

P19

W-1118
E. R. Applin

PERMIT # 19
 OWNER : Sun Oil Company
 FARM NAME : Powell Land Company No. 1
 LOCATION : Sec. 11, T17S, R31E, 7 $\frac{1}{2}$ mi. E
 of DeLand. 797' N and 776.5' E
 of SW cor. of Sec.
 COUNTY : (Volusia)
 ELEVATION : 42' grd; 48' DF
 STARTED : June 25, 1946
 COMPLETED : September 14, 1946
 CASING : 94' of 16" w/100 sks: Re-cmtd 16"
 w/200 sks; 2220' of 10 $\frac{3}{4}$ " w/300 sks.
 DEPTH : 5958'
 CONTRACTOR: Penrod Drilling Company
 USE : Test for Oil
 REMARKS : 836 samples from 0-5958'
 obtained from Miss Louise Jordan
 Sun Oil Co., by Walton Jones,
 Sept. 1946. Schlumberger 97-5956'.

PLIOCENE-PLEISTOCENE

22-35 Sand, fine even light cream. Abundant shells, generally gray color.
 35-45 Sand, medium, and shale, as above.

APPROXIMATE TOP OF UPPER MIOCENE

47 Dark gray marly shale, abundant shell. Sand, medium rather
 poorly sorted, abundant shells including *Chione procancellata*.
 Shell fragments, gray and some white, same to 98'.
 98 White chalky sand, many white shell fragments, many bryozoan
 fragments and chalky molds ostracoda, many fragments bryzoa.
 A few phosphatic nodules.

AVON PARK

100-130 Cream, coquinoidal limestone, medium moldic (porous appearance
 due to removal of microfossiliferous material and fragments).
 Fragment of Dictyoconus floridanus.
 130-160 Limestone, cream, finely moldic; sand, chalky, medium grained.
 160-190 Limestone, cream, chalky. Good specimen D. floridanis.
 220-250 Chalky sand or sandy chalk. (Chalk and sand evenly distributed
 and about 50-50. Chalky molds and mold fragments of micro-
 fossiliferous material.
 255-290 Sandy chalk, as above. Many fragments large bivalves (these
 probably caving).

- 350-380 Sandy chalk, as above. Textularia coryensis. Samples continue alternating sandy chalk and coquinoidal limestone with shell fragments (probably caving) to 370'.
- 370-380 Some moldic dolomitic chips.
- LAKE CITY - LOWER MIDDLE EOCENE
- 430-440 Limestone, hard, light brown, dense (Lake City?)
- 470-500 Limestone, dolomitic, hard, moldic, traces of macrofossils molds. Original fossil content probably chalky. One poor questionable, chalky and dolomitic mold of D. americanus (?) Partitions of chamber layers only shown. No chamberlits. One good mold, cone shaped specimen of D. americanus. Materials mainly tan and some gray moldic dolomite. No marked change in samples to about 700'
- 680-710 Limestone, hard cream, chalky texture with some dolomite nodules and caving specimens of D. americanus.
- 790-810 Dolomite, brown, porous comes in in this sample and increases in relative abundance with depth. Dolomite is pitted, or "moldic", porosity due to microfossil voids.
- 850-860 Dolomite hard, porous. Trace of carbonaceous material.
- 870-880 Dolomite dense, fine, hard. Some chalky lenses.
- 910-920 Dolomite more indurated and a darker brown than preceeding.
- 920-930 Dolomite darker brown with small chalky areas. Some typical D. americanus.
- 930-940 Dolomite darker brown D. americanus.
- 960-970 Mainly dolomitic. Some D. americanus. Same to 1010'.
- 1010-1020 Dolomite 50%, chalk, dense, moderately hard, 50%.
- 1040-1050 Dolomite hard, dense, dark brown. Some D. americanus.
- 1080-1090 Dolomite, brown, dense, no trace fossils.
- 1090-1100 Chalk, light cream hard, faint trace of fossils.
- 1100-1110 Chalk, many specimens Discorbis inornatus, Clavulina cf. floridana, Epistomarias semimar ginata, some very small Echinoids. Same to 1150', where some of fossil material is light gray. Same to 1190'.

- 1190-1200 Limestone, hard, chalky textured, cream with fine scattered particles of glauconitic material. Same to 1230'.
1230-2340 Finely glauconitic limestone as above and some light gray chert.
1240-2350 As above and about 1/3 chips of light gray chert.

OLDSMAR TOP

- 1250-1260 Limestone, white moderately hard, chalky textured, many specimen Amphistigina lopeztrigoi and some Helicostigina gyralis. Moderately hard, chalky to crypto-crystalline, white limestone to 1310'.
1310-1320 Limestone, white calcitic, abundant fragments Bryazoans.
1390-1400 Limestone, white hard, angular fracture. Has some glauconitic and pyritic areas. Some inclusions crystalline calcite. Many Bryazoan fragments.
1410-1420 Dolomite, tan, dense, and limestone, chalky with scattered irregular shaped nodules of glauconite. Some specimens of Pseudophragmina cedarkeyensis. Same to 1540'.
1540-1550 Limestone, cream, finely coquinoïdal, somewhat water worn, specimens of Coskinolina elongata. Same to 1590'.
1590-1600 Dolomitic chalk and chalky dolomite, medium crystalline.
1610-1857 No sample.

Below this point record provided by core samples only.

- Core # 1 1857' Top: Dolomite, olive brown, hard, crystalline. Bottom: Dolomite, dark gray, irregular brown areas, dense, hard.
Core # 2 1909-1914' Top: Dolomite, light olive tan, medium grained, irregularly porous. Middle: As above. Bottom: Dolomite, tan, medium grained highly porous.
Core # 3 1964-1970' Top: Limestone, dense, olive tan, dolomitic, crypto-crystalline. Middle: Dolomite, moderately crypto-crystalline, coarsely porous, olive tan. Bottom: Dolomite, tan, very fine grained, moderately finely porous.
Core # 4 2020-2025' APPROXIMATE TOP OF CEDAR KEYS, PALEOCENE Chalk, non-organic (?).

- Core # 5 2075-2080' Top: White, hard, chalky limestone, dense, some areas with traces of microfossil molds. Bottom: crypto-crystalline, olive gray limestone.
- Core # 6 2130-2135' Top 4": Dolomite, olive brown, dense. Second 6": Chalk, light gray, vague trace fossil. Third 6": Limestone, light gray, chalky texture, vague traces chalky molds, microfossils. Fourth 9": Limestone, gray, hard, chalky texture, chalky molds larger than above. Borelis? Fifth 23": Limestone, grainy texture, abundant irregular light gray areas. Section of Borelis sp.
- Core # 7 2185-2190' Top 5": Limestone, cream, chalky texture, porous with light gray blebs. Third 16": Limestone, cream, chalky and limestone hard, gray. Bottom 21": Anhydritic limestone, gray and cream lenses. Chalky lenses with trace of fossil molds.
- Core # 8 2240-2245' Top 8": Dense, limestone and anhydrite. Middle 36": white anhydrite. Bottom 4": Limestone, hard, cream, blebs of anhydrite.
- Core # 9 2295-2300' Top: White anhydrite. Some irregular cream chalky areas with trace of fossils. Middle: Limestone, dense, cream, chalky textured, inclusions of anhydrite.
- Core # 10 2350-2355' Top: White anhydrite, middle; anhydrite, with chalky areas. Bottom: Same.
- Core # 11 2405-2410' Top: Chalk, cream, moderately hard, some sections of Borelis. Middle: As above, Bottom: As above.
- Core # 12 2449-2454' Top: White anhydrite. Second 20": Limestone, chalky, cream. Third 12": Cream limestone. Bottom 12": Chalk anhydritic, and blebs of anhydrite.
- Core # 13 (?) See description of cores on Schlumberger Log, 245402760'.
- Core # 13 Samples not washed.
- 2770-2780' Cuttings, limestone cream, grainy textured (rounded granules) very finely porous. Trace of blue-green glauconite. A few, very small gray areas, trace of anhydrite.
- 2790-2800 Limestone, deep cream, chalky, porous. Porosity moldic. Borelis pockets.

