September 6, 1943

Memorandum to Mr. V. T. Stringfield, Ground Water Division.

Through Doctor Reeside and the Chief Geologist

Regarding larger Foraminifera in the Adams-McCaskell (Donald Clark) No. 1 well, Pan-American Producing Company, near Offerman, Pierce County, Ga.

I have examined the samples of the larger foraminifers after they were picked out and will give you the determinations on them without having seen the other paleontologic material. The samples that I have studied do not represent an unbroken succession but are scattered at separate levels through an interval of 639 to 2,561 feet.

Depth 639-70 (2 samples) and 701-887 (6 samples) - The faunas in these two related series of samples consist of group (1) Dictyoconus cookei (Moberg), Coskinolina floridana Cole, Coskinolina sp., Polylepidina proteiformis Vaguaha, and Proporocyclina perpusilla? (Vaughan); and group (2) Operculinoides willcoxi (Heilprin), O. floridana (Heilprin), O. vaughani Cushman, Heterostegina ocalana Cushman, Lepidocyclina (Leidocyclina) ocalana Cushman, Heterostegina ocaland Proporocyclina citrinsis (Vaughan). The fauna of group 1 is middle Eocene, but the fauna of group 2 is upper Eocend. Without a more complete sequence of samples I cannot decide whether these beds are (1) middle Eocene with Ocala cavings or (2) are Ocala (most likely lower Ocala) with redeposited middle Eocene fossils. Redisposition or eroded middle Eocene fossils in Oligocene and in Basas Ocala beds is known from several localities and wells in Florida and Georgia. With the other stratigraphic data available, you may have a basis for deciding this issue.

The age significance of the fossils below this level is less definite, as the following notes will indicate.

Three samples from depth 1,252 to 1,346 feet. These samples contain Proporocyclina citrensis Vaughan (probably caved from above), Polylepidina? and P. gardnerae? Cole, possibly middle Eocene age.

One sample from depth 1,439-1,470 feet. This marks the first appearance in these samples of a very small Asterocyclina, probably A. moticellensis Cole and Ponton. The age significance of this species is not certain, as it was originally described from undifferentiated Eocene. This form occurs also at 1,748 to 1,779 feet, 1,810 to 1,841 feet, 1,872 to 1,904 feet, and 2,028 to 2,061 feet. Another unfamiliar form, a species of Polylepidina was found at 1,439 to 1,470 feet. Though it is probably middle Eocene age, its age significance is not certain.

Dictyoconus again occurs at 2,061 ~~feet~~ to 2,092 feet, and 2,249 to 2,280 feet in association with Ocala fossils. I presume that these are cavings because fragments, etc., of the typical Ocala species that were found in the samples from 639 to 887 feet also appear at various lower levels.

By Lloyd G. Henbest

Pan American Producing Co. Adams McCaskill (Donald Clark) No. 1
Pierce County, Georgia (90 miles southwest of Savannah)

