

1908.



Note Book No. 2

*Indexed June 8, 1915 -
Fullers Earth.*

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General Water Resources. (List of heads talking).

- | | |
|---|-------|
| Average depth of Wells. | # 1. |
| Probable depths (of Prim. Water Beds.) | 2. |
| Number & kind of Privies, Cess pools etc. | 3. |
| Sanitary condition of Wells. | —— 4. |
| Suggested improvements | —— 5. |

Public Water Supplies. (List of heads lacking).

- Head (of water in well) # 1.
- Distribution or Storage, (direct or from stand pipe) - 2.
- Services - - - - - 3.
- Elevation (of stand pipe or reservoir) 4.
- Is supply satisfactory - - - - - 5.
- Changes contemplated - - - - - 6.
- Suggestions - - - - - 7.
- Remarks - - - - - 8.

Springs. (list of heads lacking).

Nature of mineral deposits	---	# 1
Possibilities of pollution	---	2
Remarks	---	3

Wells. (List of heads lacking).

- | | | |
|---------------------------|-----------|------|
| Address of driller | - - - - - | # 1. |
| Increase or decrease | - - - - - | 2. |
| Is well properly cased | - - - - - | 3. |
| Is well probably polluted | - - - - - | 4. |
| Does it corrode casing? | - - - - - | 5. |
| Suggestions | - - - - - | 6. |
| Remarks | - - - - - | 7. |

Generalized section from
River Junction to the Fuller
earth plant at Jamison. Nov. 25. 08

River Junction Depot.

Barometer reading 7.30 A 1990

Top of clay stratum in Colerabothelie
Landing station 2050 (above depot 60 feet)

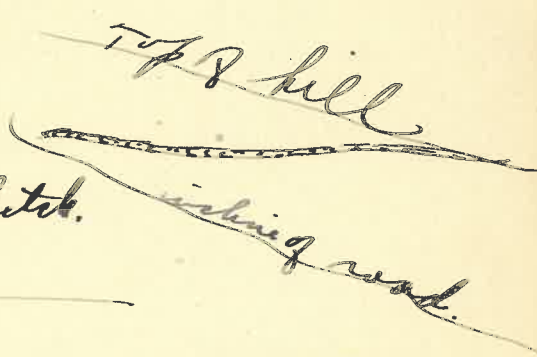
Mottled sand at 2075

Top of hill near house 2110 (above depot 120 ft)

On the hill ~~see~~ after crossing the RR.
East of River Junction the Chattahoochee
limestone shows at 2080. (above depot 50 ft.)
some greenish sticky clay rests upon the
limestone possibly 2 or 3 ft. Then, one
followed by mottled clays then
the orange-bug sand. The top
of the hill and the plateau
level is reached at 2120 feet.
& true elevation of plateau
is 2135 ft. (above depot 145 ft.)
a coating of sand rests on the
section.

In examining the section of the bedding it was observed that a part of the Orangeburg sand is decidedly coarser as much as almost as the typical Allendale grit. Gravelly gravel also occurs in abundance. A more striation in the orangeburg is observed.

This is illustrated by the accompanying sketch.



The relative levels between Juncy and River Junction were obtained by barometer on Nov. 24 08 as follows

Reading at Juncy 3.20 P.	2185
" at River Jct. 4 P.	1950
	<u>235 feet.</u>

2040
1984

Section

surface level - 2840

9 ft. overburden, redish clay 9 ft.

Fulles cobb 17 ft.

clay below

Section

Limestone at bottom of

pit 25 ft. from surface

8 or 10 fulles cobb

2 sand

2 or 3 fulles cobb

5 sand

3 fulles cobb

5 sand.

Surface level 2070 ft

Top of hill 2130

Pit. Surface level 2065

red sand 4 or 5 ft.

Sandy clay

Rock at about 25 ft.

Section in pit

about 8 ft. of fuller earth

detached stratum or on firm

^{10 to 12 ft. easily class.}

Fuller earth much tendency to

forming 2 ft.

Sand, fine white, some clay 10 in

Blue banded clay 10 in

yellow clay at bottom

Barometer reading at the top of the

Fuller's earth stratum abt. 2020

above report of R. post 30 ft.

H 2

Section 1 mi N. of Dolan

Top surface line 1P. 2210 ft.

Fine sand, slight yellow 4 ft.
mottled sandy clays 10 to 20 ft.

Greenish clay lens 0 to 12 ft.

Bright red clay 0 to 2 ft.

4 ft fine sand
mottled sandy clay 10 to 20 ft

green clay lens

Recessed from top of section

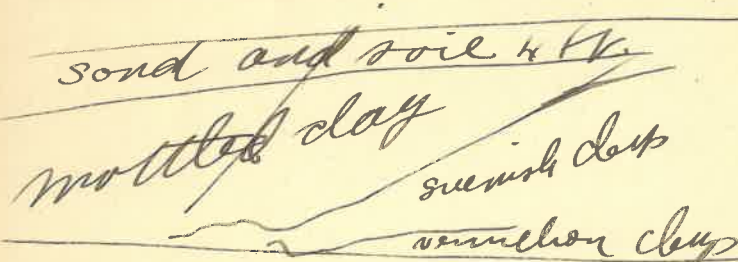
smaller lens

greenish clay

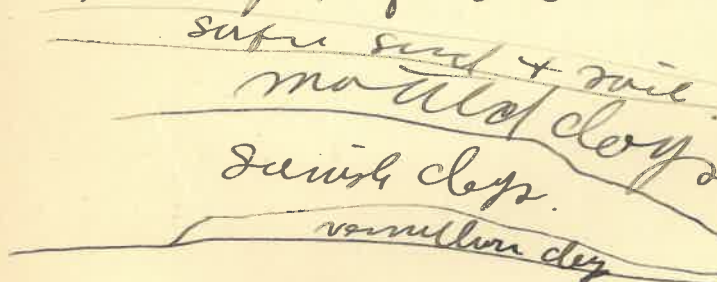
mottled sandy clay

Bottom of cut 1985 Feb 13 0 ft.

Beginning at the north end of the
 Dolan section one finds
 mottled clay to the bottom. Then
 the greenish & vermilion clay
 come in thus


 sand and soil & sh.
 mottled clay
 greenish clay
 vermillion clay

on the west side of the track the greenish
 clay comes the same manner
 but 20 feet further south this


 sand and soil & sh.
 mottled clay
 greenish clay
 vermillion clay

a pocket of vermillion clay
 can be seen 100 feet beyond.

an vermillion anticline comes up
 at the middle of the cut.

