

1908.

D

CO/40



Monona co.

Harrison co.

Muscataine (end of letter)

Wyoming Hill.

Grand Center - Whistling

Monona & Harrison cos.

Oct. 24-25, 1908.

Muscataine, 11/7, 1908.

Monona co. 11/12-15 "

Harrison & Monona cos.

Nov. 20-21, 1908.

Muscataine 10/31/11, 1908.

384
7
17
5
271

CM & P - Maudie & Wessie

"Remember your parcels and packages,"

Ill. Cent. game is at Cassville,

CM & P. (from Cedar Rapids)

Oct. 23 - 1908

Left Iowa City at 10:30 P.M.
for Cedar Rapids.

Oct. 24 - 1908

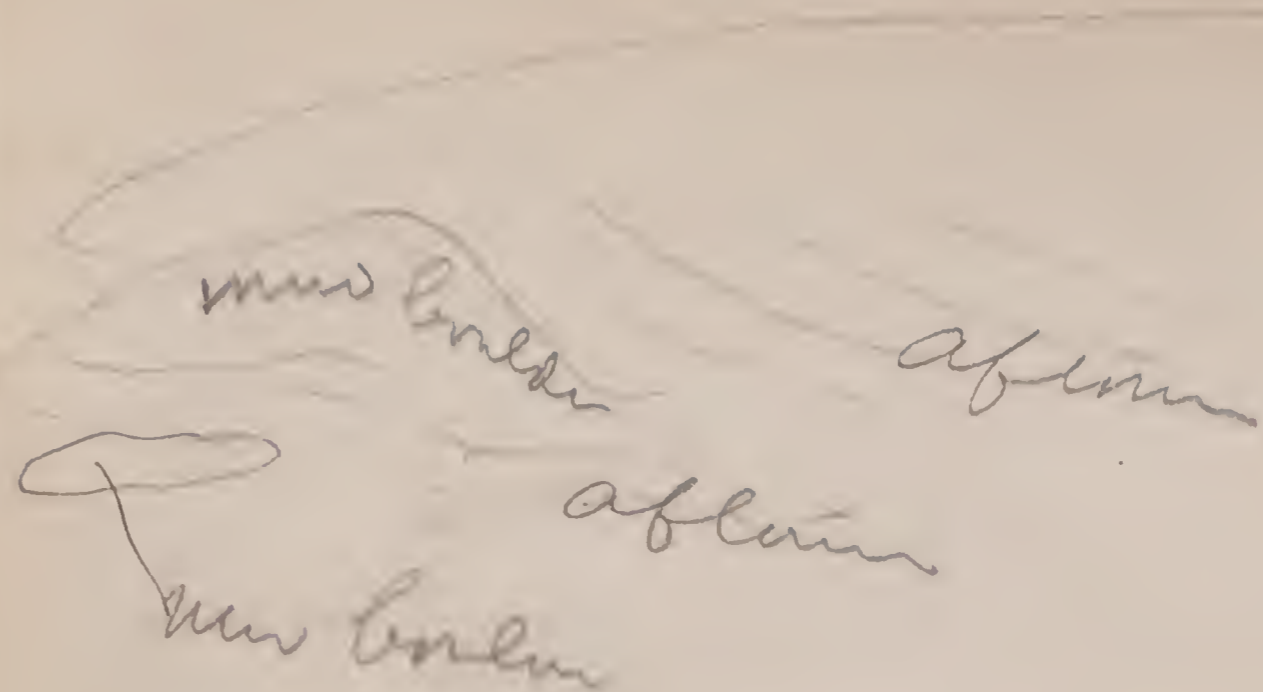
Left Cedar Rapids at
12:35 AM. and reached
Woodbine at 7:10 AM
Put up at Hoffmann Home.
Drizzly, disagreeable day.
Not much hope for field
work.

After breakfast hunted up
Normal School. From Mr.
Kinney. Saw bone - large
(femur) broken - into
three pieces - + 2 small
bones.
Went to Mr. Kinney's
house, & then drove out

down the valley and
examined gravel pits
marked in sec. 21 and
sec. 28

These appear as if gravel
had been pushed, - evidently
^(S.) lower end of pit in sec. 28.

Here there are large
boulders of clay ^{silt.} (mud) encased
in cover of white CaCO_3 .
and the whole thing looks
as if crowded and pushed
the fig. on opposite page
shows this as well as
I could remember it, -
it was too rainy to
take notes in field.



The gravel in this
pit and that in
sec. - 21 looks mixed
with mud - probably
shown by Kamm.
It is here about 20 ft
above valley, & on this
side and in this part
the "benches" are common
at end of Coen Bridges,
here wind-top & with cut-steps

4 Mr. H. A. Kinney, who with
Mr. M. A. Reed manages
the school (each 1/2 day) at
Woodbine (the Woodbine Normal),
a public school, and is also
interested in telephone, & other
business enterprises, says he
will have pit dug at this
bank to show what is below.

Left Woodbine at 1.55 pm

In Mo. Valley,

Tried to find Mr. Chas.
Smith the brick man, but
again failed. Could not
get Mr. Watters, either.

Left at 4.55 pm. for
Mapleton. Rained all the
time. An awful day!

Reached Mapleton at 6⁵⁰ pm⁵
and put up at the Monona
House.

Made inquiries for gravel and
saw pits and learned that
there is a fair pit (the
Hawthorn⁴⁵ pit) N. of town on
N. side of RR. (C.M. & P.) where
it enters hills,

Another across creek from
C.M. & P. RR. about 2 mi
E. of town. Mill, Pinesburg

Another, the best, about 7 mi
South. It is a mile E. of ^{wagon} road
on E. side of valley. This
is the McLeary pit.

Could learn nothing of Coors.

(2) The McLeary pit is probably
in sec. 4, Center Twp. (T. 44. R. 42)
(see later)

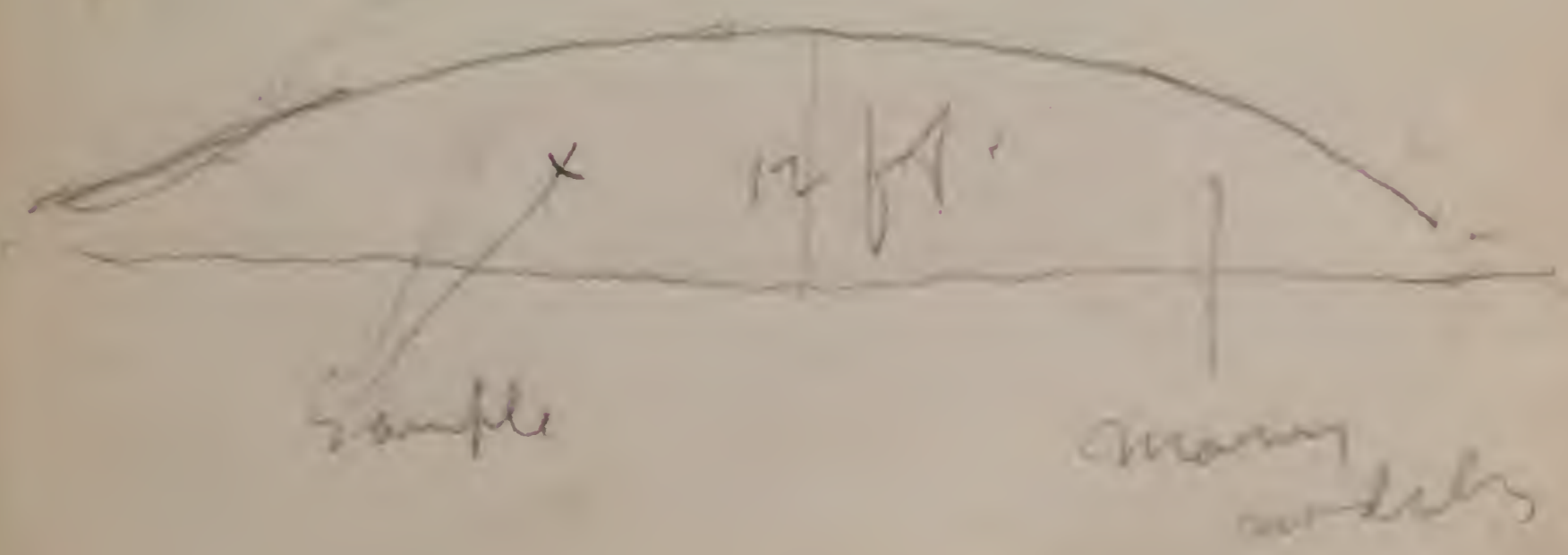
Went E. along C. Mex. S.P.
Mapleton is on a plateau
or terrace.

The first cut is formed
yellow (rather heavy) loam with
nodules.

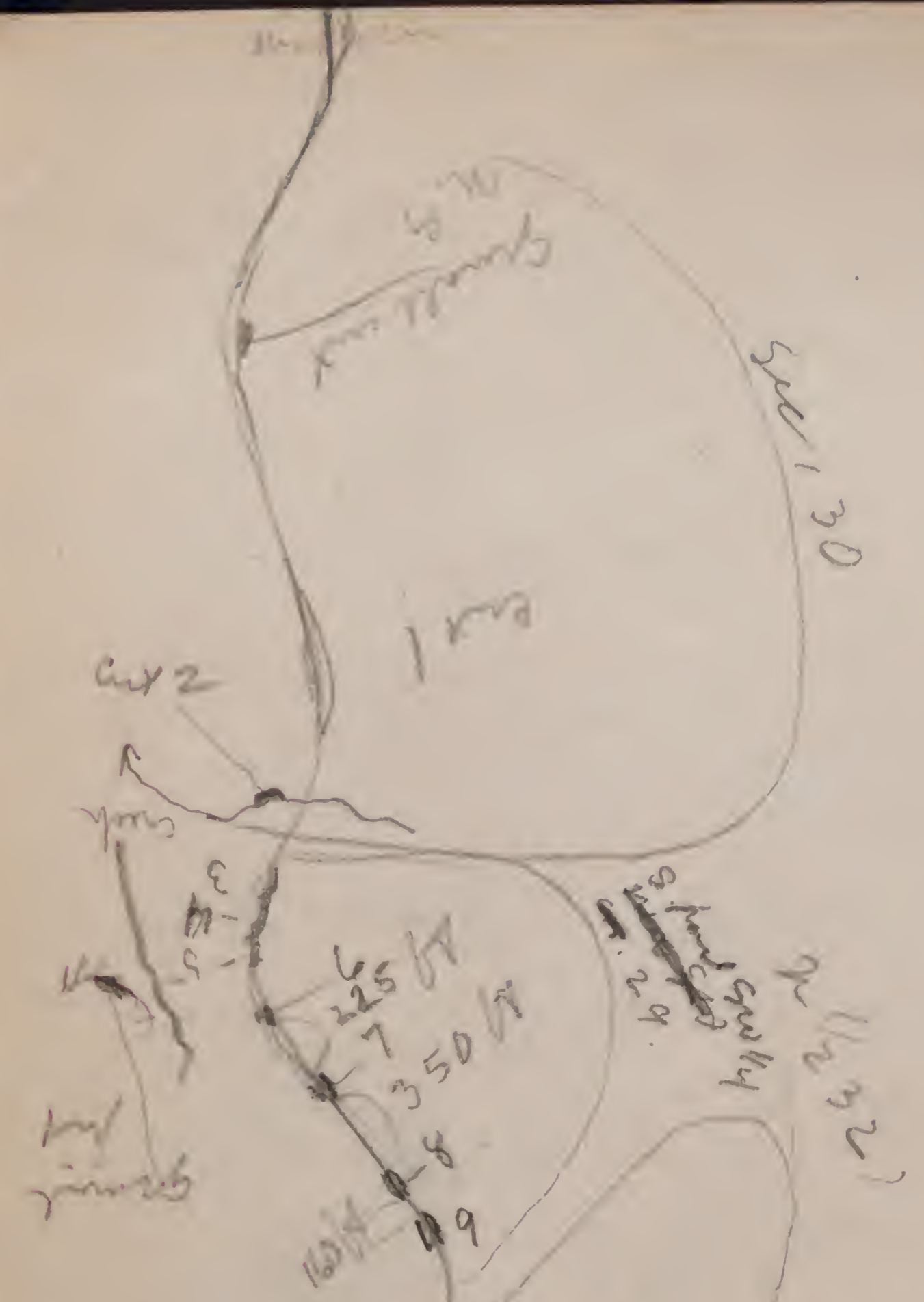
12 ft deep. about
300 ft. long. on N. side.

S. side smaller.

See nodules, loam & fossils



The sample was taken from
about middle



The loam in (1) is yellow, with
blue fragmental streaks & bands
of also some horizontal red
lines, & an occasional red tube.
It also has the black spots
appears easily, & shows some
tendency to lamination.
Older than black loam.

Cut² is a deep cut on W side of creek - probably 20 ft or more. It seems to show loess only, but I could not get close to it - too wet.

The creek has usual deep gully cut along here. A few rocks, but they seem to come from RR.

The bed is a hard stuff - not bouldery.

Both the loess & ~~loam~~ clay show this gullies very well.

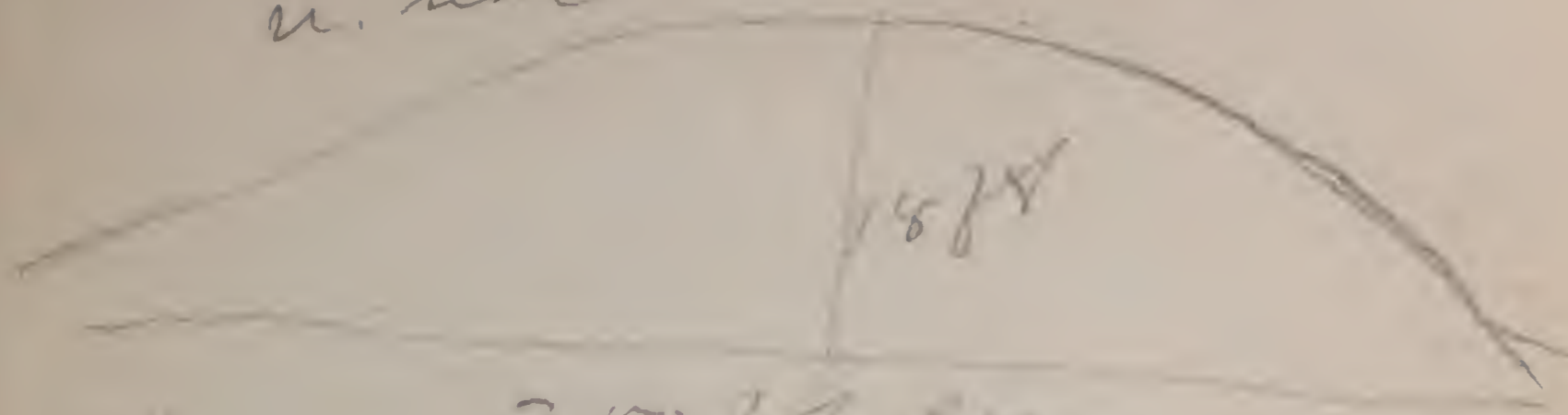
cut 10 - N. side



about 30 ft high but more than $\frac{1}{2}$ is taken. It is much like (1), very fossiliferous, & with loam & some nodules.

See sample taken at x. Nodules & fossils.

cut 9
n. side



300 ft long
glens same low with
very many smaller
nodules - more like (1)

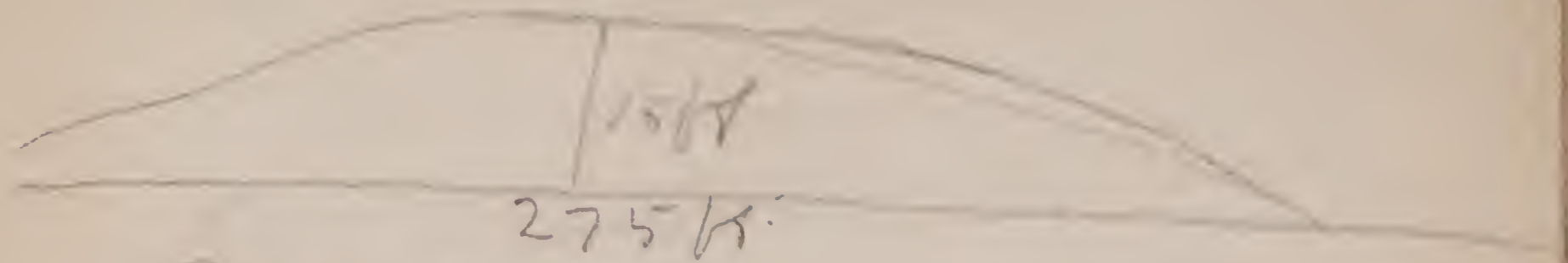
this basin just at west.

about 900 ft from cut 10.

The S. side is lower & steeper
but same.

Fossils few.

cut 8



same -

fossils are abundant

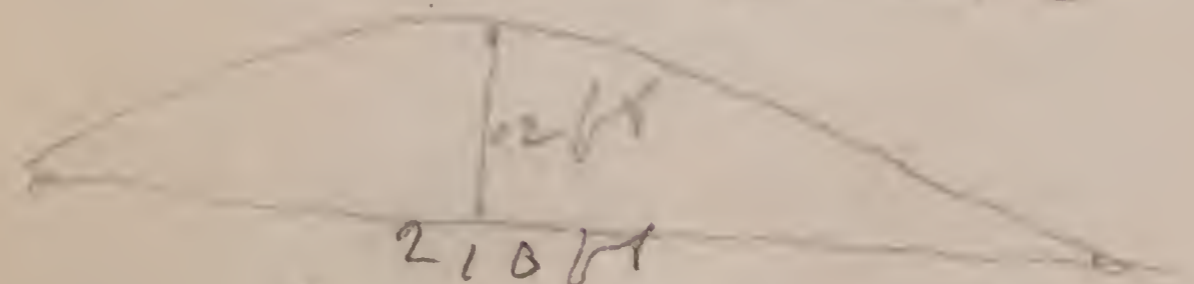
on S. side

S. side smaller

numerous small nodules

cut 7

n. side



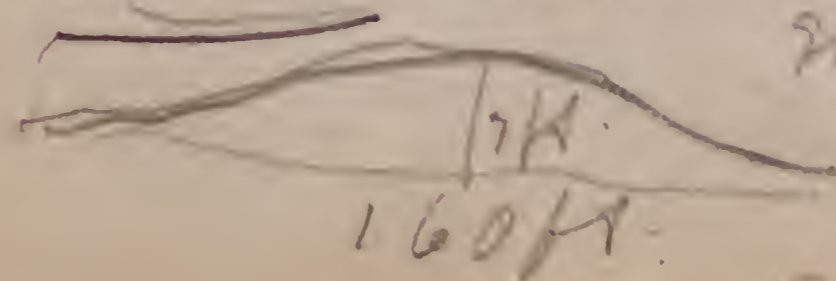
S. side smaller

same - numerous small

nodules

few fossils.

cut 6 low



small nodules very

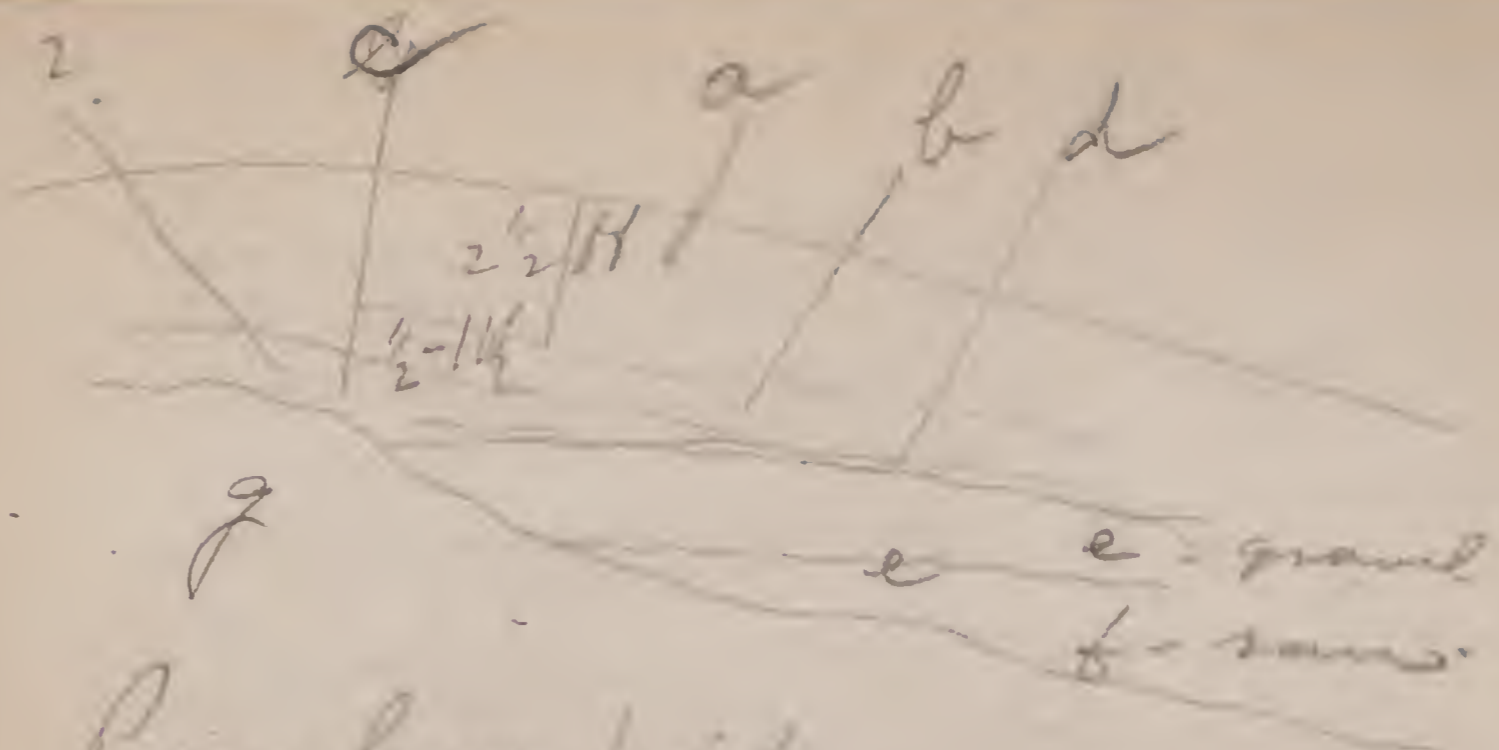
numerous

fossils few.