Lot No.	Depth	
2008	111-142	Chiefly light gray fine quartz sand; some round lime pellets. No fossils seen except fragments of fine teeth.
9	142-174	Like 2008. No fossils seen.
10	174-205	Coquina of pelecypod fragments and clear white quartz; barnacle fragments also. A few whole shells.
11	205-236	Medium to coarse sand like 2008, with a few fragments of mollusk and barnacle shell.
12	236-267	Like 2011. A few small whole shells.
13	267-298	Like 2011, with perhaps a greater proportion of barnacle fragments.
14	298-329	Well-rounded quartz grit, average diameter 1-1/2 mm, some pieces up to 6 mm diameter. Fragments of barnacles and mollusks; one fish tooth.
15	329-360	Like 2014. Some fossils.
16	360-391	Like 2014, with some fragments of light-greenish shale. Some fossils sand and a few larger sand grains. No macrofossils seen.
17	391-422	Sample largely dove-gray shale, with some admixture of fine quartz sand and a few larger sand grains. No macrofossils seen.
18	422-453	Like 2017, with large proportion of coarser grains; many black phosphatic (?) grains. One fish tooth.
19	453-484	Like 2017, with still more coarse material and black grains. No macrofossils seen.
20	484-515	Like 2019. No fossils seen.
21	515-546	Sample is light brown sandy limestone (dolomite) and loose white quartz sand. No fossils seen.
22	546-577	Like 2021, with more sand. No fossils seen.
23	577-608	Like 2022, with much black phosphatic material, and some calcareous sandstone. No fossils seen.
24	608-639	Like 2022. No fossils seen.
25	639-670	Creamy-white granular limestone and quartz sand. Bryozoan and echinoid fragments. Dictyocomus, small ~~foraminifers~~ forminifers.
26	670-701	Like 2025. Fragments of mollusks, echinoids, bryozoans. Dictyocomus, small foraminifers.
27	701-732	Like 2025. Fragments of mollusks, echinoids, bryozoans; shark teeth. Dictyocomus, orbitoids, small foraminifers.
28	732-763	Like 2025. Fragments of mollusks, echinoids, bryozoans, Orbitoids, small foraminifers.
29	763-794	Creamy-white granular limestone. Fragments of mollusks, bryozoans, echinoids. Orbitoids.
30	794-825	Like 2029. Fragments of mollusks, bryozoans, crinoids. Orbitoids, small forminifers.
31	825-856	Like 2029. Fragments of mollusks, bryozoans, crinoids. Orbitoids, small foraminifers.
32	856-887	Like 2029. Fragments of mollusks, bryozoans, crinoids, Orbitoids.
33	887-907	Like tan sugary crystalline porous limestone. No fossils seen.
34	907-928	Like 2033. No fossils seen, except those definitely from above.
35	928-959	Like 2033. No fossils seen except those definitely from above.
36	959-981	Like 2033. No fossils seen, except those definitely from above.
37	981-1012	Like 2033 but darker. No fossils seen, except those definitely from above.

Lab No.	Depth	
2038	1012-1034	Sample largely medium to coarse colorless quartz sand. The few fossils seem all from above.
39	1034-1054	Sample half quartz sand, half brownish limestone like 2033. The few fossils seem all from above.
40	1072-1103	Like 2039. The few fossils seem all from above.
41	1103-1134	Like 2037. A few fragments of mollusks.
42	1103-1134	Like 2037. No fossils seen.
43	1134-1157	Like 2039. No fossils seen.
44	1157-1189	Like 2039. No fossils seen except those from above.
45	1189-1221	Like 2037. No fossils seen except those from above.
46	1221-1252	Like 2037. No fossils seen except those from above.
47	1252-1284	Light reddish-brown granular limestone. Fragments of bryozoans. Orbitoids.
48	1284-1315	Light reddish-brown granular limestone. Fragments of bryozoans. Orbitoids.
49	1315-1346	Light reddish-brown granular limestone. Fragments of bryozoans. Orbitoids. Small foraminifers.
50	1346-1377	Light reddish-brown granular limestone. One echinoid.
51	1377-1408	Creamy-white granular limestone. Fragments of bryozoans.
52	1408-1439	Like 2051. No fossils seen.
53	1439-1470	Like 2047. Orbitoids, small foraminifers (?).
54	1470-1501	Like 2047. Orbitoids, small foraminifer (?).
55	1501-1532	Light brown sugary, crystalline limestone. No fossils seen.
56	1532-1563	Like 2055. A few fragments of bryozoans.
57	1563-1594	Like 2055. No fossils seen.
58	1594-1625	Like 2055. A few fragments of bryozoans. Orbitoids. Fish tooth.
59	1625-1656	Half brownish crystalline limestone and half very light granular limestone. Fragments of bryozoans. Orbitoids.
60	1656-1687	Like 2059. Fragments of bryozoans.
61	1687-1717	Like 2059. A few fragments of mollusks and bryozoans. Small foraminifers(?).
62	1717-1748	Like 2059. One orbitoid.
63	1748-1779	Like 2059. Orbitoids. Small forminifers (?).
64	1779-1810	Like 2059. A few orbitoids. Small foraminifers.
65	1810-1841	Like 2059. Orbitoids. Small foraminifers.
66	1841-1872	Like 2059. A few fragments of bryozoans; one brachiopod. Orbitoids.
67	1872-1904	Like 2059. A few fragments of bryozoans; orbitoids.
68	1904-1935	Like 2059. A few fragments of bryozoans. Orbitoids, small foraminifers(?).
69	1935-1966	Like 2059 but with considerable glauconite and quartz sand. Fragments of barnacle plates and bryozoans. Orbitoids. Small foraminifers.
70	1966-1997	Like 2069. Very few fossils shown.
71	1997-2028	Like 2069. Very few fossils seen.
72	2028-2061	Like 2072. Fragments of mollusks, echinoids. Orbitoids, Dictyoconus, forminifers.
73	2061-2092	Like 2072. Fragments of mollusks, crinoids. Orbitoids, Dictyoconus, foraminifers.
74	2092-2123	Like 2072. Fragments of mollusks, echinoids. Orbitoids. Small foraminifers.
75	2123-2156	Like 2072. Fragments of mollusks. Small foraminifers.
76	2156-2187	Light-colored dense limestone, very little glauconite. Fragments of echinoids, mollusks. Small foraminifers.
77	2187-2218	Light-colored glauconite limestone. Fragments of mollusks, echinoids. Orbitoid, small foraminifers.
78	2218-2249	Like 2076. Very few fossils seen.

