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Marquette region, Michigan: [specimens] 21316-21473. No. 136 1891

Mathews, Edward Bennett, 1869-1944

[s.l.]: [s.n.], 1891

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U. S. GEOLOGICAL SURVEY
FIELD SECTION BOOK

136

Marquette Region
Michigan
E. B. Mathews

21316 - 21473

LAKE SUPERIOR DIVISION.

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 number attached, showing the direction and amount of the dip. Denote a shaly or other very plainly bedded ledge by right parallel lines, and a ledge having a secondary structure by wavy parallel lines running in the direction of the strike, with dip arrow and number attached as before. The greatest care must be taken to avoid confusing slaty or schistose structure with bedding, and in all cases where there is the least doubt about the true bedding direction, 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 to 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. The ruling of the left-hand pages is also arranged so that, if desirable, a larger or a smaller scale can be used, eight inches, two inches, one inch, or one-half inch to the mile. With the two-inch scale, the squares outlined in black represent sections, and those in red, quarter sections and "forties," while the space between the blue lines is 200 paces.

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, the latter always being expressed from the north; for instance 4025, 250 N., 300 W., *Strike, N. 78° E., Dip 50° S.* Then follow with a full description of the ledge. When topographical maps are used for locations this paragraph applies only in part.

3. Collect a specimen from every ledge, or wherever there is a change of rock on any one ledge, taking care to get fresh material, unless for a special purpose the weathered surface is desired. In case of trips made on foot or in canoes, for long distances, neighboring ledges, unquestionably of one kind of rock, need not be specimened. The position and extent of the ledges not specimened should be marked on the map, with notes that each is of a rock identical with specimen so-and-so. Under the same conditions small-sized specimens, 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 section 3, chapter IV, p. 44, Regulations of the U. S. Geological Survey. Specimens should not be placed together without protection in the collecting bag, as the fresh surfaces, important in determining the character of rocks, are thus destroyed. They should be damaged by no temporary mark, but the numbers should be at once marked in at least two places upon the inclosing paper or cloth bags. Specimens may be permanently marked in camp by painting the numbers upon them in white upon a black background, using Silver White and Ivory Black oil tubes for color, with turpentine as a diluent.

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, sketches, cross sections, etc.

5. Forward this note book as soon as filled as registered mail matter to C. R. Van Hise, U. S. Geologist, Madison, Wis.

#136

Section 15 T48 R 28

N $\frac{1}{2}$ Sec 20 T48 R 28

E.B. Matthews #1. (1892)

The hills when "named" are composed of the rocks indicated. The hills at the present are not all bare outcrop, but in my opinion fires and rain would reduce them to that state. Such was my plan in sketching--i.e. when ledge signs in almost all cases would obscure the contouring by their abundance I used the name of the hill. In such cases the ledge usually extends to the contour above the gradual slope. My contouring was based on 10 foot interval and to this I tried to adhere strictly. The aneroid was not always trustworthy, and, as I had no bench marks, only the minor shape of the country, not it's gradual slope, is trustworthy. If a hill was $X(10)$ plus 5 feet I called it (X plus 1) (10) feet.

Correct numbers are in red

S.

29

T.

48

R.

29

center
21827
21828Step Ridge
& P.

21829

Peridotite Ridge

Quartzite Ridge

21825

Swamp

GP
21826

GP

GP?
21827
21828

S'4

Peridotite

1
June 3rd.

Starting from SW corner 79-48-27 on north slope of pectolite hill facing the quartzite ridge to the north (across the valley). Both ridges trend almost east and west.

At 360 E 390 N 3W cor 29 the quartzite contains many pebbles of quartz perfectly rounded and frequently with a rim of iron oxide. The whole appearance of the rock at this point is that of a conglomerate composed of fine grained quartz pebbles.
21316
21323 represented by # 74323
nowhere do I find any other kind of pebbles.

21317

21324 Taken from the same place as 21323 specimen 21324 shows the general character of the quartzite at this point.

21318

21325 525 N 650 E SW cor 29. specimen # 21325 represents the last outcrop of quartzite. There have

2

been bunches and streaks of quartz
or quartzite pebbles all the way but
nothing more.

Along about 100 paces north of
this last outcrop the peridotite
continues to outcrop. no specimen
taken

✓
21319

21326

200 ft 1175 WSE corrg outcrop of
peridotite (?). There has been the
low valley as shown best by
my sketch and Rominger's
map. The latter makes this in
his dioritic area. The rock is
shown in specimen 21326.

21320

21327

2

150 ft 1050 WSE corrg specimen 21327
peridotite. Between this outcrop
and that whence 21328 was taken
is a low valley (about 70 p E+W).

✓
21321

21328

W. G. S.

Specimen 21328 is taken from
the western end of a ridge which
extends for some distance
eastward. This specimen is
different from the preceding
and yet it seems to carry

S.

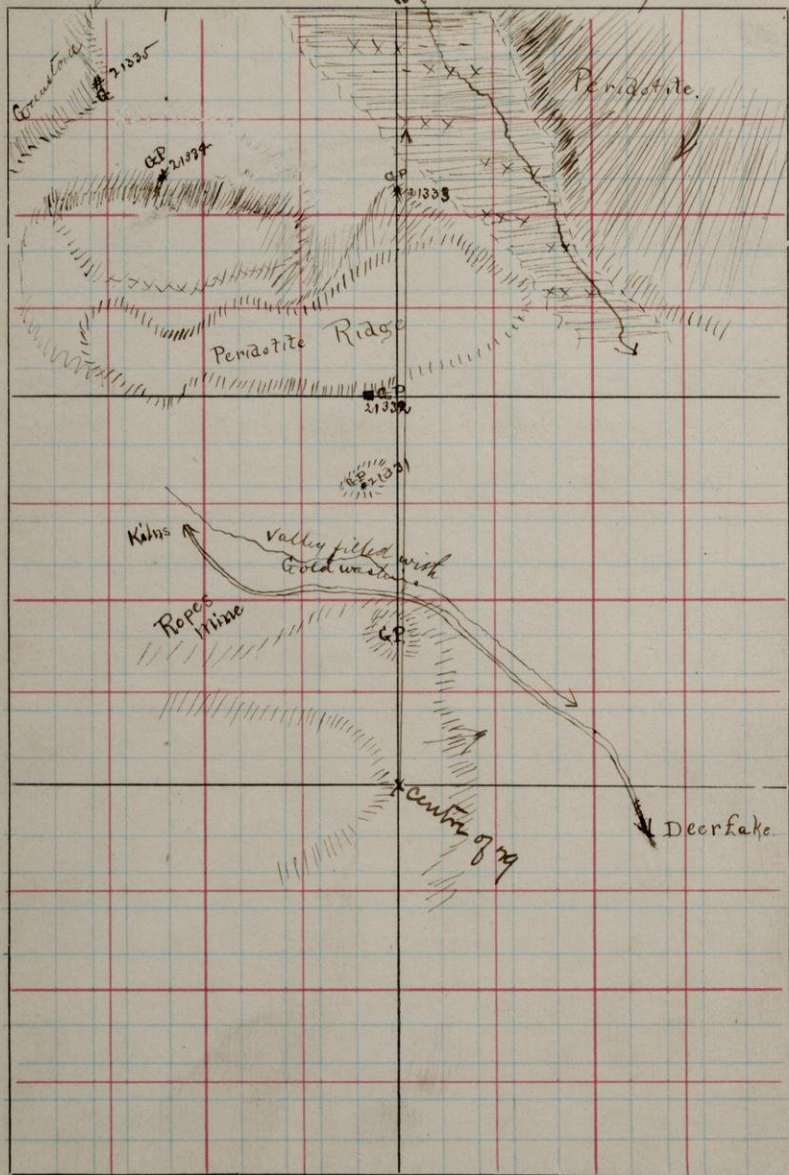
29

T.

H 8 1/4

R.

27



more or less serpentine.

21322

21329

I.

860 N 1200 W SE cor. rg. High ridge of peridotite. This is a continuation of the peridotite ridge north of the quartzite.

21323

21330

1000 N 1000 W SE cor rg Specimen 21330

This hill extends but a few paces eastward and is ledgy all the way. Across the valley (1/4 mile) are what appear to be greenstone outcrops. In this valley is the road leading from Ishpeming to Ropes Cold Mine.

Road should be 225 N of the centre of rg.

21324

21331

1400 N 1060 W SE cor rg is the first outcrop of peridotite across the valley, represented by spec. 21331

21326

21332

1500 N 1040 W SE cor rg. Sals from the bottom (?) of a test-pit sunk at the foot of the peridotite ridge

21326

21333

4

1785 N 1000 W SE cor 29. East outcrop of peridotite on this the south side of the valley. High ridge of peridotite on the north side.

I can see no more reason for calling this valley diorite than I can for calling it peridotite or even quartzite. I found no evidence of a contact and the valley is no deeper than many between two peaks of the same rock - just as it is here.

Closed 20 E of 90. B.T.

21327

21334 1310 W 1800 N SE cor 29. Peridotite. Specimen # 21334.

21328

21335 1385 W 1930 N SE cor 29. Greenstone specimen # 21335. No contact visible but deep valley.

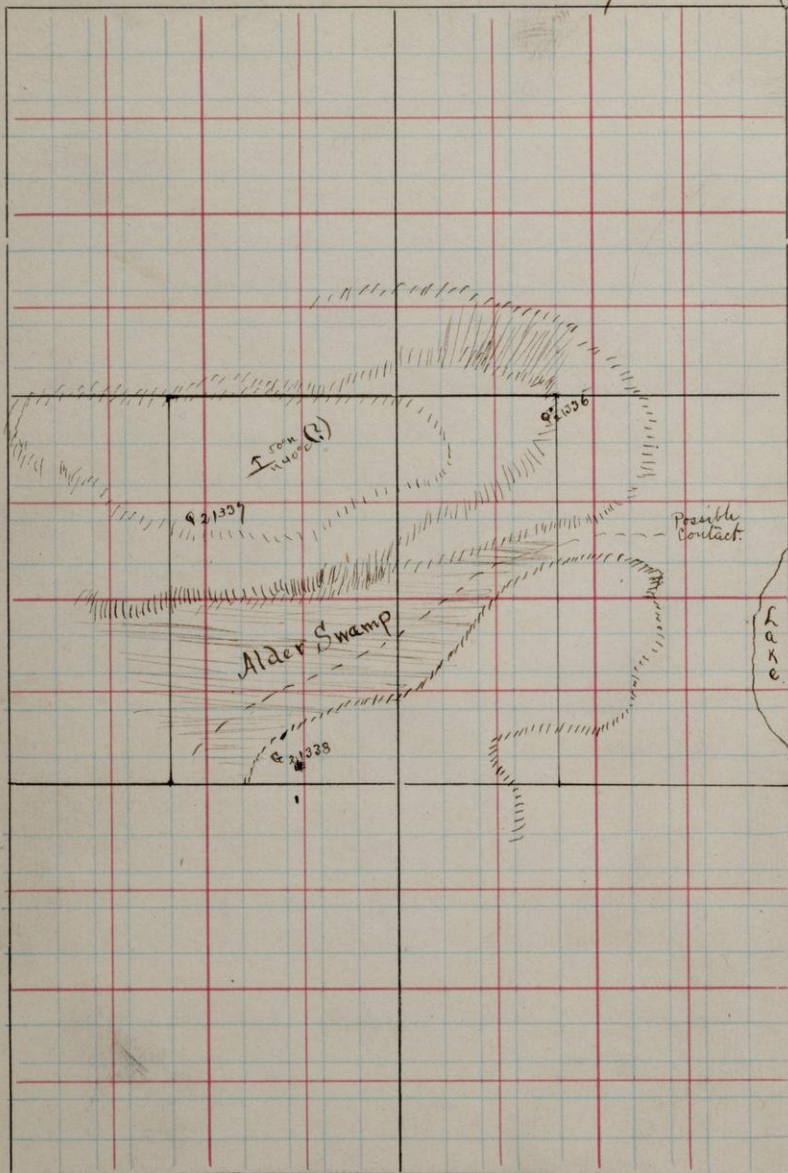
21329

21336 480 N 1300 W SE cor 20 # 21336

Quartzite very much stained with iron. There was a slight depression at about 320 N which may indicate the point

S. 20 T. 48 R. 27

Centerville



31/420

5

of contact between the quartzite
and greenstone.

