

OWNER : Humble Oil & Refining Company
 FARM NAME : W. Claud Linder et ux No. 1 (Permit No. 94)
 LOCATION : Center of NW¹/₄, NE¹/₄, Sec. 8, T5N, R11W, 4 miles north of Cottondale
 COUNTY : Jackson
 ELEVATION : 128' DF
 DRILLER : Sunnyland Contracting Company
 STARTED : November 4, 1948
 COMPLETED : March 14, 1949
 DEPTH : 9243' - in shale
 CASING : 26" at 45' with 70 sx; 13 3/8" at 875' with 400 sx
 USE : Test for oil - dry and abandoned
 REMARKS : Dixie Geol. Ser. made DST at 2970' for SW. Schl. to 4430'. 452 cuttings from 45 to 9243', received from Humble Oil & Refining Company, Tallahassee, April 16, 1949. Cores from No. 1 at 1880-1890 to No. 143 at 9242-9243, received from Humble Oil & Refining Company, Tallahassee, April 23, 1949. Schlumberger from 57 to 9245'. Driller's log from 14 to 9243'.

14	Sand and gravel	2911	Shale & sand
45	Clay	2946	Green & gray shale & sand
55	Surface soil & gravel	2966	Shale & sand
480	Dolomite	2976	Hard & soft sand
631	Blue shale & shell streaks	3090	Sand & shale
909	Dolomite, shale & shells	3133	Shale & hard streaks sand
1030	Sand & gray shale	3206	Shale
1180	Dark gray sand & shale	3300	Shale & sand streaks
1585	Sand & shale.	3475	Shale
1730	Sand & gray shale	3550	Shale & streaks sand
1795	Shale	3607	Green & gray shale & sand
1840	Sticky shale	3660	Sand
1880	Shale	3670	Sand & shale
2034	Gray & green shale	3699	Sand
2099	Shale & chalk	3960	Sand & shale
2302	Green shale	4155	Gray shale & hard sand streaks
2487	Green shale & white chalk	4295	Gray shale & sand
2566	Black shale	4316	Red & gray shale
2726	Shale & sand	4555	Sand & gray shale
2801	Green, gray and sandy shale	4883	Sand & shale
2833	Gray chalky shale	5008	Sand & gray shale
		5150	Sand & shale

5175	Shale & sand	7860	Gray shale & sand
5182	Sand	7873	Shale & sand
5320	Shale & hard streaks sand	7883	Sand
5595	Sand & shale	7915	Sand & shale
5686	Sand & red & gray shale	7948	Sandy shale
5706	Shale	8058	Sand & shale
5775	Shale & sand	8094	Shale & sand
5807	Shale, lime & sand	8116	Sand & shale
5878	Shale & sand	8134	Shale & sand
5893	Shale	8196	Sand & shale
6046	Red shale & sand	8279	Hard sand
6379	Sand & shale	8286	Sand & shale
6391	Shale	8310	Red shale & sand
6499	Sand & shale	8324	Hard sand
6566	Shale & sand	8336	Hard sand & shale.
6608	Sand & shale	8365	Sand
6681	Red & gray shale	8380	Sand & shale
6720	Shale & sand	8399	Sand
6893	Sand & shale	8416	Hard sand
6930	Shale & hard sand	8439	Hard sand and shale
6946	Hard sandy shale	8481	Hard sand
6951	Shale	8503	Sand & shale
6987	Shale & sand	8508	Shale & sand
7025	Sand & shale	8519	Sand & shale
7070	Shale & sand	8530	Shale
7136	Sand & shale	8539	Shale & sandstone
7146	Shale & hard sand	8562	Shale
7188	Sandy shale	8565	Red & gray shale
7248	Shale & sand	8577	Shale
7343	Sandy shale	8600	Red & gray shale
7419	Sand & shale	8605	Shale
7447	Shale & sand	8610	Pink & gray shale
7548	Sand & shale	8626	Gray & red shale
7585	Shale & sand	8644	Gray shale
7592	Sand	8664	Shale
7610	Shale & sand	8675	Red & gray shale
7675	Sand & shale	8686	Shale
7696	Shale & hard sand	8693	Gray shale
7745	Sand & shale	8708	Shale
7800	Shale & sand	8721	Hard shale
7815	Sand & hard shale	8759	Shale
7818	Sand & shale	8763	Gray shale & igneous rock
7822	Hard sand & shale	8795	Hard shale
7832	Sand & gray shale	8800	Red & brown shale
7843	Hard shale	8840	Shale
7848	Shale & sand	8864	Brown & gray shale
7850	Shale	8879	Blue shale

8885	Shale
8890	Hard shale
8891	Igneous rock
8896	Shale
8904	Hard shale
8911	Shale
8913	Igneous rock & shale
8916	Shale
8927	Igneous rock & shale
8940	Shale with hard streaks
8948	Hard shale
8954	Igneous rock & shale
8956	Shale
8965	Hard shale
8974	Shale
8983	Igneous rock
8996	Shale
8997	Red shale & igneous rock
9022	Shale
9032	Hard shale
9061	Shale
9072	Shale & streaks hard sand
9158	Shale
9175	Red & gray shale & streaks sandstone
9196	Shale
9204	Hard shale
9207	Shale & sandstone
9222	Shale & streaks hard sand
9232	Sandstone
9237	Red & gray shale
9243	Shale & sand

/s/ Frank Fee
Representative of Company

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OCALA

45 - 65 cuttings Cream-colored limestone resembling coquina. Echinoid fragments
Operculina, Lepidocyclina and other forams.
 65 - 85 cuttings Same.
 85 - 105 cuttings Same. Bryozoa
 105 - 125 cuttings Same, with yellowish, dense limestone.
 125 - 145 cuttings Same. Small brachiopods.
Asterocyclina sp.
Operculina mariannensis
 145 - 165 cuttings Same. Brachiopods as in preceding.
 An abundance of bryozoa.
 165-185, 185-205 cuttings Same.
 200 - 220 cuttings Gray-coarse grained glauconitic sandy lime with abundant
Camerinas.
 220 - 240 cuttings Same with more glauconitic sand.
Lepidocyclina gardnerae and other forams.

LISBON

240 - 280 cuttings Same with brown hard lime.
 280 - 300 cuttings Same with coarse-grained, glauconitic sand.

300 - 320 cuttings	Gray to cream-colored, sandy limestone, slightly glauconitic. <u>Lepidocyclina gardnerae</u> and other forams.
320 - 330 cuttings	Same. Echinoid fragments.
340 - 360 cuttings	Same with more echinoid fragments. Coarse sandy, glauconitic limestone.
360 - 380 cuttings	Gray, coarse, glauconitic, sandy lime. Abundant shell fragments
380 - 400 cuttings	Same, with very coarse glauconite.
400 - 420 cuttings	Very coarse, glauconite and sand and sandy limestone.
420 - 460 cuttings	Same.
460 - 480 cuttings	Same, with very hard, glauconitic, sandy limestone.
480 - 500 cuttings	Same with very hard, sandy lime.
500 - 540 cuttings	Same.
540 - 560 cuttings	Same, with gray, hard, sandy lime.
560 - 580 cuttings	Greenish, hard, siliceous claystone.

TALLAHATTA

580 - 600 cuttings	Same with coarse glauconitic sand and sandy lime.
600 - 620 cuttings	Same and sandy limestone.
620 - 640 cuttings	Same with very coarse-grained, sandy lime.
640 - 680 cuttings	Same.
680 - 700 cuttings	Very coarse sand and sandy, glauconitic, cream-colored limestone.
700 - 720 cuttings	Medium to coarse sand with glauconite and mica. Echinoid.
720 - 740 cuttings	Same with coarse mica and greenish clay.
740 - 780 cuttings	Same with gray, micaceous, shaly clay. <u>Asterigerina</u> sp. Ostracods
780 - 800 cuttings	Fine sand, slightly glauconitic; and gray, silty clay.
800 - 820 cuttings	Medium-grained, glauconitic sand and gray clay.
820 - 840 cuttings	Same and glauconitic sandstone and sandy, lime and fine-grained sand.
840 - 860 cuttings	Gray, glauconitic, sandy lime and coarse to fine, micaceous, glauconitic sand.
860 - 880 cuttings	Same. Phosphatic material noted.
880 - 900 cuttings	Medium to fine-grained, glauconitic sand and sandy lime and gray, micaceous, carbonaceous shale.

In WILCOX

900 - 920 cuttings	Same.
920 - 940 cuttings	Same with gray, hard, sandy, glauconitic lime.
940 - 960 cuttings	Gray, hard, sandy, glauconitic lime and brownish marl with carbonaceous material. Tubulostium in limestone, greenish soft shale and micaceous, carbonaceous shale.

WILCOX

960 - 980 cuttings	Gray and brown, hard, sandy marl; gray, micaceous, carbonaceous shale and glauconitic sand.
980 - 1000 cuttings	Same with abundant brown, micaceous, carbonaceous, shale.

1000 - 1020 cuttings	Same with gray, micaceous, carbonaceous shale.
1030 - 1070 cuttings	Same.
1070 - 1090 cuttings	Gray, micaceous, carbonaceous shale and sand.
1090 - 1110 cuttings	Same and gray, hard marl.
1110 - 1150 cuttings	Same.
1150 - 1170 cuttings	Gray, micaceous, carbonaceous shale.
1170 - 1190 cuttings	Same.
1190 - 1210 cuttings	Same with sand.
1210 - 1230 cuttings	Gray, micaceous, carbonaceous shale and hard marl. Carbonaceous material.
1230 - 1270 cuttings	Same.
1270 - 1310 cuttings	Same with more gray, hard marl.
1310 - 1350 cuttings	Gray, micaceous, carbonaceous shale and sand.
1350 - 1370 cuttings	Same with sand and glauconite.
1370 - 1390 cuttings	Same.
1390 - 1430 cuttings	Same with yellowish, sandy clay.
1430 - 1450 cuttings	Same with more sand and cream-colored, hard, glauconitic, very fossiliferous limestone.

SALT MOUNTAIN

1450 - 1490 cuttings	Cream-colored, glauconitic, very fossiliferous limestone. Bryozoa.
1490 - 1550 cuttings	Same.
1550 - 1570 cuttings	Cream-colored, hard, glauconitic lime with <u>Discocyclus</u> sp. Cream-colored, sandy lime.
1570 - 1630 cuttings	Light gray, hard, glauconitic lime and sandy lime with <u>Discocyclus</u> sp.
1630 - 1710 cuttings	Light gray, hard, slightly glauconitic limestone.
1710 - 1770 cuttings	Same with gray marl. Abundant forams.
1790 - 1810 cuttings	Medium gray soft marl. Midway forams.

In MIDWAY

1810 - 1870 cuttings	Same.
1880 - 1890 Core No. 1	Medium gray, dense marl, slightly fossiliferous. Midway forams.
1890 - 1900 Core No. 2	Gray, dense marl with mica. Midway forams.
1900 - 1905 Core No. 3	Dark gray, soft shale with carbonaceous material and mica.
1905 - 1915 Core No. 4	Gray marl with mica and carbonaceous material. A few forams.
1915 - 1925 Core No. 5	Gray marl. A few forams.
1925 - 1935 Core No. 6	Same as preceding.
1935 - 1945 Core No. 7	Gray, shaly marl.
1945 - 1955 Core No. 8	Gray shaly marl.
1955 - 1965 Core No. 9	Gray, shaly marl.
1965 - 1975 Core No. 10	Gray shaly marl.
1975 - 1985 Core No. 11	Same.
1985 - 1994 Core No. 12	Light gray marl, more fossiliferous than preceding. Abundant forams.

1994 - 2004 Core No. 13	Light gray, dense marl. <u>Vaginulina robusta</u> and other forams.
2004 - 2014 Core No. 14	Light gray, hard marl.
2014 - 2024 Core No. 15	Light gray, chalky marl. Midway forams.
2024 - 2034 Core No. 16	Light gray, chalky marl. Midway forams.
2034 - 2044 Core No. 17	Top 5' - light gray, hard marl. Midway forams.
<u>SELMA</u>	Bottom 1' - light gray, hard chalk. <u>Globotruncana arca</u>
2054 - 2064 Core No. 19 <u>Selma</u>	Gray, hard marl. Aragonite prisms. <u>Globotruncana arca</u> <u>Cibicides excolata</u>
2064-2074 Core No. 20 <u>Selma</u>	Gray, hard marl. Small brachiopods. Aragonite prisms. <u>Globotruncana arca.</u>
2074 - 2084 Core No. 21	Gray, hard, shaly marl. <u>Globotruncana arca</u> ; <u>Cibicides excolata</u>
2084 - 2089 Core No. 22	Medium gray, hard marl with mica. <u>Cibicides excolata</u> and other forams.
2089 - 2094 Core No. 23	Gray marl. <u>Cibicides excolata</u> and other forams.
2094 - 2099 Core No. 24	Medium gray, micaceous, fossiliferous marl. Aragonite prisms abundant.
2099-2104 Core No. 25	Medium gray marl with mica <u>Cibicides excolata</u> and a few other forams.
2104-2109 Core No. 26	Medium gray marl.
2109-2114 Core No. 27	Medium gray marl.
2114-2119 Core No. 28	Medium gray, shaly marl. Small <u>Gumbelinas</u> <u>Cibicides excolata</u>
2119-2124 Core No. 29	Medium gray marl with mica.
2124-2129 Core No. 30	Gray marl.
2129-2134 Core No. 31	Gray, chalky marl.
2134-2144 Core No. 32	Gray marl. A few forams.
2144 - 2154 Core No. 33	Gray, chalky, shaly marl with mica. <u>Cibicides excolata</u> Striated <u>Gumbelinas</u> and a few other forams.
2154-2164 Core No. 34	Gray, chalky marl.
2164-2174 Core No. 35	Gray, chalky marl.
2174-2184 Core No. 36	Gray, hard, chalky marl.
2190-2210 Cuttings	Gray marl. Aragonite prisms. <u>Planulina taylorensis</u> and other forams.
2230-2270 cuttings	Same.
2270-2290 cuttings	Light gray marl. <u>Planulina taylorensis</u>
2290-2330 cuttings	Same with aragonite prisms.

