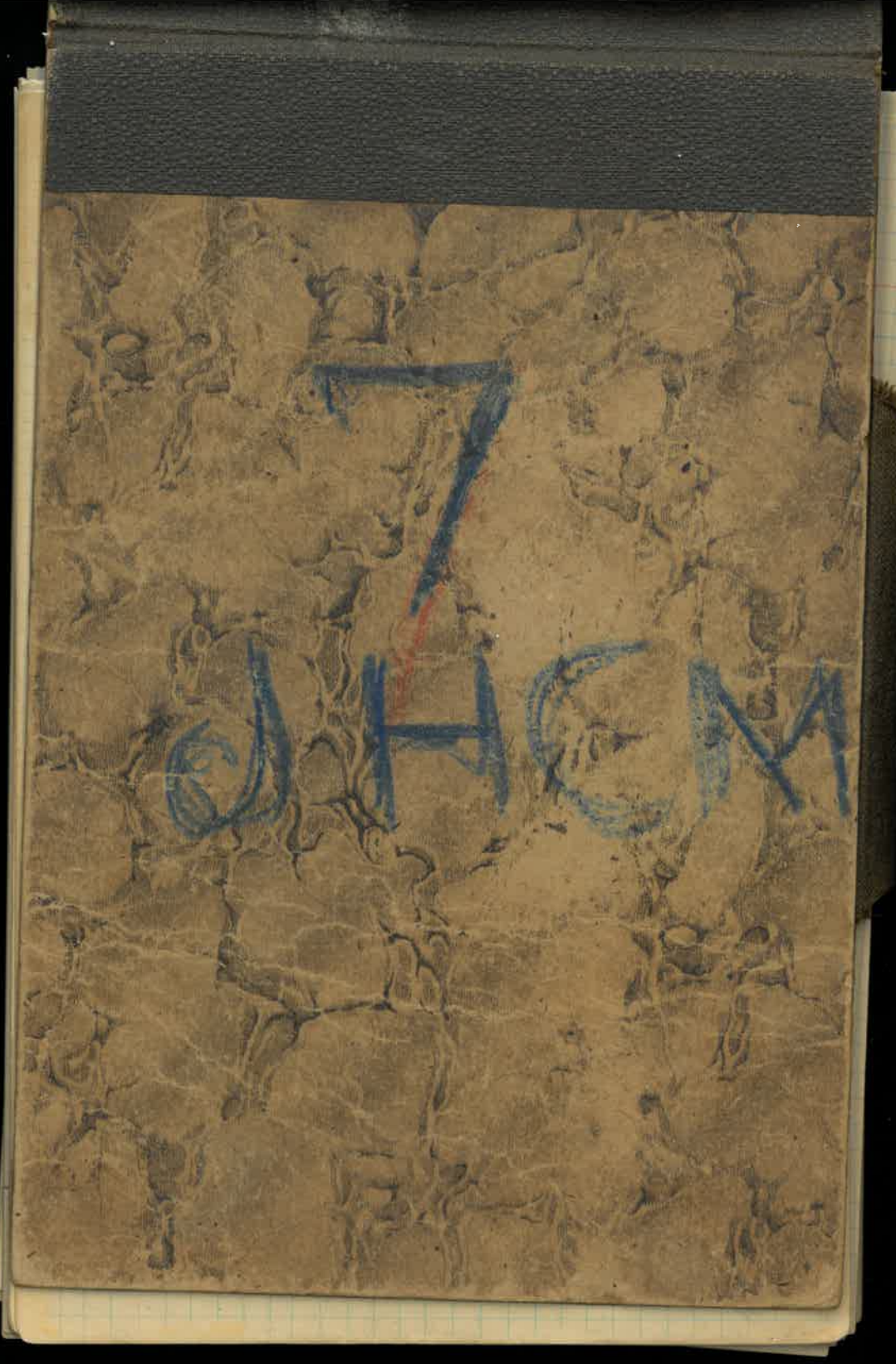


Walton Co Mol
Mrs Clean Abstract
Surveying book titles

Book 7

J. H. C. Martens
Florida Geological Survey

Tallahassee, Fla

Locality on Sandy Creek
5.9 mi from bridge over creek in
Ponce de Leon. turn north.
at foot of long hill going out of
Sandy Creek valley. Take
three right turns one before
and two after passing Scotts mill

to use
last number 4015 4016
5054 5055 – 5099
from 5129

Clay next T 0–134

March 6, 1928

Madison Co. [illegible] 1.

[illegible] rolling country. Black jack oak and salamander sand. Yellow sand in cuts in places 6 ft or more thick. Not coarse enough nor clean enough to be of much importance

28 ½ pieces = 300 ft
according to statement on road [illegible]

March 6, 1928
Columbia Co. 2

Out of Lake City on Road toward Lake Butler — for the first three miles dry upland with many depressions. Sandy soil but approaching hammock conditions.

The rest of the way to the Union County line along the road is practically all flatwoods with hardpan sub soil. In a few places impervious clayey sand within two feet or so of surface shows in ditches, but upon there ~~there~~ seems to have been a tendency for hardpan formation above it.

At Lulu a little area of dry sand.

Olustee Creek is so swampy that it is hardly recognizable as a creek. Therefore no chance for sand of any account along it.

March 6, 1928
Columbia Co 3

Lake Loma 7 mi W of Lake City
This lake is subject to considerable variation ~~and~~ in level — Now at rather low stage — No trees or bushes below ordinary high water
Much of the area below high water line is bare white sand blown about to some extent by the wind. It is white only to very small depth however being colored below by carbonaceous material. The lake is surrounded by a narrow strip of open hammock — Live Oaks — On the higher ground nearby ordinary cream-colored sand (Norfolk)

No certain indication of any sand having been dug out of the lake

March 6, 1928

Union Co. 4

On road from Lake City to Lake Butler — going up slight rise 20-30 ft than central part of Lake City

cut on new road about 8 ft deep shows a foot of loose gray sand soil underlain by 7 feet of distinctly bedded variegated red and light gray sand and sandy clay.

Small amount of very tenacious laminated clay x some small folds and disturbance of bedding

Lake Butler

Sand used is brought in by rail (Lake Weir.) There is said to be no good sand around Lake Butler.

The shore of the lake itself is swamp with muck or peat soil. No sand beaches.

March 6, 1928

Clay Co. 5

Lake Kingsley

At Strickland's Landing on N side of Lake — sand beach. Apparently not much variation in height of the lake.

Very perfect ripple marks on the bottom, in a number of places where the heavy minerals have been somewhat concentrated. The crests of the ripples are black and the troughs light colored.

Small beach ridge. Max. conc. of heavies is on top of this and just in back of it, although there is some out in water nearly a foot deep.

7008 Sand heavy concentrate scraped up from surface of beach ridge (not more than 6 inches about the water and those of perhaps 6 feet back from it) x Thin layer of scarcely 1/4 inch x That would be about 1/4 the maximum observed

7009 Sand

1/4 mi W. of Kingsley Lake. Ordinary (Pleistocene) Sand of Trail Ridge, taken 2 ft below surface in roadside bank.

Color grayish yellow x Vegetation is almost [illegible]

Alachua Co.

March 7 1928 6

Much of the way between Gainesville and Newberry and especially within a few miles of Newberry, light gray to cream colored or yellow sand is frequently seen and is the most common surface soil x Usually limestone at rather shallow depth x Occasionally sand in ridges giving it a greater thickness

Newberry

Sand used around here is hauled from the abandoned phosphate mines.

1 mi W of Newberry old phosphate mine.

Much white sand shows at depth of 20 feet or more below the surface x Some lumps of phosphate rock in it x

7010 White sand Pliocene?

1 mi W of Newberry, in phosphate mine, 20 ft below surface.

Has enough binding material in it so that it will stand in vertical bank x Texture is too fine for it to be much importance. Possibly the ordinary surface sand, gray and yellow as formed

March 7, 1928
1 mi W of Newberry 7

from the weathering of this. The mine has been so long abandoned that no large enough clean banks are exposed to show stratigraphic relations.

A number of loose pieces of breccia lying around phosphate rock or outcrop of sand and limonite. One less weathered has green mineral in the matrix Verdinite? Specimens collected.

---

4 mi W of Newberry
many abandoned mines
two photos to show pine trees in the mines and on the dumps.

March 7, 1928
Gilchrist Co. 8
5.0 mi W of Newberry.

Large mines and dumps. Photo of white sandy waste pile. Sand has been hauled from one of these dumps & contains many fragments of phosphate rock up to the size of coarse sand. Also fine powdery phosphate (limestone) Phosphatic sand lettings.

5.0 mi W Newberry

7011

On eastern part on road from Trenton to Newberry deep sand soil as shown on angle. In places the sand seems to be thick enough to influence the topography. Probably coastal features of the Pleistocene submergence.

Along the road which follows the RR rather closely the dry sand area seems to extend farther west than shown on the soil map as a ridge which the road follows. Flatwoods on each side of the ridge. The flatwoods strip shown on the map in the central part of the map is also interspersed with other slightly elevated areas of dry sand but generally the latter are east in the country or near the eastern edge.

March 7, 1928 9

From Waldo to Earlton on road to Melrose. Mostly flatwoods for a way out of Waldo, then somewhat rolling country. Around Earlton surface sand is very fine. In some road side cuts clayey mottled red and gray subsoil sand shows at depth of a foot or two and in one place comes to the surface.

Putnam Co.

Melrose 63.0

1 mi E of Melrose getting up into higher very sandy country with depressions.

2.2 mi E of Melrose.
sandy black jack oak land continues.
Road material pit shows 5 ft compact red clayey sand of fine texture. One two inch layer of real clay can be seen most of the way around the pit. 3 ft of light cream colored fine loose sand above the red sand. It looks as if these were formed by leaching of underlying material.

4.0 mi E of Melrose
road material pit used as source of road base for road now under construction past here shows 2.5 ft of sand mostly of rather coarse texture and

March 7, 1928
Putnam Co.

10

having clay disseminated through most of it × on top of the clayey sand is about 3 ft of loose grayish to cream colored sand overburden probably leached × Immediately below this loose sand is the greatest amount of iron staining and most compact part of the clayey sand × Some of the lower part of the bank is practically pure white and the clay is therefore kaolin but there are no large masses without iron staining – pink red or orange iron seems to be related to bedding in some places and in others to past water levels etc × Crossbedding

7012 Coarse sand – about 15 ft from surface × is much coarser and has less clay and more iron stain than that both above and below about 12 to 18 inches thick × In places the upper part is red and the lower part yellow

7013 Light colored clayey sand 20 ft from surface.

Parts selected as having the least clay would do very well for concrete sand without washing but for producing any considerable amount of concrete sand washing would have to be resorted to.

Putnam Co.
March 8

11

3/4 mi S Putnam Hall road pit shows 6 ft. coarse clayey sand with 3 ft loose sand about it. Probably the same pit sampled by Mossom × The clayey sand is mostly pinkish or slight red but some parts have white clay × Pebbles well worn of ellipsoidal shape occur both in the clayey material and in the loose sand above which is probably the leached weathered portion All indication of bedding destroyed × in loose surface sand

Another pit about 1.3 mi from Putnam Hall on road to Grandin show similar section Much of sand is semi consolidated and there are some concretions of real sandstone × Very coarse sand with some of the ellipsoidal pebbles

Putnam Hall to Grandin all the upland is very sandy Surface sand contains some coarse grains even a few small pebbles although the average grain of the sand as a whole is not particularly coarse Loose sand seems to extend

March 8, 1928
Putnam Co.

12

to depth of about 3 to 6 ft and below that clayey sand ×

Just east of Grandin pleistocene sand begins at contains some of the coarse particles.

