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Vermilion Lake region, Minnesota: [specimens] 7800-7825. No. 28 1884-08/1884-09

Merriam, W. N.

[s.l.]: [s.n.], 1884-08/1884-09

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U. S. GEOLOGICAL SURVEY

FIELD NOTE BOOK

No. 28

Aug. & Sept. 1884.

Vermillion Lake Region.

Minnesota.

7800 - 7825

W. N. Merriam.

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

INSTRUCTIONS.

1. Devote at least two pages of this note book 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. 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 smaller spaces as 100 paces, each of the spaces between the red lines as 500 paces, and four of these large spaces as one mile, or 2,000 paces. Usually the southeast corner will be placed at the first red 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 down one space, 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, after which give in order 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 exposure as possible. Very often the notes for one section will cover more than one page in which case pass to the next right hand page, *repeating the map on each left hand page* as long as the notes, with regard to one section, continue.

3. Collect a specimen from each separate ledge of rock, or whenever 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 the note that it is of a rock identical with specimen so-and-so. Under the same conditions small sized samples will be allowed, but in all other cases *large sized trimmed specimens*, with chips for slicing, must be selected in accordance with § 3, chapter IV, p. 44, Regulations of the U. S. Geological Survey. All specimens are to have numbers painted on them, in white on a black background, in camp.

4. 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, etc., etc.

5. Forward this note book, as soon as filled, as registered mail matter, to R. D. IRVING, U. S. Geologist, Madison, Wisconsin.

#28

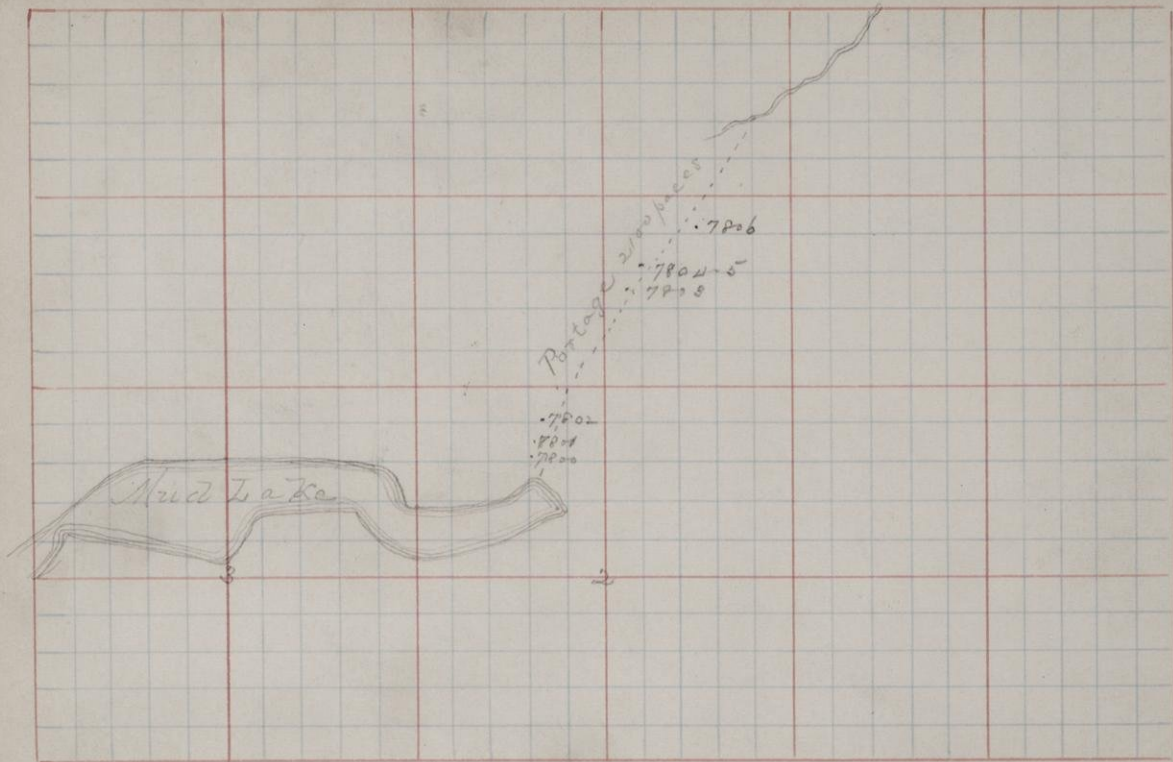
Vermillion Lake
Country

Specimens and notes lost
by fire Dec. 1st. 1884

Sec.

T.

R.



1
Starting from Powers out Vermillion
Lake the route lay northeast
through the lakes; thence up
and through Mud Cr. and Lake
in the north part of T. 62. R. 14 N.
No attention was given to the
formations until leaving Mud
Lake on the portage to Burnt-
side Lake

7800 A fine greenish rock from near
south end of portage (Greenstone?)

7801 A greenstone from near 7800
a few paces north

These rocks form a ridge several
hundred paces across. They
vary in texture and appearance
but seem to be mostly greenstones
About 1000 paces along the trail
a fine grained dark gray to black
rock is exposed to the left of
the path. It is metallic lustered
on a fresh fracture. Lying just
north of this is a banded iron
belt a few feet only of which can
be seen

7802 Greenstone? a few paces north
of 7801

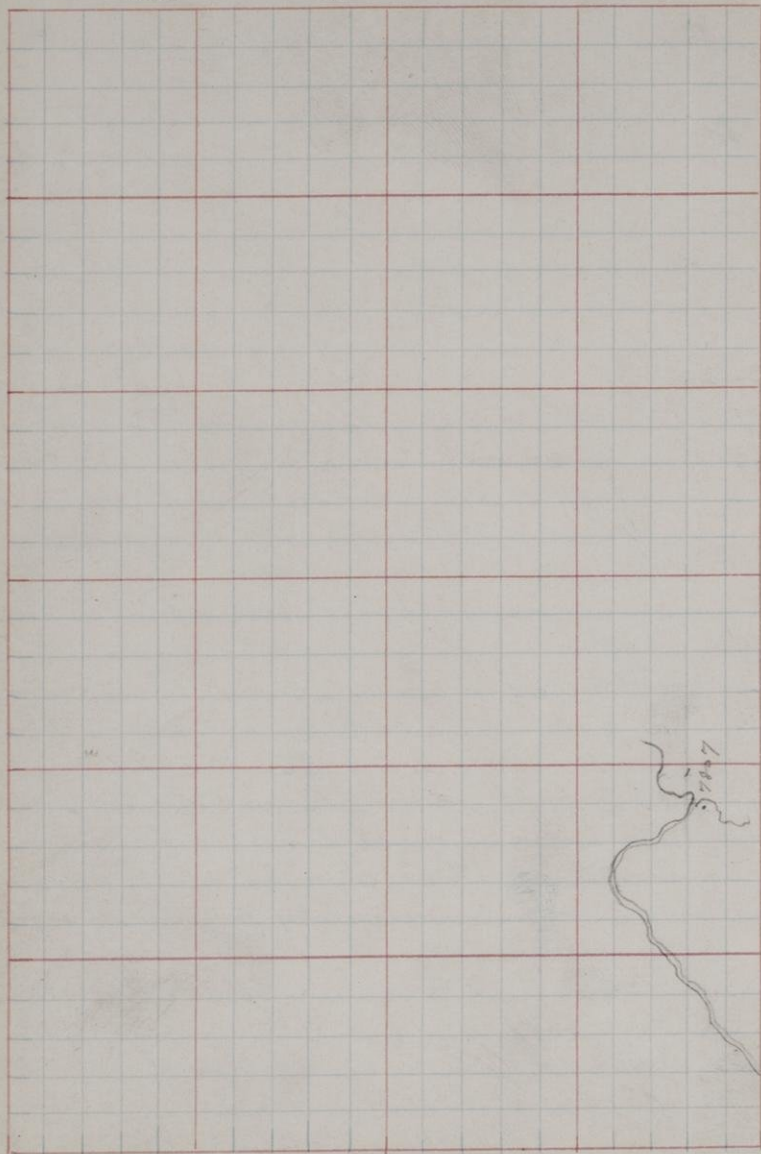
7803 The dark colored rock, about
700 paces North of 7802

7804 From the above iron belt

Sec.

T.

R.



7805

From the same iron belt
A few feet north of this iron belt
the rock changed into a mica-
schist or gneiss filled with light
colored to reddish granitic veins
running in every possible direction
and varying in width from a
line to several feet

7806

From this schist

The trail strikes a small stream
out of survey in the S.W. part of
T. 63 N. R. 4 W. The stream runs
N.E. for about a mile then S.E.
a short distance into Burntside
Lake This stream approaches
the rocks at several points along
its course and in each case they
are the same mica schists

At the entrance into Burntside
Lake there is a fine showing
of these rocks: so filled by the
red granitic material as to give
a reddish cast to the entire exposure
when seen from a distance

7807

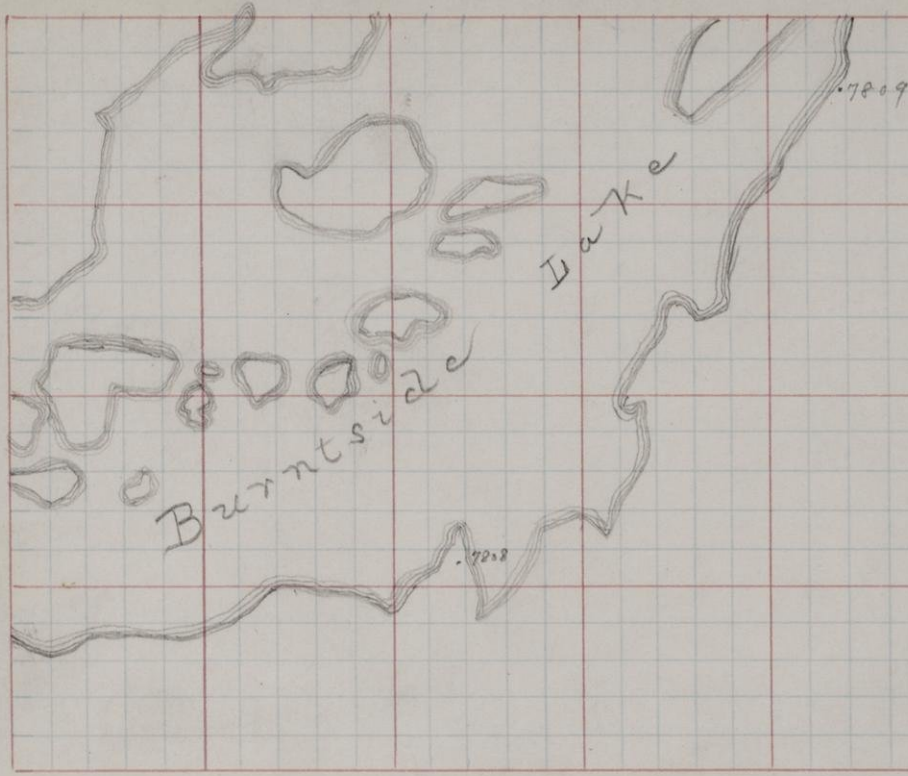
At the entrance into Burntside
Lake

Following the south side of
Burntside the schist is found
to extend entirely around to
the portage to Long lake in
the N.W. of S.E. of 23-63-13

Sec.

