

# Mississippi Geologic Names

Sarah Conner Childress



Bulletin 118

Mississippi Geological, Economic and  
Topographical Survey

William Halsell Moore  
Director and State Geologist

Jackson, Mississippi

1973



ERRATA

BULLETIN 118, "MISSISSIPPI GEOLOGIC NAMES"  
Pages 112 and 113, under PENNINGTON FORMATION  
"unconformably overlies Pottsville Formation  
and underlies Bangor Formation" should read  
"unconformably underlies Pottsville Formation  
and overlies Bangor Formation."

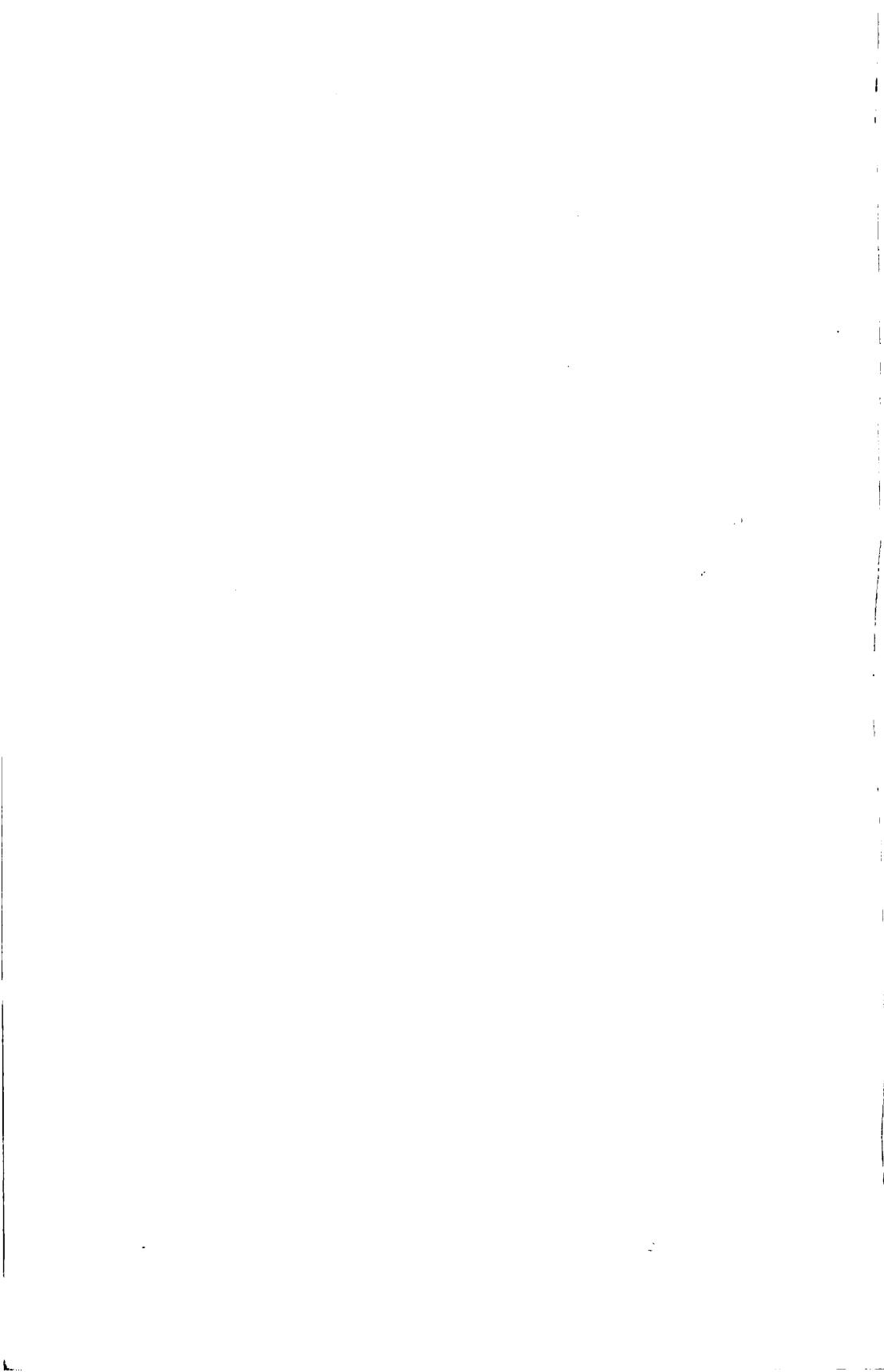


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## State of Mississippi

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## Letter of Transmittal

Office of the Mississippi Geological, Economic and  
Topographical Survey  
Jackson, Mississippi

October 23, 1973

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

Gentlemen:

I hereby transmit to you Bulletin 118 of the Mississippi Geological Survey entitled, "Mississippi Geologic Names," by Sarah Conner Childress.

The Mississippi Geological Survey has been for some 125 years publishing material on the geology of Mississippi. These publications have contained a proliferation of geologic names some not now in common use. Other writings concerning Mississippi geology and semi-formal usage by oil company personnel have added additional names. This bulletin contains background material on the original reference for these names and information as to what these names apply. It should be a valuable guide to persons in all fields of geology.

Respectfully,

William H. Moore  
Director and State Geologist

WHM:js

## Introduction

It is the purpose of this publication to fulfill the need for a source book of information concerning the stratigraphic terms of the State of Mississippi. The format is purposely concise so as to alleviate excess verbiage.

The age and area covered by the unit are stated, followed by a list of references. References are listed by (1) original reference, (2) selected references, and (3) complete references which have been published by the Mississippi Geological, Economic and Topographical Survey. Next is a brief description of the unit, which is followed by the unit's type locality or a reference section along with a name derivation, if known.

Some of the terms listed, especially Paleozoic names, are, for all intents and purposes, obsolete, due to the fact that the Survey has not published any research which would update the nomenclature of these items. The need for this work is recognized and, hopefully, will be carried out in the near future.

## Acknowledgments

In the preparation of this bulletin the writer received help from many individuals, for which she is grateful. Discussions with Frederic F. Mellen, consulting geologist, Jackson, Mississippi, were invaluable. Comments from Armando T. Ricci, petroleum geologist of Natchez, Mississippi, were a great help in the oil field nomenclature of the Wilcox Formation. Also appreciated are the comments and suggestions offered by fellow staff members of the Mississippi Geological Survey.

**ACKERMAN FORMATION (in Wilcox Group)**

Eocene, lower: Mississippi, Alabama, Missouri, and Tennessee.

Original reference: Lowe, E. N., 1913, Miss. Geol. Survey Bull. 10, p. 23-35.

Weller, J. M., and McQueen, H. S., 1939, Kan. Geol. Soc. Guidebook 13th Ann. Field Trip Conf., p. 159.

Whitlatch, G. I., and Gildersleeve, B., 1946, Econ. Geology, v. 41, no. 8, p. 843-845.

McNeil, F. S., 1946, U. S. Geol. Survey Strategic Minerals Inv. Prelim. Rept. 3-195, p. 17-18.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 66-67.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 67-68.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 59-60.

Stephenson, L. W., Cooke, C. W., and Lowe, E. N., 1933, Miss. Geol. Survey Bull. 25, p. 35-63.

Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 51-53.

Mellen, F. F., and McCutcheon, T. E., 1939, Miss. Geol. Survey Bull. 38, p. 37-43.

Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41, p. 43-48.

Conant, L. C., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 42, p. 43-46.

Conant, L. C., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 45, p. 48-51.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 52, p. 19-42.

- Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 54, p. 44-48.
- Brown, G. F. and Adams, R. W., 1943, Miss. Geol. Survey Bull. 55, p. 24-25.
- Attaya, J. S., 1951, Miss. Geol. Survey Bull. 71, p. 10-19.
- Vestal, F. E., 1952, Miss. Geol. Survey Bull. 75, p. 32-85.
- Turner, J., 1952, Miss. Geol. Survey Bull. 76, p. 10-14.
- Vestal, F. E., 1954, Miss. Geol. Survey Bull. 78, p. 34-53.
- Lusk, T. W., 1956, Miss. Geol. Survey Bull. 80, p. 25-43.
- Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 20-21.

The Ackerman Formation consists of reddish-brown to tan, cross-bedded, micaceous sand and silt with interbeds of light-gray clays. Some parts may be equivalent to the Nanafalia Formation. Overlies Fearn Springs Formation. Thickness about 150 feet.

Typical outcrop is in road cut one mile east of Ackerman, Choctaw County, Mississippi.

### **ALLSBORO SANDSTONE**

Upper Mississippian: Northeastern Mississippi.

Original reference: Morse, W. C., 1928, Jour. Geology, v. 36, p. 31-43.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 116-150.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 32, p. 11.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 60.

The Allsboro Sandstone is composed of coarse-grained, slightly asphaltic, contorted sandstone and has a thickness of 8 feet. In the subsurface, well cuttings have suggested a 32 foot thickness. Equivalent to Bethel of Alabama (Vestal).

Named for a small village in Colbert County, Alabama near the Mississippi State line.

## ALSOBROOK FORMATION

Upper Mississippian: Northeastern Mississippi.

Original reference: Morse, W. C., 1928, Jour. Geology, v. 36, p. 31-43.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 116-150.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 32, p. 11.

Vestal, F. E., 1943, Miss. Geol. Survey Bull. 57, p. 61.

The Alsobrook Formation is composed of a basal fossiliferous limestone, which is overlain by the Hargett Sandstone or Shale Member and an upper unit, the Cripple Deer Sandstone Member. Thickness is 80 to 90 feet. Some geologists believe the Alsobrook to be equivalent to Ste. Genevieve of Alabama, and others state that the Ste. Genevieve underlies the Alsobrook equivalent in the standard Mississippian section of the north-central part of the Mississippi Embayment.

Named for Alsobrook homestead and Alsobrook Bridge, located about 3 miles north of Allsboro, Ala., in Sec. 10, T. 4 S., R. 15 W.

**ANDREW FORMATION**

Lower Cretaceous: Subsurface across southern Mississippi and adjoining states.

Eargle, D. H., 1964, U. S. Geol. Survey Prof. Paper 475-D, p. D45-D47.

Andrew Formation consists of strata previously called "Pre-Dantzler rocks of Washita and Fredericksburg Groups, undifferentiated" by Nunnally and Fowler, 1954, Miss. Geol. Survey Bull. 79. Thickness 1000-1800 feet.

Type section: Gulf Oil Co., No. 25 J. M. Andrew well, Sec. 6, T. 1 N., R. 16 W., Baxerville oil field, Lamar County, Miss.

**ANNONA CHALK (in Selma Group)**

Upper Cretaceous: Texas, Louisiana, Arkansas, and Oklahoma.

Original reference: Hill, R. T., 1894, Geol. Soc. Amer. Bull., v. 5, p. 308.

Frizzell, D. L., 1954, Tex. Univ. Bur. Econ. Geology Rept. Inv. 22, p. 43-45.

Mellen, F. F., 1958, Miss. Geol. Survey Bull. 85, p. 29-40.

Term Annona used in Mississippi by Mellen refers to a lower portion of the Demopolis Formation and includes the Coonewah Bed. See also Demopolis Formation.

Named for outcrops about 2 miles northwest of Annona, Red River County, Texas.

**ARCHUSA MARL MEMBER (of Cook Mountain Formation)**

Eocene: Eastern Mississippi.

Original reference: Thomas, E. P., 1942, Miss. Geol. Survey Bull. 48, p. 49-52, 82, 89-90.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 39-40.

DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 17-18.

The Archusa Marl Member consists of green, gray-green and gray calcareous, glauconitic, fossiliferous, laminated clays and clayey sands. It overlies the Kosciusko Formation and underlies the Potterchitto Member. Thickness up to about 70 feet in the subsurface, and from 40-55 feet on the outcrop.

Type locality: A bluff beneath the south end of a bridge across the Chickasawhay River on U. S. Highway 45, 2 miles south of Quitman, Clarke County, Mississippi. Named for Archusa Springs, a health resort.

#### **ARCOLA LIMESTONE MEMBER (of Mooreville Formation)**

Upper Cretaceous: Northeastern Mississippi and southwestern Alabama.

Stephenson, L. W., and Monroe, W. H., 1938, Am. Assoc. Petroleum Geologists Bull. v. 22, no. 12, p. 1655-1657.

Monroe, W. H., and Eargle, D. H., 1946, U. S. Geol. Survey and Oil and Gas Inv. Prelim. Map 50.

Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40, p. 101-102.

Bergquist, H. R., et al., 1943, Miss. Geol. Survey Bull. 53, p. 22-25.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 21-32.

Vestal, F. E., 1946, Miss. Geol. Survey Bull. 63, p. 30-31.

Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 38.

Torries, T. F., 1964 in Miss. Geol. Survey Bull. 102, p. 80.

The Arcola Limestone Member consists of relatively pure, buff-colored, fossiliferous limestone interbedded with chalk. Underlies unconformably the Demopolis Formation. Thickness about 29 feet.

Type exposure: In a bluff at the Old Arcola Landing on the Black Warrior River, NE/4, Sec. 4, T. 18 N., R. 3 E., Hale County, about 5 miles northeast of Demopolis, Alabama.

### **BANGOR FORMATION (Limestone)**

Upper Mississippian: Alabama, Georgia, Tennessee; subsurface in Mississippi.

Original reference: Smith, E. A., 1890, Ala. Geol. Survey Rept. on Cahaba coal field, p. 155-157.

Jones, W. B., 1928, Ala. Geol. Survey Circ. 8, p. 13-15.

Jones, W. B., 1939, Econ. Geology, v. 34, no. 5, p. 577-578.

Stose, G. W., 1952, Washington Acad. Sci. Jour., v. 42, no. 8, p. 214, 242.

Malmberg, G. T., and Downing, H. T., 1957, Ala. Geol. Survey County Rept. 3, p. 57-64.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 59-60.

The Bangor Formation has been penetrated by wells in northeastern Mississippi and consists of shale and limestone and is very fossiliferous. At the outcrops in northwestern Alabama the formation is composed of blue crystalline or oolitic limestone. Underlies the Pennington Formation and overlies Forest Grove (Hartselle). Thickness varies from 100 to 700 feet.

Named for development at Bangor, Blount County, Alabama.

**BASHI FORMATION** (in Wilcox Group)

Eocene, lower: Mississippi, Alabama, and Georgia.

Original reference: Heilprin, A., 1882, Philadelphia Acad. Nat. Sci. Proc., 1881, p. 158-159.

Toulmin, L. D., Jr., 1944, Southeastern Geol. Soc. Guidebook 1st Field Trip, p. 9.

MacNeil, F. S., 1944, Southeastern Geol. Soc. Guidebook 2nd Field Trip, p. 27-28.

MacNeil, F. S., 1946, U. S. Geol. Survey Strategic Minerals Inv. Prelim. Rept. 3-195, p. 22.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

Stephenson, L. W., Cooke, C. W., and Lowe, E. N., 1933, Miss. Geol. Survey Bull. 25, p. 100-108.

Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 54.

Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41, p. 53-61.

Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 182-187.

Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 23-25.

Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 54-55.

Rainwater, E. H., 1964, in Miss. Geol. Survey Bull. 102, p. 24, 27.

The Bashi Formation, formerly called Woods Bluff Group, is composed of a gray, glauconitic, fossiliferous, calcareous, sandy marl with some lignite. Overlies the Tuscaloosa and underlies the Hatchetigbee. Thickness approximately 25 feet.

Named for exposures on Bashi Creek, Clarke County, Alabama, and especially at Woods Bluff on the Tombigbee River just below the mouth of Bashi Creek.

**BASIC CITY SHALE MEMBER** (of Tallahatta Formation)

Eocene, middle: Mississippi.

Original reference: Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 74-75.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 74-76.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 66-68.

Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 123.

Mellen, F. F., and McCutcheon, T. E., 1939, Miss. Geol. Survey Bull. 38, p. 47-48.

Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41, p. 72-77.

Thomas, E. P., 1942, Miss. Geol. Survey Bull. 48, p. 15-24.

Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 51, p. 54-55.

Brown, G. F., and Adams, R. W., 1943, Miss. Geol. Survey Bull. 55, p. 55-56.

Morse, W. C., et al., 1945, Miss. Geol. Survey Bull. 61, p. 15-16.

Brown, G. F., 1947, Miss. Geol. Survey Bull. 65, p. 39-43.

Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 27-28.

Parks, W. S., et al., 1963, Miss. Geol. Survey Bull. 99, p. 26.

Shows, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 85.

The Basic City Shale Member of the Tallahatta Formation consists of blue-gray to green-gray or dark-gray to black, sandy, silty, micaceous, locally carbonaceous claystones; green-yellow to buff semi-consolidated siliceous sand with pellets, partings, and stringers of clay and thin interbeds of quartzitic rock. Disseminated glauconite is found throughout the sediments. It underlies and interfingers with the Neshoba Sand Member and overlies and interfingers with the Meridian Sand Member. Thickness up to 100 feet.

Type locality: Cut on Alabama Great Southern Railroad just north of Basic City, Clarke County, Miss.

### **BETHEL SANDSTONE**

See Allsboro Sandstone.

See also, original reference: Butts, C., 1917, Mississippian series in western Kentucky: Ky. Geol. Survey, p. 63.

Welch, S. W., 1958, U. S. Geol. Survey Oil Inv. Chart OC-58.

Named for exposures in vicinity of Bethel School, 3½ miles west of Marion, Crittenden County, Kentucky.

### **BETHEDEN FORMATION (in Midway Group)**

Paleocene: East-central Mississippi.

Mellen, F. F., 1939, Miss. Geol. Survey Bull. 38, p. 26-28.

MacNeil, F. S., 1951, Am. Assoc. Petroleum Geologists Bull., v. 35, p. 1070.

Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 54, p. 38-41.

Vestal, F. E., 1952, Miss. Geol. Survey Bull. 75, p. 25-27.

Lusk, T. W., 1956, Miss. Geol. Survey Bull. 80, p. 15-18.

Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 18-19.

The Betheden Formation is a residual zone at the top of the Midway. It consists of bauxite, bauxitic and kaolinitic clays, kaolin, and lignite. Thickness, where unit is present in its entirety, is 25 feet. Unconformably underlies Wilcox Group.

Type locality: At Livingston Spring, 50 yards south of the Highway at Betheden, SW/4, SE/4, Sec. 23, T. 16 N., R. 13 E., Winston County, Miss.

### **BILOXI FORMATION**

Pleistocene: Southern Mississippi.

Original reference: Johnson, L. C., 1891, Geol. Soc. Amer. Bull., v. 2, p. 24-25.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 94.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 100.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 87.

Otvos, E. G., Jr., 1972, Transactions Gulf Coast Assoc. of Geol. Soc. 22nd Ann. Convention, p. 223-228.

Otvos, E. G., Jr., 1973, New Orleans Geol. Soc. Field Trip Guidebook, p. 2, 10-12.

Medium bluish-gray, medium greenish-gray, and dark greenish-gray muddy fine sands, clayey fine sands, and sandy muds. Thickness: 13-51½ feet. The Biloxi is exposed only in the Harrison County Industrial Waterway cuts. Underlies the Prairie (Pamlico) Formation and the Gulfport Formation, overlies earlier Pleistocene deposits.

Named for Biloxi, Harrison County, Mississippi.

### **BLACK RIVER GROUP OR FORMATION**

Ordovician: Northeastern United States and Canada; in Mississippi, Black River occurs in the subsurface.

Original reference: Vanuxem, L., 1842, Geology of New York, pt. 3, p. 38-45.

Bramlette, M. N., 1925, U. S. Geol. Survey Bull. 781, pt. 2, pl. 1.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 72.

The Black River in Mississippi, along with the Stones River, consists of up to 500 to 700 feet of brown and gray limestone.

Named for exposures in cliffs of Black River, New York.

#### **BLUFFPORT MARL MEMBER (of Demopolis Formation)**

Upper Cretaceous: Eastern Mississippi and western Alabama.

Monroe, W. H., 1956, Am. Assoc. Petroleum Geologists Bull., v. 40, no. 11, p. 2740-2742.

Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 53-59.

See Demopolis Formation.

Type locality: On Bluffport Road in NW/4, Sec. 27, T. 19 N., R. 1 W., Sumpter County, Ala., about 6½ miles east of Livingston. Crops out in many of the raised blocks of the Livingston Fault Zone.

Named for Bluffport Bluff along the Tombigbee River.

#### **BRASSFIELD LIMESTONE**

Silurian: Kentucky, Arkansas, Indiana, Ohio, Tennessee; subsurface in northeastern Mississippi.

Original references: Foerste, A. F., 1905, Ky. Geol. Survey Bull. 6, p. 156; 1906, Ky. Geol. Survey Bull. 7, p. 10, 27.

Swartz, C. K., et al., 1942, Geol. Soc. Amer. Bull., v. 53, no. 4, chart 3.

Branson, E. B., and Branson, C. C., 1947, Jour. Paleontology, v. 21, no. 6, p. 549-556.

Wilson, C. W., Jr., 1948, Geol. Soc. Amer. Bull., v. 59, no. 8, p. 752, 755, 756.

Wilson, C. W., Jr., 1949, Tenn. Div. Geol. Bull. 56, p. 239-244.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 64, 71.

The Brassfield Limestone, in Mellen and Gear Wood No. 1 well in Tishomingo County, Mississippi, consisted of 5-10 feet of pinkish, glauconitic, coarsely crystalline limestone. Underlies the Wayne Formation.

Named for exposures along the Louisville and Atlantic Railroad between Brassfield and Panola, Madison County, Kentucky.

## BROWNSPORT FORMATION

Silurian: Subsurface in northeastern Mississippi and in west-central Tennessee.

Original reference: Foerste, A. F., 1903, Jour. Geol., v. 11, p. 566-583, 681-708.

Bramlette, M. N., 1925, U. S. Geol. Survey Bull. 781, pl. 1.

Swartz, C. K., et al., 1942, Geol. Soc. Am. Bull., v. 53, no. 4, chart 3.

Amsden, T. W., 1949, Yale Univ., Peabody Mus. Nat. History Bull. 5, p. 138.

Wilson, C. W., Jr., 1949, Tenn. Div. Geol. Bull. 56, p. 257-270.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 71.

The Brownsport Formation consists of gray-green, arenaceous, glauconitic, cherty limestone. Thickness 25 feet in Southward No. 1 well, Sec. 18, T.5 S., R. 11 E., Tishomingo County, Miss. Overlies Wayne Formation.

Named for exposures around Brownsport Furnace, Perryville quadrangle, Decatur County, Tennessee.

#### **BUCATUNNA FORMATION (of Vicksburg Group)**

Oligocene, middle: Southeastern Mississippi and southwestern Alabama.

Original reference: Blanpied, B. W., et al., 1934, Shreveport Geol. Soc. Guidebook 11th Ann. Field Trip, p. 3-4, 12-16, charts. "A sequence of bentonitic clays, bentonite and cross bedded sands which rest upon the rocks of the Vicksburg Group with distinct unconformity." The unit was assigned to the Catahoula Group of Miocene Age.

MacNeil, F. S., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 9, p. 1315 (fig. 1).

Tonti, E. C., 1955, Dissert. Abs., v. 15, no. 8, p. 1372.

Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 53-54.

DeVries, D. A., 1963, Miss. Geol. Survey Bull. 95, p. 42-43.

Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 77-78, 174.

Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 115.

Williams, C. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 218-219.

Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 136.

Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 50-53, 67-68.

Luper, E. E., et al., 1972, Miss. Geol. Survey Bull. 116, p. 42-44, 58, 59.

The Bucatunna Formation consists of brown to dark-gray to black, silty, locally fossiliferous and carbonaceous clay with lenses of cross-bedded, fine-grained, glauconitic sand. The unit also contains thin beds of bentonite. It is the uppermost unit of the Vicksburg Group, overlying the Byram Formation. Thickness up to 55 feet.

Type locality: Along Bucatunna Creek about 3 miles north of the abandoned Denham post office, which was located in Sec. 19, T.8 N., R.5 W., Wayne County, Miss.

### **BUCKNER FACIES**

See Haynesville - Buckner Formation.

### **BYRAM FORMATION (in Vicksburg Group)**

Oligocene, middle: Mississippi, southwestern Alabama, northwestern Florida, and Louisiana.

Original reference: Casey, T. L., 1902, Philadelphia Acad. Nat. Sci. Proc., v. 53, p. 517-518.

Mellen, F. F., 1939, Miss. Acad. Sci. Jour., v. 1, p. 18.

Vernon, R. O., 1942, Fla. Geol. Survey Bull. 21, p. 56.

Cooke, C. W., Gardner, J., and Woodring, W. P., 1943, Geol. Soc. Amer. Bull., v. 54, no. 11, chart 12.

MacNeil, F. S., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 9, p. 1315, 1329-1344.

Monroe, W. H., 1954, U. S. Geol. Survey Bull. 986, p. 80-98, pls. 1, 3, 4, 5.

Tonti, E. C., 1955, Dissert. Abs., v. 15, no. 8, p. 1372.

Mellen, F. F., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 39, p. 28.

- Mellen, F. F., et al., 1941, Miss. Geol. Survey Bull. 43, p. 38-43.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 53.
- DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 41-42.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 73-77.
- Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 115.
- Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 136.
- Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 49-50.
- Luper, E. E., et al., 1972, Miss. Geol. Survey Bull. 116, p. 41-42.
- May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

The Byram Formation consists of gray-green, glauconitic, fossiliferous, calcereous marl and clay and, in the lower part, some sand. It overlies the Glendon Formation and underlies the Bucatunna Formation. Thickness up to approximately 40 feet.

Type locality: On right bank of Pearl River, in S/2, NW/4, NW/4, Sec. 19, T. 4 N., R. 1 E., Hinds County, Miss. Named for Byram, Mississippi.

### **CANE RIVER FORMATION (in Claiborne Group)**

Eocene, middle: Louisiana, Arkansas, and Texas.

Not a Mississippi term, but used by some geologists to include the Tallahatta, Winona, and Zilpha Formations.

### **CARMACK CREEK LIMESTONE**

See Carmack Limestone

**CARMACK LIMESTONE**

Lower Mississippian: Northeastern Mississippi.

Original reference: Morse, W. C., 1928, Jour. Geology, v. 36, p. 37.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 71-91.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 32, p. 11.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57 p. 63.

The Carmack Limestone consists of brown-gray to blue-gray, thin bedded limestone which breaks into thin-bedded layers on exposure. Thickness 100 feet. Underlies Iuka Formation. Equivalent of lower part of Fort Payne (Vestal).

Named for Carmack Creek, a tributary of the Tennessee River north of Whetstone Branch, Tishomingo County, Mississippi.

**CATAHOULA FORMATION**

Miocene: Mississippi, Louisiana, southern Alabama, and eastern Texas.

Original reference: Veatch, A. C., 1905, La. Geol. Survey Bull. 1, Rept. 1905, p. 84, 85, 90.

Plummer, F. B., 1933, Tex. Univ. Bull. 3232, p. 715-720.

Blanpied, B. W., 1934, Shreveport Geol. Soc. (Guidebook) 11th Ann. Field Trip, p. 12-22.

Renick, B. C., 1936, Tex. Univ. Bull. 3619, p. 67, table facing p. 17.

Chawner, W. D., 1936, La. Dept. Conserv., Geol. Bull. 9, p. 110-134.

Fisk, H. N., 1938, La. Dept. Conserv., Geol. Bull. 10, p. 142-149.

- Fisk, H. N., 1940, La. Dept. Conserv., Geol. Bull. 18, p. 143-147.
- Bates, F. W., and Wharton, J. B., Jr., 1943, Am. Assoc. Petroleum Geologists Bull., v. 27, no. 8, p. 1136-1138.
- MacNeil, F. S., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 9, p. 1315 (fig. 1), p. 1344-1354.
- Russell, W. L., 1957, Gulf Coast Assoc. Geol. Soc. Trans., v. 7, p. 65-72.
- Eargle, D. H., and Snider, J. L., 1957, Tex. Univ. Bur. Econ. Geol. Rept. Inv. 30, p. 14.
- Pinkley, G. R., 1958, South Tex. Geol. Soc. (Guidebook) Fall Field Trip, p. 35, 37.
- Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 91-93.
- Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 79-81.
- Mellen, F. F., McCutcheon, T. E., and Livingston, M. R., 1941, Miss. Geol. Survey Bull. 43, p. 43-46.
- Brown, G. F., and Guyton, W. F., 1943, Miss. Geol. Survey Bull. 56, p. 24.
- Brown, G. F., 1944, Miss. Geol. Survey Bull. 58, p. 22-26.
- Brown, G. F., et al., 1944, Miss. Geol. Survey Bull. 60, p. 33-37.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 55.
- DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 44-45.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 82-85.
- Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 20-29, 52, 125-135.

