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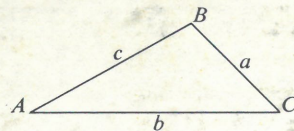
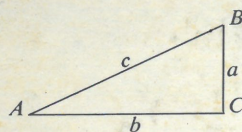
Field
Book
T. Scott



FIELD BOOK

No. 8152-60

FORMULAE FOR SOLVING RIGHT TRIANGLES



$$\sin A = \frac{a}{c} = \cos B$$

$$\cot A = \frac{b}{a} = \tan B$$

$$\cos A = \frac{b}{c} = \sin B$$

$$\sec A = \frac{c}{b} = \operatorname{cosec} B$$

$$\tan A = \frac{a}{b} = \cot B$$

$$\operatorname{cosec} A = \frac{c}{a} = \sec B$$

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

FORMULAE FOR SOLVING OBLIQUE TRIANGLES

Given	Required	Solution
A, a, b	B, c	$\sin B = \frac{b \sin A}{a}, c = \frac{a \sin C}{\sin A}$
A, B, a	b	$b = \frac{a \sin B}{\sin A}$
a, b, C	A, c	$A + B = 180^\circ - C, C = \frac{a \sin C}{\sin A}$
a, b, c	Area	side $\frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \frac{bc \sin A}{2}$
A, B, C, a	Area	area $= \frac{a^2 \sin B \sin C}{2 \sin A}$

Printed in England



LIETZ

ENGINEERS FIELD BOOKS

Rainproof fine quality bond, bound in high visibility chrome yellow Coverex. Printed in blue and red water-proof ink.

Left page: blue horizontal lines; red vertical lines.

Right page: 4 horizontal and 8 vertical blue lines; red vertical center line.

Stock No. 8152-00 Transit Field Book. Size $4\frac{1}{2} \times 7\frac{1}{4}$ inches.

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Fla Bureau of Geology

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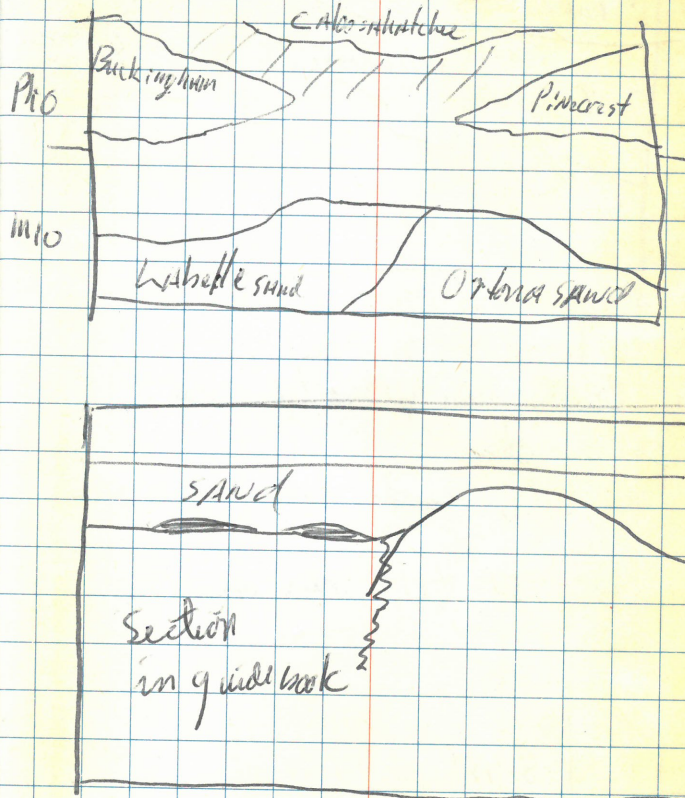
SURVEYING INSTRUMENTS AND EQUIPMENT

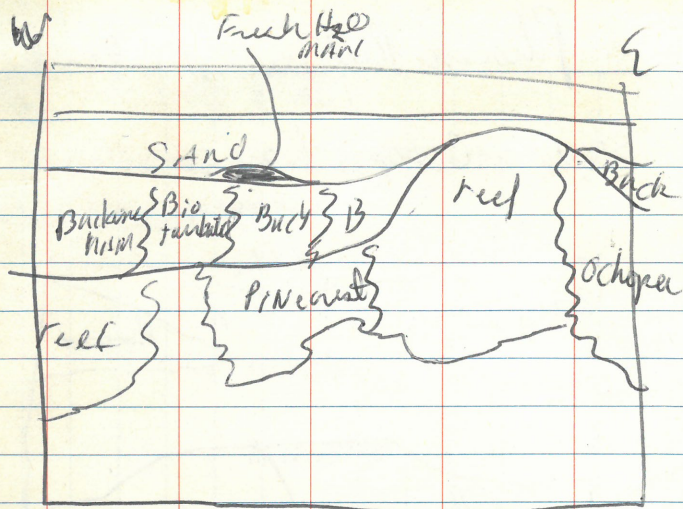
- levels
- transits
- theodolites
- tripods
- rods
- hand levels
- tapes
- planimeters
- accessories

The paper in this book is a fine quality thick Bond specially treated during the making to give "High Wet Strength". This quality has been used extensively for maps, etc. It retains its strength and writing surface when dried after having been subjected to extreme weather conditions.

Pliocene Reef Tris - Meade

Stop 1 - Ochopsee ls

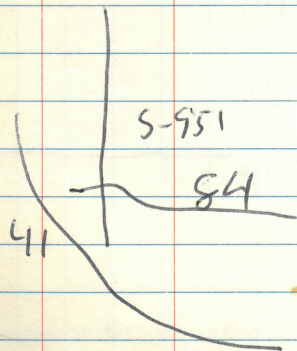




Ochope S & E of reef
Buckingham west of reef

P1 & P2 ~~with~~ interfinger near

S-951-41 intersection



Richard Z. Poore USGS
Chief Paleont. Strat. branch
Reston

FIA & Fletcher Weston Fletcher
to 1st Stoplight to North Blvd
turn R. (W) left 1st blk Sylvia
Lane after curve to right
1021 Sylvia (on right) 2 story

St Mary's Trip

Stop 1 Rose's Bluff Bell's river

photo 1 ^{Ophiomphala} Calanassa nodosa burrow

"Bell's River" FM or "Satilla FM"

Med. fine sand w/ mollusk molds

Calanassa burrows x bedded

Coarse sand in laminae

photo 2 x bedding w/ clay dust

stop 2 Bell's Bluff clayey sand at Base (near shore facies) Sand w/ Calanassa oozing

Joe Gissy area Foster 8:00AM
Brooks Sink Bradford area
485-1240

~~Feed Greener~~ 473-2184

Container
Corporation
of America

Keystone Heights

485-1240

Mr. Green ranger white Bayalaw
Near office on 18

sawmill
woodyard

Starke

973-7342

Secretary there

Outcrop of sandy to very
sandy shelly ls in small creek
on South side of sink 16th

Smpl 1 - slightly sandy shelly ls
Near top of section

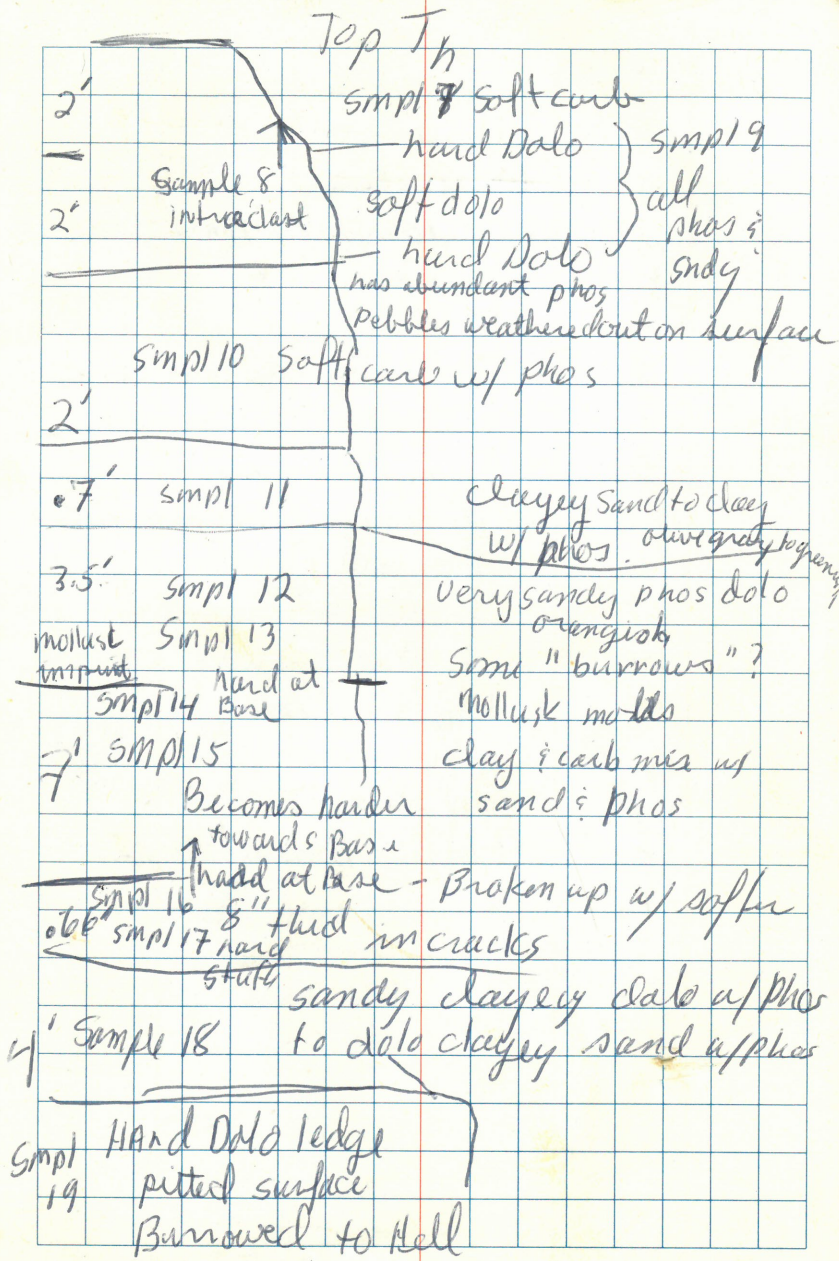
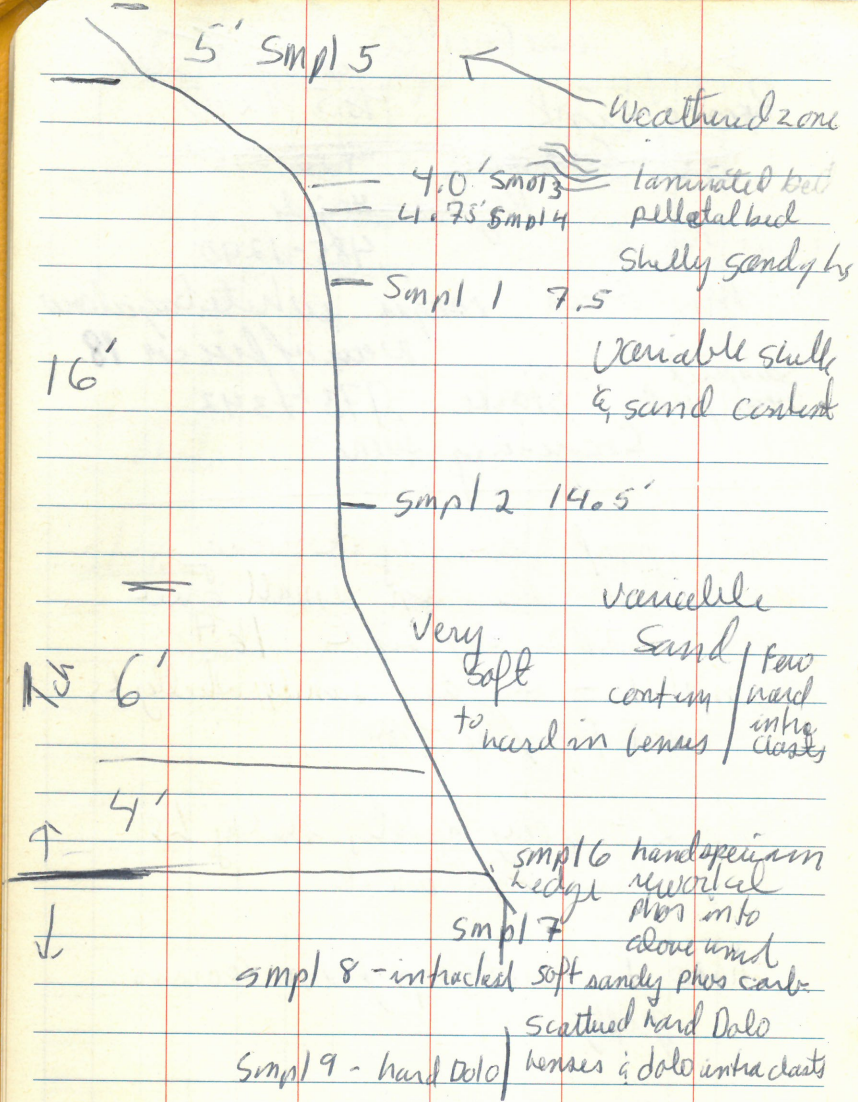
Smpl 2 - very sandy shelly ls
Near slope break

