

Flora Scotia.

Cape Breton

Loper 192.

U. S. GEOLOGICAL SURVEY

9-896

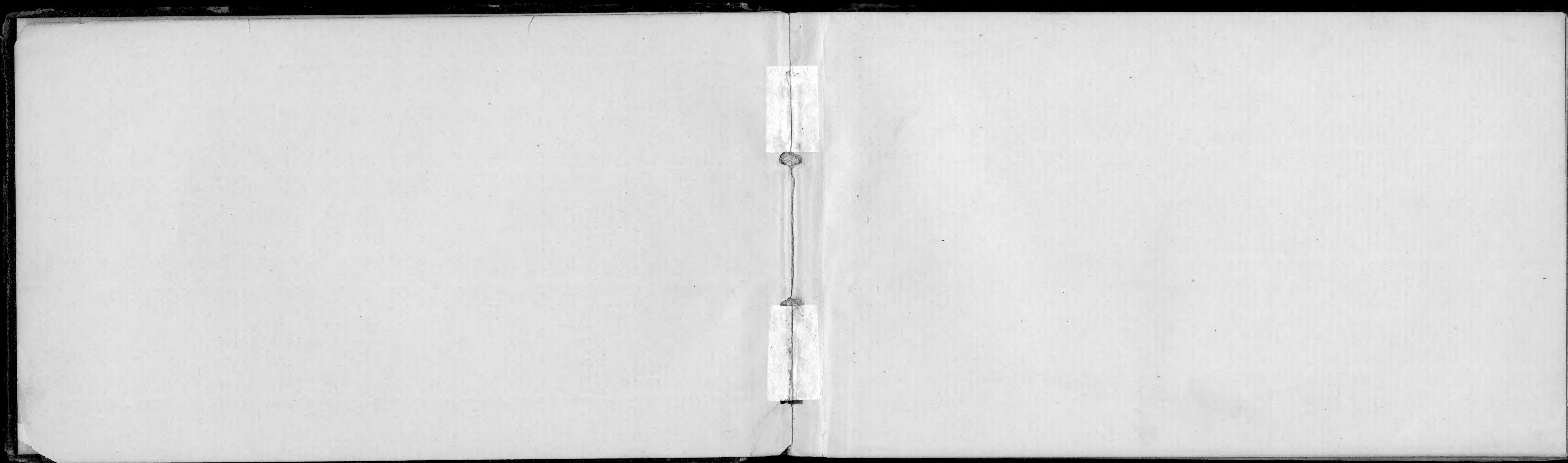
Ward Cooper,

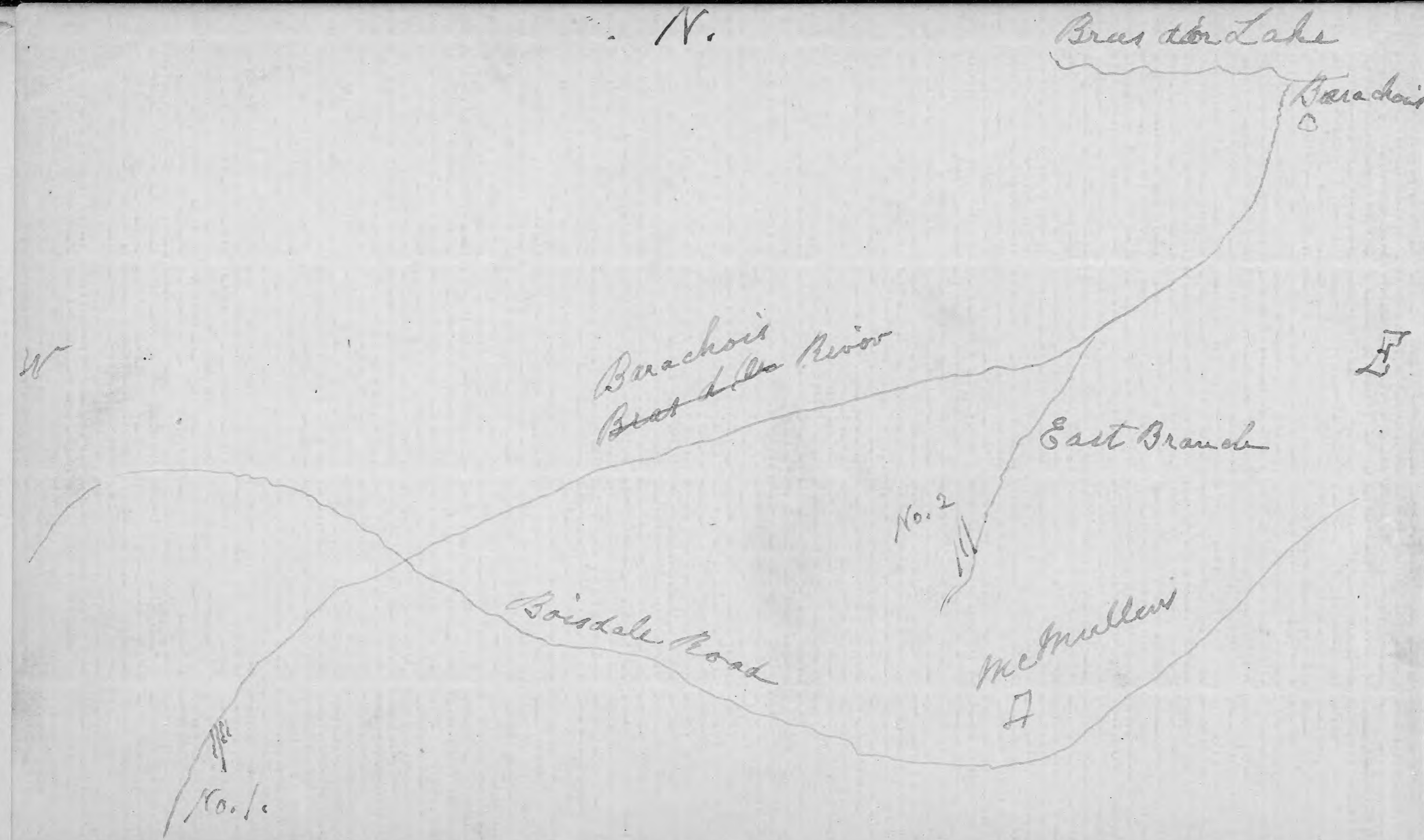
U. S. Geo. Survey

Cape Breton!

N.S.

1901.