- Core # 28 2800-2810' Middle: Limestone, as above, with anhydrite blebs.
- Core # 29 2810-2820' Limestone, cream anhydritic, grainy textured. Trace of Borelis.
- Core # 30 2820-2830' Top: Limestone, chalky, grainy textured. Blebs of anhydrite. Bottom: Limestone cream, and anhydrite. Borelis pockets.
- Core # 31 2830-2840' Top: Limestone, olive-gray, more indurated Borelis pits.
- Core # 32 2840-2850' Top: Limestone, grayish tan, granular textured porous. Trace of Borelis. Bottom: Same.
- Core # 33 2850-2860' Limestone, hard, irregular, cream and gray. Borelis pits. Bottom: Same.
- Core # 34 2860-2870' Top: Similar to preceeding. More chalky, less granular. Bottom: Like top, but more indurated, some carbonaceous streaks.
- Core # 35 2870-2880' Top: Limestone, cream, chalky, pitted (Borelis molds) and anhydrite. Bottom: Same.
- Core # 36 2886-2896' Top 1 $\frac{1}{2}$ ': Chalk, as above, faint trace of macro-fossils. Second 3': Chalk, deep cream, irregular highly anhydritic. Bottom 14': Limestone, cream, hard, pitted. Borelis ? pits.

APPROXIMATE TOP OF CRETACEOUS

- Core # 37 2896-2906' Limestone, light cream to white, calcitic. Trace of abundant fine fossil material. Many blebs of selenite. Same below.

E. R. A.

P19 USGS W-1118
E. R. Applin
June - July 1963
Tallahassee, Fla.

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 Permit No. 19
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 of DeLand. 797' N and 776.5' E
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 1946. Schlumberger 97-5956'

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22-35 Sand, fine, even, light cream. Abundant shells, generally gray color.
 35-48 Sand, medium, ^{grained & shaly} shale, as above.

APPROXIMATE TOP OF UPPER MIOCENE

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 98 White chalky sand, many white shell fragments, many bryozoan fragments and chalky molds ostracoda, many fragments bryozoa. A few phosphatic nodules.

AVON PARK

100-130 Cream coquinoïdal limestone, medium moldic (porous appearance due to removal of microfossiliferous material and fragments) Fragment of Dictyoconus floridanus.
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255-290 Sandy chalk, as above. Many fragments large bivalves (these probably cavernous).
ing

350-380 Sandy chalk, as above. Textularia coryensis. Samples continue alternating sandy chalk and coquinoïdal limestone with shale fragments (porous cavernous) to 370'.
probably caving.

370-380 Some moldic dolomitic chips.

LAKE CITY LOWER MIDDLE EOCENE
430-440 Limestone, hard, light brown dense (Lake City?)

470-500 Limestone, dolomitic, hard, moldic traces of macrofossils molds. Original fossil content probably chalky. One poor questionable chalky and dolomitic mold of D. americanus (?) Partitions of chamber layers only shown. No chamberlets. One good mold, cone shaped specimen of D. americanus. Materials mainly tan and some gray moldic dolomite. No marked change in samples to about 700'

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790-810' Dolomite, brown, porous comes in in this sample and increases in relative abundance with depth. Dolomite is pitted, or "moldic", porosity due to microfossil voids.

850-860 Dolomite hard, porous. Trace of carbonaceous material.

870-880 Dolomite dense, fine, hard. Some chalky lenses.

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920-930 Dolomite darker brown with small chalky areas. Some typical D. americanus.

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ll 1100-1110 Chalk, many specimens Discorbis inornatus, Clavulina of floridana, Epistomaria semimarginata, some very small Echinoids. Same to 1150', where some of fossils material

D. inornatus OK

light gray. Same to 190'

1190-1200' Limestone hard chalky textured, cream with fine scattered particles of glauconitic material. Same to 1230'.

1230-1240 Finely glauconitic limestone as above and some light gray chert.

1240-1250 As above and about 1/3 chips of light gray chert.

OLDSMAR TOP - for this top see -

1250-1260 ^{zone I} Limestone, white moderately hard, chalky textured, many specimen Amphistigina lepestrigoi and some Helicostigina ^{qualis, gyralis, a.a.p.g. vol. 28, #12, p. 1679, pl. 693} ^{just paragraph 1944} Moderatly hard chalky to crypto-crystalline, white limestone to 1310'

H-G. G. P. N. S.

1310-1320 Limestone, white calcitic, abundantly fragments Bryozoans.

1390-1400 Limestone, white had angular fracture. Has some glauconitic and pyritic areas. Some inclusions, ^{staline,} crypto calcitic. Many Bryozoan fragments.

1410-1420 ^{Alternate top zone II see note above} Dolomite, tan, dense and limestone, chalky with scattered irregular shaped nodules, ^{129 of} glauconitic ^{te}. Some specimens of Pseudophragmina cedarkeyensis. Same to 1540'.

1540-1550 ^{zone III} Limestone, cream, finely coquinoideal, somewhat water worn, specimens of Coskinolina elongata. Same to 1590'.

1590-1600 Dolomite ^{ic} chalk and chalky dolomite, medium crystalline.

1610-1857 No sample.

Below this point record provided by core samples only.

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Bottom: Dolomite, tan, very fine grained, moderately finely porous.

- Core # 4 2020-2025' APPROXIMATE TOP OF CEDAR KEYS,
Chalk, non organic (?). Paleocene.
- Core # 5 2075-2080' Top: white, hard, chalky limestone, dense,
some areas with traces of microfossil molds. Bottom:
Crypto-crystalline, olive gray limestone.
- Core # 6 2130-2135' Top 4": Dolomite, olive brown, dense.
Second 6": Chalk, light gray, vague trace fossil.
Third 6": Limestone, light gray, chalky texture, vague
traces chalky molds, microfossils.
Fourth 9": Limestone, gray hard chalky texture, chalky
molds larger than above. Borealis?
Fifth 23": Limestone, grainy texture, abundant irregular
light gray areas. Section of Borealis sp.
- Core # 7 2185-2190' Top 5": Limestone, cream, chalky texture
porous with light gray blebs.
Third 16": Limestone, cream, chalky and Limestone hard
gray. Bottom 21": Anhydrite limestone, gray and cream
lenses. Chalky lenses with trace of fossil molds.
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Middle 36": white anhydrite.
Bottom 4": Limestone, hard, cream blebs of anhydrite
- Core # 9 2295-2300' Top: white anhydrite. Some irregular cream
chalky areas with trace of fossils.
Middle: Limestone, dense, cream, chalky textured inclusions
of anhydrite.
- Core # 10 2350-2355' Top: white anhydrite, middle: anhydrite, with
chalky areas. Bottom: Same
- Core # 11 Top 2405-2410' Top: Chalk, ~~chalk~~, cream, moderately
hard, some sections of Borealis. Middle. As above,
Bottom: as above.
- Core # 12 2449-2454' Top: White anhydrite. Second 20": Limestone,
chalky, cream. Third 12": Cream Limestone. Bottom 12":
Chalky anhydrite ^{and} on all blebs of anhydrite.
- Core # 13 (?) See description of cores on Schlumberger log, 2454-2760'.

- Core # 13 Samples not washed.
- 2770-2780 ^{cuttings} Abundant limestone cream, grainy textured (rounded granules) very finely porous. Trace of blue ^{green} ~~granules~~ glauconitic? A few very small gray areas, trace of anhydrite.
- 2790-2800 Limestone, deep cream, chalky, porous. Porosity moldic. Borelis pockets.
- Core # 28 2800-2810' Middle, limestone as above, with anhydrite blebs.
- 2810-2820 Limestone, cream anhydrite, grainy textured. Trace
Core # 29 of Borelis.
- Core # 30 2820-2830' Top: Limestone, chalky, grainy textured. Blebs of anhydrite. Bottom: Limestone cream, and anhydrite. Borelis pockets.
- Core # 31 2830-2840' Top: Limestone, Olive-gray, more indurated Borelis pits.
- Core # 32 2840-2850' Top: Limestone, grayish tan, grainular texture porous. Trace of Borelis. Bottom: Same.
- Core # 33 2850-2860' Limestone hard, irregular cream and gray. Borelis pits. Bottom: Same.
- Core # 34 2860-2870' Top: Similar to preceding. More chalky less granular. Bottom: like top, but more indurated, some carbonaceous streaks.
- Core # 35 2870-2880' Top: Limestone, cream, chalky pitted (Borelis molds) and anhydrite. Bottom: Same.
- Core # 36 2886-2896' Top 1½': Chalk as above, faint trace of macro fossils. Second 3': Chalk, deep cream, irregular highly anhydritic. Bottom 14': Limestone, cream, hard, pitted Borelis ? pits.

APPROXIMATE TOP OF CRETACEOUS

- Core # 37 2896-2906' Limestone, light cream to white, calcite. Trace of abundant fine fossil material. Many blebs of ^{calcite} ~~calcite~~ selenite. Same below.

Sun Oil Company
Powell Lands Well No. 1
Volusia County

John Mader
&
Crescent
Jelle

Plio.-Pleist. - 22-35' - S., fn. even. lt. crm. Abundt. shells, gen. gry. color.
35-40' - S. med. sh. as above.

Approx. top
U. Mio.