T.

R.



- 7808 From a granitic vein in the schist
S. $\frac{1}{2}$ of N. $\frac{1}{2}$ 32-63-13-
- 7809 Schist from the N. $\frac{1}{4}$ 28-63-13
- 7810 From near the N. end of portage to
Long Lake N. $\frac{1}{2}$ of S. E. 23-63-13
(Greenstone?) with considerable iron
staining

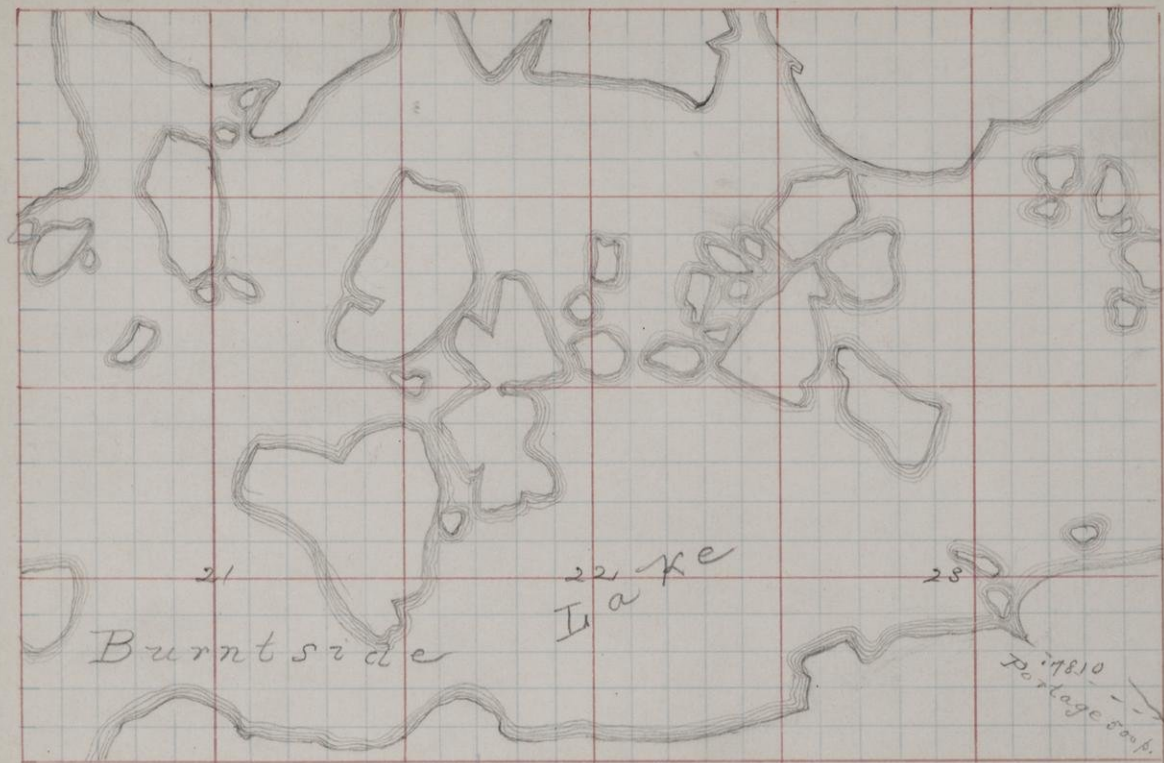
See map next Page

(9-891.)

Sec.

T.

R.



The trail leaving Burntside Lake in the S.E. $\frac{1}{4}$ Sec. 23-63-13 crosses a few paces from the lake a greenstone ridge or series of low ridges made up for most part of greenstone(?)

The trail about 500 or 600 paces in length strikes a small creek flowing into Burntside River in S.W. corner of Sec 24

The river flows from here with a very winding course through a low marshy country all the way to Long Lake a distance of about 2 miles

Running along the south and west sides of the lake rock is found in place just south of the river mouth; The rock here is a green with somewhat of a schistose structure

7811 Schist from above place

This rock is exposed all along this part of the lake until after turning the point to the east

7812 Nearly like 7811

7813 is taken from end of long point N.W. 29

7814 " " " " " " " " " " " "

These two rocks I am not at all certain about but think they are very much like 7811-7812

7815 On a small ^{island} near the east line 29-63-12, a greenstone

On the mainland just north of 7815 a whitish schist (similar to those found farther east on this same lake) is exposed

7816 Sample of this schist

7817 Greenstone(?) from point just south of 7815

7818

7819

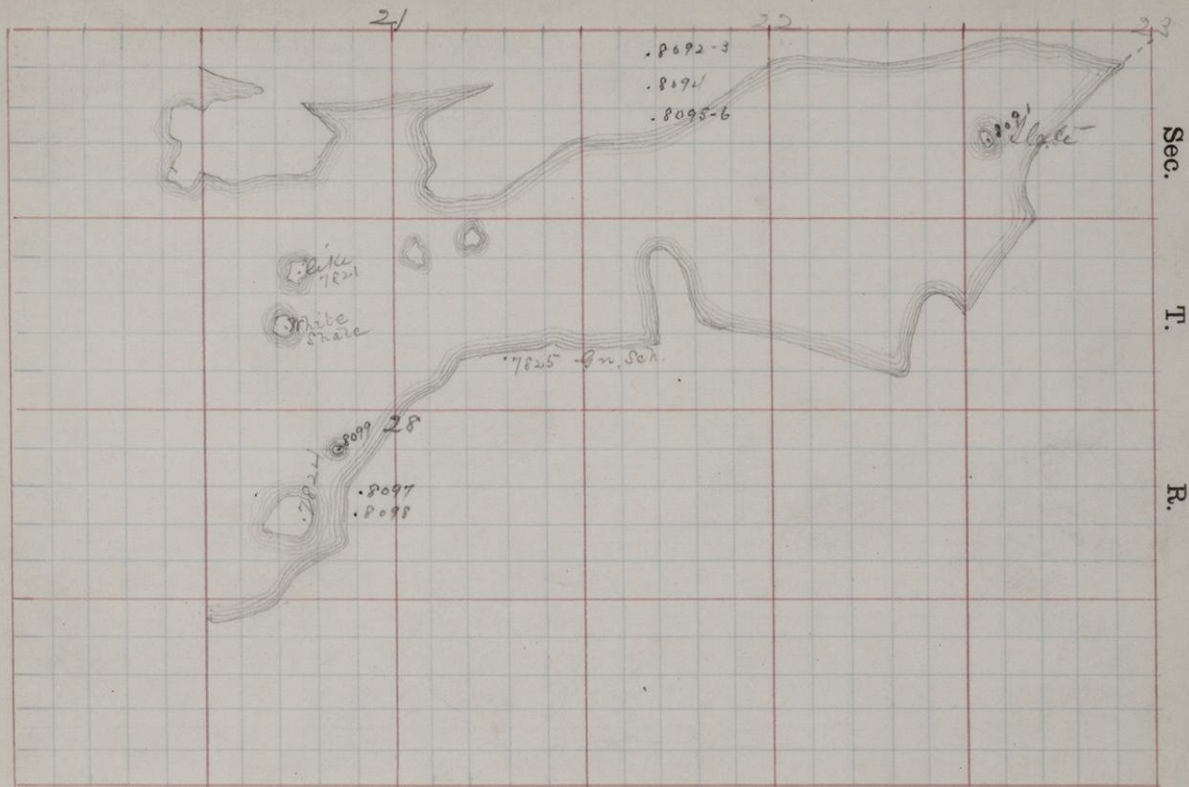
7820

From the S.E. 1/4 30-63-12 they are rather dark colored rocks but I remember nothing else about them

Following along the south shore of Long Lake a white very quartzose shale comes in soon after the coast begins to trend east and west; it follows almost continuously along this shore and the long point in the S.E. $\frac{1}{2}$ Sec 29. The two islands near the south line of Sec. 29 are also composed of this shale. A small island in the N.E. $\frac{1}{4}$ of T. 1. $\frac{1}{2}$ of R. 32 is composed of a fine grained greenish rock Greenstone (?)

- 7822) Specimens taken from this
 7823) shale in the S.E. $\frac{1}{2}$ Sec. 29
 7821) The greenish rock from the small island in Sec 32
 (See map on preceding page)

A small island near the east line of Sec. 29 is also made up of the white shale



In the southwest $\frac{1}{4}$ Sec 28
 on a small island the rocks
 shows to be of fine grained, dark
 grey, and quartzite like
 7824 Specimen taken from this
 island

About $\frac{1}{2}$ mile to the northeast
 the rock changes to a greenish
 7825 schist (7823) that follows along
 until the long point in the N. $\frac{1}{2}$
 Sec. 27 is reached; a more slaty
 rock is seen on an island in
 the S. $\frac{1}{2}$ Sec. 23