2921-2926 Core No. 50	Rec 5' - gray, medium-grained, silty, fossiliferous limestone.
2926-2936 Core No. 51	Greenish, waxy shale with mica and sand lenses.
2936-2941 Core No. 52	Greenish, micaceous, carbonaceous shale with micaceous, carbonaceous, sand lenses. (Top 3 ½')
	Gray, fine-grained, micaceous, carbonaceous, silty sandstone with shale lenses (bottom 1 ½')
2941-2946 Core No. 53	Top 1' - gray fine-grained, very micaceous, silty, carbonaceous sandstone with shale lenses.
	Bottom 4' - gray, hard, fine-grained, micaceous, fossiliferous sandstone and gray shale.
2946-2951 Core No. 54	Rec. 1' - gray, medium-grained, micaceous, silty sandstone fossiliferous with shale lenses.
2951-2956 Core No. 55	Rec 3' - gray, fine-grained, micaceous, silty sandstone with shells embedded in core.
2956-2961 Core No. 56	Rec 2' - medium-grained, glauconitic, fossiliferous sandstone
2961-2966 Core No. 57	Rec. 4 ½' - fine-grained, sand with mica. Carbonaceous material.
2966-2971 Core No. 58	Rec. 3' - light gray, fine-grained, silty, micaceous sandstone with shale lenses.
2971-2975 Core No. 59	Light gray, medium to fine-grained, silty, micaceous, carbonaceous limestone with shale lenses. Rec. 3'
2970-2990 cuttings	Gray shale, glauconitic, fossiliferous sandstone.
2990-3010 cuttings	Same with very hard, micaceous, fine-grained sandstone.
3010-3030 cuttings	Gray, medium-grained, glauconitic, fossiliferous sandstone and sand and gray shale.
3030-3050 cuttings	Same and glauconitic sandstone with phosphatic material.
3050-3090 cuttings	Same with abundant carbonaceous material.
3090-3110 cuttings	Same with abundant shell fragments.
3110-3130 cuttings	Medium-grained, glauconitic sand. Shell fragments.
3130-3270 cuttings	Same.
3270-3290 cuttings	Same with brown claystone.

Possible TUSCALOOSA

3290-3350 cuttings	Same.
3350-3390 cuttings	Same with green shale.
3390-3430 cuttings	Greenish gray, carbonaceous, soft, splintery shale.
3430-3450 cuttings	Same with fine-grained sandstone.
3450-3470 cuttings	Same.
3470-3490 cuttings	Same with fossiliferous speckled shale.
3510-3530 cuttings	Same with light gray, fine-grained, glauconitic, micaceous sandstone.
3550-3555 Core No. 60	Rec. 5' - gray shale, with mica and carbonaceous material.
3555-3565 Core No. 61	Bottom 3' - medium-grained, soft, silty, micaceous, glauconitic sandstone.

TUSCALOOSA

- 3565-3575 Core No. 62 Top 4 ½' - gray, fine-grained, micaceous, glauconitic, silty, carbonaceous sandstone with gray, micaceous, carbonaceous shale lenses.
Middle 1 ½' - greenish-gray, micaceous, carbonaceous shale, slightly sandy, slightly calcareous.
Bottom 4' - medium to coarse-grained, soft sandstone, slightly glauconitic, micaceous, silty, calcareous.
- 3575-3585 Core No. 63 Top 2' - medium to coarse-grained, soft, micaceous sandstone, slightly glauconitic, Soft clay in core. Phosphatic material. Middle 1' - greenish-gray, micaceous, glauconitic sandy shale with carbonaceous material.
Bottom 5' - gray, soft, coarse-grained, glauconitic, silty sandstone with mica.
- 3585-3595 Core No. 64 Rec. 1 ½' - gray, soft, coarse-grained, silty, glauconitic, micaceous sandstone with white splotches.
- 3595-3600 Core No. 65 Rec. 1' - gray, soft, coarse-grained, glauconitic, silty, micaceous sandstone.
- 3600-3605 Core No. 66 Gray, coarse-grained, soft, micaceous, slightly glauconitic, silty sandstone with medium-grained sand.
- 3605-3607 Core No. 67 Rec. 1' - same as preceding with coarse, gravelly sand.
- 3607-3612 Core No. 68 Rec. 4' - bottom - same as preceding.
- 3612-3617 Core No. 69 Rec. 2 ½' - light gray, medium to coarse-grained, soft sandstone, silty and micaceous.
- 3622-3627 Core No. 71 Rec. 5' - gray coarse-grained, porous sandstone with mica. Core has white spotted appearance.
- 3627-3632 Core No. 72 Top 1' - same as preceding.
Bottom 4' - greenish, carbonaceous shale with sandy, micaceous lenses.
- 3632-3642 Core No. 73 Rec. 20" - dark gray, very micaceous, carbonaceous shale, non-calcareous.
- 3642-3647 Core No. 74 Rec. 3' - light gray, medium-grained, micaceous, silty sandstone, non-calcareous.
- 3647-3652 Core No. 75 Light gray, slightly coarse-grained, soft, micaceous, silty sandstone.
- 3652-3657 Core No. 76 Rec. 1' - same as preceding.
- 3657-3660 Core No. 77 Rec. 1 ½' - light gray, very coarse-grained sandstone with weathered feldspar crystals. Soft clay filling in interstices.
- 3660-3665 Core No. 78 Rec. 4' - light gray, soft, coarse-grained, micaceous sandstone with clay filling in interstices; core has white spotted appearance.
- 3665-3670 Core No. 79 Top - greenish-gray, soft, very micaceous, silty sandstone shale lenses.
Bottom - greenish-gray, waxy clay with brown streaks through core, finely micaceous.
- 3670-3690 cuttings Very coarse, sub-angular sand; greenish, splintery shale.
- 3690-3710 cuttings Same with reddish-brown and greenish clay fragments.

LOWER CRETACEOUS

3710-3730 cuttings	Same with dark red and green mottled clay.
3730-3770 cuttings	Same.
3770-3790 cuttings	Same with rose and yellow coarse sand noted.
3790-3810 cuttings	Same.
3810-3830 cuttings	Coarse-grained, variegated sand.
3830-3850 cuttings	Coarse-grained sand, slightly variegated.
3850-3910 cuttings	Same.
3910-3930 cuttings	Same with fragments of dark red and green mottled clay.
3930-3950 cuttings	Same.
3950-3970 cuttings	Same with greenish-gray, splintery shale.
3970-3990 cuttings	Same.
3990-4010 cuttings	Greenish-gray, micaceous, carbonaceous, soft, splintery shale.
4010-4050 cuttings	Same, slightly fossiliferous.
4050-4070 cuttings	Same with speckled shale.
4070-4090 cuttings	Same with fine sandy carbonaceous shale.
4090-4130 cuttings	Same.
4130-4150 cuttings	Same with coarse sand and dark red and green clay. [?]
4150-4170 cuttings	Same.
4170-4190 cuttings	Same with more coarse sand.
4190-4230 cuttings	Same.
4230-4250 cuttings	Same with purple and yellowish clay.
4250-4290 cuttings	Same.
4310-4330 cuttings	Medium and coarse sand, reddish-brown and purple clay with mica; pink and gray lime.
4330-4350 cuttings	Same with light gray, medium and coarse-grained sandstone.
4350-4370 cuttings	Same with pink, micaceous, sandy clay.
4370-4390 cuttings	Same with pink lime and pink, calcareous sandstone.
4390-4410 cuttings	Same with more lime.
4430-4450 cuttings	Green and purple clay, gray and pink lime.
4450-4470 cuttings	Same and pink, micaceous, sandy lime.
4470-4570 cuttings	Same.

Gap

4670-4690 cuttings	Coarse to medium-grained sand; purple and dark red, micaceous clay and shale; gray and purple lime.
4690-4710 cuttings	Same with reddish brown, micaceous shale.
4710-4750 cuttings	Same.
4750-4770 cuttings	Same with purple, micaceous shale.
4770-4890 cuttings	Same.
4890-4910 cuttings	Same with more reddish brown and green mottled clay.
4910-5090 cuttings	Same.
5090-5110 cuttings	Same with gravel.
5110-5310 cuttings	Same.
5310-5350 cuttings	Same with purple and gray, micaceous shale.
5350-5390 cuttings	Coarse, sub-angular sand with milky appearance with weathered feldspar crystals.

5390-5410 cuttings	Same and light gray lime fragments.
5410-5430 cuttings	Same with light gray, coarse-grained sandstone.
5430-5470 cuttings	Same. Pink lime noted.
5470-5490 cuttings	Same with pink, micaceous, sandy, shale fragments.
5490-5510 cuttings	Same.
5510-5530 cuttings	Same with medium-grained sand and reddish brown shale.
5530-5550 cuttings	Same.
5550-5570 cuttings	Same with more reddish brown shale.
5570-5590 cuttings	Same.
5590-5610 cuttings	Same with more pink and gray lime.
5610-5630 cuttings	Same.
5630-5650 cuttings	Same with more lime.
5650-5670 cuttings	Same with sandy lime.
5670-5750 cuttings	Same.
5750-5770 cuttings	Same with medium-grained sand.
5770-5790 cuttings	Same.
5790-5810 cuttings	Same with very dark reddish brown, micaceous shale.
5810-5870 cuttings	Same.
5878-5883 Core No. 81	Rec. 2' - dark reddish-brown and greenish-gray mottled, micaceous, sandy shale with lime in core.
5883-5888 Core No. 82	Rec. 4" - same as preceding with more sand.
5888-5893 Core No. 83	Rec. 4' - dark red, micaceous, silty, fine-grained sandstone.
6392-6393 Core No. 84	Rec. 7" - dark red clay with green splotches and dark red hard sandy, calcareous clay.
6393-6396 1/2 Core No. 85	Rec. 10' - purple and green, calcareous clay, part sandy.
6396 1/2-6401 1/2 Core No. 86	Rec. 3' - purple, silty, micaceous sandstone with white spotted appearance, slightly calcareous.
6401 1/2-6412 Core No. 87	Rec. 3' - purple and greenish, medium-grained, micaceous porous sandstone.
6410-6430 cuttings	Coarse sand; pink and gray lime; brick red and dark red clay and shale.
6430-6450 cuttings	Same.
6450-6470 cuttings	Same with very dark red, micaceous shale.
6470-6490 cuttings	Same with an increasing amount of lime.
6490-6510 cuttings	Same with green, micaceous, sandy shale.
6510-6530 cuttings	Same.
6530-6570 cuttings	Same with very dark red, micaceous shale.
6570-6590 cuttings	Dark red, micaceous shale.
6590-6610 cuttings	Same. Pink lime noted.
6610-6630 cuttings	Same, pink, medium-grained sandstone noted.
6630-6670 cuttings	Same.
6670-6690 cuttings	Same with more pink, medium-grained sandstone.
6690-6750 cuttings	Same.
6750-6770 cuttings	Same with coarse, sub-angular, etched, milky sand.
6770-6830 cuttings	Same.
6830-6850 cuttings	Same with pink, micaceous lime.
6850-6970 cuttings	Same.

