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Michigan land and Iron County's land, Northern Michigan: [specimens] 16346-16499, 17500-17513. No. 90 1889

Merriam, W. N.
[s.l.]: [s.n.], 1889

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U. S. GEOLOGICAL SURVEY
FIELD SECTION BOOK

No. 90.

1889.

Michigan Land & Iron Co's. Land.

Northern Michigan

G. N. Merriam.

16346-16499, 17500-17515

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 lines 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 $2 \times 2\frac{1}{2} \times \frac{1}{4}$ 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 slieing. 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.

16 346 - 16 499

17 500 - 17 513

16346 1990 N. 00 W. S. E. Sec 3-47-30

16347 Mica schist or gneiss The exposure rises in a rounded knob near top of ridge and belongs I think rather with the granitic than with the Slauvolutic schists to the west

16348 1900 N. 150 W. S. E. 3-47-30

From top of westward continuation of above ridge

The rocks along the ridge seem to dip N. W. at an angle of about 45°

16349 1875 N. 140 W. S. E. 3-47-30

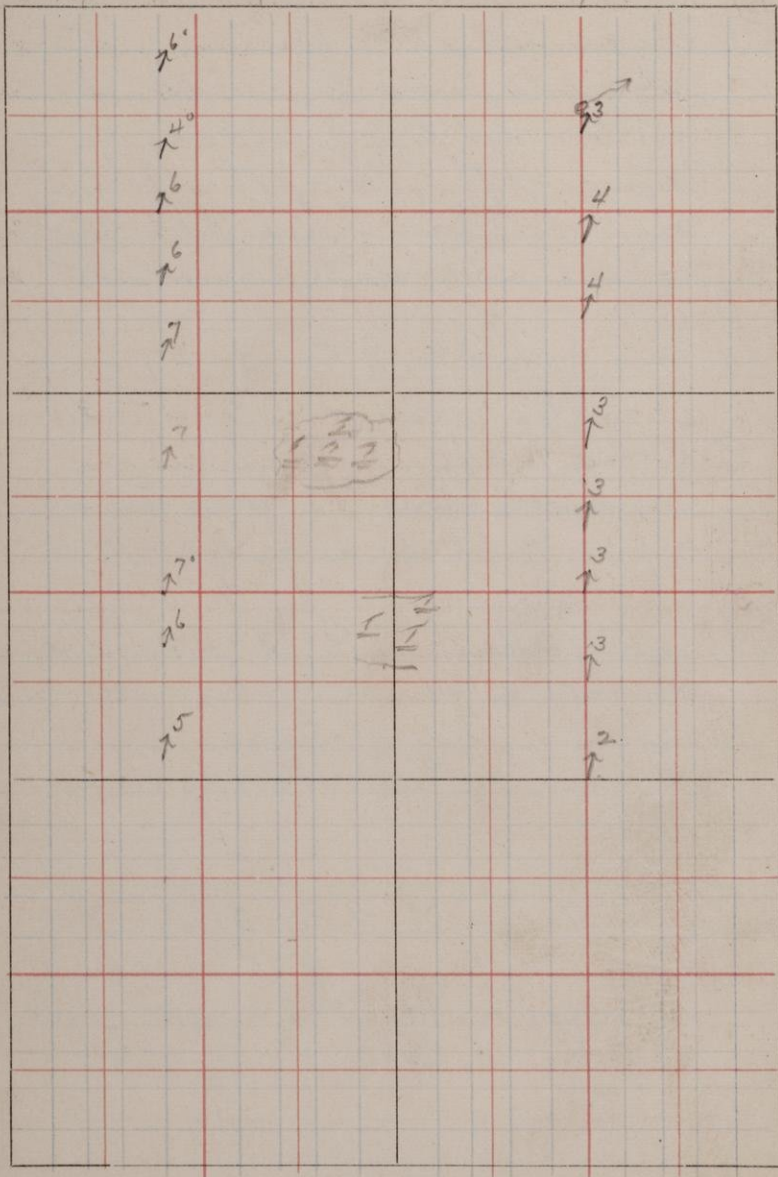
Small exposure of this greenstone shows in top of ridge Too much covered to tell whether dyke or not

16350 1790 N. 120 W. S. E. 3-47-30

Large exposures of this schist or gneiss on the south side of ridge Dip 45° N. W.

27.7r. 1/4 5⁻ T. 47

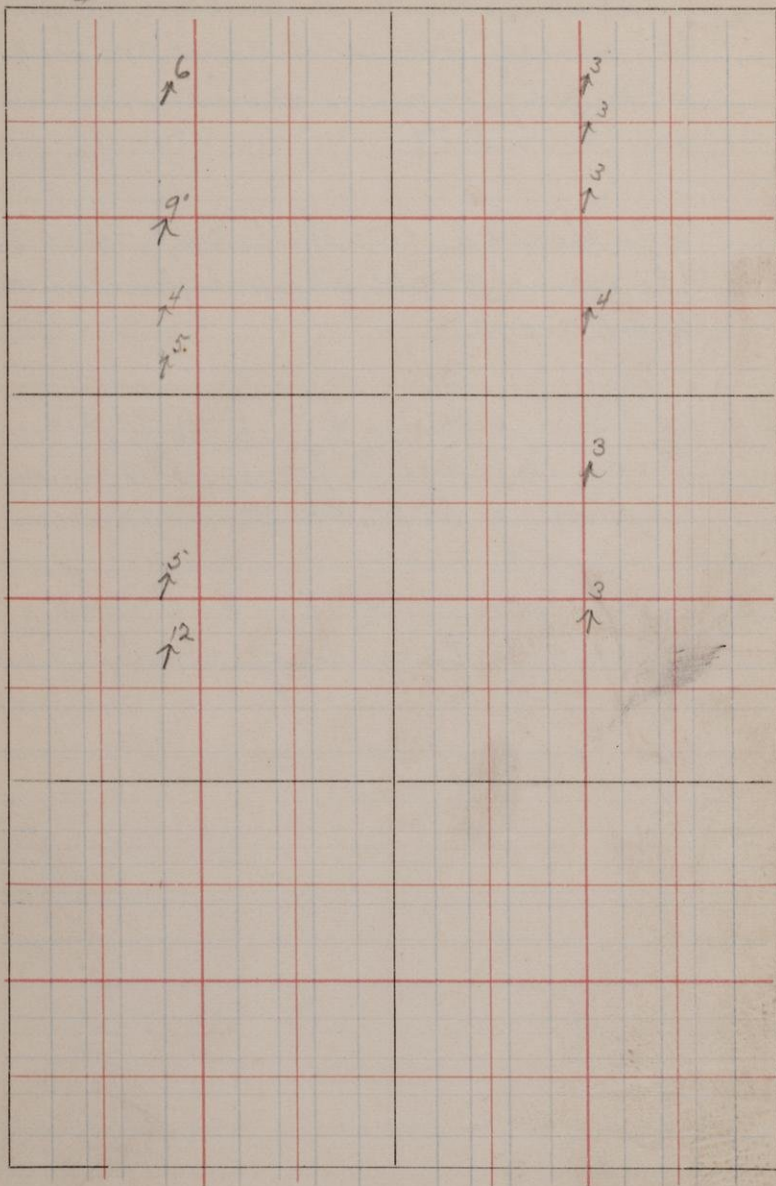
R. 30 \uparrow 2



- 16351 1700 ft. 150 ft. N. E. 3-47-30
Granite from ledge rising
abruptly from a small swamp
on the north
- 440 South 150 ft. N. E. 3-47-30
The same rock shows again in a
high ridge
- 16352 1550 ft. 400 ft. N. E. 3-47-30
Granitic rock from ridge
running S. 30° W.
- 16353 1700 ft. 400 ft. N. E. 3-47-30
From north side of above ridge

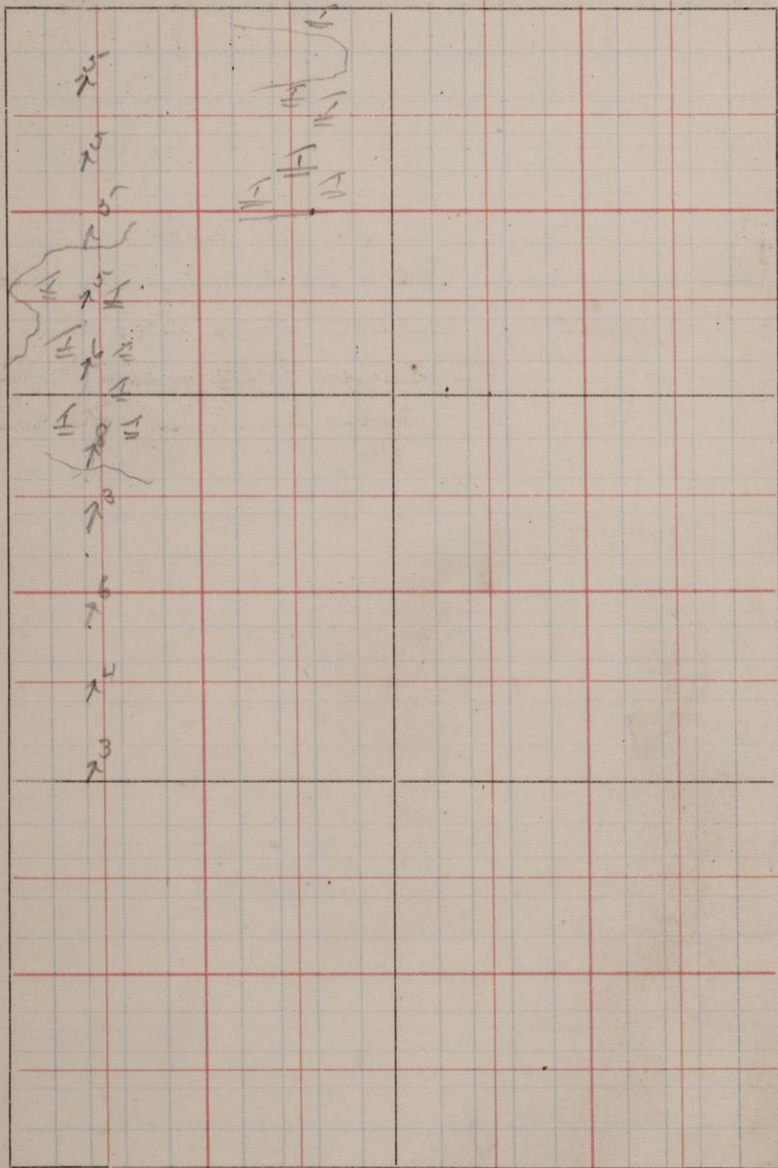
S. N. 1/2 5⁻ T.

R.



A.E. 145 T. 47

R. 30



16354 900 N. 200 N. S. E. 5-47-30

Staurolitic mica schist
striking N. W. P. S. E. Dip
high to N. E.

In Sec. 5 only one exposure
was seen. In a number of places
the mica schist was seen
however in large fragments, but
nothing that was certainly in situ

N.E. 1/4 5 T. 47

R. 30

25

20

20

25

25

29

24

24

4

↑

222

N.E. 1/4 Sec 8 T. 47

R. 30

x^2 x^2 x^5

16353- 800 ft. 1900 N. S.E. 8-47-30

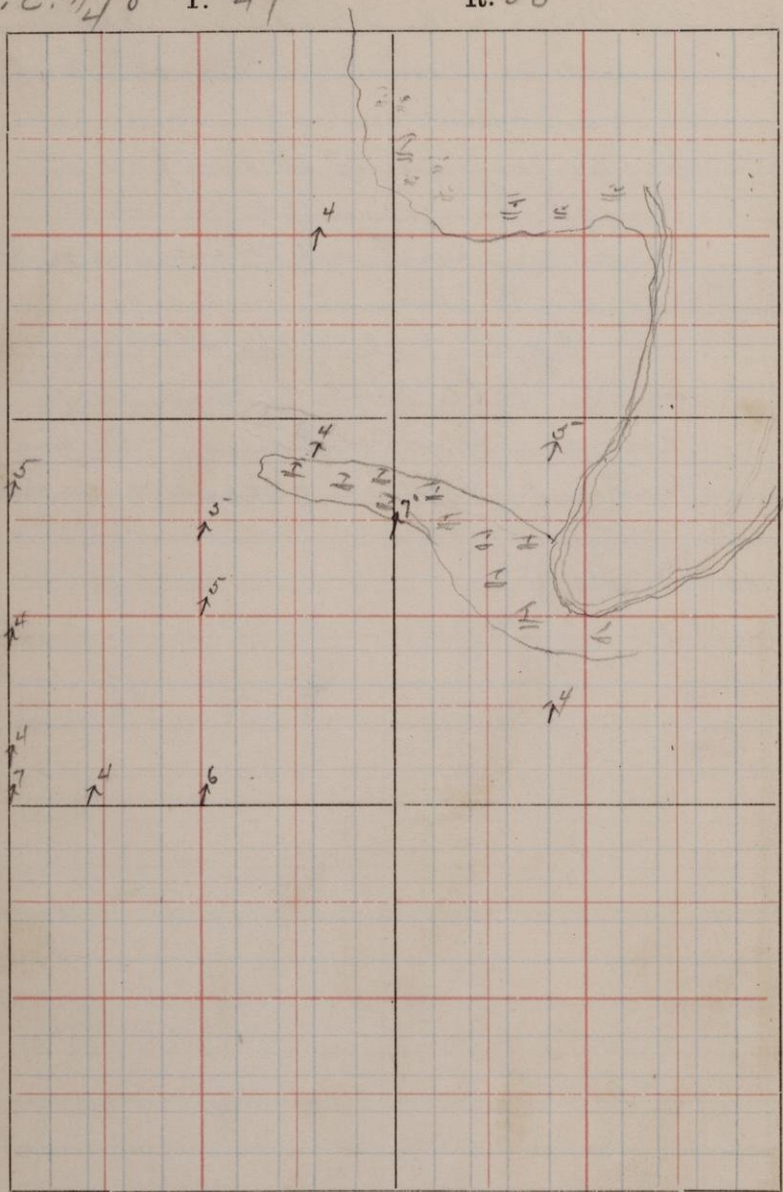
Small exposure of staurolitic
mica schist

Large fragments show for a
couple hundred paces west
and are without much doubt
closely to place

The north half of the section is
quite well cleared and was
crossed several times but no
more rock in place was noted

