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Descriptions of Samples and Cores from Four Wells in Southeastern Miss.
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This report describes the lithology of stratigraphic units in four wells that were studied as a part of Project Dribble of the Vela Uniform Program of the U.S. Atomic Energy Commission. The geologic names used for these units were agreed upon in a conference arranged by Mrs. Esther R. Applin, U.S. Geological Survey, in Jackson, Miss., on September 17, 1962, and attended by representatives of the Mississippi Geological Survey, the Mississippi Geological Society, the U.S. Geological Survey, and the Trowbridge Sample Service. Two of these names, the Tatum Limestone Member of the Catahoula Sandstone and the Andrew Formation, were new and were subsequently described by Eargle (1964); the descriptions of cores and samples of these two stratigraphic units and of their type wells are included herewith. Descriptions of samples from the type well of the Dantzler Formation (Nunnally and Fowler, 1954) are also included.

The author is indebted to Mrs. Applin for furnishing the descriptions of the samples and cores of the Gulf Oil Company's No. 25 Andrew and the Humble Oil and Refining Company's No. B-1 Dantzler wells; to the Humble Oil and Refining Company for supplying fossil identifications from cores from the Humble B-1 Dantzler well; to Hobart B. Harris, who furnished the descriptions of cores and samples of the Atomic Energy Commission's HT-1 and HT-2 wells; and to Misses Ruth Todd and Doris Low for paleontological reports on the Atomic Energy Commission's HT-1 and HT-2 wells.

Samples and cores from Atomic Energy Commission's HT-1 well, northeast of Tatum Dome, approximately 370 feet SSE of center sec. 12, T. 2 N., R. 16 W., Lamar County, Miss. Datum, rotary table, 315 feet above sea level

[SWC, sidewall core (Hunt); RC, rotary core (NX). Descriptions by Hobart B. Harris, U.S. Geological Survey]

Depth (feet)	Thickness (feet)	Lithologic description
		Catahoula Sandstone, upper part
SWC-1,347		Sand, light greenish-gray, subangular, slightly calcareous, loose, with very coarse rounded sand grains and light-green clay.
1,355-1,375	20	Sand, light-gray, fine to very coarse grained, rounded, loose (mostly cavings); carbonaceous shale and crystalline pyrite.
SWC-1,371		Clay, gray, soft.
		Catahoula Sandstone, Tatum Limestone Member (Top at 1,373 feet, interpreted from geophysical logs)
1,375-1,382	7	Sand, light-gray, fine to coarse, rounded loose; black carbonaceous shale and crystalline pyrite (mostly cavings).
1,385	3	Limestone, light-gray, finely crystalline, mottled with small black particles, soft; contains 25 to 50 percent loose rounded fine-grained sand.
1,391	6	Limestone, light-gray, finely crystalline, mottled with small black particles, soft; contains very coarse sand grains and fossils (Sorites).
1,411	20	Clay, gray to black, calcareous, soft; and gray, finely crystalline, partly fossiliferous, soft limestone.
1,431	20	Limestone, light-gray, finely crystalline, soft; black particles and very coarse, rounded sand grains.
1,450	19	Samples missing.
SWC-1,431		Limestone, white, finely crystalline, soft; contains black fossil fragments.

Depth (feet)	Thickness (feet)	Lithologic description
1,460	10	Limestone, grayish-white, finely crystalline, soft; contains black fossil fragments and crystalline pyrite.
SWC-1,459		Limestone, grayish-white, finely crystalline, soft; with dark-gray particles and fine-grained sand.
1,470	10	Limestone, grayish-white, finely crystalline, soft; dark-gray particles; 25 to 50 percent light-gray, fine-to-coarse, poorly consolidated sand.
1,530	60	Limestone, grayish-white, finely crystalline, soft; contains dark-gray particles, 25 to 50 percent poorly consolidated sand, light gray, coarsely crystalline, rounded.
SWC-1,513		Clay, white and green, soft, calcareous; contains a few gray particles and muscovite; intermixed in the white clay are coarse, rounded sand grains; thin chocolate-brown clays separate the white and green clays.
		Chickasawhay(?) Limestone (Top at 1,530 feet, interpreted from electric log)
1,580	50	Sand, greenish-gray, very fine to coarse, soft, poorly consolidated; contains muscovite and 10 to 25 percent grayish-green clay.
SWC-1,548		Sand, greenish-gray, very fine grained, subangular; trace of grayish-green soft clay.

Rotary core from well MT-1 (MT-1RC-1), from 1,391 to 1,411 feet, 17.29 feet of which was recovered

Thickness (feet)	Lithologic description
1	Clay, light-gray, soft, calcareous; shell fragments, small lenses of green-gray clay. Lower 1/4 to 1 inch is clayey fossiliferous limestone. (Sorites).
1.1	Limestone, light-gray, very finely crystalline, soft, fossiliferous, contains black Sorites fragments; fine-grained sand and a trace of light-gray and black carbonaceous shale.
1.9	Limestone, light-gray, finely crystalline, soft.
.08	Clay, gray and dark-gray, soft, fossiliferous (Sorites fragments).
.34	Limestone, gray, finely crystalline, soft, fossiliferous (Sorites); contains crystal-lined openings. Crystals appear to be calcite.
.17	Limestone, light-gray, finely crystalline, slightly harder; contains Sorites fragments.
.7	Limestone, light-gray, finely crystalline; trace of gray-green clay.
2.7	Limestone, light-gray, finely crystalline; irregular-shaped crystal-lined openings; trace of dark-gray clay at base of core.
1.2	Clay, black, soft; contains light-gray bands of shell fragments and very coarse, rounded sand grains.
2	Clay, black, soft; with a few thin layers of shell fragments.
.95	Clay, brown-black, soft; with numerous layers of shell fragments.
.25	Clay, light gray-brown, soft; contains shell fragments and varying amounts of dark-gray clay.
.70	Limestone, light-gray, finely crystalline, moderately hard; upper part contains light-gray clay.
2.5	Limestone, light-gray, finely crystalline, moderately hard; numerous shell fragments; lower 2 feet contains gray clay and is softer.
1.7	Limestone, gray, grades to gray-green clay with shell fragments.