The town of Florahome is on a hill of Pleistocene sand × It is a typical scrub area × only the top 6 inches or so of the sand is white Below that light yellow or cream color

Toward the east side the scrub seems to grade into a hammock with some cabbage palmettos and the surface sand has more humus giving it a gray to brown color Borrow pit on east slope of the hill shows 5 or 6 ft of dark brown loam sand colored by organic matter × Below this what might be called a marly sand more or less streaked with light and dark × No recognizable shells but what look like a few fragments ×

Elevated area south of Bardwood is fine light colored sand, Pleistocene × – at least near north end × In places the slope is gentle enough for formation of hardpan soil ×

7014 Sand Pleistocene – light cream colored 2 mi E. Florahoma 120 ft elev. 4 ft below surface Only similar material seen above and below

March 8, 1928

Putnam Co 13

North from Florahome through scrub bordered by hammock thin across prairie for a mile or so.

2.8 mi N of Florahome turned west; wound about through sandy hammock for three miles. Then came out on hill [illegible] x jack oak hills, yellow sand with a few pebbles in it — Citronelle?

This is north of Grandin and probably just over the line into Clay Co.

March 8, 1928 14

Clay County

Northwest from Putnam Hall on road to Keystone Heights. Through sandy land with numerous depressions. At 3.7 mi from Putnam Hall road pit shows pinkish clayey sand at 3 ft depth. Not so coarse as the two pits south of Putnam Hall. As usual there are some spots in which the clay is nearly [illegible]

7015 4.1 mi from Putnam Hall on road to Keystone Heights. East side of Lake Geneva. Heavy concentrate from sand beach.

Here the lake is apparently eating into the shore. Small outcrop of kaolin bearing sand at the water's edge. Some pits from grove stock and more [illegible] nearly so.

Dry sandy land along the lakes

Keystone Heights.

Typical Lake Region Topography

At W side of town large pits in sandy clay — actually a moderately fine sand which has notably

Clay Co.

March 8, 1928 15

only a small proportion of disseminated clay. All kinds of yellow, brown, red, & mottled kaolinitic. Much of it is nearly white. Bedding nearly horizontal and much more regular than in pit between Melrose and Putnam Hall & many others with coarser texture. Three feet or so of loose sand on top

Starting out of Lake Geneva north on road to McCrae cut through hill a few hundred feet north of Post Office shows pinkish clayey sand — Texture rather fine — about like that at Keystone Heights — 4 ft or so of loose grayish yellow sand on top

Three mi. N of Lake Geneva on road to McCrae roadside pit

Three ft loose sand medium texture (fairly coarse for Florida) A few elliptoidal pebbles.

Three ft. red clayey sand texture about same as that above except for a little more clay. Not so coarse as in two pits S. of Putnam Hall

Mar 8, 1928
Clay Co.

First 4 mi out of Lake Geneva on road to McCrae sandy black jack oak upland. From 4 to 6 ½ mi from Lake Geneva somewhat lower – going around east side of a lake. Mostly rather open hammock of evergreen oak, in places approaching scrub, sand 'pinel woods'. In the last interval nothing to indicate presence of Citronelle except sandy surface soil

Continuing north on this same road through McCrae, from 7 to 9.3 mi N of Lake Geneva sandy dry land with open woods of long leaf pine and various small oaks.

At 9.3 mi from Lake Geneva on this road flatwoods begin

17. mi. N of Lake Geneva passing through area of fine dry sand – at 17.4 mi going down hill toward branch, cut shows 2 ½ ft of thin loose gray sand with 3 ft of red clayey sand below – rather sharp separation but little difference in size of the sand grains. Red part is fine also. No pebbles. No bedding shows.

Mar 8, 1928
Clay Co.

Kingsley Lake to Lawtey

Fine light colored sand
Although this road must go along trail ridge and nearly the highest part of it the existence of the ridge is not at all obvious because the slopes are so gentle and the trees hide the view.
The sand around Kingsley Lake seems to belong to Trail Ridge rather than to the Lake Region (Citronelle.

Lawtey 53.7

NNE from Lawtey on highway no. 13. Near top of Trail Ridge just west of county line into Bradford Co. Cross narrow strip of dry fine sand.
But even on the ridge there is mostly hardpan flatwoods soil because there is apparently not enough slope or the sand is too fine for good drainage.

Duval Co.
March 9,

Near E. city limits of S. Jacksonville on boulevard to beach, some dry yellow fine sand. Has been used here to small extent for fancy concrete block etc.

Going out on boulevard toward beach pass through a large amount of this kind of sandy country. More the first half of the way from S. Jax than there is farther out toward the beach. Some of this but not all is in the form of distinct ridges, map Norfolk fine sand of soil. Light yellow color. Surface layer of white due to leaching not very much developed.

? Shell mounds
Much oyster shell is being used on road, and is presumably obtained in this county.

Duval Co.

March 9

Atlantic Beach (Jacksonville)

19

Where road comes out to the beach there is piling to limit the wave action and the land immediately in back is built up with the town of Atlantic Beach.

Here the heavy minerals are concentrated at the foot of the piling x

1.5 mi to the N of where road comes out to beach the beach is apparently in its natural condition.

Max. height of dunes about 25 ft. Front of dunes is rather irregular & over hung in places with the cabbage palmetto, grabs and cactus.

At present state of tide, (about noon) beach is 160 ft wide from water's edge to foot of dunes.

Heavy concentrates abundant most at back side of beach within 20 feet or so of foot of dunes, but scarce thru streaks all the way across the beach.

Also some concentration by wind action on seaward side of dunes which is mostly bare of vegetation

Note Tide

Low 3.49 PM

High 9.99 AM and 10.09 PM.

Florida Times Union

Mar 9, 1928
Duval Co. — Beach

20

Continuing north, about at Manhattan beach, a much more active dune ridge begins (3.5 mi N of where boulevard comes out to Atlantic beach.

Little growing on it except cabbage palmetto and they seem to be left from a period when somewhat different conditions prevailed.

Picture roll 2 No 4 of back side of this dune ridge where it is encroaching upon the dense scrub.

On the beach in front of this dune ridge heavy concentrates abundant in strip about 20 ft wide and in places 2 ft deep. Not more than 2 streaks alternating with wider light and heavy

The sand area shown on the topographic map south of the south jetty at St Johns Bluff is very low and practically flat Width of 500 to 600 ft below high and low tide lines at the jetty. Very likely this flat part north of the end of the wooded area has been filled in since the building of the jetty since the jetty would protect it from eroding effect of waves and of southward moving current x

Duval Co. - Beach

March 9

21

Perhaps this effect combines about as far south as Manhattan beach, although from the age and location of the cabbage palmettos on the seaward side of the dunes it could not possibly have added enough sand to build the shore out and any further north than 0.7 mi S of the jetty x However the active dunes extending from this point to Manhattan beach 2.0 mi S of the jetty may indicate that some sand is being deported x

8024 Sand recent beach

St. Johns R. mouth

200 ft S. of jetty 500 ft back from water's edge (open sea)

Elevation slightly above high tide — cut to 6 inch depth.

Show some thin dark streaks but no at present can be picked up of pure heavy concentrate

Manhattan Beach

2.0 mi S of jetty

the tide has gone out so the beach is now 300 ft wide

Mar 9

Duval Co. Beach

Manhattan Beach

22

8025 back to foot of dunes.
Sand scraped up from surface at about low tide line.
Examine for mica. Shiny flakes may be old shell but look much like mica.

8026 Sand (heavy concentrate)
Manhattan Beach
2.0 mi S of jetty.
15 ft in front of dunes
Average dist to 15 inch depth
Contains many thin layers rich in heavies.

The amount of sand blowing about today and the frequent thin sprinkling of heavy mineral left on the surface by wind makes it look as if the bed really has belted in concentrated of workable deposit.

3.5 mi S of jetty
beach is 350 ft wide (2 PM

5.2 mi S. of jetty
Atlantic beach end of boulevard from Mayport

Mar 9 1928

Duval Co. — Beach

23

6.0 mi S of Jetty — here there is certain evidence of process waves are cutting inland at incoming tide — yellow sand shows below white in wave cut cliff

Photo of this

windblown sand at foot of wave cut cliff shows very definitely the concentration of the heavy mineral on windward side of wind formed ripple marks. The heavy mineral goes at last all the way from the trough up to the crest

Photo of this including note book

Beach is here 400 ft wide.
2:30 PM
Tide appears to be low perhaps down lower than ordinary since wind is blowing off shore

7.7 mi S of Jetty principal part of Pablo Beach.

9.8 mi S of Jetty
beach about 400 ft wide
Much more of heavy concentrate than there is at Manhattan beach

12.4 mi S of Jetty
mill at Mineral City

Mar 9, 1928

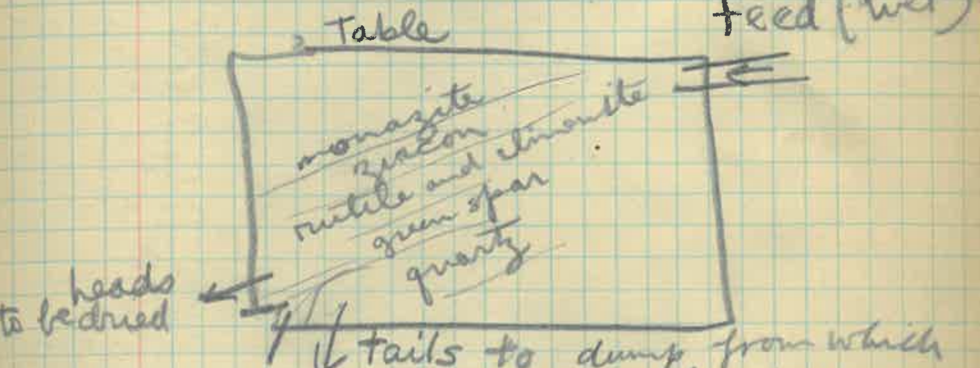
Mineral City

24

Buchanan and Pritchard.
They are still working on tailings from which most of ilmenite was removed. They have 400 or 500 tons of it left. When that is gone they will probably shut down for a while until road in back of beach is completed so they can haul more cheaply. They have plenty of "ore" left but have to go 7 or 8 miles down the beach to south and under present conditions they could hardly afford to haul it

Wet mill is now in operation on tailings from which ilmenite was recovered. Therefore proportion of garnet is already small but they can not get a close enough separation without running part of it through twice.

March 9, 1928
Mineral City



tails to dump from which they are recovered and run through wet mill again (not a continuous process)

about 18 of these tables working in parallel

This separation is only approximate since much of the other minerals goes in the tails with the quartz and greenspar.

No distinct separation of rutile and ilmenite can be seen!

In mining beach sand they took strip about 50 ft wide. Usually mined about 1 ft thickness — removed as high as 3 ft overburden from this.

More garnet to South of mill also more ilmenite but perhaps it was not so at first

Mar 9, 1928
Mineral City

and is more because it has been worked more to north

A few miles S of mill some heavy concentrates have too heavy overburden of sand and coquina — 5 ft of 50.

Dredge which was to have mined dunes was not used because percentage was too small

---

Garnet goes mostly in first magnetic concentrate with ilmenite. This ilmenite concentrate is not very pure as now prepared at the mill — much of green-spar minerals ×

One of employees says they have worked 3 miles north and 8 miles south of mill

No beach sand worked since last time I was here.

He also says that they have 17 miles of beach to work farther south in other words extending to 25 mile south of the mill.