- Williams, C. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 220-223.
- Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 22-28, 78.
- Show, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 99.
- Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 53-59.
- Luper, E. E., et al., 1972, Miss. Geol. Survey Bull. 116, p. 45-47.

The Catahoula Formation consists of an upper part, which is composed chiefly of pale-gray and tan silty clays, white sands, and loosely consolidated sandstones with traces of carbonaceous clays and lignitic materials, and a lower part, the Tatum Limestone, also called the Heterostegina limestone or zone. The Tatum Limestone consists of marine, sandy limestone, marl, glauconitic calcarenite, and calcirudite. The Catahoula overlies the Paynes Hammock and the Chickasawhay Formations and underlies the Hattiesburg Formation. Thickness up to 1000 feet.

Named for development in Catahoula Parish, Louisiana.

#### **CHALYBEATE LIMESTONE MEMBER (of Clayton Formation)**

Paleocene: Eastern Mississippi and western Alabama.

MacNeil, F. S., 1946, U. S. Geol. Survey Strategic Minerals Inv. Prelim. Rept. 3-195, p. 9-10.

Toulmin, L. D., LaMoreaux, P. E., and Lanphere, C. R., 1951, Ala. Geol. Survey Spec. Rept. 21, p. 37-39.

Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 85-88.

The Chalybeate Limestone Member was designated by MacNeil to include "those beds of the Clayton Formation that are in Mississippi and west of the Tombigbee

River in Alabama." It consists of fossiliferous, glauconitic, sandy, and silty chalks and calcareous clays.

Type locality: In a ravine just north of the main street of Chalybeate, Tippah County, Miss.

See also Miss. Geol. Survey Bull. 42, 45, 54.

### **CHATTANOOGA SHALE**

See Whetstone Branch Shale or Formation.

### **CHAZY GROUP OR LIMESTONE (Stones River)**

Ordovician: Chazy is synonymous with Stones River in Mississippi.

See Stones River.

### **CHICKASAW FORMATION OR GROUP**

Eocene: Mississippi, southern Alabama, Arkansas, and Louisiana.

Original reference: Dall, W. H., 1898, U. S. Geol. Survey 18th Ann. Rept., pt. 2, p. 344-345.

Named "for the four Chickasaw bluffs, of which Memphis bluff is the last," along Mississippi River in northwestern Mississippi, within the "Chickasaw Purchase."

Obsolete term.

### **CHICKASAWHAY FORMATION**

Oligocene, upper: Southeastern Mississippi and southwestern Alabama.

Original reference: Blanpied, B. W., et al., 1934, Shreveport Geol. Soc. 11th Ann. Field Trip, p. 3, 4, 12, 16-19, charts.

Blanpied, B. W., and Hazzard, R. T., 1938, (abs.) Am. Assoc. Petroleum Geologists 23rd Ann. Mtg., Program, p. 11.

Cooke, C. W., 1939, Am. Assoc. Petroleum Geologists Bull., v. 23, no. 10, p. 1560, 1561.

MacNeil, F. S., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 9, p. 1314, 1315 (fig. 1), 1346-1349.

Cooke, C. W., 1959, U. S. Geol. Survey Prof. Paper 321, p. 2 (table 1).

Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 129.

Williams, C. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 219-220. "The Chickasawhay consists of pale grayish-white and white aphanitic to calcarenitic chalky fossiliferous variably sandy limestones, some light-tan dense to very finely crystalline variably fossiliferous dolomites and generally minor amounts of interbedded pale-gray fossiliferous slightly calcareous clays. Some of the limestones contain phosphatic fossil material." Overlies the Bucatunna Formation and underlies the Catahoula and Paynes Hammock Formations.

Thickness: Averages approximately 30 feet.

Type section: On Highway 45, 3 miles north of Waynesboro, Wayne County, Mississippi. Named for exposures on Chickasawhay River.

#### **CHIWAPA SANDSTONE MEMBER (of Ripley Formation)**

Upper Cretaceous: Northeastern Mississippi.

Mellen, F. F., 1958, Miss. Geol. Survey Bull. 85, p. 49-54.

The Chiwapa Sandstone Member consists of calcareous, fossiliferous, indurated, rarely bentonitic sands and sandstones and "bored" or "horsebone" limestone. Underlies Prairie Bluff and Owl Creek with a sharp contact which may represent an unconformity or dia-stem. Grades laterally toward the south into the McNairy Sand Member. Thickness usually 80 feet.

Type locality: On one of the main branches of Chiwapa Creek at the old CWA rock quarry 1.5 miles south of

Pontotoc in NW/4 of NW/4, Sec. 16, T. 10 S., R. 3 E.,  
Pontotoc County.

### CITRONELLE FORMATION

Pleistocene: Gulf Coastal Plain from eastern Texas to Virginia.

Original reference: Matson, G. C., and Berry, E. W., 1916,  
U. S. Geol. Survey Prof. Paper 98-L, p. 167-208.

Roy, C. J., 1939, Am. Assoc. Petroleum Geologists Bull.,  
v. 23, no. 10, p. 1553-1559.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv.  
Prelim. Chart 29.

Carlston, C. W., 1950, Geol. Soc. Amer. Bull., v. 61,  
no. 10, p. 1119-1121.

Doering, J. A., 1956, Am. Assoc. Petroleum Geologists  
Bull., v. 40, no. 8, p. 1882.

Stringfield, V. T., and LaMoreaux, P. E., 1957, Am. Assoc.  
Petroleum Geologists Bull., v. 41, no. 4, p. 742-757.

Doering, J. A., 1958, Am. Assoc. Petroleum Geologists  
Bull., v. 42, no. 4, p. 764-786.

Ketner, K. B., and McGreevy, L. J., 1959, U. S. Geol.  
Survey Bull. 1074-C, p. 71-72.

Doering, J. A., 1960, Jour. Geology, v. 60, no. 2, p.  
182-201.

Murray, G. E., 1961, Geology of the Atlantic and Gulf  
Coastal Province of North America: Harper and  
Brothers, New York, p. 411, 419, 508, 521, 524, 525,  
531, 560.

Lowe, E. N., 1920, Miss. Geol. Survey Bull. 16, p. 24.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 82-84.

- Mellen, F. F., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 39 p. 28-30.
- Mellen, F. F., et al., 1941, Miss. Geol. Survey Bull. 43, p. 46-47.
- Foster, V. M., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 44, p. 26.
- Vestal, F. E., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 47, p. 40-50.
- Priddy, R. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 50, p. 42-45.
- Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 51, p. 38-39.
- Brown, G. F., and Guyton, W. F., 1943, Miss. Geol. Survey Bull. 56, p. 50-52.
- Brown, G. F., 1944, Miss. Geol. Survey Bull. 58, p. 44.
- Brown, G. F., et al., 1944, Miss. Geol. Survey Bull. 60, p. 54-61.
- Vestal, F. E., 1950, Miss. Geol. Survey Bull. 67, p. 66-69.
- Turner, J., 1952, Miss. Geol. Survey Bull. 76, p. 37-40.
- Vestal, F. E., 1954, Miss. Geol. Survey Bull. 78, p. 110-114.
- Vestal, F. E., 1956, Miss. Geol. Survey Bull. 81, p. 77-92.
- Priddy, R. R., 1960, Miss. Geol. Survey Bull. 88, p. 98-100.
- DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 45-46.
- Rainwater, E. H., 1964, in Miss. Geol. Survey Bull. 102, p. 35.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 85-86.

Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 32-35.

Show, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 116.

Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 59.

Luper, E. E., 1972, Miss. Geol. Survey Bull. 116, p. 49-51.

The Citronelle is composed of various shades of red sands with local lenses or layers of clay and gravel. The gravels are tan or gray and are composed of chert with some quartz. It unconformably overlies both Miocene and Oligocene deposits. Old names "Orange Sand," "Drift," and "Lafayette" included the Citronelle.

Type locality: Exposures around Citronelle, Mobile County, Alabama, along Mobile and Ohio Railroad.

### **CLAIBORNE GROUP**

Eocene, middle: Gulf Coastal Plain from Georgia to southern Texas.

Original reference: Conrad, T. A., 1847, Philadelphia Acad. Nat. Sci. Proc., v. 3, p. 280-282.

Stenzel, H. B., 1938, Tex. Univ. Bur. Econ. Geology Pub. 3818, p. 20, 58-160.

Cooke, C. W., 1939, Jour. Paleontology, v. 13, no. 3, p. 337-340.

Tourtellot, H. A., 1944, U. S. Geol. Survey Oil and Gas Prelim. Map 6.

Applin, P. L., and Applin, E. R., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 12, p. 1732-1733.

Toulmin, L. D., Jr., 1944, Southeastern Geol. Soc. Guidebook 1st Field Trip, p. 10-11.

- Rainwater, E. H., Chm., 1945, Southeastern Geol. Soc. Guidebook 3rd Field Trip, p. 47-51.
- MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.
- Vernon, R. O., 1951, Fla. Geol. Survey Bull. 33, p. 88-111.
- Murray, G. E., in Holland, W. C., Hough, L. W., and Murray G. E., 1952, La. Dept. Conserv. Geol. Bull. 27, p. 77-78, pls. 11, 12.
- Andersen, H. V., 1960, La. Dept. Conserv. Geol. Bull. 34, p. 85-94.
- Logan, W. N., 1907, Miss. Geol. Survey Bull. 2, p. 161-162.
- Logan, W. N., 1908, Miss. Geol. Survey Bull. 4, p. 13-14.
- Lowe, E. N., 1911, Miss. Geol. Survey Bull. 8, p. 54-55.
- Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 72-78.
- Logan, W. N., 1919, Miss. Geol. Survey Bull. 13, p. 32.
- Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 73-79.
- Lowe, E. N., 1920, Miss. Geol. Survey Bull. 16, p. 23.
- Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 65-70.
- Grim, R. E., 1928, Miss. Geol. Survey Bull. 21, p. 19-20.
- Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 120-135.
- Mellen, F. F., and McCutcheon, T. E., 1939, Miss. Geol. Survey Bull. 38 p. 46-50.
- Mellen, F. F., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 39, p. 13-16.
- Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41, p. 66-85.

- Thomas, E. P., 1942, Miss. Geol. Survey Bull. 48, 96 pp.
- Bergquist, H. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 49, p. 16-34.
- Priddy, R. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 50, p. 19-41.
- Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 51, p. 22-38.
- Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 52, p. 49-50.
- Brown, G. F., and Adams, R. W., 1943, Miss. Geol. Survey Bull. 55, p. 43-45, 55-57.
- Morse, W. C., et al., 1945, Miss. Geol. Survey Bull. 61, p. 15-16.
- Brown, G. F., 1947, Miss. Geol. Survey Bull. 65, p. 37-51.
- Vestal, F. E., 1950, Miss. Geol. Survey Bull. 67, p. 20-66.
- Attaya, J. S., 1951, Miss. Geol. Survey Bull. 71, p. 19-41.
- Vestal, F. E., 1952, Miss. Geol. Survey Bull. 75, p. 85-94.
- Turner, J., 1952, Miss. Geol. Survey Bull. 76, p. 14-37.
- Vestal, F. E., 1954, Miss. Geol. Survey Bull. 78, p. 53-110.
- Lusk, T. W., 1956, Miss. Geol. Survey Bull. 80, p. 43-65.
- Vestal, F. E., 1956, Miss. Geol. Survey Bull. 81, p. 26-77.
- Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 89.
- Priddy, R. R., 1960, Miss. Geol. Survey Bull. 88, p. 45-71.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 21-28, 30-31.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 27-33, 37-42.

- Parks, W. S., 1961, Miss. Geol. Survey Bull. 92, p. 49-52.
- DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 14-23, 73, 78-79.
- Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 24-34.
- Parks, W. S., et al., 1963, Miss. Geol. Survey Bull. 99, p. 24-41.
- Rainwater, E. H., 1964, in Miss. Geol. Survey Bull. 102, p. 14.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 40-42.
- Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 109-112.
- Williams, C. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 207-211.
- Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 128-132.
- Show, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 67, 98.
- Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 189-192.
- May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

The Claiborne Group includes, in ascending order, Tallahatta Formation, Winona Formation, Zilpha Formation, Kosciusko Formation, Cook Mountain Formation, and Cockfield Formation. Overlies Wilcox Group and underlies Jackson Group. Thickness up to approximately 1700 feet.

Named for exposures at Claiborne Bluff and Claiborne Landing, on the Alabama River in Monroe County, Alabama.

**CLAIBORNE SAND** (in Claiborne Group)

Eocene, middle: Southern Alabama and Mississippi.

Original reference: Conrad, T. A., 1847, Philadelphia Acad. Nat. Sci. Proc., v. 3, p. 280-281.

Named for exposures at Claiborne Bluff, on Alabama River, in Monroe County, Alabama.

Abandoned term.

**CLAYTON FORMATION** (in Midway Group)

Paleocene: Northeastern Mississippi, southern Alabama, west-central Georgia, southeastern Missouri, and western Tennessee. Subsurface in nearly all of Mississippi.

Original reference: Langdon, D. W., 1891, Geol. Soc. Amer. Bull., v. 2, p. 589-605.

Weller, J. M., 1940, Ill. Geol. Survey Rept. Inv. 71, p. 43, 44.

MacNeil, F. S., 1946, U. S. Geol. Survey Strategic Minerals Inv. Prelim. Rept. 3-195, p. 6-10.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

Stephenson, L. W., 1955, U. S. Geol. Survey Prof. Paper 274-E, p. 98, 100, 101.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12 p. 63-64.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 63-64.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 55.

Grim, R. E., 1928, Miss. Geol. Survey Bull. 21, p. 12.

Stephenson, L. W., Cooke, C. W., and Lowe, E. N., 1933, Miss. Geol. Survey Bull. 25, p. 4-19.

- Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 29-31.
- Mellen, F. F., and McCutcheon, T. E., 1939, Miss. Geol. Survey Bull. 38, p. 19-20.
- Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41, p. 19-21.
- Conant, L. C., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 42, p. 27-32.
- Conant, L. C., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 45, p. 34-38.
- Bergquist, H. R., et al., 1943, Miss. Geol. Survey Bull. 53, p. 43-45.
- Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 54, p. 43-45.
- Brown, G. F., and Adams, R. W., 1943, Miss. Geol. Survey Bull. 55, p. 23.
- Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 83-94.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 14.
- Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 47-48.
- Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 15.
- Rainwater, E. H., 1964, in Miss. Geol. Survey Bull. 102, p. 14-16.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 37-39.
- Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 108.
- Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 204.

Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 125-126.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 186-187.

The Clayton Formation is the lower unit of the Midway Group of the Paleocene. It consists of pale-gray and light-gray, argillaceous, slightly bentonitic chalks, gray, fossiliferous limestone, and gray to dark-gray shales. The unit underlies and interfingers with the Porters Creek Clay and unconformably overlies Cretaceous sediments. Thickness is usually less than 50 feet.

Type locality: Cut on the Central Georgia Railroad, about 1 mile east of Clayton, Barbour County, Alabama.

### **COCKFIELD FERRY BEDS**

Eocene, middle: Northwestern Louisiana, Mississippi, and eastern Texas.

Original reference: Vaughan, T. W., 1895, Am. Geologist, v. 15, p. 220.

Named for Cockfield Ferry, on Red River, near Petite Ecore, Winn Parish, Louisiana.

Obsolete term.

### **COCKFIELD FORMATION (in Claiborne Group)**

Eocene, middle: Mississippi, Arkansas, northwestern Louisiana, and eastern Texas.

Original reference: Vaughan, T. W., 1895, Am. Geologist, v. 15, p. 220.

Huner, J., Jr., 1939, La. Geol. Survey Bull. 15, p. 119-142.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

- Mathews, A. A. L., 1950, Tex. Eng. Expt. Sta. Research Rept. 14, p. 1, 4.
- Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 77-78.
- Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 79.
- Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 70.
- Thomas, E. P., 1942, Miss. Geol. Survey Bull. 48, p. 68-73, 89, 90, 92, 95.
- Brown, G. F., 1947, Miss. Geol. Survey Bull. 65, p. 50-51.
- Priddy, R. R., 1960, Miss. Geol. Survey Bull. 88, p. 54-71.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 27-28.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 41-42.
- DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 21-23.
- Parks, W. S., et al., 1963, Miss. Geol. Survey Bull. 99, p. 41, 169.
- Engelhardt, D. W., et al., 1964, in Miss. Geol. Survey Bull. 104, p. 65-95.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 44-45.
- Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 111-112.
- Williams, C. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 211.
- Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 132.
- Show, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 86-87.
- Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 192.

Luper, E. E., et al., 1972, Miss. Geol. Survey Bull. 116, p. 175-176.

May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

The Cockfield Formation consists of gray, brown, and buff, silty, carbonaceous, micaceous clays and siltstones, gray, brown, and buff sands and thin beds of clayironstone and lignite. It overlies the Cook Mountain (Wautubbee) Formation and unconformably underlies the Moodys Branch Formation of the Jackson Group. Thickness ranges from 0 to almost 700 feet.

Named for Cockfield Ferry on the Red River, near Petite Encore, Louisiana.

See also Yegua Formation.

### **COCKFIELD LIGNITE**

Eocene, middle: Louisiana and Mississippi.

Original reference: Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 77.

Named for Cockfield Ferry, Louisiana.

Abandoned term.

### **COCOA SAND (of Yazoo Formation)**

Eocene, upper: Eastern Mississippi and southwestern Alabama.

Original reference: Cushman, J. A., 1925, Cushman Lab. Foram. Research Contr., v. 1, pt. 3, p. 65-69.

Hughes, U. B., 1940, Miss. Geol. Soc. Guidebook Field Trip Feb. 10-11, 2nd day's field trip, p. 2.

Cooke, C. W., et al., 1943, Geol. Soc. Amer. Bull., v. 54, no. 11, chart 12.

MacNeil, F. S., 1944, Am. Assoc. Petroleum Geol. Bull., v. 28, no. 9, p. 1315.

Tourtelot, H. A., 1944, U. S. Geol. Survey Oil and Gas Inv. Prelim. Map 6.

Murray, G. E., 1947, Am. Assoc. Petroleum Geol. Bull., v. 31, no. 10, p. 1838-1839.

Huff, W. J., 1970, Miss. Geol. Survey Bull. 114, p. 49-53.

May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

The Cocoa Sand, a member of the Yazoo Formation, consists of light gray, fossiliferous, partially indurated sand. It underlies the Pachuta Marl and overlies the North Twistwood Creek Clay, both members of the Yazoo. Thickness ranges from about 30-60 feet.

Named for an abandoned country post office called Cocoa, which was in SW/4, Sec. 13, T. 11 N., R. 5 W., Choctaw County, Ala., about 2½ miles east of Melvin on the road to Gilberton.

### **COFFEE FORMATION (in Selma Group)**

Upper Cretaceous: Northeastern Mississippi and western Tennessee.

Original reference: Safford, J. M., 1864, Am. Jour. Sci., 2d, v. 37, p. 361-363.

Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40, p. 142-175.

Vestal, F. E., 1946, Miss. Geol. Survey Bull. 63, p. 39-52.

Mellen, F. F., 1958, Miss. Geol. Survey Bull. 85, p. 22-29.

Parks, W. S., et al., 1960, Miss. Geol. Survey Bull. 87, p. 40-52.

Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 28-29.

Torries, T. F., 1964, in Miss. Geol. Survey Bull. 102, p. 75.

The Coffee Formation is composed of gray to bluish-gray to brown, glauconitic, sparingly fossiliferous, locally bentonitic, laminated, cross-bedded sands. The sands merge

with the Mooreville Formation to the south, which results in a distinctive lithology termed the Tupelo Tongue of the Coffee Formation. Underlies Demopolis and overlies Eutaw. Thickness up to approximately 150 feet.

Named for exposures at Coffee Landing, Hardin County, Tennessee.

#### **COKER FORMATION (in Tuscaloosa Group)**

Conant, L. C., and Monroe, W. H., 1945, U. S. Geol. Survey Oil and Gas Inv. Prelim. Map 37.

Conroe, W. H., Conant, L. C., and Eargle, D. H., 1946, Am. Assoc. Petroleum Geologists Bull., v. 30, no. 2, p. 197-200.

Drennen, C. W., 1953, Am. Assoc. Petroleum Geologists Bull., v. 37, no. 3, p. 536.

Parks, W. S., et al., 1960, Miss. Geol. Survey Bull. 87, p. 23.

Type locality: On the road from Spring Hill School in Secs. 21 and 22, T. 21 S., R. 11 W., 3 miles south of Coker, Tuscaloosa County, Ala.

See Tuscaloosa Group.

#### **COLUMBIA GROUP**

Pleistocene: Atlantic Coastal Plain from Delaware to Florida.

Original references: McGee, W. J., 1886, Rept. Health Office District of Columbia for 1885, p. 20; 1886, Am. Jour. Sci., 3d, v. 31, p. 473.

Cederstrom, C. J., 1957, U. S. Geol. Survey Water-Supply Paper 1361, p. 31-32.

Logan, W. N., 1907, Miss. Geol. Survey Bull. 2, p. 167, pl. XXXVII.

Logan, W. N., 1908, Miss. Geol. Survey Bull. 4, p. 15, 18-19.

Lowe, E. N., 1911, Miss. Geol. Survey Bull. 8, p. 58.

This term, as used in Mississippi, is now obsolete. Mr. Logan described the Columbia as, ". . . the brown and yellow loams which occupy the surface of practically all the hill country of the State." The unit supposedly overlay the Loess and the Lafayette Formations. Named for the District of Columbia.

### **COOK MOUNTAIN FORMATION (of Claiborne Group)**

Eocene, middle: Mississippi, northwestern Louisiana, southern and eastern Texas.

Original reference: Kennedy, W., 1892, Tex. Geol. Survey 3rd Ann. Rept., p. 54-57.

Huner, J., Jr., 1939, La. Geol. Survey Bull. 15, p. 84-110.

Stenzel, H. B., 1940, Am. Assoc. Petroleum Geologists Bull., v. 24, no. 9, p. 1663-1675.

Patterson, J. M., 1942, Am. Assoc. Petroleum Geologists Bull., v. 26, no. 2, p. 259, 261-263.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

Thomas, E. P., 1942, Miss. Geol. Survey Bull. 48, p. 47-66, 78, 84, 85, 88, 89-90, 92, 93-94, pls. 1, 2.

Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 42.

Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 111.

Williams, C. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 210.

Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 131-132.

Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 191-192.

The Cook Mountain Formation, formerly called Wautubbee Formation in Mississippi, is composed of Shipps Creek Shale Member, Archusa Marl Member, Potterchitto Member, and Gordon Creek Shale Member. Thickness ranges from 0 to about 325 feet. Unconformably over-

lies the Kosciusko (Sparta) Formation and underlies the Cockfield Formation.

Named for Cook Mountain, Houston County, Texas. In Mississippi, old name Wautubbee, was named for exposures near Wautubbee, Clarke County, on Northeastern Railroad, in cut beneath a highway bridge on Highway 11, Sec. 10, T. 3 N., R. 14 E.

#### **COON CREEK (Tongue) MEMBER (of Ripley Formation)**

Upper Cretaceous: Northern Mississippi and western Tennessee.

Original reference: Wade, B., 1917, Johns Hopkins Univ. Circ., new ser., Whole No. 293, p. 74, 101.

Stephenson, L. W., et al., 1942, Geol. Soc. Amer. Bull., v. 53, no. 3, Chart 9.

Sohl, N. F., 1960, U. S. Geol. Survey Prof. Paper 331-A, p. 13-15.

Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40, p. 179.

Conant, L. C., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 42, p. 22-23.

Conant, L. C., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 45, p. 21-22.

Parks, W. S., et al., 1960, Miss. Geol. Survey Bull. 87, p. 64-67.

The Coon Creek Member (Tongue) consists of blue to dark-gray, fossiliferous marl, subordinate beds of clay and some thin beds of sandstone. Underlies McNairy Sand Member and overlies a transitional clay which overlies the Demopolis Formation. Thickness in Prentiss County, Miss., estimated at 165 to 180 feet.

Named for exposures along Coon Creek, McNairy County, Tennessee.

#### **COONEWAH BED (in Demopolis Formation)**

Upper Cretaceous: Northern Mississippi.

Mellen, F. F., 1958, Miss. Geol. Survey Bull. 85, p. 29-40.

See Demopolis Formation.

Type locality: West valley wall of Coonewah Creek, approximately at the SE Corner, SW/4, Sec. 22, T. 10 S., R. 5 E., Lee County, 2½ miles west of Verona.

### COTTON VALLEY GROUP

Upper Jurassic: Subsurface in Mississippi, Louisiana, Arkansas, and Texas.

Shearer, H. K., 1939, Am. Assoc. Petroleum Geol. Bull., v. 22, no. 6, p. 722-725.

Weeks, W. B., 1938, Am. Assoc. Petroleum Geologists Bull., v. 22, no. 8, p. 966.

Imlay, R. W., 1940, Ark. Geol. Survey Inf. Circ. 12, p. 25-27.

Swain, F. M., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 5, p. 578-582.

Philpott, T. H., and Hazzard, R. T., 1949, in Shreveport Geol. Soc. Guidebook 17th Ann. Field Trip, fig. 5.

Goebel, L. A., 1950, Am. Assoc. Petroleum Geologists Bull., v. 34, no. 10, p. 1978-1979.

Mellen, F. F., 1958, Miss. Geol. Survey Bull. 85, fig. 4.

Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 95, p. 59, 61.

Moore, W. H., 1963, in Miss. Geol. Survey Bull. 97, p. 37, 39.

Dinkins, T. H., Jr., Oxley, M. L., et al., 1968, Miss. Geol. Survey Bull. 109, p. 32-36, 65-72.

Dinkins T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 169-171, pl. 1.

The Cotton Valley Group is a predominantly clastic sequence of sediments and is composed of the Schuler

Formation which is divided into the Shongaloo Member, with its Pink Sandstone Facies, and the Dorcheat Member. It overlies the Louark Group and underlies the Hosston Formation. Salt movement and old topographic highs cause considerable thinning and thickening of these sediments. In Rankin County thickness runs from about 2600-3000 feet.

Type locality: Cotton Valley field, Webster Parish, Louisiana.

#### **CRIPPLE DEER SANDSTONE MEMBER (of Alsobrook Formation)**

Upper Mississippian: Northeastern Mississippi.

Original reference: Morse, W. C., 1928, Jour. Geology, v. 36, p. 31-43.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 17.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 32, p. 11.

Type locality: Along highway on north side of Cripple Deer Valley, Colbert County, Alabama.

#### **CYPRESS SANDSTONE**

See Southward Pond Formation.

See also, original reference: Engelmann, H., 1868, St. Louis Acad. Sci. Trans., v. 2, p. 189-190.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Named for exposures on Cypress Creek, southeastern Union County, Illinois.

#### **DANTZLER FORMATION**

Lower Cretaceous: Subsurface in Mississippi and Louisiana.

Hazzard, R. T., Blanpied, B. N., and Spooner, W. C., 1947,  
Shreveport Geol. Soc. 1945 Ref. Rept., v. 2, p. 477, 478.

Nunnally, J. D. and Fowler, H. F., 1954, Miss. Geol. Survey  
Bull. 79, p. 25, 27.

Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull.  
108, p. 198-199.

See Washita—Fredericksburg Group.

Type well: Humble Oil Co. B-1 Dantzler well, Jackson  
County, Miss. Also has been recognized in wells in  
Forrest, Jefferson Davis, Lamar, Lawrence, Marion and  
Stone Counties, Mississippi.

## **DAVION ROCK**

Miocene: Southern Mississippi.

Original reference: Wailes, B. L. C., 1854, Miss. Agric.  
and Geol. Rept., p. 214-216.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 90.

Obsolete term.

## **DECATUR SAND (in Claiborne Group)**

Eocene, middle: Southeastern Mississippi.

Original reference: Lowe, E. N., 1919, Miss. Geol. Survey  
Bull. 14, p. 78.

Crops out mainly near Enterprise, Wautubbee, and  
Decatur. Named for exposures near Decatur, Newton  
County.

Abandoned term. See Kosciusko Formation, Sparta  
Formation.

## **DEMOPOLIS (Chalk) FORMATION (in Selma Group)**

Upper Cretaceous: Eastern Mississippi and western  
Alabama.

Original reference: Smith, E. A., 1903, 58th Cong. 1st sess., S. Ex. Doc. 19, p. 12-20, map.

Monroe, W. H., 1941, Ala. Geol. Survey Bull. 48, p. 64-73.