6 S. E. of River Junction on
old Shiple Mc Elpin Estate.

Fullers earth exposed
just at the creek.

^{xpm} Barometer reading 2110 ft.
above depot 85 ft.

~~Fullers earth in creek 2175~~

Top of hill west of Mc Elpin

Barometer 2210
above depot 2125
Edwards house 2430 P. 2230
above depot 225 ft.

Top of Chertledge Lumber ^{Chertledge}
or hill south E 2125 ft.
Left of 330 P. 2025 ft.

Top of mottled clays in
section west of Mc Elpin estate
above depot 150 ft.

Top of hill west of Mc Elpin
above depot 185 ft.

Old Hymenon Fullers etc

plant

2400. Fullers Earth in place at 2150

Left looking at 730 A. N. 26.

1990

Top of Limestone hill S.E. 7.41 A 2060

above depot 70 ft.

Greenish sticky clay lying
on the limestone one or two feet
mottled clays to the top of the
hill 2 or 10 ft. where the quantity
name of the orange bug road on road.

The changed nature of the
clays in this section obscures
the line between the green & the
mottled clays.

The stream coming about 1/2 mi
south S.E. from weebies ~~2000~~
1985

The limestone does not appear
after the stream crossing. The first
clay on the east of the hill is greenish
mottled with red. 3 or 4 feet
mottled clay continue to
the top of the hill 2040

mottled clays or decomposing and
mottled are seen to the top of
the next hill at base of Lee Jones
Rivalling ~~2060~~
2085

at the next hill greenish joint
clay ^{sandy} is seen level 2050

This is followed by light colored
sandy clays slightly mottled.

at a level 10 ft or higher one
observes a clay stratum mottling
into joint clay. Siliceous masses
are imbedded in this clay.

Above the greenish clays the
stream is covered a little higher 15 ft
on the mottled clays appear. These
are followed by the orange clay to the
top of the hill at mill Edwards
house. the elevation is 2600

This hill is covered with the sand
of the plateau. No other hills
on this road, the wine road for
several miles. The first
woods at residence of Frank Carter
has level of 2125

On the river road about
 1 1/2 mi from River Junction
 Hill, reading at top 2020
 Reading at bottom 1985
 all Loflytt, somewhat lighter
 just at bottom

Reading at top of next hill
 2000
 north

Reading at the bottom of this hill
 just at stone cuning where the
 limestone shows. 1900

The material resting on the
 limestone here is more coarse & sandy,
 less of a clay than on the other side.

Reading at depot at 10.3 on 1225
 1900

Reading near top of hill
 North of R. J. 2020

✓ Barometer readings River Junction³⁰
to Tallahassee Nov. 25

River Junction 12 N. (on train)	1940
Jameson " "	2025
Mt. Pleasant on train	2145 to 2155
Guthrie	2150
Quincy	2125
midway	2040(?)
Quincy depot	1975
Tallahassee depot	1930

✓ Barometer levels Nov. 27.

Office depot Tallahassee	1875
Depot on board train at "	1780
	95 feet l.
Crossing S.A.L. & G.F. & A.	1790
Midway 12 mi west	1850
	25 ft. l.
Quincy on train at depot	1865
	10 ft. l.
Quincy hotel barine 4 P.	1870
" " " 5 P.	1875
Fuller earth station 430 P.	1785
	9 ft. l.

Barometer readings Nov. 28

Hotel Suaine ^{Quincy} 7 A	1900
Fuller earth of old Cheshburg place	
" " " 8.30 A	1800
" " " 9 A	1785
Extreme top of hill near " 9 A	1870
Town level in Quincy at 11 A	1865
G.F. & A. depot aboard train	1825
Level difference 1750 + 1500 to first station	
Harvance 1885 (road) 1800 northern	
Deblochne bridge 1745	
Tallahassee depot 1700; same 1885.	38

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Barometer readings Tallahassee
to Madison, Dec 1. 08. The
barometer seemed unusually variable
on this day.

Tallahassee depot.	1.30 P.	1800
near Lafayette.	2 P.M.	1850
Chiles, depot		1850 to 1870
Histon, depot		1950
Quilla		1870
Greenville		1885
Madison, depot		1910
" " Hotel merchants		1960

Madison to Dec 2. 08

33

Section at the Fullers
earth pit, Owl Commercial Co.
Nov. 26.

1. sandy red iron stained clay
indistinctly stratified about 12 feet.

33

2. a greenish sandy clay, used
to some extent as fullers earth
but found unsatisfactory.
Oyster shells mostly rolled and
worn are found in this stratum;
also broken bones. The top
surface of this stratum is
lacking in regularity. This
stratum has many ^{lithologic} features
in common with the greenish
sticky clay which usually lies
irregularly below the red ^{and mostly} sands.

3. Fuller earth stratum No. 1.
 This is a stratum of exceptionally fine fuller earth very free from sand, it had in this pit a thickness of about six feet. Elsewhere, the women report, this stratum is somewhat thicker. Water has found its way through this stratum, its path is indicated by a deposition of manganese oxide, coating much of the fuller earth. The line of contact where seen was a distinct but level smooth line, with no indication of an unconformity. This the women state, is the invariable relation.

4. an indurated sand stratum.³⁷
 This stratum is more sandy
 than no 2, not being at all

workable as fuller's earth. It is
 grayish in color. This stratum
 the workmen state occurs
 invariably just beneath the
 the first fuller's earth stratum.

5 Fuller's earth stratum no 2.
 This stratum was not seen. It is
 reported to have a thickness of
 six feet.

6. Unindurated sand is said
 to lie immediately below the
 second fuller's earth stratum.
 This sand stratum is described
 by the workmen as "quicksand" 38

methods of mining.

The red sandy overburden is removed by steam lift.

The red clay can usually be removed without blasting. The sand stratum is loosened by blasting.

The fuller's earth is removed by pick and shovel and loaded into chummy cars, and carried to the driers.

The section at the north end of the long pit.

- Sand and soil 2 to 4 ft.
- Reddish sandy clay.
- Shell stratum 2 to 3 ft. lying irregularly upon
- Sandstone or sandy clay 3 ft. thinning to the north.
- Fuller's earth No. 1. about 6 ft.

The shell stratum is not seen on the opposite side of this pit, about 50 feet. It is seen, however, lying upon the clay of the old west pit. It is the same as the fossil stratum of Chesbrough & is found at Joneson.

Section at Quincy.