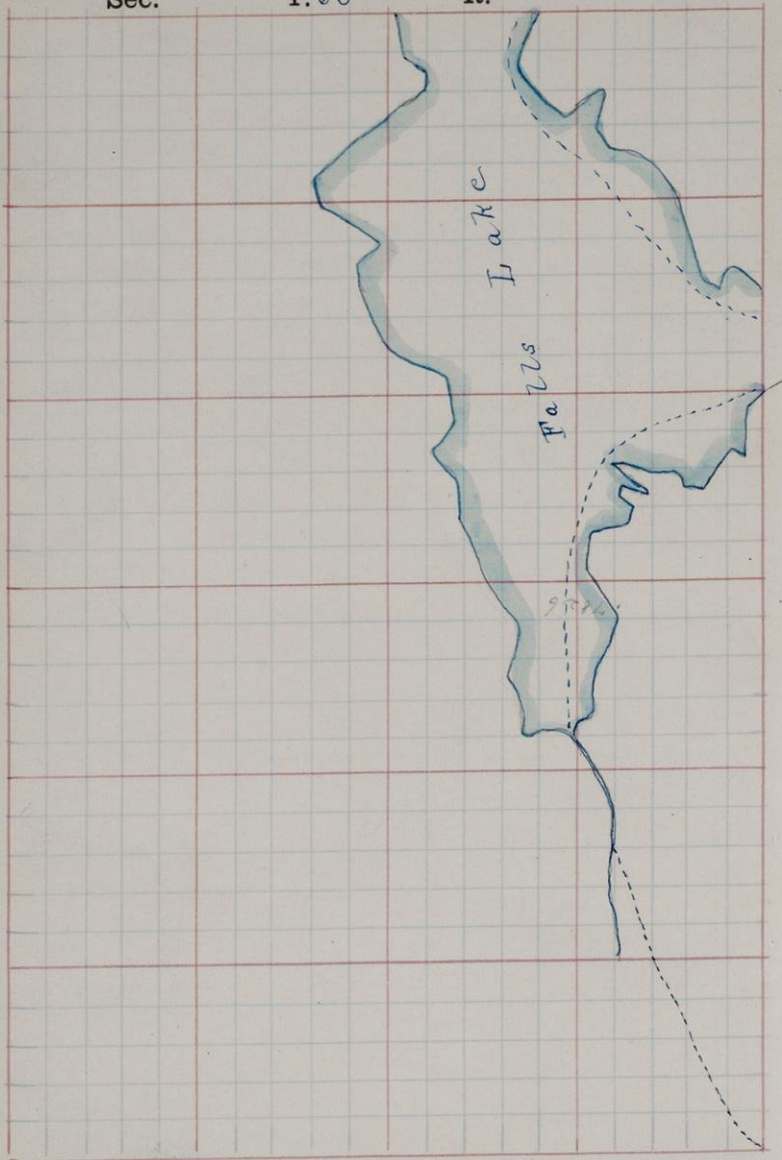
The Portage from Long Lake
 leads off from the extreme north-
 east corner and runs in a north
 easterly direction 2600 paces to a
 small stream in sec. 24

The portage crosses a belt of white
 shale a few hundred feet from the
 west end; after that is leads over
 a fine, sandy, country

Sec.

T. 63

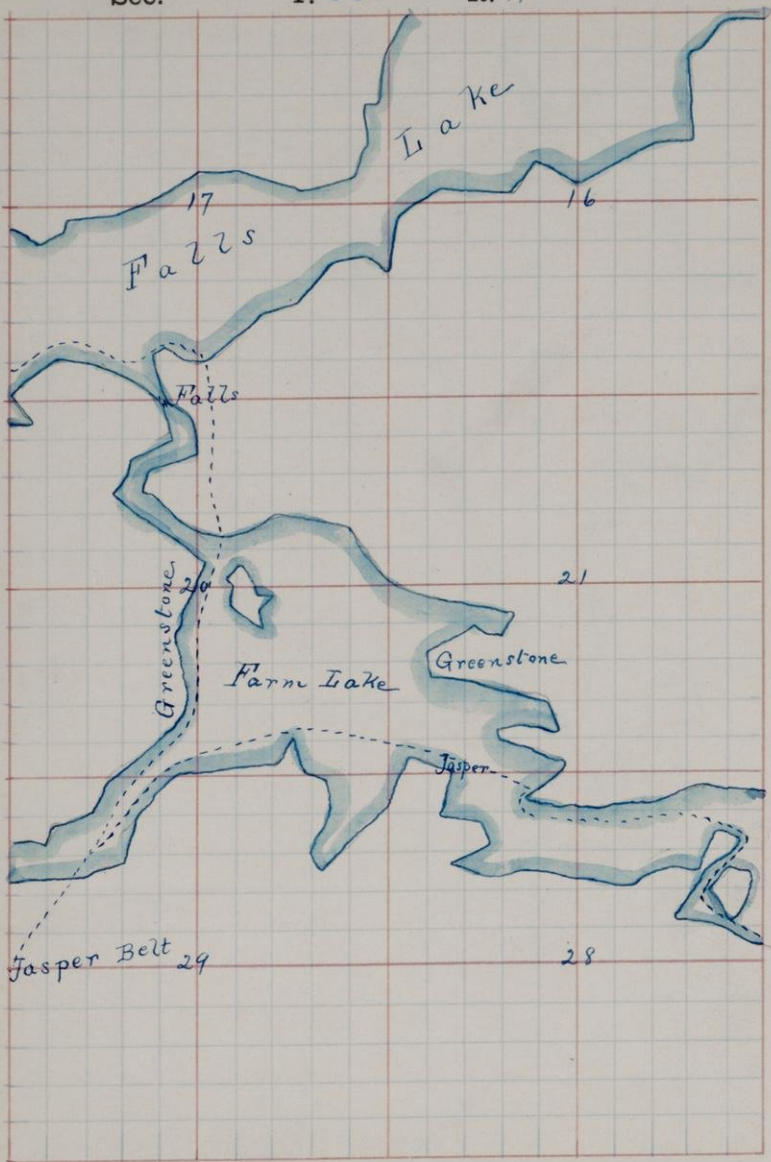
R. 11



Sec.

T. 63

R. 11



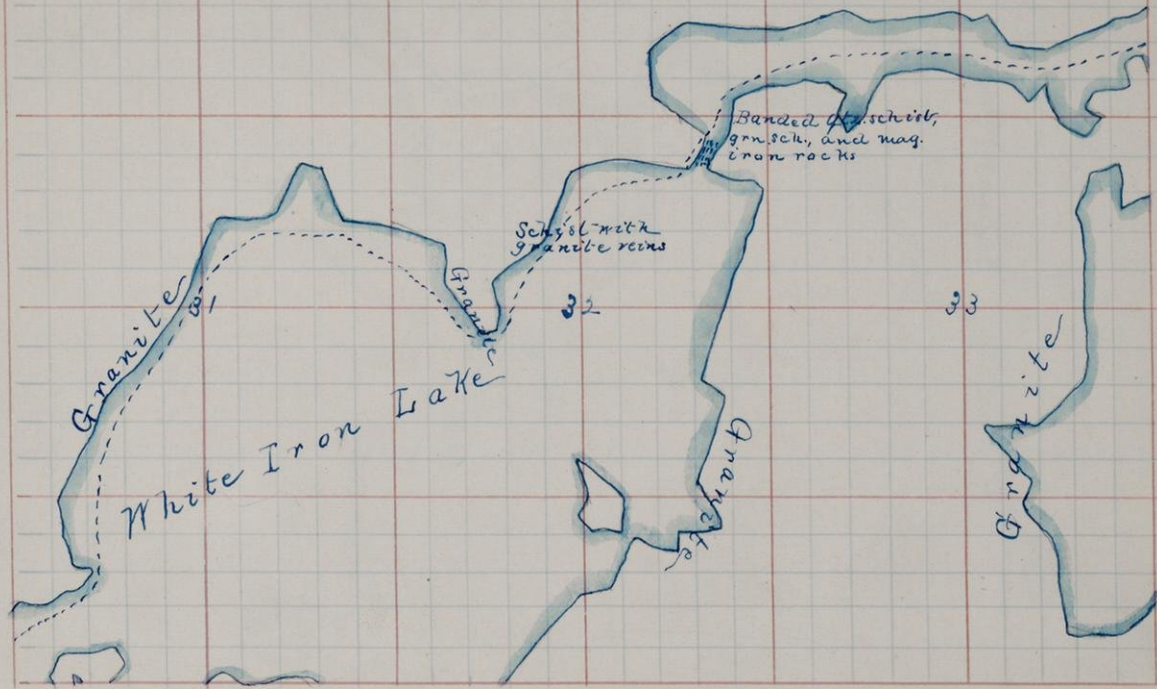
29

28

Sec.

T. 63

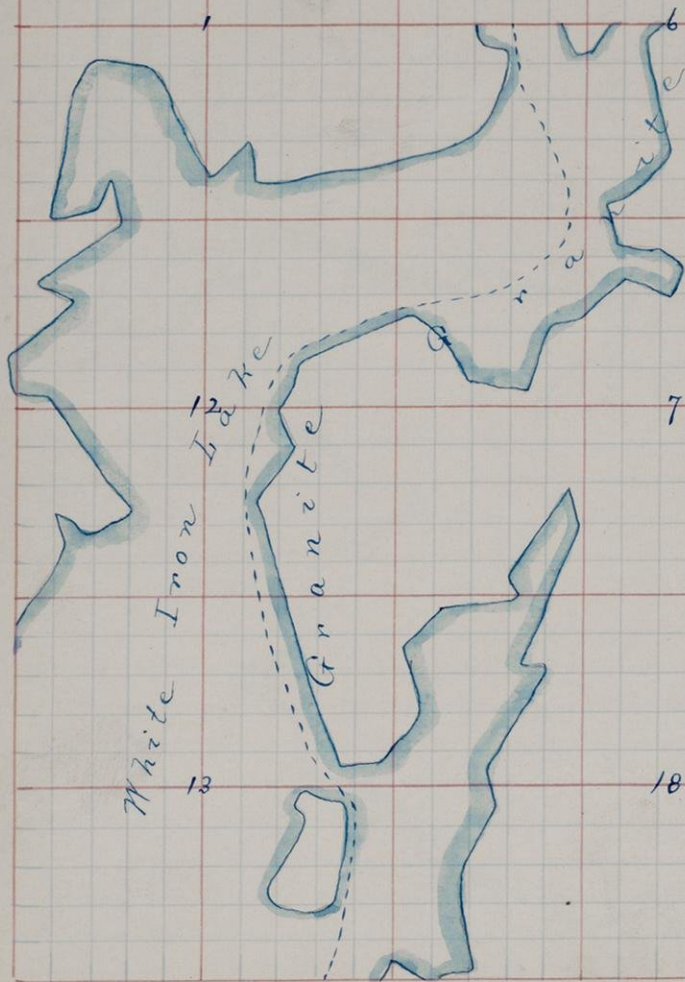
R. 11



Sec.