- 47' - Drk. gry. marly sh. Abundt. shell
- 47' - S., med. rather poorly sorted, abundt. shell including Chione procancellata, sh. frags. gry. and some wht. Same to 93'.
- 93' - Wht. chky. s., many white shell frags., many bryozoan frags. and chky. molds ostracoda, many frags. bryozoan. A few phos. nod.

Avon Park

- 100-130' - Crm. coquinoideal l.s., med. moldic (porous appearance due to removal of micro. fos. material and frags.) Frag. of Dictyoconus floridanus.
- 130-160' - l.s., crm., finely moldic; s., chky. med. grnd.
- 160-190' - l.s., crm. chky. Good specimen. Dictyoconus floridanus.
- 220-250' - Chky. s. or s. chlk. (Chk. and s. evenly distrib. and about 50-50. Chk. molds & mold. frags. micro.-fos.
- 255-290' - S. chlk. as above, many frags. large bivalves-- these probably cave.
- 250-280' - S. chalk as above, Textularia coryensis samples continue, alternating s. chalk and coquinoideal l.s. with sh. frag. (pos. cave).
- 370-380' - Some moldic dol. chips.

Def. Lake
City

- 430-440' - L.s., hrd. lt. brown, dense (Lake City?)
- 470-500' - L.s., dol. hrd. moldic, traces of macro-fos. molds. Original fos. content, prob. chky. Cone, poor, questionable chky. and dol. mold of Dictyoconus americanus(?) Partitions of chamber layers only shown, no chamberlets. One good mold, cone shaped, specimen of Dictyoconus americanus. Materials mainly tan and some grey moldic dol. No marked change in samples to about 700'.
- 680-710' - L.s., hrd. crm. chalky texture with some dol. nod. & caving specimens of Dictyoconus americanus.
- 790-810' - Dol. brown, porous, comes in, in this sample & increases in relative abundance with depth. Dol. is pitted, or "moldic," porosity due to micro-fossil voids.
- 850-860' - Dol. hrd. porous, traces of carb. material.
- 870-880' - Dol. dense, fine hrd. some chky. lenses.
- 910-920' - Dol. more indurated & a darker brown than preceding.

Powell Land #1 (Upper Part) 6.
Sun Oil Company
Section 11-17S-31E
Volusia County, Florida
Elevation: 48' D.R.
Report By: E. R. Applin
Date: 1952

Report on samples studied from the Sun Oil Company, Powell Land #1, Volusia County, Florida.

Cuttings.

- 2890 - 2900'
Top of Upper
Lawson Top of light tan dolomitic, partly crypto-crystalline limestone with some Rudistid fragments below typical Cedar Keys.
- 2900 - 10' Light cream, partly crypto-crystalline and partly granular chalky, irregularly porous and pitted gypsiferous dolomitic limestone; vague traces of former fossil content.
- 2910 - 20' White, highly gypsiferous, partly chalky limestone. Some traces of micro-fossils and of Rudistid structure. Some free gypsum.
- 2920 - 30' Gypsiferous, white limestone like the preceding.
- 2930 - 40' Gypsiferous white, partly crypto-crystalline and irregularly chalky, sparsely pitted (originally fossiliferous) limestone. Some free gypsum.
- 2940 - 50' Like the preceding.
- 2950 - 60' Light tan limestone like the above, but more pitted and porous, more traces of micro-fossil molds and casts.
- 2960 - 90' No change.
- 2990 - 3000' Light cream, very finely granular textured, finely and highly porous, gypsiferous limestone.
- 3000 - 10' Tan, partly finely granular, finely porous and partly crypto-crystalline, gypsiferous dolomite.
- 3010 - 20' Similar to preceding. Some fragments chalky.
- 3020 - 30' Light grayish brown dolomite, very finely crystalline and porous to dense. Some chalky fragments.
- 3030 - 40'
Top of
Lower Lawson Like the preceding, but more fragments of dolomitic chalk. A few poor fragments of a large chalky Lepidorbitoides (also recorded from cored section). Some young specimens of Lepidorbitoides. A few of Sulcoperes., some sections of a small Pseudorbitoides, a small Anomalina sp.
- 3040 - 50' A "gummy" white chalk, somewhat gypsiferous. Contains poorly preserved chalky molds and casts of small macro fossils and fragments and some Lepidorbitoides and Orbitoides. Some Bryozoan fragments.
- 3050 - 60' White, moderately hard, somewhat gypsiferous chalk, irregularly

Lawson

Lep.
Rudistid

Sulcoperes
Lep. non 701

somewhat finely dolomitic, contains abundant chalky molds of several species of large Orbitoides. Some Lepidorbitoides and a few Sulcoperculinas and abundant poor molds and casts and mold fragments of smaller fossil material, generally not determinable.

- 3060 - 70' Similar to the above, but material now a chalky, finely crystalline dolomite and fossils poorly defined.
- 3070 - 80' About 50% moderately hard, white fossiliferous chalk and 50% chalky, fine-grained dolomite (dolomite evenly distributed, about 50% of material very fine-grained.) Fauna same as above, large Orbitoides, some Lepidorbitoides, a few Sulcoperca., some large Echinoid spines and some fragments of fossil bivalves.
- 3080 - 90' Mainly moderately hard, white chalky fossiliferous limestone, some chalky dolomite. Fauna same as above. Limestone with some gypsiferous areas (or crystalline anhydrite).
- 3090 - 3100' Like the preceding.
- 3100 - 10' Same as preceding. Some fragments of Inoceramus material, mainly a fossiliferous chalk, some chalky dolomite. No change in fauna.
- 3110 - 20' Mainly chalky dolomite and dolomitic chalk. Dolomite fine brown, rather evenly distributed. Fauna same as above.
- 3120 - 30' 50% fossiliferous chalk, 50% chalky dolomite and dolomitic chalk. Fauna as above.
- 3130 - 40' Chalk and some dolomitic chalk. Fauna as above.
- 3140 - 50' Like the preceding, Sulcoperca. and typical Lepidorbitoides more common.
- 3150 - 60' Like the preceding.
- 3160 - 70' Chalk and some dolomitic chalk as above. Sulcoperca abundant, Lepidorbitoides, (probably two species) fairly common. Some Echinoid spines and fragments.
- 3170 - 80' Like the preceding.
- 3180 - 90' White chalk, many Lepidorbitoides and Sulcoperca. Some fragments of fossil bivalve. A few of Inoceramus.
- 3190 - 3430' No change.
- 3430 - 40' Some chalk and fauna as above and abundant cavings from various higher levels.
- 3440 - 3540' No change.
- 3540 - 50' White chalk and some cavings, some Inoceramus fragments and a few fragments of other fossil bivalves. No other fossils noted.

3200-40
 V.P. M.P. 2000
 Good
 S. COAST

- 3550 - 60' Materials and faunas as above and at least 50% cavings.
- 3560 - 3600' No change.
- 3600 - 10'
Definite
Taylor on
Specimen of
Bolivinoidea
decorata Like the above. A specimen of Bolivinoidea decorata present, indicating beds of Taylor age. A few fragments of a dark grayish-brown ashy(?) shale noted at 3550 - 60' for first time and samples below that depth show a slight increase in this material. It is possible that this material causes the characteristic Schlumberger Taylor "kick" at 3520 and material does not appear in samples until 3550'.
- 3610 - 20' At least 50% tan crypto-crystalline dolomite (probably caving and other materials and some fossils obviously caving from much higher depths. Some white chalk. A few specimens of Bolivina incrassata and Anomalina scholtzensis.
- 3620 - 30' White chalk and about 50% fragments of dolomite as above. A few Inoceramus fragments. Some specimens of Bolivinoidea decorata in the chalk.
- 3630 - 40' Like the preceding.
- 3640 - 70' No change.
- 3670 - 80' Materials as above but no Bolivinoidea or other Taylor restricted forams noted.
- 3680 - 90' Same as above, some specimens of Anomalina scholtzensis. (Material and fauna stays similar to the above, i.e., white chalk, few Inoceramus fragments, occasional Taylor forams and cavings of dolomite and some other material and fossils to 3870'.)
- 3870 - 80' White chalk and many cavings as above, some chalk fragments with abundant small, even-sized anhydrite crystals. These also abundant in fine screenings. Some large anhydrite crystals also present.
- 3880 - 90' Like the preceding.
- 3890 - 3920' No change.
- 3920 - 30' Mainly white chalk, some fragments with the small anhydrite crystals but much less abundant. Some Inoceramus prisms and fragments and a few specimens of Anomalina scholtzensis.
- 3930 - 40' No change.
- 4010 - 20' Chalk as above with many small anhydrite crystals.
- 4020 - 4110' No change.
- 4110 - 20' Chalk as above, many fragments with very abundant small even-sized anhydrite crystals.

