KMC

7-29-80/
10-1-84

NEW BOOK
82 0040

7-80/10-84 FILE BOOK

Lawn
(504) 831-9032

Bonnabel Exit
Causeway
Clearwater

~~[illegible]~~

(505) 522-1709

17489 Santa Fe

26.6
6 | 160
22
40
36
4

584
424
160
6 | 160
24

The paper in this book is made of 50% high grade rag stock with a WATER RESISTING surface sizing.

KEUFFEL & ESSER CO.

Table of Contents

Page 1 W-24151_To_W-24503

Page 6 W-25743

Page 19 W-77144/W-77186

Page 25 W-77475

Page 40 W-13863

Page 42 W-13065/W-13068

Page 43 W-13061

Page 44 W-10404

Page 49 W-SM-11471

Page 50 W-SM-10466/W-SM-7964/W-SM-11761

Page 51 W-LK-7746

Page 52 W-SM-10331

Page 53 W-SM-5054

Page 54 W-LK-13049C

Page 55 W-LK-622/W-LK-4989

Page 56 W-LK-13051C/W-LK-2646

Page 57 W-HR-3675/W-HL-7572

7-29-80 to BARTOW with you + ogden for 7-30 RAC. spent PM at INC wetlands proj. at Gardinier mining area S of Ft Meade to determine whether reclamation was under way without a program (NO)

DNR 1619 MILEAGE 24151-24503

7-30-80 RAC mtg on AGR-FG-11 WRG-BC-12, MCC-FM-23 + CASSAC-R-7

Visited BARTOW Minerals Co with George re information on their mining + possible reclamation responsibilities. Jim Stucklin Gen Mgr.

DNR-1619 mileage 24503-24616

7-31-80 George + I : Interim inspection
at INC + Agrico : Return to TLH
DNR-1619 mileage 24616-24963

8-5-80 Recon trip to Enfield
re where mining, when rect.
can start etc. Joe +
Bruce to accompany
DNR-1619 mileage 24963-25043
Met with Jack Williamson, discussed
mining areas + photographed
pit take up maps. Visited field
mining area + photographed
some, sketched area

Vermont

8-11-80 Sample 1
black Shale & quartz
intrusions
Hwy 89 South
(North of Randolph)
highest elevation

sample 2 near Lebanon
2 samples
along white river

sample 3
~~North of Springfield~~
just north of New
London

green

Sample 4 South of Concord N.H. on Interstate 93 ~ 1 mile N of Todd Hobbs + ~ 1-2 miles south of 89/93 intersection

vein filling material + country rock also pebble apparently weathering in place

Sample 5

past Goshen, Mass 6½ miles on Hwy 9

.8 miles S of Int. 9 & 112

Berkshire Trail

STOP 6 Quarry behind Troy (N.Y.) High School (2 samples) breccia

Schaghticoke Lithofacies of WESTCASTLE formation (Early Є). Conglomerate. - Term -

breccia refers to graded limestone breccia beds which alternate with dark colored shales (interpreted location of formation toe of slope between shelf basin

STOP 7: Rushon's Quarry, Troy N.Y.

Greywacke w/ sole marks (distal turbidites) part of Austin Glen Member of the Normanskill Fm (Mid. Ordovician)

8. Blue ridge pkwy Southfork campground opposite "Pink Beds" overlook

between miles 410 & 411

3 photos of complex folding PE metam

9 Blue Ridge pkwy

approx ¼ miles N of Cherry Cove Overlook ~ 415 pkwy mile

10 photos + samples opposite
Los Hollow overlook Pkwy
mi 416.3

#11 421.9 mile marker
gray & black stripes

8-27-80 ZOE + I to White
8-28-80 Springs for DER / Suwannee
Definition of "Significant
degradation" meeting and
interim inspection of several
DNR reclamation projects
Side stop on return to
examine Suwannee (s outcrop
E side of R just S of Hwy 90
~~prob~~ bridge (just S of
Suwannee St. park
2 samples of limerock
2 photos
of bank + outcrop where
samples were taken 35mm lens
1k dn stream
2) from across river at
outcrop N of bridge in park
70 mm lens 5.6 + 60
DNR vehicle DNR-1375
mileage out ___ retn ___
time out 3:30 PM 8-27
time retn PM 8-28

9-2-80 Trip to MCC: interim insp of MCC-FM-3, 4, 9, 10, 11, 12
RE follow up on your letter re abandonment of programs
mobil - no concerted effort to bring the above programs back on schedule.
Unescorted inspections:
SAC-W-1A - grading still to be done does not look like any wk has been done since last quarterly
SAC-W-11 - south lake boundary has been graded and lake has been tied into parcel to the S. (as submitted program)
SAC-W-7 still not graded
USAC-R-2A tailings pumping completed, tails line removed
ob at S edge of N lake has been breached, grading is in progress. waterlevel in N lake has droped ~4'.

9-15-80 to polk co for gte insp. insp Tenorioc upon arrival acc. by Zoe. DNR-1619 mileage 25069 - 25380 left TLH 8:00 AM
9-16-80 1619 MILEAGE 25380 - 25485 Added windsheild wiper solvent at gas stop REVIEWED programs at AMAX Dig 4, BREWITOR + USS
9-17-80 1619 MILEAGE 25485 - 25620 add qt. oil at gas up, inspect programs at WRG + MCC.

9-18-80 1619 MILEAGE 25620 -
25743 inspected reclamation
programs at Beker. MET WITH
HAROLD PRINE (field sup.) and
Mike KELAHAN (Lk. office)
directions to office - go S on
37, then go E on hwy 64 for
~1 mile to Duette Rd - 1st
paved Rd on Rt, go S on
duette Rd until it runs
into hwy 62 (duette is
dirt part way) go W on
hwy 62 ~5.5 miles to
Logue Rd on Rt., field
office in old farm house
first place Logue Rd on Rt.
inspected CE-HC-1

9-19-80 1619 mileage 25743-25857
review ESTECH + TA reclamation
programs. Rec. TAM-PC-1 for
release. Drive to TPA + fly
back to TCH.
9-23-80 fly to TPA pickup
1619 mileage 25857. Drive
to Polk Co inspect IMC recl.
Rec IMC-CS-8 for release.
final mileage 25015
9-24-80 MILEAGE 26015-26084
inspect Agrico reclamation. rec.
release of AGR-F6-8 and AGR-PE-2
9-25-80 beginning mileage 26084
inspect Gardinier reclamation.
Drive back to TCH. ARRIVE ~ 530
pm. final mileage DNR-1619 26404

Schedule interim inspections
wk of Nov 17, 1980

collect dolomite samples at
Payne ck.

INTERIM INSP. scheduled

11-17-80 TENNROC

11-18 AGR + BP

11-19 MCC, GAR, USAC

11-20 ESTECH + IMC

11-21 retn home

11-17-80 left TLH 8:00 AM for
polk co. for interim rel.
insp. accompanied Joe.
DNR-1619 STARTING MILEAGE 26885
INSPECTED TENNROC 2+3. Both are
making SATISFACTORY progress. T-3
lake down ~10-12 feet may req.
artificial filling from AGRICO
off property ditch.
11-18-80 STARTING MILEAGE 27182.
Inspected Agrico + Brewster.
~~Brian~~ fossil hunted short time
at SE corner of AGR-FG-13
program. PACE fd. ~3" shark tooth.
many replaced mollusc shells
(ARTICULATED). ALSO fd large
(4"x4"x6") laminated object
NOT id. P.M. after comp. insp.

went out in field with BKM
to Lonesome mine #3 draglin
spent ~2 hrs looking at geology
in pit - collected 2 Hawthorn
bedrock samples.
11-19-80 beginning mileage 27365.
Inspected mobil, Gardinier +
USAC. Finished early visited
George O. at Agrico + Cody S.
George too busy to take us to
field so collected samples at
Fosfoed (Hillsborough Co) matrix
walk.
11-20-80 Beginning mileage 27503.
Inspected Estech + IMC. went
dove hunting with IMC crew
after insp. on IMC-N-1. not
much luck - feeding area +
as too late.
11-21-80. Starting mileage 27655
Drove to Payne Creek mine to
show you old Tillman mine
area. Mostly fenced off +
parked now. Mining to south.
Collected bedrock samples at
PC-9A sb. spoils.
Also sampled & limerock exposed
in canal on W side of hwy 471
2.5 mi N of hwy 98. Rock surface
top ~4' below natural grd.
Shelly, some silicification +
iron staining.