Mar 9, 1928
Mineral City

The samples from magnetic separation of sand sent by man from Clearwater who later disappeared ×

Chart of products and derivatives — Bacon — Pritchard

Rutile
TiO_2
96%

- Titanium Cyanonitride $TiCl_4$ — gas offense, Spotting shells, tracer bullets
- Titanium nitride — Arc light
- Carbon-free ferro-titanium → bronzes

Mineral City 1918
Mar 9,

Ilmenite 52% TiO2

- Titanium pigments
  - Automobile tires
  - Rubber goods, 28
  - Linoleum
  - Structural paints
  - Marine paints
  - Hospital wall finishes
  - Interior paints
- Titanium bronzes
  - motors
  - marine pitmen
  - aeroplane parts
  - pumps.
  - submarine equipment
- Ferro carbon-titanium
  - Rail steels
  - Tool steel
  - Steel castings
  - Structural shipbuilt plates
  - Special steels

Monazite

Zircon

- Crucible and refractories
  - smelting
  - melting
  - heat treating
  - Kilns
  - muffles
  - retorts
- enameled iron ware (to replace tin enamel)
  - Conductor bars for trench telephones
  - Hospital ware
  - Sanitary ware
  - Commissary ware
  - Acid proof Containers

Abrasives of all kinds
White pigments.
Special alloys.
optical glass
Zirconium-nickel alloy wire
Aeroplane Moto Spark Plugs,
Electrical Resistance units.

March 15, 1918
H. H Buckman.

29

30

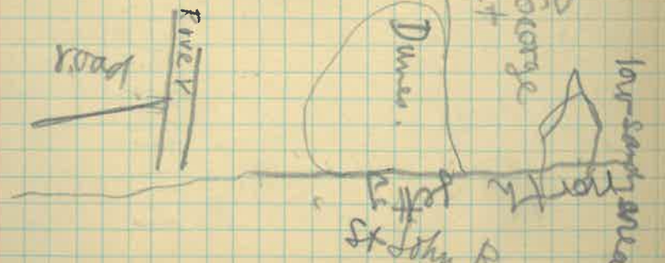
Mineral City
at 6 P.M. beach 350 ft wide or perhaps a little more.

Mar 10, 1928
Duval Co.

31

5. and Ft George Island
Oyster shell on top of brown sand.
hammock vegetation. Some cedars.
shell has been dug for roads.
Old building. Base of shell concrete.

all this seems to be shown about right on topographic map.



March 10, 1928
Duval Co. — Beaches.

32

Dune area at west end (base) of North jetty of St John R. mouth. Mainly one long dune about 60 ft high. Some Cabbage & palmettoes which stick up through the sand. Some of these are almost covered. Heavy minerals are rather prominent. I should say they make up a larger proportion than in the dunes around Pablo Beach and mineral city. There are often many successive thin layers with light mineral between. Also light and dark banding is well shown in ripple marks — Dark mineral on windward side of ripples.

Pictures here

(3) Near top of dune showing Cabbage palmetto almost covered. Ripple marks may show also.

(4) Looking E from top of Dune at South end of Little Talbot Island showing scarcely any vegetation

(5) Looking E from top of dune at Little Talbot Island. Sand dune area on the right of island covered with more or less herbaceous vegetation practically without trees.

March 10, 1928
Duval Co. Beaches.

33

8027 Sand with some concentration of heavies made top of dune on S side of Ft. George Inlet near base of St. John R jetty cut to about 1½ inch depth on surface

Walked out about a mile on the north St John R jetty from there looked across Ft George Inlet to south end of Little Talbot Island. From there can see that there is a wide flat beach (¼ mile wide or more) extending around the east side of at least the southern part of the dune area of the island. Breakers show shallow water extending a long way out but only a little past high.

The dune sand at the base of the north jet seems to be derived mostly from dredging of sand for St Johns river channel at least as far as recent activity is concerned.

Base of a few of the cabbage palmettos can be seen to be at slight elevation above surrounding country suggesting that there might naturally have been small dunes there. It is also possible that some sand may blow across the channel from the broad beach on S end of Little Talbot Island

Mar 10, 1928

Duval Co. 34

On highway no 3 near Eastport junction.

Bank on roadside shows:

4 to 6 ft of white to light gray fine sand underlain by 2 to 3 ft red clayey sand of which the bottom is not exposed. Contact rather sharp and practically level. Some places a little wavy

Neither part shows any bedding. The red clayey sand has been used some on road.

Cannot see any good evidence of whether white sand is leached and red is secondarily enriched portion of same formation or whether one not discomformable on the other

Mar 10, 1928

Nassau Co. Beaches 35

South Jetty of St Marys R.

Beach is very wide here. Distinct beach ridge about 200 ft back from w line the water is now (3:30 P.M.) at least 1/4 mile at low tide to beginning of dunes

8028 Sand

1/2 mi S of S. Jetty of St Marys R. a little above high tide line and 25 ft in front of beach ridge (crest) Cut to 1 ft depth. Has some small shell breaks but to be supposed to be the ordinary sand of this beach.

1.0 mi S of Jetty

gently sloping beach 500 ft wide (tide almost low) up to top of beach ridge. From beach ridge back 2100 ft (est) level plain of sand a little later than the beach ridge. Much of it has thin growth of grass. Shell rarely abundant. A few very small dunes on this plain but the principal active dunes form a ridge at the back of this plain just in front of the wooded area. This ridge is about 30 or 40 ft high — Some of vegetation some lately broken shell in the dune sand.

Mar 10, 1928

Nassau Co. Beaches (Amelia Island) 36

1.0 mi S of Jetty - slight cut of heavy conch shells on top of beach ridge but sand no single layer more than about 1/10 inch

2.2 mi S of Jetty - beach ridge is apparent breaking out and dune ridge starting about 400 back from water (4 P.M.) In back of the dune ridge a rather bare sand plain which has narrowed down from what it was a mile or so to the north. The dune at the back of this plain is smaller — No trees at all on the outer dune ridge — Beach ridge can be faintly seen 50 ft in front of outer dune ridge (which is really rather broken to be called a ridge) Small thin layers of black sand from top of this beach ridge back to dunes.

3.8 mi S of Jetty —

500 ft (estimated) of beach back to first dune ridge which is rather broken and discontinuous. Tide is now low and most of this width is between high and low tide

Treeless dunes (some grass etc) for belt about 300 ft wide. The back of them are dunes with scrub.

More shell on beach all the way from here to jetty than there

Hugh dune area between Cedar Creek and Trout Creek N of St Johns R is crossed by Bay Shore Road. Light yellow nearly white fine sand

anywhere between St Johns R. and Mineral City – Mostly of coquina type.

5.8 mi S of jetty.

Beach 400 ft wide (tide about low) with fairly even slope back to first dune ridge which rises about 8 ft above the beach and is fairly regular and continuous. 50 ft back of this (crest to crest) is another dune ridge about the same height but much broken. 100 ft back from the first is the third which is fairly even and continuous but rises 15 or perhaps in places 20 ft above the beach.

More closely spaced dune ridges in back of these. The outer three and the front of the fourth one are treeless but partly grass covered. Beginning with the back side of the fourth they are thickly covered with bushes and small trees.

Nowhere along here is there a wave cut cliff on the outer dunes but rather they have slopes as if formed by wind.

6.8 mi S. of jetty
dune ridges about the same as at last note except that third one is higher as a maximum (probably 50 ft) but more broken apparently blown away. It has on it very scattered cabbage palmetto (small), Spanish bayonet, and saw palmetto (?). No other trees. Thick growth of bushes begins on next ridge back. Second dune ridge from beach is rather poorly defined but can still be made out.

Roll 4 Pictures
(1) Looking north along outermost dune ridge from top of it. There is a slight suggestion of a beach ridge in front of it but that is not likely to show in picture.
(2) Looking N. from high dune on third dune ridge from beach.
(3) Spanish bayonets and palmettoes on dune, part of third ridge referred to above.

In places there are cuts almost entirely through dunes of the third ridge but there is very little indication of weathering. Shell fragments still remain and no part of quartz sand yellow from oxidation of iron.

9.7 mi S. of jetty – about the same as last not. Nearest approach to trees on two or three outer rows of dunes are Spanish bayonets. Dunes are here rather irregular and can hardly be said to form distinct dune ridges.

8029 Sand recent dune.
cut from 6 ft bank cut by wind on back side of treeless dune. Some thin dark streak but section is thick enough to get average.

8030 Recent beach sand
Heavy concentrate.
3.0 mi S. of jetty,
cut to 3 inch depth from surface 20 ft in front of outermost dune ridge.

This is the most heavy concentrate that was seen anywhere along the beach of Amelia Island. Thickest layer of black about 1/4 inch pure or nearly so. Sample includes several alternating thin layers of light and dark.

Mar 10, 1928
Nassau Co Amelia I. 40

As far south as I went, 9.7 mi. S of the jetty on the South side of St Mary's River the outer part of Amelia Island is evidently of very recent formation and is adding on at the present time. In four of these we have:

1. The unweathered condition of the dune sand — Bedding still distinct — shells not discolored. Quartz free from yellow stain. No leached upper portion.
2. The type of vegetation on the dunes
3. Amount of shell on beach.
4. Outer slope of dunes which apparently shows addition of material by wind rather than cutting away by waves.

Going inland the vegetation indicates successively older dunes. After grassy and bare dunes there is some prickly grassy with a few palmettos and Spanish bayonets, then stiff thickets of scrubby bushes, then hammocks of small evergreen oaks principally.

Some of dunes on eastern part of Fernandina must be much older. They have distinctly yellow subsoil

Glynn Co Georgia
Mar 11. 41

St Simons Island — Georgia.

South end. Store near post office and bathing pavilion is so much protected from the south and east that it gets only a very gentle swell. There is a gradation upward from the beach into a grassy field and no evidence that there is either much erosion or building up of the coast here. Rather [illegible] concentrates for width of a few feet at the back of the beach more or less mixed with trash — Some grass growing in it would be reached only by waves higher than ordinary. In places more heavy than light minerals to depth of 6 inches and some single layers of practically pure heavies at least an inch thick

8031 Heavy concentrate (cut to depth of 5 inches) back side of beach

8032 Ordinary beach sand cut to depth of 1 ft at a little above high tide line some 400 ft east of preceding sample. Here the heavy concentrates are much less abundant

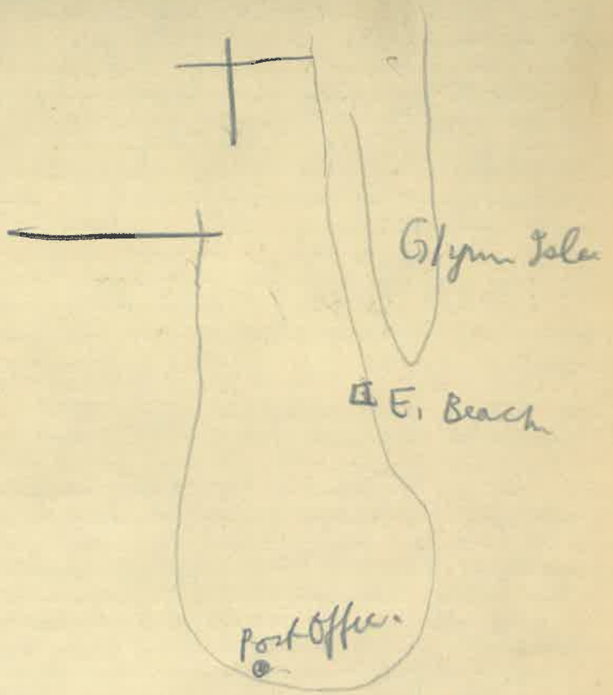
Glynn Co. Georgia 42.

St Simons Island.