photo 1 outcrop from across
gully

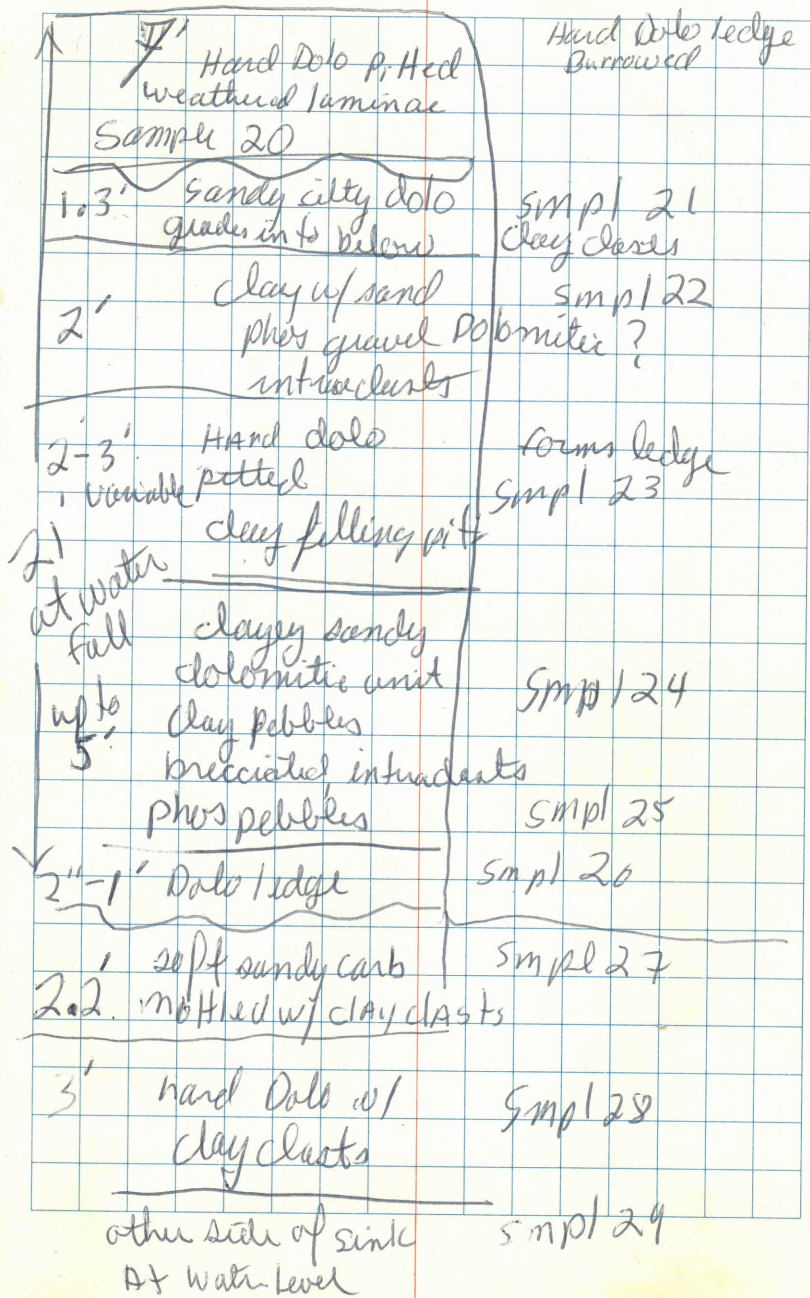
Smpl 3 Laminated carb

Smpl 4 pelletal bed

Smpl 5 clay above



- photo 2 - laminated Bed
 " 3 pelloidal "
 " 4 Mn contact.
 5 hard Dolo ledge tim of sink
 6 " Burrowed
 7 "
 8 From ledge across sink
 9 " " " "
 10 Slump Block
 " Across sink from Bottom
 12 "
 13 "
 14 "
 15 ledges w/ Andy
 16 " " "
 17 Smp/24 unit
 18 slab from Base of Smp/25
 19



Microscope examination

Smpl #

- 5 clay, sandy Pale yellowish Brown (10YR 6/2) variable sand content Slightly calc. may be weathering product of underlying Ls.
- 3 Ls, poorly consol. sandy, w/ grayish yellow clay layers, very thinly bedded laminar appearance
- 4 Nodular Ls, poorly consolidated, yellowish gray nodules of xtaline Ls w/ occasional sand grains, scattered mollusk(?) frags.
- 1 Moldic dolo, consists of mollusk molds and casts, finely xtaline, very pale orange scattered sand grains very porous
- 2 Moldic dolo Ls, very sandy, abundant mollusk molds. Traces of clay blebs moderately indurated
- 6 Ls moldic sandy abundant mollusk molds. phos common. easily seen on weathered surface. Thought to be reworked up ward from Tn. Some phos grains appear to be phosphatized sandy carb grains which have subsequently been ripped up and rounded. 5% phos yellowish gray

sample #

- 7 sand, very dolomitic matrix, mic white to cream phos 0.7% Black phos. color is white to cream, poor induration varies to a slightly sandy dolo
- 8 Intraclast from sed as 7 Hard Pale brownish dolo w/ abundant sand, mollusk molds. Intraclasts common in this intraclast. Signs of burrowing in the included intraclasts. partially phosphatized
- 9 Dolo, sandy, phos (4%) Scattered mollusk molds, moderate to good induration. yellowish gray
- 10 Dolomite, slightly sandy to sandy, white to cream phos (2-3% variable to 5%) scattered very poor mollusk molds, scattered phos gravel, soft. dolo silt
- 11 Clay, dolomitic, very sandy, phos (30% variable), some Fe stain yellowish gray phos white to black sand to gravel size. Scattered sandy dolo intraclasts
- 12 Dolo, very sandy, phos (3-4%) scattered very poor mollusk molds very poor consol dolo silt very pale orange

Sample #

Portions

13A Intraclast, phosphatized oyster shell
part sandy dol w/ phos grains

13 Dolo, sandy, silty, phos (0.2%)

grainy
to greenish
brown
mollusk molds, mod to good
induration, Fe stain, v. common14 Dolo, slightly to mod sandy,
phos (variable Avg 1-2%)
mollusk molds, good ind.

barrowing. white to cream

15 Dolo, sandy, clay ^{minor}, very friable
phos. (5-10%) some calcareous ^{very}
nodules (appear laminated) ^{orange to}
^{Buff color}
echinoid frags very rustyRemains
of a chert
very jumbled
appearance
tube like projections (spines? worm tubes?)
mollusk molds & frags minor clay blebs

16 as above #15

17 Dolomite, sandy (30%) phos (15%) Buff
poor to mod indur. sand content varies to
> 50%18 Dolo, very sandy, to very dol sand, light Brn
phos (15%) mod indur19 Dolo, sandy, phos (10-15%) very hard
pale yellowish brown to grayish orange
barrowed, moldic,

Sample #

20 Dolomite, sandy, phos (0.2%)
few fossil molds hard mod
indur. very ~~red~~ pale orange to grayish
orange21 as above w/ slightly more
sand and ^{molds} burrows22 Dolomite, sandy, clayey, phos
(25%) very jumbled appearance
^{yellowish}
^{gray} possibly burrowed, fossil frags
hard dol. intraclasts of crystalline
dol. Some of the phos appears weathered23 Dolomite, very slightly sandy
Trace of recognizable phos.
white to ^{very} pale orange very hard
well indurated24 Dolomite, sandy clayey phos (15-20%)
poor induration, abundant hard
dol intraclasts yellowish gray25 Sand, clayey, dolomitic, phos (0.5%)
pinkish gray scattered rounded
clay pebbles. Some areas of sandy
dol. Burrows

Sample #

26

clay

26

Dolomite hard slightly sandy
well indurated trace phos frags & molds very
pale orange to pinkish gray

27

Dolomite, sandy, phos (2-5%)
Doloclay clasts, very pale orange
mod indur. jumbled appearance

28

Dolo, slightly sandy to sandy
phos (trace to 1%) Brecciated
appearance especially on weathered
surface, white-cream and very
pale orange

29

Dolo, sandy, phos clay very
pale orangish to white w/ grayish
and brownish clasts. Clastic clasts
are sandy phos clay and dolo.
comprise up to 50% of sample
very ustul zones. Poor to mod indur

Occidental Pit - Swift Creek Photos

- 1) Leadland zone - clay stringers
w/ clayey sand w/ abundant
white to tan phos
- 2) Pit face w/ clay showing top
of matrix
- 3) contact of pebble w/ phos
clayey sand
- 4) pebble bed
- 5) pebble bed clay contact w/
lower clay carbonate contact
- 6) Suwannee River mine Road line
- 7, 8, 9) Pebble & sand phos zone

Notes

- 1) Crystallization (Travertine)
very noticeable 15-20 below
highest point

Lecanto pit Crystal River
Quarries Inc

SE corner photo taken
exposure 70'

sample

- 1 at top
- 2 at top of wall add 10' to
- 3 2 10' from 2
- 4 17-20' from 2
- 5 Just below 4 in next ^{exposure} part
- 6 5' down from #5
- 7 15' below #1

2

TB 4 Winter Park

Surface elev
93'

Top Mh 84'

Top Dolo 99'

Top Eo approx 150'

Swanerie Tips 6/10/81 ~~2~~ 2

Loc 1 sample taken phos. clayey
sand weathered brownish
2.5' above H₂O fresh-grainy
thin clay bed 10" below top

Loc 1A Dolo silt(?) thin lenses
sampled and layers rising out of stream
then back in down stream
2.5' ~~thick~~

Loc 2 Vernon 1 Samples 2A-C
Dolo over thin phos sand layers
w/ 1"-2" thick dolo(?) clay lenses
photos 1-2-3
few thin very sandy phos dolo beds
in upper dolo

3- Vernon 2 interbedded dolo
& clayey phos sand, wrapped,
photo 4-5-6 very finely bedded
many clay clasts in downstream
part of outcrop (photo 6) in dolo
matrix (Sample 3B) forms
bedge

4 (V3) Rubble bed from H_2O to 2' then clayey dolo sand w/ phos (Sample 3B) ^(3A)
photo closeup of rubble scattered mollusks (gastros & oysters) overlain by phos ^{20%} sand then thin dolo layers w/ ^{phos} sand layers

5 Near rapids mud cracked & dolo clayey sand to hard dolo many mud cracks silicified silicification decreases down stream

Intraclast dolo comes in above corals (silicified) & oysters (silicified) occur slightly above mud cracked zone

Samples
photos 8-11

Vernons 4 - Dolo over an interbedded dolo clay? 6-7' of dolo exposed

6 (V5) Clayey phos sand (Dolomitic?) mollusk molds
Sample
2' above H_2O

7 (V6) Clayey phos sand (Dolomitic?)
6-7' above H_2O
20% phos occasional mollusk molds. mottled phos pebbles & clay clasts
Sample taken

V7 Clayey phos sand 7' above H_2O
mottled, scattered clay intraclasts

Between V7-V8 Sample
more dolomitic more indurated but very similar to the 7 thin to no bedding (marine) intraclasts present that have been bored and filled

8 at rapids btwn V9-10

sand, clayey blue gray
phos. Burrows structures
in outcrop. forms rapids
dips down stream several°
several hundred yds downstream
dip reverses.