Hotel Laramie 1900

Bottom of Howard 1805

The orangeburg here is medium fine. It is bright red at the top of the section, becoming lighter colored and grayish at the bottom, the mottled clays do not come in here.

2. A clay stratum is reached at the bottom of the section. This clay is interbedded with sand layers. Following east past the defow and along the R.R. track as much as fine bed of the clay stratum is exposed opposite the depot. The contact line is seen here continuously for 30 ft. ~~and~~ during which, ^{horizontal} the formation lies in apparent conformity. The contact is exposed ^{interruptedly} for 200 yards farther east. At the east end of the section, opposite a switch on the south side of the track, the cross bedding in the top formation is seen.

43

43

~~Just~~ midway between this switch
and the next one to the west is seen
an undoubted slight unconformity.

The clay stratum here rises from
the water edge at an angle of

to six inches above the water edge
dipping again to the west



Cross bedding in upper stratum. Undulating
surface of lower stratum

Conditions at the Cheshbrough pit.
The abandoned pits here are filled with
water, covering the fullers earth stratum. A
fossiliferous sandy-calcareous-dry was
found in place above the fullers earth. From
this stratum and from material from this
stratum thrown on the dump a collection
of fossils was made containing in ad-
dition to invertebrates, shark teeth, fish bones,
and bone fragments.

11. 20

Notes at Madison.

The road to north from town leads down a hill on which is seen non-stratified material at the top, followed at a lower level by stratified and laminated clays. In them is seen occasional more calcareous layers. The usual small antilines are seen here. Near the foot of the hill the non stratified material comes in apparently breaching the edges of the stratified, and suggesting a cusp of the sandy material.

The wells noted are said to reach rock usually at about 60 to 80 ft. The sewer well of the merchants hotel is said by Ferrell the driller to be 57 feet deep and to be cased to the rock about 50 feet. The water rises to about - 60 ft.

A sewer well is in use of the Jail, a 2 in. well. depth not obtained. A sewer well is in use at the residence of B. B. McCall. depth according to Ferrell, the driller, about 60 or 70 ft.

Notes on Line Oak.

A new cut in the S.-A.-L. road $\frac{1}{4}$ mi east of the difon shows the sand resting unconformably upon a greenish sandy clay with patches of red. The top 8 to 10 inches of the clay is discolored dun yellow by weathering.

Sand $1\frac{1}{2}$ to 4 ft

greenish clay with blotches of red

Sand

clay

Homosassa River.

Whalers Landing visited Dec. 3. 08.

Henry Soenecker Guide. Mr. Lawrence
 lived in 1886 2 mi south of whalers
 landing on same island. Park
 examined in front of old whaler
 house about 30 yards back from
 the landing. The rock here rises
 about 2 ft. above water at a
 stage given by guide as medium
 low. The landing is at ~~at~~ just
 inside mouth of a whaler creek ^{alt. 30 yds}
 (now brown as syles creek)
 This creek is about 2 mi from
 the Gulf. The rock is hard on
 top, but softer and much
 dissolved below. Soenecker calls
 it *clux* & *tup* & thinks this must be
 the landing. The same rock is seen ^{the}
^{mouth of the creek.}

The rock is last seen at
 Natural pier ^{2 1/2 (south) miles} ~~1 mile~~ from
 the mouth of the river. There is
 no landing there however and
 none has been.

The same rock as nearly as can
 be determined from lithologic
 characters is seen to Homosassa
 along the river. The rock lies as
 stated by Hall at a few
 horizontal or practically so. It
 slopes a little to the water edge.
 The average height above water
 is 2 to 3 ft. at one locality
 where the water had dissolved back
 into a cone as much as 1 1/2 to 2 ft.
 was seen above water.

The box sent in was taken from
 wheelers. The weight as shipped
 was 21 3 pounds.

Oil well of Crystal River
Dec. 3, 1908

The well is located about 2 miles due north. The surface level is practically the same as that of Crystal River. The surface rock here is Vicksburg limestone. The temperature of the water was found to be 87°. The pipe through which the well flows a 1½ inch pipe was elevated about 10 ft above the general surface level. The flow continued without appreciable change at this height.

The Atlantic Refining Co.

Plant at Ellentown, Fla. Office
in Philadelphia. 3144 Pennsylvania Pk.

Plant about 1 mi N. E. of Ellentown.

superintendent J. B. Etter.

visited, Dec. 4, '08.

Section of the pit. Dec 4, '08

Our section (see detailed section at 4 p. 7 H.)
about 2 ft. sand with some shells dark.

About 5 ft. of pebbles & caliche 5 ft.
material. The pebbles mostly blue.

Fuller earth stratum 7 ft. 7 ft.

The fuller earth here is light with
patches of yellow. The rock bottom
2 ft. is flatter than that above.

The top surface of the stratum is
even and approximately level. At
this locality it thins out to 2 ft. to
the east. To the west the fuller
earth stratum is reported to continue
at least a mile the limits being
not determined. To the north east
the fuller earth is brown & red
its limits being not determined.

57
 To the south the stratum for $\frac{1}{2}$ mi
 not determined beyond. The rock
 crowns the clay out between the
 pit & the plant. But the clay
 comes in again, ~~at~~ at the plant to the
 river. It is reported across the river,
 occasionally skulls are found in the
 clay especially near the top. Some
 manganese stain seen in the blue.
 Later These reports as to extent & are
 by the overseer at the pit. They are not
 very reliable. Thus only a short distance
 from the pit to the south the fullers
 earth is entirely absent, the underlying
 rock being exposed. ~~Thus~~ To the north
 the fullers earth is practically unde-
 termined.

methods of mining

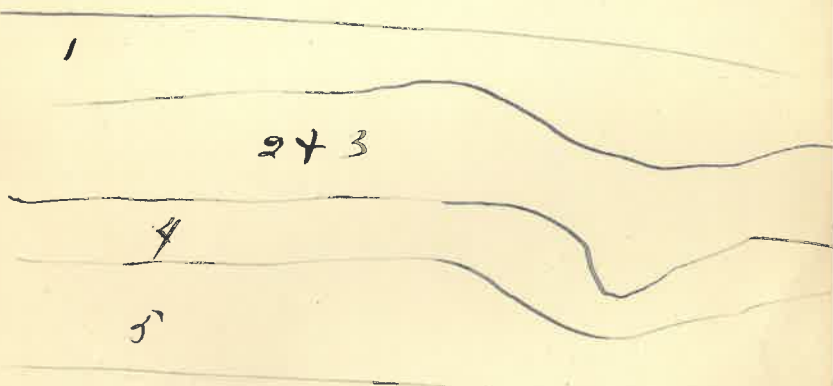
The overburden here was formerly removed by steam shovel. It is reported however to be more economical to remove the overburden by picks and shovel. The steam shovel however will be used again. The steam shovel was used experimentally for one month. The foreman states that as much as 120 cars were removed by shovel per day. The narrowness of the pit interfered with the vigorous use of steam shovel. The fuller earth is now removed by pick and shovel. 162 cars per day put out by 18 men. The earth is loaded into cars pulled to blast by cable. & returned to the track by another cable. The haul is nearly $\frac{1}{2}$ mile. This plant has been running about 7 years. The full cost of the cost of producing fuller earth is given by Ellet as \$8 per ton.

