Northern Minnesota: [specimens] 10438-10687. No. 54 August and September, 1886

Merriam, W. N.
[s.l.]: [s.n.], August and September, 1886

U. S. GEOLOGICAL SURVEY

FIELD SECTION BOOK

No. 54.

August and September, 1886.

Northern Minnesota.

N. H. Merriam.

10438-10687

Survey of the Pre-Cambrian Rocks of the N. W. States.

INSTRUCTIONS.

1. Ordinarily at least two pages of this book will be devoted to one section. On the left hand page place a map of as much of the section as has *actually been seen*. Denote rivers, lakes, marshes, etc., by the usual topographical signs. Denote the ledges of rock, when no structure is made out, by cross-hatching, making the cross-hatching cover as nearly as possible the areas occupied by the exposures. If the rock is a massive one, but still more or less plainly bedded, use the same sign with a dip arrow and figure attached, showing the amount and inclination of the dip. Denote slaty or other very plainly bedded rocks by lines running in the direction of the strike, with figures and a dip arrow attached as before. In all cases where there is the least doubt about the true bedding directions, indicate it by a query. To each exposure on the face of the map attach the number of the specimen representing it. In mapping the section count each of the spaces between the blue line as 100 paces, and twenty of these spaces as one mile, or 2,000 paces. Usually the southeast corner will be placed at the bottom of the page, or at the first black line above the bottom of the page, and at the right hand side. If, however, for any reason, it is desirable to show portions of an adjoining section, the southeast corner may be shifted up, or the map may be turned around and the north placed at the left hand side of the page.

2. On the right hand page place the notes descriptive of the exposures. Begin in each case with the number of the specimen, placing the number on the left hand side of the red line, after which give in order on the right of the same red line the position of the ledges as reckoned in paces from the southeast corner of the section, and the dip and strike when observable, for instance: 4025 | 250 *N.*, 300 *W.*, *Strike*, *N.* 6° *E.*, *Dip*, 50° *E.* Then follow with as full a description of the ledge as possible.

3. The ruling of the left hand page is also arranged so that a smaller scale can be used. Each one of the black lines may represent a section line and the red lines quarter sections and "forties." The scale of the maps may thus be reduced, if desirable, to two inches to the mile (the ordinary town plat scale.)

4. Collect a specimen from each separate ledge of rock, or wherever there is a change of rock on any one ledge. In case of trips made on foot or in canoes, for long distances, neighboring ledges, unquestionably of one kind of rock, need not be sampled, the position and extent of the ledge being marked on the map, with a note that it is of a rock identical with specimen so-and-so. Under the same conditions small sized samples, trimmed to a uniform size of 2x2½x¾ inches will be allowed, but in all other cases *large sized specimens*, trimmed to a size of 3x4x1 inches, must be selected, in accordance with ¾ 3, chapter IV, p. 44, Regulations of the U. S. Geological Survey. In all cases collect chips for slicing. All specimens are to have numbers painted on them, in white on a black background, in the field.

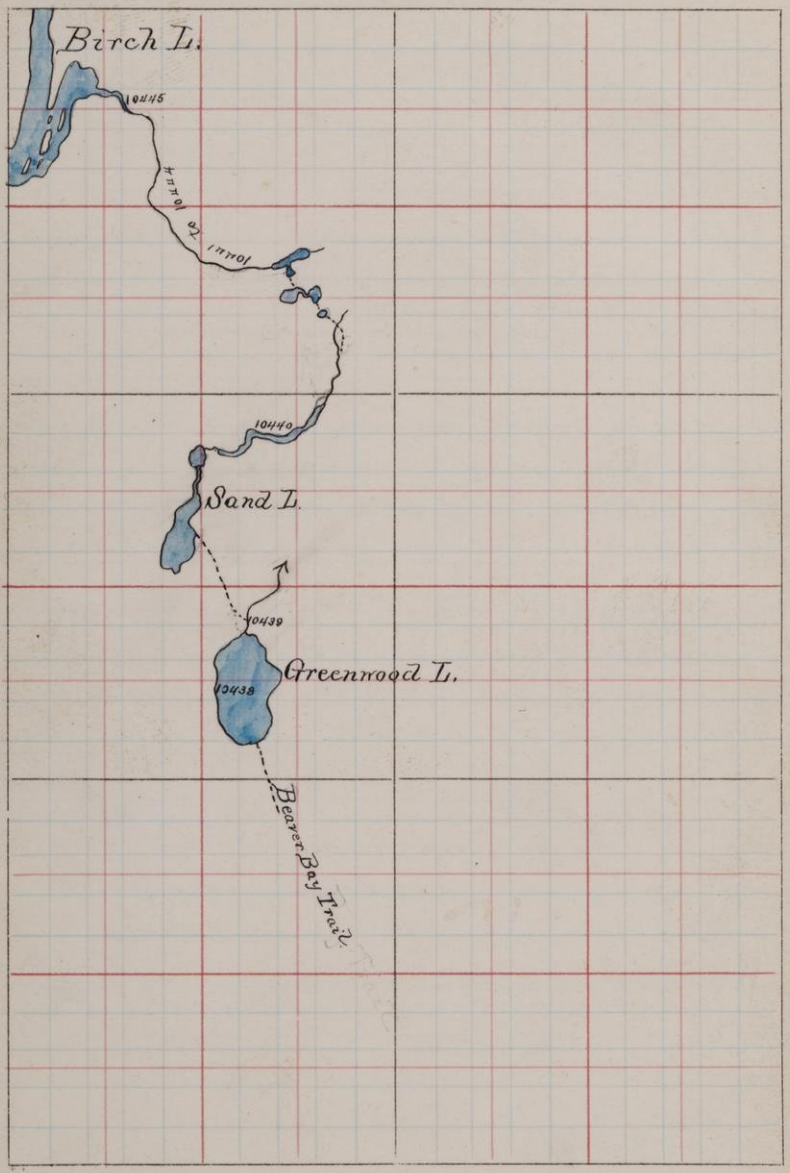
5. On the last twenty-five pages of the book give, as may seem desirable, a general account of the examination of the region mapped in the previous pages, correlation of observations, sketches, cross sections, etc., etc.

6. Forward this note book, as soon as filled, as registered mail matter, to R. D. Irving, U. S. Geologist, Madison, Wis.

54

P. 9 - 10 - 14
" 21 Silicified Salmon Little Sacramento
P. 22 & 25
P. 36 bottom

T. R.


Birch L.
10445
10444
10441
10440
Sand L.
10439
10438
Greenwood L.
Beaver Bay Trail

Trip southwest from Birch Lake to Greenwood Lake and the Beaver Bay trail. Aug. 26th. to Sept. 4th. incl

The trail to Greenwood Lake leaves Birch Lake at or near the southeast corner of the Lake following Greenwood River up through Sand to Greenwood Lake On account of low water however we followed the river only a short distance east of the range line between Secs. 18 & 13. T. 60 Rs 10 and 11 W. where we portaged into a small lake to the southeast From this lake a trail had to be cut between lakes and rivers for a number of miles to the southeast until a long narrow lake running about east and west was reached when we turned west for three or four miles to the corner between Secs. 7-12-13-18 T. 59. Rs. 10 & 11 W.

A mile or so south of this corner was reached Sand Lake a body of water about 3 miles long and less than a mile wide running northeast and southwest

The portage to Greenwood leaves the lake (Sand) near the middle of the east shore and runs southeast for over three miles to the outlet of Greenwood; the latter lake is 3 or 4 miles long and a mile or two wide, and lies nearly north and south

The Beaver Bay trail starts from the south end of this lake passing over the dividing ridge between Lake Superior and the northern lakes about one mile south of Greenwood

For the first few miles after leaving Buck lake the gabbro is exposed in large masses, and in places shows the southern dip slightly From the time we leave the river, however, until within about two miles of the corner between Secs. 7-12-13-18 - T. 59 R. 10 and 11 no

rock strictly in place is seen although large masses and boulders of the gabbro are found over almost the entire distance

From the last exposure (2 miles east of Sec. corner) no ledge is met with until at the outlet of Greenwood Lake where there is a low exposure of gabbro covering quite an area. Two more ledges of the same rock are to be seen on the west side of the Lake

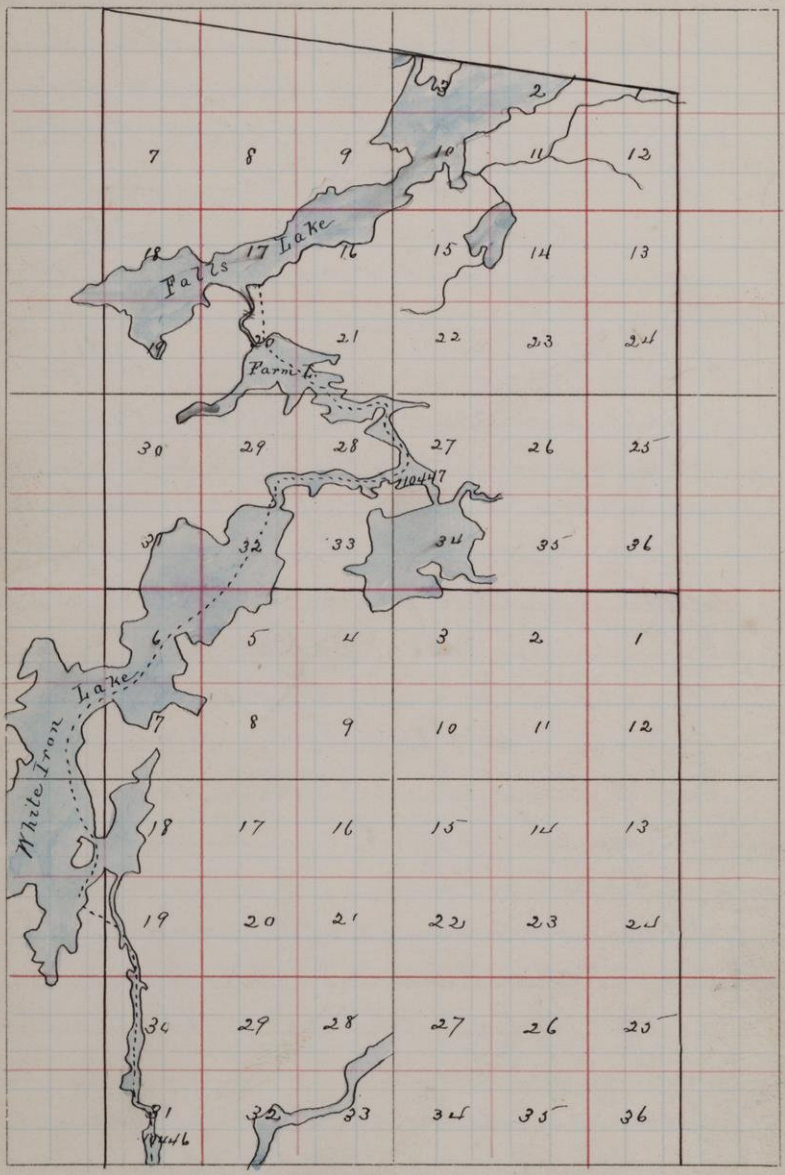
We followed the Beaver Bay trail south across the divide but finding no exposures and striking a swamp turned back

Paul says there are no exposures for quite a distance south along this trail No exposures on Sand Lake

Red Rocks in place was not seen; a few small boulders being met with near the southern end of the route

Our guide said that there is a large ridge of red rocks a short distance south of Rice Lake

Ts. 62 and 63 R. 11 W.



but that he knew of none west of there

10-38 About half way down the west side of Greenwood Lake

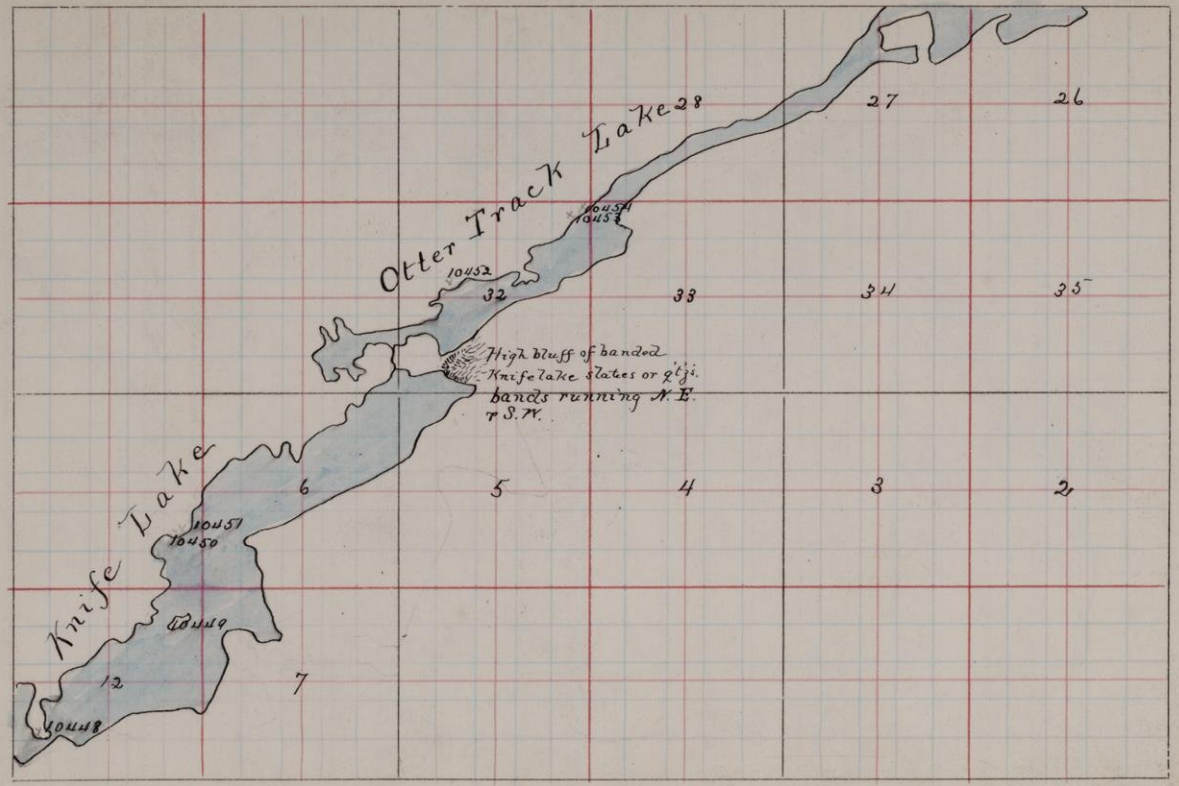
10-39 At outlet of Greenwood Lake

10-40 About 2 miles east of corner between Secs. 7-12-13-18, T69 Rs. 10 and 11 W

10-41
10-42
10-43
10-44
10-45
} Taken in order from south to north across the gabbro to Buck Lake

10-46 North end of Buck Lake, one mile north of the gabbro

10-47 Banded iron near the south side of Garden Lake
Nonred jasper


Otter Track Lake
Knife Lake
28
27
26
32
33
34
35
6
5
4
3
2
7
12
10451
10452
10453
10450
High bluff of banded
Knife lake slates or g'tji.
bands running N.E.
& S.W.

T. 63 N. R. 6 W.

10LH8 A black very fine grained rock breaking in irregular masses with a conchoidal fracture. From the Canadian shore a few rods north of the meander corner between Secs. 11 & 12 - 65 = 7 ft.

10LH9 From a small island in Knife Lake about 1½ miles east of the narrows

10L60 From the north shore of Knife
10L61 Lake north of 10LH9 The Mass of the rock from this point to Otter Track portage is similar to 10L60 (Bayley)
On the south side of Otter Track portage I ascended a high bluff of this rock and found it nicely banded light and dark with a very fine grey rock and a coarser material Strike N. E. and S. W. (approx.)