12-9-80

w/ Tom Scott to Gainesville
~~visited two pits (S on 441)~~
~~at exit 39~~

w/ Bruce McFadden -
(Florida St. Museum)

MARTIN - ANTHONY Quarry
on W side of 441
- crystal river exposed
with chert cap. -
chert with lepidocyclina
some St Marks lithology
limestone above - also
some hawthorn type
lithologies

~170' ST MARKS type Lithology
~150-155 HAWTHORN type lith
(sand clay + phos)
~140 Top of remaining crystal
river with chertified cap

unnamed pit E of 441 (~1/4 mi)
+ N of MARTIN/ANTHONY rd
(~1/4 mi)
Lower ocala lithology
exposed: much evidence
of echinoid burrowing +
solution controlled by the
burrowing.

Photo record: K-64

1 MARTIN ANTHONY pit face
2+3 second pit lower scale
effects of echinoid burrowing.
4+5 close ups of same

12-10-80 Occidental meet
with Dennis Price tour
pits re HAWTHORN strat-
igraphy.

Photo record.:
Exp 6+7 only ~~SC~~ S.C. #4
draghine pebble zone
8: same area: fine rock
on bottom; overlain by blocky
clay: overlain by pebble
phosphate zone; overlain
by rich phosphatic sand
9+10: Only SR #1 drag
phosphatic sand w qtz sand
stringers from bottom of
view: overlain by pebble
phos. zone; overlain by
yellow green clay.
#11: same area showing
drag + obvious ob/matrix
boundary
12-16 SR x bedding

12-23-80 leave HH 1/2 tank

mileage				miles traveled
		56400		
56476	9.1 gal	$11.00		76
56657	10.9 gal 41.32	14.50		181
56854	10.3	14.00		57173 − 56400 = 173
57025	10.6	14.05		171

12-30-80

mileage 57173

gas		$11.00 9.3 gal.		$1,18148
57293	6.2	$7.25		120
57497	11.2	15.00	133.	204
5664	9.5	13.50		
57788	5.4	6.50		283
57924				end of trip.

751 miles

~~1300~~

1524 miles HH

1-6-81

Photo Log RI

IMC-CS-9A	6	
IMC-CS-27	4	
IMC-CS-6A	7	
IMC-CS 25	4?	
IMC-CS-24	6?	
IMC-N-5	6	Transferred to rec. photosheets
IMC-N-4	5	
IMC-N-1	5	
Roll 2		1-6-81
IMC-N-4	5	1-7-81
IMC-N-1	3	
IMC-P-1A	4	
IMC-P-10	3	
IMC-P-15	5	
IMC-K-22	6	
IMC-K-10	5	
CORG-BC-9	3	

2-3-81 Joe, Greg + I to pack co in Ramcharger for interim insp. I dropped greg + Joe off to pickup rental vehicle + went on to inspect WR Grace progress

3-4-81 inspect Estech, USS + Mobil program - meet Joe afterwards + return FLH arrive ~10:00 pm

3-24-81 Visit to Florida Rock Industries Gulf Hammock mine. Met with Dennis Murphy (Geol). Tom Scott, Rich Duckling, Bill Parker (FSU) + myself present.

Examined spoil piles at pits ~ .7 miles east of the plant. Water table is 4-6' below ground surface. FRI is mining 35-50' of dolomite in the top of the Avon Park fm. Brown dolomite is underlain by chalky, fine grained cream limestone. Dolomite in places is bedded (1-2 cm tk)

most of difference is due to porosity.
fine is dense, coarse is vugular

with alternating fine + coarse layers. Plant fossils common on bedding planes (thalassia type grasses?)

FRI is at Gulf Hammock EAST of Hwy 98 in Levy Co.

Doline Minerals (just south of the x FLA barge canal in Citrus Co. on E side of Hwy 98. Pit ~ 20-45 ft deep with Lower (inglis?) ocala + Avon park fms exposed

3-25-81 Visited Crystal River Quarries Lecanto pit. Lecanto ~ 2.5 mi S of Lecanto on Hwy 491 in T19S, R18E, S15?

SEE MR. KLINGER. Could not get into ~~the~~ the active pit due to blasting preparations. Examined old pit to South. ~ 30-40 acres maximum high wall ~ 30 ft (at N) much less elsewhere. 10-12 ft of Suwannee exposed at top of highest areas. Remainder is ocala. calcite xls common, bones + teeth present in solution cavity fill.

3-26-81 - visit E.R. Sahna pit located ~ 5 mi N of Lecanto on Hwy 41 (~ 1/2-1 mi S of Beverly Hills.

Loc T18S, R18E, S10
Several coalesced pits to
different floor levels
Crystal River + williston
fms exposed in walls
Inglis is being mined below
water table. Rock hardness
+ recrystallization varies greatly
Calcite XLs common.
Rel'd FLH 9:00 pm

5-11-81 Drive 1619 to Polk Co.
for interim insp. Accompanied
by Lee Sherwood. inspected
WRG Nora + IMC programs.
5-12-81 inspected ESTECH,
Mobil Gardinier + USS programs
(GAR insp. not required - requested
by mike Prein to answer
some questions.
Also located property of the
Peace River Peat INC - east of
the Peace river. (Go thru
IMC-CS mine go south past
IMC/GFWFC wetland project
take first road to SE (between
released recl. + unofficial
old lands recl. program - Peat
mine is at edge of floodplain
~1/4 mile SE of CS-2, 3, 5A complex
appears to be 4-8 ft of peat
present. - IMC mining to west
+ south also moving much peat.

6-13-81

To Citrus co to view sink activity south of Inverness hwy 41 & 39A int.

two small lakes to E of 41 connected by CANAL

CANAL developed several drains - has been blocked off by sandbag dam.

Meet ED Daugherty - co engr. consultant to run sonic reflection survey

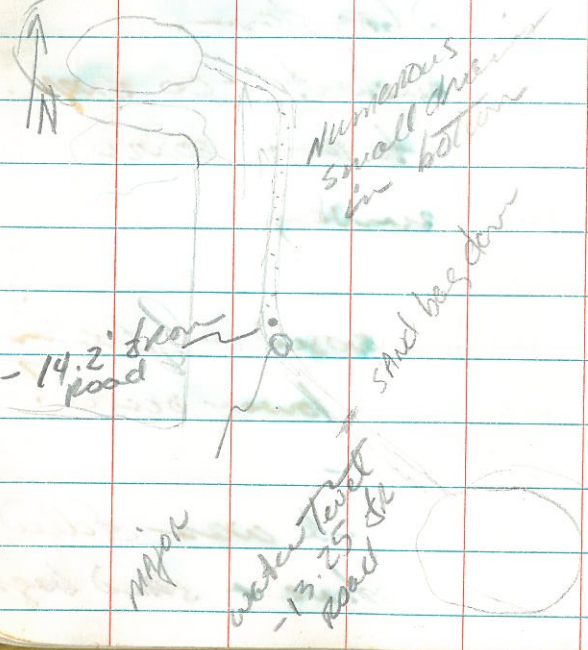
some rock exposed in drains - all rubbly - lower scale?

samples taken

original sink was filled with local stone & sand bags

with possibly some
concrete - in addition
a sink occurred ~50
feet to N at same at
the same time

Richard Benson -
Ground Penetrating radar
100-1000 MHz



williston? for exposed in drains - is bleached
cannot tell for certain that
it is in place

6-17-81 Summer R
to check Southern outcrops
called "red rock - scorn
marked" slab at REAVON
outcrop # ___ near center
of sec 22 sq Prospect Ch.