Section of pit No. 4, 08, Section No 1

- 1 Sandy dark colored soil, 1 hammer length,
- 2 bluish almost peaty, 1 hammer length,
grading into
- 3 lighter & more sandy than No 1 0 to 2 ft.
a monatee rib was taken from No 3 &
other bone ^{fragments} more seen in it
This rests irregularly upon
- 4 a sandy calcareous gravelly stratum 0-4 ft.
Fragment of a bone apparently a monatee
rib was taken from No. 4.
This grades imperceptibly into the fullers
earth & stratum. The bone fragments seem
to be most numerous just between 3 & 4.
5. Fullers earth stratum 8 to 9 ft.
The top of the stratum as seen is
initially level & is reported to be level by
the owner. This stratum is sandy at the
top, more purely clayey at the bottom.
6. A close grained mud lies under the
fullers earth.
Occasional bits of shells are seen in the mud.

Section in pit near the plant

1. Some as no 1 of last page but containing more carbonaceous matter with the sand
2. Some as last stratum above but thinner & 6 in thick
3. some as no 3 above, however
4. A gravelly stratum full of bones not separately listed in above 6 in to 1 1/2 ft.
5. The clay sandy stratum given as no 4 above
6. Fills earth.



6
my interpretation of section is that this is not
a syncline but an erosion unconformity
between 4 & 5. partly filled in by 4, more nearly by 5
and only by 6.

Section in well near the east end of the pit.

1. Sand & silt
2. This part of the section not given but reported as normal
3. Fuller's earth, stratum here medium in thickness

x Close grained more with occasional fossils.

a similar limestone is reported to have been found to the bottom of the well. Some fossils were taken from the dump, the exact depth being unknown.

This section is not more than 35 feet from the one on the preceding page.

Section at north side of pit

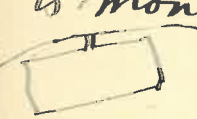
1. Same as above at $1\frac{1}{2}$ ft
- 2 & 3 but more clayey & fattier. 4 corners.
4. Brownly stratum with bones resting unevenly upon calcareous clay stratum
5. Calcareous clay stratum is much more calc. than on south side & is described by Mr. Brown as "rich" 4 & 5 ft.

b. Falles north.

See section 50 as a first match of this in which the clay is in a harder rock and from which fossils were obtained.

method of treatment.

The fuller's earth after being crushed is fed through an automatic feeder to the drying cylinder. This cylinder is perhaps 5 feet in diameter and is 30 or 40 feet long. It is made to revolve slowly. The fuller's earth is moved forward by curved ^{inclined} pieces of this shape (see action, (, this))



The temperature of the cylinder when drying is such as to permit the hand to touch it without burning. The rate of drying is given as about 30 tons earth dried in three cylinders running from 10 P. M. to 3 P. M. or about 1 ton an hour per cylinder.

The material is screened and sacked. Experiments made for Mr. Von indicated that '30 to 60' mesh is the best for clarifying mineral oils. Oil is used for fuel. Cost \$1.52 per barrel.

Section at pit from which fossils were taken

- 1 Sand and soil 1 ft.
2. A fine pebble stratum 1 to 2 ft. resting irregularly upon
3. maly limestone 10 to 2 ft.
4. Fullers earth, but the not determined.



sketch to show irregular top of the limestone in the pit with four pebble stratum above, width 10 ft. vertical $\frac{1}{2}$ in = 1 ft.

The limestone no. 3 is similar to the material lying over the fullers earth in the pit mining pit except that it is firmer & less decayed. The fossils are found in occasional hard clumps.

A part of the fossils were taken in place from about $1\frac{1}{2}$ ft from the top of the rock No. 3.

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Section at the abandoned pit of
the Columbia fuller earth company.
About 2 mi N. E. of Ellenton.

1. Surface sand and soil 1 $\frac{3}{4}$ ft.
The surface material here is loamy at
the top becoming lighter ^{in color} toward the bottom.
2. Peaty material chocolate brown at the
top grading into bluish & clayey material
at the bottom also 1 $\frac{3}{4}$ ft.
3. Bluish & calcareous clay etc 4 ft.
grading into
4. Fuller's earth reported to be 6 $\frac{1}{2}$ to 7 ft.
5. Reported more similar to that of A.B. Co.

The bony stratum ^{is} ~~was not~~
conspicuous altho a few bone
fragments were seen between
2 & 3. The no 3. is quite soft &
much so as on the south side of the
A.B. Co's pit.

Section at the Stone Quarry 75
 abt. $1\frac{1}{2}$ mi N. E. of Ellenton on river.

- | | |
|--|-------------------------|
| 1. Soil & sand | 1 to $1\frac{1}{2}$ ft. |
| 2. ^{partly} Bone pebble stratum | 6 in. |
| 3 Indurated lime clay stratum | $1\frac{1}{2}$ ft. |
| Softer maly material | $1\frac{1}{2}$ ft. |
| Limestone used for building
to the bottom of the pit. | 5 ft. |

The relation of this section to that
 in the pits is not determined.
 The section is the same as the
 bone stratum, but the lime-
 stone may be that occurring
 above the fulber rather or
 that lying below.

Summary of the Fuller's earth conditions in Manatee County as understood from an examination of the Ellenton localities Nos. 4-5.

Immediately underlying the fuller's earth stratum is a close grained mottled limestone. This limestone contains a few fossil shells preserved as moulds. Occasionally as determined from well near the pit endurated chunks or layers contain somewhat better preserved shells, molds and impressions. The top of this limestone where run was so far as could be determined level. The break between the limestone and fuller's earth is distinct, but indicates apparently merely a change of conditions and does not represent an unconformity.