S.E. 1/4 8 T. 47

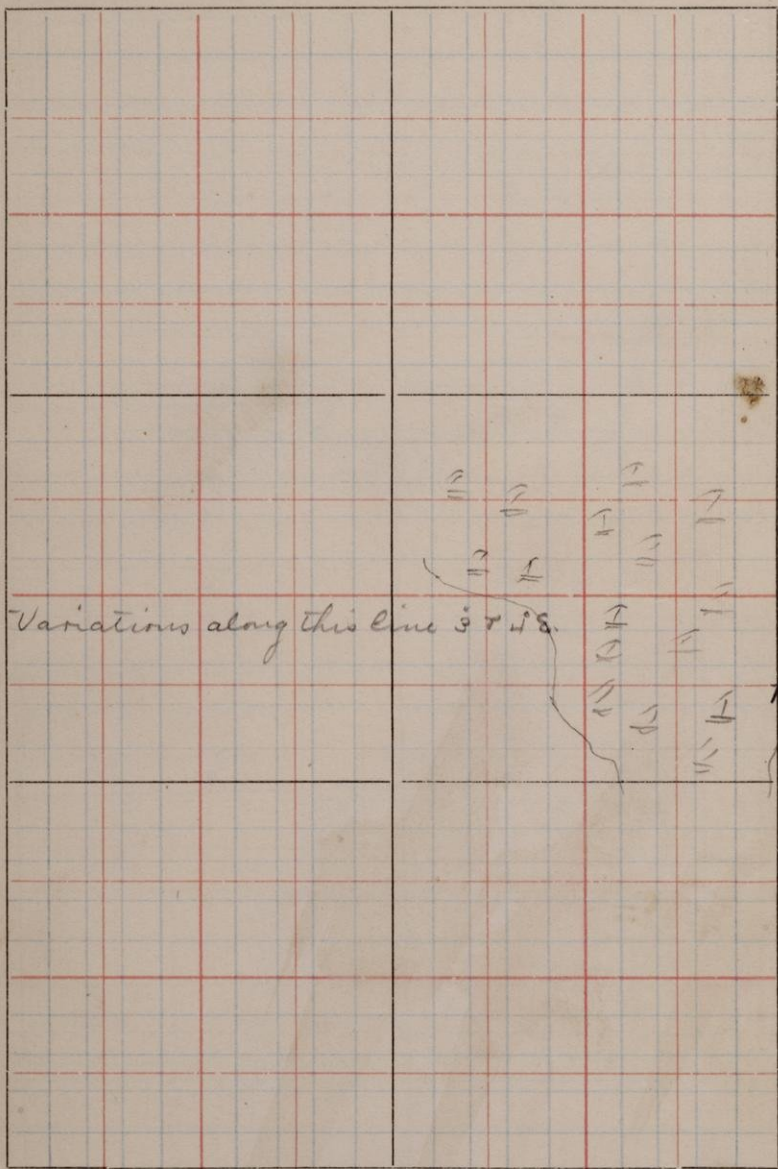
R. 30



N.W. 1/4 8

T. 47

R. 30



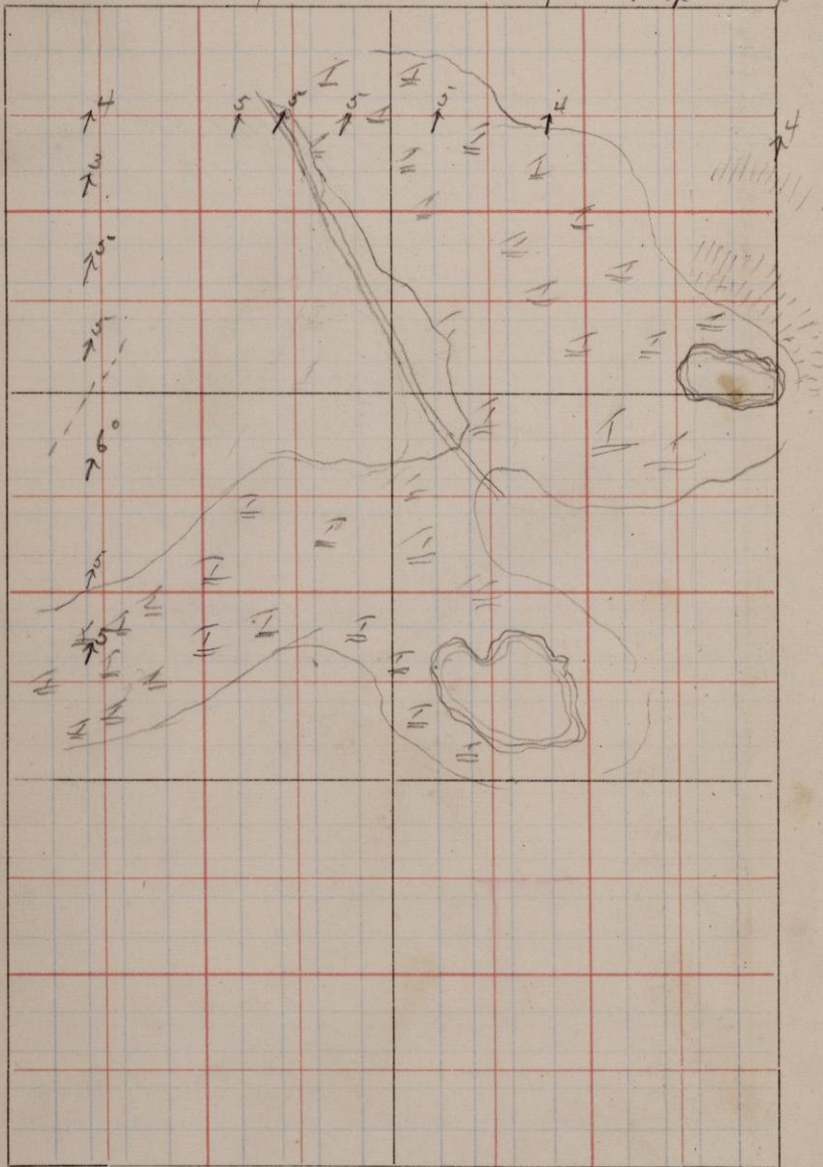
Variations along this line 3748.

72

P. 26 1/4 Sec 8

T. 47

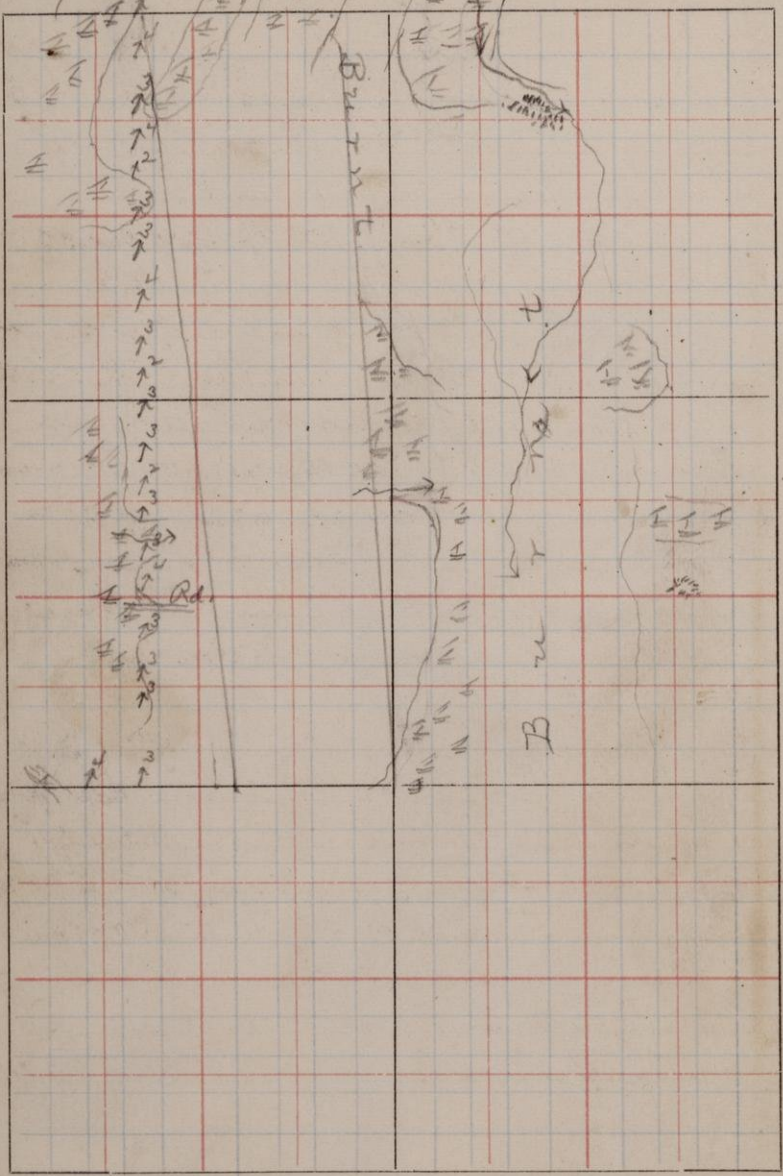
R. 30 1/4



Sic 7

T. 47

R. 30



16356

1946 N. 00 N. S. E. 7-47-30

From small test pit. The rock seems to be in place. Strike 10° N. of N. Dip high (?) to north east.

16357

From test-pit 120 paces east of S. W. corner Sec 7-47-30

These locations are doubtful as we could make neither the needle nor dial agree with the lines according to the distance from the S. W. corner of sec. 16356 should be 200 paces farther east than we made it in running through from the north line

16358

1780 N. 600 N. S. E. 7-47-30

Staurolitic schist in large fine exposures on south side of Spruce River. In places the staurolites show better than I have seen them before.
Strike $S 45^{\circ} E$. Dip 45° N. E.

16359

600 ft. 925 N. S. E. 7-47-30 //

Small ledge of Staurolithic mica schist

Strike 20° N. (approx)

16360

00 N. 00 W S. E. 7-47-30

Small rounded knob of mica schist

The last line was run with a 5° W. variation and the result was a line parallel to the section line

16361

525 N. 200 ft. S. E. 7-47-30

Ledge of mica schist about 50 paces long (Staurolithic, Dip 45° N. Strike E. 35° S)

7. 2/10/4

170

T.

47
Road

R. 30

↑ ⁰		
↑ ⁰		
↑ ²		
↑ ¹		
↑ ⁰		
↑ ⁰		
↑ ⁵		
↑ ⁰		
↑ ⁵		
↑ ⁰		
↑ ²		
↑ ²		
↑ ³		

1 4
1 4

4 4
4 4

2. 10/10/4

S.A. 1417

T. 47

R. 30

↓
↑
3
↓
↑
2
0
↑
70

PHOTO
10000000



71.81417

T. 47

R. 30

The page contains a large grid with a blue grid pattern. A vertical red line divides the grid into two columns. A horizontal red line divides the grid into two rows. The grid is otherwise empty.

16362 1060 N. 600 N. D. E. 17-47-30 14

Staurolitic mica schist
in rounded exposure about
15 x 40 paces

Strike S 00 E. Dip to the east.
I think at quite a high
angle

1140 N. 600 N. D. E. 17-47-30.

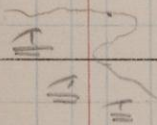
The same mica schist shows
again in small exposure

J.E. 1/2 17

T. 47

R. 30

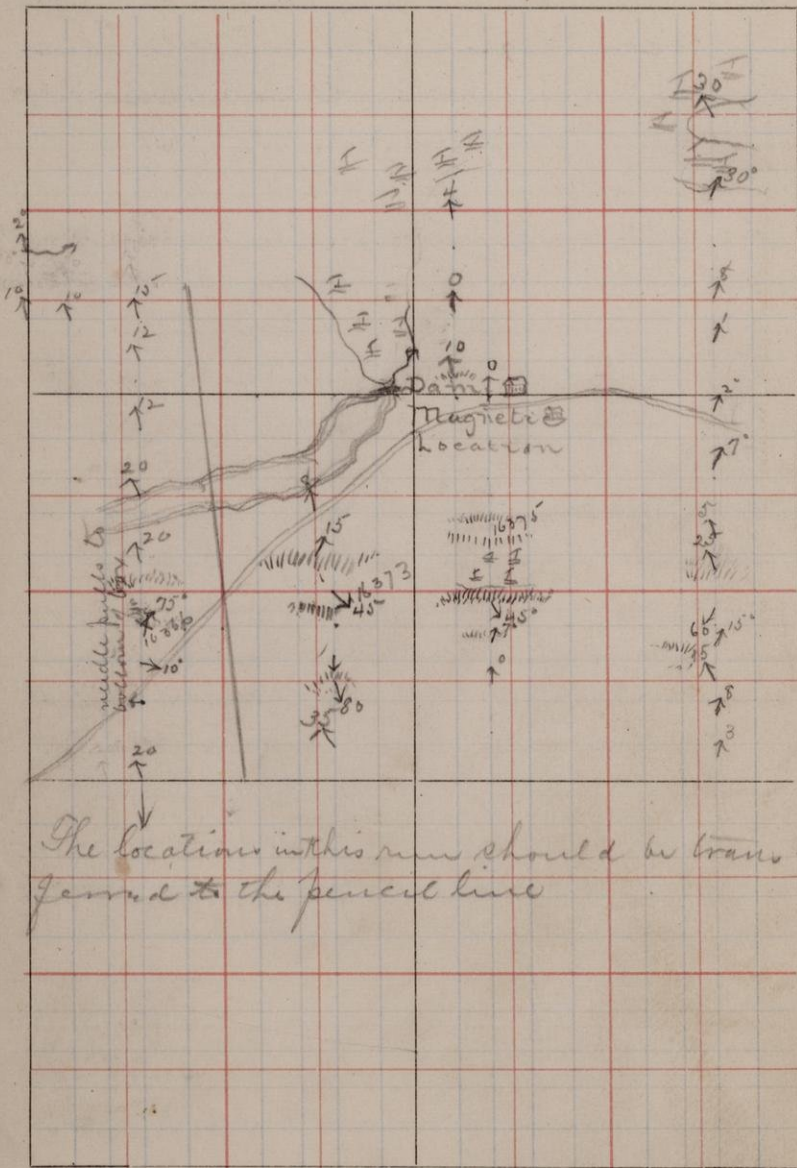
General growth of Poplar.