21330

21337

270 N 1800 W SE cor 70 # 21337.

Outcrop of quartzite much stained
with iron in which are

numerous lenses of conglomerate.

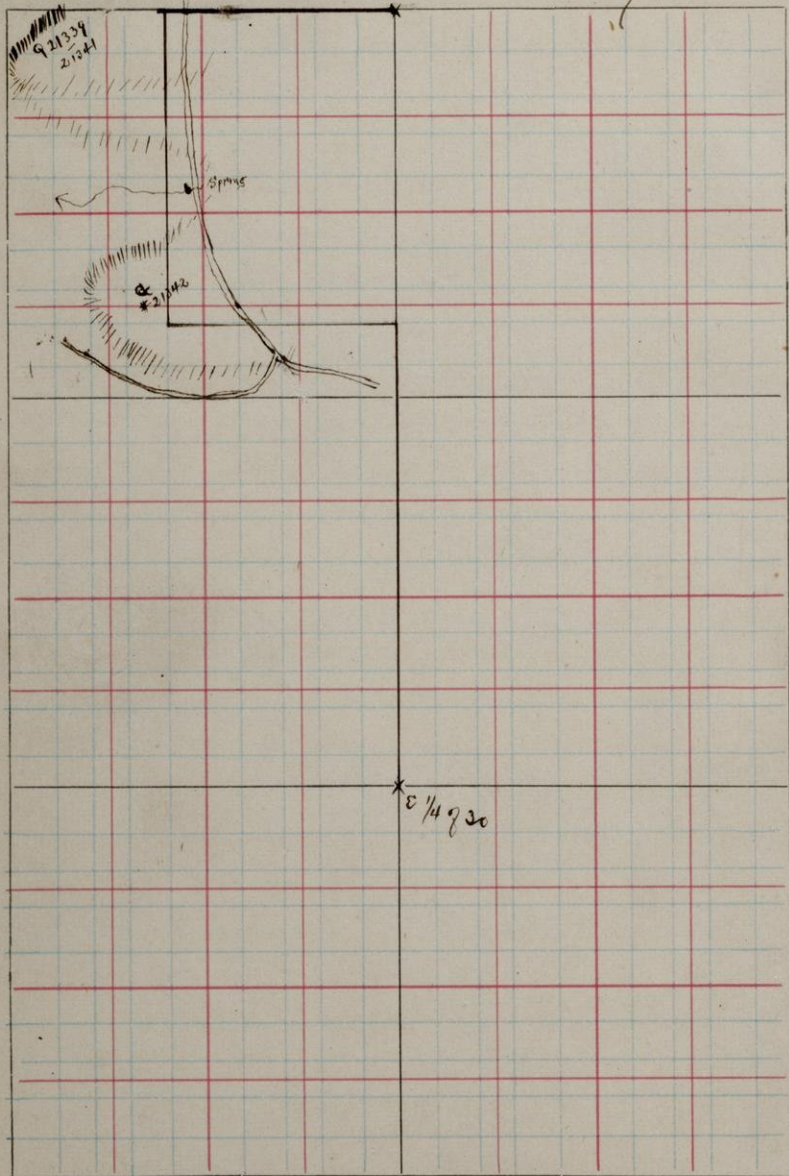
This conglomerate is fine
grained and is composed of
well rounded and fragmented
pieces of clear white vein quartz
and, deep bluish quartz (not
any thin), fragments of
quartzite and a few flesh-
colored minerals which from
their cleavage faces I take
to be microcline or some
feldspar. Besides these
the conglomerate at certain
points is composed for the
most part of quartz embedded
in what appears to be the
debris of greenstone.

21331

21338

35 N 76 75 W SE cor 70. This
is the nearest outcrop of diorite
and is represented by # 21338

S. 30 T. 48 ^{sec 30} R. 27



21332

21339

465 W S E cor 19 high outcrop
of quartzite. I give three specimens
of which #21341 is a pebble.
The dip is about 50° N while the
strike is about $N 40^{\circ} E$

21334

21341

After finding this outcrop I ran
north 800 paces on a line 300 west
of the east line returning on a
line 500 W of the east line.
No other outcrops were seen than
the continuation of the one
just mentioned which sinks
abruptly on the west into low
swampy land.

21335

21342

1675 N 340 W S E cor 30 # 21342
Greenstone conglomerate just such
as is described by Dr Williams (Bul. 62
U.S.G.S. p)

21336

21343

950 N 270 W S E cor 30 Greenstone
knob (spec 21343). This knob is
round and glaciated, as is also
the knob to the south (spec 21344)
There is also quite a bluff of
greenstone west of #21343

21337

21344

21338
21345

790 N / NW SE cor 30 # 21345
Peridotite between which and the previous specimen (21344) outcrop is a valley with a little swamp so that no opportunity for finding a contact was given.

21339
21346

500 N SE cor 30 # 21346
Peridotite. This is at the northern slope of the peridotite ridge which faces the quartzite ridge on its southern flank.

21340
21347

225 N SE cor 30 # 21347.
This specimen was taken from the brink of the precipitous wall of peridotite which drops off abruptly.
No contact could be found between the peridotite and the quartzite which contains conglomerate beds which in all respects are like those described from north of the greenstone. No pebbles showing relative position of

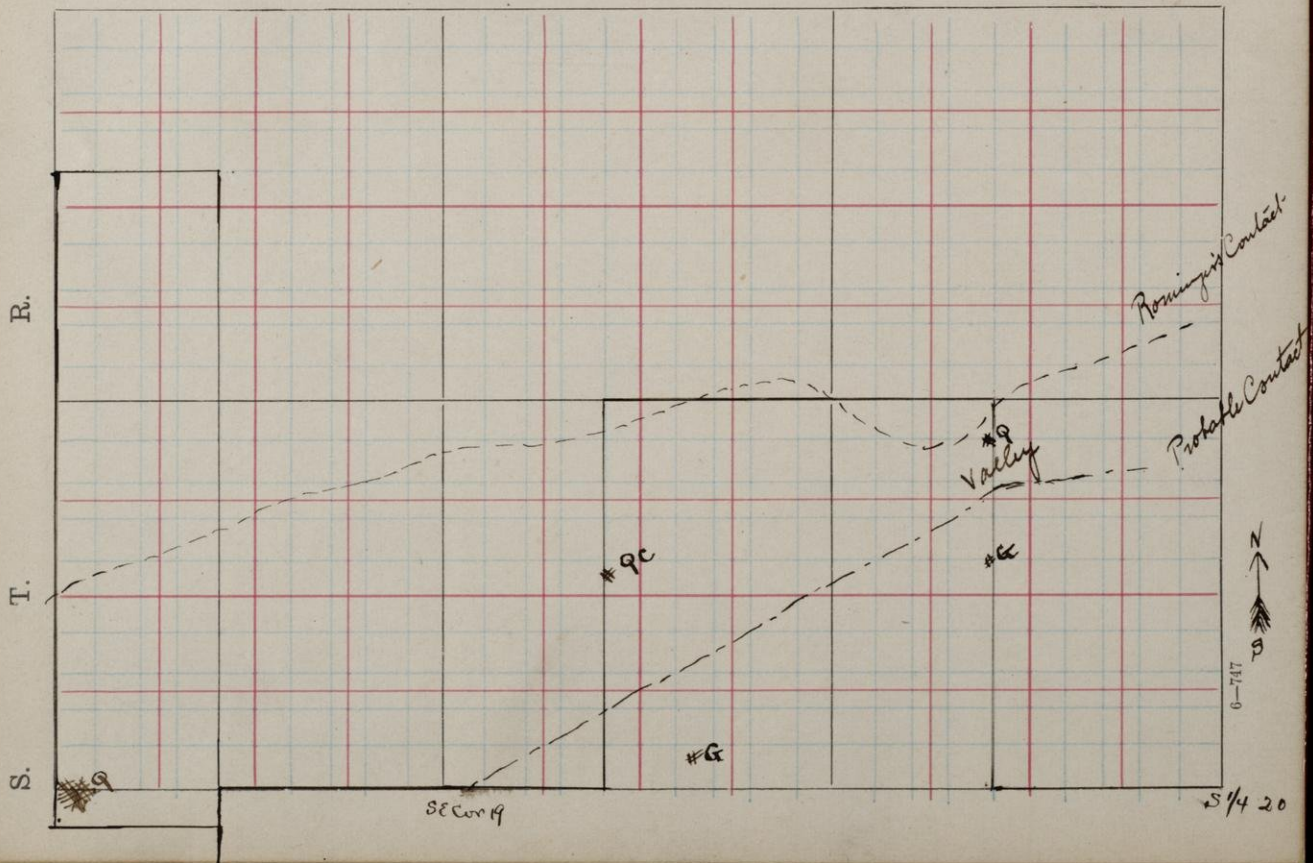
quartzite were found. From appearance I am inclined towards calling it an upper quartzite.

It looks as though this quartzite and that north of the greenstone were both upper though the quartzite to the north has become more compact and in some places more squarred & changed than in this enclosed ridge.

The conglomerates in both cases have a green interstitial matrix apparently composed of detrital greenstone which has changed to chlorite (?).

The quartzite ridge is represented by specimens # 21348 + 21323 - 21325

From today's work it would seem that Rominger is wrong in not extending his peridotite area at least half a mile further east even though there is a topographic break. It also seems that the peridotite area should be



continued across the swamp between the two peridotite areas as now outlined since I found no evidences of the presence of greenstone sufficient to overcome the proximity and general relations of the two peridotite areas.

From the looks of the bluffs peridotite and greenstone seem to possess about equal strength in resisting weathering + erosion.

In respect to the contact between the greenstone and the northern conglomerate + quartzite. My probable contact - as compared with that of Rominger's is shown on the opposite page.

The course of travel is also shown

S.

82

T.

48

R.

27

71
WcorX
32WGP
21349WGP
21350#
G
21351#
G
21352

21/432

June 4th.

10

Starting from NW cor 32 running east to north $\frac{1}{4}$ thence south on N+S quarterline.

21342

21349

200 E NW cor 32 Low ridge of peridotite an apparent continuation of the ridge to the west.
Spec. 21349.

21343

21350

400 E NW cor 32. Outcrop of peridotite like spec 21349.
This outcrop represented by 21350

21344

21351

800 E NW cor 32 Outcrop of greenstone represented by 21351. This is the first greenstone south of the peridotite on our line of travel.

21345

21352

It is a low outcrop as is that of 21352 (850 E NW cor 32) which is also greenstone.