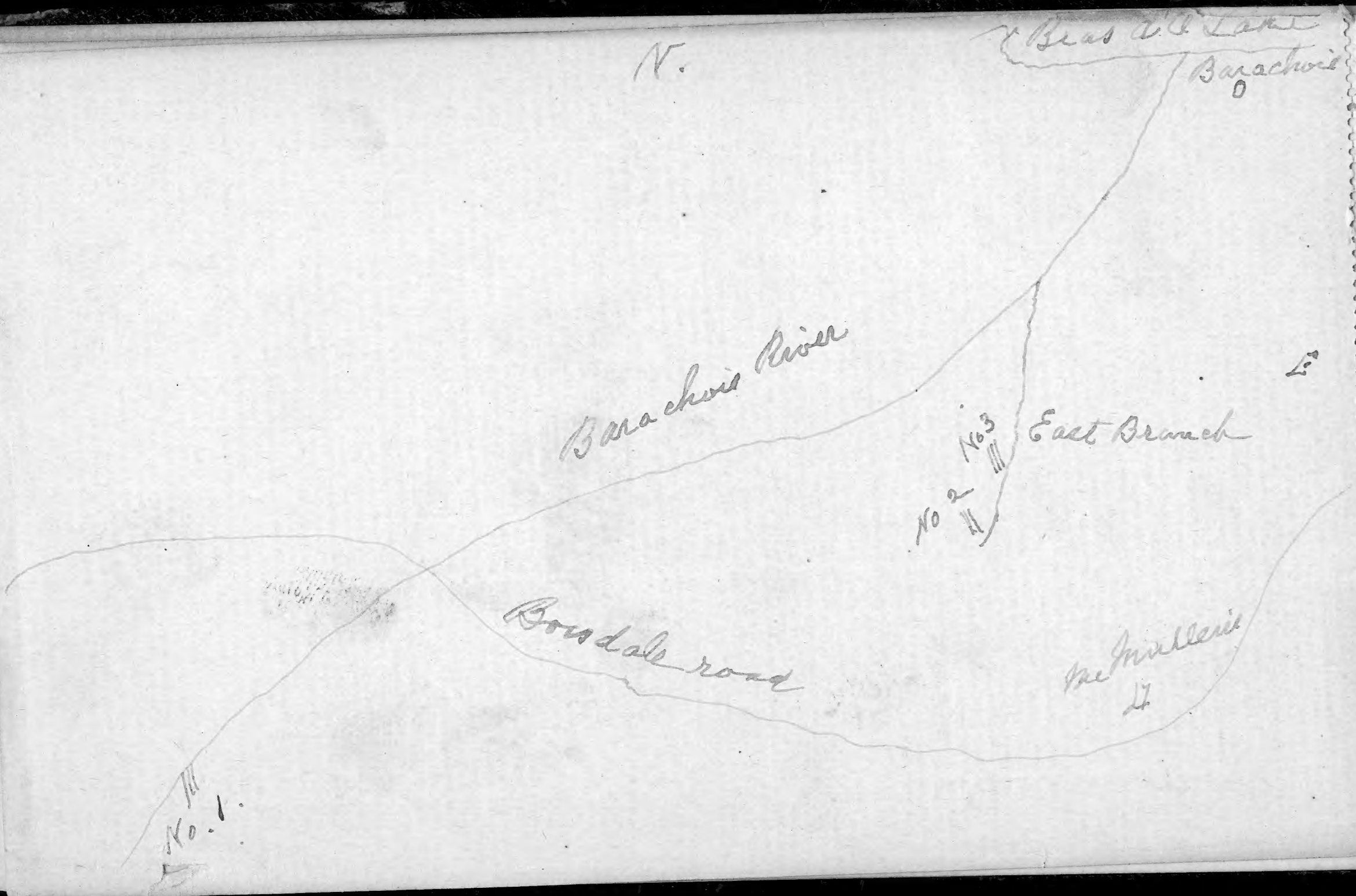




Monday, June 3^d 1901.

Commenced work on east bank of Barachois River, East Boisdale, $\frac{1}{2}$ miles east of Boisdale R.R. Station $\frac{1}{4}$ mile south of road from Boisdale to Upper Litch Creek, Cape Breton. Exposure of about 200 ft of Upper Cambrian shales along the river bank. Strike N.E. $\frac{1}{2}$ S.W. Dip 50° S.E. Collected 100 shells. ~~was~~ Jones. Bed No. 1 on Diagram.

June 4th. On one of Dr. Mathews' localities on small branch of Barachois River on the east side, $\frac{1}{2}$ mile north of the Boisdale road. Estimated at least 200 ft. Lower than No. 1. Collected 200 specimens. The specimens sent Mr. Walcott last winter in a cigar box were from this horizon. This No. 2. on Diagram.



Wednesday, June 5th. 2.
 On same horizon as yesterday - No. 2.
 Collected 160 shells and one fair trilobite.

Just at night found a bedding farther north on the same east branch ^{1/4} of a mile north, and ~~is~~ much lower, dark, black shales carrying very small shells of a few trilobites.
 Bedding No. 3.

Thurs June 6th Worked the locality found last night. Found shells not seen before, also found a few good Trilobites. Had to change the course of the water in order to get at the shales which lay in the bed of the river. Collected in all 150 specimens.
 This locality not worked by Dr. Mathew. Is 200 ft lower than No. 2. This horizon No. 3 on Diagram.

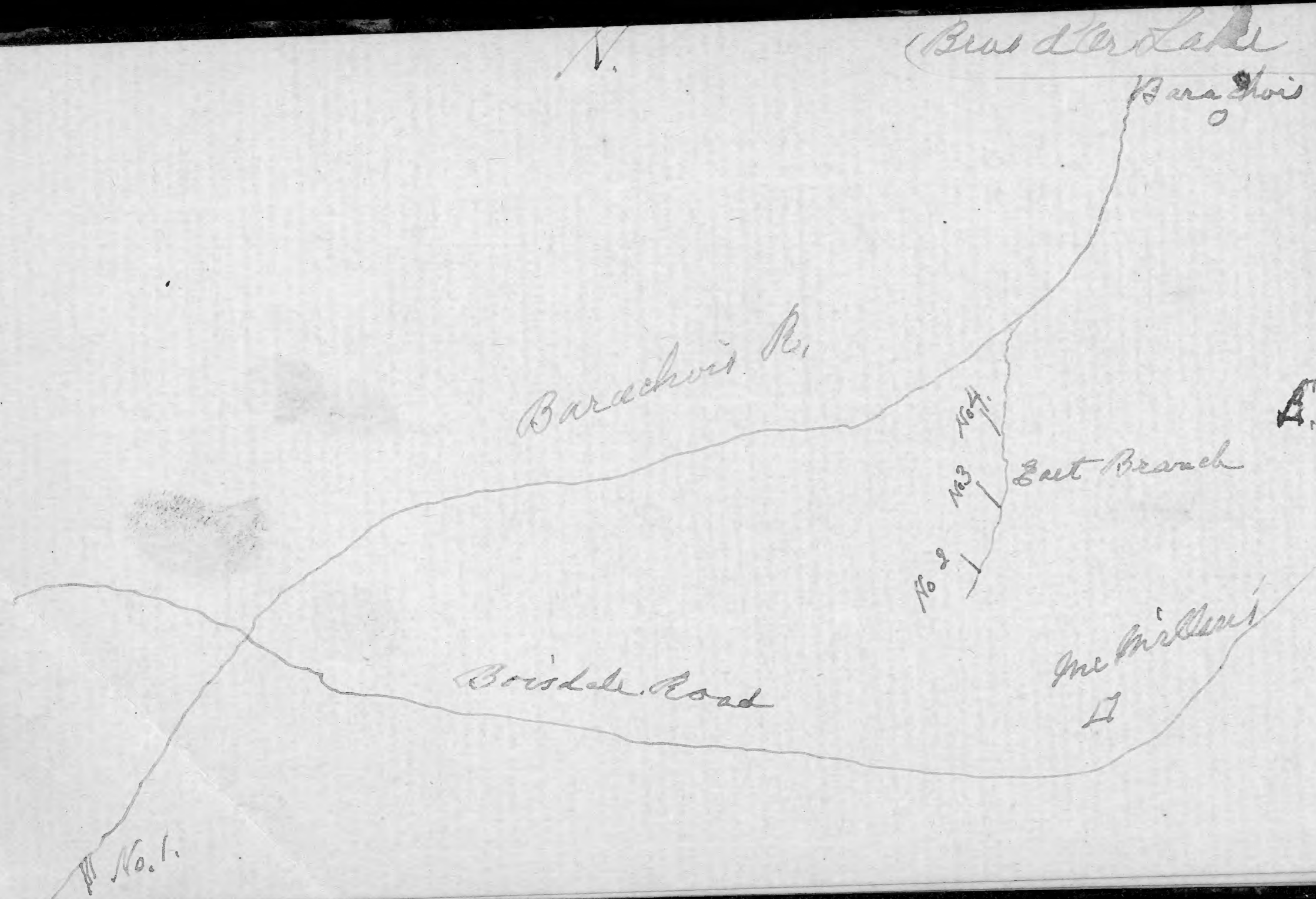
Friday, June 7th

Found still another horizon on East Branch, 50 ft. Lower than No. 3. Some bluish gray shells. These also in the bed of the brook. Had to do extensive digging to divert the course of the water.

Well paid by finding good Trilobites. Collected 32 of these, some of them fine ones. Also collected 75 shells. Dip and strike continues about the same thus far.

This locality not worked by Mathew.

No 4
Diagram on next page.