No. 20

T. 47

R. 30

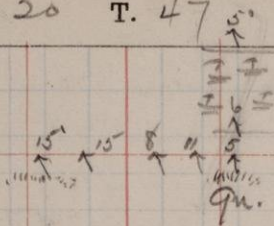


- 16363 1860 N. 25° N. S. E. 19-47-30
A low ledge of greenstone (?) just west of the west line section 20
Dip 40° N. Strike 10° S. of W.
- 16364 50 paces south of 16363 the ledge has an abrupt south face, sloping gradually to the north
Strike of ledge same as 16363
Quartz
- 16365 1260 N. 1850 N. S. E. 20-47-30
A greenstone from a ledge running 15° N. of E.
- 16366 1200 N. 1840 N. S. E. 20-47-30
A greenstone from south side of ridge seems to belong with 16365
- 16367 1000 N. 1720 N. S. E. 20-47-30
a low greenstone ledge It seems to have a dip to the north.
- 16368 1000 N. 1865 N. S. E. 20, 47-30
Small ledge of Quartzite
Qtz

S. 26. 1/4 20

T. 47

R. 30



Handwritten scribbles and the letters 'Qu.' in the top right area of the grid.

Handwritten scribbles and the letters 'Qu.' in the top right area of the grid.

Handwritten scribbles and the letters 'Qu.' in the top right area of the grid.

16369 835 N. 1800 ft. S. E. 20-47-30 17
Low ledge of pinkish granite
running S. of W.

16370 840 N. 1810 ft. S. E. 20-47-30
943 a low ledge only about 5 steps
north of the granite ledge

16371 1060 N. 1600 ft. S. E. 20-47-30
Act sch An iron layer in a highly
banded schist; this rock is
made up of the two bands shown
in the specimen
Strike 40° S. of W. Dip 50° N.

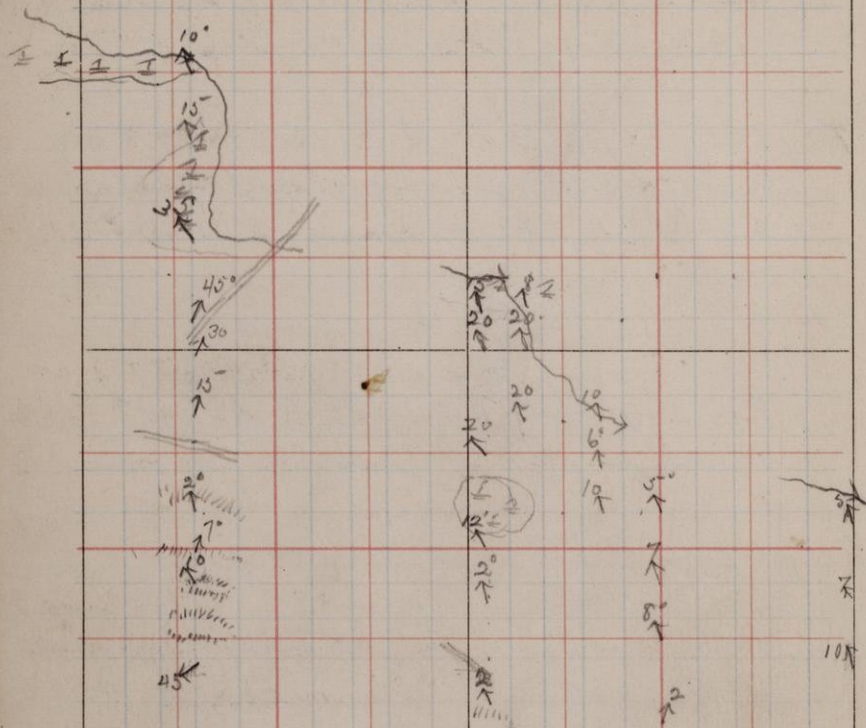
16372 1135 N. 1600 ft. S. E. 20-47-30
sch A quartzose banded schist -
or quartzite striking 25° S of W. and dipping
40° N.

16373 1245 N. 1600 ft. S. E. 20-47-30
gneiss A rock similar to that found
farther west in this section
(16366) seems to be on same
ridge

N.E. 1/4 20

T. 47

R. 30



16374 1525 N. 1450 W. S. E. 20-47-30

with iron

Two or three small knots at this place. Strike E & W. Dip 50° N.

16375 1340 N. 1400 W. S. E. 20-47-30

A greenstone from ledge rising 15 or 20 feet from the level to the north

16376 1230 N. 1400 W. S. E. 20-47-30

From

Like 16372 A ridge 50 feet high of this siliceous banded rock Dip 40 N. Strike E, P W.

16377

From a dike in 16376 it seems to be about ten or 12 feet wide and to run N. E & S. W., inclining to the S. E.

1185 N. 1400 W. S. E. 20-47-30

An exposure similar to 16376

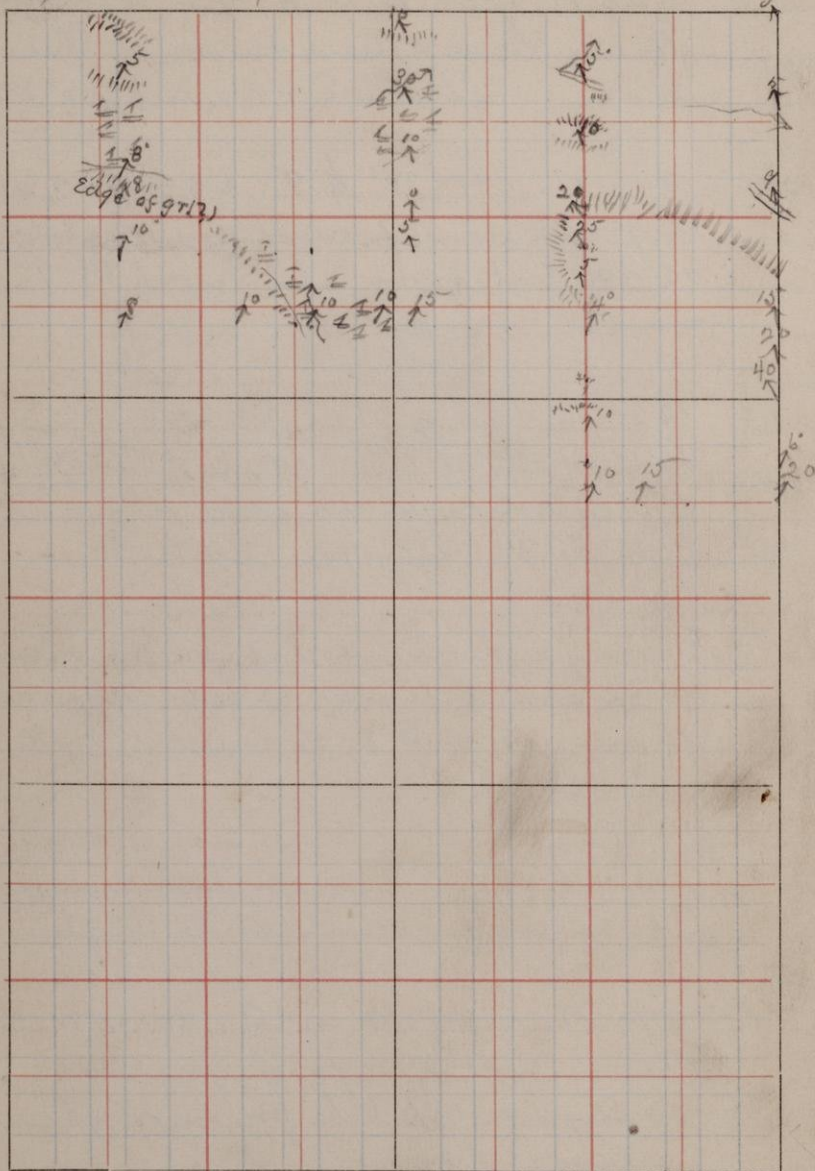
16378 990 N. 1400 W. S. E. 20-47-30

A small ledge of gneiss 41 20 steps south the granite shows in large ledges

S.E. 1/4 20

T. 47

R. 30



16379

960 N. 1100 ft. S. E. 20-47-30

19

95

A low ledge of micaceous
quartzite dipping 40° N.

1130 N. 1100 ft. S. E. 20-47-30

the banded iron similar to
16376 shown

16380

1200 N. 850 ft. S. E. 20-47-30

Small ledge of this rock similar to
that to the west Strike 15° N. of W
Dip 40° N

16381

1150 N. 850 ft. S. E. 20-47-30

A ledge of micaceous quartz-
schist Strike 12 N. of W
Dip 60° N

16382

1080 N. 850 ft. S. E. 20-47-30

a small low ledge of granitoid

16383

970 N. 850 ft. S. E. 20-47-30

A small ledge of garnetiferous
mica schist I think it is
in place but am not sure
It is about 15 ft. sq.
Strike 10° E of N. Dip 35° N.

1/21/42

T. 47

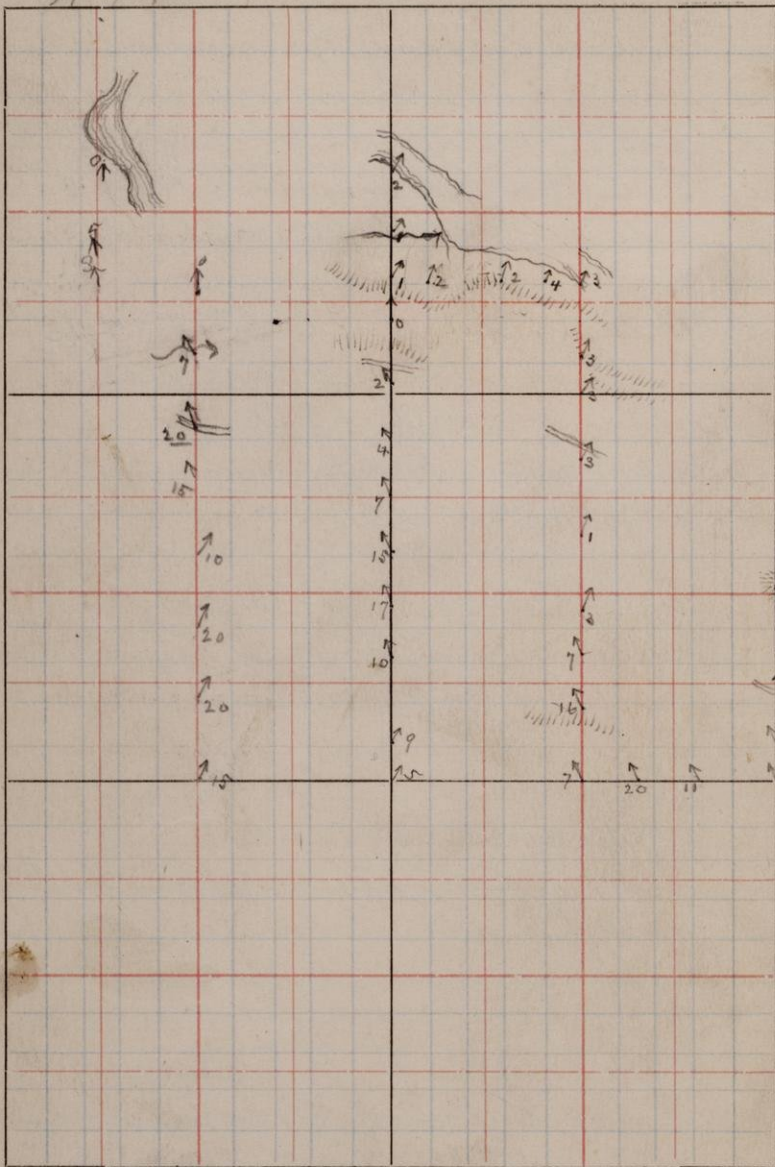
R. 30

The image shows a page from a notebook with a grid of graph paper. The grid is defined by a red border and blue lines. A vertical red line and a horizontal red line intersect in the center, dividing the page into four quadrants. In the bottom-left quadrant, there are two small handwritten marks: a '2' with an arrow pointing up, and a '3' with an arrow pointing up.

- 16384 1050 N. 475 N. S. E. 20-47-30
A low ledge of greenstone
- 16385 925 N. 250 N. S. E. 20-47-30
- A ledge of greenstone on south side of road to Magnetic Location
- 16386 865 N. 250 N. S. E. 20-47-30
A large ledge of greenstone rising about 25 ft. from the north. Ledge runs 20 S. of E. Dip 60° N.
- 16387 700 N. 250 N. S. E. 20-47-30
Greenstone from top of high bluff or knob. rising 50 feet
- 16388 700 N. 250 N. S. E. 20-47-30
rounded exposure in top of bluff. Seem to dip high to north. Has somewhat the appearance of a mica schist
- 16389 535 N. 250 N. S. E. 20-47-30
A low ledge of Hornblende schist. Strike 15° S. of E. Dip 55° N.

D 24 44 21 T. 47

R. 30



- 16390 483 N. 250 W. S.E. 20-47-30
A ledge of micaceous quartzite
striking 20 S. of E. 75 N.
- 16391 440 N. 250 S.E. 20-47-30
A lens shaped mass of siliceous
quartzite in the micaceous
quartzite. It is 25 or 30 ft -
long and 8 or 10 wide
- 16392 370 N. 200 W. S.E. 20-47-30
A large ledge of granite lying
about 10 or 15 steps south of the
quartzite
- 16393 Schist about ten steps
north of the granite
370 N. 205 W. S.E. 20-47-30
Schist shows similar to 16393
- 16394 370 N. 195 W. S.E. 20-47-30
A granulite from a large
ledge dike in quartzite
running S.E. & N.W. (approx)
Along the east edge the quartzite
is conglomeratic carrying

S'E

1/4 21

T.

47

R.

30

A large grid on graph paper with red and blue lines. The grid is divided into four quadrants by a vertical red line and a horizontal black line. There are some faint pencil marks in the bottom-left quadrant.

white quartz pebbles

- 16395 Shows this conglomerate
- 16396 " a pebble in this conglomerate

A few paces east the quartzite is finely banded showing conglomeratic bands side by side with the sericitic schistose structure

- 16397 Shows this conglomeratic material
 - 16398 " " schistose variety
- Strike 45 S of E. Dip 70 N.

- 16399 660 N. or E. S. E. 20-47-30
- A large ledge of granitoid rising 50 to 70 feet above the country to the north
In places the rock fracture looks somewhat like a mica schist

27. 26. 1/4 28 T. 47

R. 30

7 5 5 8 10 4
 ↑ ↑ ↑ ↑ ↑ ↑
 Surface covered
 with large granite
 masses and
 boulders.