S. side very small.

What I marked as
 3, 4 & 5 is really one
 mass of over 500
 ft long & 12 ft deep
 in several parts.

It is same as before,
 nodules small & numerous.
 Bones not very
 abundant.
 No side layer



Packney pit.

- a - Uppermost layer a little
 heavy looking drift clay or hard loess.
- b - Red joint clay which turns
 red (n.) rests on gravel.
- c - Kansan drift, more prominent
 in the hill, with much
 Sioux Q. - with striated boulders.
- d - a thin layer a few inches -
 with some plates, etc 2-4 in.
- e - A thin gravelly
 rather loose material
 may have been introduced
 by Kansan.
 Not enough to show.

There is a layer of gravel &
large pebbles 1 ft or
more thick & then below
appears some sand (?)
in pockets?

Not enough exposure.

Only 2 ft. of afternoon

shows.

2 - talus.

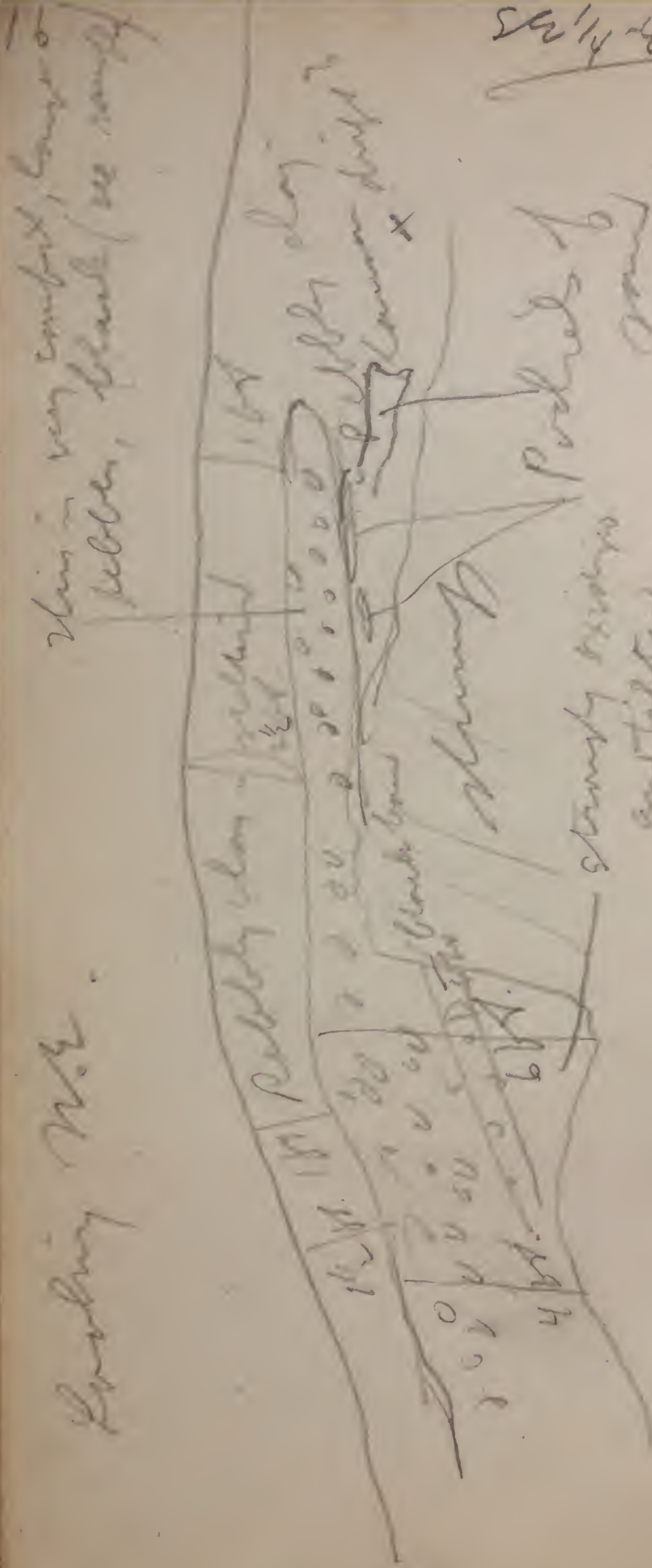
One big angular block
of Sioux Q (from Kansas)
is 3 ft x 1 1/2 x 1 1/2

The gravel exposure is
about 25 ft above
creek valley which is
probably 15 or 18 ft
above creek.

The R.R. at W end of cut ¹⁵ 3
is 10 ft. below gravel level.
The terrace on which
Mapleton stands runs 10
to 28 ft lower than
the gravel pit

Went west across
river to gravel pit
on slope N. of creek
& W. of river.

Looking NW.



There are water worn pebbles.

Probably ice pushed this gravel over the
 Kamsan. The grave here is not clean
 and does not show cross-bedding.

In the Kamsan at X there is a piece
 of blue pre Kamsan clay in mass -
 5 in in diam.
 This Kamsan? has soft white lines in it
 & appears to be all mixed up with old
 stuff.

Rotten granite & sand ^{small} pockets, seen
 in ground.
 This is 45 ft. above lowest bottomline
 Another pit just S. shows same coarse
 granite, but steeper & coarser.

Found shells in recent alluvium
along road leading to gravel pit
just N of bridge

Nov. 7, 1904 Sat. '19

Left for Muscatine at
6:30 am.

Reached Muscatine at 8 am
hunted up Witter.

Went to Nailbert bridge
the deer bones were found at \times
12 to 15 ft. below surface by way
Mr. Anderson, & evidently in
loam.

Mr. Witter found another skeleton
in a loam bank on 7th + Chestnut
sts. There were teeth & almost all
of skeleton. This is material sent
to Leidy. This was about
12 to 15 ft. below surface
the loam was just like that
of Nailbert bank.

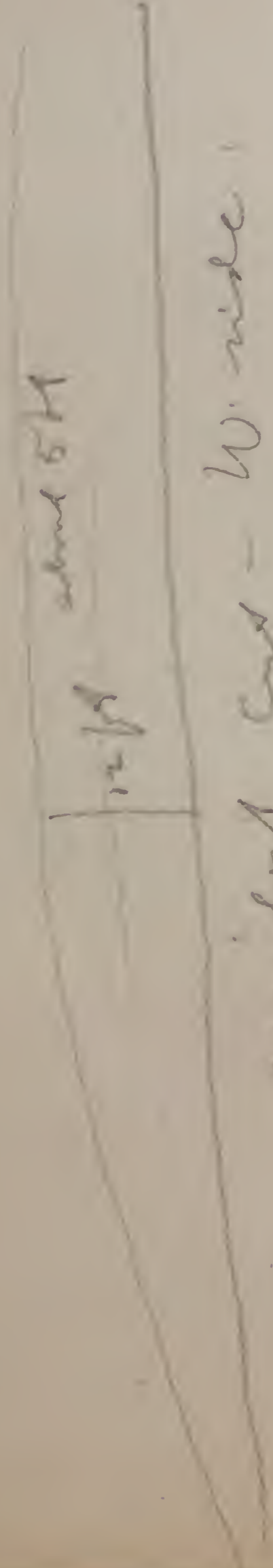
Photos 21022 N. side Nailbert
yard, looking SW.

gravel clay

loam

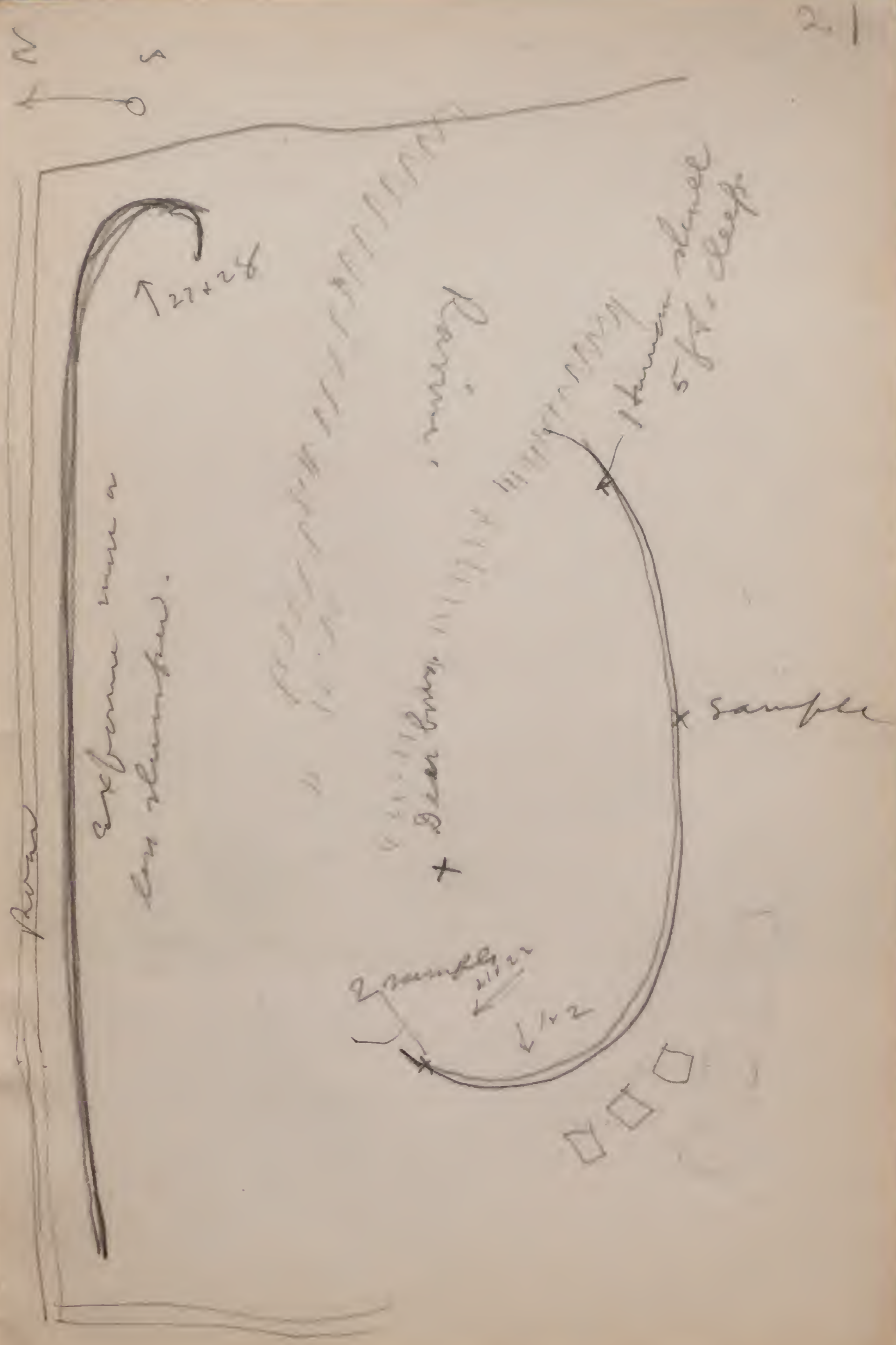
wet loam.

20 Photos 1 + 2 - close view of same

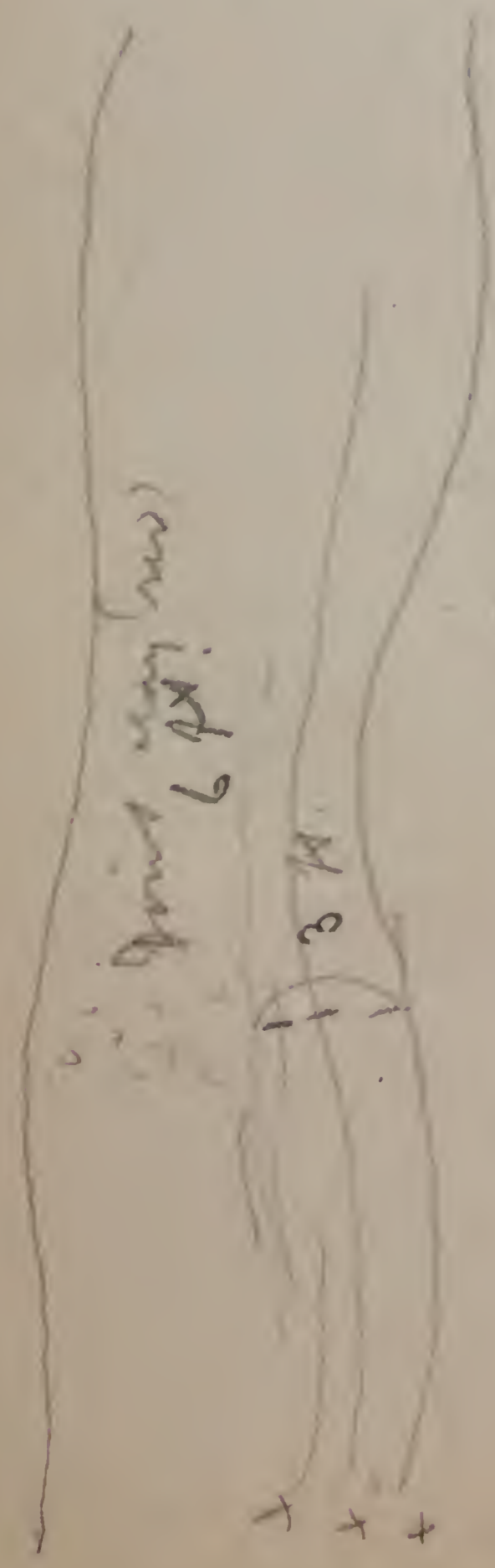


12 ft about 5 ft

Mailbox end - W. side
 This is a long curved end, with joint red clay in top, rest of the more or less distinctly fine. Layer in center by irregular spots, blue mottling + no fossils, laminae in fracture. No shells or nodules.



Photos 27+28. Looking NE
at E. end N. end exposure.
The joint photographs show
them:



Fossiliferous
5 ft.

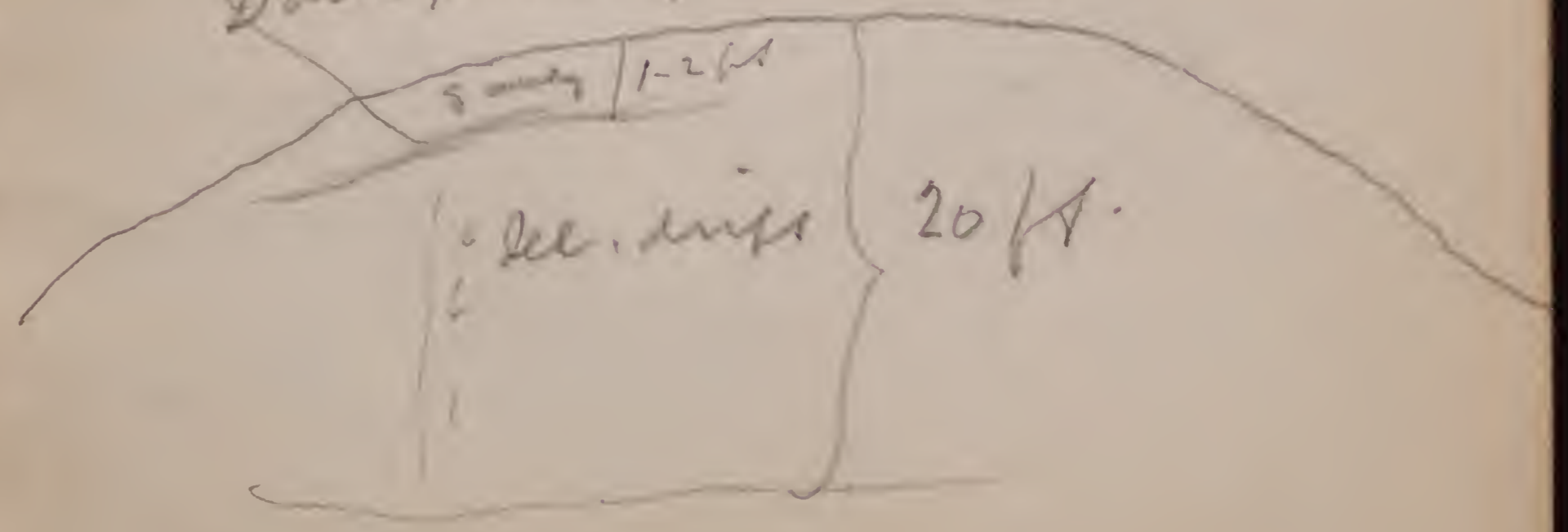
The joint clay is red, very much broken
& very hard in deeper parts. It
has blue streaks along roots.
The next layer is murex-like, with several
evidently lower water over, & with several
(5 to 8) narrow bands of darker stuff. This is

evidently water-worked.
Below is a yellow loam with
some brown shaly - (no sample)
Here a few fossils were
found.

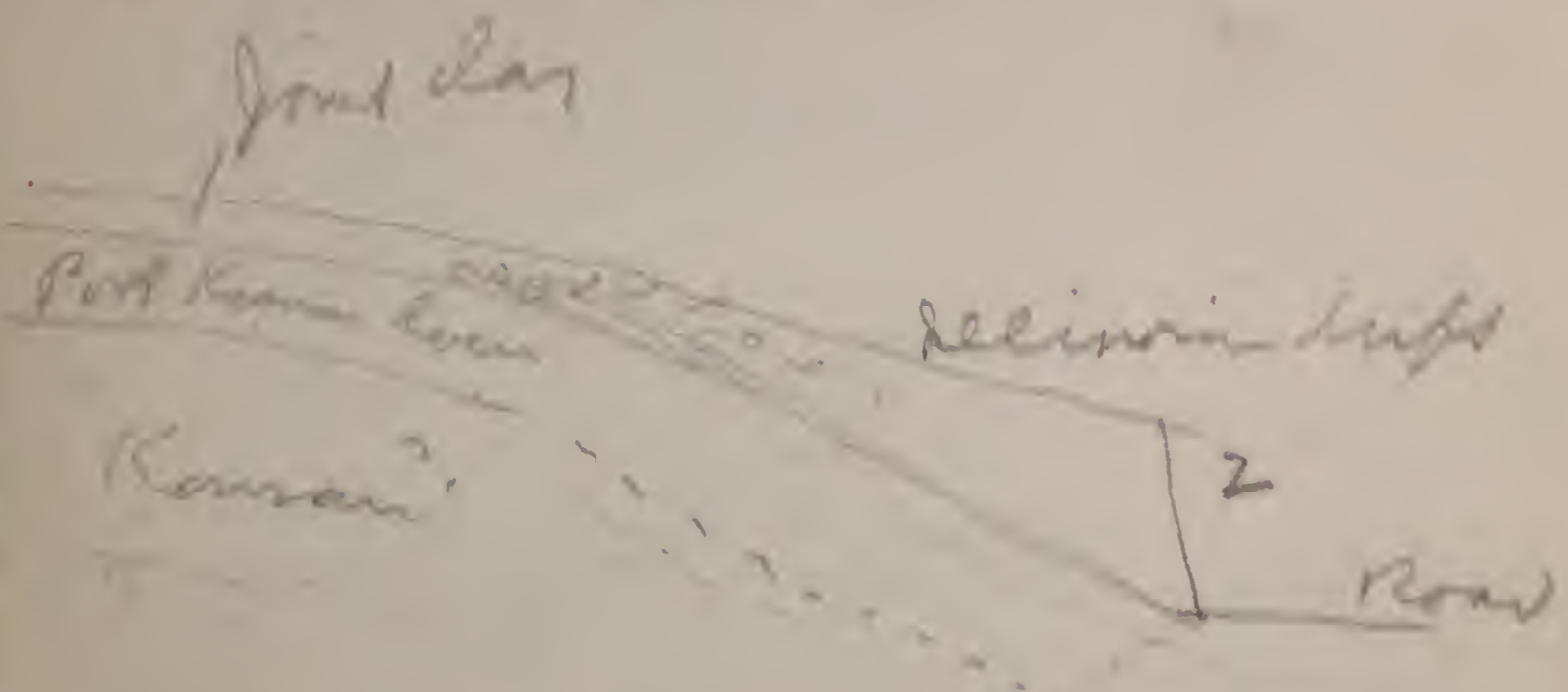
It appears as if the blue
has here produced the joint
clay over red loam.