10/52 North side of Otter Track Lake a short distance from the west end. Is it a dyke

10/53 About one mile east of 10/52. north side of Otter Track Lake Is this the enlarged hornblende rock

10/54 Within 2 or 3 feet of 10/53. Looks like the hornblende rock of KeKeKabick Lake perhaps the source of them

10/55 From the east end of portage from Otter Track to small lake on the boundary next east

10/56 North side of small lake (Ashkosh) between Otter Track and Sasaganaga Strike about north and south banding quite pronounced Does it contain a small fragment of jasper

T. 66 N.
R. 5 and 6 W.

10467 From the portage into Lasaganaga Channel "granite" Is it a granite

10468 From the south end of bay in Sec 24-66-6W Shows slaty cleavage Strike N. and S.

10469 About 50 yds. east of 10468

10460 Within a few inches of 10469; Are these calcareous

10461 From the west side of Lake in Sec 25-66-6 near south end The small fragment marked 10461a comes from a short distance north of the other These show a tendency to cleavage and are fragmental I think

10462 A hornblende granite from the north side of Lasaganaga from second point east of the portage Very hard and firm

10463 A fine granitic rock about ½ of a mile east of 10462. N. ½ Sec. 19-66-5 W

10464 A light-colored granitic rock from the point on the west side of Sasaganaga where the lake turns north into large bay at outlet

10465 A light green hornblende granite from the second point south of the narrows at the outlet of Sasaganaga

10466 From a small island at the end of long point south of the narrows Very much shattered and penetrated with veins of a red granitic rock

10467 From a vein in 10466 The south side of the point is of similar rock (to 10466) and much veined and shattered

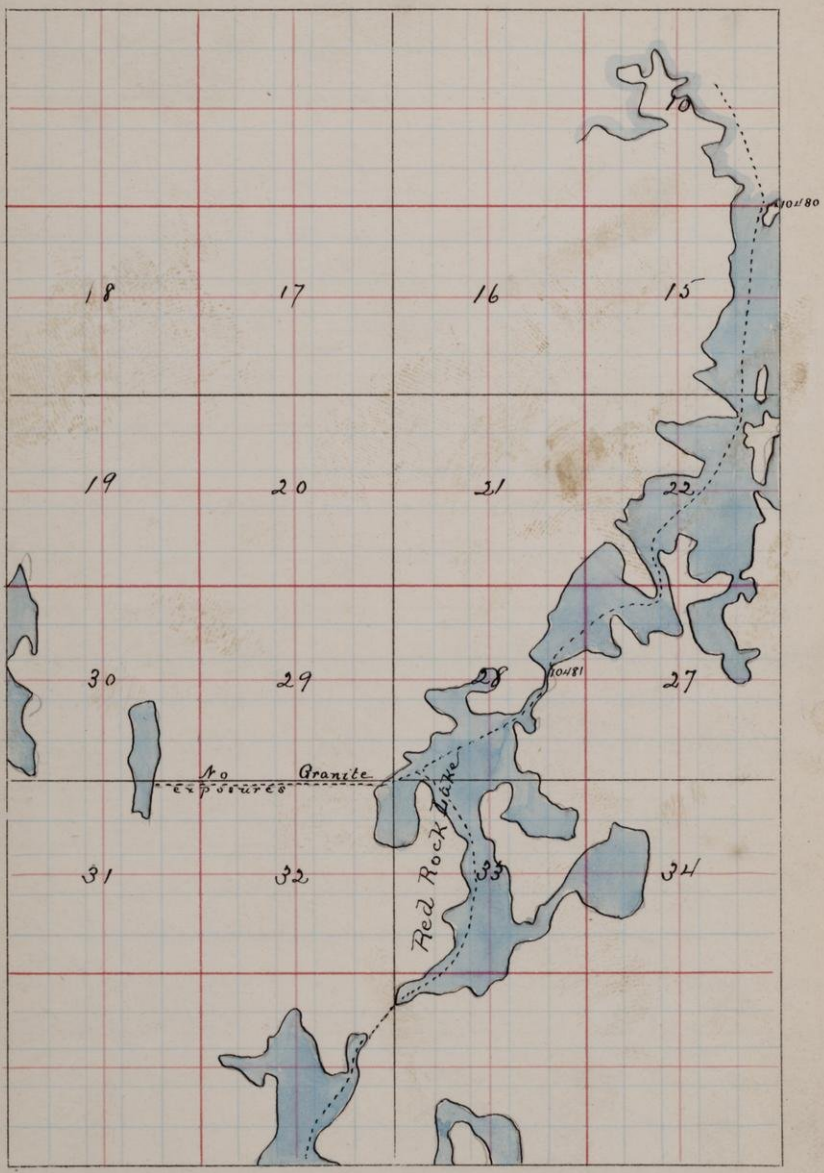
10468 From the north side of long point about half way down the narrows

10469 From the north side of the narrows The rock on this
10470 side appears to be similar to these specimens for most of the distance and to strike about east and west

10471 From the north side of narrows close to 10470

10472 Granite from the base of point just across the river or narrows (south) from the falls

10473 Conglomerate from the head of the
10474 falls at outlet of Sasaganaga This seems to be a greenschist conglomerate and to carry nothing but granite pebbles The largest pebble noted was about six inches long The belt is narrow, only a few feet across and seems to run about east and west


T. 66
R. 5
10
10+80
18
17
16
15
19
20
21
22
30
29
28
10+81
27
No exposures
Granite
Red Rock Lake
31
32
33
34

10475 Pebbles from this conglomerate

10476 About 50 yds north of the falls

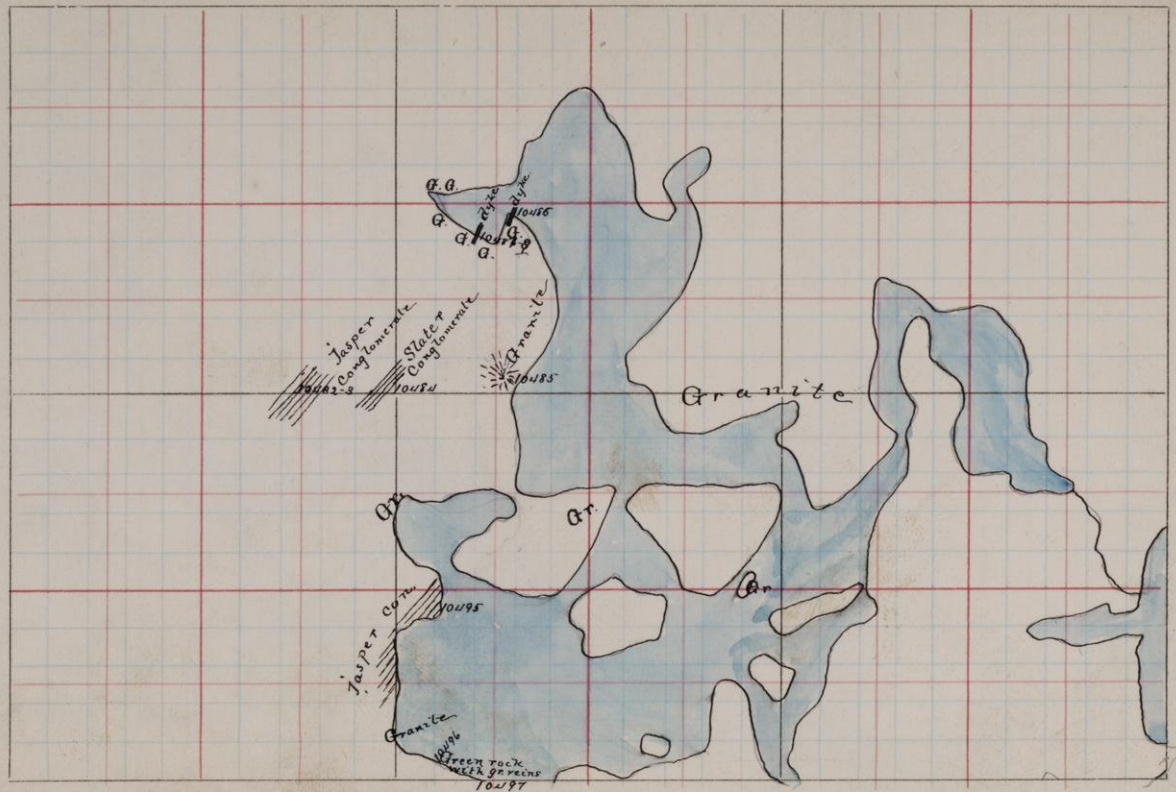
10477 North end of portage around the
10478 falls showing peculiar weathering

10479 Slate from the river about 300
or 500 yds. north of 10477-78
Quite a large exposure striking
about E. and W.

10480 Granite from the island at the
corner between Secs. 10-11-14-15
T. 66 R. 5 W.

10481 Granite from the narrows at Red
Rock Lake Sec. 28-66-5 W

10482 Conglomerate 480 paces east of N.¼
post Sec. 6-65-5 W This is the same
as the Ogishkimanissi conglomerate
except in not carrying as many
jasper fragments although a few
small ones were noted Many of
the pebbles are of the Sasaganaga
granite. Some of them also


T.
R.
Granite
Jasper Conglomerate
Slate & Conglomerate
Granite
Granite
Jasper Conglomerate
Granite
Green rock with gr veins
dyke
dyke
10485
10486
10487
10488
10489
10490
10491
10492-3
10494
10495
10496
10497

seem to be similar to the Otter Track and Knife Lake Rocks Strike N. 45° E.

10483 Pebbles from this conglomerate

10484 From a slaty layer in the conglomerate 300 or 400 feet east of 10482 It is nicely cleaved and strikes N. 45° E. (Mag); striking right against the granite only a short distance to the N. E.

10485 Granite from near meander corner between Secs 5 and 8 - 60 - 8

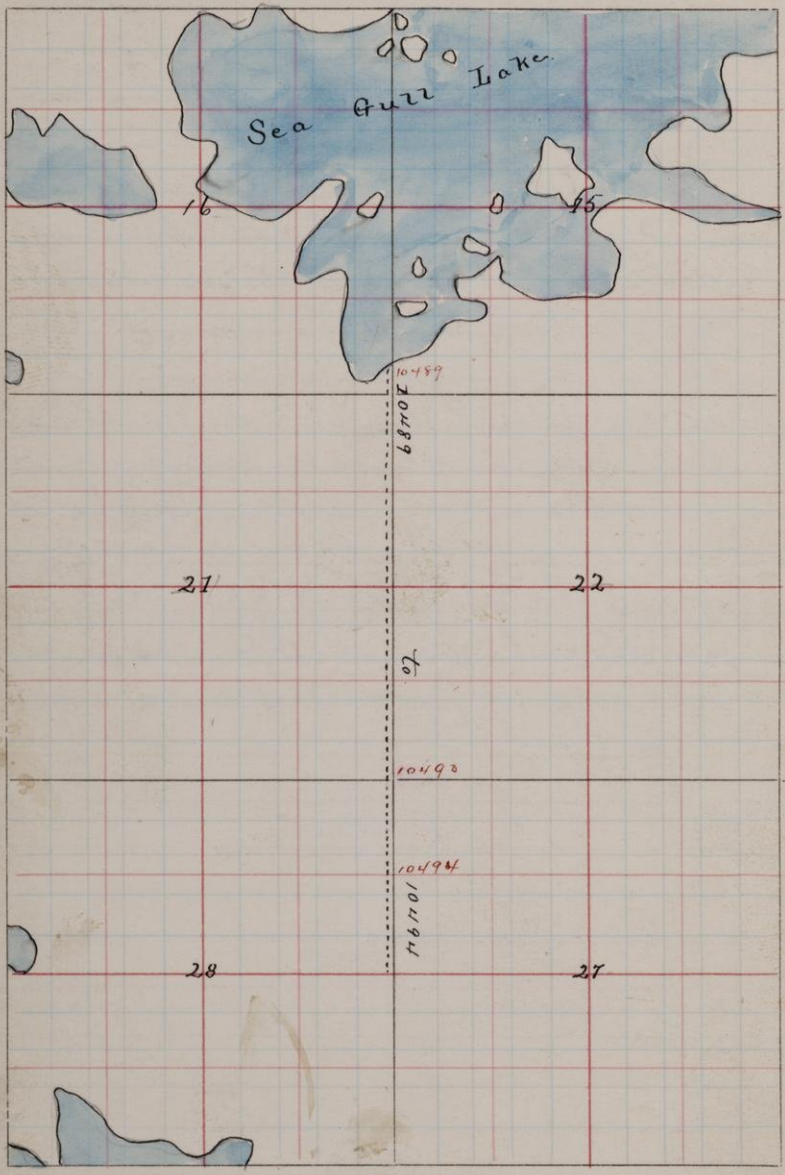
10486 From a dyke in the granite about ½ mile north of 10480

10487 Dyke in granite a short distance west of 10486; from near edge of dyke

10488 Granite near edge of dyke

From West Gull Lake I went north again into Red Rock Lake and followed the section line between Secs. 29 and 32 - 66 - 5 west 1¼ miles to a small lake in Secs. 30-31 The rock for the first half mile was a granite similar to all the others in this vicinity After crossing the granite there is a gradual descent to the small lake no more rocks being crossed From a drift ridge on the east side of the lake I could see a long distance to the west southwest and northwest over a low swampy country

T. 65 R. 5


Sea Gull Lake
16
15
10489
10489
21
22
10
10490
10491
10491
28
27

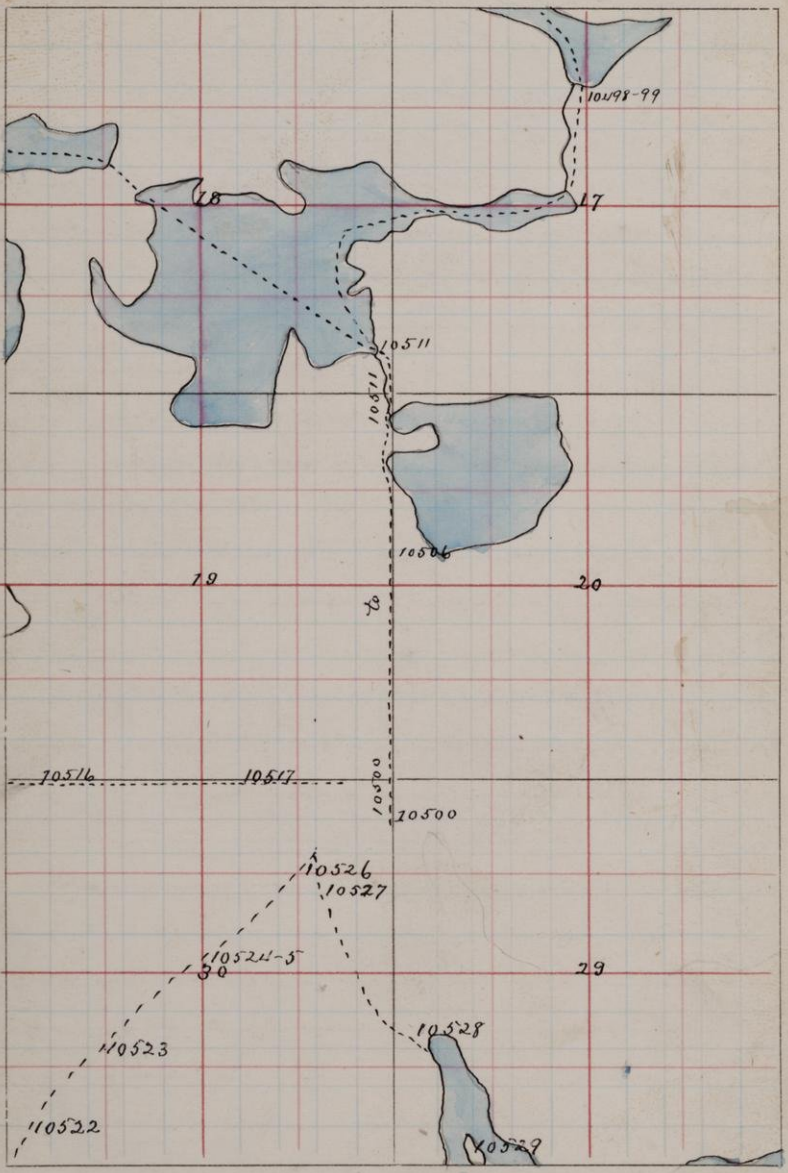
Trip south of Sea Gull Lake
along the trail on the line
between Secs. 21 and 22 (Bayley)

South of Sea Gull the surface
rises very rapidly in a series of
high ridges running slightly
north of east. The first
ridge is made up on the north of
granite and on the south of
a massive greenstone(?)
The trail was followed 1½ miles
and nothing but a series of
these greenstones(?) was crossed

10289 to 10294 Specimens taken along this trail from N. to S.