T. 62

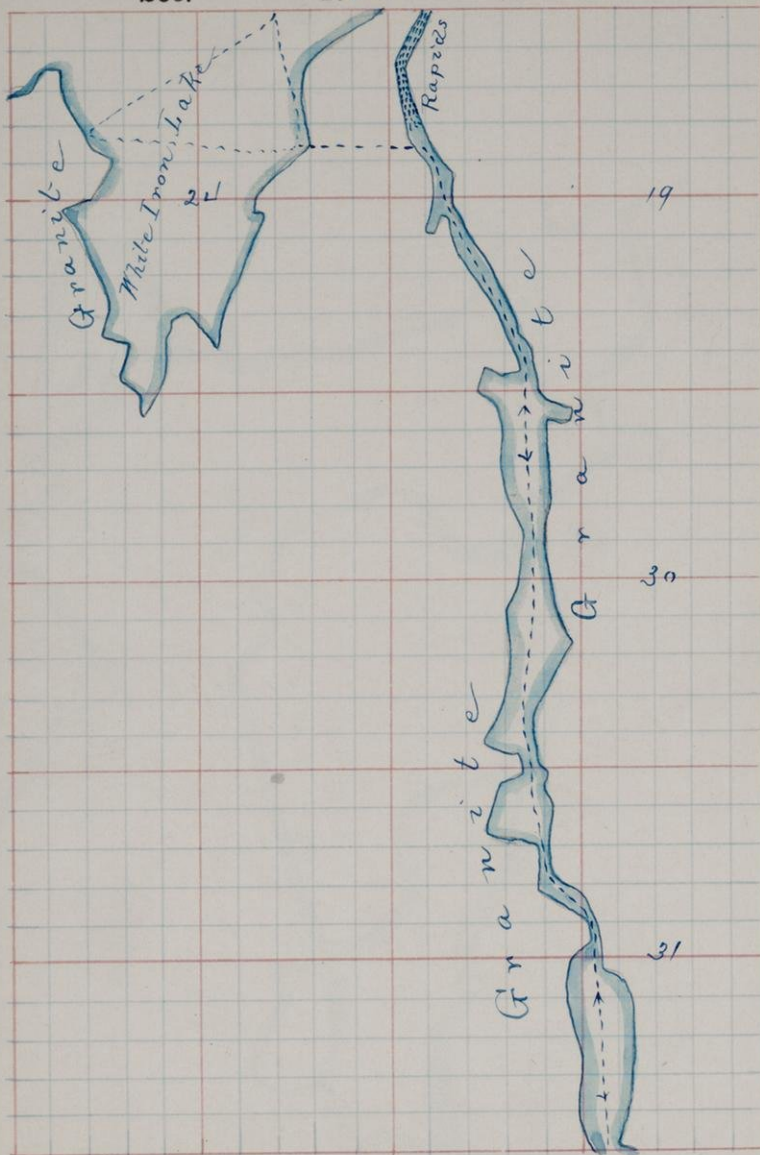
R. 11 P. 2.



Sec.

T. 62

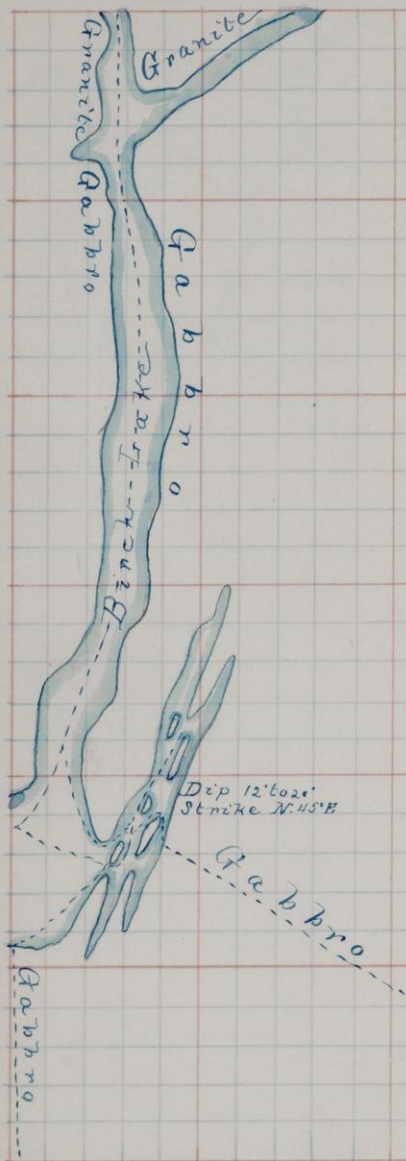
R. 11 P 12



Sec.

T.

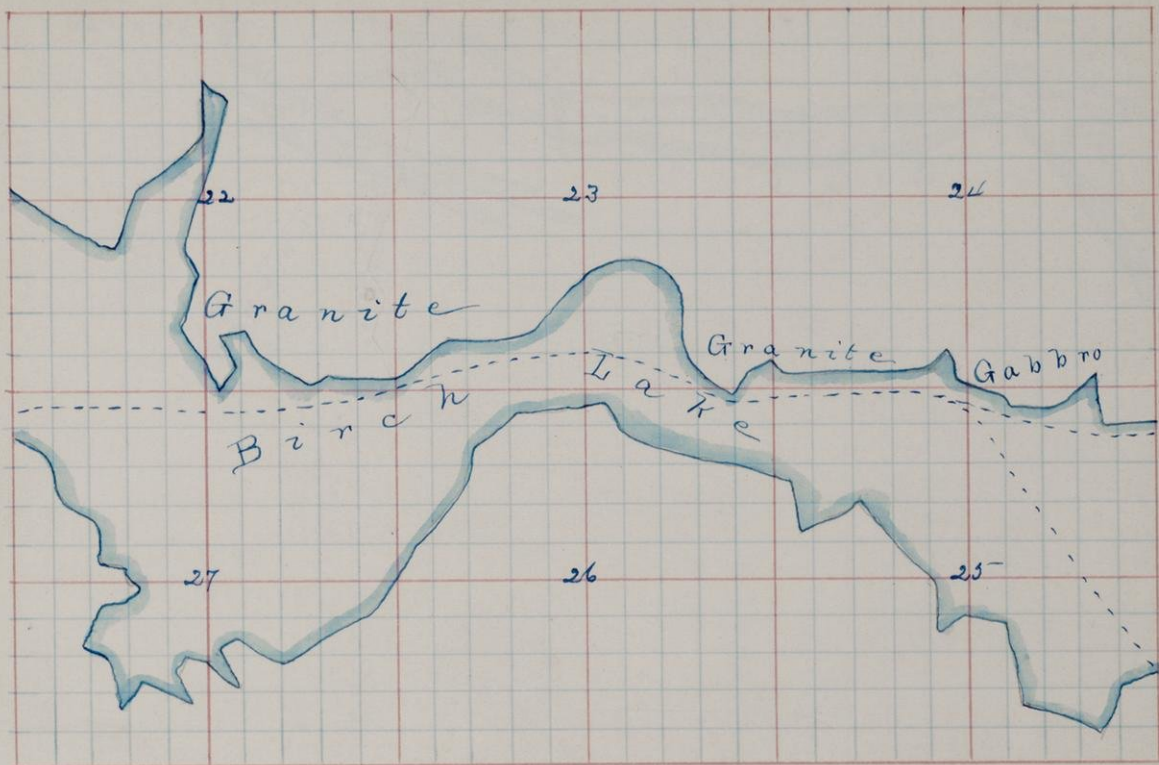
R.



Sec.

T. 61

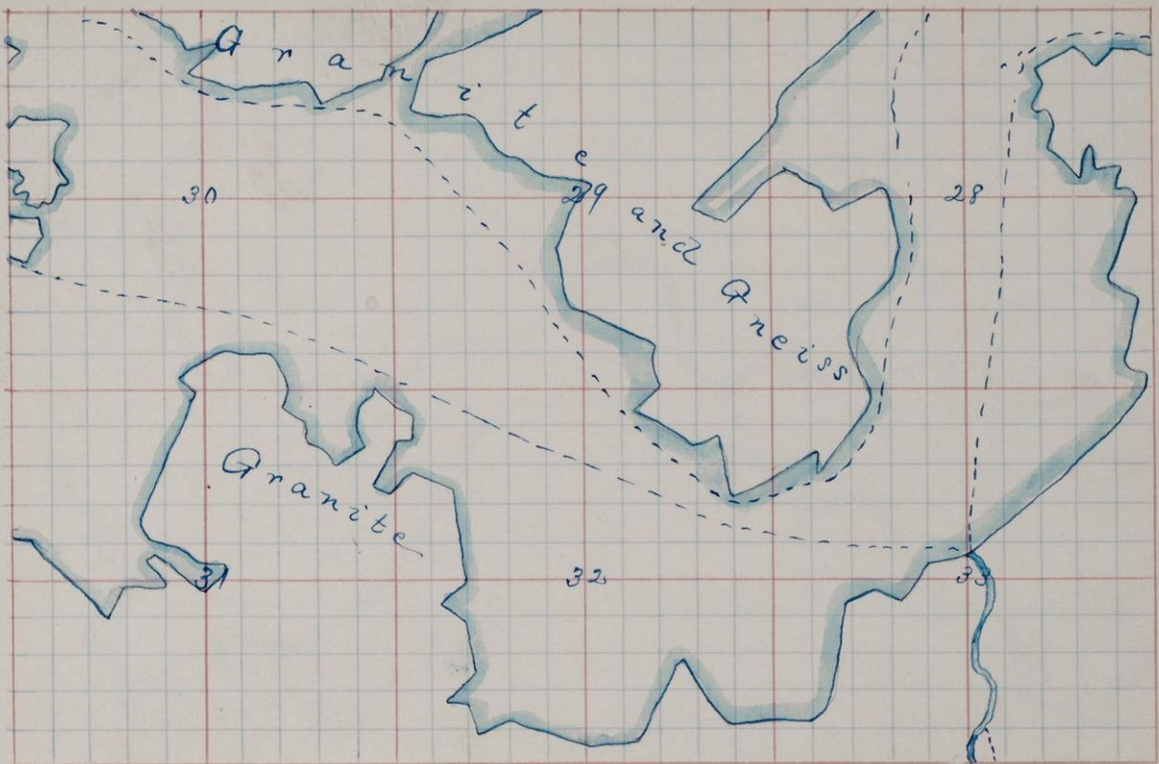
R. 12



Sec.

T. 61

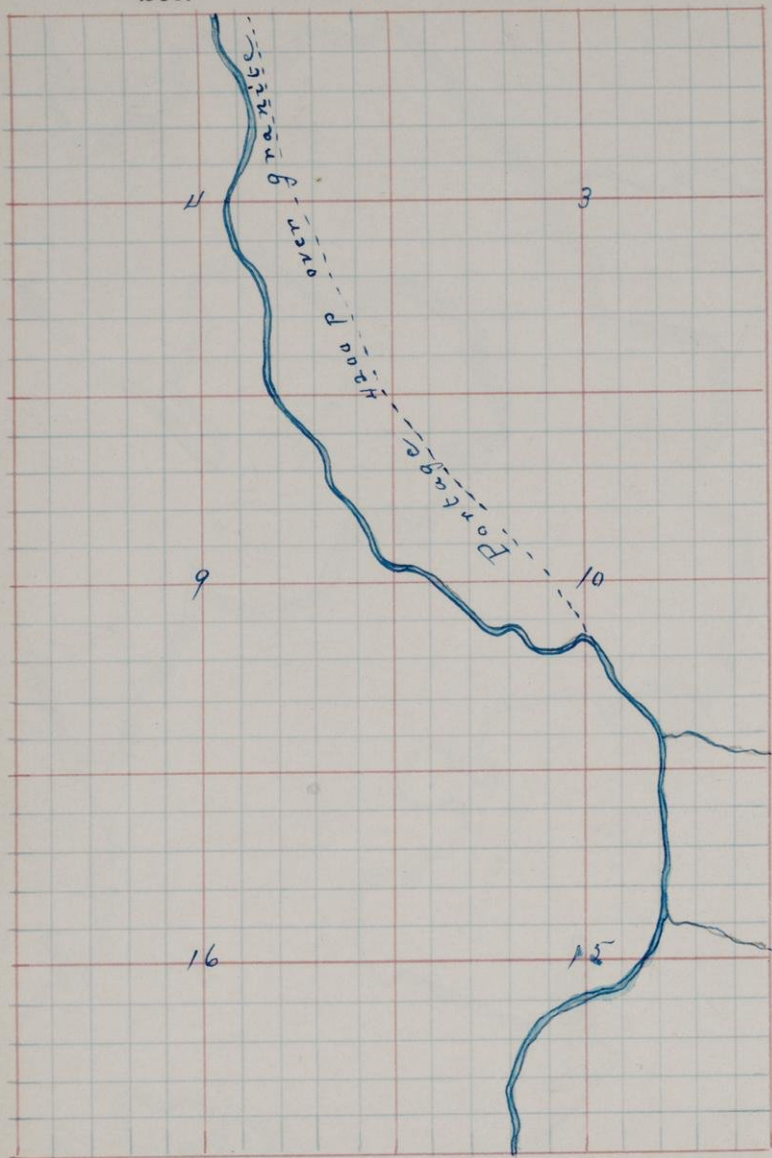
R. 12



Sec.

