Sherborn 1893 is a synonym of *Hemirobulina* Stach 1864 (Hayward et al. 2020); *Hemicristellaria hatchetigbeensis* = *Hemirobulina hatchetigbeensis* (Garrett 1941).


HOLOTYPE: HVH 1969, Eocene, Hatchetigbee Fm.; “from core at 2735–2753 feet from South Mississippi Petroleum Company no. 1 Pearlie Morris, Lamar County, Miss.” [Mississippi]. “Gray, glauconitic clay, Hatchetigbee in age.” Figured: pl. 26, figs. 8a, 8b.

PARATYPE: HVH 1970, same sample as holotype, one specimen, figured: pl. 26, fig. 9.

COMMENTS: The genus *Hemicristellaria* Sherborn 1893 is a synonym of *Hemirobulina* Stach 1864 (Hayward et al. 2020); *Hemicristellaria hatchetigbeensis* var. *harrisi* = *Hemirobulina hatchetigbeensis* var. *harrisi* (Garrett 1941).


HOLOTYPE: HVH 677, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossilliferous clay, containing large selenite crystals and large concretions”; “upper horizon” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 12, figs. 1a–1c.

PARATYPES: HVH 677a, same sample as holotype, two specimens, not figured.

COMMENTS: In his section description for Danville Landing Fm., Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravel (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.


HOLOTYPE: HVH 16, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 38,” (Rob-4): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 38 is “from beneath the next to the lowest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 4). Figured: pl. 2, figs. 1, 2.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


HOLOTYPE: HVH 2512, Eocene, Cane River Fm.; “from sample 169,” “Louisiana Oil and Ref. Co., Tremont No. 1, 115 feet south and 150 feet east of northwest cor. NW¼ NE¼ sec. 30, T. 10 N., R. 2 E., La Salle Parish,” Louisiana; “core samples ranging in depth from 1500 feet to 1566 feet.” Figured: pl. 26, fig. 5.

COMMENTS: Hussey (1949, p. 116) gives a description of sample 169 from core at depth 1534½ feet as “mostly greensand, ‘salt and pepper’ sand.”


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35).


HOLOTYPE: HVH 70, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 38,” (Rob-4): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 38 is “from beneath the next to the lowest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 4). Figured: pl. 6, fig. 18.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


PARATYPES: LSUGDM 206, from same sample as holotype, two specimens, not figured.

COMMENTS: The well location is shown in Figure 3 of Howe and Ellis in Howe 1939, La. Geol. Surv., Geol. Bull. 14: 51.


PARATYPES: LSUGDM 208, from same sample as holotype, seven specimens, not figured.

COMMENTS: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N, Long. 89°08′34.4″ W),” The material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35).


PARATYPES: LSUGDM 211, from same sample as holotype, four specimens, not figured.

COMMENTS: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N, Long. 89°08′34.4″ W),” The material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).


HOLOTYPE: HVH 647, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 37,” (Rob-3): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 37 is “from beneath the middle iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 3). Figured: pl. 6, fig. 13.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

HOLOTYPE: HVH 688, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River]. Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 6, fig. 5.

COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.


HOLOTYPE: HVH 7628, [Oligocene], Paynes Hammock Fm.; “Loc. CX, sample 12, 2.9 ft. above base of Paynes Hammock Formation” taken in a gray-green, calcareous sand bed, in a section “approximately 200 yards south of the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 2, figs. 21, 22.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


HOLOTYPE: HVH 66, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 38,” (Rob-4); “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 38 is “from beneath the next to the lowest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 4). Figured: pl. 6, fig. 14.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


COMMENTS: HVH 3971 was published as a monotype. The well location is shown in Figure 3 of Smith (1948, p. 35).

Lamarckina claibornensis  (Cushman) var. gemmulata  Hussey 1949, J. Paleontol. 23: 136.

HOLOTYPE: HVH 2589, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312’ 5″ East and 345’ North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 126,” core between 1488 feet and 1489 feet. Figured: pl. 28, fig. 10.

COMMENTS: Hussey (1949, p. 115) has no lithologic information for Sample 126.


HOLOTYPE: HVH 7644, [Oligocene], Paynes Hammock Fm.; “Loc. CX, sample 12, 2.9 ft. above base of Paynes Hammock Formation” taken in a gray-green, calcareous sand bed, in a section “approximately 200 yards south of the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 3, figs. 16–18.

PARATYPES: LSUGDM 958CX, Loc. CX, sample 11, from 2.6 feet above the base of Paynes Hammock Formation, taken in an olive-green, arenaceous clay bed; one specimen, not figured. LSUGDM 958PH, Paynes Hammock Fm.; Loc. PH2, sample C’, from 7 feet above base of outcrop, taken in a blue-green, calcareous, argillaceous sand bed, at the 12- to 13-foot bluff on the east bank of Fisher Creek, north of confluence with Dead River, near Paynes Hammock.
HOLOTYPE: HVH 7631, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 11, 3.5 ft. above base of Paynes Hammock Formation” taken in a dark blue sand and clay bed, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 2, figs. 27–28.  
PARATYPES: LSUGDM 957, Loc. S19, sample 12, from 3.8 feet above the base of the Paynes Hammock Formation, taken in an orange, coarse-grained sand bed; six specimens, not figured.  
COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.

SYNTYPES: HVH 2402, Miocene; “Stanolind Oil and Gas Company wells in the High Island field, Galveston County, Texas. This field is located near the eastern end of Bolivar Peninsula, in the most eastern extremity of Galveston County, and lies almost in the Gulf of Mexico”; specimen “from no. 1 Gordon-Viterbo, core at 4,875–4,895 feet”; one specimen, figured: pl. 70, figs. 10a, 10b.  
HVH 2403, same sample as HVH 2402; one specimen, figured: pl. 70, fig. 9.  
COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.

COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35).  
Hayward et al. (2020) note: “The specific name is given in the table as Lingulina seminuda (Reuss). It is not clear to which species the author intended to refer (fide Ellis & Messina).”

HOLOTYPE: HVH 110, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 80,” (JH-96): “Glauconic, very fossiliferous marl containing zone of argillaceous limestone concretions up to 10 inches in diameter. Taken three feet below Sample No. 79 (JH-95 B). Elevation—182 feet.” Sample No. 80 was taken about 22 feet “below top of slope in well-exposed cut on the southeast side of intersection of State Highway 6 and Couley-St. Maurice road in the SE¼ NW¼ SE¼ NE¼ sec. 20, T. 10 N., R. 5 W.,” Winn Parish, Louisiana. Collected by John Huner, Jr., between 1936 and 1938. Figured: pl. 8, figs. 25, 26.  
COMMENTS: Sample JH-96 is described in Huner (1939, p. 90) as from a “[z]one of hard very fossiliferous limestone concretions with greensand. Operculinoides sabinensis,” bed 11 of the section “in road cut along U.S. Highway 84 in the northwest corner of the SE¼ NE¼ sec 20, T. 10 N., R. 5 W., Winn Parish.” In Winn Parish, U.S. Highway 84 was formerly Louisiana Highway 6.  

PARATYPES: LSUGDM 254, from same sample as holotype, 11 specimens, not figured.  
COMMENTS: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N., Long. 89°08′34.4″ W).” The material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).
HOLOTYPE: HVH 2524, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312’ 5” East and 345’ North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 123,” core at depth “1486’,” “chocolate-brown shale and greensand with some lignite.” Figured: pl. 25, fig. 3.


HOLOTYPE: HVH 1885, Miocene; “from Athens Oil Co.’s United Lands No. 2 well, core at 4330 feet, Sorrento dome,” Ascension Parish, Louisiana. Figured: pl. 1, figs. 1, 2.

PARATYPES: HVH 1887, same sample as holotype, three specimens, figured: pl. 1, figs. 3, 4.

COMMENTS: Howe and McGuirt’s (1938, p. 114-A) map shows the AU-2 well in the northeastern quarter of section 15, T. 10 S., R. 4 E.


COMMENTS: Hussey’s (1949, p. 117) explanation for plate 26, figs. 7 and 8, erroneously refers to the holotype slide as no. 2538.


HOLOTYPE: HVH 2523, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115’ South and 150’ East of the Northwest corner of the N.W.¼ of Sec. 30, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 173,” core at depth “1543’,” “salt and pepper’ sand and silty shale.” Figured: pl. 25, fig. 4.


HOLOTYPE: HVH 1916, middle Tertiary; “from Stanolind Oil and Gas Company no. 3 Mary Duhon, Hackberry field, Cameron Parish, La. [Louisiana], from core at 4,074–4,076 feet.” Figured: pl. 86, fig. 9.

PARATYPES: HVH 1917, middle Tertiary; Stanolind Oil and Gas Co. no. 3 Mary Duhon, Hackberry Field, Cameron Parish, Louisiana, from core at 4,130–4,135 feet; one specimen, figured: pl. 86, fig. 18. HVH 1918, same sample as HVH 1917, one specimen, figured: pl. 86, figs. 8a, 8b.


HOLOTYPE: HVH 60, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 66,” (JH-71): “Weathered calcareous clay or marl. Taken in well-exposed section on southeast side of Range Creek about 25 feet above channel, along Couley-Coldwater road in the SE¼ NW¼ SE¼ sec. 26, T. 11 N., R. 5 W., Elevation—177 feet.” Winn Parish, Louisiana. Collected by John Huner, Jr., between 1936 and 1938. Figured: pl. 6, fig. 7.

COMMENTS: Huner (1939, p. 92) describes the location of his section as “the northeast corner of the NW¼ SE¼ sec. 25, T. 11 N., R. 5 W., Winn Parish, in road cut up slope southeast of Range Creek.” Sample JH-71 is from the Milams member of Cook Mountain.


HOLOTYPE: HVH 1909, middle Tertiary; “from Stanolind Oil and Gas Company no. 1 C.D. Brown, Hastings field, Brazoria County, Tex. [Texas], from core at 5,560–5,565 feet.” Figured: pl. 86, fig. 13.