- 4120 - 40' No change.
- 4140 - 50' White chalk, some fragments with many small anhydrite crystals. An occasional fragment with large amount of fine and finely broken micro fossil material.
- 4150 - 60' Like the preceding. Some fragments of a gray ashy shale similar to that found in the northern portion of the Peninsula at the Taylor-Navarro break. (First appearance of this material) ^{here.}
- 4160 - 70' Like the preceding. A few pyritised shell fragments in the chalk.
- 4170 - 80' Like the preceding.
- 4180 - 4210' No change.
- 4210 - 20' Chalk as above. A few fragments with some vein-like tar? stained areas.
- 4220 - 30' Like the preceding and many cavings? of the gray ashy shale. Some tar stained chalk fragments. Some pyritised Inoceramus fragments.
- 4230 - 40' No change.

^{see above}
4210 - 20' suggested as possible top for Austin, no definite distinguishing features noted.

* This ash bed, less common than the one at the top of beds of Taylor age, which is the one usually referred to as the "Taylor shale" is apparently the one usually referred to as the "Taylor shale" by C. S. Chen, p. 13420, Fla. Geol. Survey Bull. no. 40, 1928. E. P. A.

Powell Land #1
Sun Oil Company
Section 11-17S-31E
Volusia County, Florida
Elevation: 48' D.R.
Report By: E. R. Applin
Date: December 1947

Report on samples studied from the Sun Oil Company, Powell Land #1,
Volusia Co., Fla.

- 4385-9572 Rec. 10'. Top: Hd wh ch, carrying some Inoceramus frags & prisms & small calcitic frags of other fos. Anomalina cf. texana noted. A few vein like crevices in ls filled with dead oil residue.
Volusia
Applin 2' from Top: Dark gy, marly shale with some wh strks & splotches due to presence of badly worn & broken fossil material. Fossil material chalky & calcitic & then encased or buried in a blk mud.
Mid: Dense wh ch, showing small fissures & cavities filled with a blk unctuous, possibly petroliferous clay. Piece 2' from bot. Wh ch with pitted portion originally filled with a blk, (pos bituminous) shaly clay.
Bot: Dense, mod hd wh ch, with portions of core showing some strks & infiltrations of the blk, unctuous clay. Some frags of fos bivalves present.
- 4390-4400 Cut of dense, wh ch as above. A few Inoceramus frags noted.
4400-10 Like the preceding.
4410-20 No change. Also (4420-30')(4430-40')(4440-50').
4446-53 73 Rec. 9'. Toppiece: Dk gy marly sh thinly chalk strkd.
5 5 Top: Dense wh ch showing Inoc frags & some small frags of other fossils.
Mid: Similar to above, but with fissures & pockets filled with a blk petroliferous? clay.
Bot: Dense white chalk.
- 4450-60 Cut of frags of ch as above.
4460-70 Chalk, as above, some frags of blk, petroliferous coated chalk.
4470-80 Cut of chalk as above. A few frags of dk gy somewhat ch strkd sh & a few ch frags partly coated with a tarry? residue.
4480-90 Like the preceding.
4481-91 74 Rec. 5'. Top: Wh ch as above.
Mid: Ch as above with a large frag of Inoceramus accompanied by a thick coating of a blk muddy & tarry? residue.
Bot: Wh ch as above, irreg blk stained & partly laminated with the blk muddy & tarry? residue as above.
- 4490-4500 Cut of wh ch & some frag of blk stained & coated ch & some Inoceramus frags.
- 4491-4501 75 Rec. 8'. Top 2': Wh ch as above, some portion with a large frag of Inoc accompanied by the blk shaly & tarry lense as noted in preceding core.
Mid 4': Wh ch with some thin lenses of the blk (petroliferous?) clay as noted in many preceding cores; some tar? stained Inoceramus frags.
Bot 2': Wh ch, some frags of Inoceramus & a few frags of other fossil bivalves.

- 4501-1176 Top: Rec. 2½' Wh ch with a little blk tarry clay strks.
Bot: Wh chalk.
- 4511-2177 Rec. 7'. Top 2': Wh chalk with thin lense of blk, irreg lt strkd tarry (?) sh.
Second 2': Like preceding.
Third 2': Wh chalk with a little lt brn strking, usually connected with large fos frags.
Bot 1': Hd wh chalk, thinly blk (tarry?) strks. Blk areas usually accompanying macro-fos frags. Most of chalk also lt brn stained.
- 4521-29 78 Rec. 2½'. Top: White chalk.
Bot: Like preceding.
- 4529-39 79 Rec. 10'. Top: White chalk.
Mid: Same as above.
Bot: Chalk as above with some infiltration of a blk tarry residue.
- 4539-49 80 Rec. 4'. Top: Dense wh chalk.
Bot: No change.
- 4549-59 81 Rec. 2'. Top: No change.
Bot: No change.
- 4559-69 82 Top: Rec. 3'. No change.
Bot: Chalk, as above slightly tar strkd.
- 4569-79 83 Rec. 1'. Hd wh chalk.
- 4579-89 84 Rec. 1'. As above.
- 4589-99 85 Rec. 1'. " "
- 4599-460986 Rec. 1'. " "
- 4609-15 87 Rec. 2'. Top: Wh ch.
Bot: No change.
- 4615-25 88 Rec. 6". Wh ch with some irreg blk strks & some Inoceramus frags.
- 4625-35 89 Rec. 1'. Hd wh ch with some impressions of macro-fos frags.
- 4635-45 90 Rec. 2'. Top: Wh chalk.
Bot: Chalk, as above, some fragmentary macro-fos impressions.
- 4645-55 91 Rec. 1'. White chalk.
- 4655-65 92 Rec. 1'. As above.
- 4665-75 93 Rec. 10'. Top: White chalk.
Mid: White chalk.
Bot: No change.
- 4675-85 94 Rec. 10'. Top: No change.
Mid: As above.
Bot: Wh ch, with some gy coating which may have gotten on to it after it was cored.
- 4685-95 95 Rec. 5'. Top: White chalk.
Bot: No change.
- 4695-470596 Rec. 10'. Top: White chalk, showing a mod large amount of very finely fragmental calcitic fos mat.
Mid: Chalk less fos than preceding.
Bot: As above.
- 4705-15 97 Rec. 3'. Top: Chalk similar to that just above, A few frags of fos bivalves & fish bone frag noted.
Bot: Chalk as above.
- 4715-20 98 Top: Rec. 4½'. Chalk like preceding but stained a lt tannish gy & irreg laminated with a thin coating of blk petroliferous? mat.
Mid: Similar to above portions thickly & finely strkd & veined with a brnish blk mat.
Bot: Lt brnish gy hd ch, stained but not so clearly strkd as preceding.

- 4720-30 99 Rec. 10'. Top: Dense very lt tan (sl stained) chalk.
4723 Chalky ls as above, lightly stained & thickly & thinly strkd with dark brn mat.
Mid: Lt brnish gy finely lt & dk strkd chalky ls as above.
Bot: Hd lt gy ls.
- 4730-40 100^m Rec. 8'. Top: Ls as above. Some pyrite inclusions.
Mid: Ls similar to above in part stained a lt tan gy & showing some lenticular strks of a blk tarry? clay.
Bot 2': Hd wh chalk.
- 4740-50 101 Rec. 9'. Top 5': Ch as above showing a little lt brn strking.
Secd 1': Lt brnish gy chalky ls.
3rd 1': White chalk.
Bot 1': Chalk as above with a lense thickly & irreg strkd with brnish blk (tarry?) mat.
- 4750-60 102 Rec. 8'. Top 1': Hd white chalky ls.
Sec. 2': White hard chalk, in part highly strkd & stained with blk mat as in preceding cores.
Third 2': Chalky ls as above, lt tan stkd & stained.
Bot 2': Hd lt gy chalky ls slightly strkd & stained with the blk tarry? mat.
- 4760-70 103 Rec. 10'. Top 2½': Ls as above, lightly stained.
2nd 2½': Lt gy ls as above. Part of core finely & thickly blk strkd.
3rd 2½': As above & with a thin lense heavily blk strkd & coated.
4th 2½': White chalk ls, unstained.
- 4770-80 104 Rec. 9'. Top 4': White chalky ls & lense very thickly strkd with blk material.
Mid 4': White ls & blk (tar soaked?) & strkd ls as above.
Bot 1': Like the middle 4'.
- 4780-90 105 Rec. 6'. Top 2': White, chalky ls.
Mid 2': White & lt brnish gy (stained) hd chalky ls.
Bot 2': Ls as above with a few strks of the blk mat. Also a frag of this part of core, blk & brnish blk with a little wh (unstained) strks & areas. Some fish bone frags.
- 4790-4800 106 Rec. 4'. Top 2': Ls as above, some portions of core, stained a lt brnish gray. Ls here highly impregnated with very finely broken calcitic fos mat.
Mid 1': Wh chalky ls similar to preceding in character.
Bot 1': Mat similar to preceding but lt grnish gy in color & more marly in texture. Frags of Inoceramus & some Echinoid frags present. A small fauna of forams present. Common species present are Globigerina of cretacea, Gumbelina reussi, Globotruncana sp. Bullimina reussi, Gyroidina depressa var., Anomalina sp. Fauna is L. Austin in character.
- 4800-10 107 Top: Dense lt gy hd, chalky ls. Austin in character.
Mid: No change.
Bot: Ls like above in char but irreg strkd & stained with thin coating of brnish blk material.
- 4810-20 108 Rec. 10'. Top 4': Lt gray ls like preceding in character.
Sec. 1': Lt tan ls like preceding in character but showing some blk & brn strks of tarry? mat & with an area filled with anhy(?).
Third 1': As above with thin lenses of the blk mat present.
Bot: hd white chalky ls with some irreg splotches of the blk mat.
- 4820-30 109 Rec. 3'. Hd white chalky ls.