9 (V 11) Sand, clayey dolomite?
burrows ~~near top of~~ ^{throughout} section

section 1 1/2 above H+0
white at top grading to
gray then to white then
blue gray at H+0 level
forms hedge at H+0 level
most burrows are vert. to
inclined

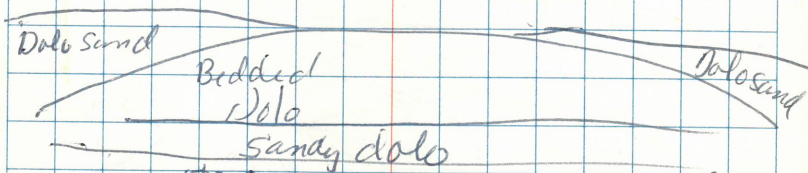
10 (V 12) 4.5'-5'

3' Clay silty w/ trace phos
f. sand along bedding planes
base of clays is bored, burrowed
overlies 2' of sand, clayey
phos w/ burrows as 9
Sample Photo 12

11 Sample Sand dolo clayey
very Phos thin bedded
variable dip

12

Downstream
→



Dolo ^{H+0} sandy, phos well indur.
Burrowed mollusk molds
Seems to dip in to river
large pecten molds similar to
those found in Polk Co.

abundant barnacles,
at H+0 level very sandy clayey dolo
Highly Burrowed 1' thick interbeds
overlain by more x-bedded dolo
burrows filled w/ fecal pellets ^{many places}
Sample 16 (up stream view)
Photo 13 14 15

Photo 17 Look downstream
toward site 13

- 13 (V 15) ^{dolo?}
~~dolo~~ Clay at H₂O level
w/ Burrows filled w/ very phos
clayey sand over lain by
more indurated dolo silt
overlain by dolo sand w/ phos
samples photo 18

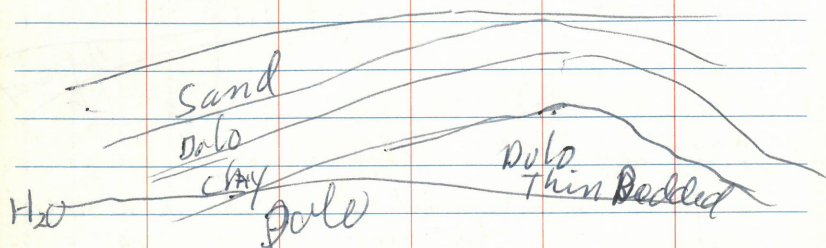
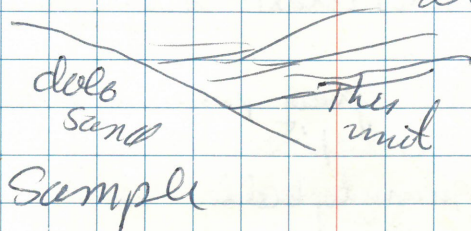


Photo 19 just downstream
from Site 13 sand units

- 14 clayey sand that was at
top in 13 is Base here
over lain by dolo then
sand as below then dolo at top
sampled

compare to rich's photo ^{see map}

- 15 (V 16) interbedded dolo(?)
silt, clay, clayey sand (phos)
dips up stream
4.5' tall
seems to fill low area on
Dolo sand. clay in sandstone
at top



- 16 (V 17) rubby dolo at H₂O
1 1/2 - 2' thick worked
by dolo sand overlain by
indurated then the ^{fine sands} ~~clays~~
~~at 15~~ and clays (very thin bedding)

Photos by Rich samples
Photo 1-3 new roll



17 (V 18) sampled

Thin Bedded platy Dolo (some very sandy) w/ phos

intraclasts
photos) many knobs of more massive dolo

Continues along river V19

18 (V 20) gray phos sand at H₂O 1'

Thinly bedded Dolo sand 3'

Becomes more massive bedding toward top may have fossil mud cracks

2-3'

Thick dolo Bed

6-10"

rubble Pilled sand

3'

more massive Dolo

Thin bedded Dolo sand

H₂O

1'

gray sand

6/17/81



19 ~~18~~ 6' tall Thin bedded outcrops w/ small pinnacles. interbedded phos sands and sandy phos dolo, dolomite intraclasts abundant dipping upstream has precipitated out on top of highest portion. Sampled Photo 1-4

Knobs are more carb (dolo?) than surrounding thin beds which are sandy phos dolomite to dolomite phos sand.

20 V 21 Dolo & Sand 4' tall from H₂O ^{clay clay dolomite} very phos

A Thin
B Thicker
C Somewhat massive

A Thin sandy dolomite w/ phos interbedded w/ coarse phos sand layers

B - Thicker bedded dolo variable
sand but generally low
6" to 1' thick layers
hard

C more massive dolo
soft unindur layers
to poor ind

Samples

Photo 5

photo 6-11 fern rock

V22 as my 19 but thicker
section of thin bedded sand & dolo
photos 6-11 show this

D - down stream picks up a
more dolo section on top 3-5' thick

E - then a more massive sandy dolo
w/ phos on top of D abundant
mollusks molds
sampled Photo 12 of

X beds across
river

21 10-12' outcrop

A) Thick dolo top 5' thick
creamy hard sandy phos dolo

B) Thin beds of sandy phos dolo
mod to good ind 2'
w/ interbeds of phos sand

C) Thicker dolo layers overlying
beds as B to H₂O level 4'

B Rich phos w/ m for scale

22 stream entering from right
bank

Thin bedded sandy phos dolo
w/ knobs

mollusks molds in some
knobs and thin layers
sand variable

Samples taken

Photo 13-14

23 Thin bedded sandy phos dolo
w/ abundant intraclasts
zones (Photo 15) 3' tall
apparent ~~and~~ soft seal def
samples
most dolo very hard

24 Clayey(?) very sandy phos
dolo to dolo sand w/ poor
to very poor indur.
3'
sampled

dolo (23) dips below
24. 23 come up at

Site 25

25 (A) Thin bedded dolo w/
few mollusk frags over lam 1.5-2'
(B) rubble bed overlain by 6"-1'
(C) moldic dolo. 2-5'
(D) sandy dolo clay 1.5-2'

samples

photos 16-22

Photo 23-24 at V27

V27 same as
similar to rocks in A of
25
very undulose
moldic ^{sandy} dolo below
thin bedded sandy phos dolo
warp ed
overlain by thicker dolo

26 7-8'

(A) H₂O level to 6' dolo clayey(?)
phos sand & sandy phos dolo
thin bedded very undulose
w/ occasional dolo knobs.
(B) overlying A dense hard dolo
very bioturbated thin lam.
at base more massive toward
top. Top looks brecciated
but may be result of burrowing

Photos 25-30
sampled

27 max 10'

(A) dolo phos sand to ^{very} sandy
phos dolo at H₂O
w/ dolo knobs 2.5'

(B) overlain by 1' of more massive
dolo.

(C) as (A)

(D) as B w/ intraclastic
top
overlain by dolo thin bedded

Samples

Photo 31

28

sandy clay clayey sand
interbedded 4'

Sampled
abundant burrows
of *Calinussia*
Ophiomorpha w/ doses

29 X bedded Sands & Dolo

(A) Sands, phos, dolomitic
3' X bedded varies to very
sandy dolo

(B) horizontal ^{to X bedded} dolo ledge
1' moldic near base becoming
very intraclastic at top

Samples
Photo-Rich

(C) dolo very burrowed
2' 1/2 the apparent bedding

(D) clayey sand to sandy clay
2' overlying downstream

30 clayey sand phos

X bedded burrowed
more clayey near H₂O
becomes finer less clayey
upward

Samples

31 2' dolo, sandy phos

(A) poorly bedded to massive
3-4' Burrowed

(B) intraclastic dolo, sandy
3-4' phos

NO samples

32 Intraclastic sandy phos

(A) Dolo 6-7'

(B) obtain by poorly consol sandy
1-2' phos dolo - mollusk molds abundant

NO samples

Top to Bottom going down
14' Stream

14' { (A) 4' dolomite, sandy, phos barren
(B) 5' poor to mod indur sandy phos dolo
to dolo phos sand
(C) 5' Intraclastic dolo w/ sand's phos

NO samples

34 beds rising downstream from
~~several~~ hundred yds.

Top (A) clayey phos sand and sandy phos
3' clay w/ mollusk frags

(B) Sandy phos dolo poor to mod ind
2-4' w/ abundant mollusk molds

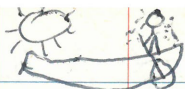
(C) Sandy phos dolo mod to good ind
up to w/ thin interbeds of clayey sand (phos)
and poorly ind dolo ~~but not totally~~

(B) interfinger and pinch out b/w (A) & (C)
Samples

~~Photo of water fall 32~~

harder dolo stays at H₂O level down ^{Stream}
until it "cuts out" by possible channel
cut ~~clayey~~ ~~sandy phos dolo sand~~

6/18/81



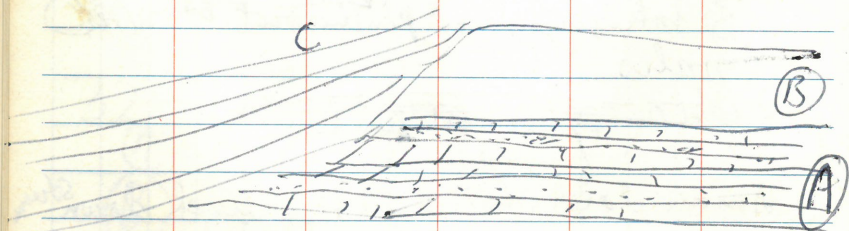
~~dolo then rises again 25-50 yds~~
~~downtown~~

35 ^{phos} clayey sand X bedded
w/ ~~pieces~~ ^{phos} of grades into
clayey sandy dolo to clayey
dolo sand w/ pieces of
dolo (knobs).

poorly indurated dolo surrounding,
hard dolo of knobs
dolo in knobs differs from
surrounding material by
less sand and abundant
molds of mollusk frags

NO samples

36 Famous photo spot



(A) Thin bedded dolo (sandy to w/sand
3' ~~same w/ phos~~)
interbedded w/ dolo to clayey sands

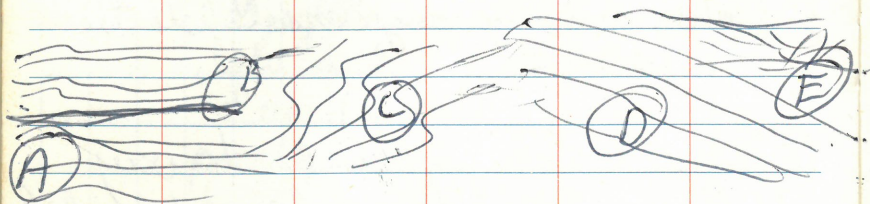
(B) dolo phos sand to very sandy
2-3' phos dolo poorly consol. little
rubble

(C) ^{phos} dolo clayey sands to very
upto 6' sandy phos dolo w/ abundant
intraclasts

photos
samples

Down stream dipon (C) flattens
rubble decreases in some zones
thin dolo's appear separated by
sands.

- 37 (A) thin bedded clayey phos sands
2' quite variable
(B) Dolo, sandy phos thin bedded
1-2' forming venelele thickness
pods.



Sampled

photos 34-35

- (C) slump? sandy phos dolo
to sand
(D) clayey dolo phos sand
w/ abundant rubble
thin bedded
Becomes less rubbly and more
X bedded slightly downstream
(E) phos sand w/ thin dolo layers
occasional rubble bed
photo 36

37A dolo rises from below?
37 (A) interbedded sand & dolo

38 clayey phos sand w/
4' carbonate.
Many burrows fecal pellets
common

39
3' clayey ^{phos} sand w/ thin clay
lenses

40
3' clayey phos sandy dolo
to sand
sampled

41
2.5-3' Clay
sampled

43 - X bedded sands & dolo
5' Dolo & sand
Dolo

Photo 37 Sampled

42 silty clay at base 1'
silty clayey dolo 1'
Hard dolo 1.5-2'

44 6-7'

Blue grey silty dolo(?) clay
separated by phos sand layers
(thin)
sampled

45 14'

silty clays at base
erodes thin bedded but
can't be seen in most
of the fresh material
Thin dolo separated by
clayey sand at top

Sampled
photo NW roll (2)

46 Big Shoals

upstream end
dolo w/ sand and phos variable
common chest
coming up from underneath
is an occasional sandy phos
clay to sand unit
w/ more poor to med ind
dolo below.
below this is a thin bed of
dolo? w/ abundant green
clay clasts

Sampled to this point approx
75 yds below start of shoals
photo

^{Low}
~~Lost~~ Sink 9/8/81

Bottom of sink at pt of outflow
Sample 1 (maybe slump material)

Photo 3

sample 2 on N. wall at pt
when H₂O comes out

Sp3 6-7' thin Bedded
lenticular sands & Dolos

Sp4 massive blocky fractured
clay 6'

Sp5 1.5' indurated (1") dolo
sanding (.5) to thin (1") more
resistant bed

Sp6 Sand & dolo phos
ind. variable 2.5'

Sp7 1' Sand into Brown phos
poor ind

L58 1' Dolo mod to good ind

L59 7' Dolo mostly hard
few softer layers

LS 10 A 3' thick sampled
40' left of B appears
to be weathered B
B 6-7 clayey silt w/
phos

20' to Bottom of sink from
Base of B

approx 25' red over
M h

reddish slightly clayey
silty sand poorly exposed

25'

33'

20'

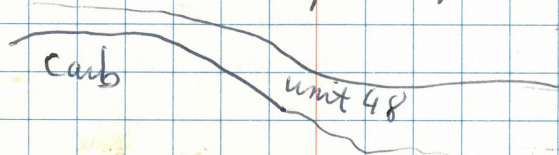
= 78'

10/15/81 Suwannee River ^{cool} 
Big Shoals to Hwy 135 White Springs ^{very low}

Pictures 1-3 - K.C. & Me, Big Shoals downstream
Big Shoals upstream

47 - Hard clol w/ abundant clay blebs
47A boxwork when clays removed. Scattered
photo 4 chert stringers, loose silicified corals
48 Scattered about. Not sure where they come
from. Most likely within the shoals

48 7'-8' Blocky clay at top ^{4'} to massive
clay (2') over blue gray sandy silty
clay to sand. appears to drape
over ~~carb~~ corals from upstream



49 clayey silty sand as at base of
48 6' from H₂O
photo?

50 12-13' 50A - thinly bedded silty
clay 3.5' to a clayey sand 1.5'

50B 4' clayey sand w/ clay blebs
grades down into sandy clay

50 c 3' sandy silty clay thin bedded
and "brecciated" oolitic dol.