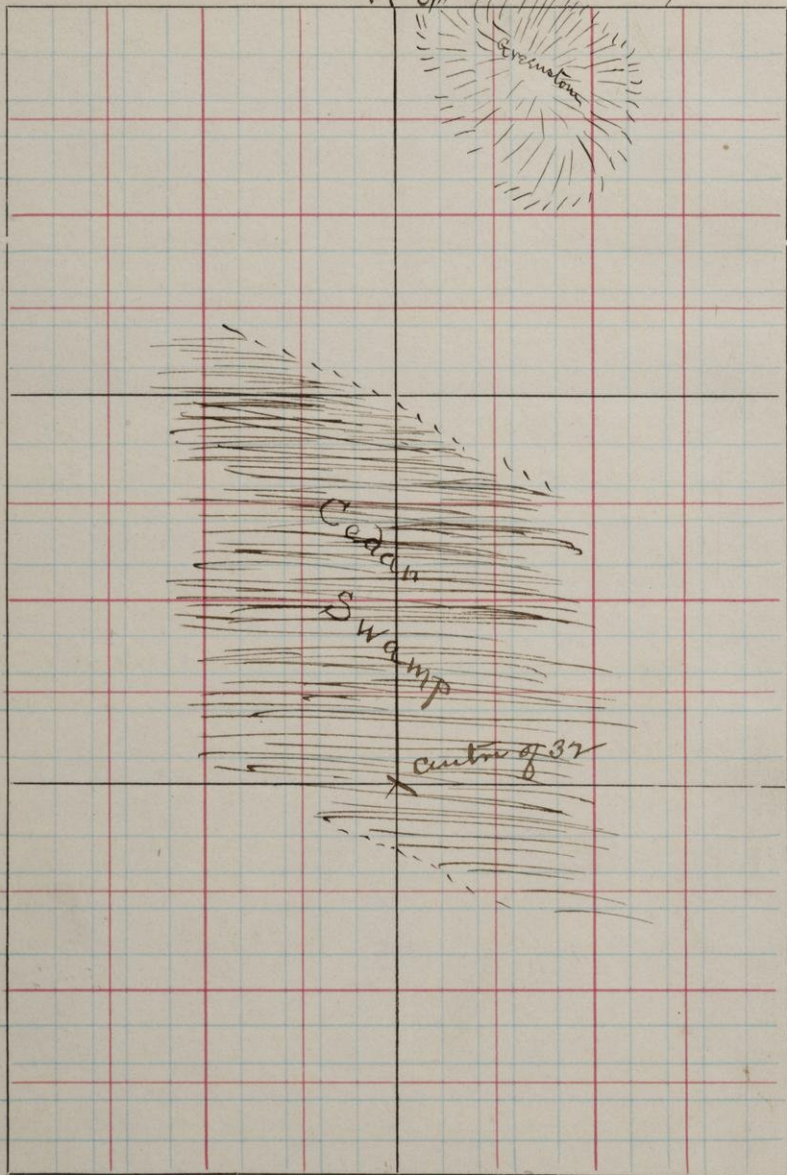
I find no evidence of direct contact there being a slight ravine between the two rocks.

My impression is that

S. 32 T.

48ⁿ48³²R.

27



11

a narrow belt of the peridotite extends across the valley and that is flanked all along on the south by diorite while the quartzite on the north does not extend as far east.

The country for half a mile south after leaving the position of the quarter stake has been devoid of outcrops - either drift covered or more generally a cedar swamp.

21346
2/353

775 N 1000 W SE cor 32 # 2/353
Greenstone. Specimen taken from high ridge which trends about east and west.

21347
2/354

527 2082 N SE cor 32 # 2/354
porphyritic greenstone. This is on the south slope of the same ridge as # 2/353

21348

2/355

4 N 1000 W SE cor 32 # 2/355
represents a low outcrop of greenstone schist. From here to Cooper Lake there

S.

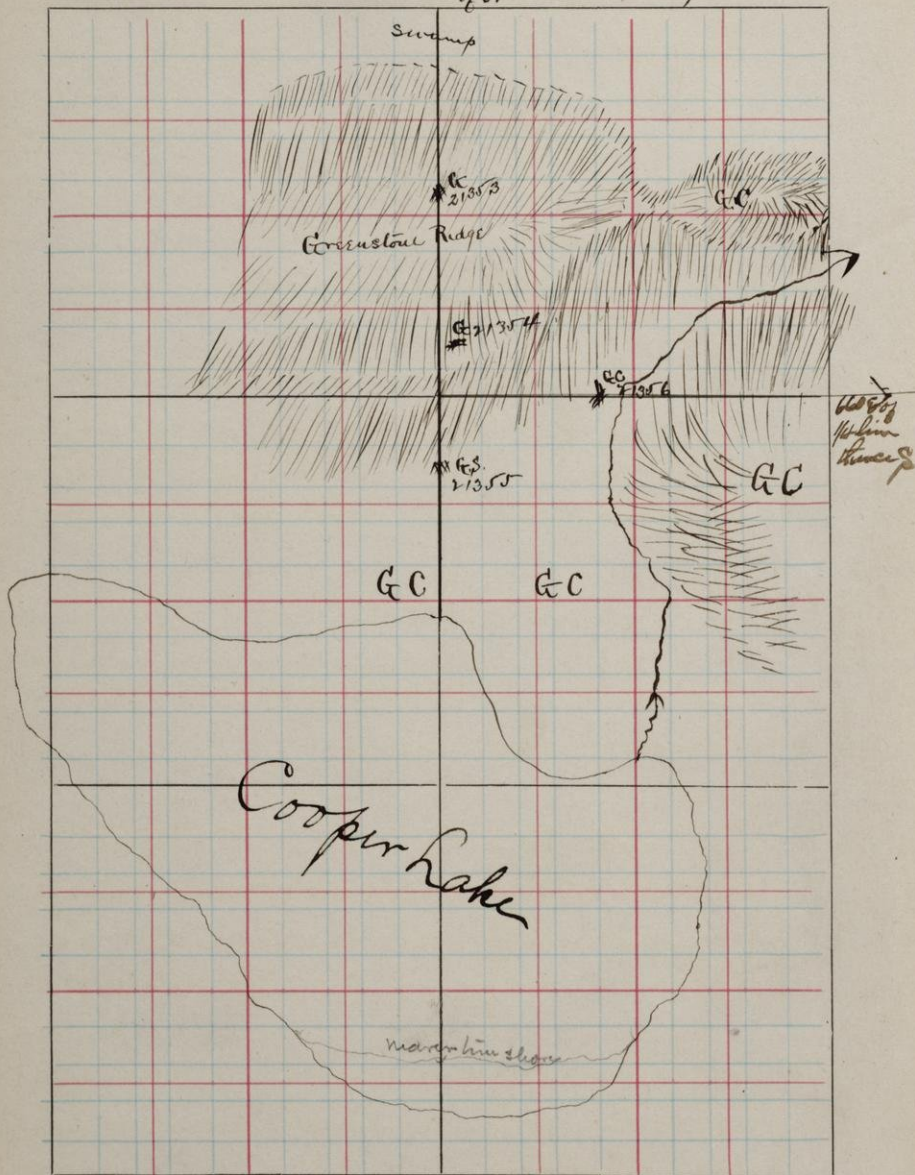
32

T.

48

R.

27

center
of 202

is more or less continuous outcropping of the greenstone - sometimes schistose, sometimes conglomeritic.

At 17698 we came to the shore of Cooper Lake.

21349
21356

500 ft 800 W SE cor 32 # 21356
Greenstone conglomerate. The specimen is a pebble in the greenstone which at first gave a slight impression of quartzite.

21350
21357

500 ft 340 W SE cor 30³⁹ # 21357
This is in the greenstone just north of the quartzite, it is conglomeritic (pseudo) and some of its fragments suggest quartzite but I think they cannot be from their looks. One in particular looks much more like an inclusion of ferruginous vein quartz.

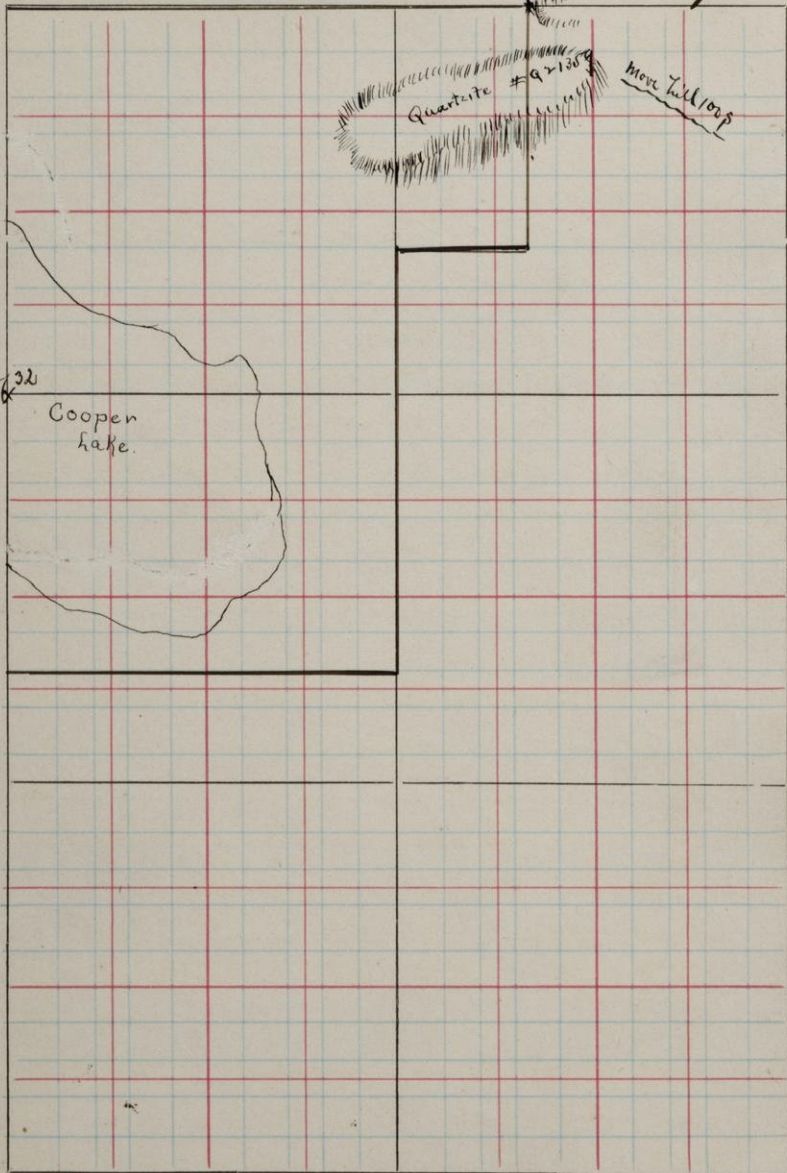
S. 32 T.

48

R.

CC 21357-8

27



5 1/4 of 32

Cooper
lake.

Quartzite #921358

More talk 1005

21351
7/358

This is from practically the same locality as the preceding but gives a little more of an idea of the rock in general.

Valley just to the north.

We ran 1898 from last outcrop of greenstone before we found any outcrop of anything.

21352
7/359

3 11 N 34° W SE cor 37 # 21359
At this point we found a ferruginous quartzite. We can see no gradation nor any likelihood of the same between # 21358 and # 21359 as is claimed by Rominger (36 or 46)

A greenstone ridge begins at about 1500 E SE cor 37 and trends a little south of west.

The east end of the ridge is north of the east section line.

21353

21360

100 N. 25 W SE cor 31 # 21360

represents part of the continuous ridge of greenstone already mentioned

S.