PARATYPES: HVH 1910, middle Tertiary; Stanolind Oil and Gas Co. no. 3 Sneed, Hastings field, Brazoria County, Texas, from core at 5,690–5,694 feet; one specimen, figured: pl. 86, fig. 5a, 5b. HVH 1911, same sample as holotype, one specimen, figured: pl. 86, fig. 14. HVH 1912, same sample as holotype, one specimen, figured: pl. 86, fig. 6.


COMMENTS: The figure does not completely match the specimen.


HOLOTYPE: HVH 1904, middle Tertiary; “from Stanolind
Oil and Gas Company no. 1 H.H. Ford, Hastings field, Brazoria County, Tex. [Texas], from core at 5,860–5,864 feet.” Figured: pl. 86, figs. 17a, 17b.

**PARATYPES:** HVH 1905, middle Tertiary; Stanolind Oil and Gas Co. no. 1 Laura D. Shaw, Hastings field, Brazoria County, Texas, from core at 5,279–5,287 feet; one specimen, figured: pl. 86, figs. 11a, 11b. HVH 1906, same sample as HVH 1905, one specimen, figured: pl. 86, fig. 10. HVH 1907, middle Tertiary; Stanolind Oil and Gas Co. no. 1 W.B. Wooster, Hastings field, Brazoria County, Texas, from core at 5,784–5,788 feet; one specimen, figured: pl. 86, fig. 2. HVH 1908, middle Tertiary; Stanolind Oil and Gas Co. no. 1 C.P. Williams, South Houston field, Harris County, Texas, from core at 4,674–4,681 feet; one specimen, figured: pl. 86, fig. 12.


**HOLOTYPE:** HVH 2522, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115’ South and 150’ East of the Northwest corner of the N.W.¼, of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 151,” core at depth “1511′,” “light gray shale and glauconite.” Figured: pl. 26, fig. 9.

**COMMENTS:** Hussey’s (1949, p. 117) explanation for plate 26, fig. 9, erroneously refers to the holotype slide as no. 2521.

**Marginulina producta** Hussey 1949, *J. Paleontol.* 23: 123.

**HOLOTYPE:** HVH 2528, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312’ 5” East and 345’ North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 139,” core at “1521′–1531′,” “light gray silty shale and greensand.” Figured: pl. 25, fig. 9.


**HOLOTYPE:** HVH 1886, Oligocene? *Marginulina sorrentoensis* faunal zone “overlying the cap rock near the apex of the dome”; “from Gulf’s United Lands Co. No. 8 well, a sample taken at 1820 feet, Sorrento dome,” Ascension Parish, Louisiana. Figured: pl. 1, figs. 5, 6.

**COMMENTS:** Howe and McGuirt (1938, p. 131–132) suggest that the species may be from the Oligocene, but “the stratigraphic position of this fauna could not be satisfactorily established.” Their map on p. 114-A shows that the GU-8 well is in the SE¼, SW¼ section 15, T. 10 S., R. 4 E.


**HOLOTYPE:** HVH 2537, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312’ 5” East and 345’ North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 113,” core at depth “1476′,” “brown silty shale with some glauconite.” Figured: pl. 25, fig. 5.

**COMMENTS:** The genus is misspelled on p. 123 as *Marginulina.* The lithologic description of Sample 113 in Hussey’s (1940, p. 144) dissertation is “brown silty shale.”

**Marginulina subglobosa** Hussey 1949, *J. Paleontol.* 23: 123.

**HOLOTYPE:** HVH 2526, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115’ South and 150’ East of the Northwest corner of the N.W.¼, of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 157,” core at depth “1518′,” “light to dark gray silty shale and greensand.” Figured: pl. 26, fig. 16.


**HOLOTYPE:** HVH 1913, middle Tertiary; “from Stanolind Oil and Gas Company no. B-1 Pipkin, Big Hill Prospect, Jefferson County, Tex. [Texas], from core at 6,560–6,570 feet.” Figured: pl. 86, figs. 3a, 3b.

**PARATYPES** from same sample as holotype: HVH 1914, one specimen, figured: pl. 86, figs. 1a, 1b. HVH 1915, one specimen, figured: pl. 86, fig. 7.


**HOLOTYPE:** HVH 679, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper horizon” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 5, figs. 6a, 6b.

**COMMENTS:** In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.


**COTYPES [SYNTYPES]:** HVH 2529, Eocene, Cane River Fm., “from sample Ru 226′” [Hussey Sample 190], “about 0.6 mile west of Provencal on north side of tracks of Texas & Pacific RR., NW¼, SW¼, SE¼, sec. 20, T. 8 N., R. 8 W., D. advena zone,” “Natchitoches Parish, Louisiana.” Collected by Justin M. Rukas between 1936 and 1938; one specimen, figured: pl. 27, fig. 2.

H VH 2530, Eocene, Cane River Fm.; “from sample
119," "Louisiana Oil and Ref. Co., Tremont No. 2, 312 feet east and 345 feet north of southwest cor. SW¼ sec. 29, T. 10 N., R. 2 E., La Salle Parish," Louisiana; "core samples ranging in depth from 1468 feet to 1555 feet"; one specimen, figured: pl. 27, fig. 3. [Hussey (1949, p. 115): sample 119, core at depth 1483 feet, "chocolate-brown shale and greensand."]

HVH 2531, Eocene, Cane River Fm.; "from sample 120," "Louisiana Oil and Ref. Co., Tremont No. 2, 312 feet east and 345 feet north of southwest cor. SW¼ sec. 29, T. 10 N., R. 2 E., La Salle Parish," Louisiana; one specimen, figured: pl. 27, fig. 5. [Hussey (1949, p. 115): sample 120, core at depth 1484 feet, "chocolate-brown shale and greensand with some lignite."]

HVH 2532, Eocene, Cane River Fm.; "from sample 118," "Louisiana Oil and Ref. Co., Tremont No. 2, 312 feet east and 345 feet north of southwest cor. SW¼ sec. 29, T. 10 N., R. 2 E., La Salle Parish," Louisiana; one specimen, figured: pl. 27, fig. 4. [Hussey (1949, p. 115): sample 118, core at depth 1482 feet, "gray-brown shale and greensand."]

HVH 2534, Eocene, Cane River Fm.; "from sample 123," "Louisiana Oil and Ref. Co., Tremont No. 2, 312 feet east and 345 feet north of southwest cor. SW¼ sec. 29, T. 10 N., R. 2 E., La Salle Parish," Louisiana; one specimen, figured: pl. 27, fig. 6. [Hussey (1949, p. 115): sample 123, core at depth 1486 feet, "chocolate-brown shale and greensand with some lignite."]

HVH 2535, "from sample 123"; one specimen, figured: pl. 27, fig. 8.

HVH 2536, "from sample 149," "Louisiana Oil and Ref. Co., Tremont No. 1, 115 feet south and 150 feet east of northwest cor. NW¼ NE¼ sec. 30, T. 10 N., R. 2 E., La Salle Parish," Louisiana; "core samples ranging in depth from 1500 feet to 1566 feet"; one specimen, figured: pl. 27, fig. 7. [Hussey (1949, p. 115): sample 148, core at depth 1506 feet, "gray shale, very little glauconite."]

COMMENTS: Although the type specimens of Marginulina variata Hussey are called paratypes in the text, they are designated as cotypes in the explanations of Plate 27 and the slide labels. The specimen illustrated in fig. 1 is HVH 2532, not 2530, and fig. 3 is HVH 2530, not 2532 as indicated for plate 27. Hussey's (1949, p. 115) description of the Louisiana Oil and Refining Company, Tremont No. 2 locality differs slightly from his 1943 paper: "312′ 5″ East" vs. "312 feet east." "on Town Creek, Jackson, [Hinds County,] Mississippi, "... on the northwest side of State Highway 6, in the northwest corner of the SE¼ SE¼ NE¼ sec. 16, T. 10 N., R. 5 W.," Winn Parish, Louisiana. Collected by John Huner, Jr., between 1936 and 1938. Figured: pl. 6, fig. 8, 9.

COMMENTS: The highway in Winn Parish referred to by Howe (1939, p. 11) as State Highway 6 is today U.S. Highway 84. According to the label of Howe Loc. 278, sample JH-36 was collected at elevation 165 feet.

Marssonella altisuturalis Poag 1966, Micropaleontology 12: 400.

HOLOTYPE: HVH 7611, [Oligocene], Paynes Hammock Fm.; "Loc. PH2, sample C', 7 ft. above base of outcrop" taken in a blue-green, calcareous, argillaceous sand bed, at "the 12- to 13-foot bluff... on the east bank of Fisher Creek," "of its confluence with Dead River, near Paynes Hammock Landing, south of Jackson, Clarke County, Alabama." Collected by C. Wylie Poag. Figured: pl. 1, figs. 16, 17.

PARATYPES: LSUGDM 955, from same sample as holotype, six specimens, not figured.

COMMENTS: Poag's (1966b) assignment of a "Lower Miocene?" age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


HOLOTYPE: HVH 29, Eocene, Claiborne, Cook Mountain Fm.; "from Sample No. 2," (JBG-19): "A bluff on the left bank of Sabine River, at Goodwin's shoal, behind the house of Mr. S.J. Speight, near the southwest corner of sec. 31, T. 5 N., R. 12 W." Sabine Parish, Louisiana. "The locality is near the old site of Columbus and may be reached by taking an old wagon road 100 yards north of Mr. Speight's house. This road leads in about 300 yards to the river bank. The locality is a low bluff, by the shoals, about 300 yards downstream, and exposes about eight feet of section from water level up. The section exposed is a marl with a one-foot compact lime bed near the middle. ... The shoals are produced by slumping and the stratigraphic relations are greatly confused." Sample No. 2 is "from 0–1 foot above limestone ledge." Collected by Julius B. Garrett in summer 1932. Figured: pl. 3, figs. 17, 18.

COMMENTS: Garrett collected from the Milams Member of the Cook Mountain Formation (Andersen 1960, p. 90). Toledo Bend Reservoir later covered the sample location; construction of the lake began in 1964. An alternate spelling, "Godwin Shoals," is used on the labels of H.V. Howe's samples from this locality.