T. 60

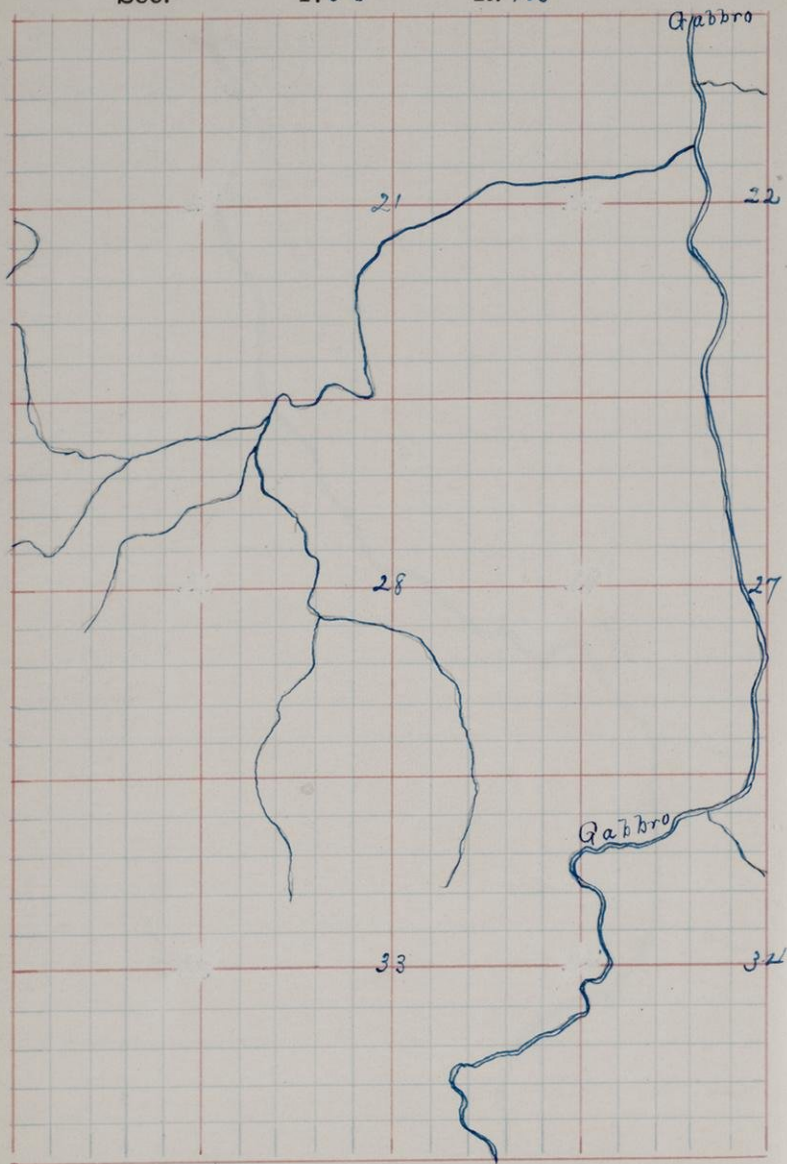
R. 12



Sec.

T. 60

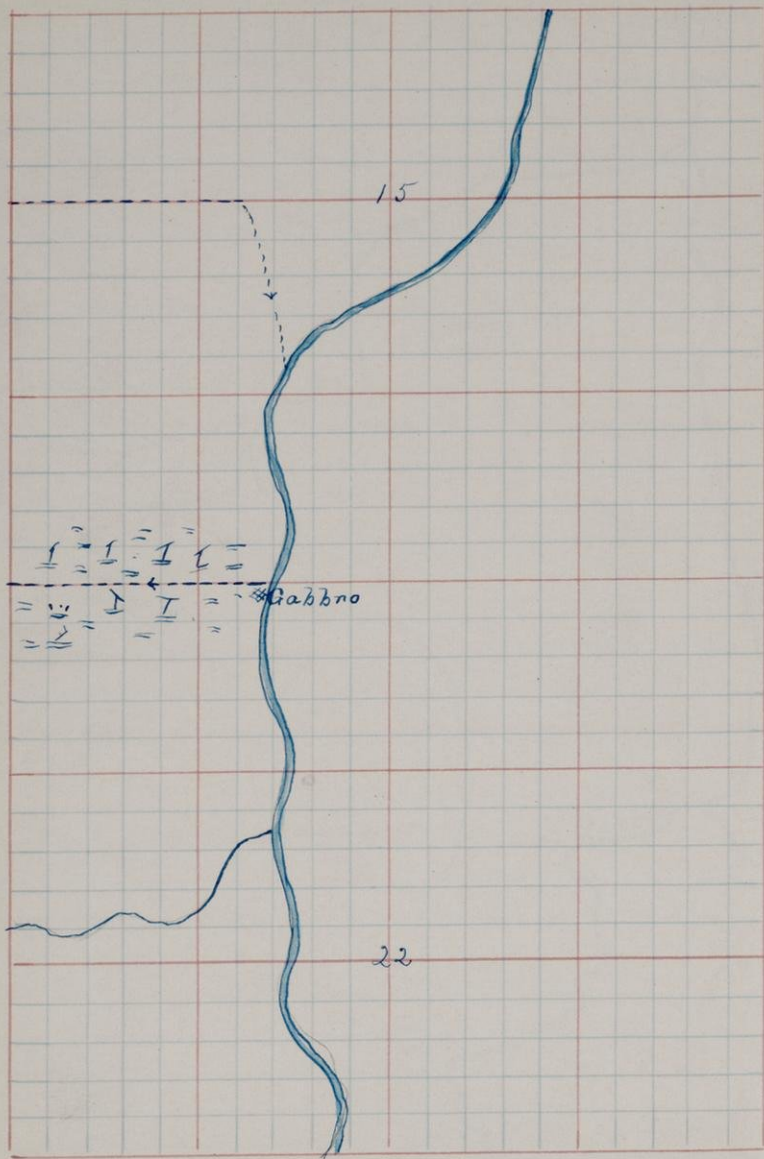
R. 12



Sec.

T. 60

R. 12



Sec.

T. 60

R. 12

16

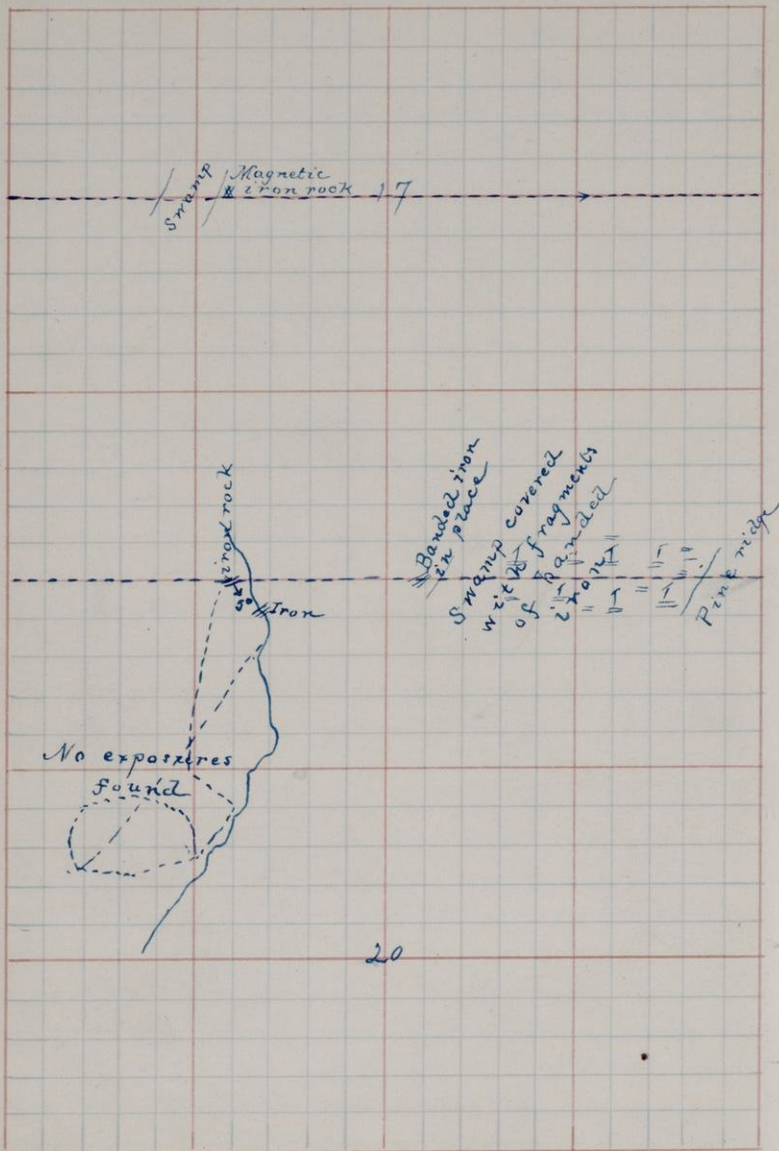
Handwritten practice of the letter 'I' on lined paper. The letter is written in blue ink, showing various strokes and positions relative to the lines. Some letters are written with a small '1' above them, indicating the starting point or stroke order. The letters are arranged in two rows, with some letters being taller than others, demonstrating different heights and positions relative to the lines.

21

Sec.

