

J H C M

John Kabel
Dayton, Ohio
D. Von Engelberg

J H C Martens

Note book II

2950

175

5150

663

630

797

Escambia Co

Jan 15, 1929

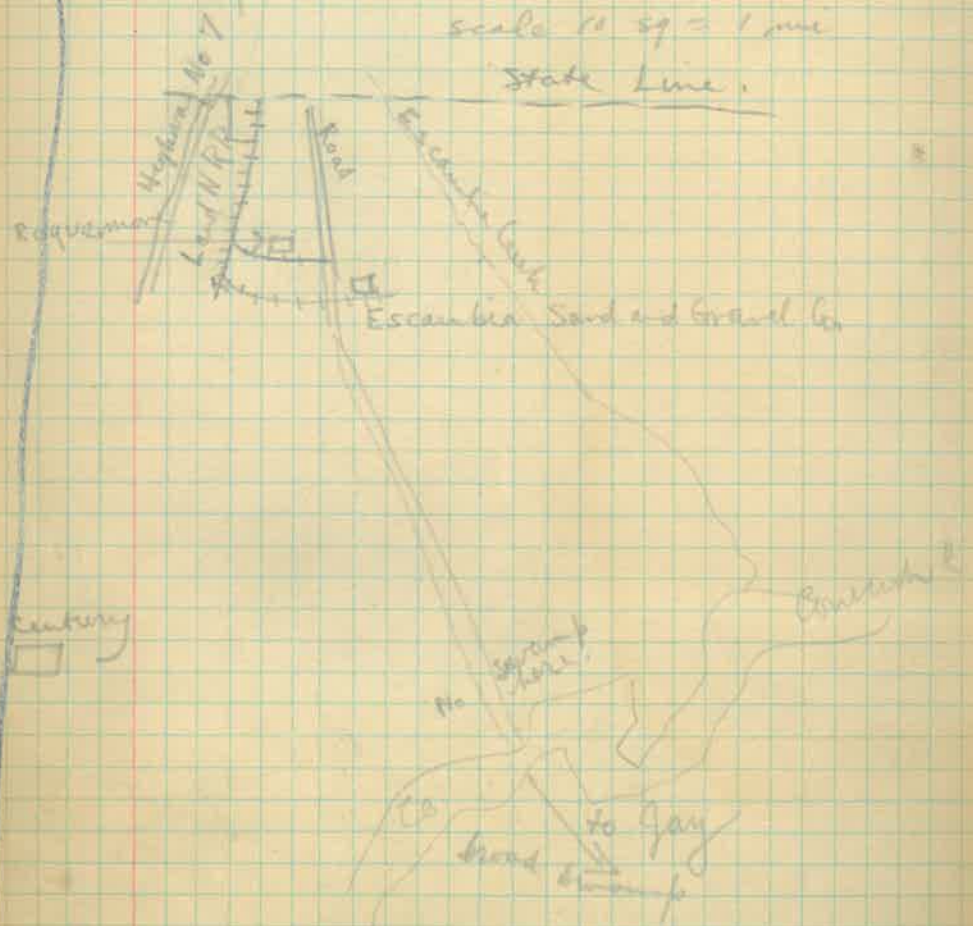
Roguemore Gravel Co.

Flomaton, Ada

A. L. James, Supt.

scale 10 sq = 1 mi

State Line.



Jan 15, 1929

Escambia Co.

Roguemore Gravel Co

The plant of the Roguemore gravel Co. is about 1/4 mile S. of State line at Flomaton. It is considered within the yard limit of Flomaton, so cars, are moved by switching engine. Escambia Sand and Gravel Co. is a little farther away and outside of yard limit so local train has to be made up to move them down.

Highway No. 7 west of the railroad is about at the edge of the valley bottom. The gravel is an alluvial deposit although perhaps it should hardly be called recent. Possibly it is the lowest terrace.

Overburden up to about 4 ft of sand with some clay and organic matter removed with drag line. Upper part of sand as exposed is stained yellow but much of that dredged from lower down is white. All quartz and chert with some blue. Rather fine gravel is fine. Sand is 3.5 ft thick with clay and sand below it. Occasional lumps of clay and pieces of cypress wood are found.

Featuring dredge with about 10 men suction. Well built modern washing and screening plant.

Most of sand is wasted since there is no market for it. Plant not in operation today.

Jan 15,
Escambia Co.

C.H. Harrell - Escambia Sand and Gravel Co. 4

Clay floor below sand practically
level below sand and gravel
about 20 ft below Escambia
Creek

About 28 ft down to clay in
higher parts of bottom land.
Very fine sand in top part of
clay. Clay is light blue.

Pyma does not occur in
any definite layer but rather in
isolated lumps. Not near
surface.

The gravel underlies what is undoubtedly
an alluvial flat. Partly fine wood partly
open field and part. barrens. Nearly
all of the deposit is below present
high water level of the Escambia
Creek although a part of the deposit
is so high that it is probably
unflowed rarely if at all. The
train of Thompson is on this alluvial
flat and ditches frequently show fine
gravel. On west side of Escambia R.
near road from Century to Jayx
are more outcroppings of gravel, but
part with somewhat clayey matrix.

Jan 15.

Santa Rosa Co.

Gaylor Dead River - Slough on east
side Escambia River - the before
the Century and Century.

Alluvial clay on Escambia R. bottom
land on crossing from Century to Jayx.

Starting up hill on east side
of river small outcrop of gray clay
moderately sand. Probably Choctaw
hatchee, covered with sand & looks
like clay worked at Molino.

Not road gully in
which siltside with alluvial fan
built out into Gaylor Dead River
outcrop of what appears to be
the same clay as in the road.

A little higher up the gully
an extremely plastic gray clay.

Still higher up considerably
coarse sand with some fine gravel.
I am inclined to think some of this
is far less later than real lithomarge
although it may be a part of it.

Jan 15,
Escambia Co.

Mud weathered
red clay of sand

Century
River
Mud weathered
red clay of sand

Century
River
Mud weathered
red clay of sand

Hypothetical Section Across Escambia R
Valley in northern part of Escambia Co.

Jan 15.
Escambia Co.

$\frac{1}{2}$ mi S of Century on highway No 7
cut going up hill south of a
small creek exposes clay in
gray mottled with brown. Contain
some fine sand. Looks like the
Molok clay (less weathered portion)

Max thickness of clay exposed
6 ft. It is unconformably
overlaid by red sand (or brown)
containing lenses of clay and
gravel and platy masses of
limonite sandstone

0-175

sand and gravel
with little clay
Citronella
clay
Road

Maximum overburden of clay
about 5 ft of running up
to 12 ft or more.

W. H. Wiggins, owner.

Jan 15.
Escambia Co.
Bluff Springs.

Out to bank of Escambia R. 1 mile
E of Bluff Springs. Most
the distance over alluvial deposit
higher than swamp and 5 or 6
ft above the present moderately
high stage of river, but not
above highest flood stage. Mapped as
Norfolk Sand soil.

On alluvial flat $\frac{1}{4}$ to $\frac{1}{2}$ mi
E of Bluff Springs considerable
amount of shallow excavation for
sand and fine gravel.

The principal bluff at Bluff Springs
has its north or upstream end
a few hundred feet south of the
station on the outside of a sharp
bend in the river. At the
north end of the bluff the river
comes fairly close to the beginning
of the slope into the upland.
Most of the way along the
bluff however the land is nearly
level, shown as NPS on soil
map. Wooded with mixed pine
and small oak. A
section near middle (highest)
part of bluff.

Orange sand, slightly clayey, few pebbles
gray clay somewhat mottled
yellowish sand
gray clay under water only a
few inches in sight.

Max height of bluff at present
fairly high stage of river is
43 ft. The section varies

Jan 15.
Escambia Co.
Bluff Springs.

greatly from one part of the
bluff to another with varying
amounts of orange sand (a little)
gray clay and pebbly sand.
Sand and clay usually with
considerable content of silt and
fine sand. I do not think
this deposit is as old as
Citronella formation but is not
a deposit from upstream floods
of the present river, then the
lowest Pleistocene terrace of any

Point of land across the river
does not look much of spring
swamp but shows some white
sand at the edge of the woods.

Gray - Spring 0.8 mi S. of
Bluff Springs. Just E. of highway.
Several springs in broad head,
shut banks of red sand.
No outcrop of what the spring
is coming out of.

Canoe Creek - crosses a highway
no 7 between Bluff Springs
and the David Creek valley
is deeply cut in. On both
sides of valley along road on
both sides of valley show rich
dark yellow sand with small
pebbles.

Jan 15
Escambia Co,

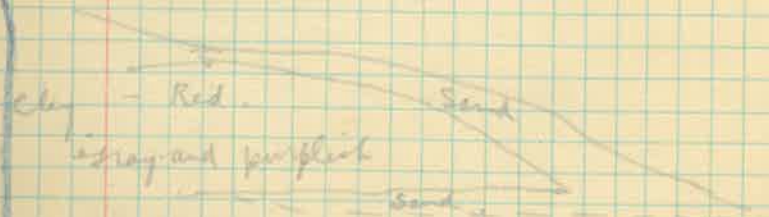
Two miles N of McDavid
road cut shows outcrop of
clay lens in Citronelle formation
sand beneath it. Little over-
burden

10

Escambia Co,

Jan 16,

2 1/2 mi ~~to~~ WSW of Titonaton
was probably about 2 mi W of a
little N of west from Century going
down hill to creek. ~~Barro's~~ White
or a breccia of it. Outcrop of clay
lens in Citronelle formation.
Max thickness 6 ft. Orange
sand below and most of the
way above. Very small natural
outcrop.



Cuts and breccias in the same
was as the Citronelle. ~~Chap on~~
Escambia Bay. ~~It is not the same~~ formation as the
clay sampled near Mr. Wiggins house.

6.8 mi cross roads turned W
8.6 mi from Titonaton cross Canoe
Creek on road from Century to Bratt
and Titonaton.

Jan 16.
Escambia Co,

Canoe Creek

12

On S side of Canoe Creek just
upstream from crossing of road from
Century to Bratt is ballistical lens
at mouth of gully. The sand has
been pushed out into the creek
in such large quantities that
it is likely to change its course
slightly. Gully goes back 2 miles
into other side. Cut mostly
in orange sand some of which is
Citronelle formation in place and
some hills to west of it. The
highest cliff shows alternating
layers of white and orange sand
with a thin streak of clay.

7 15.6 mi cross roads and store at
Bratt.

22.7 mi from Titonaton to
main part of Titonaton.

24.6 mi
6.1.6 mi Walnut Hill

Jan 16,
Atmore, Ala.

13

6 mi W of Atmore on main
highway, crossing Perdido R.
Here the river bottom is swampy
and common ~~part~~ is part of
the swamp. They are growing
in the middle of it. No
opportunity to get any good
samples of alluvial sediments.

On lower part of hill side
W of river bottom pit shows
10 ft coarse sand with streaks
of clay and fine gravel. Citronella
formation. No sign of Miocene
clay outcropping.

Jan 16,
Escambia Co.
McKinnonville

77.5

C-176 Clay Citronella formation
near bottom of hill on E side
Boggy Creek P.B. mt W of
McKinnonville x

Outcrop in roadside gully.
Max thickness exposed 5 ft.
It is on downhill side of
outcrop due to erosion.
Plumbeous overburden 2-3 ft.
where clay comes nearest to
surface probably two to four feet
overburden. Much more if it
goes back into hill. Orange
fabbles sand directly above clay
in part hillside west and
in part Citronella formation in
place x

Clay is light gray and light
brown mottled. Mostly brown
where most weathered x

A short distance up hill side
from clay outcrop is small gravel
pit. No continuous section from
there. Two the clay but no doubt
they belong to the same series.
Late fabbles up to $3\frac{1}{4}$ inches.
Two thin layers of laminar
conglomerate.

14

Jan 16
Escambia Co.
McKinnonville.

78.3

15

Long cut on Bruce R.R. extending
S. from McKinnonville. Much
or more gives good indication of
way Citronella weathers in the
nearly level to gently sloping areas.
Through most of the length of the
cut there is some mottled, very sandy
clay from about 3 ft depth down to
about 10 ft. Most of material in sight is orange
sand. Near S. end of cut is
a lens of red clay, in less
weathered portion showing.
unconformable contact both above
and below. More thickness 4 ft.
More red than clay of No C-176,
but this is probably the result of
different weathering.

Near center of section 33 (assuming
road on soil map as at present) outcrop
of Citronella formation clay on road from
Barrman Park to McKinnonville just
west of crossing a fairly good sized
creek shown but not named on the
map x

Jan 17

Escambia Co.

Century to McDavid

16

Century

0.3 mi S. of principal road intersecting on N. slope of hill. Black sand shows in bottom of roadside ditch. This 14 ft below natural surface of ground.

Clay layer immediately above it has apparently protected it from oxidation. Rest of underlying material is yellow, grayish yellow and orange sand with 50 lb. thin clay layers in lower part.

3.4 mi S. of Century road turns off to Bluff Springs

5.2 mi S. of Century passing Land Creek. This has deep valley, but gulches and cut banks show no clay, only orange and yellow sand with shingles.

6.2 mi S. of Century crossing small branch.

6.9 mi S. of Century clay outcrop in road cut. The road is here on the side of the Escambia valley and cuts through a small nose projecting between two smaller branch valleys not deeply cut in.



Jan 16.

Escambia Co.

6.9 mi S. of Century

17

(continuation) Clay does not show much on east or down hill side of road where most of it has apparently been eroded, Citronelle formation.

Lower part mottled light gray and yellow with spots of red. Upper weathered horizon reddish brown. Clay exposure extends 100 ft along road. Beyond this in direction of ridge it has been eroded away. Scarcely any overburden except top soil.



Thin layers of limonite ss: yellow and light gray sand with thin streaks of clay. bottom of cut.

9.1 mi S. Century - McDavid (ste)

9.3 mi S. Century going up hill south of McDavid, cut in Citronelle formation on roadside shows two foot layer of flakey very fine grained clay - light gray, streaked with dark red. 18 ft clayey sand overburden. More sand below.

10.7 mi S. Century
12.9 mi S. Century - N. side of at growing more prominently above Citronelle.

Jan 17

Escambia Co.

2.8 mi N of Pine Bark Creek. Highway no 7

18

{ 13.4 mi S. of Century
2.8 mi N of Pine Bark Creek. Main highway cuts through a "nose" which projects from the upland into the side of the valley, considerably below the top of the upland. Very good section showing unconformable relation of Miocene clay and overlying Citronelle deposits. Best and deepest cut is 400 ft long. 400 ft to N of N end of it another cut similarly situated between two branches but at a little higher elevation. This 400 ft long, N N



Slight sag where road curves higher on W than on east side. Scale 1 sq = 200 ft.

Jan 16
Escambia Co.