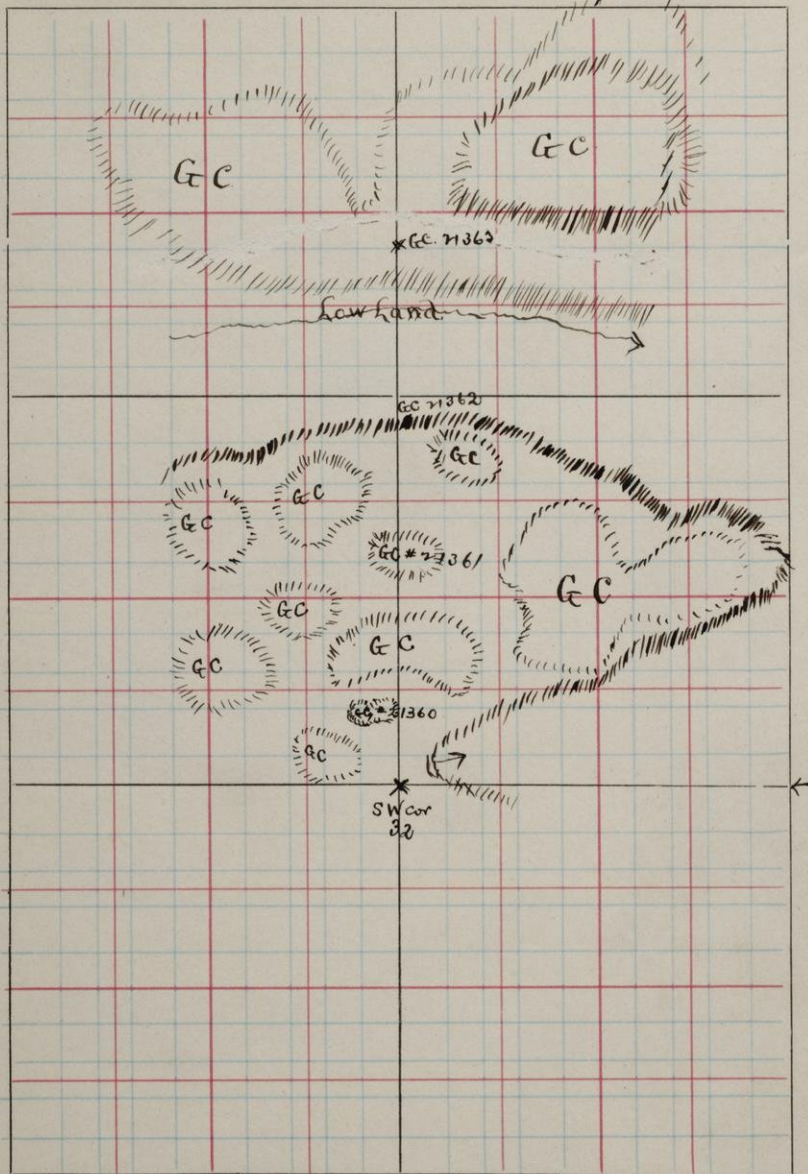
32

T.

48

R.

27



21354
71361300 N Secor 31 # 21361
Greenstone Conglomerate.

At 470 N we came to a sudden drop of 75-100 feet and then a valley about 400 p. wide and finally the companion ridge which was also composed of conglomeritic greenstone.

21355
71362

470 N SE cor 31 # 21362 a specimen of the greenstone.

21356
71363

700 N SE cor 31 # 71363 Greenstone

21357
713641400 N SE cor 31 # 71364
Greenstone.21358
71365

1600 N 60 W SE cor 31 Greenstone represented by # 71365

21359
713661700 N SE cor 31 # 71366
represents the first outcrop of peridotite on the run north21360
71367

Taken 52 paces SE of # 71366

S.

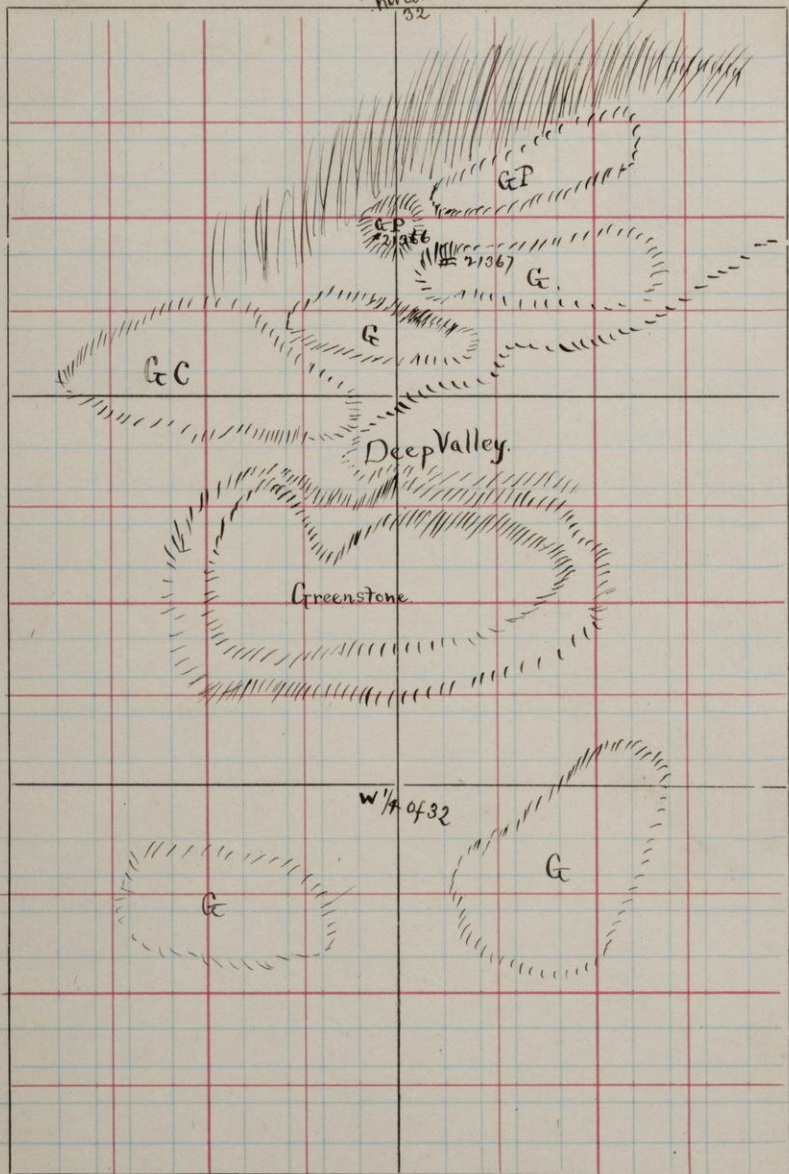
32

T.

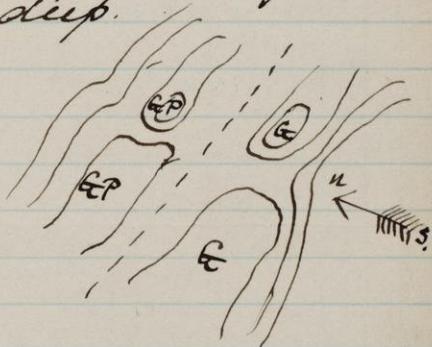
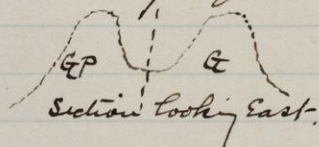
48

R.

29

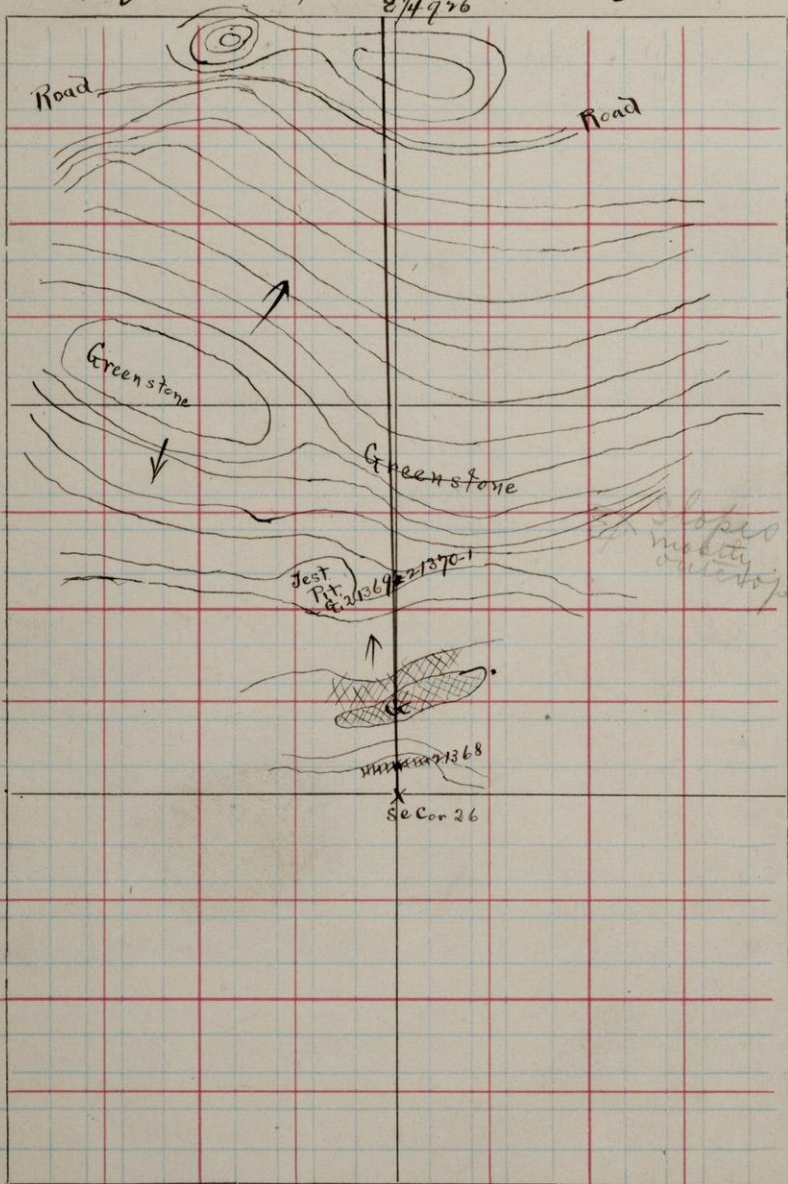
nw cor
32

This is the typical greenstone
 while #71366 is the typical peridotite.
 There is no evident direct contact
 it being replaced by a valley about
 twenty feet deep.



S. 26 T. 48 R. 28

2/4/926



June 6th Running north on east-line of
26 + 73 (48-78)

21361

21368

50N SE cor 76 # 21368 Greenstone,
more or less schistose. Not a large
exposure but still enough to give
the character of the rock. At 150N
there is another exposure like # 21368

21362

21369

260N 70th W SE cor 76 Test pit in
quartz and greenstone represented
by # 21369. No dip ~~dr~~ strike
of schistosity determined
though then appeared to be
an east + west schistosity
somewhat developed.

21363

21370

260N SE cor 76 # 21370 represents
an outcrop of greenstone which
is part of a ridge here and
then exposed and made up
in general of the same rock.
At this point however, the
rock is a conglomerate on a
large scale and what at
first appear to be the
general type rock is in

S.

T.

R.



really but an interstitial cement composed in great part (locally) of masses of radiating actinolite (?) The main mass of the rock is represented by # 21371

21364

21371

21365

21372

490 N 160 W SE cor 76. On one place in the general outcrop is what appears to be a dyke of porphyritic greenstone in a schistose greenstone. This was found to taper out towards the west and its eastern end was covered with vegetation and rock fragments.

The specimen # 21372 represents the contact.

The schistosity of the greenstone is here almost east and west with vertical foliation.

21366

21373

690 N SE cor 76 # 21373 is from a very small and low outcrop of greenstone schist on the northern slope of the hill.

S.

26

T.

4

R.

Gr
21276

Gabbro?

21377

Road(?)

Gr
21374

Meadowland

Pond

21367

21374

1800 N 50 W SE cor 26 # 21374
first outcrop of granite.

21368

21375

1987 N 40 E SE cor 26 # 21375.
Granite much jointed on the surface but appearing quite fresh in the mass.

While I am not sure, I think that the ridge west of the line is granite (I found out so later). There were one or two light colored outcrops near the top about 200-300 p. away.

21369

21376

2000 N 15 E SE cor 26 # 21376
low outcrop of granite the same as the preceding.

21370

21377

250 E SE cor 23 # 21377
Outcrop on the top of the hill of a rock which by its weathering looks like a gabbro. Its relation to other rocks could not be made out as it is practically isolated so I think there is little prospect of finding contact

S.