T. 60

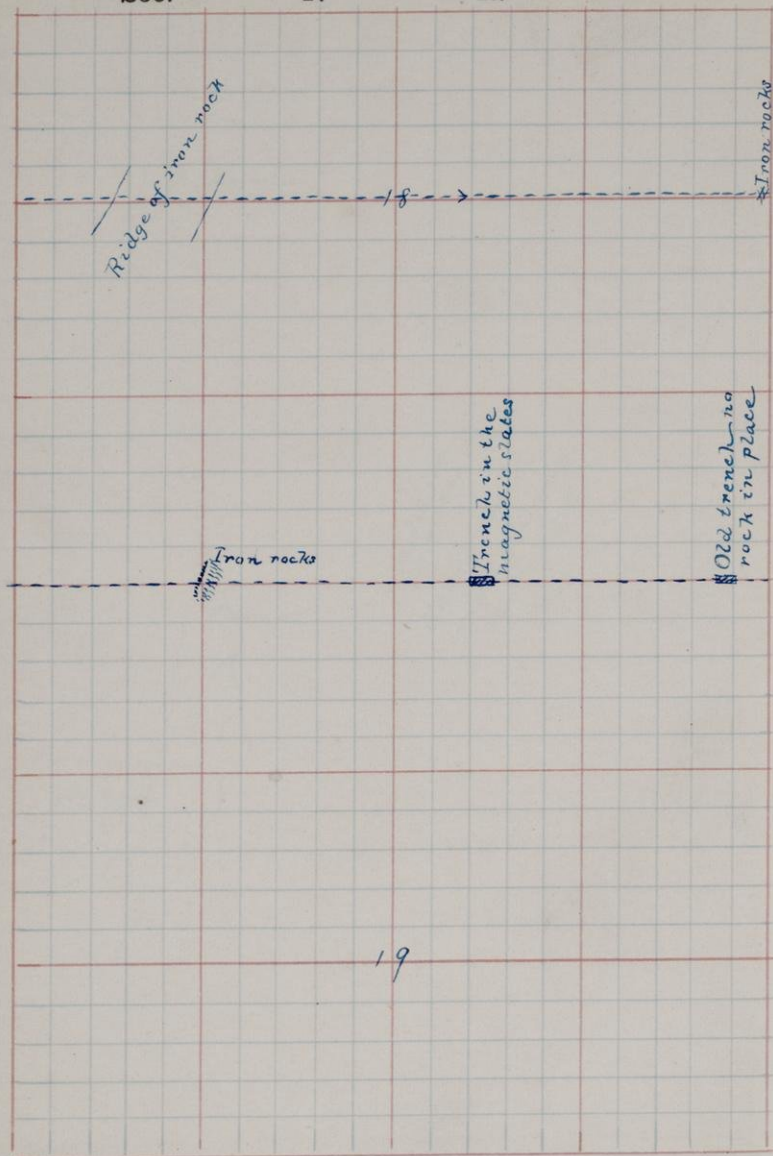
R. 12



Sec.

T.

R.

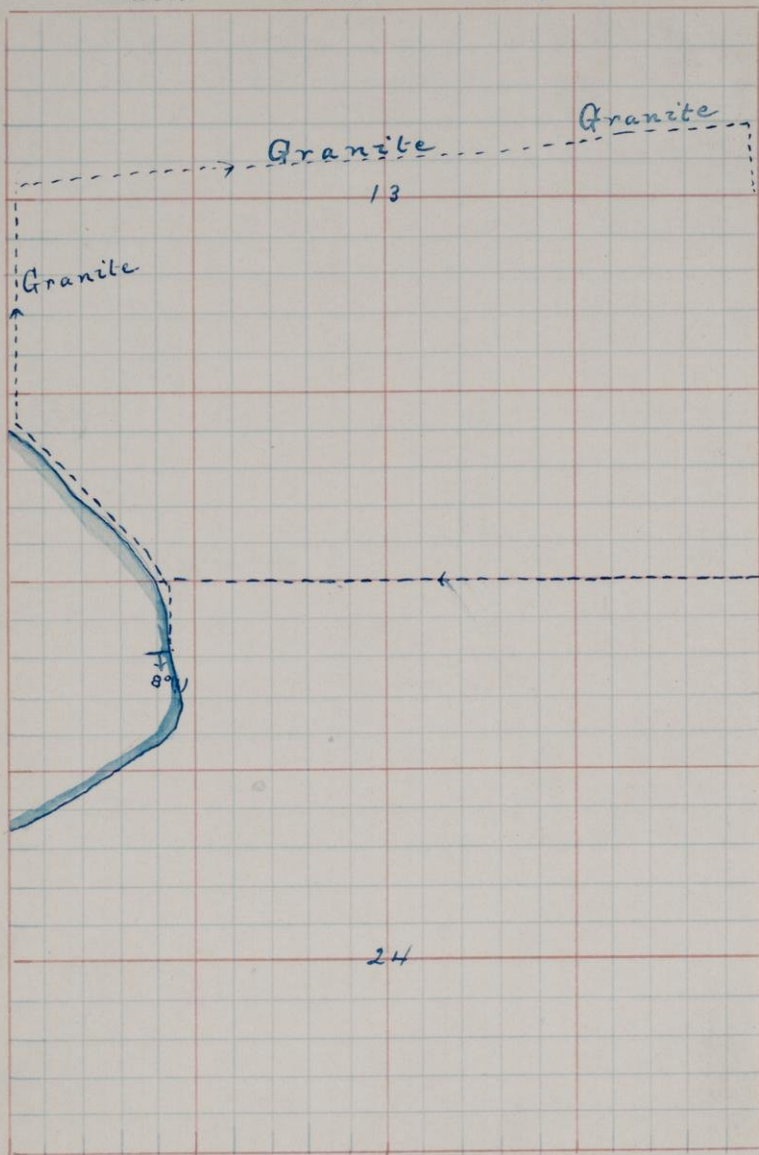


730 paces west of the S.E. corner
of Sec. 18 is an old pit about
175 or 80 feet long and 8 or 10' deep
in the magnetic strata. They
are highly banded and magnetic.

Sec.

T. 60

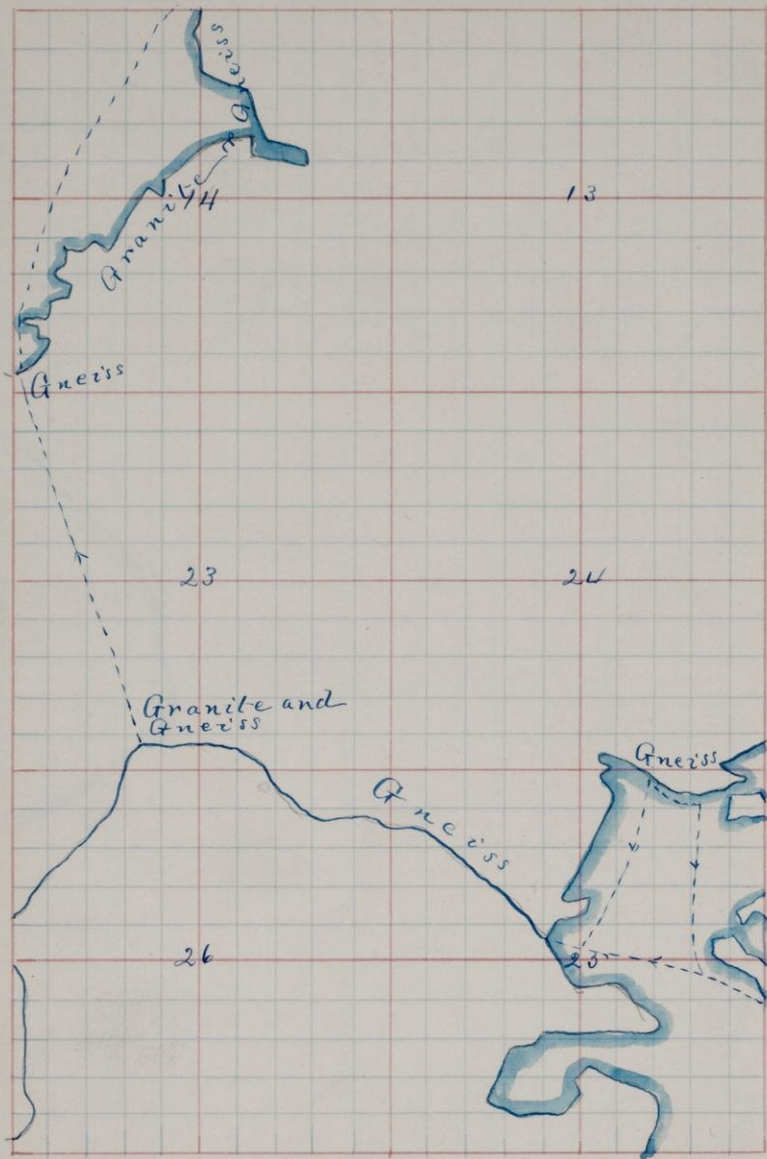
R. 13



Sec.

