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Penokee Country: [specimens] 9595-9709. No. 38 August, 1885

Van Hise, Charles Richard, 1857-1918

[s.l.]: [s.n.], August, 1885

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U. S. GEOLOGICAL SURVEY
FIELD SECTION BOOK

No. 38.
August, 1885.

Pemokee Country.
C. R. Van Hise.

9595-9709

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.

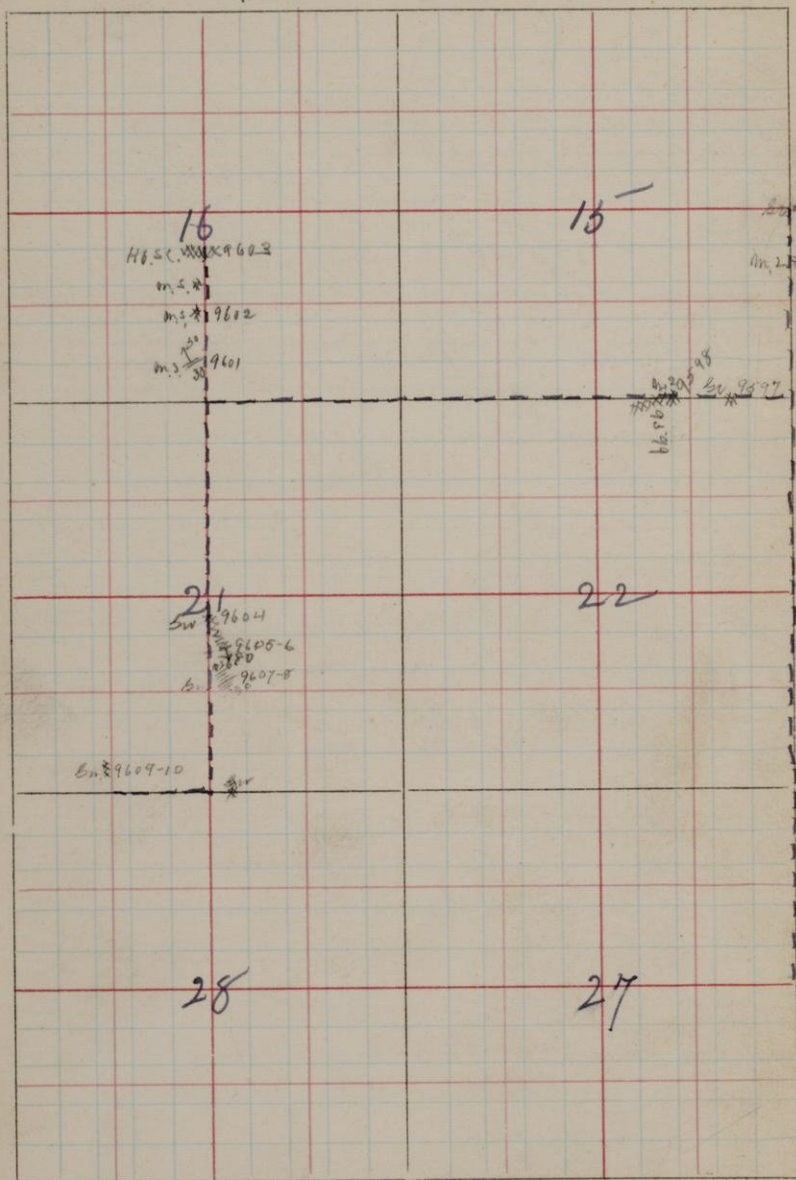
2. On the right hand page place the notes descriptive of the exposures. Begin in each case with the number of the specimen, placing the number on the left hand side of the red line, after which give in order on the right of the same red line the position of the ledges as reckoned in paces from the southeast 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 $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{4}$ inches will be allowed, but in all other cases *large sized specimens*, trimmed to a size of $3 \times 4 \times 1$ inches, must be selected, in accordance with § 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.

T. 43^WR. 1^N

1

Tuesday, Aug 18, 1886.
Starting at the $E\frac{1}{4}$ post sec 21,
T45 N. R1 W. Wisconsin, we
ran to the east $\frac{1}{4}$ post sec 18;
thence south to the S. E. corner;
thence west to the $S\frac{1}{4}$ post
of sec 16; thence north 800;
thence south to the $S\frac{1}{4}$ post
sec 21; thence west 800; thence
to trail and camp.

9395 *Micaceous bractylis*. 700 N 60 E.
of the S. W. corner sec 14. West
end of long east and west ridge

9396 Greenstone, 1000 N. 80 E. of the
S. W. corner sec 14. This exposure,
being of some size at the
west end of a hill at the
place marked upon the Wis-
consin map as that at which
the trap range appears, was
when visited taken to be a part
of this range. However as
other small greenstone points
are found near this farther
south end the trap range

is much farther north east and west of this point than given upon the maps, it is believed that this exposure is not a part of the trap range proper. Another reason for this belief is the nature of the greenstone, it being more compact and fresh than ordinarily found in the trap range.

9397 Fine grained Greenstone. 800 W. of the S. E. corner Sec 15. Small exposure.

9398 Micaceous Gneiss. 600 W. of the S. E. corner Sec 15. This specimen is taken from the N. E. corner of a large exposure.

9399 Banded Mica slate. 675 W. of the S. E. corner Sec 15. North side of the exposure from which 9398 is taken. The exposure extends along the line 700 W. then swings south into Sec 22, in which section it extends

at least 100 steps farther west.

9601 Mica Schist. 200 ft. 60 m. of the
S $\frac{1}{4}$ part sec 16, strike W. 30° dip
50° N. South foot of large hill.
Some 800 ft. 60 m.

9602 Mica Schist. 450 ft. 60 m. of the
S $\frac{1}{4}$ part sec 16. South brow of
hill from which 9601 is taken.
Some 600 ft. 60 m.

9603 Coarse Hornblende Mica Schist
750 ft. of S $\frac{1}{4}$ part of sec 16.
North face of a very large
east and west ledge with steps
northern exposure 100 feet high.
The foot of the hill is 800 ft. of
the S $\frac{1}{4}$ part sec 16. From this
point a level valley stretches
northward and at a distance
of at least a half a mile and
perhaps a three fourths mile
a high east and west range
is seen which is taken to
be the trap range.

- 9604 Greywacke. 1115 S. of the N. 1/4
 post sec 21. This location is upon
 the east bank of Tyler's Fork,
 although the exposure appears
 upon both sides. From this
 point there is a continuous
 exposure in the river to 1300 S.
 1115 E. of the N. 1/4 post.
- 9605 Greywacke slate. ^{1260 S. 115 E.} Here the water
 flows through a narrow channel
 with rapids. Strike W. 50 S. Dip 50 S.
- 9606 Greywacke. South end of channel
 1240 S. 115 E. of the N. 1/4 post sec 21

At 1440 S. 90 E. of the N. 1/4 post
 of sec 21 is the east bank
 of Tyler's Fork at a beautiful
 fall. This fall occurs over
 a ledge the brow of which
 for thirty paces or more is
 almost a straight line. This
 line gives the strike of the
 heavily bedded rock ^{W 30 E}, while
 the dip ^{80 N} gives the face of
 the ledge on which the fall
 takes place. The height of
 this fall is about seven feet

a chain of rapids above and below.

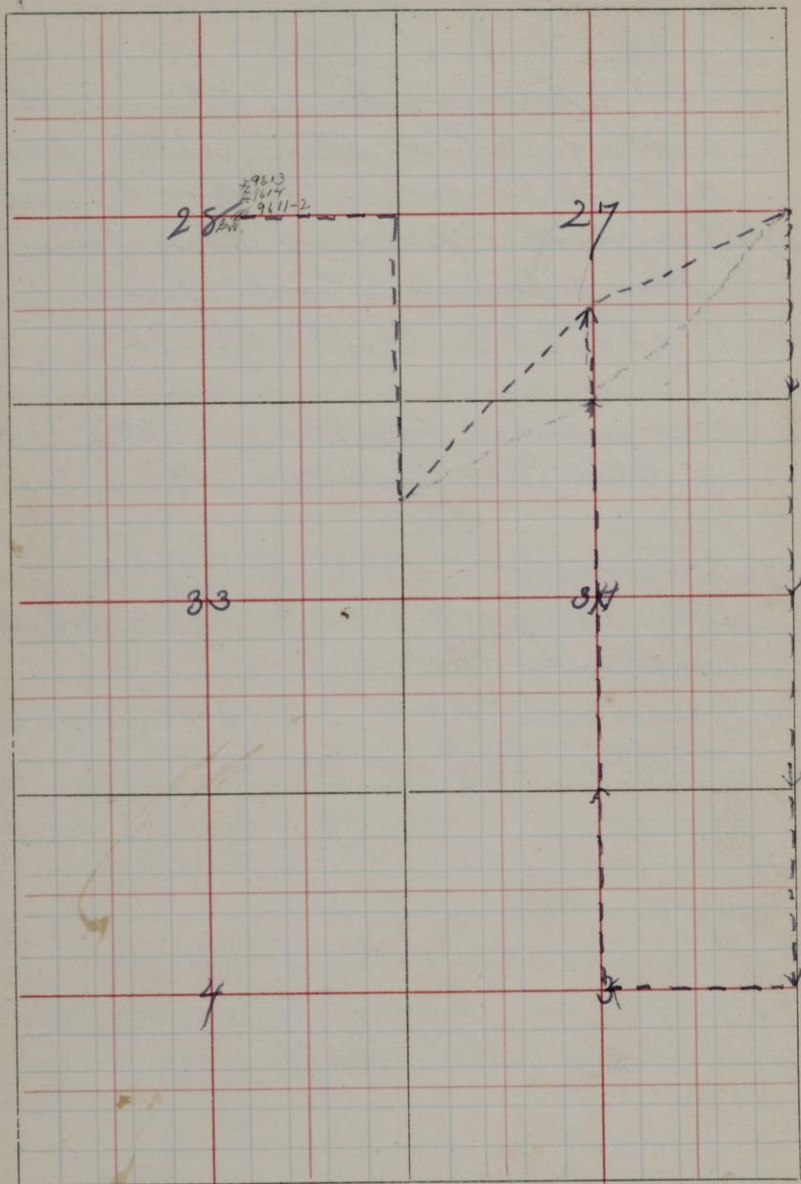
- 9607 ~~9607~~ Greywacke. This is the rock of which the greater part of the $\frac{1}{4}$ prong is composed, but
 9608 Greywacke slate is also found. The $\frac{1}{4}$ prong extends from 14155 90E to 15235, 90E.