Covered

- 16400 1840 N. 15° or N. S. E. 28-47-30
A small exposure only a few
yds. in extent of the micaceous
quartzite. Could not determine
the dip or strike
- 16401 1630 N. 1750 N. S. E. 28-47-30
A low granite ledge
1715 N. the granite shows again
- 16402 1800 N. 1180 N. S. E. 28-47-30
A low rounded knob of coarse
greenstone
- 16403 1780 N. 1190 N. S. E. 28-47-30
Just south of the greenstone a
micaceous quartzite (upperly) shows
in a ledge about 20 ft. long by 5
wide striking 10 S. of E. and
dipping 75 N.
- 16404 1500 N. 1270 N. S. E. 28-47-30
- 16405 From a ledge about 20 steps wide
- 16406 This specimen shows the mass
of the rock
- 16405 was taken to show another
phase this is apparently in less

quantity than the more schistose
16406 is from a granite mass or
dike in these schists; it shows
for about 4 feet and is about
four inches wide running to a
point to the west. The sketch
shows roughly this dike:

The rock here appears contorted
and I could not be positive of the
dip and strike, but it seems to
strike about 40 E. of S.

16407 1410 N. 1100 N. S. E. 28-47-30
Small ledge of granite south of the
Eric location

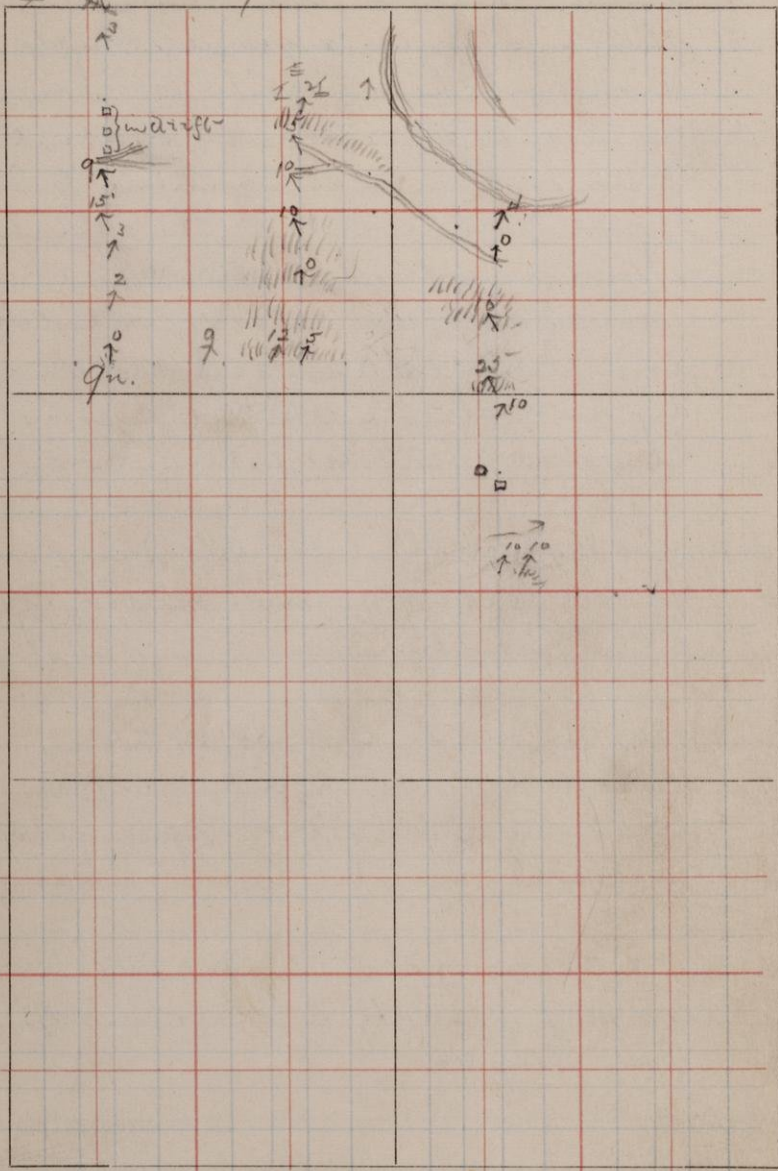
16408 1745 N. 1000 N. S. E. 28-47-30
Small ledge of micaceous quartzite
striking 35° S. of E. Dip nearly
vertical

16409 1780 N. 1000 N. S. E. 28-47-30
Ledge of quartzite striking 13° N.
of W. Dip 80

N.E. 1/4 28

T. 17 N

R. 30 W



- 16410 1795 N. 1000 ft. S. E. 28-47-30
 Fr. quartzite striking and dipping
 the same as 16409
 A shaft has been sunk just north
 of this point in this material
- 16411 1800 N. 1000 ft. S. E. 28-47-30
- 16412 in side of small cut for a shaft-
- 16413 the schist-like 16411 shows on
 the north, next to this and in
 contact on the south is about
 2 ft. of qtz. shown in 16412
 South of this again and in contact
 is the schist 16413
- 16414 1900 N. 850 ft. S. E. 28-47-30
- 16415 A ledge about 40 steps in diameter
 Strike E 7° S Dip 70° N
 16415 lies on the south and
 in contact with 16414
- 16416 1775 N. 850 ft. S. E. 28-47-30
 A small ledge of quartzite striking
 E 40° S. Dip 70° N

- 16417 1740 N. 850 N. S. E. 28-47-30
 Fin. quartzite similar to 16419
 Strike 35° N. of W. Dip 80° N
 Sedgements a number of
 paces E. & W.
- 16418 The same rock is exposed again
 75 paces south of 16417
- 16419 1535 N. 850 N. S. E. 28-47-30
 A low round ledge of granite
 about 30 feet across
- 16420 1500 N. 350 N. S. E. 28-47-30
 A ledge of finely banded mica-
 ceous quartzite striking
 55° S. of E. Dip 90
- 16421 1410 N. 380 N. S. E. 28-47-30
 From a shaft. Could see no
 rock in place
- 16422 1380 N. 350 N. S. E. 28-47-30
 Shaft in rock similar to 16421
 Strike 70° N. Dip 90

- 16423 1330 N. 350 W. S. E. 28-47-30
lies in contact and south
of a quartzite. Only about 2 ft.
in width was seen
- 16424 1270 N. 315 W. S. E. 28-47-30
A large round knob of granite
It has a structure apparently
running about 40° N. of W.
- 16425 1270 N. 210 W. S. E. 28-47-30
A quartz schist in a large
exposure
- 16426 1270 N. 150 W. S. E. 28-47-30
A low knob of this schist is
exposed here
Strike about N.W. & S.E. Dip
 85° N.
- 16427 1660 N. 1030 W. S. E. 28-47-30
Quartzite from the Erie
Location. At this point the
quartzite turns from about
an E & W. direction to a N. and S.
showing the curving.

16428 5 slips north of 16429 On the
north and south strike of thin
quartzite. Strike 10° E. of N. Dip
high, nearly vertical

16429 1635 N. 1030 ft. S. E. 28-47-30
A low rounded ledge of green
stone lying between the quartzite
(16427, 28) and the more fr.
portions in which the ore occurs

16430 1585 N. 1070 ft. S. E. 28-47-30
About 75 ft west of No. 1. shaft
at the Eric mine. Shows a
granular phase of the rock
with secondary quartz-

16431 About 2 feet south of 16430
The "soaprock" of this mine

16432 About 3 inches north of
16431

- 16433 Specimens taken from the
 16434 stock pile and rock dump
 16435 at the Erie mine to show different
 16436 phases of the rock and ore
 16437
 16438
 16439
 16440

Section struck in drill hole
 under the west shaft in Erie
 mine

- 1st 2½ Martin, 2nd 6 ft. ore and quartz,
 3rd 6 ft. ore 4th "Soap rock" 7 ft. 5 ft.
 4 ft. ore fine quality, 6th 8 ft. "soap
 rock", 7th 13 ft. ore.
 2nd d. Hole

1st. mingled iron and gty.
 2^d. 2 ft. slate ore, 3^d mingled
 ore. 4th soap rock, 5th 4 ft. mixed
 and clean ore, 6th 2 ft. soap
 stone, 7th 5 ft. slate ore. stop in
 mixed ore.

- 16441 1666 N, 1100 N. S. E. 28-47-80.
 Quartzite striking N. 27 N.
 Dip 78 N.

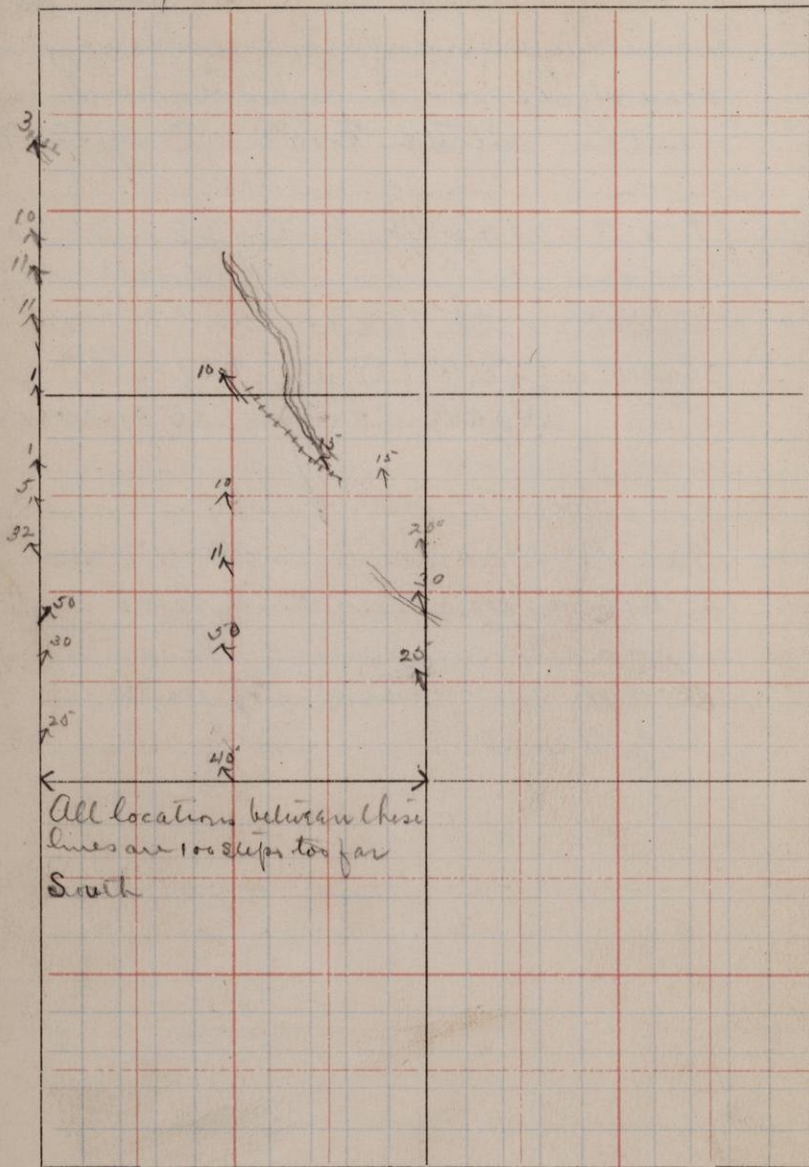
16442 1700 N. 1100 ft. S.E. 28-47-30
 Shows a band of thin micaceous
 quartzite and a portion of a
 nest. Strike E 10 S. Dip 80 N.

16443 1700 N. 1050 ft. S.E. 28-47-30
 Quartzite from a ledge very
 similar to 16442
 Strike 10 E, 9 N. Dip high to
 W. Rock somewhat curved
 and broken

16444 1725 N. 1030 ft. S.E. 28-47-30
 A more vitreous and less
 micaceous phase of chert-
 quartzite. Strk. N. 40 W.
 Dip 90

S.E. 1/4 27 T. 47

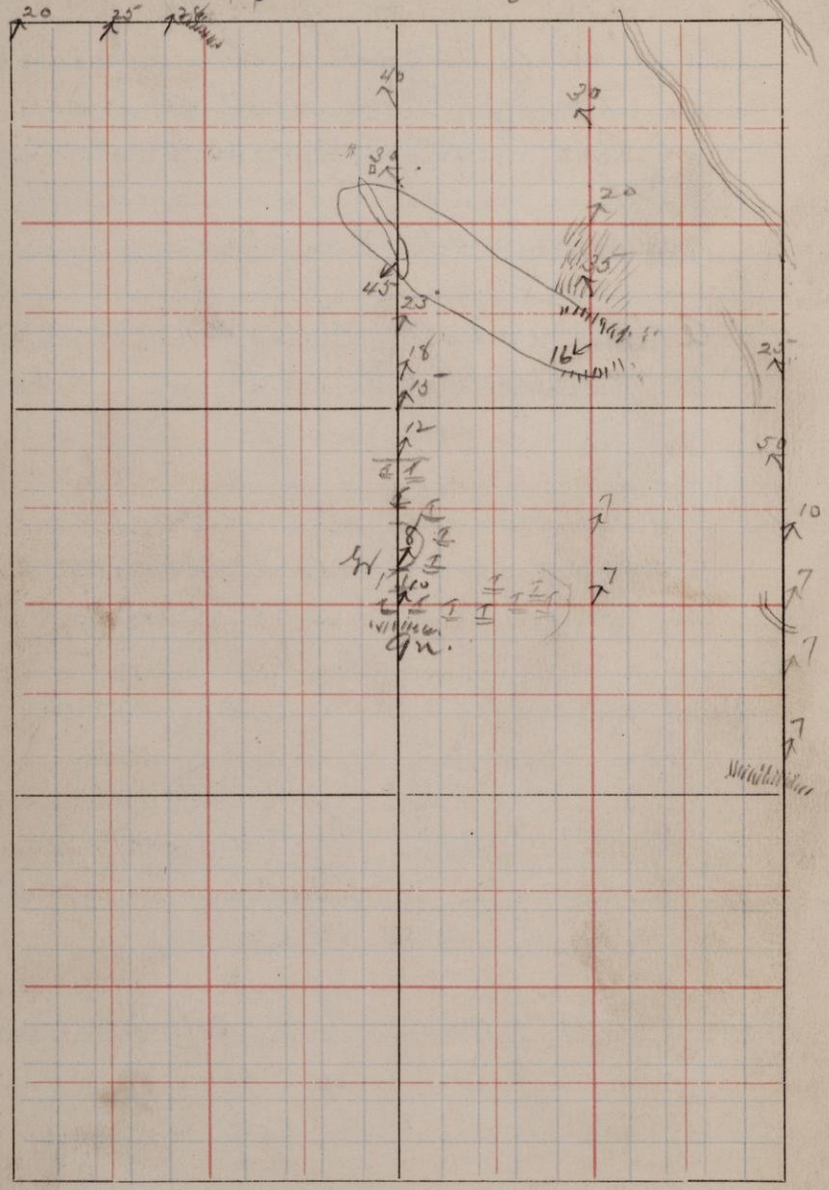
R. 30



- 16445 540 N. 1000 W. S. E. 27-47-30
 A granite exposure only a few ft.
 in extent. I am not positive
 that it is not a large boulder
 and there are a large number of
 great size at this place
- 16446 475 N. 1000 W. S. E. 27-47-30
 A quartzite ledge about 30 by
 15 ft. Strike E 40 S Dip 85 N.
- 16447 1975 N. 1000 W. S. E. 34-47-30
 A large granite exposure
 20 or 30 steps in diameter
- 16448 120 N. 750 W. S. E. 27-47-30
 Par. schist from a trench
- 16449 118 N. 790 W. S. E. 27-47-30
- 16450 Specimens taken from a block
 file near some shafts
- 16451 105 N. 750 W. S. E. 27-47-30
 Small quartzite ledge
 Strike N 35 N. Dip 80 E