7-12-81 Ice cream to White
Sands + San andreas mtns
76691 - 76810
7-13-81 Ice cream to El Paso
to Franklin mtns
76-810 - 76991

Roll 1 K25 E1 40

1 ORGAN MTNS 1k S from
2 SAN Augustine pass F8/250
3 pan at St aug. pass
4. 1k N from Hwy 70 (in wt sands
middle range at E edge of
westward dipping fault block
mtns pre cambrian metamorphics
overlain by mississippian to
cambrian rocks
5-15 various at white sands
nat mon

These are the SAN andreas
mtns at the wedge of the
Tularosa basin (Grabben)

16-20 F-15s over white sand & desert flower

20-25 - east flank of organ MTNS - 5570, peak is PC media

25-27 fractures in weathered Tertiary intrusives

28-35 - views of & from Franklin MTNS (Ranger Peak) El paso - 1K N along E edge of mtns

36 view of N Franklin mtns E of I 10 at NM + TEX border

roll 2 # 64 E1 80

1-8 photos of N Franklin mountains 1K east and then N + S from w flank of mtns also us + cactus shots

9-14 grandma + grandpa

15 1K N along w flank of caballo MTNS - Q Tex of Rio grande in L.G. foreground

16 Caballo mtns w Rio grande + Qt in foreground from I25 ~1 mile S of Percha dam

17 Caballo MTNS from I25 1 mi N of Percha Dam showing pediment surface

(15-17 mtns located on ~~west~~ east side of lake Percha

7-14-81 Ver Cruces to Las Vegas

76990

77144 SOCORRO mi

77184 BELEN

Roll 2 cont

18-19 - arroyo cut thru Tertiary volcanics 1 mi N of Red rock NM - marked 20 contact #18 & 19 on AAPG map

21-22 hearth

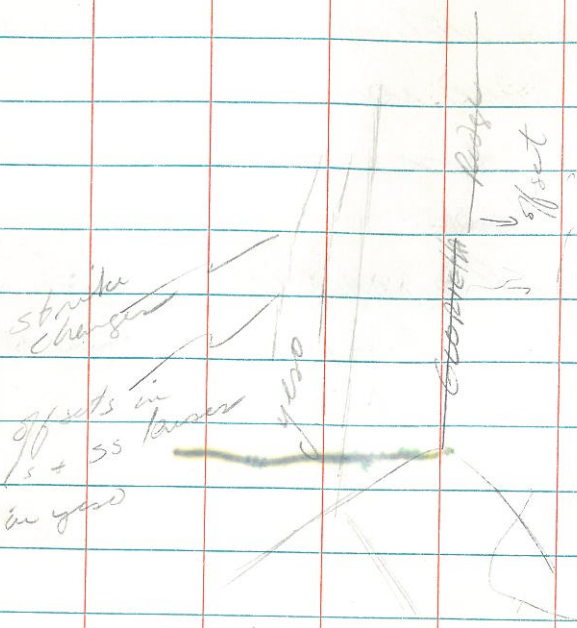
23-24 Rio Salado - braided stream bed ~16 mi N of SOCORRO

25 - finish Sandia Peak

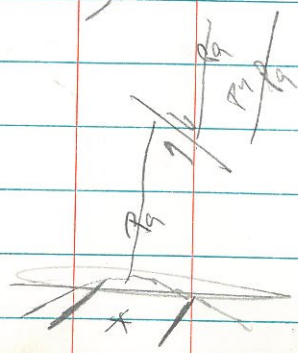
E200

Roll 3 1-10 Sandia peak

11 - fault offsets in SS tan member in upper yeso fm bed ~25cm thick - 6 offsets in ~4m total offset ~1m

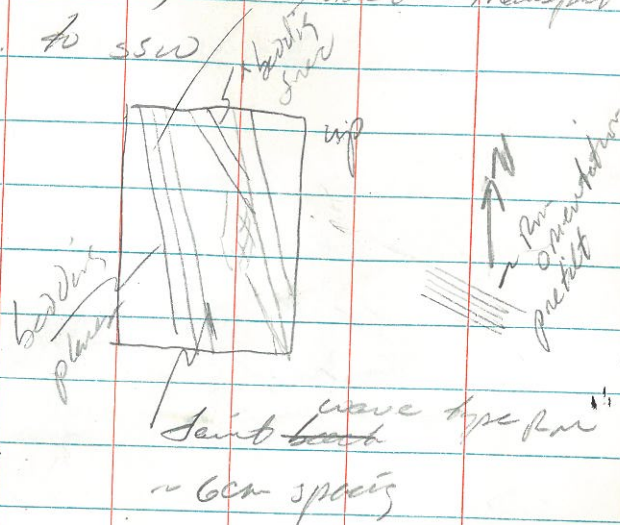


12-13 gloriette ridge looking E



14 closeup of pitting in gloriette

15 fractures following low angle cross bedding in gloriette transport dir. to SSW



16-17 boulder conglomerate #2 bed mid Upper Santa Rosa fm - many

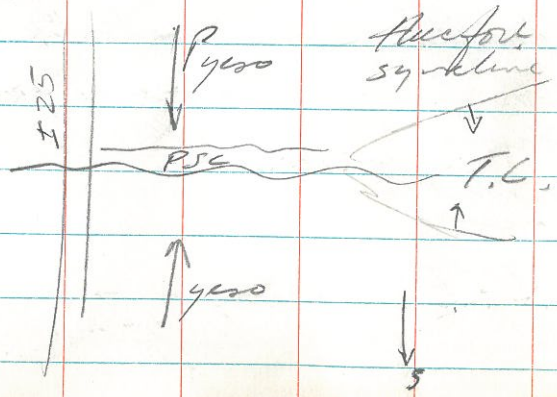
18 second cycle boulders - polymictic boulder cong. showing ss top + bottom ran on bedding plane at left

YR Run in Santa Rosa fm

3/11-19 5 mi N of Tecolote N.M.

20-21 SS in lower yeso on S side of Tecolote ck at Tecolote (in drainage ditch.

22-24 - yeso/Sangre de Cristo contact (at base of massive bed) sdc cr. here x bedded style



25 lower chinle fm 1k west el Solitario in background

I 25 in low mid grd.

26 close up of x bedding in lower chinle

27 x bedding lower chinle

28,29 plant remains on mid chinle bedding planes

30,31 Run on mid chinle bedding planes

32-33 channel fill in lower chinle with sqzb pebble conq. pebbles same as underlying material (~ 1/4 mi NE of KOA S of Romeroville) on Hwy 84 E

34 contorted bedding in Sodillo fm W side of I 25 at cut N of Romeroville

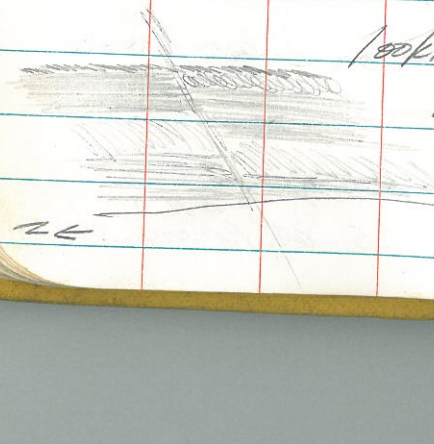
35, 36 spotted ss uppermost
Romeroville member

Roll 4 K64 E181

1 Buff upper Dakota over clayey carbiferous mid dakota - K s at I 25 cut at Romeroville

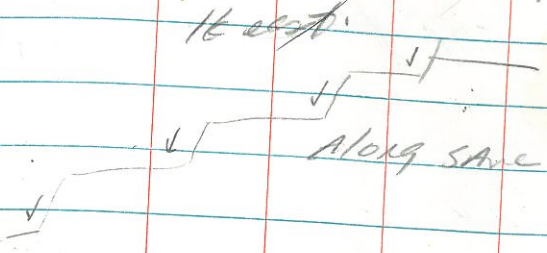
2 ?

3 + 4 - fault in Glorieta w side of I 25 displacement ~ 4 ft.



other side of road cut 4 smaller displacements add up to ~ 7.5 ft of disp

16 east



5 ~~Rowe fault~~ fault ~ 150m s of prev. desc. - same trend - same fault style ~~for fault style~~

this is the glorietta road cut shown on center of photo 193

6 - stratigraphic peak in N w

7-8 gypsum pebble conglomerate in barnal fm at s w tip of Bear Chapel hill

9, 10 massive bedded gypsum in Bernal - ~~blow~~ below gyp/cong bed ∴ cong. prob obtaining gyp from within bernal.

11-13 Laguna Lo showing soft pebbles + pits left by their removal

14 or 15? Laguna Is with red siltstone clasts and lens - ∴ facies change si + es essentially contemp.