Good
4795-4800

Maria is
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- 4830-40 110 Rec. 4'. Top: Lt gyish tan, somewhat blk strkd ls & showing a number of frags of fos bivalves.
Mid: Hd, white chalky ls.
Bot: Lt grayish tan ls like above in char & with some frags of fos bivalves.
- 4840-50 111 Rec. 2½'. Top: Ls as above, showing some frags of Inoceramus & of other bivalves. Some portions of core stained a dk brnsh gy.
Bot: Like the preceding.
- 4850-58 112 Rec. 8'. Top 2': Mod hd, lt grnsh gy marly ls. ^{no top}
Mid 2': Hd white ls in part stained a lt tan. Some frags of fos bivalves.
Bot 4': Lt grayish tan ls as above. Some frags of fos bivalves.
- 4858-68 113 u. Atkins Approx top E.F. Rec. 5'. Top 1': Hd lt gyish tan ls with many frags of fos bivalves resubling Ostrea sp. Some fish scales present in ls
4864
Sec. 2': Hd grnsh gy marly ls carrying frags of Neithea. A small Exogyn? & other fos bivalves; some Ostracods present.
Sec. 1': Hd wh chalky ls with some frags of fos bivalves & abdt small blk irreg strks & spots (resubling pyritized carb mat) scattered thru the core, pyrite nods also common.
Bot 2': Lt olive gy marl with many frags & impressions of frags of fos bivalves. Some fish teeth, many Ostracods. Some pyrite nods.
Top of Bot: As above many fos frags.
- 4868-78 114 Rec. 10'. Top 2': Grnsh gy marly ls. Sample contains many specimens of Valvulineria infrequens var.
Sec. 2': Hd olive gray marly ls with frags of fos bivalves.
Bot 6': Hd gy marly ls with frags of fos bivalves. A few specimens of Valvulineria infrequens & Planulina eaglefordensis present.
- 4878-83 115 Rec. 5'. Top: Gy chalky ls with frags of fos bivalves, Ostracods & some phos frags. A small Eogyra present. Planulina eaglefordensis abdt, some specimens of valvulineria infrequens.
Bot: Like the top. Small Exogyra present. Valvulineria infrequens & Globigerina sp. more common in this portion of the core.
- 4883-93 116 Rec. 9'; Top: Material & fauna as above.
2' from Top: Mat as above with a small Exogyra & frags & impressions of other fos bivalves present. One portion of core hd wh marly ls; also with fos frags. Micro-fauna as above.
Mid: Hd gy chalky ls showing some macro-fos frags. Few forams, no marked change in micro-fauna.
Bot: Gray grn marly sh with frag of Eogyra & of other bivalves, also noted from slightly higher depths. Micro-fauna same as above.
- 4893-4903 117 Rec. 10'. Top 4': Gy grn marl as above, some shell frags. Macro-fauna as above.
- 4895 Mat lighter colored, harder, otherwise the preceding.
Mid 4': Gy grn fos marl as above.
Bot 2': Lt grnsh gy chalky marl with some frags of fos bivalves. Comparatively few forams. Species present same as above.
- 4903-10 118 Rec. 7'. Top: Highly macro-fos gray grn marl. Fos material fragmental. Forams rare. Species present, same as above.
Mid: Lt gy hd chalky or marly ls carrying some frags of fos bivalves. Very few forms noted. No change in faunal.
Bot: Mod hd gray grn marl, some frags of macro-fos.

- 4910-20 Rec. 10'. Top 3': Mat like preceding. A few fos frags.
 119 Secd 3': No change.
 Third 3': Mod hd gray-green marl with a large frag of Inoceramus present.
 Bot: Dk & lt gray green marl ls. Some frags of macro-fos.
- 4920-30 Rec. 5'. Top: Like the preceding. Some small blk, irreg shaped
 120 inclusions of pyritic carb mat.
 Mid: Very lt gy chalk with many frags of fos bivalves including many frags of fos bivalves including many frags of a large Inoceramus. Part of material stained a dark olive gray, in part finely lt & dk strkd, similar to some seen in Austin portion of the section. As in that part of the section also the staining often accompanies fossil frags.
 Bot: Lt & dk strkd, marly & fos ls as above.
- 4930-34 Rec. 4'. Top 1': Hd lt gy ls as above, some lenticular & irreg
 121 thin dk (tar?) stained areas. Some frags of macro-fos.
 Sec 1': No change.
 3rd 1': Hd dk grnish gy marly ls. Frag of a small Exogyra present. Some irreg white or lt gy areas in the core.
 Bot 1': Similar to above with lt areas dominant.
- 4934-44 Rec. 10'. Top 8': Hd grnish gy somewhat macro-fos ls as above.
 122 Sec 2': Irreg darker & lighter grnish gy hard, marly ls with some macro-fos frags.
 Top of Bot: Lt grnish gy ls as above & thin lense of dk brnish gy somewhat finely white strkd & spotted ls. Lt spots & strks apparent due to presence of finely broken & crushed fos mat. A few small frags of fish bones noted.
 Bot 2': Dark grnish gy ls similar to preceding & some strks of crm colored ls.
- 4944-54 Rec. 10'. Top 5': Hd grnish gy ls like the preceding.
 123 Sec. 1': Like the preceding. Darker in color.
 Third 1': Hd lt gy marly ls.
 Bot 3': Dk grnish gy hd marly ls & lense of higher brnish gy ls.
- 4954-60 Rec. 8'. Top 1': Hd lt grnish gy marly ls with some frags of fos
 124 bivalves.
 Mid: Lt gy hd ls like preceding in char.
 Bot: Dr olive gy hd marly ls.
- 4960-70 Rec. 10'. Top 2½': Dark grnish gy hd marly ls. Frag of fish scales
 present.
 125 L. Atkinson 6": Top of glauc. ss section. Dk grnish gy glauc & argil ss. Sd is poorly sorted, grns fine to coarse (small pebble size) frags of phos fish bones & teeth also common. Ss in part hd & dense, similar to a quartzite.
 Third 2': Like the preceding.
 Fourth 2": Ss like above, but hd & dense, large phos frags present & a few frags of fos bivalves.
 Fifth 1': Gy, silty glauc & mica clay with irreg small inclusions of sd & glauc crm colored ls. Phos mat common as above.
 6": Vivid grn, highly glauc & pyritic mod coarse grnd ss. Glauc not nodular, but as a partial matrix for the ss. Sd is fine to mod coarse, angular to sub-ang clear qtz.
 7th 1': Dk brnish gy mica & sl glauc shaly clay. Mat sdy in part.