General dip 10° N of E.

T. 65 R. 5


10498-99
18
17
10511
10511
10506
19
20
10516
10517
10500
10500
10526
10527
10524-5
30
29
10528
10523
10522
10529

The west shore of West Gull Lake was followed in detail. At the head of the bay in the N.W. ¼ Sec. 8 and in small ledges along the sides of the bay the granite is exposed; at the point on the south side of entrance to the bay however the jasper conglomerate is exposed in a large ridge running about parallel with the shore for nearly ½ of a mile. The rock is exactly like that west of Ogishkimanissi and is filled with jasper fragments. It is striking right against the granite in the same manner as that a short distance to the N.W.

10495 Specimen of the conglomerate

At the south M.C. between Secs. 7 & 8 the granite shows again.

Across a small bay to the east a green rock is exposed in a large cliff. Small granitic

veins were noted

10-96 Shows this rock with a portion of a granitic vein about 5 or 6 inches wide

10-97 From a bluff a short distance east of 10-96 at the M.C. & Townline west side of Lake This same rock continues to the portage, granitic veins showing in places

10-98 Vein in this green rock from near north end of portage from West Gull to Frog Rock Lake

Bay Lake

10-99 From same portage as above

From Frog Rock Lake the line between Secs. 17 & 18 was followed south to a point about 200 paces south of the corner between Secs. 19-20-30-29 The country is very rough the line crossing a great many steep ridges running about east and west

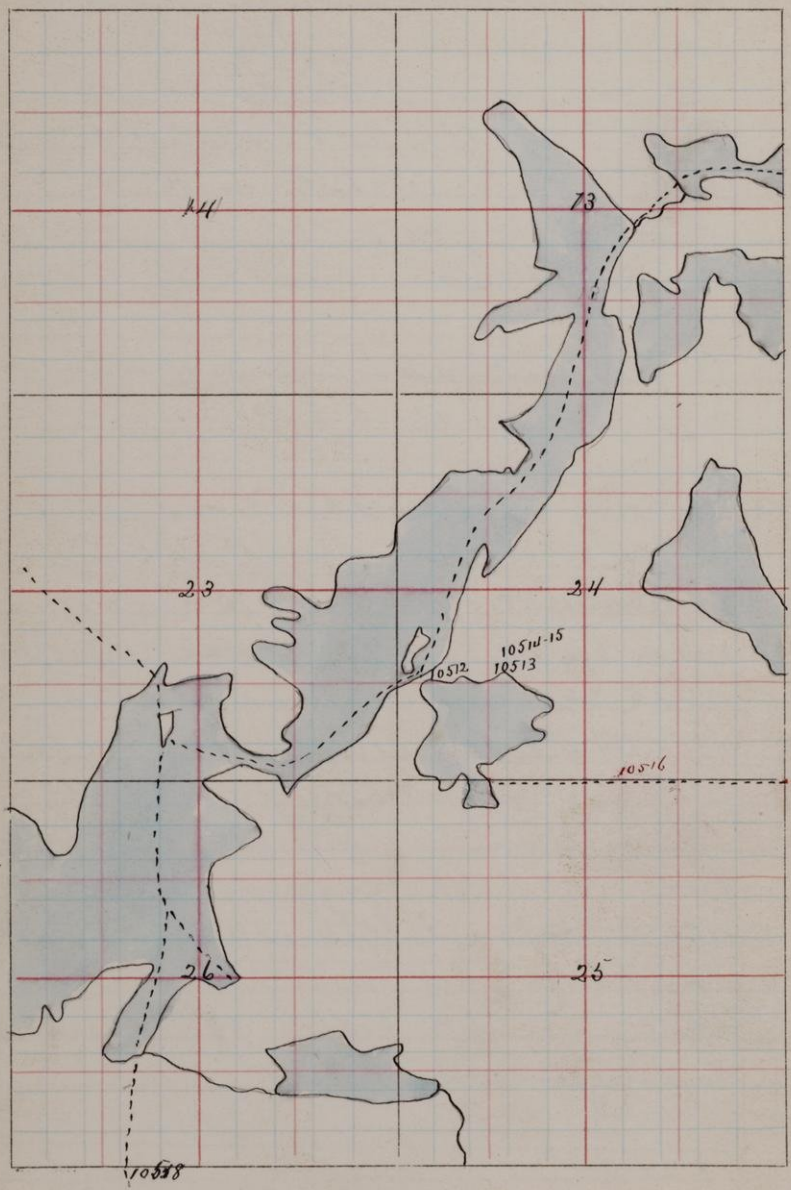
10500 From the top of a high ridge about 200 paces south of the corner between Secs 19-20-30-29 Compare with rocks on north side of Kabimitchikamak

10501 A short distance north of 10500

10502 A greenish massive rock next north of 10501

10503 A conglomerate about 100 paces north of 10502 Is it a true conglomerate? It is exposed on a large bluff, but was so covered with moss and trees that I was able to see the conglomeratic character on a surface only 2 or 3 feet square under the roots of a fallen tree The fragments are all similar to those shown in the hand specimen One well rounded pebble 3 inches in diameter was seen

T. 65 R. 6 W



10504
10505
10506
10507 Taken in order from S. to N. from
10508 near 10503 to the south side of
10509 Frog Rock Lake
10510
10511

10512 About half way between Ogishkimanissi
and small lake in the S.W. ¼ Sec. 24
65-67 W (Bayley)

10513 North shore of above lake (B.)
Dyke

10514 Lenticular mass of trap, 100 paces
north of lake, in the conglomerate
(B.)

10515 Conglomerate from near 10514 (B)

10516 170 paces east of C. P. R. between
Secs. 24 & 25 - 19-30 (B.)

10520-21
10519
36
31
32
10530
10531
10532
10539
10538
10537
1
6
5
T. 65 S.
R. 5 E.

10517 Fine grained dark rock showing white patches on weathered surface 1240 paces east of corner 24-25-19-30 For 80 paces farther the rocks are the same and contain large pebbles in places (B.)

10518 From top of bluff south of Agishkimanissi ½ mile N. It an eruptive & it lies in the Agamak and Fox Lake slates or just south of them and seems to be a layer

10519 Top of high bluff north of Agamak Lake

10520 About 100 to 200 paces north of 10519

10521 Within a few feet of 10520

10522 300 or 400 paces from 10521; it carries pebbles (See map opp. page

10523 A coarse conglomeratic rock about 200 paces N. E. of 10522

10524 A highly banded rock 300 or 400
10525 paces N.E. of 10523 In places
the rock is much broken and
faulted the spaces being filled
by a coarse sandy material as
shown in the specimen 10525

10526 A fine grained, banded, purplish
colored rock a short distance
beyond the last At was lake
at the point where we turned south
to Kabenitchikamak Lake

10527 Near 10526

10528 From the head of long bay running
north from Kabenitchikamak

10529 Banded rocks from a small island
near the foot of same bay

10530 From a small point on the shore
near meander corner of Range line
between Secs. 36 & 31 Rs. 5 & 6 (B)

10531 From point in S. E. ¼ Sec. 36-65-6 (B)

10532 Near N. line Sec. 1.-64-6 (B)

10533
10534
10535 } Taken along the south side of Kabinitchikamak from E. to W. (B)

10536 Pebbles from the conglomerate crossed by Bayley on his trip east of Kingfisher (See 10512 to 10517).

10537 Gabbro from the S. E. ¼ of the S. W. ¼ Sec. 33-65-5 Large cliff

10538 Gabbro from the S. E. of S. E. 32-65-5 W

10539 Gabbro from the east end of portage from Kabinitchikamak to small lake in Secs 32-33-65-5 S. W. ¼ S. E. 32-65-5
No silicified gabbro was seen in this lake although the north shore was carefully followed

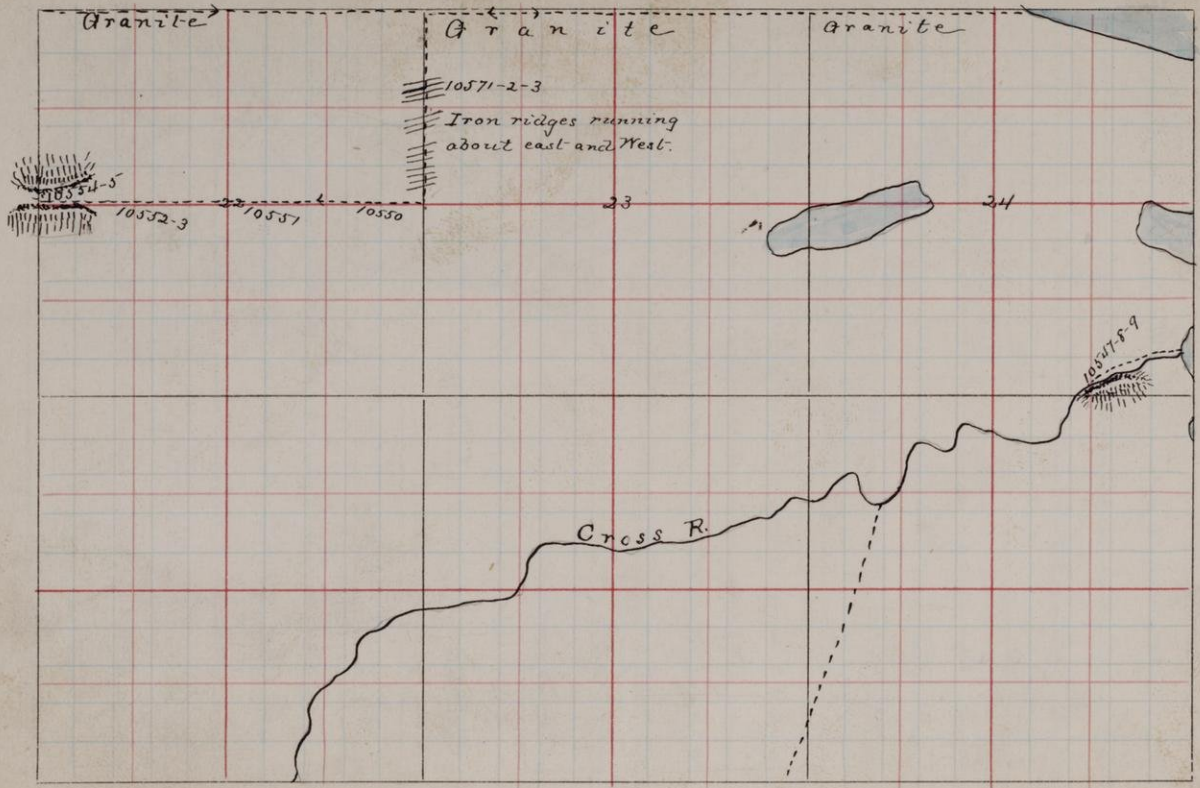

10540-1-2
8
9
10
12
5344-5-6
18
17
16
15
14
13
10543
T. 64
R. 5~

10540 Iron from the gabbro on Little Sasaganaga N. ½ Sec 7-64-5

10541 Same place as 10540

10542 Silicified gabbro from this exposure The rock in which the iron occurs and also the mode of occurrance is exactly similar to that east of Birch Lake There is quite an amount of the titaniferous and it has been worked to a slight extent by Mayhew and others
Southeast of this point on Little Sasaganaga all the rock examined was a typical coarse grained gabbro

10543 On the north side of the lake (L. S.) near the portage into small lake to the east a vein of red rock 3 or 4 inches wide was noted The specimen has more of a granitic appearance than most of the vein


Granite
Granite
Granite
10571-2-3
Iron ridges running about east and West.
10554-5
10552-3
10557
10550
22
23
24
T. 63
R. 4
10578-9
Cross R.

105 44 Red rock was again seen on the
105 45 west side of the small lake on the
105 46 east line of Sec. 14-64-5
The exposure was much larger than
the last but was too much covered
to determine its exact size
The rock is very coarse and contains
large masses as well as some very
fine crystals of quartz ½ to ⅝ of
an inch in length, also beautiful
bronze colored crystals (Mica) many
of them very perfect and shaped
 Calcite was noted in
small quantity

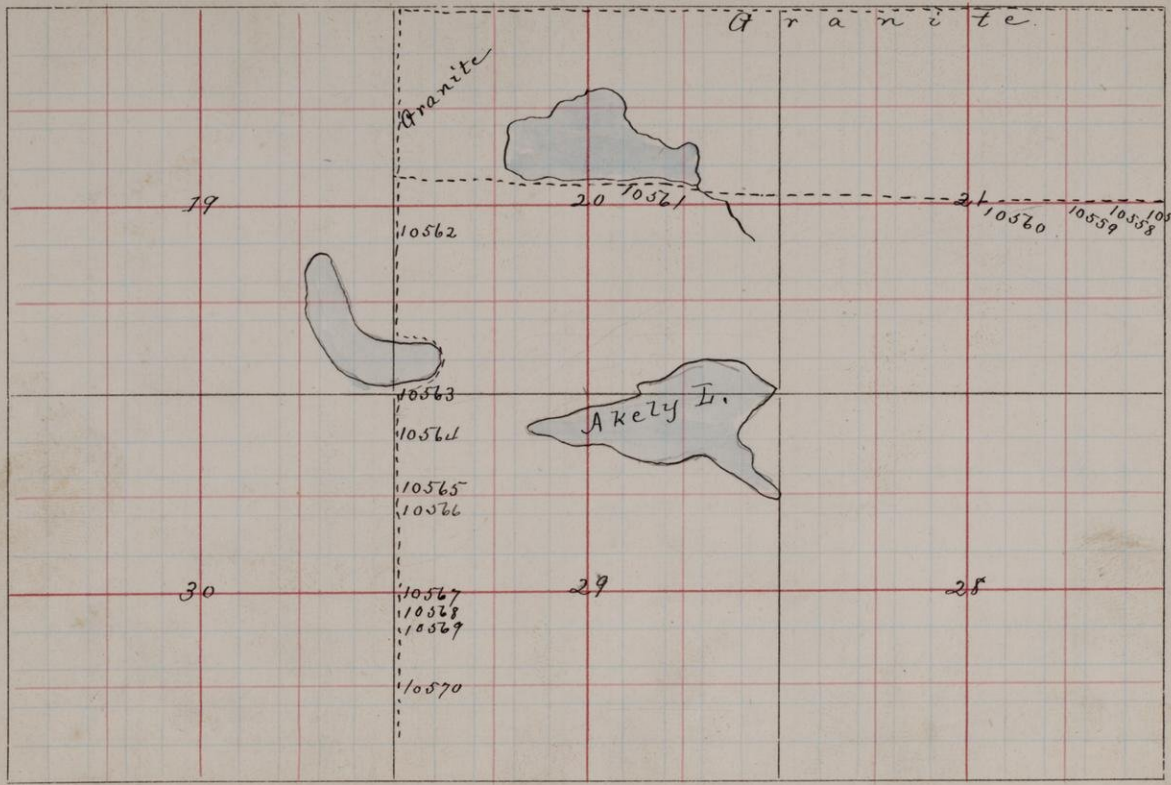
105 47 From the last mentioned point
105 48 all the rock noted was the gabbro
until the west end of the portage
into Gunflint is reached where
the Animikie shows in a large
north facing cliff
The rock on the face of the
cliff is all a banded quartzite
105 49 On the north side of the stream
however an underlying layer of
gabbro ~~is~~ exposed

10550 About 200 paces west of the E. ¼ post Sec. 22 - 65 - 4 A granitic like rock appearing to lie to the west and somewhat to the south of the iron rocks The same rock continues for fully ½ of a mile

10551 Nearly the same as 10550 from near the center of Sec. 22.

10552 The next rock, ½ of a mile west
10553 of 10551, is a dark colored fine to medium grained Could not make out the structure as it is much broken and jointed

10554 From a high bluff near the west
10555 line Sec. 22 The rock is a dark fine grained schist or slate(?) standing nearly vertical and striking about east and west This bluff seems to be the highest point in the vicinity


Granite
Granite
19
20
21
10561
10562
10560
10559
10558
10556-7
10563
10564
10565
10566
Akely L.
30
29
28
10567
10568
10569
10570
T.
R.