HOLOTYPE: HVH 770, Eocene, Moody Branch Marl; "on Town Creek, Jackson, [Hinds County,] Mississippi, "... on the northwest side of State Highway 6, in the northwest corner of the SE¼ SE¼ NE¼ sec. 16, T. 10 N., R. 5 W.," Winn Parish, Louisiana. Collected by John Huner, Jr., between 1936 and 1938. Figured: pl. 6, fig. 8, 9.

COMMENTS: The highway in Winn Parish referred to by Howe (1939, p. 11) as State Highway 6 is today U.S. Highway 84. According to the label of Howe Loc. 278, sample JH-36 was collected at elevation 165 feet.
where it is crossed by the Great Northern Railroad Bridge.” Collected by Wade H. Hadley, Jr., and Morton B. Stephenson. Figured: pl. 14 (pl. 1), figs. 2b, 2c.

COMMENTS: According to Stephenson (1937, p. 159, Loc. 1), basal Moodys Branch marl was collected on the north side of Town Creek.


**HOLOTYPE:** HVH 28, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 37,” (Rob-3); “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of mud, each layer averaging perhaps 1 ½ feet in thickness.” Sample No. 37 is “from beneath the middle iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 3). Figured: pl. 3, figs. 14–16.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as "extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed."


**PARATYPES:** LSUGDM 130, from same sample as holotype, 15 specimens, not figured.

COMMENTS: Only fragments of the holotype are on its slide. *Massilina stuckeyi* was, therefore, not included in the count of species represented by name-bearing specimens in the collection. The paratypes that Andersen specified in the type description, however, remain.

Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N., Long. 89°08′34.4″ W.).” The material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).


**HOLOTYPE:** HVH 10373, Oligocene, Byram Fm.; “from the type locality of the Byram Formation, just north of the bridge on the Pearl River, east of Byram, [Hinds County,] Mississippi. Low water exposes an indurated ledge which may represent an unconformity between the Byram and the underlying Giendon Formation. The sample studied is from the glauconitic marl above the indurated ledge.” Collected by H.V. Andersen with Lewis Nichols, Alvin Phillips, and P.J. Coleman on October 15, 1963. Figured: fig. 28.

COMMENTS: Andersen (1988, pp. 132, 136) lists the holotype as LSU GM No. 10,535; the correct catalog number is HVH 10373. In a subsequent publication the author emended the species diagnosis (Andersen 1997, p. 184). According to original collection notes, sample #5 of October 15, 1963, was taken on the west bank of the Pearl River, 9.5 feet above the normally underwater, bored limestone flat and 3.8 feet above the main ledge or flat under the bridge; the sample was also two feet below the uppermost ledge which is exposed just south or downstream from the bridge.


**HOLOTYPE:** HVH 10334, [Andersen’s (1988) revised locality: Oligocene, Red Bluff Fm.; Hiwannee Station, Wayne County, Mississippi. The samples used from this locality were collected in the 1950s and 1960s.] Figured: figs. 24, 25.

**PARATYPE:** HVH 10372, same locality as holotype, one specimen, figured in Andersen (1988, p. 136, Fig. 27).

COMMENTS: Andersen (1984, p. 8) lists the holotype as LSU GM No. 10497; however, the catalog number is HVH 10334. Although published by Andersen (1984, p. 8) as “from the Moodys Branch Formation, Riverside Park, Jackson, Mississippi,” Andersen (1988, p. 136) corrects the locality; the holotype “is from the Red Bluff Formation, the same locality as specimen No. 10,534.” This No. 10534 is the paratype HVH 10372.


PARATYPES from same sample as holotype: HVH 6429a, one specimen, figured: pl. 4, figs. 10, 11. LSU GM 478, 43 specimens, not figured.

COMMENTS: Warren (1956, p. 136) gives the coordinates for the saline marsh Sample 19 as latitude 29° 15' 12” N, longitude 89° 33′ 38″ W. Warren (1956) also figures HVH 6429 (pl. 2, fig. 18) and HVH 6429a (pl. 2, figs. 15–17) under the name *Miliolinella* sp. A.


PARATYPES: LSU GM 140, from same sample as holotype, 11 specimens, not figured.

COMMENTS: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N, Long. 89°08′34.4″ W).” The material may be Holocene or Pleistocene; for a discussion of the age of mudmudp samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).


HOLOTYPE: HVH 10343, Oligocene; “from the Red Bluff formation at Hiwanee Station, [Wayne County,] Mississippi.” [Accepted spelling is Hiwanee.] According to Andersen (1988, p. 123), the samples used from this locality were collected in the 1950s and 1960s. Figured: figs. 37, 38.

COMMENTS: Andersen (1984, pp. 10, 15) lists the holotype as LSU GM No. 10506; however, the catalog number is HVH 10343. According to Andersen (1988, p. 123), the type locality is “an outcrop located between the Hiwanee Railroad station and the Chickasawhay River. Today, the railroad station has been moved, and the outcrop is covered and inaccessible.” Andersen (1997, pp. 185–186) emended the diagnosis of the genus *Neaguites*.


HOLOTYPE: HVH 7654, [Oligocene], Paynes Hammock Fm.; “Loc. PH2, sample AA, 0.8 ft. above base of outcrop” taken in a light blue-gray, calcareous, argillaceous sand bed, at “the 12- to 13-foot bluff … on the east bank of Fisher Creek,” “north of its confluence with Dead River, near Paynes Hammock Landing, south of Jackson, Clarke County, Alabama.” Collected by C. Wylie Poag. Figured: pl. 3, figs. 35–37.

PARATYPES: LSU GM 962, Paynes Hammock Fm.; Loc. PH2, sample B’, 5 feet above the base of the outcrop, taken in a blue-gray, calcareous, argillaceous sand bed; eight specimens, not figured.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


HOLOTYPE: HVH 7680, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 13, 4.5 ft. above base of Paynes Hammock Formation” taken in a gray-buff, calcareous, hard sand bed, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 5, figs. 4–6.

PARATYPES: LSU GM 970, from same sample as holotype, three specimens, not figured.

COMMENTS: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


HOLOTYPE: HVH 2575, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115′ South and 150′ East of the Northwest corner of the N.W.¼, of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.” “La Salle Parish, Louisiana, “from Sample No. 171,” core at depth “1538′,” “salt and pepper’ sand and silty shale.” Figured: pl. 27, fig. 5.

PARATYPES: HVH 2576, Eocene, Cane River Fm.; same core as holotype, Sample No. 156, at depth 1516½ feet, light to dark gray silty shale and greensand; one specimen, figured: pl. 27, fig. 4.

COMMENTS: Only one chamber of the holotype remains on the slide. Although the holotype is listed before the paratype in the explanation of plate 27, figs. 4 and 5, the paratype is figure 4.

*Nodosarella elongata* is a subjective junior synonym of *Nodosarella lorifera* (Halkyard 1918) in the opinion of Hayward et al. (2012, p. 214).

Nodosaria bulla  

**HOLOTYPE:** HVH 58, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 49,” (JH-215): “Light-gray glauconitic, calcareous clay. Taken 42 feet below top of cut. ... Elevation—164 feet.” “Taken in a run-off ditch ... on the northwest side of State Highway 6, in the northwest corner of the SE¼ SE¼ NE¼ sec. 16, T. 10 N., R. 5 W.,” Winn Parish, Louisiana. Collected by John Huner, Jr., between 1936 and 1938. Figured: pl. 6, fig. 5.

**COMMENTS:** The highway in Winn Parish referred to by Howe (1939, p. 11) as State Highway 6 is today U.S. Highway 84. According to the label of Howe Loc. 278, sample JH-36 was collected at elevation 165 feet.

Nodosaria delicata  
Hussey 1949, J. Paleontol. 23: 127.

**HOLOTYPE:** HVH 2548, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115′ South and 150′ East of the Northwest corner of the N.W.¼ of Sec. 30, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana; “Sample No. 158,” core at depth “1519′,” “light to dark gray silty shale and greensand.” Figured: pl. 26, fig. 21.

Nodosaria milamensis  


**COMMENTS:** According to Huner (1939, p. 88), his sample JH-215 was collected from a section that “begins 300 yards south of Mr. Hardin’s house in a scarp on the west side of Antwine Creek,” in the “NW¼, SE¼ sec. 17, T. 13 N., R. 3 W.”

Nodosaria primitiva  

**HOLOTYPE:** HVH 2549, Eocene, Cane River Fm.; “from sample 115,” “Louisiana Oil and Ref. Co., Tremont No. 2, 312 feet east and 345 feet north of southwest cor. SW¼ sec. 29, T. 10 N., R. 2 E., La Salle Parish,” Louisiana; “core samples ranging in depth from 1468 feet to 1555 feet.” Figured: pl. 26, fig. 1.

**COMMENTS:** The lithology of sample 115, core at depth 1479 feet, is given by Hussey (1949, p. 115) as “brown silty shale with some glauconite.” Hussey (1940, p. 144), however, describes the sample as “brown silty shale.” Hussey’s (1949) locality differs slightly from his 1943 paper: “312′ 5″ East” vs. “312 feet east.”
The new name Nodosaria balaniformis Hussey 1950, replaces Nodosaria primitiva Hussey 1943, a homonym of Nodosaria primitiva Kiibler and Zwingli 1866; see Thalmann (1950b, p. 42).

COMMENTS: Hussey, in Thalmann (1949, p. 102), proposed the new name Nodosaria tryloniformis to replace Nodosaria pyriformis due to a possible homonymy. The new name, however, has been deemed unnecessary, and Nodosaria pyriformis is the accepted name (Hayward et al. 2020).


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35).

HOLOTYPE: HVH 657, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 9, fig. 4.
COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

HOLOTYPE: HVH 655, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 9, fig. 3.
COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

HOLOTYPE: HVH 2121, Oligocene, Hackberry assemblage, sticky shale overlying Vicksburg; “Superior Oil Company, no. 1, D. Hebert, Hackberry field, Cameron Parish, La. [Louisiana], from core at 6,006–6,026 feet.” Figured: pl. 40, figs. 3a–3c.