Samples and cores from Atomic Energy Commission's HT-2 well, southwest of Tatum Dome, approximately 1,030 feet east and 850 feet north of the SW cor. sec. 14, T. 2 N., R. 16 W., Lamar County, Miss. Datum, rotary table, 295 feet above sea level

[Descriptions by Hobart B. Harris, U.S. Geological Survey]

Depth (feet)	Thickness (feet)	Lithologic description
		Catahoula Sandstone, upper part
1,425-1,470	45	Sand, light-gray, fine to coarse, subangular to subrounded, loose; and particles of lignite.
		Catahoula Sandstone, Tatum Limestone Member
1,470-1,474	4	Limestone, tannish-white to light-gray, finely crystalline, soft; contains pyrite, black chert, and fossils (gastropods and pelecypods).
1,474-1,510	36	Limestone, tannish-white to light-gray, finely crystalline, soft; and gray, coarse to medium subangular calcareous sand.
SWC-1,481		Limestone, gray, clayey, soft.
1,510-1,630	120	Limestone, white, finely crystalline, moderately hard.
SWC-1,511		Clay, light-gray, calcareous.
SWC-1,543		Limestone, white, finely crystalline, soft.
SWC-1,577		Limestone, light-gray, clayey, soft.
SWC-1,602		Limestone, gray, clayey, soft.
SWC-1,617		Limestone, white, finely crystalline.
1,630-1,640	10	Limestone, white, finely crystalline, moderately hard; contains black shale particles; 40 percent light-gray, fine to coarse, rounded sand.
		Chickasawhay(?) Limestone
		(Top at 1,640 feet, interpreted from electric log)
1,640-1,720	80	Clay, gray, soft; 25 percent light-gray, fine to coarse, subrounded sand.

Rotary core from well HT-2, from 1,474 to 1,494 feet, 6.6 feet of which was recovered

Thickness (feet)	Lithologic description
0.7	Sand, light-gray, fine to very coarse, subangular to rounded, loose, calcareous; contains pyrite, light-tan finely crystalline calcite and fossil fragments.
1	Limestone, light-gray, finely crystalline, soft; contains fine to medium subangular quartz grains and fossil fragments.
.3	Limestone, white, finely crystalline, moderately hard; contains black fossil fragments and a few circular calcite-lined openings.
.6	Sandstone, gray, fine- to coarse-grained, subangular to rounded, moderately hard, calcareous; contains fragments of black fossils.
.4	Sandstone, gray, fine to very coarse grained, silty, subangular to rounded, moderately hard, calcareous; contains fragments of white fossils.
.4	Sand, gray, fine to coarse, subangular to subrounded, calcareous; contains fragments of white fossils and silty lenses.
.4	Sand, gray, medium to coarse, subangular, calcareous; contains large particles of light-gray calcite and black rounded chert.
.8	Limestone, light-gray, finely crystalline, moderately hard; contains fine to very coarse, subangular quartz sand and black fossil fragments.
.7	Sand, gray, fine, calcareous; very coarse quartz grains, gray silt, and fossil fragments.
1.3	Clay, greenish-gray to reddish-gray, soft, calcareous; contains black rounded pebbles, coarse quartz sand, and white shell fragments; conglomeratic.

Paleontology of cores of Tatum Limestone Member section of Atomic Energy Commission wells HT-1 and HT-2

Samples from cores from the Tatum Limestone Member in wells HT-1 and HT-2 were examined for smaller Foraminifera by Ruth Todd and Doris Low (written communication, 1962). A summary of their report follows. Heterostegina and other larger forams were found also in samples from well HT-1, but have not as yet been reported on. The intervals examined are:

(1) Six samples from rotary cores from the upper part of the Tatum Limestone Member section from well HT-1.
(2) Three sidewall cores from the middle and lower part of this section from well HT-1.
(3) One sample from a rotary core from well HT-2.

The six samples from the rotary core from the upper part of the Tatum in well HT-1 are from the following intervals:

Sample	Interval (feet)
1	1,391.5 to 1,391.6
2	1,392.5 to 1,392.6
3	1,397 to 1,397.1
4	1,401 to 1,401.2
5	1,403.5 to 1,403.7
6	1,408 to 1,408.1

Three sidewall cores from the middle and lower parts of the Tatum in well HT-1 are from the following points:

1,431 feet
1,459 feet
1,513 feet

From well HT-2 one core from near the top of the Tatum Limestone Member came from the interval 1,474 to 1,494 feet, from which 7.5 feet of core was recovered.

From the rotary cores from well HT-1 a small-foraminifer fauna was recovered, best in samples 1 and 5, but very poor in sample 3. The assemblage in sample 4 indicates a different facies and a different state of preservation from that of the other samples.

From the core from well HT-2, cored interval 1,474-1,494 feet, of which 7.5 feet was recovered, a sample 4.5 to 4.7 feet below the top of the core contained a few very poor specimens of smaller Foraminifera.

The following table shows the species and distribution found in cores from wells HT-1 and HT-2 (A, abundant; C, common; R, rare):

	Well HT-1 Sample					Well HT-2
	1	2	4	5	6	
Amphistegina chipolensis Cushman and Ponton	C	R		A	C	?
Angulogerina occidentalis (Cushman)			R			
Anomalina nucleata (Seguenza)			R			
Bolivina cf. B. dilatata Reuss			R	R		
B. paula Cushman and Cahill			R			
B. plicatella Cushman			R	R		
B. tortuosa Brady				R		
Bulimina coprolithoides Andreae			R			
Buliminella elegantissima (d'Orbigny)			C			
Cibicides lobatulus (Walker and Jacob)				R		
Elphidium cf. E. advenum (Cushman)				C		?
E. cryptostomum (Egger)	R					
E. culebrense Cushman					A	
E. sagrai (d'Orbigny)	R	R		C	R	
Eponides ellisorae Garrett	C				R	
Globigerina apertura Cushman	R					
G. obesa (Bolli)	R					
G. trilocularis d'Orbigny	R	?				
Globigerinita glutinata (Egger)?	R					
Globigerinoides trilobus altiapertura Bolli	R					
Globulina gibba d'Orbigny	C			C	C	
Heronallenia vicksburgensis Cushman			R			
Lagena cf. L. filicosta Reuss	R					
Neoconorbina aff. N. assulata (Cushman)			R			
Nonion advenum (Cushman)			?	C	R	
Planulina depressa (d'Orbigny)	C					
Pseudononion grateloupi (d'Orbigny)	R					
P. Papillatum (d'Orbigny)	A					
Rosalina subaraucana (Cushman)	R	?		C	R	
Siphonina claibornensis Cushman	C		R	R	R	
Valvulineria cf. V. paucilocula Cushman	R		R			

From the sidewall cores from well HT-1 the following species were identified:

Depth (feet)	Smaller Foraminifera
1,431	Globulina and Amphistegina?
1,459	Elphidium, miliolids, and Rosalina
1,513	Amphistegina, Eponides, Rotalia, Elphidium sagrai (d'Orbigny), Elphidium sp., Globulina, Robulus, Reussella?, and Rosalina.