Monroe, W. H., and Eargle, D. H., 1946, U. S. Geol. Survey Oil and Gas Inv. Prelim. Map 50.

Monroe, W. H., 1956, Am. Assoc. Petroleum Geologists Bull., v. 40, no. 11, p. 2740-2742.

Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40, p. 16, 96.

Bergquist, H. R., et al., 1943, Miss. Geol. Survey Bull. 53, p. 26-31.

Vestal, F. E., 1946, Miss. Geol. Survey Bull. 63, p. 31-39.

Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 46-59.

Mellen, F. F., 1958, Miss. Geol. Survey Bull. 85, p. 30, 35.

Parks, W. S., et al., 1960, Miss. Geol. Survey Bull. 87, p. 52-61.

Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 13-14.

Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 29-30, 38-41.

Torries, T. F., 1964, in Miss. Geol. Survey Bull. 102, p. 80-82.

The Demopolis Formation is composed chiefly of chalk, impure chalk and some marl and is separated into three units, a lower, very thin unit, the Coonewah Bed, a middle undifferentiated unit, and an upper unit, the Bluffport Marl Member. The upper unit ranges from a dull gray, fossiliferous, clayey chalk at its base to a calcareous, sandy clay at its top. The middle unit, which is typical Demopolis, consists of bluish-gray, massive, fossiliferous chalk with layers of sand and clay. The

thin lower unit is composed of relatively pure, white to light buff, fossiliferous chalk. Thickness up to approximately 600 feet including upper unit (50 feet) and lower unit (2 feet). Underlies Ripley Formation and overlies Arcola Limestone.

Type locality: Bluff of chalk on Tombigbee River at Webb and Sons Cotton Warehouse in Demopolis, Marengo County, Alabama.

### **DENKMAN SAND**

Jurassic: Subsurface in west-central Mississippi.

Murray, G. E., 1961, Geology of the Atlantic and Gulf Coastal Province of North America: New York, Harper and Brothers, p. 290-291.

Denkman Sand is oldest stratigraphic unit known in eastern Gulf area above the Louann Salt. Probably equivalent to lower part of Smackover of type area according to Murray.

Type well: Lion Oil Co. No. 2 Denkman well, NW/4, NE/4, Sec. 22, T. 7 N., R. 4 E., Rankin County, Miss.

### **DORCHEAT MEMBER (of Schuler Formation)**

Upper Jurassic: Subsurface in Mississippi, Louisiana, Arkansas, and Texas.

Swain, F. M., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 5, p. 578, 597, 602-609.

Dinkins, T. H., Jr., Oxley, M. L., et al., 1968, Miss. Geol. Survey Bull. 109, p. 34-36, 69, 70-71, pl. 1.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 171.

The Dorcheat Member is the uppermost unit of the Cotton Valley Group and is composed of varicolored mudstones with siderite inclusions, light-red to maroon to purple

shales, red and white sandstones with zones of conglomeritic sandstones, and, in restricted areas, thin beds of varicolored limestones and nodular limestones. Overlies Shongaloo Member and is overlain by Hosston Formation. Thickness in Rankin County ranges from 900-1100 feet.

Type section: Atlantic Refining Co., Pinewoods Lumber Company No. 1, C., NE/4, NE/4, Sec. 16, T. 18 S., R. 22 W., Columbia County, Ark.

#### **EAGLE FORD FORMATION (in Eutaw Group)**

Upper Cretaceous: Texas, Louisiana, and Oklahoma.

Original reference: Hill, R. T., 1887, Am. Jour. Sci., 3d, v. 33, p. 298.

Adkins, W. S., 1932, Tex. Univ. Bur. Econ. Geology Pub. 3232, p. 425-426.

Albritton, C. C., Jr., et al., 1941, Field and Lab., v. 10, no. 1, p. 17-42.

Stephenson, L. W., et al., 1942, Geol. Soc. Amer. Bull., v. 53, no. 3, chart 9.

Hazzard, R. T., Blanpied, B. W., and Spooner, W. C., 1947, Shreveport Geol. Soc. 1945 Ref. Rept., v. 2, p. 472-475, 477, 480.

Stephenson, L. W., 1953, U. S. Geol. Survey Prof. Paper 243-E, p. 58.

Miser, H. D., et al., 1954, Geologic Map of Oklahoma (1:500,000): U. S. Geol. Survey.

Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 106.

Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 202-203.

Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 123-124.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 184.

See McShan Formation.

Named for exposures at Eagle Ford, Dallas County, Texas.

### **EAGLE MILLS FORMATION**

Triassic: Subsurface in Mississippi, Louisiana, Arkansas, and Texas.

Shearer, H. K., 1938, Am. Assoc. Petroleum Geologists Bull., v. 22, no. 6, p. 724.

Weeks, W. B., 1938, Am. Assoc. Petroleum Geologists Bull., v. 22, no. 8, p. 958-959, 960, 962-964.

Imlay, R. W., 1940, Ark. Geol. Survey Inf. Circ. 12, p. 8-15, pl. 12.

Imlay, R. W., 1943, Am. Assoc. Petroleum Geol. Bull., v. 27, no. 11, p. 1422-1440.

Hazzard, R. T., Spooner, W. C., and Blanpied, B. W., 1947, Shreveport Geol. Soc. 1945 Ref. Rept., v. 2, p. 483, 484-486.

Swain, F. M., 1949, Am. Assoc. Petroleum Geologists Bull., v. 33, no. 7, p. 1207-1212.

McKee, E. D., et al., 1956, U. S. Geol. Survey Misc. Geol. Inv. Map 1-175.

Dinkins, T. H., Jr., et al., 1968, Miss. Geol. Survey Bull. 109, p. 12-13, pl. 1.

The Eagle Mills Formation is composed of red and purple shale, varicolored mudstones with some siderite inclusions, red to white sandstones, minor light-gray siltstone,

zones of coarse clastics, and red to pink argillaceous limestone in restricted areas. Lies unconformably on Paleozoic rocks and is overlain by Werner Formation.

Type well: Amerada Petroleum Co. et al. No. 1 Eagle Mills Lumber Co. well in Sec. 11, T. 12 S., R. 16 W., Ouachita County, Ark.

### **ENTERPRISE GREEN MARL (in Claiborne Group)**

Eocene, middle: Southeastern Mississippi.

Original reference: Meyer, D., 1885, Am. Jour. Sci., 3d, v. 30, p. 435.

Cook, W., 1925, U. S. Geol. Survey Prof. Paper 441-E, p. 135.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 76-77.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 77-78.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 68-69.

Named for exposures at town of Enterprise, Clarke County.

Obsolete term, see Winona Formation.

### **EUTAW FORMATION, EUTAW GROUP**

Upper Cretaceous: Eastern and northern Mississippi, western Tennessee, Alabama, and western Georgia.

Original reference: Hilgard, E. W., 1860, Miss. Geol. and Agric. Rept., p. 3, 61-68.

Smith, E. A., and Johnson, L. C., 1887, U. S. Geol. Survey Bull. 43, p. 95.

Stephenson, L. W., and Monroe, W. H., 1938, Am. Assoc. Petroleum Geologists Bull., v. 22, no. 12, p. 1642 (fig. 2), 1648-1649.

Cooke, C. W., 1943, U. S. Geol. Survey Bull. 941, p. 13-17.

- Conant, L. C., and Monroe, W. H., 1945, U. S. Geol. Survey Oil and Gas Inv. Prelim. Map 37.
- Belt, W. C., et al., 1945, Geologic Map of Mississippi (1:500,000), Miss. Geol. Society.
- Monroe, W. H., Conant, L. C., and Eargle, D. H., 1946, Am. Assoc. Petroleum Geologists Bull., v. 30, no. 2, p. 188 (fig. 1), 207-210.
- Eargle, D. H., 1955, U. S. Geol. Survey Bull. 1014, p. 23-32.
- Reade, H. L., Jr., and Scott, J. C., 1948, Profile showing Geology along U. S. Highway 331, Montgomery County, Alabama (1:16,000): Ala. Geol. Survey.
- Logan, W. N., 1907, Miss. Geol. Survey Bull. 2, p. 157.
- Lowe, E. N., 1911, Miss. Geol. Survey Bull. 8, p. 52.
- Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 57-58.
- Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 57-58.
- Lowe, E. N., 1920, Miss. Geol. Survey Bull. 16, p. 20-21.
- Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 49.
- Bay, Harry X., 1935, Miss. Geol. Survey Bull. 29, p. 21.
- Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40, p. 61-94.
- Bergquist, H. R., 1943, Miss. Geol. Survey Bull. 53, p. 14-18.
- Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 24-29.
- Vestal, F. E., 1946, Miss. Geol. Survey Bull. 63, p. 20-21.
- Vestal, F. E., and Knollman, H. J., 1947, Miss. Geol. Survey Bull. 64, p. 29-38.

- Parks, W. S., et al., 1960, Miss. Geol. Survey Bull. 87, p. 30-40.
- Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 33-35.
- Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 95, p. 66.
- Bicker, A. R., Jr., 1969, Geologic Map of Mississippi (1:500,000): Miss. Geol. Survey.
- Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 99, p. 132-133.
- Torries, T. F., 1963, in Miss. Geol. Survey Bull. 102, p. 68-69.
- Howe, H. V., et al., 1964, Miss. Geol. Survey Bull. 104, p. 40.
- Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, pl. 3, p. 105-106.
- Williams, C. H., Jr., Dinkins, T. H., Jr., and McCutcheon, T. E., 1967, Miss. Geol. Survey Bull. 108, pl. 1, p. 202-203.
- Bicker, A. R., Jr., Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, pl. 1, p. 123-124.
- Bicker, A. R., Jr., 1970, Miss. Geol. Survey Bull. 112, fig. 2, p. 23, 35, 65.
- Show, T. N., 1970, Miss. Geol. Survey Bull. 113, table 6, p. 34, 45-46, 47.
- Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, pl. 1, p. 184.
- Eutaw Formation refers to strata between McShan Formation below and Coffee Formation above and includes two distinct units, the lower typical Eutaw beds, and the Tombigee Sand Member. The Eutaw crops out in Mississippi in a belt 15 to 20 miles wide in parts of

Tishomingo, Prentiss, Itawamba, Monroe and Lowndes Counties. The lower part of the formation consists of generally cross-bedded, glauconitic, fine to coarse sands, and contains thin laminae of clay, and stringers of small chert gravel. Unweathered sands of the lower Eutaw are gray to greenish-gray, and weathered areas are yellow, tan, brown, and reddish-brown. In the subsurface, the lower Eutaw consists of gray to greenish-gray glauconitic sands and dark gray, flaky clay, containing some small chert gravel and some lignite. The Tombigbee sand member of the Eutaw Formation consists of fine grained, dark greenish-gray, massive, very glauconitic, fossiliferous, slightly argillaceous and slightly calcareous sand with some intervals of calcareous sandstone. Thickness of the formation ranges from 185 to 225 feet. Eutaw Group includes the Eutaw Formation and the McShan, or Lower Eutaw (also called Eagle Ford). Eutaw Group rests upon the Tuscaloosa Group. Total thickness is approximately 475 feet.

Named for Eutaw, Greene County, Alabama.

#### **FEARN SPRINGS FORMATION (of Wilcox Group)**

Eocene, lower: Mississippi and Alabama.

Original reference: Mellen, F. F., 1939, Miss. Geol. Survey Bull. 38, p. 33-37.

Murray, G. E., Jr., and Thomas, E. P., 1945, Am. Assoc. Petroleum Geologists Bull., v. 29, no. 1, p. 47.

MacNeil, F. S., 1946, U. S. Geol. Survey Strategic Minerals Inv. Prelim. Rept. 3-195, p. 18-19.

MacNeil, F. S., 1951, Am. Assoc. Petroleum Geologists Bull., v. 35, no. 5, p. 1062-1073.

LaMoreaux, P. E., and Toulmin, L. D., 1959, Ala. Geol. Survey County Rept. 4, p. 98.

Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41, p. 32-43.

- Conant, L. C., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 45, p. 46-48.
- Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 54, p. 42-44.
- Mellen, F. F., 1950, Miss. Geol. Survey Bull. 69, 20 pp.
- Attaya, J. S., 1951, Miss. Geol. Survey Bull. 71, p. 7-10.
- Vestal, F. E., 1952, Miss. Geol. Survey Bull. 75, p. 28-32.
- Vestal, F. E., 1954, Miss. Geol. Survey Bull. 78, p. 26-34.
- Lusk, T. W., 1956, Miss. Geol. Survey Bull. 80, p. 18-25.
- Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 149-157.
- Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 19-20.

The Fearn Springs Formation is the basal unit of the Wilcox Group. It is composed of purplish, silty sands and clays and some lignite. Thickness about 50 feet.

Type locality:  $\frac{1}{4}$  mile west of Fearn Springs, Winston County, Miss., in NE/4, Sec. 3, T. 13 N., R. 14 E. Alternate locality: At Flat Rock Church (old Hurley School) near center Sec. 9, T. 5 S., R. 2 E., Benton County, Miss., approximately  $\frac{1}{2}$  mile west of Tippah County line.

#### **FERRY LAKE FORMATION (in Trinity Group)**

Lower Cretaceous: Subsurface in Mississippi, Louisiana, Arkansas, and Texas.

Imlay, R. W., 1940, Ark. Geol. Survey Inf. Circ. 12, p. 4, 35-36.

Forgotson, J. M., Jr., 1957, Am. Assoc. Petroleum Geologists Bull., v. 41, no. 10, p. 2354-2355.

Nunnally, J. D., and Fowler, H. F., 1954, Miss. Geol. Survey Bull. 79, p. 17-18.

Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 95, p. 63.

Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 99, pl. 1.

Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 194-195, pl. 1.

Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 116, pl. 1.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 176, pl. 1.

The Ferry Lake Formation is composed of a sequence of pale-gray to white anhydrites with interbedded gray, fossiliferous limestones and gray to black shales. Overlies Rodessa and underlies Mooringsport. Thickness in Rankin County, Mississippi ranges from 0-250 feet, in George County, Mississippi is about 160 feet.

Type well: Gulf Refining Co. Caddo Levee Board, "O" Gas Unit Well No. 1, Jeems Bayou field, Sec. 10, T. 20 N., R. 16 W., Caddo Parish, La.

### FLOYD SHALE

Upper Mississippian: Georgia, Alabama, Tennessee; possible subsurface in Mississippi.

Original reference: Hayes, C. W., 1891, Geol. Soc. Amer. Bull., v. 2, p. 143.

Weller, J. M., and others, 1948, Geol. Soc. Amer. Bull., v. 59, no. 2, chart 5.

Butts, C., 1948, Ga. Geol. Survey Bull. 54, p. 49-52.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 61.

Named for development in Floyd County, Georgia.

## FOREST GROVE FORMATION

Upper Mississippian: Northeastern Mississippi.

Original reference: Morse, W. C., 1928, Jour. Geology, v. 36, p. 31-43.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 150-177.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 32, p. 11.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 60.

The Forest Grove Formation crops out in Tishomingo County and includes a lower member composed of clayey shales, sandy shales, and shaly sandstone, and an upper member, the Highland Church Sandstone, which is a thick, massive, cliff-forming sandstone. Thickness is about 115 feet at the outcrop, but wells in Monroe County have recorded thicknesses of 190 feet. According to Vestal, the Forest Grove is the equivalent of the Hartselle of Alabama.

Named for a school located on the formation near old Mingo village and Southward Bridge, Tishomingo County.

## FOREST HILL FORMATION

Oligocene, lower: South-central Mississippi and south-western Alabama.

Original reference: Cooke, C. W., 1918, Washington Acad. Sci. Jour., v. 8, p. 187, 191-193.

MacNeil, F. S., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 9, p. 1314, 1318-1324.

Tourtelot, H. A., 1944, U. S. Geol. Survey Oil and Gas Inv. Prelim. Map 6.

Fisk, H. N., 1944, U. S. Miss. River Comm., p. 13, 15.

- Murray, G. E., 1947, Am. Assoc. Petroleum Geol. Bull., v. 31, no. 10, p. 1838-1839.
- Hendy, W. J., 1948, Miss. Geol. Soc. Guidebook 6th Field Trip, p. 27-28.
- Monroe, W. H., 1954, U. S. Geol. Survey Bull. 986, p. 62-64, pls. 2, 3.
- Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 82-84.
- Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 83-85.
- Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 73-74.
- Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 219.
- Mellen, F. F., 1940, Miss. Geol. Survey Bull. 39, p. 23.
- Mellen, F. F., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 43, p. 14.
- Bergquist, H. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 49, p. 46-53.
- Priddy, R. R., 1960, Miss. Geol. Survey Bull. 88, p. 89-95.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 50.
- DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 32-36.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 58-65, 165.
- Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 112-113.
- Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 133-134.
- Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 36-41, 218.

Luper, E. E., et al., 1972, Miss. Geol. Survey Bull. 116, p. 29-33, 176-177.

May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

The Forest Hill Formation, formerly called Madison Sand, consists of gray to light-gray, micaceous, silty sand and gray to dark-gray carbonaceous clay with thin beds of lignite. Underlies the Mint Spring Formation and overlies the Yazoo Formation of the Jackson Group. Is time-equivalent of the Red Bluff Formation with which it interfingers to the east. Thickness is variable, but may be as much as 250 feet in Hinds County, Mississippi.

Type locality: On Old Jackson-Raymond Road, one-half mile northeast of Forest Hill School in NE/4, Sec. 22, and NW/4, Sec. 23, T. 5 N., R. 1 W., Hinds County, Miss.

#### **FORT ADAMS OR ELLISVILLE PHASE** (of Grand Gulf Group)

Oligocene (?) or Miocene: Southern Mississippi and southern Louisiana.

Original reference: Johnson, L. C., 1893, Science, v. 21, p. 90-91.

Named for Fort Adams, Wilkinson County, Mississippi, and Ellisville, Jones County, Mississippi.

Obsolete term.

#### **FORT ADAMS MEMBER** (of Pascagoula Formation)

Miocene: Southwestern Mississippi.

Brown, G. F., and Guyton, W. F., 1943, Miss. Geol. Survey Bull. 56, p. 22, 23, 47-50.

The Fort Adams Member is composed of calcareous green clay, indurated blue claystone, compact sand, and light coarse sand. Overlies Homochitto Member (of Pascagoula). Thickness 100 feet at Camp Van Dorn, Mississippi.

Named for exposures along a bluff above Fort Adams, southwestern Wilkinson County, Mississippi.

This may or may not be unit referred to as Fort Adams or Ellisville phase of Grand Gulf Group.

### **FORT PAYNE CHERT OR FORMATION**

See Iuka Formation.

### **GLENDON FORMATION**

Oligocene: Mississippi, Alabama, Florida.

Original reference: Hopkins, O. B., 1917, U. S. Geol. Survey Bull. 661-H, p. 298-300.

Mellen, F. F., 1939, Miss. Acad. Sci. Jour., v. 1, p. 18, 19.

Howe, H. V., 1942, Jour. Paleontology, v. 16, no. 2, p. 264-271.

MacNeil, F. S., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 9, p. 1315, 1316, 1329-1332.

Fonti, E. C., 1955, Dissert. Abs., v. 15, no. 8, p. 1372.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 88.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 77.

Mellen, F. F., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 39, p. 26-28.

Mellen, F. F., et al., 1941, Miss. Geol. Survey Bull. 43, p. 32-37.

Bergquist, H. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 49, p. 46-53.

Priddy, R. R., 1960, Miss. Geol. Survey Bull. 88, p. 95-98.

Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 50.

DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 32-36.

Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 70-73.

Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 114-115.

Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 135-136.

Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 45-49.

Luper, E. E., et al., 1972, Miss. Geol. Survey Bull. 116, p. 36-41.

May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

The Glendon Formation consists of alternating beds of pale-gray to cream-colored, dense to chalky, fossiliferous, glauconitic, slightly sandy limestones and grayish-green, fossiliferous, glauconitic, variably sandy marls. It is underlain by the Mint Spring Formation and overlain by the Byram Formation. Average thickness is approximately 30 feet.

Type locality: Glendon, a flag station on Southern Railway between Walker Springs and Jackson in the southern part of Sec. 31, T. 7 N., R. 3 E., Clarke County, Alabama.

Reference section: St. Stephens Quarry, St. Stephens, Alabama.

## GOLCONDA FORMATION

See Southward Bridge Formation.

See also, original references: Brokaw, A. D., 1916, III. Geol. Survey Extr. from Bull. 35; 1917, III. Geol. Survey Bull. 35, p. 19-29.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Named for Golconda, Pope County, Illinois.

### **GORDO FORMATION (in Tuscaloosa Group)**

Upper Cretaceous: East-central Mississippi and west-central Alabama.

Conant, L. C., and Monroe, W. H., 1945, U. S. Geol. Survey Oil and Gas Inv. Prelim. Map 37.

Monroe, W. H., Conant, L. C., and Eargle, D. H., 1946, Am. Assoc. Petroleum Geologists Bull., v. 30, no. 2, p. 200-204.

Drennan, C. W., 1953, Am. Assoc. Petroleum Geologists Bull., v. 37, no. 3, p. 537.

Parks, W. S., et al., 1960, Miss. Geol. Survey Bull. 87, p. 22-26.

The Gordo Formation is composed of sand and gravel with some clay beds. It occupies parts of Monroe, Itawamba, Prentiss and Tishomingo counties, pinching out in northeastern Tishomingo. In Prentiss County it is present only on the extreme lower slopes of hills and in the beds of small creeks. Underlies the McShan Formation and overlies Paleozoics. Thickness in Prentiss County is 87 feet. "A few feet of kaolinitic material found at the base of the Gordo probably represents Mellen's (MGS Bull. 34) Little Bear residuum of post Paleozoic age" (Parks, MGS Bull. 87).

Type locality: The southern facing slope of Little Bear Valley, Sec. 20, T. 2 S., R. 13 W., 2 miles southeast of Gordo, Pickens County, Alabama.

### **GORDON CREEK SHALE MEMBER (of Cook Mountain Formation)**

Eocene: Eastern Mississippi.

Original reference: Thomas, E. P., 1942, Miss. Geol. Survey Bull. 48, p. 54, 57-59, 93-94.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Prelim. Chart 29.

Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 40-41.

DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 20-21.

The Gordon Creek Shale Member consists of dark gray to gray-green to brownish-green to dark brown, carbonaceous, silty clays and clay-shales. Underlies Cockfield Formation and overlies Potterchitto Member of Cook Mountain Formation. Thickness about 20 feet.

Type section: Along U. S. Highway 11 from Basic City to Pachuta in Clarke and Lauderdale Counties. Named for Gordon Creek.

### **GRAHAM FERRY FORMATION**

Pliocene: Southeastern Mississippi.

Brown, G. F., et al., 1944, Miss. Geol. Survey Bull. 60, p. 45-52.

The Graham Ferry is a series of deltaic sediments; dark fossiliferous clays, sands and shale. It overlies the Pascagoula and disconformably underlies the Citronelle. Thickness varies from 113 feet in Jackson County to 975 feet at Gulfport, Harrison County, Mississippi.

Type sections: Rice Bluff, NW/4, NW/4, Sec. 38, T. 5 S., R. 7 W., and a bluff beneath a power line near the center of Sec. 38, T. 5 S., R. 7 W., on west bank of Pascagoula River, Jackson County, Miss. Halfway between the two bluffs is an old river crossing known as Graham Ferry.

### **GRAND GULF GROUP**

Miocene: Gulf Coastal Plain.

Original reference: Hilgard, E. W., 1860, Report on agriculture and geology of the State of Mississippi: (Miss.

Geol. Survey), p. 3, 108, 147-154. "Grand Gulf Stage or Southern Lignite.—White or gray sandstones, usually soft; black, blue, green and gray clays and sands, with small lignite beds, tree palms, exogenous trees, Arundinaceae." Thickness, 150 feet.

Hughes, U. B., et al., 1940, Miss. Geol. Soc. (Guidebook) Field Trip, Feb. 10, 11, chart.

Fisk, H. N., 1940, La. Geol. Survey Bull. 18, p. 138-174.

Logan, W. N., 1907, Miss. Geol. Survey Bull. 2, p. 164-165.

Logan, W. N., 1908, Miss. Geol. Survey Bull. 4, p. 14-15, 16-18.

Lowe, E. N., 1911, Miss. Geol. Survey Bull. 8, p. 55.

Logan, W. N., 1911, Miss. Geol. Survey Bull. 9, p. 15-16.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 87-91.

Logan, W. N., 1916, Miss. Geol. Survey Bull. 13, p. 34.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 89-94.

Lowe, E. N., 1920, Miss. Geol. Survey Bull. 16, p. 23-24.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 79-84.

The term Grand Gulf Group is no longer in use by the Mississippi Geological Survey. The unit was named for exposures in a bluff at Grand Gulf, Claiborne County, Mississippi.

## GRAND GULF SANDSTONE

Miocene: Southern Mississippi and southern Alabama.

Original reference: Wailes, B.L.C., 1854, Report on agriculture and geology in Mississippi: (Miss. Geol. Survey), p. 216-219.

Named for exposures in bluff at Grand Gulf, Claiborne County, Mississippi.

Obsolete term.

### **GREEN HILL MEMBER (of Pride Mountain Formation)**

Upper Mississippian: Northeastern Mississippi and northern Alabama.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Named for exposure at roadside near head of Green Hill Branch about 3 miles south of Barton, Colbert County, Alabama, in SW/4, NW/4, Sec. 22, T. 4 S., R. 13 W.

### **GRENADA FORMATION (in Wilcox Group)**

Eocene, lower: Mississippi, Kentucky, and western Tennessee.

Original reference: Lowe, E. N., 1913, Miss. Geol. Survey Bull. 10, p. 23-25.

Named for exposures at Grenada, Grenada County, Mississippi, especially on Yalobusha River.

Obsolete term.

### **GULFPORT FORMATION**

Pleistocene: Southern Mississippi.

Otvos, E. G., Jr., 1972, Transactions Gulf Coast Assoc. of Geological Soc. 22nd Ann. Conv., p. 223-228.

Otvos, E. G., Jr., 1973, New Orleans Geol. Soc. Field Trip Guidebook, p. 2, 17-18.

Medium and fine grained, well to moderately well-sorted, white sand predominant with lesser amounts of silty sands of poorer sorting. Near the surface, the sands are often oxidized to a light orange-yellow color. Dark

brown humate impregnations are common and extensive. Deposits are found in the three Late Pleistocene barrier ridge segments along coastal Mississippi. Overlies Biloxi Formation. Thickness: 16-32 feet.

Named for Gulfport, Harrison County, Mississippi.

#### **HARGETT SANDSTONE OR SHALE MEMBER (of Alsobrook Formation)**

Upper Mississippian: Northeastern Mississippi.

Original reference: Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 17.

Morse, W. C., 1935, Miss. Geol. Survey Bull. 26, p. 9-10.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 32, p. 11.

Hargett overlies unnamed limestone member and underlies Cripple Deer Sandstone Member.

Is present in Tishomingo County, Mississippi.

#### **HARTSELLE FORMATION OF ALABAMA**

See Forest Grove Formation.

See also, original reference: Smith, E. A., 1894, Ala. Geol. Survey geol. map of Alabama.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 54-55.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 54-55.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 46-47.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 60.

Named for exposures at Hartselle, Morgan County, Alabama.

**HATCHETIGBEE FORMATION (in Wilcox Group)**

Eocene, lower: Mississippi and Alabama.

Original reference: Smith, E. A., and Johnson, L. C., 1887,  
U. S. Geol. Survey Bull. 43, p. 39-43.

MacNeil, F. S., 1944, Southeastern Geol. Soc. Guidebook  
2nd Field Trip, p. 27-28.

MacNeil, F. S., 1946, U. S. Geol. Survey Strategic Minerals  
Inv. Prelim. Rpt. 3-195, p. 21-22.

LaMoreaux, P. E., and Toulmin, L. D., 1959, Alabama  
Geol. Survey County Rpt. 4, p. 19-22, 141-145.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 70-72.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 62-64.

Stephenson, L. W., Cooke, C. W., and Lowe, E. N., 1933,  
Miss. Geol. Survey Bull. 25, p. 107-111.

Mellen, F. F., and McCutcheon, T. E., 1939, Miss. Geol.  
Survey Bull. 38, p. 45-46.

Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol.  
Survey Bull. 41, p. 61-66.

Brown, G. F., and Adams, R. W., 1943, Miss. Geol. Survey  
Bull. 55, p. 40.

Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84,  
p. 178-188.

Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 17,  
21-22.

Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 25-27.

Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 54-55.

Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 23-24.

Parks, W. S., et al., 1963, Miss. Geol. Survey Bull. 99, p. 22-23.