585

Greywacke, like 9607 1880S 123E, of the $\frac{1}{4}$ prong sec 21.

- 9609 Greywacke, 525 W. 100 N. of the $\frac{1}{4}$ prong sec 21. The ~~same~~ continues to
 9610 Greywacke slate, 540 W. 140 N. of the $\frac{1}{4}$ prong sec 21.

T. 44N & 45N R. 1W



Wednesday, Aug 19, 1885.
 In the forenoon, we started at
 the $E\frac{1}{4}$ post sec 27, T45 R1W,
 and ran south to the $E\frac{1}{4}$ post
 of sec 3, T44 R1W.; thence
 west 1000 to the center of sec 3;
 thence north $\pm$ 500 ft. of the
 south $\frac{1}{4}$ post of sec 27; thence
 on trail to camp. During this
 run no exposures were found.

In the afternoon, starting
 500 ft. of the $E\frac{1}{4}$ post of sec 3,
 T45 R1W., we ran north to
 the east $\frac{1}{4}$ post of sec 28;
 thence west 800 to Tyler's Fork.

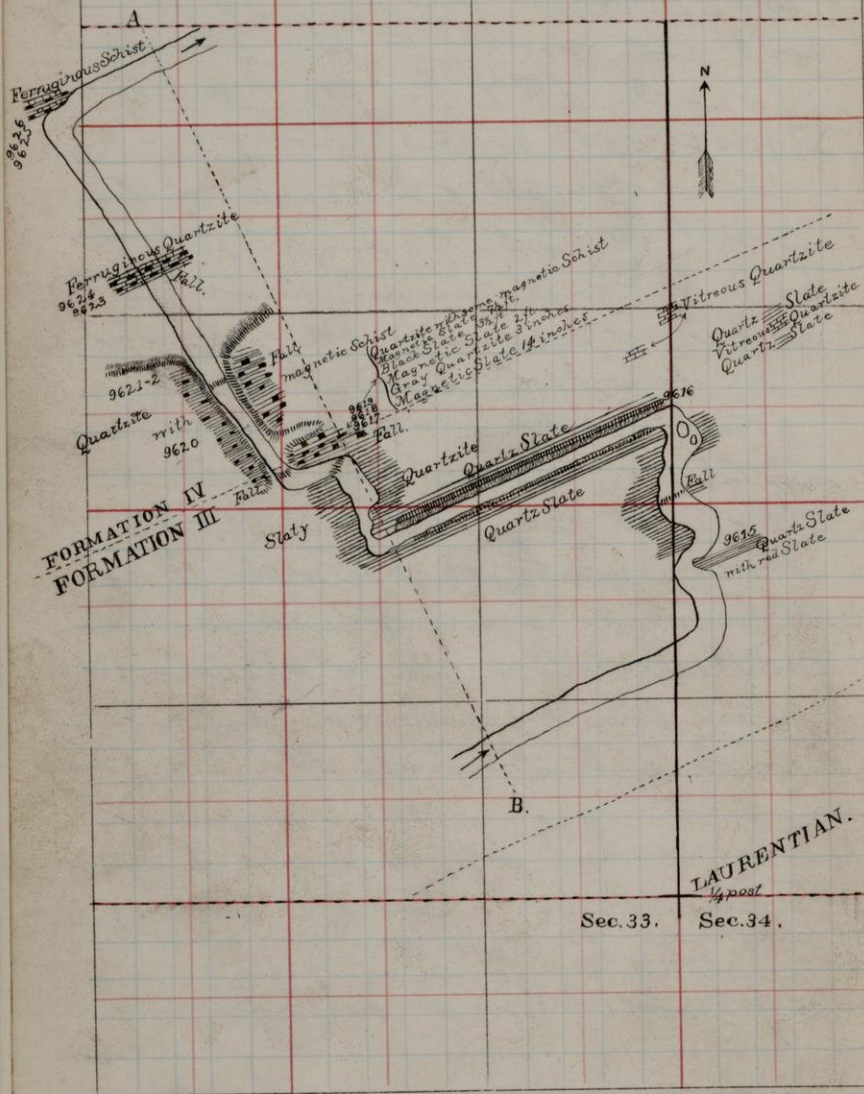
Returned upon the same line
 and selected a set of specimens
 from the exposures of Tyler's Fork
 as it cuts through the iron range.

- 9611 Greywacke, upper falls of Tyler's
 Fork 800 W of the $E\frac{1}{4}$ post of
 sec 28, T45 R1W.
 Strike W. 25° S. Dip 70° N.

- 9612 Greywacke. From south of
 exposure lower down the river

R.

Scale 1.4 in = 100 steps



750 W. 64 N. of $E\frac{1}{4}$ post sec 28.
This exposure is continuous to
775 W. 160 N. of the $E\frac{1}{4}$ post.
Main Falls 750 W. 110 N.

- 9613 Greywacke slate 150 N. 775 W of $E\frac{1}{4}$
post sec 28.
9614 Black slate. Same location.

The locations of the following
specimens are indicated upon the
accompanying map, taken from
Irving. Geol. Mus. Base of Tyler Fork.

- 9615 Slaty Quartzite.
9616 Siliceous slate.
9617 Quartzite
9618 Ferruginous Jasper, 2' north
of 9617.
9619 Ferruginous Schist 2' north
of 9618.
9620 Ferruginous Quartzite
9621 Ferruginous Jaspery Quartzite.
9622 Ferruginous Quartzite
9623 Ferruginous Quartzite, containing
numerous fragments of jasper.

9624 Ferruginous Quartzite

9625 Flinty Quartzite

9626 Quartzite from Ore.

Thursday, Aug 20, 1885.
Continuous Rain the entire
day.

T. 45-N

R. 1W

m.s.

m.s.

66. 5. 24-30

9624-30

9635

9633-41

9632 9631 m.s.

19

20

m.s. 9628

80

29

m.s. 9627

61. 5. 29-36

81

32

Friday Aug 21, 1885.
 Starting 600 S. of the N. E. corner
 of Sec 32, T 40 R 1 W, we ran north
 to Tyler Fork in the N. E.
 corner of Sec 20; thence followed
 the river to the north line of
 Sec 20; thence west to the
 N. W. corner of Sec 19; thence
 south to the $N\frac{1}{4}$ part of
 Sec 6, T 44 R 1 W; thence
 to camp, ~~EX 17~~, in $E\frac{1}{2}$ Sec 01, 44.2 $\frac{1}{2}$ W.

9627 Greywacke slate. 550 N. of
 the $E\frac{1}{4}$ part of Sec 29.
 Strike N 80° S. Dip 70° N. as
 determined from small ledge.
 Eastern exposure.

9628 Micaceous schist. 500 S. of the $E\frac{1}{4}$
 part of Sec 20. Strike N. 23° S.
 Dip 70° N. A large almost
 vertical northern exposure,
 extending east and west as far
 as the eye can follow it through
 the woods.

- 9629 Coarse Mica Schist, 1850 E.
 9630 120 N. of the S. W. corner Sec
 17. Strike W 150 S. Dip 80° S.
 This exposure is in the bed and
 upon both banks of Tyler's Arch.
 and extends north and south
 a distance of fifty-steps.

Mica Schist Like 9629-30
 South foot of high hill 1700 E.
 of the N. W. corner of Sec 20.

- 9631 Coarse Gabbro. 1520 E. of the
 N. W. corner of Sec 20. This
 is at the summit of the hill
 the south base of which is
 mica schist.

- 9632 Coarse Mica Schist. 1120 E.
 of the N. W. corner of Sec 20.
 South slope of hill which rises
 above the hill (as a base) from
 which 9631 is taken

Greenstone, 1060 E of the
 N. W. corner of Sec 20. Here
 begins the north slope of

11

the hill from which 9632 is
taken

Running west from this last
mentioned point to the range
line we are in a low level
wood. Although seen no sign
of any range can be seen to the
northward. Also in the run
south along the range line no
prominent range of hills is
crossed the ground being level
or rolling with a few hills of
some size.