Misses Todd and Low reported that no specimens from the core from well HT-2 were sufficiently well preserved, nor were the species sufficiently diagnostic, to be useful in age determination.

Concerning the age significance of these smaller Foraminifera Misses Todd and Low stated: "Although some species known elsewhere from beds of Oligocene age are present in the cores from the Heterostegina zone [Tatum Limestone Member] our best estimate is that the total assemblage points more to early Miocene than to Oligocene for this zone. Noting that the samples here studied are reported to be from the top of the Heterostegina zone this interpretation may not be too much in conflict with [that] * * * of an Oligocene age for this zone. Moreover, even though the evidence available from these core samples seems to point to early Miocene, it is not conclusive enough to absolutely rule out the possibility of a late Oligocene age for these cores."

Cores and samples of the section of the Gulf Oil Corporation's No. 25 Andrew well (type well of the Andrew Formation), 900 feet north and 560 feet west of the SE cor. SE 1/4 SW 1/4 sec. 6, T. 1 N., R. 16 W., Lamar County, Miss. Derrick floor 23[illegible] feet. Datum is 1 foot above rotary, estimated 235 feet above sea level

[Description by Esther R. Applin, U.S. Geological Survey. All samples are cuttings unless otherwise stated. Approximate top of the Andrew Formation 9,810-9,820 feet by samples; 9,800 by electrical log (Mrs. Applin, written communication, 1962); base 11,350 (electrical log); red shale (Paluxy Formation) in sample 11,380-11,390]

Depth (feet)	Lithologic description
9,810-9,820	Shale, dull dark-red, gray and olive gray; some fragments of limestone, brownish gray, very highly and very finely sandy; contains some shell fragments.
9,820-9,830	Shale fragments as above; many fragments of limestone, irregularly very finely sandy. A few fragments of dolomitic limestone, very finely crystalline.
9,830-9,840	Like overlying unit.
9,840-9,850	Same as above. Traces of fossil shells noted in limestone.
9,850-9,860	Limestone, light-cream color, finely gray spotted. Some dolomite, olive gray, very finely crystalline. Small fragments of fossil bivalves, and some ostracodes in limestone and dolomite. Some shale fragments, probably caving.
9,860-9,870	No change.
9,870-9,880	Limestone and dolomite like the interval 9,850-9,860, some fragments of fine-grained sandstone. Chips of shale, gray, greenish-gray, and red, as above.
9,880-9,890	Mainly shale, little limestone or dolomite. Some fragments of sandstone as in overlying unit.
9,890-9,900	Shale, gray, greenish-gray, and some dull-red; and many fragments of sandstone, white to light-gray, very fine grained. Some chips of limestone and dolomite.
9,900-9,910	Mainly shale like the above, a little limestone.
9,910-9,920	No sample.
9,920-9,930	Shale, dark-gray and dull dark-red; and 50 percent limestone, light cream-colored, finely gray spotted. Limestone is chalky in texture, and contains many fragments of Ostrea-like bivalves. A few limestone fragments, pseudo-oolitic.

Depth (feet)	Lithologic description
9,940-9,950	Limestone, as above, two-thirds of sample, shale one-third.
9,950-9,960	No sample.
9,960-9,980	Like the interval 9,940-9,950. A trace of bright-green glauconite(?) in the limestone.
9,980-9,990	Shale, gray, greenish-gray and dull dark-red.
9,990-10,000	Like the preceding.
10,000-10,020	Shale, two-thirds dark-gray, one-third dull dark-red; a few fragments of limestone. All materials in part silty.
10,020-10,040	Like the preceding.
10,040-10,060	Shale, very dark gray, splintery, about one-third dull dark-red. Shale, irregularly silty. A few fragments of limestone, very finely sandy; contains finely broken fragments of Ostrea-like bivalves.
10,060-10,080	Shale as above, and 5 percent limestone, light-tan and gray, very finely sandy, containing fragments of fossil bivalves.
10,080-10,200	Shale, dark-gray, 50 percent; sandstone, white, fine-grained, 50 percent. Some fragments of limestone.
10,200-10,220	Limestone, 75 percent, rapidly and irregularly altering from light-cream color with gray fossiliferous areas to dark gray and shaly textured. Fossil material in limestone, dark-gray shaly molds, in part rolled and nodular, giving the limestone a pseudo-oolitic appearance.
10,220-10,240	Shale, dark-gray, and limestone like that in preceding; 50 percent sandstone, calcareous, very fine grained, white and tan, weakly micaceous.
10,240-10,260	Shale 75 percent, dark-gray, splintery. Some cavings of sandstone and limestone as above. A little red shale.
10,260-10,280	Limestone 75 percent; shale, dark-gray, 25 percent. Limestone rapidly and irregularly varying from cream colored and chalky to hard, tan, and crystalline. All limestone gray spotted. Spots are molds of fragmental fossil material. Small inclusions of bright-green glauconite(?) in some limestone chips.
10,280-10,300	Shale, dark-gray, 75 percent; sandstone and limestone, 25 percent. Very fine grained, brownish gray; trace of dull, dark-red shale. A few dark-gray shale chips have fragments of macrofossils and ostracodes. A few specimens of Lituola inflata.