HOLOTYPE: HVH 96, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 38,” (Rob-4): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ feet in thickness.” Sample No. 38 is “from beneath the next to the lowest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 4). Figured: pl. 8, figs. 1, 2.
COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


COMMENTS: According to Howe Loc. 272, Huner collected his sample JH-62 along Emergency Conservation Work (E.C.W) Road 21 on a slope leading down to Couley Creek, in a ditch on the northeast side of the road, SE¼, NE¼, NE¼ sec 22, T. 10 N., R. 5 W.


HOLOTYPE: HVH 1891, [Oligocene], lower Chickasawhay limestone; “from highway 45, south of Limestone Creek 3 miles north of Waynesboro;” Wayne County, Mississippi; “from fossiliferous marl collected 5 feet below the 1-foot-thick hard *Chione* limestone.” Locality LC of the Shreveport Geological Society’s (1934, pp. 41–43) guidebook; collected by Henry V. Howe. Figured: pl. 48, figs. 4a–c.

PARATYPE: HVH 1892, same sample as holotype, one specimen, figured: pl. 48, fig. 5.

COMMENTS: Ellis (1939, p. 423) states that geologists’ opinions differed over whether the Chickasawhay beds were either Miocene or Oligocene. The U.S. Geological Survey (2019) considers the lower Chickasawhay to be Oligocene.

Locality LC of the Shreveport Geological Society (1934, p. 41) extends from the old Highway 45 (now Highway 145) bridge over Limestone Creek, southward for 0.2 mile to the top of the hill in section 25, T. 9 N., R. 7 W. The 1934 guidebook gives the elevation of the *Chione* Limestone as 261–262 feet.


HOLOTYPE: HVH 672, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 9, figs. 5a–5c.

COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravel (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.


HOLOTYPE: HVH 90, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 39,” (Rob-5): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ feet in thickness. The lowest of these fossiliferous beds was at water level at the time collected.” Sample No. 39 is “from beneath the lowest iron ore ledge and collected at water level. Elevation—77± feet.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 5). Figured: pl. 7, figs. 19–21.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

The figures (pl. 7, figs. 19–21) of Howe (1939) do not match the specimen on the holotype slide.


HOLOTYPE: HVH 93, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 86,” (JH-111): “Very fossiliferous, slightly glauconitic marl 12 feet thick. Taken five feet below top of slope leading down to creek branch, and in upper two feet of marl, in ditch on south side of improved road in the NE¼ SW¼ SW¼ sec. 28, T. 13 N., R. 3 W. ... Elevation—179 feet.” Winn Parish, Louisiana. Collected by John Huner, Jr., in 1936. Figured: pl. 7, figs. 26, 27.

COMMENTS: Huner’s (1939, p. 95) section description places his sample JH-111 in the Milams Member of the Cook Mountain Formation. The improved road is the lower Dodson road according to Howe Loc. 273A (JH-111).


HOLOTYPE: HVH 149, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 5,” (Ru-207): “Brown glauconitic calcareous, fossiliferous clays. Sample collected in the limestone boulder bed in road cut on the east side of State Highway 39, 2.3 miles south of Provencal in the SW¼ NE¼ sec. 4, T. 7 N., R. 8 W. Elevation—200 feet.”


PARATYPES: LSUGDM 281, from same sample as holotype, nine specimens, not figured.

COMMENTS: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N, Long. 89°08′34.4″ W),” The material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).


HOLOTYPE: HVH 2558, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115′ South and 150′ East of the Northwest corner of the N.W.¼, of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 162,” core at depth “1516½′,” “gray silty shale with some greensand.” Figured: pl. 26, fig. 20.

**Palmula decorata** Hussey 1949, J. Paleontol. 23: 128.


COMMENTS: Hussey proposed the new name *Palmula elegantissima* to replace *Palmula decorata* Hussey 1949, a homonym of *Palmula decorata* Loeblich and Tappan 1941 (Thalmann 1949, p. 102).


COMMENTS: The highway in Winn Parish referred to here as State Highway 6 is today U.S. Highway 84. According to the label of Howe Loc. 278, sample JH-36 was collected at elevation 165 feet.


COTYPES [SYNTYPES]: HVH 729, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper horizon” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe; two specimens, figured: pl. 3, figs. 3 (young)—4 (adult).

COMMENTS: The two cotypes are syntypes, and are mounted on the same slide.

In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.


HOLOTYPE: HVH 625, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper horizon” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 3, fig. 1.

COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives. Accepted as *Astacolus danvillensis* (Howe and Wallace 1932) by Hayward et al. (2020).

**Planularia ouachitaensis** Howe and Wallace 1932, La. Dept.
Planularia parva


**HOLOTYPE:** HVH 2544, Eocene, Cane River Fm.; “from Sample No. 36,” core at depth “1564′,” “quartz and glauconitic sand and silt.” Figured: pl. 26, figs. 3, 4.

**PARATYPE:** HVH 2401, same sample as holotype, one specimen, figured: pl. 70, fig. 3.

**COMMENTS:** “T. & P. RR.” = Texas and Pacific Railroad. “D. advena zone” = *Discocyclina advena* zone. “T. 8 M.” = T. 8 N. Hussey’s (1949, p. 117) explanation for plate 26, fig. 5, erroneously refers to sample 107 instead of sample 190.

Planularia winniana


**HOLOTYPE:** HVH 32, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 36,” (Rob-2): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 36 is “from beneath the next to the highest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 2). Figured: pl. 4, fig. 7.

**COMMENTS:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

Planulinia kniffeni


**HOLOTYPE:** HVH 2037, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 87,” (JH-113): “Marl containing argillaceous limestone concretions. Taken 12 feet below Sample No. 86 (JH-111) or two feet above contact with weathered fossiliferous greensand. … Elevation—167 feet.” Sample No. 87 was taken about 17 feet “below top of slope leading down to creek branch, … in ditch on south side of improved road in the NE¼ SW¼ SW¼ sec. 28, T. 13 N., R. 3 W.,” Winn Parish, Louisiana. Collected by John Huner, Jr., in 1936. Figured: pl. 11, figs. 1–3.

**COMMENTS:** Huner (1939, pp. 94–95) describes the section in a road cut at this locality; his sample JH-113 (in bed 10 of his section) was taken from a nine-foot thick marl bed and is from the Milams Member of the Cook Mountain Formation. The “improved road” is the lower Dodson Road according to the label of Howe Loc. 273.

Planulinia palmerae


**HOLOTYPE:** HVH 2401, Miocene; “Stanolind Oil and Gas Company wells in the High Island field, Galveston County, Texas. This field is located near the eastern end of Bolivar Peninsula, in the most eastern extremity of Galveston County, and lies almost in the Gulf of Mexico”; specimen “from no. A-15 Smith, core at 6,059–6,061 feet.” Figured: pl. 70, figs. 3a–3c.

**PARATYPE:** HVH 2401, same sample as holotype, one specimen, figured: pl. 70, fig. 4.

**COMMENTS:** Garrett (1950) proposed the new name *Planulinia palmerana* Garrett 1950, to replace *Planulinia palmerae* Garrett 1942, a homonym of *Planulinia palmerae* van Bellen 1941.

Plectina regularis


**HOLOTYPE:** HVH 2507, Eocene, Cane River Fm; “La. Oil and Ref. Co., Tremont No. 1, 115′ South and 150′ East of the Northwest corner of the N.W.¼ of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 182,” core at depth “1564′,” “quartz and glauconitic sand and silt.” Figured: pl. 26, figs. 3, 4.

Plectina robusta


**HOLOTYPE:** HVH 2505, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312′ 5″ East and 345′ North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 110,” core at depth “1472′,” “brown silty shale with some glauconite.” Figured: pl. 25, fig. 10.

**PARATYPE:** HVH 2506, same sample as holotype, two specimens, not figured.

**COMMENTS:** One of the two specimens on paratype

**HOLOTYPE:** HVH 81, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 36,” (Rob-2): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 36 is “from beneath the next to the highest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 2). Figured: pl. 7, fig. 4.

**COMMENTS:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


**HOLOTYPE:** HVH 79, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 61,” (JH-62): “Calcareous fossiliferous clay containing lenses and stringers of glauconite. Taken in ditch 18 inches above base of slope leading down to Couley Creek along dirt road in the SE¹⁄₄ NE¹⁄₄ NE¹⁄₄ NE¹⁄₄ sec. 22, T. 10 N., R. 5 W. Elevation—125 feet.” Winn Parish, Louisiana. Collected by John Huner, Jr., on July 13, 1936. Figured: pl. 7, fig. 2.

**COMMENTS:** According to Howe Loc. 272, Huner collected his sample JH-62 along Emergency Conservation Work (E.C.W.) Road 21 on a slope leading down to Couley Creek, in a ditch on the northeast side of the road, SE¹⁄₄, NE¹⁄₄, NE¹⁄₄ sec 22, T. 10 N., R. 5 W.


**HOLOTYPE:** HVH 82, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 36,” (Rob-2): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 36 is “from beneath the next to the highest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 2). Figured: pl. 7, figs. 5, 6.

**COMMENTS:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


**HOLOTYPE:** HVH 3970, Miocene; “Loc. S19, sample 10, 2 ft. above base of Paynes Hammock Formation” taken in a blue-green, argillaceous, loose sand bed with *Ostrea blanpiedi*, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 7, figs. 13, 14.

**PARATYPES:** LSUGDM 976, from same sample as holotype, 12 specimens, not figured.

**COMMENTS:** Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.

Proteonina harangensis = Reophax harangensis (Smith 1948).

Proteonina Williamson 1858 is considered a junior synonym of the genus *Reophax* de Montfort 1808 by Loeblich and Tappan (1964, 1987).
perhaps 1½ feet in thickness." Sample No. 37 is "from beneath the middle iron ore ledge." Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 3). Figured: pl. 11, figs. 9–11.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as "extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed."