Rainwater, E. H., 1964, in Miss. Geol. Survey Bull. 102, p. 14, 26-28.

The Hatchetigbee Formation determines the top of the Wilcox Group. It consists of regressive nonmarine sediments; gray to brown cross-bedded sands and lignitic clays and slits. Underlies Meridian Formation and overlies Bashi Formation. Thickness approximately 175 feet.

Named for the exposures at Hatchetigbee Bluff, on the Tombigbee River, in Sec. 16, T. 18 N., R. 1 W., Washington County, Ala.

## HATTIESBURG CLAY

Miocene: Coastal Plain of Mississippi, Alabama, Louisiana, and Texas.

Original reference: Johnson, L. C., 1893, Science, v. 21, p. 90-91.

MacNeil, F. S., 1947, U. S. Oil and Gas Inv. Prelim. Chart 29.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 93-94.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 81-82.

Foster, V. M., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 44, p. 24.

Vestal, F. E., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 47, p. 18-27.

Brown, G. F., and Guyton, W. F., 1943, Miss. Geol. Survey Bull. 56, p. 30.

Brown, G. F., 1944, Miss. Geol. Survey Bull. 58, p. 27-34.

Brown, G. F., et al., 1944, Miss. Geol. Survey Bull. 60, p. 37-39.

Parks, W. S., et al., 1964, Miss. Geol. Survey Bull. 103, p. 34.

Williams, C. H., et al., 1967, Miss. Geol. Survey Bull. 108, p. 96, 223.

Bicker, A. R., Jr., et al. 1969, Miss. Geol. Survey Bull. 110, p. 28-32, 78.

Show, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 99, 115.

Luper, E. E., et al., 1972, Miss. Geol. Survey Bull. 116, p. 47-49, 179.

The Hattiesburg Formation consists of non-marine massive blue and gray clay with minor sand and sandstone. Overlies the Catahoula Formation and underlies the Pascagoula and the Citronelle. Maximum thickness in Mississippi is 450 feet.

Named for exposures at Hattiesburg, Forrest County, Mississippi.

## HAYNESVILLE FACIES

See Haynesville-Buckner Formation.

## HAYNESVILLE-BUCKNER FORMATION

Upper Jurassic: Subsurface in Mississippi, Louisiana, Arkansas, and Texas.

### Buckner:

Shearer, H. K., 1938, Am. Assoc. Petroleum Geologists Bull., v. 22, no. 6, p. 724.

Weeks, W. B., 1938, Am. Assoc. Petroleum Geologists Bull., v. 22, no. 8, p. 959, 960, 966.

Hazzard, R. T., 1939, Shreveport Geol. Soc. Guidebook 14th Ann. Field Trip, p. 158.

Imlay, R. W., 1940, Ark. Geol. Survey Inf. Circ. 12, p. 21-25.

Imlay, R. W., 1943, Am. Assoc. Petroleum Geologist Bull., v. 27, no. 11, p. 1437, 1451-1458.

Swain, F. M., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 5, p. 578, 592.

Philpott, T. H., and Hazzard, R. T., 1949, Shreveport Geol. Soc. Guidebook 17th Ann. Field Trip, fig. 5.

#### **Haynesville:**

Philpott, T. H., and Hazzard, R. T., 1949, Shreveport Geol. Soc. Guidebook 17th Ann. Field Trip, fig. 5.

Goebel, L. A., 1950, Am. Assoc. Petroleum Geol. Bull., v. 34, no. 10, p. 1978-1979.

Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 95, p. 58-59.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 168-169, pl. 1.

#### **Haynesville-Buckner:**

Dinkins, T. H., Jr., Oxley, M. L., et al., 1968, Miss. Geol. Survey Bull. 109, p. 27-32, 61, 63, 65, pl. 1.

In Mississippi the term Haynesville-Buckner Formation is used because of the stratigraphic equivalency of the Haynesville and the Buckner. The two terms are applied with equal rank to the lithic sequences which they best describe, and we have, therefore, a Haynesville facies and a Buckner facies of the Haynesville-Buckner Formation. The Haynesville facies consists of a variable lithologic sequence of pale-gray to gray and tan, dense to chalky, sandy, oolitic limestones, dolomitic carbon-

ates, red and black shales, red and white sandstones, and disseminated and interbedded anhydrite which grades basinward into dark lithographic carbonates. The Buckner facies is composed of an upper sequence of dark-red to maroon, silty, micaceous, commonly anhydritic shales which contains subordinate red and white, often anhydritic, sandstones and siltstones. The lower Buckner is composed of anhydrite with subordinate amounts of white anhydritic sandstones, siltstones, black shales, limestones, and dolomitic carbonates. Overlies Smackover Formation and is overlain by Schuler Formation. Thickness undertermined but in Rankin County is greater than 1200 feet.

Haynesville type area: Wells in Haynesville oil field, northern Louisiana.

Buckner named after Buckner field, Columbia County, Arkansas.

#### **HETEROSTEGINA ZONE OR LIMESTONE**

See Tatum Limestone Member.

#### **HIGHLAND CHURCH SANDSTONE MEMBER**

(Forest Grove Formation)

Mississippian: Northeastern Mississippi.

Original reference: Morse, W. C., 1928, Jour. Geology, v. 36, p. 31-43.

Gildersleeve, B., 1946, Tennessee Valley Authority Rept. 2, p. 8, 13.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 17, 150-153, 165, 168-171, 175-178, 184-185, 203.

Morse, W. C., 1935, Miss. Geol. Survey Bull. 26, 30 pp.

Morse, W. C.; and Brown, C. S., 1936, Miss. Geol. Survey Bull. 32, p. 11, 25, 29, 31, 33-36, fig. 13, 17.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 33, fig. 7.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 60.

Bicker, A. R., Jr., 1970, Miss. Geol. Survey Bull. 112, p. 73-74.

The Highland Church Sandstone is a massive, cliff forming, coarse-grained sandstone which is suitable for building purposes. Overlies a shale and sandstone unit of the Forest Grove Formation and underlies Bangor Formation.

Named for development at Highland Church, Tishomingo County, Mississippi.

#### **HOLLY SPRINGS FORMATION (in Wilcox Group)**

Eocene: Mississippi, Tennessee, and Kentucky.

Original reference: Lowe, E. N., 1913, Miss. Geol. Survey Bull. 10, p. 23-25.

McGlothlin, T., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 1, p. 53.

MacNeil, F. S., 1946, U. S. Geol. Survey Strategic Minerals Inv. Prelim. Rpt. 3-195, p. 17.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

Gildersleeve, B., 1953, Kentucky Geol. Survey Spec. Pub. 1, p. 18.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 67-70.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 68-70.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 60-62.

Stephenson, L. W., Cooke, C. W., and Lowe, E. N., 1933, Miss. Geol. Survey Bull. 25, p. 64-100.

Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 53-54.

- Mellen, F. F., and McCutcheon, T. E., 1939, Miss. Geol. Survey Bull. 38, p. 43-45.
- Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41, p. 48-53.
- Conant, L. C., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 42, p. 46-47.
- Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 51, p. 15-22.
- Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 52, p. 42-49.
- Brown, G. F., and Adams, R. W. 1943, Miss. Geol. Survey Bull. 55, p. 27-28.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 20-23.
- Obsolete term in Mississippi: See Tuscaloosa and Bashi Formations.

### **HOMOCHITTO MEMBER (of Pascagoula Formation)**

Miocene: Southwestern Mississippi.

Brown, G. F., and Guyton, W. F., 1943, Miss. Geol. Survey Bull. 56, p. 22, 23, 32-37.

The Homochitto Member consists of sand, blue-green clay and silt with coarse sand or fine gravel at its base. Underlies Fort Adams Member (of Pascagoula) and overlies lower Pascagoula. Thickness about 70 feet at Camp Van Dorn, Mississippi.

### **HOSSTON FORMATION**

Lower Cretaceous: Subsurface in Mississippi, Louisiana, Arkansas and Texas.

Imlay, R. W., 1940, Arkansas Geol. Survey Inf. Circ. 12, p. 28-30.

Nunnally, J. D., and Fowler, H. F., 1954, Miss. Geol. Survey Bull. 79, p. 12-15.

Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 95, p. 61-62.

Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 96-97, pl. 1.

Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 112, p. 1.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 172-173, pl. 1.

The Hosston Formation is composed of dark-red to maroon and gray to black, slightly sandy, micaceous shales, red to white occasionally calcareous and conglomeritic sandstones, minor amounts of gray and green mudstone, varicolored quartz and chert pebbles, and rare lignitic strata. Is basal unit of Cretaceous time, overlying Schuler Formation (Jurassic) and underlying Sligo Formation. Thickness in Rankin County varies from 1150-2500 feet.

Type well: Dixie Oil Co. Robertshaw No. 92 (Dillon No. 92), Sec. 13, T. 21 N., R. 15, W., Caddo Parish, La.

### ISLAND HILL FORMATION

Lower Devonian: Northeastern Mississippi.

Original reference: Morse, W. C., 1928, Jour. Geology, v. 36, p. 31-43.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 41-49.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 32, p. 11.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 63.

The Island Hill is a limestone conglomerate and cherty, siliceous limestone and is three feet thick. Overlies the

New Scotland Limestone and underlies the Whetstone Branch Shale. Is equivalent of Frog Mountain of Alabama (Vestal).

Named for an isolated hill on Yellow Creek about 3 miles above its mouth. Tishomingo County, Mississippi.

### IUKA FORMATION

Lower Mississippian: Northeastern Mississippi.

Original reference: Morse, W. C., 1928, Jour. Geology, v. 36, p. 31-43.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 91-115.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 32, p. 11.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 63.

The Iuka Formation is composed of chert, pulverulent silica and some limestone and is approximately 170 feet thick. It represents the entire Osage and Meramec in Mississippi, including the St. Louis, Warsaw, Salem, possibly the Ste. Genevieve, and all of the Fort Payne except the lower part. Overlies the Carmack Limestone.

Named for Iuka, Tishomingo County, Mississippi.

### IVY FORMATION

Upper Jurassic: Subsurface in Mississippi and Alabama.

Dickinson, K. A., 1963, Dissert. Abs., v. 24, no. 1, p. 248.

Ivy Formation proposed by Dickinson to include red clastic unit above Buckner and below Schuler and equivalent to upper Haynesville. Term not used in Mississippi.

### JACKSON GROUP

Eocene, upper: Gulf Coastal Plain from Georgia to southern Texas.

- Original references: Conrad, T. A., 1856, Philadelphia Acad. Nat. Sci. Proc., v. 7, p. 257-258; Hilgard, E. W., 1860, Rept. Geology and Agriculture of Mississippi, p. 128-135.
- Hanna, M. A., and Gravell, D., in James McGuirt, 1934, Shreveport Geol. Soc. Guidebook 11th Ann. Field Trip, Chart facing p. 30.
- Renick, B. C., 1936, Texas Univ. Bull. 3619, p. 13-55.
- Fisk, H. N., 1938, La. Dept. Conserv., Geol. Bull. 10, p. 89-111.
- Cooke, C. W., 1939, Jour. Paleontology, v. 13, no. 3, p. 337-340.
- Toulmin, L. D., Jr., 1940, Ala. Geol. Survey Bull. 46, p. 40-46.
- Murray, G. E., 1947, Am. Assoc. Petroleum Geologists Bull., v. 31, no. 10, p. 1837-1839.
- Vernon, R. O., 1951, Fla. Geol. Survey Bull. 33, p. 11-172.
- Connell, J. F. L., 1958, Southwestern La. Jour., v. 2, no. 4, p. 321-347.
- Eargle, D. H., 1959, Am. Assoc. Petroleum Geologists Bull., v. 43, no. 11, p. 2623-2635.
- Andersen, H. V., 1960, La. Dept. Conserv., Geol. Bull. 34, p. 94-102.
- Crider, A. F., 1907, Miss. Geol. Survey Bull. 1, p. 57-58.
- Logan, W. N., 1907, Miss. Geol. Survey Bull. 2, p. 162-163.
- Logan, W. N., 1908, Miss. Geol. Survey Bull. 4, p. 14, 16.
- Lowe, E. N., 1911, Miss. Geol. Survey Bull. 8, p. 55.
- Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 78-84.

- Logan, W. N., 1916, Miss. Geol. Survey Bull. 13, p. 32.
- Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 80-85.
- Lowe, E. N., 1920, Miss. Geol. Survey Bull. 16, p. 23.
- Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 70-75.
- Grim, R. E., 1928, Miss. Geol. Survey Bull. 21, p. 21.
- Bay, H. X., 1935, Miss. Geol. Survey Bull. 29, p. 40-42.
- Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 216-219.
- Mellen, F. F., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 39, p. 16-23.
- Mellen, F. F., et al., 1941, Miss. Geol. Survey Bull. 43, p. 14.
- Bergquist, H. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 49, p. 34-46.
- Brown, G. F., 1947, Miss. Geol. Survey Bull. 65, p. 51.
- Priddy, R. R., 1960, Miss. Geol. Survey Bull. 88, p. 72-85.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 28-29.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 42-44, 46-48, 49.
- DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 23-30.
- Parks, W. S., et al., 1964, Miss. Geol. Survey Bull. 103, p. 31.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 43, 45-58.
- Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 112.

Williams, C. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 211-215.

Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 132-133.

Huff, W. J., 1970, Miss. Geol. Survey Bull. 114, 269 pp.

Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 29-36.

Luper, E. E., et al., 1972, Miss. Geol. Survey Bull. 116, p. 25, 27-33.

The Jackson Group includes, in ascending order, the Moodys Branch Formation and the Yazoo Formation.

Named for exposures at Jackson, Mississippi, along Pearl River and Moodys Branch.

### JACKSONIAN STAGE

Eocene: Gulf and Atlantic Coastal Plain.

Murray, G. E., and Wilbert, L. J., Jr., 1950, Am. Assoc. Petroleum Geologists Bull., v. 34, no. 10, p. 1990-1997.

Wilbert, L. J., Jr., 1953, Ark. Geol. Survey Bull. 19, p. 1-125.

Cheetham, A., 1957, Gulf Coast Assoc. Geol. Soc. Trans., v. 7, p. 89-97.

Stuckey, C. W., Jr., 1960, Gulf Coast Assoc. Geol. Soc. Trans., v. 10, p. 285-298.

The term Jacksonian Stage is not used by the Mississippi Geological Survey. See Jackson Group.

### KNOX DOLOMITE OR GROUP

Cambro-Ordovician: Tennessee, Georgia, North Carolina, Virginia; subsurface in Mississippi.

Original reference: Safford, J. M., 1869, Geology of Tenn., p. 151, 158-159, 203-226.

Butts, C., and Gildersleeve, B., 1948, Ga. Geol. Survey Bull. 54, p. 16-18.

Rodgers, J., and Kent, D. F., 1948, Tenn. Div. Geology Bull. 55, p. 14-32.

Miller, R. L., and Brasge', W. P., 1950, U. S. Geol. Survey Oil and Gas Inv. Prelim. Map 104.

Munyan, A. C., 1951, Ga. Geol. Survey Bull. 57, p. 38-49.

Newman, R. B., 1951, Am. Jour. Sci., v. 249, no. 10, p. 744.

Rodgers, J., 1953, Tenn. Div. Geology Bull. 58, pt. 2, p. 53-64.

Allen, A. T., 1953, Ga. Geol. Survey Bull. 60, p. 178-179.

Miller, R. L., and Fuller, J. O., 1954, Va. Geol. Survey Bull. 71 p. 41-62.

Bridge, J., 1956, U. S. Geol. Survey Prof. Paper 277, p. 7, 21-24.

King, P. B., and Ferguson, H. W., 1960, U. S. Geol. Survey Prof. Paper 311, p. 28, 55-57, pl. 1.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 66, 72.

Mellen, F. F., and Moore, W. H., 1962, Miss. Geol. Survey Bull. 96, 28 pp.

The Knox is the oldest strata reached by drilling in Mississippi and is composed of dolomite.

Named for development in Knox County, Tennessee.

#### **KOSCIUSKO FORMATION (in Claiborne Group)**

Eocene: Mississippi.

- Original reference: Cooke, C. W., 1925, U. S. Geol. Survey Prof. Paper 140, p. 133-135.
- Tourtelot, H. A., 1944, U. S. Geol. Survey Oil and Gas Inv. Prelim. Map 6.
- Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 129.
- Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41, p. 84-85.
- Thomas, E. P., 1942, Miss. Geol. Survey Bull. 48, p. 40-47, 84-85.
- Bergquist, H. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 49, p. 18-20.
- Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 51, p. 26-38.
- Brown, G. F., 1947, Miss. Geol. Survey Bull. 65, p. 45-50.
- Vestal, F. E., 1950, Miss. Geol. Survey Bull. 67, p. 49-63.
- Attaya, J. S., 1951, Miss. Geol. Survey Bull. 71, p. 34-41.
- Turner, James, 1952, Miss. Geol. Survey Bull. 76, p. 30-37.
- Vestal, F. E., 1954, Miss. Geol. Survey Bull. 78, p. 91-110.
- Lusk, T. W., 1956, Miss. Geol. Survey Bull. 80, p. 61-65.
- Vestal, F. E., 1956, Miss. Geol. Survey Bull. 81, p. 65-77.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 25-26.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 37-39.
- DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 14-17.
- Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 32-34.
- Parks, W. S., et al., 1963, Miss. Geol. Survey Bull. 99, p. 36-39, 166.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 41, 163-164.

Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 110-111.

Williams, C. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 209-210.

Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 130-131.

Shows, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 68-69, 85-86.

Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 191, 215-216.

Luper, E. E., et al., 1972 Miss. Geol. Survey Bull. 116, p. 157, 174-175.

The Kosciusko Formation, which correlates with Sparta Formation in Louisiana and Texas, formerly called Decatur Sand, includes all the beds above the Zilpha Formation and below the Cook Mountain Formation. It consists of a basal portion of iron-stained, slightly lignitic, highly cross-bedded sands and clay pellets. Above the basal sand are gray to brown carbonaceous, lignitic silts and clays. At the Zilpha-Kosciusko contact meta-sedimentary light gray quartzite is found. Thickness of the Kosciusko ranges from 85-400 feet.

Named for exposures in vicinity of Kosciusko, Attala County, Mississippi.

See also: Sparta Formation, Decatur Sand.

## **LAUDERDALE CHERT**

Mississippian: Northeastern Mississippi.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 52-53.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 53-54.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 44-45.

Obsolete term.

**LISBON FORMATION** (in Claiborne Group)

Eocene, middle: Southwestern Alabama, Georgia.

Original reference: Aldrich, T. H., 1886, Ala. Geol. Survey Bull. 1, p. 44-60.

Not a Mississippi term but used by some geologists to include Winona, Zilpha, Kosciusko, and Cook Mountain Formations.

**LITTLE BEAR RESIDUUM**

Lower Cretaceous: Northeastern Mississippi, Alabama, Tennessee, Kentucky.

Mellen, F. F., 1937, Miss. Geol. Survey Bull. 34, 36 pp.

The Little Bear residuum is composed of weathered, *in situ*, Paleozoic strata and consists of red, white, brown, and mottled clays with streaks of small chert pebbles near the top.

Named for Little Bear Creek in Tishomingo County, Mississippi.

See also Gordo Formation.

**LOESS (Bluff silt) FORMATION**

Pleistocene: Along Mississippi River System.

Lyell, C., 1847, Am. Jour. Sci., v. 3, p. 34-39, 267-269.

Hilgard, E. W., 1879, Am. Jour. Sci., 3rd, v. 18, p. 106-112.

Hilgard, E. W., 1879, Science News, v. 1, p. 216-218.

Chamberlain, T. C., 1897, Jour. Geology, v. 5, p. 795-802.

Keys, C. R., 1898, Am. Jour. Sci., v. 6, p. 299-304.

Smiek, B., 1902, Am. Geologist, v. 30, p. 279-300.

Udden, J. A., 1906, Geol. Soc. America Bull., v. 9, p. 6-9.

Cable, E. J., 1916, Iowa Acad. Sci. Proc., v. 23, p. 159-162.

- Emerson, F. V., 1918, *Jour. Geology*, v. 26, p. 532-541.
- Berg, L. S., 1927, *Pedology*, Moscow, U.S.S.R., no. 2.
- Doering, J. A., 1935, *Am. Assoc. Petroleum Geologists Bull.*, v. 19, p. 651-688.
- Russell, R. J., 1937, (abs) *Assoc. Am. Geographers Annals*, v. 27, no. 2, p. 118.
- Fisk, H. N., 1943, Summary of the geology of the lower alluvial valley of the Mississippi River: U. S. Army Corps of Engineers, Miss. River Comm., 49 pp.
- Holmes, C. D., 1944, *Am. Jour. Sci.*, v. 242, p. 442-446.
- Russell, R. J., 1944, *Geol. Soc. America Bull.*, v. 55, no. 1, p. 1-40.
- Russell, R. J., 1944, *Am. Jour. Sci.*, 5th, v. 242, p. 447-450.
- Thwaites, F. T., 1944, *Jour. Sed. Petrology*, v. 14, p. 146-148.
- Bollen, R. E., 1945, *Am. Jour. Sci.*, v. 243, p. 283-293.
- Elias, M. K., 1945, *Am. Jour. Sci.*, v. 243, p. 227-230.
- Obruchev, V. A., 1945, *Am. Jour. Sci.*, v. 243, p. 256-262.
- Fisk, H. N., 1947, Fine-grained alluvial deposits and their effects on Mississippi River activity: U. S. Army Corps of Engineers, Miss. River Comm., v. 1, 82 pp.
- Fisk, H. N., 1947, Geological investigations of the alluvial valley of the lower Miss. River: U. S. Army Corps of Engineers, Miss. River Comm., 78 pp.
- Doeglas, D. J., 1949, *Jour. Sed. Petrology*, v. 19, p. 112-117.
- Leighton, M. M., and Wilman, H. B., 1950, *Jour. Geology*, v. 58, p. 599-623.

- Fisk, H. N., 1951, *Jour. Geology*, v. 59, no. 4, p. 333-356.
- Russell, R. J., 1955, in *Guides to Southeastern geology*, Geological Soc. America, New York, p. 301-307.
- Doering, J. A., 1956, *Am. Assoc. Petroleum Geologists Bull.*, v. 40, p. 1816-1862.
- Beavers, A. H., 1957, *Science*, v. 126, p. 1285.
- Glen, R. C., 1960, *Trans. International Cong. Soil Sci.*, 7th Cong. Madison, Wisc., v. 4, p. 523-530.
- Kolb, C. R., 1960, *Geol. Soc. America Bull.*, v. 71, p. 1902.
- Brown, G. F., 1963, *Jour. Miss. Acad. Sci.*, v. 9, p. 184-186.
- Bundy, W. T., and Christmas, Y. J., 1963, *Jour. Miss. Acad. Sci.*, v. 9, p. 187-189.
- Lewand, R. L., 1963, *Jour. Miss. Acad. Sci.*, v. 9, p. 181-183.
- Priddy, R. R., 1963, *Jour. Miss. Acad. Sci.*, v. 9, p. 178-180.
- Snowden, J. O., 1963, *Jour. Miss. Acad. Sci.*, v. 9, p. 190-192.
- Priddy, R. R., et al., 1964a, *Jour. Miss. Acad. Sci.*, v. 10, p. 178-179.
- Priddy, R. R., et al., 1964b, *Jour. Miss. Acad. Sci.*, v. 10, p. 180-181.
- Morrow, J. H., et al., 1964, *Jour. Miss. Acad. Sci.*, v. 10, p. 166.
- Harvey, I. W., et al., 1965, *Jour. Miss. Acad. Sci.*, v. 11, p. 128-129.
- Galloway, C. B., Liles, W., and Nichols, B., 1966, *Jour. Miss. Acad. Sci.*, v. 12, 128 pp.

- Priddy, R. R., et al., 1966, Jour. Miss. Acad. Sci., v. 12, p. 130-131.
- Smalley, I. J., 1966, Jour. Sed. Petrology, v. 36, p. 669-676.
- Logan, W. N., 1907, Miss. Geol. Survey Bull. 2, p. 167.
- Logan, W. N., 1908, Miss. Geol. Survey Bull. 4, p. 15, 18.
- Lowe, E. N., 1911, Miss. Geol. Survey Bull. 8, p. 56-58.
- Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 94-98.
- Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 101-105.
- Lowe, E. N., 1920, Miss. Geol. Survey Bull. 16, p. 24-25.
- Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 88-91.
- Mellen, F. F., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 39, p. 31-33.
- Mellen, F. F., et al., 1941, Miss. Geol. Survey Bull. 43, p. 47-49.
- Vestal, F. E., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 47, p. 59-64.
- Priddy, R. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 50, p. 45-46.
- Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 51, p. 39.
- Brown, G. F., 1947, Miss. Geol. Survey Bull. 65, p. 51, 53.
- Vestal, F. E., 1950, Miss. Geol. Survey Bull. 67, p. 71-76.
- Turner, J., 1952, Miss. Geol. Survey Bull. 76, p. 40.
- Vestal, F. E., 1954, Miss. Geol. Survey Bull. 78, p. 114-117.
- Vestal, F. E., 1956, Miss. Geol. Survey Bull. 81, p. 92-96.
- Priddy, R. R., 1960, Miss. Geol. Survey Bull. 88, p. 102.

- Parks, W. S., et al., 1964, Miss. Geol. Survey Bull. 103, p. 36-37.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 89.
- Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 36-39.
- Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 38-39.
- Snowden, J. O., Jr., Priddy, R. R., 1968, in Miss. Geol. Survey Bull. 111, p. 5-203, 260-267.

Caplenor, C. D., et al., 1968, in Miss. Geol. Survey Bull. 111, p. 205-259.

The Loess (Bluff silt) Formation consists of buff to tan, yellow, red, or gray, massive, sandy to clayey silts. Thickness varies from a few feet up to 200 feet. The Mississippi Loess is believed to be of a glacial-fluvial-eolian origin, but there has been much controversy over this subject.

Sir Charles Lyell first documented loess in North America at Natchez, Mississippi, in 1846.

## LOUANN SALT

Middle or Lower Jurassic: Subsurface in Mississippi, Louisiana, Arkansas, and Texas.

Imlay, R. W., 1940, Ark. Geol. Survey Inf. Circ. 12, p. 4, 8.

Hazzard, R. T., Spooner, W. C., and Blanpied, B. W., 1947, Shreveport Geol. Soc. 1945 Ref. Rept., v. 2, p. 483, 484, 487-488, 489.

McKee, E. D., et al., 1956, U. S. Geol. Survey Misc. Geol. Inv. Map 1-175.

Andrews, D. I., 1960, Gulf Coast Assoc. Geol. Soc. Trans., v. 10, p. 215-240.

Bishop, W. F., 1967, Am. Assoc. Petroleum Geologists Bull., v. 51, no. 2, p. 244-249.

Dinkins, T. H., Jr., Oxley, M. L., et al., 1968, Miss. Geol. Survey Bull. 109, p. 13-14, 51, 53, pl. 1.

The Louann Salt consists of white, massive, crystalline halite with minor disseminated anhydrite. It is normally overlain by the Norphlet with little evidence of secondary crystallization at the contact; however, there are areas where a thick anhydrite caprock overlies the salt. Is underlain by the Werner Formation. Thickness undetermined.

Type section: Gulf Refining Co.'s No. L. Werner Saw Mill Company well, Union County, Arkansas.

## LOUARK GROUP

Upper Jurassic: Subsurface in Gulf Coastal Province.

Philpott, T. H., 1952, Am. Assoc. Petroleum Geologists Bull., v. 36, no. 7, p. 1315.

Murray, G. E., 1961, Geology of the Atlantic and Gulf Coastal Province of North America: New York, Harper and Brothers, p. 278, 287, 288.

Dinkins, T. H., Jr., et al., 1968, Miss. Geol. Survey Bull. 109, pl. 1.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, pl. 1.

The Louark Group includes, in ascending order, the Norphlet, Smackover, and Haynesville-Buckner Formations. The unit overlies the Louann and underlies the Cotton Valley. Thickness is undetermined.

## LOWER EUTAW FORMATION

Upper Cretaceous: See McShan Formation.

**MADISON SAND**

See Forest Hill Formation, reference Miss. Geol. Survey Bull. 12, p. 86.

**MARIANNA FORMATION (in Vicksburg Group)**

Oligocene, middle: Western Florida, southern Alabama, and Mississippi.

Original reference: Johnson, L. C., 1892, Geol. Soc. America Bull., v. 3, p. 128-132.

MacNeil, F. S., 1944, Am. Assoc. Petroleum Geologists Bull. v. 28, no. 9, p. 1315, 1324-1329.