Depth (feet)	Lithologic description
10,300-10,320	Limestone 75 percent, dark spotted (fossiliferous); shale 25 percent, dark gray, silty in part.
10,320-10,340	Shale 50 percent; limestone 50 percent. Like preceding in character.
10,340-10,360	Like preceding, also some fragments of pseudo-oolitic limestone containing many small, irregularly rounded black nodules (molds of ostracodes?). Trace of glauconite(?) in limestone.
10,360-10,380	Limestone, hard, tan, gray spotted, fossiliferous; some dark-gray shale. Fragments of Lituola present.
10,380-10,400	Limestone 50 percent; shale 50 percent, dark-gray fissile; trace of sandstone, very fine grained, brownish-gray, micaceous.
10,400-10,420	Shale, dark-gray, fissile, 80 percent; limestone, like preceding, 20 percent; trace of sandstone.
10,420-10,440	Shale, dark-gray; some limestone, in part silty.
10,440-10,460	Like the preceding.
10,460-10,480	Shale, dark-gray, flaky, 50 percent; limestone, tan and olive-gray, 50 percent. Many traces of fossil fragments in limestone.
10,480-10,500	Like the preceding.
10,500-10,520	Shale, dark-gray, flaky, 50 percent; limestone and sandstone fragments as seen at various higher levels, 50 percent.

Core 7: 10,537-10,582 1/2 feet

Depth (feet)	Lithologic description
10,537-10,542	Shale, dark-gray, very finely and irregularly highly micaceous, contains irregular dark-brown streaks.
10,542-10,547	Shaly siltstone, dark-gray, finely micaceous, contains fragments of Ostrea-like bivalves.
10,547-10,552	Siltstone, gray, finely micaceous, thin partings of shale, black, micaceous, finely carbonaceous.
10,552-10,557	Shale, dark-gray, finely micaceous.
10,557-10,562	Shale, dark-gray, thinly laminated, irregularly finely and highly micaceous, and irregularly finely carbonaceous. Some thin lenses of siltstone.
10,562-10,567	Shale, dark-gray, silty. Contains fragments of Ostrea-like bivalves, a few ostracodes, and some small fragments of carbonaceous material.
10,567-10,572	Shale, dark-gray, irregularly highly silty, very highly micaceous partings; scattered small fragments of carbonaceous material.
10,572-10,577	Siltstone, dark-brown, highly micaceous.
10,577-10,582 1/2	Shale, dark-gray, smooth-textured, thinly laminated. Has irregular, very finely sandy, micaceous and finely carbonaceous areas.

Core 8: 10,586-10,628 1/2 feet

10,586-10,591	Limestone, hard, grayish-tan; contains much very fragmental macrofossiliferous material. Some sections of ostracodes and some questionable sections of Foraminifera in the limestone.
10,591-10,596	Same as preceding.
10,596-10,601	Limestone like that above. Contains some sections of Quinqueloculina and other miliolids, fragments of other microfossils and some fragments of carbonaceous material. Core segment cut by thin quartz veins and has areas in which black shale has apparently been deposited in crevices in the limestone.
10,601-10,606	Same as preceding.

Depth (feet)	Lithologic description
10,606-10,611	Shale and limestone. Shale, dark-gray, thinly laminated, weakly micaceous; limestone, grayish-tan, hard, contains much fragmental fossil material.
10,611-10,616	Shale, dark-gray, thinly laminated; contains fragments of a Plicatula-like bivalve and of a finely ribbed Pecten-like fossil.
10,616-10,621	Limestone, hard, grayish-brown; contains much fossil detritus.
10,621-10,626	Shale, dark-gray, thinly laminated, contains some fragments of macrofossils, a few ostracodes, and small fragments of carbonaceous material.
10,626-10,628 1/2	Limestone, hard, grayish-tan; contains small fragments of macrofossils, many sections of ostracodes, and scattered specimens of several species of Quinqueloculina.

Core 9: 10,628 1/2-10,660 feet

10,628 1/2-10,635	Shale, dark-gray, finely micaceous; contains scattered miliolids, a few fragments of macrofossils, and a few small fragments of carbonaceous material. Fragments of limestone, hard, grayish-tan, also from core segment taken between these depths.
10,635-10,640	Limestone, dense, hard, dark brownish-gray, pseudo-oolitic. Packed with ostracodes and irregularly rounded fragments of other fossil material. Some fragments of fossil bivalves.
10,640-10,650	Limestone, hard, fossiliferous, light grayish-tan, similar to preceding, and limestone, dark-gray, pseudo-oolitic.
10,650-10,655	Limestone, hard, light grayish-tan, highly impregnated with dark-gray molds of ostracodes and fragments of other fossils. Fragments of lignite in one segment of limestone. A segment of dark-gray shale that also has embedded lignite.
10,655-10,660	Shale, dark-gray, thinly laminated; and limestone, highly and extremely finely sandy, light grayish-tan, contains small bivalves and small, scattered inclusions of a bright-green mineral (glauconite?).

Core 10: 10,662-10,701 feet

Depth (feet)	Lithologic description
10,662-10,667	Shale, dark-gray, thinly laminated, very finely micaceous; cut by lenses of siltstone, micaceous and calcareous.
10,667-10,670	Shale, dark-gray; and sandstone, very fine grained, light-brown, micaceous and calcareous. Sandstone contains many fragments of carbonaceous material and some lignitic plant remains.
10,670-10,672	Sandstone, dense, calcareous, micaceous, light-brown, very fine grained. Contains fragments of macrofossils.
10,672-10,677	Same as preceding.
10,677-10,682	Shale, gray. Contains a few areas filled with fragmental fossil material and has abundant, evenly distributed, fine particles of carbonaceous material.
10,682-10,687	Sandstone, white, calcareous, very fine grained, weakly micaceous.
10,687-10,692	Shale, dark-gray, slightly micaceous.
10,692-10,697	Siltstone, light grayish-brown, calcareous, highly micaceous. Lenses of dark-gray shale.
10,697-10,701	Shale, dark-gray; contains a few macrofossil fragments.

Core 11: 10,701-10,732 feet

10,701-10,706	Limestone, dark brownish-gray; contains an abundance of fragmental fossil material including many ostracodes. Lenses of dark-gray shale containing many fragments of large oysterlike bivalve.
10,706-10,711	Siltstone, light grayish-tan, calcareous, micaceous, argillaceous.
10,711-10,716	Shale, dark-gray, sparsely micaceous; contains abundant fine particles of carbonaceous material.
10,716-10,721	Siltstone, light-brown, highly micaceous, calcareous, and argillaceous.
10,721-10,726	Shale, dark-gray; and some limestone, hard, light-tan, contains some fragments of macrofossils and microfossils and has areas filled with fine shreds of carbonaceous material.
10,726-10,732	Clay, light grayish-tan and coarsely micaceous; limestone, hard, fossiliferous; fossil material preserved as glauconitic and finely pyritic molds.