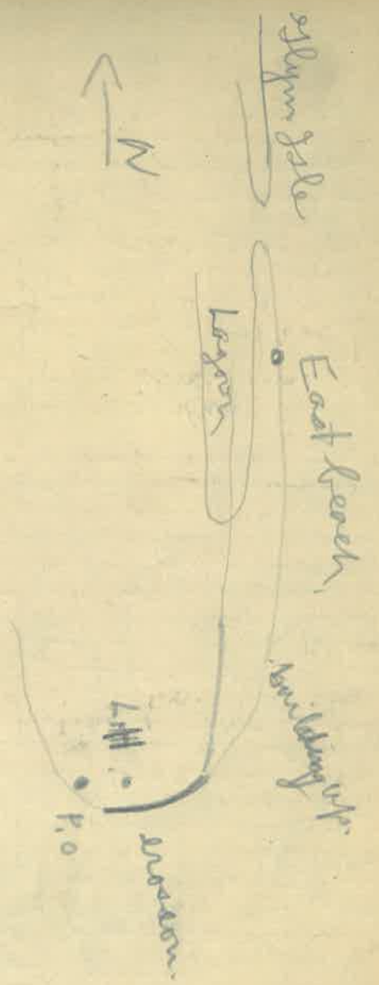
Going east along S. end of St. Simons Island signs of vigorous erosion begin near lighthouse about 500 ft or so east of Post office. Wave cut vertical cliff where the soil is yellow sand (Norfolk fine sand). About ½ mile east of post office sea is cutting into hard pan which acts more or less like a solid rock. Many oak trees being torn up. Not much heavy concentrate seen along here. Only very thin streaks. In places scarcely any sand on eroded surface of hard pan — Most of it has been carried away.

1.3 mi from P.O. by speedometer come out on beach again on E side of island near S.E. corner. In back of the beach swept by ordinary waves is about 400 ft width of recent beach sand rather flat — no trees on it. Few small dunes at back side.

General impression of the sand on the beach is that the light grains are darker than they are on Florida beaches under possible around Cape San Blas to Apalachicola and I think they are even darker.


Glynn Isle
E. Beach
Post Office

7.1


Glynn Isle
N
East Beach
Lagoon
Building up
LH
P.O
erosion

Glynn Co. Georgia.

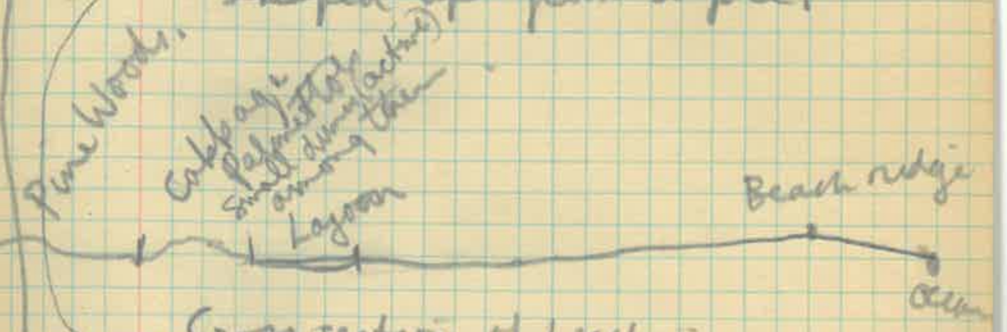
In places the sand has a greenish cast where wet — possibly due to vegetation. It looks also as if the proportion of heavy minerals and the ordinary sand were fairly high but would take many samples to be representative enough to prove this.

East Beach
East side St Simons Island. about 2 to 3 mi from light house. Shore is evidently building up along here. Shore of main island is of recent formation and bars of sand sticking a little above the water in front of it.

(more properly Long Island)
Glynn Island.
Outside of St Simons Island separated by marsh and "river". Came out to the beach about 4 miles north of south end of St Simons Island. This is more or less estimated since it is 7 miles by the road on which I came. The shore here has evidently built up rather recently since there are two or three treeless dune ridges on the outer side. Some pines toward the marsh so that must be appreciable older

St. Simons Island
(Long Island)

8033 → Heavy concentrate – outer beach near top of beach ridge scraped up from surface.



Cross section of beach
Horizontal scale 2 squares = 100 ft.
(and about 1 mi S. of N end of beach)
2 mi N of where I first came onto Glynn Island beach and about 6 mi north of S end St Simons Island.
Considerable amount of heavy concentrate on seaward side of beach ridge near its crest. Most of upper two inches are black with only thin streaks of light.

Lagoon separates the beach from the wooded part of the island. Probably it would not take much of a storm to go over this beach ridge.

About ½ mi N. of the last note marsh deposits (mucky clay with marsh vegetation outcrops on the beach and is being cut into

St. Simons Island
March 11, 1928

[same locality as bottom last p.]
Just in back of the beach ridge is salt water marsh extending back to the woods. No dunes. Fair amount of heavy concentrate on top of beach ridge.
It scarcely seems as if this marsh would have formed against the open sea so the only other explanation is that a protecting barrier has been eroded and beach is now being pushed inland on the northern part of Glynn Island. Inlet at north end of this island is only a little farther.

? North end of St Simons Island at Frederica – old fort is built of shell concrete (oyster)
Built in 1736, restored in 1904. It is not entirely obvious just how much restoration has been done but it looks as if the walls were cast entire and that such joints as there are result from disintegration and restoration

---

All the waters around here on the outer beach as well as in the "rivers" between the islands are muddy and brown, presumably from the discharge of the Altamaha River a short distance to the north.

March 12 46

Callahan Brick and Tile Co.

Making ordinary brick and brick with rough surface. Clay is very sandy. Dried in poorly constructed sheds. Natural heat. Brick burned by wood in scove kilns.

O-13A Clay (molded into brick)
Callahan Brick and Tile Co.
Callahan,

Hess Pit, Callahan
On A.C.L. Ry.
near little saw mill.
Pit is very small about 15 x 30 ft.
Mostly full of water now.
Shows about 1 ft surface sand and 1 ft very sandy gray clay spotted with yellow and red.
Does not appear much different from that of Callahan Brick and Tile Company. Depth exposed is too small to be worth sampling.
On the higher ground around Callahan water is about a foot or two from the surface.
Elsewhere the land is practically submerged.

Nassau Co. 47

Within a few miles east of Callahan on road to Hernandina saw two or three small exposures of sandy clay somewhat like that at Callahan.
Farther east all the way to Yulee and from Yulee to Hernandina saw no clay in roadside ditches.
Seen on highway No. 3 all the way from Jacksonville to St Marys River. Saw no clay whatever in roadside banks or ditches. Sandy flatwoods with hardpan. Also much swamp.

At Crossing of St Marys R, W. side Nassau Co. on road Jacksonville to St. George.

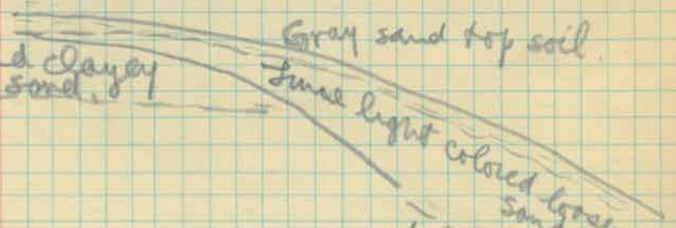
On inside of bends in River are rather extensive bars of white sand. Most of it of about same texture as ordinary pleistocene surface sands of this region. That on outside ends of bars is a little coarser. Much leaves flecks and finely divided vegetable impurities. So sand would be no good unless washed.
River water is coffee colored

Baker Co. 48

Crossing St Marys R. at Stokes bridge north of Macclenny on road to St. George.
Right at the bridge there is scarcely any alluvial material on the Florida side but there is a short distance above and below the bridge.
Fine dirty white sand. In some places hard pan exposed.
Current seems very sluggish here so there a dam below? Water is dark — Cypress growing up edge of water. Cut banks rise high and dry along here. No bar exposed in bed of river — water is too high.
On Georgia side topographic features of alluvial plain are well shown — Distinct alluvial ridge along the bank with scrub vegetation on it. A similar ridge 200 or so feet back probably marking the side of an old channel.
Cut off ponds and swamps

South of St Marys River cross road between St George road and Moniac rocks goes mostly through black jack oak land.
Some light colored sand.

On Moniac road from MacClenny
Hillside N. of South Prong of
St. Marys River



The "red clayey sand" where comes out near the top of the hill not uniformly red but some parts have a good deal of gray and yellow and in places it is more a clay than a sand. Has been used on road along here.

On top of hill there is only the top soil above the red sand. Down the hillside there is a 6 ft bank of loose sand with nothing else yet exposed below it. This looks as if it might be the same formation as exposed in bluff at no. 3 mear East-port junction.

Section similar to that described on preceding page is exposed also on South side of S. Prong of St Marys River, along the same road.

Also small exposure of mottled red and gray clayey sand about 2 mi N of MacClenny on Moniac road.

At Smiths Bridge on road from MacClenny to Monge, about 2 or 3 mi W of Stokes bridge the general characteristics of the river are about the same as at Stokes Bridge. At the bridge itself river is cutting into Trail ridge on the Florida side, so that there is a nearly vertical bluff.

Approx section.

(1) Loose surface sand fine texture light yellow. Ordinary material of Trail ridge — 4ft +

(2) Alternating thin beds of clay and fine sand, weathered mostly reddish in upper part, gray and white slightly stained with red and yellow below. — 6 ft

(3) Mostly fine sand, perhaps some thin clayey layers above about — 15 ft

March 12

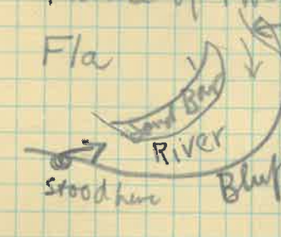
Baker Co.

The bedding of the sand and clay is so regular that it is probably a marine deposit, certainly not alluvium of this river. Not over two feet of clay seen at any place in the bluff and some sandy streaks in it at that so no possible economic importance.

A few hundred feet upstream from the bridge there are sand bars on both sides and look white at a distance but on closer examination are gray and badly contaminated with vegetable material. Current is swifter here than at Stokes Bridge — about the same as at St George Bridge east of and bars are much like those at the latter places.

Alluvial plain shows some small swamps and other depressions not deep enough to be swamps interesting. Changes in the channel.

Picture of river at the locality may perhaps show lower end of next bar on this side



Pointing this way

March 12.
Baker Co.

52

Near E end of R.R. cut through Trail Ridge and 3.5 mi E of MacClenny, rather clean cream colored to light yellow sand shows along R R cut. Small amount has been gotten out here.
It is nearly as fine as the usual Pleistocene sand of this part of the state but the best of it is cleaner than ordinarily. Cut is deeper in central part of ridge but did not examine it closely.

On both sides of Little St Marys ("S. Prong") River which is crossed by highway no. 1, 1½ mi W of MacClenny. Red clayey sand — also sand mottled gray and red containing some thin layers of clay —
It outcrops on the hillsides and near the top of the hill is covered by about three feet of loose fine dry light colored sand.

May 19, 1928
Fluorite Occurrence south of Argyle

53

C. C. Crook, Kentucky.
Alfred Davis, Pensacola, Marble

63.9
59.4

Argyle 59.4
Morrison - one who sent in sample and took me to the locality
J. O. Conger - man who found fluorite and is prospecting it.
63.9 at fluorite prospect
64.3 turn off main road

Turn south at Argyle on road to Red Bay. Take left fork where road divides. At 4.7 mi from Argyle take left again. At Morrison small bet take ditch left ahead road.

J. O. Conyer has a pit about 10 ft deep. It starts in loamy soil with a few pebbles. Below top soil is red sandy clay, with some mica. I saw lumps of fluorite in place in this. This red clay is micaceous and contains pieces of charcoal but I did not see any of this too deep to have come from modern

54

burning of pine trees.
A little galena in some of the fluorite which I dug out of this clay myself.
At depth of a few feet clay is lighter colored and more sandy. Some shell casts. In bottom of hole — depth about 9 or 10 ft a very dark sandy clay has just been reached, greenish when wet more of a gray when dry. I did not actually see any of the fluorite in place in this but Conyer says he found some.