N.E. 34 T. 46

R. 30



- 16452 200 N. 700 W. S. E. 27 - 47 - 30
 A small ledge of white quartzite
 I am not certain that it is
 in place Strike S. 35 W. Dip 80 E
- 16453 235 N. 700 W. S. E. 27 - 47 - 30
 small ledge of quartzite
 Appears to have same strike
 and dip as 16452
- 16454 1930 N. 500 W. S. E. 34 - 47 - 30
- 16455 A small ledge of chi-banded
 micaceous quartzite
 The specimens show two phases
 of the rock Strike N. 40 W.
 Dip 90
- 16456 1820 N. 520 W. S. E. 34 - 47 - 30
- 16457 Specimens showing different
- 16458 phases of rock taken from
 a shaft at this point
 About 50 paces back of this
 shaft - is a large greenstone
- 16459 Knob represented in spec
 16459
 50 steps NW. from this shaft
 is another in the same

Kind of material, at this point
lowest they have taken out
some soft red and brown ores,
similar to those north of
Champion, as well the hard ore

1 1750 N. 500 W. S. E. 34-47-30

The greenstone shows again
being a continuation of that
shown in 16459

16460 1685 N. 500 W. S. E. 34-47-30

Low exposure of greenstone

16461 1300 N. 500 W. S. E. 34-47-30

16462 Low ledge belonging to the
granite I think

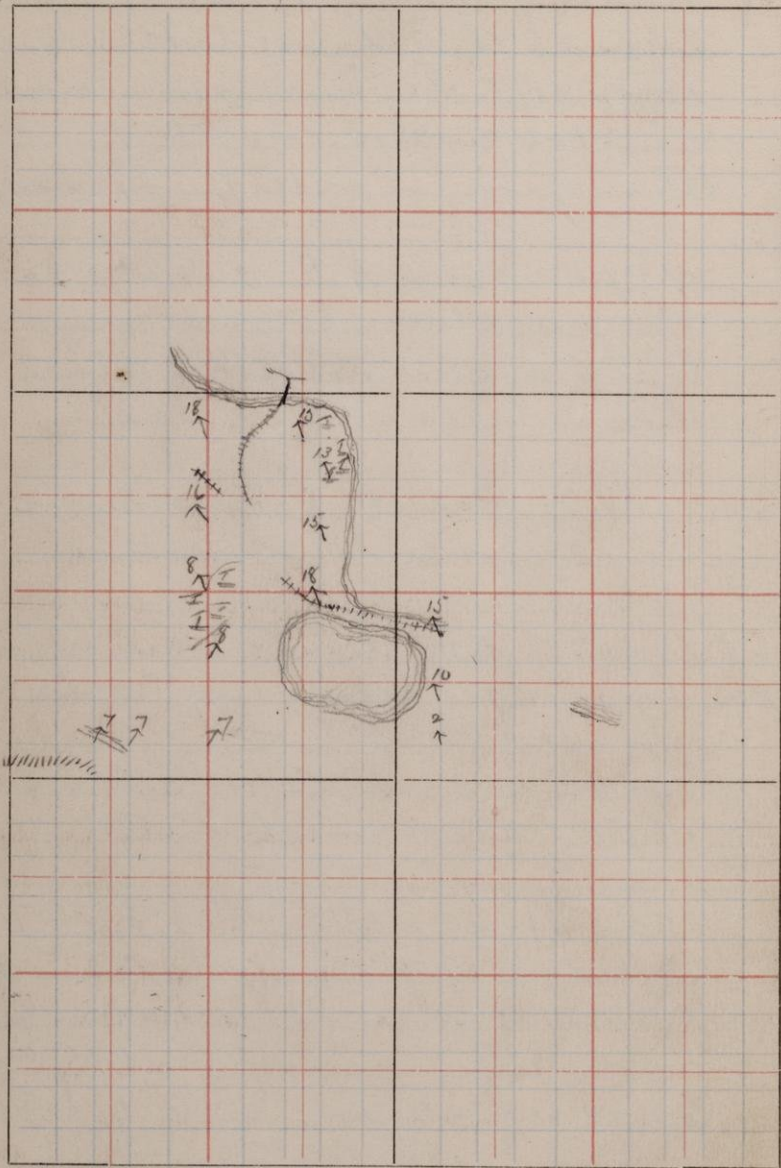
16462 is from same ledge as
16461 and south of it

16463 1250 N. 270 W. S. E. 34-47-30

A ledge of greenstone rising
7 or 8 feet above the surface
and extending E. & W. for
30 or 40 steps

N. W. 35 T. 47

R. 30



16464 1575 N. 250 W. S. E. 34-47-30

A large range of greenstone
doubtless the same as that crossed
250 paces west

16465 1010 N. 00 W. S. E. 34-47-30

The granite rises here in knobs
40 or 50 feet high and runs
nearly E. & W. judging from
the outline of the ridge

16466 550 N. 1450 W. S. E. 35-47-30

A greenstone knob rising 15
or 20 feet above the surface around
The same rock shows again about
150 steps S. E.

16467 170 N. 1450 W. S. E. 35-47-30

A low ledge of granite several
yds. in extent

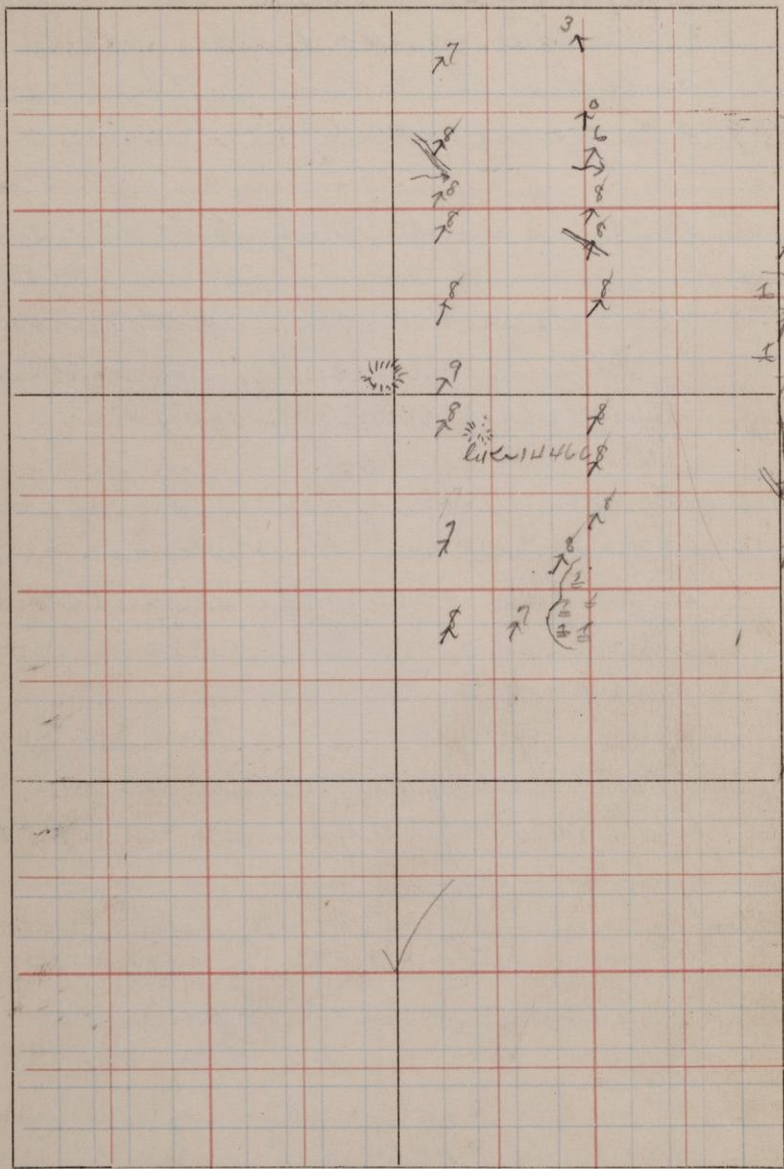
16468 175 N. 1000 W. S. E. 35-47-30

A ledge of schist or schistose
greenstone with a granite
vein about 4 ft wide running
with the schistose structure
The specimen shows both

S. 21. 35

T. 47

R. 30



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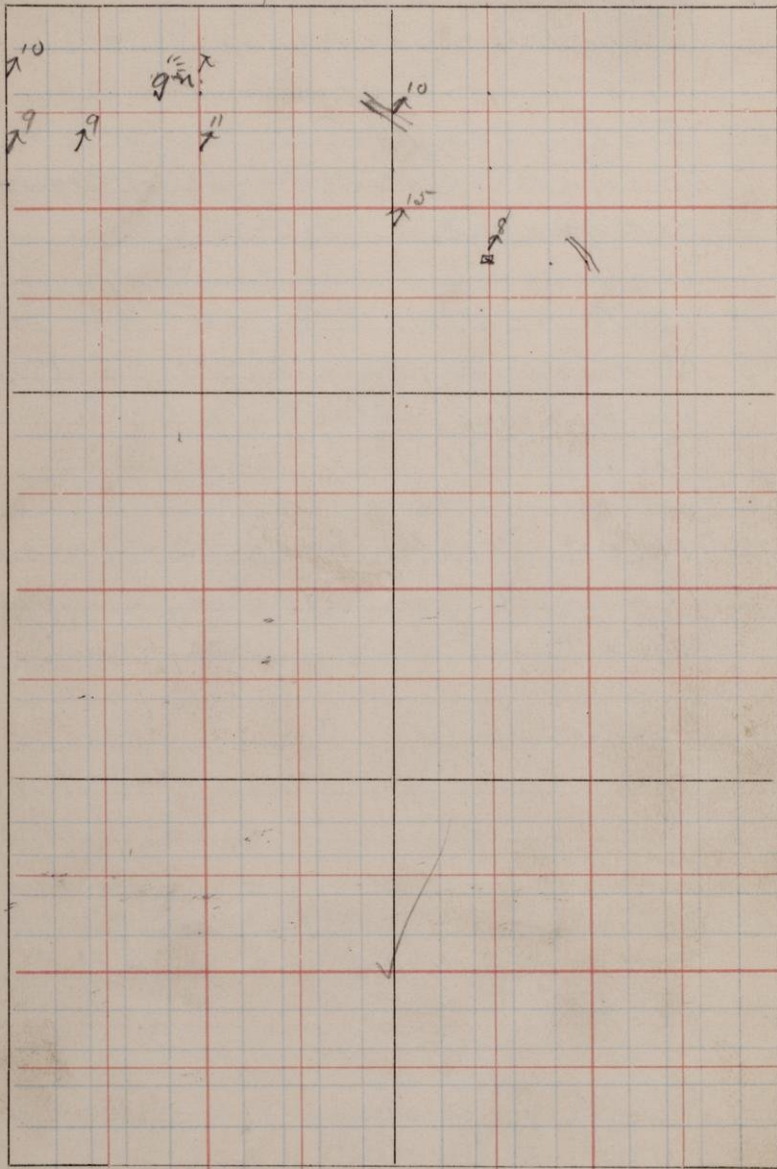
granite and schist in zone
The structure runs N. & S.

- 16469 1770 N. 1000 W. S. E. 2-46-30
A low rounded knob of coarse
red granite
- 16470 1500 N. 600 W. S. E. 35-47-30
A micaceous quartzite exposed in
old Ry. cut. Strike E 45-S
Dip 80° N.
- 16471 1680 N. 500 W. S. E. 2-46-30
A small granite ledge about
20 x 15 ft
- 16472 1680 N. 380 W. S. E. 2-46-30
- 16473 Specimens from an old shaft
- 16474 From top of north end of Republic
Mt. Banded ore and
jasper
- 16475 From highest point on Republic
Mt. Banded jasper

N.E. 2

T. 47

R. 30

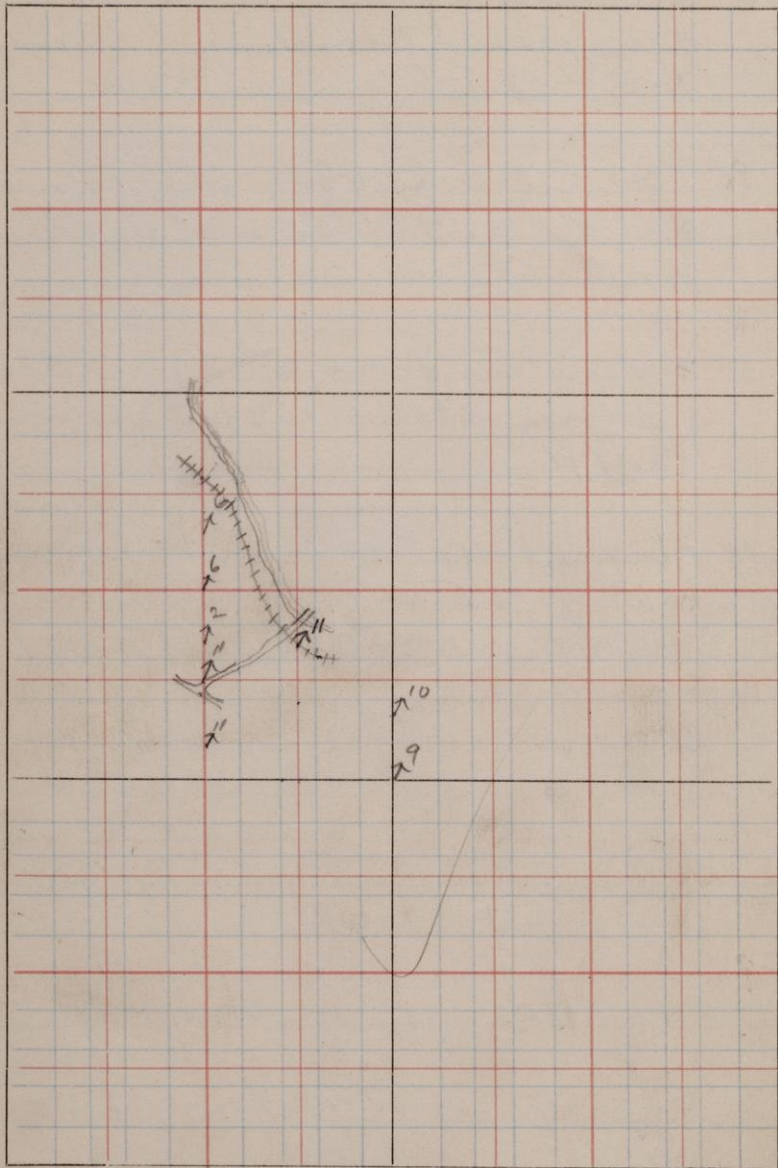


- 16476 Greenstone from 1st layer East of the jasper formation. About 100 ft south of Bear Lake
- 16477 Mag. Sil. schist from layer next east of 16476 About 40 ft. from the greenstone
- 16478 Greenstone from 2^d layer east of jasper. About 150 ft. from 16477
- 16479 Mag. Sil. schist from layer next east of 16478
- 16480 east of 16478
16479 near contact with 16478
- 16481 Greenstone from last layer of this rock to the east
- 16482 Mag. Sil. schist from layer next east of 16481
- 16483 Mag. Sil. schist Near the S. E. corner of the fold from the easternmost layer of this schist