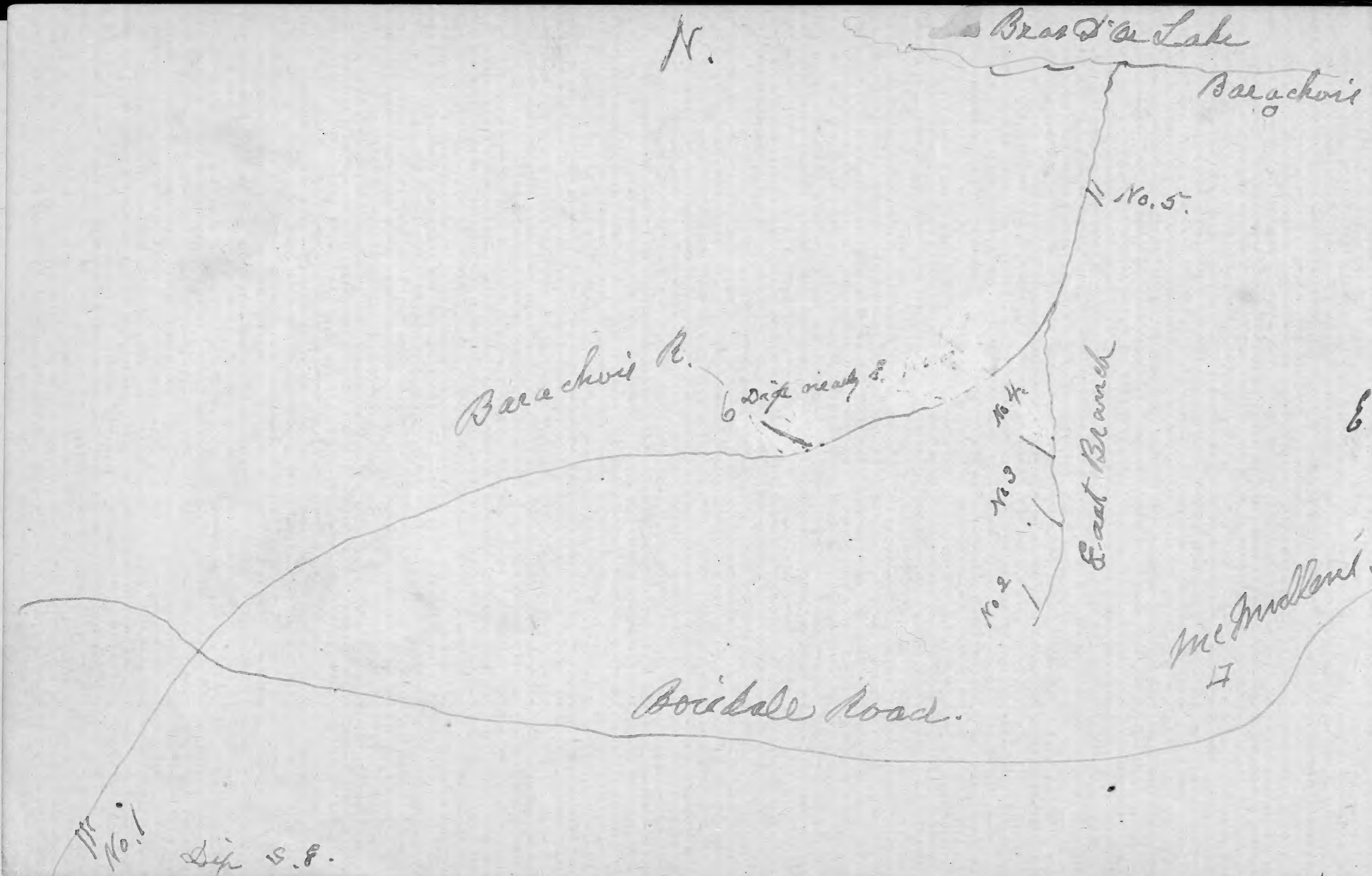
Saturday, June 8th 4.

Worked today on same horizon as yesterday. A very fine locality.

Found over 40 good representations of the Trilobites and nearly 100 shells.

In all 130 specimens.

This is bed No. 4 on Diagram, 900 feet to date.

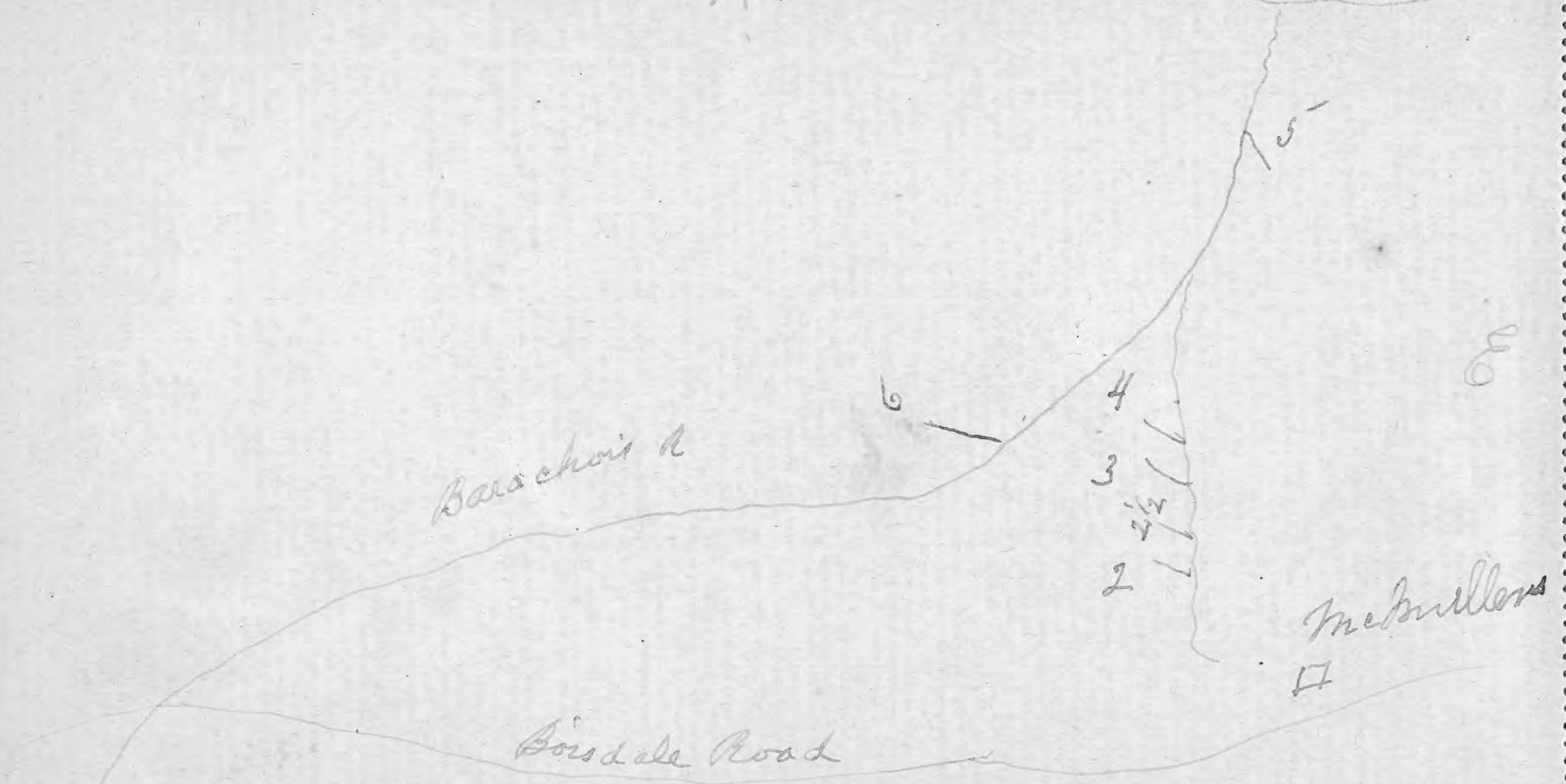


Monday, June 10th.
 Searched along the east bank of Barachois River to the N. during the forenoon. Found a few shells at No. 5 on the diagen about 1 mile from the Boisdale road. Obtained 25 spec.

In the afternoon located trilobites and shells on the west bank of Barachois R. above the Branch. This is No. 6 on diagram, and the dip appears to carry this bedding below the shales at No. 4, on the East Branch.
~~Seemed to appear shells of trilobites.~~ Seemed to appear shells of trilobites.

N.

Boisdale Lake



III No. 1.