(continued)

1310 mi S. of Lansing

Section at highest part of E side of cut

19

- Soil. - loam
Clay, mottled dark red, gray
and yellow, almost all
uniform brown at top where
most weathered
- 0-177 1 ft.
4 ft.
0-178 Sand, fine clayey, orange
streaked and spotted with
yellow and gray
3 ft.
0-179 Clay, mottled brown and
light gray
12 ft.
0-180

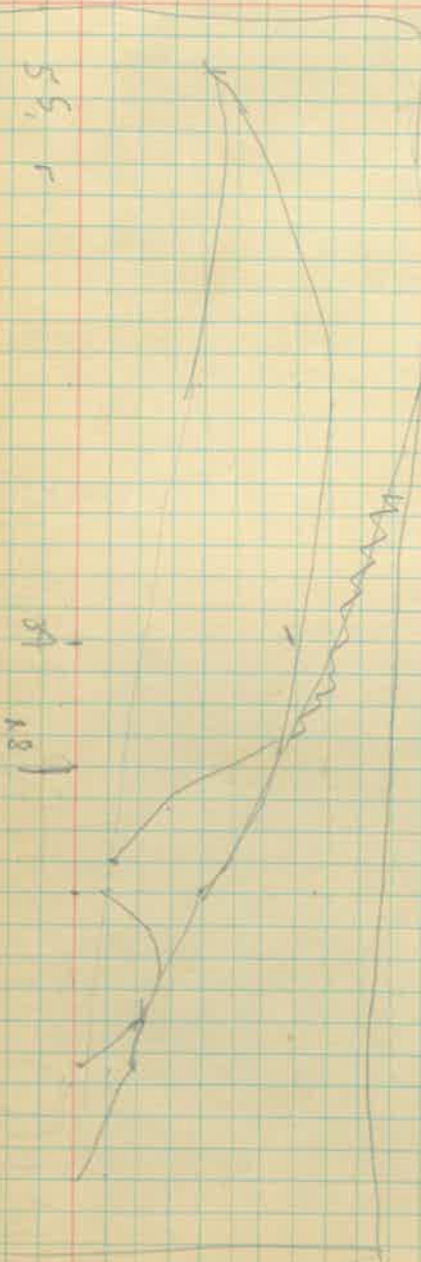
0-179 represents the upper 6 ft.
and 0-180 the lower 6 ft. of the
clay. This is tough and compact
fairly uniform in appearance but
some variation in amount of
sand and some in proportion
of gray and brown colors.

Eroded uneven surface of
Choctawhatchee clay was covered
by Eutawville formation which
follows it except in the
middle part of the cut.

Toward north end there is some
clay in the part of the Eutawville
just above the unconformity.
Weathering has affected the clay
in so nearly the same way that
in places that exact contacts can
hardly be seen.

55 ft

18 ft

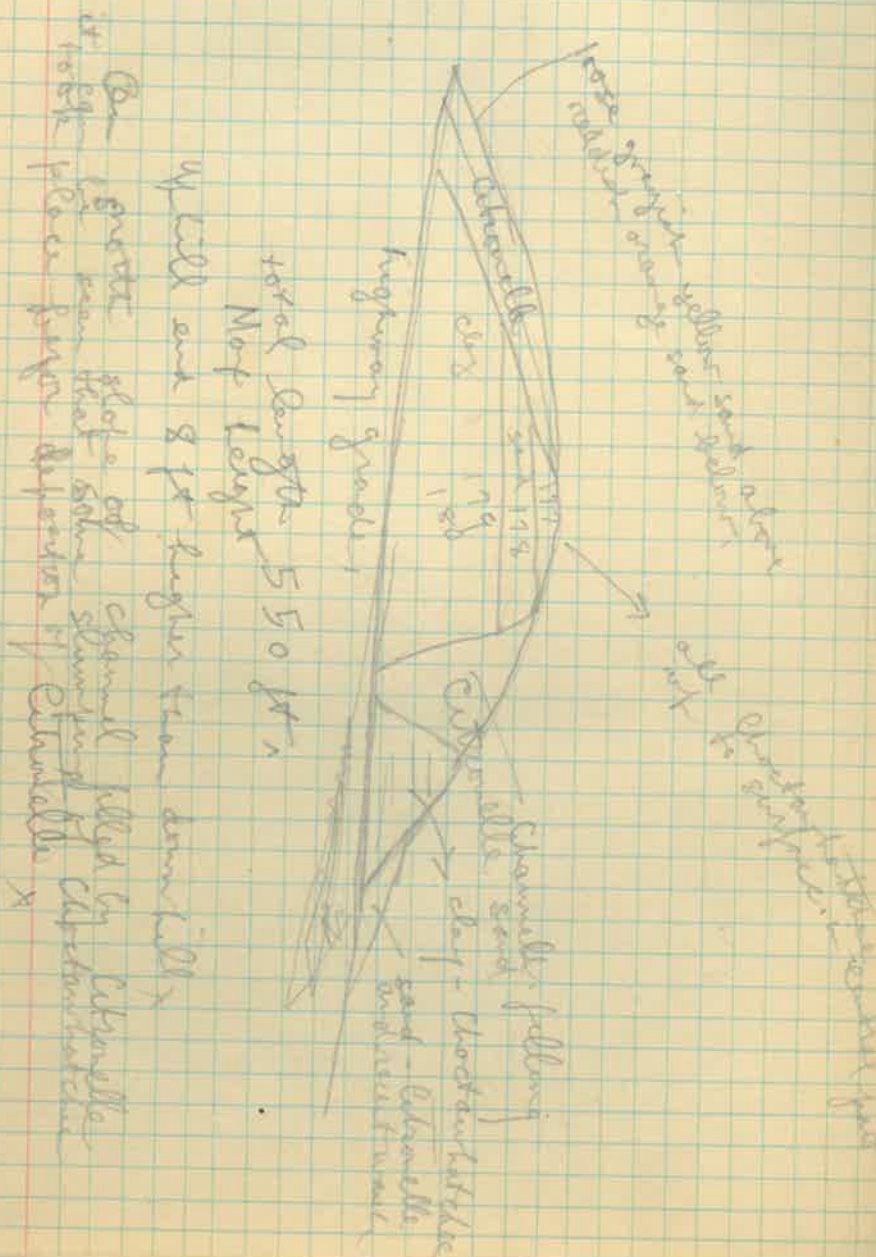


20

Jan 17
Escambia Co

2.8 mi N of Pine Barren Creek
on highway No. 7

21



Jan 18.
Escambia Co.
Pine Barren

13.0 mi S. of Century.

22

2.8 N of Pine Barren.
on S. end of next cut to north
400 ft from N end of this one
another small hill of Choctawhatchee
clay, covered completely by sand
of & Citronelle except where
disclosed in road cut

15.8 mi Pine Barren Creek and road
turning off east of highway to Pine
Barren.

Along highway about 1/2 mi N of
Pine Barren Creek several small cuts
in weathered red clay. Perhaps
Choctawhatchee. Some it looks fairly
uniform.

1.2 mi N of Pine Barren Creek

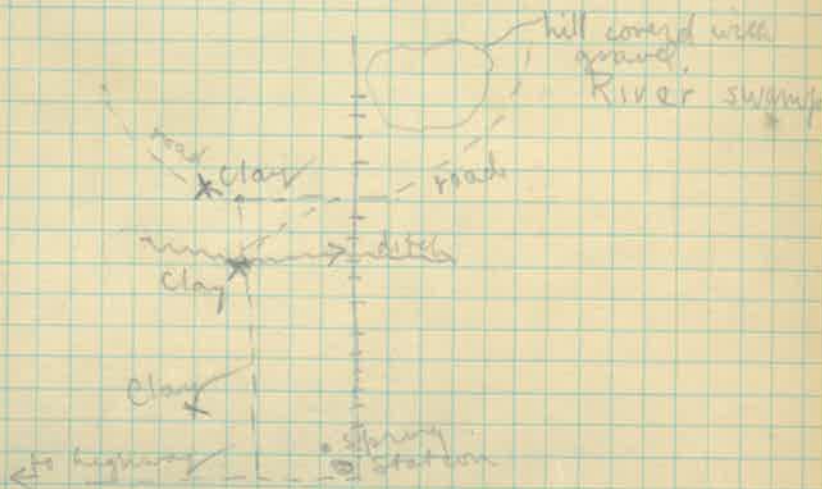
Small creek or branch. Only
disclosed formation shows on sides of
its valley.

Jan 17

Pine Barren

23

walked north along RR track
to 3500 ft N of Station.
The railroad approximately marks
the bottom of the slope of the West
side of the valley.



About 1000 ft N of Pine Barren Station on
east side of RR clay outcrops along
road side ditch and in wet weather
watercourse crossing road. Waterfall
4 ft high over it, partly held up by
roots.

About 1/4 mi of Pine Barren Sta on
E side of RR a hill somewhat detached
from rest of upland by a small valley
through which the RR runs. Area
4 or 5 acres. Rises 30 or 35 ft above
river swamp. Mostly covered by
grass up to about 3/4 mi. diameter.
A considerable part of the way
around a little below the top of
the hill, a hard ledge of

Jan 17.
Escambia Co
Pine Barren

24

conglomerate cemented with
limonite outcrops. This shows
a parallel structure of somewhat
poorly defined groves and ridges
or "fluting". This runs approx-
E-W.

Artesian well

at Pine Barren Station,
it is in very flat alluvial land but the
hillside is only 300 ft or so to NW.
Has been enclosed in brick wall and
now runs a few inches above the
surface of the ground. Pebbly sand
on surface. Perhaps a sort of
alluvial fan of Pine Barren Creek
although I do not think it is now
subject to overflow.

at (Mac Millan ~~Barren~~) abandoned pit
just S. of S. side of swamp of Pine
Barren Creek extends along E. side
of railroad for several hundred feet.
In nearly flat land which here
extends about 1/2 mile (estimated
by eye) to W. of RR and E. as far
as the main river swamp. Here
10 ft or so above Pine Barren Creek,
pit is mostly 5 to 7 ft deep.
Some has water in bottom and may
be deeper. Pit has fine and
sandy trees growing in it up to
6 or 8 inches in diameter and
banks on mostly overgrown. In the
some of the places where the clay
is exposed it comes to the
surface except for cover of thin
loam soil in other places.
Pebbly sand above the clay

Jan 17
Escambia Co.

25

Some unfurnish brick remain.
It can be seen that the material
used varied considerably and was
poorly mixed. Some brick are mostly
sand with only enough clay to bind
it together. Others which are
mostly clay with only a little fine
sand have a distinctly laminated
structure.

157 ft. artesian well at Mr. Brammon's
residence. He has no record of
formations passed through. Shallow
wells get water at 20 ft. or less in
bottom of valley.

Mr. Brammon thinks the clay outcrops
on the hillside described on p. 123
are the same formations as worked
at Molino.

Jan 17 Escambia Co.
(notes of last three days
dated incorrectly by one day)

Pine Barren.

26

Hill just north of valley of
Pine Barren Creek and west of R.R.
and Escambia River Bottoms.
Many small exposures of clay on the
east and south slopes. Numerous
cabbage springs and patches of
hammock vegetation are a further
indication of the presence of clay.
Top of hill is covered with
pebbly sand, Citronelle formation.

At place on hillside where natural
bank of 6 ft. was already exposed, dig
with post hole auger at 1 foot
getting total section as follows.

- | | | |
|-------|--|-------|
| | Top soil, sandy loam with few pebbles | 1 ft. |
| 0-182 | Clay, mostly yellow | 3 ft. |
| 0-183 | Clay, gray spotted or mottled with red | 5 ft. |

The bottom of the clay was not reached.
It got very rough a little below
surface. 0-182 is simply the
weather portion of the clay below.
More friable and sandy.

Jan 17 Escambia Co.

27

4.0 mi NW of Pine Barren
on land of ~~Triffin~~ (McMillan Mill Co.)
Pine Barren Creek.



Section in gully about where it
crosses the road.

- | | | |
|--------|--|---------------|
| on 185 | Black muck | 3 ft. present |
| | Light gray pebbly sand | 4 ft. full |
| | Shiftery clay, light gray
with brown staining along cracks | 6 ft. |
| | Exposed for a few hundred
feet along the gully and its
branches. | |

The stream surface has formed the
gully is that shown on the soil map
crossing the road near center of section 6
T. 3N. R. 31 W.
Followed the gully down to where it
enters Pine Barren Creek, not quite
1/2 mi. It gradually decreases in depth.
The muck on the surface on the
walls of the gully shows that until
recent rapid down cutting started
the bottom of the valley was swampy.
The pebbly sand is also classed with
the recent alluvium. The clay
is probably Miocene but doubtful.
Further down the gully toward
Pine Barren Creek sand, clay,
limonite ss and conglomerate are
cut into below the recent alluvium.
Reddish clay shows on the surface.

Jan 17

4.0 mi NW of Pine Barren 28
at the roadside 600 ft or so SE
and a little up the hill from where the
sample was taken at the ridge



According to Mr. Brammon the McMullan
mill Co. owns 40,000 acres extending
from Pine Barren NW toward Alton.

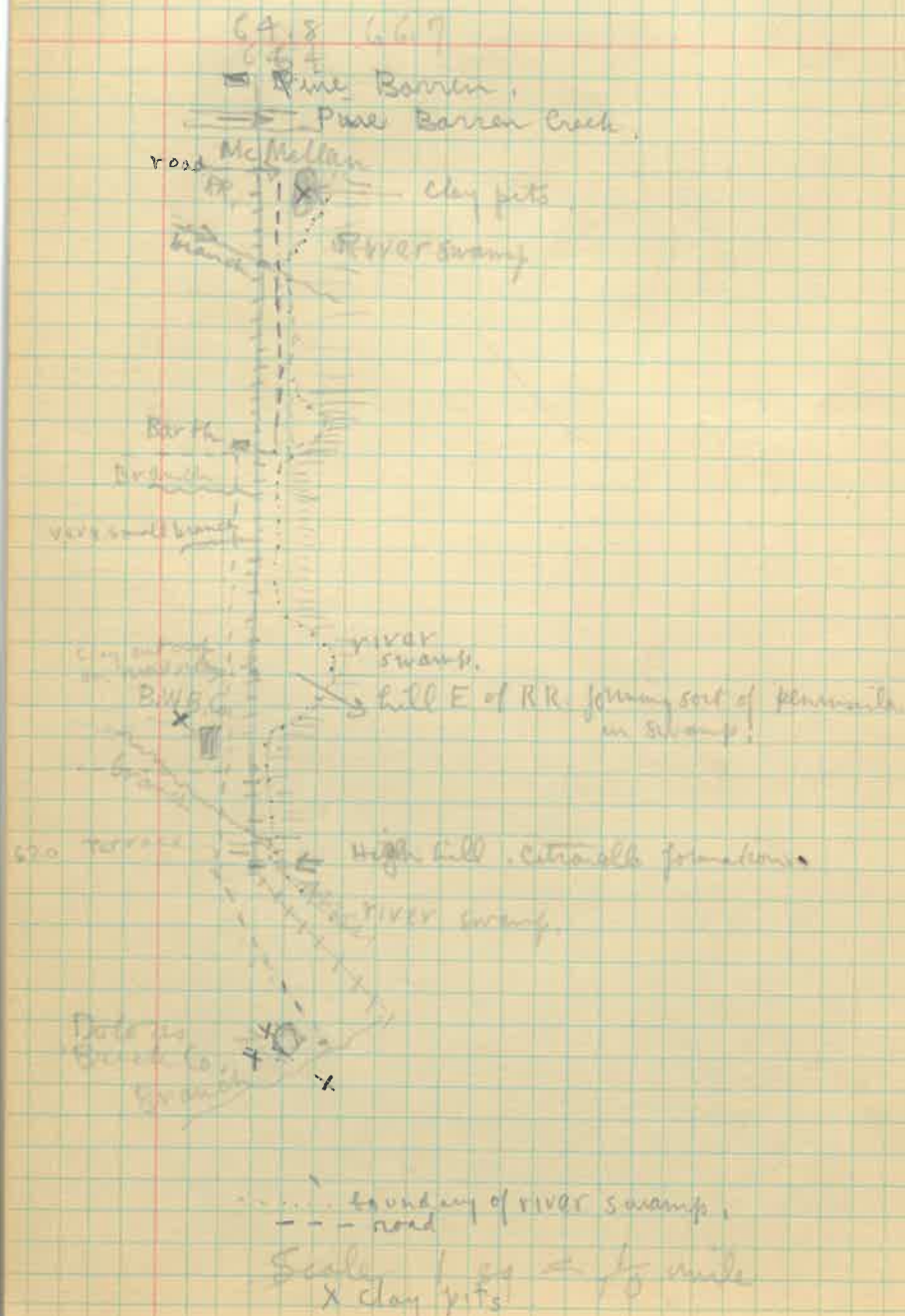
Immediately E of highway at foot
of hillside on S. side Pine Barren
Creek, brown pit in Citronelle formation
mostly yellow sand with thin layers
of clay.