6970-7010 cuttings	Same with very dark red, micaceous shale.
7010-7090 cuttings	Same with light gray, sandy lime.
7090-7110 cuttings	Purple, sandy lime; gray, coarse-grained, sandstone fragments.
7110-7130 cuttings	Same with pink, medium-grained sandstone.
7130-7150 cuttings	Same with more pink, medium-grained sandstone.
7150-7190 cuttings	Same.
7190-7210 cuttings	Pink, medium-grained sandstone with lime.
7210-7230 cuttings	Same and light gray sandstone.
7230-7310 cuttings	Same.
7310-7330 cuttings	Same with medium-grained sand.
7330-7350 cuttings	Same with dark reddish brown, micaceous shale.
7350-7410 cuttings	Same.
7410-7430 cuttings	Maroon, micaceous shale; pink lime; pink, medium-grained sandstone.
7430-7450 cuttings	Same with coarse-grained sand and sandstone .
7450-7490 cuttings	Same with more sand.
7490-7510 cuttings	Light gray, coarse-grained, sand and sandstone, calcareous.
7510-7530 cuttings	Same with pink and gray lime.
7530-7550 cuttings	Same.
7550-7570 cuttings	Same with maroon, micaceous shale.
7570-7590 cuttings	Maroon shale, pink lime and sandstone.
7585-7587 Core No. 88	Rec. 2' - gray, silty, micaceous, medium-grained, non-calcareous, sandstone, coarse grains through core.
7587-7592 Core No. 89	Rec. 5' - same as preceding.
7590-7610 cuttings	Coarse sand and sandstone; maroon, micaceous, shale and pink lime.
7610-7650 cuttings	Medium-grained, pink, micaceous sandstone, coarse sand and pink lime.
7650-7670 cuttings	Same with gravel.
7670-7710 cuttings	Same with purple, sandy shale.
7710-7750 cuttings	Same with coarse-grained, pink sand and sandstone.
7750-7770 cuttings	Same and pink conglomerate.
7770-7790 cuttings	Same with maroon and brick colored, micaceous shale.
7790-7810 cuttings	Same with purple soft shale.
7810-7830 cuttings	Same.
7818-7823 Core No. 90	Rec. 3'8" - purple, micaceous, sandy shale and gray, hard, micaceous, sandy shale, non-calcareous.
7823-7828 Core No. 91	Top 6" - purple and greenish, micaceous shale and sandy shale, non-calcareous. Bottom 4' - gray, porous, medium-grained, variegated sandstone with white spotted appearance, non-calcareous.
7828-7838 Core No. 92	Rec. 3' - dark red and green mottled shale with mica, non-calcareous.
7848-7853 Core No. 94	Rec. 3' - purple and green mottled, micaceous shale, non-calcareous.
7853-7863 Core No. 95	Purple and green, micaceous, sandy shale.

7863-7873 Core No. 96	Gray, medium-grained, sandstone with white spotted appearance. Very micaceous lenses, biotite and muscovite.
7873-7883 Core No. 97	Rec. 8' - gray and greenish, slightly variegated, medium-grained sandstone with white spotted appearance.
7890-7910 cuttings	Coarse-grained sand and medium-grained sandstone, dark red and purple shale.
7910-7950 cuttings	Same with gravel.
7950-7990 cuttings	Same.
7990-8010 cuttings	Same with coarse variegated sand.
8010-8050 cuttings	Same.
8050-8090 cuttings	Coarse-grained, etched and sub-angular sand and purple shale.
8090-8110 cuttings	Same with weathered feldspar crystals.
8110-8130 cuttings	Same with more purple shale. Purplish, coarse-grained sandstone.
8130-8150 cuttings	Same.
8150-8230 cuttings	Same with more purple shale.
8230-8250 cuttings	Same, more weathered feldspar crystals.
8250-8270 cuttings	Same with an abundance of pink weathered feldspar crystals.
8270-8370 cuttings	Same.
8390-8410 cuttings	Same with gravel, part composed of very hard, quartzitic sandstone, arkose, fragments of oolitic gravel.
8410-8470 cuttings	Arkosic sandstone.
8470-8490 cuttings	Same with very dark purplish and green shale.
8490-8510 cuttings	Same.
8505-8511 Core No. 98	Top 2' - purple and green clay with coarse sand. Bottom 2' - purple and green, hard, micaceous shale, non-calcareous.
8511-8521 Core No. 99	Rec. 1 1/2' - purple and green streaked, non-calcareous shale.
8521-8526 Core No. 100	Purple and green, hard shale with mica.
8526-8531 Core No. 101	Top 2 1/2' - dark red shale and sandy shale with carbonaceous (?) material through core. Bottom - purplish, hard, shale with fine mica.
8530-8550 cuttings	Dark red, purple and green shale, conglomerate fragments.
8545-8547 Core No. 106	Dark red, hard, finely micaceous shale.
8547-8550 Core No. 107	Purple shale with light streaks along bedding plane.
8550-8553 Core No. 108	Purple shale with green streaks.
8553-8563 Core No. 109	Purple and green mottled shale and green, hard, sandy, micaceous shale with carbonaceous material in core.
8563-8565 Core No. 110	Green and purple hard shale with carbonaceous material in core.
8570-8575 Core No. 112	Purple and green, hard, micaceous shale.
8575-8585 Core No. 113	Purple, hard, micaceous shale.
8585-8595 Core No. 114	Purple and green, hard, micaceous shale.
8595-8605 Core No. 115	Rec. 7' - green, waxy shale with carbonaceous material in core.
8653-8658 Core No. 116	Green shale with carbonaceous material in core.

8658-8668 Core No. 117	Dark gray, hard shale with fine mica. Carbonaceous material in core.
8668-8678 Core No. 118	Dark gray, dense, hard shale with fine mica.
8678-8683 Core No. 119	Greenish-gray, waxy shale.
8690-8710 Cuttings	Greenish-gray, waxy shale and purple and green shale.
8710-8730 cuttings	Same and black, micaceous shale.
8737-8742 Core No. 120	Greenish shale with small brown siderite concretions.

Possible COTTON VALLEY

8742-8752 Core No. 121	Purple and green waxy shale.
8756-8761 Core No. 124	Very dark purple, hard, micaceous shale.
8761-8764 Core No. 125	Same as preceding.
8864-8869 Core No. 126	Very dark purple and green, shale with mica.
8869-8879 Core No. 127	Rec. 6" - very dark purple, hard shale.
8881-8891 Core No. 130	Top 5½' - very dark purple, hard shale with green streaks through core. Bottom 1' - basic igneous rock.
8890-8910 cuttings	Basic igneous rock, black shale.
8910-8950 cuttings	Same.
8954-8964 Core No. 131	Rec. 8' - dark purple, hard, micaceous shale.
8964-8974 Core No. 132	Rec. 2½' - dark purple, hard shale with fine mica.
8974-8978 Core No. 133	Rec. 4' - medium gray, hard, fine-grained, quartzitic sandstone with mica, non-calcareous.
8978-8983 Core No. 134	Rec. 3' - same as preceding.
8983-8987 Core No. 135	Rec. 4' - dark purple, hard shale with fine mica.
8987-8997 Core No. 136	Dark red, very hard, sandstone, non-calcareous.
8997-9000 Core No. 137	Dark purple and green mottled, hard shale, green streaks through core.
9010-9030 Cuttings	Dark purple and green shale.
9030-9150 Cuttings	Same, and black shale.
9155-9165 Core No. 138	Dark purple, hard shale. Part of core green, hard shale.
9165-9175 Core No. 139	Dark purple, hard, shale with fine mica; green spots in core.
9225-9232 Core No. 140	Rec. 9½' - dark purple, hard, shale with fine mica, green in core.
9232-9237 Core No. 141	Top 3' - dark purple and green clay with calcareous veins. Middle 1' - medium greenish-gray, very hard, fine-grained sandstone, non-calcareous. Bottom 1' - dark purple, very hard shale, non-calcareous.
9237-9242 Core No. 142	Greenish-gray, very hard, fine-grained sandstone with fine mica, non-calcareous.
9242-9243 Core No. 143	Same as preceding with calcite veins.

SUMMARY

Ocala-----	45'	-----to-----	220'
Lisbon and Tallahatta-----	220'	-----"	890'
Wilcox at -----	890'		
Salt Mountain at -----	1430-50'		
In Midway at -----	1790'		
Top of Selma -----	2033-34'		
" " Eutaw -----	2871-81'		
Possible Tuscaloosa at -----	3270-90'		
In Marine Shale at -----	3470'		
Lower Cretaceous at -----	3690-3710'		
In lime of Lower Cretaceous at -----	4310'		
Possible Cotton Valley at -----	8737'		
In basic igneous rock at -----	8891'		
In shale at -----	8954'		

/s/ Winnie McGlamery

Paleontologist

FLA-JX-OT-1

- 45-65 | Hyd, mixed, porous, ch, ls matrix w/ abundant f-shell fossils. Murchisonia
- 65-85 | do v minor rept. b, w/ sparse, calcare.
- 85-105 | do
- 105-261 | do + 30% orange w/ gray band porous ls
- 261-416 | wh-orange, w/ gray-mixed, porous highly blue ls w/ 5% clean orange stained, Murch A
fairly, w/ g, ls sd
- 415-65 | do
- 65-95 | do Tr. sd?
- 95-100 | do
- 100-200 | buff, mixed, ind, porous ls matrix w/ 40% f. fossils. To gn glauc & 5% char M-fqny, SA, PS, g, ls sd
- 200-40 | do but 5% gn glauc & 10% sd
- 40-60 | do but just Tr. of glauc
- 60-80 | do but just Tr. of glauc & sd
- 80-100 | buff, mixed, ind, porous, ls matrix w/ 30% f. fossils. 40% below, fqny, SA, w/ g, ls sd.
To gn glauc
- 100-20 | do but sd is PS + ls pyro sd
- 20-40 | gray, mixed, ind porous ls matrix w/ abundant f. fossils 50% char M-fqny, PS, SA, g, ls sd.
To gn glauc
- 40-60 | gray-buff, mixed, ind, porous ls matrix w/ abundant gn glauc, f. fossils & sd as above
- 60-20 | tan, mixed, ind, porous ls matrix w/ abundant f. fossils 30% sd as above. 20% gn glauc
To pyro
- 20-00 | do
- 00-20 | gray-tan, mixed, ind, porous ls w/ ls fossils: Puz. Puz. 10% C. Murch, char, SA, fairly w/ g, ls sd. 45% gn glauc

840-60	do	10% glauc
860-80	do	
880-100	do	
900-70	do	sd. ls. also in right th.
920-40	do	
940-60	lt qtz, f ^{if} qtz, SA, WS, gte sd	in 50% matrix, ^{qz-brown} previous ls matrix. Fe. base glauc
960-80	do	
980-00	do	
1000-20	do	
1020-30	10%	
1030-50	do	
1050-70	do	
1070-90	Mqz, MnO, ind, parous, sd, ls.	sd is qtz, ^(20%) qtz, WS, SA gte. In pyr
1090-10	do	
1110-30	do	
1130-50	do	
1150-70	do	
1170-90	do	no pyr
1190-10	do	In pyr
1210-30	do	
1230-50	do	
1250-70	do	
1270-90	do	sd is 50%
1290-10	do	

1750-70	do	
1770-90	do	
1790-10	do	
1810-20	Many, microp soft, porous, clay, slightly arg. lsal abundant microfoss.	Tr. gn glauc & little soft paper thin sh (log as sh)
1830-50	do	Tr. pyr & gn glauc
1850-70	do	
1870-90	do	no glauc
1870-10	do	no pyr
1910-20	do	
1930-50	do	
1950-70	do	
1970-90	do	
1990-10	do	
2010-20	do	Tr. pyr
2030-50	do	
2050-70	do	
2070-90	do	
2090-10	do	
2110-20	N.S.	
2130-50	do	
2150-70	do	
2170-90	do	
2190-30	N.S.	
2220-50	Gry ls as above w/ abundant microfoss.	Tr. pyr & little, paper thin, brittle, soft sh
2250-70	do	but abundant pyr

- 2270-90 | do just Tr. pyr
- 2290-10 | do no ill. sh
- 2310-30 | do Tr. ill. sh
- 2330-50 | lt qtz, mung, soft, porous, ^{blocky} clay, wtd, org, chy ^{sh} of abund micro foss Abund pyr & Tr.
blk fissile, soft, brittle, paper thin sh
- 2350-70 | do
- 2370-90 | do
- 2390-10 | do
- 2410-30 | do + abund I. prisms no ill. sh
- 2430-50 | N.S.
- 2450-70 | do
- 2470-90 | do
- 2490-10 | do but just Tr. I. prisms
- 2510-30 | do fissile sh
- 2530-50 | ^(as 2510-30) sh + abund micro foss as above + abund pyr Tr. I. prisms
- 2550-70 | sh + abund micro foss + abund pyr + abund I. prisms
- 2570-90 | do
- 2590-10 | do
- 2610-30 | do
- 2630-50 | do
- 2650-70 | do
- 2670-90 | do
- 2690-10 | do but less pyr than above
- 2710-30 | do
- 2730-50 | lt qtz, fissile, soft, porous, calc chert abund micro foss Tr. pyr & I. prisms

- 2750-70 | do
- 2770-90 | do but abund. pyr & I. prisms
- 2790-10 | do
- 2810-30 | do but just after I. prisms & Tr. pyr
- 2830-50 | do
- 2850-70 | Same as (2770-90)
- 2870-110 | sh w/ abund microfoss. Tr. pyr & I. prisms
- 2890-10 | do + abund s.f.
- 2910-30 | sh + abund microfoss & s.f. Tr. pyr & I. prisms
- 2930-50 | do
- 2950-70 | do + offsh. fgnz ind, calc ss
- 2970-90 | sh + abund microfoss^{±s.f.} + clean fgnz w/ SA & tr sd. (the sd. comes in AT 2960-70)
- 2990-10 | do Tr. pyr
- 3010-30 | do no pyr
- 3030-50 | Hqry, fossil, s.f., calc sh w/ abund microfoss + wh. fgnz, calc ind, calc plane & tr ss
- 3050-70 | do lg as ss
- 3070-90 | do lg as sh Abund s.f. present Tr. pyr
- 3090-10 | do
- 3110-30 | sh w/ abund s.f. & some microfoss. Abund pyr. & clean fgnz, SA, w/ & tr sd
- 3130-50 | do
- 3150-70 | do
- 3170-90 | do
- 3190-10 | do
- 3210-30 | do
- 3230-50 | sh + abund s.f. & some microfoss. Tr. pyr