Core 12: 10,728-10,750 feet

Depth (feet)	Lithologic description
10,730	Siltstone, light grayish-brown, highly micaceous, argillaceous, and calcareous. Contains many fragments of lignite.
10,734	Shale, dark-gray, highly carbonaceous in part.
10,737	Shale, dark-gray; some lignite.
10,740	Shale, dark-gray; trace of carbonaceous material.
10,743	Shale, dark-gray; many fragments of oysterlike bivalves.
10,746	Shale, Hard, calcareous, dark olive-gray, some fragments of Ostrea and some ostracodes.
10,750	Material as above, many fragments of bivalves and ostracodes. Some glauconite(?) in limestone.

Core 13: 10,755-10,781 feet

10,755	Same as preceding.
10,762	Shale, gray, highly and coarsely fossiliferous; and limestone, hard, olive-gray, contains many fragments of large Ostrea-like bivalves.
10,767	Shale, olive-gray; some limestone containing some fragments of fossil bivalves, and trace of carbonaceous material.
10,774	Same as preceding.
10,781	Siltstone, light grayish-brown, calcareous, highly micaceous.

Core 14: 10,787-10,822 feet (8 feet recovered)

10,787 1/2-10,792 1/2	Shale, dark- to light-grayish-brown, weakly micaceous, and irregularly highly silty.
10,792 1/2-10,794	Limestone, hard, olive-brown; contains many fragments of large Ostrea-like bivalve, some carbonaceous material.
10,794 -10,795 1/2	Siltstone, calcareous, light-gray, thickly and irregularly brown streaked. Some core chips show streaks of carbonaceous material and fragments of Ostrea sp.

Core 17: 10,824-10,858 feet (33 feet recovered)

Depth (feet)	Lithologic description
10,830 1/2-10,838 1/2	Sample consists of large chips of several types of material. (1) Limestone, marly, olive-gray, contains many fragments of large, Ostrea-like bivalves and a few ostracodes, and has areas that contain many fragments of carbonaceous and lignitic material. Limestone is cut by thin, discontinuous lenses of light grayish-green shale, and has nodular inclusions of reddish-brown limestone and of dark-gray shale. (2) Siltstone, greenish-gray, has thin streaks of carbonaceous material and is broken by thin irregular shale lenses. (3) Sandstone, fine-grained; matrix of black tarry(?) substance.
10,838 1/2-10,842 1/2	Shale and siltstone. Shale, olive-gray; siltstone, light greenish-gray, highly micaceous; some chips show abundant meandering dark-colored streaks.
10,842 1/2-10,850	Shale, dark brownish-gray; contains abundant fragments of macrofossils; and shale, lighter gray, nonfossiliferous.
10,850-10,858	Shale, dark-gray; has some moderately micaceous

Sample:

10,860-10,880	Shale; dull dark brownish-red, 50 percent; dark-gray, 50 percent. A few fragments of fossiliferous limestone, and a few fragments of sandstone, fine-grained, micaceous, light-brown.

Core 18: 10,872-10,904 feet

Depth (feet)	Lithologic description
10,872-10,877	Shale, dull dark brownish-red; has black nodular inclusions, irregular in shape and size.
10,877-10,882	Shale, dull dark brownish-red.
10,882-10,885	Shale, dull dark brownish-red.
10,885-10,900	Shale, light greenish-gray, silty and slightly micaceous.
10,900-10,904	Shale, dark-gray; contains some fine mica.
Samples:	
10,904-10,910	Shale: dark-gray, 50 percent; dull dark-red, 50 percent.
10,910-10,960	Same as preceding.
10,960-10,980	Shale, dark-gray; some dull brownish red and some purplish red and gray green mottled.
10,980-10,990	Mainly dark-gray shale.
10,990-11,000	Shale, dark-gray, and some fragments of shale, dull reddish-brown, and purplish red and gray mottled. A few fragments of limestone.
11,000-11,030	Same as preceding.
11,030-11,040	Shale, dark-gray, some fragments dull brownish red. A few fragments of limestone. A few ostracodes, probably indigenous.
11,040-11,050	Same as preceding.
11,050-11,060	Shale, dark-gray, minor amount of dull dark brownish red. A few fragments of sandstone, fine-grained, micaceous, brownish-gray; a few fragments of fossiliferous limestone.
11,060-11,090	Same as preceding.
11,090-11,100	Shale, gray and light greenish-gray. Cavings of various materials from higher levels.
11,100-11,160	Same as preceding.
11,160-11,180	Shale, gray; very minor amount of light greenish gray and of red. Some sandstone, extremely fine grained, light-gray, micaceous.
11,180-11,200	Same as preceding.
11,200-11,220	Shale, gray, and some light greenish gray; and sandstone, light-gray, fine- to medium-grained, fairly common. Color of sandstone due to small amount of black material in matrix.
11,220-11,240	Same as preceding. Trace of limestone.
11,240-11,280	Shale, 50 percent gray; and sandstone 50 percent, white, fine- to medium-grained.
11,280-11,300	Shale, gray and greenish-gray, also fairly common fragments of a very light greenish gray bentonitic(?) shale.
11,300-11,310	Shale as in preceding sample and 50 percent sandstone, white to tan, very fine grained, weakly micaceous.

Core 19: 11,312-11,347 feet

Depth (feet)	Lithologic description
11,312-11,347	Sandstone, hard, dense, medium-grained, slightly argillaceous. Fragments of a black material, possibly bituminous, scattered between sand grains. Shale, light-gray, silty, contains many small fragments of carbonaceous material.

Core 20: 11,347-11,360 feet (9 1/2 feet recovered)

11,347-11,360	1st foot: Limestone, hard, light grayish-tan, irregularly silty. Contains molds of small bivalves, many scattered small pyritic areas, and some carbonaceous material. 4th foot; Shale, gray, silty. 9th foot: Shale, gray, micaceous, silty.