0-186 Clay.

Old pit of McMullan Brick Co.
See p 24

Represent 4 ft of bank below 1 ft of
soil. Show no bedding & sand part
of bank show streaks of yellowish
plastic clay. The sample for a
large proportion of sand, but in some
places the bank shows still more.
Workings extend for more than 1/2 mi
parallel to R.R. There is a lot of
fairly regular shape and in some of clay
being micaceous chert nodules.

Pine Barren to Dolores



29

Jan 17

Barren

Crossing branch 200 ft S of
station 215 section of Citronelle
sand, clay, and gravel. Bottom
it is hardly more than 10 ft above
the river swamp.

Build With Brick Co.

E side of pit near north end
about 300 ft N of where samples were
taken section as follows

- ① Soil - gray loam 8 in.
- ② Clay reddish brown 2 feet
- ③ Grading down into clay
mottled red, gray and yellow (mostly yellow) 1 1/2 feet
- ④ Fine clayey sand in part
gray and brown mottled and in
part solid brown. 3 feet
- ⑤ Clay mottled gray and
brown 7 feet

Sand on W side of pit is sloping
down toward branch valley.
Some places on W bank micaceous
clay can be seen overlain in some
places by pebbly reddish
sand of Citronelle.
Some limonite concretions lie in the
sand. Chert nodules clay, so there
can not be taken as any particular
mark of Citronelle formation.

30

Jan 17 Es cambo ca Co.

Dolores.

31

Between Buildwith Brick Co and Dolores Brick Co. (2.2 mi S of McMillan) a hill rises sharply to height of 60 or 70 ft directly west of the river swamp, in places the R.R. is cut into the base of it.

Citronelle



In the valley of the branch just north of this hill and immediately S of Brickyard of Buildwith Brick Co. is what I am reasonably sure is a terrace deposit of feldty sand.

Citronelle



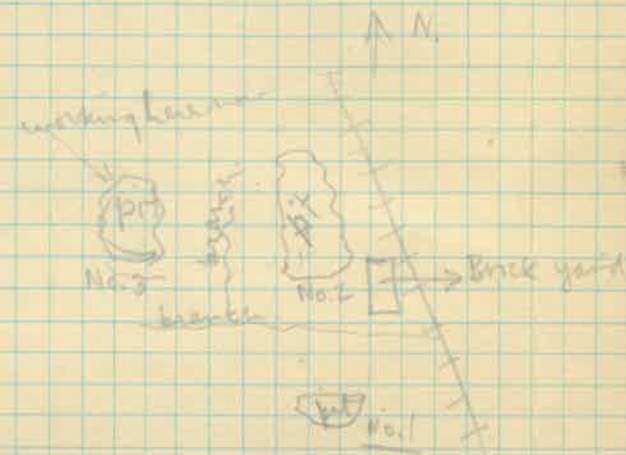
A gully near the R.R. cut referred to above, but higher up hillside shows only Citronelle formation to depth of 12 ft or more.

Jan 17 Es cambo ca Co.

Dolores Brick Co.

32

Brickyard is just N of second stream to N of. Noted shown on soil map. One pit is S of this stream or branch and the other north.



Citronelle



In places there is a thin cover of coarse reddish feldty sand of Citronelle formation in the back of the pits as worked. More often only a foot or so of soil consisting of residual material from the clay mixed with wash from the Citronelle formation. One of the distinguishing characteristics is the absence of pebbles and coarse sand from the bottom of the hill, also.

Jan 17 Es cambo ca Co.
Dolores Brick Co.

33

there is much more clay and really fine sand than in the Citronelle formation.

Section in pit worked at present labelled No 3 on sketch map

- 0-187 (1) Soil already removed, feldty and sandy loam or loamy sand 1 ft
- 0-187 (2) Clay, weathered fairly, pebble mostly reddish brown. Some of lower part is mottled brown, yellow and gray. 3 ft
- 0-188 (3) Clay tough, not so much weathered, mottled brown (red) yellow and gray 5 to 6 ft
- 0-189 (4) Sand - 8 inches
- 0-189 (5) Clay very tough although sandy, mostly clay mottled somewhat with brown in upper part. Bottom not exposed. 4 ft.

Neither of the pits on the hillside north of the small creek or branch increases very much in depth as it is worked back into the hillside, the maximum working face being about 15 ft and often as low as 10 or 12 ft. The result is that different parts of the pit are at different stratigraphic levels. The section and samples as above were taken at near the part farthest up the hillside. One corner, which goes back a little higher yet into the hill, has a column of coarse red sand of Citronelle for and some play limonitic sandstone.

Jan 17

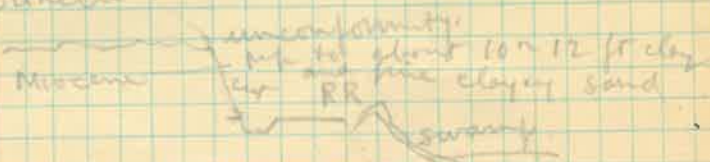
Es cambla Co.

Dolores.

31

Between Buildwith Branch Co and Dolores Brick Co. (2.2 mi S of McMillan) a hill runs steeply to height of 60 or 70 ft directly west of the river swamp, in places the R.R. is cut into the west of it.

Citronelle



In the valley of the branch just north of this hill and immediately S of Brickyard of Buildwith Brick Co. is what I am reasonably sure is a terrace deposit of feldsy sand.

Citronelle

Terrace

Recent

A gully near the R.R. cuts referred to above, but higher up hillside shows only Citronelle formation to depth of 12 ft or more.

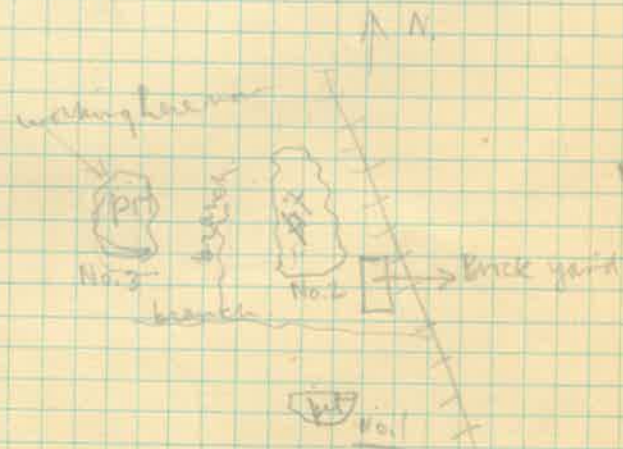
Jan 17

Es cambla Co.

Dolores Brick Co.

32

Brickyard is just N of second stream to N of. Motord shown on soil map. One pit is S of this stream on branch and the other north.



Citronelle

Miocene clay formation

pit No. 1

Terrace

pit No. 2

In places there is a thin cover of coarse reddish feldsy sand of Citronelle formation in the back of the pit as worked. More often only a foot or so of soil consisting of residual material from the clay mixed with wash from the Citronelle formation. One of the distinguishing characteristics is the absence of pebbles and coarse sand from the teleconglomerate, also.

Jan 17

Es cambla Co.

Dolores Brick Co.

33

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Section in pit worked at present labelled No. 3 on sketch map

- 0-187 ① Soil already removed, feldsy and sandy loam or loamy sand. 1 ft.
 ② Clay, weathered fairly, pebbles mostly reddish, brown. Some of loam part is mottled brown, yellow and gray. 3 ft.
 0-188 ③ Clay, tough, not so common weathered, mottled brown (red) yellow and gray. 5 to 6 ft.
 ④ Sand - 8 inches.
 0-189 ⑤ Clay very tough, although sandy, mostly gray mottled some gray with brown in upper part. 4 ft.
 Bottom not exposed.

Neither of the pits on the hillside north of the small creek or branch increases very much in depth as it is worked back into the hillside, the maximum working face being about 15 ft and often as low as 10 or 12 ft. The result is that different parts of the pit are at different stratigraphic levels. The section and samples as above were taken at near the part farthest up the hillside. One corner which goes back a little higher yet into the hill, has a cap of coarse red sand of Citronelle formation and some platy limonitic sandstone.

Small bag of sand.
clay at 11 or 12 ft depth

0-187
188
189
190

Jan 17

Escambia Co.
Dolores Brick Co.

soil with some pebbles.
sandy weathered reddish brown clay
alternating clay and fine
layers sand, clay and
mottled

34

Bedding shows in less weathered
clay where any considerable bank is
exposed but reddish brown weathered
clay shows no bedding

5150 Sand, (4) of section on p 33.
8 inch layer about 10 ft below surface

5151 Clay sand, (5) of section on p 33.
Selected as less weathered appearing
from about 12 ft below surface.

The highest bank exposed is that on
the south side of the small creek or
branch. This was worked before
the present management took control
and is presumably the one which Bell says
I would estimate the maximum
height of nearly vertical bank as
30 to 35 ft and taking the larger
figure which I think is too much
and adding 5 ft as a reasonable amount
to have been filled in at the bottom by
recent work, would give 40 ft as the
absolute maximum.

Jan 18

Santa Rosa Co.

35

There is a large amount of clay
on the Escambia River bottom land
in Santa Rosa and Escambia Counties.
However it is not very favorably situated
for exploitation. Heavily wooded and
subject to annual overflow. The river
carries large amounts of sand and
the clay is rather sandy so it must
take considerable prospecting to find a
single deposit large enough. Crossing
river bottom on road from Blanton
and Century to Jay alluvial deposits
are exposed in roadside ditches which
however are partly filled with water.
The highest part of the real bottom
land is only about 3 ft above present
water level.

- Way 6.3
8.22 fork in road took left hand one
8.5 to 9.5 going around north side of head
of head stream with several small lower
valleys flowing in general southerly direction.
10.05 Crossed fork stream. No high land
10.12 between along road. Eastern one is
larger. Presumably the best.
14.4 crossing small creek with deep valley
filled places. White sand pebbles
sand, fine gray clay and granitic
conglomerate of Citronelle formation.
15.8 crossing main grade of Blanton-Century
road.
17.3 straight through right angle cross
roads.
19.4 bridge.
21.2 East Branch Coldwater. This is
the same place as I crossed it
in December.

Jan 18

Santa Rosa Co.

36

2.5 mi S. of Munson on road
to Milton bluff on N (or E)
side of Juniper Creek, about 20 ft
high. Citronelle formation
sand, fine gravel and clay but no
considerable amount of clay.

Bars of white sand along creek.
Fine gravel in beds.
Cut banks in alluvial flat show
some clay but I doubt if thickness
and uniformity is such as to give it any
commercial importance.

37.3

Out of Munson to NE on
graded road - Sweetwater Creek is
crossed at 1.2 mi.
Flood plain of the creek has little
swamp where the road crosses.
Creek flows through high banks of
alluvial material mostly sand.
Many arborescent trees below to water.

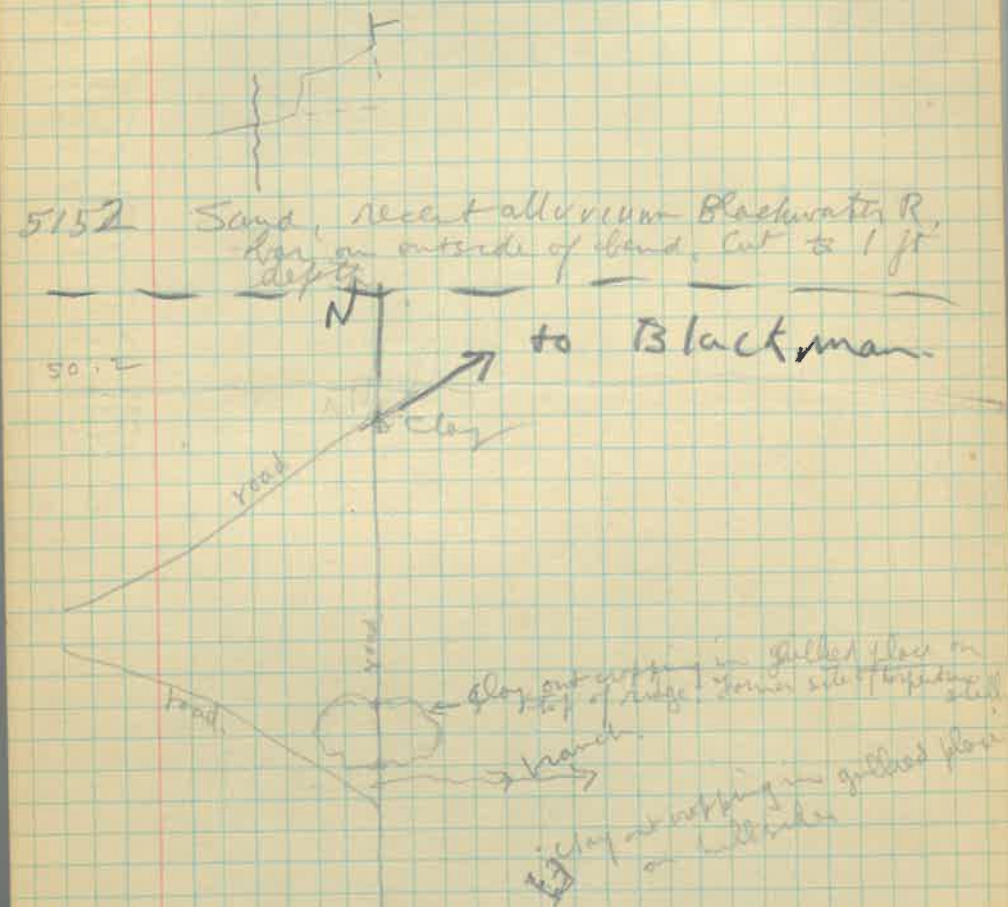
At 2.6 mi a little N of E from Munson
road divides. Took the northern one
going partly north and partly east for
4.11 mi through out over lands on
semi-graded road until coming out
on what seems a little more travelled
road in country with a few farms.
Turned north for a few tenths of a mile
then east. Can look across broad
valley of Blackwater Creek. Sullies
in sand of Citronelle formation about
a mile head.

(40.0)

Jan 18

Okaloosa Co.

37

Clay
8-191

Scale 1 in = 50 ft.

Road side bank - cut to 4 ft
depth. Here the overburden has all
been washed away.

Deepest exposure is in the gully
east of the road on the south
side of the branch. There is

Jan 18

Okaloosa Co

38

five feet of clay with $1\frac{1}{2}$ ft orange
sand overburden. This sand is
somewhat clayey and part of it
could probably be mixed with
the clay. The clay is mostly reddish brown.
Deepest and least weathered parts
gray and rather bright red, showing
some lamination. Pieces of
limonitic sandstone (small) lying
on top of the ground above the clay.

$\frac{1}{2}$ mi N of where the sample
was collected the road crosses
the valley of a small stream and
clay shows on the hillside's east
side of it.

At 1.2, 1.6 and 2.0 mi E of
where this sample was collected
there are additional outcrops of
similar clay.

At 4.5 mi E (by road) passed
abandoned R.R. station and what I
suppose was once Blackman.

56.4 came out on graded road -
turned north. At the first
store I came to they say the name
of the place is Wayne but I do
not know whether it is in Florida
or Alabama.

Jan 19

Escambia Co

39

$\frac{3}{4}$ mi S of P in barren creek on highway
No. 1. fairly well up on hillside
cut bank and ditch shows clay light
gray mottled with dark red in some
places and yellow in others. Bottom
of clay not exposed. Max thickness
seen 5 ft. Overlain by sand, gravel
and conglomerate of Eutawville, to
which the clay itself may also
belong.

1 mi W of Molino on road out to main
highway the road crosses a small
valley which runs into the creek
on the south side of Molino. A
gully in the bottom of this valley shows
up to 20 ft sand. More weathered
part orange, less weathered yellow
and gray, some have specks of lignite
or other woody material.