9633 Micaceous Schist. At N.W. corner
of sec 20. Knob in level woods.

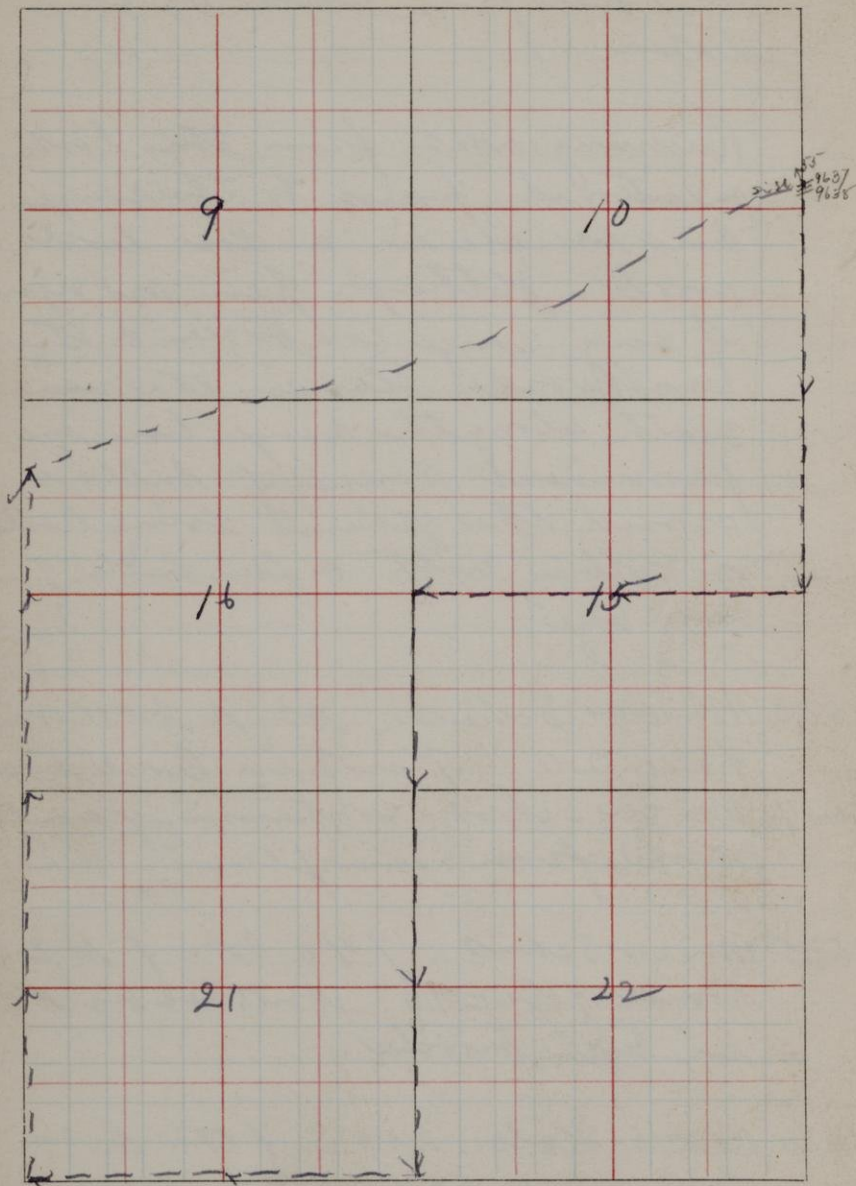
9634 Micaceous Schist, containing granite
veins, from same place.

9635 Micaceous Schist. 740 W. of N.E.
corner of sec 19. Another knob
in level woods.

9636 Black Slate. 200 S. of the N.W.
corner sec 31. Steep Southern exposure.
Same. 235 S. Another exposure.

T. 44

R. 2W



Saturday, Aug 22, 1885.
 Starting 120 N of the $E\frac{1}{4}$ pm
 of sec 10, T 44 N. R 2 W.,
 we ran south to the $E\frac{1}{4}$ pm
 of sec 15; thence west to the
 $W\frac{1}{4}$ post of sec 15; thence
 south to the S. E. corner sec 21;
 thence west to the S. W. corner
 of sec 21; thence north to 1650 ft
 of the S. W. corner of sec 16 at
 which point trail now struck;
 thence to camp in the N. E.
 $\frac{1}{4}$ sec 17. Camp ~~XXX~~

9637 Siliceous slate. Top of range
 1125 N of the S. E. corner of
 sec 10.

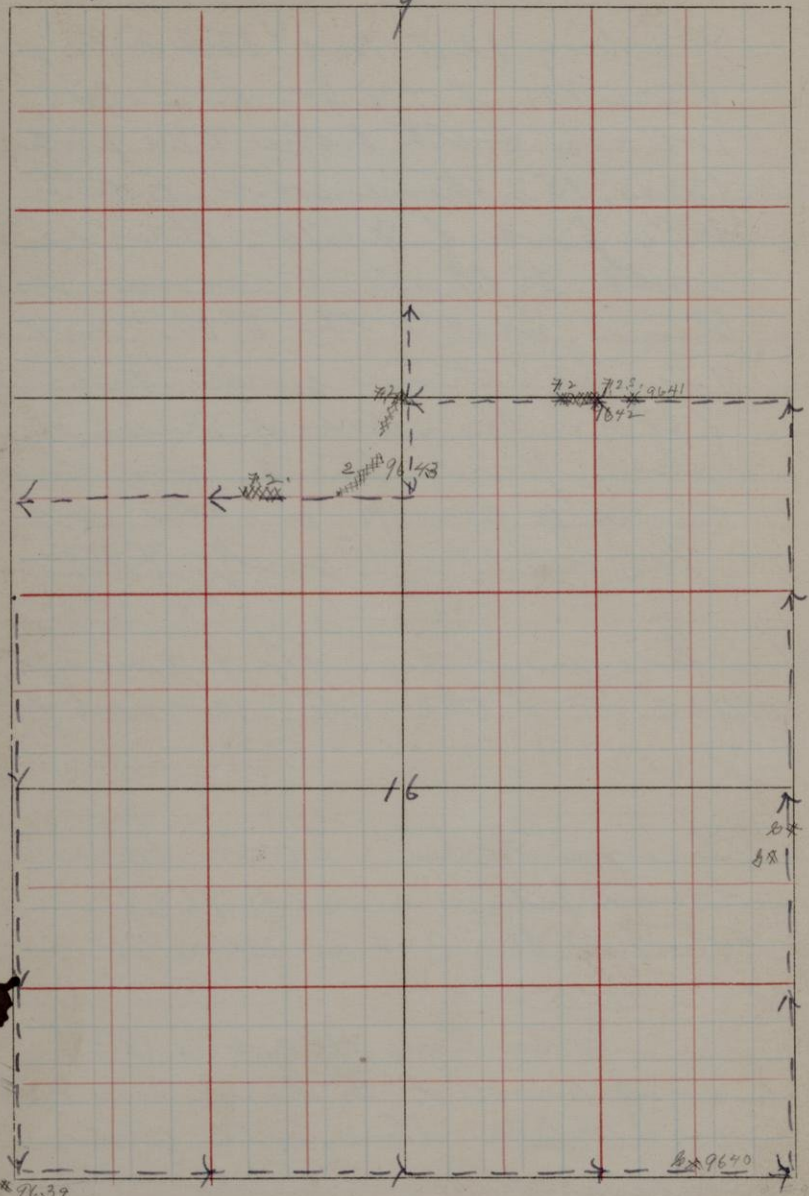
9638 Siliceous slate. South face
 of same hill. 35 S. of 9637.
 Strike W. 30° S. Dip 55° N

Sunday Aug 23, 1885.
 Camp moved to the S. $E\frac{1}{4}$ sec 9,
 T 44 N. R 2 W. This with getting
 supplies at Penobscot and shipping
 chest, ~~trunk~~ occupied the day.
 Camp ~~XXX~~

16 T. 44

R. 3W

9



16

8*9639

8*9640

Monday Aug 24, 1886.
 Trail out and camp moved to
 near the center of Sec 17, T 44,
 R 8 W. Also starting 500 ft. of the
 W $\frac{1}{4}$ part of Sec 16, we ran south
 to the S. W. corner; thence east
 to the S. E. corner; thence north
 to the N. E. corner; thence west
 to the N $\frac{1}{4}$ part; thence north
 250 into Sec 9; thence south to
 250 S. of the N $\frac{1}{4}$ part of Sec 16;
 thence west to the west line
 of the section; thence on trail
 to camp. FTXII

9639 Granite. Low knob 250 S. 25 W.
 of the N. E. corner Sec 20,

9640 Granite, containing bands of
 coarse mica schist. 250 W. 25 N.
 of the S. E. corner Sec 16. The
 mass of the ledge is of the
 coarse granite. Southern exposure
 fifty steps long.

Coarse Granite. 825 N. 50 W.
 of S. E. corner Sec 16.

Sec 17 T. 44

R. 3 W

7.2
#

Chs. 9644

17

Same 200 N. of S. E. corner sec 16.

9641 Ferruginous Quartz-Schist. 400 W.
of the N. E. corner of Sec 16.
Top of range.

9642 Ferruginous Quartzite. 500 W.
of the N. E. corner of sec 16.
Continuous to 600 W. Top of range.

Ferruginous Quartzite, like 9642,
on N $\frac{1}{4}$ part of sec 16.
From continuous to 755. 50 W.