10556 A banded rock a short distance
10557 south of the ridge shown in
Specs. 10554-55
10557 a band in this exposure
The strike is nearly east and
west; dip slight to the south
Animikie rocks

10558 From the Animikie 100 paces
west of 10556-7 A large exposure
with an abrupt north face

10559 We followed along near the
Animikie for some distance
(200 or 300 yds) when a massive
rock is shown lying about 20 yds
north of the slates and apparently
underlying them The contour
of the exposure shows the dip
to the south at the same
angle as the Animikie and
an abrupt north face

10560 Similar to 10559; near the center
of section 21 Same contour
as 10559

10561 From the south side of a small lake in Sec. 20

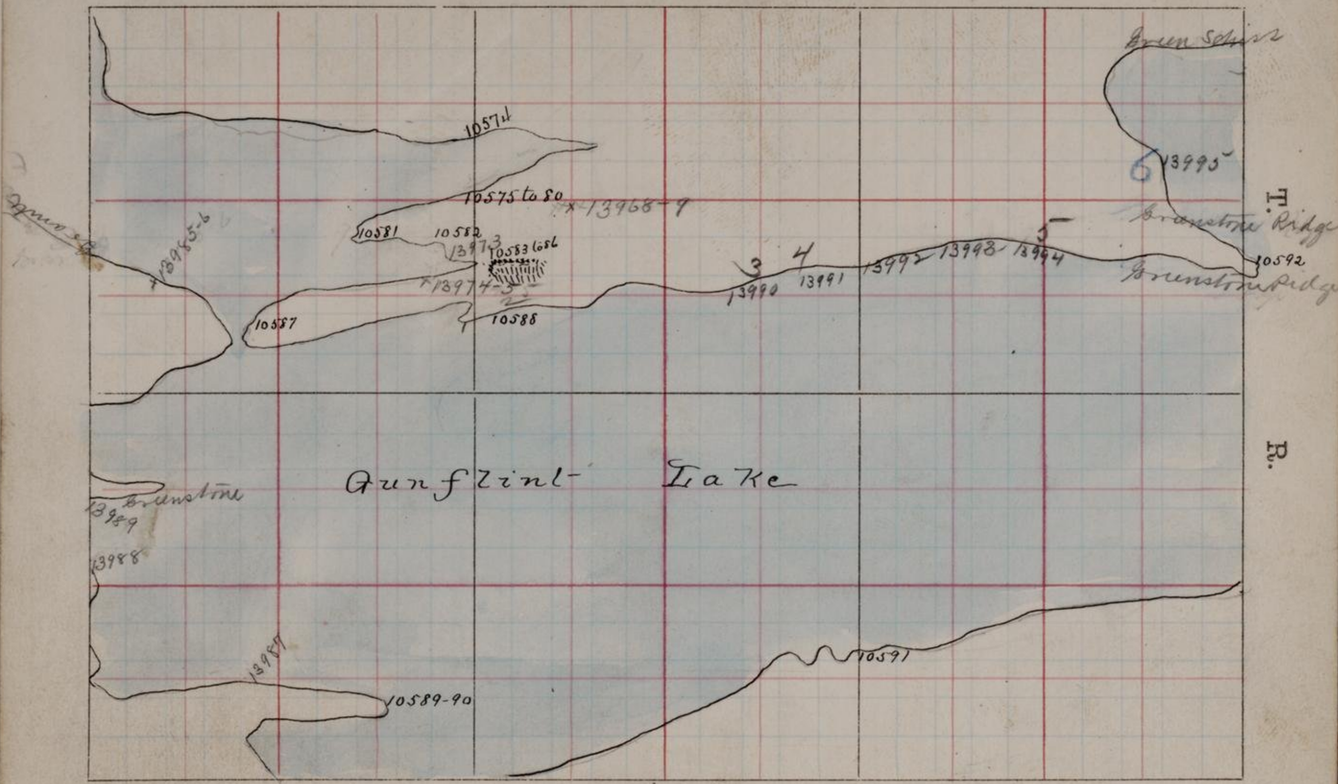
10562 A fine grained, greenish black rock a short distance south of the west ¼ post Sec. 20 The rock for some distance along this line is similar to 10562

10563 A somewhat coarser rock from near the southwest corner Sec 20

10564 } I don't know anything about
10565 } these rocks for locations see
10566 } map

10567 } These rocks belong, I think, with
10568 } the silicified gabbros Their
10569 } location is shown on the map
10570 }

Returning north along the line between Secs. 19 and 20 the granite is found about 400 to 500 paces south of the Sec. corner (17-18-19-20) At this corner we turned east


Green Schist
6
13995
T.
Greenstone Ridge
5
13994
13993
13992
13991
4
3
13990
10592
Greenstone Ridge
10574
10575 to 80
13968-9
10581
10582
13973
10583 to 86
13974-5
2
10588
1
10587
13985-6
R.
Gunflint Lake
Greenstone
13989
13988
13987
10589-90
10591

along the section line to Gunflint Lake finding granite exposed the entire distance

10571 Animikie iron rocks from the
10572 west line Sec 23-65-4 about 300
10573 to 400 paces south of the corner
The granite lies to the north within
50 or 75 Yds.

10574 Granite from the Canadian side
of Gunflint north of the point
carrying the Gunflint beds

10575
10576
10577 Taken from the Gunflint beds, north
10578 side of long point on the Canadian
10579 shore near outlet
10580

10581 From the west end of same point
a higher layer than the above specimens

10582 South side of same point near
east end. Probably from about
the same horizon as 10581

10583 From a high bluff a short distance
10584 to the southeast of 10582 A still
10585 higher horizon As section of
10586 the cliff shows a thickness of
30 to 150 feet of bedded jasper at the
bottom (in sight) next 20 or 30 feet
of cherty layers with no red jasper
and capping the whole 20 or 30 feet
of greenstone (10586)

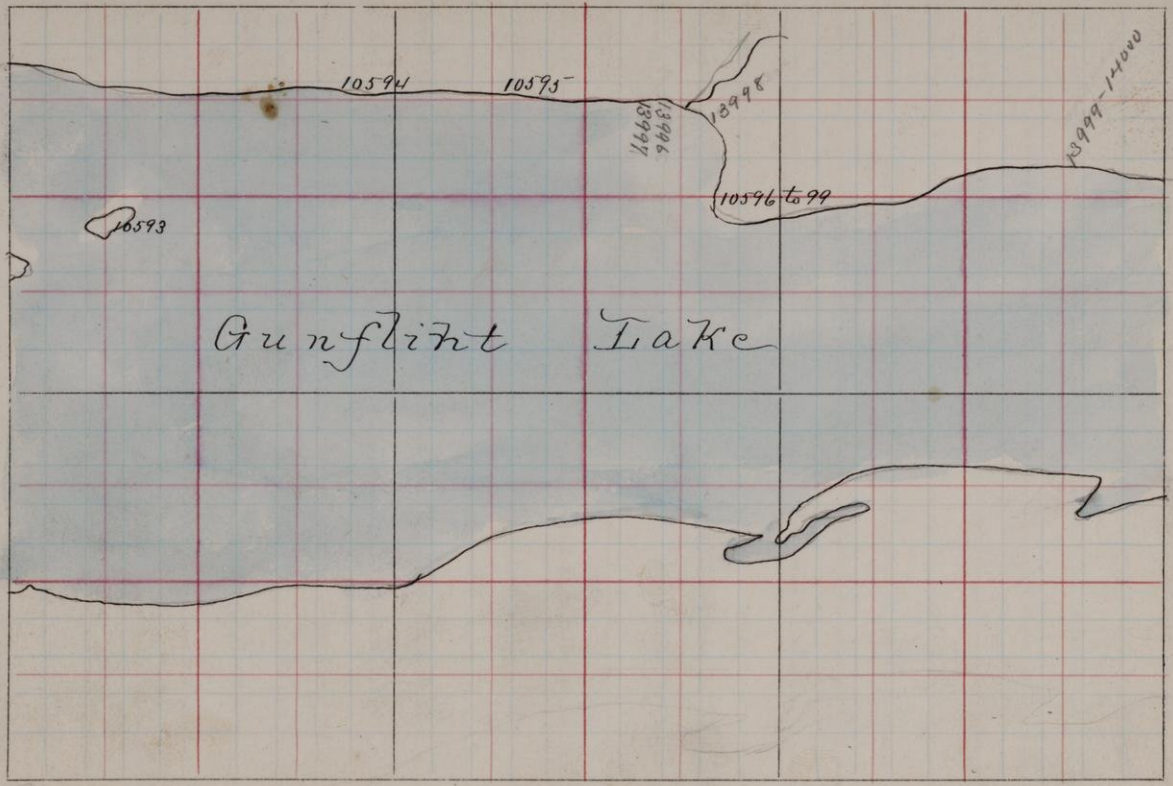
10587 Greenstone from east side of narrows
on Gunflint Lake

10588 From Gunflint beds on north side
of lake ½ to ⅔ mile east of narrows

10589 Very fine black slate from end
10590 of point in Sec. 30-65-37W

10591 Slate from small point in the
northeast corner Sec 29-65-37W

10592 North side of Gunflint opposite
N.E. corner Sec 28, from end
of point


10594
10593
13998
13996
13997
13999-14000
10596 to 99
10593
Gunflint Lake
T.
R.

10593 Porphyritic greenstone from small island a short distance N.E. of 10592

10594 Green schist from the mainland N.E. of 10593

10595 Green schist ½ mile east of 10594

10596 From the gunflint beds on the
10597 point on north side of lake
10598 opposite west line Sec. 25

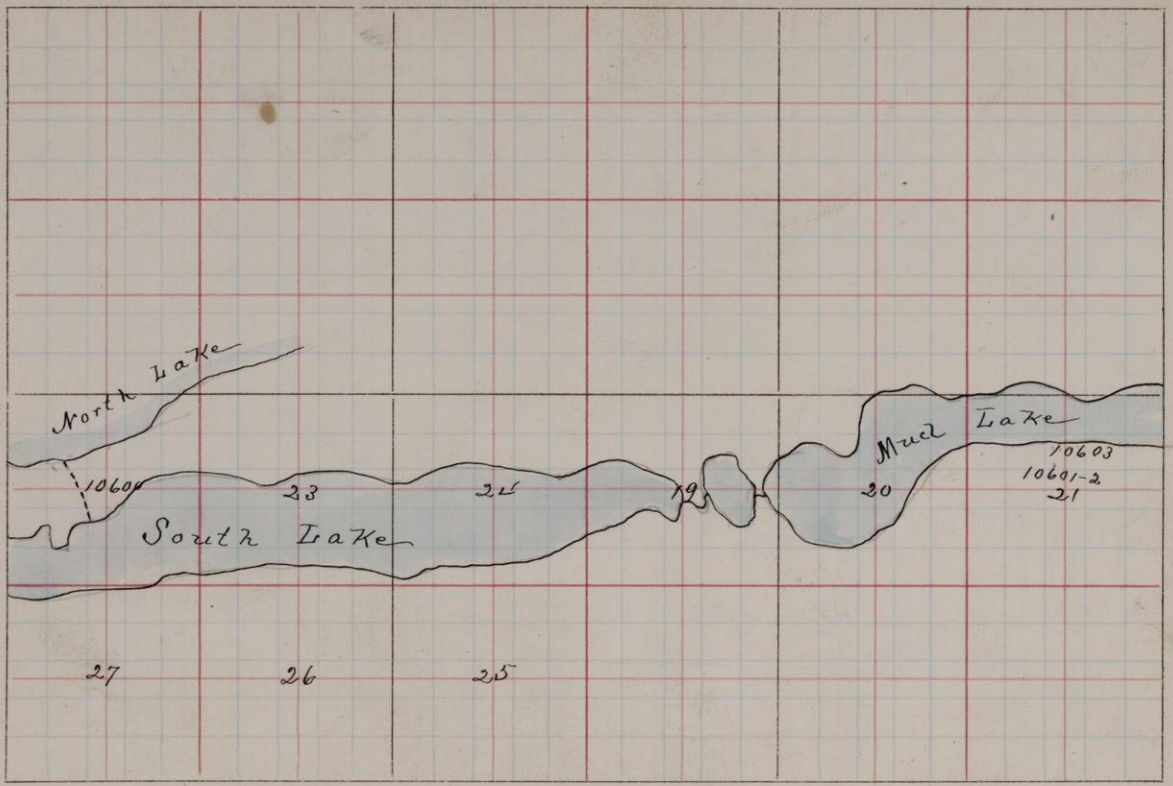
10599 Greenstone overlying 10596-7-8

10600 Overlying greenstone from the portage between North and South Lakes.

10601 Slate from high bluff south side of Mud Lake Sec. 20-65-1 W

10602 Greenstone overlying 10601

10603 Greenstone from next layer below 10601


North Lake
South Lake
Mud Lake
10602
23
24
19
30
10603
10601-2
21
27
26
25

T. 65

R. 24 W.

10604 Greenstone from the "Arrow Lake bluff" Mud Lake

10605 Greenstone from bluff at east end of Mud Lake

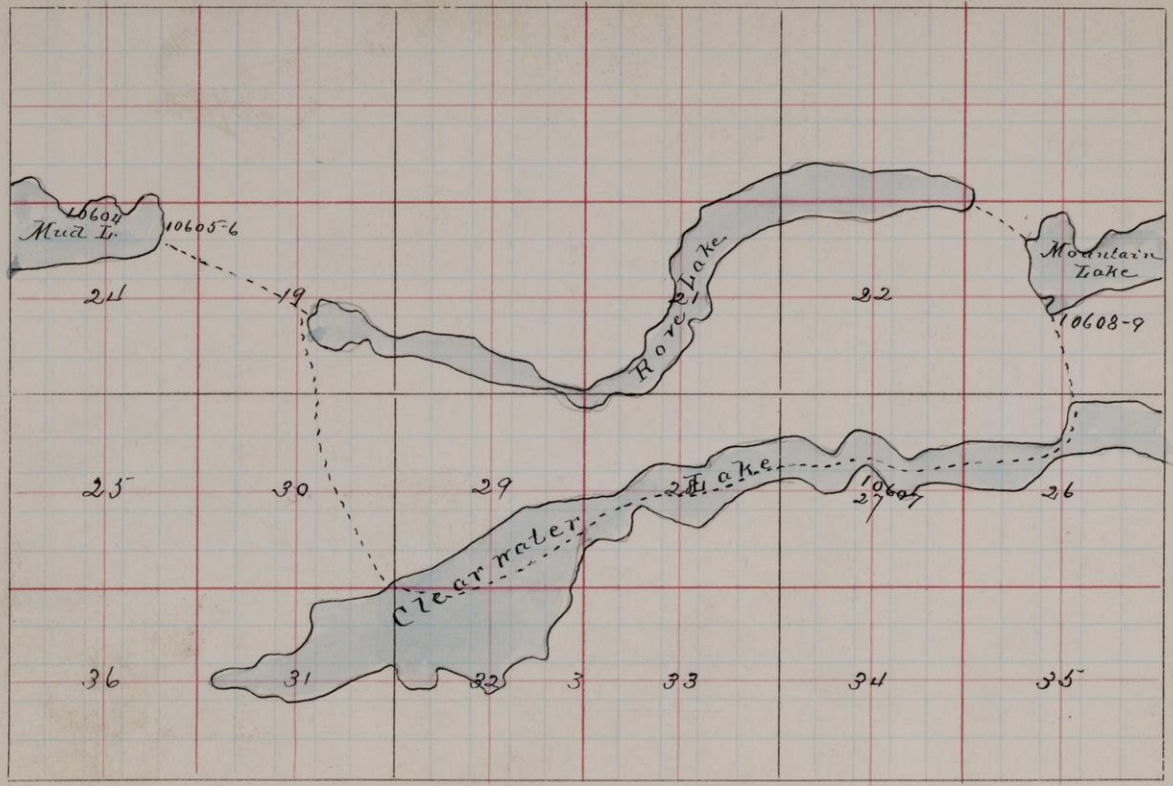
10606 Quartzite underlying 10605

10607 Greenstone from the south side of Clearwater Lake Sec. 27-65-12

10608 Slate from the south side of Mountain Lake at the north end of portage from Clearwater Lake

10609 Greenstone overlying 10608

10610 Greenstone from the east end of Moose Lake This rock looks more like the great overlying gabbros than any flows yet noted


Mud L.
10605-6
Rose Lake
Mountain Lake
10608-9
Clear water
10607
T.
R.
21
19
22
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30
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36
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Trip through towns 63-64, ranges 2 and 3 E

From South Pond Lake we crossed the portage to Pigeon River, and, not being able to find the range line went south by compass.