Going up hill on west side of
this valley exposed clay, probably
of Eutawville formation, clayey
limonitic ss and conglomerate.

The area between the R.R. and
the river and its swamp at Molino
with perhaps also a little on the other
side of the R.R. is presumably an
alluvial terrace. Some of it is
only two or three feet above the
flooded part of the river and is
undoubtedly flooded at times. Other
parts of it are 15 feet or above the
swamp and probably mostly if not
flooded because the water has such a
wide area of swamp to spread over
but the small site which is just
east of the R.R. station there is
small showing of clay on the surface.

Jan 19

Escambia Co.

40

also at a few other places on the alluvial land within $\frac{1}{2}$ mile south of the station.

Learned from a resident of Molino that the R.R. at Molino has been under water so that what I just described as a terrace had better be called recent alluvium although it actually is a bench or terrace distinctly above the river swamp and may have originally been developed when the river was flowing at a higher level.

Dug down at W end of bridge starting out on road to Milton. I first found there is brown clay. Then about two feet fine orange sand, then fine light colored sand with very little clay, say six inches to bottom of hole.

The clay deposits on the hillside are so spaced out and more conveniently situated that it is not worth bothering with these alluvial deposits.

When the road from Molino to Quintette crosses the valley of the first stream south of Molino there are some clay exposures on the hills all south of the stream. There is unquestionable Libonille formation above the clay but what the clay itself is I can not say since cut does not go deep enough.

Jan 19

Escambia Co.

41

0-192 Clay - abandoned pit at Quintette

Collected several petrified cypress knees all from the Libonille layer below the clay.

Jan 20

Santa Rosa Co.

42

Blackwater R. 4 mi NE of Milton on road to Indian Ford just beyond crossing of Clear Creek looked between R.R. and Blackwater R. for site of old bridge and on the Sprague farm. Found one pit but it seems to be mostly in clay rather than in sand. May be a borrow pit for the RR fill across Clear Creek Flatwoods, apparently almost level here extends about a mile to the west end of the road and railroad where they cross. West of the Flatwoods the dry sandy land seems to rise rather steeply. The area of Flatwoods I take to be a somewhat formed area the clay deposited & frozen up into the land. The clay deposit along Blackwater R. is obviously being to that area which may be considered later flatwoods. Most likely the same age as Flatwoods at the dog farm.

Terraces

Going east from Milton on highway No. 1 I think I can recognize this terrace which is a line rather narrow as well as another one much higher up.

Yellow R.

4 mi E of Milton turned S from highway No. 1 on road to Holly. Crossed Yellow R. at about 5 miles south. Dry sandy upland.

Jan 20

Santa Rosa Co.

43

Yellow R.

The river swamp is here about a mile wide. Several channels without much current. On each side of river swamp is a flatwoods terrace only a few feet higher with some shallow depressions containing cypress. Slight slope from this terrace into the dry sandy upland. Suggestion of old beach line on bottom of hillside on N. side of valley. Possibly a much higher terrace shows on the south side of the valley.

East Bay

One mile north of where the road comes out to the shore of East Bay at Holly there is a rather steep but very distant drop from the dry sandy upland into flatwoods.

From Holly coast around the north shore of the bay, much of the way near the shore there is a scrubby hammock of virgin oak with a few magnolias. Just north and N.W. of the bridge over East Bay river which winds about through a narrow marsh with a few cypress. The sandy upland comes to within 500 feet of the river river respectively at the head of the bay.

East Bay R.

From East Bay River to Navarre it is about all flatwoods. The real upland begins just to north of East Bay. Some small ponds and cypress swamp. Some patches of dry sandy land with black jack oak especially just south of the river swamp. And again near Navarre.

The climate concentrates at Navarre is rather small.

Jan 20

Okaloosa Co.
coastal region

44

From Navarre to Florosa, the road goes mostly through flatwoods. There are some fairly good sized patches of scrub - spruce pine. I think all of this is rather close to the Sound and that there are flatwoods in back of it. From Florosa to Camp Walton it was mostly rather dark but the country is apparently spruce pine scrubby flatwoods and coastal oak hammock.

Jan 21

Santa Rosa Island

45

1st 1/4 mi



In a line through the second lagoon or lagoon light west of Camp Walton the island is 1450 ft wide. The only beach has long low well defined northern edge. There being no littoral zone or dunes or more but cliff but nearly a bare plain with a few small dunes and remnants of dunes on the back side. In several storm waves probably sweep all the way across here.

Some parts of the quartz sand are hard well defined but low beach caps formed by the last high tide. Spacing normally about 40 to 50 ft but extremely variations from 20 to 80 ft.

One mile west of second lagoon from Camp Walton (on central part of island). For a large part of this distance sand and sand washed by larger storms overwashing the lagoon. Most of the way the surface of the island is almost a plain. Rather sand with scarce grass. A few dunes up to thirty feet or a little less in height with steep slopes all around. Scrubby oak and

Jan 21

Santa Rosa Island.

46

slosh pine and other bushes on the
 the side of these. The side toward the
 gulf is apparently being eroded away
 and the tree roots have bare
 at

→ dune 8 or 9 ft high
 bare except for a few lagoon
 tufts of grass. Sand is damp.

Walked 1 mi W from Second beacon
 S.W. of Camp Walton along lagoon side
 of island. There are several small
 dunes - 1500 ft. From this point
 dune ridge after the next, for 1/2 mi
 to see low bare dunes, probably
 18 or 20 ft high. Blueberry bushes
 added to the highest in places. In
 all composed of white sand. In
 back of it is low plain sparsely
 covered with grass. Numerous shallow
 blowouts in it but most sand is too
 near the surface for them to develop
 any considerable size. From this
 point westward there is a 6 to 8 ft
 gap in the littoral dune where
 the waves have swept through
 and across the plain in back.

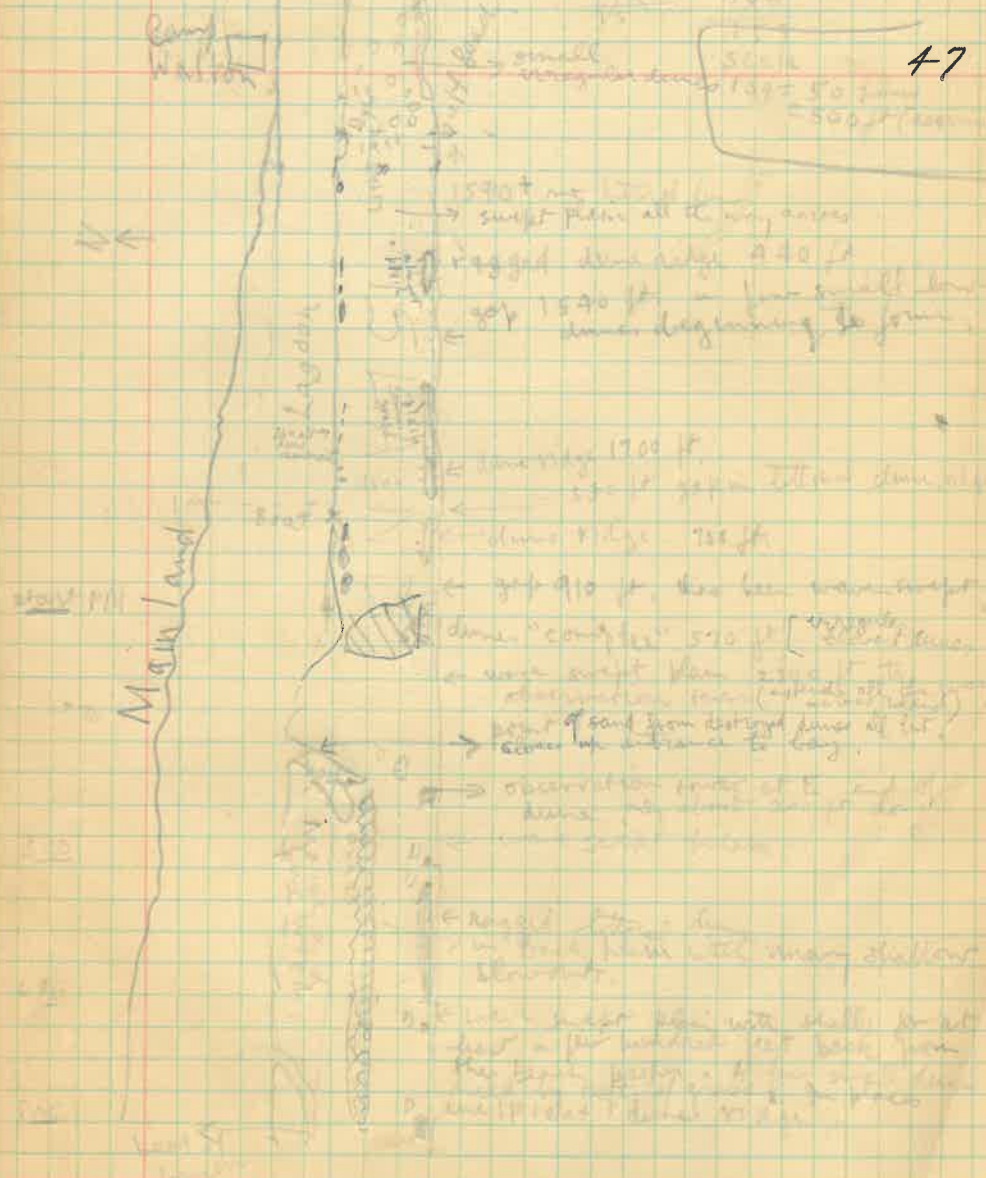
This is shown not only by the gap itself
 but also by shells and driftwood.
 On the side of the island toward the sand
 a blunt point of sand has been built up.
 The outer slope of this appears to be about
 as steep as sand will stand on. Probably
 much steeper than it can stand after wave
 agitation by waves.

Jan 21

Santa Rosa Island

240

47



Shore of island on lagoon is much more
 irregular than shown above. Only a
 small part of dunes shown, other than
 those just in back of the beach.

Jan 21

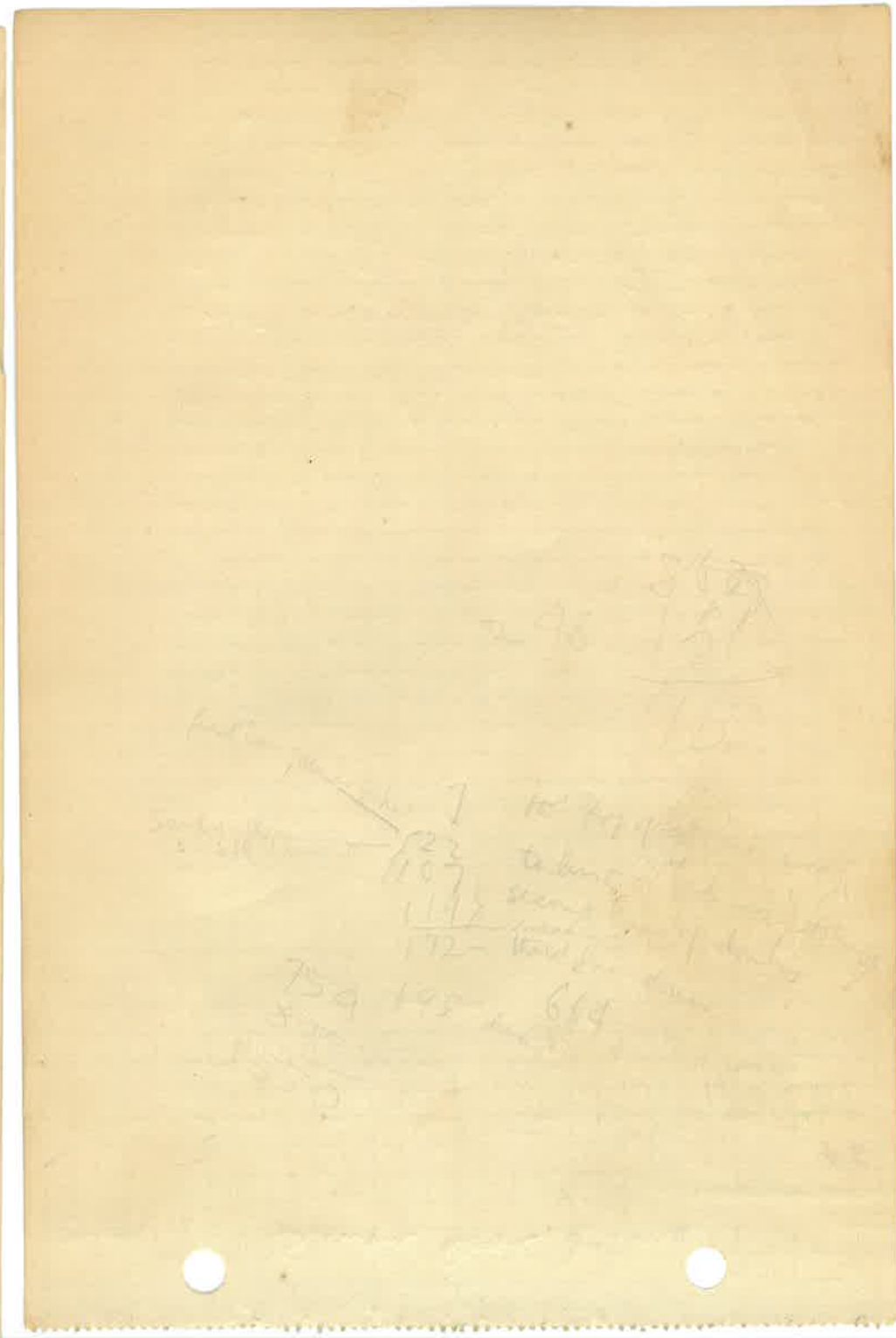
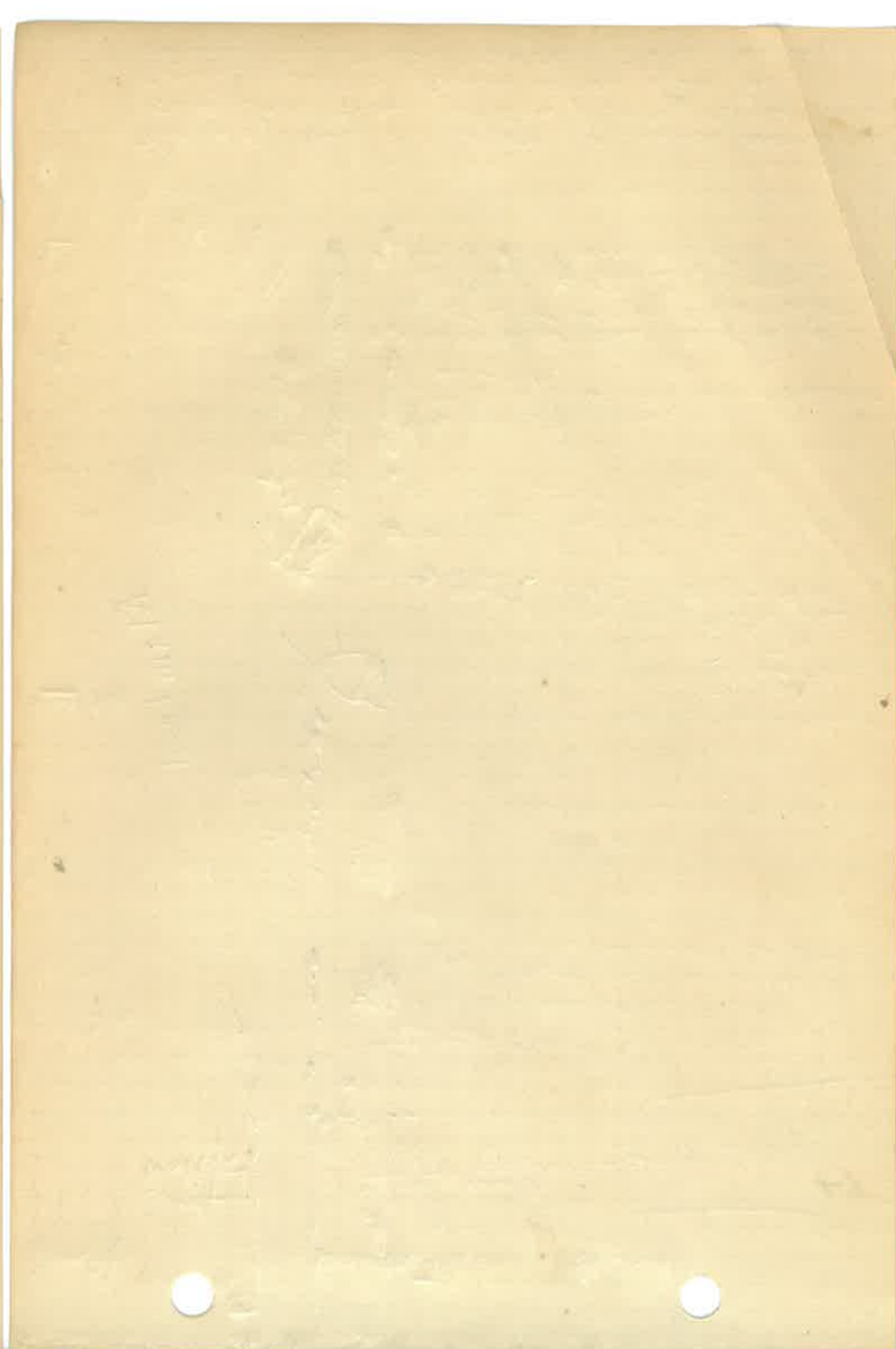
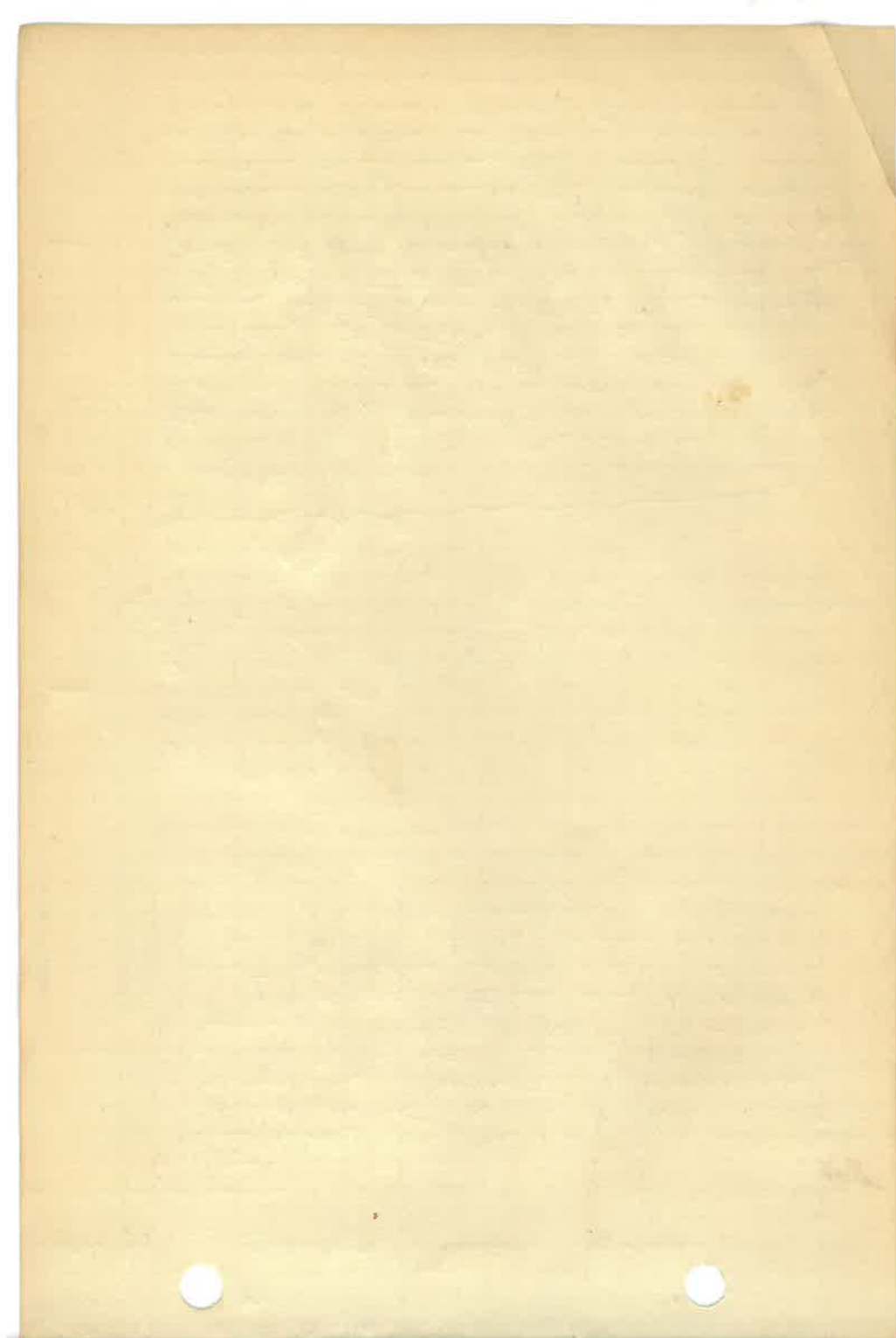
Santa Rosa Island.