83.3
77.4
87.9

About a mile beyond Church Alaqua

77.4 DeFuniak – out to South
81.1 turned right from Freeport road near top of hill, through woods to
83.8 Church
turned S at Church
on graded road
~~1 1/2 mi.~~

86.0 turned back
on top of high plateau.
black jack oak

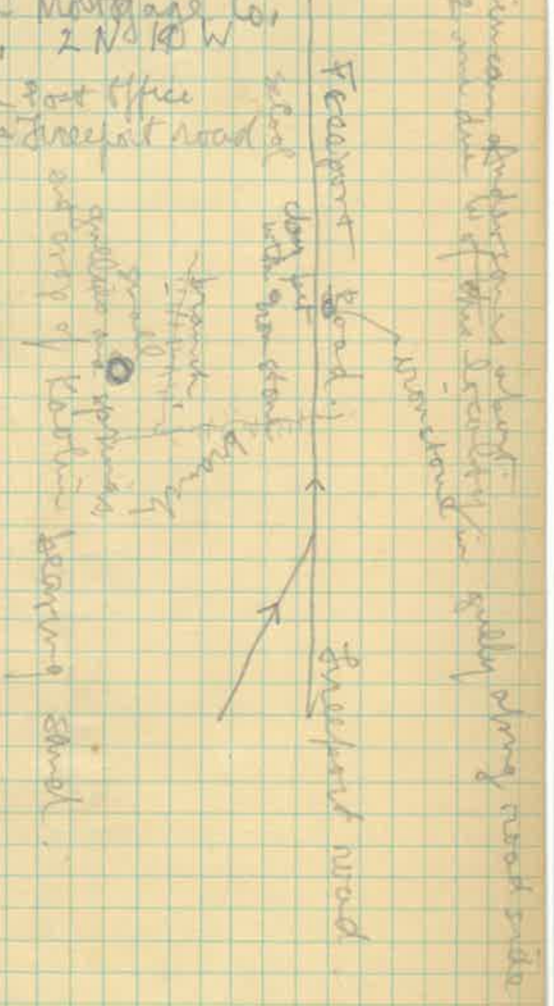
86.7 Anderson House on north side of branch of Alaqua Creek
on east side of main creek
7.9 mi from DeFuniak
turned back to south again on graded road
turned east from it at 85.4

~~[illegible]~~ 91.1 out on Freeport highway –

This distance of 2.7 miles across to the east between the two graded roads is high dry black jack oak lands. Pine has recently been cut from some of it. It is a short distance south of one of the main branches of Alaqua Creek.

May 19. 98.4 post office DeFuniak
91.6

Kaolin bearing sand.
outcrop on land of West Florida Mortgage Co.
section 26, 2N 19W
6.8 mi from Post Office DeFuniak, on Freeport road



~~5.8~~ on a "nose" of the plateau
1/2 mi SW of mill site

				Pace
S 1	Old mill site on hill.			
S 2	Cut off sandy land – even slope. Live pine in open	S 25° W	2°30"	59
S 3	cut over land uniform slope. Branch Road	S 40° E	4°50'	21
S 4	along E side of branch	(S 20° E) → plotted S E but should be S W took reverse bearing	6°	24
	on bank of branch 5 ft above water			

Up to here sighted at object on ground marked at height of eye. Therefore correct the elevations.

S 5	~~across branch~~	S 20 W	grade to level	20
S 6	along hillside W of branch.	S 50° W	nearly level	28
S 7		S 5° W	– 11	29

S 7 / ~~58~~ down steep hill to near where the branch to which we have been referring joins a larger one from the east.

The smaller branch actually does not bend as much as shown and the two join each other more nearly at right angles.

1 square = 10 poles.

10 squares = 1000 ft.

	Elev
S 1	200
S 2	172
S 3	157
S 4	146
S 5	146
S 6	146
S 7	114

		Bearing	paces		Elev.
	starting at S 3				
~~S 8~~		S 15° E	28		150
S 8		S 15° E	48	2%	150
S 9		S 20 W	51		140

→ 100 ft N of branch flowing west and about 100 ft above it.

across branch and up hillside

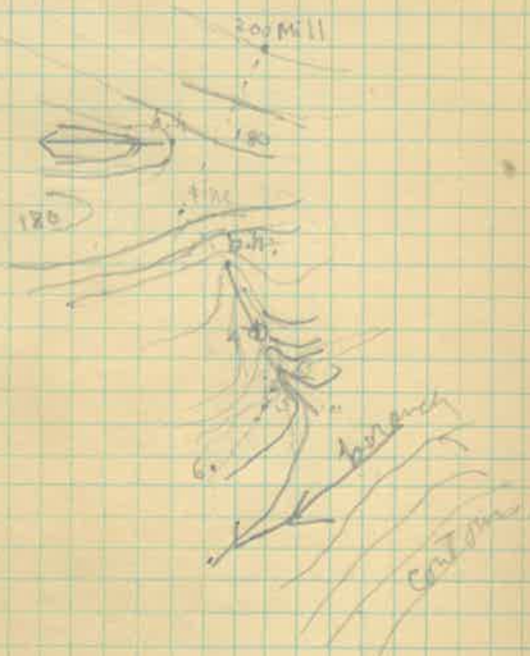
S 10		S 30 E	26	+ 2 o/o	150
S 11	up hillside	S 0°	27	[illegible]	165
S 12		S 5 W	19		188
S 13	(nearly on N [illegible] from line)	S 80 E	30	level	188
S 14		N 50 E	40		185
S 15		N 65 E	39		180

along road

S 16		N 5° E	70		185
S 17	(powder car)	N 5° W	41	4%	201
S 18		N 5° W	31		210
S 19	mill.	S 60° W	180		200

Comes back exactly to the mill as far as I can tell by the plotting

These notes and the sketch maps refer to a locality on the Freeport road between 6 and 7 miles S of De Funiak and partly or entirely in section 26 R 19 W T 3 N.



Clay — Kaolin — Section 26 ~~T~~ T 2 N R 19 W

134

May 19

point of turning off main road to go to this deposit (or rather outcrop) is 6.8 mi from post office at De Funiak on Freeport road

Out crop is [illegible] from Alberts Temple school No 47 on hillside north of a branch flowing west. Station 17 of notes on p. 57 is 100 ft east of it.

Numerous small springs and swamp vegetation on lower part of hillside indicating clay. The outcrop is [illegible] [illegible] [illegible] [illegible] [illegible] is on an old lumber road which has been gullied a little. Slight amount of sand and pebbles on top of the sandy clay. These are apparently derived from the clay since they are similar to those mixed in with it.

Outcrop is about 30 ft above the branch flowing west. This branch is joined by another flowing south a little to the southeast (200 ft) of this locality.

No exposures to tell anything about stratigraphic ~~[illegible]~~ relations. Greatest apparent thickness of the white or nearly white clay two feet. Below it when digging with post hole auger get into yellow sandy clay of texture similar to the white but far too much iron stain for kaolin.

Numerous small springs and "branch heads" within a mile of here at about the same elevation as the

May 19, 1928 61

upper part of the stringer where in which the kaolin occurs and generally a little higher than the place where the kaolin was actually seen. Sample is from about 2 ft thick — outcrop 5 ft horizontally

5055 Sandy - clay mixed yellow and white from Kaolin locality of preceding page x

6.7

May 20, 1928 62

Limonite

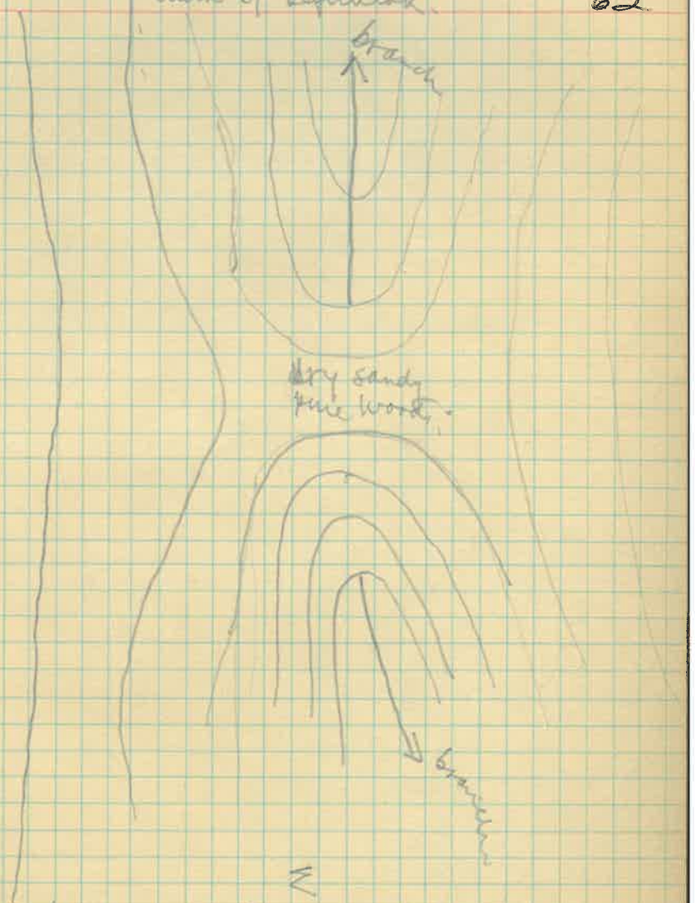
6 or 8 mi S. of De Funiak on Freeport road clay pit on W. side of road. Shows gnarled botryoidal limonite which has considerable sand and clay included in it. In places nearly a continuous layer. Probably concretionary. Some of it shows banding.

Some light gray plastic clay shows in the pit. Other places at about the same level mostly yellow clayey sand.

One larger specimen - showing botryoidal structure
Two small specimens showing banding x

May 21, 1928 63

Section 16 & 21 T 3 N R 19 W. South of Defuniak.



Sketch map of divide between two branches head in plateau of Citronelle formation

Scale 1 sq inch = 100 feet
contour interval 10 feet.

May 21

0-135 Clay

Duncan Anderson

Section 32 (NE 1/4) T 3 N R 19 W.

Rather poorly exposed in old abandoned road near south side of creek (Vaughan Creek on map). Anderson calls it Blunts Creek)

No definite bank exposed. Yellow and mixed gray and yellow clay shows on or a little below the surface for a distance of 30 ft or so horizontally.

Anderson says an old woman used to get clay there to make pipes out of and that it burned white. All the clay I could see is so yellow that I would expect it to burn pink or red. Some of it is tough and highly plastic but most of it is sandy.

May 21

Red Bay

66.5 Red Bay

1 mi. E. of Post Office.

outcrop of Choctawhatchee in Bluff at "Spring head".

Coarse sand with some pebbles overlies the clay and marl of the Choctawhatchee.

Did not see any complete section.

0-136 Clay "blue" with some yellow. First two feet above part with abundant shells. The lower part of that sampled has a few shells and there are occasional casts in the rest of it. It is weathered yellow and brown on the surface and at six inches or so back into the bank it still has streaks of brown. There may be a slight contamination with material from above falling into cracks so for mineralogical examination I best turn off some of the lump.

5056 Marl with shells, mostly blue unweathered but with some slightly weathered material mixed in. Same locality. First two feet down from top of part with abundant shells.

5057 Marl "blue" with few shells about 17 feet below top of part with abundant shells (contact of 5056 and 0-136

In field of old man named Crawford on hillside facing the east on eastern edge of village of Red Bay there is a small branch starting in a spring. This falls about 10 ft over ledge of unweathered Choctawhatchee ... small branch.