The country has been burnt over and is covered with a dense growth of Tamarack 7 or 8 feet high and in places so thick that it is almost impossible to force your way through.

About 1½ to 1¾ miles south of Pigeon River the first rock in place was crossed. It is a slate and is overlain by a greenstone, and is similar to all the Animikie rocks in this region.

10611 The slate from the above exposure
10612 Overlying greenstone

From 75 to 100 paces south of the slate is quite a large exposure of conglomerate, in appearance reminding one very much of a similar


Moose Lake
29
1061.0
28
28
27
1061.5 to 48
1061.4 North Bow Lake
32
33
34
35
1061.3
5
4
3
2
1
1061.2
Roy Lake

T.

R.

conglomerate in the Original Huronian 2½ miles W. of Thessalon P.O. Most of the pebbles are of a white quartz or quartzite although a few small fragments of a slaty rock were seen No other pebbles could be found

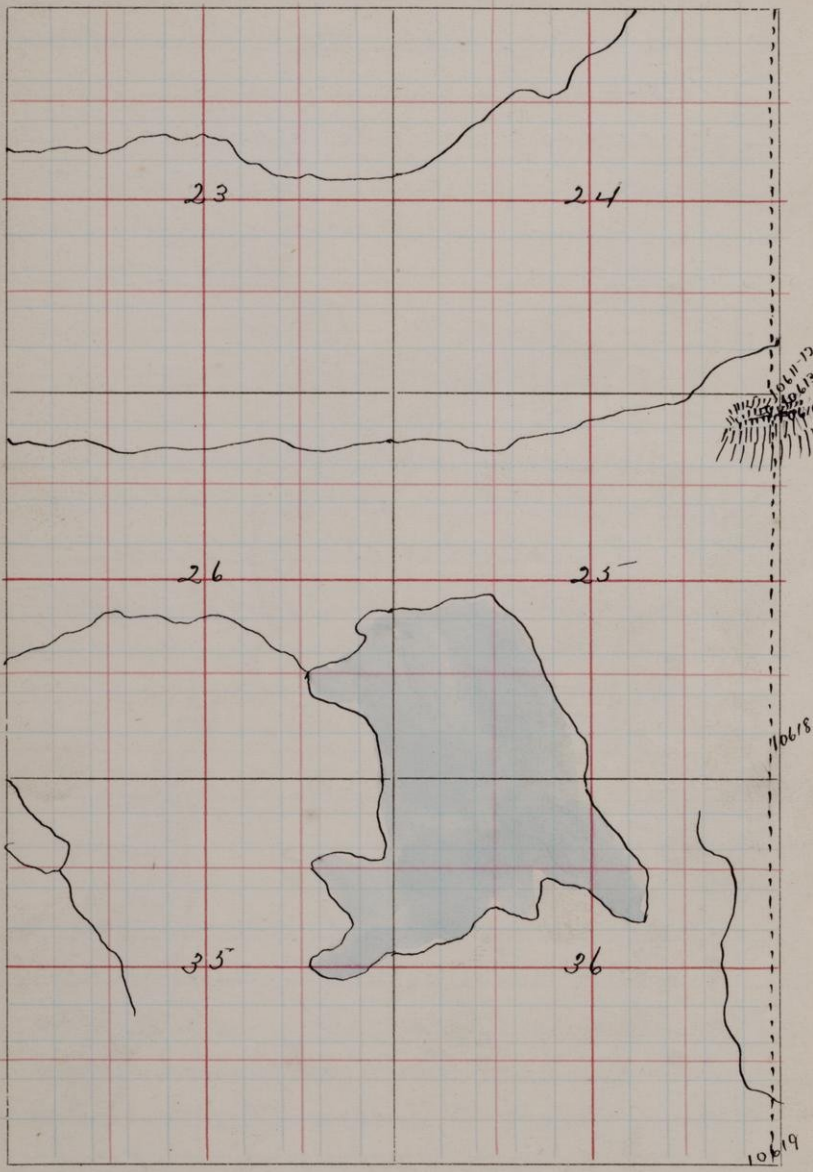
10613
10614
10615 } Taken from this conglomerate

Continuing south and up the face of a bluff an amygdaloid is seen a short distance south of the conglomerate At least a hundred feet in thickness is exposed in this bluff

10616
10617 } Specimens of the amygdaloid

Continuing south all the rock crossed belongs to the amygdaloid as far as the south side of the town Here we turned west and tried to follow the line between towns 63 and 64 but gave it up after three trials

T. 64 R. 3 E.



I have never seen such thoroughly bad work as is shown in the township surveys in this vicinity. In the few lines we have found in no instance have we been able to follow them more than a few rods and consequently have been lost most of the time

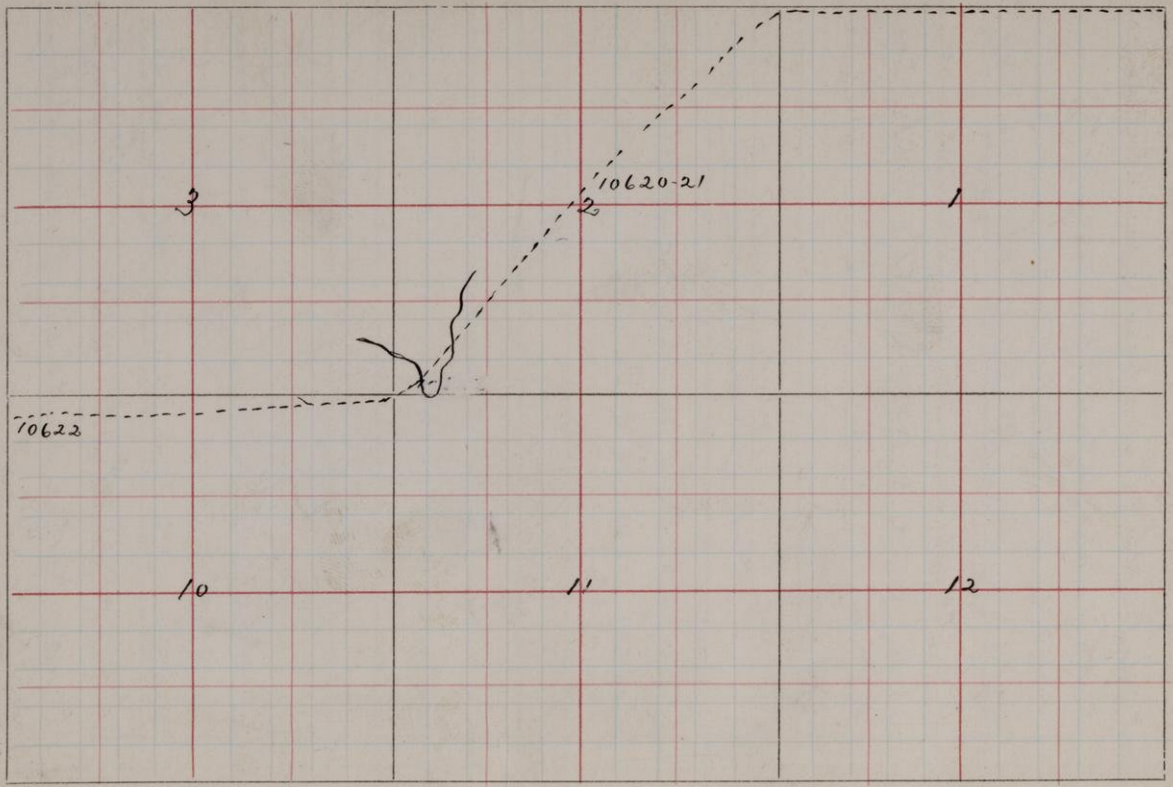
10618 About 3/4 of a mile south of 10617

10619 Amygdaloid near the southeast corner 64-R. 3. E

10620 Amygdaloid near the quarter Sec. 2-63-3E

10621 Red rock vein in 10620 The vein is about 15 feet wide

10622 A dark colored medium grained rock about a mile southwest of 10621. In places the rock has a reddish cast From a large ridge N. 30° W. from the South Fowl bluff



T.63

R.3 E

10623 Similar to the last specimen except in having a reddish cast. About ½ mile S. 2° W. from 10622

10624 From the last point we crossed S. W. through a Tamarack swamp for about a mile, when a dark colored feldspar porphyry is exposed on the edge of the swamp

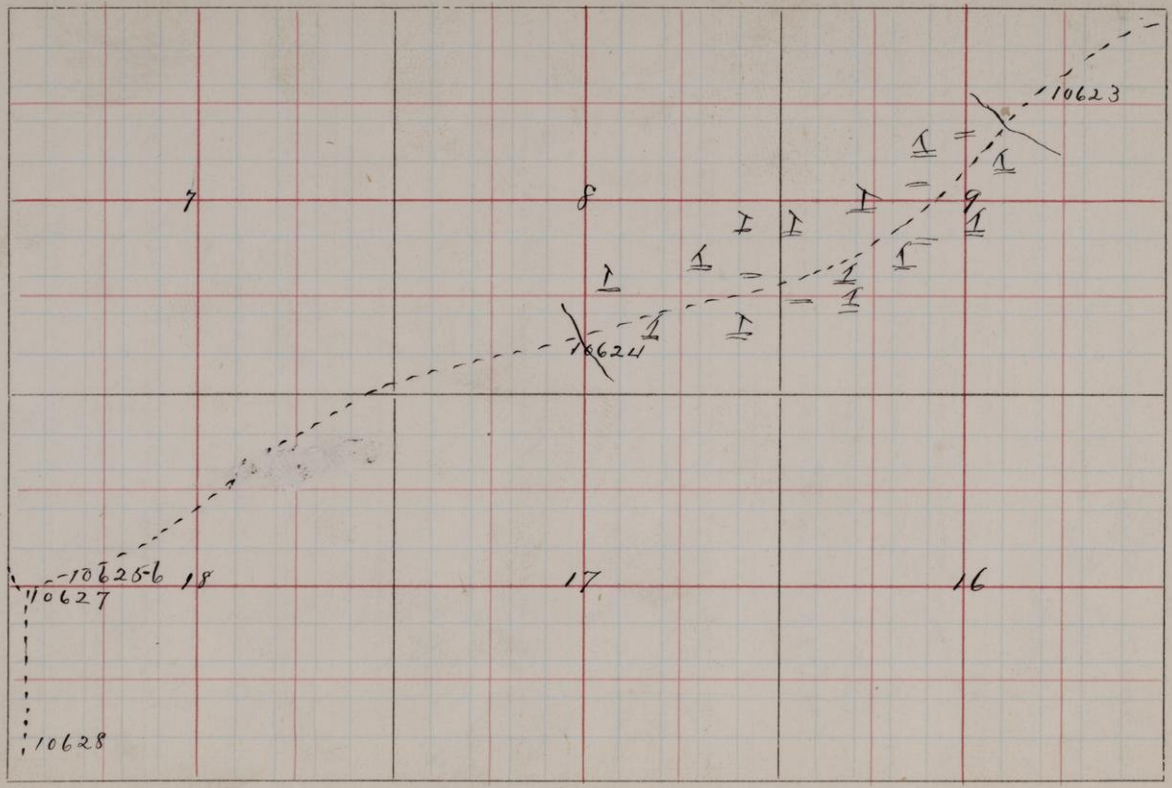
10625 A grey porphyry from the north side of Sec. 18 T 63 - R 3 E. 1.2.1

10626 Red rock dike in 10625

10627 Porphyry about 50 paces west of 10626

10628 A brownish porphyry ½ mile south of 10627

From the last mentioned point we turned north and west all the rock crossed being porphyries similar to the last 3 or 4 specimens


10623
10624
10625-6
10627
10628
7
8
18
17
16
T.
R.

10629 Near the South west corner Sec 1-63-2 E an amygdaloid is exposed in the bed of a small creek

10630 Porphyry from near 10629

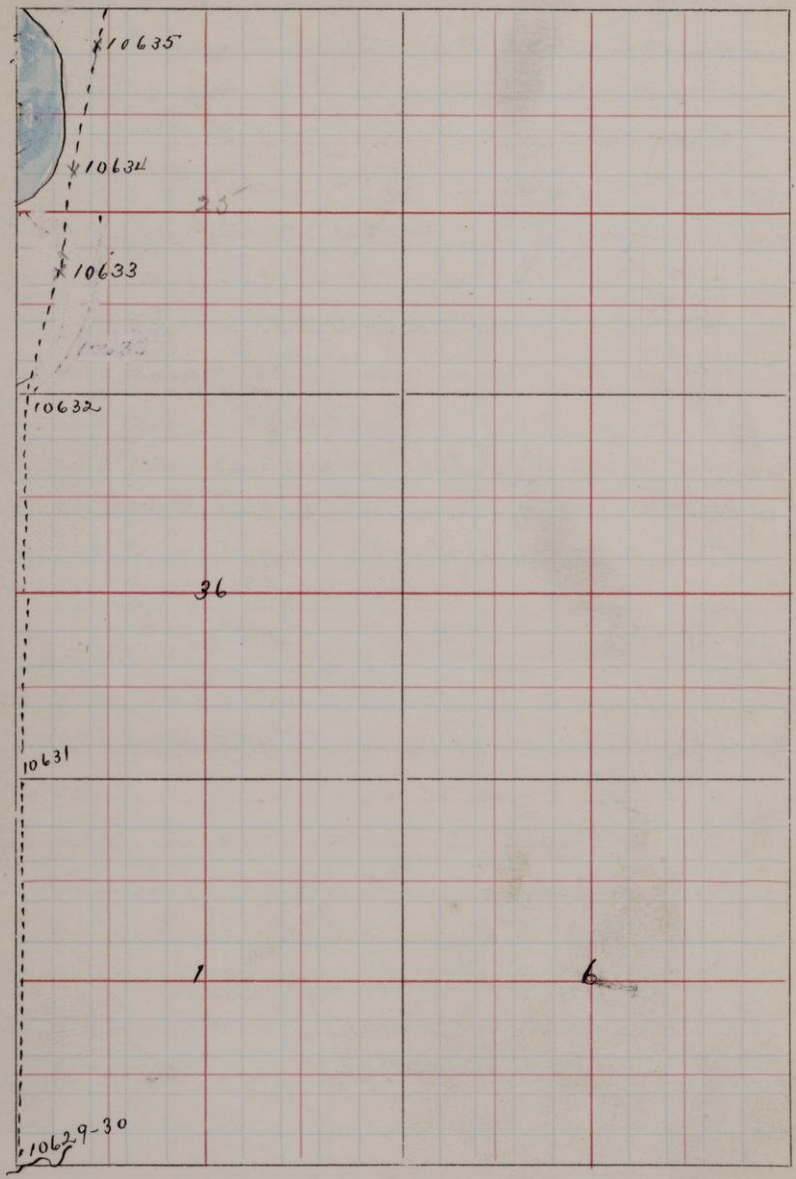
10631 North from the S.W. corner of Sec 1. no rock in place was noted until nearly 1 mile from the corner where a dark fine grained rock is seen in a small exposure on the top of a bluff