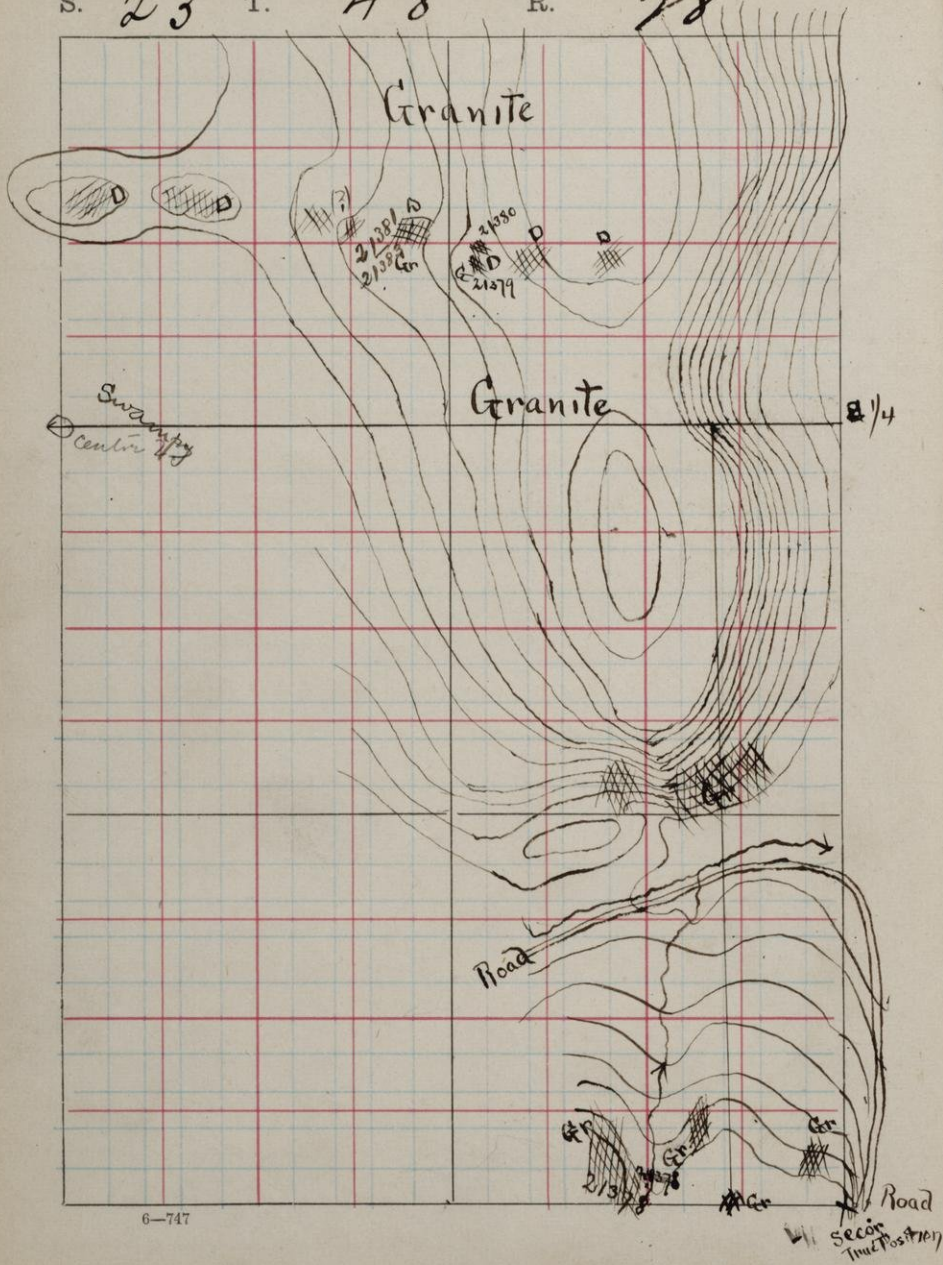
23

T.

48

R.

28



a valley lies between this ridge and the granite.

The hills both of granite and gabbro² are very thickly strewn with boulders of quartzite and schists or slates so that if it were not for the outcrops one would suppose the underlying rock to be sedimentary.

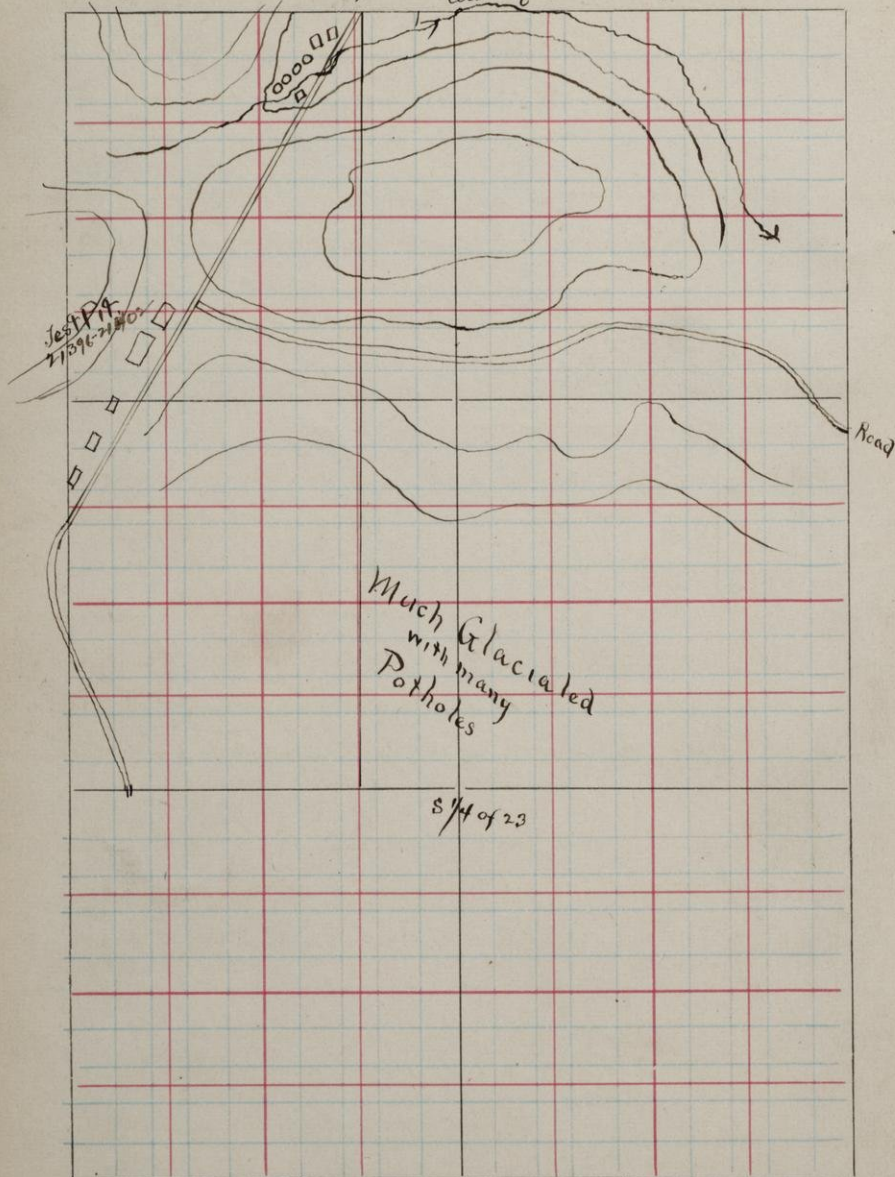
Our pacing is 38 short of when the wood is cut. No corner was found but a station(?) was found 100 W. To this we went & ran north 1000 steps when we found a $\frac{1}{4}$ station 160 E. of our course. Our course at the corner was about 40 p too far west and we ran north 1000 paces 100 paces still farther west.

21371
21378

25 N 160 W S E cor 23 (correction applied)
21378 represents a series of small outcrops of granite

S. 23 T. 48 R. 28

conting 78



21372

21379

1730N 480W Secor 23 # 21379 is a specimen of granite taken from the summit of the ridge. This shows one of the smaller aplitic dykes which are so common in this granite. They have been noticed in every outcrop of granite examined.

21373

21380

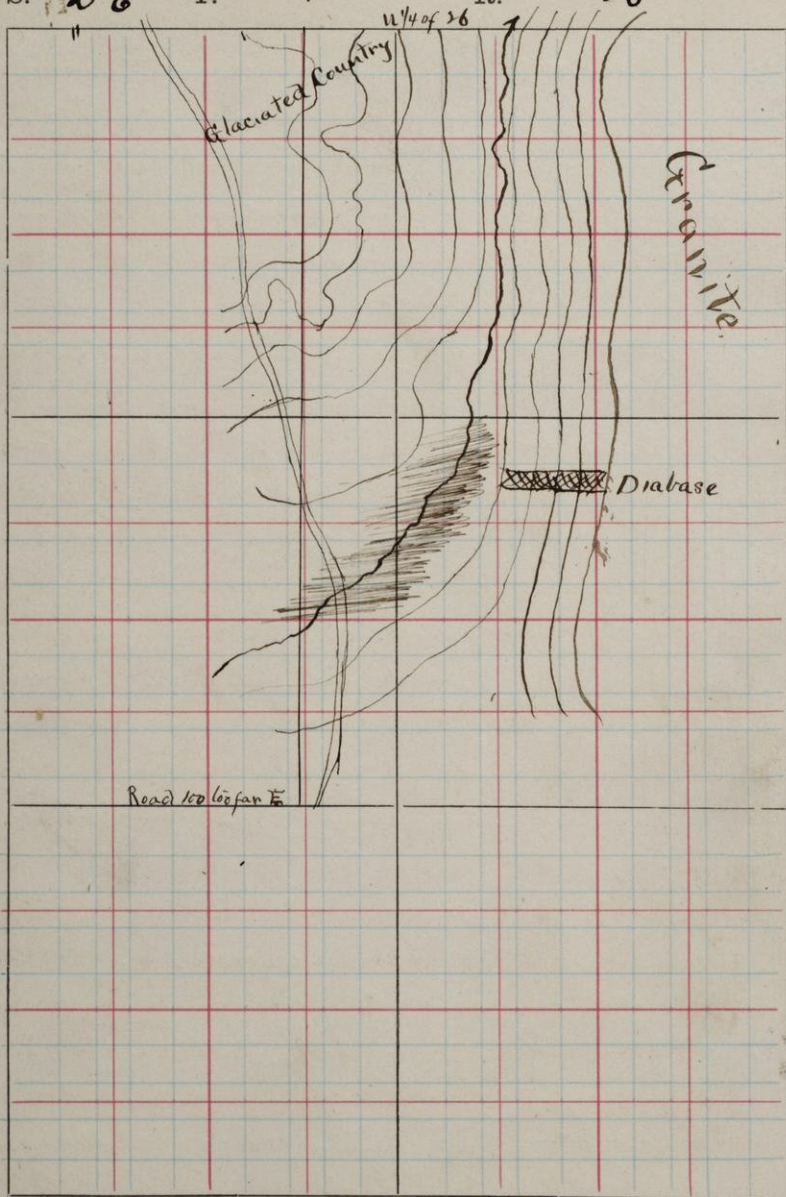
1730N 480W # 21380 is the specimen which represents a diabasic dyke (?) which penetrates the granite in an East and West direction. This dyke is about 30 steps broad (North and South) and may be found frequently within 10 feet of the granite.

21374

21381

at 1275N 530W Secor 23, however, an actual contact was found extending for 10-15 feet. The granite is as before, of the same grain, color & having the same aplitic dykes. This granite at the contact is represented by

S. 26 T. 48 R. 28



#21381. The diabase on the other hand has suffered a change in the character of its crystallization. At the contact it is much finer as is shown by #21382. Specimen #21383 shows the actual contact.

21375
21382

21376
21383

This contact can be reached by taking the road which runs north past the Whetstone Mine (35-48-28) and going along on this about $1\frac{1}{2}$ miles till three or four kilns are passed on the left of the road.

The dyke and the granite lie N E across the swamp.

There is a sort of road into the field north of the swamp.