Samples:

11,360-11,380	Shale, as above; some fragments of limestone and cavings from slightly higher levels.
11,380-11,390	Similar to the preceding; also many fragments of dull dark-red shale. (Approximate top of Paluxy Formation.)

Cores and samples of the section of the Humble Oil and Refining Company's No. B-1 L. N. Dantzler Lumber Company well. Type section of Dantzler Formation from 8,905 to 9,910 feet (Nunnally and Fowler, 1954). Sec. 20, T. 5 S., R. 8 W., Jackson County, Miss. Derrick floor, 108 feet. Datum is 1 foot above rotary and estimated 110 feet above sea level

[Description by Esther R. Applin, U.S. Geological Survey; identification of fossils from cores by F. W. Rolshausen, Humble Oil and Refining Company, and released with the company's permission]

Depth (feet)	Lithologic description
6,329-6,361 In Eagle Ford equivalent	Limestone, white chalky; a small amount of dark brownish-gray soft flaky shale. Some forams from the chalky shale probably represent material being drilled. (Samples "fuzzy," poorly washed.)
6,361-6,391	Like the preceding; more shale.
6,391-6,422	Materials as above; shale about 50 percent, chalk about 50 percent.
6,422-6,452	No change.
6,452-6,542	No change.
6,542-6,571	Shale and chalk; and microfauna representing shallower depths in the hole. Some bright-green glauconitic nodules (possibly caving).
6,571-6,602	Chalk about 50 percent, and soft dark brownish-gray flaky shale 50 percent; forams from higher in cretaceous section.
6,602-6,692	No change.
6,692-6,722	Shale and chalk like the interval 6,571-6,602; forams from various depths in Cretaceous section and some nodules of glauconite.
6,722-6,752	Materials as above, and a few fragments of brownish-red shale.
6,752-6,782	Shale and chalk, dark-gray; each about 50 percent; an occasional fragment of typical dark-gray "speckled" shale.
6,782-6,812	Shale and chalk, as above; a few fragments of finely black-streaked chalk and chalky marl.
6,812-6,842	Shale, dark-gray, about 75 percent and 25 percent chalk; a few fragments of "speckled" shale.
6,842-6,872	Shale, dark-gray, 50 percent; white chalk fragments, 50 percent.
6,872-6,903	Like the preceding.
6,903-6,934	No sample.
6,934-6,964	Shale, dark, 50 percent; chalk, 50 percent; some fragments of "speckled" shale.

Depth (feet)	Lithologic description
6,964-6,994	Like the preceding.
6,994-7,024	Like the above; fragments of "speckled" shale more common.
7,024-7,054	Shale and chalk, dark-gray. Many dark shale fragments represent the typical "speckled" shale.
7,054-7,085	No change.
7,085-7,115	Shale and chalk, dark brownish-gray "speckled" (frequently finely dark streaked).
7,115-7,145	Like the preceding.
7,145-7,175	No change.
7,175-7,206	Like the preceding.
7,206-7,238 M. zone lower part of Atkinson equivalent	Shale, dark-gray; a few fragments of "speckled" shale; about 25 percent chalk. A few of the shale fragments show small fragments of a thin-shelled bivalve. Some fragments of a brown flaky shale which may be caving, since Midway forams (Paleocene) are present in sample.
7,238-7,268	Shale, dark-gray, flaky, finely micaceous; some chalk; some "speckled" shale. A few fragments of thin-shelled bivalves in the shale; and a few specimens of Globigerina apparently washed from the dark-gray shale.
7,268-7,298	Shale, dark-gray, flaky, irregularly finely micaceous, contains a few fragments of thin-shelled fossil bivalves. A small amount of chalk (still caving) and a few fragments of "speckled" shale (probably caving).
7,298-7,325	No change.
7,325-7,355	Shale, dark-gray, flaky, finely micaceous; some fragments of an extremely fine grained micaceous and calcareous sandstone which contains fragments of a heavy-shelled bivalve. This sandstone is slightly glauconitic and sideritic(?). Two specimens of Robulus sp. present in sample and apparently washing from the sandstone or shale at this depth; also a few fragments of flaky brown shale.
7,355-7,385	Like the preceding.
7,385-7,414	Shale, dark-gray, soft, very finely flaky micaceous; a few fragments of the fossiliferous sandstone as above. A few fragments of the shale show impressions of macrofossiliferous fragments.
7,414-7,444	Shale, dark-gray, soft, very finely flaky micaceous. A few fragments of the fossiliferous sandstone as above and many fragments of a thinly flaky micaceous dark olive-brown shale.

Depth (feet)	Lithologic description
7,444-7,475	Similar to preceding, but little brown shale.
7,475-7,504	Like the preceding.
7,504-7,534	No change.
7,534-7,564	Shale as above; also numerous fragments of a very fine grained light-gray micaceous sandstone; a few fragments of heavy-shelled bivalves.
7,564-7,594	Like the preceding; less sandstone.
7,594-7,624	Shale, dark-gray, thinly flaky micaceous; a few fragments of sandstone; a few cavings of chalk.
7,624-7,654	Like the preceding; a few fragments of fossil bivalves.
7,654-7,685	Shale as above; a little very fine grained light-gray soft sandstone.
7,685-7,715	No change.
7,715-7,745	Shale, thinly flaky, dark-gray, micaceous; a little olive-brown flaky micaceous shale. Scattered dull dark-red fragments of hard clay nodule (these probably caving from lower Eocene).
7,745-7,778	Like the above; scattered fragments of shale, finely carbonaceous.
7,778-7,808	Like the preceding.
7,808-7,839	No change.
7,839-7,869	Shale, dark-gray, thinly flaky, soft, micaceous; a few shell fragments.
7,869-7,900	Shale as above and some fragments of an extremely fine grained micaceous light-gray sandstone.
7,900-7,930	Shale as above and a little sandstone.
7,930-8,019	No change.
8,019-8,048	Shale as above; a few fragments of a calcareous extremely fine grained gray micaceous sandstone.
8,048-8,078	Like the preceding.
8,078-8,108	Shale as above; a few fragments of finely carbonaceous shale.
8,108-8,168	No change.
8,168-8,198	Shale as above; also some fragments of a very fine grained glauconitic and micaceous light-gray sandstone.
8,198-8,229	Shale, dark-gray, soft, flaky; some very fine sand.
8,229-8,260	Shale, gray, flaky as above, and about 5 percent very fine quartz sand; a few fragments of light-gray, very fine grained, finely glauconitic sandstone.
8,260-8,292	Shale, flaky, dark-gray, micaceous. Some fragments show attached fragments of fossil bivalves, and a few have fragments of carbonaceous material. Some fragments of fine-grained and finely glauconitic, quartzitic, slightly micaceous sandstone.