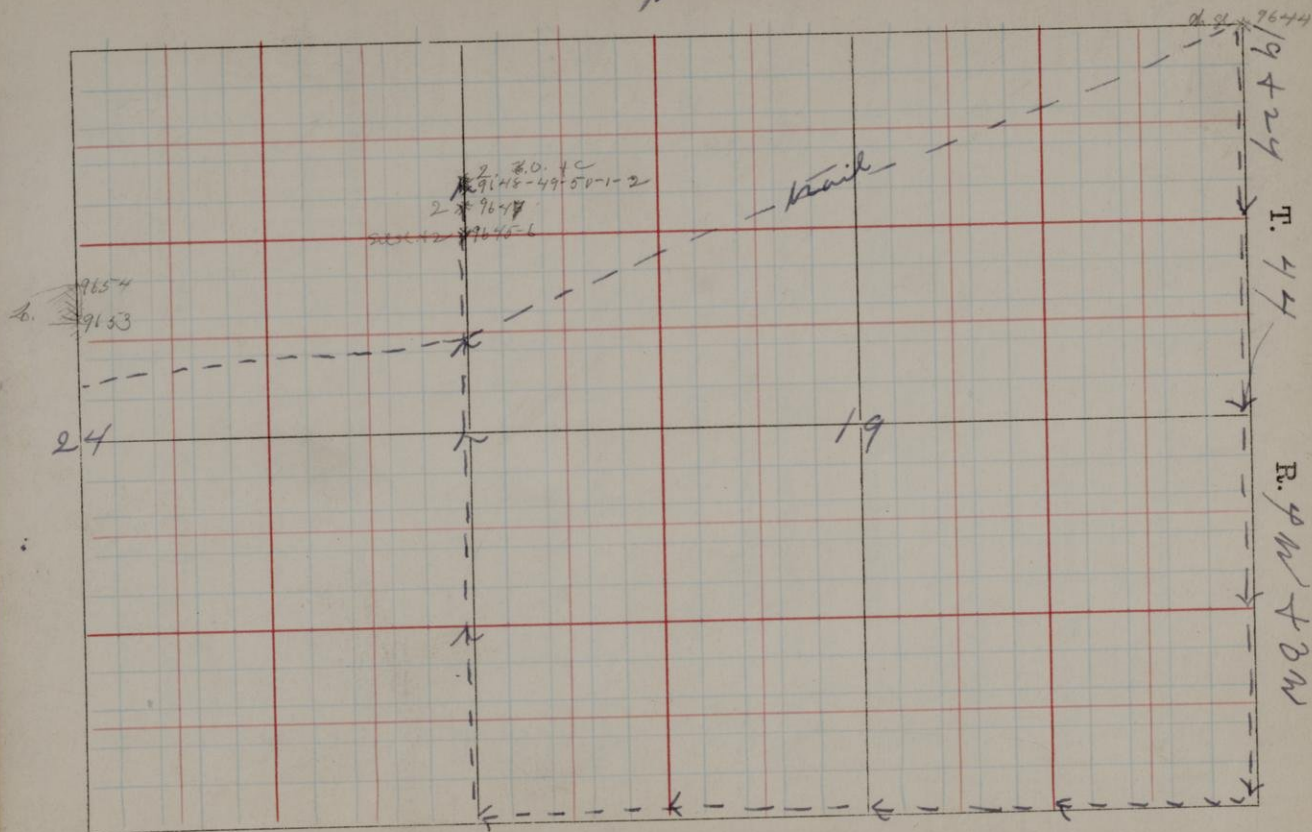
9643 Quartzite. Bold southern cliff 130 S.
50 W. of the N $\frac{1}{4}$ part of sec 16.
Continuous to 200 S. 100 W and
to 230 S. 150 W.

Ferruginous Quartzite. Continuous
from 200 S. 300 W of N $\frac{1}{4}$ part of sec
16 to 230 S. 400 W.

Same 600 W. 600 S. of the N. E. corner
Sec. 17. Approx. location only.

9644 Chloritic slate. Southern Cliff 900 S
900 W. of N. E. corner sec 17. Approx. loc.

N



Tuesday, Aug 25, 1885.

Trail cut and camp moved to 625 W. 250 N. of the $E\frac{1}{4}$ post Sec. 24, T 44 R 4 W. Wisconsin Course of trail from Penokee as follows. English Lake trail followed to about 500 W. 250 N. of the S. E. corner of Sec 9; thence we ran south west 1100 steps; thence west south west to 500 west of the E. line of Sec 17 (T 44. R 3 W); thence south of west to the N. E. corner of Sec 19; thence south of west to 200 N. of the $W\frac{1}{4}$ post of Sec 19; thence to camping place as given above. In crossing and while close to the range in Secs. 16 + 17, 44, 3 W. numerous ledges were passed, but beyond this point no outcrops occur upon the trail.

Camp. XXXXIII

Also, starting at the N. E. corner of Sec 19, 44. 3 W I ran south to the S. E. corner; thence west to the S. W. corner; thence north to 650 N. of the $W\frac{1}{4}$ post &

thence south to trail and camp;
thence west to 1000 W. 250 N.
of the $2\frac{1}{4}$ part sec 24, T44, 4 N.

9644 Chloritic Schist. N. E. corner sec
9644-a 19, T44. 3 N. Southern exposure.

9645 Siliceous slate } 500 N. of the N $\frac{1}{4}$

9646 Grey Quartzite } part sec 19. South-
ern exposure. The two phases
of rock are interstratified
with each other.

9647 Coarse Quartzite. 575 N. of the
N $\frac{1}{4}$ part of sec 19. South slope
hill from base of which 9648 & 6
are taken.

9648 Amaceous Quartzite 635 N. of
the N $\frac{1}{4}$ part of sec 19.

9649 Ferruginous Quartzite. 2 steps
north of 9648.

9650 Lean Ore. Five steps north of
9649

9651 Peculiar Red Arenaceous matrix.
 9652 Is approx two inches thick upon
 south face of 9648.

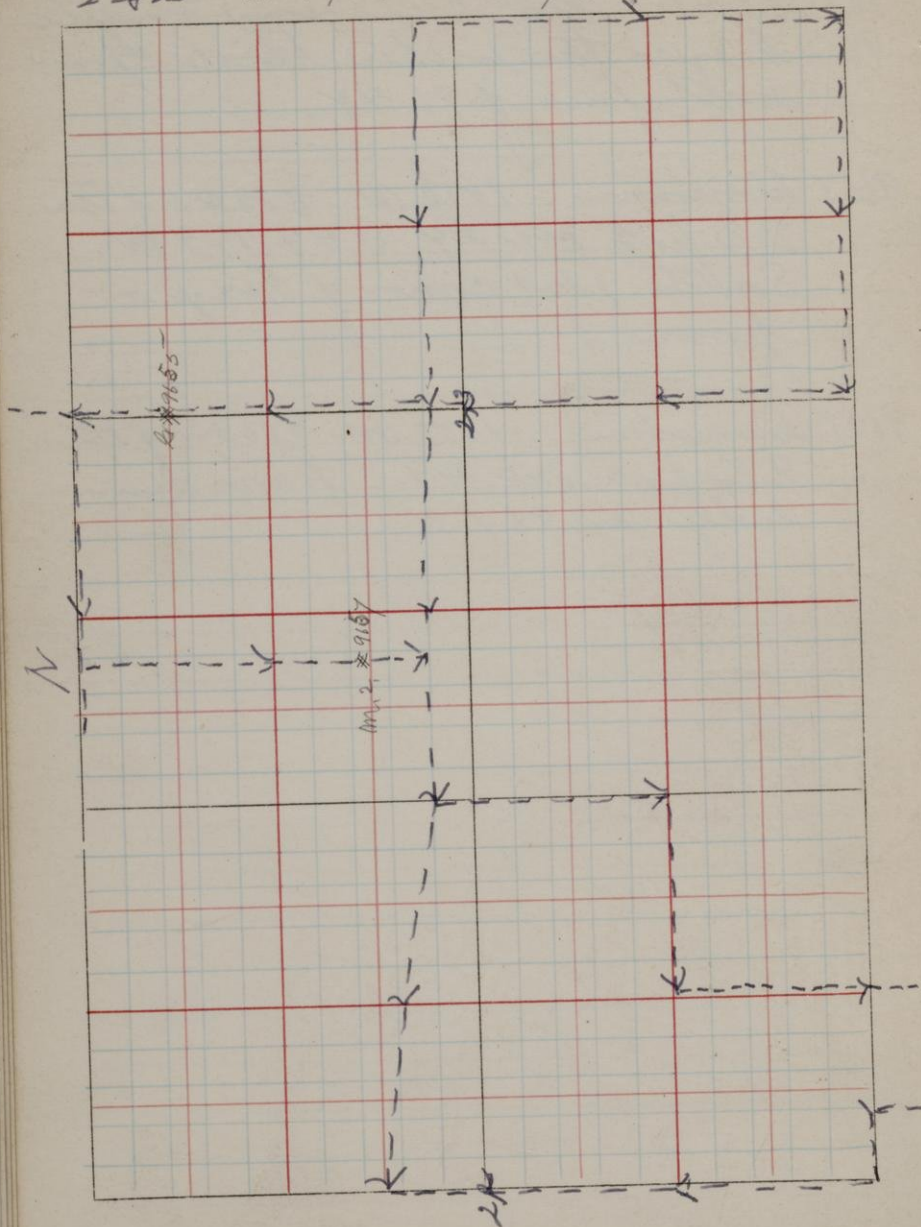
9653 Limestone. 1000 W. 300 N. of the
 E $\frac{1}{4}$ part sec 24, T 44, R 4 W.
 South east corner of large ex-
 posure.

9654 Limestone. 1100 W. 400 N. of the
 E $\frac{1}{4}$ part sec 24. From same
 ledge as 9653.

$2.2 + 2.3$

T. 44 N

R. 4 W



Wednesday, Aug 26, 1885.

Trail cut and camp moved from
625 W. 250 N. of the $E\frac{1}{4}$ post
Sec 24 R 3 W. to 1250 N.

200 W. of the $S\frac{1}{4}$ post Sec 22.
Here main inlet of Bladder Lake
is crossed. Trail crossed W.

line of Sec 24, 150 N of $\frac{1}{4}$ post;
N of $S\frac{1}{4}$ line of Sec 23 1080 N
of the $S\frac{1}{4}$ post; the west line
of Sec 23, 100 N of the $\frac{1}{4}$ post;
the N of $S\frac{1}{4}$ line of Sec 22,
1250 N. of the $S\frac{1}{4}$ post.

The following run was also made.