Cooke, C. W., 1945, Florida Geol. Survey Bull. 29, p. 75-81.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 86.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 88-89.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 77.

Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 12 (fig. 2).

DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 38-39.

May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

The Marianna Formation consists of light bluish-gray to yellowish gray, fossiliferous, glauconitic, sandy marl and limestone. It overlies the Mint Spring Formation and underlies the Glendon Formation. Thickness up to 47 feet.

Named for exposures at Marianna, Jackson County, Florida.

**MATTHEWS LANDING MARL MEMBER (of Porters Creek Formation)**

Paleocene: Mississippi and southwestern Alabama.

Original reference: Smith, E. A., and Johnson, L. C., 1887, U. S. Geol. Survey Bull. 43, p. 57-60.

MacNeil, F. S., 1946, U. S. Geol. Survey Strategic Mineral Inv. Prelim. Rept. 3-195, p. 5, 11-12.

Toulmin, L. D., LaMoreaux, P. E., and Lanphere, C. R., 1951, Ala. Geol. Survey Spec. Rept. 21, p. 37, 42, pl. 2.

Roux, W. L., Jr., 1958, Dissert. Abs., v. 19, no. 5, p. 1056.

Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 107-115.

Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 49.

Rainwater, E. H., 1964, in Miss. Geol. Survey Bull. 102, p. 20-21.

The Matthews Landing Marl Member consists of green-gray, glauconitic, fossiliferous, sandy marl with silts and micaceous sands. It overlies Tippah Sand Member of Porters Creek and underlies the Naheola. Thickness is usually less than 100 feet.

Named from old Matthews Landing on the Alabama River in the northern part of Sec. 12, T. 12 N., R. 6 E., Wilcox County, Ala.

#### **McNAIRY SAND MEMBER** (of Ripley Formation)

Upper Cretaceous: Northern Mississippi, western Tennessee, southeastern Missouri, southeastern Illinois, and western Kentucky.

Original reference: Stephenson, L. W., 1914, U. S. Geol. Survey Prof. Paper 81, p. 18, 22.

Wade, B., 1917, U. S. Geol. Survey Prof. Paper 137, p. 7-9.

McQueen, H. S., et al., 1939, in Kan. Geol. Soc. Guidebook 13th Ann. Field Conf., p. 70, 71, 73.

Weller, J. M., 1940, Ill. Geol. Survey Rept. Inv. 71, p. 43.

- Lamar, J. E., 1948, III. Geol. Survey Rept. Inv. 128, p. 12.
- Stephenson, L. W., 1955, U. S. Geol. Survey Prof. Paper 274-E, p. 98, 100, 101.
- Grohskopf, J. G., 1955, Mo. Geol. Survey and Water Resources, 2nd ser., v. 37, p. 19-20.
- Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 62.
- Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 62.
- Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 54.
- Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40, p. 177-179.
- Conant, L. C., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 42, p. 23-24.
- Conant, L. C., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 45, p. 27-28.
- Mellen, F. F., 1958, Miss. Geol. Survey Bull. 85, p. 51.
- Parks, W. S., et al., 1960, Miss. Geol. Survey Bull. 87, p. 67-68.

The McNairy Sand Member consists of gray to varicolored, micaceous sands with bands of ferruginous, indurated sandstones and subordinate clays. The member overlies the Demopolis Formation and is unconformably overlain by the Prairie Bluff and Owl Creek Formations. Maximum thickness estimated in Tippah County 225-250 feet, and in Prentiss County 300 feet.

Type locality: A cut on Southern Railway 1½ miles west of Cypress Station, McNairy County, Tennessee.

## McSHAN FORMATION

Upper Cretaceous: Northeastern Mississippi and west-central Alabama.

Conant, L. C., and Monroe, W. H., 1945, U. S. Geol. Survey Oil and Gas Inv. Prelim. Map 37.

Monroe, W. H., Conant, L. C., and Eargle, D. H., 1946, Am. Assoc. Petroleum Geologists Bull., v. 30, no. 2, p. 204-207.

Parks, W. S., et al., 1960, Miss. Geol. Survey Bull. 87, p. 22, 26-30.

The McShan Formation is the basal unit of the Eutaw Group. It is composed of varicolored, micaceous, glauconitic, fine sands and silts with thin laminae of gray clay. It rests unconformably upon the Gordo Formation (Tuscaloosa) and is overlain unconformably by the Eutaw Formation. Thickness up to about 225 feet.

Type locality: A continuous series of roadcuts on U. S. Highway 82 in Secs. 17 and 18, T. 19 S., R. 15' W., 1½ miles north of McShan, Pickens County, Ala.

Terms Eagle Ford and Lower Eutaw used instead of McShan by some geologists.

#### **MERIDIAN SAND MEMBER** (of Tallahatta Formation)

Eocene, middle: Mississippi and western Alabama.

Original reference: Lowe, E. N., 1933, Miss. Geol. Survey Bull. 25, p. 1, 105, 106.

Toulmin, L. D., LaMoureaux, P. E., and Lanphere, C. R., 1951, Ala. Geol. Survey Spec. Rept. 21, pl. 3.

Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 123.

Mellen, F. F., and McCutcheon, T. E., 1939, Miss. Geol. Survey Bull. 38, p. 46-47.

Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41, p. 68-72.

Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 51, p. 22-23.

- Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 52, p. 49-57.
- Brown, G. F., and Adams, R. W., 1943, Miss. Geol. Survey Bull. 55, p. 43-45.
- Brown, G. F., 1947, Miss. Geol. Survey Bull. 65, p. 37-39.
- Attaya, J. S., 1951, Miss. Geol. Survey Bull. 71, p. 19-24.
- Vestal, F. E., 1952, Miss. Geol. Survey Bull. 75, p. 85-94.
- Turner, J., 1952, Miss. Geol. Survey Bull. 76, p. 14-18.
- Vestal, F. E., 1954, Miss. Geol. Survey Bull. 78, p. 53-67.
- Lusk, T. W., 1956, Miss. Geol. Survey Bull. 80, p. 43-54.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 17, 21-22, 30-31.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 27-29.
- Parks, W. S., 1961, Miss. Geol. Survey Bull. 92, p. 49-52.
- Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 24-27.
- Parks, W. S., et al., 1963, Miss. Geol. Survey Bull. 99, p. 24-25.
- Show, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 67-69, 84-85.
- Show, T. N., et al., 1971, Miss. Geol. Survey Bull. 115, p. 214.

The Meridian Sand Member of the Tallahatta Formation consists of gray to light-gray, massive, micaceous, cross-bedded sands with thin interbeds and lenses of clay and clay-shale. It underlies the Basic City Shale Member and overlies the Wilcox Group. Thickness up to 225 feet.

Named for exposures in and near Meridian, Lauderdale County, Mississippi.

Some subsurface geologists use the Meridian Sand Member as a mapping horizon and refer to it as Wilcox.

## MIDWAY GROUP

Paleocene: Western Georgia to southern Texas, Arkansas, southwestern Illinois, Kentucky, southeastern Missouri, and western Tennessee.

Original references: Harris, G. D., 1894, Am. Jour. Sci., 3rd, v. 47, p. 303-304; Bull. Am. Paleontology, v. 1, no. 4, p. 10-38.

Cooke, C. W., 1925, U. S. Geol. Survey Prof. Paper 140-E, p. 133-134.

Gardner, J., 1933, Am. Assoc. Petroleum Geol. Bull., v. 17, no. 6, p. 744.

Plummer, H. J., 1933, Tex. Univ. Bull. 3232, p. 555.

Cuyler, R. H., and Weeks, A. W., 1940, in Geol. Soc. America Guidebook 53rd Ann. Mtg., p. 24.

LeBlanc, R. J., 1941, (abs) Am. Assoc. Petroleum Geologists Bull., v. 25, no. 5, p. 941.

Murray, G., Jr., 1941, (abs) Am. Assoc. Petroleum Geologists Bull., v. 25, no. 5, p. 941-942.

Meagher, D. P., and Aycock, L. C., 1942, La. Dept. Conserv., Geol. Pamph. 3, p. 13.

Beckwith, M. W., and Turner, F. E., 1943, Am. Assoc. Petroleum Geologists Bull., v. 27, no. 5, p. 608-621.

Toulmin, L., Jr., 1944, Ala. Acad. Sci. Jour., v. 16, p. 41-42.

Murray, G. E., Jr., and Thomas, E. P., 1945, Am. Assoc. Petroleum Geologists Bull., v. 29, no. 1, p. 45-70.

MacNeil, F. S., 1946, U. S. Geol. Survey Strategic Minerals Inv. Prelim. Rept. 3-195, p. 6-17.

- Murray, G. E., 1947, Am. Assoc. Petroleum Geologists Bull., v. 31, no. 10, p. 1829-1833.
- Murray, G. E., 1948, La. Dept. Conserv., Geol. Bull. 25, p. 88-135.
- Murray, G. E., 1953, Miss. Geol. Soc. Guidebook 10th Field Trip, p. 48-60.
- Murray, G. E., 1955, Am. Assoc. Petroleum Geologists Bull., v. 39, no. 5, p. 671-696.
- Durham, C. O., Jr., and Smith, C. R., 1958, La. Dept. Conserv., Geol. Pamph. 5, p. 1-17.
- Kellough, G. R., 1959, Gulf Coast Assoc. Geol. Soc. Trans., v. 9, p. 147-160.
- Logan, W. N., 1907, Miss. Geol. Survey Bull. 2, p. 160.
- Lowe, E. N., 1911, Miss. Geol. Survey Bull. 8, p. 53-54.
- Logan, W. N., 1911, Miss. Geol. Survey Bull. 9, p. 12-13.
- Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 63-65.
- Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 63-66.
- Lowe, E. N., 1920, Miss. Geol. Survey Bull. 16, p. 22.
- Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 55-57.
- Grim, R. E., 1928, Miss. Geol. Survey Bull. 21, p. 12-15.
- Stephenson, L. W., Cooke, C. W., and Lowe, E. N., 1933, Miss. Geol. Survey Bull. 25, p. 125 pp.
- Mellen, F. F., and McCutcheon, T. E., 1939, Miss. Geol. Survey Bull. 38, p. 19-28.
- Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41, p. 19-30.
- Conant, L. C., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 42, p. 27-41.

- Conant, L. C., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 45, p. 33-44.
- Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 51, p. 14-15.
- Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 52, p. 16-19.
- Bergquist, H. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 53, p. 43-49.
- Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 54, p. 30-36.
- Brown, G. F., and Adams, R. W., 1943, Miss. Geol. Survey Bull. 55, p. 23-24.
- Morse, W. C., et al., 1945, Miss. Geol. Survey Bull. 61, p. 9-14.
- Brown, G. F., 1947, Miss. Geol. Survey Bull. 65, p. 33-34.
- Attaya, J. S., 1951, Miss. Geol. Survey Bull. 71, p. 7.
- Vestal, F. E., 1952, Miss. Geol. Survey Bull. 75, p. 15-27.
- Vestal, F. E., 1954, Miss. Geol. Survey Bull. 78, p. 22-26.
- Lusk, T. W., 1956, Miss. Geol. Survey Bull. 80, p. 11-18.
- Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 80-131.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 14-15.
- Parks, W. S., 1961, Miss. Geol. Survey Bull. 92, p. 22-34.
- Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 47-50.
- Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 15-19.
- Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 99, p. 134.

Rainwater, E. H., 1964, in Miss. Geol. Survey Bull. 102, p. 9-29.

Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 39.

Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 108.

Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 204-205.

Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 125-126.

Show, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 156.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115 p. 186-188.

The Midway Group, of Paleocene time, contains all of the rocks deposited before the Eocene and after the Cretaceous. It is composed of the Clayton, Porters Creek, and Naheola Formations. Thickness approximately 675 feet.

Named for exposures at Midway Landing and Plantation, on the west side of the Alabama River, about 5 miles below Prairie Bluff, Wilcox County, Alabama.

### MILLERELLA LIMESTONE

Mississippian: Subsurface in northeastern Mississippi.

Original reference: Mellen, F. F., and Thompson, M. L., 1949, Miss. Geol. Society, Guidebook, Seventh Field Trip, August 24-27, 1949, p. 44-45, 48-54.

Mellen, F. F., 1953, World Oil, v. 136, no. 7, p. 78.

Mellen, F. F., and Moore, W. H., 1962, Miss. Geol. Survey Bull. 96, p. 13, 15-16, fig. 3, pl. 1.

Williams, C. H., 1969, Cross-section from Mississippi-Tennessee State Line to Horn Island in Gulf of Mexico, Miss. Geol. Survey.

The Millerella is composed of gray to tan to buff, fine to coarsely crystalline limestone. The unit is used as a mapping horizon marker by petroleum geologists.

Named for fossil **Millerella advena** found in Gregg Tex Gasoline Corp. No. 1 R. L. Burdine NW NE SE of Sec. 16, T. 11 S., R. 9 E., Itawamba County, Mississippi, at a depth of 900-918 feet.

#### **MINT SPRING FORMATION** (of Vicksburg Group)

Oligocene, middle: Southern Mississippi and western Alabama.

Original reference: Cooke, C. W., 1918, Washington Acad. Sci. Jour., v. 8, p. 187, 195-196.

MacNeil, F. S., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 9, p. 1315 (fig. 1), 1326-1329.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 89.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 77.

Mellen, F. F., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 39, p. 26.

Mellen, F. F., et al., 1941, Miss. Geol. Survey Bull. 43, p. 27-31.

Bergquist, H. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 49, p. 54.

Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 51.

DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 36-38.

Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 68-70.

Bicker A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 114.

Williams, C. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 217.

Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 135.

Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 43-45.

Luper, E. E., et al., 1972, Miss. Geol. Survey Bull. 116, p. 34-36.

The Mint Spring Formation consists of gray-green, glauconitic, fossiliferous sand, sandy marl with many limestone concretions, and rare concretionary ledges. The formation overlies the Forest Hill and underlies the lowest indurated limestone bed of the Glendon. Maximum thickness is 25 feet.

Named for outcrop below waterfall on Mint Spring Bayou at National Cemetery, Sec. 12, T. 16 N., R. 3 E., Warren County, Miss.

#### **MOODYS BRANCH FORMATION (in Jackson Group)**

Eocene, upper: Mississippi, southwestern Alabama, Georgia, Louisiana.

Original reference: Meyer, D., 1885, Am. Jour. Sci., 3d, v. 30, p. 435.

Fisk, H. N., 1938, La. Geol. Survey Bull. 10, p. 94-98.

Cooke, C. W., 1939, Jour. Paleontology, v. 13, no. 3, p. 337-339.

McGlothlin, T., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 1, p. 56-59.

MacNeil, F. S., 1946, Southeastern Geol. Soc. Guidebook 4th Field Trip, p. 33-42.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

- Vernon, R. O., 1951, Fla. Geol. Survey Bull. 33, p. 112, 115-156.
- Toulmin, L. D., and LaMoreaux, P. E., 1951, Ala. Geol. Survey Spec. Rept. 21, p. 120-121.
- Stenzel, H. B., 1952, Miss. Geol. Soc. Guidebook 9th Field Trip, p. 41.
- Puri, H. S., 1953, (abs) Jour. Sed. Petrology, v. 23, no. 2, p. 130.
- Puri, H. S., 1957, Fla. Geol. Survey Bull. 38, p. 29-30.
- Anderson, H. V., 1960, Type localities project Unit 1: Baton Rouge, La., Soc. Econ. Paleontologists and Mineralogists, Gulf Coast Sec., no pagination.
- Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 80-82.
- Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 80-82.
- Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 71-72.
- Mellen, F. F., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 39, p. 16-18.
- Bergquist, H. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 49, p. 35.
- Priddy, R. R., 1960, Miss. Geol. Survey Bull. 88, p. 74-79.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 28-29.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 42.
- DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 23-25.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 45-52.
- Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 112.

Williams, C. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 211-213.

Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 132-133.

Huff, W. J., 1970, Miss. Geol. Survey Bull. 114 p. 20-33, 67, 68-73.

Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 192-193.

The Moodys Branch Formation is a green to gray-green, calcareous, fossiliferous, glauconitic, clayey sand. Maximum thickness is approximately 45 feet. Overlies the Cockfield Formation of the Claiborne Group and underlies the Yazoo Formation.

Type locality: Just southeast of the intersection of Peachtree Street and Poplar Blvd., in the SW/4, SW/4, Sec. 35, T. 6 N., R. 1 E., Jackson, Hinds County, Miss. Alternate type locality: Riverside Park, in NW/4, NW/4, Sec. 36, T. 6 N., R. 1 E., Jackson, Hinds County, Miss.

Named for exposures along Moodys Branch of Pearl River, in city of Jackson, Mississippi.

#### **MOOREVILLE (CHALK) FORMATION (in Selma Group)**

Upper Cretaceous: Northeastern Mississippi and western Alabama.

Original reference: Stephenson, L. W., 1917, Washington Acad. Sci. Jour., v. 7, p. 243-250.

Monroe, W. H., and Eargle, D. H., 1946, U. S. Geol. Survey Oil and Gas Inv. Prelim. Map 50.

Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40, p. 101.

Bergquist, H. R., et al., 1943, Miss. Geol. Survey Bull. 53, p. 21-22.

Vestal, F. E., 1946, Miss. Geol. Survey Bull. 63, p. 24-30.

Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 37-38.

Torries, T. F., 1964, in Miss. Geol. Survey Bull. 102, p. 75-80.

The Mooreville Formation, the basal unit of the Selma Group, consists of argillaceous, fossiliferous, impure chalk, and shaly, chalky clay or marl with glauconitic sand near its base. Northward it merges with the Coffee Formation or the Tupelo Tongue of the Coffee. The upper unit of the Mooreville (Arcola Member) is composed of buff-colored fossiliferous limestone. Underlies the Demopolis and overlies the Eutaw. Thickness up to about 250 feet.

Named for exposures at Mooreville, Lee County, Mississippi.

#### **MOORINGSPORT FORMATION (in Trinity Group)**

Lower Cretaceous: Subsurface in Mississippi, Louisiana, Arkansas, and Texas.

Imlay, R. W., 1940, Ark. Geol. Survey Inf. Circ. 12, p. 36-37.

Forgotson, J. M., Jr., 1957, Am. Assoc. Petroleum Geologists Bull., v. 41, no. 10, p. 2357-2359.

Nunnally, J. D., and Fowler, H. F., 1954, Miss. Geol. Survey Bull. 79, p. 18-19.

Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 95, p. 63.

Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 99-100, pl. 1.

Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 195, pl. 1.

Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 116-117, pl. 1.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 177-178, pl. 1.

The Mooringsport Formation is composed of dark-red to maroon shales, gray to black rarely fossiliferous shales, pale-gray and green mudstones, red and white finely micaceous and calcareous sandstones, light-gray to gray fossiliferous limestone, varicolored nodular limestones, rare lignitic strata and some anhydrite. Overlies Ferry Lake and underlies Paluxy. Maximum thickness in Mississippi in Rankin County 460 feet, in Copiah County 840 feet, in George County 580 feet.

Type well: Union Producing Co.'s Noel Estate Well No. 1-A, Mooringsport Field, Sec. 11, T. 19 N., R. 16 W., Caddo Parish, Louisiana.

### **NAHEOLA FORMATION (in Midway Group)**

Paleocene: Mississippi and Alabama.

Original reference: Smith, E. A., and Johnson, L. C., 1887, U. S. Geol. Survey Bull. 43, p. 57-60.

Toulmin, L., Jr., 1944, Ala. Acad. Sci. Jour., v. 16, p. 42.

MacNeil, F. S., 1946, U. S. Geol. Survey Strategic Minerals Inv. Prelim. Rept. 3-195, p. 12-14.

Toulmin, L. D., LaMoreaux, P. E., and Lanphere, C. R., 1951, Ala. Geol. Survey Spec. Rept. 21, p. 41-44.

Roux, W. F., Jr., 1958, Dissert. Abs., v. 19, no. 5, p. 1056.

LaMoreaux, P. E., and Toulmin, L. D., 1959, Ala. Geol. Survey County Rept. 4, p. 22, 79-92.

Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 33-34.

Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41 p. 23-30.

Vestal, F. E., 1952, Miss. Geol. Survey Bull. 75, p. 17-25.

- Vestal, F. E., 1954, Miss. Geol. Survey Bull. 78, p. 22-26.
- Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 119-130.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 14-15.
- Parks, W. S., 1961, Miss. Geol. Survey Bull. 92, p. 22-34.
- Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 49-50.
- Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 17-18.
- Rainwater, E. H., 1964, in Miss. Geol. Survey Bull. 102, p. 14, 21.
- Shows, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 56 (chart).

The Naheola Formation is both the uppermost unit of the Paleocene and of the Midway. It consists of non-marine, alternating beds of sand, silt, and clay with some lignite and marl. Unconformably overlies Matthews Landing Marl, a member of Porters Creek Formation, and unconformably underlies the Fearn Springs Formation of the Wilcox Group. Thickness approximately 1600 feet.

Name taken from Naheola Bluff, on the Tombigbee River in SE/4, Sec. 30, T. 15 W., R. 1 E., Choctaw County, Ala.

#### **NANAFALIA FORMATION (in Wilcox Group)**

Eocene, lower: Mississippi, Alabama, and Georgia.

Original reference: Smith, E. A., and Johnson, L. C., 1887, U. S. Geol. Survey Bull. 43, p. 51-57.

Brantly, J. E., 1920, Ala. Geol. Survey Bull. 22, p. 148, 152.

Toulmin, L. D., Jr., 1940, Ala. Geol. Survey Bull. 46, p. 28-29.

Toulmin, L. D., Jr., 1944, Ala. Acad. Sci. Jour., v. 16, p. 42.

- Toulmin, L. D., Jr., 1944, Southeastern Geol. Soc. Guidebook, 1st Field Trip, p. 8.
- MacNeil, F. S., 1946, U. S. Geol. Survey Strategic Minerals Inv. Prelim. Rept. 3-195, p. 20.
- MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Map 72.
- LaMoreaux, P. E., and Toulmin, L. D., 1959, Ala. Geological Survey County Rept. 4, p. 95-111, pls. 2, 3.
- Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 143-165.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 15-16.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 20.
- Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 51-53.
- Rainwater, E. H., 1964, in Miss. Geol. Survey Bull. 102, p. 23, 24-26.

The Nanafalia Formation of the Wilcox Group consists of buff-colored, fossiliferous, glauconitic, calcareous sands, dark, lignitic silt and clays and some gravels. Parts of the Nanafalia may be equated with the Ackerman. Underlies the Tuscaloosa Formation. Thickness approximately 150 feet.

Named for exposures at Nanafalia landing on the Tombigbee River in Marengo County, Alabama.

## NATCHEZ FORMATION

Pleistocene, lower: Southwestern Mississippi.

Original reference: Chamberlain, T. C., 1896, Am. Geologist, v. 17, p. 108-109.

Leighton, M. M., and Willman, H. B., 1950, Jour. Geology, v. 58, no. 6, p. 614.

Fisk, H. N., 1951, Jour. Geology, v. 59, no. 4, p. 337 (fig. 3), 341.

Logan, W. N. 1907, Miss. Geol. Survey Bull. 2, p. 167.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 100.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 87-88.

Vestal, F. E., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 47, p. 50-59.

Consists of gray, fine-grained sand, gravel, conglomerate, ferruginous sandstone, and clay, of which sand is most abundant, gravel second in abundance, and clay a minor component. Cross-bedding and lamination are present in the sand. Conglomerate or irregularly laminated sandstone present at the base of the formation in many places. Thickness varies from 60 to 115 feet. Unconformably overlies the Citronelle and unconformably underlies the Loess.

Named for occurrences near Natchez, Adams County, Mississippi.

#### **NESHOBIA SAND MEMBER (of Tallahatta Formation)**

Eocene, middle: Mississippi.

Original reference: Thomas, E. P., 1942, Miss. Geol. Survey Bull. 48, p. 24-28, 90, 92, 93.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 23-24.

Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 28.

Parks, W. S., et al., 1963, Miss. Geol. Survey Bull. 99, p. 26, 27.

Show, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 68.

The Neshoba Sand Member consists of light-gray to white, massive, even-bedded, irregular-bedded, or cross-bedded, sparingly glauconitic sands with pellets and stringers of clay and locally, lenses of silt, clay, and clay-shale. Thickness varies from 75-140 feet.

Type section: Above Basic City Shale Member and below Winona Formation along the highway through Neshoba, Neshoba County, Mississippi.

### NEW SCOTLAND LIMESTONE

Lower Devonian: Mississippi, Virginia, West Virginia, Maryland, New Jersey, New York, Pennsylvania.

Original reference: Clarke, J. M., and Schuchert, C., 1899, Science, new ser., v. 10, p. 874-878.

Swartz, F. M., 1930, U. S. Geol. Survey Prof. Paper 158-C, p. 27-69.

Swartz, F. M., 1939, Penn. Geol. Survey, 4th ser., Bull. G-19, p. 55-62.

Butts, C., 1940, Va. Geol. Survey Bull. 52, pt. 1, p. 276-279.

Chadwick, G. H., 1940, N. Y. State Geol. Assoc. 16th Ann. Mtg., Field Guide Leaflets, Trip A, C, and E.

Chadwick, G. H., 1943, N. Y. State Mus. Bull. 336, p. 44, 67, 71.

Woodward, H. P., 1948, W. Va. Geol. Survey, v. 15, p. 82-95.

Cloos, Ernest, 1951, Md. Dept. Geology, Mines and Water Resources, Rept. 14, Washington County, p. 83.

Lesure, F. G., 1957, Va. Polytechnic Inst. Bull., Engineering Expt. Station Ser. 118, p. 48.

Arndt, H. H., et al., 1959, Geol. Soc. Amer. Guidebook Field Trips Pittsburgh Mtg., p. 4, 13.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 20-40.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 32, p. 11, 14, 16, 17.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 63.

The New Scotland is composed of blue-gray, massive, siliceous, fossiliferous limestone. Underlies Island Hill Formation. Thickness is about 40 feet in Tishomingo County, Mississippi.

Named for outcrops at the town of New Scotland, Albany County, New York.

## NORPHLET FORMATION

Jurassic: Subsurface in Mississippi, Louisiana, Arkansas, and Texas.

Imlay, R. W., 1940, Ark. Geol. Survey Inf. Circ. 12, p. 4, 8.

Hazzard, R. T., Spooner, W. C., and Blanpied, B. W., 1947, Shreveport Geol. Soc. 1945 Ref. Rept., v. 2, p. 483, 484, 488, 490.

Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 95, p. 55-57.

Dinkins, T. H., Jr., Oxley, M. L., et al., 1968, Miss. Geol. Survey Bull. 109, p. 14-16, 53, pl. 1.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 164-165, pl. 1.

The Norphlet Formation consists of bright-red to dark-red, silty, micaceous, sandy shales, red and pink sandstones and siltstones with inclusions of small quartz pebbles, subordinate amounts of white sandstone and siltstones, minor disseminated and detrital anhydrite, and is conglomeritic in updip areas. Is overlain by Smackover and underlain by the Louann. Thickness not determined.

Type section: Gulf Refining Co.'s No. 49-L. Werner Saw Mill Co. well, Union County, Arkansas.

### **NORTH CREEK MEMBER (of Yazoo Formation)**

See: North Twistwood Creek Clay (of Yazoo Formation)

### **NORTH TWISTWOOD CREEK CLAY (of Yazoo Formation)**

Eocene, upper: Eastern and central Mississippi and western Alabama.

Murray, G. E., 1947, Am. Assoc. Petroleum Geol. Bull., v. 31, no. 10, p. 1838, 1839.

Toulmin, L. D., et al., 1951, Ala. Geol. Survey Spec. Rept. 21, p. 121, 124, pl. 3.

DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 25-26, 97-100.

Huff, W. J., 1970, Miss. Geol. Survey Bull. 114, p. 40-49.

May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

The North Twistwood Creek Clay replaces the incorrect name North Creek Member (see MGS Bull. 95). It consists of gray to olive-gray, calcareous, montmorillonitic clay. Overlies Moodys Branch Formation and underlies Cocoa Sand of Yazoo Formation. Thickness in eastern Mississippi varies from about 40 to 60 feet.

Type section: On the west side of North Twistwood Creek in SW/4, Sec. 1; T. 3 N., R. 12 E., Jasper County, 2 miles southwest of Rose Hill along state highway to Bay Springs, Miss.

### **NOXUBEE SAND (Wilcox Group)**

Eocene: Mississippi.

Mellen, F. F., 1950, Miss. Geol. Survey Bull. 69, p. 10-11.

Name Noxubee Sand is given to basal sand unit of the Ackerman Formation. It is composed of coarse-grained sand, pebbles, cobbles, and boulders of quartz and quartzite, and, locally, large flakes of muscovite. Overlies Fearn Springs Formation. Thickness up to 475 feet.