**HOLOTYPE:** HVH 12, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 1," (JBG-18): "A bluff on the left bank of Sabine River, at Goodwin's shoal, behind the house of Mr. S.J. Speight, near the southwest corner of sec. 31, T. 5 N., R. 12 W.,” Sabine Parish, Louisiana. "The locality is near the old site of Columbus and may be reached by taking an old wagon road 100 yards north of Mr. Speight’s house. This road leads in about 300 yards to the river bank. The locality is a low bluff, by the shoals, about 300 yards downstream, and exposes about eight feet of section from water level up. The section exposed is a marl with a one-foot compact lime bed near the middle." This "sample came from 0–1 foot below the limestone ledge. The shoals are produced by slumping and the stratigraphic relations are greatly confused." Collected by Julius B. Garrett in summer 1932. Figured: pl. 2, figs. 9, 10.

**COMMENTS:** Garrett collected from the Milams Member of the Cook Mountain Formation (Andersen 1960, p. 90). Toledo Bend Reservoir later covered the sample location; construction of the lake began in 1964. An alternate spelling, "Godwin Shoals," is used on the labels of H.V. Howe’s samples from this locality.

**Pseudoclavulina elongata** Hussey 1943, J. Paleontol. 17: 161.

**HOLOTYPE:** HVH 2510, Eocene, Cane River Fm.; “from sample 137,” “Louisiana Oil and Ref. Co., Tremont No. 2, 312 feet east and 345 feet north of southwest cor. SW¼ sec. 29, T. 10 N., R. 2 E., La Salle Parish," Louisiana; "core samples ranging in depth from 1468 feet to 1555 feet." Figured: pl. 26, figs. 3, 4.

**PARATYPE:** HVH 2511, same sample as holotype, one specimen, not figured.

**COMMENTS:** The lithology of sample 137, core at depth 1503–1509 feet, is described by Hussey (1949) as "light gray silty shale and greensand." Hussey's (1949, p. 115) locality differs slightly from his 1943 paper: “312' 5" East" vs. “312 feet east.”


**PARATYPES** from same sample as holotype: HVH 6430a, one specimen, figured: pl. 4, figs. 14, 15. LSUGDM 479, 60 specimens, not figured.

**COMMENTS:** Warren (1956, p. 134) gives the latitude and longitude of the polyhaline marsh Sample 5 as 29° 19' 45" N, 89° 33' 42" W. Warren (1956) also figures HVH 6430 (pl. 4, figs. 19, 20) under the name *Eponides* sp. A.

Accepted as *Helenina anderseni* (Warren 1957) by Hayward et al. (2020).


**HOLOTYPE:** HVH 62, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 37," (Rob-3): "On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. "The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness." Sample No. 37 is “from beneath the middle iron ore ledge." Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 3). Figured: pl. 6, fig. 10.

**COMMENTS:** The basal spine is not visible in the holotype.

Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as "extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed."

The genus *Pseudoglumalulina* Cushman 1929 is considered a synonym of *Pyramidulina* Fornasini 1894 (Hayward et al. 2020); *Pseudoglumalulina mauricensis* = *Pyramidulina mauricensis* (Howe and Roberts 1939).


**HOLOTYPE:** HVH 8082, Upper Cretaceous, Kemp Clay, *Globotruncana gansseri* zone; “2–4" below the contact between the Littig Conglomerate and the
Kemp Clay, on Walker’s Creek about 5½ miles NE of Cameron, [Milam County,] Texas.” Loc. 21 of George C. Esker, III’s (1968b) dissertation. Figured: text-figs. 1, 2.

PARATYPES from same sample as holotype: HVH 8083, one specimen, figured: text-figs. 4, 5. HVH 8084, one specimen, figured: text-fig. 3. HVH 8085, seven specimens, not figured.

COMMENTS: “Walkers Creek” is the spelling accepted by the U.S. Board on Geographic Names (2019).

**Pulvinulinella bella** Hussey 1949, *J. Paleontol.* 23: 140.

HOLOTYPE: HVH 2592, Eocene, Cane River Fm.; “from Sample No. Ru. 518-N-211,” “NW ¼ NE ¼ NW ¼ of sec. 6, R. 6 W., in center of negro settlement, 40′ hole extending from 12′ above *D. advena* zone to 8′ below it,” “Natchitoches Parish, Louisiana.” Collected by Justin M. Rukas between 1936 and 1938. Figured: pl. 28, figs. 1–3.

COMMENTS: “*D. advena* zone” = *Discocyclina advena* zone. Hussey (1943, 1949) does not list the township number, and the section quadrants published in 1943 and 1949 do not agree. Grover Murray, in a 1959 personal communication with Ellis and Messina (1952 et seq., entry for *Brachycythere bernardi* Murray and Hussey), describes Rukas locality 518 as “a hand dug well at Chestnut, in the NW¼ NE¼ NE¼ sec. 6, T. 12 N., R. 6 W., Natchitoches Parish.”

Since *Pseudoparrella* Cushman and ten Dam 1948 replaced the homonym *Pulvinulinella* Cushman 1926, Hussey acknowledges that *Pulvinulinella bella* should be *Pseudoparrella bella* (Hussey 1949) in a personal communication with Ellis and Messina (1940 et seq.).


HOLOTYPE: HVH 618, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[][light] yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 13, figs. 7a–7c.

COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

Cushman and ten Dam (1948) proposed the new name *Pseudoparrella* to replace the homonym *Pulvinulinella* Cushman 1926; *Pulvinulinella danvillensis* = *Pseudoparrella danvillensis* (Howe and Wallace 1932).


HOLOTYPE: HVH 774, Eocene, Moodys Branch marl; “on Town Creek, Jackson, [Hinds County,] Mississippi, where it is crossed by the Great Northern Railroad Bridge.” Collected by Wade H. Hadley, Jr., and Morton B. Stephenson. Figured: pl. 14 (pl. 1), figs. 6a–6c.

COMMENTS: According to Stephenson (1937, p. 159, Loc. 1), basal Moodys Branch marl was collected on the north side of Town Creek. Cushman and ten Dam (1948) proposed the new name *Pseudoparrella* to replace the homonym *Pulvinulinella* Cushman 1926; *Pulvinulinella harrisi* = *Pseudoparrella harrisi* (Hadley 1935).


PARATYPE: HVH 2042a, same sample as holotype, one specimen, not figured.

COMMENTS: The highway in Winn Parish referred to here as State Highway 6 is today U.S. Highway 64. Cushman and ten Dam (1948) proposed the new name *Pseudoparrella* to replace the homonym *Pulvinulinella* Cushman 1926; *Pulvinulinella huneri* = *Pseudoparrella huneri* (Howe 1939).


HOLOTYPE: HVH 637, Eocene, Claiborne, Cook Mountain Fm.; bed 2, “[][light] yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 2, figs. 1a, 1b.

COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

26: 58.


**Quinqueloculina acuta** Hussey 1949, *J. Paleontol.* 23: 120.

**Quinqueloculina amygdalata** Hussey 1949, *J. Paleontol.* 23: 120.


**Quinqueloculina amygdalata** Hussey 1949, *J. Paleontol.* 23: 120.

**Quinqueloculina amygdalata** Hussey 1949, *J. Paleontol.* 23: 120.

**Quinqueloculina acuta** Hussey 1949, *J. Paleontol.* 23: 120.

**Quinqueloculina acuta** Hussey 1949, *J. Paleontol.* 23: 120.

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**Quinqueloculina acuta** Hussey 1949, *J. Paleontol.* 23: 120.

**Quinqueloculina acuta** Hussey 1949, *J. Paleontol.* 23: 120.
PARATYPES: LSUGDM 125, from same sample as holotype, 22 specimens, not figured.
COMMENTS: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N, Long. 89°08′34.4″ W).” The material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).

Quinqueloculina gibbosa  Hussey 1949, J. Paleontol. 23: 120.

HOLOTYPE: HVH 19, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 37,” (Rob-3): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ feet in thickness.” Sample No. 37 is “from beneath the middle iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 3). Figured: pl. 2, figs. 13–15.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

HOLOTYPE: HVH 33, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 37,” (Rob-3): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ feet in thickness.” Sample No. 37 is “from beneath the middle iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 3). Figured: pl. 4, figs. 8–10.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

Quinqueloculina parvatriangularis  Hussey 1949, J. Paleontol. 23: 121.

COMMENTS: The holotype is severely damaged.

HOLOTYPE: HVH 30, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 38,” (Rob-4): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ feet in thickness.” Sample No. 38 is “from beneath the next to the lowest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 4). Figured: pl. 4, figs. 1–3.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939)
were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


Quinqueloculina subgibbosa Hussey 1949, *J. Paleontol.* 23: 120.


COMMENTS: Hussey (1949, p. 120) erroneously refers to the holotype slide as No. 2315.


**PARATYPES:** LSUIGDM 128, from same sample as holotype, 13 specimens, not figured.

COMMENTS: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58′16.4″ N., Long. 89°08′34.4″ W.),” “the material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).”


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35).


**HOLOTYPE:** HVH 3973, Miocene; “Harang wedge in cuttings at 8155–8185 feet, in the Gulf Refining Co.’s Delta Securities Co., Inc., No. 17, Bully Camp field, Lafourche Parish, Louisiana,” SW¼ sec. 36, T. 19 S., R. 21 E. Figured: pl. 11, fig. 7.

**PARATYPE:** HVH 3974, same sample as holotype, one specimen, figured: pl. 11, fig. 8.

COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35).


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35).


COMMENTS: The highway in Winn Parish referred to by Howe (1939, p. 11) as State Highway 6 is today U.S. Highway 84. According to the label of Howe Loc. 278, sample JH-36 was collected at elevation 165 feet.


**HOLOTYPE:** HVH 2564, Eocene, Cane River Fm.; “from Sample No. Ru. 510-D-185,” “Ru. 510, SE¼ SE¼, NW¼ of sec. 8, T. 8 N., R. 8 W.,” “Natchitoches Parish,
Louisiana.” Collected by Justin M. Rukas between 1936 and 1938. Figured: pl. 27, figs. 6, 7.