Beginning 100 N. of the $E\frac{1}{4}$ post
of Sec 23, we ran south to the
S.E. corner; thence west to
the $S\frac{1}{4}$ post; thence north to
the $N\frac{1}{4}$ ^{thence 500 N. to back} post; thence west to
inlet of Bladder Lake; thence
east to 625 W. of the $N\frac{1}{4}$ post
Thence south to trail; up
trail to east line of Sec 22;
thence 500 S of the $E\frac{1}{4}$ post;
thence 500 W; thence 1000 S.
At which point is a spruce
swamp which extends as far

14 T. 44.

R. 4W

14

St. 965.

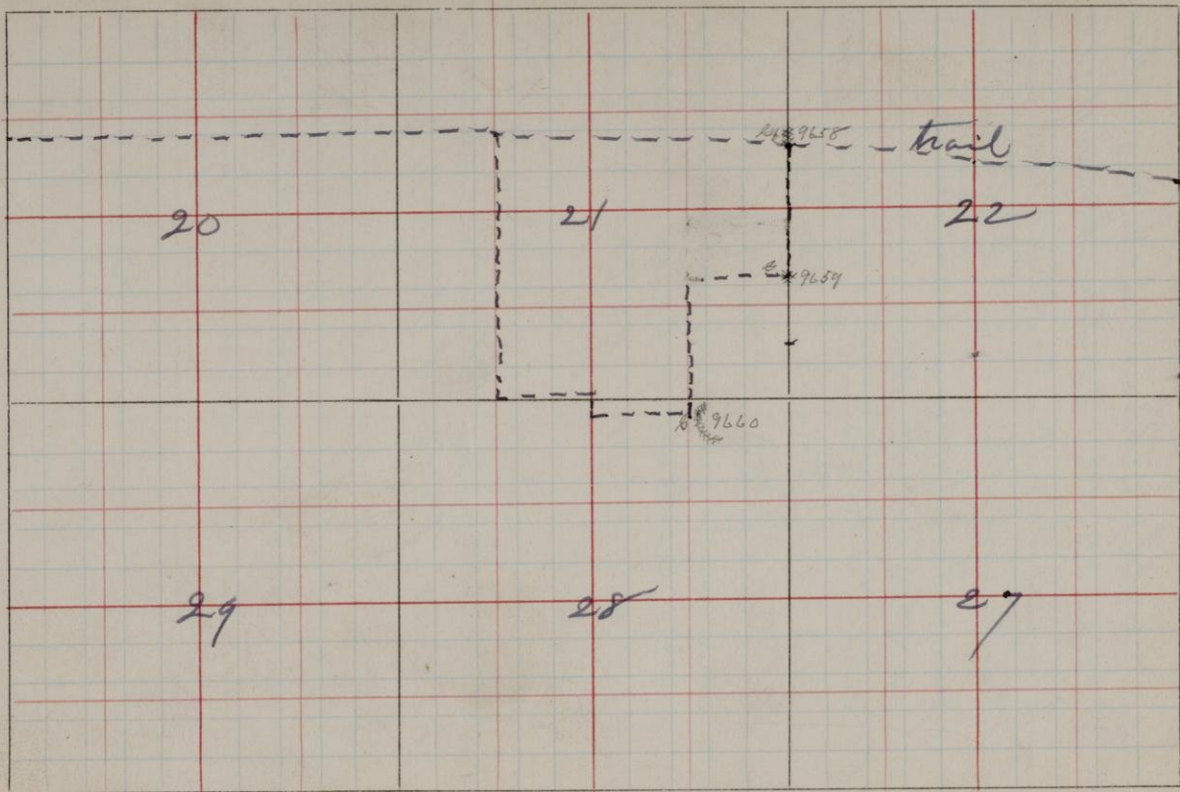
south as eye can reach, or least a half mile); thence 300 W; thence 500 N to the south line of sec 22; thence 200 W. to the $5\frac{1}{4}$ post; thence north 1250 to trail and thence to camp upon trail.

Camp ~~XXIV~~ IV

9655 Coarse Pink Granite, 1750 N of the $5\frac{1}{4}$ post of sec 23, southern exposure 30 steps long road and west.

9656 Coarse Gabbro. High knob 475 N 100 W. of the $5\frac{1}{4}$ post of sec 14

9657 Micaceous quartzite or Schist; 625 W. 720 S. of the $5\frac{1}{4}$ post of sec 23.



T. 44 N. R. 40 W.

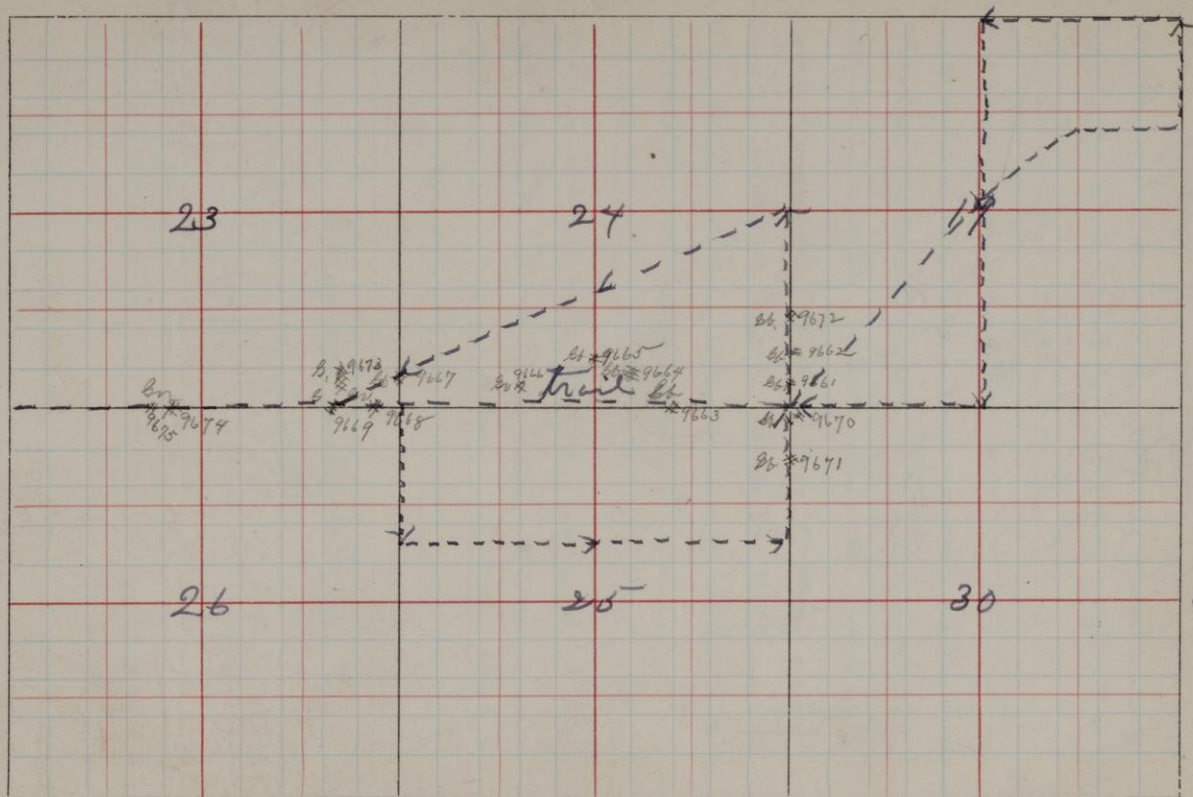
Thursday, Aug 27, 1885
 Trail cut and camp moved
 from 1250 N. 200 W. of the $S\frac{1}{4}$
 post of sec 22, T4 R4 W to
 to 600 S. 500 W. of the N. E. corner
 of sec 19. At the west line of sec 22
 the trail is 300 N. of the $\frac{1}{4}$ post
 Trail also located at 500 W. 1370 N.
 of the $S\frac{1}{4}$ post of sec 21
 The following run was also made
 starting 800 N. of the $S\frac{1}{4}$ post
 of sec 21, from 875 S of the $\frac{1}{4}$
 post; thence 500 W; thence
 south to 800 S of the south line
 of sec 21; thence 300 W; thence
 80 N. to $S\frac{1}{4}$ post; thence
 500 W; thence north 1370 to
 trail thence on trail to camp.
 Camp XXXX

9608 Coarse Gabbro. Western exposure
 upon bank a little way from creek,
 300 N. of the $S\frac{1}{4}$ post of sec 21
 extends to 400 N.

9609. Coarse Pink Granite. 875 S of
 the $S\frac{1}{4}$ post of sec 21. Southern
 exposure 20 steps long.

9660 Coarse Pink Granite. At junction
 of a creek with Brumfield River
 475 W. 1080 S. of the 2 1/4 poss.
 of Sec 21. There are rapids in
 the river and this exposure extends
 50 steps down and 150 steps up
 stream. The ^{river} was followed so as to
 be seen this distance. How much farther
 the exposure extends I cannot say.
 The river's course, N. E. down stream;
 up stream S. 50, then S. E. 50,
 then nearly east. This exposure
 also extends 25 west in creek.
 In running over the creek is crossed
 four times in 200 steps; N. E. 80 S.
 of the S. line of Sec 21.
 River,

Friday Aug 28.
 Rain all day.



T. 44 N

R. 44 S W

Saturday, Aug 29, 1885.
 Camp moved from 600 S. 500 W.
 of the N. E. corner Sec 19, T44
 R40 W. to the S $\frac{1}{4}$ post of Sec.
 23, T44 R 5 W. Course nearly
 S. W. to the S. W. corner of Sec
 19; thence upon the south lines
 of Secs 24, 23. I also made
 a run from where trail crosses
 the east line of Sec 19, 600 S of
 the N. E. corner north to the N. E.
 corner; thence west to the N $\frac{1}{4}$
 post thence south to the S $\frac{1}{4}$
 post; thence west to the S W.
 corner; thence upon south line
 of Secs 24, 23. 44 R. 5 W. to
 Camp. The north and south
 $\frac{1}{4}$ line of Sec 19 from 275 S of the
 N $\frac{1}{4}$ post to 200 N. of the S $\frac{1}{4}$
 post runs through *Juncus lamareus*
 and open swamp. Camp XXXVI

9662 Babber 285 N. 20 E. of the S. W.
 corner Sec 19. Very coarse.

9661 Black Babber, 115 N. of the S. W.
 corner of Sec 19. Contains much

magnetite.