May 21, 1928

Knox Hill.

Going down west side of Knox Hill from the cross roads at the top on road to Argyle, outcropping of clay in ditch and cut bank on road side. The clay is the lowest most material exposed. Laminated. Light gray and red - a little brown and yellow. The red is irregularly distributed - in streaks parallel to bedding and across it - blotches of no particular shape - Concentric rings 

Max. certain thickness exposed about 4 ft. There may be more if beds are all in regular position and have not slumped down. Some fine sand interlaminated with the clay. This clay looks very much like that Howell took me to near the gulf side on the creek south of Vernon. Also like some of the clay in the vicinity of Freeman and not so much different from that at Round Lake.

Many other outcrops of clay on road from Argyle to Knox Hill ~~by way of~~ to Red Bay, Mostly on hillside, some on top of small hills left by erosion in the valleys.

Bluff on sandy creek 4 mi N of Argyle
May 22. 1928

This is on land of ——

Mottled sand clay to top of bluff 15 ft

- 5058 Yellow and red fine clayey sand 6 ft above top of dark clay
- 5059 Mottled clayey sand similar to above 3 ft above top of dark clay
- 5060 Mottled clayey sand - immediately above top of dark clay (within two inches.)

0-137 Clay - blue black - with mollusc casts. about 3 ft.

0-138 Clay light, gray, yellow and brown, with shell casts. 3½ ft.

5063 Sand brown rather coarse, fairly coherent, a few thin streaks of clay 2 ft.

Sand - rather fine mostly light colored. Pale yellow and greenish streaked with brown.

0-137 When unweathered this is a dark bluish gray or nearly black. Very tough. Scales of mica. Mollusc casts both bivalves and gastropods. Many small pieces of lignite and other plant fossils. Where the dark clay is directly exposed to the weather it turns gray and becomes soft and flakey. Smells of sulphur. In places by weathering under considerable cover it seems to have lost the dark color and become light gray with some brown. Farther down hillside where it has weathered under slight cover it has a general red and brown color and scarcely appears different from the underlying clay.

0-138 This varies considerably. In places a clay like it seems to have formed by the weathering of the overlying dark clay but that the whole [illegible] could have formed in this way is [illegible]. Some parts [illegible] general light yellow color, other parts are very light gray with streaks of yellow and brown. Some of brown parts are rather hard. Contains fossil [illegible] (casts only) and small pieces of lignite.

5061 Black clay, within 3 inches of top. (some pyrite concretions

5062 Black clay at 2 ft below top of it.

5064 Sand, clayey light greenish gray with yellow streaks - At 3 ft below clay 0-138. This is the bottom of a layer 4 ft thick but is not very

much different from the sand below - slightly more coherent.

5065 Sand. - Brown to light yellow - horizontal banding. 6½ to 7 ft below bottom of clay 0-138 - average of six inches of bank. All of the bank between this sample (5064 and 5064) is about like 5065. Also a foot or two below where 5065 was taken is about like it, in other words down about as far as any bank was exposed.

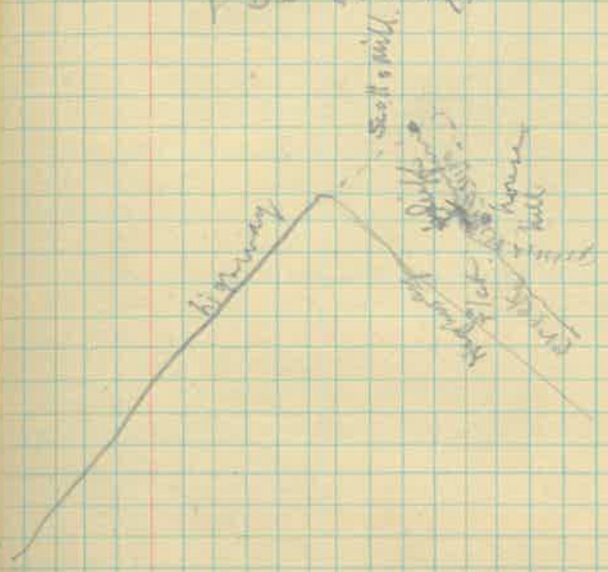
The outcrop of the clay in the gully from which all of these samples were taken has extreme limits about 150 x 75 feet, but from this area most of it has been eroded away.

Above the top of the bluff from which section was taken hill rises about 40 feet higher or possibly only 30 feet.

Weathered part of the clay was traced 1000 feet along the hillside by occasional outcrops to where the stream swings away from the hill. On the south side of the creek the ground is practically level to beyond the main highway and is so low that the clay of this formation would have been eroded away.

Above the top of the real bluff and nearly at top of the hill

clayey sand outcrops in a little scarp four five feet high. This is like was noticed at the north rim of the plateau south of Wausau and ~~other~~ at a branch head south of De Funiak.



9.9 9.9
7.9 2.2

2.0 Argyle
3.9 turn right
7.9 Eucheeanna

4.2 mi S. of Argyle on road to Eucheeanna laminated clay in road side cut with clayey sand above it. The clay is mostly light clay but considerable red and brown streaked through it. Sand and mica rather unevenly distributed. A few casts of mollusca. If there ever were many fossils it is so weathered that a large proportion of them must have been destroyed.

2 ft is about max thickness exposed.

Revisited locality where Conyer is prospecting for fluorite. Shaft is at depth of 5 ft. Section is the same as at the trench dug a few feet away. Three feet at top mostly red. Then gray fine clayey sand streaked with brown to bottom. This has shell casts in it. One specimen from the material thrown out of this shaft sand with limonite concretion and one or two shell imprints.

About 300 ft west of where the shaft is started the creek comes close to the hillside and a small gully shows clayey sand or sandy clay mottled yellow. Many shell ~~casts~~. This is at a little lower elevation than the pits in the field. I could not find any fluorite in this. Two specimens from here ~~the~~ other day. I thought I saw one or two small ~~pieces~~ [illegible] fluorite in them

May 23, 1928

8.6 mi W of De Funiak on No. 1. Large "head" just south of R.R. and highway and just east of old turpentine camp.

Many small springs. Nothing but loose sand and compact red clayey sand exposed. Presumably more clayey material under cover. Many magnolia trees.

10.0 mi W of De Funiak examined another "head" on south side of the road. It is similar to the last. At each of these localities there is a "clay" pit for road on west slope of valley.

Mossy Head.

On north side of the highway about 300 feet east of the station there is a head which I suppose is the Mossy Head. There are several springs in it. Only loose light yellow sand is in sight. Evidently the impervious stratum causing the springs is not well exposed.

May 23, 1928
Okaloosa Co.

5.5 mi W of Mossy Head.
a rather deep valley heads on south side of highway (abandoned turpentine still). Numerous springs coming out of sand but could not see anything except loose yellow sand on surface and red clayey sand below.

Shoal
~~Yell~~ow River

crossing on highway No. 1
east of Crestview.

5066 Greenish sand with shells – not in place presumably thrown out in excavating for bridge piers. The sample is uncontaminated with other material because it was taken from the inside of a large lump. Shoal [may be Yellow on field label]

5067 Alluvial sand of ~~Yellow~~ River, probably left by last flood. ½ mile upstream from bridge on highway No. 1. Cut to six inch depth at about water level. Rather fine sand. River is still fairly high.

Alluvial material of the flood plain seems to be sand. No clay shows in cut banks of river, although the sections are good.

Bed of river has some coarse sand. Probably sufficient for operation of small pump and washing plant. Most of sand above water at present stage is too fine. All would need washing although fairly clean as river sands go and [illegible].

Shoal
~~Yellow~~ River
½ mile upstream from bridge on highway no. 1. Bluff cut into material with numerous shells, or perhaps only casts of them. Could not get at it to look closely.

Yellow
~~Shoal~~ River

~~6.3 a [illegible]~~ At crossing of highway No. 1 the late floods had washed out much of the fill which is being replaced. Borrow pits do not show any alluvial clay. Mainly a dirty sand. This river is muddy while Yellow River where the highway crosses it is clear brown. More swamp on Shoal River and it therefore looks less likely to have any good sand.

At Holts turned south on graded road. At 2.1 mi south of the main highway the road comes to the top of the steep hill going down into the valley of Yellow River. Extensive view to south and east from here. Even skyline – plateau character of country. There does not appear to be much [illegible] left.

[illegible] Yellow river swamp is here about a mile wide.

May 23, 1928
Crestview

about 800 ft W of court house recently formed gully on south slope. "Clay" pit at upper end. Max. depth of gully about 20 ft. Vertical distance from top of clay pit to low end of gully is around 60 or 70 ft. The only material exposed are loose light yellow sand on the surface with rather hard red sand below it. In some of deeper parts of gully red sand shows some bedding. Loose light colored sand is thicker some distance down the slope than it is near the top.

Pot holes well developed in red sand. Also "fluting" in direction of flow of water.

No clay in sight except between the sand grains and not much there. Not even any thin layers.

12.0 mi N. of Crestview on highway no. 32.

gullies about head of branch on west side of road give rather good sections of variegated crossbedded sand. Some of it fairly coarse with little clay. Probably 15 or 20 ft exposed. Red clayey sand and ordinary [illegible] yellow surface soil above it.

May 23, 1928

went out about 16.0 mi to N.E. of Crestview on road to [illegible]

This follows the R.R. closely and keeps on high ground near the divide.

The soil averages lighter than that between Crestview & DeFuniak although there are still some patches of dry black jack oak sand. Much of the way the red sand comes to the surface or very near it. Topography seems a little more rolling with that plateau not so apparent.

DeFuniak to Freeport

about ½ mi. S. of Rock Hill on this road rather smooth land begins in Black jack oak soil – about same elevation as Rock Hill. must have gradual slope toward south.

Flatwoods begin about 4 miles or so north of Freeport. No very sharp line of division between dry sand and flatwoods. Apparently no topographic break.

Inquired at Freeport and couldn't learn of any clay in this vicinity.

Drove out to "Ship yard Point" on west side of La Fayette Bayou which makes up to Freeport. Flatwoods most of the way from Freeport out to the bay at that point. Narrow grassy marsh along the shore there. Pinewoods come out to the inner edge of the salt marsh.

La Grange Bayou from Freeport out to Choctawhatchee Bay

[illegible] Cabbage palmetto along it. Pinewoods [illegible] with [illegible] & broadleaved trees come out to water. A few cypress.

May 24, 1928

Choctawhatchee Bay

8.30 A.M. Pt. Washington / 9.30 Santa Rosa Landing

According to man running ferry Point Washington to Freeport a flood or freshet caused a rise of 3½ ft of water in bay.

A heap of sand dredged out of Santa Rosa landing shows a high water mark this far above the present level of the bay.

This caused the opening of a new and straighter pass near the old one. Fishermen made a small opening with shovels and the water widened it [illegible]. Various reports of size of it. Said to be 15 or 20 ft deep.

All the end of Choctawhatchee Bay (Freeport to Santa Rosa to Point Washington) is very muddy.

~~[illegible]~~ 4016 Sand, Pleistocene

1.4 mi from Pt Washington on road to Panama City.

average 7 ft depth.

mostly rather [illegible] cream colored sand of low [illegible] [illegible] and organic matter approaching hard pan.

Shows no bedding. Exposure is in a ditch where the soil [illegible] and washed by recent gullying. This is about 200 ft west of a [illegible]. Vegetation black jack oak. A little farther back from the creek are flatwoods.