The top of this column (about
same as W. end) is 55 ft
above street level & street
opposite Higgins' pickle factory.

AA 2 is exposure of Glenora
(Dark joint clay no sample)



It is evident that profile from Harburt's to 2 would look like this



Top of cut 4 is about 25 ft. above road opp. (3).

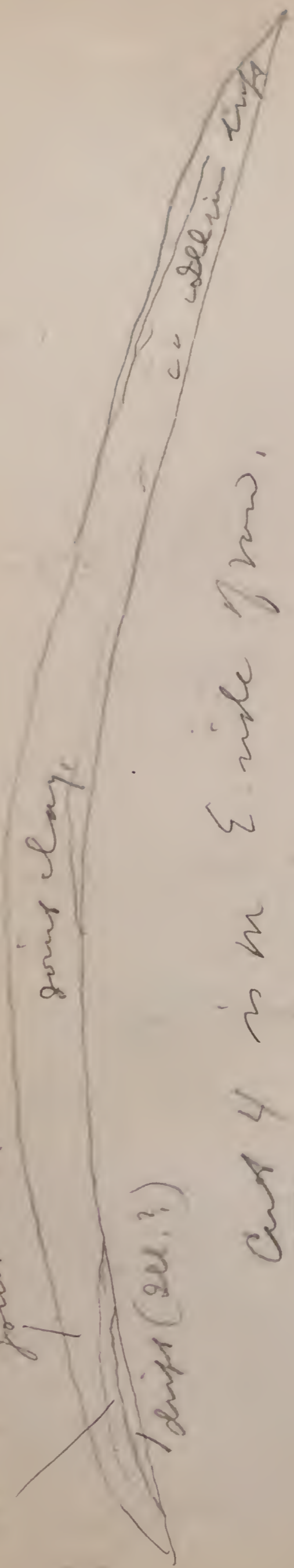
It runs about 6-7 ft. & shows Illinoian drift at base of hill S. + joint clay on top.

Cut 4 at N. end has a gravelly stuff at base which may have been redeposited drift.

This whole part shows water action with samples of Ill. drift from S. end of cut 4. It looks much like red joint clay from 1 + 2 but has pebbles.

cut 4

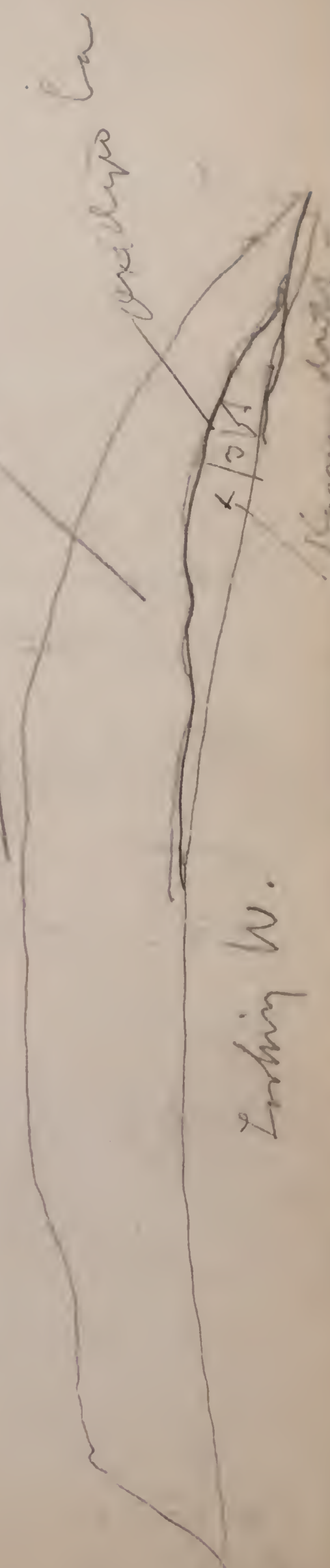
loamy (disturbed) joint clay



Cut 4 is on E side of road.

cut 5 is on W. side & shows practically only red joint clays (It is almost 7 ft. deep.) except at N. end Reddish joint clay

cut 5



Looking W.

In cut 5 the Kansan is a heavy
bluish mud with some pebbles. Over
it is a laminated or lign layer &
above that red joint clay.

At S. end of cut 6
there is a mass of strongly
oxidized sand & gravel.

Above it is a heavy bluish
Kansan mud with some
pebbles.

Then a red joint clay
reaches quite to top.

At trolley pole some stuff
 dug up by line men is a
very dark blue, evidently
pre-Kansan.

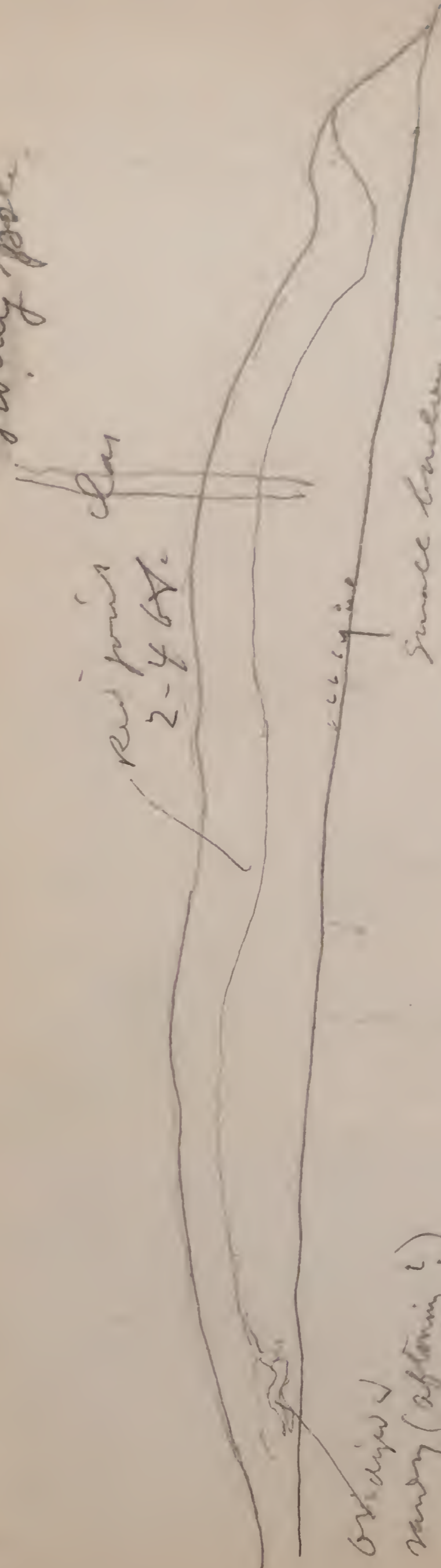
Trolley pole

Red joint clay
2-4 ft.

oxidized
sandy (after rain?)

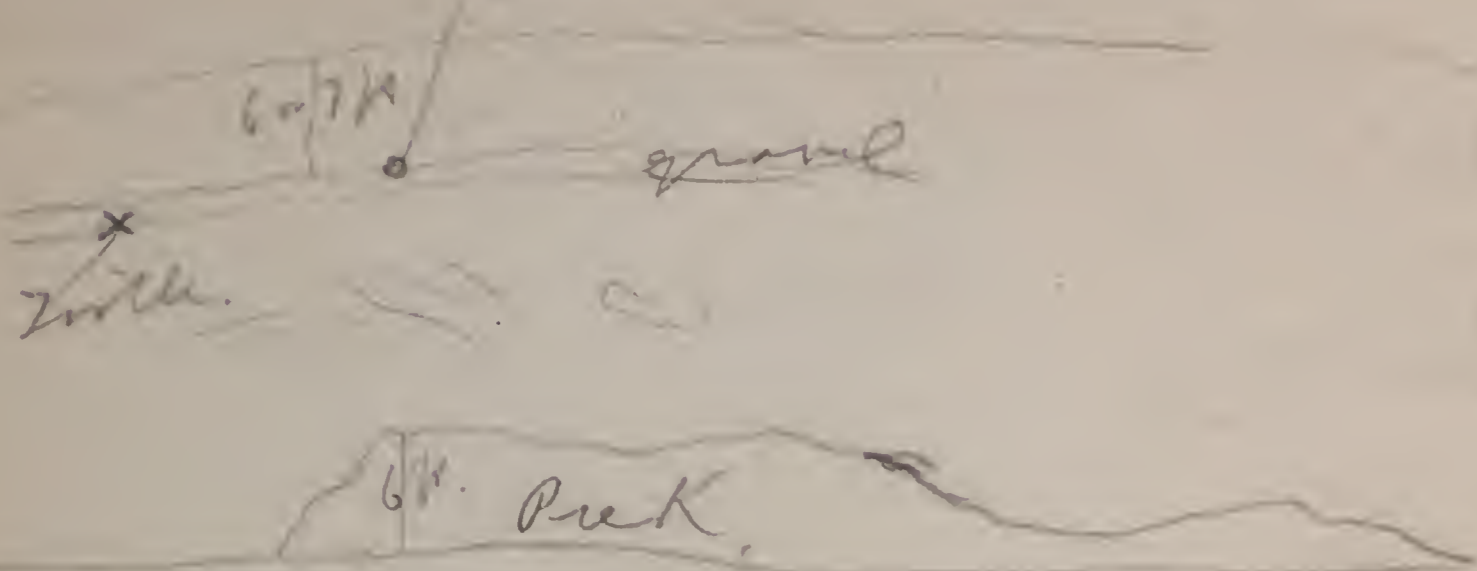
Some boulders & some
in Kansan clay

The upper part of Kansan is a heavy mud
free from boulders or pebbles.
Between Kansan & red joint clay (or at base
of latter) there is a heavy layer with small
pebbles. This is Illinoian



cut 7 - Photos 19 & 20

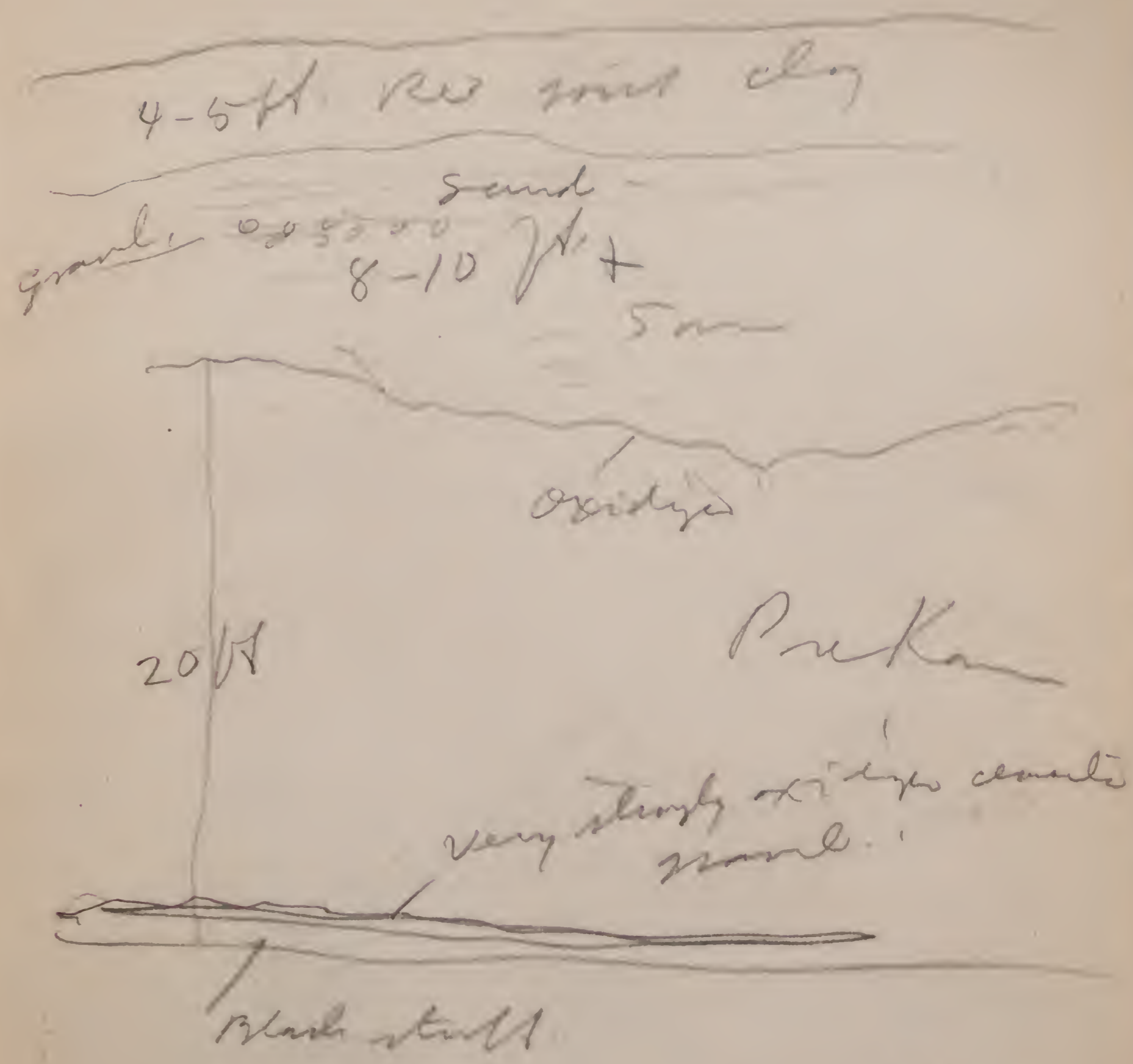
blue dark limestone



Photos 11 & 12 - nearer view
white bluff about 30 ft

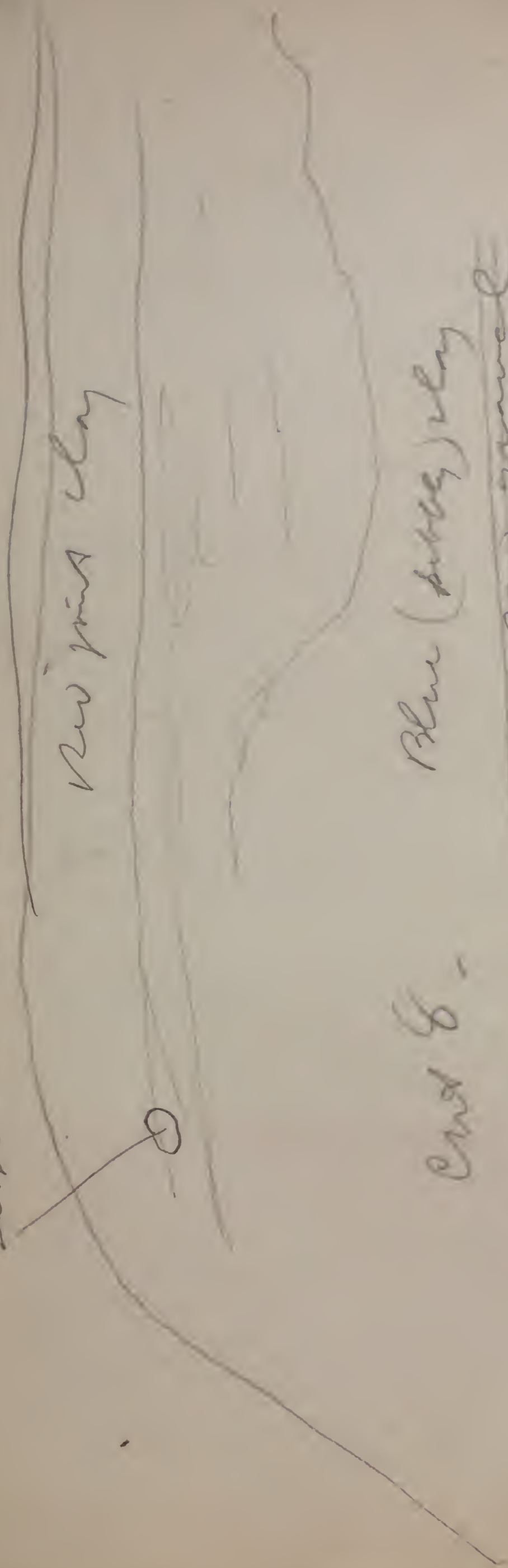
The red layer at
top - 3-5 ft - evidently
is the part of the
joint clay of section
1, 2, etc

cut 8 Looking S



It is possible that the lowest
band is probably that the
blue clay is Kame +
the sand + gravel above
it. But this is not
certainly.

Large boulders - blue.

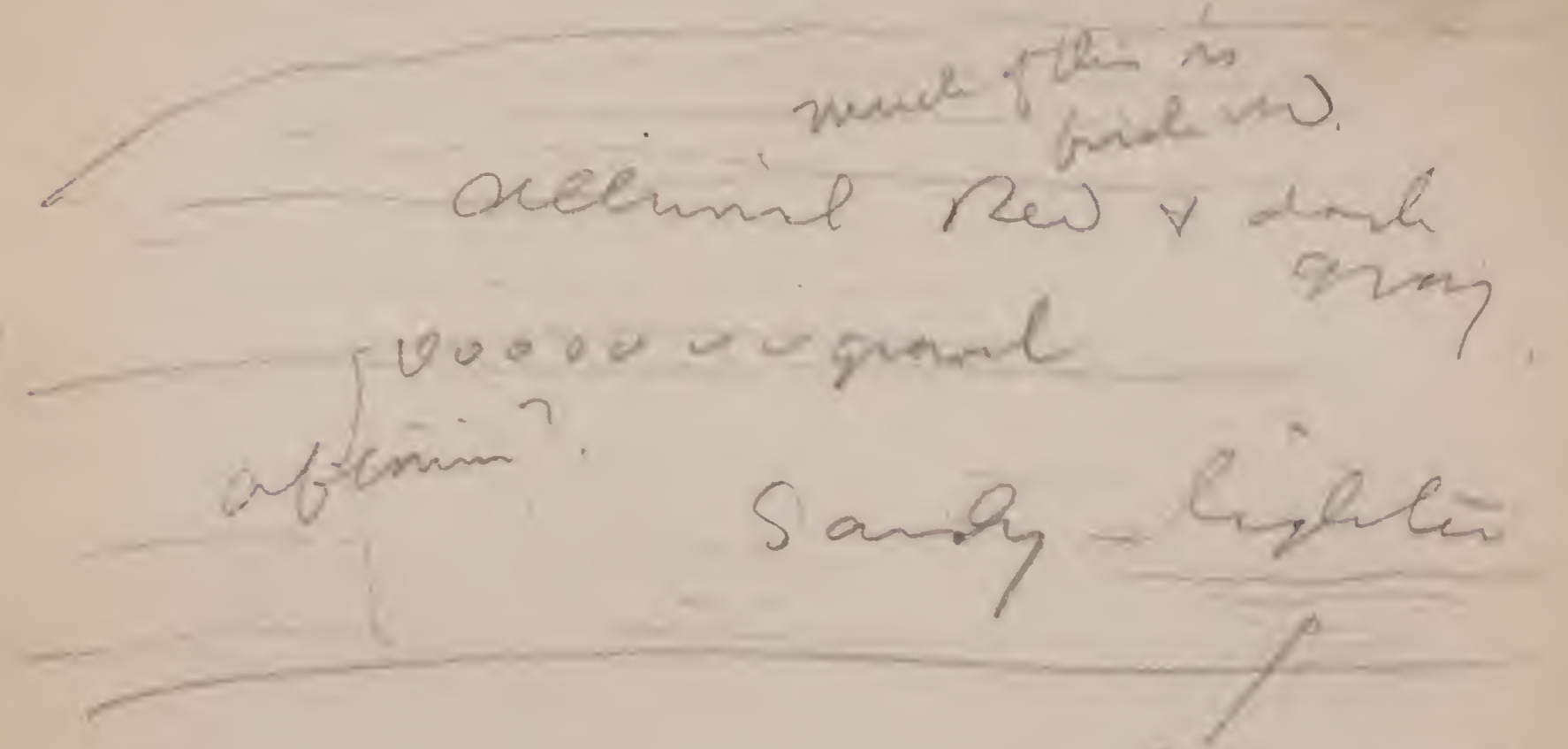


End 8. Blue (pbbly) clay

~~Red jointed~~
Blue jointed

The two dark blue clays seen in the both Reklam.