16 Starvation peak from 20% up Chapel Hill

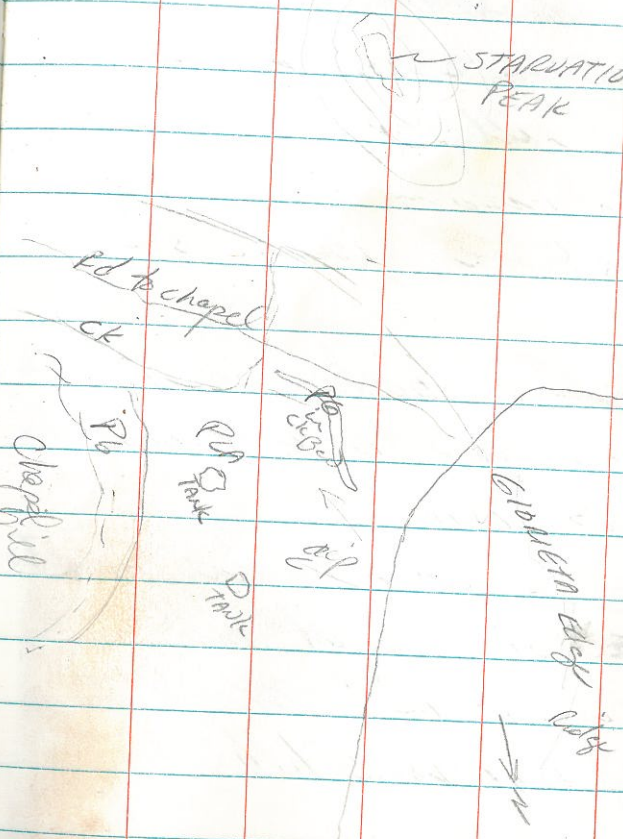
17-19? massive gypsum in bernal at chapel hill

20 wff at chapel hill

21 x bedding in red ss of SR Fm

This is ~ 2 ft above prob base of S.R.

22, x bedding in S.R. 4 feet ~ 25' from top chapel hill



24 WFT + gyp/polymictic conglomerate ~ 25' from top chapel hill - not exactly in place

25-26 dessication cracks in SR ~ 25 ft from chapel hill top

27 - x bedding in Red siltstone power SR

29 - chapel hill from rd/rk intersection route climbed on ~ left skyline

30 - ck bed + ch in Glorieta 5 + W of Chapel hill

31, 32 x bedding in Glorietta note ~~soft~~ poor hts.

33 mid to late tertiary (Mio?) dikes in cretaceous black sh Tonie Lake

34,5 Arroyo with ss water after rain ~~below~~ ~ 25 mi N of Albuquerque NM vel. ~ 3-4 m/s

36, 37 - road cut thru gravels + sand - channeled + x bedded spectacular! 77520

Albuquerque I40 exit 77544.5 ~ 1 mi N of 25 SAN ~~Felipe~~ pueblo exit

RSM 5 E200 Ei 200 + 1/3 MANZANO MTN

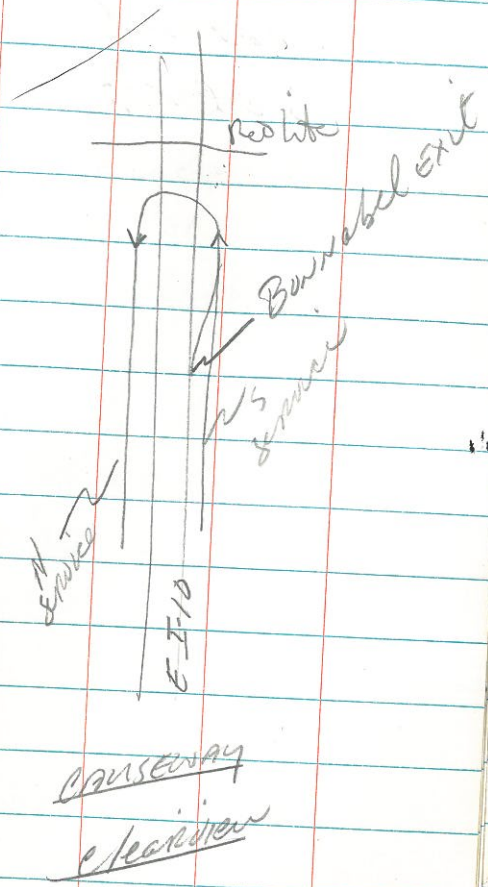
1 rainbow over ~~from~~ 5 of Below N.M.

4-16-81

gas 42.00 1.5gal

Cash, 29lb oil 8.00

72475



Martin's Club

10-15-81

Suwannee R.

Big Shoals to Hwy 136

sample 1 : at lower end of Big Shoals

10-22-81

Torreya State Park

River Bluffs Trail

limestone (weathered) exposed in gun pits + along trail between GP-1 + GP-2

took sample at trail level GP-1.

Samples 2, 3 + 4 taken from bottom of bluff at intersection of torreya hiking trail + bluffs trail

stage height at Gregory house -1.5'

Rock bluff landing?

two photos of ledge exposed + RH in SOT. Seature

LEON Co.

10-29-81 Several from BOG go to Lake Jamonia to check out rept that sinkhole had opened up + lake had gone dry. Sink supposedly located ~~in~~ S + E from Van Brunt landing. Arrive at lake - low but def. not dry. Learn that area is to east walk along bank appx 1/4 mile. Small arm of lake has gone dry (~20ac) this area was dammed off in 1933-34 after sinkhole in this same lake drained entire lake. basin is loc T3N, R1E, S23 SE1/4

rock exposed in sinks in St. Marks Fm.

1957 topo shows this area dry. W.S. took photos

11-9-81 To Alpine Re
F-4 hwy 94 to confluence of
Upsahe/Hopehoche R.
WS, TS, FP, PB + Bill Cuden
~ 18 ft of water flowing at hwy
94 bridge
Photo 1 sandy carbonate
outcrop on left TS canoe
in photo
Photo 2 folds in
wall + Paulette for scale
Also photos of high angle
x bedding (2 bc)
+ opal shale

11-19-81 TS + I to
Alapaha R. Drive up dry
river bed from Hwy 6/41
Bridge to ~ 1/4 mi S of
Bluff cemetary rd. Cross N
~~to~~ to ~ 1/4 mi S of Dead
River (sec 8, T 2N, R 13E)
Hawthorn fm is exposed in
Cemetary bluff. Suwannee
Ls forms bed south of
there with first good
Suwannee outcrop in SE
corner sec 21

11-30-81 W.S., P.B., R.H. + D
to Appalachicola river - by
wheel to Torreya State
Park to photograph the
bluffs there to Alum bluff
put in at Bristol
B+W photos of Torreya
for st. parks leflet. B+W +
color of Alum bluff

soil
ferrasol
microsuker photo
/// bedded
Jackson Bluff - greenish
clayey sand upper ~5'
~~A few fossils~~
lower ~10-12' highly foss.
~15-18 - hawthorn equiv sandy
~10' - chipola fm - sandy ~~[illegible]~~
& limonitic shelley

4-5-82 Paulette Bond + myself to Florida Rock at gulf Hammock + IMC Morell mine
4-6-82 to Tampa to look at peat producers then to Buckingham Lee Co. to a drill rig. - look at core then to Ft. Denaud / Labelle area to look at Caloosahatchee Fm. Exposures
4-7-82 Lee + Collier Co. look at pleistocene reef exposures + Tamiami
4-8-82 Miami oolite exposures plus Windley Key quarry for Key Largo exposures
5-9-82 to Jupiter inlet area (Blowing Rocks preserve) to examine Anastasia Fm. Rest to Tallahassee

Photo Record

4-6-82

1) Ft. Denaud bridge (stop 5 of 2nd annual field trip of Miami Geological Soc. 1968) T43S, R28E, S15 ; on S side of canal - sand + shell of "Coffee Mill Hammock" unconformably overlying "Ft. Thompson" limestone + filling solution channels in the ls.

2 close up of Coffee Mill Hammock sand + shell

3 overview of outcrop.

4.5.6 - full moon

wild flowers

12 - TEN MILE CK PHOCENE REEF. ESTERO, LEE CO

- mud laminae clasts in Miami oolite at coral gables canal

- view of upper x bedded section miami oolite and lower bioturbated zone - probably also originally xbed.

- several shots of x bedding across canal.

NOTE: Alternating resistent and non resistant beds in Miami oolite are the result of post depositional differential cementation: resistent beds contain ~10% more shell frag + some mud.

Non resistant beds almost uncemented + are ~100% ooids

P.C. Jack Meeder

Roll 2

4-8-82

1) silver bluff shoreline - Bay Shore drive - Jack Meeder + Paulette Bond.

2) burrow in M.O. at silver bluff

3+4) Silver bluff shoreline

5) Wainright Park - lower bioturbated zone of M. oolite.

Note: Wainright park is lower in section than on Bay Shore Dr.

7-10) closeups of ooids at 3rd ave.

11) horizontal - looking at strike of beach ~ N-S

12-13) wildflowers

14) 3rd ave Dip face - to E.