50 d dol 1.5'

51 A-B sandy clayey dol w/ clay blebs interbedded
w/ pods and layers of clayey sand

12" Dol as in 50 d

Picture of KC out of canoe
across from Bell Spring

52 A-C 13' sandy silty Dol just below
soil 1.5' thick

sandy clay to clayey sand w/
abundant clay & dol clasts

undulose (draping) 2' thick variable

6' over Dol w/ common clay blebs
to H₂O level? (covered by slumps)

slump 3'

53 A-C clay w/ clasts blocky 3'
hard clay w/ clasts 2.5'

slump 3'

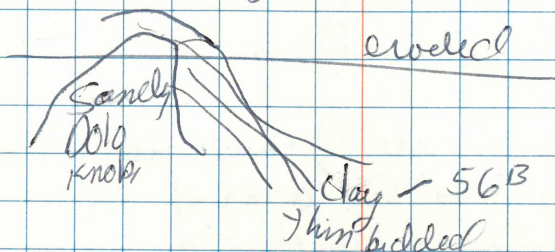
Dol at H₂O level 1'

many pods of variable litho

54 10' sandy Dol to Dol sand & thin

55 4' sandy clay thin bedded to blocky
A-B thin hard clay bed underlain by
sandy clay

56 A- little Shoals (top of it)
A) dol. clay to very clayey dol



very common clayey sand (is this
m h ?) sample 56 C

Photo taken

57 clayey sand at H₂O interbedded
with clay overlain in very
undulatory fashion by dolomite
dol contains spherulitic oolites
Samples A BC

Photo
mainly dol in clayey sand

58 end of little Shoals above Badg
clayey dol(?) sand at H₂O
w/dolo mill over then sand and
clayey sand w/ dolo lenses
Beels and pods at 4-6' above
H₂O

58 A & B. ^{silicified}
abundant Oysters and
mollusk molds. ^{coral}
Oyster Bioherm

59 clay (dolo?) slopes from river
up to 3-4' tall outcrop capped
by sandstone; clayey sand
sampled. Photo

60 Thin bedded clayey sand
and clays mod. to well ind
silic. coral on edges of river
photo

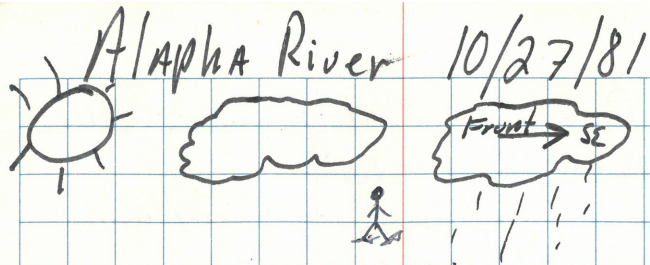
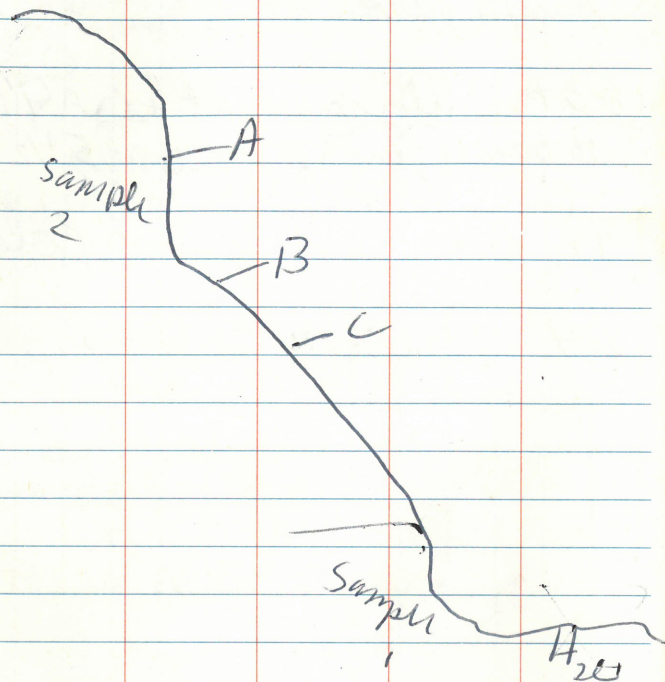
61 as at 60, better exposed
w/ ^{thicker} clayey sand above thin
bedded material. Thin hard
sampled Photo. dolo sand
on sandy dol
on top

photo

62 Clayey (dolo) sand sloping
to river overlain by hard
sandy dolo to dolo sand.
Sampled

63 A shelly sand at H₂O 4'
B Sand (fine) clayey 5 1/2'
C Fine sand 5'
D Dolo sand to sandy dolo 3'

64 Dolo-mites samples



- Alpha River 10/27/81
- 1 - at H_2O level silty clay w/ pods of dolomite photo 1 - contact of silty clay & dolo (has black pen for scale) photo 2 - looking slightly downstream at dolo in clay
- Cemetery Outcrop
- Sampled 1A & B variable outcrop height to 10' dolo's most noticeable in outcrop
- Sample 1C near 10' above H_2O clay clasts in clay & dolomitic w/ dolo pods
- Bluff
- some dolo pods have brecciated appearance photo 3
- Sample 1D 5' above H_2O 25 yds upstream from 1A, B, C just above photo 3 dolo w/ abundant clay clasts
- 2 - outcrop 25' (est) above H_2O
- " 8-10' tall
- dolo(?) oriented phos in sand
- photo 4 Sample 2A

2B Dolo in clayey sand dolo
matrix sampled
this is just below Basal 2A
partly covered by slump.

2C Silty clay Below 2B
appears to be same clay
exposed at mouth of
Dead River

3 - Dead River - Sand dolo
A-B near contact of M₂ M₃m

(4) Mouth of Dead River - dolo w/ clay
clasts & sand dolo
has sandy zones that wash out easier
Samples
Photo 5 of sink
" 6 of (4)

dolo of 4 underlain by clay
included in Sample 4A
clay underlain by sandy dolo
to H₂O level. Contains oysters
(silicified)

above clay last dolo is
clayey sand to sandy clay

Sample 5 Barnacle hull dolo (lenses)
overlying sandy clay to deeper
sand to clay in 4 appears to
be below 4a dolo w/ clay clasts
clay included in sample
Photo 7

Sample 6 Buccinated clay 7'
Photo 8 underlain by clayey sand
whichover lies sample 5
variable to 3' thick

Sample 7 clay of 6 appears to
grade into more dolo with silica

Sample 8 clayey sand overlain
by dolo clayey sand to dolo
Photo 13
dolo at top appears Buccinated
appears as (4).

Dolo blocks seen in photos 10 & 12
contain abundant clay interclasts
that weather out on the surface

Photo 14 of outcrop in Photo 11
^{Lower part of}

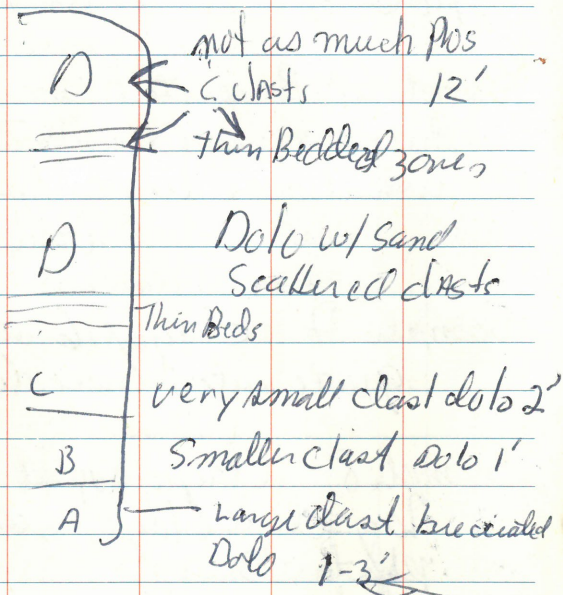
Photo 1 roll 2 upper part/outcrop

11 2 closeup 2nd bed from Bottom

11 3 " " Bottom bed

11 4 " " 3rd Bed from Bottom

Sample 9



dolo in Photo 9 & 10 under this

10/30/81

10 clayey sands, phos, dolo?

A & B 5' outcrop

very thinly bedded and undulating

5 Photo taken just down stream of 8
"Channel fill"

K.C. took photo closer

this outcrop is similar like to 10 but more indurated carb layers

11 Thin Bedded dolo & sand w/ phos
underlain by more ^{very phos} massive brecciated

B dolo 4.5'

C more brecciated dolo → 3'

12 apatized dolo pod at base overlain
by very irregularly interbedded
dolo & sand w/ abundant phos (intra
clasts) overlain by more massive
dolo phos sand to sandy phos dolo
photo 6
outcrop up to 12'

13 Brecciated dolo 7' no sample
very bioturbated. w/ opal pods under
neath

photo 7 just downstream w/ KC
palette for scale

14 12' tall brecciated dolo & clay pocket
overlain by thin bedded malenica
in (11)
photo 8

15 Thin bedded as (11) comes down
to near H₂O level below shoal
very sandy phos dolo overlies
brecciated dolo

16 up to 15' Dolo ledge at H₂O
overlain by silty clay (sample 16H)
overlain by thick sequence of
Brecciated dolo
photo 9

17 7' tall Brecciated Dolo over
(sample) clayey sand that grades downward
into sandy clay
Sandy section 3-4'

Summary 10/30

from Site 10 thin bedded unit
rises over brecciated dolo.
Opalized section is in brecciated dolo
section. This brecciated dolo
unit overlies a clayey sand to
sandy clay unit. This sequence
rises from 10 to 14 then comes
back down then rises downstream
once more. Clayey sand under
brecciated dolo is becoming better exposed
toward chert locality 1

11/3/81



18 R-14' tall

15' A
1.5' B
w/pt 10' Brecciated Dolo
CS to SC w/pt 3'

Thick bedded ^{sandy} dolo
Thin bedded dolo & sand

photo 10

19 10-12' tall

Brecciated dolo

1-2' Clayey sand
Thin bedded at
Sampled 1720 level
mixed w/ clay as
at base of 18

photo 11

w/ Walt & Paoletti

Thin bedded ^{clayey} sand & dolo appears to
be laterally equiv. to and inter
bedded w/ clayey sand and sandy clay

seen up stream. Also noted chert
on top of thin bedded unit below brecciated
dolo

20 Shoals below bridge made
pronounced Brecciated clay Bed
overlain by slightly sand silty
Carbonate that appears equiv
to brecciated dolo just up stream
sampled
1st occurrence of silicified coral

21 12-14' Brecciated clay
w/ pods of dolo just above
green silty clay at base

Brecciated clay

Dolo w/ sand clay & silt

silty green clay to clayey silt

Summary - brecciated dolo contains by more
uniform dolo w/ clasts (pavement) runs downstream
w/ clayey sand to sandy clay w/ abundant clasts
below. The clayey unit contains pods & lenses
of dolo, generally containing clay clasts. This overlies
exposed at Dead River which appears to be ~~on~~ just above
The St. Marks

Alapahooche

- 2 sandw/clay, carb, phos gravel appears to be in a pocket on the brecciated dolo
- 3 clay ^{up to 3'} sand w/ alot of phos Thin bedded overlying indurated ledge (1/2' thick) over brecciated Dolo.
Photo just downstream of 3 of rubble bed above Brecciated dolo
- 1 w/ H₂O Dolo ^{1A} clay sandw/phos forming ledge overlain by 6-7' of silty clay sample 1B w/ thin phos sand
- 4 Thin bedded dolo sandw/phos w/ intraclasts of fine dolo fine dolo lense on top 3' outcrop
- 5 Brecciated dolo at H₂O head overlain by sandy dolo w/ abundant phos w/ thin sand lenses containing abundant clasts 7' tall
KC photo (2)

Summary - Alapahooche

sequence as Alapahooche but noted more in the way of very phos., sandy lenses. also noted that the top of the Brecciated dolo is very irregular as is true on Alapahooche

Alapahooche 11/9/81

- 22 Thin bedded sand & clays over brecciated dolo small channels in thin bedded stuff.
sampled dolo has fossil impression abund. burrow
- 23 Dolo w/ abundant clasts forming thin bed. underlain by carb sand sand photo 1
- 24 Thin irregularly bedded dolo sand w/ clasts of dolo & clay 8' tall
- 25 as 24 overlain by brecciated dolo as was below Statenville
- 26 Opal Shale overlain by 25 underlain by brecciated dolo (?)

27 silty clay at H₂O overlain by
sandy dol. to dol. sand then
thin clays & sands at Statenville

28 15' silty sandy clay overlain
by sandy dol. to dol. sand
overlain by brecciated dol.

Photo 2 downstream from 28

29 dol. w/ clay clasts 10-12'

30 dol. as 29^{4'} overlain by
thin bedded clays and sands
(as Statenville)

31 10' dol. at Base w/ hardened
silty clay overlain w/ x bedded
clayey sands overlain by 4' thick
silty clay

32 Statenville ish beds over
x bedded sandy dolos
over brecciated dol.

KC Photo

33 Thin bedded Sands and very
sandy clay 8'
KC photo 5 2 high angle x bed
Photo 3; just downstream

34 as 32 15' photo 4 w/ both
canals in it

Photo 5

Summary -

Thin bedded clays, sands & carb. of
Statenville mbr. overlies brecciated
burrowed dol. which grades down-
stream into dol. exposed as at
confluence of Hapahoochee and Hapaha.

Statenville mbr. contact w/
dol. is very sharp and irregular

Alapaha 11/19/81



canoe up stream to locality 9

Photo 1 close up of Breccia w/ hummer

Photo 2 out crop w/ K.C.