- 3250-70 | do
- 3270-90 | do first appearance of orange, rough, porous dol
- 3290-10 | do + dol
- 3310-30 | sh + abundant s.f. + microfoss in pyr
- 3330-50 | do
- 3350-70 | do
- 3370-90 | do
- 3390-10 | do
- 3410-30 | do
- 3430-50 | do + tag fgm ind, porous ls (sh, 4/ufgm, p, l, r, sd)
- 3450-70 | do
- 3470-90 | do
- 3490-10 | do
- 3510-30 | do
- 3530-50 | do
- 3550-70 | do
- 3570-90 | sh as above + lt qm, uf qm, ind, porous, calc ss
~~call it~~ siltst
 This is giving low lg. levels
 mic
- 3590-10 | wh - clear - pale gray C qm, SR, ws etc sd w/ Tr. lt qm, uf qm, arg, calc, ind etc ss
- 3610-30 | do 1 piece of bright orange gla
- 3630-50 | do + sh
- 3655-70 | do gla. is SA + sh + siltst as above
- 3670-90 | wh - clear, C qm, ws, SR etc sd. Several pieces of rose etc. in g/lanc, pyr
- 3690-10 | wh - clear, UC-C qm, fms, SR etc sd w/ a few pieces of small gravel. In pyr & siltst
- 3710-30 | do + 1 piece of rose etc + siltst
- 3730-50 | wh - clear, UC-C qm, fms, SR etc sd w/ several pieces of lt qm, small gravel. In pyr & siltst

- 3750-70 | do no sh
- 3770-90 | wh-pale yel, Cqny, WS, SR, etc sd
- 3790-10 | wh-yel-orange, VC-C qny, SR, etc sd w/ several pieces of small gravel. In pyr
+ lt qny, uf qny, ind, calc, arg, mic, sdy, sltst
- 3810-30 | do w/ pieces of shell
- 3820-10 | do + sh
- 3850-10 | Clear-yel-orange, Cqny, WS, SR etc sd w/ a few pieces of small gravel. In pyr
- 3870-10 | do
- 3890-10 | clear-yel-orange, Cqny, WS, SR etc sd w/ several pieces of small gravel + sltst
- 3910-30 | do sh is blk fossil, brittle, paper thin. Tr. uf qny, lt qny, ind, calc, arg, mic, sdy, sltst
- 3920-50 | clear-yel-orange, Cqny, WS, SR etc sd Tr. lt qny, uf qny, ind, calc, arg, mic, sdy, sltst
- 3950-70 | do In pyr
- 3970-40 | do
- 3990-10 | do 1 sh
- 4010-30 | lt qny, uf qny, var, calc, mic, pyritic, sdy, sltst
- 4030-50 | do
- 4050-70 | lt qny, fqny, ind, porous, calc, glauc. ss
- 4070-90 | do w/ brn & grey mottled, fissile, calc, calc. foss sh
- 4090-10 | sh + lt qny, uf qny, ind, calc, var, mic, sdy, sltst
- 4110-30 | sltst + lt qny, fissile, soft, calc, foss sh
- 4130-50 | clear-yel-orange, Cqny, WS, SR etc sd In pyr
- 4150-70 | do
- 4170-90 | do no pyr
- 4190-10 | Clear, Mnqny, WS, SR etc sd w/ 1 piece of rock etc + lt qny, fissile, soft, calc, foss sh
- 4210-30 | sd + brn qny, fissile, soft, calc, foss sh

4230-50 | sltst + clear-orange-yel, Mgny, WS, SR, gtz sd Tr. bng blocky, soft cly & pyr

4250-70 | purple & gn try not thick, fissile, soft, salty sh

4270-90 | do + bng, blocky, soft sh

4290-10 | do + clear-yel-orange, Mgny, WS, SR, gtz sd in pyr

4310-30 | do

4330-50 | clear-yel-orange, M. fgn, fws, SA, gtz sd w/ multicol, soft, blocky shales
Tr. multicol dol nodules & pyr

4350-70 | do + piece of rose gtz

4370-90 | do no rose gtz

4390-10 | do in sep

4410-30 | clear-yel-orange, Mgny, WS, SR, gtz sd Tr. pyr

4430-50 | wh-orange, fgn, WS, SA, gtz sd w/ some multicol, blocky, soft, shales

4450-70 | shales w/ wh, Mgny, WS, SR, gtz sd

4470-90 | yel bng, blocky, soft sh w/ wh, Mgny, WS, SA, gtz sd

4490-10 | wh-clear, Mgny, SA, WS, gtz sd

FLA-JR-OT-1

5890-10 | 40% rusty red, blocky siltst 30% lt gray - gray fissile, soft sh 15% wh micro, ind. ls
 15% c. fgn, elongate sd

5910-30	30% siltst	30% sh	30% sd	10% ls	
5930-50	80% siltst	10% sh		10% ls	
5950-70	55% siltst	25% sh	20% sd	20% ls (multicol)	fn, wh fgn, ss
5970-90	60% siltst	25% sh	10% sd	5% ls	fn, ss
5990-10	60% siltst	20% sh	20% sd		fn, ls, ss
6010-30	30% "	30% "	30% "	10% ls	5% fgn, wh, calc. ss
6030-50	40% "	15% "	35% "	10% "	
6050-70	15% "	10% "	65% "	5% "	5% ss
6070-90	20% "	25% "	40% "	10% ls	5% ss
6090-10	10% "	25% "	55% "	10% "	
6110-30	10% "	30% "	55% "	5% "	
6130-50	5% "	30% "	55% "	5% "	5% ss
6150-70	10% "	45% "	40% "	5% "	
6170-90	10% "	30% "	50% "	5% "	5% ss
6190-10	15% "	30% "	50% "	10% "	10% "
6210-30	20% "	25% "	30% "	15% "	5% "
6230-50	25% "	40% "	20% "	10% "	5% "
6250-70	20% "	60% "	10% "	5% "	5% "

becoming silty

6270-50	fn, ss				
6290-10	15% siltst	35% sh	25% sd	20% ls	5% ss
6310-30	15% siltst	45% sh	20% sd	15% ls	5% ss

6330-50 | 10% S | 5% SS | 25% s/tst† | 30% sh | 25% sd

6350-70 | 5% S | 5% SS | 10% s/tst† | 70% sh | 10% sd

6370-90 | 5% S | 5% SS | 10% s/tst† | 70% sh | 10% sd

6390-10 | " | " | " | " | "

JX-1 Nov. 10-1965

994

Herewith report on the upper part of the Humble Oil and Refining Company, Tindel No. 1, Jackson County, Florida.

OPERCULINIDS
A. PINNACULOSUS
CANTONIA

45-65'
Upper
Eocene
Ocala
Jackson

(First Sample). A light cream colored, chalky coquina of worn fragments of Lepidocyclina, Operculina, Discoocyclina and a few of Amphisterina cosdeni. Several species of Bryozoa also common. (1-4, slide 1A)

65-85'

Do. Also some specimens of Asterocyclina nassauensis, Sphaerogypsina globula, good specimens of Operculinoides floridensis and fair specimens of Lepidocyclina ocalana. (4-6, slide 1A)

85-105'

Do, and numerous specimens of Amphisterina alabamensis and some Echinoid fragments. (7-11 slide 1A)

105-25'

Do. Material worn and somewhat iron-stained. (125-45') do.

145-65'

Material and fauna same as above. (165-85') do. (185-200') do.

200-20'

Moody's
Branch
Basal
Jackson

Do, and abundant specimens of Operculinoides wilcoxi, many of Lepidocyclina ocalana pseudomarginata. Some dark green glauconite and some glauconitic and finely sandy areas in a few of the (2-14, slide 1A) coquina fragments. (220-40') do. Specimens of Camerina about 75%. Some glauconite as above and some sandy areas in the coquina. (240-65') do. (265-80') do. Some fine angular, clear quartz, sand in washed residue.

280-300'

Top of
Middle Eocene
Claiborne

Similar to preceding, but reduction in Camerinids and many specimens of Polylepidina gardnerae. (19-24 slide 1A.)
antilla.

300-20'

Fauna same as in preceding, some fragments of a highly, finely and evenly sandy white limestone, some medium to coarse grained clear quartz sand. Trace of glauconite. (25-28 slide 1A)

320-40'

Fine to coarse sand, clear angular to sub-angular quartz, about 50%. Fauna as above, about 50%, probably mainly came from slightly higher levels. Very minor glauconite as above.

340-60'

Sand as above, also many calcitised fragments of Echinoid material; about 50% nodular fragments of hard, chalky, weakly glauconitic and highly finely sandy limestone. Some worn and broken chalky fragments of a few specimens of larger foraminifera, apparently mainly came. A few fragments of dolomite, light tan, slightly glauconitic, finely crystalline. (28-30 slide 1A)

340-60'

Sand about 50%, fine to coarse, angular to sub-angular clear quartz; and 50% of nodules of highly, finely and evenly sandy, cream, chalky limestone. Abundant Echinoid fragments; very minor glauconite and some cavings of fossil fragments from slightly higher levels.

✓ Connors
G. G. G. G.
18

360-80' Do, and many large irregular shaped nodules of dark green glauconite from a chalky sandstone with poorly sorted sand grains. (30-34, slide 1A)

380-400' Do. Large glauconite nodules about 25% of sample.

400-20' Do, glauconite almost 50%, large, dark green irregularly shaped nodules. (420-40') do. (440-60') do. Fine to coarse quartz sand as above dominant. Some cave of cream sandy limestone fragments and fossil material from same.

440-60' Sand, and about 15% glauconite and some cavings as above. A few fragments of macro-fossil molds in hard sandstone nodules. (460-80') do. ✓

480-500' Sample much smaller than those preceding. Washed sample mainly sand, and about 25% glauconite nodules as above. Comparatively few limestone fragments.

500-20' Large sample of sand, glauconite, and small fragments of fossiliferous limestone (apparently cave).

520-40' Do.

540-60' Do, also many fragments of a limestone, light gray, highly and very finely sandy, with fine, evenly distributed particles of glauconite and some of a black (phosphatic?) material, a little mica. (37-38 slide 1A)

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18

560-80' Limestone, gray, dense, chalky textured, very finely sandy to silty, very finely glauconitic as above, weakly micaceous.

580-600' Sand, fine to coarse clear quartz, and coarse glauconite as above (540'), some limestone as in preceding, some cave. (600-20') do.

600-20' Sand, fine to coarse, clear, angular to sub-angular quartz; about 5% glauconite in large nodules; and about 25% of sample fragments of a limestone, white, sandy, (fine to medium grained) (39-41, slide 1A) somewhat glauconitic. Contains many fragments of molds of fossil bivalves. This is closely similar to sandy limestone seen at higher levels, but I believe is indigenous. The sand is irregularly distributed, there is much less glauconite and more imbedded macro-fossil fragments. A few phosphatic fish teeth. (620-40') do. (640-60') do. (660-80') do. Some sand grains pebble size.

✓ Connors
G. G. G. G.
18

680-700' Sand, fine to coarse as above, and many fragments of the hard, white, medium to coarse grained sandy limestone, slightly glauconitic and phosphatic and with many limestone molds, and fragments of macro-fossils. (42-45 slide 1A)

Do

700-20'
Wilcox top
Lower Eocene

Sand, fine to coarse, fine to medium grains dominant. A few fragments of limestone as above, trace of glauconite.

720-40'
Dk gray silty clay
740-80'

Sand as above and a few fragments of soft, olive-gray, highly silty, weakly micaceous clay. Clay has trace of fine glauconite. (46, slide 1A)

780-800'

Do.

800-20'

Silty olive gray clay like that above, about 50% fine angular clear quartz sand, about 25% glauconite, dark green, irregular shaped nodules (possibly caving) and some forams, species same as above and in addition specimens of Globorotalia wilcoxensis, a few of Nonionella wilcoxensis, Marginulina cf. hatchitigbeensis, and Nodosaria laterugata.

820-40'

Sand, fine to coarse, clear, sub-angular quartz and some moderately coarse nodules of glauconite as above. Some fragments of a white very fine grained sandstone with scattered particles of a black mineral (pyritized glauconite?). A few imbedded, but fragmentary small forams. (840-60') do. (49 & 50 slide 1A)

860-80'

Sandstone, white, fine grained, dense, contains many irregular shaped nodules of dark green glauconite, some phosphatic grains, some pyritized glauconite, and occasional limy areas with traces of fragmentary fossil material. (880-900') do. (50-53, slide 1A)

900-20'

Apparently mainly caving materials, including sand, glauconite and fragments of sandstone, and some fossil materials from much higher levels. (920-40') do.