48

The dunes on this part of Santa Rosa
 Island must all be of fairly recent
 formation because the sand is all
 white with no yellow subsoil
 from weathering of iron minerals.
 Where the littoral dune does exist it
 is not a regular smooth ridge but much
 of the way a small 'complex' of dunes
 dunes, erosion remnants ('buried dunes')
 in some cases, recently much for like
 a littoral dune is covering over the blowouts.

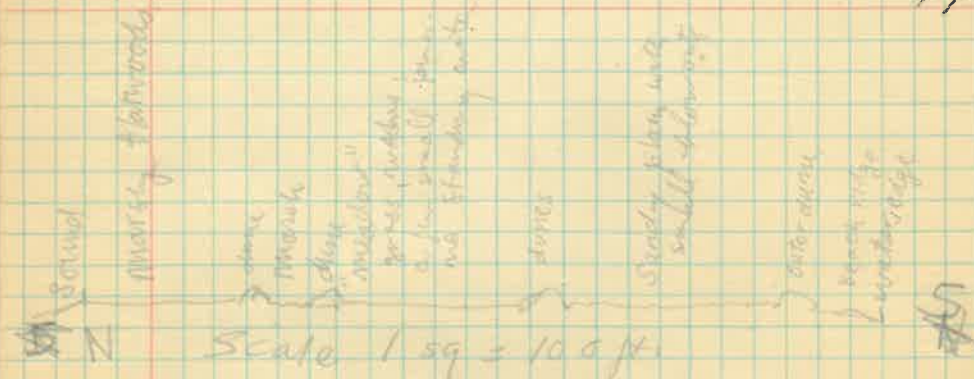


Returned to where the boat was left most
 of the way through the central part of
 the island. The sketch on preceding page
 does not come anywhere near showing the
 dunes except that just in back of the
 beach. It is too foggy to see very
 much but it seems as if the dunes were
 up to pieces that it would be difficult to
 find out any definite system. From rather
 scanty observation it seems that there is
 a dune ridge near the beach and
 another one near the middle with
 a sandy plain containing shallow blowouts
 between. These, however, I can hardly
 be called dune ridges now because too
 irregular.



Jan 21 Santa Rosa Island.

49



Profile across island at farthest point reached on this date which is probably a little more than three miles W of Camp Walton.

On some parts of the back side of the island there are considerable areas of slightly marshy land with rushes grass and a few small pine trees. Some of these pines growing on the dunes themselves. Much of the way along this part of the island it can be seen that the back side has been pushed back into the sound, both by movement of sand by wind and by storm waves.

Mr. Theo. Staff, prop. of Gulf View Hotel, says there was formerly a line of high dunes extending continuously along the back side of this beach on the part of the island near Camp Walton. The gaps where there are now no dunes just back of the beach were made from 1926 to 1928. He has been here 17 years and has not seen any storms so severe as severity with those of the last three years. He says

Jan 21 Santa Rosa Island,

50

some very large pine trees were destroyed by these storms. He does not think dunes have had much to do with the destruction of the dunes but that it is due to unusually severe storms of the past few years. He says there are white mice on the island.

Light or beach ~~is~~ ^{is} in central part of island used as reference. Location sketch on p 47 is actually 3400 ft W. of point on island directly opposite Gulf View Hotel.

Directly opposite Camp Walton the island is only 1200 feet wide. From this point west to light not mentioned many small irregular dunes remain across beach. The whole width of the island. In places the sea has swept through. The last dune is on beyond the limits of the particular area of small irregular dunes and is in fact the largest of the low flat wave swept area. about 2000 ft in width along the back of the beach.

The sand is of snowy whiteness. When seen through a glass so that details are not too distinct the resemblance to snow is even more striking.

Jan 21 Santa Rosa Island

51

600 ft E of boat landing opposite Gulf View Hotel, two dunes near back side of island.



They probably were once continuous and the gap was blown in them. Partly covered with small oaks. Heights measured with hand level stake base. Height above sea about 4 ft more.

Lee slope of dune in central part of island a little east of Camp Walton is 32° - a few feet on it.

On N-S line through point passed red with first aid to navigation on the sound E of Camp Walton. The beach proper is here a little over 200 ft wide. Not much difference in width between ordinary high and low tides because of steep slope of outer part.

Dune ridge. The beach is composed of two dunes or flat parts of the outer part of each one being almost a beach ridge, but little to surface.

Jan 22

Santa Rosa Island

52

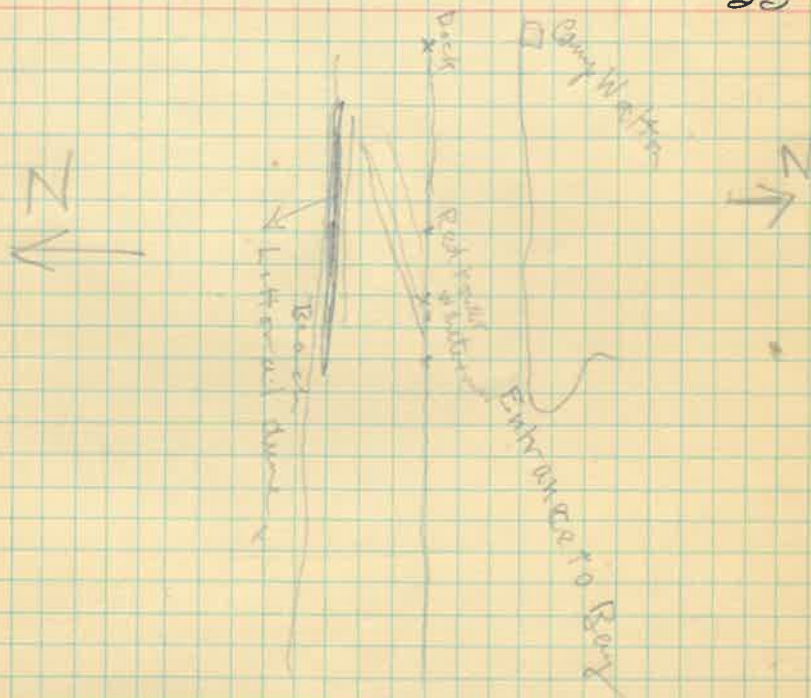
of the back part. is not appreciably lower. Dune ridge forms well defined boundary at back of beach. Grass covered and fairly regular in height 18 to 20 ft above the sea. 13 to 15 ft above back part of beach. It extends west nearly to a point opposite the only View Hotel, as far as I can see clearly. On back of the littoral dune and irregular complex of dunes much washed & much bare sand. Dune remnants hold few stunted slash pines and various herbs and bushes.

200 ft E. of this red tower the outer dune ridge is about as noted about 100 to 150 ft inside it, crest to crest is another much less regular dune ridge, or perhaps we should say what I suppose was once a plain with many blowouts on the north side which there is a plain with only a few small dunes. Most of the way to the entrance to the bay.

Jan 22

Santa Rosa Island

53



Starting near the two light towers a little W of the entrance to the bay from the south there are apparently two or more dune ridges which cross the island diagonally. Did not see enough of them to be sure of this or to say in just what direction they run. The largest one if not really is a dune ridge is greatly altered by blowouts.

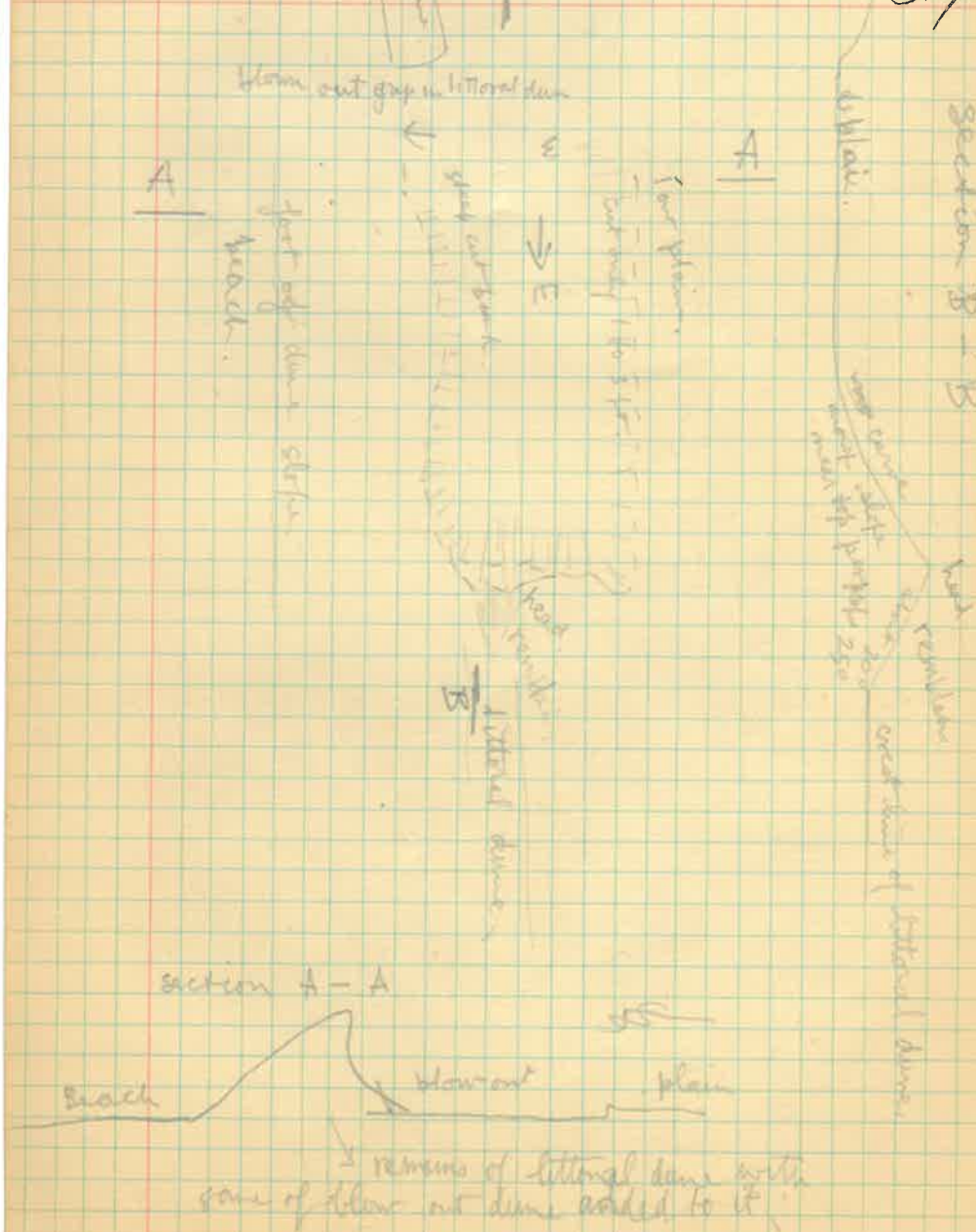
More likely lines of blowout dunes

Jan 22

4100 ft E of Red Tower

Scale 1/8" = 10 ft
not and here

54



Jan 22

Santa Rosa Island

55

The sketch on preceding page shows a blowout formed by W wind in back side of littoral dune. Highest part marked head is 33 ft above the lower part of the plain in back and perhaps 38 ft above the Gulf. Inside is mostly bare sand. Outside has sparse growth of grass. Perhaps there is still some addition of material blown up from the beach.