" 3 " upstream showing
loc. 9.

35 18' dolo at H₂O. interbedded
w/ dolo clay much breccia.

Photo 4

Photo 5

36 20-25' Brecciated dolo at top
underlain by ^{clayey} clay w/ clasts and
pods or lenses of Dolo.

37 15' clay w/ dolo pods
at H₂O overlain by clay (brecciated)
w/ thin dolo layers

Photo 6

Summary

a continuation of the previous trips
above site 35 Dolo sequence similar to that
seen at Alapachoe confluence, w/ clay sequence
below. Appears to overlie Suwannee but
not seen in out crop. Suwannee exposure

photographed by KC. shows a very
brecciated upper layer. Very retical
breccia in a sandier carb. matrix.

12/16/81 w/ Upchurch USF

length Slow (S) - Chalcedony can be
length Fast (F) - either

most chal is (F) Caxis $\perp$ to fibers
most ^{or all} mega Qtz (S)

(S) chal Caxis $\parallel$ to fiber
Folk & Pitman found (S) chal usually
assoc w/ evaps

most void filling Qtz in Tampabay stuff

(F) chal in microspherules (S)

most opal CT is (F) some (S) and
when it inverts to chalcedony optic
sign changes

>120 ppm ^{SiO₂} opal A

120-50 ppm opal CT

50-6 ppm Chalcedony

Carroll P. & Pecanto P. &
Robert Lyons

Gen. Sup.
pres

Charles Campbell
Richard Carroll

Inverness

726-1071

Carroll ^{Contractors} Concrete & Ready Mix
726-1071

SWFMD

Jim Lavender
John Becker
Greg Henderson

TH-10 elev

TD ^{225'} 215' samples

OSu Brecciated ls, cones

210-TD rextal zone at 211

Mh sandy w/ shell slight clay carb mtr
210 w/ phos 2%. Clay content varies
variable ind molds of moll

Dolo zone 189-190

175-171 Dolo well ind moldie
grades into sand to 165 / Dolo
to 162' then well ind sand
all w/ 1-2% phos

Frank Colitz Jr
Crystal River Quarries.
795-2409

Mohil Phoo Don's Boss
George Love

Mohil T 315 R252 Sec 24

Photos of unit 4 on Mn
unit 1(?)
25 year flood plain of Peace R.

Sms Co. Estm A

5/31/83

Michael Meades Orlando
Cramer Johnson & Assoc. 305 291-1721

eng. Ardaman & Assoc
William Shestak PE.
(305) 855-3860

hole around well was 8' deep

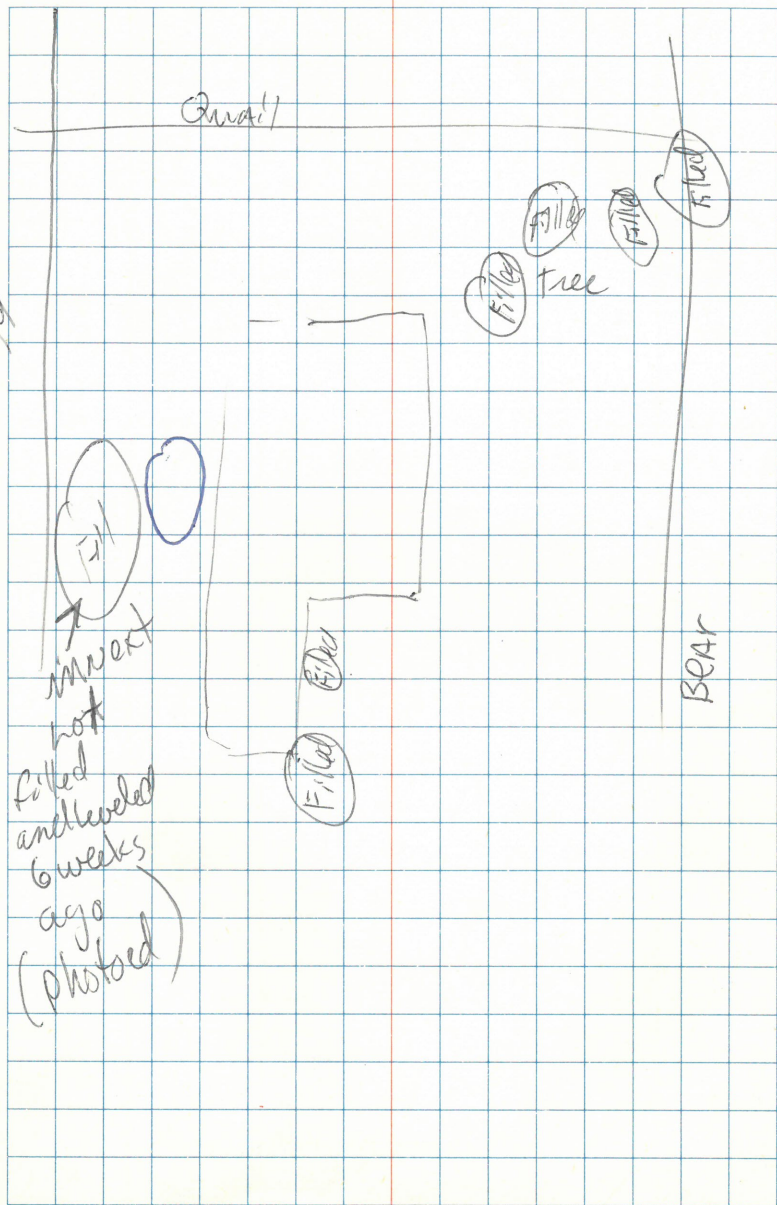
many filled depressions (see map)
one tree is sinking now.
some of the depressions are still
sinking.

No cracks observed prior to 3 weeks
ago

Roof NW corner is warping
Skid on S is warping

many doors are not working
windows also

Send copy of Report to Jim Graham



8/1/83 - 8/4

Gulf Hammock Fm consists
of Oldsmar, Lake City
& Avon Park fms.
reoccurring, lithes & dolo.

Inglis into Gulf Hammock in part
Suwannee ls → Suwanacoochee ^{Dal}
Ellaville

Ellaville and Suwanacoochee
are members of Bridgebowls.

Pits visited

- 1 - Fla lime & dolo 1 mi N.E. of
Gulf Hammock. Fla Rock pit
1 mile south of Gulf Hammock
Inglis pit, spoil on Withlacoochee
River at Gulf end
- 2 - Dolime at Barge Canal
E.R. Johns, Carroll, Crystal River pit
- 3 - Fla Rock Brooksville pit Imc Morrell pit
- 4 - canal cuts of Pleist shell bed
type area of Nashua
Outcrop of Suwannee at Suwannee
springs. Suwanacoochee & Ellaville
outcrops 200 yds north of Hwy 90 ^{east} Osborne

Bob Glasson 305-392-9070
DAMES & MOORE BOCA RATON

Hawthorn Cores
Guinesville

Mark Stephens

~~SE~~

cores from Key Largo
HAW

Gunn & Assoc

Port Bougainville core PB-1

Top m h group - 134 ^{top of sands}
Base " " - 1025' ^{147' by well}

little core from 147' - 440+

Bonnie Dabson

Agrico check on
avail. of core to Borehole
mining.

Romp 3-3 Charlotte Co

1st core 96' ^{to 55} carb (Dolo) ^{clayey} sandy
phos. to 134
green clay 134-140 then ^{very dolomitic} clayey carb
140-153 good moldic sandy carb
153-181

No Tampa
No Ateel equiv? at Base

Arcadia to 689'

689 top of O_s

441 to 222 9 mi

Stop like at 53 Av instead
of sweeping left

approx .25 mi like to
entrance to site

1st view of Sink from South side
go west around sink to boardwalk

boardwalk follows ravine to

(5) Sink chunks of thin ls & beds
in stream and exposed in the
wall

(F) Slight ly phos. sands exposed
in 4" wall on right of bw,
above ls.

(E) ls exposed on Right of bw just below
Sand.

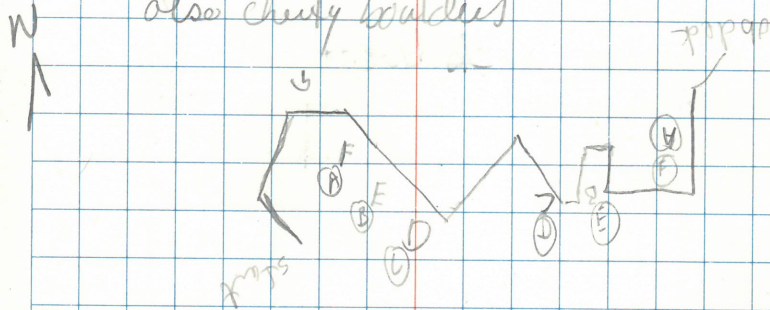
(D) Where bw turns away from sink
Rim notice extensive slump
blocks of ls.

Below slump sandy phos. clay

C exposed at turn in bw
Note chunks of ls debris in ravine

(B) Dol ledge

(A) at base of sink note
cavity to ~~W~~ of bw (left)
light colored rock is calc to dolocemented
Sand. w/ dol above
also chunky boulders



Starts on SW side of sink

follow nature trail to ravine
where crosses ravine the ls is
at stream level

NW 43' dst = Altitude to 2053

13-2X SWFWMD

10/12

1st core 116' in ~~Wetlands~~ ^{hardwood} ~~Wetlands~~ ^{sandy} ~~Wetlands~~ ^{Wetlands}

123.5 Tampa Mbr

Antionable Suwannee top 218'

10 Ocala 563' Cr

11 Will 633-638

TD 677 1/2

Oolomite section around 500-513

separates Os similar to that seen on Suwannee River.

Need to check 14-2 core and others in area

Sinkhole Field Trip

Photos Paine Prairie

Haile Quarry

Jerome Sink (2013)

IGCP Phos

check:

- 1) owner of hard rx phos then get perm. to clear section
- 2) Xeroxing guidebook at FGS
- 3) Paper on Strat. in Fla for Symposium Volume due in MAY
- 4) AT PG & S.E.G.S mailing list

Martin-Anthony Rd. cut

12/12/84

SW corner destroyed

few samples of ls & chert

chert looks opaline

NE corner as at base sampled

appears to be on fossil chert unit

in green clay

clay to near top of outcrop

sandier toward top (sample)

SS w/ phos at top just below

soil (sampled)

1/22/85

25°

Field w/ Dan Foss (USF after DER)
looking at cores

KR-127D

1st core 223'

chert over carb (slightly sandy)

prob ls. to SS at 238

very minor phos

becomes a very clayey sand to

very sandy clay at 238

Mixed w/ carb in matrix

carb increases becoming

dom by approx 239

245 very "greenish blue (?) clay

beds in carb

6" dark blue green clay w/ carb

above & below 252'-252'6"

253 becomes very clayey

mix clay & carb w/ sand

sand and carb decrease w/ depth

to 254 in 'good' clay w/ pockets of

sand. (very greenish clay)

thin (1-2") carb beds 258-259.5

carb chert inter layer w/ clay

259.5 to 263 chert has carb stringers

w/ foram molds, siliceous mollusks
Sorites noted

Is at 263 micritized grain
to pack stone abundant
foram & mollusk molds
TD 271' 9"

1st core in Tampa Mbr - Arcadia Fm
Top Nocatee Mbr approx 253
Top Os 263

KR-83D

split spoon sample - 25' 6"
all sand. poor recov. to 60

Don Foss says B.V. Type
60' sand w/ abund tan to blk phos.
to 62

cuttings 50 & 55' clayey sand w/ abund
phos and some ^{phos} gravel

phos-gravel sprinkled at 80'
cutting 80 & 82' clayey sand
w/ phos appears to have some
carb like lenses or in matrix

90' sandy clay dark grey
w/ phos to 91' 8"

92.5 - ¹²⁰ sandy phos. carb (dolo)
w/ interbedded sand beds w/
few thin clay zones
clastic zones often very phos. (fine gr)
pudom carb beds

This is prob. the transition zone
between P.R. & Arc

2/1/85 JEA Pit Jacksonville

T R Sec.

East wall

from base of pit measured up
10'

Sample 1 base of section

very sandy ls to calc sand
minor phos

Sample 2 at 5'

calc sand w/ phos

Sample 3 at 10'

as 2

approx 6' to base of ls ledge

Sample 4 + 2'

calc sand

Sample 5 + 2'

* beds
approx dip NE 30°

at base of X-bedded

ls & calc than 4

Sample 6 + 1' at base of ls ledge

as 5

clay at " " "

Sample 7 clay at " " " "

very sandy clay

Sample 8 clay 8"-10" thick

echinoids just below X bedded zone
abund.
in X bedded zone darker zones
appear to have more sand than
lighter zones (more carb.)