15) coral rubble in storm layer 3rd Ave

16) blocks of Miami oolite rubble in miami oolite

17, 18, 19 Frigate bird Key Largo

20) large head corals (Diploria labyrinthyformis) in Key Largo

21, 22) closeups of 20

Roll 3

1+2) closeups of Diploria ozin end of prev. roll

3-end Anastasia Fm at blowing Rocks Preserve

NOTE: IMC MORRELL MINE mining crystal river formation here very poorly consolodated very micritic + highly foraminiferal very few large forams

overburden contains much silicified material - mostly ocale some sunwanee is left in pockets again mostly silicified

Loc 185, 6B E, 5/15 3-3½ miles N of Lecanto on

6-7-82 TS & I to S.W. district

Dolime minerals pit just south of barge canal mining highly limestone and Avon park dolomite. Avon park rises to the south ~10-12 feet as you cross the pit.

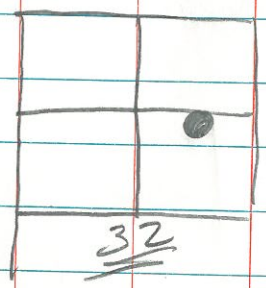
Then to E.R. Jahna Beverly hills pit 3 m N of Lecanto citrus co. mostly crystal River fm. w some lower ocala exp. in lower elevations much re crystallization of the rock particularly along fractures, sol. & cavities etc. some good crystals

6-8-82 To F.I.P.R. meet with HENRY BARWOOD. PM to Brewster phosphate EXAMINE haynesworth + Lonesome pits.

6-9-82 To GARDINIER to meet with RALPH HALL Chief Geologist "Wink" winkler and Tony Yselborough also geologists. visit pits - one very rich no pebble but thick very rich concentrate section. fossil hunting at south pit very good. wink gave us several calcite sand crystal conglomerates from

~ -85 ft. level of prospect
cone T34, R23, 24 Jordan
co.

6-11-82 To SWFWMD to pick
up some core (maps)
Visit CARROLL CONTRACTING
LECANTO Pit. - dry limestone
pit mining mostly Crystal
River - MANY CALCITE XLS
+ travertine Robert (Bob)
Lyons? in the pit foreman
LOCATION Homosassa Quad
T18S, R18E S 32 NW of SE
quarter



New Mexico trip
June 8-82

Samples collected at
Rockhound State Park
also agate + petrified wood
slabs from FALCON Dam proj.
Texas samples
- gypsum + calcite from
roadcut on Hwy 62-180
SW of Guadalupe peak +
~2 miles W of Jct hwy 54
un differentiated permian - mostly
massive ls

6-16-82 / 6-17-82 DNR-1466
To SWFWMD to pick up ROMP CORES - meet with Tony Gilboy. Also examine Eocene limestone exposures at Carroll Contracting Lecanto quarry.

8-29-82 / 9-2-82 DNR-1466
To Flagler County then to Collier Co + return to move drill rig to new site at Washington Oaks State Garden.

9-17-82 / 9-18-82 DNR-1840
Tom Scott + myself to Gainesville to examine Hawthorn fm, + various vertebrate fossil sites (SEGS Field trip)

3-15-83 / 3-16-83 DNR-1840
Tom Scott, Paulette Bond + myself to Bartow Area for SEGSA Phosphate Field Trip - examine pit exposures at IMC Clear Springs Mine + Gardinier Fort Meade Mine. Also ex. core from Gard. Hardee Co. property.

3-30-83 / 4-2-83 DNR-1840
Tom Scott, Paulette Bond, + myself attend the Symposium on South Florida Geology

held at the University of Miami.

5-4-83 / 5-6-83 DNR-1422
Walt Schmidt, Paulette Bond & myself attend the 3RD ~~[illegible]~~ Hydrogeology Symposium and SEGS meeting at USF in Tampa

5-23-83 / 5-27-83 DNR-1853
Tom Scott, Tom Allen & Myself meet Tony Gilboy (SWFWMD) & pick up well samples from SWFWMD. Then to phosphate district in Tom's truck (1840) to examine outcrops in phosphate pits at Agrico, IMC, Brewster, Mobil & GARDINIER

6-17-83 DNR-1466
Walt Schmidt, Steve Spencer & myself went to Gulf Power (Chatahoochee) to assist ~~[illegible]~~ Walt in examining cores stored there.

8-13-83 / 8-14-83 personal vehicle drove to OKENO & ICHETUCKNEE Springs State Parks to examine outcrops and to deliver park geology leaflets
mileage 23260 to 23574

9-1-83 Dry run of SEGS field trip to Apalachicola River bluffs W.S., R.H., B.G., P.B. + J.L. + ~~[illegible]~~ myself - visited all sites on field trip schedule: Estiffanulga, Alum Bluff, Rock Bluff, Gadsden county road dept borrow pit (N side I 10 + Hwy 20 Chattahoochee bluffs (wood Dan) both sides, also borrow pit on N side of hwy 90 E of Chattahoochee - Citronelle over Hawthorne small hoodoos capped with limonite cemented sand last stop Florida complete..

10-10-83 Steve Spencer + myself drove to Tampa to start peat producer survey. Stopped in Ocala at Moneta Springs St. Park & delivered Geology of State Parks leaflets.

10-11-83, 10-12-83 Visited or located all peat producers on list for Hillsborough county. all but 3 no longer in business

10-13-83 located + visited peat producers in Polk Co.

10-14-83 Visited Peace River Peat Co. Frostproof operation then return to tlh.

10-17-83 Tom Scott + Myself left for peat producer survey. Checked out 1 co. in Levy Co. + 3 in ~~Pasco~~ Sumpter Co. ~~only~~ Only 2 companies active - American Peat + Vesbite Co.

10-18-83 Completed peat prod. survey of pblk Co. companies + Agri tribes Co. in Pasco Co.

10-19-83 Return to TLH.

10-21-83 Went to Ancilla Peat Co. pit 1.4 mi E of Ancilla R. and hwy 27 for PEM project. Ancilla PEM NO ~~no~~ longer in Business - IAN is leased to Anderson peat Co. who is mining - Anderson rep on site is George Pellom

11-2-83 Walt Schmidt, Paulette Bond + myself went to examine outcrops exposed on Leon Co. side of Lake Talquin (Harvey Ck, River Bluff St. park, + Coes Landing. No rock exposed at Coes landing - dolomitic sandstone + dolomite (Hawthorn?) exposed at pt. on south side of Harvey Ck - some brecciated carbonate some shelly carbonate. parallel "fracture?" zone present (shore 11) in carbonate converted clayey sand ~200yd SW along

shore from heavy ck. rock present ~2 ft. below normal water level.

Lake bottom covered with fallen trees + stumps - almost to usual water level - lake bed is simply flooded flood plain

12-30-83 TS + Myself met SAM upchurch, Dick Strom + Greg Patrick at Mid Florida mining Co. to examine geology of the fullers earth deg. there - clay in Hawthorn fm. MATERIAL. boxworks + Megaddi - like chert

common in upper part

1-16-84 / 1-17-84 to MN. Co. to pick up remainder of Manatee Co. cores from Mike Heyl. on 17th from TPC to citrus co. to meet SAM upchurch + Greg Patrick + TS to examine hard rock phosphate pits. Kibler Hamp sec 12 X overgrown, no outcrops exposed collected some samples (loose) T17S, R18E, S12 SE COR, NE 1/4 & NW 1/4 - RETN tch.

W 13863 core Romp 114

0-29.5 NO sAmple

29.5 - ~38' - limestone, very pale orange to yellowish grey, well indurated; porosity inter granular, pinpoint vugs vuggy, bioturbated - two lithologies

1) dense v.f. - micro sized, recryst. low visible porosity,

2) more porous, pinpt. vugs, some moldic porosity, recrystallized

38.5 - 44.0 limestone, white - yellow grey well indurated, moderate porosity, pin pt. vugs, inter granular, micritic in areas some dolomitization, zones of mod cementation.

44.0 - ~46' dolomite, greyish orange, moderate to good induration, moderate alteration, subhedral intercrystalline, pinpt. + moldic porosity

~46 - 47 limestone as in 38 - 44'

6-1-84 SWFWMD - Brksville

examine part of Pony 3-3

0-96' ND samples

96-143.75' Peace River ?

143.75 - ~686' Arcadia

686- Suwannee top.

TD ~925'

did not get to examine

below suwannee top

6-1-84

USGS TPA Attend mtg

of SEGS comm. of Hydro-

geologic nomenclature

attend SEGS mtg evening.

Return to H 6-2-84

W 13065 (PK 7433) 139' TD ? composite well ?