Lot No.	Depth	
2079	2249-2280	Like 2077. Obritoids.
80	2280-2319	Like 2077. Fragments of bryozoans. Orbitoids, Dictyoconus, small foraminifers (?).
81	2319-2342	Like 2077, with one lump of medium greenish grayshale. Fragments of mollusks. Orbitoids.
82	2342-2374	Like 2077. Orbitoids.
83	2374-2393	Light-gray, medium grained clear quartz sand, with a few black phosphatic grains. Fragments of a bryozoan only fossils seen.
84	2384-2393	Like 2083, but fine-grained. No fossils seen.
85	2374-2406	Light gray sandy limestone, with various other cubbing fragments. Only fossils appear to be from above.
86	2406-2437	Like 2085. Only fossils appear to be from above.
87	2437-2468	Like 2085, with some chunks of medium gray fine silt. No fossils noted.
88	2468-2499	Medium gray fine silt, with minor sandy limestone. No fossils seen.
89	2499-2530	Like 2088. No fossils seen.
90	2530-2561	Like 2088. Orbitoids.
91	2561-2592	Like 2088. Few fossils seen.
92	2592-2623	Like 2088. Few fossils seen.
93	2623-2654	Like 2088. Few fossils seen.
94	2654-2685	Like 2088. Few fossils seen.
95	2685-2716	Like 2088. Few fossils seen.
96	2716-2747	Like 2088. Few fossils seen.
97	2747-2778	Like 2088. Few fossils seen.
98	2778-2809	Like 2088. Small foraminifers.
99	2809-2840	Like 2088. No fossils seen.
2100	2840-2868	Like 2088. Small foraminifer.
1	2868-2898	Medium gray silt, with admixture of limestone. Few fossils seen.
2	2898-2929	Like 2101, with more contamination. Fossils seen all from above.
3	2929-2960	Like 2102. Fossils seem all from above.
4	2960-2991	Like 2102. Fossils seem all from above.
5	2991-3022	Like 2102. Fossils seem all from above.
6	3022-3056	Like 2102. Fossils seem all from above.
7	3056-3087	Like 2102. Fossils seem all from above.
8	3087-3118	Like 2102. Small foraminifers.
9	3118-3140	Like 2102. Small foraminifers.
10	3140-3178	Like 2102. Fossils seem all from above.
11	3166-3197	Like 2102. Fossils seem all from above.
12	3197-3228	Like 2102. Fossils seem all from above.
13	3228-3259	Like 2102. Fossils seem all from above.
14	3259-3290	Like 2102. Fossils seem all from above.
15	3290-3322	Like 2102. Fossils seem all from above.
16	3314-3328	Sample is clean hard medium gray silt. Small foraminifers.
17	3328-3353	Like 2102. Fossils seem all from above.
18	3353-3384	Like 2102. Small foraminifers.
19	3384-3414	Like 2102. No fossils seen.
20	3414-3444	Like 2102. Small foraminifers.
21	3444-3474	Like 2102. Small foraminifers.
22	3474-3505	Like 2102. Small foraminifers.
23	3495-3507	Sample is nearly clean medium gray silt. Small foraminifers.
24	3495-3507	Sample is nearly clean medium gray silt. Small foraminifers.
25	3505-3536	Like 2102. Small foraminifers.
26	3536-3567	Like 2102. Small foraminifers.