940-60'

Sandstone greenish gray, very fine grained, with irregular fine grains, dense, moderately hard, weakly micaceous. Has a "speckled" appearance from presence of many scattered dark particles. A few fragments of a thin shelled bivalve and rare fragments of a light grayish tan clay, which is also very finely "speckled". (54-57, slide 1A)

960-80'

Do. A few fragments of lignite in the gray sandstone and a few fragments of a light brown shaly clay. (58 & 59, slide 1A)

980-90'

Mainly sandstone like the above, with some brown limestone areas and trace of macro-fossil fragments. Some cavings of sand, fine to coarse; glauconite nodules, and some fossiliferous limestone fragments. (60, slide 1A)

Dk gray silty clay

Wt brown silty clay

Sand w/ uncongl.

Green ss, variegated

Gray silty clay

Clay w/ lignite

Brown ss

980-1000' Do. Hard grayish brown calcareous sandstone similar to the preceding. Fragments of fossil bivalves fairly common in the sandstone. (1-4, slide 2A)

1000-20' Do. Some fragments of lignite also in sandstone. Cavings of loose sand, glauconite and some limestone fragments as above. (5-6 slide 2A)

1030-50' Mud conditioner only. (1050-70') do, and a few fragments of soft tan clay.

1070-90' Clay, soft, gray, minor silt and very fine sand. A few cavings of sandstone from slightly higher levels. (1090-1110') do. A few fragments of sandstone, hard, dense, gray, calcareous (possibly lenticular). (7-9 slide 2A)

1110-30' Do, some fragments of the clay contains many fine shreds of carbonaceous material, some fragments silty to very finely sandy. (1130-50') do.

1150-70' Clay, light gray, like the above in character, and very minor silt and very fine sand. Small fragments of carbonaceous material fairly common. (1170-90') do. No change to -

1270-90' Do. More fragments of the hard gray sandstone, some cave.

1290-1310' Clay, gray, irregularly very finely sandy; sand very fine to silt size about 30%, a little hard gray sandstone. Some small fragments carbonaceous material. (1310-30') do. No change to -

1550-70' Limestone, hard, white, with a few scattered particles of glauconite, chalky to crypto-crystalline in texture, contains much finely fragmental and poorly defined micro-fossil material. (10-15 slide 2A)

1570-90' Limestone, white, hard, similar to preceding, but generally more chalky and more glauconitic, and frequently highly and very finely sandy. Little fossil material. Small particles of glauconite distributed through this sandy limestone. (15-19 slide 2A)

1590-1610' Do. Finely sandy, finely glauconitic white limestone like first noted in preceding.

1610-30' Do. A few of the sandy limestone chips show imbedded fragments of Discocyclina. (1630-50') do. No Discocyclina noted. (18 + 19 slide 2A)

1650-70' Limestone, white, highly silty, dense, with a few cherty areas, shows some fine specks of glauconite and mica (?). Only vague traces of a finely fragmental fossil content. (1670-90') do. (chert, 20 slide 2A)

1690-1710' Do, and a few fragments of a gray clay with some fragments of small forams. Specimens of Glogigerina trilocolinoides, Globigerina pseudobuloides, Globorotalia acuta, Robulus sp. and a few other species of small foraminifera fairly common. A few Ostracods. (21 + 22 slide 2A)

a Tamesi fauna.

Paleocene OK NOTING DING

OK

OK - wood not shown

SILT, M. ORG, V. PROBABLY MUD & GRAVEL

US ORG

US ORG SWAMPY SANDSTONE

OK DISCO IN ROCK

1515 1/2 m. x 1/2 m. x 1/2 m. STOP of Paleocene

Gray SILT & SAND

✓

- 1730-50' Do, and abundant cavings of fine sand, limestone fragments and some glauconite from slightly higher levels. Some small forams as above and some possibly caving from soft portions of the overlying Salt Mountain limestone. Many specimens of several species of Robulus from the overlying Salt Mountain, and many specimens of Globigerina and Globorotalia sp. as above; some of Vaginulina longiformis, Vaginulina tuberculata. (23 + 24, slide 2A)
- 1750-70' Do. Gray, marly shale, traces of micro-fossils. Sample not washed sufficiently to free the forams.
- 1770-90' Do.
- 1790-1810' Shale, gray, marly, very finely micaceous, contains some forams, species as above (sample not washed).
- 1810-30' Gray, flaky, marly, shale, similar to preceding. Many fragments of Bathysiphon, a few Robulus sp. (20 + 26 slide 2A)
- 1830-50' Do. (1850-70') do, and some restricted Paleocene species of smaller foraminifera. (1870-90') do. No change to -
- 2000-10' Material and fauna similar to the above.

Note - This completes report on the upper part of the section in this well.

Report, already transmitted, begins with description of core taken at 2004-14' - still in the Paleocene.

1551

Tallahassee, Florida
September 25, 1950

Continued

HUMBLE OIL & REFINING CO.
JACKSON COUNTY, FLORIDA

WILDCAT

NO. 1 TINDEL

cc: O'Bannon
Fransen

Worked by: ERA/wft

Note: Report on samples 2004' to top of Paleoz.

AMS
C. ~~capillaries~~
T. ~~truncata~~
G. ~~gibbosa~~
P. ~~psuedo~~
M. ~~monna~~

2004-14'
~~Age Indeterminate~~
Paleocene

Core # 14 Rec. 10' Top: Light gray, slightly finely micaceous marly shale. A typical Velasco (Midway age) micro-fauna present, including many specimens of Globorotalia velascoensis and Globigerina triloculinoidea. (see # 1 and 13 on slide)

Bot: Same as top of core.

2014-24'

Core # 15 Rec. 10' Top: Like the preceding. Fauna larger and represented by more genera and species. Many Rotalid species present.

Bot: No change.

2024-34'

Core # 16: Material as above. globorotalia velascoensis relatively more common.

Bot: Material like the preceding, but fauna indicated only by crushed and fragmental chalky fragments.

2034-44'
Top of A. Cret.

Core # 17: (No washed sample.) From study of cores before cut made; about 6" of hard white chalk in this core marked the top of the Cretaceous. None of this in unwashed top core fragment. It is a gray shale with small soft, white chalky foram fragments; but fragment of the white very finely and sparsely glauconitic chalk in bottom fragment of core. Some specimens of Globotruncana cretacea present.

2044-54'
Definite Taylor

Core # 18 Top: White chalk, slightly finely glauconitic and carrying abundant specimens of Globotruncana area and many specimens of Stensioina americana, Globorotalia micheliniana; Planulina cf. spissocostata, Anomalina henbesti, Bolivinoidea decorata, Gumbelina plummerae, Haplophregmoides rugosa, Arenobulimina americana, some specimens of Spiroplectammina laevis and Cyroidina girardana and others see (# 2 to 14 on slide) Age Taylor.

Bot: Same as top portion of core (see # 15 on slide for additional specimens.) Some specimens of a small Brachiopod and a few Inoceramus fragments also present.

Taylor # 2, 14, 15
B. ~~decorata~~
Stensioina americana
C. ~~truncata~~
Gyroidina
G. ~~gibbosa~~ SA

NO. 1 TINDEL

NO. 1 TINDEL

2054-64

Core # 19 Top: Very light gray chalk, highly calcitic (calcitized micro-fos. and fragments.) and slightly micaceous. Abundant forams, fauna like the above. For character of material (see # 16 on slide)

Bot: Like the preceding. Bolivina incrassata and a large variety of Cibicides harperi also common in fauna.

2064-74

Core # 20: Soft gray marl-leaving a washed residue composed mainly of forams and some Inoceramus prisms and fragments, Planulina taylor-
nsis present.

Bot: Like the preceding. Ammobaculites stephensoni added to fauna.

2074-84

Core # 21 Top: Like the preceding

Bot: No change. (for char. spec., this and following depths (see # 17 on slide)

2084-89

Core # 22: No change.

2089-94

Core # 23: Like the preceding, Heterostomella americana and Cibicides beaumontianus and Dorothyia glabrella also fairly common in micro-fauna.

2094-99

Core # 24: Like the preceding.

2099-2104

Core # 25: Like the preceding. Inoceramus fragments and prisms now abundant. No change in micro-fauna.

2104-09

Core # 26: Moderate soft gray, slightly micaceous marl as above. Abundant Inoceramus fragments and prisms. Mico-fauna, same as above.

2109-14

Core # 27: Like the preceding, lithologically and faunally.

2114-19

Core # 28: No change.

2119-24

Core # 29: No change.

2124-29

Core # 30: Gray marl, similar to preceding in character. No washed sample.

2129-34

Core # 31: Gray marl as above, leaving a moderate small washed residue of Inoceramus fragments and prisms and abundant forams, species same as in preceding samples.

2134-44

Core # 32: Material like the above. No washed sample.

2144-54

Core # 33: Gray marl and fauna same as in Core # 31 etc.

2154-64

Core # 34: Like the preceding.

2164-74

Core # 35: No change.

2174-84

Core # 36: No change.

#16 -
P. AMMONIA
P. BUCINA
N. T. T. T.

#17
B. C. AMMONIA
P. AMMONIA
D. AMMONIA
T. T. T.

NO. 1 TINDEL

- 2184-2230 No samples.
- 2230-50' Cut of gray, somewhat finely micaceous marl, many Inoceramus fragments and prisms, many forams, species as in preceding core samples - and a small amount of fine to medium sand. (possibly from drilling mud.) Some pyrite nodules.
- 2250-70' Like the preceding.
- 2270-90 No change.
- 2290-2310 Like the preceding - the sand about 10% of sample.
- 2310-2450 No change.
- 2450-70 Gray marl, and fauna as above with the addition of several fragments of Vaginulina texana (see # 18 on slide) some fragments of Kyphopyxa christneri also present. Definite Austin.
mar - Citharina.
- 2470-90' Like the preceding in material and fauna.
- 2490-2510' No change.
- 2510-2530' As above, specimens of Kyphopyxa but no Vaginulina noted.
- 2530-2550' Like the preceding.
- 2550-2630' No change.
- 2630-50' Cut of gray marl, many Inoceramus fragments, some pyrite nodules and many forams (species same as in preceding) a few specimens of Cythereis dallasensis. A few fragments of Vaginulina texana. Many marl fragments, harder-of a bluish gray in color.
- 2650-70 Material and general character of fauna as above. No Vaginulina texana noted.
- 2670-90' Like the above - Vaginulina texana present.
- 2690-2610' Like the preceding.
- 2610-30 No change.
- 2630-70 No samples.
- 2670-90 Cut of gray marl, many Inoceramus fragments, pyrite nodules- and general character of micro-fauna like the above, Gumbelinas and Globigerinas strongly dominant. Many Globotruncanas and several species of Robulus. Some specimens of Cythere sphenoides.
- 2690-2710' Like the preceding with the addition of a few fragments of brownish gray "speckled" marl, typical of the Austin

N
K. CHRISTNERI
B. SPHEROIDS
V. CHRISTNERI
TOPHUS
Top of Austin

NO. 1 TINDEL

- 2710-30' Like the preceeding.
- 2730-50' Like the above, fragments of the "speckled" marl fairly common.
- 2750-70' Like the preceeding.
- 2770-2800' No change. No washed samples.
- 2801-11' Core # 37: Gray, mud; hard "speckled" marl.
- 2811-21 Core # 38: Hard light gray chalk.
- 2821-31' Core # 39: Hard, gray slightly "speckled" chalk.
- 2831-2841' Core # 40: Gray and brownish gray marly "speckled" chalk.
- 2841-51' Core # 41: Like the preceeding.
- 2851-61' Core # 42: Gray moderately hard marly chalk, some fragments of *Inoceramus* and other bivalves. Material slightly "light speckled" Bottom portion lighter gray in color.
- 2861-71 Core # 43: Light and dark streaked "speckled" marly shale. Small *Gumbelinas*, *Globigerinas* and *Globotruncanas* present. (personel cut, washed.)
- 2871-81' Core # 44: Dark brownish gray, "speckled" shale and white, very finely sand chalk with irregular thin lenses and inclusions of very fine grained micaceous sandstone, generally finely broken phosphatic material fairly common in sand, chalk and some fragments of heavy shelled fossil bivalves also present. Specimens of *Globigerina* abundant, *Globotruncana* (variety common in lower and basal Austin, fairly common. Some *Gumbelinas*, a few specimens of a variety of *vaginulina texana* and an occasional specimen of *Planulina eaglefordensis*. For material and fauna see (# 19 and 20 on slide) (personel cut).

57 mi.
 AU
 VAG. 2040-2050
 Penn. 5-20-11-11-11-11

Upper Atkinson = U. Tuscaloosa.

Top Eagle Ford: Mid: Gray, micaceous, flaky, silty shale. The thin highly sandy lenses also finely glauconitic. Some shell fragments and pyrite nodules, specimens of several species of *Ostracods*; small *Globigerinas*, a few *Gumbelinas*, specimens of *Robulus* sp., *Marginulina* sp., many specimens of *Valvulineria infrequens* (E.F. var.) and small variety of *Planulina eaglefordensis*, a few specimens of *Ammobaculites* sp. (see # 21 and 22 on slide). (from personel cut)

21822
 ANN
 Penn

2881-91 Core # 45 Top: Gray, micaceous flaky, calcareous shale, slightly glauconitic. Contains fragments of heavy shelled bivalves, micro-fauna similar to preceeding (see # 23 on slide). *Vaginulina recta* also present (This in E.F. in Texas also.)