May 25
Phillips Inlet Beach

79

80

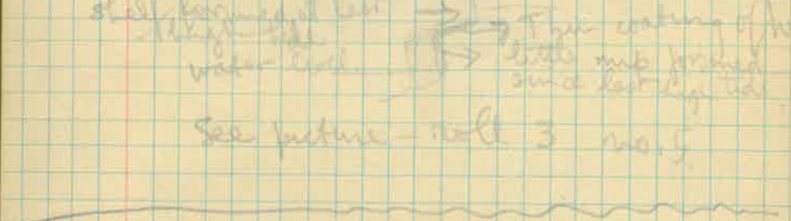
Phillips Inlet

May 25, 1928

81

4017

4ft thickness represented



See picture roll 3 neg 5

Starting counting paces southward along the ocean front from the pavilion which is on the east side of the pass and about 1000 ft from it along the beach for about the distance only the beach proper rising to a height of 4 feet so explored the lake around the gulf. Beginning at about the pavilion and going southward dune ridges begin.

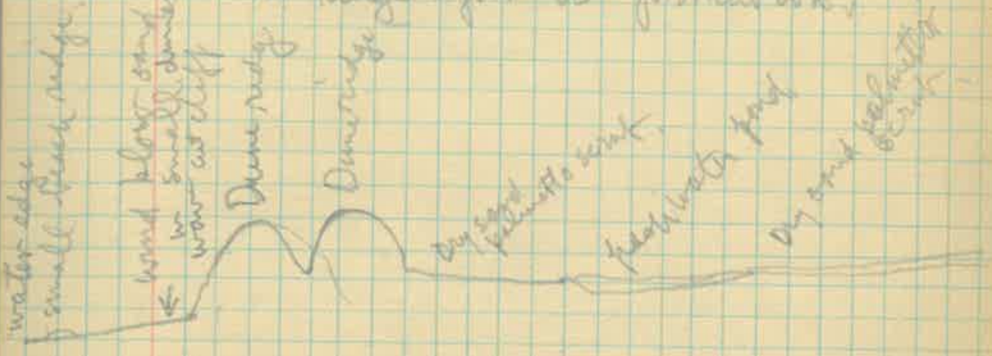
430 paces from pavilion.

The outer dune ridge immediately at the back side of the beach continues all this distance, very straight and regular in height. Estimated at 18 ft above present sea level.

At this point there is a second dune ridge with crest 90 to 100 ft

in back of the outer one, continuing both NW and S E from here at least at four hundred feet each way. This is about the same height as the outer one and in places a little higher — probably 25 ft but somewhat ragged as regards height and width changes in direction of its crest often for short distances probably due to movement of part of the ridge after its formation.

moved lengthwise of beach



Trees begin on shoreward side of second dune ridge, None on outer ridge,

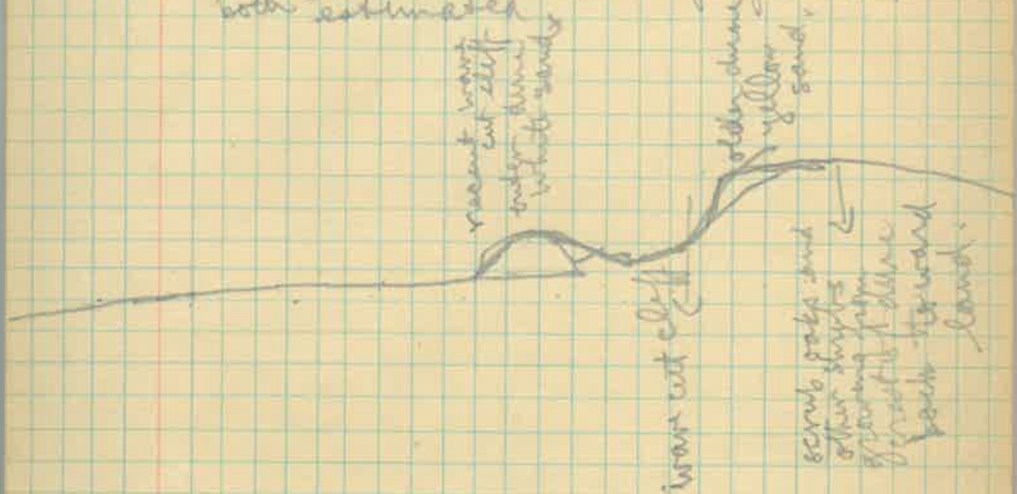
Shoreward continuation of section.

Scale approx 2 squares = 100 ft except that width of the two principal dune ridges is exaggerated. together they do not

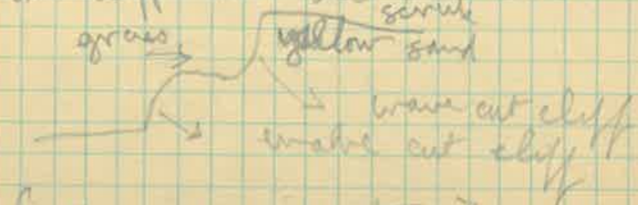
take up more than two hundred feet.

Beginning 700 paces S. E of pavilion there is an order of dunes distinctly higher and older than the outer dune ridge

At 1000 paces S. E of pavilion is what seems to be the highest point around here. It is about 50 ft above the sea and 300 ft from it. both estimated

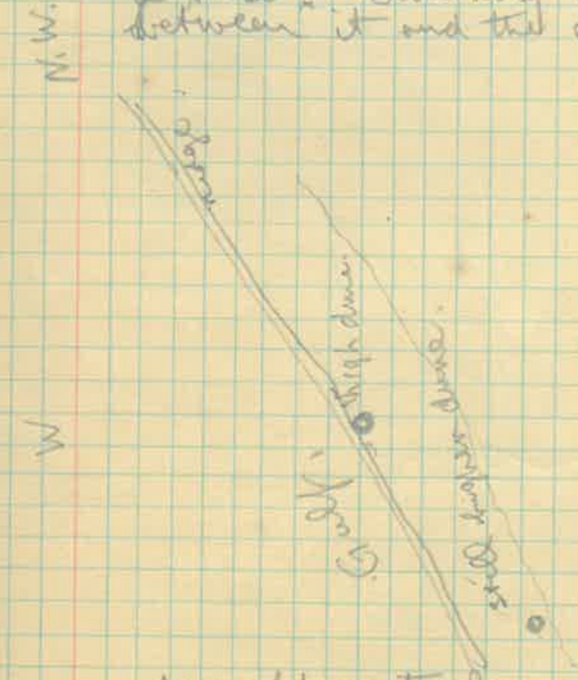


In places the crest of the outer dune ridge comes out against the cliff in the older dune



{Roughly like this}

From the top of this dune looking around the outer dune ridge continues as far as I can see in both directions, probably not far from a mile. Generally a little valley between it and the dune area inside



Area of dunes treeless except for oak and palmetto scrub continues inland for 1/2 mile or more and southeastward as far as I can see, probably three miles. About 1 1/2 mi east of where I am and probably 1/2 mile or a little more from the coast is a higher dune covered with small vegetation. Probably 80 ft.

[All of this area referred to as "scrub" here is very small and has no trees on it at all.

May 25, 1928

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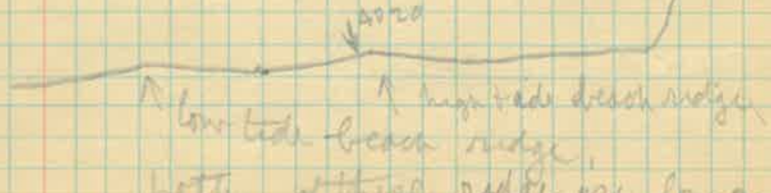
→ 1000 pace E along beach from pavilion on E. side of Phillips Inlet.

4018 Yellow sand Pleistocene or Recent
outer slope of older dune
cut to 1 ft depth

4019 Sand, white recent dune
wave cut cliff in outermost dune ridge, ~~ave~~ average of 6 ft vertical bank.
Some thin streaks of dark minerals.

4020 sand white beach, recent
cut to 1 ft depth, 90 ft in front of wave cut cliff and at about ordinary high tide limit of waves.



Both of these ridges are low and indistinct

[the locality is just about two miles from the inlet itself since it is still a little west of the first creek on the chart]

Beach near Phillips Inlet

heavy minerals.
On the beach all along here may be seen dark streaks in the sand here and there — especially at about the waters edge where the waves are washing or in the dry sand at the back of the beach where the grains are blown about by the wind — These are actually dark minerals — and not due to organic or vegetable material. Most in evidence is ilmenite ~~with~~ black with metallic luster — staurolite, brown but metallic — small points of light from a light colored mineral which sparkles

May 25, 1928

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almost as brilliantly as a diamond — so small that it is difficult to see the actual grains — Disthene fairly abundant — specks of sky blue color. Cannot see visible to recognize it.

Going back from hotel on road around west side of Phillips Inlet lake 0.9 mi to where road forks. All of this area may be call "scrub" but it is more like the inland scrub of the lake region and not with the very low bushes of the dune area of pp 83–84 to S.E. of Inlet. Near the hotel evergreen oaks up to 15 or 20 ft high. Then most Pinus clausa, partly pendent.

½ mi NW, Phillips Inlet

Came out to beach about ½ mi N.W. of Phillips Inlet. Here there is an area of irregular dunes ~~about~~ more or less active for about 800 ft back from the beach. Small patches of scrub and scattering grass but not enough to hold the sand, perhaps cattle pasturing help to make the sand bare enough for the wind to get hold of it. There actually are cattle around here.

Freshwater pond. Nearest side of it 400 ft back from water's edge in gulf. Pond is 200 × 100 ft. Long axis about parallel to shore.
Pond has fish in it. Slope steeply near shore to a maximum depth of 4½ ft (waded out to middle) About six inches of mud on bottom, then sand. Lowest point in rim is on seaward side where there is a break in the dunes and the sand does not rise more than about

May 25, 1928

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½ mi N W Phillips Inlet

2 ft above the water of the pond. Water level is noticeable above that of the gulf but perhaps not high enough for the bottom of it to be above sea level — although it appears quite likely that it is.
Picture roll 4 no. 4.
In background is front edge of what seems to be an older dune area, which just over the top of the hill is well covered with bushes. Near right side of picture a blown-out place (caused by re) yellow sand exposed not quite half way down from top of hill. Wind seems to be attacking the front of these older dunes which had become covered with vegetation.

To the westward of this point the active dune area is narrow down and apparently above ¼ mile or a little more NW along shore the fairly regular dune ridges begin again.

State highway location stakes go through the middle of this dune area. Also crosses Phillips Inlet close to the open gulf.

0.9 mi from hotel at fork of road took one going NW approx parallel to shore. This got for a few tenths of a mile through almost pure stand of spruce pine then follows along boundary between dry sand on coast side and flatwoods on mainland side, but keeping in the dry sand. From ~~2.7~~ 2.6 to 3.5 mi from the hotel there is some mingling of the black jack oak and long leaf or slash pine with the evergreen oaks and spruce pine. At the 3.5 mi the road connects

Records

(1) Explanation of Maps

(2) Historical review.

(3) Statistics of length of beach in Florida and other beach resorts in different counties and regions of Florida.

(4) Accessibility

(5) Geological conditions favorable for development of beaches.

(6) Detailed geologic and topographic features of beaches.

(7) Description of Florida beaches by regions.

(8) Native life of beaches.

Real estate developments, hotels, bath houses etc do not come in Scope of Report

Roll no. 5 May 25, 1928

No. 1 Heavy concentrates in lower part of dune (see p. 8-I — Camp Creek Inlet.

No 2 Ripple marks in front of wave cut cliff

No. 3. Beach sand — looking east

→ ½ mi or a little less E of Camp Creek Inlet, on Beach

Mrs. Lindsay

8-I

Although under the main part of the dune it is not necessarily true that this is a heavy concentrate of dune origin. Beds seem to run horizontal. There is really nothing much against it being formed on the beach. Some of the beach nearby is as high as the top of the thickest heavy layer (3 inches nearly pure) 4 ft above water level. The dune does have some grass growing on it but lack of weathering shows it must be fairly recent. Steeply cut bank most of which is above the part of greatest concentration.