S.E. 35

T. 47

R. 30



16484 About 400 ft. S.W. of 16483
I think it is from the same
layer

16485 Greenstone from next layer
north of 16484

16486 Banded jasper from the S.E.
corner of fold

16487 Next layer S.E. of 16486

16488 Mag. *Silberhii* from layer
next south of 16487

16489 Specular conglomerate from
the west side of basin

16490 Quartzite from the west
side of bay near the greenstone

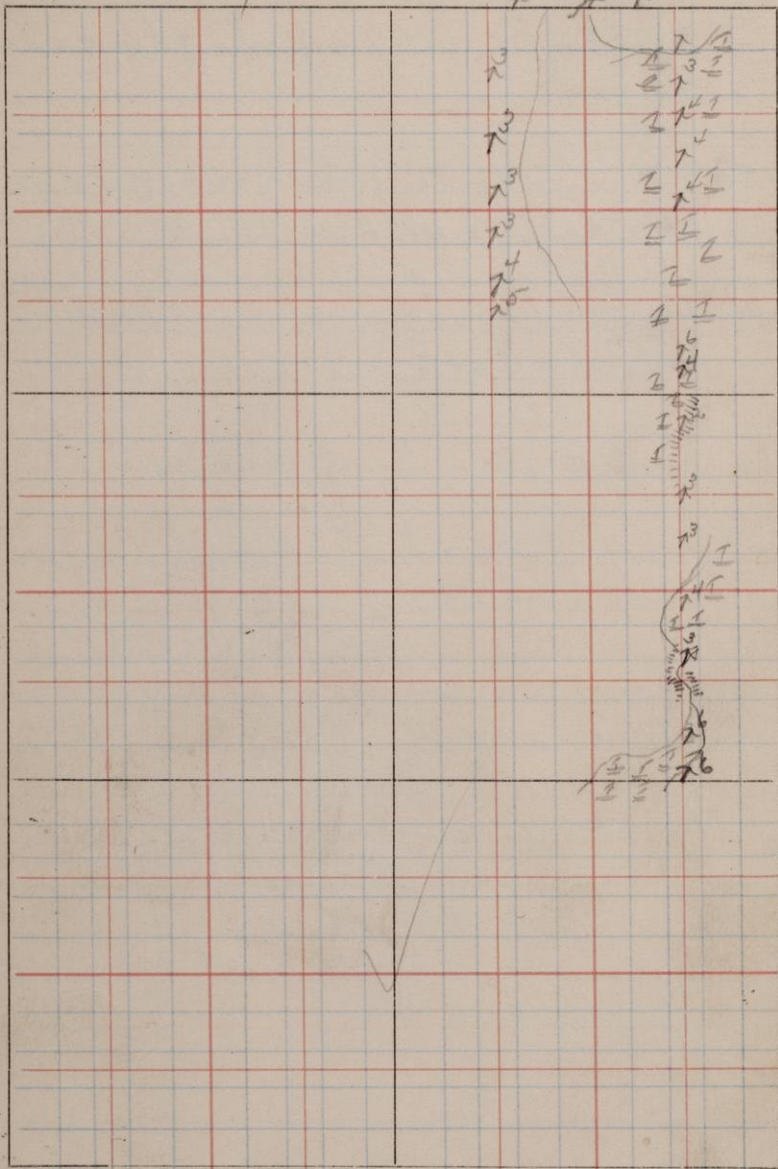
16491 Greenstone just east of 16490

Sec 10

T. 47

R. 3

3
3
1



16492. 100 N. 250 W. S. E. 10-47-30

A low ledge of greenstone on
the west side of swamp

16493. 250 N. 200 W. S. E. 10-47-30

On each side of a small creek
a greyish massive rock is exposed
for several yds. It carries
a large amount of a carbonate

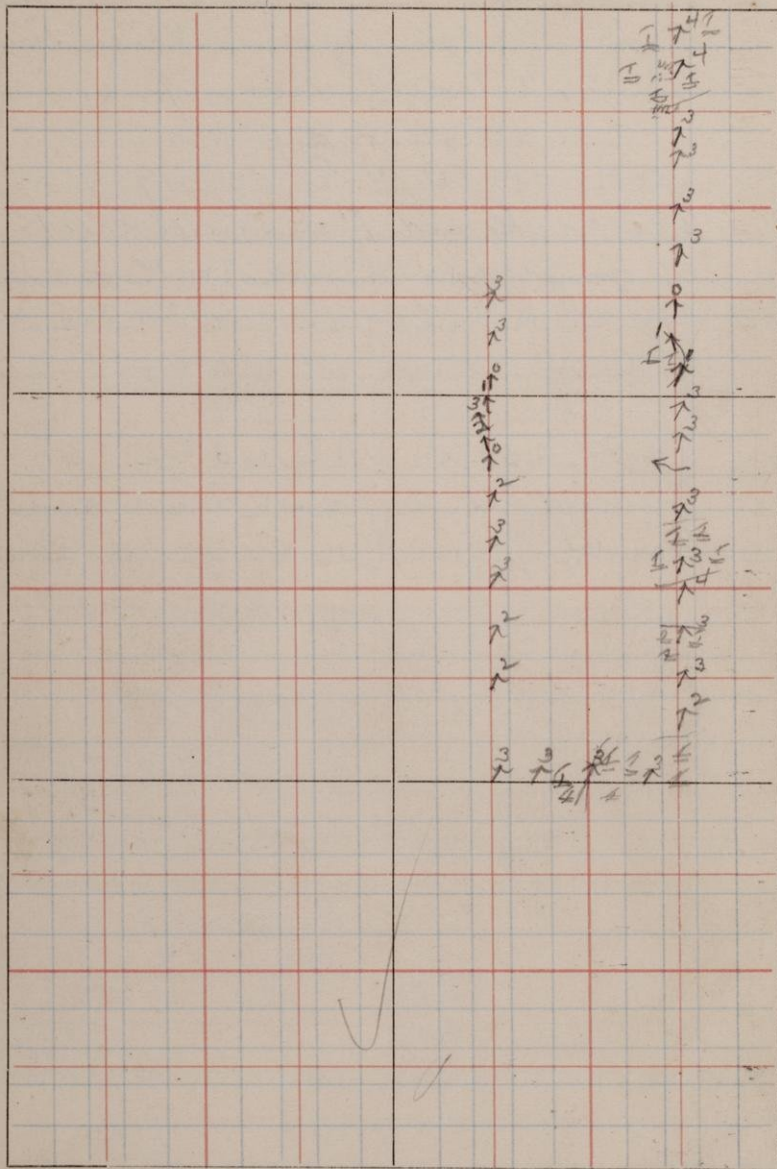
16494. 290 N. 250 W. S. E. 10-47-30

Greenstone exposed in west
bank of creek

Sec 15

T. 47

R. 31



16495 1845 N. 250 W. S. E. 15-47-31
 A low ledge of sandstone (?)
 in a swamp. Could not
 get a strike or dip

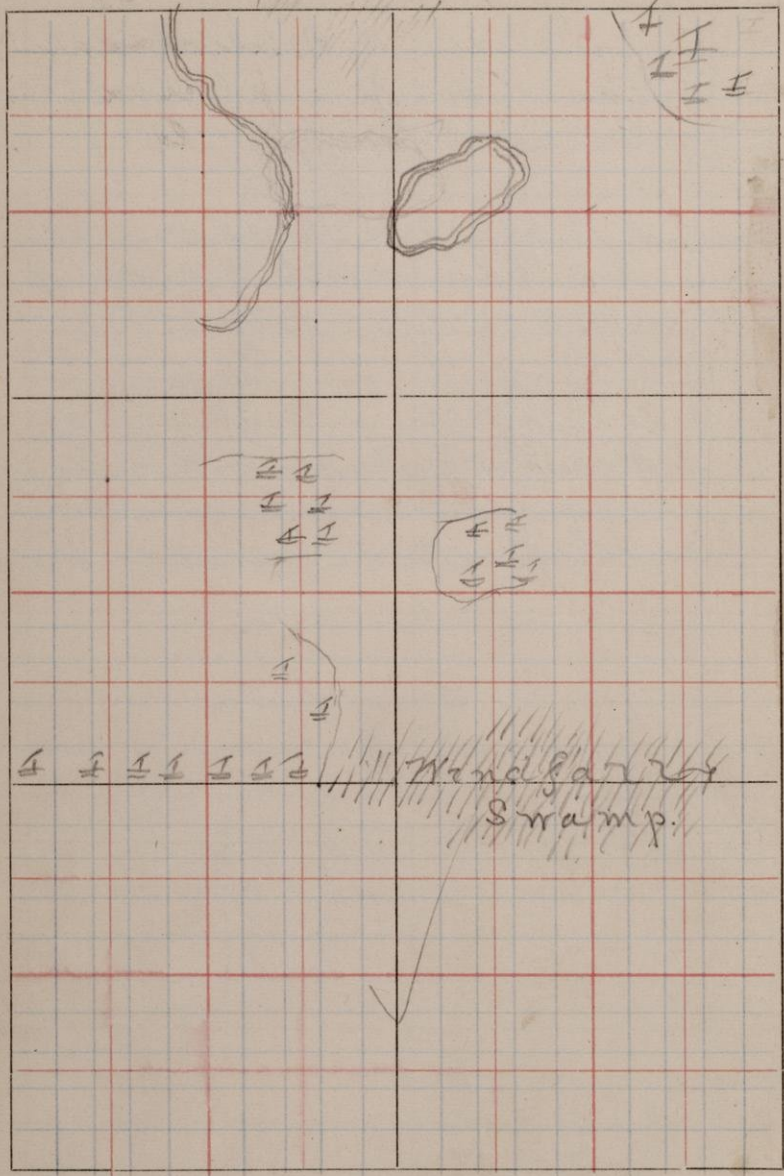
16496 1753 N. 250 W. S. E. 15-47-31
 A low ledge south of swamp
 Strike 30 S. of E. Dip 80 N

16497 1700 N. 250 W. S. E. 15-47-31
 A greenstone exposed under
 an upturned rock and very
 doubtful as to its being in place

Sec. 3

T. 47

R. 31

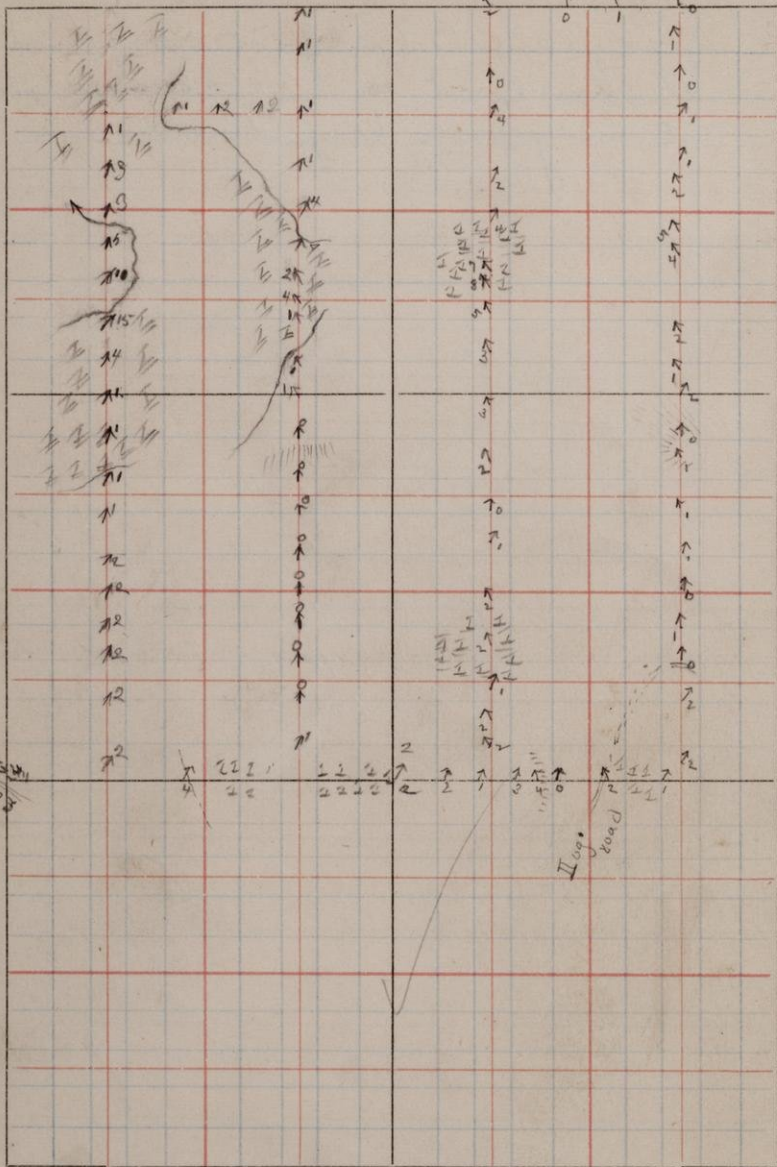


16498 9135-N. 1230 St. J.E. 3-47-31
A small ledge of mica schist
I think it is in place although
it may be a large boulder