0-6' NO sample

6-8' qtz sd.; yellowish brn, lt yl. gy; iron stained; clay cmt.; M-F gr; finer downward; SA; trace heavies; cly ~5%

8-13.1 qtz sd; yl. brn, brick red; to dusky red; some cream colored heavies; poor to mod. induration.

13.1-29 qtz sd; pale yl., lt. gy; m gr.; white cl. cmt; SA;

29-31 clay; pale gy brn, brk red; quartz sandy; mod to well ind.

31-39 qtz sd; yl. brn; iron stained; m gr.; mod induration; clay cmt; variable to v. sandy clay

39-96 qtz sd; yl. brn, brk red + dusky red; iron stained; f-m gr; poor to mod induration; clay cmt; clay % variable; color banding; tr. mica, phosphate sd. + organics

96-113 Top of Hawthorn Gp - pace R ?

Qtz sd; pale, med gy, dk brn at base; clay, organic cmt; poor induration; friable; v phosphatic (sd + pbl); lacks in upper part; some ls frag, gastropods

113-133.3 NO spl.

133.3-138.9 IN Ocala Gp.; limestone lt gy; intee, intergranular porosity; micrite + sk. gr. frs. Allochems - 15% poor to mod. ind.; micrite cmt; some forams. TD IN Ocala Gp.

W 13068 (PK 7421) 69' TD

0-3 qtz sd; lt gy to dk brn; M gr; Rgr F-C; SA-R; trace organic cmt.

3-23.5 qtz sd; white, pl. gy; M. gr;

rge F-C; SA-R; poor-mod ind; white clay cmt; 10-40% inc. downward.

23.5-~29' clay: pl. gry, white; slightly to v qtz sdy; very lustrous; calcareous; ranges to v clayey sd.

~29-45' clay; v lt. gry, yl. brn, laminated; v. qtz sdy; mod ind; cly cmt; variable to v sdy cly

45-49' qtz sd; pl. brn; v f gr.; silty, dolomitic; v clayey; mod to poor ind.

49-59' qtz sd (Poss Hawthorn sp.); yl. brn; brn; inter gr. porosity; F gr; V-M rge; sa; poor ind; cly cmt ~5%; slightly phosp.; tr. heavies; calcareous.

59-69' TD Suwannee ls; wh., pl gy, pl. yl; gr. type micrite; skeletal micrite cmt; poor-mod ind; Qtz sdy; clayey, micritic; sl. phosp. in upper most pt.; some mollusc molds. Porosity; fossils, induration inc. dn. sd + micrite dec dn. TD in Suwannee

---

W 13061 (PK-7407) 4-1884

0-5' qtz sd. grey, un to poorly indurated; some organics f-m grained; subangular

5-27 qtz sand, pale orange to brownish orange; poorly indurated; clay cmt; med to coarse grained, range fine to v coarse; clay cmt % variable ~5-15%; porous - intergranular

27-~41' qtz sd; white to cream; fine to v coarse grained; c grains ~5% subangular; poor induration; white clay cmt; v. slightly calcareous; trace heavies. porous - intergranular.

41-59.8 qtz sd; pale yellow, mgl. orange; fine grained rdg VF-VC bimodal - c gr. ~5% v.l. med sd. loss coarse component with depth; poor induration, clay cmt; trace mica. bottom 10 ft. somewhat better indurated; some thin clay lenses; clay % increased to ~20%; phosphatic 5-10% lower 2 ft.

59.8-75.9' clay; v pale greenish grey to olive green; poor to mod induration; clay cmt.; clay slightly calcareous; v slightly phosphatic + qtz sandy, variably qtz silty. trace sd. sized limestone fragments.

75.9-~100' qtz sd; pale greenish grey; greenish grey; clay cmt.

intergranular porosity; fine to med. gr. slightly phosphatic sandy up to ~5%; pale cream to grey green clay blebs clayey to v clayey ~1% phos c sd more clay below ~80 ft. Some intervals v sandy clay; Calcareous ~100' - 116.4' TD - v poor recovery only ~1 ft sample for this sec. Limestone; white to cream; micritic; pasty, mod induration; fossiliferous gastropods / lepos / mollusc frag.; intergran. pin pt. porosity; slightly qtz + phos sdy.

10404 (clay hole #2) 4-18
23.5-54.1

~ Timmons log gen 5% wadding of 2-5% phos sd assoc w qtz sdy zones

RF: 51-54' TD - ls, cream - wht;

Age?

micritic, muddy; gr sz crypto-med
gr bp. micrite-peloid; oolitic 5-20%
qtz sdy - trace to 40%; trace phos.
clay inclusions - green - phos sdy;
minor iron st. dolo - oxid. pyrite?

5-8-84 To Apalachicola to
Meet R.V. WOLF for MMS
heavy mineral sampling -
ship time scratched due to
weather - return to TLH.

5-10-84, 5-11-84 TO APALach.
meet R.V. Wolf. collect
samples offshore Cape San.
Blas + St Panama city.
ANCHOR off shore on

nearshore end of next
transect past Panama
city. - sample to Destin
- return TLH - Joe applegate
tks place on board.

6-28-84
Florida Lime + Dolomite Co
Gulf. Hammock (~1 mile E of)
DANNY

at pit 126.6 End bridge 127.7 Levy Co. C 326 128.3 off of 319

TURN E on Levy CO C 326
at Gulf. Hammock go .6 mile
to dirt RD w sign
turn left - RD runs N, NE
go 1.1 mile to pit

Dennis Mangling LELA RK IND
SAND FC. RK IND has purchased

Bore hole [illegible] in Miami
Old ___ operation [illegible]
Rinker + Miami [illegible]
Miami oolite - recrystallized
make aggregate ~96%

CARROL STOREY Qwy
from 4915 turn E onto
C-480 go 4.6 miles then
take mine access rd (paved)
at cond Storey sign
SUWANNEE LS w massive
chert in base overlying
Crystal river
Florida Rock Ind new pit
is to S of 480 1/2 mile
west of Storey

Hollingswood Mining
(904) 795-2939
DIXIE M. HOLLINS / HOLLINS CORP.
E W side of hwy 19 S of INGLIS
just N of large canal

DIXIE CO RD. dept ? pit
E of 19 just S of stonebetchee
R

6-28-84 To Levy, Citrus + Hernando cos to examine outcrops of M Eocene to Holocene age
T, Seth, V. Lloyd, Bill Parker, John + myself.

STOP 1 Florida Lime + Dolomite Co. Gulf Hammock: DANNY ____ Land owner?

Turn E at G.H on C-326 go .6 mile turn left at dirt rd (has F.L.+D. sign) go ~ 1.1 mile to pit.

Pit dewatered to app. 30' below LSD: Avon Park top at surface to ~ 2ft below LSD. Dolomite; peat flecks + blebs as well as a "channel" filled with dolosilty peat

Stop 2 Doline w/d: Barge Canal - not mining now - no pumping: water filled all across bottom EXAMINED south edge: ~6' w/g's at top underlain by dolomitized transitional area ~4' thick with unrecognizable original litho. to ~ where the calcite connection layer is present: below core appears to be good A.P. litho

stop 3 Florida Rock Ind; Brooksville
new north pit just S of
Hwy 480 mined down ~40'
Surficial sds underlain by
"Hawthorn" clays, some sink
hole fill in turn underlain by
Suwannee LS. Rubbly zone
present in uppermost suwannee
abundant chert; many hollow
clay filled concretions prob out
of sink matrix; variably weathered
FRI steps mining upon reaching
thick chert bed above contact
with Crystal River

STOP 4 Carroll Contracting Storey
mine; from 491 S turn E
onto Hwy 480; go 4.6 miles
to sign + take mine access
road to left. go to gate
Pit appears to be ~80 acres
+ approximately 80' deep to
water level.

upper part of suwannee LS rubbly
variably resistant bedding - massive
chert bed ~8' (~4-6' thick) from Base of tm.
Top of CR. is sharp contact visible
from across quarry. CR - massive
slightly different grey forms a
rounded ~~ego~~ edge bench in some
areas where suwannee prod.
held up by resistant beds
fd. example of Regular Echinoid
Coelopleurus sp? (Cooke 1941)
H. excavata - dig. on mined +
case hardened qy floor - fill mat.
is micritic - clayey

7-25

W-SM-11471 summary discription

0-50' Qtz sd. white med-c

0-40'; 40-50' fine-med gr. & comp. clay matrix, poorly to unconsol

50-70' Residum of Hawthorn Gp.

limestone - yellowish br. spar qtz sdy, phosphate sandy.

some green clay; fragments (1 Eroded dictyoconus) of SUWANNEE + Ocala (cr) ls.

some small silica cementing

70-150 Ecr: Calcirudite to calcarenite. upper most part recrystallized: calcarenite; calcirudite abundant lepidocyclina + operculinoides sp. abund miliolids; micrite matrix, echinoid fragments common

some bryozoa + mollusc fragments

150-210 Lower Ocala

limestone lt yl. grey; poorly ind. miliolid coquina w variable micrite matrix; common spar fragments most of which is id as echinoid fragments

210-500' TD Avon Park

210-240

limestone med-lt. grayish brn. micrite - peat/organics - finely divided; some foraminifera + sparry calcite; allochems ~ 15% - also recrystallized calcarenite miliolid rich, lt. gray mod-well ind. calcite cmt.

logends 240'

still in A.P. at 500'

T22, R23, S6

W-SM 10466

0-168' NO SAMPLES

168'-205' in AVON PARK Ls.