The fuller's earth stratum is variable in thickness. where worked it is $6\frac{1}{2}$ to 7 ft. elsewhere it is thin ^{it may be} nothing. ~~It~~ Such an interruption of the stratum occurs between the ~~first~~ ^{east} and the west pit. The stratum is known a few miles up and several miles down the river.

above the fuller earth and ⁷⁹
 conformable with it, and in fact
 grading into it is a stratum
 variable both in thickness and
 in character. Ordinarily it is a
 calcareous, sandy, clayey stratum being
 apparently partly disintegrated by
 decay. When of this character it is $\frac{1}{2}$ to
 4 or 5 ft in thickness. Elsewhere this
 stratum is more calcareous, harder,
 more nearly an ordinary impure, nearly
 limestone 4 or 5 ft in thickness. Several
 prospect holes placed near each
 other showed in one instance the
 variation of this stratum from soft
 clayey calcareous material to a rock
 of such hardness as to be not
 profitably worked. This change occurred
 within a distance of 20 or thirty feet.
 This ~~top~~ stratum contains a few fossils
 preserved as casts and molds, like the
 limestone below the fuller earth. Occas-
 ional cherts or layers contain fossils,
 better preserved than the orange.

The top surface of this ⁸¹statum is clearly eroded uneven and represents an erosion unconformity. This is shown in every section observed, both where the statum is soft and clayey and where it is hard and ~~represents~~ has the character of a limestone.

On top of this statum is found usually a layer of ~~tones~~ and pebbles. This statum is not invariable, but traces of it can usually perhaps always be found. In some places it is of appreciable thickness of 1 to 2 ft.

Lying on the ~~base~~ ^{pebbles} statum where present, or if absent, upon the clay-lime statum is a sandy or sometimes clayey statum becoming distinctly peaty above. This statum is very if ever absent altho it varies in thickness both as to the thickness of the peat & the thickness of the clayey or sandy lower part.

Lying upon this is the usually loamy surface sand 1 to 2 ft. thick.

Miscellaneous

The ^{cut in the} Shell one or two miles south of Havana shows so far as can be seen from the train nothing more than red sandy clay indistinctly stratified. The ^{blue} clay we did not show under the red sandy clays.

The same is true of the shallow cut at Havana.

The cut beyond Havana shows only the red clay, & not the clay below.

Beyond Hilson a long grade leads down to a stream & Longturtle. This grade is one or two miles long. The clay comes in in this cut.

Beyond the turtle a moderately deep cut occurs at the bottom of this hill the clay seems to come in.

Apparently no cut of importance to the west of this to the state line a few miles beyond. A cut about 1 mile south of Hopkings gives the following section on east

side of the track.
 sandy ~~the~~ redish clay 4 or 5 ft
 clay stratum 4 ft.

This clay stratum includes
 fullers earth at the top, abt 1 ft.
 This fullers earth stratum full
 with cleavage. It is of a light
 yellow color & is free from sand.
 Below this the stratum is more
 sandy to the bottom. The
 fullers earth stratum here is
 apparently that seen at the
 top of the section of the floor.
 on the opposite side of the
 cut the clay does not show the
 red sandy strata reaching
 bottom of the cut.

Lester clay co.
 A topul guss. Ins. J. M. Vinson.
 J. H. Bonoughs.

Section on S.E. end of south pit
 1. 4 to 5 ft light colored sandy clay
 more redish above.

2. Fullers earth abt 5 ft.
3. Sandy rock. said to be abt 8 ft.
4. Some fullers earth below

An unconformity occurs between
 1 + 2.

Red sandy clay.

Fullers earth.

The dividing line between the fullers
 earth and the sandy clay is uneven.
 The clay rocks irregularly down
 into the fullers earth the division
 being marked by sharp angles.

Section at middle of south pit ⁸⁷
 sand & soil 1 1/2 ft.
 Reddish sandy clay 3 to
 Fuller earth 12 ft.

Section at middle of north pit

Red mottled sandy clay abt 7 ft.
 Parting with an even line on
 sticky blue clay lighter color &
 breaking into sandy blue
 dark blue clay at bottom 2 or 4 ft.

Fuller earth 12 ft.

sandy with stratum variable 1 ft +
 with some streaks of fuller earth

The extreme top of the fuller earth here
 breaks with cleavage & is far from sand
 Below this is a sandy stratum often too
 sandy to work. At the fuller earth
 proper the first 3 to 5 ft is contains
 some sand and is dividedly cross bedded.
 The lower 4 or 5 ft is free from sand
 & is not cross bedded.

Methods of mining

The overburden here is being removed by teams & scrapers. The upper earth after loosening by blast is broken up by picks and driven by scrapers to the car for loading.

Transport.

The fullers earth from the pit goes to the crusher. From the crusher it is dried; about 20 min being required to dry. The drive of the usual cylindrical kind being fed continuously. The heat is not such as to stand hard on the cylinder.

From the dryer the material is dumped into the storage bin, & is fed from the bottom of the bin to the or mill. From the mill it is elevated to the first sieve. This is No. 20. From No. 20 the material drops to sieve No. 30. From this it is conveyed to No. 60 & there to

No 100. These are the common 90
sized. very size desired may be
used. Cakes out of field from 10 to 140.

most of the material used is that
known as 80-60 by which is
meant fine enough to go through
No 30, but not fine enough to go through
No 60. A limited amount of
material above 100 is shipped to
fringe off cakes believed to be
used to make talcum powder.

At present the bulk of that above
100 is being stored. That between
60 & 100 is being thrown on the
dump. That coarser than 30
is being returned & reground.

This plant operates based
profits. The royalty paid is

given as 2 1/2¢ per ton.
The output from this plant
is about 20 tons per month.

The fuel used is Alabama coal for the
boilers and coke for the furnaces. Cost of coal about 4¢
per ton delivered.

Dec 16, 08.

Tallahassee to ^{Primer Junction} Quincy.

The clay is seen beneath the
Lofogetta in the cut just ^{west} south of
the Acklockum River on S.A. R.R.
or no other locality between Tallahassee
& Primer Junction was the clay seen.

The place of Lofogetta seen between
midway and Quincy is a cut where
the R.R. passes under the public road.

Section at Glen mill
Top of hill

mottled and gray sands
with light colored siliceous pebbles

Section at Rush place 1930

Formerly owned by W.H. Glenn. Sycamore, Ill.

Some fullers earth in note of hill
of spring. Reddish or orange color bedded
sand below. Not finely laminated
interbedded sand & clay layers.