LS ledge approx 2' thick
sample 9 is of ls ledge

sample 10 Gravel bed
top of LS

LS appears to have clay lenses
in it

From ledge to top of gravel
about 10'

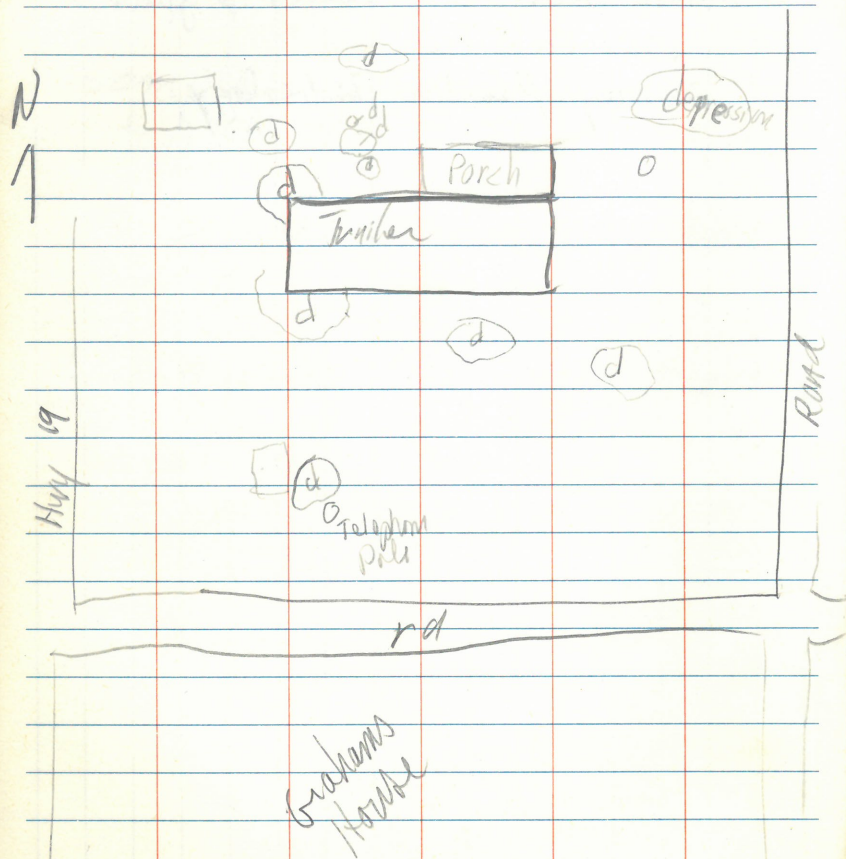
sample 11 clay bed on top of
ledge

Haile Quarry 8.2 miles west of
I-75 3.1 miles
east of Newberry on
Harry Rogers, mgr Hwy 26. North of
26 on NW 13

Miami Geol. Soc. Field Trip guide
1981 Field Trip
Survey of Central Fla Geology

3/22/85
Frederick Wiegand Property
Lake Co. immediately north of
Jim Graham's house

Numerous small depression in
yard



Phone # 904-669-4959

photos taken

depress. in back by trailer

Front shed tilting

Frederick Wiegand

Rt 1 Box 313

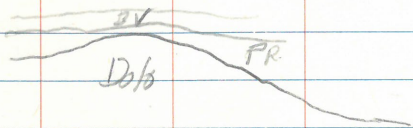
Altamaha Ala 32702

Send copy

Gardenias 7 side 4/4/85
west end of cut
Dolo high matrix Hum
1 1/2' of B/Mbr w/10' to PR
Section thickens to East

W

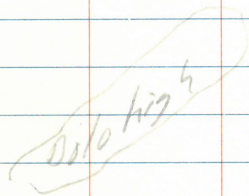
E



Plan

W

E



Sam McLaughlin Grace Hwy 60

Agrico 14' Fort Green
Neohipparion tooth
from same zone as Gomp tooth
George found.

13-1X

5/29/85

Set casing 85'
in Tampa at 86'
variable poorly scattered sandy
zones

1st clay in core approx 186 grnd clay
Top Os 229' intra cluster above
micritic to calcarenitic at 229'
lignite bed 398-399

"Sarasawachoochee" dolo 485-495

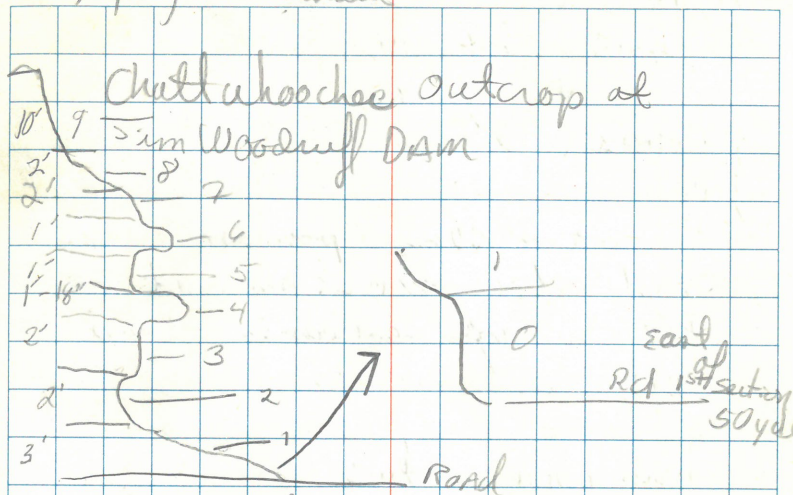
Thin clayey zone 500-501.5
tentative Ocala top 529 (few inches
above 529'
Top will 626'

Top AP 698 Top AP Dolo 708' to 729'
AP ls 729-740
TD in Dolo 801.5

7/11/85

Walt
Steve
Paulette

Richard



- O - hard carb fluv molds less sandy than higher
- 1) covered w/ float boulders appears to be as 2
- 2) very sandy clay appears dolo or carb lgt grn gry. poor ind - mod
- 3) sandy dolo lgt gry to cream mod-poor ind
- 4) rextal very sandy dolo to ~~ss~~ ss
- 5) sandy to very sandy dolo carb some moll molds appears to be more clayey just below 6 very sandy clay
- 6) Silty ss dolo? lgt grn gry hard, rextal carb mtrix, seems to be pods in clayey carb zone of top of 5

7) hard very moll moldic carb
sandy lgt gry

8) Covered 2'

9) very sandy clayey carb weathrd
dug out of slope poor ind

75 yds east there is an outcrop
of 9 w/ soft very sandy clayey

carb w/ hard lenses at top

8' up to top of hard lenses

hard lenses 6" thick

RS, TS, SS
Stop 3 Underbridge 18 July 1955

Water level i Sandy carbonate l

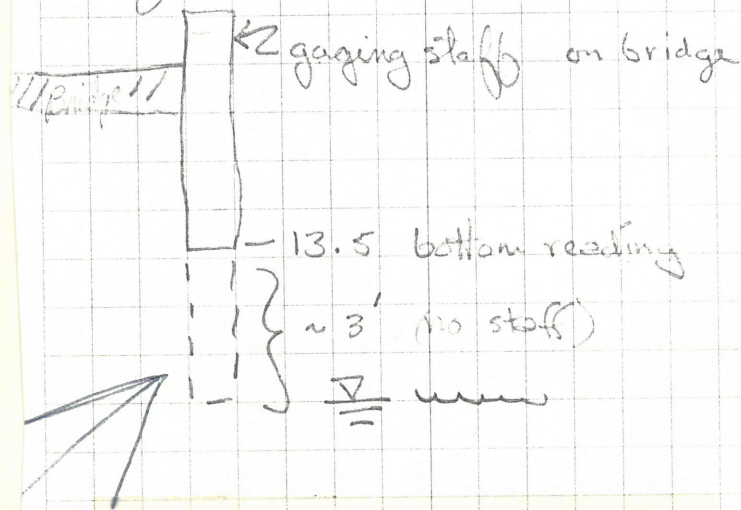
- Subaerial crust - 8"

- overlain by carb. rich sand or
vice versa - 2' thick

- lens of blue green clay.

- v. sandy carbonate - shell moldic
~ 6-9' (variably indurated)

- overlain by organic sand & silt
zones



8/6/85 Floridian Co. Howard Kirk
Bill Yoo
Watson Mine cut 10

stop mining on Dolo (hard)
overlain by very good clay (3-4')
sander upward. toward soil
horizon 8-10' up from dolo zone
sandy clay above soil horiz 5-6'
then pick up carb (sandy fossil ls)
3-4' thin shaley clay w/ hard
carb pods 2' overlying
hard carb (sandy med grained) fossils
(molds & frags) 5' thick then 4-5'
of massive sandy (very to med)
clay then 2' carb which lenses
in and out

4' of sandy clay to very clayey
sand organics abund at
near top.

Micro Ct fine sand w/ variable clay
5-6' then soil horiz. then
reddish clayey sands

Look at cut north of ↑ road
very thin to thin bedded clay w/ sand
beds over a thin (6") very Fe Rich
sand. under this was 7-8' of sandy
clay to clayey sand on top of LS
as above.

all clay is lg + gm gray
8/7 La Caramelia Engelhard

from H₂O level

2'-3' Thin bedded shaley
very little sand &
some bubbly appearance

3' more massive sandier clay

grades 6"-1' Thin carb, sandy, clayey
shaley, clay clasts, phos grains

4' Shaley slightly sandy clay

grades 6"-1.5' hard restal fine grained
carb very little sand

4' Thin bedded shaley very little to
no sand clay

4.5-5' more massive bubbly clay
variably sandy.

carb, lower part is gradational
6"-1' w/ clay clasts, fossils (mollusk
gradational zone up to 1'

1.5-2.5 Carb bed bubbly clayey
shell frags. very sandy

1-1.5' clay bed very sandy to
very clayey sand barren

1.5-2' Carb w/ oyster shell barnacle
abund ~~ca~~ fossil frags
not as sandy as lower beds

4'

clay, slightly sandy
shell frags septen
rably to thin bedded

4-5'

carb, abund, shell frags
and molds sandy trace phos
abund Ghione molds
soft to hard.
abund clay clasts in lower

3'

part
of fill

4'

Massive dark grey clay to B/C
slight sand
interbeds of sand increase
upward some thicker sands 2' up.
interbedded thin clay & sand

7'

Very sandy clays w/ thin good
clay stringers some zones
of more clay less sand.

more covered under slope 4'?

5'

of clayey reddish sands
w/ clay stringers

12' of reddish less clayey sand
w/ clay balls and clasts

6/3/86 Citrus Co.

Beginning of Geol. Map.

visited Ci-20 (C-96 of Vernon Bull 33)

T20S, R19E, Section 25 NW 1/4

crest of Hill 190'±

6' sand over weathered mottled
gray to orangish clayey sand

18' thick then gray sandy clay
w/ decreasing sand downward.
approx 20' thick lies on

slightly sandy, trace phos ls
w/ opaline nodules. wackestone

appears to be sand on weathered
Hawthorn on good Hawth clay
as in Clay Hill core Pasco Co.

(near Dade City) w/ ^{pre Tampa} ~~Tampa~~ Al
base

Discuss at Staff Mtg.

- 1) use of Boulders as evidence
of Fm. Being present.
- 2) abundance of points at
Topo scale, County scale
Mapping scale.
- 3) Discovered problems
 - A) Avon Park-Inghis
Dole in Inghis according to
Vernon
 - B) Reddish clayey sands
what are they?
 - C) gray clayey sands
Vernon says Alachua.
- 4) using terrain and vegetation
as indicators of geology

Taft Pit 29 July 1986

Wakulla Co south of Crawfordville
west of the Hwy

See BANKS & Hunter 1973 GCAWS
for a section

St. Marks Fm exposed in bottom
of pit

0-1' ls, molluscan moldic, slightly
sandy, hard, rextal
scrites noted, burrowed white to
lt brn Sand is fine grained
Overlain by Torreya Fm carb
ls, variably sandy, (coarser than
in St. Marks and more abundant)
soft, numerous mollusks including
Pecten, and Oysters, Echinoid
plates

3-4' Oyster bioherm exposed in
low ledges around pit.

5' Variably sandy ls lt brn
soft, many mollusks but much
less than bioherm
sandy wackestone
sand is med to coarse

1-2' Very sandy ls or calc gtz ss
soft lt brn

ls, white to lt brn, abundant
shells, Pecten etc
5' less sandy than below
soft
packstone - grainstone

4-15' sand, orangish red (rusty)
unconsol, poorly sorted, minor clay
fine to coarse < 2%
zones of dark gray organic rich
sands
Surface sand is lt gry to
lt brn gray

Very irregular top of Torreya
due to erosion
appears that the Torreya in
some places may be entirely
absent and the sands lie
on St. Marks.

contact btwn St. M. & Torr not exposed

Top of St. Marks on South wall
is weathered and vental
not as good St. M. as in pit
bottom but prob. still St. M.

13 August 1986

 J. Lloyd

ls. Pit N.E. of Williston on Rt 121

1st ls pit on right side of road.
now appears abandoned.

Section appears to be a max. of 45'
Samples taken from H₂O level
to about 25-30' from bottom
one last sample taken ~~at~~ 1-3 feet below
top at north corner of pit.

good grainstones at H₂O level
grainstones dominate 1:1 tho
in samples taken. J. L. noted
the more weathered samples
she looked at appeared to have
silty matrix like Crystal River
but w/ abundant grains.

Whole section appeared to be Williston

Top most sample looks like ls seen
8/11 and 12 in Dixie County that was
questionable Ew. Did previous mappers
in Dixie Co. use fauna to separate?
We shall see!!