4021 Heavy concentrate — three inch heavy layer in lower part of dune 4 ft above sea level.

4022 Heavy concentrate average from 2 ft to 4 ft above sea level including several light and several dark layers.

4023 Ordinary beach sand 200 ft E of Inlet, average of 1 ft depth x High tide mark 150 ft in front of wave cut cliff in dune. This is at base of steep outer slope of beach.

May 25, 1928

~~T...~~
of dry sand into flatwoods. Most of the distance I should estimate the road has been about ½ mile from the shore. Here looking toward shore there seems to be flatwoods all the way up to a dune ride about 0.5 mi away and I believe the dune ridge is very close to the shore.

Camp Creek Lake – first one NW of Phillips Inlet at 4.0 mi from hotel ~~[illegible]~~ turned off diagonally toward beach. A short distance through flatwoods Then into dry sand (dunes). Partly cleared and mostly covered with small bushes and partly with the original spruce pine. ~~About~~ At 5.4 mi from the hotel stopped car at house on south side of Camp Creek Lake. The lake has bluffs on it showing yellow sand. Spruce pine near house ~~showing~~ and opposite shore lake.

Inlet of lake is about ¼ mi W of house. Beach is a little nearer than this in direct line. Shallow narrow winding inlet. In places only about 15 ft wide.

On east side of this inlet 100 ft back from gulf and not over 15 ft from the inlet I cut bank showing many layers of heavy concentrates in lower part of dune about 20 ft high. Thickest and purest dark layers about 2 to 4 ft above present tide (which should be somewhere near mean gulf as it has been running for several hours.

Continuation on back of p 85

May 18	4 gal gas. 1 qt oil Tallahassee	1.33
	dinner	.85
19	7 gal gas 1 qt oil DeFuniak	2.14
	map of Walton Co.	.25
	dinner	.50
21	5 gal gas DeFuniak	1.10
	dinner	.50
23	5 gal gas	1.25
	feed sack	.20
24	8 gals gas 1 qt oil Freeport	2.15
	Hotel DeFuniak	21.90
	Kodak films	1.10
	Kodak films	1.10
	postage	.10
	refilling the gas tilling	1.50
24	ferry Choctawhatchee Bay	2.00
27	Hotel, Inlet Beach	6.40
	7 gal gas 1 qt oil West Bay	1.90
	~~supper~~, DeFuniak	.75

Pictures

Roll 1 May 18, 1928
Nos 1 to 5 deep cut on highway no. 1 south of Little River shows where side of ditch has slid in as result of heavy rains.
No. 6 sand washed in by recent flood. Looking north from fill on bottom land of Choctawhatchee about one mile west of bridge over river of highway No. ~~1~~
Roll 2 May 21
No. 1 Looking across head of small valley in Citronelle plateau S 33 R 19 W T 3 N ~~[illegible]~~ Shows iron stained sand standing up as small cliff at head of valley. Drainage to North into Vaughan Creek
No 2 Same locality as preceding. Close up view of iron sandstone layer acting as capping on slightly cemented sand.
No 3 Section 35 R 19 W T 3 N. Longleaf pines uprooted by gully working up hill from branch head.
No 4 Same locality. Branch head – showing bay trees and other vegetation of damp places.
No 5 Same locality – open pine woods on up land of Citronelle. Few small black jack oaks beneath the pine. They are just beginning to turpentine the pine this year.
No 6 May 22 [illegible] plants in wet field 3 miles S [illegible].

204 N10°E 48

37 N5°E

N30°W	57	
S75W	35	
due W ~~40~~	38	
S45° 60	29	
S15W	31 elev.	170
S5W	17	160
S5W	35	155
S15°W	22	175
	29	170
	~~15~~ 44	1~~4~~0

Pictures
Roll No 3. May 24

1. Gully in sand of Citronelle 4.2 mi N of Crestview.

May 25

2. West shore of Phillips inlet lake looking at it from boat

3. Looking ~~north~~ south along west shore of Phillips inlet lake. Net drying frame in distance

4. Phillips Inlet – near mouth looking toward gulf. Cut bank on right – low beach on left,

5 Phillips inlet near mouth. Rut in beach sand. ~~[illegible]~~ see p 81

6 Beach ridge 1/2 mi S.E of Phillips Inlet. The [illegible] waves washing over the ridge about 1 ft high. Slope about 80 ft away where water runs out.

Roll 4 May 25

1. 400 ft SE of Pavilion – Phillips Inlet Beach look NW from top of outer dune ridge. Shows two dune ridges and beach

2. 10,000 ft (~~4~~000 paces) SE of Pavilion Phillips inlet. SE, p. 83 wave cut cliff in high dune with a younger dune formed since in front of it.

3. Looking across lake and bay – bay into gulf from top of bluff on which hotel is located. Inlet shows as a very narrow streak

4. Looking toward mainland from dune across small freshwater pond in dunes. See p 86.

5. Sand pond looking SE from high dune gulf in distance

6. Blown out place (closer view of same area as no. 4) on NE side of lake. Looking E. Probably formed by wind from S.W. This had been covered by small trees. Yellow sand except on upper part where some ~~[illegible]~~ white sand. Part of this blown up from ~~[illegible]~~ water shore, some may be derived in place

Tangents for plotting Traverses. 94

5°	1/11½
10°	3/17
15°	5/18
20°	4/11
25°	5/10½
30°	4/7
35°	7/10
40°	5/6
45°	1/1

Clear indication of relative importance of headings

96

Alteration or Subsequent Changes of Sand Deposits.

Leaching
East Coast and other coastal dunes.
Yellow subsoil x Removal of $CaCO_3$
hardpan in poorly drained situations
Sandclay subsoil in [illegible] areas,
Concretions x — Cementation x
Oxidation x
Breaking up of grains into smaller ones by weather x

Lake deposits.
Those actually formed in lakes are of little importance but in some cases lakes happen to overlie good deposits the formation of which has nothing to do with the lake and in that case dredging from the lake is a convenient means of recovery.

Introduction.

Chapter on sand and gravel industry

? width of beach, high and low tide.

97

Mineral City.

Origin
① Source of Material
② Transportation
Necessity of some of common heavy minerals being disposed of
Magnetite by weathering
garnet by being coarser etc.
③ Concentration.
Different types
Relation to erosion and deposition on coast
④ Temporary nature of deposits

Dredging ?

~~Heat~~ Sieve test
Chemical analyses.
Any difference in size of different minerals.

limited not only to the narrow strip worked over by the waves but to a particular part of this strip. Chance of preservation small especially of the concentrations and to [illegible] best when coast is wearing away

26
7

182

Mineralogy

① History of development

② Location, mode of occurrence and structure of deposits.

③ Mining and milling

④ More minute description of the "ore" itself × Texture, · Chem Comp.
mineral Comp
As based on recovery
~~As~~ based on microscopic, or
individual minerals

⑤ Origin.

⑥ Other deposits in Florida and Georgia
ⓐ Beach beaches east coast.
ⓑ Lagoon east coast
Explain impossibility of deposits being deeds contributions under ~~Jordan~~ River or under dunes
Crooked I
Carry for
ⓒ western gulf Coast [Crooked I / Cape San Blas
ⓓ West coast of Peninsula
Venice

W.S Cawthon
De Juncta

Chipola Agent.

Bellfox

Dodson locality
Choctawhatchee
from Betts or Compass Lake

McCloud - Red Bay

Holmes Chattahoochee

March

6 | 8 gal gas Live oak 1.84 2 qt oil .60 2.44
dinner .75 supper .60 1.35
cleaning distributor etc .50

7) Hotel Gainesville 1.50
breakfast .85
cleaning strainer .25
dinner .75
7 gal gas 1.82
~~cleaning carburetor~~ .75
~~supper .75~~ blow out patch .75 1.50

8) Hotel Melrose 4.00
7 gal gas Keystone Hts 1.75
supper ~~.75~~ .95

9) storage .50
ferry Jax .15
b .75 d .75 supper 1.00 2.50

10) hotel Jax 6.00
7 gas 1.33 4 qt oil 1.00 2.33
dinner .75 breakfast .75 Baptism road toll .60 ~~[illegible]~~

11) Hotel Fernandina 3.00
dinner .75 toll road .60
4 gal gas 1.00
supper 1.00

12) Hotel Brunswick 1.50
7 gal gas 1.75
breakfast .75
supper .75
8 gal gas 1 qt oil Lake City —

St Marys River

St Simons Island on coast of Georgia
connected by mainland with bridge
built in 1923

Photos.

Roll 1 { 1 March 7 } Abandoned mine 4 mi W Newberry
2
3. Sand pile at phosphate mine 5 mi W of Newberry

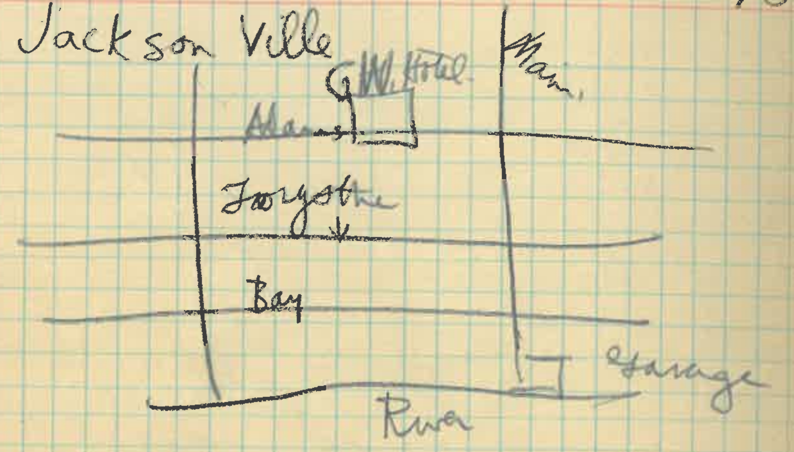
pit { 4. Sand clay road material 4 mi E of Melrose.
5

March 8 6 Small depression lake in dry sandy upland 1 mi N of Putnam Hall

Roll 2. March 9
1.5 mi N of where boulevard comes out to Atlantic Beach { 1 2 3

~~Manhattan Beach 2.0 mi S of jetty 4~~
~~Back side of dune~~
~~6.0 — S. of jetty wind formed ripples showing heavy minerals 5~~
~~Wave cut cliff showing destruction of small trees [illegible] 6~~

Jackson Ville



Drews
Labels supports,
Typewriter paper.

Madison Co.
(1) Withlacoochee River.
(2) Notes along main highway
Hamilton Co.
Columbia Co.
White Springs — Suwannee R.
Sand ... White to High Springs.
Blanche Hotel
Lake City → Lake Butler →
Starke → Waldo → Melrose,
Baldwin → Jacksonville
Fernandina

Home

Health and weather

Spring time

Flowers

Violets Herbs Shrubs

Dogwood

Wild plum

Chevrolet

Sand report

Stony Fork

Roll 3 March 10,

(1) Cedars on shell mound St George Island South end

(2) Shell (mound) on sand hammock vegetation in back

(3) Dune at W end of N jetty of St Johns R.

(4) S end of Little Talbot Island looking across inlet from the dune.

(5) Looking at Little Talbot Island a little N of preceding

(6) 1/4 mi. S of E cut Fort Junction White sand on red clay & sand

Roll 4 March 10.

(1) Outermost dune ridge Amelia I. 6.8 mi S of jetty

(2) 3rd dune ridge 6.8 mi S of jetty

(3) Edge of hammock beyond a dune. 6.8 mi S of jetty