- 9663 Sabbro. 600 W. of the S. E. corner
Sec 24, T 44. R 5 W.
- 9664 Crane Sabbro. Large Bluff
800 W. 175 N. of the S. E. corner
of Sec 24.
- 9665 Black Sabbro 1000 W. 200 N.
of the S. E. corner of Sec 24.
Magnetic.
- 9666 Greenstone (Diabase?) 100 N. 400 W.
of the S $\frac{1}{4}$ part of Sec 24. Ledge
continued to 100 N. 525 W.
- 9667 Sabbro 100 N. of the S. W.
corner of Sec 24. Magnetic
- 9668 Greenstone (Sabbro?) 110 W. of the
S. E. corner of Sec 23. T 44, 5 W.
9669. Ironstone. Exposed in bed of
Mauingo River 350 W. of the
S. E. corner of Sec 23. T 44. 5 W.

600p S + 500p W NE Cor 24

Jan 19, 44, 4m

In the vicinity of the camp, there were very large boulders, some of them ten feet in diameter, of these gabbros. Both the boulders and ledges contain so much magnetite as to entirely control the needle in their immediate vicinity. 9661-65-67 are so powerfully magnetic as to act in the hand specimens as magnets, and saving the needle from side to side when brought near them.

Rain

Sunday, Aug 30, 1883.

Rain much of the day. The following run was however made.

Starting at the N. W. corner of Sec 23, T 44. R 5 W., we ran 700 S.; thence east to the east line of the section; thence north to the E $\frac{1}{4}$ part of Sec 24; thence West. south West to the S. line of Sec 23 striking it at 300 W. of the S. E. corner. The last 500 steps before reaching east line of Sec 23 is upon the north border of an open spruce and tamarac swamp.

In the run West. south west from the E $\frac{1}{4}$ part of Sec 24 galena ledges like those found upon or near the south line of Secs. 24 and 23 were not reached until within a short distance of these lines.

9670 Gabbro 405. 25 E. of the N. W. corner of Sec 30, T 44. R 4 W.

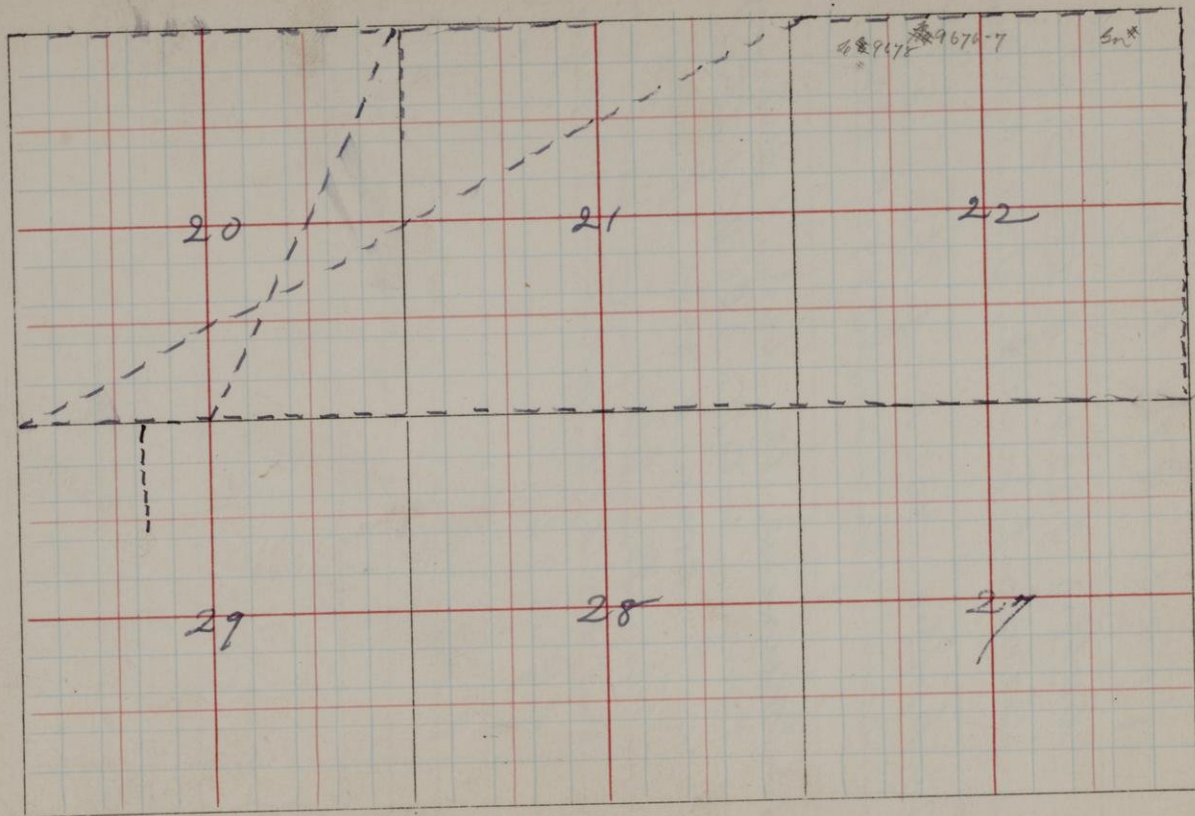
9671 Babbo 300 S. of the N. W. corner
of sec 30, T44 R4W.

Babbo 330 N. of the S. E.
corner of sec 24, T44, R5W.

9672 Babbo. 450 N. of the S. E.
corner of sec 24, T44, R5W.

9673 Snice in the bed of Mearns
River. 200 N. 300 W of the
S. E. corner of sec 23. 44,
5W. This ledge is continued
out south to within 50 steps
of 9669

Rain



T. 44

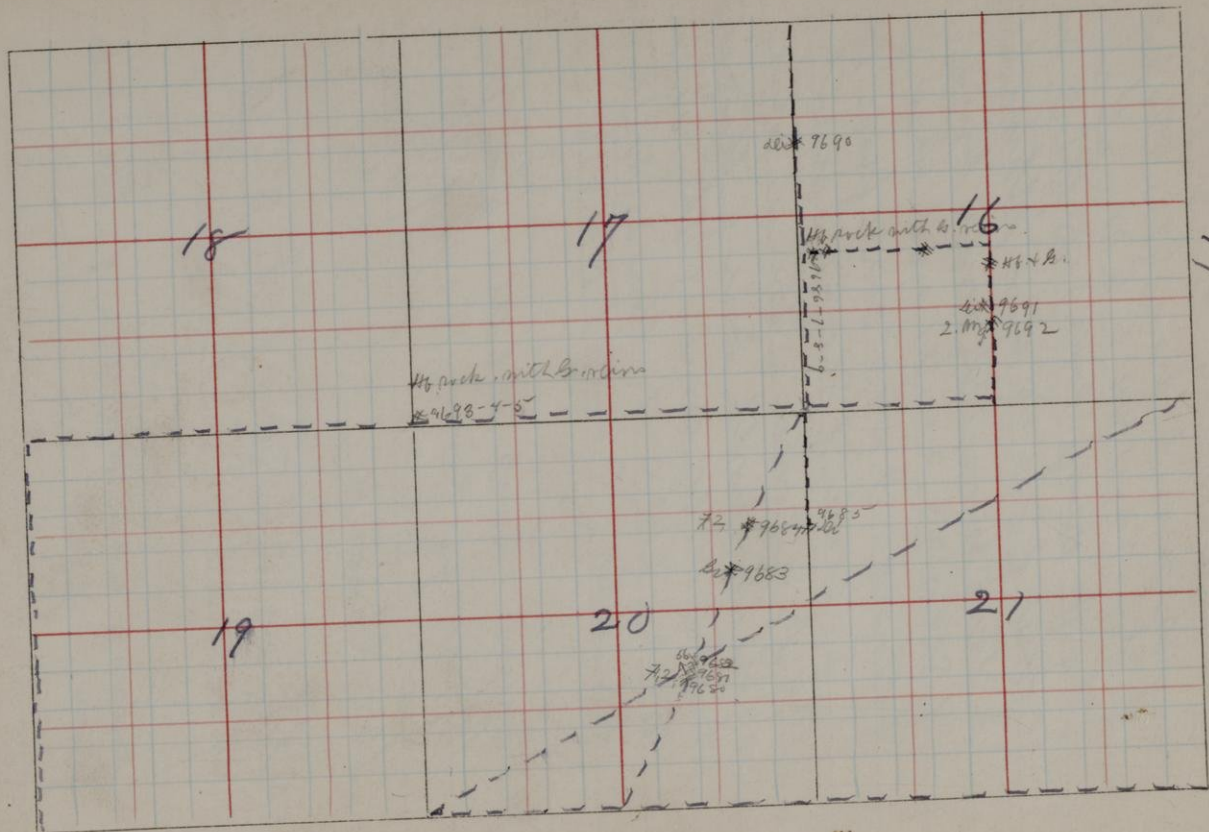
R. 5M

Monday, Aug 31, 1885.
 Camp moved from the $8\frac{1}{4}$ pos
 of Sec. 23, T44 R 5 W. upon
 (the Mearns River) to the S. W.
 corner of Sec 20 (upon Steinbocker)
 In this move the south lines
 of Secs 23, 22, 21 and 20 were
 followed. I also ran from the
 S. E. corner of Sec 22, north to
 the N. E. corner; thence west
 near the north line of the section
 to the N. W. corner; thence ran
 west $26\frac{1}{2}$ S to the S. W. corner
 of Sec 20. Camp XXXXVI