Picture looking toward head from on top of south side.

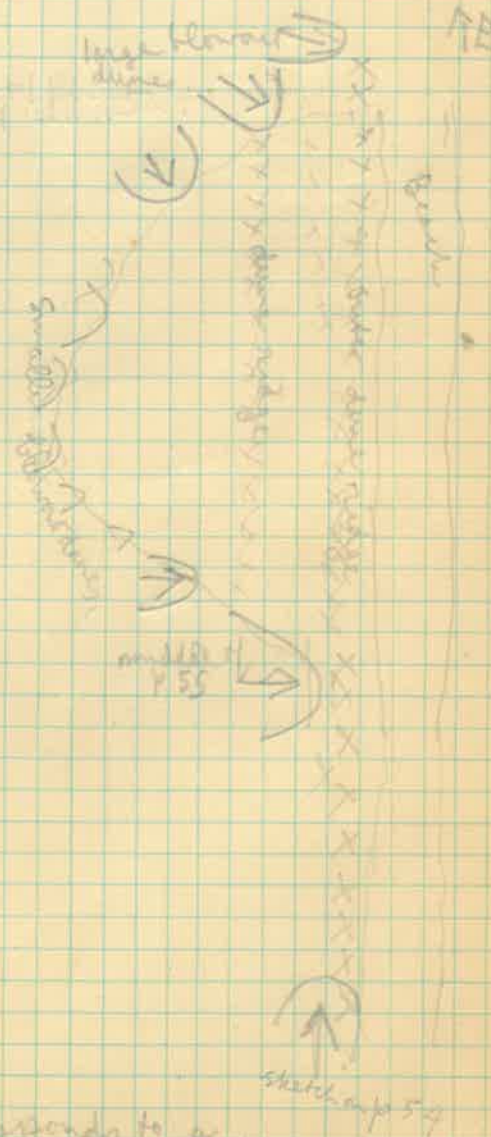
300 ft E of the E end of this is another conspicuous dune - a blowout dune, seems to be about the same height as the one just described. It is on each of the outermost dune ridge reaching just about up to it but not affecting it.

Jan 22

Santa Rosa Island

56

Convict Camp Plain
540 paces E of red tower



This corresponds to a little less than a mile E of entrance from Sound to bay

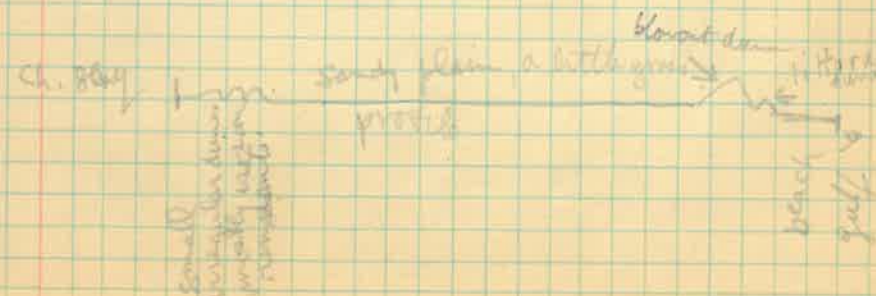
Jan 22

Santa Rosa Island,

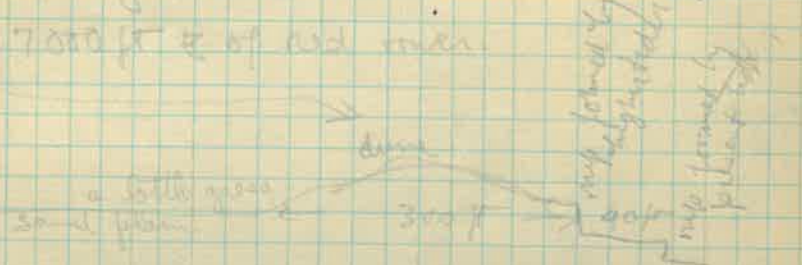
57

As shown on sketch on preceding page, east of the two blowouts described on pages 54 and 55 there are almost undisturbed dune ridges immediately in back of the beach for a distance of about 800 to 1000 ft. Two clearly distinct and continuous with a low one between not very well marked between. On the north side of the area some small blowout dunes and ragged erosion remnants. On the east end some larger blowout dunes. One of the first large ones which does not come all the way out to the littoral dune has a height of 31 ft above the plain in back, formed by land wind x 33 ft above gulf. Formed by NE wind. Some of these scarcely have the form of typical blowouts because a considerable part of the sand is probably derived from various parts of the surface of the nearly bare sandy plain in back. It is that reason not so much of a hole can be seen where the sand was blown from.

6000 ft E from red tower



6600 ft E of red tower
Blowout dunes (circular) extend all
the way out to the beach and the
dunes are circular. Not 500 ft
or so beyond this on the gulf side
a rather flat broad base dune
is visible. The well and the sandy
dune is black. Not a circular
dune. It extends out rather
uniformly to the upper part
of the beach most of the way
along the coast.



This kind of dune for 500 ft or so along the gulf side. Beyond it to the east ragged dunes which have been broken through being filled by dunes from north. On Dune Island, low water gentle slopes & dunes without vegetation. (water) It is evident that this is a late stage in the development of a blowout dune. The plot has been marked so that the particular hole from which the sand was blown out no longer remains, and the high crest at "head" of the blow out has been blown off.

water supply

At the concert Camp on the north side of the island 1/2 mile S.E. east of the entrance from Santa Rosa Sound into Choctawhatchee Bay, a shallow well not over 150 ft back from shore of bay gets fresh water of yellow color. According to a negro convict who is pumping it. This part of the island is 2 or 3 feet above sea level. There are some dunes south of it.

erosion

Along the shore of the western part of island that sections of Santa Rosa Island on Choctawhatchee Bay erosion has been going on lately as shown by much exposed along the shore and beneath the water and tree stumps sticking up in shallow water.

heavy construction

There are some to be seen about everywhere on the north side of the island where there is a beach not thoroughly covered with grass. Nearest and most abundant (of the places I have looked so far) on the western part of the shore of Santa Rosa Island on Choctawhatchee Bay. Two or three stumps probably corresponding to a high tide and to storm tide. At highest nearly perpendicular about 1 in. In places I also saw heavy construction at this part above high tide presumably caused a flood or unusual storm. There is driftwood higher still. 4037 - Sand nearly the finest heavy

4038

Sand - recent dune x cut to three feet depth in some exposed by erosion x Near Gulf side of island directly south of Gulf View Hotel.

Especially worthy of notice with regard to the construction of the dune is the more prominent effect of north winds on the part of the island exposed to wind across the bay. Blowouts in lateral dunes. Pulling in of wave cut gap by sand from north.

Jan 23

Santa Rosa Island

Scale = 1 sq = 10 mi.

Pastor Malm 1933

High dunes back of bluff, partly covered with vegetation.
 Channel bluff → sand bare 1 ft above high tide
 High tide line
 East high tide line
 Gulf

new pass (formed in spring 1928)
 waves were breaking on bar all the way across the front of this
 bluffs, at least near Gulf side

Bluff all the way along the north side of the channel leading S. to east pass. This is made up mostly of yellow sand, white sand on the north side is due to dunes because of island blowing into dunes. Higher dunes a few hundred feet back. Partly bare white sand and partly covered by trees and bushes.

The new pass is scarcely 1/2 mile E of the W. end of the main land peninsula and is about 1 mile from the old East Pass forming the E. end of Santa Rosa Island. Little if any of the detached eastern island was about 6 or 8 ft above then cover of grass. No pine trees and very few bushes. The main Santa Rosa Island has pine trees on the back part of it right up to this new pass and dunes up to 20 ft or more in height.

61

Jan 23

Santa Rosa Island

4039

Dune sand - Santa Rosa - W. side of new pass. Cut to 2 1/2 depth. Seems to show more than usual amount of heavy minerals well above the beach so strongly does not include any wave action concentrates.

4040

Beach sand, same general locality as Gulf side of island. Cut to 1 ft depth just in back of limit of waves at ordinary high tide. 50 ft from present water edge. Sealed the sand concentration of 1 heart.

4041

Heavy Concentrate x to 800 ft W of new pass. A little above high tide line on Gulf beach. One of many thin layers. This one hardly more than 1 inch. Not so fully well from to contamination by lighter layers above and below.

1500 ft W of the pass the wide beach narrows down all at once to 150 ft to 170 ft. about the seasonal width of beach for this part of the coast. Dune 20 ft or so in height at back of beach.

2250 ft W of the pass, well defined littoral dune ridge up to 15 feet or in height. Looking inland from the top of it a good sea wall or more of dune ridges parallel to the shore & in places of 10 ft or more in height and enough covered with vegetation to prevent erosion, in

Jan 23

Santa Rosa Island

62

other parts cover of vegetation has been broken away and ridges cut up into a series of "mural dunes" or erosion remnants. Dunes estimated at 1000 to 1500 ft wide x a few stunted pines on them. Large pine woods on the back or north side.

Looking back now that the fog has lifted & I can see some fairly high littoral dunes where these dune ridges come out against the beach about 1/2 mile W of the pass.

4200 ft W of pass.

No evidence here of dunes formed by north wind. V. much protection of other dunes and of pine trees.

littoral dune.



Slope of narrow outer part of beach is 1/4 to 1/2 (A measurement)

Flatter, indistinct beach ridge with crest at top of this steep and slope & then a flat space and gradually curving slope of rising blown sand to crest of littoral dune about 15 ft above Voca.

63

Jan 23

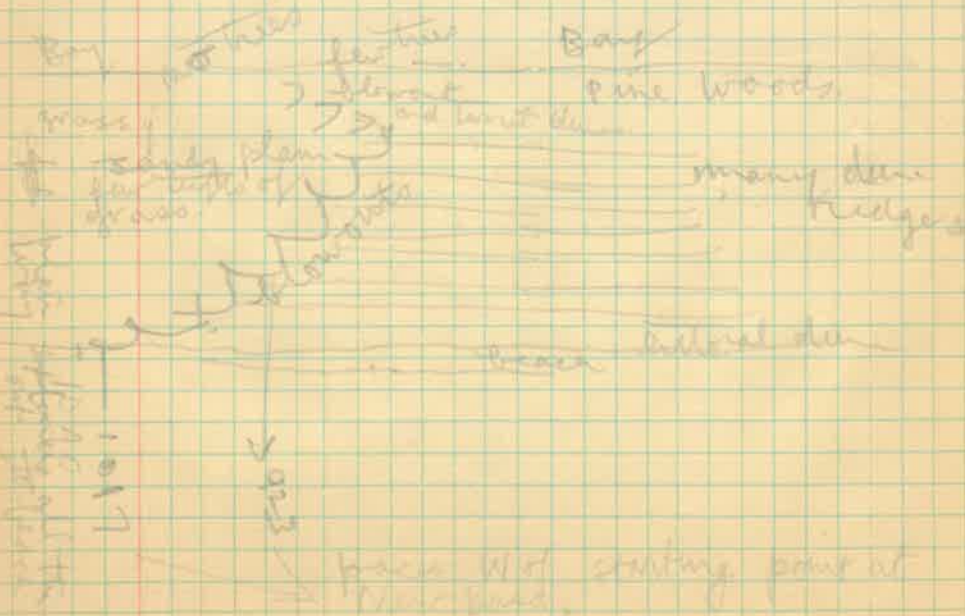
Santa Rosa Island

64

7730 ft (773 faces) W of pass
lateral dune which was distinct
and regular. Higher than at last
note. Nearly 20 ft above the water.
Rather regular dune ridges parallel
to shore nearly all the way across
the island. Blowouts generally
small.

lateral dune is higher than
most in back of it. It is fairly
well covered with grass. It has
in back have practically no
grass but is sparsely covered by
various dry land herbs and shrubs &
with some stunted slash pines.

923 faces W of pass suggested
height of lateral dune at 18 ft.
In back of here only the three
aftermost dune ridges remain.



Jan 23

Santa Rosa Island

65

1017 faces W of pass blow-out dune
from north and north-west come
all the way out to the beach and
cover the lateral dune. In back
is a sandy plain from which
the dune ridges have apparently
been swept away. The diagonal
line of large blowouts are higher
and broader individually than
the dune ridges so this would
contain the same sand in
a much smaller area.

Two or three hundred feet
farther on the bare sandy
plain extends all the way
out to the beach with patches
blow-out dunes and dune ridges
remaining. Very scarce pine
trees on back side and
a few hummocky dune remnants.

What I take for the highest
one in pine group of blowouts
is ~~about~~ about 900 ft W of
pass and 1/3 of the way back
from gulf to bay. Measured
height by hand level 413 ft
about the plain to the west and
presumably does not lack much
of 50 ft above the gulf.

4042 Beach sand, 2 mi W of pass
cut to 1 ft depth 40 ft back
of present edge of water and about
18 inches above it. Waves have
gone over the point many days
ago but not at the last high tide.
Show rather slight amount of heavy
minerals. Concentration is nowhere very
great but more at the surface than deeper
probably by wind.

Jan 23

Santa Rosa Island

66

1300 faces E of pass
from 1020 until here there have
been no real dunes on the gulf
side of the island and none
anywhere across it except some
isolated hummocky remnants near
the Bay side. A sandy plain
on which the sand has been blown
about by the wind but is too flat
to recognize it as forming a
real dune.

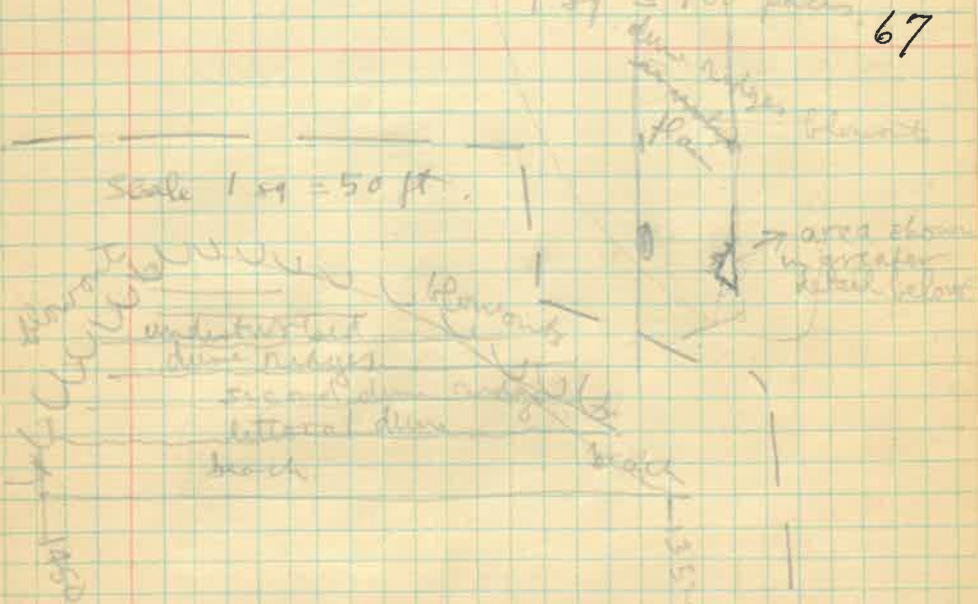
West of here immediately
in back of beach begins a
rather conspicuous group of
blow-out dunes. Directly across
the island with a sandy plain
with very sparse tufts of grass
between is a smaller group of
blow-out dunes. These blowouts
near the gulf side are formed by
wind from the north or some
direction not far from north.
The cover up or destruction of the
lateral dune at this point.