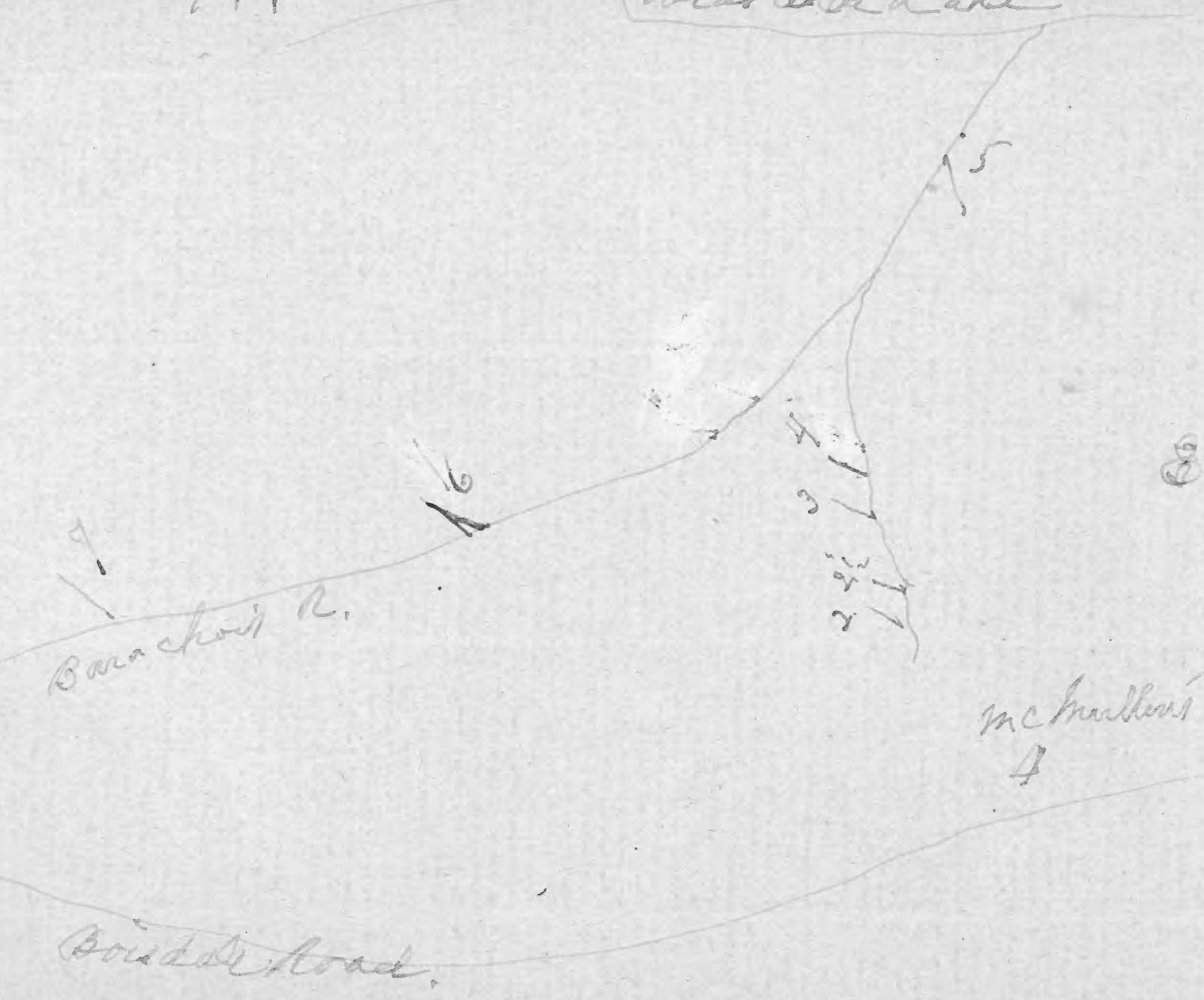
Tuesday June 11th

6.

In forenoon worked on bedding No. 4 on East Branch. Exhausted the locality by noon. Got 37 spec. shells of Trilobites.

Afternoon - Located fossils on East Branch 25 ft. lower than No. 2. Small Trilobite heads & tails and few small shells - collected 87 spec. This No 2 1/2.

N. Bear Lake



No. 1.

7.

Wednes. June 12th.
 In forenoon worked horizon No. 6
 on West bank of Parachowit R. A narrow
 strip of meadow lies between the high cliff of
 shales and the river. This bank belongs to
 Kenneth McMullens. Found heads & tails of
 trilobites - 50 spec. in all.

In afternoon opened another horizon about
 50 ft. ^{below} ~~above~~ No. 6. This bedding only a
 short distance north of the Boisdale road.
 Got 150 shells and 1 trilobite.
 This No. 7 on Diagram.

Rest on Lake



Thursday, June 13th

8.

in morning worked on No. 1 which was
 broken on June 13 found 22 shells & trilobites.
 In afternoon searched ravines ^{west} shore
 of Barachois river without success.
 Just at night found indications of trilobites
 on West bank of Barachois River 100
~~feet~~ ^{feet} from No. 1. Spent work this locality
 tomorrow. Will be No. 8 on program.
 especially lower than the highway on
 East bank

Monday June 19th

9

Worked the day but found last night
Lacustrine shells, some shells,
Secured in all 14 specimens mostly Lacustrine.
Quite a number were perfect.

This bedding, along Lacustrine shell
work it thoroughly. Judged to be
the bedding on the last beach.
It is near the top of the bluff. Owner of
the land came down and ordered us off at
noon but succeeded in pacifying him by giving
him \$2 for privilege of working. His name is Merrill
Talbot. I suspect there was an understanding with him.

Thursday June 10th

12
1
2
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12

See map
also last year

Blair Sink

Road

Thursday June 10th

10.

Searched lower Parichou's Glen towards
Parichou's ~~the~~ some ground some new
last year. Found one holding lower than
the one worked last year. Got 70 shells.
Then went up the Glen to the ravine
worked last year and collected 70 shells.

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Monday June 14th 11.

Worked on locality on Highway No. 5
 on Barachois River. The first locality
 got opened. Got 120 feet of stratum of all
 trilobites, *Strophomena*, *Phacelites*, some things
 not seen before. Several *Strophomena* were
 nearly 100% of trilobites. In the
 lower part several *Strophomena* were
 found. June 15 to June 16 worked on locality
 for some species, mostly *Strophomena*
 of a few *Strophomena*.

Feb 20, 1917

12

On the 19th of Feb. I was out of this district.
 Got 100 lbs. down from complete
 inhibition, but not as good as yesterday.
 Found today some particles and some
 very peculiar forms with which I
 was not familiar.

Those kinds of bees, collected
 from the same place as 20.

~~Wadsworth~~ Hunting
June 23rd

13

Still working No. 5. Working deep into
the bluff in the shale. 135 specimens today.
Several whole trilobites and very fine
ones too. Also fine corallites and a
number of the peculiar forms found
yesterday.

This locality is about one

Friday June 21st. Collected 150 spec on
30 ft. 10 whole trilobites. Most of the specimens
trilobites and few heads & tails.

Saturday June 22nd
I worry to record that the 100 was
exhausted to day. Got 120 spec. only 3 whole
trilobites. About 50 ft. ~~higher~~ ^{higher} found a
few fragments of trilobites and some small
shells. 5 in number. In the total 120 spec.
This last locality No. 7

Sunday June 24

15

Remains today out went about 2 miles
down Parachoi Glen 3 miles from
Parachoi, where I worked last year.
Worked under an umbrella. Found shells
very abundant and similar to those in No. 1.
on Parachoi River. Worked under difficulty
on account of the weather but secured
300 small shells. Amongst them very fine

Had collected 4 packets to take 2, 794 lbs

Tuesday June 2nd

10

Very wet day. No work.

Labels in bottles for the
17th page are correct on the list
for 10th page - should be 17th page.

Wade's note to

Wade to have in mind the ...
the ...

collected ...

found ... at ...
...
...
...
...

Thurs. June 27 Went towards the head of
Parachow River 2 miles S of Boardwalk road
Found several outcrops of dark shales, thin bedded
essentially Upper Cambrian, along the river on high
bluffs. At one point 1/2 mile N. of the bridge
on the McNeil farm road collected 100
shells as a few Dishes.

June 27 Collected 100 shells on Cliff on Parachow
River, 1/2 miles from Parachow - a new locality
on east side of the plain close to Upper Scotch Bush
Mountain in the Morrison's land.

Also collected 50 shells of *Dicelasma* 3 miles
from Parachow south west of above locality.

Pat. June 29th

17

On what I understood Mathew to call
Stecherminian at Barachio. Unable to find any
fossils at the point he designated. On the shore
of the lake opposite that point I found
two bands of hard calcareous rock in the
shales showing many fragments of shells.
Obtained in one band ^{one} few small peepal
shells I suppose.