Section at Park Bluff

Top of the hill, sand 2100
a cut in the road at 2090

shows a coarse red sand containing siliceous pieces up to $\frac{1}{2}$ inch in diameter. The sand here is not very firmly indurated.

The step bluff begins with red sand at 2050. The material here is a dull red.

A clay comes in at 2010. This is similar to the clay usually found here. Some stone again at 2000.

Layers of red made up largely of white siliceous pebbles of coarse boulders seen at 1975. Residual material continues down to the river. at 1910

Approaching returning River 1915

The step bluff ends at 2025

The first cut in the red sand at 2075-2100

Section at Rock Bluff.

a detailed vertical section of the north end of the bluff shows the following.

1. Chattahoochee Limestone from the water's edge
5 ft. dipping up stream to 2 ft. 5-3 ft.
2. A green sand. This sand contains
inclusions of sandy material and grades
laterally into mud 5 ft.
3. A light colored sandy mud 5 1/2 ft.
4. Light green sand 1 ft.
5. Light & grayish sands, becoming more
muddy above 8 ft.

Above this the section is covered, the exposure seen only in places. The section is best seen a little north-east of the above, where the old road cuts through "Logans Hill" there at least 35 ft of white mud is seen in a continuous section at the north end of this road - east the mud continues to the top. Farther north 10 to 15 ft. of Lafayette lies upon the mud. Just back of the detailed section the mud reaches to the top of the hill as seen in road slides.

At the middle of the bluff the 98
Chattahoochee limestone rises 10 ft. or so above
the water. This is followed by rather
compact light colored marl. The dividing
line between is not distinct. A
ledge along the limestone probably
represents the change. No oyster ^{above}
layers occurs about 6 ft. from the
ledge. This layer was traced
through the south half of the section
as lies nearly parallel in general
but follows a wavy line.
This marl contains rounded nodules.

Alum Bluff.

99

Top of bluff $\frac{1}{2}$ mile from bluff 2075
River Line 1925

Near north end of bluff

1. Chipola more dark bluish to tan
with some red. Very full of fossils 3 ft.
grading into less fossiliferous material
above.

The typical Chipola marl is first seen
at Hall's section "A. B." or near it. It is
here a yellow stained marl. full of fossils.
& stands 5 or 6 ft above the water.

The alum bluff beds here, when exposed
in clean surface, are decidedly cross
bedded and contain palm stems and
leaves.

The charophyte marl as seen
here is blue-green in color and full
of fossils. Among which large
Turritella predominate.

The aluminous clays above

are best exposed near Hall's section "C". They are often brownish gray sandy clays with a slight to decided alum taste. ~~Other~~ more clayey streaks occur which are strongly alum in taste and are usually darker in color.

Above the "Aluminous" clays the red Lafayette occurs. The contact between these two was not seen.

The Aluminous clays seen to have as seen at Plum Bluff no point of resemblance to the blue sticky clay seen under the Lafayette on the road to old Chattahoochee from R. Quaker, or on seen in the cut on the G. F. & A. near Tallahassee, or in the S. A. L. east of the Chickasaw or above Tallahassee.

100

Sections on Blue Spring Road East from Marianna.

at the hill ^{or the} 3 mile post east of Marianna. The Lafayette lies at the top but is ~~opposite~~ thin. The typical Grand Gulf sands occupy most of the hill. Near the bottom on south side of the road is seen a distinct unconformity between the Grand Gulf and a sticky blue clay below. The line of unconformity is marked by a line of pebbles siliceous Grand Gulf reflected sticky blue clay.

The limestone does not show on this hill. Beconet. rd 1805 and 1825.

The road leads across a small broad valleyed stream or branch and up a similar hill on the opposite side. The Lafayette capping is looking at this hill & the Grand Gulf near the top is written to a thin yellow sand.

Small hill 4 mi E Lafayette
bebley on top. Grand Gulf morning
the hill, no clay. Barometer 1825.
Barrel Valley follow.

Next small hill off 4 1/2 mi out.
compact Vicksburg apparently in
place in road. Barometer 1820.
Hill not steep & Lafayette only near
1/4 mi farther on Vicksburg in place
4 ft exposed. Lafayette rocks directly
upon it. Barometer, 10.25 or 1775.

Blue Springs six miles east
of Marianna comes from under
a ledge of Vicksburg. Barometer
reading at water level 1760^{or 1755} 1036^A.

The depth of the spring measured
12 1/2 to 13 ft. The flow was not
estimated but the spring is smaller
than Itchenburg str & probably
larger than McKinnis str in
Levy Co. Temperature 70°
A down a 50 ft well below the spring but this

connected the spring to escape further
down stream. The spring when well
was very low, at least 2 ft below level.

The Vicksburg here is red. full of
siliceous pebbles but lacks iron concretions.

East from the spring the limestone outcrops
to an elevation of about 1825. The
country to the still 2 mi. east is compar-
atively level. The Vicksburg is near the
surface. The well & the still reaches
this formation. It is a deep well, depth
not stated. A sink occurs about 1/2
mi west of the still. Scrub & small
oak with heavy moss and with
occasional pine trees occur to the still.
Beyond the still long leaf pine predom-
inates, also oaks & were reported to
reach to the Charlotte river.
return barometer readings. North still 1860
at the spring 1800.

Rough estimate of flow of spring
Rate of movement of flow 1 ft per sec.
Effective width of stream 80 ft
average depth 2 1/2 ft.
Hence power afforded on these estimates
subject of error at least 25% each way.

- On the public road east from Marionna 103
- (1) Rich red & yellow (of Smith) 80 y 5 ft.
 - (2) Grand Gulf (of Smith) (Bar. reading 45 ft.)
 - (3) Chatahouchee limestone
 - (4) Vicksburg limestone to water level in Bar. 50 ft.

The above measurements are found on barometer readings. The Vicksburg is the limestone used for building stone at the small quarries about Marionna. The Chatahouchee is seen on the first hill from the town. It is however, not conspicuous of persons of all on the hill between town & the river where the rock is being worked. about 15 ft exposed.

The Chatahouchee is seen again on the hill ^{wood} 1/2 mile east of river. The barometer reads here 1780 or the same as the hill near town. Lying above it is Chatahouchee here & directly upon it is a sandstone full of earth followed by Grand Gulf.

On the old N. S. Road 4 mi 104
N. E. of Marionna small hill.
Below Grand Gulf is seen a sticky blue clay with rock inclusions. These rocks are undoubtedly remnants similar to those noted above S. E. of River Junction.