W-SM 7964 T19, R21, S10

0-10' quartz sand; transparent to lt. brn; lightly organic stained; unconsolidated; f-c grained; modal fine med, sub angular to subrounded; mod sph.; trace phosphate grains.

10-22.5 clay, lt. grey; poor insol clay cut; qtz sdy; sl. calcareous trace phosphate, heavy min; some limestone fragments

22.5-31' TD Lower Ocala Limestone; v lt. grey; mod. ind.; micrite calcite cut.

calcarenite - miliolid - rep arenaceous allochems vor 70%-90%; sparry calcite. echinoid frag.

W-SM-11761 T21, R22, S30

0-5' Qtz sd; brn; org stained f-c grained modal m.gr. sub angular to s.r trace phosphate, hv ls. fragments

5-10' qtz sd f-c modal med gr. or. brn iron stained - sd as above but some red + grey; qtz sdy clay some iron hardpan

10-15 clay brownish grey - or. brn. qtz sdy.; ~20% of sph is v lt. or. to orange crystalline to micritic ls.

15-20 clay - ochre reddish brn colored to grey qtz sdy some iron hardpan fragments Ocala Gp. ls.

20-35 Crystal River Fm.
Limestone white v lt. gray;
calcarenite - calc. mudst in
micrite matrix. Abund. lep.
& gsec. sp. some spary calcite
allochems ~ 50%; echinid +
mollusc frag.
35-65' TD Limestone: large forams
decrease; sm. forams inc.
allochems incr. to ~ 70%; mollusc
echinid + bryozoan fragments common
some spary calcite.

TD in Crystal River

G.P. Desantels B-78
W-LK-7746 Elev. 50' T20, R24, 28db
Miller Dr. + Supply

0-5 Qtz sd. lt. brn med gr
organic coated, some organic
fibers; s.r.; unconsolidated

5-10' qtz sd; v lt. brn; f-c; med
gr.; sr; some clay coatings on
grains (white clay matrix;
prob orig v p. ind. v sl. clayey
10-15 V
15-20. clay, white; qtz sdy, trace
heavy min.; poorly ind; clay cut.
20-55' Qtz sd. white - transp.; F-C;
med gr; SA-SR; trace ls. frag.
minor gran cl. frag. 20-25' some of
coarse grains have dk brn inclusions
trace mica at 50' minor ls. frag.
55-65' Micrite lt. orange; muddy;
quartz sandy; mod - poor ind;
65-80 L. ocala GP
Limestone: calcarenite, lt. grey
poor - mod ind. miliolids, granular,
micrite matrix; less micrite downward
spary calcite, echinoid frag.

80-210' TD Avon Park LS.
dolomite; med gray; well int.
dolomite & calcite cmt.; calcareous
foraminiferal micr; forams
not dolomitized; microcrystalline
dolomite matrix; some parts
recrystallized limestone; muddy or
micritic below upper part.

Log ends 100'

TD in Avon Pk at 210'

0-55 surficial sds + clays
55-65 weathered Ocala
65-80 L. Ocala
80-210 Ecp

DR. Dimmenshire
Owner
W SM 10331 T20, R23, S7 abb

0 - 65' Crystal River Fm.
Limestone; white to creamy
colored; intergranular + intra
granular porosity; poor to
well indurated; micritic cmt.
calc rudite - large foraminifera
coquina - primarily lepidocyclina
+ operculinoides; bryozoa, mollusc,
echinoid fragments; micritic matrix some lt.
grey chert with partially replaced
foraminifera (primarily 5-10' int.
5-10' interval a sand - prob void
filling; below 30' matrix becomes
more calcarenitic becoming a calcarenite
with large foraminifera interspersed
+ micritic matrix
65-~130' lower Ocala Gp.
Limestone; white to v/lt. gray; inter
+ intragranular porosity; micritic,
sparycalcite cement; mod.

induration; grain types skeletal pelsid, micrite, spary calcite; variably recrystallized; miliolid forams predominant; v small echinoids + echinoid fragments common, oyster frag; bryozoan, granule sized echinoid fragments become v. common (~20%) below ~100'

~130' - AVON PARK LS.

130-165

Limestone; very pale orange; pale yellowish brown; microcrystalline to c grained; muddy; grain types skeletal, spary calcite + micrite; some organic flecks + blebs. intergranular + intragranular porosity; mod to well indurated; foraminifera, echinoid, mollusc + coral fragments.

160 - Dolomite, lt. yellowish grey microcrystalline to vf grain size; recrystallized - euhedral + subhedral foraminifera etc. present as in above section but masked partially by recrystallization eroded dictyoconus costei common variable to muddy well indurated dolosilt + to well recrystallized vf grained sucrosic dolomite.

Log ends at 200' in Avon Park

TD in 565'

W-SM-5054

0-8.7' surficial sds - some qtz sdy ls. frag.

~8.7-102' Ecr - lep + opercu coquina - micrite matrix more granular toward base.

~102 - 130' lower Ocala Gp.
granular miliolid rich coquina
poor induration
130-143' TD Eocene Avon Park ls.
muddy micrite calcarenite w/ organic flecks,
partly recrystallized (microcrystalline)
miliolid forams form calcarenitic patches
weathered + eroded Dictyoconus sp.
TD in Avon Park

~~W-FO-12241~~ W-LK-13049C

0-~96' qtz sd dk to lt. brn to
cream white; med gr; f-vc range
organic stains + cut in upper
20', lt. brn + white clay cut
remainder; poor to mod ind.
~~Some zones coarser~~
~29' fine gr. sd. lt. brn clay
matrix, poor-mod ind. ~33.35'
clay matrix increases yl. green
then lt. gray - ~38.4'
38.4' - NA coarse qtz sd. some silicif.
gray. brn. clay cut some organic
material: color ranges from lt. brn to
dk blk brn. some chert + limestone
fragments - molluscan cast chert
fragments Crystal River lithos
~96' - 102.81' TD lower Ocala Gp.
Limestone: pale yl. brn. miliolid
coquina, micrite matrix, poor ind.
Abund. clayey sd. as blebs + void?
filling
TD in lower Ocala Gp.

T22S, R24E, S 19 bbb

W-LK-622 98' Elev.

0-130' Undiff surficial sds + clays

quartz sands with dark organic rich clay or organic matrix. minor quantities of limestone frag. below 105' (< 1% of sample) aver mat & litho. some cones.

130-325 TD Avon park limestone - only uppermost portion examin. - V pale brn ls. poor to mod. inst. micrite cmt. calcarenite - ~~3~~ foram + skeletal, bioclastic w micrite matrix. abundant Dictyoconus cookei + fin? "Laulina" sp. A echinoid spines mostly eroded + recrystallized

T23S, R23E, S 24 bb

W-SM-4989 98' Elev.

0-~21' surficial sds + clays Quartz sand white, grey to brown; color primarily due to organics material coating - upper 2' primarily; NON ind.; ~~fine~~ med gr. primarily; S. graded 17-21'. trace phosphate, heavy minerals. 20-22' interval contains some green clay, qtz sdy + phos sdy dolomite pebbles + much C.R. fragments, lep., gpec + weathered spirolina vermicu;

~21 - ~98' Crystal River Fm

21-35 silicified C.R.

98'-160' E lower Avon

160-175' TD Eap

W-LK 13051C

0-60' TD undiff surf. sds + clays. No limestone.

W-LK 2646

0-35 undiff surf. sds + clays

0-5 qtz sd; f-c range; mod; brn, unconsolidated; sl. clayey, organic stained; some hardpan.