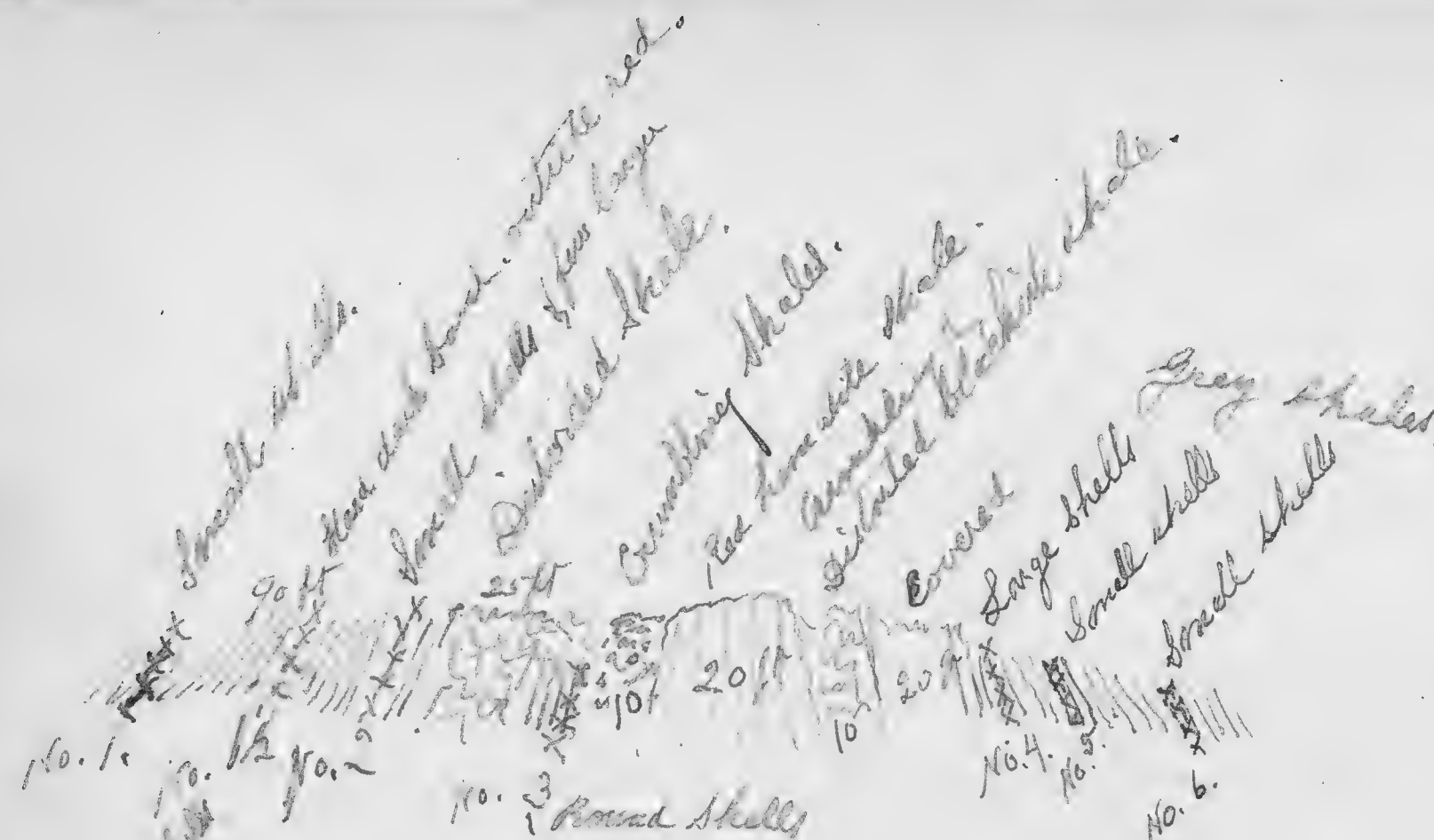
This is north of
Station near deep cut on the way to
George River, with north of the station

11. 12. 13.
 Highways & Georges River
 fossils
 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30.

Monday July 1 20

Went to Barachois again and
 searched the Ectonian again but could
 not find any of the fossils.
 Collected 60 specimens of the secondary
 fossils on the barachois worked today
 and represented in diagram opposite page.

July 12th Dr. Hartley states today
 that there is no Ectonian at Barachois.
 Says that it was a "slip" of his tongue when he
 said Ectonian.



The Adams shore,
Folded strata.

The Adams shore, fold cross
 strata bedding at all.
 The strata be named
 be found in Adams shore
 The shore
 To day Mr. M. P. Lee who
 lived with him.

July 2nd
 I went 12 miles to Adams shore
 at Adams Bay, Eschscholtz. Got there at noon
 and secured board and lodging with Mr.
 Mac Adam. After dinner went to the shore
 and found outcrop of shales coming some
 within 5 or 10 ft of the water. Examined the
 shales along the shore and found several
 horizons carrying shells. Collected 8
 specimens from No. 4 & 5 of the diagram.

Wednes. July 3rd.

22.

Collecting from all the beddings on
one island shore.

125 specs on all. Very good.

This Mather says is Etcheminian.
 July 12th McLean Bridge



No. 1 found small shells in pinkish grey shale.

Thurs. July 4th Etcheminian 29^a

Hired Mr. Adam to carry us to the Indian River localities six miles from McLean shore. Examined shales along Indian River as far as the bridge at foot of McPheis Hill. Climbed McPheis Hill and hired Vincent McPheis to show the way to the fossil beds worked by Dr. Mather on Dongal Brook 1 1/2 miles N. of McPheis. This brook runs into Indian River. Just below the Falls collected 45 fine Lingulas, No. 1 on diagram. In a strata a few feet lower found very small shells in No. 2. In No. 3 very fine small Lingulas. July 12 Mather says this is all Etcheminian. As groups below the Falls found a thin bed of pinkish grey shales with numerous very small shells collected on all 259 spec.

Friday, July 5th Stecherianus 27
On observing Mr. Phee took us to a small
brook on west side of the road on the hill
leading down his house where in a coal black
massive-like shale we found several species of
Arachnoids. Collected 125 specimens here.

On the afternoon worked on ~~gray~~ brook
and collected a few shells - 25. ^{W. gregua} gregua

Just at night went down on the stream there
and collected 45 of the beautiful shells in
the red colored shale bed outside but, perhaps in
blackish

No 1 1/2

197 in all

blackish

Specs collected & date 5. 7. 07

Saturday, May 2nd.

25

Uncle Johnson came for us from Upper Litch
Creek. Got back there about noon.

In afternoon finished packing up specimens
and packed baggage & tools to go to
North Sidney on Monday.

Monday July 8th

26

Hired team to cart 5 boxes of specimens
to North Sidney, 14 miles for \$2.50
Hired Johnson for \$1.00 to carry myself and
baggage & tools to Brisdale R.R. Station -
6 miles. To take train for N. Sidney.

Stayed overnight in Sidney at Louisa Hotel
Tuesday, July 9th

Shipped boxes at N. Sidney. In Cent. Line to
Washington
Telephoned for team from Marion Bridge.
Got there just before sundown.