1352 faces W of pass
beginning here an area of
undisturbed dune ridges begins
and continues along the beach to
1450 giving it a fourth of
about 1000 ft. here again the
outer ridge is higher and grass covered
these include both mostly shrubby
tushes. I think the blowouts
extend all the way around the
north side of the island. They
can be plainly seen for well over
a very small part of the distance.

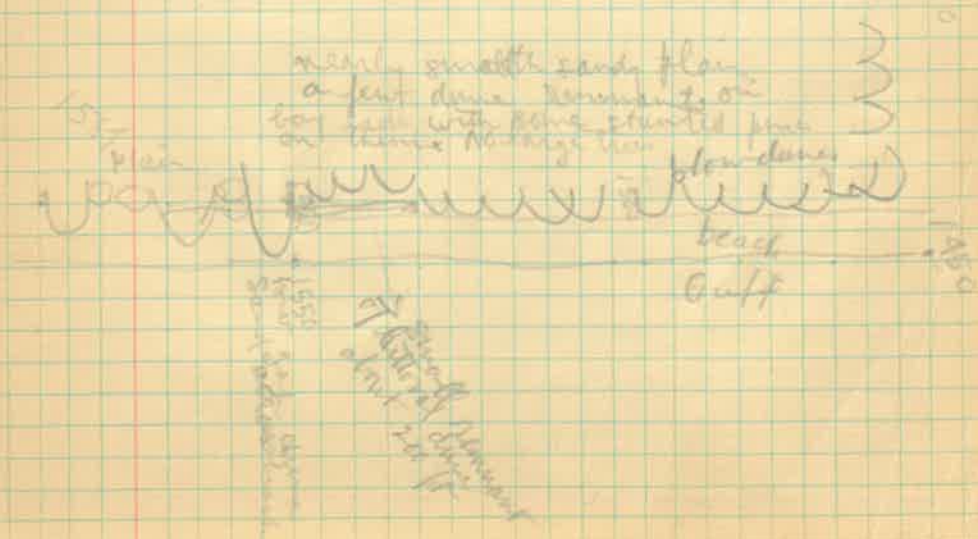
Jan 23 Santa Rosa Island

1.89 = 100 paces

67



Continuation to westward below



Jan 23 Santa Rosa Island

68

1626 paces:
West end of 150 ft strip of littoral dune not yet covered by blowout but littoral dune remnant is just at back side of it

1677 sand flat with narrow dune of blowout dunes covered by littoral dune and even increasing on beach. West of dune two hundred feet wide. No dune at all between beach and dune on beach.
1788 point shown in sketch of yesterday p 58

1932 blowout dunes do not quite reach to outside of littoral dune

2168 opposite opening into bay a littoral dune still remains. It is about 150 ft. long and more than 10 ft. high. It is a small piece of the first two dune ridges. Still rather long shape. Then some blowout dunes, a few small plain in the middle, more blowout dunes and a few rather only dunes or remnants of a few dunes there and then the bay.

2450 littoral dune still contains dune ridge in back partly blown to pieces but in spots the original form can be seen

2468 off to the west tower
2930 opposite Gulf View Hotel
littoral dune and of tower can 2450

Jan 23 Santa Rosa Island

69

Santa Rosa Island near Camp Walton gives an unusually good opportunity for the origin, growth and destruction of dunes. Grass in tufts on beach plain or at back of beach first holding small drifts of sand. Then the formation of a complete littoral dune ridge. The growth of other dune ridge in front parallel to it. Vegetation which only partly covers the sand. In sufficient moisture held by such fine sand. Tearing up of dune ridges where most exposed or where denuded by fire or other agency - Blowouts. Turbidity dunes or broken remnants. Blowout dunes with high crest or head. I believe these develop better near the gulf side of the island even though the north wind which formed them had more power before it had passed over so much of the island. The moisture from the breaking waves on the beach allows the beach grasses to grow better on the "head" and "remnant" of the blowout dunes near the beach and holds the sand in place while the supply continues to come from the dry sand to the north where the remnants of the dune ridges are being torn down and reduced to a level plain, the final stage. If the plain again becomes covered with vegetation it may develop only very shallow blowouts because it is so low that water is near surface. Except for the littoral dune on the seaward edge (in case the plain extends all the way out to the beach) it is

Jan 23

Santa Rosa Island

70

not possible for dune ridges to grow or develop there. I should think it might well develop into some flatwoods especially if protected from sea by a littoral dune or a group of blowout dunes in the place of it. Such a plain swept away would not be essentially different in appearance from a beach plain formed by rapid building out of a coast rapid.

Jan 24

Santa Rosa Island

71

High blow out dune near N. side of island. Measured height by land level 42 ft above Santa Rosa Sound.

Bearings from top of it.

Florosa Inn.	N 40 W
Center of island in middle of sound.	N 20 W
Range Light in middle of "	N 60 E
" "	N 65 E
Low point on N side island, Mary Esther	N 70 E
Towers on gulf side of island	Due E

The slope of the "beach plain" from the head of this blowout dune is 35% in the steeper parts and averages about 33% for the whole slope.

Looking westward from the top of this dune I see mainly blowout dunes and sandy plain from which the dunes have been swept away. About half a mile or a little more to the west there may be some dune ridges remaining near north side of island.

This particular blowout is formed by SE wind.

Shell mound. 500 ft. SW of here. It is in midst of active dune sand and is reasonably well covered by sand.

Artificial dune on this north side of island. Only as described remnants of varying height. Remains of sparse grass and trees on tall. This part of the island except very

Jan 24

Santa Rosa Island

72

close to the gulf indicate that the dunes are ~~likely~~ more active than formerly. How these trends are changing. Probably the great activity, the destruction of the dune ridge is due to removal of vegetation and fuel.

Smaller blowout dune has lee slope of 33% - dune near top. This one formed by west wind.

The blowout of which the dune mentioned at top of p. 71 forms the head is roughly circular in shape and about 200 ft in diameter. Around other sides of it sand has been blown out by wind from various directions forming an uneven and broken rim about the central area of almost bare white sand. On the north side of the high dune forming the head, the sand has blown through the trees and two fingers of it extend out a little way into the sound.

more blowout dunes.

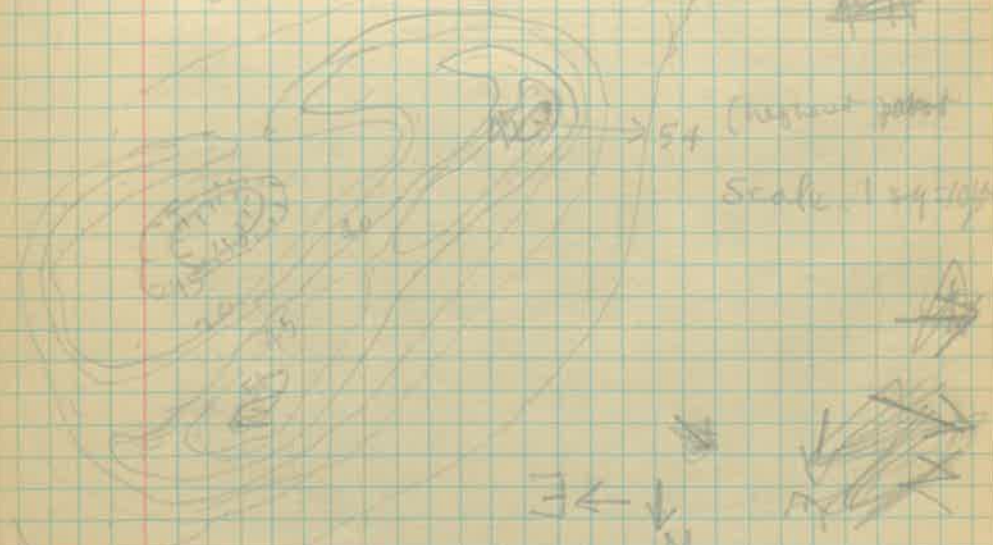
more blowout dunes.

Jan 24

Santa Rosa Island

73

Near middle of island S. of Florida
 dune. Blowout dune 54 ft above
 lowest point at its base which must
 be three or four feet above the
 gulf. This is on the south side
 of a more or less oval
 area of shifting sand, practically
 bare of vegetation, about 1000 ft
 E-W by 500 ft N-S.
 Perhaps Florida. It has a broken
 rim of high dunes, two at W
 and being ~~about~~ 45 ft above the
 plain. Between these highest
 features shifting dunes are present
 where the sand has broken through
 gaps and spread out in patches.



Depression formed by lee
 slopes of blowout dunes converging
 from all directions. The
 slopes are mostly eroded at the
 present time and rather
 steep but some sand is being

Jan 24

Santa Rosa Island

74

blown over the lower south side
 and the lower place on the N.W.
 side a grassy slope well covered
 with bushes - *Casahuate*
acuminata? Contours not all
 clear. Exact point is in
 N. actually 14 ft above lowest
 point which is on the S.W.
 and there is a windward slope
 more gradual than storm.



4043

Beach sand - gulf side Santa
 Rosa Island S. of Florida
 cut to 1 ft depth at a distance
 below high tide line

4044

Dune sand, cut to 3 ft depth
 on eroded side of blowout dune

Jan 24

Santa Rosa Island

75

On the island from a point
 opposite Florida is a point
 opposite Mary Esther. The dunes
 are about all of the blowout
 type & a few fragments of
 littoral dune remain but most
 of this has been leveled by storm
 waves or wind or distorted by
 blowouts. There seems to be
 some tendency for the dunes to
 occur along two irregular lines
 on either side of a plain in
 the middle of the island which in
 places is low enough to be marshy
 and have standing water. In
 places the continuity of the plain
 is interrupted by dunes extending
 across the island. (Not ridges, but
 an irregular complex)

Looking across at the mainland
 from at Mary Esther two low
 bluffs can be seen. A foot of
 two or three sand dunes are visible
 sand below. *Scaevola taccada*
 grows on it. E. of this between
 Mary Esther and Camp Walton
 the flatwoods with large slash
 pine come down to the shore of
 the sand.

Jan 24

Santa Rosa Island

76

Jan 24

Santa Rosa Island

77

Jan 24

Santa Rosa Island

78

Refer to sketch on p 47

Distance along the beach from a point opposite the beacon light on the ground side of the island to a point opposite Asbury View Hotel is 2900 ft. This correction to be applied to sketch. To the west of this light is the swept plain extending all the way across. To the east is all this distance of 2900 ft. Small irregular dunes remain to and blunted dunes cover most of the width of the island. No well defined littoral dunes. Over small these dunes completely swept away.

Jan 25

Okaloosa Co.

Camp Walton to Niceville

79

4045 { Slashwoods for 1 mile N of Camp Walton. There scrub of saw palmetto, spruce pine, black yucca oak and small evergreen oaks.

Yellow sand comes directly to surface. Yellow sand - Pleistocene. Cut to represent 1 ft depth immediately below about 4 inches of top soil. There is no white sand on surface here. This 1.5 mi N of Camp Walton in scrub.

From 1 to 7 miles from Camp Walton on the road Valparaiso there is considerable spruce pine scrub. It has yellow subsoil and in places the fine yellow sand comes directly to the surface. This typical scrub alternates with black yucca oak land having a few pine trees. Not much flatwoods on the road but I think there is more to the left of it farther away from the Bay.

Along this road I do not see anything that looks like a very sharp boundary between the Citronelle and Pleistocene. I should put it at somewhere between 6 and 7 miles from Camp Walton.

8 mi from Camp Walton Crossing Logwood Point Cr. Citronelle sand shows near the top of the hillside standing down to the creek. Coarser sand orange, somewhat clumpy and yellow. Further down the hillside Pleistocene sand finer. White on top. Evergreen scrub vegetation.

Jan 25

Okaloosa Co.

Valparaiso - Niceville

80

13.0 mi from Camp Walton on road to Niceville crossing Toms Creek. I think the creek is cut down about 100 ft below the upland on each side of it.

At Valparaiso Citronelle comes out to shore of arm of bay. Small cliffs. They would probably be higher as those on Pensacola Bay. If exposure were greater some land rises steeply in back. 1 mi NW of Valparaiso "sheep heads" have been cut back to the road from the bay.

Jupiter Creek near Niceville appears to be large enough to be navigable for canoes for a few miles. Moderately swift current and sandy bottom but swamp 1/2 mile or so wide. On the west side and perhaps on both is a small area of Pleistocene terrace.

Niceville - at head of this arm of bay at little east of Jupiter Creek there is a steep slope down to water. The slope and a little back from the top has vegetation of spruce pine and small evergreen oaks. Fully cutting back in bottom of small steeply rising valley showing loose yellow sand. Nearly at sea level compact clayey sand (Citronelle) below it.

Jan 25

Okaloosa Co.
Niceville to Crestview

81

22.5

Crossing Jupiter Creek on highway from Niceville to Creek View. Creek still looks large enough for canoe navigation. Heavy hardwood vegetation along it. Valley deeply cut into uplands. Cut on next road near top of hillside NW of Creek shows 10 ft depth of loose dry grayish yellow sand without getting into anything else. Such on old road farther down hillside shows a little orange sandy upland here has fair growth of live oak pine with underbrush of scrub palmetto and black yucca oak.

To the northward the amount of saw palmetto on the upland gradually decreases and by the time the divide between Jupiter Creek and Shoal River is reached it has been very scarce.

On south side of Shoal River on this road is a distinct terrace perhaps ten feet above the present flood plain of the river. On the right bank sand of this terrace is a thick growth of scrub palmetto. Some flatwoods also on the side of the river which are so little above the river swamp that they doubtless belong to the actual flood plain. On the north side I am not so sure about the distinction between terrace and flood plain and perhaps that terrace is not there at all.

Jan 25

Okaloosa Co

2.3 mi W of Mulligan on highway
to point where samples were collected

82

Valley of unnamed branch of Yellow
River crossing by main state highway
no.

East. slope

Clay is exposed along cut bank and
ditch on roadside for distance of
240 ft in direction up and down
hillside.

Section where clay outcrops on
hillside

Soil - sand 1 ft.
Clay - upper part brown to 7 ft.
reddish, friable or crumbly.
Lower part where less weathered
is gray mottled with red and yellow,
laminated, fairly tenacious.

O-194

Sand finer, clayey, mottled gray
very slight gray and brown.
Some spots of red, the latter
preserved casts of marine mollusks 3 ft
bottom not exposed.

Within the clay for a part of
the length of the exposure
are dark thin layers or zones
hardened by limonite. Total
thickness about 1 inch. Named
thickness of any particular plate
not over 1/8 inch. Unless the clay
is well grained these might
escape detection. A small part
of the clay next to these hardened
plates is an ochreous yellow.

Farther up the hillside the
clay is overlain by sand of Citronelle
formation. Max. thickness of this
sand cut through is here 12 ft
and this is just about at the

Jan 25

Okaloosa Co

83

uphill limit of the clay outcrop.
This sand shows the usual leached
upper zone of grayish yellow loose
sand below which it gradually becomes
more compact and filled as a whole
with iron. I am reasonably certain
that this sand is unconformable upon
the clay which I take to be a local
River formation.