ANN
 Penn

Mid: Similar to preceeding lithologically and faunally, but with highly silty lenses more abundant. Some *Bryozoan* fragments and a few *Inoceramus* fragments present. (for additional specimens (see # 24 on slide).

No. 1 TINDEL

Bot: Gray, flaky, micaceous, shale some phosphatic fish-bone fragments; a few shell fragments; forams less abundant, arenaceous species relatively more common, small irregular shaped fragments of sideritic material common.

2891-2901 Core # 46 Top: Greenish gray highly silty, micaceous and slightly finely glauconitic clay-with thin gray-green shale lenses. Micro-fauna of forams and Ostracods as in middle and top portions of preceding core. (personal cuts.)

Mid: Greenish gray, micaceous marly shale, with some fragments of thin shelled bivalves, some fish scales and bone fragments. No change in micro-fauna. Sideritic nodules same as above.

Bot: Greenish gray highly silty, micaceous shale some irregular thin gray-green shale parting. Some fragments of fossil-bivalves, a little very fine glauconitic, some pyrite, no change in micro-fauna.

2901-11 Core # 47 Top: Greenish gray micaceous shale fragments of thin shelled bivalves a few forams and a few Ostracods. Species same as in preceding cores.

Bot: Same as top.

2911-16' Core # 48 Top: Greenish gray, micaceous highly silty shale some fragments of thin shelled bivalves. No washed sample.

Bot: Same as top.

2916-21 Core # 49 Top: Greenish gray, micaceous, highly silty to very finely sandy clay shale. A little phosphatic material and a few shell fragments. (no washed sample.)

Bot: Lense of light greenish gray, irregular very finely sandy, marly limestone. Some fragments of fossil-bivalves. (no washed sample)

2921-26 Core # 50 Top: Gray-green highly silty, micaceous shale, many fragments of fossil bivalve, a fragment of Prianotropus, some phosphatic fish bone material, some thin irregular-non-silty lenses. A few specimens of Valvulineria infrequens (E. F. var.) and some small arenaceous forams. (in personal cut.)

Bot: Shale like the top of core and lense of moderate hard white, sparsely very finely sandy limestone.

2926-36 Core # 51: Gray green, thinly flaky, micaceous shale with a few very thin irregular silty partings. (personal cut) No forams noted.

2936-41 Core # 52 Top: Gray green flaky shale with abundant irregular streaks of soft micaceous siltstone.

Bot: Like top with silty areas strongly dominant, some fragments of fossil bivalves, a little phosphatic material. A few Ostracods. No forams noted.

2941-46' Core # 53: Gray green micaceous-flaky shale, a little phosphatic material,
NO. 1 TINDEL

some small fragments of carbonaceous material; some thin irregular silty partings.
No forams noted in personal cut.

Bot: Greenish gray very finely and highly sandy shale, abundant fragments of Ostracods, some mica, some phosphatic material.

2946-51' Core # 54 Top: Soft gray, micaceous, very highly and very finely sandy clay. Some shell fragments.

Bot: Soft, greenish gray, argillaceous micaceous very fine grained sandstone.

2951-56' Core # 55 Top: Greenish gray, micaceous, irregular and highly silty clay shale. Some fragments of Ostrea, a few Ostracods, some small phosphatic nodules.

Bot: Greenish gray, micaceous soft siltstone, with thin irregular, streaks and parting of gray-green shale.

2956-61' Core # 56: Calcareous micaceous, greenish gray, shale and siltstone, irregularly distributed as above. Many fragments of Ostrea.

2961-66' Core # 57 Top: Soft, shaley, and micaceous, very fine grained, greenish gray sandstone, with fragments of Ostrea and of carbonaceous material.

Bot: Soft, unconsolidated micaceous, very fine, even grained, light gray sand.

2966-71' Core # 58: Light gray calcareous micaceous siltstone, some fragments of Ostrea sp. Material is slightly very finely glauconitic and has speckled appearance from evenly distributed particles of dark colored micaceous, some colorless mica also present.

2971-76' Core # 59: Light gray, calcareous slightly micaceous, very fine, even grain-ed sandstone, carrying fragments of Ostrea sp. and some phosphatic nodules.

2970-90' Cut of fine grained micaceous sand and some fine grained sand, limestone - a little gray-green shale many fragments of Ostrea, some phosphatic nodules. A trace of glauconitic.

2990-3010' Mainly fine sand and some sandstone - many fragments of Ostrea sp. cavings of some material and many forams from much higher depths.

3010-70' No samples.

3070-90' Fine to medium grained sand many fragments of Ostrea; fragments of a white, calcareous, highly and medium grained glauconitic sandstone with some imbedded shell fragments. Cavings of material and forams from much higher depths.

NO. 1 TINDEL

3090-3110' Fine to medium grained sand - many fragments of Ostrea, about 50 to 75% of sample, cavings.

3110-30' Fine to medium grained sand - many fragments of Ostrea, a few fragments of sandstone, many medium sized grains of dark green glauconitic, some phosphatic material, cavings as above.

3130-50' Like the preceeding.

3150-70' Fine to medium grained sand. Many fragments of Ostrea some fragments of dark gray-green shale, a little glauconite and some pyrite, and many cavings of micro-fossils and some material from much higher depths.

3170-90' Like the preceeding. Some fragments of moderate fine grained glauconitic sandstone as noted at 3070-90 etc.

3190-3210' Cut of moderate hard gray marly shale, many fragments of Ostrea sp. - some pyrite nodules; a few phosphatic nodules, many forams, apparently all caving from much higher portions of the section, little sand.

3210-30' Shale, shell fragments - fauna etc., as above, some glauconite and about 20% fine to medium grained sand.

3230-50' Like the preceeding.

3250-70' Mainly gray marly shale, and fragments of Ostrea about 10% sand. A little glauconite pyrite and phosphate as above.

3270-90' No sample (Top of M. Atkinson by Schlumberger about 3270') ^L Woodbine equivalent.

3290-3310' Material and fauna like the preceeding. Samples for last 150' apparently mainly cavings.

3310-3330' No change.

3330-50' Mainly gray marl, fragments of Ostrea as above, a few fragments of a dark gray, somewhat carbonaceous flaky shale which may be coming from the depths indicated, some pyrite nodules and a few fragments of carbonaceous material, many irregular shaped siderite nodules, many specimens of Ammobaculites advenus and Ammobaculites agrestis, Trochammina rain wateri present. (see # 25 on slide) Def. H. Atkinson = "Marine Tuscaloosa." Woodbine age.

25' Dark
L. Frank

3350-70' Like the preceeding, dark greenish gray shale fragments common. Some forams, species as above present, very little sand.

3370-90' Cut, composed mainly of fragments of gray shale, many fragments of a light gray very fine grained calcareous finely glauconitic micaceous sandstone shell fragments, as above, few indigenous forams noted.

NO. 1 TINDEL

- 3390-3410' Dark gray and some greenish gray shale, fragments of the light gray, micaceous and finely glauconitic calcareous, very fine grained sandstone as in preceding, some fragments of *Ostrea*, very few indigenous forams present.
- 3410-30' Like the preceding.
- 3430-50' About 50% dark gray shale and 50% hard light gray micaceous and somewhat finely glauconitic calcareous fine grained sandstone.
- 3450-70' Like the preceding.
- 3470-90' Mainly dark gray shale, a little sand and sandstone; many pyrite nodules and pyritised forams. Common species are *Ammobaculites advenus*, *Polyphragina* sp. *Globigerina* sp. and *Globorotalia marginaculeata*. (Apparently a phase of the "Barlow" fauna) see # 26 on slide.
- 3490-3510' Like the preceding, some specimens of *Anomalina obesa*, *Gaudryina* cf. *bentonensis*, *Frondicularia* cf. *inversa*, and *Quinqueloculina lirellangula* in addition to many specimens of the species listed from preceding sample. (see # 27 on slide)
- 3510-30' Cut of gray and greenish gray shale also, many fragments of light gray, fine grained micaceous and somewhat glauconitic sandstone and about 10% of sample medium grained quartz sand, some glauconitic and pyrite nodules. A few forams, species as above.
- 3530-50' Like the preceding.
- 3550-70' Cut of dark gray and some fragments of sandstone, about 10% medium sand as above. Some phosphatic and pyritic nodules, micro-fauna present, mainly caving from upper part of Cretaceous section.
- 3550-55' Core # 60 Rec. 5' Top: Gray thinly laminated shale. Some very minute forams in the shale, a few disk shaped pyrite nodules. A trace of glauconite.
Mid: Same as top.
Bot: Similar to preceding, but slightly sandy, a few small arenaceous forams a few specimens of a small species of *Globigerina*, some small, disk shaped pyrite nodules (possibly Diatom molds.) A little glauconitic, some specimens of *Trochammina rainwateri* in personal cut.
- 3555-65' Core # 61 Rec. 10' Top: Dark gray thinly laminated shale. Pyrite nodules common.
Mid: Same as top - shale is slightly micaceous and contains some small fragments of carbonaceous material.

26
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N.B.
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NO. 1 TINDEL

Bot: Gray-green, micaceous; glauconitic, soft fine grained sandstone. Phosphatic nodules, also common.

3565-75' Core # 62 Rec. 10' Top: Soft sandstone as in bottom of preceeding core, some very thin black, carbonaceous shale partings.

Mid: Greenish gray, slightly micaceous shale, some glauconite, a little carbonaceous material, some specimens of Ammobaculoides plummerae and Ammobaculites advenus and A. agrestis, Trochammina rainwateri (see # 28 on slide)

Bot: L. Tusa. - Greenish gray, argillaceous, glauconitic and micaceous medium to coarse grained soft sandstone, some phosphatic nodules.

3575-85' Core # 63 Rec. 8' Top: Argillaceous glauconitic sand as in bottom of preceeding. Coarse grained more abundant.

Mid: Argillaceous medium to coarse grained sand; some phosphatic nodules, trace of mica.

Bot: As above, some glauconitic.

3585-95' Core # 64: Soft gray, argillaceous, glauconitic and micaceous, medium to coarse grained sandstone.

3595-3600' Core # 65: Like the preceeding a few worn shell fragments and phosphatic nodules.

3600-05' Core # 66: Coarse grained, argillaceous, gray, soft sandstone, some glauconitic phosphatic material and a few badly worn shell fragments.

3605-07' Core # 67 Rec. 1": Gray; argillaceous, medium to coarse grained, glauconitic and slightly phosphatic soft sandstone - many worn shell fragments.

3607-12' Core # 68 Rec. 4' Top: Greenish gray, argillaceous glauconitic and micaceous fine grained sandstone. A few shell fragments and phosphatic nodules.

Bot: Light gray, poorly consolidated, fine to coarse grained argillaceous sand. Some thin streaks of dark gray shale.

3612-17' Core # 69 Rec. 2 1/2': Light gray argillaceous, slightly glauconitic fine to coarse grained sand with coarse grains, common. A few badly worn fragments shell material.

3617-22' Core # 70 Rec. 1': White bentonitic medium to coarse grained etched quartz sand.

3622-27' Core # 71: Gray argillaceous, medium grains, with some thin irregular parting of dark gray carbonaceous and somewhat micaceous shale. Like the top, but sand medium to coarse grained.

NO. 1 TINDEL

3627-32' Core # 72 Rec. 5': Top: White, bentonitic medium to coarse grained sandstone, some thin lenses of dark gray, flaky carbonaceous shale.

Bot: Dark gray thinly laminated shale with streak of carbonaceous material and some thin partings of fine grained micaceous sandstone.

3632-42' Core # 73 Rec. 24": Dark gray, thinly laminated flaky, slightly micaceous shale. A few thin, pyritic and micaceous moderately fine sand lenses. Some shreds of carbonaceous material, in materials a few shell fragments.

3642-47' Core # 74 Rec. 3': Fine to coarse quartz sand - coarse grains, common. Many streaks of lignite.

3647-52' ^{Top of Comanche.} Core # 75 Rec. 5': Top: Light gray, highly micaceous, argil, medium grained, moderately soft sandstone. A few small pebble sized quartz grains.
Top of L.
Cret.

3652-57' Core # 76 Rec. 1': Light gray, argil and micaceous, fine to coarse grain-
ed etched sand, a few pebbles.

3657-60' Core # 77: Light gray, bentonitic, fine to coarse grained, roughly an-
gular, etched sand of quartz and some feldspar.

3660-65' Core # 78: Rec. 4' Top: Light gray, micaceous and argil. Fine to moderate
coarse sand of quartz and some feldspar.

Bot: Cream colored, argillaceous (Unctuous) and micaceous, fine to coarse
sand, quartz and some feldspar. Coarse grains common.

3665-70' Core # 79 Rec. 4': Top: Light gray, micaceous sandstone and thin streaks
of dark gray, finely and highly micaceous clay shale, sand is very fine
grained.

Bot: Fine to coarse sand and lenses of gray, unctuous shale with plant frag-
ments. Shale shows some red mottling.

3670-3700' Cut. Mainly cavings from Upper Cretaceous shale, a little coarse sand
and a few fragments of dark purplish red and gray mottled shale.