Photos 25726 cut 9



A heavy matrix rather dark but not blue black.

The whole bluff seems to be alluvial about 25 ft high

In the so. half or part
 I will call it ¹⁰~~10~~
 part 3 (should be number
 separately) I find Kansan
 at the base (or in it part 1.?)
 & about 1/2 way up stratified
 sand above -

Above that red joint clay.
 The bluff is 30 ft. high.

The lowest stratum is heavy
 slightly pebbly muddy stuff
 with some iron. It may be ^{pre}Kansan,
 but not likely. (See sample)

It is about 6 ft. above road.

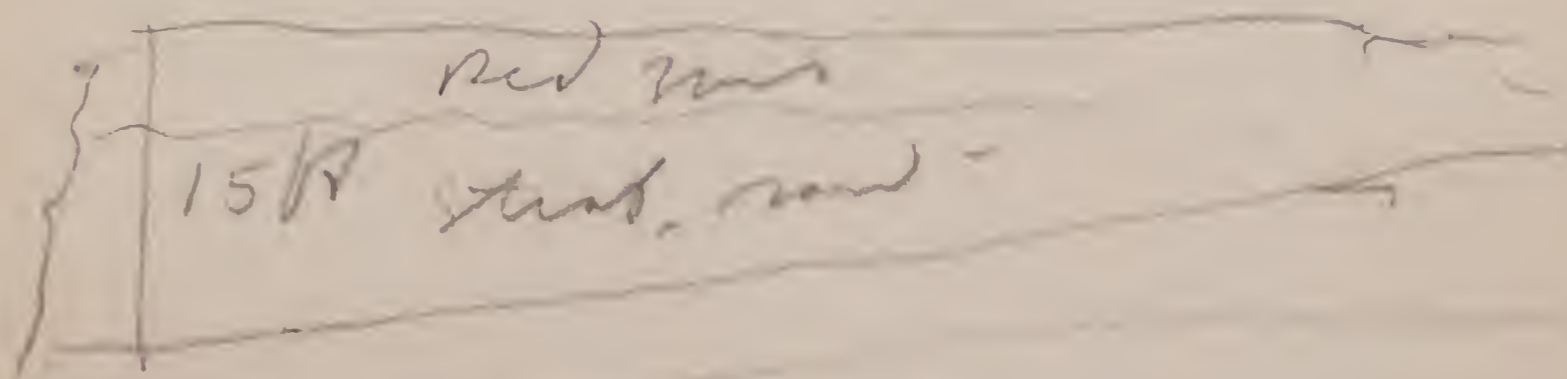
Then follow about 15 ft of
 irregularly stratified sand
 (see sample) & then the
 red joint clay, which at
 least sometimes grades into sand.

Consider possibilities:

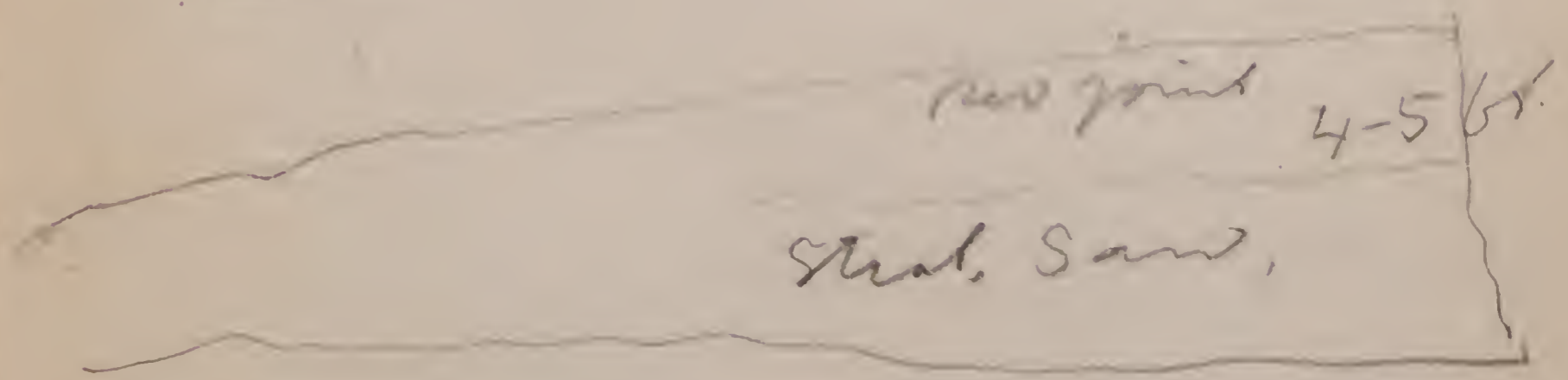
If pre-Kansan

From the turn at S.
 end of cut 10
 there are about 6-8 ft of
 red joint clay, here with
 a few ~~small pebbles~~ ^{worn sand} &
 this thins below into
 fine laminae & crossbedded
 sand. - all fine.
 There must be 10^{or 12} ft. exposure
 in lower part reddish &
 light yellow bands ^{alternating},
 where red joint clay
 approaches sand.

cut 11 is at SW. cor. of
 Maple & Orange streets
N. side



S. side



This is same as lower
 part of cut 11 - the
 lower joint clay is
 alternately yellow & red
 In the gutter on N. side
 at very base there is a

dark muck which is
probably Kansan.
Just above it is a stony
oxidized layer (few inches)
In bank much saw shus,

Wyoming Hill 11/8 '08

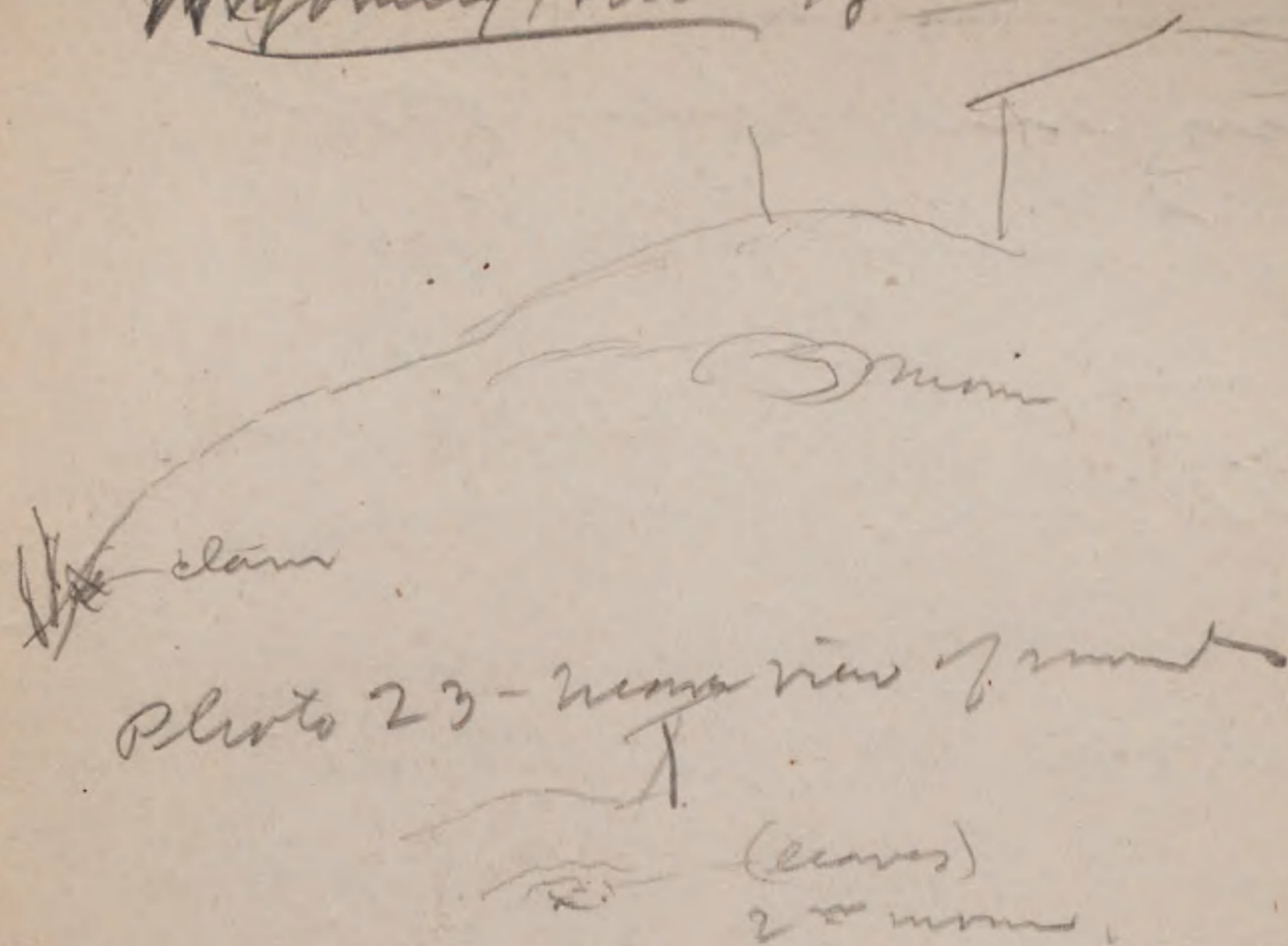


Photo 24 - slope

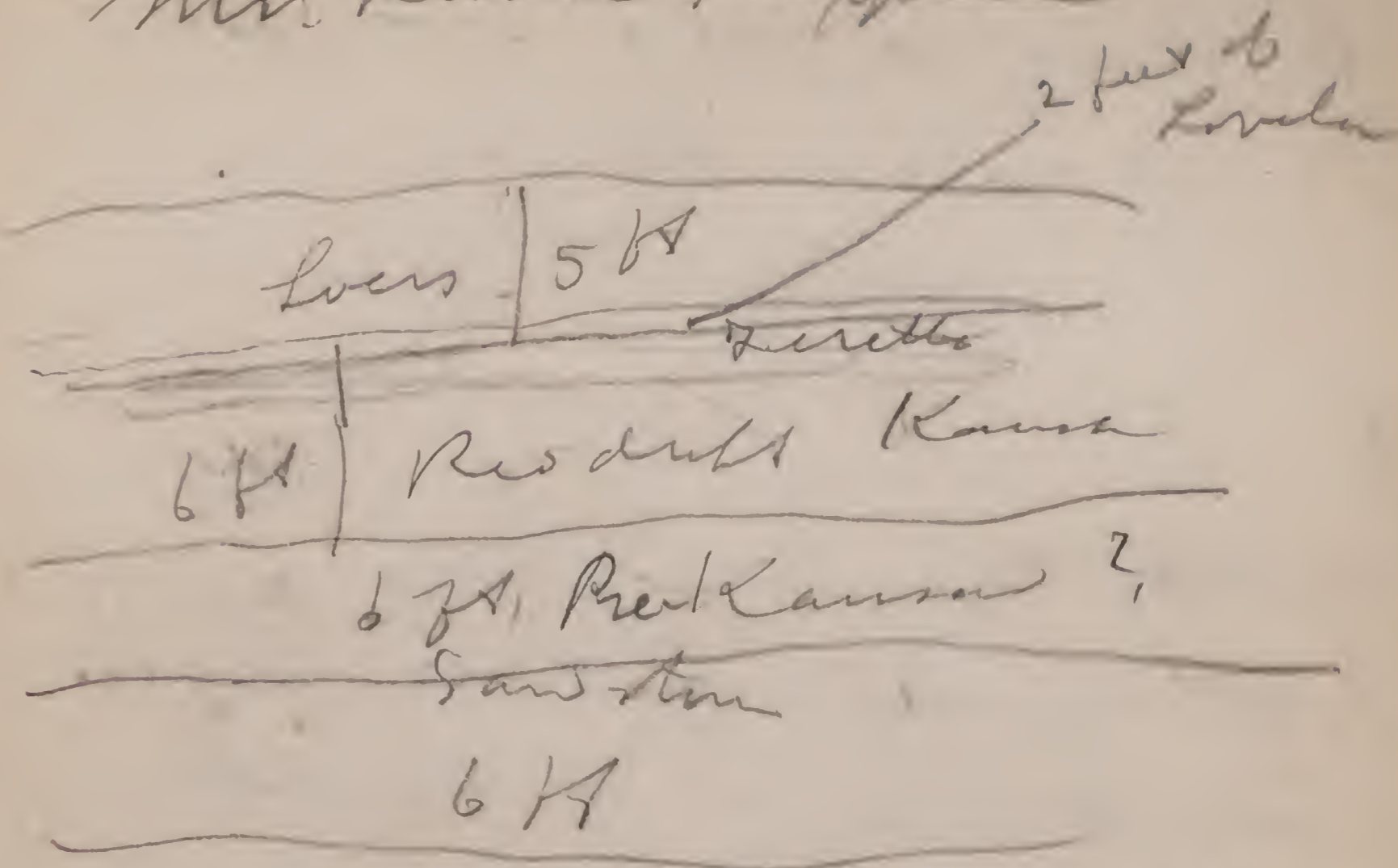
clams
been
found

There are two wells on top,
one E. has been excavated,
& here flint chips & some
pebbles. I got some by digging
& found where.
The clam shells were

The clams were on a
 loess covered slope about
 16 ft below top of
 mound or ridge, & 40
 feet south. Took samples
 of this loess, with nodules &
 shells. It may have
 been disturbed, - is loose &
 with irregular nodules.

General creek

Mr. Russell's exposure



The loess part Kansan along
 the level is very red & about
 2 ft. deep.
 The center was slumped down
 into Kansan.
 The lowest gray joint clay is
 probably pre-Kansan?

The fauna on top, many
all way up hill & down
a yellow (mottled blue) loam
with a few fossils.

Just middle in gutter, some
real blue loam with some
pipes has been found at

The bank is probably
20 ft high in highest place
& is capped fully covered
with a red & mottled

sand joint clay - like
later Hellenian.

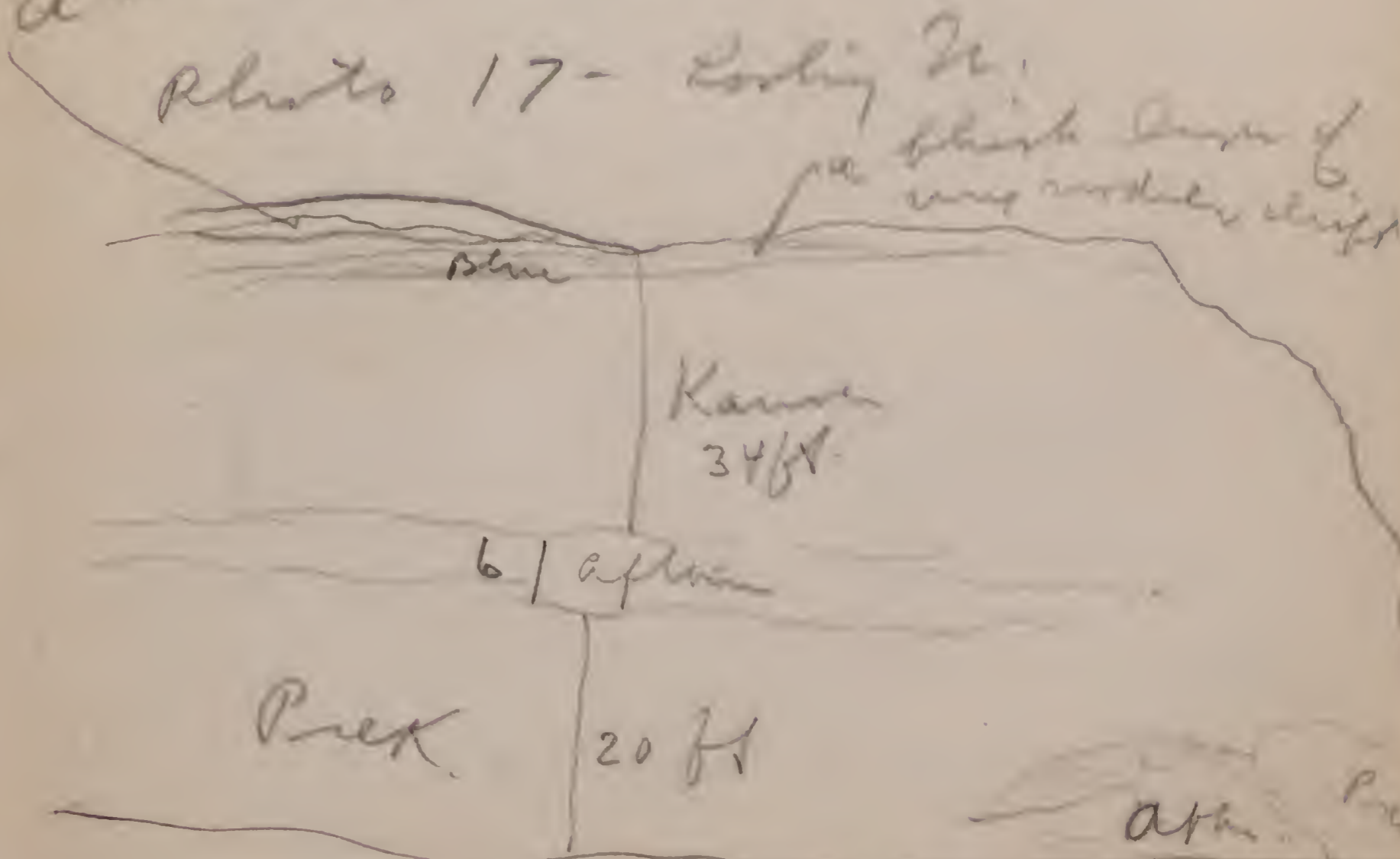
From here a valve of
Uris verrucosa (in loam?)
which evidently came from
from above (probably
from a mound)

the E end:



a white sandy layer = Hellenian.

Photo 17 - Looking N.



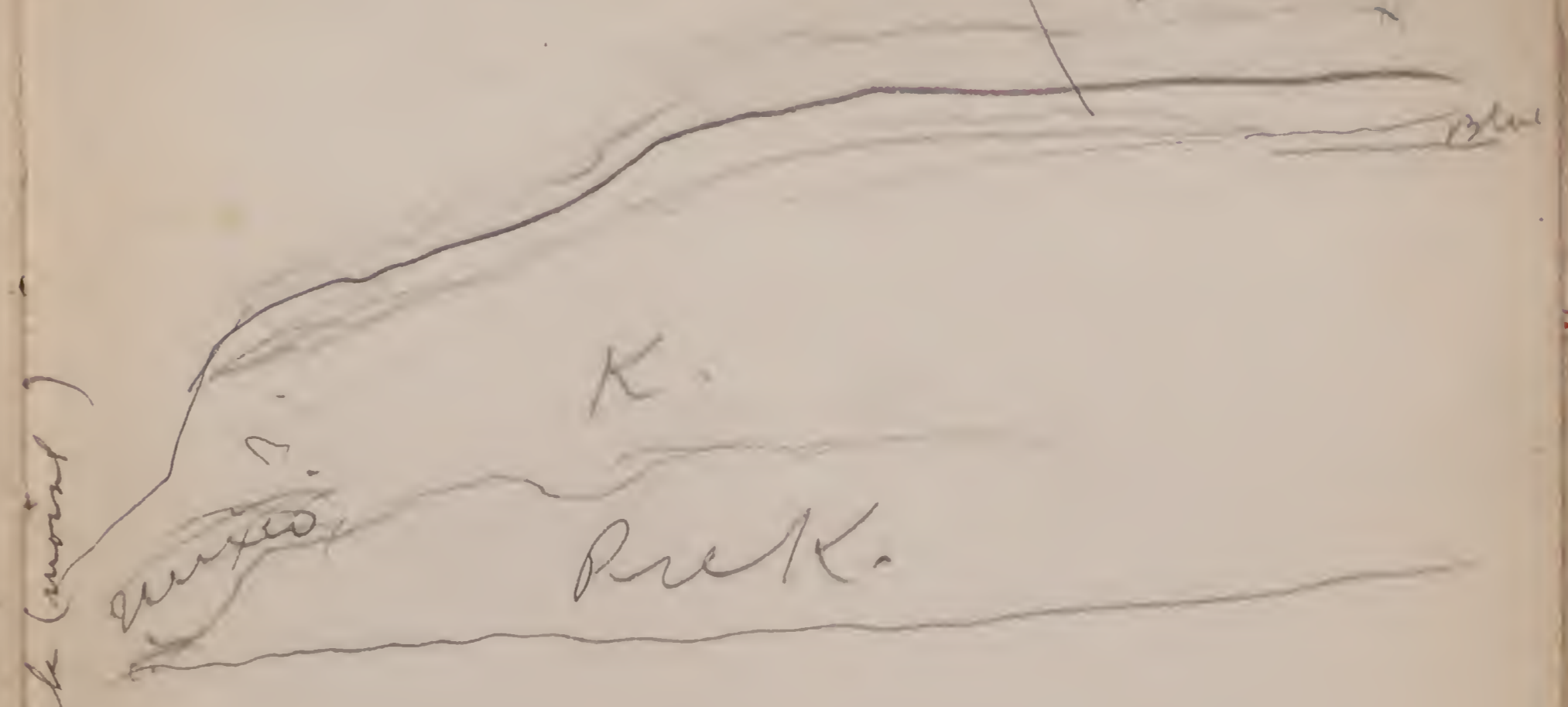
Looking N. at main S. face.