T. 61

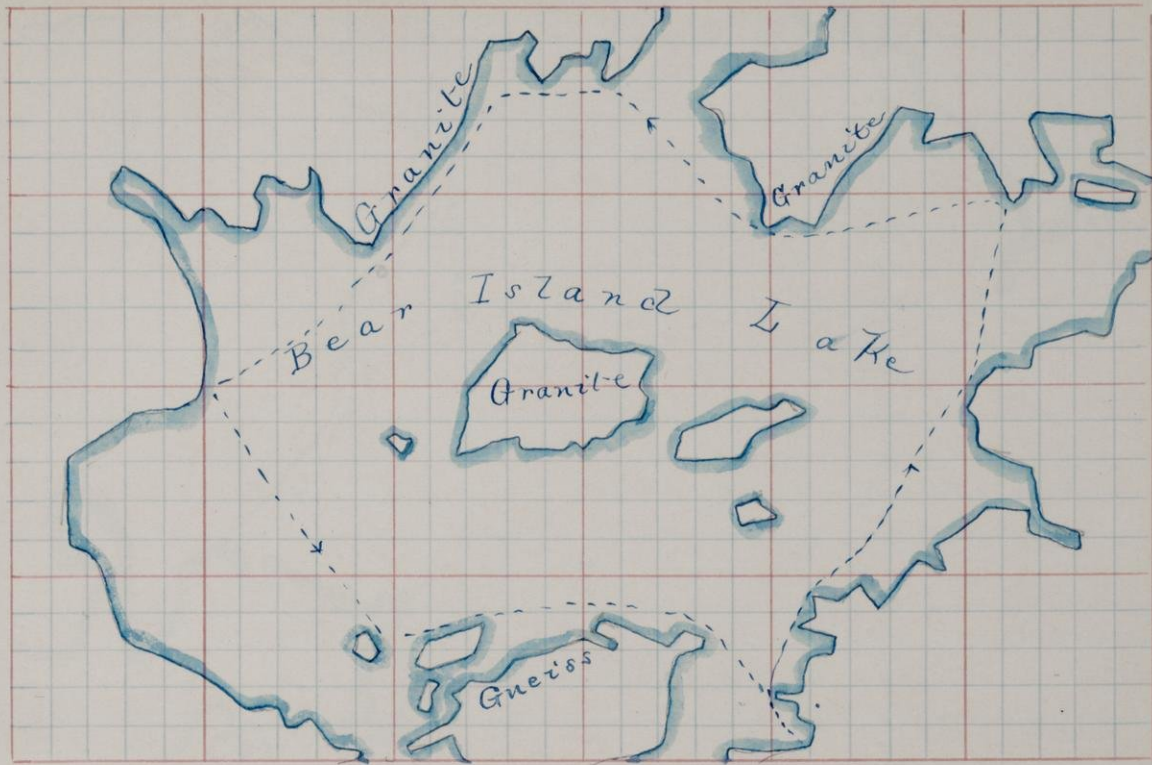
R. 13

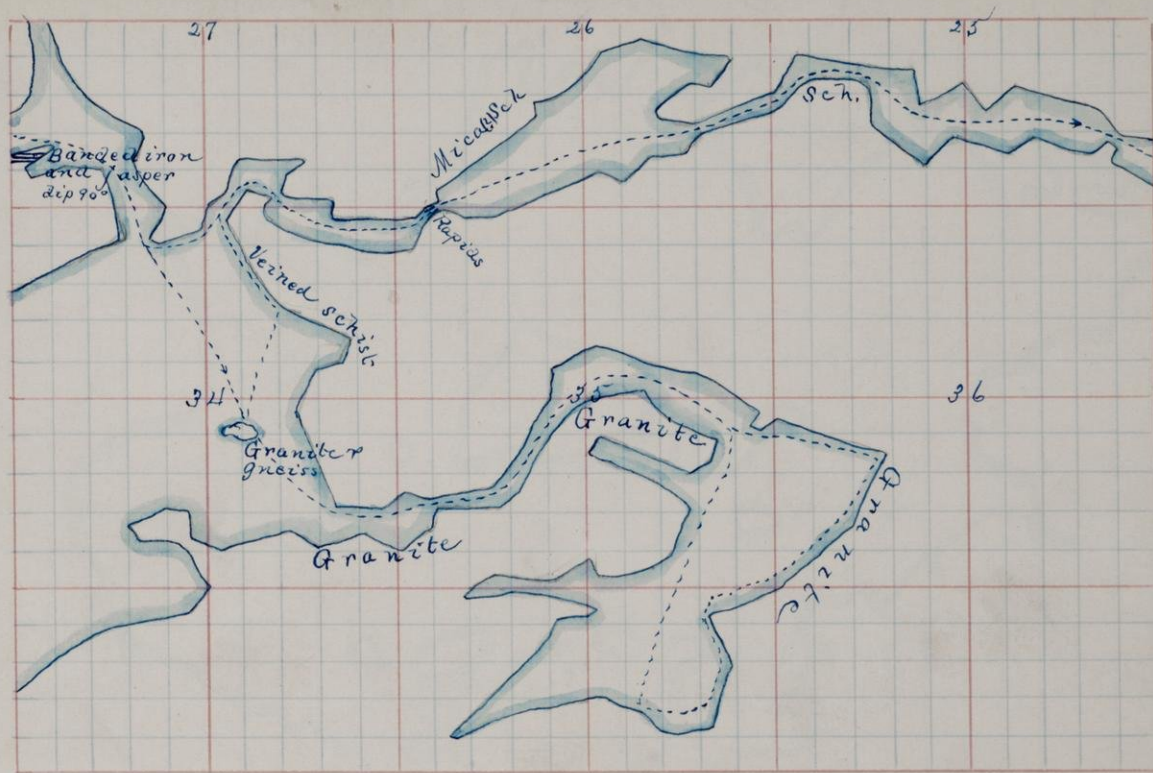


Sec.

T.

R.