#### **OWL CREEK FORMATION (in Selma Group)**

Upper Cretaceous: Mississippi, Tennessee, and Missouri.

Original reference: Hilgard, E. W., 1860, Rept. on the Geol. and Agric. of Miss., p. 79, 84-91, 102.

Wade, B., 1926, U. S. Geol. Survey Prof. Paper 137, p. 3, 7, 9.

Farrar, W., and McManamy, L., 1937, Mo. Geol. Survey and Water Resources 59th Bienn. Rept., App. 6, p. 17, 21.

Stephenson, L. W., 1955, U. S. Geol. Survey Prof. Paper 274-E, p. 97-137.

Wilson, C. W., Jr., 1958, Tenn. Div. Geology Rept. Inv. 5, p. 4.

Sohl, N. F., 1960, U. S. Geol. Survey Prof. Paper 331-A, p. 4, 5, 22-25.

Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40; p. 226-240.

Conant, L. C., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 42, p. 25-27.

The Owl Creek Formation consists of argillaceous, calcareous, glauconitic sand and sandy clay. It underlies Midway (Paleocene) deposits, interfingers with the Prairie Bluff and overlies unconformably the Ripley Formation. Thickness varies from 20 to 50 feet.

Named for exposures on Owl Creek, 3 miles northeast of Ripley, Tippah County, Mississippi.

**PACHUTA MARL** (of Yazoo Formation)

Eocene, upper: Eastern Mississippi and western Alabama.

Murray, G. E., 1947, Am. Assoc. Petroleum Geologists, v. 31, no. 10, p. 1830, 1839.

Toulmin, L. D., et al., 1951, Ala. Geol. Survey Spec. Rept. 21, p. 122, 126, pl. 3.

DeVries, D. A., et al. 1963, Miss. Geol. Survey Bull. 95, p. 27.

Huff, W. J., 1970, Miss. Geol. Survey Bull. 114, p. 53-60.

May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

The Pachuta Marl, a member of the Yazoo Formation, consists of light gray to olive-gray, fossiliferous marl with indurated ledges. It underlies the Shubuta Clay and overlies the Cocoa Sand, both members of the Yazoo Formation. Thickness from approximately 10-30 feet.

Type locality: Exposures on the south side of Pachuta Creek 1½ miles south and southeast of Pachuta in SW/4, Sec. 8, T. 2 N., R. 14 E., Clarke County, Miss.

**PALUXY FORMATION** (in Trinity Group)

Lower Cretaceous: Subsurface in Mississippi, crops out in Texas, Arkansas, and Oklahoma.

Original reference: Hill, R. T., 1891, Geol. Soc. America Bull., v. 2, p. 504.

Imlay, R. W., 1940, Ark. Geol. Survey Inf. Circ. 12, p. 2, 42, 43.

Lozo, F. E., 1949, Shreveport Geol. Soc. Guidebook 17th Ann. Field Trip, p. 85-92.

Plummer, F. B., 1950, Tex. Univ. Bur. Econ. Geology Pub. 4329, p. 102-109.

Forgotson, J. M., Jr., 1957, Am. Assoc. Petroleum Geologists Bull., v. 41, no. 10, p. 2334, 2335.

Davis, L. V., 1960, Okla. Geol. Survey Bull. 86, p. 26-31.

Nunnally, J. D., and Fowler, H. F., 1954, Miss. Geol. Survey Bull. 79 p. 19-21.

Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 95, p. 63-64.

Dinkins, T. H., Jr., 1966, Miss. Geol. Survey Bull. 107, p. 100-101, pl. 1.

Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 196, pl. 1.

Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 117-118, pl. 1.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 177-178, pl. 1.

Paluxy Formation in Mississippi consists of dark-red to maroon and dark gray to black, micaceous shale, varicolored mudstones, white to red conglomeritic sandstones, and minor amounts of siltstone. Underlies Washita-Fredericksburg and overlies Mooringsport Formation. Maximum thickness in Rankin County 1580 feet, in Copiah County 1500 feet.

Named for town and creek in Somerwell County, Texas.

## PAMLICO FORMATION

Pleistocene: Atlantic Coastal Plain from Delaware to Mississippi.

Original reference: Clark, W. B., 1910, Geol. Soc. Amer. Bull., v. 20, p. 651.

Parker, G. G., and Cooke, C. W., 1944, Fla. Geol. Survey Bull. 27, p. 74-75.

Cooke, C. W., 1952, Md. Dept. Geology, Mines and Water Resources Bull. 10, p. 50-51.

Dunbar, J. R., 1958, Gulf Coast Assoc. Geol. Soc. Trans., v. 8, p. 133 (table 1), 135, 136 (fig. 4), 146, 147, 149 (fig. 13), 150, 154.

Otvos, E. G., Jr., 1973, Geology of the Mississippi-Alabama Coastal Area and Nearshore Zone, Field Trip Guidebook, New Orleans Geological Society, p. 12.

Brown, G. F., et al., 1944, Miss. Geol. Survey Bull. 60, p. 60-61.

The Pamlico Formation is composed of fossiliferous gray and tan sand with some clay and silt. The sand occurs along the north shore of the Mississippi Sound and is overlain by recent sediments at its outward edge. Fluvial deposits near the mouths of the Pearl and Pascagoula Rivers are included in the Pamlico as mapped. Thickness from 1 to 75 feet.

Named for Pamlico Sound, eastern North Carolina.

Exposure in Mississippi: Southeast bank of Wolf River, NE/4, NE/4, Sec. 5, T. 8 S., R. 12 W., Harrison County, 3 miles north of the Pass Christian-Long Beach boundary.

### PASCAGOULA FORMATION

Miocene, upper: Mississippi, southwestern Alabama and Louisiana.

Original reference: McGee, W. J., 1891, U. S. Geol. Survey Ann. Rept. pt. 1, p. 409.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 90-91.

Logan, W. N., 1916, Miss. Geol. Survey Bull. 13, p. 34.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 94.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 82.

- Foster, V. M., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 44, p. 24-26.
- Vestal, F. E., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 47, p. 27-40.
- Brown, G. F., and Guyton, W. F., 1943, Miss. Geol. Survey Bull. 56, p. 30-50.
- Brown, G. F., et al., 1944, Miss. Geol. Survey Bull. 60, p. 39-43.
- Parks, W. S., et al., 1964, Miss. Geol. Survey Bull. 103, p. 34, 35 (chart), 36.
- Williams, C. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 41-55, 96, 98.
- Shows, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 115-116.

The Pascagoula Formation consists of green, gray and blue clays, which are locally calcareous and locally fossiliferous, and is interbedded with green and gray sands. The unit consists of two members, the Fort Adams above and the Homochitto below. It overlies the Hattiesburg Formation and underlies the Citronelle Formation, terrace deposits and alluvial deposits. Thickness up to over 1000 feet.

Named for exposures along the Pascagoula River, Jackson County, Mississippi.

Type locality: Shell Landing, Jackson County, Mississippi.

## **PAYNES HAMMOCK FORMATION**

Oligocene: Mississippi and Alabama.

MacNeil, F. S., 1944, Am. Assoc. Petroleum Geologists Bull. v. 28, no. 9, p. 1346-1354.

May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

The Paynes Hammock consists of a greenish sand which contains an indurated limestone ledge. The sand overlies the Chickasawhay and intertongues with the Catahoula to the west. Thickness at type locality is 13 feet.

Type locality: Along a branch entering the Tombigbee River at Paynes Hammock, Alabama, in SW/4, Sec. 16, T. 5 N., R. 2 E., Clarke County, Ala.

### PENNINGTON FORMATION

Upper Mississippian: Virginia, Alabama, Georgia, Kentucky, Tennessee; subsurface in northeastern Mississippi.

Averitt, P., 1941, Va. Geol. Survey Bull. 56, p. 11-14, pls. 1, 2.

Cooper, B. N., 1944, Va. Geol. Survey Bull. 60, p. 172-180.

Weller, J. M., et al., 1948, Geol. Soc. Amer. Bull., v. 59, no. 2, p. 166.

Rodgers, J., 1953, Tenn. Div. Geology Bull. 58, pt. 1, pls., pt. 2, p. 110-112.

Malmberg, G. T., and Downing, H. T., 1957, Ala. Geol. Survey County Rept. 3, p. 64-67.

Englund, K. J., 1957, U. S. Geol. Survey Coal Inv. Map C-39.

Harris, L. D., and Miller, R. L., 1958, U. S. Geol. Survey Geol. Quad Map GQ-111.

Englund, K. J., and Smith, H. L., 1960, (abs.) Geol. Soc. Amer. Bull., v. 71, no. 12, pt. 2, p. 2015.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 59.

The Pennington Formation in Mississippi consists of red and pink shales and has been drilled into in wells in the northeastern part of the state. Unconformably overlies

Pottsville Formation and underlies Bangor Formation. Thickness in Alabama averages 50 feet.

Named for Pennington Gap, Lee County, Virginia, about 40 miles NE along strike from Cumberland Gap.

### **PINE ISLAND FORMATION (in Trinity Group)**

Lower Cretaceous: Subsurface in Mississippi, Louisiana, Arkansas, and Texas.

Weber, G., 1938, Oil and Gas Jour., v. 37, no. 4, p. 30.

Crider, A. F., 1938, Am. Assoc. Petroleum Geologists Bull., v. 22, no. 12, p. 1665-1667.

Imlay, R. W., 1940, Ark. Geol. Survey Inf. Circ. 12, p. 32-33.

Imlay, R. W., 1944, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 3.

Forgotson, J. M., Jr., 1957, Am. Assoc. Petroleum Geologists Bull. v. 41, no. 10, p. 2340-2342.

Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 97-98, pl. 1.

Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 193, pl. 1.

Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 113-114, pl. 1.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 174, pl. 1.

The Pine Island Formation consists of dark-red to maroon to purple finely micaceous shales, dark-gray to black calcareous, sparingly fossiliferous shales, varicolored mudstones, light-gray to gray fossiliferous, oolitic limestones, red to white calcareous, micaceous, rarely fossiliferous sandstones and siltstones. Overlies Sligo For-

mation and underlies Rodessa Formation. Maximum thickness in Rankin County, Miss., 380 feet, in Copiah County, Miss., 245 feet.

Type locality: Dixie Oil Co.'s Dillon No. 92, Sec. 13, T. 21 N., R. 15 W., Pine Island field, Caddo Parish, La.

### POND LIMESTONE

Mississippian: Northeastern Mississippi.

Morse, W. C., 1928, Jour. Geology, v. 36, p. 31-43.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 17, 116-150.

See Southward Pond Formation.

### PORTERS CREEK CLAY OR FORMATION (in Midway Group)

Paleocene: Eastern Mississippi, western Tennessee, southwestern Alabama, southwestern Illinois, western Kentucky, and southeastern Missouri.

Original reference: Safford, J. M., 1864, Am. Jour. Sci., 2d, v. 37, p. 361, 368.

MacNeil, F. S., 1946, U. S. Geol. Survey Mineral Inv. Prelim. Rept. 3-195, p. 10-12.

Toulmin, L. D., LaMoreaux, P. E., and Lanphere, C. R., 1951, Ala. Geol. Survey Spec. Rept. 21, p. 36-41.

Crider, A. F., 1907, Miss. Geol. Survey Bull. 1, p. 55-57.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 64-65.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 64.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 55-56.

Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 32-33.

Mellen, F. F., and McCutcheon, T. E., 1939, Miss. Geol. Survey Bull. 38, p. 20-26.

- Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41, p. 21-23.
- Conant, L. C., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 42, p. 33-41.
- Conant, L. C., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 45, p. 38-43.
- Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 52, p. 16-19.
- Bergquist, H. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 53, p. 45-49.
- Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 54, p. 32-36.
- Brown, G. F., and Adams, R. W., 1943, Miss. Geol. Survey Bull. 55, p. 23-24.
- Morse, W. C., et al., 1945, Miss. Geol. Survey Bull. 61, p. 9-14.
- Brown, G. F., 1947, Miss. Geol. Survey Bull. 65, p. 33-34.
- Attaya, J. S., 1951, Miss. Geol. Survey Bull. 71, p. 7.
- Vestal, F. E., 1952, Miss. Geol. Survey Bull. 75, p. 15-17.
- Lusk, T. W., 1956, Miss. Geol. Survey Bull. 80, p. 11-15.
- Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 94-117.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 14.
- Parks, W. S., 1961, Miss. Geol. Survey Bull. 92, p. 22-25.
- Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 48-49.
- Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 15-17.
- Kern, M. K., 1963, Miss. Geol. Survey Bull. 101, p. 29.

- Rainwater, E. H., 1964, in Miss. Geol. Survey Bull. 102, p. 16-20.
- Parks, W. S., et al., 1964, Miss. Geol. Survey Bull. 103, p. 28-29.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 38, 39.
- Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 108.
- Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 204-205.
- Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 126.
- Show, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 56.

The Porters Creek Formation is composed of a dark-gray to black, pyritiferous, montmorillonitic, partially silty and sandy clay with local siderite concretions and, upon weathering, is a gray to brown-gray blocky clay. Also included in the Porters Creek are the Tippah Sand Member and the Matthews Landing Marl Member. The Formation is overlain by the Naheola Formation and underlain by the Clayton Formation. Thickness at type locality 80 feet. In Mississippi, thickness at outcrop varies from about 250 to 475 feet, and in the subsurface it reaches approximately 1100 feet.

Named for exposures on Porters Creek in Hardeman County, Tennessee, about 1½ miles west of the railroad station at Middleton.

## POR~~T~~ HUDSON FORMATION

Pleistocene: Southern Mississippi, southeastern Louisiana, and eastern Texas.

Original references: Hilgard, E. W., 1869, Am. Jour. Sci., 2d, v. 47, p. 77-88; Preliminary Report of a Geological Reconnaissance of Louisiana, 1869.

Cooke, C. W., Gardner, J., and Woodring, W. P., 1943,  
Geol. Soc. Amer. Bull., v. 54, no. 11, p. 1714, Chart 12.

Logan, W. N., 1908, Miss. Geol. Survey Bull. 4, p. 15.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 43.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 99-100.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 87.

Howe, H. V., 1964, in Miss. Geol. Survey Bull. 104, p. 43.

Consists of massive greenish, bluish, or gray clays which contain driftwood, pebbles and mastodon bones. The clay is interstratified in places with white indurated silt, often there are porous calcareous concretions, and at the bottom, ferruginous concretions. Overlies Citronelle and underlies the Loess. The deposits are river and swamp accumulations and are found in Mississippi River bluffs and throughout the physiographic region known as the Pine Meadows in Mississippi, where the deposits contain marine fossils due to being deposited in shallow salt water. According to Lowe, the marine phase of this formation is the Biloxi.

Named for a prominent development at Port Hudson, East Baton Rouge Parish, Louisiana.

#### **POTTERCHITTO MEMBER (of Cook Mountain Formation)**

Eocene: Eastern Mississippi.

Original reference: Thomas, E. P., 1942, Miss. Geol. Survey Bull. 48, p. 53-57.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 39-40.

DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 18-20.

The Potterchitto Member consists of gray-green, fossiliferous, micaceous, glauconitic, lignitic, sandy marls and clays. It overlies the Archusa Marl Member and underlies the Gordon Creek Shale Member. A section was measured in Jasper County which is 38 feet thick.

Type locality: Road cuts along State Highway 15 between Newton and Decatur about 2 miles northeast of Newton, Newton County, NE/4, Sec. 26, T. 6 N., R. 11 E.

Named for outcrop near Potterchitto Creek.

## POTTSVILLE FORMATION

Lower and Middle Pennsylvanian: Mississippi, Alabama, Tennessee, Georgia, Kentucky, West Virginia, Virginia, Maryland, Indiana, Pennsylvania.

Original references: Lesley, J. P., 1876, Penn. 2d Geol. Survey Rept. L, app. E, p. 221-227; 1877, Penn. 2d Geol. Survey Rept. H, p. XXIII; Ashburner, C. A., 1877, Am. Philos. Soc. Proc., v. 16, p. 520, 535; White, D., 1900, U. S. Geol. Survey 20th Ann. Rept., p. 749-953.

Price, P. H., and Heck, E. T., 1939, W. Va. Geol. Survey Rept. Greenbrier County, p. 212-251.

Butts, C., 1940, Va. Geol. Survey Bull. 52, pt. 1, p. 408-435.

Butts, C., and Gildersleeve, B., 1948, Ga. Geol. Survey Bull. 54, p. 54-56.

Flint, N. K., 1951, Ohio Geol. Survey, 4th ser., Bull. 48, p. 20-39.

Wood, G. H., Jr., et al., 1956, Am. Assoc. Petroleum Geologists Bull., v. 40, no. 11, p. 2669-2688.

Wilson, C. W., Jr., Jewell, J. W., and Luther, E. T., 1956, Penn. geology of the Cumberland Plateau: Tenn. Div. Geology (folio), p. 1.

Malmberg, G. T., and Downing, H. T., 1957, Ala. Geol. Survey County Rept. 3, p. 68-71.

Sturgeon, M. T., et al., 1958, Ohio Geol. Survey Bull. 57, p. 43-46, 49.

Dutcher, R. R., et al., 1959, Geol. Soc. America Guidebook Pittsburgh Mtg., p. 68-71.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 59.

Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 99, p. 125.

The lower part of the Pottsville Formation underlies part of northeastern Mississippi. It is composed of shale and sandstone with a few thin beds of coal. Is unconformably underlain by the Mississippian. Maximum thickness in Monroe County probably does not exceed 2500 feet.

Type section: South of city of Pottsville along Pennsylvania Railroad cut on the east side of water gap through Sharp Mountain, Schuylkill County, Pennsylvania. Reference section: About 150 feet east of type section, along east side of roadcut for U. S. Highway 122.

### **PRAIRIE BLUFF FORMATION (in Selma Group)**

Upper Cretaceous: Mississippi and southwestern Alabama.

Original reference: Winchell, A., 1857, Am. Assoc. Adv. Sci. Proc., v. 2, p. 83, 84, 90.

Sohl, N. F., 1960, U. S. Geol. Survey Prof. Paper 331-A, p. 25-27.

Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40, p. 203-226.

Conant, L. C., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 45, p. 31-33.

Bergquist, H. R., et al., 1943, Miss. Geol. Survey Bull. 53, p. 36-42.

Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 54, p. 26-30.

Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 68-78.

Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 14.

Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 41-42.

Show, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 46.

The Prairie Bluff is the uppermost formation of the Selma Group. It is composed chiefly of bluish-gray, fossiliferous, glauconitic, massive, sandy chalk. Marcasite and pyrite concretions, phosphatic nodules, and calcareous concretions and nodules are common. Unconformably underlies the Clayton (Midway). Thickness varies from 12 to 70 feet. Interfingers with Owl Creek Formation.

Named for exposures in Prairie Bluff, Wilcox County, Alabama.

## PRAIRIE FORMATION

Pleistocene: Mississippi.

Otvos, E. G., Jr., 1973, Geology of the Miss.-Ala. Coastal Area and Nearshore Zone, Field Trip Guidebook, New Orleans Geological Society, p. 12, 17.

Otvos calls the Prairie the Mississippi equivalent of the Pamlico Formation.

See Pamlico Formation.

## PRIDE MOUNTAIN FORMATION

Upper Mississippian: Northeastern Mississippi and northern Alabama.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Type locality: About 2 miles east of Pride, Ala., and ½ mile south of U. S. Highway 72 in SE/4, Sec. 15, T. 4 S., R. 12 W. Named for exposure in roadcuts on northeastern slope of Pride Mountain in north-central Colbert County, Ala.

### **RED BLUFF FORMATION**

Oligocene, lower: South-central Mississippi and south-western Alabama.

Original reference: Hilgard, E. W., 1860, Miss. Geol. and Agric. Rept., p. 135.

MacNeil, F. S., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 9, p. 1315, 1318-1324.

Murray, G. E., 1947, Am. Assoc. Petroleum Geologists Bull., v. 31, no. 10, p. 1838-1839.

Hendy, W. J., 1948, Miss. Geol. Soc. Guidebook 6th Field Trip, p. 27-28.

Stuckey, C. W., Jr., 1953, Am. Assoc. Petroleum Geol. Guidebook Houston Mtg., p. 27.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 87.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 89.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 78.

DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 30-32.

Williams, C. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 215-216.

May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

The Red Bluff Formation consists of dark gray to pale-gray to light brown fossiliferous, slightly glauconitic, silty

clays and marls. Is lagoonal equivalent of Forest Hill Formation. Overlies Yazoo Formation of Jackson Group and underlies Vicksburg Group. Variable thickness.

Named for exposures at Red Bluff on Chickasawhay River just above railroad bridge 1½ miles south of Shubuta, Wayne County, Mississippi.

#### **RIPLEY FORMATION (in Selma Group)**

Upper Cretaceous: Mississippi, Alabama, Georgia, Kentucky, and Tennessee.

Original reference: Hilgard, E. W., 1860, Miss. Geol. and Agric. Rept., p. 3, 62, 83-95.

Wade, B., 1917, Johns Hopkins Univ. Circ., new ser., no. 3, Whole No. 203, p. 74-101.

Monroe, W. H., 1941, Ala. Geol. Survey Bull. 48, p. 103-129.

Stewart, D. R., McManamy, L., and McQueen, H. S., 1943, Mo. Geol. Survey and Water Resources 62nd Bienn. Rept., app. 3, p. 9.

Eargle, D. H., 1955, U. S. Geol. Survey Bull. 1014, p. 54-59.

Stephenson, L. W., 1955, U. S. Geol. Survey Prof. Paper 274-E, p. 98, 100, 101.

Sohl, N. F., 1960, U. S. Geol. Survey Prof. Paper 331-A, p. 9-22.

Logan, W. N., 1907, Miss. Geol. Survey Bull. 2, p. 159.

Lowe, E. N., 1911, Miss. Geol. Survey Bull. 8, p. 53.

Logan, W. N., 1911, Miss. Geol. Survey Bull. 9, p. 12.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 61-62.

Logan, W. N., 1916, Miss. Geol. Survey Bull. 13, p. 31-32.

- Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 61-62.
- Lowe, E. N., 1920, Miss. Geol. Survey Bull. 16, p. 21-22.
- Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 53-54.
- Grim, R. E., 1928, Miss. Geol. Survey Bull. 21, p. 9-12.
- Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40 p. 175-202.
- Conant, L. C., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 42, p. 21-25.
- Conant, L. C., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 45, p. 20-31.
- Bergquist, H. R., et al., 1943, Miss. Geol. Survey Bull. 53, p. 31-36.
- Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 54, p. 16-26.
- Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 59-68.
- Parks, W. S., et al., 1960, Miss. Geol. Survey Bull. 87, p. 61-68.
- Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 41-42.
- Show, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 46, 48.
- Ripley Formation includes all beds above the Demopolis Formation and below the Prairie Bluff and Owl Creek and is composed of the Coon Creek, McNairy Sand, and Chiwapa Sandstone Members, and a transitional clay unit. Thickness from about 20 to 460 feet.
- Named for Ripley, Tippah County, Mississippi.

#### **RODESSA FORMATION (in Trinity Group)**

Lower Cretaceous: Subsurface in Mississippi, Louisiana, Arkansas, and Texas.

- Weeks, W. B., 1938, Am. Assoc. Petroleum Geol. Bull., v. 22, no. 8, p. 961 (fig. 4), 970.
- Imlay, R. W., 1940, Ark. Geol. Survey Circ. 12, p. 33-35.
- Imlay, R. W., 1944, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart. 3.
- Forgotson, J. M., Jr., 1957, Am. Assoc. Petroleum Geologists Bull., v. 41, no. 10, p. 2350-2354.
- Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 95, p. 62-63.
- Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 98-99, pl. 1.
- Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 193-194, pl. 1.
- Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 114-115, pl. 1.
- Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 174-176, pl. 1.

The Rodessa Formation consists of a sequence of dark-red to maroon to purple finely micaceous shales, gray to black calcareous, slightly fossiliferous shales, varicolored mudstones, gray to pale-gray fossiliferous, oolitic limestones, red and white and pink sparingly fossiliferous sandstones and anhydrite.

Type well: Union Producing Co.'s Caddo Levee Board No. B-1, Sec. 26, T. 23 N., R. 16 W., Caddo Parish, La.

## **ROTTEN LIMESTONE**

Upper Cretaceous: Mississippi.

Original reference: Hilgard, E. W., 1860, Rept. on the Geology and Agriculture of Mississippi.

Obsolete term. See Selma Group.

**STE. GENEVIEVE FORMATION**

See Alsobrook Formation and Iuka Formation.

**ST. LOUIS FORMATION**

See Iuka Formation.

**SALEM FORMATION**

See Iuka Formation.

**SALT MOUNTAIN LIMESTONE (in Wilcox Group)**

Eocene, lower: Southeastern Mississippi, southwestern Alabama, and western Florida.

Original references: Langdon, D. W., 1891, Geol. Soc. America Bull., v. 2, p. 589-605; 1894, Ala. Geol. Survey Rept. Coastal Plain, p. 107-122.

Toulmin, L. D., 1941, Jour. Paleontology, v. 15, no. 6, p. 567-611.

Loeblich, A. R., Jr., and Tappan, H., 1957, Jour. Paleontology, v. 31, no. 6, p. 1113.

Cooke, C. W., 1959, U. S. Geol. Survey Prof. Paper 321, p. 2.

Rainwater, E. H., 1964, in Miss. Geol. Survey Bull. 102, p. 26.

Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 205-206.

The Salt Mountain Limestone is present as discontinuous layers in southeastern Mississippi and is considered to be a facies of the Nanafalia. It consists of white to brown to ochre, fossiliferous, glauconitic limestone.

Named for exposures at Salt Mountain, Clarke County, Ala.

**SANDFALL MEMBER** (in Pride Mountain Formation)

Upper Mississippian: Northeastern Mississippi and northern Alabama.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Named for exposures in cuts along the road up Sandfall Mountain, a northern spur of Pride Mountain, in SE/4, SE/4, Sec. 15, T. 4 S., R. 12 W., Colbert County, Ala.

**SCHULER FORMATION** (in Cotton Valley Group)

Upper Jurassic: Subsurface in Mississippi, Arkansas, Louisiana, and Texas.

Shearer, H. K., 1938, Am. Assoc. Petroleum Geologists Bull., v. 22, no. 6, p. 724-725.

Swain, F. M., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 5, p. 594-609.

Dinkins, T. H., Jr., Oxley, M. L., et al., 1968, Miss. Geol. Survey Bull. 109, p. 32-36, 67, 69, p. 1.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 169-171, pl. 1.

The Schuler Formation is composed of a Shongaloo Member, with its Pink Sandstone facies, and a Dorcheat Member. It is a predominately clastic sequence, overlying the Haynesville-Buckner Formation and underlying the Hosston Formation. Considerable thinning and thickening of the Schuler is caused by local salt movement and old topographic highs. Thickness in Rankin County, Miss., is from 2600-3000 feet.

Type locality: Schuler old field, Union County, Arkansas.

Type section (near shore facies): Lion Oil Refining Co. and Phillips Petroleum Co.'s Edna Morgan No. 1 C., NE/4, SW/4, Sec. 18, T. 18 S., R. 17 W., Union Co., Ark.

**SELMA GROUP**

Upper Cretaceous: Mississippi, Alabama, and Tennessee.

Original reference: Smith, E. A., Johnson, L. C., and Langdon, D. W., 1894, Ala. Geol. Survey Rept. Geol. Coastal Plain of Alabama, p. 15, 22, 27, 255, 276-286.

Smith, E. A., 1903, 58th Cong., 1st sess., S. Ex. Doc. 19, p. 12-20.

Stephenson, L. W., and Monroe, W. H., 1938, Am. Assoc. Petroleum Geologists Bull., v. 22, no. 12, p. 1639-1657.

Cole, W. S., 1938, Fla. Geol. Survey Bull. 16, p. 25-26.

Monroe, W. H., 1941, Ala. Geol. Survey Bull. 48, p. 48-76.

Reade, H. L., Jr., and Scott, J. C., 1958, Profile showing geology along U. S. Highway 331, Montgomery County, Ala. (1:16,000): Ala. Geol. Survey.

Crider, A. F., 1907, Miss. Geol. Survey Bull. 1, p. 40-55.

Logan, W. N., 1907, Miss. Geol. Survey Bull. 2, p. 158-159.

Lowe, E. N., 1911, Miss. Geol. Survey Bull. 8, p. 52-53.

Logan, W. N., 1911, Miss. Geol. Survey Bull. 9, p. 12.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 58-61.