HOLOTYPE: HVH 109, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 36,” (Rob-2): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 36 is “from beneath the next to the highest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 2). Figured: pl. 8, figs. 23, 24.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


SYNTYPES: HVH 1940, middle Tertiary, Discorbis zone; “Stanolind Oil and Gas Company no. B-2 Pipkin, Big Hill prospect, Jefferson County, Texas,” core “from depth of 5,647–5,651 feet”; one specimen, figured: pl. 65, figs. 9a, 9b.

HVH 1941, same sample; one specimen, figured: pl. 65, fig. 8.

COMMENTS: The generic name *Robulus* de Montfort 1808 is considered a secondary homonym of *Lenticulina* Lamarck 1804 (Andersen 2001). Thus, *Robulus danvillensis* and *Darbyella danvillensis* are subjective secondary homonyms of *Lenticulina danvillensis* (Howe and Wallace 1932).


HOLOTYPE: HVH 1942, middle Tertiary, Marginulina idiomorpha zone; “Stanolind Oil and Gas Company no. B-2 Pipkin, Big Hill prospect, Jefferson County, Texas,” core “from depth of 6,034–6,037 feet.” Figured: pl. 65, fig. 7.

PARATYPE: HVH 1943, same sample as holotype, one specimen, figured: pl. 65, figs. 6a, 6b.

COMMENTS: The generic name *Robulus* de Montfort 1808 is considered a synonym of *Lenticulina* Lamarck 1804 (Loeblich and Tappan 1964; Hayward et al. 2020); *Robulus lacerta* = *Lenticulina lacerta* (Garrett 1939).

**Robulus limbatus** Hussey 1949, J. Paleontol. 23: 124.


COMMENTS: Hussey proposed the new name *Robulus pachysuturalis* to replace *Robulus limbatus* Hussey 1949, a secondary homonym of *Robulina limbata* Bornemann 1855 (Thalmann 1949, p. 102). The generic name *Robulus* de Montfort 1808 is considered a synonym of *Lenticulina* Lamarck 1804 (Loeblich and Tappan 1964; Hayward et al. 2020); *Robulus limbatus* Hussey = *Lenticulina pachysuturalis* (Hussey 1949).


HOLOTYPE: HVH 617, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 5, fig. 7.

COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

The two generic names *Robulus* de Montfort 1808 and *Darbyella* Howe and Wallace 1932 are junior synonyms of *Lenticulina* Lamarck 1804 (Loeblich and Tappan 1964, 1987). Thus, *Robulus danvillensis* and *Darbyella danvillensis* are subjective secondary homonyms of *Lenticulina danvillensis* (Howe and Wallace 1932).


PARATYPES: LSUGDM 166, from same sample as holotype, 11 specimens, not figured.

COMMENTS: Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et
Robulus macomberi Butler 1962, J. Paleontol. 36: 1364, 1367. HOLOTYPE: HVH 6751, Miocene; “Magnolia Petroleum Co. State Lease 883, no. 1-A, Block 46 Field, Vermilion offshore Area,” off the coast of Vermilion Parish, Louisiana. “Cuttings from 12,970–13,000 feet.” Figured: text-figs. 3d, 3e. PARATYPES from same locality and depth range as holotype: HVH 6752, one specimen, figured: text-figs. 3f–i. LSUGDM 1096, one specimen, not figured.

COMMENTS: According to Butler (1962, p. 1363), Robulus macomberi has been known in the petroleum industry as Robulus “43,” Robulus “L,” and Cristellaria “angular.” The generic name Robulus de Montfort 1808 is considered a synonym of Lenticulina Lamarck 1804 (Loeblich and Tappan 1964; Hayward et al. 2020); Robulus macomberi = Lenticulina macomberi (Butler 1962).


COMMENTS: Hussey proposed the new name Robulus vitreae to replace Robulus umbonatus Hussey 1949, a homonym of Robulina umbonata Reuss 1851 (Thalmann 1949, p. 102). The generic name Robulus de Montfort 1808 is considered a synonym of Lenticulina Lamarck 1804 (Loeblich and Tappan 1964; Hayward et al. 2020); Robulus umbonatus Hussey = Lenticulina vitreae (Hussey 1949).

Rosalina scopulata Poag 1966, Micropaleontology 12: 411. HOLOTYPE: HVH 7681, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 12, 3.8 ft. above base of Paynes Hammock Formation” taken in an orange, coarse-grained sand bed, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 5, figs. 7–9.

COMMENTS: Paratype LSUGDM 971 is missing from the collection. Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

**HOLOTYPE:** HVH 2554, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312' 5" East and 345' North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 113,” core at depth “1476’,” “brown silty shale with some glauconite.” Figured: pl. 26, figs. 15, 18.

**COMMENTS:** The lithologic description of Sample 113 in Hussey’s (1940, p. 144) dissertation is “brown silty shale.”

**Saracenaria mexicana** Andersen 1961, La. Geol. Surv., *Geol. Bull.* 35 (Pt. 2); 60.


**PARATYPES:** LSUGDM 179, from same sample as holotype, 14 specimens, not figured.

**COMMENTS:** Location maps are in figures 1 and 2 of Andersen (1961, pp. 8–9). Ellis and Messina (1940 et seq.) describe the type locality as “a mudlump island off the mouth of South Pass, 2600 feet southeast of the sand spit, Lower Mississippi River Delta, Louisiana (Lat. 28°58’16.4" N, Long. 89°08’34.4" W).” The material may be Holocene or Pleistocene; for a discussion of the age of mudlump samples and the Holocene-Pleistocene boundary in the Gulf of Mexico, see Haman (1981) and Stringer (1992).


**HOLOTYPE:** HVH 738, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 2, figs. 8a–8c.

**COMMENTS:** In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.


**HOLOTYPE:** HVH 2555, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312' 5" East and 345' North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 110,” core at depth “1472’,” “brown silty shale with some glauconite.” Figured: pl. 26, fig. 13.

**COMMENTS:** In the text, Hussey (1949, p. 126) erroneously refers to the holotype slide as No. 2535 instead of 2555.


**COMMENTS:** In the explanation of pl. 26, fig. 14 (Hussey 1949, p. 117), the sample is mistakenly referred to as no. 14 instead of the correct sample no. 148.


**HOLOTYPE:** HVH 7725, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 10, 2 ft. above base of Paynes Hammock Formation” taken in a blue-green, argillaceous, loose sand bed with *Ostrea blanpiedi*, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 8, figs. 29, 30.

**PARATYPES:** LSUGDM 979, from same sample as holotype, six specimens, not figured.

**COMMENTS:** Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation
was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


**COMMENTS**: According to Howe Loc. 272, Huner collected his sample JH-62 along Emergency Conservation Work (E.C.W.) Road 21 on a slope leading down to Couley Creek, in a ditch on the northeast side of the road, SE¼, NE¼ sec 22, T. 10 N., R. 5 W.


**HOLOTYPE**: HVH 1952, middle Tertiary, Discorbis zone; “Stanolind Oil and Gas Company no. B-2 Pipkin, Big Hill prospect, Jefferson County, Texas,” “from core at 5,711–5,714 feet.” Figured: pl. 66, fig. 1.


**COMMENTS**: Hussey (1949, p. 133) erroneously refers to the holotype slide as No. 2575 in the text instead of 2573.


**HOLOTYPE**: HVH 600, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 13, figs. 1a, 1b.

**COMMENTS**: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravel (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.


**HOLOTYPE**: HVH 7686, [Oligocene], Paynes Hammock Fm.; “Loc. S19, sample 10, 2 ft. above base of Paynes Hammock Formation” taken in a blue-green, argillaceous, loose sand bed with *Ostrea blanpiedii*, in a section “approximately 270 yards north of Locality CX” and 70 yards north of “the bridge on the Waynesboro-Laurel road (U.S. Highway 84) on the west bank of the Chickasawhay River, west of Waynesboro, Wayne County, Mississippi.” Collected by C. Wylie Poag. Figured: pl. 5, figs. 22–24.

**PARATYPES**: LSUGDM 972, from same sample as holotype, four specimens, not figured.

**COMMENTS**: Poag’s (1966b) assignment of a “Lower Miocene?” age to the Paynes Hammock Formation was provisional. The U.S. Geological Survey (2019) considers the formation to be upper Oligocene.


**HOLOTYPE**: HVH 2028, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 80,” (JH-96): “Glaconitic, very fossiliferous marl containing zone of argillaceous limestone concretions up to 10 inches in diameter. Taken three feet below Sample No. 79 (JH-95 B). Elevation—182 feet.” Sample No. 80 was taken about 22 feet “below top of slope in well-exposed cut on the southeast side of intersection of State Highway 6 and Couley-St. Maurice road in the SE¼ NW¼ SE¼ NE¼ sec. 20, T. 10 N., R. 5 W.” Winn Parish, Louisiana. Collected by John Huner, Jr., between 1936 and 1938. Figured: pl. 10, fig. 12.

**PARATYPE**: HVH 2028a, same sample as holotype, one
specimen, not figured.


**HOLOTYPE:** HVH 2584, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312′ 5″ East and 345′ North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 109,” core at depth “1470′,” “brown silty shale.” Figured: pl. 29, figs. 2, 3.

**COMMENTS:** In the explanation of pl. 29, figs. 2 and 3, Hussey (1949, p. 140), mistakenly refers to the holotype slide as no. 2586.


**HOLOTYPE:** HVH 2026, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 38,” (Rob-4); “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ feet in thickness.” Sample No. 38 is “from beneath the next to the lowest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 4). Figured: pl. 10, figs. 7–9.

**COMMENTS:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


**HOLOTYPE:** HVH 2586, Eocene, Cane River Fm.; “from Sample No. Ru. 518-J-207,” “NW ¼ NE ¼ NW ¼ of sec. 6, R. 6 W., in center of negro settlement, 40′ hole extending from 12′ above *D. advena* zone to 8′ below it,” “Natchitoches Parish, Louisiana.” Collected by Justin M. Rukas between 1936 and 1938. Figured: pl. 29, fig. 1.