3700-30' Like the preceeding.

3730-60' Shale cavings as above and 50% fine to very coarse sand (quartz and
some feldspar).

3760-3800' About 75% fine to coarse sand and 25% shale cavings with a few fragments ,
gray and purplish red mottled.

3800- 30' No change.

NO. 1 TINDEL

- 3830-50 75% fine to very coarse quartz sand - with some imbedded pyrite nodules, 25% gray shale cavings.
- ~~3860-90~~ Like the preceeding, an occasion^{al} fragment of dark brownish red, micaceous shale. (see # 29 on slide)
- 3890-3920' No change.
- 3920-50' 50% sand as above, 50% cavings.
- 3950-80' 90% sand 10% shale cavings.
- 3980-4020' No change.
- 4020-30' Small sample, mainly shale cavings from Upper Cretaceous, a little fine to coarse sand.
- 4030-40' Like the preceeding. A few very small fragments of the dark brownish red, unctuous shale.
- 4040-50' Like the preceeding. No red shale a few yellow and pink tinted quartz grains.
- 4050-60' Small sample, 50% sand as above and 50% cavings of gray shale.
- 4060-70' Same as above with some fragments of dark red and gray mottled, unctuous, micaceous shale.
- 4070-80' Mainly fine to coarse sand.
- 4080-90' Fine to very coarse sand quartz and a little feldspar with a few tinted grains. Some fragments of an olive-green shale. A little cavings.
- ~~4090-4100~~ Sand as above, some fragments of a reddish brown, gray and yellow-green mottled shale. (see 30 and 32 on slide)
- 4100-10' Like the preceeding.
- 4110-20' Sand as above and some fragments of multi colored shale.
- 4120-50' No change.
- 4150-4220' Like the above, with an average of 50% cavings very little multi-colored shale.
- ~~4220-30~~ Same as above with a few fragments of a brighter red, finely micaceous, gray mottled shale. (see # 33 on slide)
- 4230-408' Same as above - about 50% cavings, a few fragments of multi-colored shale.

NO. 1 TINDEL

- 4240-60' Like the preceding.
- 4260-70' Like the preceding with the addition of a few pink mottled, slightly sandy lime nodules.
- 4270-80' Sand and some cavings as above, fragments of dull red and greenish gray mottled micaceous shale, fairly common, some pink lime nodules as above.
- 4320-30 Like the above, sand averaging finer grained.
- 4330-40' Small washed sample, fine to medium grained sand many pink stained lime nodules, a few small fragments of red shale, some cavings. G-Zone?
- 4340-60' Like the preceding.
- 4360-70' Mainly fine to medium grained quartz sand - some pink stained lime nodules about 50% small fragments of red, micaceous, slightly mottled shale, some glauconite (probably caving)
- 4370-4420' Like the preceding.
- 4420-30' Small sample, fine to coarse ^{sand} ~~shale~~ - a few pink stained lime nodules, some yellowish green, gray and red mottled shale, some cavings.
- 4430-50' Like the preceding.
- 4450-60' Small washed sample of shale cavings, a little fine to coarse sand about 50% small fragments of brownish red, micaceous shale.
- 4460-70' Fine to coarse sand with coarse grains common, quartz and some feldspar, some pink stained lime nodules, a very little red and mottled shale.
- 4470-4530' Like the preceding.
- 4530-40' Fine to coarse sand of quartz and some feldspar, with tinted (reddish and yellowish) quartz and feldspar grains fairly common, some pink splotched lime nodules, and about 5 to 10% - fragments of red and gray or yellow-green mottled thinly laminated shale. (see # 34 and 36 on slide) A few fragments medium grained sandstone - vari-colored.
- 4540-50' No change.
- 4550-60' Mainly fine to coarse sand of quartz and some feldspar -(few tinted grains) a few lime nodules and a few fragments of red and mottled shale.
- 4560-70' Like the preceding.
- 4570-80' No change.
- 4580-90' Sand and some lime nodules as above, many fragments of a hard yellowish green, slightly gray and red mottled shale. (see # 36 on slide)

*with ore -
iron, iron,
glauconite*

OK

- 4590-4600' fine to coarse sand, coarse grains common, some tinted grains quartz and a little feldspar. A few pink stained lime nodules, some fragments of multi-colored shale as above.
- 4600-4720' Like the preceding.
- 4720-30' Smaller amount of sand - more multi-colored shale (about 10% of washed sample). Some lime nodules.
- 4730-40' Like the preceding.
- 4740-4840' Like the above multi-colored shale varying from 5 to 10% of washed sample.
- 4840-50' Moderately large washed sample of fine to coarse sand; with moderately coarse grains dominant. A small amount 5 to 10% of red and mottled shale (several types) a few pink spotted lime nodules.
- ~~4850-4970'~~ Like the preceding. (for examples of common red shale in this part of section (see # 37 and 38 on slide)
- ~~4970-80'~~ Shale as above and possibly 10% red shale.
- 4980-90' Like the preceding.
- 4990-5000' Fine to coarse quartz sand - (a small number of feldspar grains) coarse grains dominant. About 1 to 2% fragments of red shale.
- 5010-20' Like the preceding.
- 5020-5130' No change.
- 5130-40' Like the above, with a few fragments of a green micaceous shale added to the colored shale fragments present.
- 5140-50' No change.
- 5150-60' Same as above - about 10% red micaceous shale.
- 5160-70' Like the preceding.
- 5170-80' washed sample smaller, (less sand) some pink stained lime nodules, about 10% red shale. Shale probable being drilled.
- 5180-5210' Like the preceding.
- 5210-20' Fine to coarse sand, (coarse grains common). Very little shale.
- 5220-30' No change.
- 5230-40' Same as above, about 20% dark red shale in small fragments.

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5 W 24 51

NO. 1 TINDEL

- 5240-70 Like the preceeding.
- 5270-80' Mainly fine to coarse sand with coarse grains common. Very little red shale, sand is quartz and some feldspar.
- 5280-5300' No change.
- 5300-10' Fine to coarse ~~shale~~^{sand} with coarse grains common, about 10% dull red, slight-gray green mottled, finely and highly micaceous shale. (Samples only slightly washed)
- 5310-20 As above, about 20% shale.
- 5320-50' No change.
- 5350-60' Sand and about 50% red shale.
- 5360-70' Sand and about 10% shale.
- 5370-80' Sand - very little red shale.
- 5380-90 Sand - and about 10% red shale as above.
- 5390-5400 Sand - and about 20% red shale as above.
- 5400-10' Like the preceeding.
- 5410-20' Coarse sand little dark red, waxy shale. (1 to 2%)
- 5420-80' Like the preceeding.
- 5480-90' Sand as above , about 10% red shale.
- 5490-5500' Sand - and about 5% red shale.
- 5500-10 Sand and about 50% dark red, slightly gray-green mottled micaceous shale. Shale irregular sparsely sandy.
- 5510-20' Coarse sand and 50% red and green sandy, micaceous shale.
- 5520-30' Coarse sand and about 25% shale as above.
- 5530-70' Like the preceeding.
- 5570-80' Coarse sand and about 20% dark red, micaceous and some bluish green shale.
- 5580-90' Like the preceeding.
- 5590-5650' No change.
- 5650-70' Fine to coarse sand, about 10% red and some green shale as above.

NO. 1 TINDEL

- 5670-80' Coarse quartz sand - a few fragments of red shale.
- 5680-5720' No change.
- 5720-30' Sand as above and about 5% red shale.
- 5730-40' Sand and a few fragments of red shale.
- 5740-50' Fine to coarse sand a few fragments of red and some blue-green shale. (about 1%)
- 5750-60' Like the preceeding.
- 5760-70' No change.
- 5770-80' Fine to coarse sand and about 25% dull dark red micaceous shale, some fragments of shale very highly micaceous. A little blue-green shale.
- 5780-90' About 50% red shale 25% sand - 25% cavings.
- 5790-5800' 25% red shale - 50% fine to coarse sand - 25% cavings.
- ~~5800-10'~~ *BRN SH* *Q-11170 mic* *SS*
Cut of dull, dark brownish red, finely micaceous shale medium grained sandstone and fine to coarse sand some cavings from higher levels. For shale and sandstone see (#39 to 43 on slide). This shale began coming in 5770'.
- ~~5810-20~~ Like the preceeding.
- 5820-30' About 80% sand and sandstone as above 20% dark dull red micaceous shale and cavings.
- 5830-40' Like the preceeding.
- 5840-50' Almost entirely cavings.
- 5850-60' Sand some sandstone and dark dull red, micaceous shale.
- 5860-70' Sand and shale as above, at least 50% cavings.
- 5870-80' Dark dull red micaceous shale - some sand and cavings.
- 5878-83' Core # 81: Rec. 2': Dark dull red, highly and finely micaceous, silty shale, some blue-green mottling.
~~L. zone?~~
- 5883-88' Core # 82: Rec. 6": Dark brownish red, finely micaceous and slightly sandy shale, some blue green areas.
- 5888-93' Core # 83: Rec. 4': Top: Moderately soft dark dull red fine grained, micaceous, shaley sandstone.
- Bot: Sandstone - argillaceous and highly calcareous fine grained; micaceous light bluish green and dull red, mottled, moderately hard.

NO. 1 TINDEL

- 5890-5900' Fine to coarse sand (probable cavings) and red shale.
- 5900-10' About 50% - fine to coarse sand - 50% dark dull red micaceous shale and a few lime nodules.
- 5910-20' About 50% brighter red shale and 50% sand as above, fairly numerous (partly red stained) lime nodules, and cavings.
- 5920-40' Like the preceding.
- ~~5940-50'~~ *red sh*
ok Bright red, in part silty and micaceous clay - shale - many red stained nodules lime fragments, about 50% fine to coarse sand (probable mainly cavings). For shale and lime nodules see (# 44 and 45 on slide).
- 5950-60' 50% medium grained calcareous white sandstone - 50% red shale and lime nodules.
- 5960-70' 75% red shale - 25% sandstone.
- 5970-80' like the preceding.
- 5980-90' Small sample 50% sand - 50% red shale - with many red stained fragments of nodular lime stone.
- 5990-6000' Like the preceding.
- 6000-50' No change.
- 6050-60' Fine to coarse and medium grains common, 75%, and 25% red shale and stained fragments of nodules lime stone, some cavings.
- 6060-70' Like the preceding.
- 6070-80' 90% sand - about 10% red shale and nodular lime.
- 6080-6150' No change.
- 6150-60' 90% fine to coarse sand, coarse grains common, some fragments medium grained sandstone; 10% red shale and red or redish nodules lime stone fragments, some cavings.
- 6160-70' Red shale about 20% sand about 80%.
- 6170-80' Mainly sand, about 10% red shale and red and some greenish gray nodules lime many cavings.
- 6180-6280 No change.
- 6280-90' About 50% fine to coarse sand, 50% red shale and red, and white nodular lime fragments, some cavings.
- 6290-6300' Like the preceding with many small fragments of a white, medium grained quartz sandstone.

NO. 1 TINDEL

- 6300-10' 75% fine to coarse sand and 25% fragments of red shale and of white and red to reddish, partly sandynodular, lime stone.
- 6310-20' Similar to preceeding about 90% sand, 10% red shale and lime nodules.
- 6320-90' No change.
- 6392-93 Core # 84 Rec. 7": Dark dull red, reddish gray mottled Unctuous shale.
- 6393-96½ Core # 85 Rec. 10": Dull red and gray green, silty micaceous shale and some large lime nodules.
- 6396½-6401½ Core # 86: Shaley, micaceous, light, green micaceous sand stone with some red mottling and some hard, highly calcareous areas. Sand grains medium, Some flakes of chloritic? material. *discrete*
✓ open ✓
- 6401½-12 Core # 87: Top: Sand stone, gray, highly micaceous (black and green mica-~~ceous~~) moderately soft, argillaceous medium grained clear sub. angular quartz, some peach tinbed grains.
- Bot: Same as top of core.
- 6410-20' Fine to coarse sand, 50% fragments of red shale, sandy red shale and red stained nodular lime fragments.
- 6420-30' Same as above and about 25% fragments of red shale and many lime nodules, many of them sandy.
- 6430-6560 No change.
- 6560-70' Small washed sample, about 50% fine to coarse sand and 50% small fragments of red shale, many moderately small lime nodules as above.
- 6570-80' Like the preceeding.
- 6580-90' No change.
- 6590-6600' About 75% dark dull red shale and 25% fine to coarse sand and some red stain-ed lime nodules.
- 6600-10' About 50% fine to coarse sand, 50% dull dark red shale and lime nodules, a few fragments of green shale, micaceous sandstone, and red sandstone, some cavings.
- 6610-20' Like the preceeding.
- 6620-30' Mainly dull dark red shale and fine to coarse sand in equal porportions (small washed samples) some stained lime nodules.