The afternoon is here chiefly sand
(shank, rather coarse) & is more
or less unconfined with
Pek. below.

The narrow narrow blue strip
was probably blended below
with blue loam (on lower slope)
All traces of my loam
have been removed.
Evidently the force behind
plowed this whole thing
right up, so that in
front face pek. is
20 ft. above afternoon
at E. end (arrow turn)

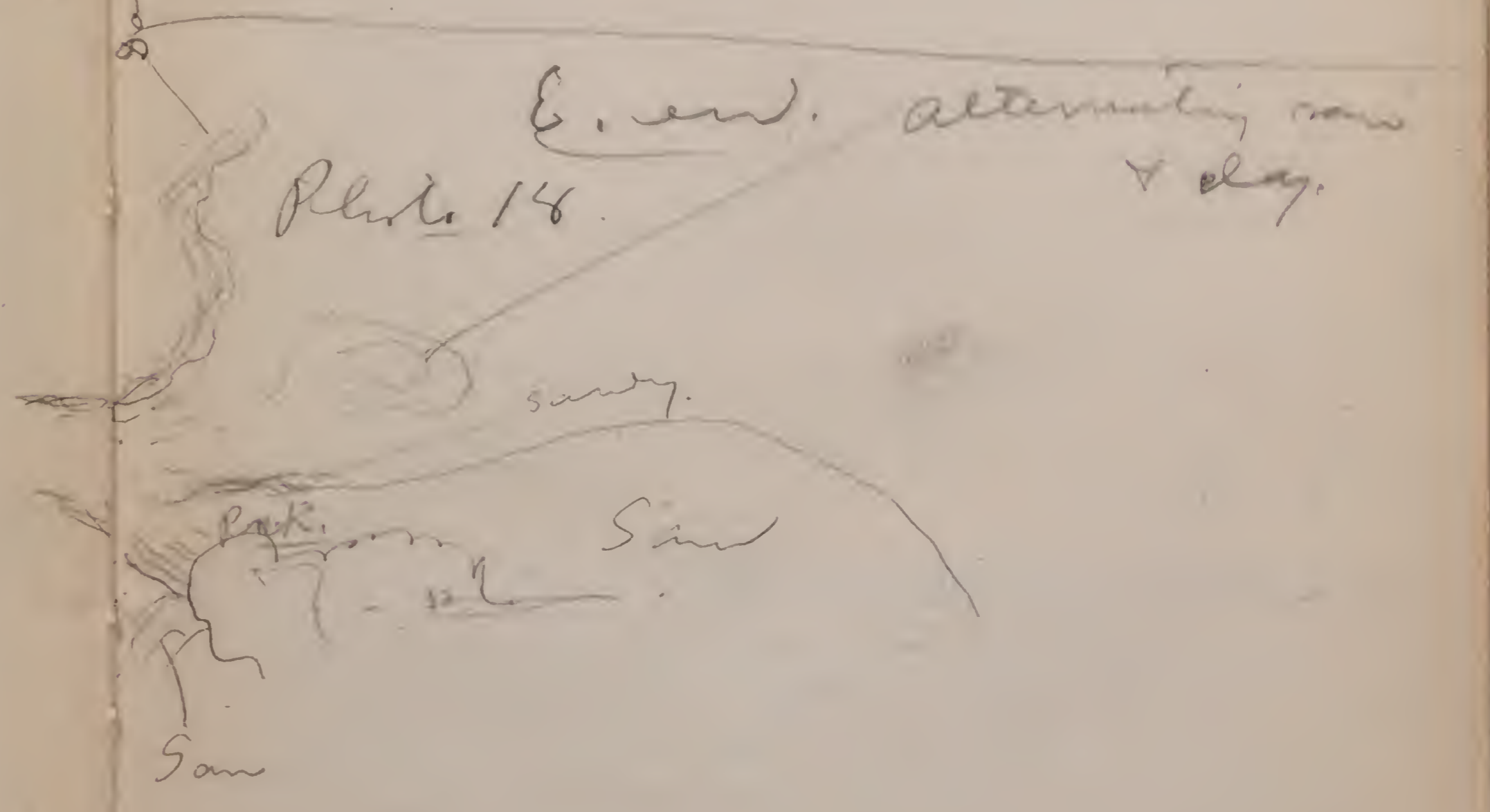
W. end same cut.

all. ² sand III



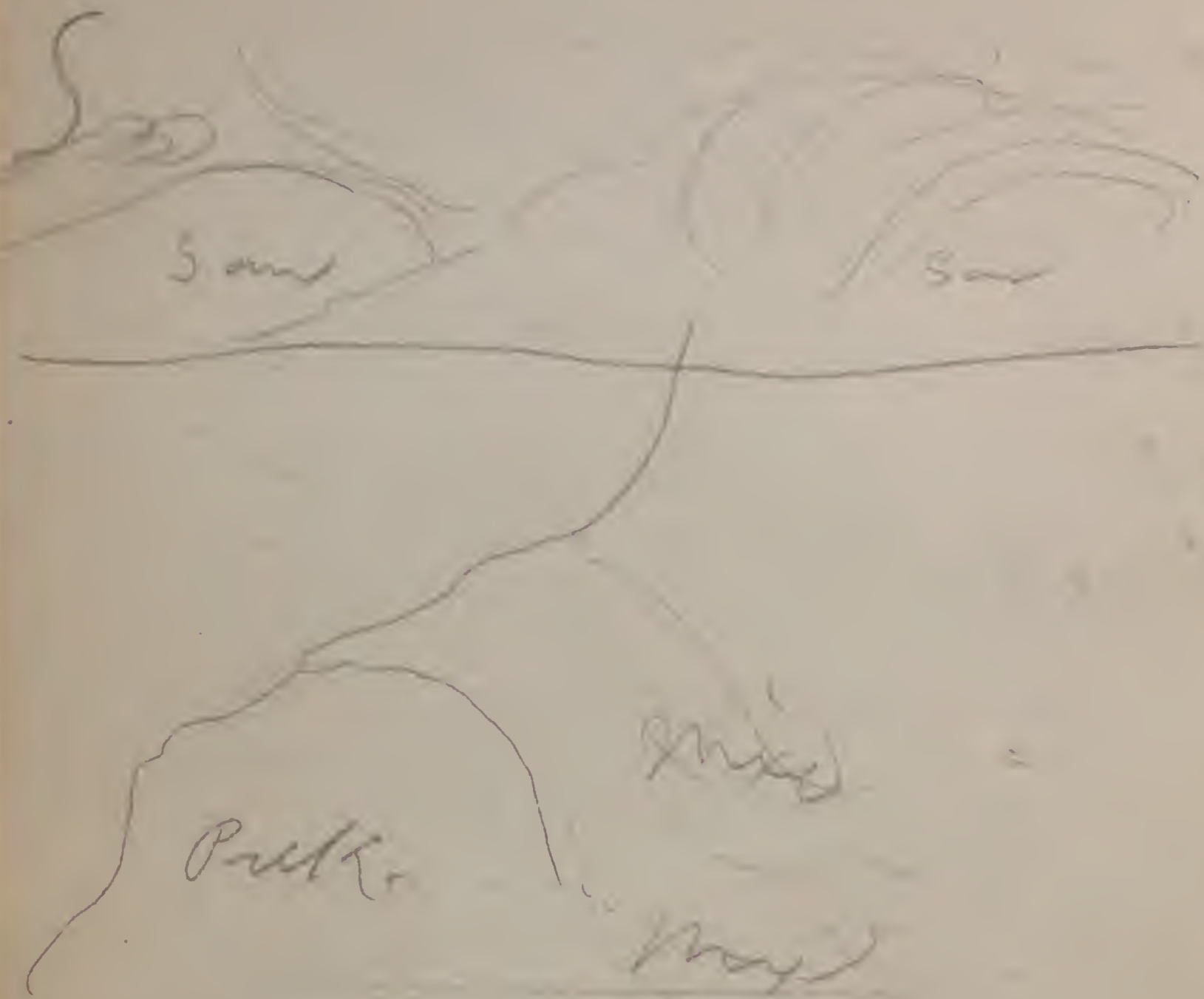
E. end. alternating sand
& clay.

Photo 14.



Plots 17

E. end Herby.



S. end - east exposure

Herby Ave. 1 Blk. S.

on street 1 blk W. of

Green Str. in Herby Exp.

at Herby Ave 35 ft.

below base of exp.

Along cut 48 ft

1st cut 2- on N. side.

about 6-8 ft. Ill. - very sandy
& small pebbles

Oxidized band

then about 12 ft. of Kern

reddish & bluish with lumps
then 1 or 2 feet of reddish loam

then 12 ft. of Pre-Kern.

Observed more or less by

shanking

This is near road - the
continuation extends for a
long distance is eroded &
dumped

The Aftonia may be
thicker, slanted,

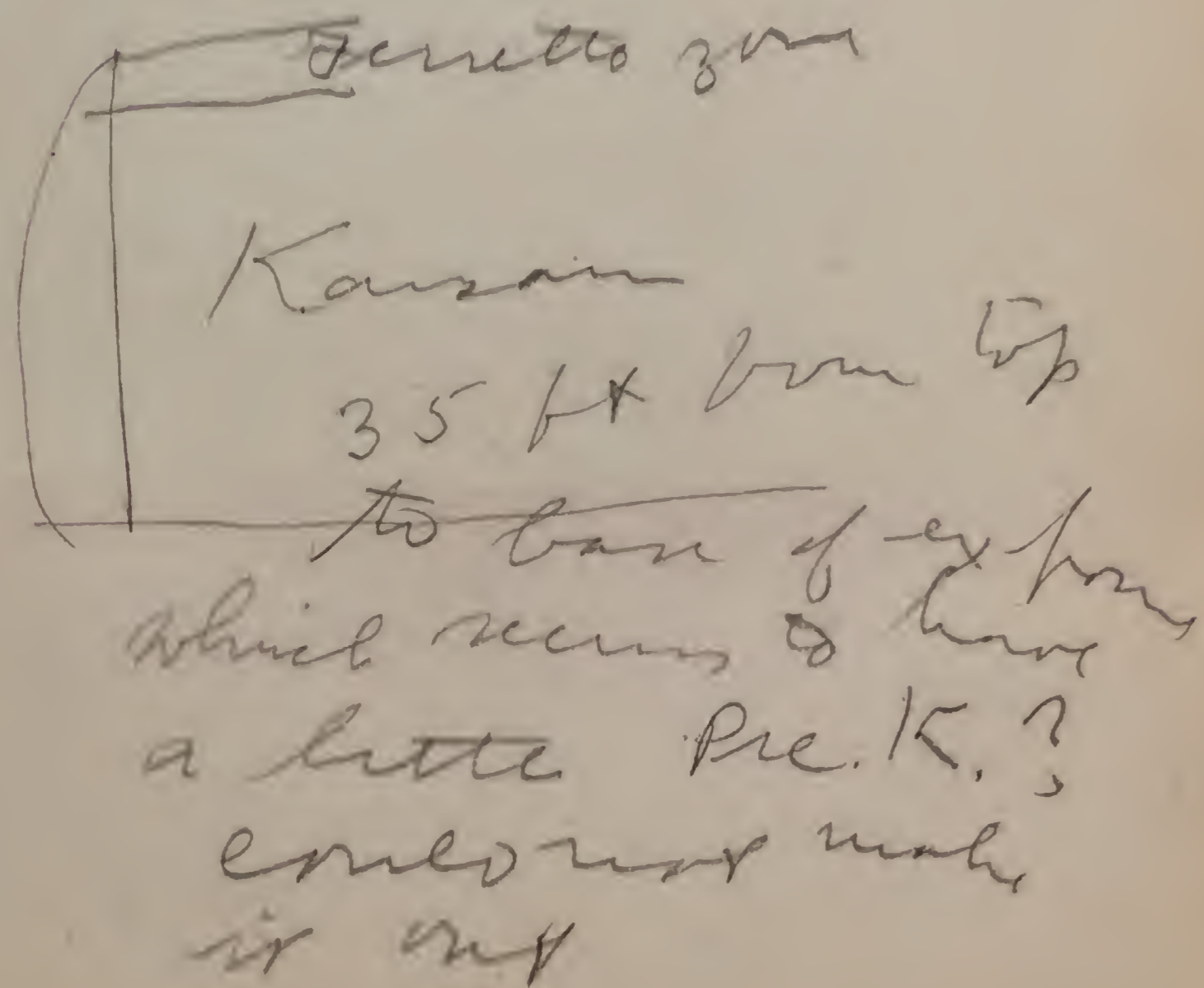
the 2nd cut is short &

overgrown with young black
locusts

The 3' cut is high &
shows drift. Seems to
be mostly Kansan, but
it is disturbed.
This has post marks
1405 (on board) at E. end.

Cut 4 - E

2 1/2 ft red joint clay
& 7 ft very lumpy &
sandy yellow



20 is 45 ft from RR to 49
top of exposure &
55 ft. from RR down to
road on bottom

Nov. 12 - 1908

Left Iowa City at 9:30 PM

Reached Marion at 11:30

Left for Maunilla at 12:30 AM

(about 5 min. late)

Reached ^{now} Maunilla at 6:20 AM

Changed for Mapleton

Reached Mapleton at 8:45 AM

Took team and drove down the

valley. It was snowing all

day.

I examined ^{some} terraces on E. side
near Mapleton. They are all

(as far as I could see) covered

with yellow loess. Very few

forms appear. Crossed river in

sec. 17. (See plat - not map)

The hills to this point on E.

side are rounded & slope up

rather gradually from the terrace. The terrace, like all others examined, seems to break up occasionally and resembles a lot of tongues of upland material reaching out from bases of hills.

As far as I could see on the E. side yellow loess of the usual type in this territory, with nodular layer above, covers all the terrace and blends with that of the hills. I could see nothing but this loess at any point examined.

In the N. part of sec. 25-85-43 the terrace and hills so blend, cross river & follow bluffs down.

Cut a is yellow loess with a few ⁵¹ round nodules & nodular layer above & few fossils ^{cut} 5-7 ft deep. About 10 ft above bottom. See fossils.

This is in sec. 34-85-43. Of the two roads, the E. one seems to be in use. I saw no such road as the west one.

The hills on the W. side in 85-43 are also rounded, and loess is prominent. There is a little showing of cat steps in the vicinity of (a). The terrace shown in 27 is not as prominent as those on E. side (This is also the case with the W. side terraces N. + E. of Mapleton.) (see later)

In Twp 84-43 ^{near middle} ~~part~~ part
 of sec. 5 - The road runs
 up against bluffs & cuts
 in, exposing high banks of
 loess, more or less washed out
 and slumped. The bluffs
 are pretty well timbered here,
 so is the bottom.
 Crossed back to E. side. Tried
 to find out about Mc Cleary's
 pit, but mail-man knew
 nothing of it, - said a
 Mc Cleary lived near Mapleton,
 (Mr. Uhl, the livery man) ^{also} told
 me that the place is S. of Mapleton
 about in sec. 11 or 12 - 84-43, (Wm. Mc Cleary)
 Went down E. side & found
 large terrace in sec. 17, &
 also into 18 & 19. The hills
 on the E. side above Castana are

more or less broken up and
 rounded, - They are not
 as prominent as usually.
 As far as I could see all
 this to Castana is loess-
 covered as before.
 At Castana I met Mr.
 J. P. Day & secured from
 him a piece of large scapula
 obtained some time ago
 in the pit opposite Castana ^(no. 16)
 This is certainly from Aftonian.
 I examined pit in summer.
 Mr. Day said that there
 is a gravel pit - washed
 by river, - in bend of river
 near creek in sec. 26 just
 S.W. of Mapleton. He pointed

This out on map in response
to my query concerning the
McClary pit. Reached ^{12:15} Castana at
7ed & ate dinner. Started
for Turin in snowstorm at
about 1³⁰ & reached Turin at
2³⁰. Hunted up Mr. Elliott
& went to pit. It shows old
weathered surface above
Aftonin & Kansan on this.

Mr. Elliott said that they
went down a few feet and
struck a hard very dark
clay. Went into it 4 ft.
and gave up. This appears
to be pre-Kansan from his
description of it.

Saw Mr. W. E. Babcock, the

young man who had the
vertebra of pachy derm &
horse tooth obtained from
the Elliott pit.

He gave them to me, but
requests the name of
animal to which vertebra
belongs.

Started for Moorhead a little
before 4 P.M. Followed bluffs
to S. E. part of sec. 15-83-44 &
took road S. E. up a long valley.
This carried me through a
very rough even covered territory,
& I finally reached top of
ridge on E. side of sec. 29-83-44
There are patches of timber on
the sides, especially on W. side of
long valley mentioned. I drove

over much of the way to
Moorhen in the dark, but
after passing high ridge I
found the country a trifle
less rough.

Reached Moorhen at about
6³⁰ PM, & put up at hotel.
This was a bad day, - a
driving snow fell nearly
all day, & finally ground
was about covered with
the fine stuff.

Fortunately for me the storm
was mostly to my back, but
even then I could scarcely
open my notebook without
putting brush top up.
Nevertheless I got results.

The mapping of the Maple Valley
& the Twin + Canton Canyon, as
well as general topography
between Twin & Moorhen
were worth while. I also
secured a small set of local
fossils at (a) as noted.

Nov. 14th Sat.

Left Moorhen at 8 AM.
This town is partly located at
a terrace. The hills here
are not very high, but at
a number of points, indicated
on map, they show cut-steps.
I followed W. side up, but
could see E. side well.
There is a prominent terrace

opposite Monkshead.

Just above Monkshead the
road topography & catcliffs are
very distinct, but the ridges
are not high.

Exposure of loam along road
going up hill from Monks,
on E. side. (See map).

(The exposures indicated on
map are 6 ft or more deep)

This shows yellow loam, with
nodular layer above

At angle of road in sec. 10
(center) another exposure
on down slope about same,
but is washed deeper
in gutter. Looks compact
below. Saw nodules,
etc. as before.

59
View top, & catcliffs show
S.E. of sec. 5. 3²

are imperfect - somewhat irregular
terraces sec. 6-82-43,

Exp. of loam on line between
secs. 5 & 6 - on up slope -
Same as before.

On N. line of W. 1/4 sec. 6 on
down slope another good expo-
sure of yellow loam as before.

On down slope of next ridge E.
there is a deep exposure, partly
washed out gutter. This shows
yellow loam, but evidently
very compact below. Nodules
as before.

It was hard to see if
there are any fossils, as
now covered part of surface.

Our road running N. through sec. 35 (middle) ⁻⁸³⁻⁴³ on up slope just N. of tran (saw) there is a deep cut showing loam as before, & I noticed one more.

Two smaller cuts, showing same kind of loam;

appear on same road northward in sec. 35.

Similar exposures appear in the S. E. 1/4 of 26-83-43

Both are on down slope, the second across turn of road same kind of loam.

The nodular layer is distinct in all these - 2-5 ft deep.

Cut steps down on yellow loam ridges in W. part of sec. 25-83-43

The road in sec 25 is represented as crossing the R.R. It does not do so.

Opposite Soldier (5) there is a fine broad terrace showing very distinctly.

Soldier itself (a Norwegian town) stands on a terrace.

I tried to get information from well-digger, but to structure of terrace, but it was of little use.

The soil about 15 ft from yellow clay (loam) then many lime nodules & then a harder clay (Kansan joint clay probably). They

get water at about 50 ft. & find little pockets of sand - as I understand it even in the joint clay.

In sec. 19-83-42 there are some cut steps on low ridge.