**COMMENTS:** “*D. advena* zone” = *Discocyclina advena* zone. Hussey (1943, 1949) does not list the township number, and the section quadrants published in 1943 and 1949 do not agree. Grover Murray, in a 1959 personal communication with Ellis and Messina (1952 et seq., entry for *Brachycyclithere bernardi* Murray and Hussey), describes Rukas locality 518 as “a hand dug well at Chestnut, in the NW¼ NE¼ NE¼ sec. 6, T. 12 N., R. 6 W., Natchitoches Parish.”


**HOLOTYPE:** HVH 771, Eocene, Moodys Branch Marl; “on Town Creek, Jackson, [Hinds County,] Mississippi, where it is crossed by the Great Northern Railroad Bridge.” Collected by Wade H. Hadley, Jr., and Morton B. Stephenson. Figured: pl. 14 (pl. 1), figs. 4a, 4b.

**COMMENTS:** According to Stephenson (1937, p. 159, Loc. 1), basal Moodys Branch marl was collected on the north side of Town Creek.


**HOLOTYPE:** HVH 2521, Eocene, Cane River Fm.; “from Sample No. Ru. 510-D-185,” “Ru. 510, SE ¼ SE ¼, NW ¼ of sec. 8, T. 8 N., R. 8 W.” “Natchitoches Parish, Louisiana.” Collected by Justin M. Rukas between 1936 and 1938. Figured: pl. 26, fig. 6.

**COMMENTS:** Hussey’s (1949, p. 117) explanation of pl. 26, fig. 6, refers to the holotype slide as no. 2512 instead of the correct no. 2521.


**HOLOTYPE:** HVH 3992, Miocene; “Harang wedge in cuttings at 8334–8364 feet, in the Gulf Refining Co.’s Delta Securities Co., Inc., No. 17, Bully Camp field, Lafourche Parish, Louisiana,” SW¼ sec. 36, T. 19 S., R. 21 E. Figured: pl. 9, figs. 3, 4.

**COMMENTS:** The well location is shown in Figure 3 of Smith (1948, p. 35).


**HOLOTYPE:** HVH 3986, Miocene; “Harang wedge in cuttings at 8465–8495 feet, in the Gulf Refining Co.’s Delta Securities Co., Inc., No. 17, Bully Camp field, Lafourche Parish, Louisiana,” SW¼ sec. 1, basal Moodys Branch marl was collected on the north side of Town Creek.

**Spiroplectammina owenii** Smith 1948, *J. Paleontol.* 20: 164.

**HOLOTYPE:** HVH 3310, Oligocene, Vicksburg; “J.B. Garrett and C.F. Washburn, Locality 71, Sample C. Red Bluff on the Chickasawhay River two and one-half miles north of Hiwannee, Mississippi.” Collected by Julius B. Garrett and Carlton F. Washburn between 1935 and 1939. Figured: pl. 29, figs. 8a, 8b.

**PARATYPES** from same sample as holotype: HVH 3311,
one specimen, figured: pl. 29, figs. 10a, 10b. HVH 3312, one specimen, figured: pl. 29, figs. 9a, 9b.

COMMENTS: The locality is either Clarke County or Wayne County, Mississippi.


HOLOTYPE: HVH 3, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 10,” (Ru-238) (Ru-276); “Yellow calcareous clays collected at road cut 0.8 mile south of the new Old River bridge in the SE¼ SE¼ sec. 9, T. 8 N., R. 7 W.,” Natchitoches Parish, Louisiana. Collected by Justin M. Rukas between 1936 and 1938. Figured: pl. 1, figs. 6–7.


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35).


PARATYPES from same sample as holotype: HVH 6421a, one specimen, figured: pl. 3, fig. 2. HVH 6421b, one specimen, figured: pl. 3, figs. 3, 4. GDM 470, five specimens, not figured.

COMMENTS: Warren (1956, p. 134) gives the latitude and longitude of the polyhaline marsh Sample 5 as 29° 19’ 45” N, 89° 33’ 42” W. Warren (1956) figures HVH 6421 (pl. 1, figs. 7, 8) and HVH 6421a (pl. 1, figs. 5, 6) under the name *Sulcophax* sp. A.

Loeblich and Tappan (1984, pp. 1160–1161) described the new genus *Warrenita* for this species; the accepted name is *Warrenita palustris* (Warren 1957).


HOLOTYPE: HVH 10346, Eocene, Weches Fm., Viesca Member; “located on the right bank of the Colorado River at Smithville, [Bastrop County,] Texas.” Collected by H.V. Andersen. Figured: figs. 43, 45, 46.

PARATYPES from same locality as holotype: HVH 10347, one specimen, figured: fig. 44. HVH 10348, one specimen, not figured.

COMMENTS: Andersen (1984, pp. 12, 17) lists the holotype catalog number as LSU GM No. 10509; the correct catalog number is HVH 10346. Paratype HVH 10347 is listed as LSU GM No. 10510. Loeblich and Tappan (1987, pp. 352–353) consider *Texina* Andersen 1984 a junior synonym of *Neaguites* Andersen 1984. Andersen (1997, p. 187, fig. 27) rejects this opinion, and presents convincing evidence (wall structure, aperture) supporting the separation of the two genera.


HOLOTYPE: HVH 724, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 1, figs. 3a, 3b.

COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.


HOLOTYPE: HVH 683, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper horizon” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 1, figs. 2a, 2b.

COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.


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**HENRY V. HOWE AND HIS COLLECTION OF FORAMINIFERA AT LOUISIANA STATE UNIVERSITY**

No. 91

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**Contributions from the Charleston Museum, No. 2009.**

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**Comments:**

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**Geologic Names Committee Archives.**

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**Loeblich and Tappan (1984, pp. 1160–1161) described the new genus **Warrenita** for this species; the accepted name is **Warrenita palustris** (Warren 1957).**

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**COMMENTS:**

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**18: 17.

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**2020:**

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**71**
Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 37 is “from beneath the middle iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 3). Figured: pl. 1, figs. 18, 19.

**PARATYPE:** HVH 10, Eocene, Claiborne, Cook Mountain Fm.; from Sample No. 87, (JH-113): Marl containing argillaceous limestone concretions. Taken 12 feet below Sample No. 86 (JH-111) or two feet above contact with weathered fossiliferous greensand. Elevation—167 feet. Sample No. 87 was taken about 17 feet below top of slope leading down to creek branch, in ditch on south side of improved road in the NE¼ SW¼ SW¼ sec. 28, T. 13 N., R. 3 W., Winn Parish, Louisiana. Collected by John Huner, Jr., in 1936; one specimen, figured: pl. 1, figs. 16, 17.

**COMMENTS:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”

Sample JH-113 of Huner (1939, p. 95) is from the Milams Member of the Cook Mountain Formation. The “improved road” is the lower Dodson Road according to Howe Loc. 273.


**SYNTYPES:** HVH 1935, middle Tertiary, *Heterostegina* zone; “Stanolind Oil and Gas Company no. B-2 Pipkin, Big Hill prospect, Jefferson County, Texas,” core “from depth of 5,984–5,994 feet”; one specimen, figured: pl. 65, figs. 1a, 1b.

**Textularia palustris** Howe 1936, same sample; one specimen, figured: pl. 65, fig. 2.


**HOLOTYPE:** HVH 732, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 3, “[f]ossiliferous blue clay, weathering dark brown to yellow. The shells are scattered through the whole mass and occasionally occur in thin beds with light brown sand”; “lower horizon” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 1, figs. 1a, 1b.

**COMMENTS:** In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Lower Danville of Howe and Wallace” (bed 3) as 25 to 50 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.


**HOLOTYPE:** HVH 3315, Oligocene, Vicksburg; “Stanolind Oil and Gas Co., no. 1 M.E. Giles, Old Ocean Field, Brazoria County, Texas. Core at 10,480–90 feet.” Figured: pl. 29, figs. 2a–2c.

**PARATYPES from same sample as holotype:** HVH 3316, one specimen, figured: pl. 29, figs. 3a, 3b. HVH 3317, one specimen, figured: pl. 4, figs. 4–6 under the name *Textularia* sp. A.

**Textularia palustris** is the type species of the genus *Palustrella* Bronnimann, Whittaker, and Zaninetti 1992, and is accepted as *Palustrella palustris* (Warren 1957) (Hayward et al. 2020).


**HOLOTYPE:** HVH 2504, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115’ South and 150’ East of the Northwest corner of the N.W.¼ of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 151,” core at depth “1511′,” “light gray shale and glauconite.” Figured: pl. 25, fig. 8.


**HOLOTYPE:** HVH 18, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 1,” (JBG-18): “A bluff on the left bank of Sabine River, at Goodwin’s shoal, behind the house of Mr. S.J. Speight, near the southwest corner of sec. 31, T. 5 N., R. 12 W.,” Sabine Parish, Louisiana. “The locality is near the old site of Columbus and may be reached by taking an old wagon road 100 yards north of Mr. Speight’s house. This road leads in about 300 yards to the river bank. The locality is a low bluff, by the shoals, about 300 yards downstream,
and exposes about eight feet of section from water level up. The section exposed is a marl with a one-foot compact lime bed near the middle.” This “sample came from 0–1 foot below the limestone ledge. The shoals are produced by slumping and the stratigraphic relations are greatly confused.” Collected by Julius B. Garrett in summer 1932. Figured: pl. 2, figs. 3–5.

COMMENTS: Garrett collected from the Milams Member of the Cook Mountain Formation (Andersen 1960, p. 90). Toledo Bend Reservoir later covered the sample location; construction of the lake began in 1964. An alternate spelling, “Godwin Shoals,” is used on the labels of H.V. Howe’s samples from this locality.


COMMENTS: The holotype specimen is not as prominently costate as in the figures. The specimen is slightly damaged.


HOLOTYPE: HVH 116, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 38,” (Rob-4): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps 1½ feet in thickness.” Sample No. 38 is “from beneath the next to the lowest iron ore ledge.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 4). Figured: pl. 8, figs. 34–35.