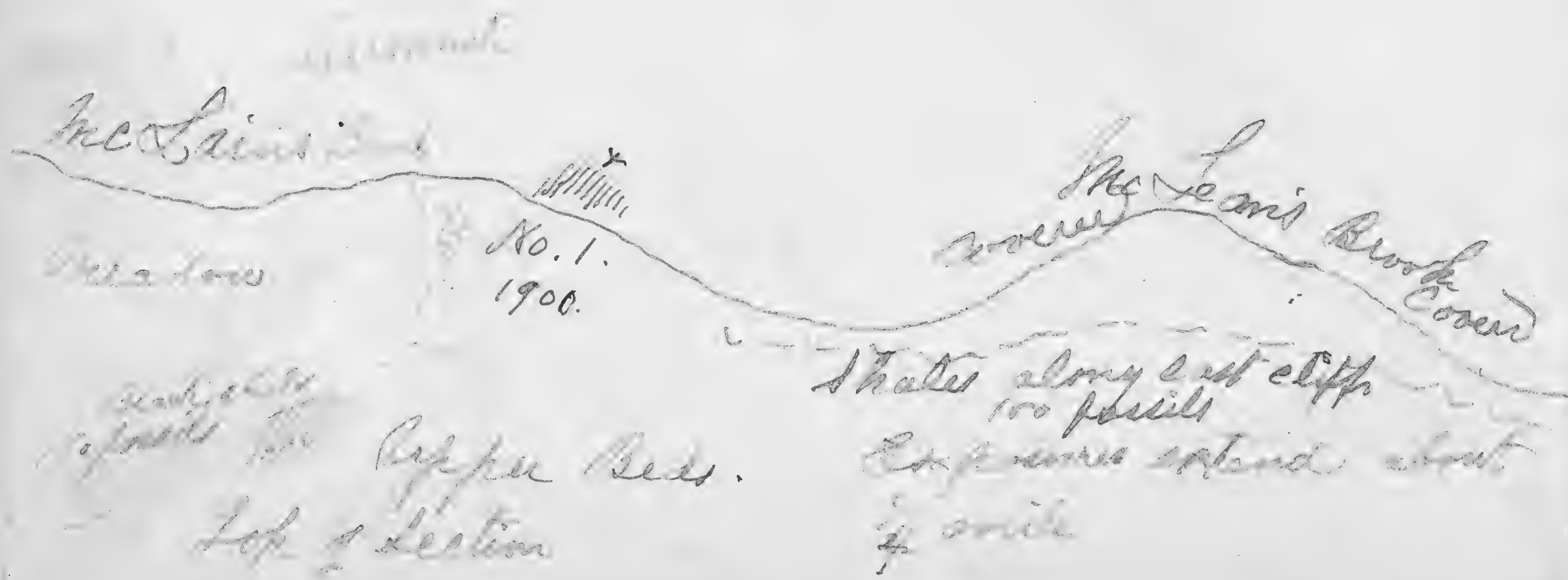
Wednesday July 10th.

27th

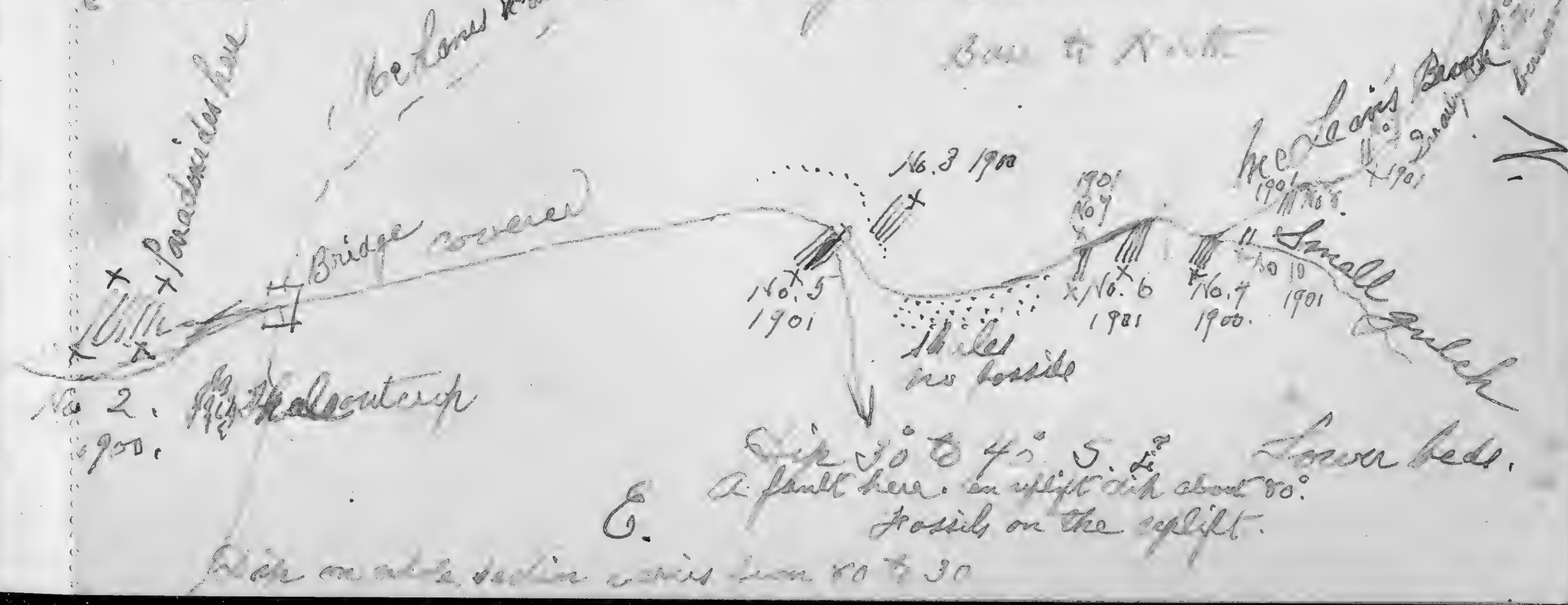
Worked on McAdams' Brook till 10 o'clock
raining a little and bushes too wet. Went out
to McAdams' Ravine. Worked while on No. 3
of last year's diagram. No success.

At 2 P.M. found a new outcrop of fossils
on the east side of the river on the high
bank. Fossils numerous and finely preserved.
These were the shales of No. 3. Collected 125 fine
specimens. Redding No. 3 of Diagram on
next page. Nov 1911

On page 73 the beds of the section are represented as they appeared from the fall.



Thursday July 11th
Collected 148 shells at No. 5 same as yesterday. In afternoon found another fossil bearing strata at No. 6. many small long beaked Lingula. Collected 43 specimens here, shall work a bit more. it again tomorrow.
Back to K. A. H.



Friday July 2nd

27.

Worked on To. & collected 150 spec
Dr. Mathew came at noon.
Spent afternoon in going over the
McLain section.

Asked him to go to Mc. I. Lewis brook
but he said that he could not.
Said he had no time to do so

Saturday July 12th.

30-

Worked part of the forenoon on No. 56
specimens very fine. Took out 50 rods.

Found a bedding 30 ft higher having
a few large shells, got 20 shells of them
and a few small shells. Could find no
more this No. Went to No. 2 of last year and
began excavating there. Uncovered the
fossil sand. Shall work it on Monday.
No. 2 is the *Paraspirifer* bed.

Monday July 15th.

31

Working on No. 2 - Paradoxides zone.
Collected 100 shells & fragments of
Paradoxides.

Tues July 16

Made fine collection of 20
specimens on No. 2 Paradoxides zone.
Good Hyolithes & 1 Bryozoa-like form fine.
Best shells found on this bedding.

5.437 to date

Wednesday July 17

22

Wet morning. Packed & boxed specimens

Afternoon went on No. 2 McClain's bank
and got 50 spec. Some *Psylloides* &
large shells & fragments of *Palaeosolenites*

Thursday Feb 10th 1887
Went to the Trout Brook locality, 4 miles
east of Marion Bridge on the old 4th Etchewin
road exposures along the gravel road for
2 1/2 miles of Etchewin slates, or greyish purple
slates resting on small thickness of red and
purple and greenish shale. The outcrop
is about half a mile wide with base on
the Lewis Lake with summit toward Trout Brook.
Worked here all day but utterly failed to find
any signs of fossils. Shall go over there again.

Tomorrow if pleasant

Mr. Johnson says this is the best locality
of Etchewin fossils ever found but that he has no
fossils from there. 10 the stone

Friday July 17th

Every indication of a rainy day. Thought not best to go to the locality, visited yesterday.

Went to the main bank and made some measurements of beddings. Found two new outcrops of fossils above the fork of the small gulch and the brook. The first new outcrop is 30 ft. lower than No. 1 of 1900. as shown on the diagram. This bed is No. 6 of this new sequence.

The fossils are ^{in two bands} found for 15 inches ^{apart} ~~of the beddings~~ at 1 inch sand band at the top carrying a very small Lingulella of the size and smaller. Below this rock band are several species of Brachiopods. Collected 100 specimens.

Just at night found another layer of fossils 6 ft ^{above} ~~below~~ a thick bedding of Serpentine.

Saturday July 20th.

~~Spent~~ Worked in forenoon on the lower bed
of fossils found yesterday. This is No. 1901
Lies about 6 ft above the lower 1' in band of
arenaceous shale. Fossils not very numerous but
finely preserved. Secured 60 specimens of
Longicrinurus and other forms.