Just E. of center of sec. 8-83-42 there is an exp. of some kind with fragments of Succinea.

Similar exp. on NW 1/4 sec. 17,

on E. line S.E. 1/4 sec 5-83-42 on slope down hill to N. there is a good exp. - 6-8 ft deep (or more?). Green loess as before. Saw fossils. (Returned this later in day, see notes) p. 19.

near NW. cor. of sec. 4-83-42 there is a low nose with cut steps. In road just below (on NW. side) is a lower cut.

Same as before S. of center in sec. 34-84-42 there are two mounds, probably remnants of terraces.

The RR cuts through one. Saw to show sand & gravel.

Reached Mts at 12:30 PM. Put up team, took dinner at hotel, & then hiked up. Met Mr. D.H. Book. Met his father, Robert Book & also two old settlers, Mr. Patrick & Mr. Perkins. Mr. Patrick years ago dug a

64 well on top of ridge in
Wt., went down 60-70 ft.
to very dark & very hard
clay.

Mr. Perkins has a drive well
on top of ridge - 260 ft deep

The last 15 ft. was in
gravel - then a hard
layer & they stopped.
About 75 ft. down is hard
clay. They also struck
boulders of sand.

Mr. Post said that

Mr. Andrew Cocksfoot
Wilton, Ia
knows what became of
the Mastodon found on
the Kotte Farm near

65
Wilton. Mr. Post's relatives
live near Wilton, Ia & he did.
They also told me of bones
found in creek bed on the
Junius Brown farm.

Junius Brown is now
in Worcester Texas.
(D.H. Post thinks San Antonio)
He has thigh bone & tusk,
a Mastodon tooth found
in same place was owned
by F. J. Roberts who has
gone to Washington.
Has daughter living at
Charter Oak.
D.H. Post also probably
has fragments of the
tusk. all collected 20 yrs. ago.

Mr. Bort also said that
Engineer Stevens knows
about asles & cinders
found in Rd. cut W. of
Mapleton.

They also gave me the
name of W.S. Dickerson,
well-digger, at Mapleton.

Also David Tacey
Castana, Ia.
This is the man I saw at
well No. of Castana in
summer. He has
put in wells at Soldier
on terrace.

Mr. D.N. Bort also told
me of city well - on

slope just below C.M. & P.
RR. on road to C & M.
depot.

They struck sand & gravel
here & it caved, & they
had to remove building to
save engine, write to
Mayor Holmes, - he knows
about it.

In afternoon drove out with
D.N. Bort, to N. end of me, 2
went S. to N. end of me, 2
83-42 - just S. of road &
along (N.E.) bank of Rock
creek there is an exposure
of alluvium 8-10 ft. deep
in which are many freshwater

Returns to Ute &
 stopped at Mr. Burt's
 home, spent night.
 Cloudy & cold nearly all day.
 Clear spells.

Nov 15 - Sun.

Arose at 6³⁰ AM,
 After breakfast started &
 I drove to sec. 28-84-42
 and examined his territory.
 See sketch further on.
 Will work out composite
 Ecology of Prairie & Forest.
 Note many plants - see
 list near end of book.
 Will run these 2 lines
 for study - out of my
 collections.

The soil is loess, - lime 71
 nodules showing on the surface
 in prairie part.

72 Returns Mr. Post to
city at 11 AM, &
at once drove toward
Mapleton, sketching in
Soldier valley, which
I probably have a little
too wide.

Above the hills,
especially eastward, slope
up gradually in a
terrace like part, &
from here N.W., the
Kansan topography
is gently rolling.

This is fine farming land
(to east) & the terraces
along the Soldier are
considered fine. Also

73 those along Maple river.
I drove 5 1/2 mi N, & then
turned west.

The few low exposures along
this part show yellow loam
& redness layer above.

In SW. cor. of sec. 34-85-42
on long down hill cut
(cut deeply by gully)
yellow loam (compact
below) shows, redness
layer above, a few
rows redness below.

I saw *Guccium*

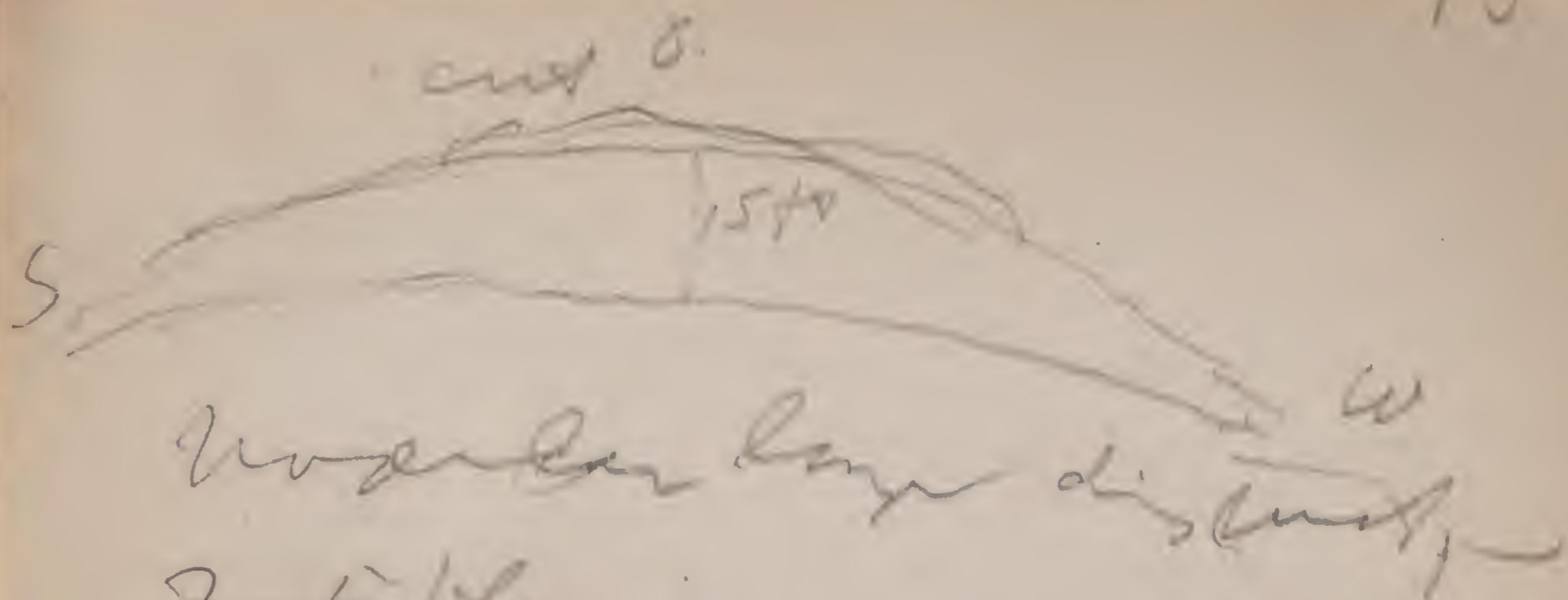
Across ^{Sprink} creek, on long
cut up slope the
part Kansan loam with
prominent iron tubes

shows. I saw no fossils.
Above it is a reddish
lobular loam.

The blue loam shows
up ^{to} probably $\frac{2}{3}$ of way
to top. At top
yellow loam with
nodular layer
showing.

About 2 ft. of the blue
loam is exposed, & above
it about 3 ft. of reddish
loam.

cut 0 in NE $\frac{1}{4}$ 32-85-42
in road cut across ridge,
dropping down toward RR.
It is 15 ft. deep.



Under layer distinct,
3-5 ft.

Lower loam yellow, blue-
streaked in lower part,
with few ~~found~~ nodules.
Fossils scattered in this
loam. See nodules,
sampled fossils.

This is part of same
series of ridges as that
cut by cut 10 of 10-10-10
The wagon road ^{new} of
cut 10 shows to be S. of
RR. - it does not
cross again.

At middle of E. line of sec. 25-85-43 - just N. of turn, at foot of slope for some distance up, Kansan drift is distinctly exposed. There are some small boulders, & also pebbles.

Just on the ridge N. on down slope, there is long cut of usual yellow loess.

Reached Mapleton at 1:30 pm. Took dinner & fed team.

at 2:30 pm. drove out again up the valley

outlined alluvial plain terrace.

The Mapleton terrace is fine. The hills, woods & are low & rounded, - shading down into terrace.

N. & E. there is a gently rolling Kansan topography.

I should have noted that from the turn 5 mi. N. of Ate (a little W. of it)

there are frequent scrub bar only (some) along road to Ch. S. & R.

There were evidently more in the fields adjoining, but

73 These have cleared.
As far as I could see
to N. & E. & also to S. W.
the surface is rather
rough Kanran, (middle
N. E.) with only here &
there small pockets of
timber (scrubby).

Just west a better
ground.

The flora along
the road sides is the
usual prairie flora of
these parts.

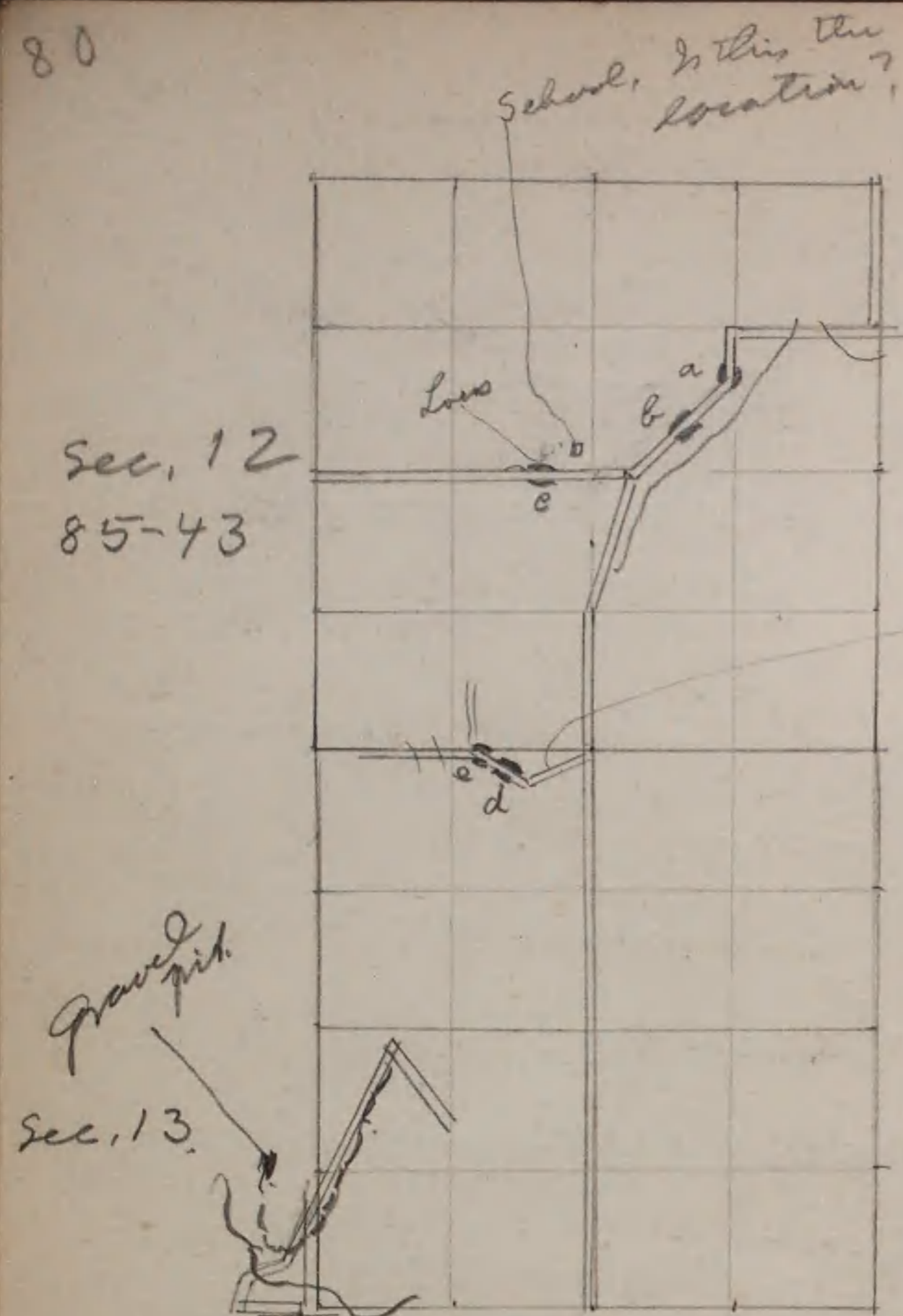
The Soldier shows a
thin fringe of timber
all along & as far as I
could see.

79
Resume account of Camp
N. of Masterton.

On E. side the ^{Bluff} terrace is again
prominent, especially in sec. 8-85.42.
The hills slope back, the
topography being quite
gently rolling.

Went to N. line of county.
In NW 1/4 sec. 6-85-43 there is
an indistinct terrace, and at
county line the NW. Bluff!!
is low and rounded.
The terrace is less distinct W. of
road in sec. 5, & an indistinct
terrace also shows in the
NW 1/4 of sec. 7.

The roads in secs. 12 & 13 are
not correct on Huebinger map,
at least not as they are on ground.



It seems to me
that this road
is

It also seems
a little further
north - but
perhaps not.

Cut (a) shows yellow loess (nodules above) of usual type. It is on slope up, near top of hill (that is on road, - the hill rises much higher)

Cut (b) is on down slope and is similar. I believe the location on Kuelmann map is wrong, and the above about right.

81
sec (c) is a deep cut (with vertical walls like all these deeper ridge cuts) and I only looked at it. It is just beyond school house. I turned to right towards (d), going up a steep hill. I called the road, O, and this is 10 ft. above bottom, the road being on a little terrace.

About 80 ft. above road I saw drift, (small boulders, some black & some Sioux Q.) exposed, above it was a red layer, pebbly below, but ~~light~~ clay above. I followed the latter up to about 100 ft. above road. (This is d.)

At 120^(=e) where road turns to right near top I found yellow

loess with few round nodules,
and scattered fossils, capped
by 4-5 ft. of nodular loess.
See shells and sample of clay,
the ^{hill} rises above this point
some distance, probably 30
ft. or more.

1908 83

Nov. 19 - Thursday
Left Iowa City at 9:30 -
Left Cedar Rapids at 11:50 P.M.

Nov. 20 - 1908 - Friday

Awakened at Logan.
Reached Mo. Valley at 6:55 -
A fine morning.
Started from Blencoe at 9 AM
Learned that all bridges between
the Adams bridge (at Keosauqua
Hill) & Tama are out - on
account of dredging boat.)
Took photo of dry land ditching
in sec. 11 - Little Sioux Mts
(Harrison co.). Looking N.W.
Photos 17 & 18.

Murray Hill gravelly ridge
 is evidently Kansan at surface
 on first (lowest) knob or step &
 on second except at very
 top where a little loess is
 mixed with it at surface.

This really shows like an
 artificial mound, & the
 ridge above this is
 again gravelly at surface.

The top of 3rd knob is
 loose gravel - evidently after
 the top of 4th (next to gravel pit)
 is also gravelly, mixed with
 loess as if mounds had been
 put up!

The south side of this
 ridge has some loess, but
 on N. side gravel runs

down all steeper part -
 surface.

Above gravel pit on N.W.
 side, where bank runs out low,
 several distinct gravel & sand
 boulders, with limy covering
 are plainly seen.

Where road turns E. on Murray
 Hill there are boulders that
 lean seaward to N.W. They
 are in a valley coming from
 S.E. & exposed to winds come
 down the valley.

- Cut A from Peyton.
- Went N. on E. side valley.
- Cut B is ordinary light yellow loess
 rather low down.
- Cut C is much the same - on slope up to E.
- Cut C is across little ridge - smaller
 than B, but showing about 1 1/2 ft. of
 blue loess with some boulders.
- Cut D is light yellow loess - on edge of
 terrace.

86 Cut E - Down slope E. shows yellow
loam with a few fossils

part E, of it is
Cut F on lower ground & here
typical Quincy Kansas in relation
to about 2 ft.

G - cut across small ridge.
Shows 5 ft. yellow loam &
about 3 or 4 ft. of bluish
loam with iron tubes

H is quite a cut across ridge
mostly yellow loam, but below (at top)
it shows some blue loam with tubes.
Scattered round nodules & very few
shells, - if any. Fragments?
The uppermost layer in all these cuts
is nodular.

I find on close inspection that
nearly all this cut - 10 ft.
is blue loam with tubes
(see samples)
The lower part is all blue
(see sample & nodules)
Shows a very few fossils.

87 Cuts IV J are on down hill
towards Stone cr. They seem
to be like H -

K is lower down & is deeply
washed on W. side by gutter
It shows same as H.

L is on little ridge & is upper
yellow soft loam not quite
like No. loam.

Its fossils see sample
Stone cr. shows small deep
narrow gully - Saw several
shells.
To be sure W. of road, & also
S & S.E. of I, J, K. is very
rough, ridged, cat-steps, etc.
Cut L is 'yellow loam'.

Cut M is on down slope W.
It has nodules (round) & whole
nodular layer is very distinct.
Loam looks rather older than No. loam
(but is yellow (see sample))

In all cases the older (blue or
Harrison bluish loam is clearly laminated)
Cut N is like M
82-43 Cut O is across ridge &
similar to M. Saw 1 broken S. Abry

Cut P shows about 10 ft of loam (like the above) but bluish below.

In lower part a few fossils

Q is deep wash out in edge of terrace. Seems to be just like P. (see on E. side.)

Photos 25 & 26. Looking S.E. across Saddle valley (see plat)

Photos 31 & 32 looking NW from R.

Cut R is like P - 10 ft deep on N.W. side

Cut S is like R - 8 ft deep

Cut T is irregular, washed & part looks alluvial.

Rather low down on creek bottom

82-44 Cut U - up hill like P

Cut V - is near top of ridge on old road

Cut W is at very top of ridge (found 7 small casts - like P)

Took sample from base. Shows fine yellow loam - no fossils

Few small nodules. Nodules large with few nodules. Cut 6 ft deep.

Cut X is at least 12 ft deep. The loam like in P, is bluish below, with some iron tubes. There as

in recent the cuts a line of nodules extends high up, as if separating a dune (below) from a finer loam (above)

Saw no fossils.

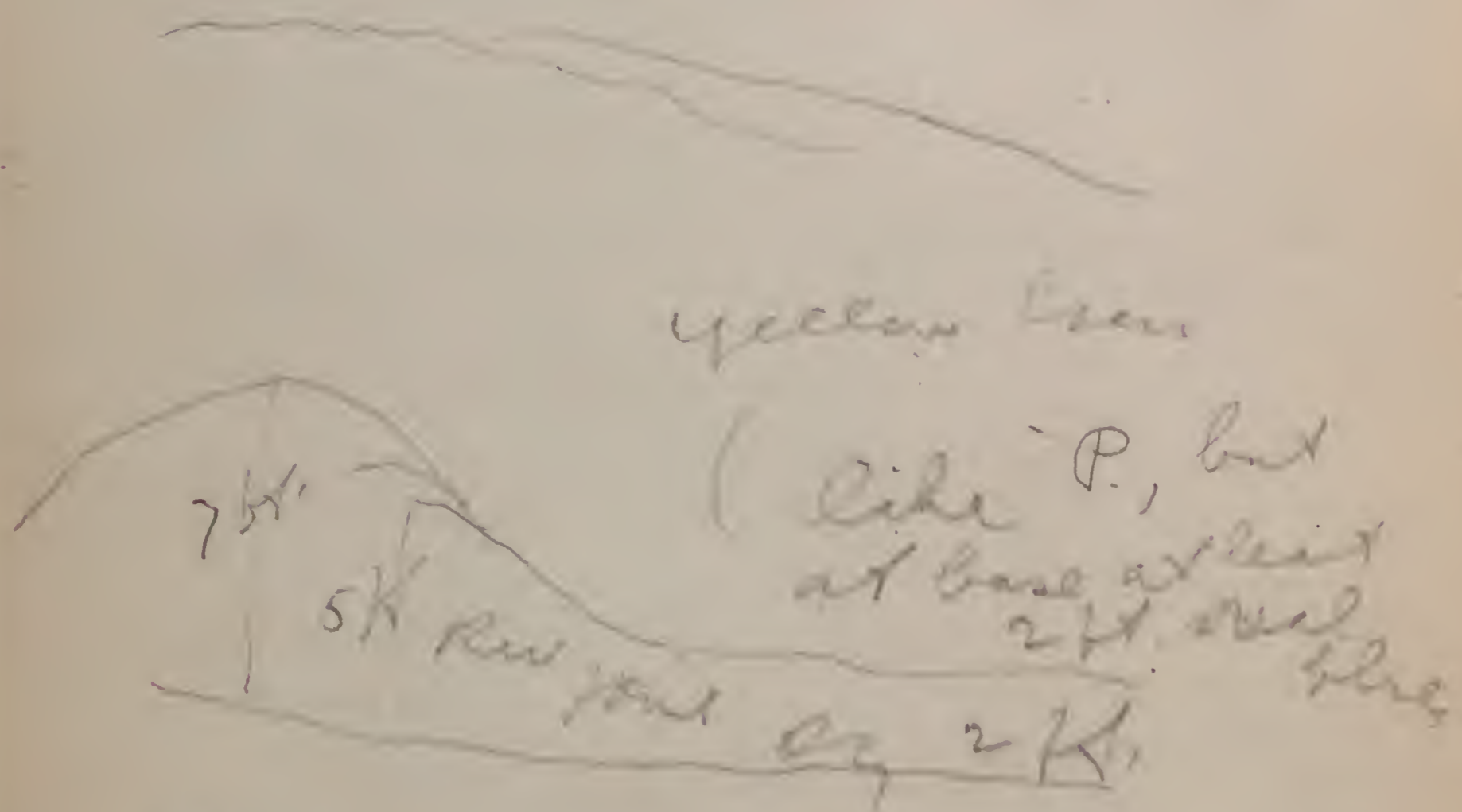
Fossils are very scant in all this hill. Hilltop only

90
Cut X is across top of ridge

all probably ft
60-80 above valley

Cut Y is rather low, - 10

ft. deep, & shows red joint
clay at base



There is distinct unconformity
here, and the line between
loam and joint clay is very
sharp.