Depth (feet)	Lithologic description
8,292-8,322	Like the preceding.
8,322-8,358	Shale as above and a few fragments of light greenish-gray micaceous siltstone.
8,358-8,382	Shale, dark-gray flaky micaceous; a few fragments of siltstone and of fine-grained glauconitic sandstone.
8,382-8,412	Like the preceding. Scattered fragments of shale have attached fragments of fossil bivalves.
8,412-8,442	Like the preceding. Fragments of fine glauconitic sandstone much more common.
8,442-8,472	Like the preceding.
8,472-8,502	As above; some fragments of a "speckled" shale which apparently are indigenous to this part of the section.
8,502-8,563	Like the preceding.
8,563-8,593 Sand facies, lower part of Atkinson equivalent	Shale as above; a few fragments of fine glauconitic sandstone and siltstone; and some fragments of a moderately fine nonglauconitic quartzitic sandstone with little cementing matrix.
8,593-8,623	Shale and a few fragments of sandstone as in preceding sample.
8,623-8,653	Like the preceding; a few fragments of dull-red shale.
8,653-8,683	Description missing.
8,683-8,714	Shale, dark-gray, and some fragments of micaceous siltstone and moderately fine grained sandstone. A few fragments of the sandstone show attached fragments of a thick-shelled bivalve.
8,714-8,744	Shale, dark-gray flaky, and an occasional fragment of medium-grained sandstone.
8,744-8,835	No change.
8,835-8,865	Shale as above; also some fragments of a moderately coarse grained white quartzitic sandstone, somewhat sideritic.
8,865-8,895	Shale, dark-gray, and dark-gray "speckled" shale (apparently indigenous) and a few fragments of a "speckled" extremely fine grained sandstone with some shell fragments. A few fragments of the sandstone with grains medium to coarse. A few fragments of dark purplish-red flaky shale.
8,895-8,926 Top of D. zone, Comanche Series	Dark-gray shale as above; a few fragments of the medium- to coarse-grained sandstone; and many fragments of dark purplish-red flaky shale.
8,926-8,956	Shale, dark-gray, and some sandstone as above; and about 25 percent fragments of a red and gray and yellow mottled clay shale.

Depth (feet)	Lithologic description
8,956-8,987	Shale, dark-gray, and some sandstone as above; also many fragments of purplish-red shale and purplish-red, white, and ochre mottled clay shale with small limonitic areas.
8,987-9,017	Shale, dull dark-red, somewhat gray and yellow mottled, about 50 percent; dark-gray shale (probably cavings) and a trace of sandstone, 50 percent.
9,017-9,047	Shale, dull dark-red somewhat micaceous, at least 50 percent. Shale has a conchoidal fracture and is occasionally mottled with gray and with ochre. Some fragments silty.
9,047-9,077	No change.
9,077-9,107	Shale as above, dull dark-red, locally silty and locally mottled (gray and ochre), weakly and very finely micaceous, about 75 percent.
9,107-9,139	Like the preceding.
9,139-9,167	Same as above, with some fragments of a dark-gray, light greenish-gray "splintery" shale which may be caving. A few fragments of sandstone at just above the top of the D. zone of the Comanche Series.
9,167-9,198	Like the preceding.
9,198-9,228	Shale, dull dark-red, about 75 percent (like that above); 25 percent gray shale and fragments of a medium-grained white sandstone, slightly chloritic and weakly micaceous. The sandstone contains some feldspar and is better cemented than medium-grained sandstone seen from just above the top of the Comanche.
9,228-9,259	Shale, red, and many fragments of sandstone as in preceding.
9,259-9,287	Like the preceding.
9,287-9,318	Shale, about half red and half dark-gray. A little sandstone and siltstone. Red shale is, in places, gray and ochre mottled.
9,318-9,348	Shale, red and dark-gray as above; also fragments of a very fine grained red sandstone.
9,348-9,378	Shale, about 75 percent gray and about 25 percent red.
9,378-9,384	No samples.
9,384-9,414	Shale, dull dark-red; dark-gray flaky shale; and very fine grained micaceous white and light greenish-gray sandstone, each about 33 1/3 percent.
9,414-9,444	Shale, red, and flaky dark-gray shale as above, about 50 percent, and fragments of several types of sandstone, about 50 percent.

Depth (feet)	Lithologic description
9,444- 9,475	Like the preceding.
9,475- 9,505	Shale, dark dull-red, about 75 percent; gray about 25 percent; a few fragments of sandstone.
9,505- 9,535	Like the preceding.
9,535- 9,565	Shale, dull dark-red, 50 percent, flaky or splintery dark-gray, 50 percent.
9,565- 9,596	Like the preceding.
9,596- 9,626	Like the preceding; a little gray- and ochre-mottled shale.
9,626- 9,656	Shale, about 75 percent red (a few mottled fragments), 25 percent dark-gray; some fragments of sandstone.
9,656- 9,686	Like the preceding.
9,686- 9,690	Description missing.
9,690- 9,720	Shale, about 50 percent gray and 50 percent red and some mottled.
9,720- 9,750	Description missing.
9,750- 9,780	Like interval 9,690-9,720.
9,780-9,810	Description missing.
9,810- 9,840	Shale, red, and many ochre-mottled shale fragments, about 75 percent; about 25 percent gray shale and many fragments of several types of sandstone.
9,840- 9,868	Shale, about 50 percent red and red-gray-ochre-gray mottled; and 50 percent dark-gray. A few fragments of sandstone.
9,868- 9,888	Description missing.
9,888- 9,898	Like interval 9,840-9,868.
9,898- 9,928	No change.
9,928- 9,959	Shale, gray, and red and mottled as above; also some fragments of a light buff-gray slightly silty limestone.
Top Comanche Series	
9,959-10,006	No samples.
10,006-10,036	Shale and some fragments of the limestone like interval 9,928-9,959. A somewhat chalky limestone fragment possibly represents the so-called micro-oolitic limestone supposed to characterize the base of the Dantzler Formation (Gulf Oil Co.).
10,036-10,052	Shale, red and mottled, and gray as above; many fragments of light-gray and white limestone which is irregularly chalky in texture and shows traces of a microfossil content. There are some very small forams--miliolid-like and others--in this limestone. The limestone is irregularly finely gray spotted (organic material) and irregularly weakly and very finely sandy. A few fragments of unctuous, possibly indigenous, dark olive-green shale.
10,052-10,083	Shale, red and gray as above; a few fragments of limestone as above.
10,083-10,114	No samples.