10632 A coarser rock from the next bluff nearly a mile north or near the north line of Sec. 36-64-2E

10633 About ½ of a mile north of 10632 but much like 10631 Looks somewhat amygdaloidal

10634 A rock very much like 10632 N.W. ¼ Sec. 25-64-2

T. 64 R. 2 E



10635 Red rock from ½ to ½ mile north of 10634 (in place) Ever since turning north red rock bowlders have been by far the most numerous but none of the rock surely in place was crossed until at the above mentioned place
There are some very large ridges of red rock in this vicinity

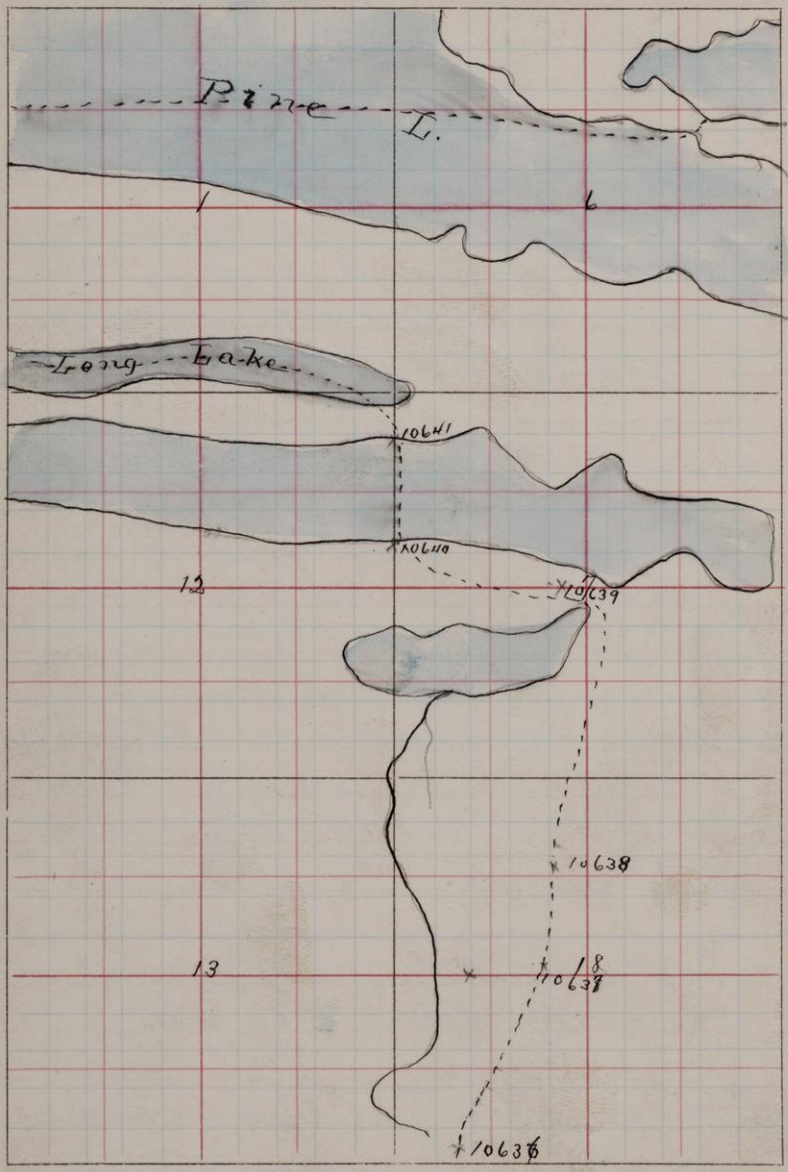
Rock in place is seen more frequently than noted by specimens E. and S.E. of Greenwood but the specimens show all the kinds seen

10636 Red rock from near the south side of Sec. 18-64-3E Darker and more mottled than much of this rock

10637 Gabbro near the center or north of the center of Sec. 18-64-3E.

10638 Gabbro a few hundred paces north of 10637

T. 64 R. 2-3 E



10639 Gabbro from the center of Sec. 7-64-3 E. between the two lakes in Sec. 7.

10640 No slate or quartzite was seen until on the south side of the lake in the S.W. ¼ of N.W. ¼ Sec. 7 where a dark colored banded rock is found

10641 From the north side of the lake directly opposite 10640

10642 South side East Pine Lake Sec. 5-64-3 E.

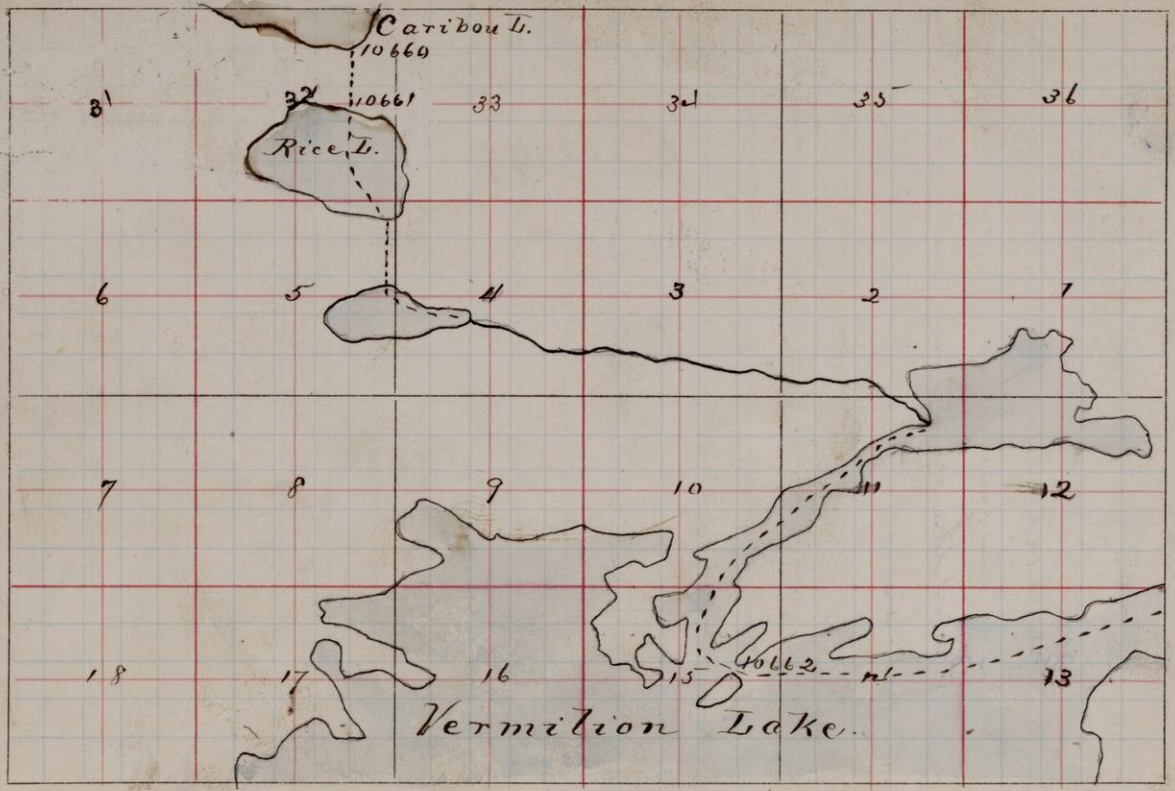
10643 Slate from Pine River N.E. ¼ Sec. 2-64-3 E

10644 Greenstone from top of bluff on the west side of North Fowl Lake

10645 Greenstone from top of middle bluff East side North Fowl Lake

10646 }
10647 } Slate from same bluff as 10645
10648 } Overlain by 10645

10649 } Quartzite from Partridge Falls
10650 } Pigeon river


Caribou L.
10660
10661
Rice L.
31
32
33
34
35
36
6
5
4
3
2
1
7
8
9
10
11
12
18
17
16
15
10662
13
Vermilion Lake.

T. 63-64 R. 18

Trip N.W. to Nell and Pelican Lakes

The most usual route leaves Vermilion Lake in the N.E. ¼ of Sec 11-63-18
From the long arm of the lake ending in this section we ascend, to the west, a small stream for two or three miles to a small lake in Secs. 14 & 15-63-18
A portage is made from the north side of this lake into another small lake (Rice) on the town line between Ts. 63 & 64 Crossing Rice Lake a portage was made into Caribou Lake ½ mile north This (C.) is the largest lake between Vermilion and Pelican Lakes being about 3 miles in length and thickly studded with islands
Running west in this lake we leave it at the western extremity portaging into its outlet-around rapids
This stream was descended to its junction with Pelican River about 2 or 3 miles below Pelican Lake
Running up Pelican River to the lake we crossed the latter to


Caribou L.
10659
10660
31
32
Caribou L.
T.
R.

its west end. From this place a trail leads into Nell Lake 9 miles to the N.W.

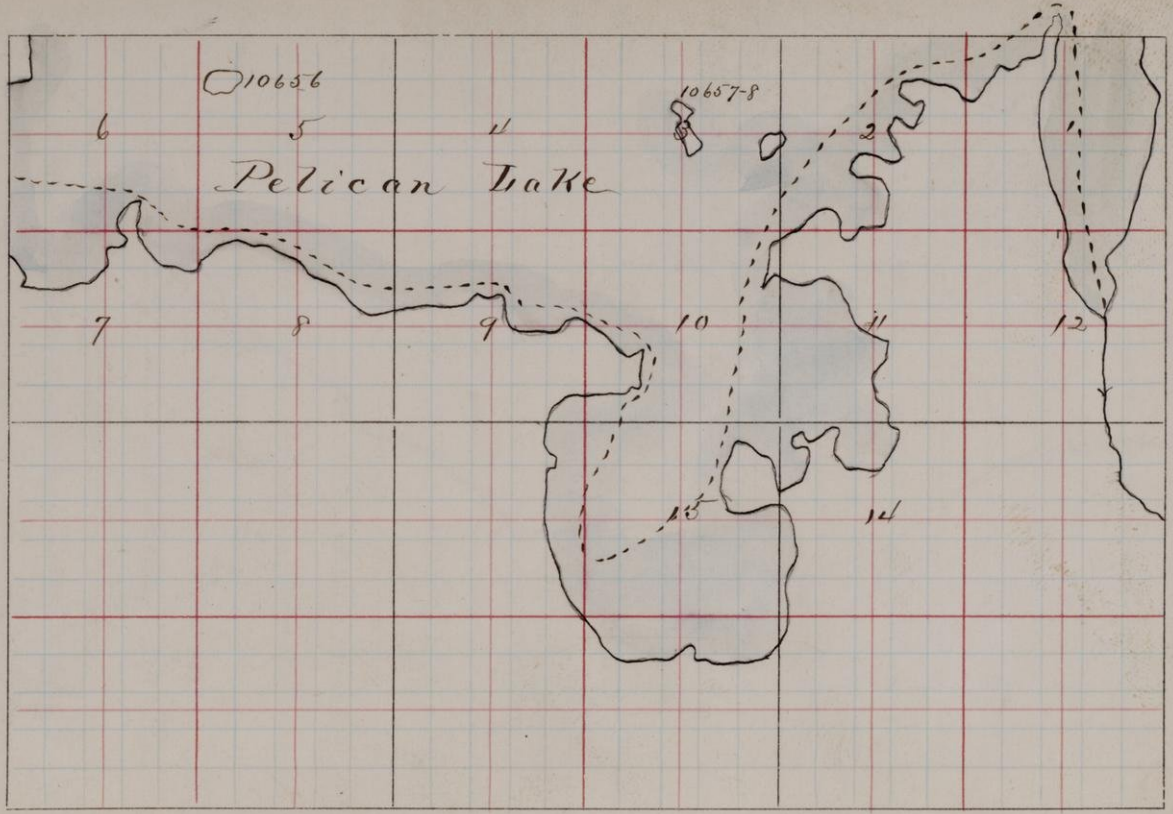
The rock throughout the entire trip was granite, gneiss, and mica (or Hb.) schist similar to all the rock of the northern area of granite and mica or Hb. schist; the exposures on some of the lakes being quite large and showing the characteristic veining. The country between Vermilion and Pelican Lakes is quite bold and rocky; there are also large ridges north of Pelican L.

10651 West end Pelican Lake near portage to Nell Lake; a gneissic rock

10652 Same place as 10651. Looks like an inclusion in the lighter gneiss

10653 From a small island in Nell Lake Micaceous Sch. (B.)

10654 Trap breaking through 10653 (B.)


10656
10657-8
6
5
4
3
2
1
Pelican Lake
7
8
9
10
11
12
13
14
T. 64
R. 20

10655 Trap breaking through 10653; schistose on weathered surface (B.)

10656 Veined rock from island near outlet Pelican Lake

10657 From island about 2 miles west of point in Sec 1-62-20 W

10658 Gray granite from same island as 10657

10659 Granite from west end of Caribou Lake

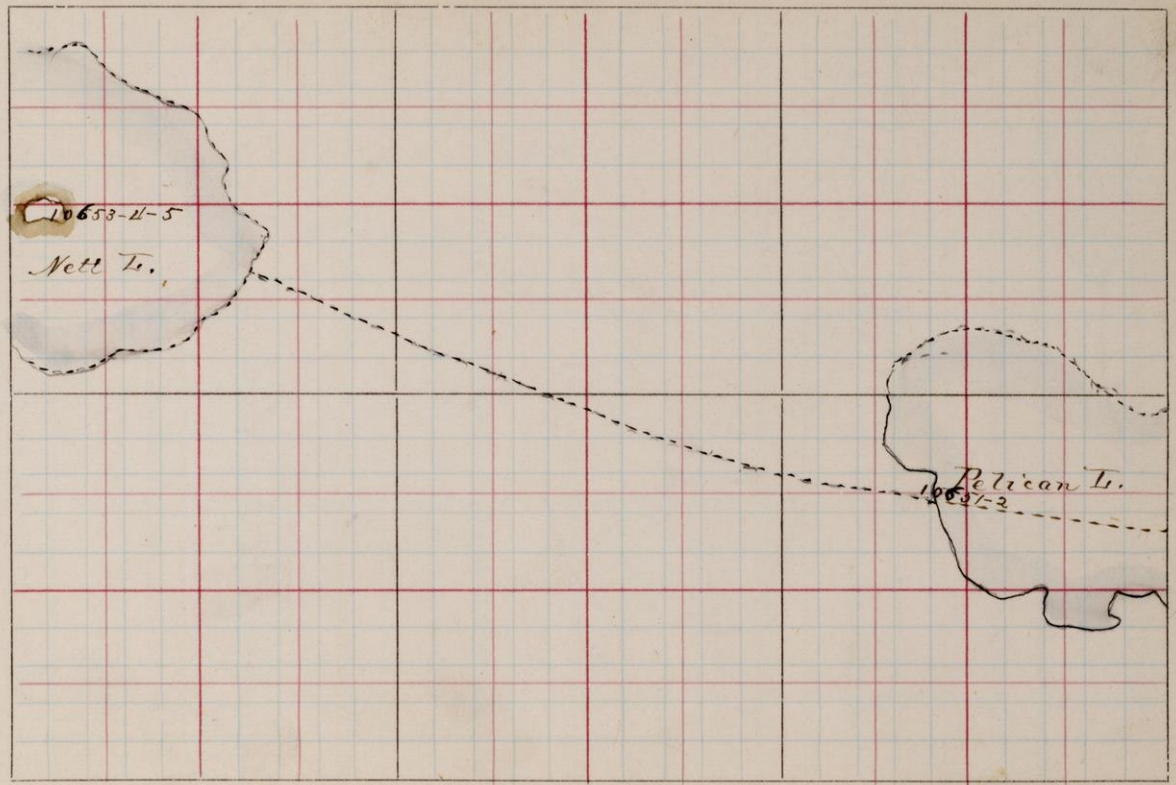
10660 From north end portage between Caribou and Rice Lakes