Lot No.	Depth	
2127	3567-3598	Like 2102. Small foraminifers.
28	3598-3629	Like 2102. Small foraminifers.
29	3629-3690	Medium gray somewhat flaky shale with tinge of brown. Small foraminifers.
30	3659-3690	Like 2029. Small foraminifers.
31	3690-3720	Like 2029. Small foraminifers.
32	3720-3749	Like 2029. Small foraminifers.
33	3479-3779	Like 2029. Small foraminifers.
34	3779-3809	Like 2029. Small foraminifers.
35	3809-3839	Like 2029. Small foraminifers.
36	3839-3870	Like 2029. Small foraminifers.
37	3870-3901	Like 2029. Small foraminifers.
38	3901-3926	Like 2029. Fragments of mollusks, Inoceramus. Small foraminifers.
39	3926-3957	Like 2029. Fragments of mollusks, Inoceramus. Small foraminifers.
40	3957-3987	Like 2029. Fragments of mollusks, Ostrea. Small foraminifers.
41.	3987-4017	Like 2029. Small foraminifers.
42	4017-4048	Sample is medium clear quartz sand, with a small unit of silt; could all be from drilling mud.
43	4048-4078	Like 2042. Very few fossils seen.
44	4078-4109	Sample largely shale like 2029. Small foraminifers.
45	4078-4109	Sample largely shale like 2029. Small foraminifers.
46	4109-4140	Sample largely shale like 2029. Small foraminifers.
47	4140-4170	Sample largely shale like 2029. Small foraminifers.
48	4170-4201	Sample largely shale like 2029. Small foraminifers.
49	4201-4291	Like 2044. Small foraminifers.
50	4231-4261	Sample mostly from clear quartz sand, with some chips of shale.
51	4261-4291	Like 2044. Small foraminifers.
52	4291-4320	Like 2044. Small foraminifers.
53	4339-4348	Granitic debris, white. No fossils seen.
54	4348-4355	Weathered granite.

Report on Adams-McCaskill (Donald Clark) No. 1 Well, Pierce County, Georgia

By Joseph A. Cushman

Much of the material is very unsatisfactory as regards Foraminifera, and in many samples either none were found or the specimens were in such condition as to be specifically unidentifiable. On the other hand, certain samples do contain fairly good faunas and probably are indicative of age. From the appearance of the residues the drilling mud carries down the faunas that were encountered higher up in the well, and therefore the highest occurrence of a species is probably much more valuable than its later occurrences in deeper samples. For example, some of the larger Foraminifera found in the Jackson part of the section occur as worn or broken specimen with the undoubted Cretaceous in the lower part of the well. The casing records, if any, might help to eliminate much of this uncertainty.