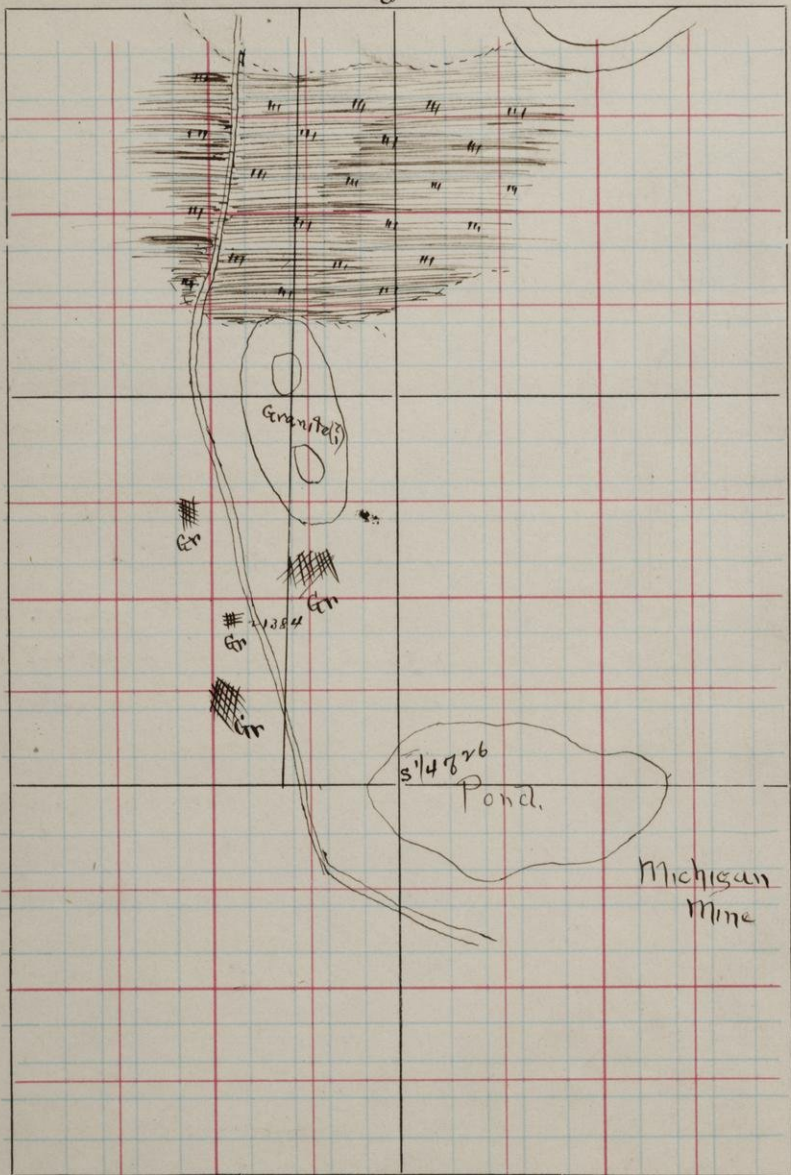
I took a large swing around to see if all the hill which this morning I took to be granite was really so. I went east to the outcrops seen and between them and the present line I found

S. 26

T.

S. 26 T. 48 *center of 26* R.

28



the whole surface to indicate granite and there were frequent outcrops of the same.

About 14N-1450N and 7-800W of the SE cor of 76 I found a second diabase dyke like the one already described though smaller. When I left this outcrop I planned to return accurately locate it & specimen it. I did not return that way but went more in a circle and so have no specimen.

The dyke is east of the road 250-350 paces starting from a point on the road where a creek crosses the road about a half a mile south of a group of white houses.

21377

21384

270N 12 75 W (2) SE cor 76
Specimen # 21384 representing
one of the several knots of
granite

I closed good N & S but could not locate exactly E & W

When I finished the work today I thought I had gained some idea of the structure and distribution of the rocks met with but in going to camp I found a different sort of a greenstone almost in contact with the granite and wholly within that which I had considered the granitic area.

This occurrence is on the hill west of the houses already mentioned (in sec 23)

A test-pit and more or less of an exploration have been made - presumably for gold.

I plan to study the phenomenon more tomorrow

My idea of the relations was something like this:-

The conglomeritic greenstone and greenstone schists with respect to the granite I have not correlated but it seems as though the

the granite might be eruption through them i.e. that the granite is intrusive and not basal.

After the granite the diabase represented by #41380 was probably intruded. Perhaps the gabbro(?) is related to this diabase in some way.

Following this activity of basic materials there came a series of aplitic dykes. I found one or two such dykes in the diabase dyke.

At first I took the fine-grained dykes in the granite to be more aplitic facies but now it looks more as though I should consider them a later eruption

A hand-drawn contour map on graph paper. The map features several concentric contour lines forming closed loops. One loop at the top is labeled "21391". Below it, another loop is labeled "21390". Further down, a loop is labeled "21386". To the right of the "21390" loop, there is a label "21392". In the center of the map, between the "21390" and "21386" loops, there is a shaded area labeled "Gravel". Another shaded area is located below the "21386" loop, also labeled "Gravel". Arrows indicate flow direction or slope, pointing generally downwards and to the right. A vertical line runs through the center of the map. On the left side, there are handwritten notes: "Center" and "15".

Elmer
15

Scale 4 inches = 1 mile

June 7th Rainy.

25

Running north on east line of 15

21378

21385

1070 N Secor 15 # 21385 Granite.

21379

21386

1080 N 35 W Secor 15 # 21386 Greenstone

This greenstone seems to run along the southern edge of the valley. I rather suspect it to be another E & W dyke though its character is not the same as the others. If a dyke the question arises why did our contact (?) erode so much more rapidly than the other which does not appear.

Just across the valley is more granite. The hill shown on the south half of 15 & 14 though mainly drift-covered I consider to be mainly granite.

The granite north of the valley and creek is represented by # 21387 which may be said to come from 1100 N Secor 15

21380

21387

A horizontal number line with a central red tick mark. Two black tick marks are positioned on either side of the red mark, representing negative and positive values.



3
Cabrera

21381
21388 1255 N SE cor 15 # 21388 specimen
from dyke (?) of diabase. No
contact was found.

21382
21389 1500 N 150^E W SE cor 15 # 21389
representing as I believe an
outcrop of a more basic facies
of the granitic magma

21383
21390 1650 N 100 E SE cor 15 # 21390
Granite. Low outcrop.

21384
21391 50 N SE cor 10 # 21391 Greenstone
This rock forms a ridge
which runs a little south
of west. Beyond this ridge is
a long level stretch of
country which I believe to
be the area of the Silver Lake
sedimentaries.

At this time my compassman
and I were thoroughly
drunk and the compass
was also becoming so, I
therefore decided to stop
making a head and to

detour by means of opening and road to camp. By so doing I was able to go over considerable portions of sec 22, 23, 14 & 15.

The section on the preceding page gives some idea of the general distribution of the rocks.

21385
21392 780 W 32 cor 15. # 21392 Granite.

21386
21393 1737 N 1000 W SE cor 22. Granite.
21393.

21387
21394 1580 N 1000 W SE cor 22 # 21394
Granite.

21388
21395 1400 N 1000 W SE cor 22 # 21395
Granite.

There was nothing about these ledges worthy of remark. They were small areas of exposed rock with most of the ledge deeply moss & forest covered.

Later in the day I went again to the test-pit referred to yesterday.

I did not succeed in making anything but confusion out of it.

The strike of one mass and contact seems to be about east and west that of another much more to the south.

21389
21396

Starting from just east of the pit we have #21396 which is suggestive of the conglomeratic phase of greenstone and also suggestive of being an inclusion in #21394 which apparently extends to the side of the excavation. The pit itself is in quartz and #21398 which seems to be the principal stone taken out.

21390
21397

21391
21398

Passing a few feet beyond this pit whose N.W. side is granite we find a rock like #21399 which seems to include the granite — the exposure is so small that I can make little out of it

21392
21399

21393

21400

Next to # 21399 comes # 21400
with which it makes a marked
contact running almost
west-by-south.

21394

21401

21393

21402

Passing a few feet to the south
of the dump pile we find what
looks like a dyke of # 21401 in
21402.

Of these relations I am not
sure, the mere mention of
the thoughts suggested show
that confusion exists.

June 8th Cloudy.

30

Running south on east line of 78

21396

21403

300 E SE cor 71-48-78 # 21403

Red orthoclase granite. Low outcrop.

21397

21404

140 E SE cor 71-48-78 # 21404. Granite.

Both of these outcrops were small and little exposed.

21398

21405

1900 N SE cor 78 # 21405. Granite.

Just a small knob and almost no exposure. The same is true of

21399

21406

21406 found 1800 N SE cor 78.

21400

21407

275 E 1500 N SE cor 78 # 21407
Granite. This composes the main hill and is like the granite in adjoining knobs.

21401

21408

Through this cut a diastase dyke represented by # 21408

This dyke is 10 paces wide and has next to it (at all distances of twenty paces east and also at about 10 paces west) granite.

Both granite and diabase have two series of joints

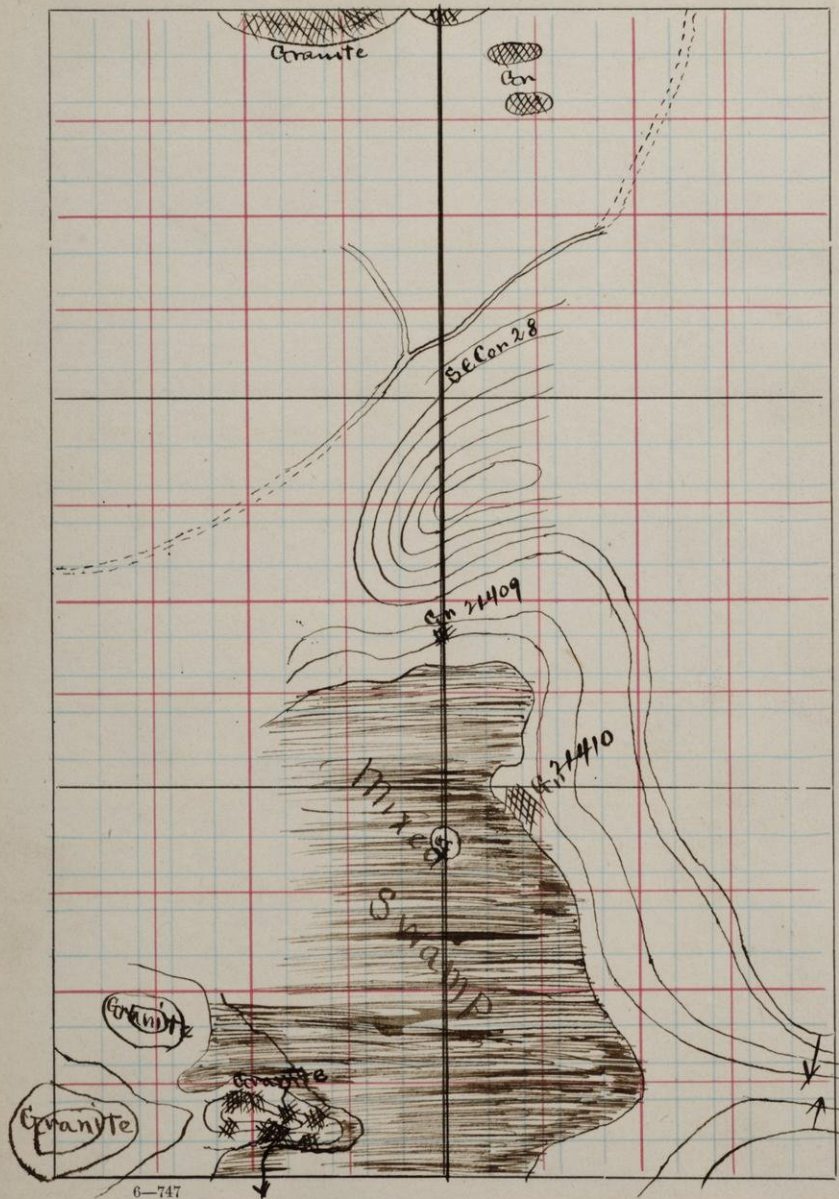
S. 28+33

T.

48

R.