Logan, W. N., 1916, Miss. Geol. Survey Bull. 13, p. 31.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 58-61.

Lowe, E. N., 1920, Miss. Geol. Survey Bull. 16, p. 21.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 50-53.

Grim, R. E., 1928, Miss. Geol. Survey Bull. 21, p. 9-12.

Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40, p. 94-142.

- Conant, L. C., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 42, p. 21.
- Conant, L. C., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 45, p. 19-20.
- Bergquist, H. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 53, p. 18-31.
- Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 54, p. 14-15.
- Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 29-32.
- Vestal, F. E., 1946, Miss. Geol. Survey Bull. 63, p. 21-52.
- Vestal, F. E., and Knollman, H. J., 1947, Miss. Geol. Survey Bull. 64, p. 38-42.
- Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 46-78.
- Parks, W. S., et al., 1960, Miss. Geol. Survey Bull. 87, p. 40-68.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 13-14.
- Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 35-42.
- Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 95, p. 66-67.
- Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 99, p. 133-134.
- Rainwater, E. H., 1964, in Miss. Geol. Survey Bull. 102, p. 68, 75, 80.
- Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 106-108.
- Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 203-204.

Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 124-125.

Shows, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 46.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 184.

The Selma Group is the upper stratigraphic unit of the Cretaceous. It is composed of the Mooreville, Coffee, Demopolis, Ripley, Prairie Bluff, and Owl Creek Formations. Selma overlies Eutaw Group and unconformably underlies Paleocene deposits. Thickness up to about 2000 feet. Selma superseded term Rotten Limestone.

Named for Selma, Dallas County, Alabama.

#### **SHIPPS CREEK SHALE MEMBER (of Cook Mountain Formation)**

Eocene: West-central Mississippi.

Original reference: Thomas, E. P., Miss. Geol. Survey Bull. 48, p. 62-65, 88.

Shipps Creek Shale Member consists of brown to gray carbonaceous, slightly fossiliferous, lignitic shale with sand and silt stringers. Is non-marine western facies of Cook Mountain Formation. Underlies Cockfield Formation and overlies undifferentiated Cook Mountain. Thickness 43 feet at type section. Maximum thickness 200 feet.

Type section: A road cut along the county road just south of iron bridge across Shipps Creek, SE/4, NE/4, Sec. 28, T. 15 N., R. 3 E., about 4 miles east northeast of Lexington, Holmes County, Miss.

Name taken from Shipps Creek, a tributary to Black Creek in east-central Holmes County, Mississippi.

#### **SHONGALO GREENSAND (in Claiborne Group)**

Eocene, middle: Northwestern Mississippi.

Original reference: Hilgard, E. W., 1860, Miss. Geol. and Agric. Rept., p. 164-165.

Found in a railroad cut at Vaiden Station, Shongalo, Carroll County, Mississippi.

Obsolete term.

#### **SHONGALOO MEMBER** (of Schuler Formation)

Upper Jurassic: Subsurface in Mississippi, Louisiana, Arkansas, and Texas.

Swain, F. M., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 5, p. 600-602.

Dinkins, T. H., Jr., Oxley, M. L., et al., 1968, Miss. Geol. Survey Bull. 109, p. 33-34, pl. 1.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 169-170, pl. 1.

The Shongaloo Member consists of a sequence of red, pink, and white, often calcareous, rarely lignitic and often conglomeritic sandstones, some dark-red to maroon to purple, silty, micaceous shales, minor thin streaks of lignite and minor amounts of varicolored mudstone. Throughout the central part of Mississippi the Shongaloo is characterized by a Pink Sandstone facies, which is a distinctive unit composed of pink and red commonly conglomeritic sandstones with subordinate amounts of white sandstone and minor amounts of shale and mudstone. Underlies Dorcheat Member and overlies Buckner. Thickness in Rankin County, Miss., from 1700-1900 feet.

Type well: Magnolia Petroleum Co.'s Sexton Unit No. 1, SW/4, NW/4, SE/4, Sec. 32, T. 23 N., R. 9 W., Webster Parish, La., Shongaloo field.

#### **SHUBUTA CLAY** (of Yazoo Formation)

Eocene, upper: Eastern Mississippi and western Alabama.

Murray, G. E., 1947, Am. Assoc. Petroleum Geologists Bull., v. 31, no. 10, p. 1838, 1839.

Toulmin, L. D., et al., 1951, Ala. Geol. Survey Spec. Rept. 21, p. 122, 126, pl. 3.

Murray, G. E., 1952, Am. Assoc. Petroleum Geologists Bull., v. 36, no. 4, p. 702, 703.

DeVries, D. A., et al., Miss. Geol. Survey Bull. 95, p. 29-30.

Huff, W. J., 1970, Miss. Geol. Survey Bull. 114, p. 60-66.

May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

The Shubuta Clay, a member of the Yazoo Formation, consists of light gray to olive-gray, calcareous, fossiliferous clay. It underlies the Red Bluff and Forest Hill Formations and overlies the Pachuta Marl, a member of the Yazoo Formation. Thickness from about 30-90 feet.

Type locality: East side of Chickasawhay River just north of U. S. Highway 45 bridge east of Shubuta, SW/4, Sec. 3, T. 10 N., R. 16 E., Clarke County, Miss.

### **SILICEOUS CLAIBORNE**

Eocene, middle: Mississippi.

Original reference: Hilgard, E. W., 1860, Rept. on the Geology and Agriculture of the State of Mississippi.

Abandoned term, see Tallahatta Formation.

### **SLIGO FORMATION (in Trinity Group)**

Lower Cretaceous: Subsurface in Mississippi, Louisiana, Arkansas, and Texas.

Imlay, R. W., 1940, Ark. Geol. Survey Inf. Circ. 12, p. 30-32.

Imlay, R. W., 1945, Am. Assoc. Petroleum Geologists Bull., v. 29, no. 10, p. 1434-1441.

Nunnally, J. D., and Fowler, H. F., 1954, Miss. Geol. Survey Bull. 79, p. 15-17.

Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 97-98, pl. 1.

Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 192-193, pl. 1.

Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 112-113, pl. 1.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 173, pl. 1.

The Sligo Formation is composed of dark-red to maroon and gray to black finely micaceous shales, varicolored mudstones, varicolored nodular limestone fragments, red and white micaceous sandstones, and calcareous, fossiliferous sandstones, conglomeritic sandstones, and traces of lignitic or carbonaceous sandstone. Overlies Hosston Formation and underlies Pine Island Formation. Thickness in Rankin County, Miss., is from 340-400 feet, in Copiah County, Miss., 247-285 feet, and in George County, Miss., average thickness is 240 feet.

Type locality: Sligo field, Bossier Parish, Louisiana.

## SMACKOVER FORMATION

Upper Jurassic: Subsurface in Mississippi, Alabama, Louisiana, Arkansas, and Texas.

Bingham, D. H., 1937, Am. Assoc. Petroleum Geologists Bull., v. 21, no. 8, p. 1068, 1072.

Weeks, W. B., 1938, Am. Assoc. Petroleum Geologists Bull., v. 22, no. 8, p. 959, 960, 964-965.

Imlay, R. W., 1940, Ark. Geol. Survey Inf. Circ. 12, p. 16-21.

Imlay, R. W., 1943, Am. Assoc. Petroleum Geologists Bull., v. 27, no. 11, p. 1437, 1440-1451.

Hazzard, R. T., Spooner, W. C., and Blanpied, B. W., 1947, Shreveport Geol. Soc. 1945 Ref. Rept., v. 2, p. 483, 484, 488.

Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 95, p. 57-58.

Moore, W. H., 1963, in Miss. Geol. Survey Bull. 97, p. 35-37.

Dinkins, T. H., Jr., Oxley, M. L., et al., 1968, Miss. Geol. Survey Bull. 109, p. 16-27, 53, 55, 57, 59, 61, pl. 1.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 165-167, pl. 1.

The Smackover Formation consists of two members, the Upper Smackover and the Lower Smackover, which is also known locally as the Brown Dense Limestone Unit. The Lower Smackover consists of an upper sequence of light-brown to dark-brown and dark-gray, dense, sub-lithographic and lithographic limestones with some silty, micaceous shale and, locally, dolomitic carbonates with zones of anhydrite and sand. The basal sequence of the Lower Smackover is composed of sandstones with occasional inclusions of small quartz pebbles. The Upper Smackover consists of white sandstones and dolomitic or calcareous sandstones, rare oolitic sandstones and secondary anhydrite, pale-gray to dark-gray, white and tan, dense to crystalline to chalky limestones, sandy, oolitic, fossiliferous limestones, lime-cemented oolites, and pale-gray to brown, crystalline dolomites and dolomitic carbonates, usually with minor amounts of anhydrite. Overlies Norphlet Formation and underlies Haynesville-Buckner Formation. Thickness undetermined but is greater than 1500 feet in Rankin County, Miss.

Named for Smackover field. Lion Oil Refining Co.'s Haynes No. 9-A, Sec. 9, T. 16 S., R. 15 W., Union County, Ark.

#### **SPARTA FORMATION (in Claiborne Group)**

Eocene, middle: Louisiana, Texas.

Original references: Vaughan, T. W., 1895, Am. Geologist, v. 15, p. 225; Spooner, W. C., 1926, Am. Assoc. Petroleum Geol. Bull., v. 10, no. 1, p. 7; no. 3, p. 220, 224, 227, 237.

Stenzel, H. B., 1939, Tex. Univ. Bur. Econ. Geology Pub. 3818, p. 20, 59, 114-120.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

Named for development near Sparta, Bienville Parish, Louisiana. Sparta Formation known as Kosciusko Formation in Mississippi.

### **SOUTHWARD BRIDGE FORMATION**

Upper Mississippian: Northeastern Mississippi.

Original reference: Morse, W. C., 1928, Jour. Geol., v. 36, p. 31-43.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 150-177.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 32, p. 11.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 60.

The Southward Bridge Formation is composed of a lower limestone and an upper limestone with a thick shale unit underlying each. It has a total thickness of 80 feet. The formation has not been differentiated in the subsurface in Monroe County wells. Equivalent formation in Alabama is the Golconda (Vestal).

Type locality: Southward Bridge, near the old village of Mingo, at the confluence of Cedar Creek and Bear Creek valleys, Tishomingo County, Miss.

**SOUTHWARD POND FORMATION**

Upper Mississippian: Northeastern Mississippi.

Original reference: Morse, W. C., 1928, Jour. Geology, v. 36, p. 31-43.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 116-150.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 32, p. 11.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 60.

The Southward Pond Formation consists of three beds of limestone, "A", "B", and "C" Limestones, each underlain by a unit of shale. The basal or "A" Limestone is oolitic and asphaltic. Thickness is 80 to 100 feet. It has been recognized in the subsurface but not delimited. Equivalent of Gasper of Alabama (Vestal).

Named for exposures in bluffs of Southward (or Cypress) Pond, at Southward homestead, Tishomingo County, Mississippi.

**SOUTHWARD SPRING SANDSTONE**

Upper Mississippian: Northeastern Mississippi.

Original reference: Morse, W. C., 1928, Jour. Geology, v. 36, p. 31-43.

Welch, S. W., 1958, U. S. Geol. Survey Oil and Gas Inv. Chart OC-58.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23, p. 116-120.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 32, p. 11.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 43, p. 60.

The Southward Spring Sandstone is a shaly, often calcareous sandstone. Thickness is 30 feet. In the subsurface, it has not been separated from other units. Is equivalent of Cypress Sandstone in Alabama (Vestal).

Named for exposures at Southward Spring, which is at the south end of Southward (or Cypress) Pond, Tishomingo County, Mississippi.

### **STONES RIVER GROUP OR LIMESTONE**

Ordovician: Tennessee, Maryland, Pennsylvania, Alabama, Virginia, West Virginia; subsurface in Mississippi.

Original reference: Safford, J. M., 1851, Am. Jour. Sci., 2d, v. 12, p. 353, 354-356.

Cooper, B. N., and Prouty, C. E., 1943, Geol. Soc. America Bull., v. 54, no. 6, p. 819-886.

Cooper, B. N., 1945, Jour. Geology, v. 53, no. 4, p. 263-275.

Craig, L. C., 1949, Geol. Soc. America Bull., v. 60, no. 4, p. 715-717.

Wilson, C. W., Jr., 1949, Tenn. Div. Geol. Bull. 56, p. 24-75.

Newman, R. B., 1951, Geol. Soc. America Bull., v. 62, no. 3, p. 267-324.

Rodgers, J., 1953, Tenn. Div. Geology Bull. 58, pt. 2, p. 87.

Cooper, G. A., 1956, Smithsonian Misc. Coll., v. 127, pt. 1, p. 91-92.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 72.

The Stones River in Mississippi (also known as the Chazy) and the Black River consist of 500 to 700 feet of brown and gray limestone.

### TALLAHATTA FORMATION (in Claiborne Group)

Eocene, middle: Mississippi, southern Alabama, and western Georgia.

Original reference: Dall, W. H., 1898, U. S. Geol. Survey 18th Ann. Rept., pt. 2, p. 344.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

Toulmin, L. D., La Moreaux, P. E., and Lanphere, C. R., 1951, Ala. Geol. Survey Spec. Rept. 21, p. 93-100.

Logan, W. N., 1911, Miss. Geol. Survey Bull. 9, p. 15.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 72-76.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 73-76.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 65-68.

Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 123-128.

Mellen, F. F., and McCutcheon, T. E., 1939, Miss. Geol. Survey Bull. 38, p. 46-50.

Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41, p. 72-77.

Thomas, E. P., 1942, Miss. Geol. Survey Bull. 48, p. 15-28, 86-87, 90, 92-93.

Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 51, p. 24-28.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 52, p. 49-57.

Brown, G. F., and Adams, R. W., 1943, Miss. Geol. Survey Bull. 55, p. 43-56.

- Brown, G. F., 1947, Miss. Geol. Survey Bull. 65, p. 37-43.
- Vestal, F. E., 1950, Miss. Geol. Survey Bull. 67, p. 20-22.
- Attaya, J. S., 1951, Miss. Geol. Survey Bull. 71, p. 24-34.
- Vestal, F. E., 1952, Miss. Geol. Survey Bull. 75, p. 85-94.
- Turner, J., 1952, Miss. Geol. Survey Bull. 76, p. 18-23.
- Vestal, F. E., 1954, Miss. Geol. Survey Bull. 78, p. 67-90.
- Lusk, T. W., 1956, Miss. Geol. Survey Bull. 80, p. 54-61.
- Vestal, F. E., 1956, Miss. Geol. Survey Bull. 81, p. 26-55.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 22-23.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 26-31, 37.
- Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 24-28.
- Parks, W. S., Wasson, B. E., et al., 1963, Miss. Geol. Survey Bull. 99, p. 24-27, 160-161.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 40-41.
- Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 109.
- Dinkins, T. H., Jr., et al. 1967, Miss. Geol. Survey Bull. 108, p. 208.
- Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 128-129.
- Show, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 68, 85.
- Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 189.
- The Tallahatta Formation is composed of, in ascending order, the Meridian Sand Member, the Basic City Shale

Member, and the Neshoba Sand Member and is the basal unit of the Claiborne Group. It overlies the Hatchetigbee Formation of the Wilcox Group and underlies the Winona Formation. Thickness ranges from 10-570 feet.

Named for development in Tallahatta Hills, Choctaw County, Alabama.

#### **TATUM LIMESTONE MEMBER (of Catahoula Formation)**

Miocene: Subsurface in Mississippi, Louisiana, and Florida.

Eargle, D. H., 1964, U. S. Geol. Survey Prof. Paper 475-D, p. D.44, D.45-D.46.

Also called Heterostegina limestone or zone. Is lower part of Catahoula and consists of sandy limestone, marl, glauconitic calcarenite, and calcirudite. Thickness 163 feet in well 1 of type section from depth of 1373 to 1536 feet and 170 feet in well 2 of reference section from depth of 1470 to 1640 feet.

Type section: U. S. Atomic Energy Commission hydrologic test well 1, Tatum Dome area, Lamar County, Miss., NE/4, SW/4, Sec. 12, T. 2 N., R. 16 W.

Reference section: Hydrologic test well 2 in SW/4, SW/4, Sec. 14, T. 2 N., R. 16 W., Lamar County, Miss.

#### **TIPPAH SAND MEMBER (of Porters Creek Formation)**

Paleocene: Northeastern Mississippi and southwestern Tennessee.

Original reference: Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 64.

MacNeil, F. S., 1946, U. S. Geol. Survey Strategic Mineral Inv. Prelim. Rept. 3-195, p. 10-11.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 64-65.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 56-57.

- Lowe, E. N., 1933, Miss. Geol. Survey Bull. 25, p. 2.
- Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 32-33.
- Conant, L. C., and McCutcheon, T. E., 1941, Miss. Geol. Survey Bull. 42, p. 37-39.
- Conant, L. C., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 45, p. 37-39.

The Tippah Sand Member consists of a series of lenticular deposits of reddish and yellowish sands, white sands, sandstones, and laminated clays within the Porters Creek Formation. Sand is glauconitic, fossiliferous, and micaceous. Thickness is estimated at approximately 100 feet.

Type locality: Exposures on the south side of the valley of Hurricane Creek in SW/4, SE/2, T. 2 S., R. 3 E., Tippah County, Miss.

### TOMBIGBEE CHALK

Upper Cretaceous: Southwestern Alabama and northeastern Mississippi.

Original references: McGee, W. J., 1890, Am. Jour. Sci., 3d, v. 40, p. 25, 30, 31; 1891, U. S. Geol. Survey 12th Ann. Rept., pt. 1, p. 419, 475.

Probably named for development on both sides of Tombigbee River in Greene, Hale, Sumpter, and Marengo Counties, Alabama, and near Tombigbee River in northeastern Mississippi.

Obsolete term.

### TOMBIGBEE SAND MEMBER (of Eutaw Formation)

Upper Cretaceous: Northeastern Mississippi, southern Alabama, western Georgia, and western Tennessee.

Original reference: Hilgard, E. W., 1860, Miss. Geol. and Agri. Rept., p. 3, 61, 68-75.

- Monroe, W. H., and Eargle, D. H., 1946, U. S. Geol. Survey Oil and Gas Inv. Prelim. Map 50.
- Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40, p. 65.
- Bergquist, H. R., et al., 1943, Miss. Geol. Survey Bull. 53, p. 14-18.
- Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 27-29.
- Vestal, F. E., 1946, Miss. Geol. Survey Bull. 63, p. 20-21.
- Parks, W. S., et al., 1960, Miss. Geol. Survey Bull. 87, p. 36-40.
- Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 34-35.

For description, see Eutaw Formation.

Named for exposures on Tombigbee River near Aberdeen, Monroe County, Mississippi, and at Plymouth Bluff, Lowndes County, Mississippi.

#### TRENTON LIMESTONE OR GROUP

Ordovician: New York, Georgia, Michigan, Ohio, Pennsylvania, Vermont, Virginia, Tennessee; in Mississippi in the subsurface in the northeastern part of the state.

Original reference: Vanuxem, L., 1838, New York Geol. Survey 2d Report, p. 257, 276, 283.

Bates, R. L., 1936, Va. Geol. Survey Bull. 46-M, p. 184-185.

Kay, G. M., 1937, Geol. Soc. America Proc. 1936, p. 82.

Kay, G. M., 1937, Geol. Soc. Amer. Bull., v. 48, no. 2, p. 233-302.

Rodgers J., 1937, Geol. Soc. Amer. Bull., v. 48, no. 11, p. 1579-1580.

- Butts, C., 1940, Va. Geol. Survey Bull. 52, pt. 1, p. 213-216.
- Kay, G. M., 1941, (abs.) Geol. Soc. Amer. Bull., v. 52, no. 12, pt. 2, p. 1969.
- Kay, G. M., 1944, Jour. Geology, v. 52, no. 1, p. 1-23; no. 2, p. 97-116.
- Cady, W. M., 1945, Geol. Soc. Amer. Bull. 56, no. 5, p. 555-561.
- Wilson, C. W., Jr., 1948, Tenn. Div. Geology Bull. 53, p. 11.
- Butts, C., and Gildersleeve, B., 1948, Ga. Geol. Survey Bull. 54, p. 32.
- Fowler, P., 1950, Vt. Geol. Survey Bull. 2, p. 31-37.
- Winder, C. G., 1953, (abs.) Geol. Soc. Amer. Bull., v. 64, no. 12, pt. 2, p. 1493.
- Twenhofel, W. H., et al., 1954, Geol. Soc. Amer. Bull., v. 65, no. 3, p. 247-298.
- Miller, R. L., and Brosge, W. P., 1954, U. S. Geol. Survey Bull. 990, p. 67-70.
- Semmes, D. R., 1929, Ala. Geol. Survey Spec. Rept. 15.
- Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 64-65, 71-72.
- The Trenton is 200 feet thick in Tishomingo County, Miss., and is made up of dark-gray, slightly phosphatic, silty shales and shaly or crystalline limestone.
- Named for exposures at Trenton Falls on West Canada Creek in Herkimer and Oneida Counties, New York.

## TRINITY GROUP

Lower Cretaceous: Subsurface in Mississippi; crops out in Texas, southwestern Arkansas, northwestern Louisiana, and Oklahoma.

- Original reference: Hill, R. T., 1888, Science, v. 11, p. 21.
- Ross, C. P., 1943, U. S. Geol. Survey Bull. 928-B, p. 53, 66-83.
- Imlay, R. W., 1944, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 3.
- Barnes, V. E., 1948, Tex. Univ. Bur. Econ. Geology Rept. Inv. 2, p. 5-12.
- Gillerman, E., 1953, U. S. Geol. Survey Bull. 987, pl. 1.
- Lozo, F. E., and Stricklin, F. L., Jr., 1956, Gulf Coast Assoc. Geol. Soc. Trans., v. 6, p. 67-68.
- Forgotson, J. M., Jr., 1956, Gulf Coast Assoc. Geol. Soc. Trans., v. 6, p. 91-108.
- Forgotson, J. M., Jr., 1957, Am. Assoc. Petroleum Geol. Bull., v. 41, no. 10, p. 2328-2363.
- Davis, L. V., 1960, Okla. Geol. Survey Bull. 86, p. 20-26.
- Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, pl. 1.
- Dinkins, T. H., Jr., et al. 1967, Miss. Geol. Survey Bull. 108, pl. 1.
- Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, pl. 1.
- Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, pl. 1.

In Mississippi, the Trinity Group is composed of two-sub-groups, the Lower Glen Rose and the Upper Glen Rose (restricted). The Lower Glen Rose consists of, in ascending order, the Hosston, Sligo, Pine Island and Rodessa Formations, and the Upper Glen Rose of the Ferry Lake and Mooringsport Formations. Trinity Group also includes, at its top, the Paluxy Formation. Underlies

Washita-Fredericksburg Group and overlies Hosston Formation. Thickness in Rankin County, Miss., is up to about 3520 feet and in Copiah County, Miss., maximum thickness is approximately 3800 feet.

Named for exposures on Trinity Rivers of Texas.

#### **TUPELO TONGUE (of Coffee Formation)**

Upper Cretaceous: Northeastern Mississippi.

Original reference: Stephenson, L. W., 1917, Washington Acad. Sci. Jour., v. 7, p. 243-250.

Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40, p. 144.

Vestal, F. E., 1946, Miss. Geol. Survey Bull. 63, p. 39-64.

Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 29.

The Tupelo Tongue is that part of the Coffee Formation which merges with the Mooreville Formation. It is composed of dark-gray, massive, glauconitic, calcareous sand. Thickness is about 100 feet.

Type locality: In cuts along abandoned old Fulton Road on the westward-facing slope of Old Town Creek Valley, Sec. 33, T. 9 S., R. 6 E., 1 mile east of Tupelo, Lee County, Miss.

#### **TUSCAHOMA FORMATION (in Wilcox Group)**

Eocene, lower: Mississippi, Alabama, and Georgia.

Original reference: Smith, E. A., 1888, Ala. Geol. Survey Rept. Prog. 1884-1888, geographic map of Ala.

Toulmin, L. D., Jr., 1944, Southeastern Geol. Soc. Guide-book 1st Field Trip, p. 9.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

- LaMoreaux, P. E., and Toulmin, L. D., 1959, Ala. Geol. Survey County Rept. 4, p. 22, 124-141.
- Hughes, R. J., Jr., 1958, Miss. Geol. Survey Bull. 84, p. 166-167.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 16-17.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 20.
- Keady, D. M., 1962, Miss. Geol. Survey Bull. 94, p. 53-54.
- Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 21-23.
- Rainwater, E. H., 1964, in Miss. Geol. Survey Bull. 102, p. 26.

The Tuscaloosa Formation of the Wilcox Group consists of gray, slightly lignitic sand laminated with gray clay and interbedded fossiliferous marls. It can be identified where it is overlain by the Bashi and underlain by the Nanafalia. Thickness approximately 150 feet.

Named for exposures at Tuscaloosa, on the Tombigbee River, in Choctaw County, Alabama.

## TUSCALOOSA GROUP

Upper Cretaceous: Coastal plain from western Tennessee, northeastern Mississippi and northwestern Alabama, across Alabama through Georgia, South Carolina and North Carolina.

Original reference: Smith, E. A., and Johnson, L. C., 1887, U. S. Geol. Survey Bull. 43, p. 18, 95-117, 136-138.

Cooke, C. W., 1936, U. S. Geol. Survey Bull. 867, p. 17-25.

McGlothlin, T., 1944, Am. Assoc. Petroleum Geologists Bull., v. 28, no. 1, p. 40-43.

Conant, L. C., and Monroe, W. H., 1945, U. S. Geol. Survey Oil and Gas Inv. Prelim. Map 37.

- Monroe, W. H., Conant, L. C., and Eargle, D. H., 1946, Am. Assoc. Petroleum Geologists Bull., v. 30, no. 2, p. 187-212.
- Dorf, Erling, 1952, Am. Assoc. Petroleum Geologists Bull., v. 36, no. 11, p. 2161-2184.
- Drennan, C. W., 1953, Am. Assoc. Petroleum Geologists Bull., v. 37, no. 3, p. 522-538.
- Eargle, D. H., 1955, U. S. Geol. Survey Bull. 1014, p. 8-23.
- Stearns, R. G., 1957, Geol. Soc. Amer. Bull., v. 68, no. 9, p. 1077, 1093.
- Siple, G. E., 1957, Carolina Geol. Soc. Guidebook for the South Carolina Coastal Plain Field Trip Nov. 16-17, p. 3-5.
- Stuckey, J. L., and Conrad, S. G., 1958, N. C. Div. Mineral Resources Bull. 71, p. 43-44.
- Crider, A. F., 1907, Miss. Geol. Survey Bull. 1, p. 40.
- Logan, W. N., 1907, Miss. Geol. Survey Bull. 2, p. 155-157.
- Logan, W. N., 1914, Miss. Geol. Survey Bull. 6, p. 105-107.
- Lowe, E. N., 1911, Miss. Geol. Survey Bull. 8, p. 52.
- Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 56-57.
- Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 56-57.
- Lowe, E. N., 1920, Miss. Geol. Survey Bull. 16, p. 20.
- Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 47-49.
- Stephenson, L. W., and Monroe, W. H., 1940, Miss. Geol. Survey Bull. 40, p. 35-61.
- Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 19-24.

Vestal, F. E., and Knollman, H. J., 1947, Miss. Geol. Survey Bull. 64, p. 15-29.

Parks, W. S., et al., 1960, Miss. Geol. Survey Bull. 87, p. 23-26.

Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 95, p. 65-66.

Moore, W. H., 1963, in Miss. Geol. Survey Bull. 97, p. 25-33.

Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 99, p. 131-132.

Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 102-105.

Dinkins, T. H., Jr., et al. 1967, Miss. Geol. Survey Bull. 108, p. 199-202.

Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 119-123.

Show, T. N., 1970, Miss. Geol. Survey Bull. 113, p. 46.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 179-184.

The Tuscaloosa Group includes, in Mississippi, on the surface, the Gordo and Coker Formations, and in the subsurface, the Lower, Middle and Upper Tuscaloosa Formations. Overlies the Washita-Fredericksburg Group and underlies the Eutaw Group. Thickness up to about 600 feet.

Named for Tuscaloosa County, Alabama.

## . VICKSBURG GROUP

Oligocene: Gulf Coastal Plain.

Original references: Conrad, T. A., 1848, Acad. Nat. Sci. Philadelphia Proc., v. 3, p. 280-299; 1846, Amer. Jour. Sci., 2d, series 1, p. 209-220, 395-405.