COMMENTS: Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


HOLOTYPE: HVH 34, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 98,” (JH-203): “Chocolate-brown, lignitic shale. Taken 49 feet below Sample No. 97 (JH-200). Elevation—108 feet.” JH-200 was taken in a “ditch on southwest side of State Highway 1, 10 feet below top of slope leading down to floodplain of Little Natches Creek and Saline Bayou, in the southwest corner of the NE¼ SE¼ NE¼ sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. Collected by John Huner, Jr., between 1936 and 1938. Figured: pl. 4, figs. 11, 12.

COMMENTS: Huner (1939, LGS Bull. 15, p. 101–102) describes his locality as the “southwest corner of the NE¼ SE¼ NE¼ sec. 15, T. 9 N., R. 6 W., Winn Parish, along U.S. Highway 71, about a quarter of a mile southeast of Little Natches Bayou, ... the section exposed from the top of the ridge down to the flood plain.” His sample JH-203 is from the base of the Little Natches Member. According to Huner’s measured section, the elevation at the top of the slope is about 174 feet. Sample JH-200 was collected from Huner’s bed 25 (elevation 160 to 163 feet), and sample JH 203 was collected from bed 8 (elevation 108.5 to 119.5 feet).


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35). The name *Trochammina lafourchensis* Smith 1948 was published on the errata sheet accompanying Geological Bulletin 26 to replace the name *Trochammina howei* Smith 1948 (p. 59), a homonym of *Trochammina howei* Cushman 1944; see Thalmann (1950a, p. 737).


COMMENTS: The well location is shown in Figure 3 of Smith (1948, p. 35).


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Tubulogenerina jacksonensis Howe 1934, J. Paleontol. 8: 420.

HOLOTYPE: HVH 748, Eocene, Jackson; “Bunker Hill, on the Ouachita River, [Caldwell Parish,] Louisiana. Its horizon is approximately that of the Moody's Branch marl of Mississippi, i.e., basal Jackson.” Collected by R.W. Harris in January 1926. Figured: pl. 51, fig. 8a, 8b.

PARATYPE: HVH 749, Eocene, basal Jackson; abandoned lime pit, 5.1 miles south of Ocala, [Marion County,] Florida, on the road to Belleview; collected by Henry V. Howe with R.J. Russell in 1933; one specimen, not figured.

COMMENTS: Howe (1934) does not include the names of the collectors; however, samples in the museum collections provided additional collecting event data: Harris’ sample from the Bunker Hill locality was collected in a shell bed (Moody’s Branch) from a slump block 10 to 15 feet above the river. Howe’s sample at the abandoned quarry south of Ocala came from the Ocala limestone 15 feet below the top of the quarry.


HOLOTYPE: HVH 693, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[l]ight yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper horizon” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 12, fig. 5.

COMMENTS: In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives. Ellis and Messina (1940 et seq.) mistakenly state that the upper horizon is bed 3 instead of the correct bed 2.


HOLOTYPE: HVH 1948, middle Tertiary, Discorbis zone; “Stanolind Oil and Gas Company no. B-2 Pipkin, Big Hill prospect, Jefferson County, Texas,” “from core at 5,647–5,651 feet.” Figured: pl. 65, fig. 17.

PARATYPE: HVH 1949, middle Tertiary, Discorbis zone; Stanolind Oil and Gas Company no. B-2 Pipkin, Big Hill prospect, Jefferson County, Texas, from core at 5,711–5,714 feet; one specimen, figured: pl. 65, fig. 13.


PARATYPE: HVH 1951, same sample as holotype, one specimen, figured: pl. 65, fig. 16.


HOLOTYPE: HVH 108, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 74,” (JH-85): “Glaucolithic, calcareous clay occurring four feet below zone of fossiliferous argillaceous limestone concretions exposed on top of hill. Taken a few inches below surface along slope on the south side of creek in the SW¼ NE¼ SE¼ sec. 13, T. 11 N., R. 5 W.” Winn Parish, Louisiana. Collected by John Huner, Jr., between 1936 and 1938. Figured: pl. 8, figs. 21, 22.

COMMENTS: According to the label of Howe Loc. 283 (JH-85), “[t]his sample was collected by J. Huner along the C.C.C. road that runs south from La. 9, and taken from a hill slope on the south side of creek.”

Accepted by Hayward et al. (2020) as Uvigerinella abbreviata var. russelli (Howe 1939).


HOLOTYPE: HVH 1924, possibly Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives. Ellis and Messina (1940 et seq.) mistakenly state that the upper horizon is bed 3 instead of the correct bed 2.

**Holotype:** HVH 687, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312’ 5” East and 345’ North of the Southwest corner of the S.W.½ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 107,” core at depth “1468’,” “brown silty shale.” Figured: pl. 27, fig. 1.

**Comments:** In the text, Hussey (1949, p. 132) says that the holotype is from Sample No. 107, but the explanation of Plate 27, fig. 1, says sample no. 137 [core at depth 1503–1509 feet].


**Holotype:** HVH 2571, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 312’ 5” East and 345’ North of the Southwest corner of the S.W.½ of Sec. 29, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 118,” core at depth “1482’,” “gray-brown shale and greensand.” Figured: pl. 27, fig. 12.

**Comments:** According to Hayward et al. (2020), *Virgulina subquadrata* Hussey is a subjective junior synonym of *Virgulina abbreviata var. russelli* (Howe 1939).


**Holotype:** HVH 2579, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 2, 12.5” East and 345’ North of the Southwest corner of the S.W.½ of Sec. 29, T. 10 N., R. 2 E.” La Salle Parish, Louisiana, “from Sample No. 118,” core at depth “1529’,” “brown-silt shale and greensand.” Figured: pl. 12, fig. 12.

**Comments:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W., Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ feet in thickness.” “This sample was from immediately below the uppermost iron ore ledge. Elevation—85 feet.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 1). Figured: pl. 9, fig. 1.

**Comments:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


**Holotype:** HVH 123, Eocene, Claiborne, Cook Mountain Fm.; “from Sample No. 35,” (Rob-1): “On the left bank of Saline Bayou beneath the Louisiana & Arkansas Railroad bridge at St. Maurice, sec. 15, T. 9 N., R. 6 W.,” Winn Parish, Louisiana. “The lower part of the bluff is marine and is traversed by five iron ore ledges. Below each of these ledges there is a fossiliferous layer of clay, each layer averaging perhaps ½ feet in thickness.” “This sample was from immediately below the uppermost iron ore ledge. Elevation—85 feet.” Collected by Marion S. Roberts in 1932 with H.V. Howe (Roberts 1934, Bed 1). Figured: pl. 9, fig. 1.

**Comments:** Sample Nos. 35 through 39 of Howe (1939) were collected at the type locality of the Saline Bayou member of the Cook Mountain Formation. Due to an irregular section, the section number of the sample locality is 37, not 15. Robert C. Howe (1963, p. 6) describes the type exposure as “extending both north and south of the Louisiana and Arkansas Railroad bridge in the extreme northern part of irregular section 37, T. 9 N., R. 6 W. That part of the section south of the bridge is best exposed and the ironstone beds are clearly observed.”


**Holotype:** HVH 687, Eocene, Jackson, [possibly Danville Landing Fm.]; bed 2, “[likely yellow, quite fossiliferous clay, containing large selenite crystals and large concretions”; “upper bed” “at Danville Landing on the Ouachita [River], Catahoula Parish, Louisiana,” near the Caldwell-Catahoula Parish line. Collected by Henry V. Howe. Figured: pl. 11, figs. 2a, 2b.

**Paratype:** HVH 687a, same sample as holotype, one specimen, not figured.

**Comments:** In his section description for Danville Landing, Chawner (1936, p. 88) gives the elevation of the “Upper Danville of Howe and Wallace” (bed 2) as 50 to 70 feet. “Danville Landing” was first used as a stratigraphic name in the Shreveport Geological Society’s (1934) guidebook in the correlation chart prepared by M.A. Hanna and Donald Gravell (table opposite p. 30); see “Danville Landing” in the U.S.G.S. (2020) Geologic Names Committee Archives.

**Fursenkoina** Loeblich and Tappan 1961 is accepted as the replacement name for the homonym *Virgulina* d’Orbigny 1826 (Hayward et al. 2020); *Virgulina danvillensis* = *Fursenkoina danvillensis* (Howe and Wallace 1932).
North of the Southwest corner of the S.W.¼ of Sec. 29, T. 10 N., R. 2 E., La Salle Parish, Louisiana, “from Sample No. 137,” core at depth “1503′–1509′,” “light gray silty shale and greensand.” Figured: pl. 27, fig. 11.

**COMMENTS:** *Fursenkoina* Loeblich and Tappan 1961 is accepted as the replacement name for the homonym *Virgulina* d’Orbigny 1826 (Hayward et al. 2020); *Virgulina regularis* = *Fursenkoina regularis* (Hussey 1949).


**HOLOTYPE:** HVH 2567, Eocene, Cane River Fm.; “La. Oil and Ref. Co., Tremont No. 1, 115′ South and 150′ East of the Northwest corner of the N.W.¼, of the N.E.¼ of Sec. 30, T. 10 N., R. 2 E.,” La Salle Parish, Louisiana, “from Sample No. 152,” core at depth “1512′,” “light gray shale and glauconite.” Figured: pl. 27, fig. 8.

**COMMENTS:** Hussey’s (1949, p. 132) explanation of pl. 27, fig. 8, refers to the holotype slide as no. 2568 and the sample as no. 137, instead of the correct slide number 2567 and sample number 152.


**SYNTYPES:** HVH 1937, middle Tertiary, *Marginulina idiomorpha* zone; “taken from a core from Stanolind Oil and Gas Company no. B-2 Pipkin, Big Hill prospect, Jefferson County, Texas,” at “depth of 6,121–6,124 feet”; one specimen, figured: pl. 65, figs. 3a, 3b.

HVH 1938, same sample; one specimen, figured: pl. 65, fig. 5.

HVH 1939, same sample; one specimen, figured: pl. 65, fig. 4.


**COMMENTS:** The well location is shown in Figure 3 of Smith (1948, p. 35). The parentheses around the species author’s name are missing on p. 54.

**ACKNOWLEDGMENTS**

Our thanks go to retired collections manager Alvin M. Phillips for sharing with the senior author his knowledge of the collections.

**LITERATURE CITED**


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