28



the more prominent being ESW
while the other is N55. The
granite also seems to have a
third (?) which dips at an angle
towards the north.

Twenty paces short of corner.

21402

21409 1700 NSE cor 33 # 21409 This is
the only exposure so far as seen
upon the whole hill and yet
I believe all the hill to be
granite.

21403

21410 1450 N 100 E SE cor 33 # 21410
Granite. low outcrop. Small exposure.

21404

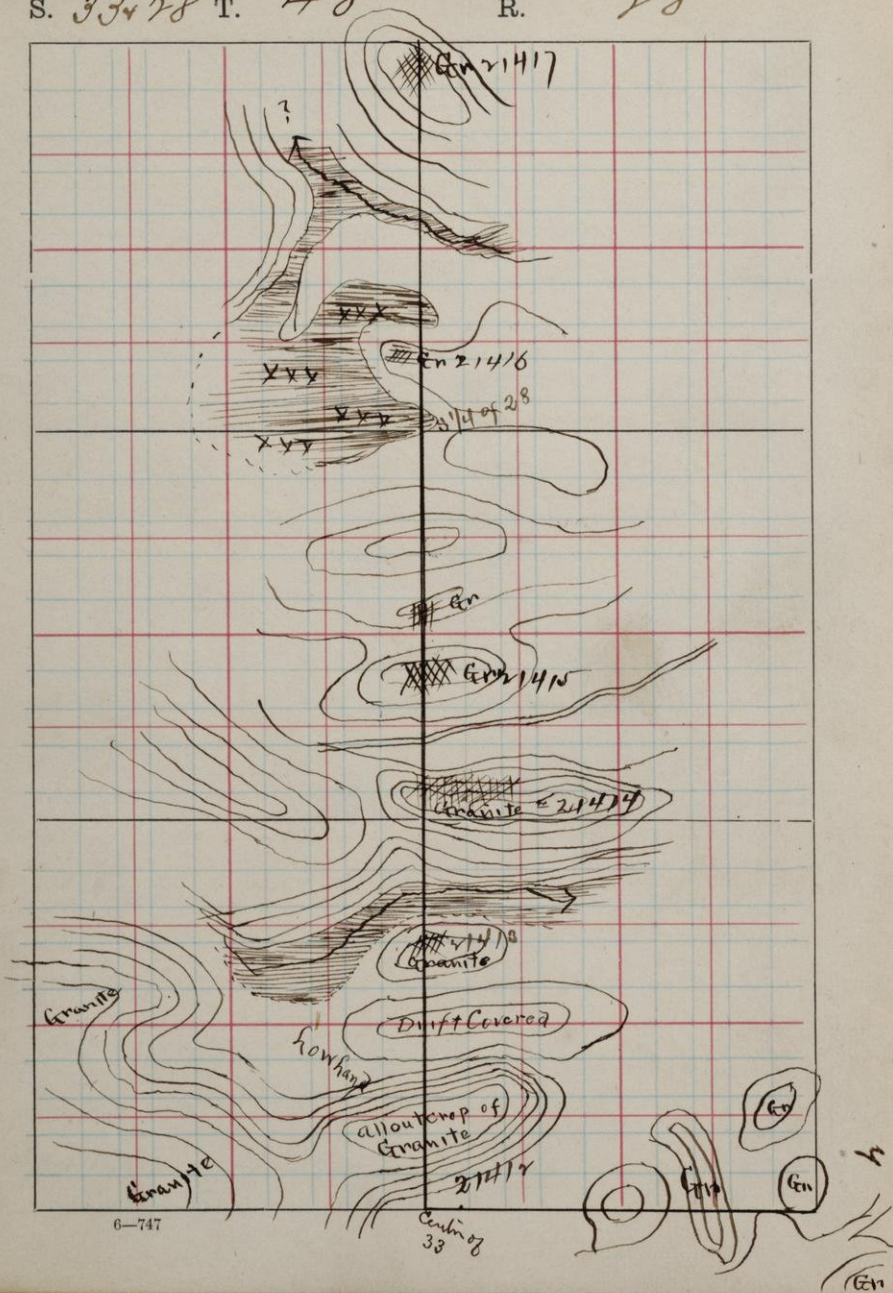
21411 1020 N 85 W SE cor 33 # 21411
representing a very low outcrop
of greenstone - scarcely larger
than a huge boulder.

South of 400 W 1000 NSE cor
33 are numerous outcrops
of granite.

S. 33, 28 T. 48

R.

28



All the knobs along the East + west-quarterline of 33, so far as seen form practically one continuous outcrop of granite.

Every hill from this E & W $\frac{1}{4}$ line to the C.N. & W R.R. is granite so far as I can see.

21405

21412 1030 N 980 W Secor 33 # 21412 Granite.

21406

21413 ^{1000 W} 1350 N _N Secor 33 # 21413 Granite

21407

21414 ^{1000 W} 1550 N _N Secor 33 # 21414 Granite

21408

21415 ^{1000 W} 1700 N _N Secor 33 # 21415 Granite.

21409

21416 100 N 1000 W SE cor 28 # 21416 Muscovite (?) granite with pink orthoclase.

21410

21417 500 N 1000 W SE cor 28 # 21417 Granite.

21411

21418 ^W 2000 N 1000 _N SE cor 28 # 21418 Granite

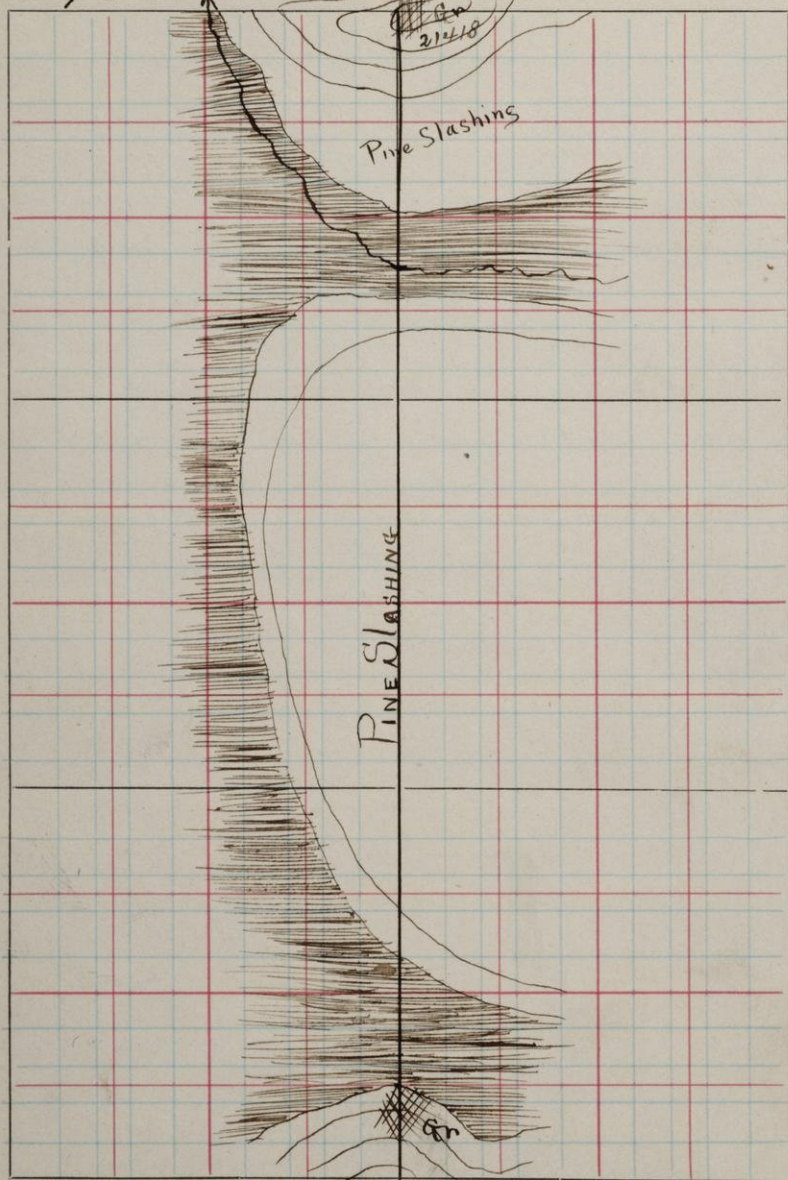
S. 28

T.

48

R.

28



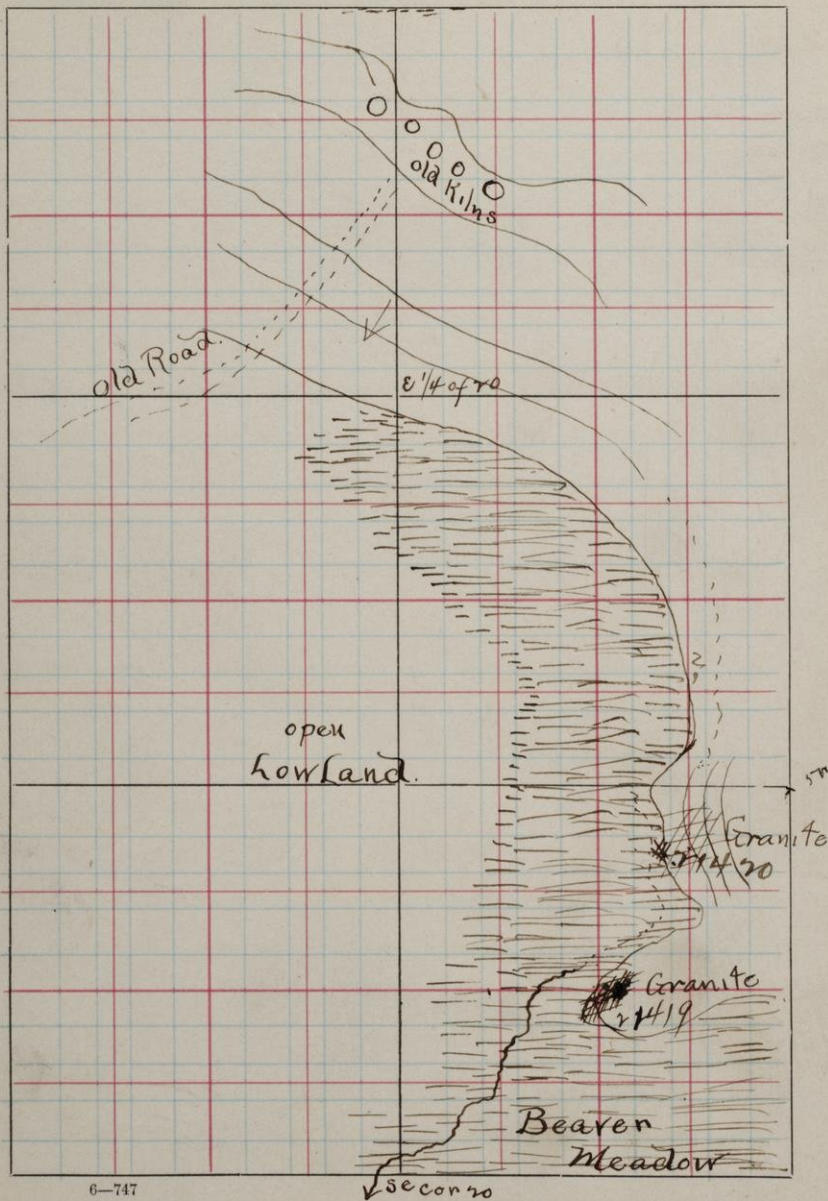
S. 20

T.

48

R.

28



June 9th Fair.