14 August 1986

Cypresshead pit North of
Milledale on Hwy 27 East side
of road.

much trash

approx 40' of exposure
coarse to vc red clayey sands
at base w/ occas. white blib,
stringer or lense.
few zones of med. grained red clayey
sand.

remains coarse to near surface
w/ same variations
Brick red.

14 August 1986

Dolme P.t - Barge Canal
Exposure of Avon Park - Inglis
Dolomite 4' above H₂O level
NE side of P.t.

approx 30' of dolo above contact
thin unconformity w/ clay then
Inglis rubble zone or qtz sand
Inglis dolo is x bedded thin - to
massive bedded. Hard & soft
layers.

rextal (Dolomitized) grainstone
to packstones.
photos taken

25 August 1986

Tennile P.t TAYLOR CO
North of Hwy 51 west of 19
Dolo boulders appear to be
Crystal River. malds of
heps, opencs, Peders. Zones
of crushed edimoids common
collected some for I.D.

25 August 1986

ls pit on Steinhatchee Rv
East of 19 in Dixie Co (?)
sampled from pile.
chunks w/ large leps, Pecten O per.
echinoids, Spiriglea vernoni
some samples of med-fine grained
quartzstone.

Upper most strata appears
to be lep rich Crystal River
NO Dolomite seen

25 August 1986

Hollingswood pit Citrus Co
NW quad of Barge Canal - US 19
intersection

Appears to have Englishs
present 5-20' thick dolo
w/ no carbonaceous matter
noted. some very hard rextal
w/ what appear to be numerous
burrows. colors from tan
to dark gray.

27 August 1986

Tampa Mbr ls on spoil pile
300-400 yds north of C-574 and west
Hillsborough Co (58 ?) Lot I-75
piles nearest the rd have what
appears to be remnants of
P. R. fm. clays w/ white phos.
Some limited silicification of
ls. noted subaerial aeral
crusts. mollusk molds
in sandy wackestone (varies
from packstone to mudstone)

28 August 1986

Several
sand and clayey sand pits
Citrus Co. just south of intersection
of Rock crusher rd and Homosassa
55A trail. Top of Hill has
15+ feet of sand over red clayey
sand (Cypresshead ?)
Upper sands appear X bedded.
Sand appears to be thinner on
flanks to north.
25-30 ft Cypresshead exposed.

King B Corp pit just south of
those listed above.

base of pit sands are ^{fine} fine-med
w/ minor clay < 5% (prob < 2%)
just enough to hold up well
var colored from lgt yellowish
gray to brick red.

Trace leaves

Burrows noted

most clayey at top of section
below dunal sands

25-30' of reddish sands
w/ similar grain size
overlain by 10-20' of dunal
sands. clean, fine grained
Fe stone concretions noted in
red sed.

11 Sept 86 w/B.E. Lane

Lake Co.

Studying landfill mound of
Cypresshead left in landfill
due to grave formerly being on top
noted aboveclant burrows w/
fecal pellets also found silicified
Ostershell

4 Oct 86

Lake Co on Parkway S.E. of
Hwy 19 by 3.1 miles

Outcrop of Cypresshead

8-10' exposed

Sand, white (base) to orangish red
(top) mottled, sand vc at base
med-cse at top.

basal unit 2+ of white w/
red zones vc-cse sand in
white clay matrix. some beds

~~concrete~~ 1-2 inches thick. burrow
structures noted.

upper unit med-cse grained
clayey sand thin beds up to 1" thick

4 Oct 86 West of Lady Lake
on Hwy 466 T185 R24E Sec20
NW of NW. elev at rd about 150'
Composite section

- 1) Base is white, clayey sand burrowed.
- 2) X-bedded m-vc sand, silty, minor clay, beds of very coarse to pebble sized quartz clay clasts (white) red w/white in x beds. bed appear to be dipping predom east.
- 3) top bed looks finer but more weathered. burrows noticeable, mottled will return to this pit for detailed sections

Cypresshead. May be exposure of tidal channels

24 March 87

Volusia Co. - Seminole Co line
St. Johns River ^{just below Lake Vol - Sem} intersection

T19S R30 E Irrey sec 40
outcrop of poorly to mod ind
shell marl, variably sandy
(less than 5% - 20%)

Shells are Fresh H₂O
layers of predom 1 sp.
2 samples taken numerous
photos.

Just north of navigation
light on river #99

at H₂O level at S. end of
exposure is a gray w/ occasional
rusty orange mottles clay calc?
fine-med sand w/ few fresh H₂O shells
Section is overlain by unusual
grayish fine-med sand.

Section 100+ yds south approx
100-150 yds N of light. Section
visited by R.T. no lithified zones
shelly (leached) zone w/ Fresh H₂O
shells. at base of section
gray green clay w/ 10-30% sand
and scattered forams. See R.T. section
in outcrops pub.

16 April 87

Stopped at site between
mile markers 80 & 81 on
FIA Turnpike, located on
east side of rd north of
the overpass under construction
Palm Bch or Martin Co. ?

20-25 ft of sand w/ abundant shell
shell collected along with
Fresh H₂O Ls which occur
at the bottom of the pit.
sand fine grained
Ls hard very retort

5 May 87

Shell pit NE side of 520
Orange Co (SE) Lake Poinsett NW
Quad pit is in NE 1/4 of 20
on SE 1/4 of T 24 S R 34 E
Visited by RAJ last week

N center

to NE 1/4 Sec 20

Pit 1

Bed

- 1 shell, fine sand, silt, Angular to sub-
shells whole & broken, dark gray brown
2.5 to ^{greenish} gray brown, on exposure turns light
gray fine large Meranania little clay
- 2 shells, as above but w/ much
more large shell mostly Meranania
- 1.5-2 chunks of lithified gully sand
rx (calc?) rounded, some
w/ encrusting bryozoans
- 3 sand w/ shell fine & silt broken
6"-8" shell (finely) forams thin clay
seam intermittent gray brown
This bed seems to pinch out
in either direction
- 4 shell, less sand (10-15%), more clay
whole & broken shell some w/ clay
fill, gray brown to gray green brown
- 1.5-2 Shells are generally small but
larger shell occurs sporadically
spicules, forams echinoid spines

5 Sand, f to vf, forams, spicules
scattered shell lgt grn gry
1.5 shell more abundant upward
and variable laterally
grades upward into
soil zone.

6 Soil - sand f - c
6-8' lgt to mod gry brn organics
roots

Pit 2 shows same sequence
also exposes a little deeper

The zones of Mercenaria shell
lag are most abundant
near the top just below bed 3
might signify shallowing of A20
and influence of storms.
Traces to 2%, heavier? phos?
dark grains

Pit 2

1 Shell, sand vf-f, clayey
zones of clay w/ silt & fine sand
approx 15' shells small whole & broken,
scattered larger shell no in place
Mercenaria, gry green.
zones of med sand Busycon type moll.
sand content increases in
upper 5' of Bed 1 grades into
bed 2

2 Sand w/ variable % of shell
but not as much as 1
4'-5' f to vf S-A trace to 2% dark
grains, minor silt no clay
lgt gray to lgt grn gry

3 Shell, clay sand sand in vf-f
C in some zones. shell broken finely

4'-5' whole large Mercenaria

5 gry brn to grn gry brn
mottled colored zones

clasts of lithified sand, some appear
to be old burrow structures.

broken thin zones of lgt grn clay
Traces of roots in the clay

4. Soil

5

11 May 87

GeoMAP Outcrops along
I-4 Start Hwy 39 intersection
44706.0

Stop 1 44715.15 at overpass Bella
Vista Dr just before Exit 17
Hwy 539 to Lakeland.

fine grained (F-m) sand
in clay mtrx (variable?)

white to lt gry w/ ~~abundant~~
often mottled rusty orange
higher on hill

2) On Exit Ramp 15.45
reddish mottled clayey sand
some burrow structures(?), Fe enriched
layers.

~~15.8~~ 3) Very clayey sand at
end of entrance ramp from
98 heading west

Hwy 98 720.1

④ 732.9 Roadcut reddish
mottled clayey sand (m, F-C,
R) overlain by rusty orange
residual soil

⑤ Pit 734.5 looks as if
Did not enter from I-4
check dirt road paralleling
I-4 on S side of pit for
entry.

Intersection 532 and
I-4 gravel outcrop

All these outcrops look like
Cypresshead fm, although
the westernmost ones were more
clayey than typical Cypresshead.
There was no phosphate (weathered
or otherwise) seen in the very
clayey sands. At this point,
I do not believe that these 'very
clayey sands are Hawthorn.
at this time. However, I am
surprised that Cypresshead
is on Lakeland Ridge.

21 May 87 w/ Carl Brown

Daness Moore

Nassau Co. SCSC

DM-2 (west side of SCSC run)
split spoon.

10-11.5 Cypresshead (?) sands f mottled
slightly clayey trace heaves

20-21.5 f sand no clay

25-26.5 as 20

30-31.5 clayey f sand, not mottled
lgt brn gry.

35-36.5 as 30

40-41.5 clayey f sand olive gry grn.

45-46.5 as 40

50-51.5 as 40 but less clay

55-56.5 as 40 but somewhat more clayey

60-61.5 Silty clay w/ thin sand
Charlton Stringers lgt gry grn w/ blebs
of dk gry grn

66-69 lower part of core has silty carbonate
clay lgt grn gry. slightly sandy
top dk grn gry to blue gry sandy
clay

70-71.5 Silty clay lgt to mod grn gry

75-76.5 ^{Top} silty, sandy clayey carb.
blebs of clay
Bottom - slightly ~~dk~~ silty clay
Ark gry grn - blue grn.

80-80.5 as 75 w/ carb frags

85-86.5 silty clay lgt grn gry to
grn gry

90-91.5 silty clay dk gry grn
zones of almost dk gry to Black
clay

95-96.5 silty clay dk grn gry

100-101.5 as 95

101.5-102.5 as 95

102.5-105 ^{Dolomitic} ls, lgt brn to tan moldic
biogen frags. sandy clay mostly
washed in. mod. ind.

105-108 carb, clay sand. poor ind.
lgt to mod gry clay appears
to increase w/ depth

108-110 no sample

110-110.6 clay, slightly silty very lgt
sand

110.6-112 ls moldic sandy, blebs of
dark grn clay, mod ind

Top of unit caps

112 - 112.5 carb (~~dolo?~~) thin hard cap
sandy, 2-3% phos then
soft carb, sandy, 1% phos

112.5 - 115.0 no sample

115.0 - 116 Dolo's slightly mollic
minor sand, 1-2 phos,
mod ind.

116 - 118.5 soft clayey sandy dolomitic
Fusua prob mole dolo variable
+ sand (very dolo clayey)

118.5 - 125 no sample

125 - 126.5 Sand, f-m, clayey, dolo,
1-3 phos poor

126.5 - 135 no sample

135 - 136.5 dark grn cly, carb frag,
(thin beds?)

140 - 142.5 cly sandy 1-2% phos
dk grn grv

145 - 146.5 clayey dolo sand 3-4% phos
very variable sand, clay dolo lgt
grn grv

155 - 156.5 as 145

160 - 161 as 145

165 - 167 sand w/ abund Phos 10-15
clayey, dolo, sand lgt grn grv

167 - 190 No sample

190 - 191 dolomitic clay, sandy
appears as dolosilt to 191'

192 - 195.5 sand, clayey, dolo,
phos 1-2%, variable sand to
clay w/ sand. med to dk grn grv

DM-2 elev 78'

Top Chaul 60'

Top Coos u 112'

DM-13 elev 18'

Top Chaul 34'

Top Coos u 44'

DM-14 elev 30'

Top Nash 36'

Top Chaul 58.5'

Top Coos u 98'

DM-3 Top Nash 48' elev 94'

Top Chaul 73'

Top Coos u 113.5'

DM 5 elev ~~42~~ 42'

Top Chaul 13'

Top Coos 51.5'

DM 4 22' elev

Top chaul 53.5'

Top Coos 75'

Ban - 29 (B-29) 53' elev

top Nashua 25' w/ transitional
cypresshead above

top Chaul for 41'

Top Coos 68'

DM-11 elev 12'

Top Nash 41.5'

top chaul 19.5'

Top Coos 39.5'

DM-17 16' mixed Nash / cypress
10-39.5'

top chaul 34.5'

top coos 68'

DM-23 77' cypresshead / Nash crs.

Top chaul 49'

top coos 114'

DM 24 elev 82'

Top chaul 72'

top Coos 133'

DM-8 elev 15'

top chaul 5'

Top Coos 26'

0-5' (sample 1)

sandy clay Fe stained

is this Nashua?