10661 From south end of above portage

10662 S.E. ¼ N.E. Sec 15-63-18 W

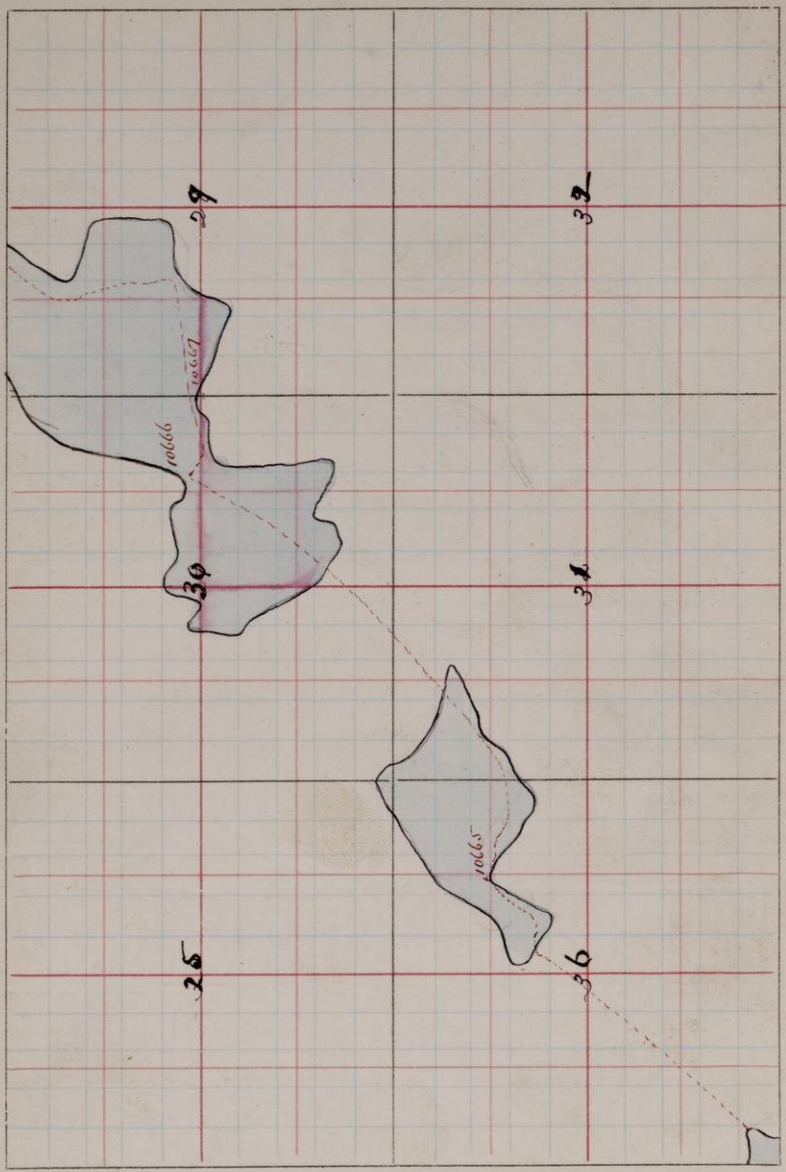
10663 South side Vermilion Lake Sec 32-63-17. N.W. ¼

10664 Sec. 23-63-17 Vermilion L.


10653-4-5
Nett L.
Pelican L.
10653-2
T. 64
R. 21

Short trips made by H. S. Bay Co
between Aug. 26th and Sept. 4th 86

T. 64 R. 70 W.

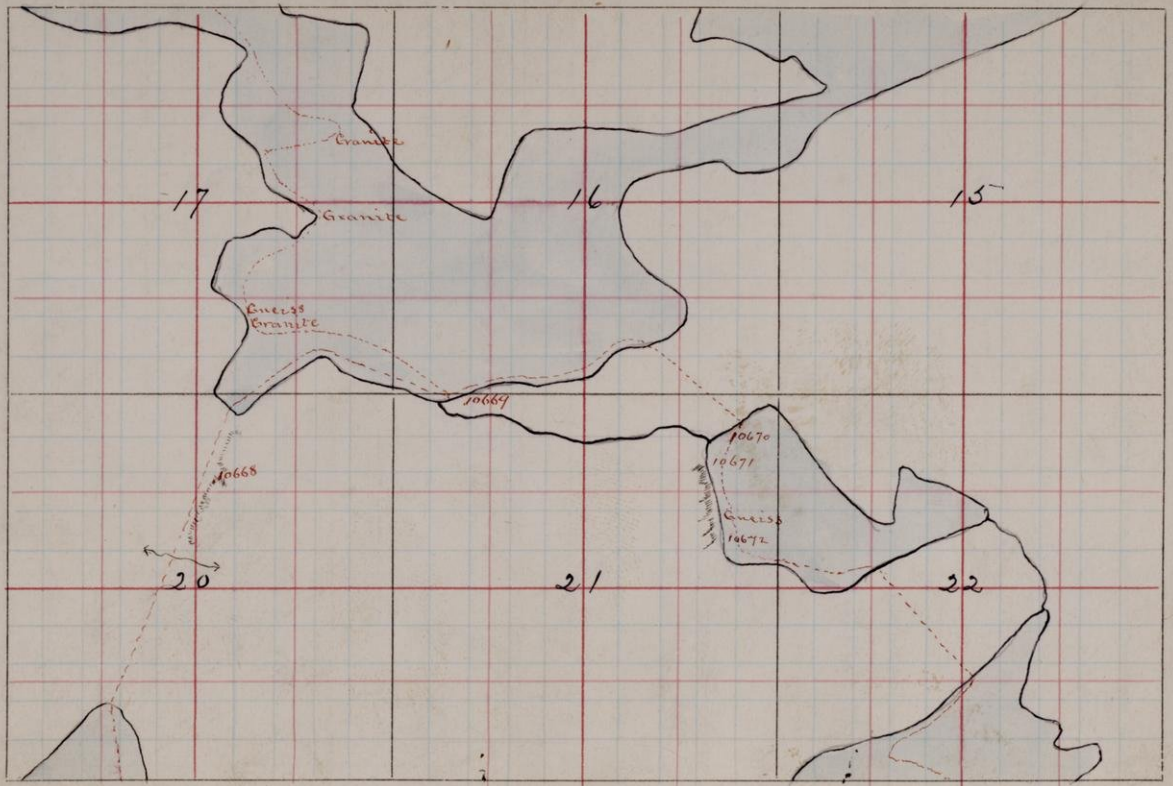


10665 From near the north end of portage from Falls Lake into small lake in Sec. 36 64-11 Rock greenish white, schistose similar to some of the Falls lake rock Strike 50° E. of N. Weathers into a rough purplish brown on the outside, almost devoid of indications of schistosity

10666 Trap dyke forming point on the north side of the lake in Secs. 29 & 30, T. 64-10 W. Very few exposures on this lake; on the south shore there is occasionally an outcrop of rock similar to 10413

10667 White rock very much like 10413 on fresh surface Apparently weathered more than 10413

10668 Just south of portage trail leading from above mentioned lake into Basswood there is a high bluff which follows it a large portion of the entire distance. That part of the ridge west of the creek in the swamp was not visited After crossing the

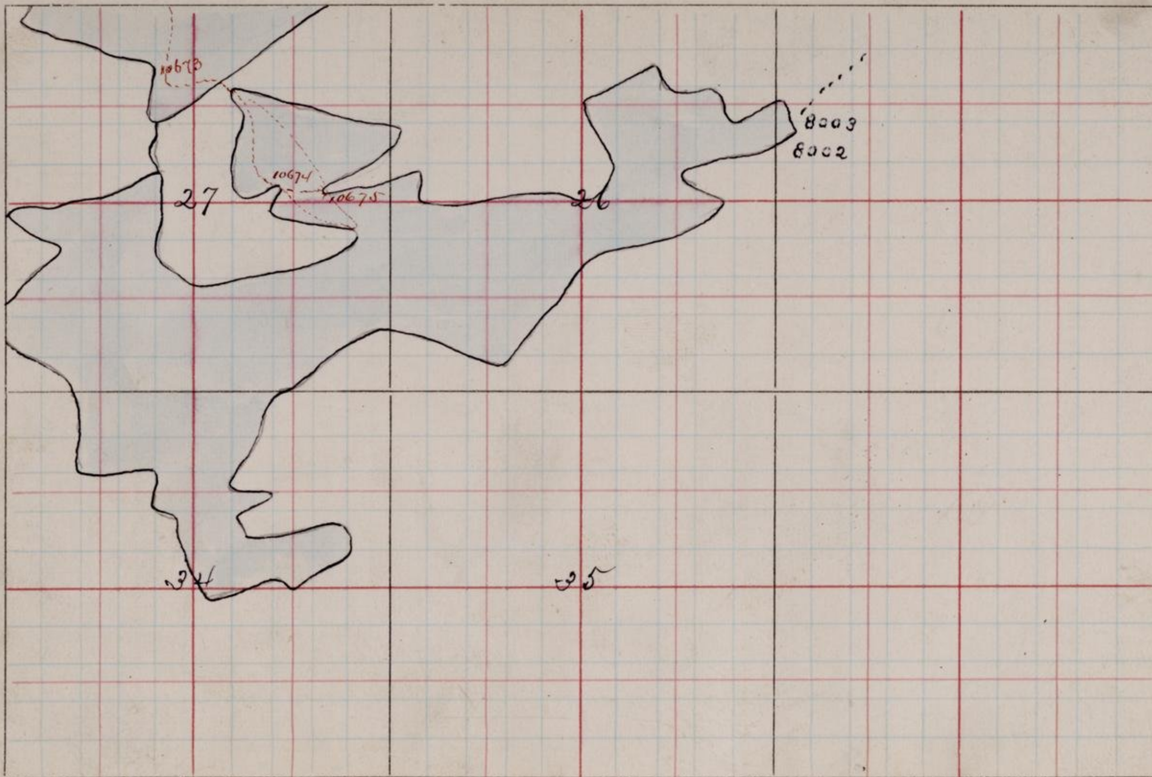

T. 64
R. 20 W.
17
16
15
Granite
Granite
Gneiss
Granite
10669
10670
10671
Gneiss
10672
10668
20
21
22

swamp another ridge which the trail crosses a short distance further on overhangs it No 10418 was taken from this It is a slaty rock. Strike apparently E. N. can not be relied upon as no stop was made *

10669 From point on east side of mouth of river flowing from the south into Basswood Lake Schistosity more like that of crystalline schists than sedimentary rocks Strike 50° E. of N. Contains granite veins

10670 Gneiss or rather hb. schist Strike 15° N. of E. From small point just N. of portage from outing lake in Secs 21 & 22. Contains veins of granite Slightly west of 10420 granite appears forming high cliffs west of the lake This rock is coarse to fine grained in places containing large fine crystals of quartz and pink orthoclase and some mica

* Second visit next morning showed to be boulder. Most of ridge granite.



T. 64 R. 10 W

10671 Finer variety from N. end of lake at foot of high bluff
A little south of 10421 a dark gneiss is seen which however strikes E. & W. or a little S. of E.

10672 Point at west end of lake; apparently fragmental.

10673 From south shore of lake between Secs. 22 & 27; opposite portage trail from lake to the N. W. Probably trap (2)

10674 The rocks on the lake south of the last seem to be trap or altered diabase
Sample from point opposite end of portage S. W of N. E. 27-64-10
More frequently the rock is perfectly massive and of a light green color. Trend of dyke 20° S of E

10675 From just west of 10424 Very high bluff at water's edge at mouth of river - Bannock
The points of land east of camp are composed of same rock as 10419 The most easterly point


T. 63
R. 11
15
14
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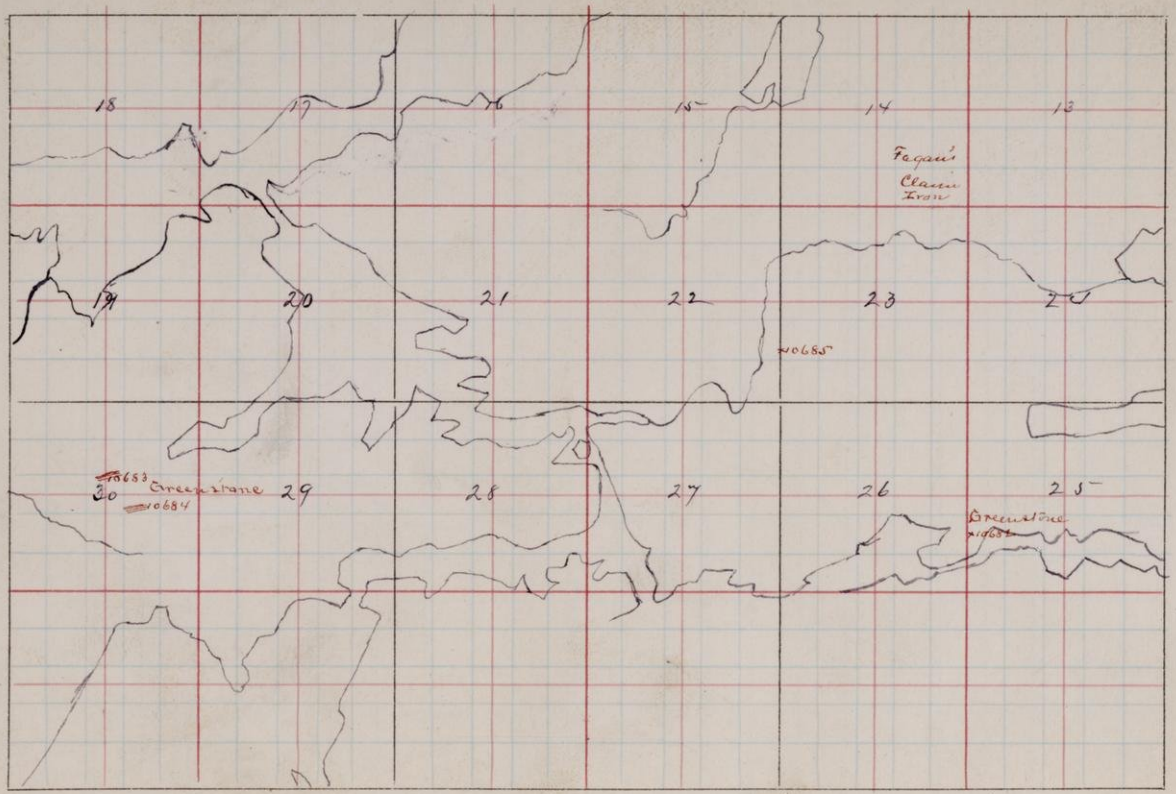
10675
10679
10680
10681
10685

before reaching the narrows (N.W. ¼ of S.E. ¼ Sec. 16-64-10) contains a great deal of iron pyrites, and the rock itself is quite massive, so much so as to lead to the supposition that it is trap. The island just off this point is granite of the same kind that is so prevalent in this region except that the mica is entirely chloritized.

All the rocks along the west end of the southern arm of Basswood Lake in 64-10 are granites and gneisses.

10675 boul. dk. 335 paces South 165° W. of the N. E. corner Sec. 14-63-11. Fine grained red granite. From what appears to be an old digging.

10676 From ledge on portage trail leading from this lake back into stream leading to Falls Lake 500 paces from Lake end. c. i. - in the N.W. ¼ of S.W. ¼ of Sec 11. T 63. 11. Strike 30° W of S.