At the natural bridge of the Chipole about six miles above Marionna, the river sinks under Vicksburg. The sink was sounded to a depth of 45 the bottom not reached. Back from the natural bridge on the east side the flood plain of the river is fully 1/4 mile wide terminated by a bluff of Vicksburg fully 25 ft high or more. This is the typical friable Vicksburg. Cones occur the largest being the "natural bridge cone". This is a large cone. Stalactites & stalagmites abound.

The Chipole river about 1/2 mi from the sink the concretion being similar to the sink.

Returning to Mammoth 105
check barometer readings were
as follows

Chipola river, Vicksburg. 1830

Top of 1st hill 1890

Top of Vicksburg on hill 1905

Chotobacher

8510 ft

Court House

1960.

Section

- (1) Red sandy bone. 1 foot to 5 ft.
- (2) Grand Gulf (of South) obt 45"
- (3) Chotobacher 8"
- (4) Vicksburg obt. 50"

Chipley, Jan. 13, '09

106

Going south-east from Chipley
the Vicksburg limestone is found
lying in detached pieces at places
two to 3 mi S. E. About 3 mi
S. E. Rock Hill is reached. This hill
is capped by a sandstone conglomerate, apparently the an indurated
phase of the Grand Gulf. This
sandstone stratum is 6 to 7 ft thick.
(Sample of plio taken).

Beneath the sandstone is
exposed about 20 ft of indurated
sandy clay. A lower level on
the side of the hill the ordinary
mottled Grand Gulf clay are
seen exposed in places.

Going west about 3 mi
Falling Water sink was reached.
There are a series of sinks here

107

not less than a half dozen
in a small area. The stream
at present falls into the
depth of this. The section at the
deep is about as follows.

- 1.- Grand Gulf mottled clays.
2. A sticky bluish clay appar-
ently of unusual material about
 $4\frac{1}{2}$ ft.
3. A somewhat mucky clay
limestone ~~possibly~~ phosphatic abt. 3 ft.
4. A white limestone to the
bottom of the sink about 8 ft.

The white limestone
is doubtless Vicksburg. No
fossils there were seen.
The impure limestone may
be decayed Vicksburg as may
also the grey-blue clay. Of
this however there is doubt.

The stream has cut thro
to the Vicksburg. This sink is
about 4 mi south of Chipley.

Orange Hill is eight miles
about south of Chipley. These
hills show at the base and
along the sides an orange sand
and soil. Near the top or more than
half way up the side typical
mottled clays are seen. Going
from Orange Hill P.O. to the oil
wells. Very typical Grand Gulf
is seen in the road cut. The
oil well 2 mi S.W. of Orange
Hill P.O. starts through the
Orange road & mottled clays.
It is reported to reach at 16 ft.
a block shale filled with
yellow mica flakes!

A hammock growth covers Orange Hill -

Detuniah Spgs & South east. 111

The country is slightly rolling, the streams have very sloping sides & flat bottoms.

The stream beds are broad & have a growth indicating seepage.

A yellow sand predominates. The L. forgette typical is absent or not conspicuous.

At the stream abt 6 mi from Detuniah & 1 mi from Euchee Anna P.O. Aluminous clays resting above from the bottom, then are overlaid by Grand Gulf clays. These are in places nearly free from sand, they break into very fine pieces as they weather.

At the mill 1 mi S.E. of Euchee Anna the Aluminous clay was reached at about 15 ft & the well dug into this clay about 8 ft.

At the place of Jenkinsbowne 1 1/2 mi N.E. of Euchee Anna typical choropoda mal occurs in stream bed.

112

Barometer readings

Detuniah 10 A.

Creek 1 mi west of Euchee Anna 1850
Euchee Anna 1870

Argyle 1960

Detuniah 2000

West Detuniah 2000

Norsey Head 1960

Heurmond 1940

Custnew 1910

milligan 1770

Holt 1860

Milton (Rafot) 1700

Victor depot the following morning 1733

Balt City 1770

mulat, practically down to tide level 1720

Escombria " " 1720

Gull point " " 1740

Pensacola depot

Pensacola & Vicinity Jan 10th 09

The city clay pit near the East Hill street cor line gave the following section

(1) Pleistocene sand, fine and light colored about 6 to 8 ft.
an unconformity

2. Red sandy clays. An indurated layer a half inch or so thick lies on the top due doubtless to the effect of weathering. The first two or three feet is spotted with white spots as seen at Chisox. Below this to the bottom of the pit the material is a darker red & more uniform. No white siliceous pebbles and no iron concretions seen. Sand medium fine, and nearly structureless. Pieces resembling fragments of turtle shells abundant especially in one stratum. No. 2 is abt. 8 ft.

The bluff of East Hill shows beneath the Pleistocene sand, a coarse and nearly structureless, non-indurated sand. white siliceous

pebbles abundant here. No iron stone concretions, however. No clay, or rather no clay streaks.

The pit on the "West Hill" line is similar to the one described with the following exceptions.

The Pleistocene sand is more yellow in color.

The turtle-like fragments are absent. The bedding is conspicuous, mostly fine cross bedding. Strata of pure white sand & of clay sand come in especially toward the bottom.

Section

1. Pleistocene sand, unconformity below 48 ft.
2. spotted sandy clay as above 4 ft.
Red finely cross bedded sandy clay 10 ft.
more sandy below!

McMillan Brick Co.

115

Yard at Delores $1\frac{1}{2}$ mi. N. of Molino.

The pit is being worked to a depth of about 40 ft. of this there are three prominent divisions. The top ten ft or so is reddish or mottled, without evident bedding but with some suggestion of cross bedding.

The next ten or twelve feet is a greenish light sandy clay about 10 ft thick; under this is a sandstone stratum seen entirely across the pit; The bottom stratum is ten or twelve feet and is similar in general to the one above. The formation as seen here is clearly stratified, the strata lying nearly horizontal.

The full height of the hill is about 100 ft. A spring comes out near the middle of the hill.

115

116

The clay is conveyed to the ~~mill~~ grinder by cars; after grinding it is mixed with water & put into trucks. The air from the kilns is used to air dry the bricks. Most of the kilns used are dome shaped. One up draft kiln is still in use. The clay when mixed is a buff color. When fired it is a rich red. If covered to for in burning it becomes a dark or nearly black red. (Sample taken).

Southern Brick Co. 3 mi N. of Pens
Eugene M. Wilson Sec. ^{Southern}

Brick is made from a greenish clay lying under sand. The clay is different from the rest of the pit at the N.E. corner of the pit. Here the sand is followed by several feet of laminated sand below which occurs a light colored clay, very plastic, which is reported to burn to a good fine brick. Before

crushing this clay must be dried. The fineb furs buff to white. The other clay furs buff.