- 8th 2': Glauc & pyritic ss as in the 6th 6" of core. A few phos nods present in ss.
- Bot 4": Dk gy sh & some (lenses?) of highly glauconitic & somewhat phos ss. Glauc is dk grn & nodular. Sh is thinly flaky.
- 4970-74¹²⁶ Rec. 4': A glauc grnish gy somewhat mica siltstone. A little phos mat.
- 4975-80¹²⁷ Rec. 4'. Top 1': Mod coarse grnd highly glauc & somewhat phos ss. Sd poorly sorted fine to mod coarse, angular to sub-angular clear qtz.
- Sec 1': Argil gray, highly glauc, ss & lense of dk gy, mica, thinly flaky sh. Ss also somewhat phosphatic.
- 3rd 1': Dk gy thinly laminated, mica sh & some glauc ss as above.
- Bot 1': Gy glauc ss as above.
- 4980-85¹²⁸ Rec. 3'. Interbedded fine grnd, white glauc ss & thinly flaky, mica dk brnish gy sh.
- 4985-90¹²⁹ Top: Lt gy glauc ss. Chalky cement. Sd grns fine to mod fine. Some mica.
- Bot: Like the preceding. Softer.
- 4990-95¹³⁰ Rec. 5'. Top 1': Gy, argil & mica; glauc fine grnd ss (some brn mica) Sd fine.
- Bot 4': Dk gy sh & lenses of lt gy glauc & mica siltstone.
- 4995-5005 Rec. 3'. Top ft: Interbedded very fine grnd ss lt gray mica & sl phos & some brnish gy mica sh.
- ¹³¹ Mid 1': Interbedded fine grnd glauc & mica ss & brnish gy, somewhat "spec" sh. A little phos mat & some carb mat in sh.
- Bot 1': Lt gy, glauc argil ss. Some irreg thin strks of dk gy shaly clay. Some phos mat in ss.
- 5005-14¹³² Rec. 9'. Top 3': Irreg interbedded lt gy glauc ss & dk gray, mica clay sh. Some small phos nods present.
- Mid 3': Thinly laminated, lt gy mica & glauc siltstone & dark gy mica sh.
- Bot 3': Like the preceding.
- 5014-24¹³³ Rec. 10'. Top 3': Mainly gy, mica & glauc silty sh.
- Sec. 3': Lt gy mica & somewhat glauc siltstone & some lenses of dk gray mica sh.
- Bot 4': Gy, argil, mica & glauc siltstone & extremely fine grnd ss.
- 5024-34¹³⁴ Rec. 16'. Top: Gy mica & glauc sh & silty sh.
- Mid: No change.
- Bot: Gy argil mica & somewhat glauc siltstone & brnish gy mica sh.
- 5034-44¹³⁵ Rec. 10'. Top: Like the preceding.
- Mid: Mod hd, lt gray mica & glauc siltstone.
- Bot: As above. Some thin lenses of dark gy mica flaky sh.
- 5044-54¹³⁶ Top 4': Rec. 10'. Thinly interbedded dk gray mica sh & lt gy mica & finely glauc siltstone.
- Mid 3': No change.
- Bot 3': Lt gy glauc & somewhat phos ss. Sd grns fine to mod fine & thin irreg lenses of dk gray mica sh.
- 5054-64¹³⁷ Rec. 10'. Top: Ss as above.
- Mid: Ss like preceding, averaging fine grnd.
- Bot: Lt gy, argil mica & glauc very fine grnd ss almost a siltstone.
- 5064-74¹³⁸ Rec. 10'. Top: Like the preceding, mica abdt.
- Mid: Gray mica & glauc silty clay sh.
- Bot: Like the preceding.

5074-80/39 Rec. 8'. Top: Lt gray highly mica & glauc argil siltstone or extremely fine grnd ss.

Bot: No change.

5080-90 Rec. 6'. Top 2': Gray highly silty mica & glauc clay sh.

Sec. 2': Clay sh as above, irreg highly silty.

3rd 18": Hd gray mica somewhat finely glauc clay sh with some silty areas. *like the l.s. facies of Lower Atkinson*

Bot 6": ~~Top 1 1/2' L. section.~~ Hd gray spotted ls showing many sections of miliolids & other forams, some frags of fos bivalves. Ls is irreg porous & in spots highly pyritic, sl glauc & sdy. Frag of Cuneolina noted & a few Ostracods.

5090-5100 Rec. 3'. Top: Hd wh, highly gy-spotted ls. Gy spotting resulting from an abundance of fragmental, fos originally pyritic, fos mat sections of miliolids & of Cuneolina recognized. Ls is glauc.

Mid: Like the preceding. More porous.

Bot: No change.

5100-06 Rec. 2 1/2'. Top: Ls hd wh, highly gy spotted, highly fos (fragmental fos mat for the most part), somewhat glauc. Some sections of Miliolids & other forams & frags of other fossils present. Mat is somewhat dolomitic & very finely porous.

Bot: Hd, dense, crm colored ls, slightly blk spotted, many quartz inclusions.

5106-15 Rec. 2'. Top 10": Ls similar to preceding. A few miliolid sections present.

Mid 2": Lense of highly carbonaceous dull grn sh. Carb-mat accompanied by many frags of calcitized macro-fos frags. *green? blk?*

Bot 1': Crm colored ls as in top of core. Dicyclina present.

5115-25 Rec. 2'. Top 4": Gy spotted finely dol ls with thin lenses of carb mat & an appreciable amount of carb frag scattered thickly thru the ls, fragmental fos mat also common in ls. Cuneolina & Dicyclina present.

Bot 20": Hd, finely dol gray spotted ls which contains an abundance of fragmental fos mat.

5125-35 Rec. 18": Dense crm colored, highly micro-fos ls. (most of fos mat fragmental). Sections of Miliolids fairly common. Mat is somewhat brn stained & shows some quartz inclusions. Part of core gy spotted as above.

5135-40 Rec. 5'. Top 2 1/2': Hd wh ls full of fragmental fos mat & a few forams & showing many small crystalline quartz inclusions.

Bot 1/2' Lt brn, very finely crystalline dol ls. Material is very finely sdy (sd about 10% & evenly distributed). Micro-fos sections & much finely fragmental fos mat present, also a little carb mat.

5140-50/47 Rec. 1'. Hard wh ls (like top of preceding core) with dolomitic areas like bottom of preceding core.

5150-60 Rec. 1'. Hd, lt brn, very finely dolomitic, gray spotted ls which contains a large amount of fragmental fos material & shows sections of miliolids, some Alveolinids, & frags of a Cuneolina? sp & other forms. Dummeleculina or Dicyclina.

5160-70 Rec. 2'. Lt brn, very finely gran dol with some wh ls area & many areas (fos cavities filled with a blk, partial pyritic residue) fos petroliferous. Also finely dolomitic gray spotted, wh, highly micro-fos ls as above.

5170-80 Rec. 2'. Top: Lt tan finely gran dol with numerous small blk inclusions (partly carb & pyritic) Material is slightly mica & slightly glauc.

AK
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Bor
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Bor
150

Dicyclina

Cuneolina

Alveolinids

Dummeleculina

Dicyclina

- Mid: Lt tan dol as above, in part coarsely porous. Part of core sandy & highly glauc.
 Bot: Very finely gran lt tan dol, highly gray spotted & strkd. Some porous area. Gy areas fos altered pyrite which once filled frags of fos mat.
- 5180-90 ¹⁵⁷ Rec. 2'. Dol as above. Traces of original high fos (fragmental) content noticeable.
- 5190-96 ¹⁵⁷ Rec. 1'. Top: Like the preceding.
 Bot: Lt gyish tan, very finely gran porous dol. Porosity probably due in large part to removal (by solution) of fos mat originally present. (*Coskinolinoides*?) sp found in this core by L.J. ^{Frags of *Dicyclina*}
- 5196-5206 ¹⁵³ Rec. 2'. Lt brn, gray spotted gran porous dol. Dol crystals sl ^{era.} larger than in preceding cores.
- 5206-16 ¹⁵⁴ Rec. 18". Lt brn, very finely gran highly & coarsely porous dol.
- 5216-26 ¹⁵⁵ Rec. 2'. Dol as above & in part lt brn, highly gy spotted dense dol.
 Bot: Dol as above, with large inclusions of anhydrite.
- 5226-36 ¹⁵⁶ Rec. 3'. Top: Lt brn mod finely gran, porous, gray spotted dol.
 Mid: Gyp.
 Bot: Brnish blk, porous dol.
- 5236-44 ¹⁵⁷ Rec. 8". Top: Lt brn, gy spotted, irreg porous dol with a few small unaltered white ls areas.
 Bot: Hd lt brn & gy dolomitic porous ls. A few miliolid sections noted.
- 5240-50 Cut. Composed mainly of frags of dol & of crm colored dol ls similar to that described from the immediately preceding cores.
- 5250-60 Like the above. Some of the frags also contain strks or inclusions of gyp.
- 5260-70 As above & many frags of a white, porous dol ls.
- 5270-80 White & lt tan in part porous dolomite & dolomitic ls.
- 5280-90 No change, also (5290-5300').
- 5300-10 Cut mainly lt tan gray spotted, very finely gran dol. A few frags have colitic appearance. Material generally coarsely porous.
- 5310-20 Cut mainly lt tan gy strkd dol ls. Some sections of miliolids noted in a few frags.
- 5320-30 ^{Fredrichsburg} As preceding & many frags of a coarsely porous (originally highly micro-fos) lt brn & tan gy spotted dol.
- 5330-40 Like the preceding. Some frags gypsiferous.
- 5340-50 As above.
- 5350-60 Cut of the brn highly gy spotted, irreg highly porous dol.
- 5360-70 As above with some frags of gyp, also present.
- 5372-82 ¹⁵⁸ Top 1': Lt tan colored, gy strkd porous dol with some vein-like inclusions of a blk earthy carb? mat.
 Mid 2': Lt tan gy spotted dol with an abundance of molds & impressions of small macro-fos & frags. Some glauc & a little gyp. Abdt specimens of *Lituola* ^{subaequalis} present.
 Bot: Crm & gy, porous, dolomitic ls with some gyp inclusions. Some sections of Miliolids noted.
- 5380-90 ¹⁵⁹ Cut of crm, gy spotted, very highly porous, sl glauc dol. Mat originally prob highly fos. Molds of some small bivalves & of *Lituola inflata* present as in mid of core above. Many frags have a honeycombed appearance.
- 5390-5400 ¹⁶⁰ Cut of lt tan, gy spotted, highly porous, dol ls. Somewhat gypsiferous. subaequalis