5-10 med-vc qtz sd; unconsol. to poor ind. clay cmt (white) less organics; clay ~10%

10-15 qtz sd, vlt gray; as above but less organics

15-20 med-c qtz sd. v lt. gray, unconsol.; trace clay + mica

20-25 qtz sd as above, pinkish gray; poor ind + unconsol.; white clay cmt

25-45 as above but ~2% qtz pbl. color grades to v lt. orange

30-35 as above

45-50 med gr. sd., wht clay cmt; poor ind; trace heavy min, mica; coarse fraction decreased; white to lt. gray

50-55 as above

55-80' Lower Ocala

55-60 Limestone; pinkish gray; mod ind; calcarenite with calcilutite matrix; grain types skeletal, biogenic + lutite, spar; some qtz sd + clay as above foraminifera, echinoid fragments

60-80 as above; but recrystallized

75-80' less well indurated (cuttings are granular)

80-125' TD Avon Park Limestone: lt. brown, calcilutitic, recrystallized, muddy abundant dk brown chert (~40%) at 80-85'. First occurrence of dictyoconus sp. at 80-85' grades downward to fine grained v micritic ls.

W-HR-3675 T23S, R21E S 2 CD

0-55' surficial sds

55-120' Crystal River fm.

120-190' Lower Ocala Gp.

190- Avon Park Limestone

W-HL-7572

T30S, R19E, sec 15 CD

Elev. ~16' washed cuttings

0-5' Qtz sd, organic stained, med brown, fine grained, s-c range, unconsolidated to poorly indurated, organic + clay cement, some hardpan, trace phosphate ~~grains~~ + limestone grains

5-10' phospho gypsum white, chalky powdery, porous, abundant vf-m grained spherical grains, trace quartz sand + phosphate sand, poor induration. Note: looks like micrite but is ~~silty v.f.~~ not carbonate

PC

top of Natural ground surface

0-10-15' Surficial Sds
(Reworked Peace River FM)

Quartz sand, med to dk brn inter granular porosity, mod to poor induration, clay cement, fine grained, f to v coarse rge. minor phosphate sand, primarily leached. some yl. orange clay v qtz sdy + some leached phos gr.

15-20' quartz sand, f-m grained, f-c range, transparent to v lt. brown, poor to mod. induration, clay cement, ~10% phosphate sd. mostly somewhat leached, 1-2% limestone grains, 5-10% clay, trace heavy minerals.

20-25' Quartz sand, transparent to white, F-med. grained, rge F-C slightly phosphate sdy, some cavings

25-30' ~~[illegible]~~ : ~~limestone: white creamy, gray, calcilutite, abundant~~ quartz sand, abundant phos sd + gravel, some ls. grains of Tampa lithology, trace heavy minerals, some cavings.

30-160' Tampa Mbr Arcadia FM

Limestone, white, creamy, lt. gray predominantly recrystallized (micrite) some calcilutite, qtz sdy to v. sdy, predominantly well ind., ~~[illegible]~~ calcite cmt, minor small silica concretions in upper part., intercrystalline + intergranular + some pin pt. vug porosity. Legends base of TPa 160'.

5-28-84 Ernie Bishop, Lisa Davis + myself to Lk Jackson walk on lake level stg. sampled 1 transect + trached part - E.B determined a high water mark, photos taken, photos also taken of E.B. in lake at Patton HWL

10-1-84 E.B., S Spencer + myself to Lk Jackson, sampled + surveyed lower part 1 transect. photo of E.B in lk at Patton HWL

Lake Hatchineha OHWL study

81 study Lk Kissimmee finished early 1984 - now in ct.

OHWL 53.1'

cypress clearing at ~ 51'

now have temp ~~perm.~~ injunction ~~order~~ in effect.

Dixon - 1880 - dredged to lower lk levels in Kissimmee ch. - for stock.

1960's ACE stars lowered lake levels

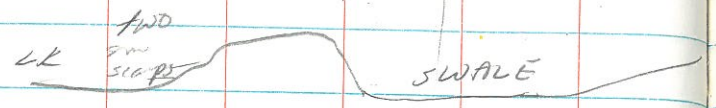
∴ historic OHWL period ~ 1900-1960

Camp Lester (813) 696-1123

Lake Kissimmee

LH-T 060 – berm + swale

~~so~~ berm asymetric



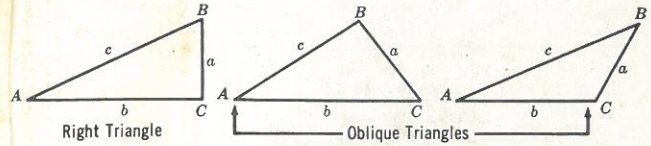
ERA	PERIOD	EPOCH	AGE MYBP	Symbol
Cenozoic	QUATERNARY	HOLOCENE		
		Pleistocene	0-2	Q
	TERTIARY	Pliocene	2-13	Tpl
		Miocene	13-25	Tm
		Oligocene	25-36	To
		Eocene	36-58	TE
		Paleocene	58-65	Tp
Mesozoic	CRETACEOUS		65-135	K
	Jurassic		135-180	J
	Triassic		180-235	Tr
Paleozoic	Permian		235-280	Cpm
	Carboniferous	- Pennsylvanian	280-350	Cp
		Mississippian		Cm
	DEVONIAN		350-400	D
	Silurian		400-435	S
	ORDOVICIAN		435-500	O
	Cambrian		500-570 $\times 10^6$	Є
				Pe

12
7
84

12 | 90

57.7 + 8

SOLUTION OF TRIANGLES



Solution of Right Triangles

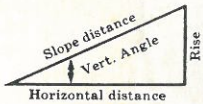
For Angle A: $\sin=\frac{a}{c}$, $\cos=\frac{b}{c}$, $\tan=\frac{a}{b}$, $\cot=\frac{b}{a}$, $\sec=\frac{c}{b}$, $\operatorname{cosec}=\frac{c}{a}$

Given	Required	
a, b	A, B, c	$\tan A=\frac{a}{b}=\cot B,\ c=\sqrt{a^2+b^2}=a\sqrt{1+\frac{b^2}{a^2}}$
a, c	A, B, b	$\sin A=\frac{a}{c}=\cos B,\ b=\sqrt{(c+a)(c-a)}=c\sqrt{1-\frac{a^2}{c^2}}$
A, a	B, b, c	$B=90°-A,\ b=a\cot A,\ c=\frac{a}{\sin A}$
A, b	B, a, c	$B=90°-A,\ a=b\tan A,\ c=\frac{b}{\cos A}$
A, c	B, a, b	$B=90°-A,\ a=c\sin A,\ b=c\cos A$

Solution of Oblique Triangles

Given	Required	
A, B, a	b, c, C	$b=\frac{a\sin B}{\sin A},\ C=180°-(A+B),\ c=\frac{a\sin C}{\sin A}$
A, a, b	B, c, C	$\sin B=\frac{b\sin A}{a},\ C=180°-(A+B),\ c=\frac{a\sin C}{\sin A}$
a, b, C	A, B, c	$A+B=180°-C,\ \tan\frac{1}{2}(A-B)=\frac{(a-b)\tan\frac{1}{2}(A+B)}{a+b},\ c=\frac{a\sin C}{\sin A}$
a, b, c	A, B, C	$s=\frac{a+b+c}{2},\ \sin\frac{1}{2}A=\sqrt{\frac{(s-b)(s-c)}{bc}},\ \sin\frac{1}{2}B=\sqrt{\frac{(s-a)(s-c)}{ac}},\ C=180°-(A+B)$
a, b, c	Area	$s=\frac{a+b+c}{2},\ \text{area}=\sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	$\text{area}=\frac{bc\sin A}{2}$
A, B, C, a	Area	$\text{area}=\frac{a^2\sin B\sin C}{2\sin A}$

REDUCTION TO HORIZONTAL



Horizontal distance=Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance=319.4 ft. Vert. angle=5° 10′. From Table, Page X, cos 5° 10′=.9959. Horizontal distance=319.4×.9959=318.09 ft.

Horizontal distance also=Slope distance minus slope distance times (1—cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained. Cosine 5° 10′=.9959, 1—.9959=.0041, 319.4×.0041=1.31, 319.4—1.31=318.09 ft.

When the rise is known, the horizontal distance is approximately: the slope distance less the square of the rise divided by twice the slope distance. Thus: rise=14 ft., slope distance=302.6 ft. Horizontal distance=$302.6-\frac{14\times14}{2\times302.6}=302.6-0.32=302.28$ ft.

Made in U.S.A.