NO. 1 TINDEL

- 6630-40 Like the preceeding, some fragments of green micaceous shale.
- 6640-50' Larger sample about 75% fine to coarse sand with coarse grains common, some lime nodules, a little red shale - some cavings.
- 6650-70' Like the preceeding, some fragments of white quartz sandstone.
- 6670-80 Sand and some fragments of sandstone as above - about 50% dull dark red shale and stained lime nodules (in part, sandy.) Smaller washed sample than preceeding.
- 6680-90' No change.
- 6690-6700' Small sample mainly fine to coarse sand, a little red shale and some lime nodules and cavings.
- 6700-6850' No change. Coarse grains common in sand layer samples, dull purplish red shale, about 5% small fragments.
- 6850-60 Moderately large washed sample, mainly fine to coarse sand as above with coarse grains common, about 10% small fragments of light red shale and red stained lime nodules, some obvious cavings.
- 6860-70' Like the preceeding,
- 6870-80' Mainly sand as above, about 1 to 5% red shale (various shades) and stained lime nodules - many obvious cavings fragments.
- 6880-7010 No change.
- 7010-20' Small sample almost entirely cavings.
- 7020-30' Small sample - fine to coarse sand - some stained lime nodules, a few fragments of red shale - at least 50% cavings.
- 7030-40' Moderately small sample - fine to coarse sand - some stained lime nodules; a little red shale - about 20% cavings.
- 7040-7100 Like the preceeding.
- 7100-10' Mainly fine to coarse sand, with coarse grains common, some stained lime nodules, a few fragments of red shale about 10% cavings.
- 7110-70' No change.
- 7170-80' Moderately large sample - fine to coarse sand and fragments of white, medium grained sandstone - some lime nodules and about 10% cavings.
- 7180-90' Sand as above and about 20% stained fragments of nodular lime and some small fragments of dark dull red shale, some cavings.

NO. 1 TINDEL

- 7190-7200' Sand as above, lime nodules and about 50% cavings.
- 7200-10' Like the preceeding with many fragments of medium grained sandstone.
- 7210-30' No change.
- 7230-40' Moderately large washed sample composed mainly of fragments of fine to medium grained quartz sandstone, sand is quartz with a little feldspar and ~~micaceous~~ and a trace of chloritic material, some fragments of nodular lime stone as above.

7240-70' *SS or, mica* Like the preceeding, little consolidating material in the sandstone (for fragments of this sandstone from 7240' see # 46 and 47 on slide).

- 7270-80' Fine to coarse sand - some sandstone as above, some lime nodules.
- 7280-90 Sand - many fragments of sandstone like the above, a few lime nodules, some cavings.
- 7290-7300' No change.
- 7300-10' Fine to coarse sand, many fragments of sandstone as above, a small amount of red shale and lime nodules.
- 7310-60' Like the preceeding.
- 7360-70' Moderately small washed residue of about 50% fine to coarse sand, 50% stained and in part, sandy fragments of nodules limestone, a few fragments of sandstone as above and of red shale - some cavings.
- 7370-80' Like the preceeding.
- 7380-90' No change - a tubular (Lituola - like) pink stained foram? in sample (see # 48 on slide).
- 7390-7400' Materials as above.

7400-10' Fine to coarse sand with a few fragments of sandstone, about 10% fragments of stained and in part sandy nodules limestone (probably from calcareous concentrations in sandstone and shales) a small amount of red shale and cavings.

7410-60' No change.

7460-70' Moderately large washed sample of fine to coarse white sand with coarse grains common - a few fragments of the loosely cemented sandstone from which the sand washes. Sand quartz with a little feldspar - some small hard red and a few gray nodular inclusions. (See # 49-52 on slide)

Def. L. zone.

SS or
J. H. ...
P.A.

(mud zone)

NO. 1 TINDEL

- 7470-7500' Like the preceeding.
- 7500-10' Sand and sandstone as above, some lime nodules, a little red shale.
- 7510-20' Sand and sandstone as above, (sample moderately small) many, about 20%, ~~very~~ tinted fragments of nodules limestone (from lime concentrations in sandstone) a little red shale.
- 7520-90' Like the preceeding.
- 7585-87' Core # 88: Rec. 2': Soft, gray, argillaceous, medium to coarse grained sandstone - medium grains dominant, bronze and black micaceous in fine particles, thickly and evenly distributed, sand mainly clear quartz.
- 7587-92' Core # 89: Rec. 5': Soft to moderately hard light gray, micaceous argillaceous sandstone, some portions fine grained, other portions medium to coarse. Micaceous generally in small fragments, thickly and evenly distributed, sand mainly quartz - some feldspar (peach colored) some grains of rose quartz.
- 7590-7600' Fine to coarse sand and many fragments of dark dull red, some of green shale.
- 7600-10' (Samples not washed) Dark dull red and some green shale - some sandstone as in core above and some sand; fragments of vari-colored nodules limestone (probably from lime concentrations in sandstone and shale.)
- 7610-20' About 50% fine to coarse sand with some fragments of sandstone and some nodular lime and 50% fragments of dark dull red and some green shale, some of shale fragments highly micaceous. (sample not washed.)
- 7620-50' Like the preceeding.
- 7650-60' About 75% fine to very coarse sand as above, 25% dark red and a little green shale, some vari-colored nodular lime fragments.
- 7660-70' At least 50% dark red, somewhat green mottled shale (in part silty and micaceous, in part unctuous; about 50% fine to coarse sand and some fragments of sandstone, a few multi-colored fragments of nodular limestone. (sample not washed.)
- 7670-80' About 75% shale as in preceeding 25% sand. A few lime nodules, some pebble-sized sand grains.
- 7670-80' Like the preceeding.
- 7680-7720' No change. (for sample of the red and green shale and sandy shale see # 52-55 on slide)
- 7720-30' Mainly fine to coarse sand.

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NO. 1 TINDEL

- 7730-40' Sand as in preceeding, a little red and green shale and sandy shale, a few nodular lime fragments - apparently from lime concentrations in the shale.
- 7740-50' Mainly medium to very coarse sand and sandstone.
- 7750-60' About 50% sand as above and 50% dull red shale silty to sandy, a few green shale fragments. (sample not washed)
- 7760-80' Like the preceeding.
- 7780-90' Mainly red, somewhat green mottled shale - in part silty to finely sand. A little sand and a few vari-colored lime fragments.
- 7790-7800' Shale as above and about 20% sand and sandstone fragments.
- 7800-10' Like the preceeding. A few chert nodules, a few fragments of dark grayish purple shale.
- 7810-20' Almost entirely shale.
- 7818-23' Core # 90 Rec. 2'8" Top: Gray green highly and finely sandy and micaceous shale, some small fragments of carbonaceous material, some portions dull red, with greenish gray mottling.

Mid: Moderately hard - light greenish gray - micaceous, argillaceous sandstone grains fine to medium. Mica black, some colorless, some green chloritic? grains some small fragments of carbonaceous material.

Bot: Greenish gray, micaceous to highly micaceous, silty to finely sandy shale mica same as in middle of core.
- 7823-28' Core # 91 Rec. 4'5" Top: Light pinkish gray, argillaceous micaceous, fine to medium grained sandstone. Cross bedding indicated on exterior of core fragment.

2nd 1': Sandstone similar to preceeding, but medium sized grains dominant and less cementing material.

Bot: 2'5": White, argillaceous medium to moderately coarse grained sandstone. Many peach colored grains of feldspar - a little mica and rose quartz, a few grains of magnetite and some green (chloritic?) grains.
- 7828-38' Core # 92 Rec. 3' Top 1': Gray green unctuous bentonitic, micaceous, shale (black micaceous) some portions silty.

Bot 2': Sand, shale or shaley sandstone dull red, with some green mottling sand fine to medium grained unevenly distributed. Some micaceous shale unctuous.

NO. 1 TINDEL

7830-40' Cut of red and green shale and some fragments of moderately coarse grained argillaceous sandstone.

7840-50' Cut of fine to very coarse quartz sand some fragments of red and of green shale as above.

7848-53' Core # 94 Top 1 1/2': Dark dull red, slightly green mottled, micaceous irregular silty shale.

Bot. 1 1/2': Dark dull red, micaceous, finely sandy shale or shaley sandstone, a little green mottling.

7853-63' Core # 95 Rec. 6' Top: Dark dull red micaceous, irregular sandy shale - with highly micaceous parting, mica is colorless, black and dark green.

Bot: Dark, dull red, highly and finely sandy, micaceous shale, mica same as in top of core.

7863-73' Core # 96 Rec. 8' Top: Gray micaceous, argillaceous sandstone with highly micaceous partings - sand fine to medium grained - fine grains dominant. Mica colorless or black with greenish cast.

Mid: Light gray argillaceous medium grained sandstone with thin bands darker gray and highly micaceous. Some colored quartz grains - some chloritic? grains, matrix white, and bentonitic.

Bot: Moderately soft, white, medium to moderately coarse grained argillaceous sandstone bentonitic cement. Many peach colored grains (some of these feldspar.) A few chloritic? grains.

7873-83' Core # 97 Rec. 3': Light gray to greenish gray, argillaceous, moderately coarse grained sandstone reddish or peach colored grains common. A little mica.

7883-90' *Grind a specimen silty & white ss.* Cut-fine to coarse quartz sand (coarse grains common) about 10% fragments of dark dull red - a few of purplish red shale - all types in part finely sandy and micaceous (biotite and muscovite) (see # 50 to 60 on slide)

7890-7900' Like the preceding.

7900-10' Like the above, with shale content about 50%.

7910-50' No change.

7950-60' Shale and sand as above, shale 75%.

7960-70' No change.

7970-80' Fine to coarse sand, mainly sub. angular quartz moderately coarse grains common - about 20% green and red shale like that above.

NO. 1 TINDEL

- 7980-90' Shale, sand and micaceous shale and sand as above - a few of the shale fragments dark gray with reddish streaks.
- 7990-8028' No change.
- 8028-40' Sand and shale as above, also many fragments of medium grained quartz sandstone - similar to that 7460-70' etc.)
- 8040-50' Fine to coarse sand and about 20% red and green shale as above.
- 8050-60' Sand, shale, and some sandstone as above, shale about 20% grains of pear color ed feldspar slightly more common in the sand.
- 8060-70' No change.
- 8070-80' Like the above, a few fragments of gray, mustard and red mottled shale. (see # 13-16 slide 2)
- 8080-90' Like the preceding.
- 8090-8100' Sand and shale as above - shale about 10%.
- 8100-16 ("Sample misplaced")
- 8116-34 "No return!"
- 8140-50' Dull dark red, red and gray mottled, some green, irregular sandy and in part, micaceous shale 50% fine to coarse sand with coarse grains common 50%.
- 8150-80' Like the preceding.
- 8180-90' Sand and shale as above - sand grains - averaging coarser - some of small pebble size.
- 8190-8200' Sand about 80% - shale as above about 20%.
- 8200-10' Like the preceding, for common shale and sand grains see (#17 to 21 on slide 2) Shale mainly gray, sandyunctuous dull red mottled.
- 8210-30' No change.
- 8230-40' ~~Mainly fine to very coarse sand - about 5%. Ph.~~ *Triassic? - 8220'*
- 8240-50' Sand as above but with abundant grains of reddish feldspar, and a few of other material (see # 22 to 29 on slide 2.) A few fragments of red, fine grained quartzite.
- 8250-60' Sand and about 10% shale as above. ~~Trace of~~ Feldspar less abundant.
- 8260-70' Like the preceding.

*Yours only
p. 11
NSM 517*

8220'

*Same 8220' in miscell
work, Iran*

NO. 1 TINDEL

MISSIVE
MISSIVE
MISSIVE

8270-78' Mainly coarse quartz sand with many grains of reddish feldspar, a few of red to dark brown and lemon - yellow; fine grained quartzite (see # 29 to 32 on slide 2).

8278-90' Feldspathic sand as above, grains averaging somewhat coarser - a little sandy, unctuous, dull red and greenish gray mottled shale.

8290-8300' Like the preceeding.

8300-20' No change.

8320-30' Sand like the preceeding with the addition of many chips of fine grained white quartzite and a few of dark. ~~A few~~ shale fragments of various types seen higher in hole, for quartzite fragments(see # 32 to 37 on slide 2).

8330-40' ?

8340-50' Sand fine to coarse quartz, some feldspar and some quartzite as above - about 10% fragments of shale of several types and colors -(probably mainly caving.)

8350-60' Like the preceeding, little quartzite.

8360-70' Similar to preceeding, quartzite fragments again fairly common and some fragments of a ~~red~~ and light red silty micaceous shale which may be coming from this depth. (see # 38 and 39 on slide)

MISSIVE
MISSIVE
MISSIVE

8370-80' Like the preceeding.

R. SHALE, SILTY, MIC, POORLY COARSE.

8380-84' Cut apparently of a conglomeratic sand of quartz, feldspar, weathered granite, a little quartzite and some hard clay nodules, apparently originally in a light red soft clay matrix.

"(17' depth correction)"

{ 8399-8416 }
{ 8416-30 } Materials like the above.

8430-44' Conglomerate like the above in general character - grains averaging coarser.

8444-50' No change. 8440' Top of Paleozoic, Middle Devonian.
Shale, s.s. & siltstone.

8450-60' Materials as above also many fragments of a light red, unctuous shale apparently marking the top of a weathered Paleozoic section. (see # 40 to 44 on slide 2)

T.D. 9245' - still in Devonian.

Respectfully submitted,

E. R. Applin

E. R. Applin
September 21, 1950