This showed nodules, but
I saw no fossils.

91
Cut Z shows Kansan at base
It must be 50 ft or more above
valley -

Just at main road there is
a band of Kansan, at a
this is 20 or 30 ft. above bottom,
along my albatra bluff
(10-57-44)

Kansan is yellow along road
southern & red joint clay
northern, the latter
is separated from blue loam
above by very sharp line.
Hills cut steeply & light yellow

at next to last exposure = b
A reddish blue loam is
full of fossils. Above
it a heavier blue
loam is without.

(See sample) also fossil

(to top) = c
 Last exp. shows heavy
 blue loam with joints
 just above layer of
 red joint clay - 7 or
 8 ft. exposure

This is just above joint
 clay (one sampled
 joints)

This is really almost
 like joint clay. But
 red clay is just
 below & sharply set
 apart.

The material above this
 real joint clay is heavy
 and somewhat like joint
 clay, & above grades into
 loess. The lower line is sharp,
 the real joint clay being distinct,

and in cut c rising 6 or 7 ft. above
 road, - high above valley, ⁹³
 A glacial band is found in this
 heavy stuff at base of loess
 & this is well crowded with
 shells. (See spec.)
 All this lower loess is
 evidently post Kansan, &
 most of it bluish.

This is to top of hill
 of highest place in road, = c.
 Going down (north) the
 first 3 exp. show large
 nodules just above joint
 clay. Then 2 more
 show only loess.

The road drops down from
 cut c, though not quite
 to bottom and in sec 4
 sec. 3-82-44. Kansan drift

again shows in little
ridge cutting road, (= d)
Joint (red) clay shows
above it here, & is capped
with loess, this is a
rather small exposure.

In the NW, SW. 3-82-44
red joint clay shows in bank
along E. side of road,
cut e is a deep road cut
with vertical sides, across
ridge. Mostly, if not all,
loess. Getting darker.
There is also a deep cut at
J₁ - higher on ridge, - but
I did not examine it.
Evidently loess.

Just about on Trop. line joint
clay (red) again appears
along road.

near the N. side of the

SW $\frac{1}{4}$ of sec. 34-83-44

Two small pits show
sand (evidently Astorian)
under Kansan.

Northward at two points
in the NW $\frac{1}{4}$ sec. 34-83-44
loess sand appears in road,
May be Astorian.

Got too dark to examine
exposures.

The bluff N. of the
alfalfa bluffs are
largely knobs or
ends of ridges running
at L's to valley, - hence
no continuous hog backs
parallel with valley.

There are frequent breaks
and the bluffs are neither
as high nor as massive
as they appear S. of
Aalfaha hills or N. of
Minn.

Reached Osawa at 8
P.M. after a drive of
about 45 miles.

Put up at Monona Home.
Wrote notes, letters, etc.

The territory between Preparation
& the Little Sioux is very
rough, a series of sharp wind
ridges - all loess. Fossils
are very scarce - evidently this
has been xeroblastic all the
time. The occasional pockets
of shells probably represent localities
of former grass, such grass

common
now

Nov. 21-1908 Sat. 97

Drove to Platteville - reached

B. at 7.45 am.

Left at 8.05 for Whiting.

The bottomlands are mostly very
fertile, where not undrained,
but in places, especially near

the river they are sandy, and
in places a "gumbo", impervious,
& probably outwashed from Kansan
& Kansan joint clay, is at or
so near the surface that it
is not worth much, though

some of it is considered
first rate if not worked
when wet. It "lumps" if
plowed when wet.

Said to raise good crops if
worked dry. (this from various sources
at various times.)

98 This is reserved for Chas. Holmes' estimate of the bottom lands:

~~Photos 20, 21, 22~~
Photos 23, 24 - looking N.
from near cut g. Grand Center.

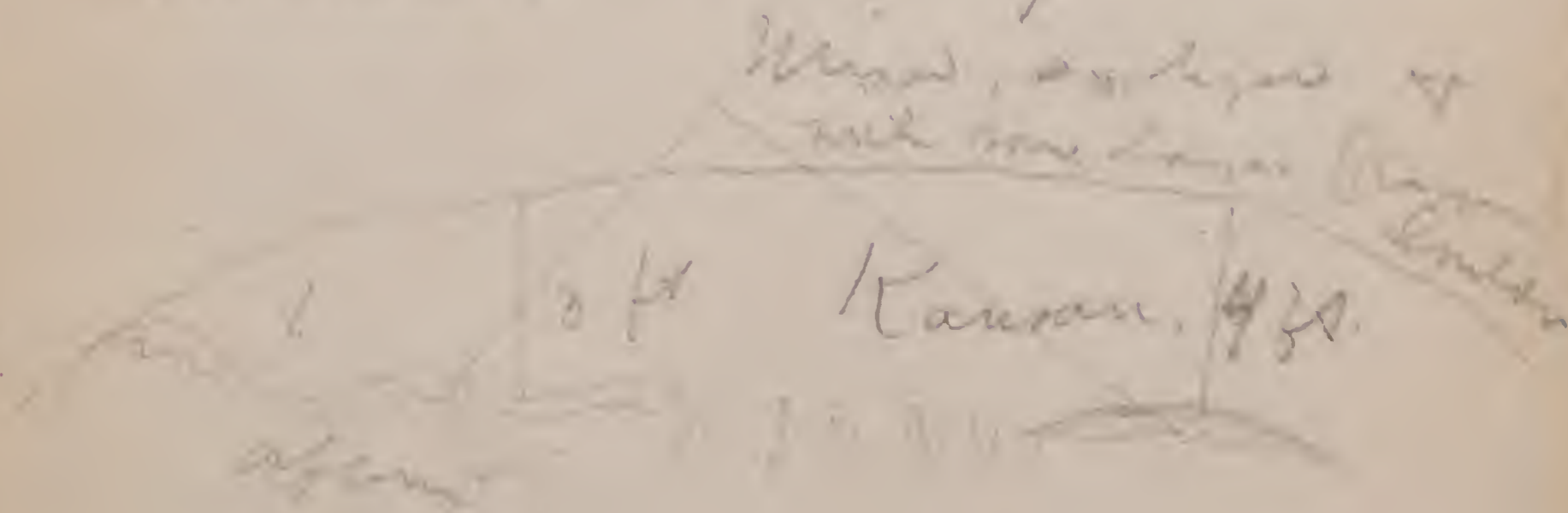
Photos 11, 12, looking S. W.
from cut g. Show heavy
gravel

Sec. 30 - NW 1/4

monom

85-44.

Cut (h) shows Aftonian
gravel & sand, with surface
somewhat contorted,



Fine sand & some gravel
all exposed, only 2 or 3 ft.
But heavy lower here about
14 ft. & from here sand
& gravel all the way. Did
not go to bottom.

The top of the Aftonian gravel
is 50 ft. above bottom land.
This is undoubtedly Aftonian.

and here at surface it has
been plowed some by the
overlying Kansan.

Pit 9 shows some ~~under~~ ~~in~~

gravel up to surface

It is 35 ft above valley
(to top)

They found in here 25 ft +

from gravel + some

Pit 10 is 5 ft. above 7

+ shows a well sand down

about 12 ft through layer

of fine + coarse sand +

some ^{rather} fine gravel.

comes to surface.

At surface, between 9 + 10,

gravel appears everywhere.

Saw following plants on

this above gravel point:

~~Dryopteris~~

~~Panicum capillare~~

~~Helianthus annuus~~

~~Aster arvensis~~

~~Chrysopsis fructus~~

~~Verbena stricta~~

~~Phytolacca americana~~

~~Aster arvensis~~

~~Solidago canadensis~~

~~Bromus~~

~~Desmodium illinoense~~

~~Panicum - Kansan~~

~~Petalostemum can. sp.~~

~~Cornus stricta~~

~~Crataegus punctata~~

~~Staphylea trifolia~~

~~Hamamelis~~

~~Ranunculus~~

~~On - low above also~~

~~Chrysopsis~~

~~Quercus~~

~~Rosa arvensis~~

~~Salix kill. etc.~~

~~Potentilla grandiflora~~

~~Ceanothus~~

~~Helianthus rigidus~~

~~Solidago canadensis~~

~~Solidago canadensis~~

~~Chrysopsis~~

~~Chrysopsis~~

~~Chrysopsis~~

~~Chrysopsis~~

~~Chrysopsis~~

~~Chrysopsis~~

~~Chrysopsis~~

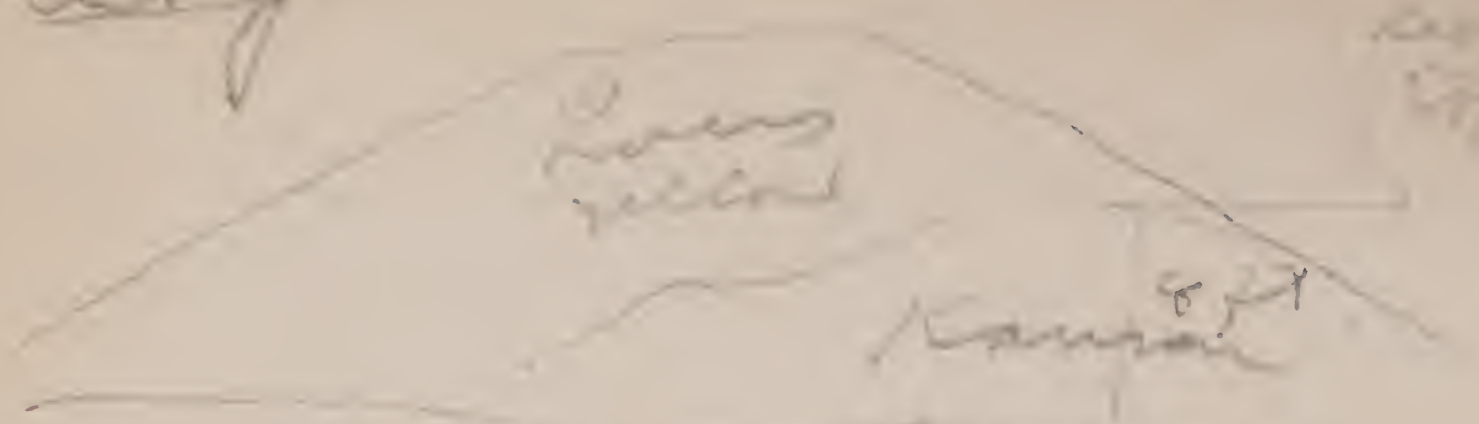
I followed Kansan up to 80 ft from bottom on this knob then down to 140 ft. On top is an Indian mound. Got bones, clam, beads, & copper beads, & pebbles



Photo 13 V 14
Looking N.E. across
Grand Center.

The Aftonian gravel runs along side of knob (to its W. side). Kansan above.

Cut of



arrow turn (NW) Kansan shows in road (E. side) a few rods north of Aftonian oxidized gravel shows in little bank. (at k)

Cut l. an old gravel pit shows above road to right. Evidently worked too high a big group of basins is on slope above road below k.

- 105 Cut m is at spring.
- 95 Valley = 0
- 85 Road = 30
- 75 Spring = 70
- Top of blue loess exp = 80.

Evidently spring comes out at base of blue loess.

The blue loam has tubules
& claudings of red.
No fossils or nodules.
(See samples)

Large granite & quartzite
conglomerates appear above &
below n away above road.

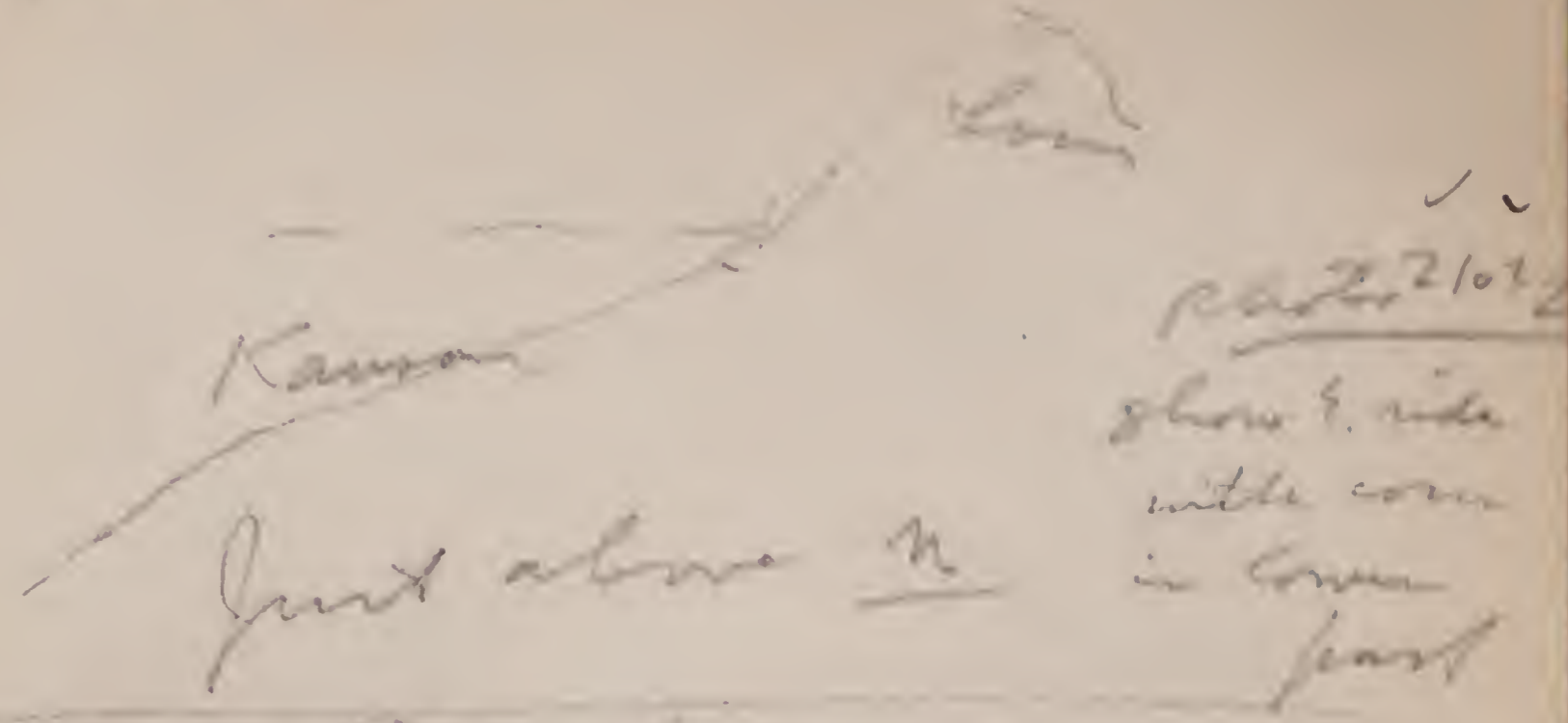
At n a short distance above
n, gravel appears about
25 ft above road.

It lies on below, assuming
Kamran to come from N.
Kamran



This is evidently follows
Aflun Kamran down on
slope above it.

Plots 15 & 16



On lower hills down

- | | |
|----------------------------------|-------------------------------|
| <i>Liatris pectinata</i> | <i>Lycopodium</i> |
| <i>Ceanothus</i> | <i>Aster acris</i> |
| <i>Asplenium commune</i> | <i>Epipactis</i> |
| <i>Petalostemum</i> | <i>Aster oblongifolius</i> |
| <i>Goldenrod rigid</i> | <i>Euphorbia corollata</i> |
| <i>Campanula</i> | <i>Aster</i> |
| <i>Arundo (large)</i> | <i>Habenaria rigid</i> |
| <i>— (small)</i> | |
| <i>Sambucus</i> | |
| <i>Rosa arvensis</i> | |
| <i>Chrysopsis</i> | |
| <i>Saxifraga pumila</i> | <i>Houstonia missillifera</i> |
| <i>Galium boreale</i> | |
| <i>Datura (feather)</i> | |
| <i>Yucca</i> | |
| <i>Scilla verna</i> | |
| <i>Castilleja canadensis</i> | |
| <i>Compositae = Gilia laevis</i> | |

106 photos 27 + 28 view up the

bluff from

Top = 197 ft

Kansas = 140 ft

Road = 55 "

267 Bottom = 0

205
120
68

These were taken from

top of high ridge just
opposite S. line of sec. 18

0 - in N. of this line - just,

look shells + views just S. of line

The point S. is 25 or more ft.

higher + ridge N. are also

higher

sw 1/4 7-85-44

At a projecting point

shows blue loess (with
red tubes etc) about 30 ft

above road. Several of
these points have blue
loess in lower part

At g- rather low down, there

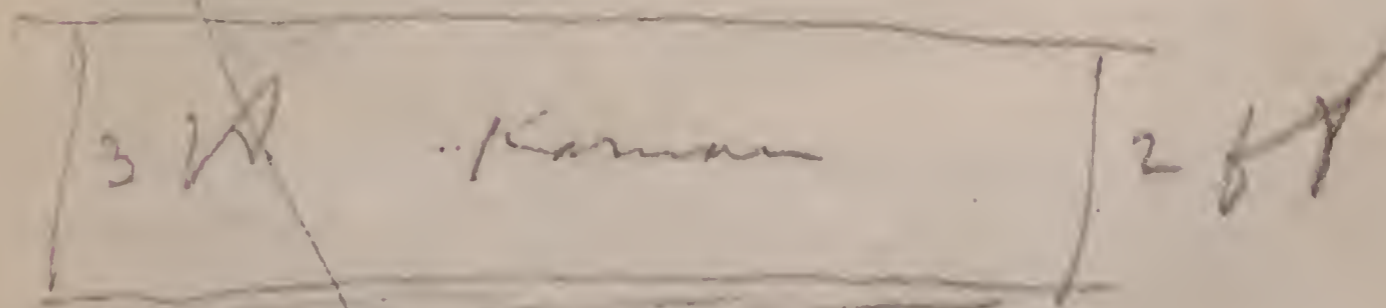
is a pit of fine laminated
cross-bedded sand - about
4 ft exposed. No 1/4 7-85-44

In upper part is a layer
of calcium plates, ^{9 sand} ~~remains~~
(total) to 1 ft. + above this
is oxidized band about 2 in.