W. side Valley

New Road runs N 60° W

The clay also shows in road cut
on W side of the valley where it
is distinctively overlain by considerable
thickness of Citronelle. 15 ft
vertical bank in places, and this
probably does not represent the
maximum thickness of overburden
since it is a good distance below
the top of the hillside. As nearly
as can be estimated by ground level
the outcrops on both sides of the
valley are at same elevation. Exposure
has exposure on W side. Except
for one very small spot overburden
is upwards of 6 ft. Pyritic
concretion mostly, altered to limonite
might cause this some difficulty
as the plate limonite layers on opposite
side of valley. Where clay comes
near to surface on sharp slope
extends along the hillside N of the
road, marking its outcrop.

50.8 outcrop W side valley
51.0 crossing branch
51.1 outcrop E side valley
51.3 back road
51.6 crossing RR.
bearing from Highway N-S

Jan 25

Okaloosa Co.

84

bearing N. 86° W
bearing old road S 50° W
old road branches off from main just
S. of RR crossing.
It cut here shows about 25 ft
of sand. Lower part was on
along RR cut S 60° W of highway bridge
over it the same section of clay and
underlying fine clayey sand is exposed
with the coarse shaly sand of
Citronelle for a while overlying it.
At least part of the thickness of the
clay can be seen for a distance of
420 to 780 ft from the highway
crossing which is near the top of
the hill and where the cut does
not go down low enough to reach
the clay.

Bridge

Citronelle
Clay
Clayey sand
For a part of the distance there is a
platy layer of limonitic sandstone
at the top of the clay.

52.2 bridge on old highway over main
branch

RR is here about 100 ft from
from old highway.

Starting from bridge on old
highway
S 50° W 7.3 p.m. along old road
to where main ridge of clay to
surface is indicated by surface
springs and line of hillside on
hillside. Old road is straight on

N 55.4

52.5 bridge

NE

54.6 main part

55.0 yellow p. Mulligan

Jan 25

Okaloosa Co

85

Jan 25

Okaloosa Co

86

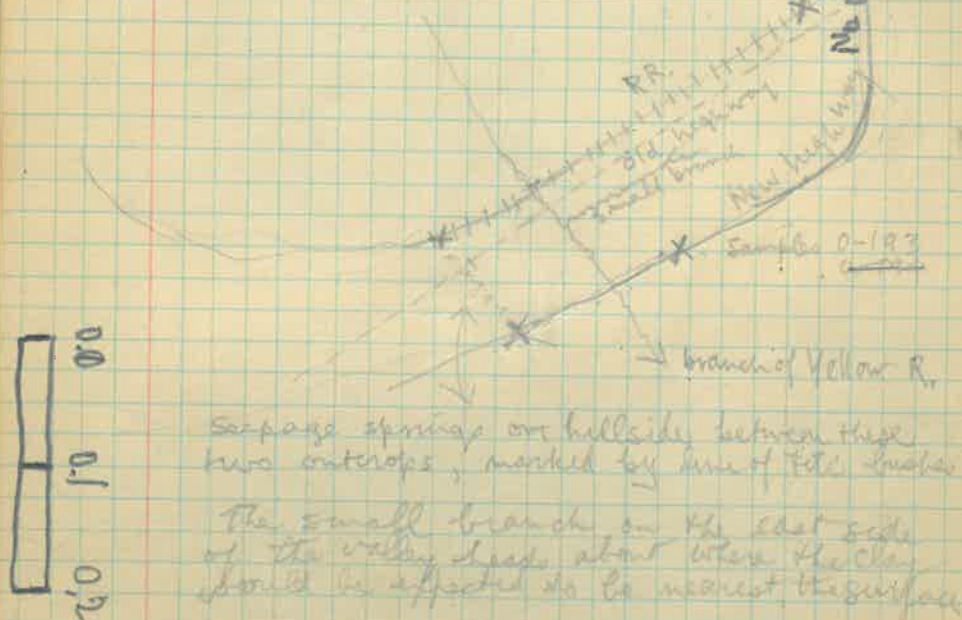
Same sketch as on preceding page

Scaly 2 squares = 1 line

$X = \text{Clay exposure}$

North

Overhead Crossing
1.8 mi W of Milligan



2132

CLAY OUTCROP

Jan 21

Walton Co

87

To Trench	9.0	
Bar Head	6.1	turned N.
	8.9	crossed trench
	10.7	Crack
	12.1	Gravel.

4.6 mi N of Bear River on road to
 Shoshone site of Cooke's Section
 at E end of Shoshone River bridge -
 eroded place leading down
 hillside to the stream & the
 black clay shows in bed of
 stream and is so terraced by
 its erosion off in large blocks.
 Contact between Shoshone &
 Citronelle is uneven and uncon-
 formity is evidently to be seen.
 There is a conglomerate at the
 base of the Citronelle, containing
 besides quartz pebbles, clumps
 of the clayey sand of the Shoshone
 River, which is coherent enough
 not to have slaked down.

Jan 25

Walton Co.

88

18.4 crossing lumber RR
 15.6 2 mi S of Payton on Road to Mossy Head
 Goring up hillside N of small creek
 roadside cut and gully
 Section from top down
 Sand 4 ft.
 Thin laminae ss with petrified wood Max 2 inches
 Clay, mottled 5 ft.
 red and gray sandy and silty.
 The contact between the clay and the
 overlying sand and sandstone slopes in
 the same direction as the hillside but
 not so steeply. The thickness
 of sand increases as much more than
 1 ft. above the clay farther up the
 hillside.

17.3

Payton
 Hillside S of Pond Creek, on road to Mossy
 Head. Following section
 Soil grayish yellow sand 1 ft.
 Sand, coarsest orange 2 1/2 ft.
 Clay, silty, gray red and yellow 7 ft.
 More gray than anything else.
 Thickness of overlying sand (Petroleum)
 increases farther up hillside.
 This clay looks the same as that
 at the last note preceding.
 Farther down the hillside the
 clay is the red by groups. A
 rather fine sand underlies it.
 Only 4 mi S of the R.R.
 at Payton and close to the
 for the same reason as the
 old lumber mill.

Jan 26

Walton Co.

Payton

Pond creek
 old mill

Payton

clay 0-195

Some outcrops of clay which
 looks like this in the limits of
 the town of Florala.

Florala

Lake Jackson at Florala
 Most of the way around the
 lake there is a narrow fringe
 of cypress ~~and~~ with hillside
 breeding close to water's edge.
 Loops across the lake there
 appears to be some swamp on
 the southeast side.
 The eastern part of Florala is
 on higher land than any of that
 around.

Another exposure of clay that looks
 like sample 0-195 in gullied
 road cut just S of State line on
 road from Florala to Crestview.

Shoal R.

At bridge on road from Mossy Head
 to Florala Shoal River is a large
 stream and should be easily recognizable
 especially downstream.

Jan 26

Walton Co.

89

Shoal
River

90

All the way from Todwin
 bridge up to the base of bluff
 where the best section is exposed
 the river is close against a steep
 hillside on the right hand bank.
 This has hammock vegetation &
 a number of short branches
 with steep sides and heads
 eaten back into the upland.
 The bed of the river is cut into
 the compact fine sand of the
 lower part of the Shoal River
 section & this steeper and higher
 banks on both sides and is narrower
 than where it is flowing through
 alluvial material.
 Near the upper end of the
 bluff about as Cooke says 1/4 mi
 from the bridge is the only
 spot of considerable size bare
 of vegetation. Here we do not
 see any shells actually preserved
 in the upper part at about
 the position of the "shell marl" of
 Cooke's section fairly good casts
 are abundant. Very hard
 preserved shell impressions can
 be seen here and there almost
 down to water level & even in
 the coarsest sand and in thin
 "non-porous green sand".
 I do not see any need for the
 15 ft gap. I believed all
 or near all of it can be seen
 and is sand. The lower
 part like the fine compact sand
 at the bottom and the upper
 part coarser like that above,
 with what appears to be an
 unconformity between the

19.3

2 1/2 mi

left hand

straight up hill to left,

Crowder Cemetery
up river from there

Jan 26

Walton Co.
Shoal River

91

Shell
Bluff

"green sand" of Dr. Locke is really a gray or perhaps olive color, not green. Only here and there does it weather yellow but usually, rather a light gray nearly white, probably by oxidation of carbon.

This section shows that it may be difficult to tell Shoal River from Citronelle by fingered texture, since some of the Shoal River sand is distinctly coarse and contains pebbles of quartz up to 1/2 inch or so.

5157

gray sand about 2 ft above river

5158

Shell marl ~ layer near top of bluff

Jan 28

Holmes Co.

92

0-196

Bluff on Sandy Creek, Edwards Bluff.
The top of the dark clay is sampled provisionally to 28 feet by hand level. (checked) above the present level of the creek which is about 1 1/2 to 2 feet above normal. This is in the heart of the bluff back from the creek where the clay has not slumped down appreciably.

Clayey sand 12 ft of bluff immediately above top of dark clay. The lower part of this 12 ft is distinctly more clayey than upper. This sample goes to within two feet of top of bluff. This upper two feet of orange sand contains some rather coarse grains which might interfere with proper working of clay. Between 25 and 30 ft from top of bluff to top of hill.

Total from creek = 28 + 7 + 12 + 2 + 25 = 74 feet

Some very poorly preserved bones so poorly as to be somewhat doubtful that they are such. Shell casts through most of the thickness represented by this sample. I cannot say for sure where the contact with the Citronelle is or even definitely that it is in the bluff at all. I think it may be above this top of it.

Two miles NW of Ponce de Leon on highway cut in weathered clay not far above bottom of hillside. Probably the same bed as in bluff on Sandy Creek.

Jan 28

Holmes Co.

93

Cut from Ponce de Leon on road S. of R.R. on road to W or perhaps a little S of W past lumber mill on R.R. about a mile W of main part of town, at 0.5, 0.7, 2.0, and 2.7 mi on this road exposures of clay where road goes up hillside. Probably weathered equivalent of dark clay in bluff on Sandy Creek.

School house at 3.5 mi this is about at the south side of a high hill of flinty remnant to the south and slope steeply with dense woods.

737 mile post from Louisville (734 mile post is a few hundred feet W of Maple station) 1/2 mile S of north of R.R. near bottom of hillside west of a small creek or branch.

0-197

Soil, sandy loam, few pebbles, 1 ft
Thin clayey sand, partly red, 5 ft
Clay, fine textured, mostly light gray some red, 5 ft

Railroad cut W of here, higher up same hillside shows much greater thickness of clayey sand similar to upper part of this section except that it is not so red and is more deeply cut into.

Jan 28

Holmes Co.

94

200 ft W of the mile post the RR bed out 15 ft deep but the bottom of the hole not reach to the top of the clay. Except for small bits of ss of lower sand at the top it is compact clayey sand, mostly rather like alluvial there are some pebbly streaks in upper part.

About $1\frac{1}{2}$ mi W of Ponce de Leon road cut shows steeply dipping clay layers. Other cuts from Ponce de Leon to Caryville show confused bedding. Clay for a short distance then sand for a short distance at the same elevation. Some of this may be irregular deposition since it is not easy to tell in the weathered material near the surface. However it seems that most of the irregularity is due to solution of limestone and resultant digestion of overlying material. For this reason the clays of this area (Miocene or Oligocene?) are not at all favorable for commercial exploitation.

Jan 28

Washington Co.
Caryville

95

0-198

Clay Caryville

From borrow pit along hill at east approach to bridge I fill over Choctawhatchee R.

gray sand fine
yellow sand fine
sample 0-198 clay, very sandy

1 ft
6 inches
4 ft

This is supposed to be Choctawhatchee R alluvial material. It is well above the level of the swamp and is subject to overflow only by extraordinary floods such as that of 1928. The land has variations in level of two or three feet. Part which is not built up in the form of open pine woods. While this material is somewhat variable and runs into sand there is nevertheless a large amount of material similar to the sample.

~~Washington Co.~~
Holmes Co.

96

On the west side of the river opposite Caryville the borrow pits along the road show some sandy clay similar to that at Caryville but the excavations show only sand. Some sand with moderate amount of clay which looks like molding sand.

From Caryville to Bonifay and Bonifay to Chipley there are several exposures of clay in roadside cuts. Their bedding is so much disturbed that it is useless to try to do anything with the clay.

One of the most interesting of these cuts is two miles E of Bonifay. It shows alternation beds of clay with coarse orange sand and sand of other colors dipping to eastward rather steeply. Also faulted.

Jan 15

- Roll 1 (1) Requeimol yard to Blanton
 (2) Downstream side of bend } park at
 (3) Upstream } bluff springs

Jan 16

- (4) gully on side of Canal Creek
 valley near road / Canyon - Blanton
 (5) gullies and alluvial fan
 on side of upper branches
 of Pine Bluff Creek

Roll 2

- Jan 17 No 1 to 4 - Cut on highway 13.0 mi
 S of Canyon in showing unconsolidated
 between Citronella and Blackwater
 No 5 Gully with clay in bottom
 4.0 mi N.W. of Pine Bluff

Jan 18 No 6 East Branch Blackwater - mile W of Manson

Roll 3

- No 1 Both looking upstream from bridge
 No 2 In for Creek 2 mi S. Manson
 looking upstream - a few hundred feet
 below bridge - with
 gullies and bluff pine trees.
 sand and gravel

No 3 Sweetwater Creek, 1.2 mi N.E. of
 Manson

No 4 Blackwater R. 10 mi E of Manson

Jan 21 No 5 Marks left on beach by
 waves - Partly mud and partly
 leaves sticks and other debris
 Partly beach of white sand
 Partly beach of dark sand

Jan 22 No 6 "Turret" dune for erosion monument
 about 10 ft high Santa Rosa Island
 opposite Camp Walton

Roll 4

1091

1922

1093

1094

1095

1096

1097

1098

1099

1100

1101

1102

- No 1 Looking across the dune from top of water
 Santa Rosa Island in background. See p 51
 No 2 From same view point looking across
 sand at Camp Walton
 No 3 Blowout in littoral dune
 See p 54
 No 4 5100 ft E of red tower looking E
 along littoral dune. Blowout dune in
 background. Upper part of sketch
 p 56
 No 5 Same point as preceding looking N.E.
 Unsubstantiated dune ridges in foreground
 the blowout dunes in back
 No 6 5700 ft E of red tower looking E on
 side of dunes toward beach. Blowout
 dunes. Blowout dunes. Small area of
 unsubstantiated littoral dune on right.
 Roll 5
 No 1 6100 ft E of red tower. Blowout in
 back side of littoral dune. A little
 beyond principal dune in background
 No 2 Head of same blowout looking
 east across it
 No 3 N tip in edge of dune 7000 ft
 E of red tower see p 58
 No 4 Turret dune. Same locality 200 ft
 or so back from the water
 Jan 23 No 5 Drifted sand and in fact, grass
 No 6 Grass plain on outside of S. to N. dune
 - below west of main pass.

- Roll 6
- 1103 1. Dune ridges. Looking W from top of second one, 2000 ft W of pass.
- 1104 2. Dune ridge. Looking NE from top of 1st one, 7700 ft W of pass. Pine wood at back of ridge.
- 1105 3. Looking NE along line of bluffs. Dunes 10000 ft W of pass from top of bluff out 300 ft back from shore.
- 1106 4. Looking NE along line of highest dunes with shrubby vegetation. On left snow-capped bluffs. Pine wood and bay in back ground. From top of highest dune out 4000 ft W of pass and 500 ft back from shore.
- Discarded
- 1107 5. Looking a little E of north over sandy plain from which dunes have been swept. Looking along 10,000 ft W of pass.

- Roll 7
- 1108 No. 1. Looking E at high dune of p 74.
- 1109 2. Looking W at same dune across the depression between at a distance.
- 1110 3. Bedding on side of road. Dune opposite May Esth.
- 1111 4. Sand point pushed out into Santa Rosa sand by waves sweeping across island 2 mi W of Camp Walton.
- 1112 5. Drift sand held by grass 1/2 mi W of Camp Walton.
- 1113 6. 2.00 mi E of Boufay. Cut on highway No 1 bed of purple clay between orange sand.