Depth (feet)	Lithologic description
10,114-10,145	Shale like the interval 10,036-10,083 and many fragments of the limestone. The limestone varies from hard light olive tan to cream colored and chalky. These variations apparently very abrupt and irregular. Limestone is also finely gray spotted; the small gray areas apparently represent fragments of pyritized fossiliferous material. Some sections of small ostracodes recognized. A few fragments of glauconitic limestone.
10,145-10,176	Fragments of dark-gray and of red shale as above and many fragments of limestone as above. Some sections of forams (miliolids) and some fragments of fossil bivalves noted in some of limestone fragments.
10,176-10,206	Like the preceding and a few fragments of gypsum or anhydrite.
10,206-10,236	Fragments of the gray and tan, gray-spotted limestone, about 50 percent; red shale, gray shale and several types of siltstone and sandstone, 50 percent; a few fragments of green shale (most of this material probably caving).
10,236-10,266	Like the preceding.
10,266-10,296	No change. Limestone fragments are variable, cream to light grayish tan, chalky to cryptocrystalline in texture, and contain a large amount of comminuted and mainly unidentifiable fossiliferous debris. Some sections of ostracodes and fragments of fossil bivalves recognized. The more chalky fragments are highly gray spotted. These spots are very irregular in shape and apparently represent fossiliferous fragments. There is a little glauconite in some of the limestone fragments.
10,296-10,326	Similar to preceding, but glauconite fairly common in limestone fragments.
10,326-10,357	Shale, dark-gray flaky, some dull dark-red; about 50 percent limestone fragments like those above.
10,357-10,387	Like the preceding. A few fragments of a calcareous fine-grained black-spotted sandstone also present.
10,387-10,434	No samples.
10,434-10,456	Shale, dark-gray flaky, a little red; a little limestone.
10,456-10,486	Shale, dark-gray; many fragments of limestone like that above; and many fragments of a white fine-grained sandstone. Some red.
10,486-10,516	Like the preceding.
10,516-10,546	Description missing.

Depth (feet)	Lithologic description
10,546-10,576	Shale, dark-gray; also many fragments of dull dark-red shale; some fragments of limestone as in preceding samples.
10,576-10,606	Shale, dark-gray, some red; a few fragments of limestone.
10,606-10,637	Like the preceding.
10,637-10,667	Similar to preceding. Some limestone fragments.
10,667-10,697	Shale, dark-gray and some dull reddish-brown. A few limestone fragments.
10,697-10,726	Like the preceding.
10,726-10,756	Shale, dark-gray flaky; about one-third dull dark-red; and a few fragments of limestone.
10,756-10,775	Shale, dark-gray flaky, about one-fourth dull dark-red and a few fragments of limestone.
10,775-10,805	Shale, dark-gray flaky, some dull dark-red; a few fragments of limestone.
10,805-10,836	Shale, dark gray, about one-third dull dark-red; and many fragments of a fine-grained calcareous white sandstone with many dark-gray fragments of some fossiliferous material, ostracode carapaces, and some oolites. This sandstone also contains some mica and a trace of glauconite. A few fragments of limestone as above.
10,836-10,866	Shale, gray, about one-fourth dull dark-red; a few fragments of the limestone described from higher depths in rocks of Washita and Fredericksburg age of the Comanche Series and a few fragments of the highly calcareous sandstone as in preceding sample.
10,866-10,896	Similar to the preceding; more red shale; some sandstone and limestone fragments.
10,896-10,926	Shale, dark-gray flaky, about one-third dark dull-red; a few fragments of the limestone.
10,926-10,958	Shale, dark-gray and dark dull-red as above. A few fragments of limestone.
10,958-10,984	Shale, dull dark-red at least 50 percent; dark-gray shale; and a few fragments of limestone.
10,984-11,013	Like the preceding.
11,013-11,056	Shale as above; a few fragments of light buff-gray limestone; and of other types of limestone as above.
11,056-11,086	Shale, dull dark-red, some gray; a little limestone.
Approx. top P. zone, Comanche Series 11,086-11,116	No samples.

Depth (feet)	Lithologic description
11,116-11,147	Shale, red, a little dark-gray; a few fragments of limestone (probably caving).
11,147-11,177	Like the preceding. More fragments of the limestone.
11,177-11,208	Shale, dark-gray, about 50 percent dark dull-red; fragments of fossiliferous limestone similar to those described from higher in the Comanche Series.
11,208-11,239	Like the preceding; less limestone.
11,239-11,269	Shale, dull dark-red, about 50 percent dark-gray; a few fragments of limestone.
11,269-11,299	Shale, dull dark-red, a few fragments micaceous finely sandy and somewhat greenish gray mottled, some gray; a few fragments of sandstone.
11,299-11,329	Like the preceding; a few fragments of red (probably nodular) limestone.

Fossil record from cores in the Humble Oil and Refining Co. No. B-1

Dantzler, Jackson County, Miss.

[Data from descriptive log made by F. W. Rolshausen, provided through the courtesy of the Humble Oil and Refining Co. Geological Dept. at Jackson, Miss.]

Depth (feet)	Lithologic description
9,384-9,394	Core contains oyster shells.
9,691-9,701	Core contains oyster shells and ostracodes.
9,701-9,711	Core contains oyster shells and ostracodes.
9,750-9,760	Top of core contains *Chara*, and specimens of two species of rotalid Foraminifera. Presence of the latter may be the result of contamination. Bottom of core contains oyster shells.
9,779-9,789	One specimen of *Haplophragmoides* recorded from the core.
9,819-9,929	Ostracodes recorded from the bottom of the core.

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