Section at west side of pit
Pleistocene sand 8 to 14 ft
 Yellow-red sand with gravel ^{uncertainly} 2 1/2 to 4 ft
 Green white clay ^{Prob. union} 6 ft.

Banemough Bros (shelling doubt, ^{ful})
 have a plot at Quintette.
 This plot seems to be making the clay which furs red. Plot not visited.

Elevations	1920
Pensacola depot.	1465-
Gouldings	2050
Oline	2020-
Roberts	2005-
Quintette	
Molino	1950

Bluffs near Escambia 118
 The bluff facing Escambia Bay
 abt 1/2 mi N. of Escambia. Gives the following section.

1. Fairly indurated sands
 redish at bottom, and lighter colored
 at the top, usually slightly sloping.
 These sands do not contain iron con-
 cretions 10 ft.
2. Sand stratum containing sufficient
 clay to stand vertical and to permit
 steps to be cut into it. Rich red.
 structures, medium coarse sand 8.
3. Clays and sands, conglutinated in
 color sloping with tendency to 24 ft.

un. would be 0 to

crushing this clay must be dried. The fine turns buff to white. The other clay turns buff.

Section at west side of pit
Pleistocene sand 8 to 4 ft
 Yellow-red sand with gravel ^{unusually} 2 1/2 to 4 ft
 Green white clay ^{Prob. uncom.} 6 ft.

Banemough Bros (shelling doubt, but)
 have a plot at Quintette.
 This plot seems to be making the
 clay which turns red. Plot not
 visited.

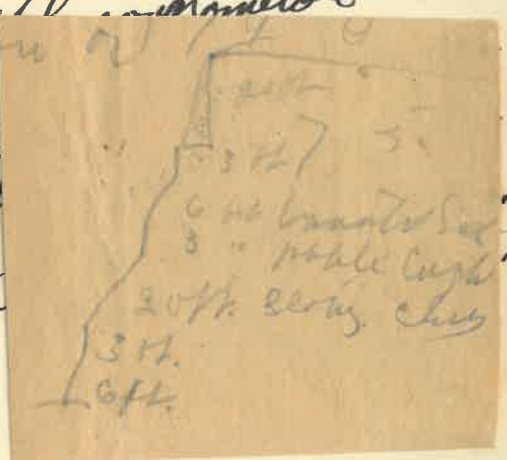
Elevations	
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Gouldings	1465-
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 steps to be cut into it. Rich red.
 structures, medium coarse sand.
3. Clays and sands, conglutinated in
 color, sloping with tendency to
 shelving 24 ft.
4. sloping to high tide level, would abt 0 ft.

at the bluff about 1/4 mi. south of Escombia the following section.

1. Sands, not indurated, medium coarse sloping. Red at bottom becoming lighter colored above 20 ft.
2. Indurated, vertical pebble conglomerate, the pebbles rounded 5 ft.
3. Laminated & variegated sands 8 to 10 "
4. & second pebble conglomerate 3 "
5. sloping variegated 3 "
6. Very fine light 3 "
7. Sandy clay 3 "



similar conditions were seen from the train in the bluff just west of Gall Point & facing Pensacola Bay. Bluffs west of there to Pensacola Bay show only sands like to 1-4 of above. A white clay was seen at bottom of bluff beyond first trail out from Pensacola.

Boyskin creek, in Florida line ranch, falls into the ponds on in pens. on land of Bill Anderson. To port J. H. Wiley & Bill Anderson.

See J. M. Morgan 1 mi. This side & turn south at Mt Pleasant church.

Vicksburg 8 or 9 mi East of Leesport on to Neals Landing on the Chesapeake.

at the bluff about $\frac{1}{4}$ mi. south
of Escambia the following section.

1. Sands, not indurated, medium coarse
sloping. Red at bottom becoming lighter
colored above 20 ft.
 2. Indurated, vertical pebble conglomerate, the pebbles rounded 5-8 ft.
 3. Laminated & variegated sands 8 to 10 "
 4. A second pebble conglomerate 3 "
 5. sloping variegated clays 2-4 "
 6. Very light pink-purple clay 3 "
 7. Sandy clay and sand 7-8 "
- 70 "

similar con-
from the train in
of Gall Point

Bay. Bluffs near town
the shore only sands like to 1-4 of above
is with the ^{dark} clay was seen at bottom of bluff
a small pink turtle out from Passocora,

120

Boyskin creek, in Florida
line farm, 7 m. into
found one in bar, on road
of Bill Anderson. Report
J. W. Wiley & Bill Anderson.

See J. M. Morgan
1 mi. this side town south of Mt. Pleasant
church.

Vicksburg 8 or 9 mi East of Greensboro
on to Neals Landing on the Charlotte.

at Willys' Landing.

now known as Blounts Landing. See p. 8

08.

This is just above the landing
is exposed as a land slide slip. The
Pine when seen was medium.
The limestone seemed to be the
chert. Not over the
probably was seen at the same
compared with the water may have
been such. The contact line was
seen here. Greenish clay into
above the chert. With and
up to above 100 yds
up stream of the
the limestone was much
here as large as 25 ft high
in places of the chert.
This is an old iron cliff.

Buck Point Fort across the river
No. 2 & importance to the Jackson State
The Wolf ~~Mount~~ Co. ^{being to stop} at ^{Haverhill}
Chambersburg, Pa. 34 1/2

measures
100
160
200
300
600
1000
1400

Gravel to the line	2025
subsoil state	2025
Gravel (large)	2010
1 st cut, 3, 10 ft	2023
1 st cut, 10 ft, 10 ft	2030
2 nd cut, 10 ft	2020
There is a formation, E.	2060
strong curve	2070
cut water clay	2070
deep cut, water sand	2070
red clay	2090
red clay	2110
Hanson station	2125
no water but clay below	2125
H. Evans	2125

Geot at ...

123

large range

1 1/2 km
Some fobby strata 6 in
Inclined line clay 1 1/2 lower
Slightly stuff 1 1/2 ft
Limestone 5 ft to 6 ft high

Section of Del Colambus

Fuller East Co 1 mi down Atlantic

1 Surface sand dunes to light below
2 lower crest

3 Partly sand to light clay 2
lower crest

3. flint clay

Total overburden approx 5 ft.

4 Fuller east approx 6 ft to 7 ft.