T. 63 R. 11
18
17
16
15
14
13
Fagan's Claim Iron
19
20
21
22
23
24
#0685
30
#0683
#0684
Greenstone
29
28
27
26
25
Greenstone
#0686

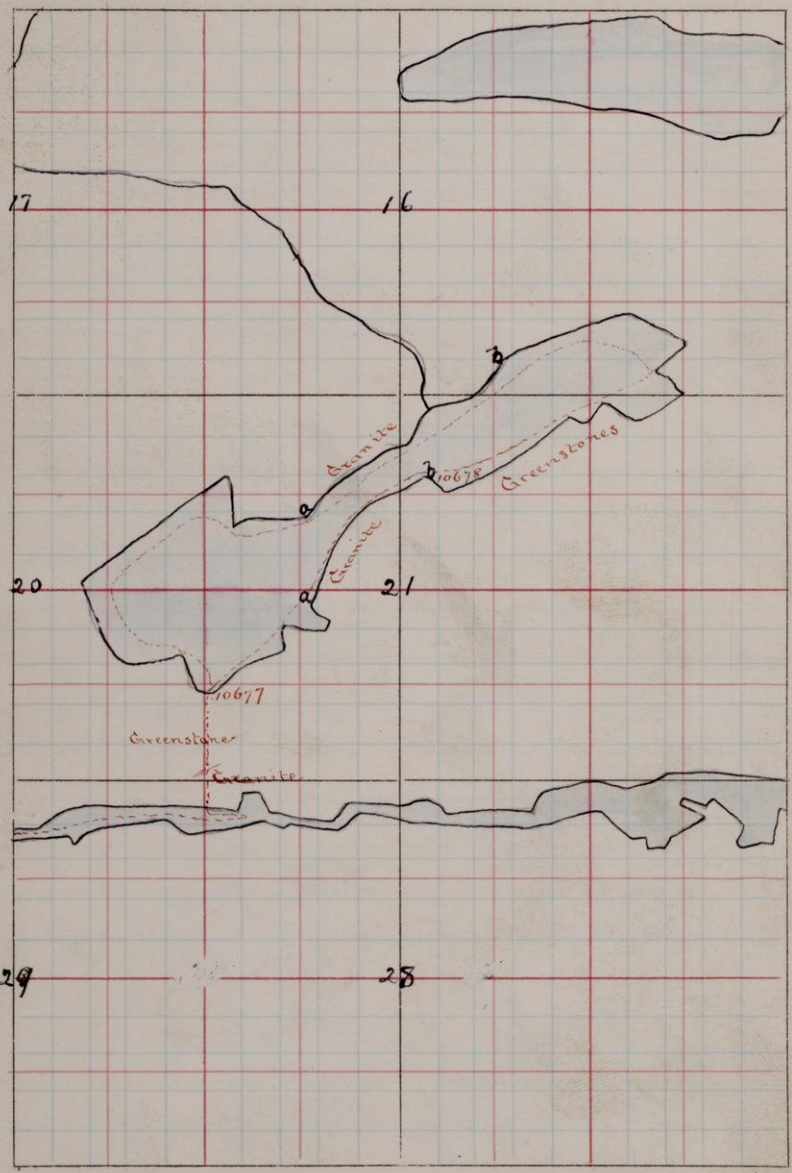
Have just learned that the iron was located for this A.M. is in a claim belonging to Tagan and is in the S.E. 1/4 of Sec 14 and the southern half of 13 He also has a claim in 23 on which he has found jasper and iron

---

10677 Sec. line between Secs. 20 & 21-63-10
Very massive and hard similar to the granstones of Magnetta (the massive ones) The same rock occurs along the entire southern shore except for a short distance (a to b) where what is apparently a granite dyke intersects it running nearly parallel to the shore and forming perpendicular cliffs

10678 This granite is very crystalline almost porphyritic, the different minerals appearing to best advantage on a weathered surface
Contact very plainly shown, both seem to have flowed when plastic

T. 63 R. 70


17
16
Granite
10678
Greenstones
Granite
20
21
10677
Greenstones
Granite
29
28

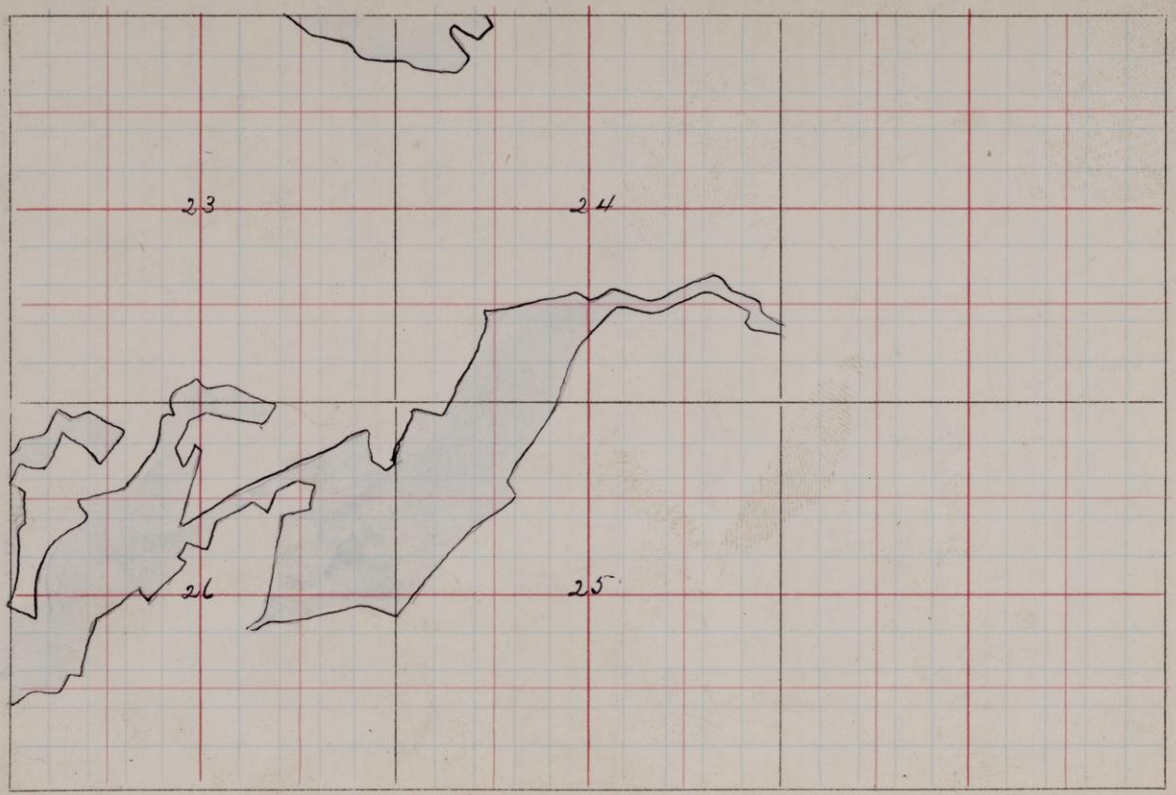
The rocks along the north shore are similar to those on the south Between a & b there is the same red granite, all the rest is the same massive greenstone

At the mouth of the river marked on the plat is what looks like a dyke of greenstone in the granite

On the portage from the lake the N. and South line between 20 & 21 and 28 & 29 was followed About 200 paces back from the shore granite dykes intersect the greenstone (which is the rock universal in all the region indicated) at a direction 60° E. of N.

Followed N. and S. line between 25+26, 23 and 24 and 14 and 13 in 63.11. to quarter post between the latter At this place found large outcrop of coarse grained black rock highly crystalline - massive and schistose in places; looks like a gabbro

10679 From ledge 20 paces N. and 10 W of quarter post


23
24
26
25
T.
R.

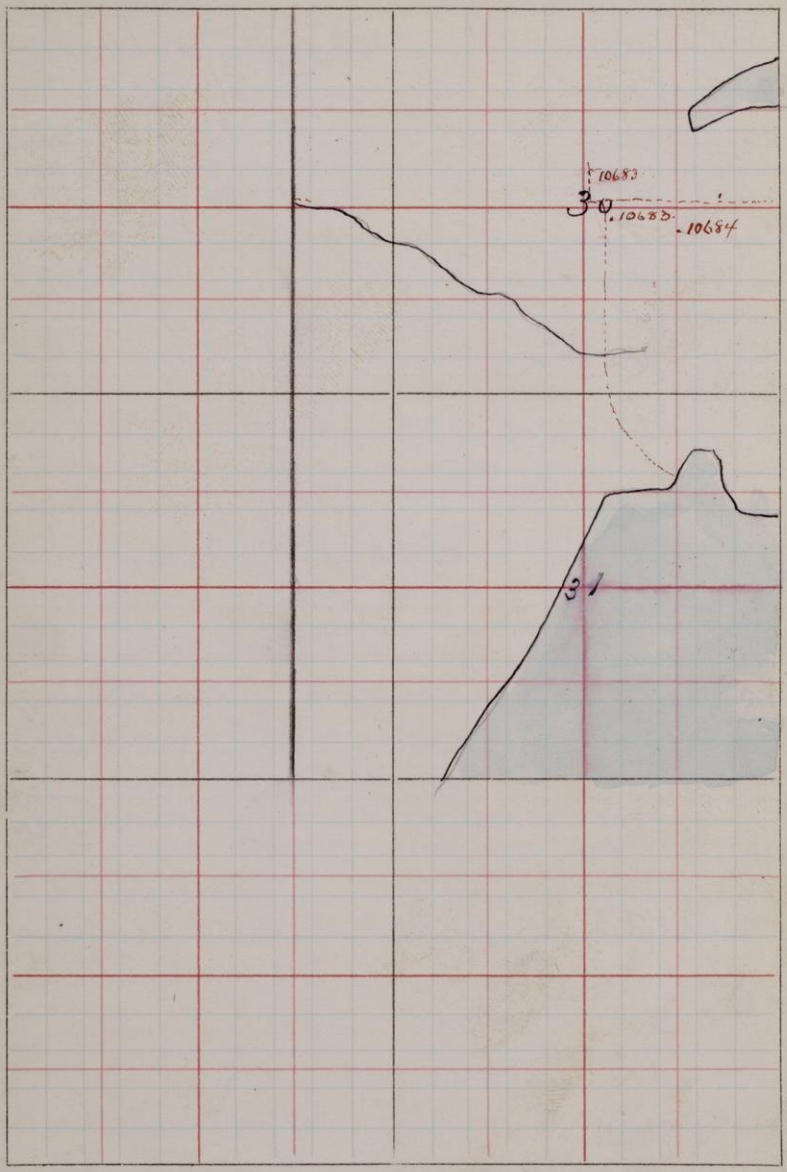
Traveled N. from ¼ post 500 paces
then south. 300 paces south found
10680 ledge which at first seemed to be
jasper but which upon closer in-
vestigation found to be a fine grained
10681 trap. 50 paces further South
the same rock occurs with an appar-
ent banding running 30° S. of W.

On return crossed 3 or 4 high ridges
striking a little north of east; most of
these are massive greenstones like those
on lake in Secs 20 and 21

10682 From first ridge back from the river
about 250 paces south of quarter post
between Sec. 25 + 26. T. 63. R.
Strike 10° N of E.

Took Burns trail N. from White Goose
lake and followed north until a
trail crossing it in a due E. & W.
direction was struck. Turned W.
about 100 paces where struck a post
marking center ¼ section erected
by explorers. The N. trail from
here leads to range line

T. 63 R. 11W



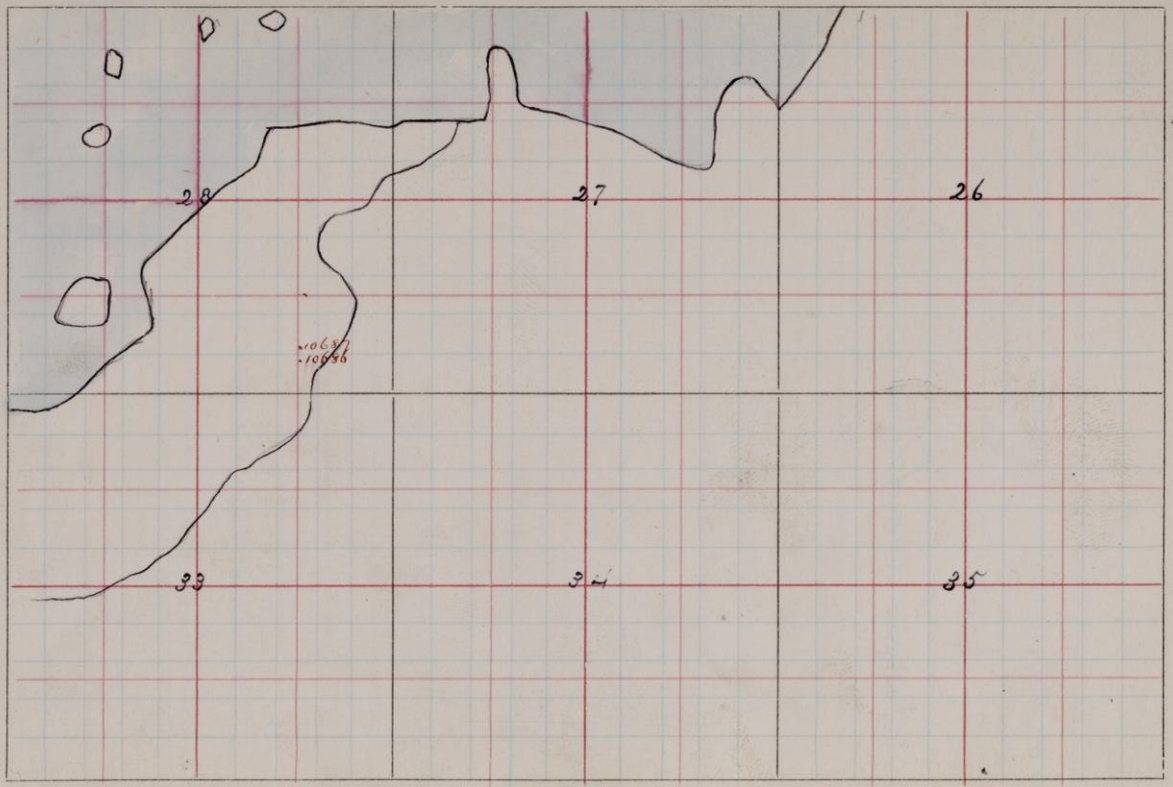
Took N. trail 190 paces then turned
W. about 20 paces Here considerable
exposure of jasper ore
10683 Spec. of jasper ore Strike as near
as could be determined 10° S. of E.

Toward the eastern side of Sec 30 & 1
which the West trail mentioned
above (Last) is another occurrence of iron
similar (N) in all respects to the first
They both form rounded hills of
considerable size

10684 is from this ledge Strike 10° N. of E.
Its location is 500 paces N. and
120 S. of Quarter post Sec. 29 & 30
Immediately north of this is
another hill composed of massive
greenstone

Note { Further measurements make
1st occurrence 60 paces south of
E. & W. lines joining ½ posts of Sec 30

Nov 29 Location seem to be slightly off. Occurrences
were taken by Carriers while R. took
Specimens. (W. S. R.)


28
27
26
33
34
35
T. 63
R. 12

On return went in to Sec 23 on trail running east from Little bay in N.W. corner of Sec 27 T 60 R 11. At 450 paces N. from corner between
10685 Secs. 22-23-27-26, on line, is an occurrence of jasper carrying bands of magnetite (Altracks needle) Mr. Bartol who owns the claim says he finds the same vein in continuous outcroppings all the way from 29 & 30 Followed it also into range 10 A second parallel vein he says runs north of this, and in this lot is that Tagani find in 13 & 14 occurs

Went to see iron in Sec 33-63-12 W it consists almost entirely of solid hematite, no jasper Limonite covers the sides of cavities This
10686 find differs from those heretofore visited It consists of broken various sized pieces scattered in soil to a depth of 30 or 40 feet No solid ledge Pits not open below this depth as solid rock is not yet reached First Class show 7 & feet wide

Magnetite in 33 & 32
Limonite " 27

10687 Both overlain and underlain by schistose granulone striking N.E. and S.W. That bed lying N. of the larger exposure is again limited by iron on both sides.

Both these are in the S E ¼ of S E ¼ of Sec 28 T 60 R. 12. 500 feet W and 190 north of S. E corner of Sec.

2.05
5.05

300