- 5400-10 Cut of ls as above, also frags of a dense lt gy ls.
- 5410-20 No change.
- 5420-30 Cut. Tan gy spotted, irreg porous gypsiferous dol ls. Many frags show molds & impressions of an abundance of small fos & fos fragments.
- 5440-50 Cut. Like the preceding.
- 5450-60 Cut. Tan, highly gray spotted, porous, somewhat gypsiferous dol.
- 5460-70 Like the preceding.
- 5470-80 Cut compared mainly of a lt crm colored & finely & highly gy spotted dolomitic ls & dol. Mat rarely porous.
- 5490-5500 Ls as in preceding core, also many frags of a lt brn highly porous & more coarsely cryst dol (than noted at higher levels). This ls sl glauc & many frag resemble a dolomitized oolite.
- 5500-10 Cut of lt tan & gy dol & dolomitic ls similar to material noted in samples 5470' & below.
- 5510-20 Cut of a highly gy spotted lt gyish tan dolomitic ls & about 50% anhy & gyp.
- 5520-30 Like the preceding.
- 5530-40 Cut of a lt gyish tan, gy spotted sl glauc very finely gran dol & of a rich lt brn porous dol which is gypsiferous. Frags of gyp & anhy.
- 5540-50 Like the preceding.
- 5550-60 Cut of tan gy, gray spotted dol & of rich lt brn, more coarsely crystalline, porous dol. A little gyp.
- 5560-70 Dol as above, but with some of the ls frags not dolomitized & showing the original high micro-fos content. Some frags show many sections of Alveolinids & frags of other fossils.
- 5570-80 159 Rec. 6'. Top: Tan irreg dolomitized ls filled with altered molds of fos & fos fragments. Most of the fos mat not determinable. Some sections of a large form resembling Haplostiche (not texana) noted. Core also shows some staining & blk inclusions, apparently partly a petroliferous residue. A few Ostracod molds present. Mid: Ls stained & originally highly fos (fragmental) like the above, but almost completely dolomitized, slightly glauc. Bot: Brn & blk porous dol & anhydrite.
- 5580-90 Cut of partially & completely dolomitized lt brn blk spotted fos ls. Many frag of a highly micro-fos tan ls having a somewhat oolitic appearance from abdt small foram molds present.
- 5590-5600 Like the preceding. Some frags show many sections of Alveolinids(?)
- 5601 S.W. Core. Grnish gy, silty soft extremely fine grnd dol somewhat carb slightly glauc. Much finely disseminated pyrite.
- 5602 S.W. Core. Like the preceding. Mica also present. Mat looks like a soft argil siltstone.
- 5603 S.W. Core. Like the preceding.
- 5608 S.W. Core. Grnish gy, silty & sl dol clay. A little carb mat. Some mica.
- 5610-20 Cut. Lt & dk brn, blk spotted dol & dolomitic ls highly micro-fos. Some Alveolinids as above.
- 5615-25 160 Rec. 3½'. Top 1': Top part sd dolomite sec. Highly sdy lt brn very finely gran dol, some thin blk sh denses. Sd in dol mod fine to mod coarse.
Mid 1½': Lt gyish-tan, extremely fine grnd dol.
Bot 1': Dense lt gy ls.

- 5625-35 161 Rec. 3½'. Top 1': Highly sdy, porous lt brn dol. Sd grns mainly nod fine. A trace of glauc. Mat finely blk spotted.
Mid 18": Brn dol & a dolomitic ss in which sd grns are fine to small pebble size. Some glauc in ss & irreg strks of lime which may be organic in size.
Bot: Brn, blk spotted highly sdy (mod fine) & highly glauc dol.
- 5639-49 162 Rec. 8'. Top: Lt brn dol ss. Dol the cementing medium. Sd grns gen mod fine. One nodular portion of core shows many impressions of micro-fos & an inclusion of anhydrite.
Mid: Lt gy argil dol (dense & extremely fine grnd) Mat is irreg sdy & is full of small blk irreg shaped spots.
Bot: Hd, dense, lt tan dol ls & lt gy cal ss. Sd grns usually mod fine.
- 5649-59 163 Rec(?). Top: Mat looks like an oolitic dol from which the oolites have been removed or dissolved out for the most part. The structure seen in a few molds which remain in the pockets in the dol would suggest that the material which originally filled the cavities was organic in origin, prob specimens of Alveolinids mainly. Some Ostracods & frags of small Gastropods also present.
Bot: Hd dk gy & brn fos dol similar to preceding.
- 5659-69 164 Rec. 2½'. Top 18": Lt gy, argil & very finely dol ss. Sd grns generally fine to mod fine qtz. Some mod cse grns.
Mid 6": Gy dol. Most of mat finely & highly porous. A trace of glauc. Some frags of molds of macro-fos present.
Bot 6": Gy dol ls somewhat porous from removal of small fos molds. Ls is sl sdy, scattered sd grns. Trace of small fos & fos frags. (sections & casts) present. Some portions strkd with irreg lenses of a blk, earthy petroliferous(?) mat.
- 5669-79 165 Rec. 3'. Top: Hd gy & brn dol. Porous (due to removal of small fos molds). Mat is irreg sdy & glauc. Traces of fos common.
Mid 1': Gy highly micro-fos dol & inclusions or lenses of the blk, earthy petroliferous? mat as above.
Bot 1': Hd gy & brn fos dol like preceding. Irreg porous & glauc.
- 5679-89 166 Rec. 2'. Lt tan, highly porous glauc dol molds & impressions of micro & macro fos & fos frags abdt.
Bot: No change.
- 5689-98 167 Rec. 18". Top: A lt gyish tan highly sdy dol. Mat is somewhat glauc & some impressions of fos & fos frag. Sd grns poorly sorted.
Bot: Like the preceding. Sd in dol poorly sorted as above averaging coarser than preceding. Mainly qtz, some Chalcedony.
- 5698-5708 168 Rec. 3'. Top 2': Lt tan, dolomitic & somewhat glauc ss. Sd grns fine to coarse. Cement finely gran dol.
Sec. 8": Ss as above & hd lt gyish tan, finely blk spotted somewhat sdy dense dol with some pockets filled with the blk earthy pet? mat.
Bot 4": Lt brn glauc gy spotted sdy dol.
- 5708-18 169 Rec. 1'. Lt tan-gy, dol sl glauc & mica ss. Sd fine to coarse. Some small pebble sized grns.
- 5718-25 170 *Trinity?* Rec. 1'. Top: Lt tan gy highly sdy & somewhat glauc dol. Sd fine to coarse. Some chalcedony.
Bot: Top continuous elastic section. A hd argil fine grnd ss with some coarse grns.
- 5725-35 171 Rec. 4'. Top 2': Fine grnd argil ss. Some pink tinted grns; fine particles of pyrite common in portions of core.