Notes are given on the occurrences of some of the Foraminifera.

111-639 feet. Practically no Foraminifera.

639-763 feet. Some poorly preserved larger Foraminifera.

From 639 to 701 feet are specimens of Valvulammina resembling V. affinis Cushman and Bermudez described from the upper Eocene of Cuba. These, with the other larger Foraminifera, should definitely fix this as upper Eocene.

In the following samples to 1810 feet the same general types occur, showing little if any change and indicating that they may have come originally from higher levels.

In samples 1810-1841 some change is evident and a few poorly preserved smaller Foraminifera appear and occur below. In sample 2061-2092 a number of smaller Foraminifera appear, among them Globoretalia wilcoxensis Cushman and Ponton, Anomalina umbonifera (Schwager), Uvigerina alabamensis Cushman and Garrett, and Angulogerina cr. wilcoxensis (Cushman and Ponton). This should give good evidence of the Wilcox Eocene age of this part of the section. Similar forms occur in sample 2092-2133.

To 2374 feet only larger tests, worn and broken, appear.

In sample 2374-2393 numerous very small Foraminifera appear, evidently of Midway Eocene age. These include Gumbelina midwayensis Cushman, Eouvigerina excavata Cushman, Bolivina midwayensis Cushman, and Globigerina triloculinoides Plummer.

Nothing further, except worn and broken forms evidently of upper Eocene source, was found until sample 2991-3022 feet, which contained two specimens of a poorly preserved Globotruncana, indicating Upper Cretaceous. In sample 3118-3140 is a specimen of Dorothia bulletta (Carsey), a species mostly of the Navarro but also occurring in the Taylor.

In sample 3314-3328 is a fair Cretaceous fauna containing Gumbelina plummerae Loetterle (Navarro to Austin), Ventilabrella eggeri Cushman (Taylor), and Globorotalia micheliniana (D'Orbigny) (Taylor and Austin). These would seem to indicate a Taylor age for this level.

In sample 3358-3384 is Clavulinoides aspera (Cushman) (Navarro to Austin).

In sample 3414-3444 are Globotrucana fornicata (Plummer) (Mostly Taylor), Stensioina americana (Cushman) (lower part of the Navarro and mostly Taylor), and Plamulina taylorensis (Carsey) (lower part of the Navarro but mostly Taylor).

In sample 3444-3474 is Globotrucana canaliculata (Reuss) (Navarro to Austin).

Sample 3495-3507 has a rich gauna, including, among others, the following species: Kyphopyxa christneri (Carsey) (Taylor and Austin), Pseudoguembryinella capitosa (Cushman), var. serrulata (Cushman) (Taylor and Austin), Marginulina stephensoni Cushman (Navarro, rare, Taylor, and Austin), Dentalina alternata (Jones) (lower Navarro, Taylor and Austin), Frondicularia linearis Franke (Taylor and Austin), Paluma saturalis (Cushman) Lower Navarro, Taylor, and Austin), Bolivinopsis regula (Ehrenberg) (Navarro to Austin), Bouvigerina americana Cushman (rare in lower Navarro, common in Taylor), Loxostoma clavatum (Cushman) (mostly in lower Taylor), Cyroidina globosa, Hagenow) (lower Navarro, Taylor, and Austin), and Ellipsonodosaria stephensoni Cushman (Navarro and Taylor). From the known ranges it would seem that this level is the equivalent of the Taylor of Texas.

Sample 3690-3720. Gumbelina planata Cushman (Upper Taylor only).

Sample 4231-4261. Gumbelina cf. semicostata Cushman (basal Navarro and mostly Taylor).

After sample 3495-3507 there seem to be almost no change in the Foraminifera, and lll might have come from that sample. There is no definite indication of any Cretaceous definitely older than Taylor so far as the Foraminifera show. In fact, with the very rich material of sample 3495-3507 the remainder could all be accounted for by contamination from that level so far as any new species occurring may show.