9674 Sniss. Bank a little way from
 Mearns River, 160 W of the $8\frac{1}{4}$
 pos of Sec 23. This exposure
 continues to

9675 Sniss 225 W. of the $8\frac{1}{4}$ pos
 of Sec 23.

9676 Sniss. 225 W 100 S. of the N.E.
 corner of Sec 22.



T. 44

R. 6-1/2

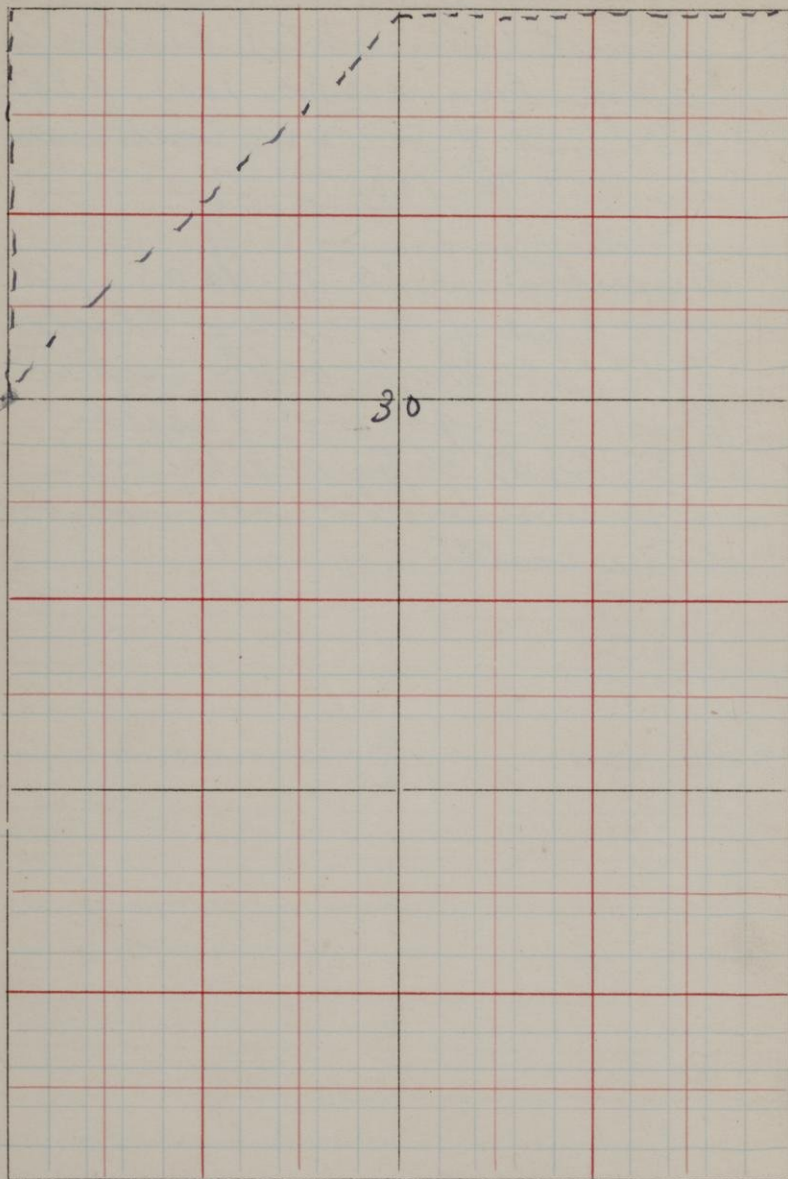
- 9676 Massive Limestone } Ledge with
 9677 laminated Limestone } Eastern face
 20 steps long 300 W. 100 S. of the
 N $\frac{1}{4}$ part of Sec 22. Continued
 to 300 W. 100 S.

- 9678 Limestone, 675 W. 150 S. of the
 N $\frac{1}{4}$ part of Sec. 22. Bluff
 fifty feet high with eastern
 face 50 steps west of creek.
 Extends 50 steps west and
 to a considerable unpaired dis-
 tance south.

Rain

T.

R.



Tuesday, Sept 1, 1880.
Camp moved from the N.E.
corner of Sec 30 to the west $\frac{1}{4}$
part of the same section. The
latter point is near a small
lake. The course followed
was west to the N $\frac{1}{4}$ part;
then S.W. to the W $\frac{1}{4}$ part.

Starting at the N.W. corner
of Sec 29, we ran east 750; then
south 550 and back; thence
east to the N $\frac{1}{4}$ part of Sec 29;
thence N $26\frac{1}{2}^{\circ}$ E to the N.E.
corner of Sec 20; thence south
600 and back; thence north
to the N.E. corner of Sec 17;
thence south 1200; thence
east to the N + S $\frac{1}{4}$ line
of Sec 16; thence south to
the S $\frac{1}{4}$ part of Sec 16; thence
west to the S.W. corner of Sec
18; thence south to camp on
the W $\frac{1}{4}$ part of Sec 30.

The West $\frac{1}{2}$ of Sec 19 and the
N.W. $\frac{1}{4}$ Sec 30, T44 R3 W and
Sec 24 and the N.E. $\frac{1}{4}$ of Sec.
25, T44 R6 W. is with the

4 ception of one or two small lakes
 on great open tamarac swamps.

9679 Banded Ferruginous Magnetite.
 7502. 5405. of the N. W.
 corner of sec 29. Ledge ten feet
 long and five feet high upon
 north end of steep bluff
 from 50 to 75 feet high. As
 this is the only outcrop anywhere
 to be found upon this steep hill
 it seems probable that the large
 mass is drift.

9680 Magnetic Magnetite. 700
 paces from the S. E. post of
 sec 20 upon a course N $26\frac{1}{2}^{\circ}$ E.
 Ledge extends 20 steps in a
 S. W. and N. E. direction.

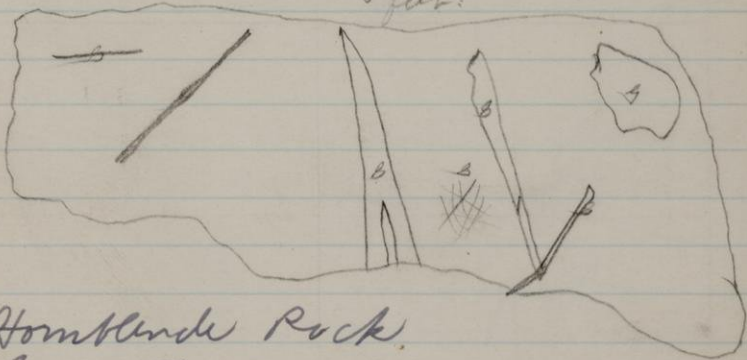
9681 Banded Ferruginous Schist.
 710 from S $4\frac{1}{4}^{\circ}$ post of sec 20
 upon above course. Strike
 N 50° S. Dip 56° N. Ledge
 fifty steps long in a S. W.
 and N. E. direction.
 Continuing upon our course

- alterations of 9680-81 with
 9682 Banded Ferruginous Schist are
 continuously exposed to 810.
 from 14 pos.
- 9683 Diorite, 1280 from 8 1/4 pos
 of sec 20 upon above corner
 Southern exposure.
- 9684 Banded Ferruginous Diorite
 1500 from 8 1/4 pos of sec 20
 upon same corner. Continues
 #1600 from 14 pos.
- 9685 Diorite. 600 S. of the N.E. corner
 of sec 20.

The first ledge of "Hornblende
 Rock with Granitic Veins"
 was met with 800 N. 70° E.
 of the S. W. corner of sec 16.
 This ledge might almost
 as appropriately be called
 Granite rock with horn-
 blende veins although the
 hornblende rock is probably
 greater in quantity than

the granite. Often the line of separation between the two species of rock is sharply defined, but as often the two are mingled together in a confused way. Whether well or ill defined the manner of the mutual inter-section shows no trace of order.

5 feet.



- 9686 Hornblende Rock.
- 9687 Granite vein
- 9688 Hornblende Rock with Granite vein
- 9689 Granite mingled with Hb. Rock.

9690 Diabase 680 S. of the N. W. corner of sec 16.

Hb. Rock with Granite veins
1200 S 140 E, from 1200 S. 620 E.
to 1200 S. 670 E. and 1300 S. 1000 E.
of the N. W. corner of sec 16.