- Mid 1': Hd gy, irreg sdy sh. Sd grns poorly sorted, scattered thru core.
 Bot 1': Like the preceding.
- 5735-45 172 Rec. 3'. Top 2": Ss little cement. Sd grns fine to very cse, mainly mod fine to mod cse. A little mica. Some pink tinted grns.
 Bot 2'10": Ss with lt grn unctuous cement. Sd fine to cse. Cse grns common.
- 5745-55 173 Rec. 3'. Top: Ss as above, grns etchd as above.
 Bot: Similar to preceding. Some very cse grns present.
- 5755-65 174 Top 1': Lt grn (unctuous matrix) & mottled soft ss. Sd grns fine to very cse, frequently very cse. Many yellow tinted grns.
 Sec. 1': Cse grnd ss like preceding. Lt grn unctuous cement with mustard colored mottling.
 Third 1': Ss as above. Many pink tinted grnds. Sd poorly sorted, fine to very cse.
 Forth 1': Lt purplish tan sdy clay. Sd poorly sorted, fine to cse, a little glauc.
 Bot 1': Lt purple, yellow, grn & wh mottled argil ss. Cement is waxy. Sd very poorly sorted. Very fine to coarse.
- 5765-75 175 Top: Grnish yellow argil ss. Sd poorly sorted, but mainly fine to mod fine. One large pebble of ls.
 Bot: Grnish yellow & wh mottled argil ss. Sd very poorly sorted, very fine to cse. Also part of core purplish gy & yellow grn m mottled waxy, somewhat sdy clay sh.
- 5775-80 176 Top: Purplish gray, waxy, somewhat sdy clay sh & lt grn & reddish. tan mottled highly sdy clay. Sd poorly sorted as above.
 Bot: Purplish gy, sdy clay sh. Sd very poorly sorted.
- 5780-90. Cut. Mainly poorly sorted sd as above, fine to very cse & some frags of grnish yellow sdy clay.
- 5784 S.W. Core. Fine to very cse argil sd.
- 5790-5800 Cut. Fine to very cse sd. Some cavings of various mat from higher depths.
- 5791 S.W. Core. Soft, lt grn & lt pinkish tan argil ss. Sd very poorly sorted as above.
- 5799 S.W. Core. Soft grnish wh argil sd. Sd fine to mod fine.
- 5800-10 Cut. Mainly fine to very cse sd as above, mainly qtz & a little feldspar.
- 5810-20 No change.
- 5812 S.W. Core. Soft, white, argil ss. Sd mainly fine to mod fine.
- 5820-30 Cut fine to very cse sd as above. Some cavings.
- 5828 S.W. Core. Lt grn, argil soft ss. Sd grns generally fine to mod fine.
- 5830-40 Cut. Mainly fine to very cse sd. Character of sd same as above.
- 5833 S.W. Core. Soft, white argil ss. Sd grns fine to very cse.
- 5840-50 Cut. Fine to very cse. Sd reddish orange feldspar & tinted qtz grns common.
- 5850-60 Like the preceding.
- 5851 S.W. Core. Pinkish tan argil soft sd grns fine to very cse (pebble size). Many pinkish orange grns feldspar.
- 5860-70 Fine to very coarse sd. Many reddish orange grns as above.
- 5868 S.W. Core. Lt to brick red, sl grn mottled argil soft, ss. Sd fine to cse. Small roughly angular frags of a reddish orange felspathic mat common.

- 5870-80 Cut fine to cse sd. Grns of a pinkish orange, granitic rock common.
- 5873 S.W. Core. Dull red & grn mottled argill soft ss. Grns fine to cse.
- 5879 S.W. Core. Reddish tan, soft, argil ss. Sd grns fine to mod cse.
- 5880-90 Cut. Fine to cse sd. Many yellow stained qtz grns & of the reddish orange granitic grns.
- 5892-5902 Rec. 2'. Top 2'10": Dull red & purplish gy mottled silty & sl mica clay sh. Some fine to cse sd scattered thru the mat & some oxidized ferruginous areas.
177 Bot: Lt reddish soft tan argill ss. Sd grns fine to cse.
- 5900-10 Cut. Fine to cse sd as above.
- 5903 S.W. Core. Wh, argil ss. Sd fine to cse. Cse grns common.
- 5906 S.W. Core. Lt grn, soft, argil, ss. Sd grns fine to cse. Mainly fine to mod fine.
- 5910-20 Cut. Fine to cse sd. Feldspathic grns common.
- 5922-25 178 Core #178, Rec. 3'. Top: Top of Basement, Finely mottled, vivid grn & dull purplish red mat with infiltrations of a wh, translucent, soft tallow-like substance. Grn mica? or platy glauc common. Part of core a reddish brn clay sh with small frags of the purplish red mat & the grn (glauc?) material adhering to it. Bot: Mat similar to preceding. Metamorphic?
- 5920-30 Cut. Fine to cse sd & frags of the mat noted in core above.
- 5930-40 Cut. Like the preceding. More frags of the dull purple & grn mat.
- 5940-50 Cut. Qtz as above, frags of the altered metamorphic? rock described above, many frags of another type of metamorphic rock.
- 5950 No change.
- 5951-52 179 Core #179, Rec. 1'. Metamorphic. 5948-49
- 5952-54 180 Core #180, Rec. 2'. No change. 5949-51 } corrected
- 5954-55 181 Core #181, Rec. 1'. No change. 5951-52
- 5955-56 182 Core #182, Corrected measurements (5952-53') No change. Same to 5958'.

E. R. Appleby

P19

COMPANY : Grace Drilling Co.
 WELL : Retail Lumber Co. #1
 LOCATION : Sec. 2, T15S, R30E

COUNTY : Volusia
 ELEVATION : 45 K. B.
 DEPTH : 5418
 COMPLETED : 1/30/49

REMARKS : No samples at 0-83', 350-1840',
 2640-3305', Electric Log
 available

CHEN 1963

0	90	MIOCENE
90	205	OCALA GROUP
205	465	AVON PARK LIMESTONE
465	1260	LAKE CITY LIMESTONE
1260	2000	OLDSMAN LIMESTONE
2000	2655	CEDAR KEYS LIMESTONE
0	90	MIOCENE AND YOUNGER
90	170	Highly fossiliferous LIMESTONE, Biohermite, pseudo-Oolite, Amphistegina pinarens rather common
170	205	Calcitic (10%) DOLOMITE, microcrystalline
205	310	Fossiliferous LIMESTONE, Cosk. Lituonella, etc.
310	320	DOLOMITE, very fine crystalline to microcrystalline, porous
320	335	Fossiliferous LIMESTONE
335	400	DOLOMITE, very fine crystalline, porous, peat like fragments (330-332?)
400	420	Fossiliferous LIMESTONE
420	445	DOLOMITE, very fine crystalline
445	465?	Fossiliferous LIMESTONE
564	468	DOLOMITE, very fine crystalline, carbonaceous material

468	470	Black Peat?
470	490	DOLOMITE, very fine crystalline
490	520	Fossiliferous LIMESTONE
520	585	DOLOMITE (10%) fossiliferous LIMESTONE
585	850	DOLOMITE, very fine to crystalline
850	930	Fossiliferous LIMESTONE
930	950	DOLOMITE, fine crystalline
950	1085	DOLOMITE (10%) fossiliferous LIMESTONE
1085	1200	Fossiliferous Limestone
1200	1260	Dolomitic (10%) LIMESTONE
1260	1380	Fossiliferous LIMESTONE
1380	1470	DOLOMITE, fine crystalline
1470	1590	Fossiliferous LIMESTONE
1590	1630	DOLOMITE, fine crystalline
1630	1660	DOLOMITE, very fine crystalline
1660	1700	LIMESTONE
1700	1775	DOLOMITE, fine crystalline
1775	1810	LIMESTONE
1810	1880	DOLOMITE, fine crystalline
1880	1900	DOLOMITE, very fine crystalline
1900	1935	DOLOMITE, medium crystalline
1935	1980	DOLOMITE, microcrystalline to very fine crystalline
1980	2000	DOLOMITE, very fine crystalline
2000	2120	DOLOMITE, microcrystalline, fossiliferous, Borelis, etc.

2120	2135	Gypsiferous (20%) fossiliferous DOLOMITE, microcrystalline
2135	2150	Gypsiferous (10%) DOLOMITE, microcrystalline
2150	2165	Gypsiferous (20%) DOLOMITE microcrystalline
2165	2180	Gypsiferous (10%) DOLOMITE, as above
2180	2195	Gypsiferous (20%) DOLOMITE, as above
2195	2215	Gypsiferous (10%) DOLOMITE, as above
2215	2250	ANHYDRITE, slightly dolomitic
2250	2280	Gypsiferous (10%) DOLOMITE, as above
2280	2305	ANHYDRITE
2305	2320	Gypsiferous (10%) DOLOMITE, as above
2320	2370	ANHYDRITE
2370	2405	Gypsiferous (10%) DOLOMITE, microcrystalline
2405	2430	ANHYDRITE
2430	2450	Gypsiferous (10%) DOLOMITE, microcrystalline
2450	2460	DOLOMITIC (30%) ANHYDRITE
2460	2480	Gypsiferous (10%) DOLOMITE, fossiliferous, Oolite, microcrystal.
2480	2545	DOLOMITE, microcrystalline, slightly gypsiferous and Argillaceous
2545	2555	Gypsiferous (10%) DOLOMITE, as above
2555	2655	DOLOMITE, microcrystalline, slightly gypsiferous and Argillaceous
2655	2680	DOLOMITE, very fine crystalline
2680	2810	Chalky, fossiliferous LIMESTONE
2810	2830	DOLOMITE, fine crystalline
2830	2890	Chalky, fossiliferous LIMESTONE

2890	2960	DOLOMITE, fine crystalline
2960	3015	Chalky, Fossiliferous LIMESTONE
3015	3030	DOLOMITE, fine crystalline
3030	4000	Chalky LIMESTONE