Rec. 11

T. 47

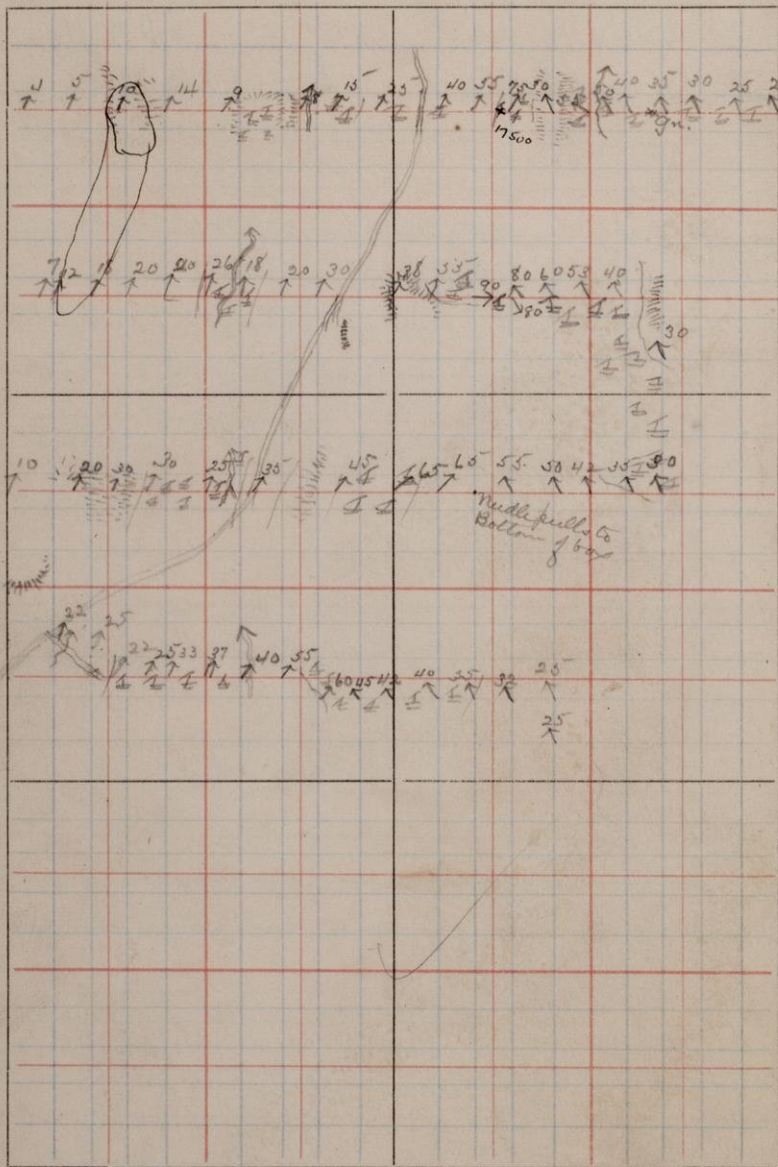
R. 31



16499 as SW cor 11-47-34
Greenstone — In place

Sec 30 T. 47

R. 30



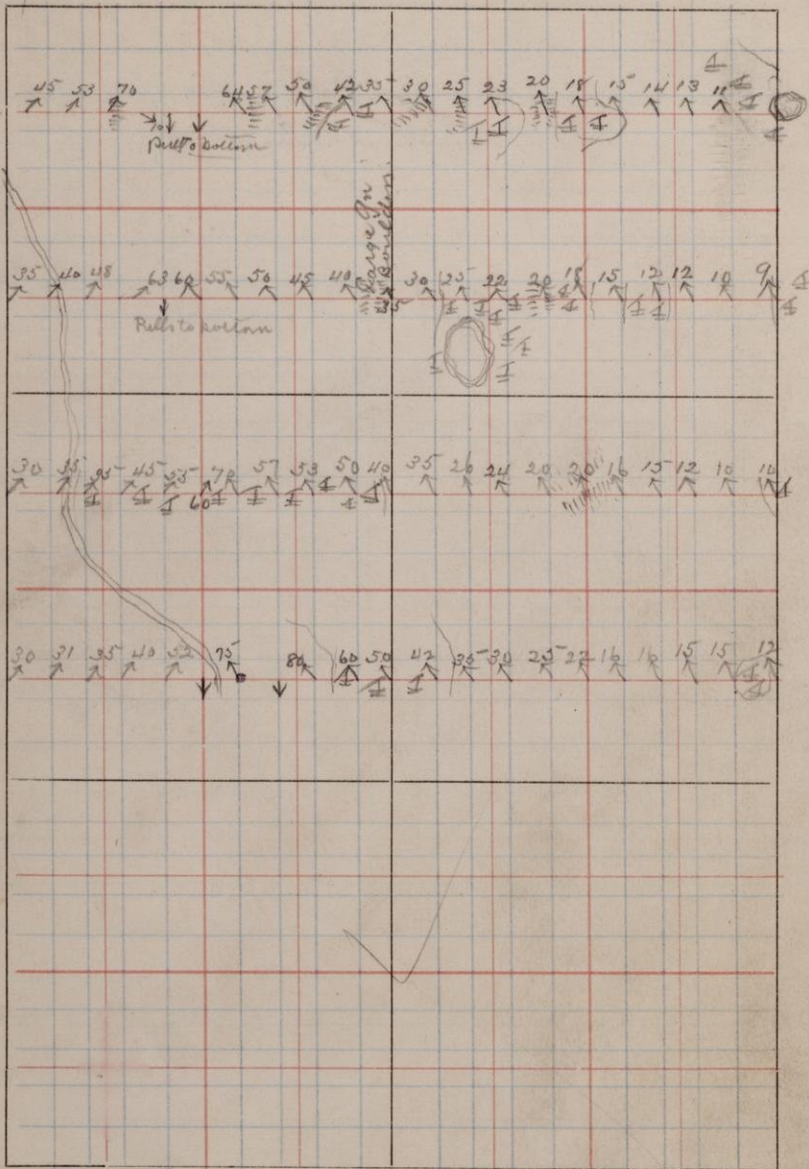
- 17500 1850 N. 775 W. S. E. 30-47-30
A lean banded iron schist that has been uncovered at this place a distance of about 100 ft. N. + S.
- 17501 1850 N. 780 W. S. E. 30-47-30
A greenstone lying in contact with 17500 on the west. Near the contact it is finer grained than shown in the specimen
Dip of 17500 60 W. Strike 35 W. of S.
- 17502 1850 N. 1700 W. S. E. 30-47-30
A large knob of coarse greenstone running a little west of south
- 17503 1850 N. 950 W. S. E. 25-47-31
A ledge of greenstone rising on the east side of swamp
- 17504 1250 N. 1900 W. S. E. 30-47-30
A small ledge of greenstone very similar to 17502
- 17505 1175 N. 1150 W. S. E. 30-47-30
A large ledge of very compact greenstone running about N. E. S. E.

- 17506 1250 N. 1000 W. S. E. 30-47-30
A large ledge of greenstone
running about N. E.
- 17507 1200 N. 300 W. S. E. 30-47-30
A large ridge of pink granite
- 17508 475 N. 1940 W. S. E. 30-47-30
A large ridge of coarse massive
greenstone
- 17509 470 N. 1920 W. S. E. 30-47-30
A banded fer. schist apparently to the
east and south of 17508 It
strikes somewhat southwest and
dips 90°

Sec. 7

T. 46

R. 30



17570 250 N. 1500 W. S. E. 7-46-30

A small exposure of lean iron schist
This location has been well explored
but all of them in the drift as far
as I saw. Strike S. of S.
Dip 35° E.

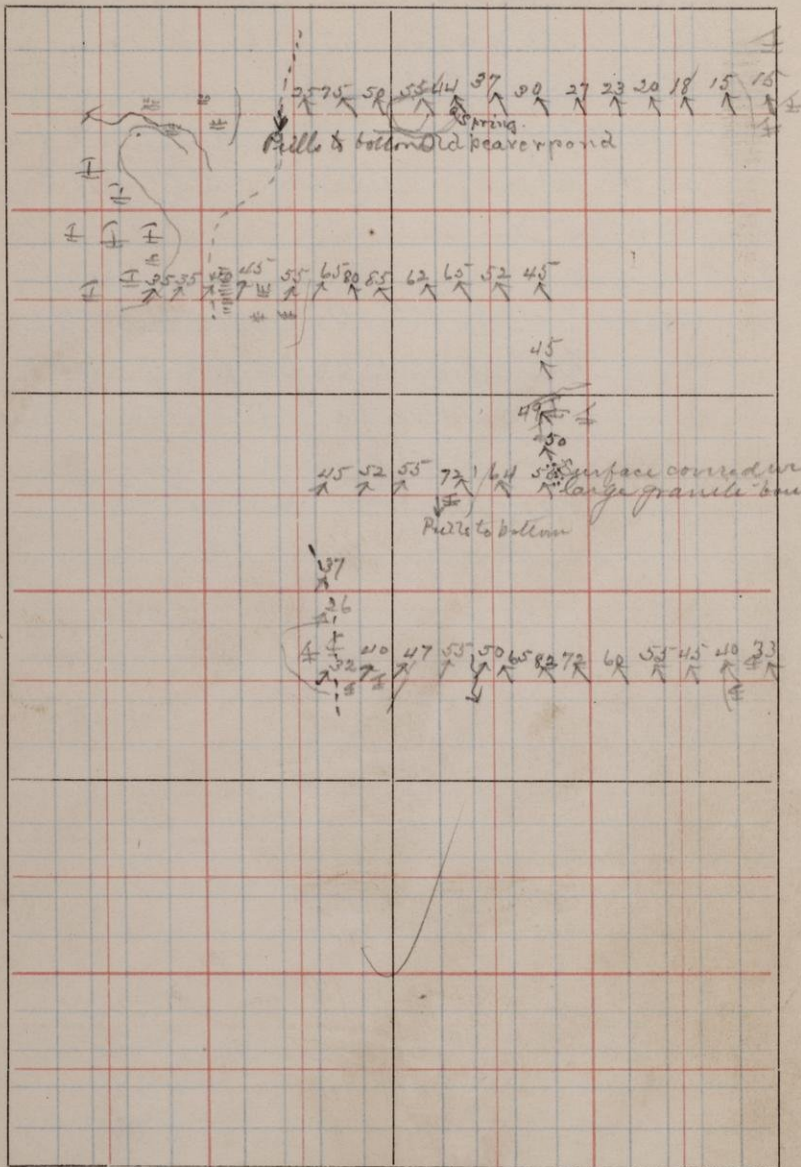
17571 250 N. 1425 W. S. E. 7-46-30

Another small exposure of rock
similar to 17570 Dip & strike
same as 17570

Sec 18

T. 46

R. 30



1850 N. 220 W. S. E. 18-46-30

A flat surface of granite several
yds. in extent. Am not sure
that it is in place

17512 1850 N. 1280 W. S. E. 18-46-30

Banded iron schist similar to
those seen $\frac{1}{4}$ mile north
Strike 59° of S. D. up 60° E

Sec. 17

T. 46

R. 30

11/2

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20 17 16 14 13 12 10

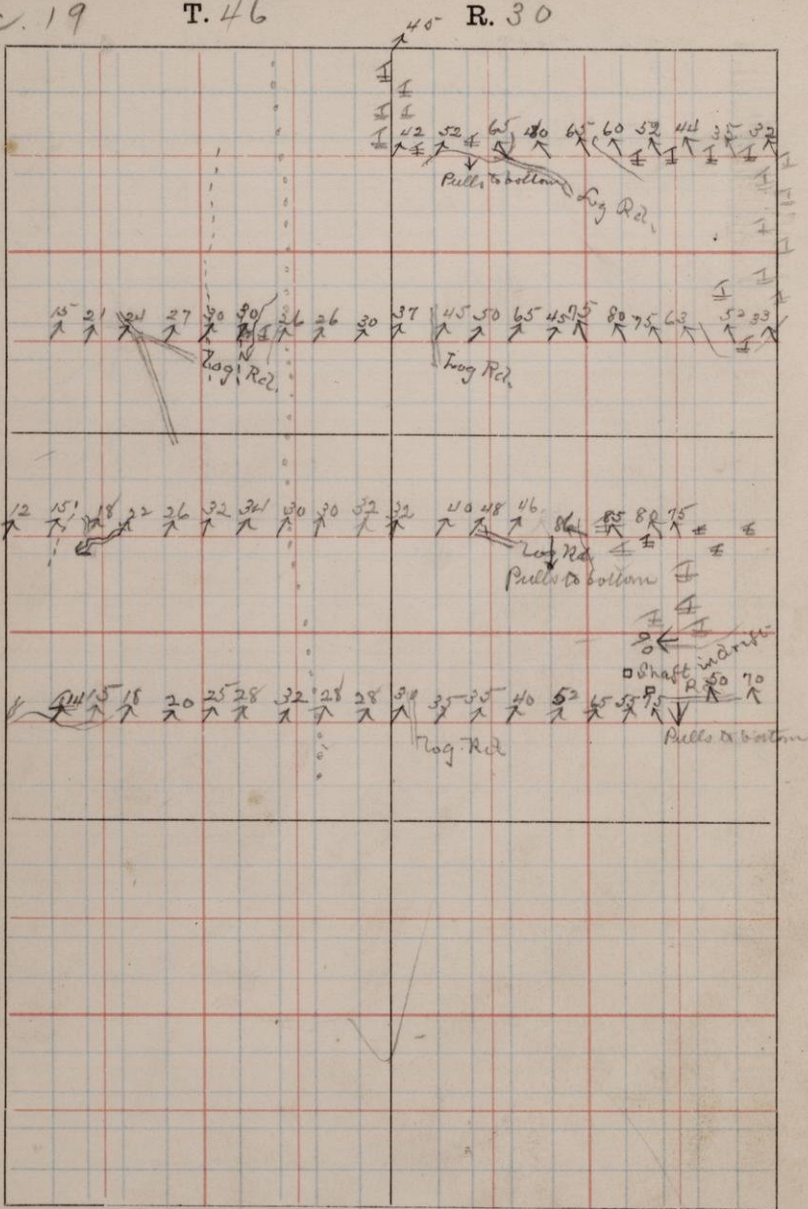
11 12
13 14
15 16

30 25 23 20 17 15 14 5 5 10

Sec. 19

T. 46

R. 30



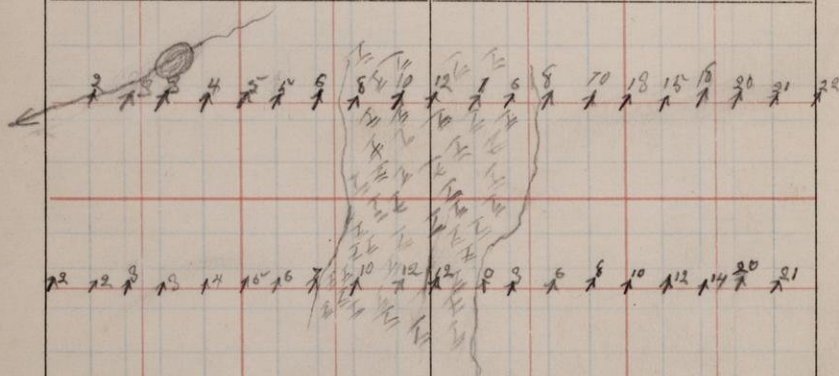
250W. 700N. S. E. 19-46-30

Three large granite boulders 10- to 20
feet in diameter on a slight rise
in swamp