- Chawner, W. D., 1936, La. Dept. Conserv. Geol. Bull. 9, p. 94-110.
- Fisk, H. N., 1938, La. Dept. Conserv. Geol. Bull. 10, p. 124-141.
- MacNeil, F. S., 1944, Am. Assoc. Petroleum Geologists Bull. v. 28, no. 9, p. 1313-1354.
- Murray, G. E., 1952, Am. Assoc. Petroleum Geologists Bull., v. 36, no. 4, p. 700-707.
- Stuckey, C. W., Jr., 1953, Am. Assoc. Petroleum Geologists Guidebook Field Trips Houston Mtg., p. 25-27.
- Tonti, E. C., 1955, Dissert. Abs., v. 15, no. 8, p. 1372.
- Warren, A. D., 1957, Gulf Coast Assoc. Geol. Soc. Trans., v. 7, p. 221-237.
- Crider, A. F., 1907, Miss. Geol. Survey Bull. 1, p. 59-67.
- Logan, W. N., 1907, Miss. Geol. Survey Bull. 2, p. 163-164.
- Logan, W. N., 1908, Miss. Geol. Survey Bull. 4, p. 14-15.
- Lowe, E. N., 1911, Miss. Geol. Survey Bull. 8, p. 55.
- Logan, W. N., 1911, Miss. Geol. Survey Bull. 9, p. 13.
- Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 84-87.
- Logan, W. N., 1916, Miss. Geol. Survey Bull. 13, p. 33-34.
- Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 85-89.
- Lowe, E. N., 1920, Miss. Geol. Survey Bull. 16, p. 23.
- Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 75-78.
- Mellen, F. F., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 39, p. 23-28.
- Mellen, F. F., et al., 1941, Miss. Geol. Survey Bull. 43, p. 25-43.

Bergquist, H. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 49, p. 46-54.

Priddy, R. R., 1960, Miss. Geol. Survey Bull. 88, p. 85-98.

Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 50-54.

DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 36-43.

Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 65-82.

Bicker, A. R., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 114-115.

Williams, C. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 217-218.

Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 134-136.

Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 41-53.

Luper, E. E., et al., 1972, Miss. Geol. Survey Bull. 116, p. 33-34.

May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

Vicksburg Group includes, in ascending order, the Mint Spring Formation, the Marianna Formation, the Glendon Formation, the Byram Formation, and the Bucatunna Formation.

Named for exposures at Vicksburg, Mississippi.

## **VICKSBURG (fossiliferous) LOAM**

Recent (?): Mississippi.

Original reference: Conrad, T. A., 1846, Am. Jour. Sci., 2d, v. 2, p. 212.

Abandoned term.

**WARSAW SHALE, LIMESTONE OR FORMATION**

See Iuka Formation.

**WASHITA-FREDERICKSBURG GROUP**

Lower Cretaceous: Subsurface in Mississippi and Louisiana;  
Texas, Oklahoma, Arkansas.

Original reference: Hill, R. T., 1887, Am. Jour. Sci., 3d,  
v. 33, p. 296-299.

Imlay, R. W., 1944, U. S. Geol. Survey Oil and Gas Inv.  
Prelim. Chart 3.

Gillerman, E., 1943, U. S. Geol. Survey Bull. 987, pl. 1.

Miser, H. D., et al., 1954, Geologic map of Okla.  
(1:500,000): U. S. Geol. Survey.

Frizzell, D. L., 1954, Tex. Univ. Bur. Econ. Geology Rept.  
Inv. 22, p. 20-31.

Curtis, N. M., Jr., 1959, Okla. Geology Notes, v. 19,  
no. 12, p. 257-264.

Lozo, P. E., 1959, Tex. Univ. Bur. Econ. Geology Pub.  
5905, p. 3, 28.

Perkins, B. F., 1960, Geol. Soc. America Mem. 83, p.  
9, 11-21, pls. 1, 2.

Davis, L. V., 1960, Okla. Geol. Survey Bull. 86, p. 16,  
31-39.

Moore, W. H., et al., 1963, Miss. Geol. Survey Bull. 95,  
p. 64-65.

Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull.  
107, p. 101.

Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull.  
108, p. 196-199.

Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 118-119.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 178-179.

The Washita-Fredericksburg Group is composed of an upper unit, the Dantzler Formation, and a lower undifferentiated unit which consists of a sequence of pale grayish-white to light gray, fossiliferous, glauconitic, chalky to dense limestones, white, light-red, and red sandstones, light-gray, pale-gray, mottled ochre and red mudstones, and dark red to maroon to black, silty, micaceous, rarely fossiliferous shales. The Dantzler Formation is a predominately clastic sequence of alternating dark-red to maroon silty, micaceous shales, vari-colored mudstones, white, occasionally calcareous, silty and micaceous sandstones, and rare nodular limestones. Washita-Fredericksburg overlies the Trinity Group and underlies the Tuscaloosa Group. Thickness in George County, Miss., approximately 1300 feet.

Washita named for old Fort Washita, T. 5 S., R. 7 E., about Sec. 23, Bryan County, Okla.

Fredericksburg named for Fredericksburg, Gillespie County, Texas.

#### **WAUTUBBEE FORMATION (in Claiborne Group)**

Eocene, middle: Mississippi.

Original reference: Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 78.

Hughes, U. B., et al., 1940, Miss. Geol. Soc. Guidebook Field Trip, Feb. 10, 11, columnar section.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 69.

Thomas, E. P., 1942, Miss. Geol. Survey Bull. 48, p. 47-68, 84, 85, 88, 89, 90, 92, 93.

- Bergquist, H. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 49, p. 20-26.
- Vestal, F. E., 1950, Miss. Geol. Survey Bull. 67, p. 63-66.
- Priddy, R. R., 1960, Miss. Geol. Survey Bull. 88, p. 46-52.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 26-27.
- Parks, W. S., 1961, Miss. Geol. Survey Bull. 92, p. 34-49.
- DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 17-21.
- Parks, W. S., et al., 1963, Miss. Geol. Survey Bull. 99, p. 40.

Abandoned term. See Cook Mountain Formation.

### **WAYNE FORMATION**

Silurian: Subsurface in northeastern Mississippi and in western Tennessee.

Original reference: Drake, N. F., 1914, Tenn. Geol. Survey Resources of Tenn., v. 4, no. 3, p. 103.

Bramlette, M. N., 1925, U. S. Geol. Survey Bull. 781, pl. 1.

Wilson, C. W., Jr., 1949, Tenn. Div. Geology Bull. 56, p. 244.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 57, p. 64, 71.

The Wayne consists of red, green and cream-colored limestones and shales. Thickness about 90 feet in Tishomingo County, Miss. Overlies Brassfield and underlies Brownsport.

Named for Wayne County, Tennessee.

### **WERNER FORMATION**

Lower Jurassic: Subsurface in Mississippi, Louisiana, Arkansas, and Texas.

Hazzard, R. T., Spooner, W. C., and Blanpied, B. W., 1947,  
Shreveport Geol. Soc. 1945 Ref. Rept., v. 2, p. 483,  
484, 486, 487.

Swain, F. M., 1949, Am. Assoc. Petroleum Geologists Bull.,  
v. 33, no. 7, p. 1207.

McKee, E. D., et al., 1956, U. S. Geol. Survey Misc. Geol.  
Inv. Map I-175.

Dinkins, T. H., Jr., et al., 1968, Miss. Geol. Survey Bull.  
109, p. 13, pl. 1.

The Werner Formation is composed of an upper sequence  
of anhydrite with minor amounts of black shale and  
anhydritic sandstone, and of a lower conglomeritic  
sequence of varicolored chert chips and red clastics.  
Unconformably overlies the Eagle Mills and underlies  
the Louann Salt. Thickness undetermined.

Type well: Gulf Refining Co.'s No. 49 L. Werner Saw Mill  
Company well located in Louann district, Union County,  
Arkansas.

## WHETSTONE BRANCH SHALE OR FORMATION

Upper Devonian: Northeastern Mississippi.

Original reference: Morse, W. C., 1928, Jour. Geology,  
v. 36, p. 3-43.

Weller, J. M., et al., 1948, Geol. Soc. Amer. Bull., v. 59,  
no. 2, p. 163, 166.

Morse, W. C., 1930, Miss. Geol. Survey Bull. 23 p. 50-63.

Morse, W. C., 1936, Miss. Geol. Survey Bull. 32, p. 11.

Vestal, F. E., and McCutcheon, T. E., 1943, Miss. Geol.  
Survey Bull. 57, p. 63.

The Whetstone Branch is composed of black shale, sandy  
shales, and thin layers of sandstone and is approximately

30 feet thick. Is equivalent of Chattanooga Formation of Alabama (Vestal).

Type locality: In Tishomingo County in middle part of Whetstone Branch which enters the Tennessee River about 3½ miles above the Tennessee State line and the mouth of Yellow Creek.

### **WILCOX GROUP**

Eocene, lower: Gulf Coastal Plain from Georgia to southern Texas, southwestern Illinois, western Kentucky, southeastern Missouri, and Tennessee.

Original references: Crider, A. F., and Johnson, L. C., 1906, U. S. Geol. Survey Water-Supply Paper 159, p. 5, 9.

Cook, W., 1925, U. S. Geol. Survey Prof. Paper 140-E, p. 133, 134-135.

Howe, H. V., 1933, Am. Assoc. Petroleum Geologists Bull., v. 17, no. 6, p. 617-621.

Plummer, F. B., 1933, Tex. Univ. Bull. 3232, p. 571-606.

Howe, H. V., and Garrett, J. B., Jr., 1934, La. Dept. Conserv. Geol. Bull. 4, p. 3-9.

Weller, J. M., and McQueen, H. S., 1939, Kan. Geol. Soc. Guidebook 13th Ann. Field Conf., p. 159.

Toulmin, L. D., Jr., 1940, Ala. Geol. Survey Bull. 46, p. 25-36.

LeBlanc, R. J., and Barry, J. O., 1941, Am. Assoc. Petroleum Geologists Bull., v. 25, no. 4, p. 734-737.

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- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 20-27.
- Parks, W. S., 1961, Miss. Geol. Survey Bull. 92, p. 34-49.
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- Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 19-24.
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Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 126-127.

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Dinkins, T. H., Jr., Show, T. N., et al., 1971, Miss. Geol. Survey Bull. 115, p. 188-189, 212-214.

Baughman, W. T., et al., 1972, Miss. Geol. Survey Bull. 116, p. 173-174.

The Wilcox Group is composed of the Fearn Springs, Nanafalia, Ackerman, Tuscaloma, Bashi, and Hatchetigbee Formations. It underlies the Claiborne Group and overlies the Midway Group. Thickness from 900-3500 feet.

Named for extensive development in Wilcox County, Alabama.

#### **WINONA FORMATION (in Claiborne Group)**

Eocene, middle: Mississippi.

Original reference: Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 73-74.

MacNeil, F. S., 1947, U. S. Geol. Survey Oil and Gas Inv. Prelim. Chart 29.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 65-66.

Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 123-124.

Foster, V. M., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 41, p. 78-84.

Thomas, E. P., 1942, Miss. Geol. Survey Bull. 48, p. 28-33, 84-85, 90-91.

Priddy, R. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 50, p. 19-24.

Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 51, p. 29-32.

- Brown, G. F., 1947, Miss. Geol. Survey Bull. 65, p. 44.
- Vestal, F. E., 1950, Miss. Geol. Survey Bull. 67, p. 22-27.
- Turner, J., 1952, Miss. Geol. Survey Bull. 76, p. 23-27.
- Vestal, F. E., 1954, Miss. Geol. Survey Bull. 78, p. 90-91.
- Lusk, T. W., 1954, Miss. Geol. Survey Bull. 80, p. 61.
- Vestal, F. E., 1956, Miss. Geol. Survey Bull. 81, p. 55-58.
- Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 24-25.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 31-32, 37.
- Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 29-30.
- Parks, W. S., et al., 1963, Miss. Geol. Survey Bull. 99, p. 27-29, 166.
- Kern, M. K., 1963, Miss. Geol. Survey Bull. 101, p. 37-41.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 40.
- Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 110.
- Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 209.
- Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 129.
- Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 190.

The Winona Formation consists of interbedded, pale-gray, glauconitic, silty chalks and sandy marls with minor amounts of light-gray and greenish-gray fossiliferous, slightly calcareous clay and clay shales. It underlies the Zilpha Formation and overlies the Tallahatta Form-

ation. Thickness averages 25 feet in vicinity of type locality.

Named for development at Winona, Montgomery County, Mississippi.

See also: Enterprise Green Marl, former name for Winona Formation.

### **WOODS BLUFF GROUP OR SERIES**

Eocene, lower: Southeastern Mississippi and southern Alabama.

Original reference: Heilprin, A., 1882, Philadelphia Acad. Nat. Sci. Proc. 1881, p. 158-159.

Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 71-72.

Lowe, E. N., 1919, Miss. Geol. Survey Bull. 14, p. 72-73.

Lowe, E. N., 1925, Miss. Geol. Survey Bull. 20, p. 64-65.

Named for exposures at Woods Bluff on Tombigbee River in northwestern part of Clarke County, Alabama.

Obsolete term. See Bashi Formation.

### **YAZOO FORMATION (in Jackson Group)**

Eocene, upper: Mississippi, southwestern Alabama and north-central Louisiana.

Original reference: Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 79.

Fisk, H. N., 1938, La. Dept. Conserv. Geol. Bull. 10, p. 98-105.

Hughes, U. B., et al., 1940, Miss. Geol. Soc., Guidebook 1, Field Trip Feb. 10, 11, 2d day's field trip, p. 2.

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- Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 218.
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- Bergquist, H. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 49, p. 35-46.
- Brown, G. F., 1947, Miss. Geol. Survey Bull. 65, p. 51.
- Priddy, R. R., 1960, Miss. Geol. Survey Bull. 88, p. 79-85.
- Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 46, 49.
- DeVries, D. A., et al., 1963, Miss. Geol. Survey Bull. 95, p. 25-31.
- Parks, W. S., et al., 1964, Miss. Geol. Survey Bull. 103, p. 31-33.
- Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 48, 52-58, 88, 173.
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- Williams, C. H., et al., 1967 Miss. Geol. Survey Bull. 108, p. 213-215.
- Bicker, A. R., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 133.

Huff, W. J., 1970, Miss. Geol. Survey Bull. 114, p. 34-66, 67-73.

Baughman, W. T., et al., 1971, Miss. Geol. Survey Bull. 115, p. 30-36.

Luper, E. E., et al., 1972, Miss. Geol. Survey Bull. 116, p. 27-29.

May, J. H., 1973, Miss. Geol. Survey Bull. 117, in progress.

The Yazoo Formation is composed of, in ascending order, North Twistwood Creek Clay, Cocoa Sand, Pachuta Marl, and Shubuta Clay. The formation consists of blue-green to blue-gray, calcareous, fossiliferous clay with some pyrite, is noncalcareous and slightly silty in upper few feet and is very calcareous and glauconitic in lower few feet; locally contains beds of soft, white, argillaceous limestone. Overlies Moodys Branch Formation and underlies Forest Hill Formation and Red Bluff Formation. Thickness up to over 500 feet.

Named for exposures in bluff of Yazoo River at Yazoo City, Yazoo County, Mississippi.

#### **YEGUA FORMATION (in Claiborne Group)**

Eocene, middle: Western and southern Mississippi, northwestern Louisiana, and eastern and southern Texas.

Original reference: Dumble, E. T., 1892, Brown Coal and Lignite of Texas, p. 124, 148-154.

Stenzel, H. B., 1940, Tex. Univ. Bur. Econ. Geology Pub. 3945, p. 847-904.

Patterson, J. M., 1942, Am. Assoc. Petroleum Geologists Bull., v. 26, no. 2, p. 259, 263-266.

Mathews, A. A. L., 1950, Tex. Eng. Expt. Sta. Research Rept. 14, p. 1-4.

Grim, R. E., 1936, Miss. Geol. Survey Bull. 30, p. 132-133.

Mellen, F. F., and McCutcheon, T. E., 1940, Miss. Geol. Survey Bull. 39, p. 13-16.

Bergquist, H. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 49, p. 26-34.

See Cockfield Formation. Term Yegua no longer in use in Mississippi.

### **YELLOW CREEK BEDS**

Devonian and Lower Mississippian: Northeastern Mississippi.

Original reference: Lowe, E. N., 1915, Miss. Geol. Survey Bull. 12, p. 51.

Named for exposures on Yellow Creek, a branch of Tennessee River, in Tishomingo County, Mississippi.

Obsolete term.

### **ZAMA MEMBER (of Zilpha Formation)**

Eocene, middle: Central Mississippi.

Original reference: Parks, W. S., et al., 1963, Miss. Geol. Survey Bull. 99, p. 20, 31-35, 38.

Kern, M. K., 1963, Miss. Geol. Survey Bull. 101, p. 38-39.

Parks, W. S., et al., 1964, Miss. Geol. Survey Bull. 103, p. 29.

The Zama Member consists "chiefly of relatively sand- and silt-free clay, glauconite, glauconitic silt, glauconitic sandy clay, glauconitic clayey sand, and concretionary siderite" (Parks, 1963). Overlies Winona Formation and underlies upper Zilpha. Thickness from 30-50 feet.

Type section: Cuts on State Highway 19 at top of hill, SE/4, NW/4, Sec. 22, T. 13 N., R. 9 E., Attala County, approximately 1 mile SE of an intersection on the road west of Zama.

Named by W. S. Parks for Zama, a small village in Attala County, Miss.

**ZILPHA FORMATION (in Claiborne Group)**

Eocene, middle: Mississippi.

Original reference: Hughes, U. B., et al., 1940, Miss. Geol. Soc., Guidebook 2, Field Trip, Mar. 9-10, p. 3, 11-12.

Thomas, E. P., 1942, Miss. Geol. Survey Bull. 48, p. 33-40, 92, 93.

Priddy, R. R., and McCutcheon, T. E., 1942, Miss. Geol. Survey Bull. 50, p. 24-41.

Priddy, R. R., and McCutcheon, T. E., 1943, Miss. Geol. Survey Bull. 51, p. 33-45.

Brown, G. F., 1947, Miss. Geol. Survey Bull. 65, p. 44-45.

Vestal, F. E., 1950, Miss. Geol. Survey Bull. 67, p. 27-49.

Turner, J., 1952, Miss. Geol. Survey Bull. 76, p. 27-30.

Vestal, F. E., 1954, Miss. Geol. Survey Bull. 78, p. 90-91.

Lusk, T. W., 1956, Miss. Geol. Survey Bull. 80, p. 61.

Vestal, F. E., 1956, Miss. Geol. Survey Bull. 81, p. 58-65.

Brown, B. W., 1960, Miss. Geol. Survey Bull. 89, p. 25.

Priddy, R. R., 1961, Miss. Geol. Survey Bull. 91, p. 32-33, 37.

Lusk, T. W., 1963, Miss. Geol. Survey Bull. 98, p. 30-32.

Parks, W. S., et al., 1963, Miss. Geol. Survey Bull. 99, p. 29-36.

Kern, M. K., 1963, Miss. Geol. Survey Bull. 101, p. 37-41.

Parks, W. S., et al., 1964, Miss. Geol. Survey Bull. 103, p. 29-31.

Moore, W. H., et al., 1965, Miss. Geol. Survey Bull. 105, p. 40-41.

Dinkins, T. H., Jr., et al., 1966, Miss. Geol. Survey Bull. 107, p. 110.

Dinkins, T. H., Jr., et al., 1967, Miss. Geol. Survey Bull. 108, p. 209.

Dinkins, T. H., Jr., et al., 1969, Miss. Geol. Survey Bull. 110, p. 129-130.

Dinkins, T. H., Jr., et al., 1971, Miss. Geol. Survey Bull. 115, p. 190-191.

The Zilpha Formation is composed of basal unit, the Zama Member, and two upper units. The upper thin unit is green sand, the middle, and main, unit consists of chocolate-brown to gray, carbonaceous, silty, shaly, cross-bedded clay with stringers and lenses of micaceous sand. The lower unit is composed of glauconitic sand (see Zama Member). The Zilpha underlies the Kosciusko (Sparta) and overlies the Winona. Thickness averages from 15-25' feet. Quartzite at contact with Kosciusko.

Type locality: Along the county road at Bucksnort Hill, 1½ miles north of Zilpha Creek, near the center of Sec. 8, T. 16 N., R. 6 E., northwestern Attala County.

Named by Raymond Moore for Zilpha Creek in Attala County, Mississippi.

**PRODUCING HORIZONS IN MISSISSIPPI**

"A" Limestone: Jurassic, Haynesville—Buckner

Abernathy: Mississippian

Anderson Sands: See Baker Sands

Armstrong Sand: Lower Eocene, Wilcox

Arrington Sands: See Stringer Sands

Artman (Wax, Harris) Sand: Lower Eocene, Wilcox

Ashley Sand: Lower Eocene, Wilcox

"B" Limestone: Upper Jurassic, Smackover

"B" Sand: Upper Jurassic, Cotton Valley

Bailey Sand: See Sligo Sand

Baker (Kendall, Anderson) Sands: Lower Eocene, Wilcox

Ball Sand: See Jenkins Sand

Barksdale Sand: Lower Eocene, Wilcox

Button Sand: Lower Cretaceous, Hosston

Baughman Sand: Upper Cretaceous, Tuscaloosa

Bay Springs Sand: Upper Jurassic, Cotton Valley

Benbrook (Ratcliff, Netterville) Sands: Lower Eocene; Wilcox

Birdsong—Owens Sandstone: Cretaceous, Sligo

Blake Sand: Lower Eocene, Wilcox

Blossom Sand: See Tokio Sand

Bodcaw Sand: Upper Jurassic, Cotton Valley

Brumfield Sand: See Christmas Sand

Buckrange Sand: See Ozan Sand

"C" Sand: Upper Jurassic, Cotton Valley

Campbell Sands: See McKittrick Sands

Camerina: Eocene, Cook Mountain

Carter Sand: See Minter Sand

Carter Sand: Upper Mississippian

Case Sands: See Stringer Sands

Christmas (Brumfield) Sand: Upper Cretaceous, Eutaw

Cook Zone: Lower Cretaceous, Rodessa

Creagh Sand: See Travis Sand

Crosby Sand: Lower Eocene, Wilcox

Cuevas Sand: Cretaceous, Washita-Fredericksburg

"D" Sand: Upper Jurassic, Cotton Valley

Dantzler Sands: Lower Cretaceous, Dantzler

Davis Sand: See Feazel Sand

Davis Sands: See Stringer Sands

Davis Zone: Lower Cretaceous, Rodessa

Denkman Sand: Upper Cretaceous, Tuscaloosa

Denkman Sand: Jurassic

Dyke Sand: Upper Cretaceous, Tuscaloosa

Eagle Ford (Powell) Sands: Upper Cretaceous, Eutaw

Evans Sand: Upper Mississippian

Fayette Sand: Pennsylvanian

- Feazel (Davis) Sand: Upper Jurassic, Cotton Valley
- Ferry Lake Sand: Lower Cretaceous, Ferry Lake Anhydrite
- First Cockfield Sand: Eocene, Cockfield
- First Wilcox Sand: Lower Eocene, Wilcox
- Foster (Helis ,Nichols) Sands: Lower Eocene, Wilcox
- Fractured Chalk: Upper Cretaceous, Selma
- Freewoods: Lower Eocene, Wilcox
- Gas Rock: Upper Cretaceous, Selma
- Giles Sand: Lower Eocene, Wilcox
- Gloyd Limestone: Lower Cretaceous, Rodessa
- Good Friday: Upper Cretaceous, Tuscaloosa
- Hardin Limestone: Jurassic, Haynesville—Buckner
- Harman Sand: See Jenkins Sand
- Harris Sand: See Artman Sand
- Helis Sands: See Foster Sands
- Hill Zone: Lower Cretaceous, Rodessa
- Hosston Sand: Lower Cretaceous, Hosston
- James Limestone: Lower Cretaceous, Rodessa
- Jenkins (Ball, Harman) Sand: Lower Eocene, Wilcox
- Jeter (Jones) Lime: Lower Cretaceous, Rodessa
- Jones Lime: See Jeter Lime
- Kee: Lower Eocene, Wilcox
- Kendall Sands: See Baker Sands

Kilpatrick Lime: Lower Cretaceous, Rodessa

King (Tew Lake): Lower Eocene, Wilcox

Knox Porosity (Snow): Cambro-Ordovician (abandoned)

Koffman Sand: Lower Eocene, Wilcox

Lammons Sand: See City Bank Sand

Lehman Sand: See McKittrick Sand

Lewis Sand: Upper Mississippian

Luce Sand: Lower Eocene, Wilcox

Massive Sands: Upper Cretaceous, Tuscaloosa

Maxie W-1, W-2, and W-3 Sands: Lower Eocene, Wilcox

May Sands: See Stringer Sands

McAlpin Sand: Lower Cretaceous, Paluxy

McComb "B" Sand: Upper Cretaceous, Tuscaloosa

McFadden Sand: Upper Mississippian

McGrave Sand: See Stanley Sand

McKinney Sands: See Stringer Sands

McKittrick (Lehman, Campbell, Thomas, Wilkinson) Sands:  
Lower Eocene, Wilcox

McShane Sands: Lower Eocene, Wilcox

Middle Hosston Sand: Lower Cretaceous, Hosston

Miller: Lower Eocene, Wilcox

Miller Sand: Upper Cretaceous, Tuscaloosa

Minter "A", "B", and "C" (Seab, Carter) Sands: Lower Eocene,  
Wilcox

- Mooringsport Sand: Cretaceous, Mooringsport
- Morrison (Stevens) Sand: Upper Cretaceous, Eutaw
- Nacatoch: Upper Cretaceous, Selma
- Nason Sand: Pennsylvanian
- Natural Gasoline Sand: See Stringer Sands
- Nelson Sand: Lower Cretaceous, Dantzler
- Norphlet Sand: Jurassic, Norphlet
- Netterville Sands: See Benbrook Sands
- Nichols Sands: See Foster Sands
- Ogden (Robinson) Sands: Lower Eocene, Wilcox
- Ozan (Buckrange) Sand: Upper Cretaceous, Selma
- Paluxy Sand: Lower Cretaceous, Paluxy
- Parker Zone: Lower Eocene, Wilcox
- Pearline Sand: Lower Eocene, Wilcox
- Perry Sand: See Travis Sand
- Pettet Porosity: Cretaceous, Sligo
- Pigford Sand: Lower Cretaceous, Dantzler
- Pilot Sand: Upper Cretaceous, Tuscaloosa
- Powell Sand: See Eagle Ford Sands
- Ratcliff Sands: See Benbrook Sands
- Rea: Mississippian
- Robinson Sands: See Ogden Sands
- Rodessa Sands: Lower Cretaceous, Rodessa

Sanders Sand: Upper Mississippian

Seab Sand: See Minter Sand

Second Wilcox Sand: Lower Eocene, Wilcox

Stewart "A" Sand: Lower Eocene, Wilcox

Stewart "B" Sand: Lower Eocene, Wilcox

Sligo (Bailey) Sand: Cretaceous, Sligo

Smackover Lime: Upper Jurassic, Smackover

Smackover Sand: Upper Jurassic, Smackover

Smith Sands: See Stringer Sands

Sparta Sands: Eocene, Kosciusko

Stanley (McGrave) Sand: Upper Cretaceous, Eutaw

Stray Sand: Upper Cretaceous, Eutaw

Stray Sand (Vidalia): Lower Eocene, Wilcox

Stevens Sand: See Morrison Sand

Stewart "A" and "B" Sands: Lower Eocene, Wilcox

Stricker: Lower Eocene, Wilcox

Stringer (Smith, Case, Arrington, Natural Gasoline, Davis, McKinney, May) Sands: Upper Cretaceous, Tuscaloosa

Sunniland Lime: Cretaceous, Mooringsport

Tew Lake: See King Sand

Thomas Sands: See McKittrick Sands

Tokio (Blossom) Sand: Upper Cretaceous, Selma

Travis (Creagh, Perry) Sand: Upper Cretaceous, Eutaw

Tuscumbia Lime: Upper Mississippian

Upper Tuscaloosa Sands: Upper Cretaceous, Tuscaloosa

Vaughn Sand: Upper Jurassic, Cotton Valley

Vidalia: See Stray Sand, Wilcox

Walker Sand: Lower Eocene, Wilcox

Washita-Fredericksburg Sand: Cretaceous, Washita-Fredericksburg

Wax Sand: See Artman Sand

Whittington: Lower Eocene, Wilcox

Wilburn: Upper Cretaceous, Eutaw

Wilkinson Sands: See McKittrick Sands

Wilson: Lower Eocene, Wilcox

Woodruff Sand: Upper Cretaceous, Selma

"4600" Sands: Lower Eocene, Wilcox