Followed the brook to its source in a ravine
to the N.W. where it entirely disappears as a brook. The
whole length of the brook is about 1/2 miles.

and at night discovered an outcrop of fossils in
the short road running to the east just above No. 9. This No. 10
is a new bed of fossils discovered in the lower part of the
Cott. 1901

Monday 22nd

Went with Mr. Lamb to look for
more letters.

Went with Mr. Lamb to the
creek.

Worked the outcrop in the gulch leading east
from the brook found Saturday night. only saw
about 30 shes.

Tuesday 23rd Went again to Mathews El Chemine
at Trout Brook. Found no fossils.

On way home stopped at Morrison's and
collected a few of the trails found there
last year. To do

Wednesday July 25

9-161.

UNITED STATES GEOLOGICAL SURVEY.

SURVEY OF THE

3

In charge.

No.

Name:

LOCALITY:

Quick leading from Mountain
Down to the flat.
Bedon 7
Canton River
Ct.

Collector:

S. Ward Loper

Date:

July 25 1901

Note Book:

Page:

36.

Memoranda:

Ward
Canton Brook
Ct. shells

UNITED STATES GEOLOGICAL SURVEY.

SURVEY OF THE

31 of 1900

In charge.

No.

Name:

LOCALITY:

McLavin's Brook
Marion Bridge
Cape Breton

No. 1 of 1900
of Diagram

Collector:

S. Ward Loper

Date:

July 24 1901.

Note Book:

1

Page:

37

Memoranda:

UNITED STATES GEOLOGICAL SURVEY.

SURVEY OF THE

31

In charge.

No.

Name:

LOCALITY:

gully leading from McLeans
Brook to the N. end.
Beddy 7
Marion Bridge
B.B.

Collector:

S. Ward Lopez

Date:

July 22 1901

Note Book:

1

Page:

36

Memoranda:

Wednesday July 20

23
1
In forenoon working on McAdams Creek
in usual formal setting.

Afternoon on No. 1 on McAdams Creek
found about 100 of the small shells

Thurs. July 2nd

Drove south 13 miles as far as
Gabriola by way of the French road, owing
to the fact that the best road, having what
outcroppings of the Blokhovium shales and
the rest of the group, especially
on Big Ridge 5 miles south of Garrison
Bridge. The fossils to be found

37

Friday July 26
On McNeil's Brook one mile east
of Mason Bridge on the New road, secured a
few shells. This worked last year.

Sat. July 27 - Measuring up the
beddings on McNeil's Brook.
Measurements on next page

Refer also to diagram of brook, page 25.

Section on McLean Brook. 1901

Descending
Starting at the north fence of the
McLean meadow. Upper Cambrian

75 ft. Black crumbling bedded shales.

20" Covered.

75" Grey ash shales, 4 in. base and small shells.

50" Covered.

200" Shales on east side, same. Conformable.

150" Covered.

Middle Cambrian

40 ft. Greyish shales. Paradoxides at 20 ft.

190" Covered.

170" Greyish shales with fossil brachiopods near the
base of the outcrop. No. 3.

130" " " dip 30° at the base of the
50 ft. fault. here the dip 80° and on
the face of dip numerous fossils. No. 5. 1901

4 1/2 ft. Covered by debris, probably contains shales

30" Regular bedded shales with numerous hard
bands. Small outcrop of shells. Large & small.

60 ft. Similar bedding. No. 7. 1901

base of dip 30° at the base of the
50 ft. fault. here the dip 80° and on
the face of dip numerous fossils. No. 6. 1901

100 ft. Same as to the top of the
50 ft. fault. here the dip 80° and on
the face of dip numerous fossils. No. 8. 1901

100 ft. Same as to the top of the
50 ft. fault. here the dip 80° and on
the face of dip numerous fossils. No. 9. 1901

100 ft. Same as to the top of the
50 ft. fault. here the dip 80° and on
the face of dip numerous fossils. No. 10. 1901

Some shales

25 ft. base of this 20 ft. a bed of fossil shells

greatly eroded in lower part of
small dip, 10 ft. 1901

10" Limestone in fractured bed

12" Greyish shales. ^{Lowest fossil}

6" 1 in. at ^{bed} fine shells. No. 9. 1901

15" Hard Limestone, almost horizontal.

30" Greyish shales with calciferous remains

1" Limestone

60" Coarse greyish shales with calciferous remains

70" Bands of Limestone

30" Grey shales weathering brown

18" Limestone weathering nearly white

30" Thin bedded nearly black shales weathering
yellowish brown

20" Covered

15" Thin, greatly fractured, blue black shales.

15 ft. McLean Brook here runs into
large swamp & finally
disappears.

Some of these shales may be
repetitions, could not, however,
determine them to be such

The fossil horizons were remembered as
discovered in 1900 and in 1901.

Therefore do not cover especially in
order. The label especially in

Monday July 29th

Packing up baggage and
steerage are getting ready to go
to Sydney

Wednesday July 30th

42.

Mary McDonald carried self
& boxes of specimens & baggage to
ship. Afternoon ship for Cape
on steamer Fairmount.

Wednesday July 21st
Very Stormy Day

Friday Aug. 2nd

Went on Upper Cambrian beds in
Parachoi Glen. Saw some bedding nearly
to Parachoi. Returned to camp on east
side of Glen on Lake Umbagog land
1/2 mile from Parachoi worked some 20
collected 125 *Acidipora* & a few
Siphonaria.

June 2
Saturday, Aug 3rd

Went up to No. 8 on Parachis
River - Paradoxides zone and collected
5 specimens

Monday, Aug. 5th

Mr. Lock Johnson carried me to Mr. Rice's on Indian River in the afternoon. Forenoon very stormy.

Got to Mr. Rice's at 4 o'clock.

Carried our provisions with us and lodged in the Rice house.

Struck bug good things.

Match Labels
Ship to 100

57
Messay Aug. 6th

Hired MacPhee to work with us at \$1.00 per day.
Went to Longal Brook and followed the
from Huronian down to the Falls. Collected a few ¹⁰ spec
beachipods above the Falls. Collected in 1 2 & 3

5 specimens. ~~found~~ in No. found good Hyolithes.
followed the brook to Indian River tracing the bedding
according to disposure.

Collected a few Lingules in
dark band in old quarry above MacPhee's house.

18
In all 169

Diagram of Dougal
Brook Section on separate sheet
delivered to Mr. Walcott.

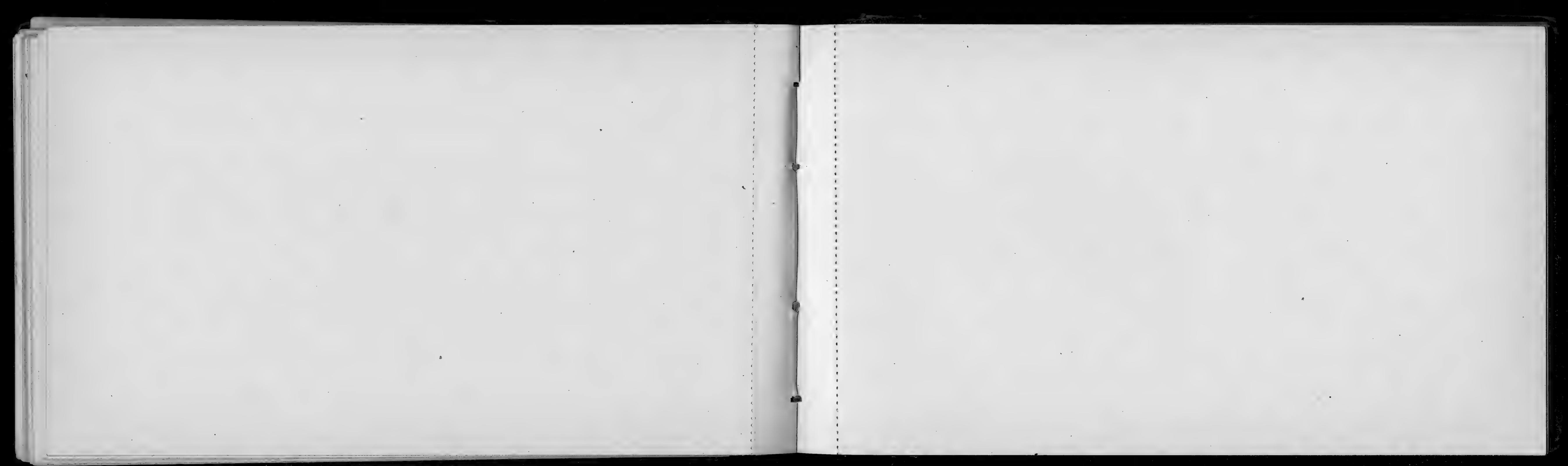
Wednesday Aug. 4th
In Wickwar Brook
called at our previous visit, by McPhee
Lansdowne. According to Walter Gregava (Indian name)
Traced up the bank and
noted lithological characteristics according to
Diagram and collected in steel trays Nos. 1 to
37 shells and in dark bed No. 9 specimens.
Fossils not numerous. In McPhee's bank
found 19 specimens in the dark bedding same as
at Dougal Falls No. Afternoon to Dougal Brook and
found fine specimens No. 10, good Hyalites shells not seen before
in decomposing rock in winter. Found & worked 3 higher horizons several
hundred ft. lower. Nos 5 6 8 9 In all 70 specimens. Diagram opposite page.