Dec. 33

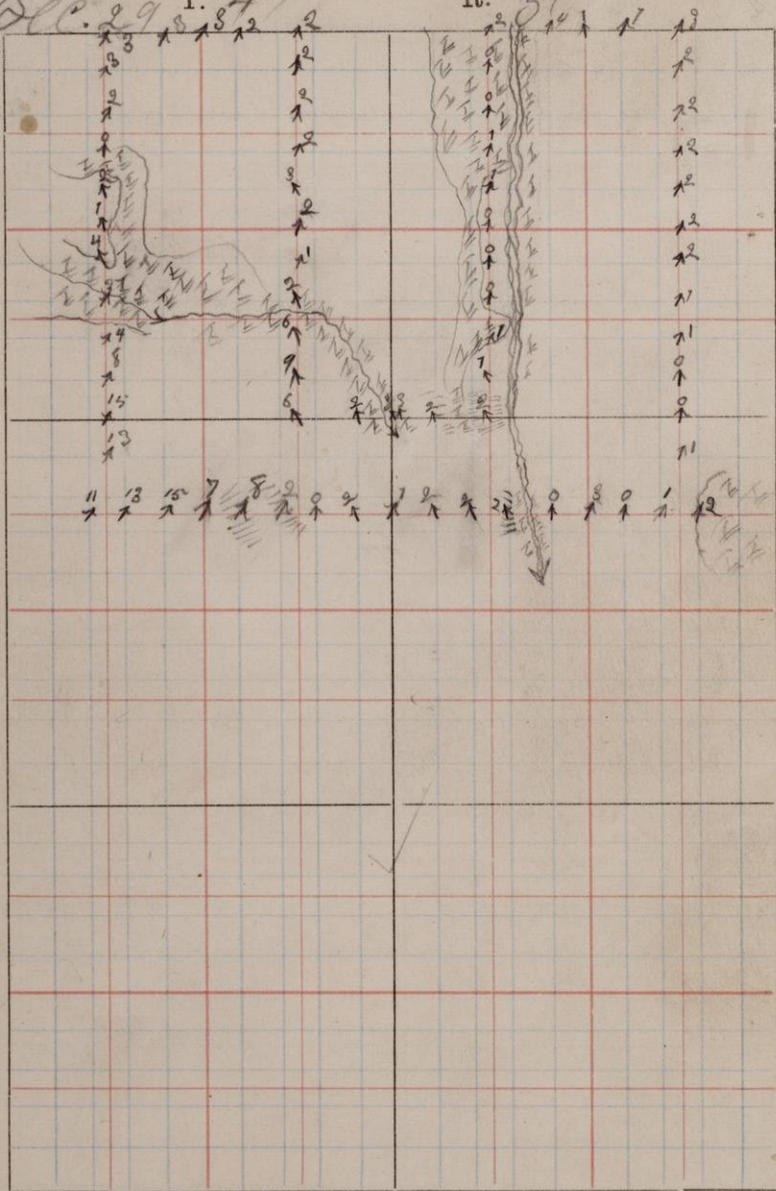
T. 47

R. 87



Dec. 29 5 T. 47

R. 37



17513

750. n. 700. W. S. E. 29. 47. 87

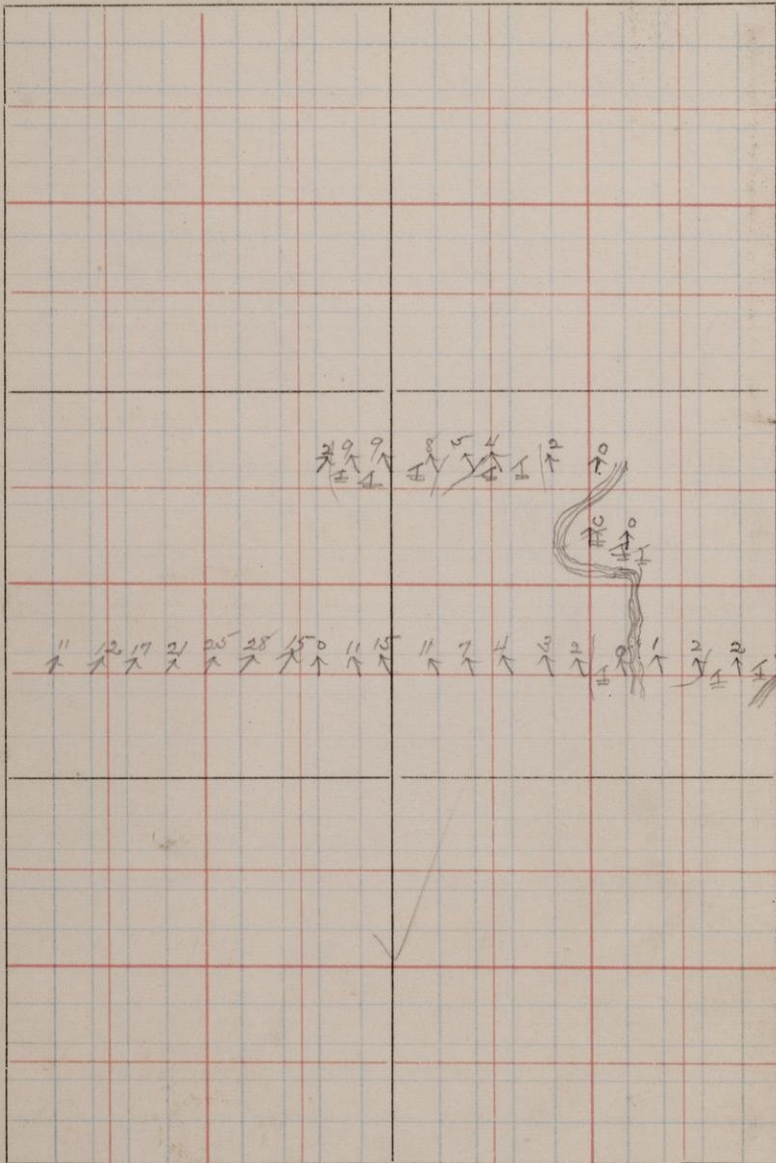
A low ledge

Strikes south dips. 85 E

Sec. 5 T. 46

R. 31

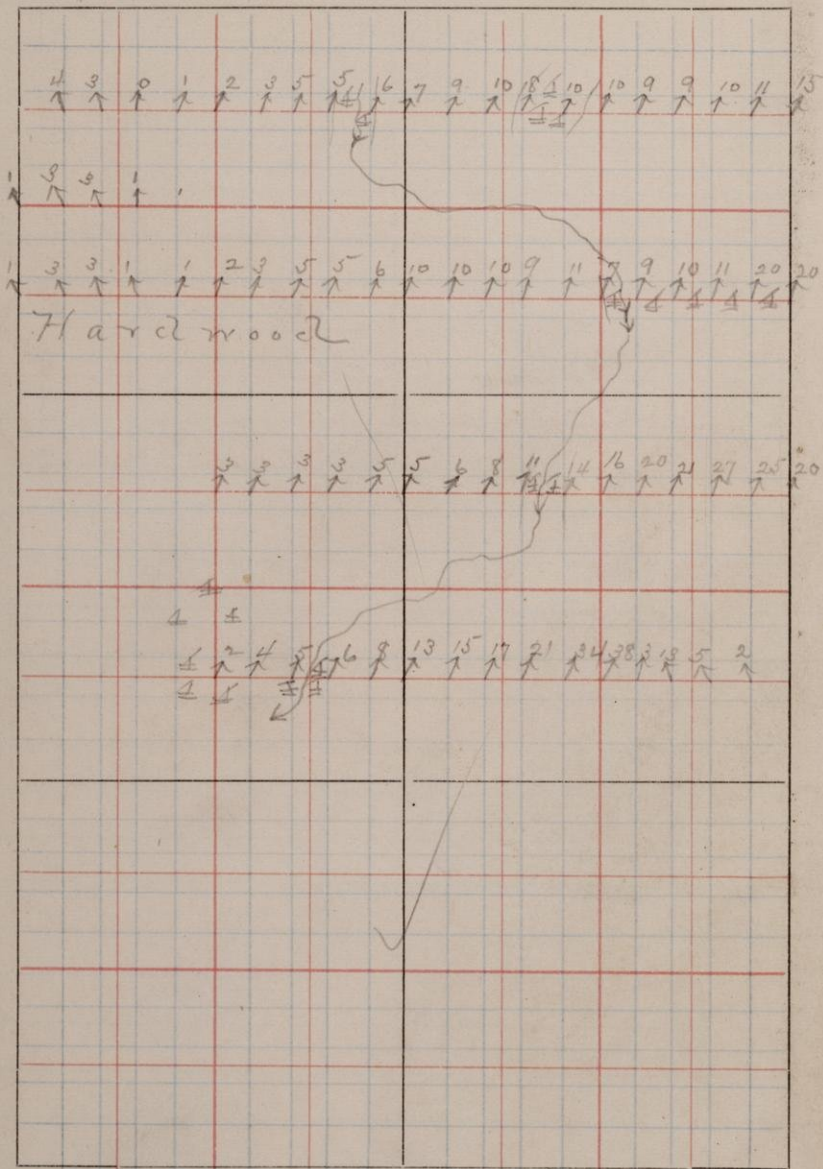
S. $\frac{1}{2}$ Sec



Sec 7

T. 46

R. 31



Sec 17

T. 46

R. 31

7
16 17 14 11 10 9 8 7 6 6 5 4 4 3 2 2

15
13 10 8 7 7 5 5 4 3 2 2

10
10 9 8 7 6 6 5

9
8 8 7 6 6 5 4

Hence River

12 6 8 16

11

x 7 1/2 Post.

Sec. 18 - T. 46 - R. 31

8 1/2 Post

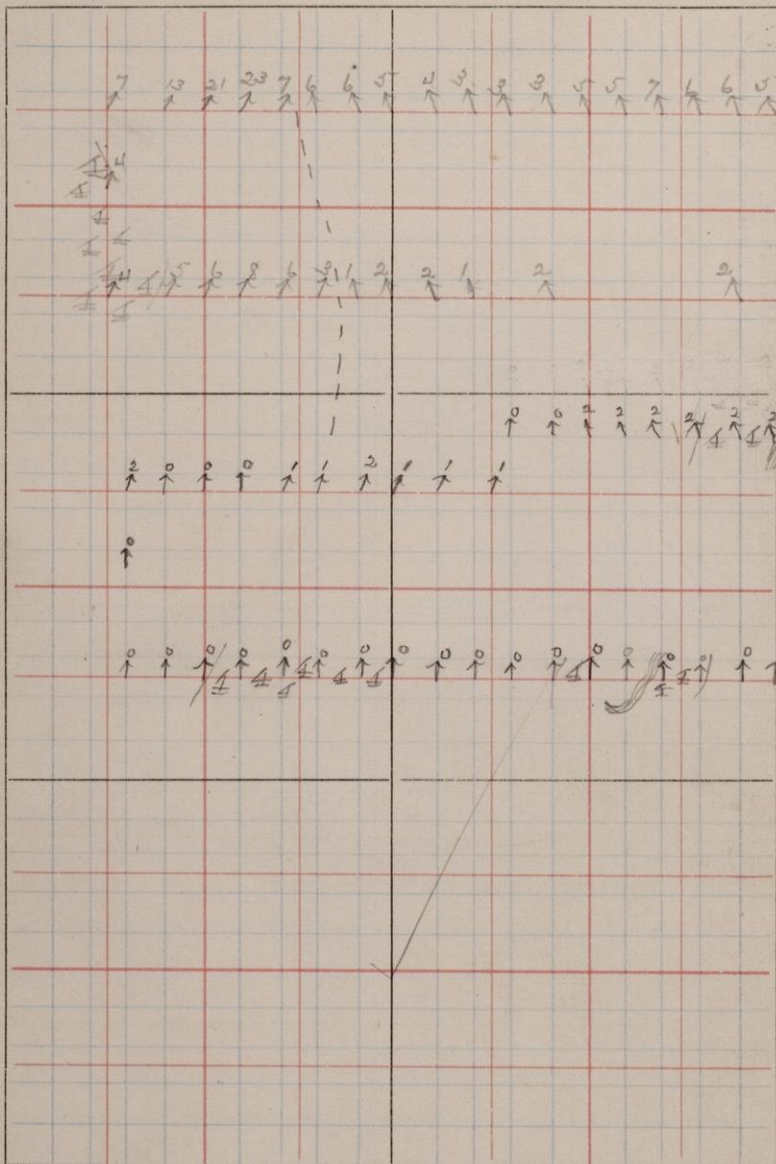
16 13 11 10



Dec. 19

T. 46

R. 31



KKZ. KZK, ZKZ, KZK, KZK, ZKZ

+ + +
- - -
+ + +
- - -
+ + +
- - -
+ + +
- - -

KKO, OKK, KKO, KOK, OKK, KOK

+, +-, --, -+

120 - 012 - 210 - 102 - 021 - 201

KKK

102

+++ + - + - - - - - + - - - - -

700 N. 1100 E gly St. 15 S. of E D. 802
~~Curves from E & W to~~
660 N. 1100 E .. St. 27 N of W. D 71 N
660 N. 1030 E .. Curves from E & W & N & S
635 N. 1030 E gmet.

700 N. 1050 N. gly St. 10 E. of N. but is
somewhat broken and
curved Dip high
725 N. 1030 W. gly. St. 40 E of S. Dip 90

2000
700

1300