DM-6 elev 20'

Top Coos 60

rework med-crs sand
w/ phos 55-57'

DM-30 - 15' elev

top Coos 29'

w/ undif sands & clays above

DM-7 elev 10'

top 27'
as in #6 & #30

TOP COOS 27'

DM-10 elev 5'
Top Charlton 11'
Top Coos 27.5'

top section 0-11' as in 6
30, 7

DM-9 elev 14
Top Charlton 7.5'
Top Coos. 19'

DM-15 elev 14'
top Nashua 17.5

DM 38 elev +5
top Nashua 20' ? maybe slightly
top Charlton 35 higher
top Coos 65

DM 37 elev +6
Nashua 19-21 ? maybe 14
Charl 39
Coos 64 to 68

11 June 87 DuPont
Sack Reynolds, Fred Pickle, Bruce
Worita. Discussing MMS

Need Marcy scale to check
density

6 July 87 w/ Tony Gilboy SWFWMD
looking at cores from Crooked Lake
area Polk Co.

C1-3 Little Crooked Lake elev 114'
NO PR

Top Arc 121.5-126.5 (cuttings)
common brachiopods 162-165
up dip Nocatee 216-226.
Top Os 226'

ROMP 58 northernmost core
elev 142
NO PR

Top Arc possibly 101 (cuttings)
1st core 102.5 good Arc
146.5 Top Nocatee
154 Top Os
168.5 Top Ecr ? Os-Ecr
Tony says
Spirosten vermoni 187'

ROMP 57X Lake Wales Hospital

elev 198'
Cypresshead(?) to 192
NO PR

Top Arc 192 Nocatee not present
Top Os Wind 236??
organic rich zone 251.5-2548
Top Ecr 273?

ROMP 55 elev ~~121~~ 121'

shell bed 108.5-118?
reworked PR 118-128.5
NO PR

Top Arc 128.5
Top Os ? 202±

Ch-1 elev 122

Pls shell bed - clay 132

Top Arc 161 very coarse phos gran.
200.5 top of ls w/ phos
abund shell prob Tampa
Top Os 218.5

Romp 44 elev 129
Top Arc 112' shell clay 102-112
Nocap 199.5 - 233
Top OS 259.5 - 260
Shell zone as CL-1 239.5 -
259.5 (260)

Week July 6-10, 1987

Field work w/ Tom Arthur
to introduce him to some of
the sediments he'll be working with
as an F&S Geologist
I believe he will be an exceptional
geologist in his career w/ F&S

6 July
visited Doline mineral
Barge Canal pit. looked at
and discussed Σ ap & Σ i
thin clay red separates Inglis
Ls (Rubble zone) from dolosilt
& dolostone Vernon assigned
to Inglis. I believe that they
should be in A.P.

visited Carroll Lecanto pit
showed Σ A. Σ CR, paleo sinker,
cavities etc. Found small
cavity (1x2x2) w/ glass clear
calcite growing partly on Ls
and partly on clay.

7 July looked at cores at SWFAMD
(previous pages)
lectured to an Earth Science class
at USF

8 July Introduced Tom to
Phos. District
AM. - Grace Phos. Hookers Blaine
and 4 corners mines looking at
Bone Valley Mbr & Peace River
undul sides w/ John Walters
PM. Agrico Ft. Green
w/ Tom Hodgins

9 July Indian River Co.
Vero Beach Landfill
lithified coquina w/ Mercenaria

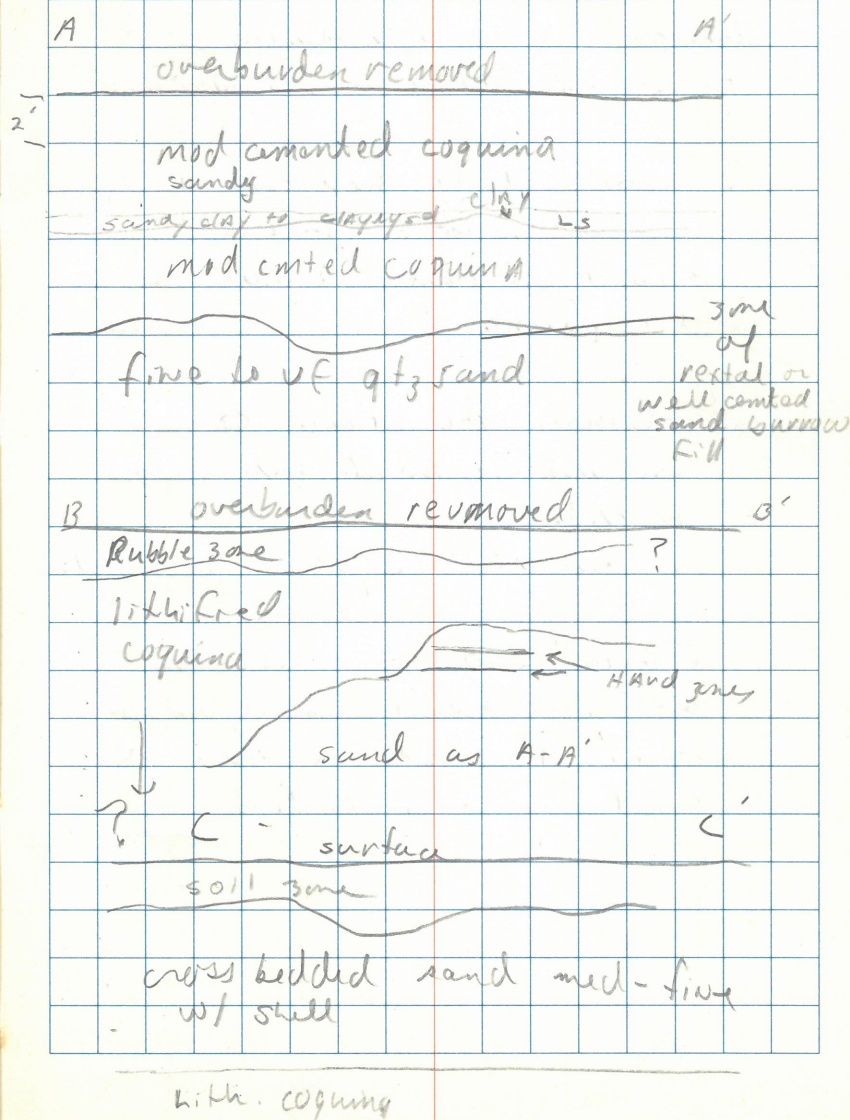
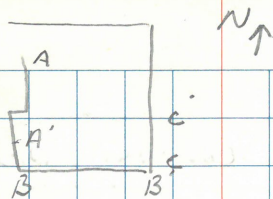
10 July Volusia Co. PARA Pit

ATLASIA Fm well exposed
generalized base of section
is a fine grained qtz sand
top of which is undulatory.
overlying beds variable thickness

A-A' Ls zone is micritic to calcilitic
hard to mod ind. grades laterally
into clay then sandy clay,
clayey sand

B-B' Rubble zone consists of
the hard, cemented burrows
variable sizes of coquina frags
w/ rounded edges, large shell,

lithified coquina zone
thickens significantly from
east to west. Kevin para
report > 14' at A'B.



24 Sept 87

Notes on cabbage palms

Driving W on 192 from I-95 to St. Cloud (23 Sept) noticed cabbage palms occurring above 30 ft MSL. Topog show them to occur up to $\approx 50'$ MSL.

24 Sept on Hwy 532 Osceola Co noted C palms to approx 55' MSL although at this elev they are not common. Abundance seems to increase dramatically below 30-35 MSL.

at elev $> 30'$ C palms primarily associated w/ cypress stands

at elev $< 30'$ they are often mixed w/ palmetto, pines, in oak hummocks. may indicate proximity to surface of the shell beds.

24 Sept 87

Mid-1A Materials Co.
Altman Shell Pit 857-8364

Orange Co Hubbard Const. Co.
235 32E 15 SE 1/4 (approx loc. from measuring road distance)
Shell pit behind Wedgefield development

- 1) Basal gray sand, shell frags (very broken up), med. grained abund. heaves. (plus?) 1-2' unconsolidated.
- 2) Oyster bed (not always present) occurs in and on top of unit 1 when prominent 2 is 1/2-1'
- 3) Fresh H₂O marl minor sand lgt gry to green gray. some Fe stain abund gastropods (fresh H₂O) 1-1 1/2' thick poor to med well ind top of marl bed reworked into 4)
- 4) Shell bed gry brown when fresh white on exp., whole & broken shell sand in mtrx occasional sand beds (very thin and fine gravel) poor lith.
abund. Chione cancellata in basal 1-2'

Mulinia dominalis above that point

Sand content increases upward
shell grades into overlying sand
Sand is fine w/ heavies
Shell section 12-15'

5 Sand, fine grained, heavies
shell in base decreasing upward
grades in to organic rich Festinated
Hard pan
Sand - 5'
Hard pan - 3-5'

S - 2.3 m

E 97.5 to 1 mi

N 00.5

7 Oct 1987

visited Hubbard pit (to 24 Sept)
w/ Roger Portel FSM to
obtain samples for paleo analysis.

10 Dec 87

Alachua Co Ambient well #3
T 75 R 18E NW 27 elev 160 (top)
Land surface to 2' clayey sandy soil
clayey sand and sandy clay to
approx 67'
Harder sandy ls w/ minor phos
w/ interbedded soft clayey zones
to 85'
Top Ocala 85'

from 67' to 85' maybe
the up dip Penney Farms Fm.
2' to 67' maybe Crosswatches
or equiv. Nothing appeared to
be Marks Head Fm.

29 August
Alachua Co.

3.85	4.00	6.05
49	22	22
34.65	88.00	1210
1540		1210
188.65		13310
4510		
143.55		

Jerseys

T. K. Warden	2	12.00
T. Gilboy	1	6.00

Grace Phos Co. 4 Corners Mine

Mike DeNeve ^{mulberry} F13-533-2171 Geol

Ken Kelley 4 Corners Same "

Bob Viertel ^{mulberry} Same Engr Eng

Ed Fowler 4 Corners "

Claude Blanchard CF

Bruce Warden CF

Doug Hykeon IMC

Larry Miller Oxy (FSU Grad Tanner)

Harris #1

176 mH Dolo

215-223 PF

V Arnes

55 mH

72 PF clastics

MS J

215 mH Top

Check Loc

12237 Desoto #2

12238 Hardee #6

12233 Har 3

12213 Har 2

Jahane - Bob Horne
 Canoll - Robert Lyons
 Crystal Rv. - Steve Smith
 Fir Rx. Brooksville - Bob Gottsman
 IMC Morrell - Bob Gray
 Wayne

F&W Pit
 Orange Co.
 Give name
 is Red (superintend)

Mr John Smith Hwy 44
 1/2 road west of With. Rv. follow
 boyscout camp signs south to
 entrance then right into his yard.

Drug Hyken IMC

Steve Smith

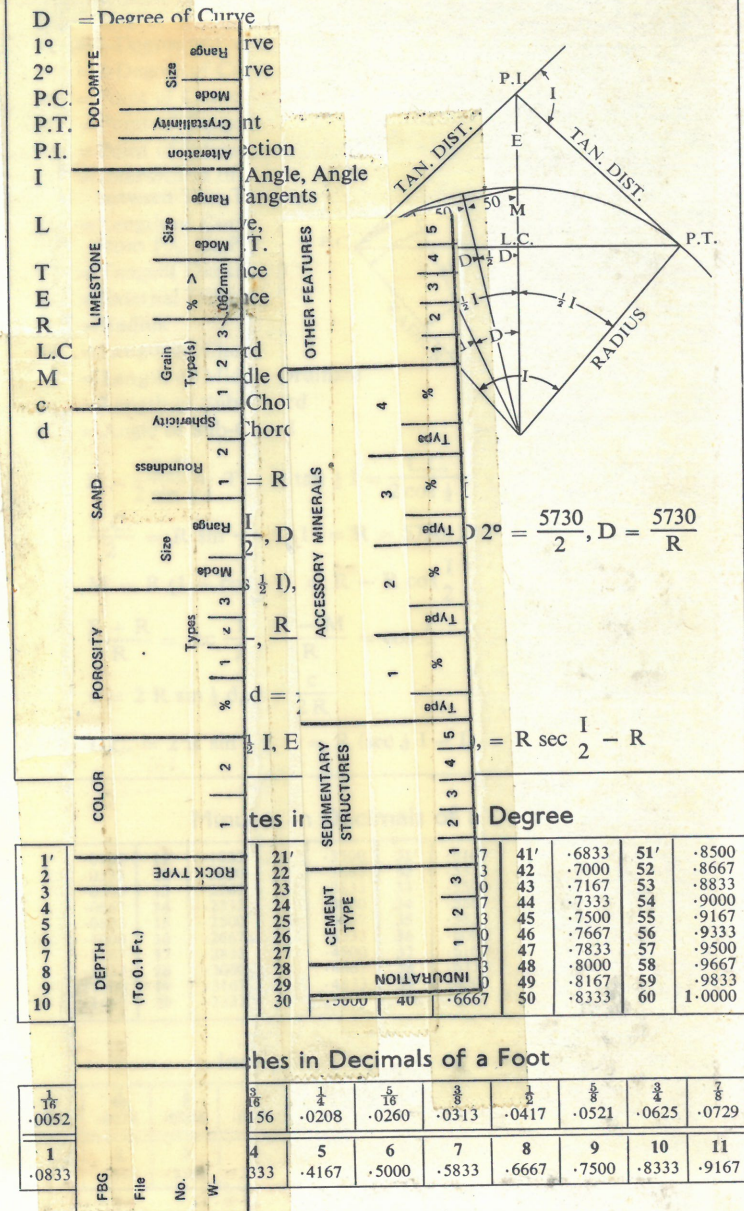
904-726-6110 home
 904-746-4300 work

Sam Tamposi Office in
 Xhal Rv.

Meadow Crest Dev. engineer Bob
 Guff to Lakes Realty on Dec Corp
 on 44 904-795-2200

Nicks office 795-8449
 3 days call before 795-8900

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