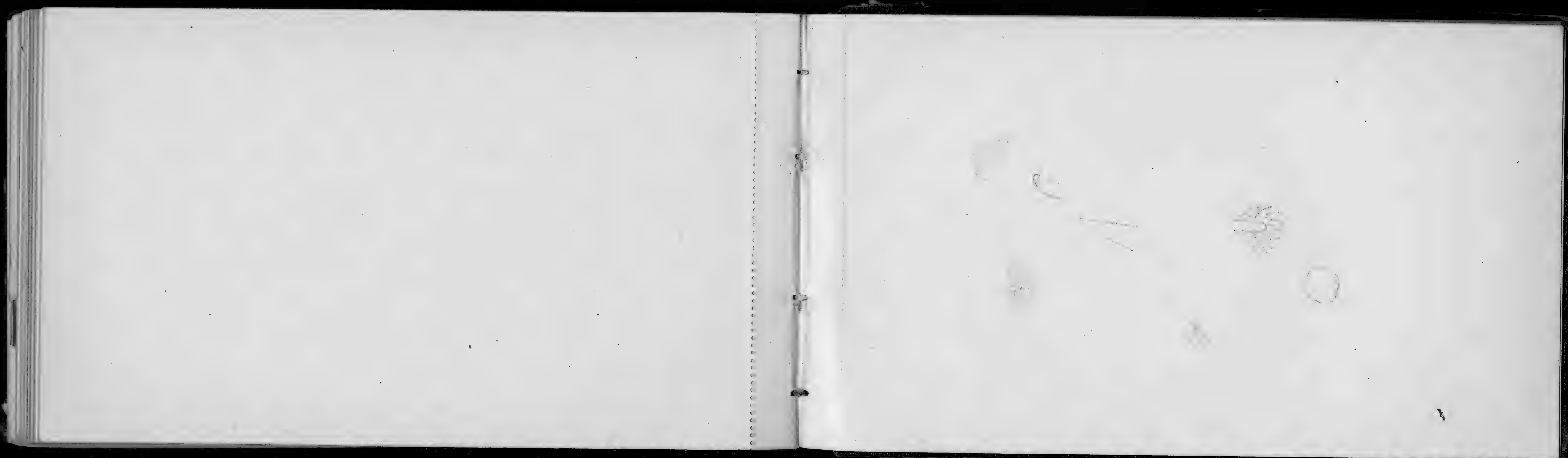
Thursday Aug 5. Returned to Upper Litchfield
Creek. Left Maclees at 9 A.M.

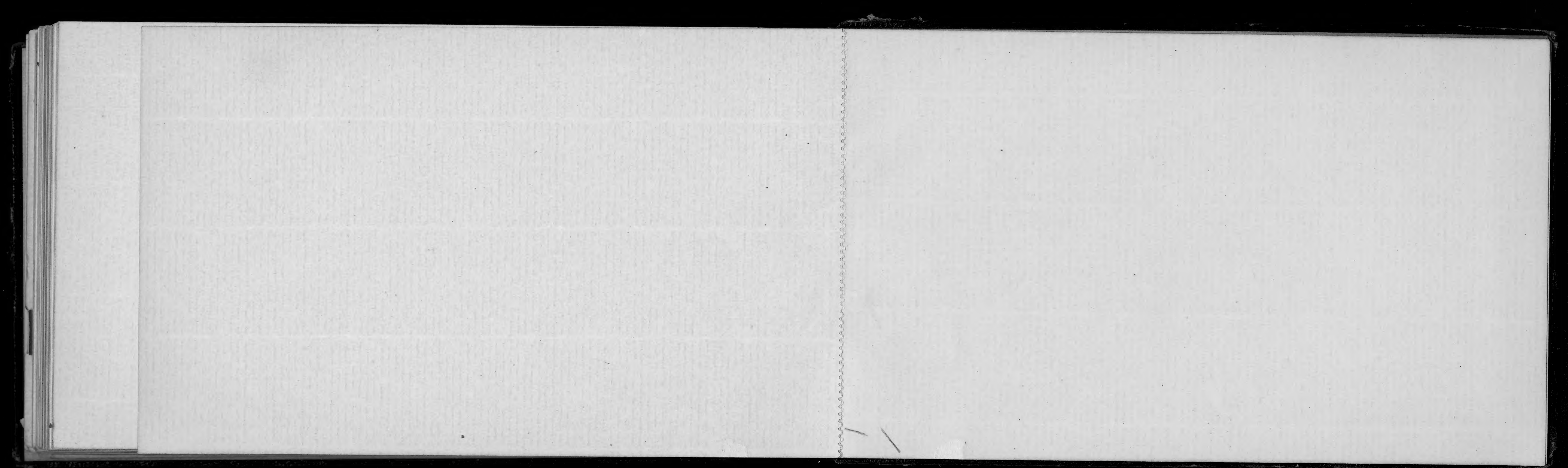
Reached Hudson about 2 P.M.

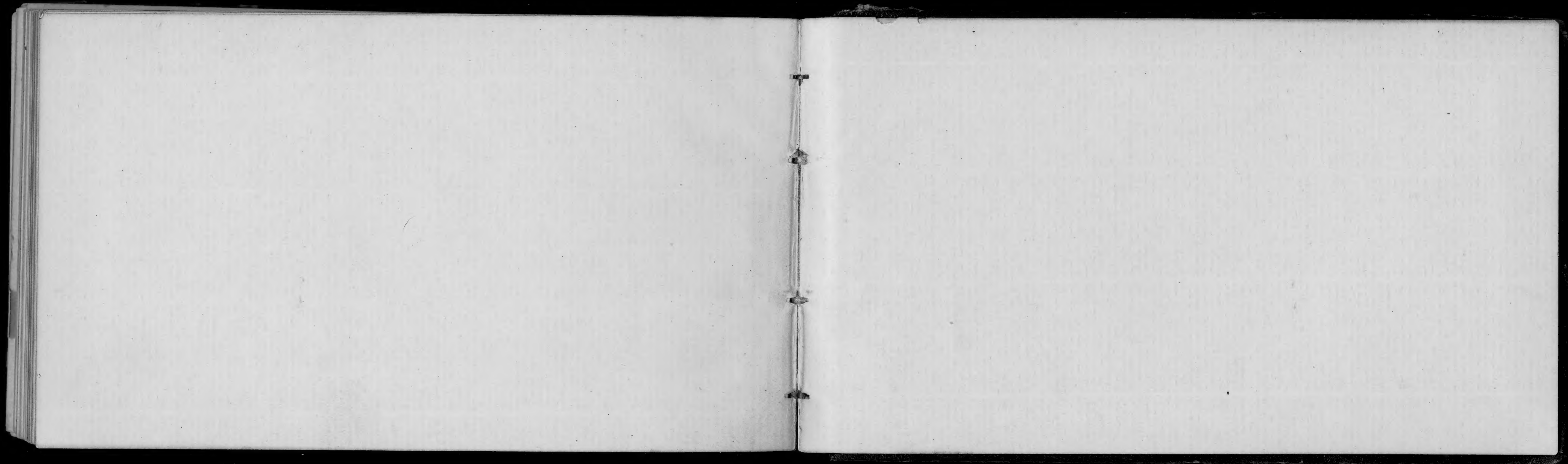
Packed 1 box specimens & all
got baggage ready to start wards
tomorrow.

Aug 6. Started for Fairbairn at 5 A.M.
to take the train.









16 12
- 100 12

14 00
14 00

14 00