Above this typical white
spotted Kansas

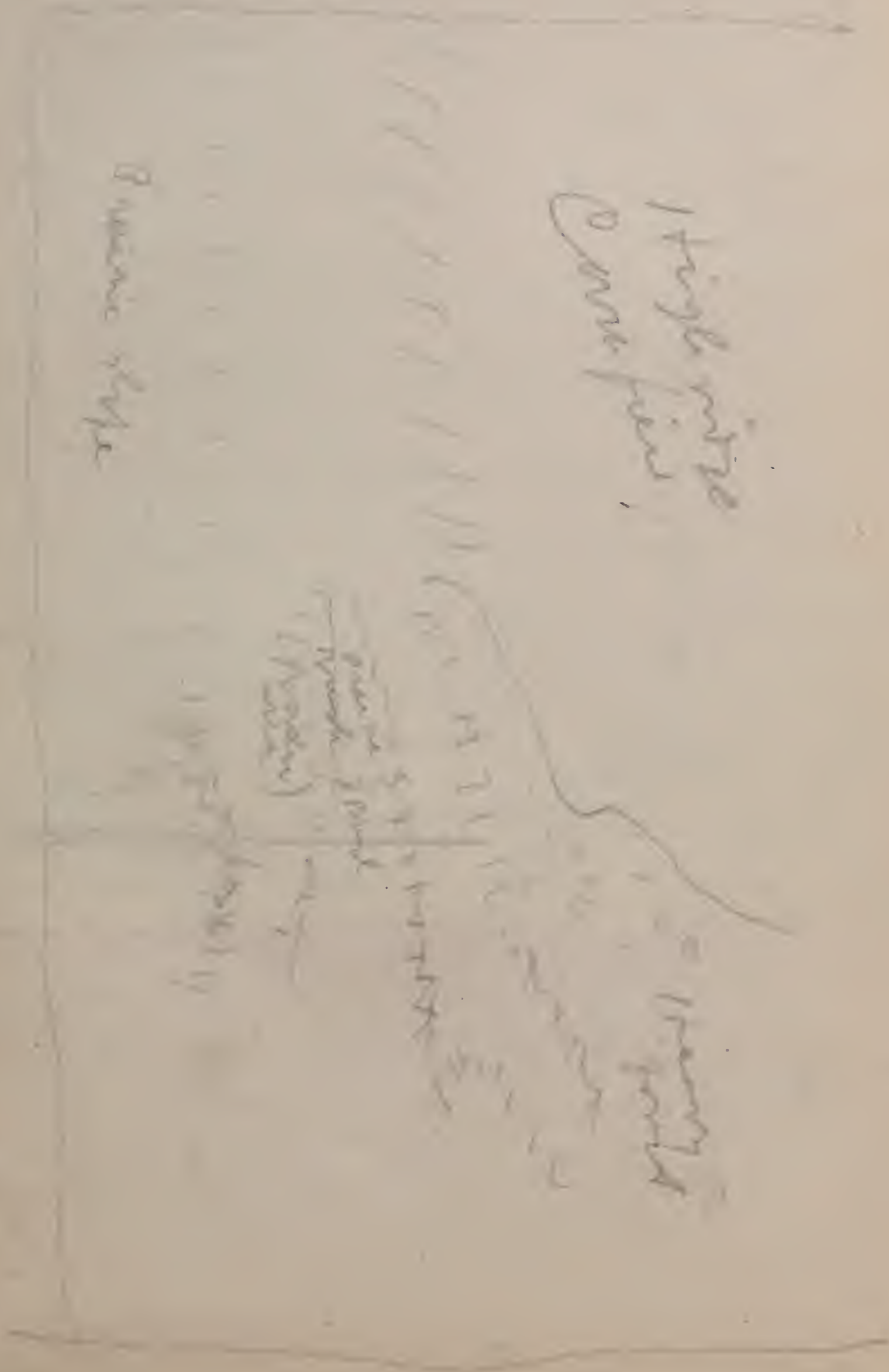
Photo 19 + 20 show the

calc. plates + sand



Fine sand 4 ft.

Prots fields. $\frac{1}{2}$ mile \rightarrow S



Oct. 31, 1908

Left Iowa City - really at 2:30 AM, of Nov. 1 -

Was carried on to Rock Island while asleep. Walked back.

Took train at 7:30 (20 min. late) for Muscatine. Found

Mr. Witter at depot + went to Brownan livery barn for team. Drove out about Muscatine to look at his old localities.

Most of his fossils came from front Kaum loon at High School now all cleared of bluffs.

For observation on this trip see next page, to reg.

112 Muscatine, Ia. Nov. 1, 1908

It was raining, but we
struck out nevertheless. Many
of the old places are obliterated.
S. end of Court str. on left
side (2.) is McKinnon's house
& just below this (up on bluff)
is the family, house,
all the Linnans & all
Italians come from here.

at High School deal houses
with iron tubes & connections
the iron tubes town bottom
series just above them.

The Cong. Church is at the
cor. (of Chestnut & 3rd) &
here was fine even
bluff - forming

The High School exp
was W. of High School
on N. side of 6th street
& both sides down and
even up to 2nd story of
High School. - I have seen

Propane etc
Some iron tubes in lower
part.

A fine exp W. of
8th str. & extension of
Chestnut - & extending
10th down big low
This was site of Freeman
bridge (this low is
same as at High School
but the water did not
take molasses from this

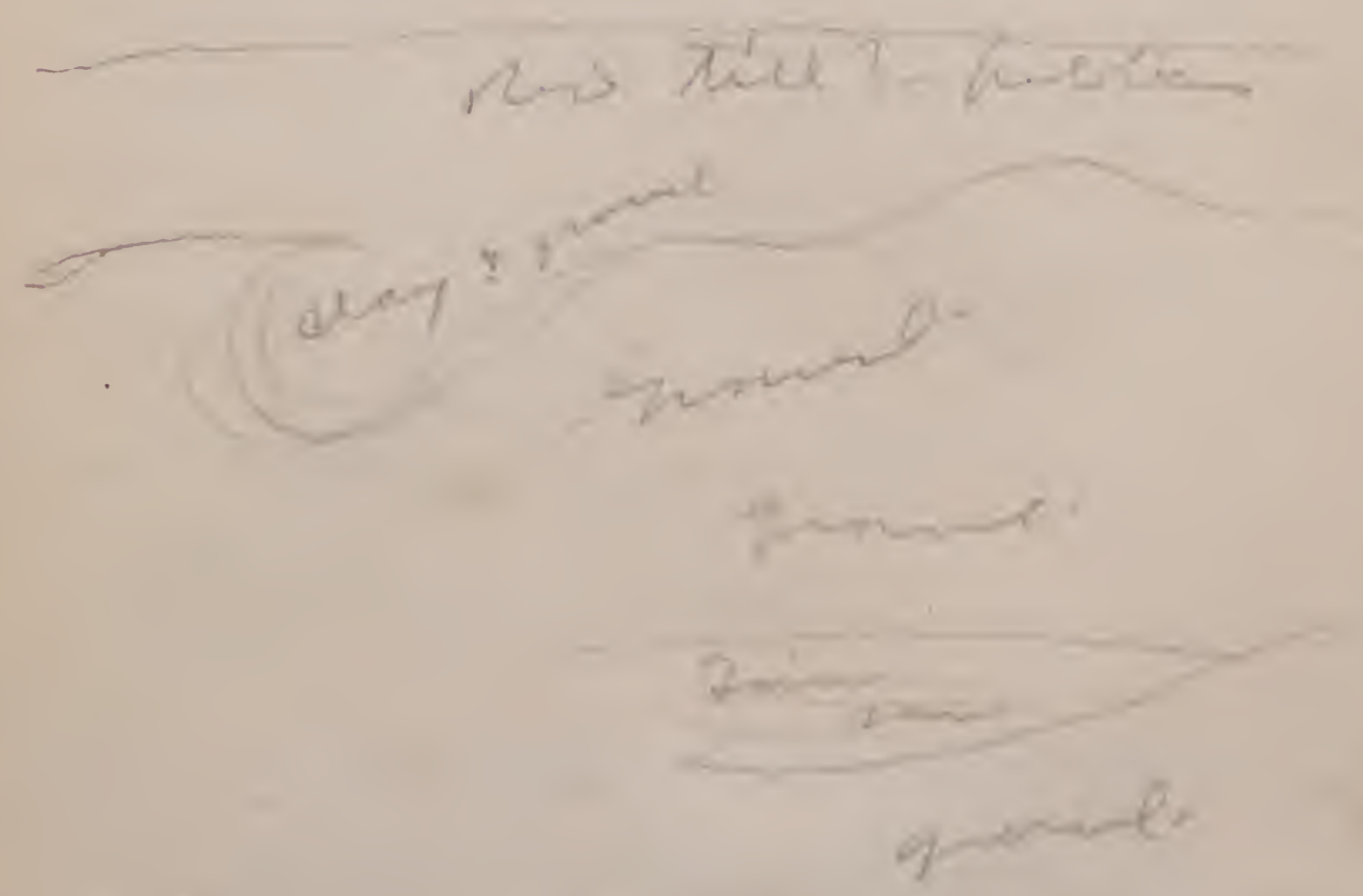
Marblet bridge as
and street & about 16th
W 17th st.

The bones of deer were
found 12-15 ft below
top. muddy well
was found, no other
appear to be near
bones.

There was also some
deer bone obtained in
excavation at 7th &
Chevrolet near
High School.

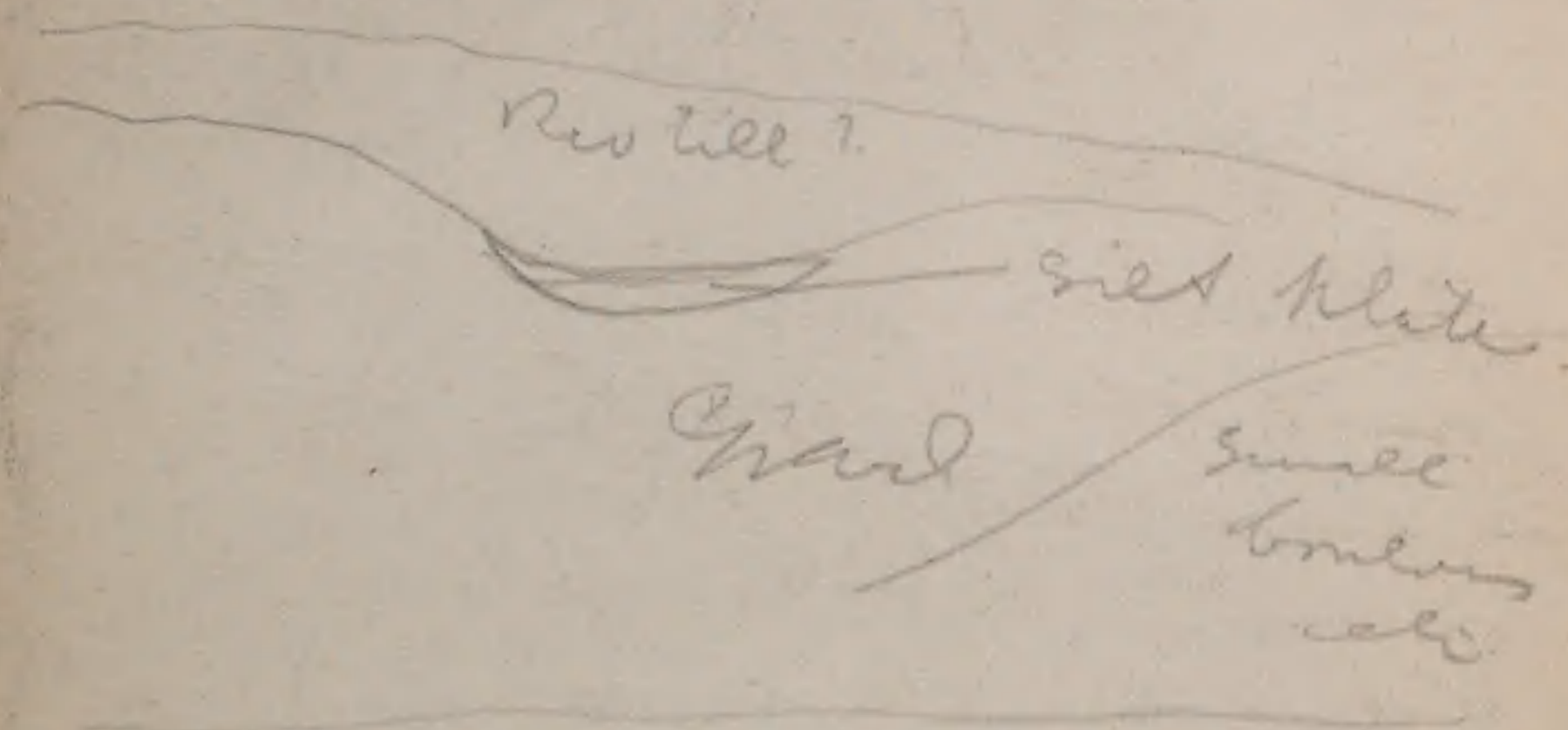
Mr. Witter's elephant tooth consists of
two fragments showing the usual
plates. They are in G. I. Museum
& geology.

W. side of N. branch of
Mad creek on the
Sinnott farm.
About 1 1/2 mi from the depot.
This is a great bank
of gravel, etc.



This is a very fine
- looking W. at central
part.

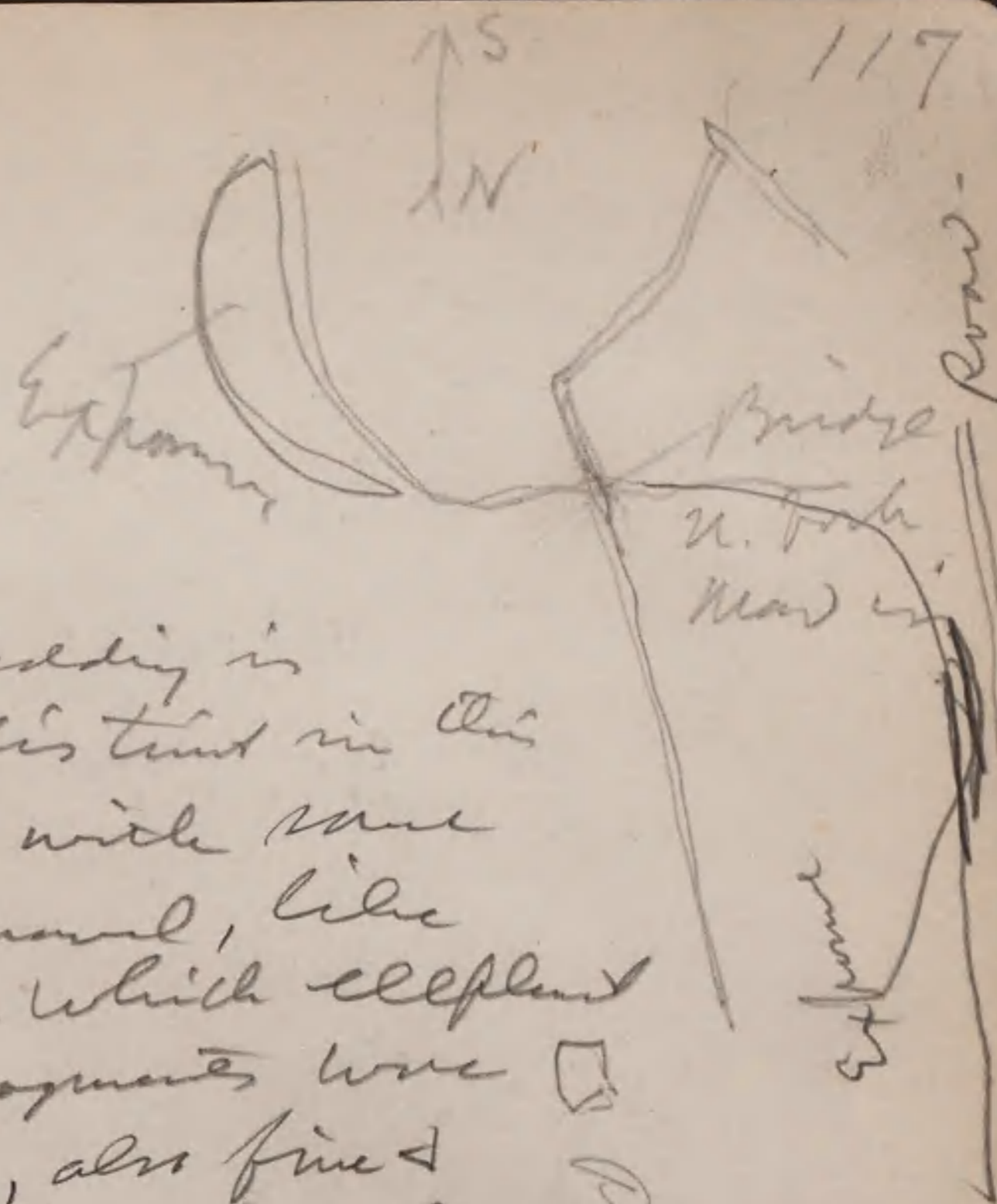
1116 at U. end



The line above gravels is sinuous, suggesting flowing. The material above appears like red Kansan clay with few pebbles, - similar to that in exposure on U. Mad creek,

Found a lot of clam shells with "button holes", dumped here,

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Cross-bedding is quite distinct in this exposure, with some coarse gravel, like band in which elephant tooth fragments were found, also fine & coarse sand interbedded.

I also found in the lower part of the section toward U. end a lump of silt looking like part Kansan loess. (See sample)

Took sample of pre-Kansan,

Took 4 plants
2 wood
2 fossils

Parker Blaine School



The elephant's tooth¹¹⁹ was found in the little gravel layer. It shows only fragments. It was originally found by my Mr. Freeman & Mr. Walter at one low tide point and where it was taken. The little gravel layer is very distinct. It is just an ordinary interbedded Aptan gravel layer. The greater part of this exposure is fine sand & parts are slightly cemented. I found many fragments of charcoal & some fragments

of shells in the little
 layers of coarser sand.
 This is undoubtedly Aftonian,
 crumpled, overlying (conformable)
 the ^{sub}Aftonian & topped
 with Kansan red stuff -
 mostly clay, but with some
 pebbles.

It is a part of a ^{bench} terrace
 which shows on both
 sides of this branch of
 Mud creek for some
 distance. A good
 exposure is visible above
 this one just along
 road, where creek hugs

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road. also well exposed
 below.

The line between Aftonian & pre-
 Kansan is very sharp, irregular
 with lamination following pre-Kansan
 surface along strongly oxidized
 layer.

Mr. Witter says that his
 Wyoming Hill Unios were
 in a little gully about 1 ft
 below surface, and appeared
 in a nest, quite a number
 of specimens together. The
 ones we got there. They were
 all pretty heavily incrustated
 with CaCO₃. He searched
 in the place a number of
 times afterwards, but found
 no more. This place is away
 up above sandstone bluff.

Oct. 23-1908

Fare to Cedar Rapids	\$.50
Fare to Woodbine -	4.56
Out Dinner Hoffman Home -	.50
Fare to Mo. Valley	.33
Fare to Mapleton	1.18
²⁵ Mapleton - Hotel	2.00
Fare to Cedar Rapids	4.81
" " Iowa City	.50
	4.81

Oct. 31 - To Davenport	1.08
Lunch	.20
To Muscatine	1.55
Nov. 1, Dinner	3.70
Nov. 1, Fare to Iowa City	1.14
Hack -	.25

Nov. 8-1908	
RR. to Muscatine	.77
Train - 2 bags -	3.50
car fares -	.20
Lunch	.20
Hotel	2.00
Nov. 9 -	
Fare to Iowa City	1.14
Hack -	.25

Look at last page \$17.⁰⁵

Found a fresh exposure on N. side of 2nd st & west of Linn, just W. of Mr. Wiggin's house (a corner). Here by grading to W. lot line a bank of loess over 6 ft was exposed. It is a thin part known with many iron tubes + some fossils. We sampled & found. It also has a few rounded nodules. Parts above are very strongly tinted with iron in addition to iron tubes.

Nov. 12 - 1908 -
2 boxes plates 1.00

Nov. 13
Dinner & Cedar Rapids .50
Car fare to Marion .12
R.R. Marion to Mapleton 4.83
Mapleton - bus .25
Hotel - breakfast .50
Castana - lunch²⁵ feed³⁵ .60
Turin - livery car .10

Nov. 14
Moorhead¹⁰⁰ Livery¹⁰⁰ 2.00
Hotel⁸⁰ supper⁵ .85
Wte - Hotel⁵⁰ Supper¹⁰ .60
Livery - Wte one 1.30

Nov. 15 Livery - Wte one 1.00
Mapleton -
Livery - Nov. 13-14-15 - 6.50
Hotel - 2 meals 1.00
R.R. to Cedar Rapids 4.81
Nov. 16 Lunch Cedar Rapids .30
Fare to Iowa City .50

Nov. 19 - Fare to Cedar Rapids .50
Fare to Blencoe 5.29

Nov. 20 Breakfast Blencoe 2.00
Piquette, Ia. .35
Dinner - 35 Team³⁵ .70
Supper - Osawa .25

W. E. Babcock, Turin²⁵
expenses
vehicle.

H. S. Dickerson, wild digger
Mapleton, Ia.

David Tacey, Castana, Ia.
wild digger - Put well in at
Soldier.

Nov. 21 - 1908 -
Hotel - Osawa 1.00
Livery - Osawa (one of tea) 1.00
Livery - Blencoe 3.00
Fare to Whitney .29

Nov. 22 - 1908
Whitney - Supper .50
Livery to Osawa 2.00
Fare to Mo. Valley .77
" " Cedar Rapids 4.89
" " Iowa City .50

Made out Nov. 23 - 1908.