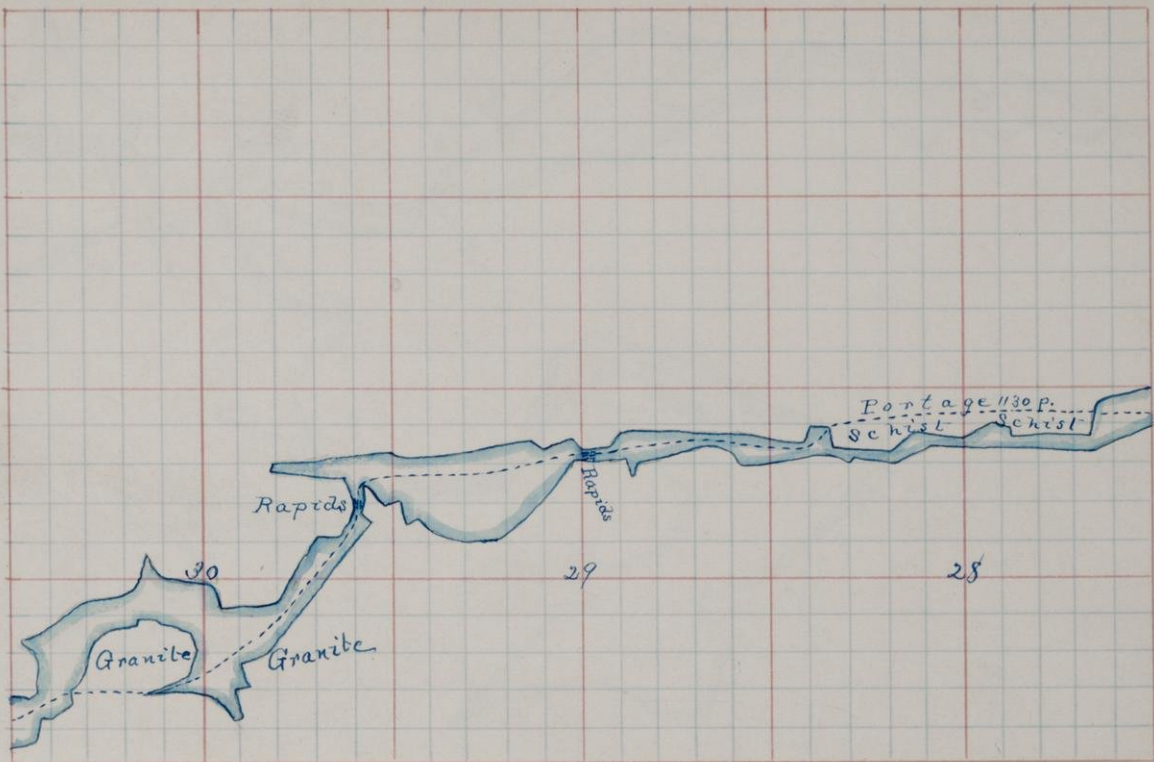


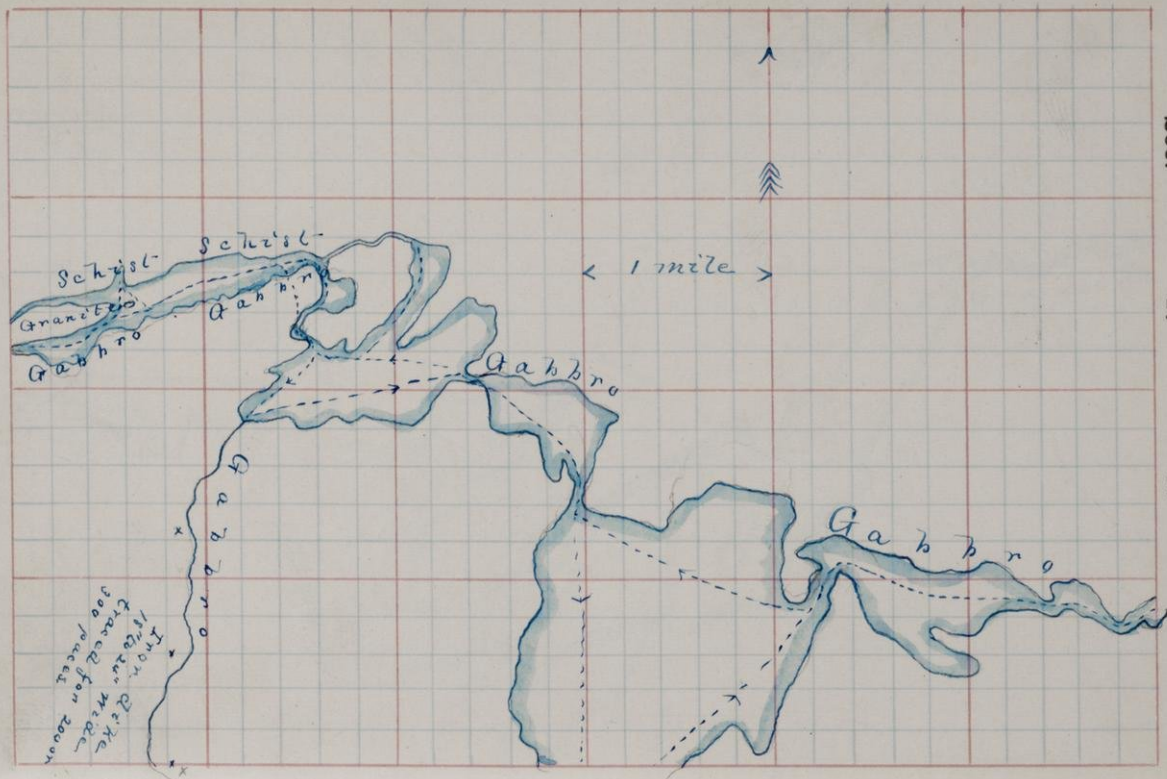


Sec. 1

T. 63

R. 10

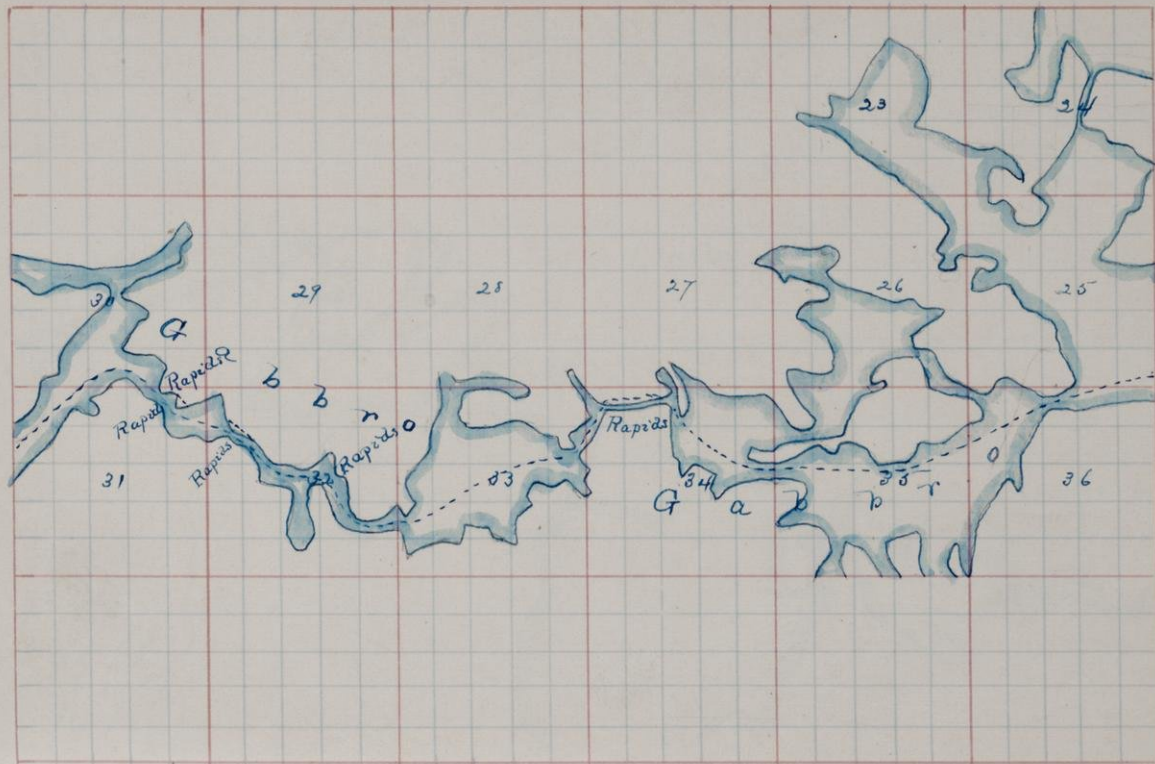




Sec.

T. 63

R. 8



Sec.

T.

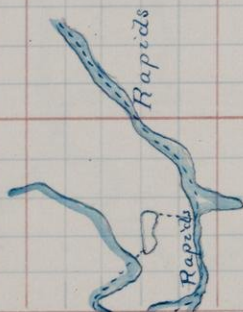
R.



Sec.

T.

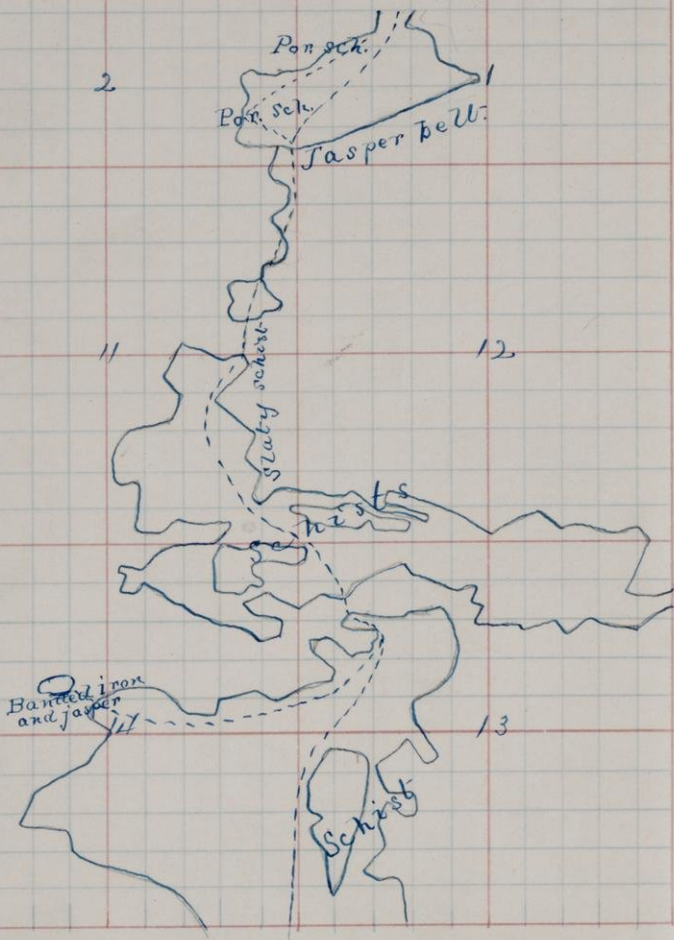
R.



Sec.

T. 63

R. 10



(9-891.)

Sec.

T.

R.

Shale

Quartzite

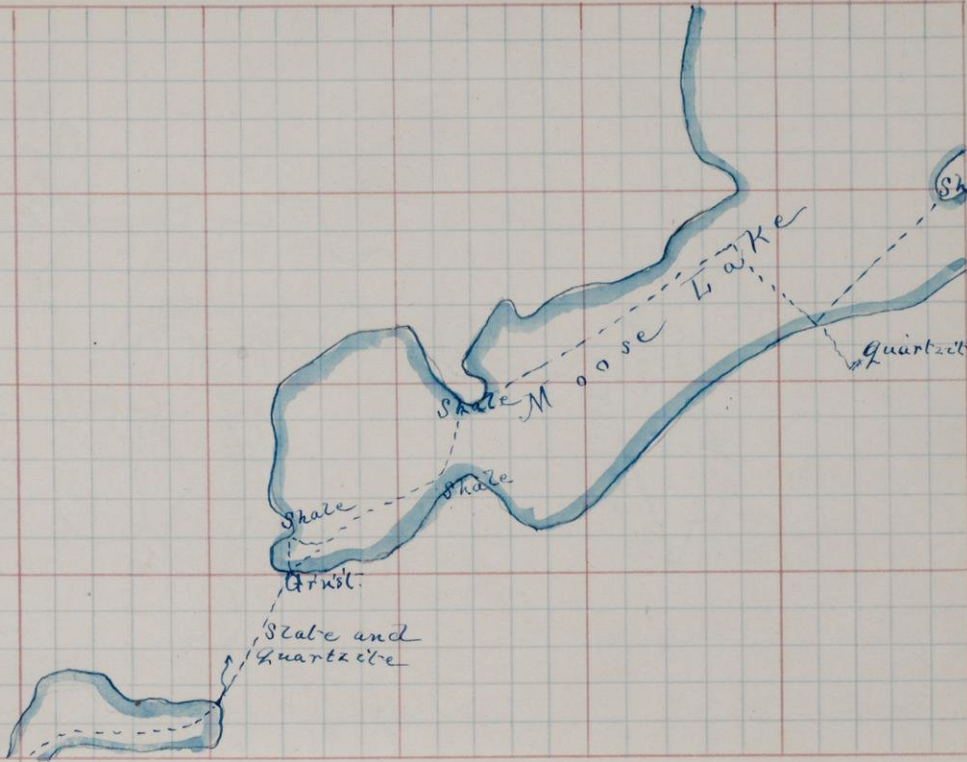
Moose Lake

Shale

Shale

Grust.

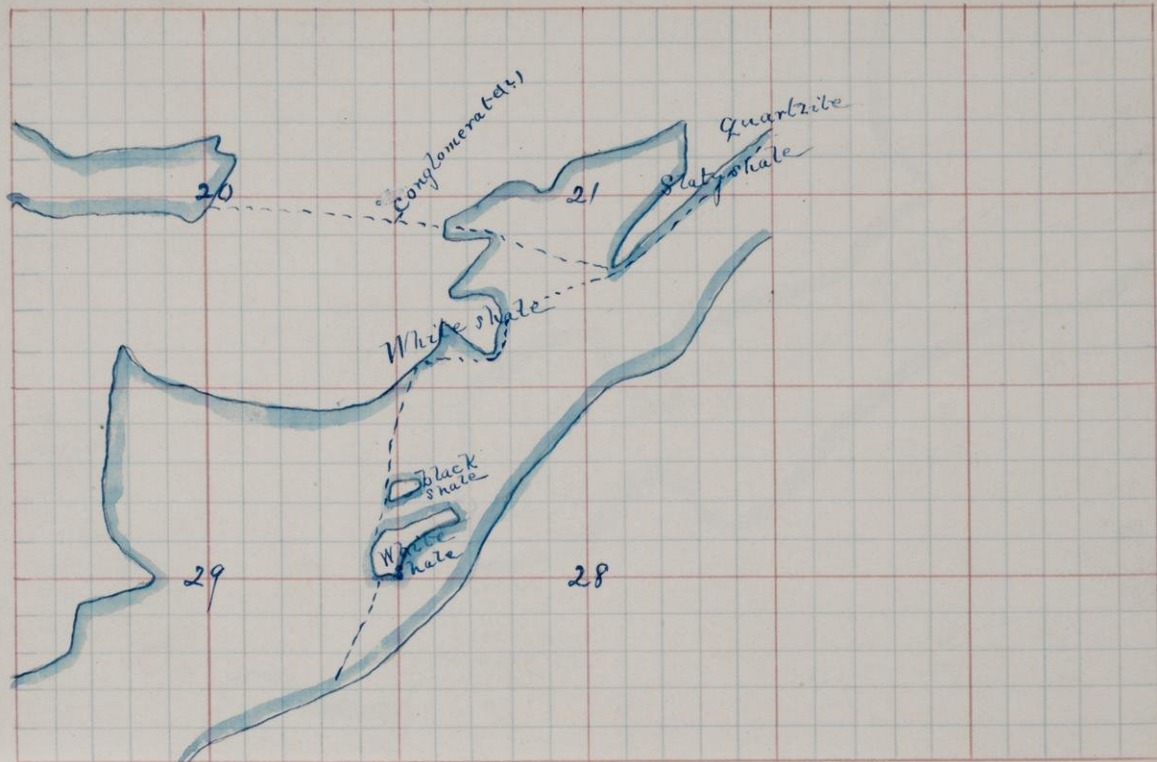
Slate and
Quartzite



Sec.

T. 63

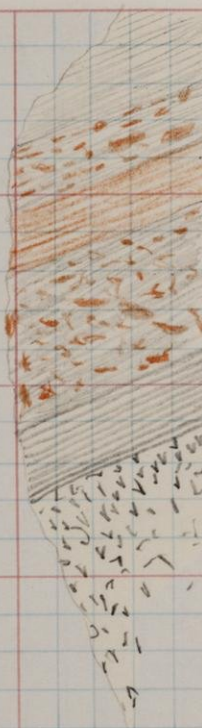
R. 10



R.

T.

Sec.



Quartzite south of the con.
Fine grained, reddish cast-in places

Con. 200 3 paces wide

A layer(?) of jasper or a
mass of jasper in the con.

Con. with banded jasper
pebbles

Banded black and
white

A coarse grained
crystalline(?) rock