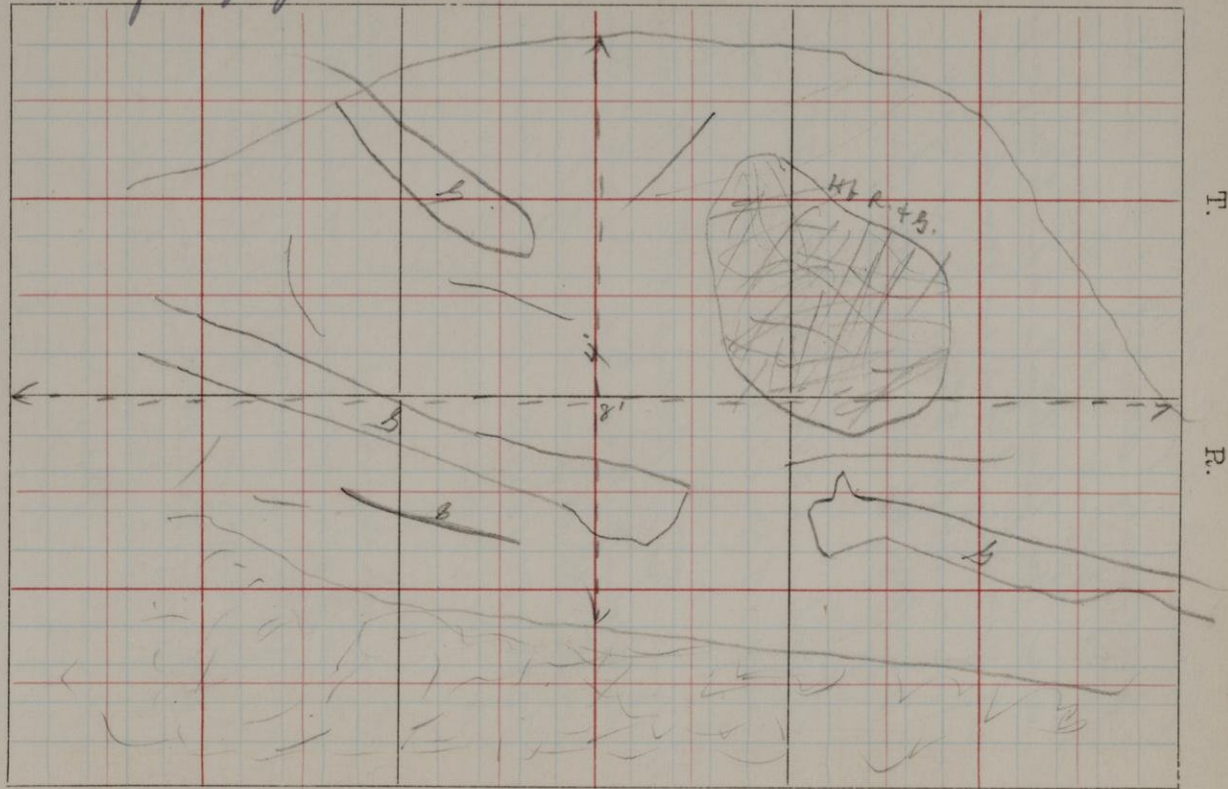
These ledges differ from those previously described in several points. The granite veins are less plentiful and the proportion of granite of course much less. As a whole the name given by Wright is very appropriate.

9691 Diorite 1500 S. 940 E. of the N.W. corner of Sec 16.

9692 In a zone Magnetite. From ledges of Banded Magnetite Schists and Ferruginous Magnetite like 9680-81 1600 S. 1000 E. of the N.W. corner Sec 16.

The S. W. $\frac{1}{4}$ of Sec 16 appears to be almost solid rock. The object of running around this $\frac{1}{4}$ section was to ascertain whether these rocks were like the diorites and ferruginous rocks found in Sec 20. They are identical with them. So far as could be judged in the brief time had to observe here, Wright's

Portion of ledge from which 9698-4-5 are taken.



map is accurate.

Through section 20 as run, and in Sec 16, the magnetic attractions are often large and rapidly varying. We had no time to take regular readings.

There are large exposures of Hornblende Rock with Granite veins, as stated by Wright in the S. W. $\frac{1}{4}$ of Sec 17. These exposures do not differ from those previously seen in Sec 16. Specimens were taken near the S. W. corner.

9693 Hornblende Rock

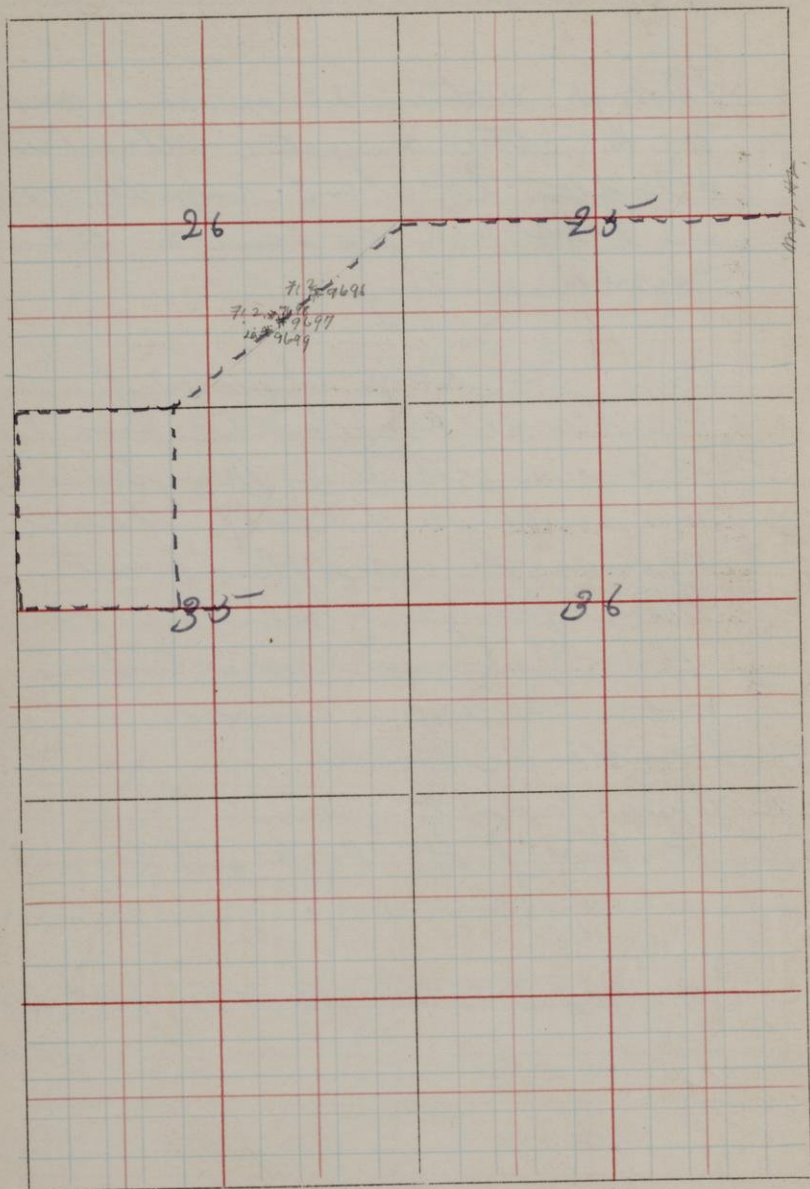
9694 From Granite vein

9695 Mixture of Hb. Rock and Granite

Camp ~~XXX~~ VIII at NW $\frac{1}{4}$ just Sec 20

T. 44 N

R. 6 W



Wednesday, Sep. 2, 1880.
 Camp moved from the $\frac{E}{4}$ part
 of Sec. 25, T44 R6 W. to the
 S. W. $\frac{1}{4}$ Sec 85 upon Numakegon
 Lake. Course next to
 W $\frac{1}{4}$ part of Sec. 20; S. W. to
 200 W. of the $\frac{S}{4}$ part of Sec.
 28; south to Numakegon Lake.
 I also ran from 200 West of
 the $\frac{N}{4}$ part of Sec 85 west to
 the N. W. corner; south to the
 W $\frac{1}{4}$ part; east to the center;
 then to camp. Camp XXXIX

The west line of Sec 20
 makes an angle of more
 than 20° at the $\frac{1}{4}$ part.
 North of the $\frac{1}{4}$ part the
 line runs north and south,
 but going south from the $\frac{1}{4}$
 part the line runs about
 $S. 20^\circ E.$ This bend is prob-
 ably explained explained by con-
 sidering the line a magnetic
 one south of the $\frac{1}{4}$ part, while
 to the north the line is a
 decl one. As a result of
 this bend a course S. W.

from the $E\frac{1}{4}$ part of Sec 26,
 strikes the south line of the
 section 800 E. of the S. W. corner.
 Rain.

235 N. of the $W\frac{1}{4}$ part Sec 25-	
Magnetic variation	13° W.
185 N. Mag. var.	8° E.
135 N. " "	45° E.
85 N. " "	10° E.
0 N. " "	0
88 E. " "	65° W.
100 S. " "	20° W.

9696 Ferruginous Quartzite 540 S. W.
 of the $E\frac{1}{4}$ part Sec 26.

9697 Actinolitic Schist 760 S. W.
 of the $E\frac{1}{4}$ part of Sec 26.

9698 Actinolitic Schist 740 S. W.
 58° W. of the $E\frac{1}{4}$ part Sec 26.
 Strike N 10° S. Dip 43° N.

9699 Diorite. 815 S. W. of the
 $E\frac{1}{4}$ part of Sec 26.

T. 43

R. 7W

Amg #
9704-5

Amg # 9705-9
Amg # 9706-7
5-7-1-1-2-3

20

Thursday, Sep. 3, 1886.
 Camp moved from the S. W.
 $\frac{1}{4}$ Sec 35, T44 R 6 W to the
 Dam at the foot of Kumbayon
 Lake in the N.E. of Sec 8
 T43 R 6 W. From this point
 lumber supply road was
 followed to Cable near the
 center of Sec 18, T43 R 7 W.
 Alley cut by at head of lake.
 Rain. Camp EL

9700 Amygdaloid. Large exposure
 9701 on south side of Kumbayon
 9702 River 350 W. of the E. line
 9703 of Sec 20. T43 R 7 W.

9704 Amygdaloid. 800 W. 100 N of
 9705 9700-1-2-3. Silver Mine
 Shaft.

9706 Coarse, laminated, contorted
 9707 breccia. 250 East of 9700-1-2-3.
 Upon south bank of Kumbayon
 River. From this point
 the exposure extends at least
 50 W and 100 E.

- 9708 Amygdaloid. 100 m of 9600-
9709 1-208 upon north bank of
river.

Friday Sep. 7. 1880,
Camp moved to Cable and
train taken for Ashland.