34

Running north on east line of no

~~21412~~

21419

235N 275E Secor 20 # 22419

Low outcrop of granite

~~21413~~

21420

435N 375E Secor 20 # 22420

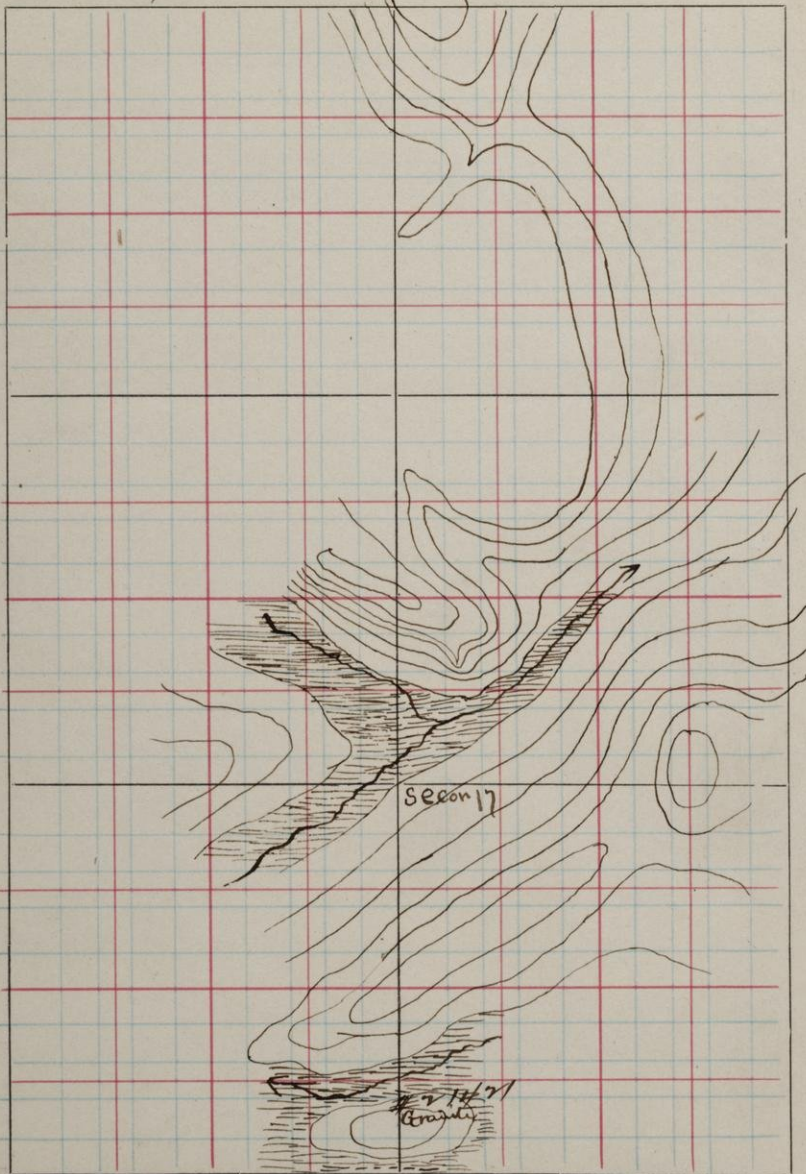
Granite

S. 20+17 T.

48

R.

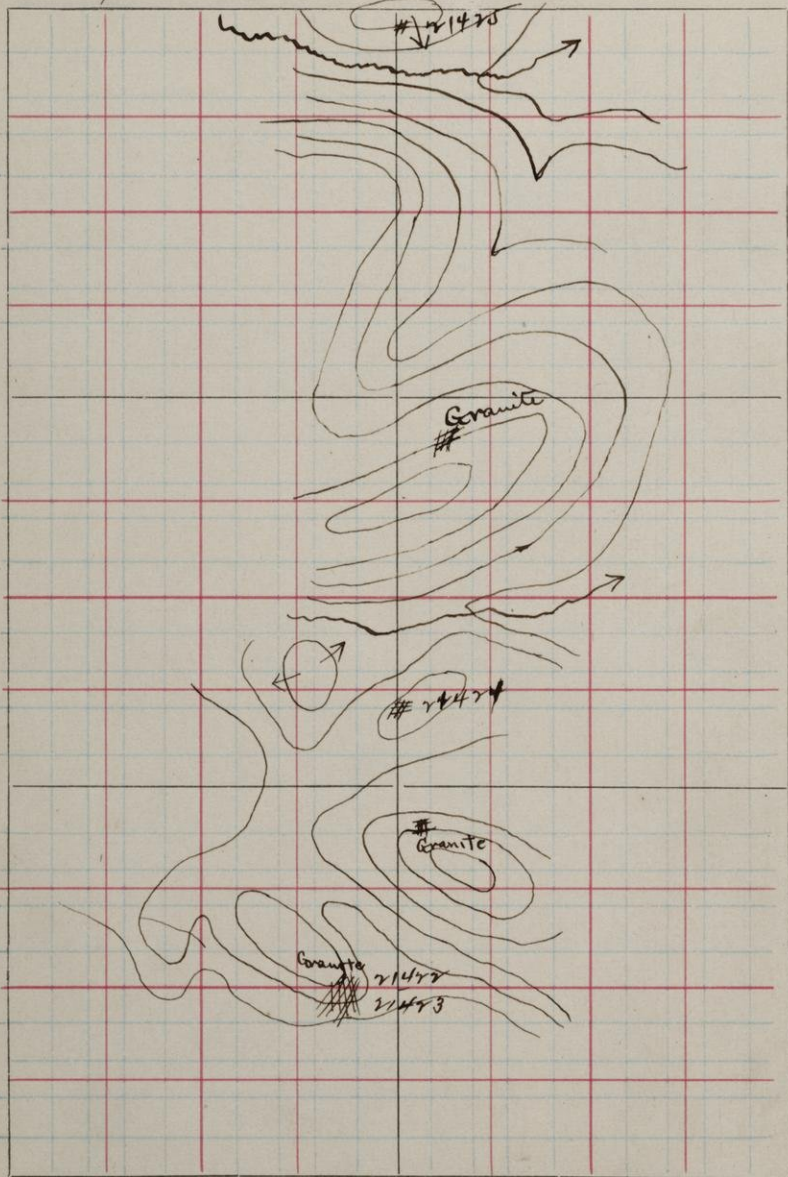
28



214/14
r1421

1600 u Secor 20 #21421 A very
small outcrop of granite
when a tree has been torn off.

S. 19 T. 48 R. 28



21415

21422

21416

21423

1270 N Secor 17 # 21422 Outcrop of
granite (?) This seemed to me like
a granite sure enough but # 21423
looks other than the normal and
looks a little like quartzite but
I don't believe it is other than a very
acid granite or gneiss.

21417

21424

1600 N Secor 17 # 21424. This
granite has more or less
pronounced gneissic
structure. There may also be
noted in it aplitic dykes. It
is not a good exposure.

21418

21425

475 N Secor 8 # 21425
Granite

S.

8

T.

48

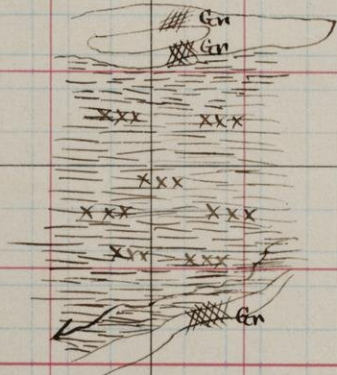
N 60° E 8

R.

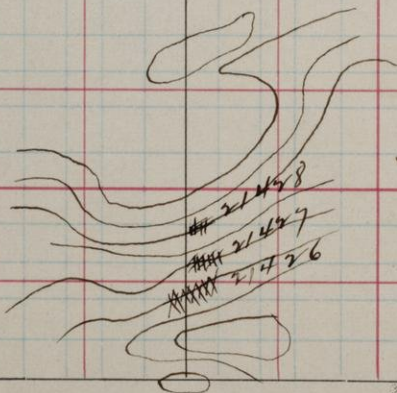
28

Gr
21429
Granite

x corner^(?)



c 1/4 of 8



21419

21426 607 n 22 cor 8 # 21426. Greenstone
which seems to be a dyke in
the granite running about
N 80° E Ten paces farther north
we again reach granite represent-
ed by # 21427 which is gneissoid
and of a reddish hue.

21421

21428 940 n 52 cor 8 # 21428 Granite
Closed on the corner (?) 200
long.

21422

21429 60 w 2000 n 52 cor 8 # 21429
Granite.

(2000)
This point we make the
corner but find no corner
stone. That may have been
the corner 200 S of here. Anyway
we ran west 1000 paces
thence south 4112 to the
north line of 20. At this
point we found no 1/4
stone. We followed the row
line E 500 steps and
then ran south 1 mile
we found the south line

S. 8 T. 48 R. 28
N 1/4

Probably all Granite
frequent Outcrop.

Cedar
and
alden

Centre of 8

Drift Covered

of 20 700 paces west of the
S $\frac{1}{4}$ stake when if our
running had been correct
we should have closed
500 E of the S $\frac{1}{4}$ stake. This
makes our error in direction
700 paces too far west. I
don't know where the
error entered and hence have
made no corrections.

I give the locations according
to my pacing or rather that
of my companion.

S.

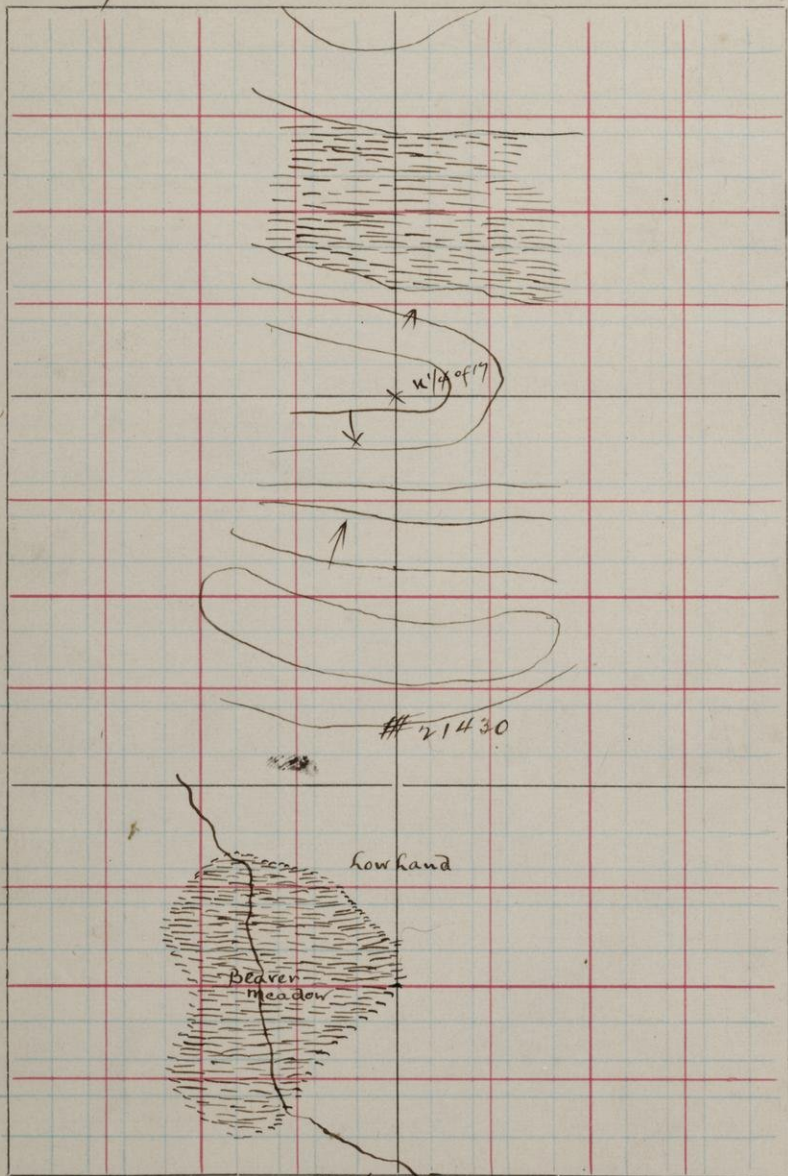
17

T.

48

R.

28



21423

21430

1560 W 1000 W Secor 17 #21430

Small outcrop of granite

S.

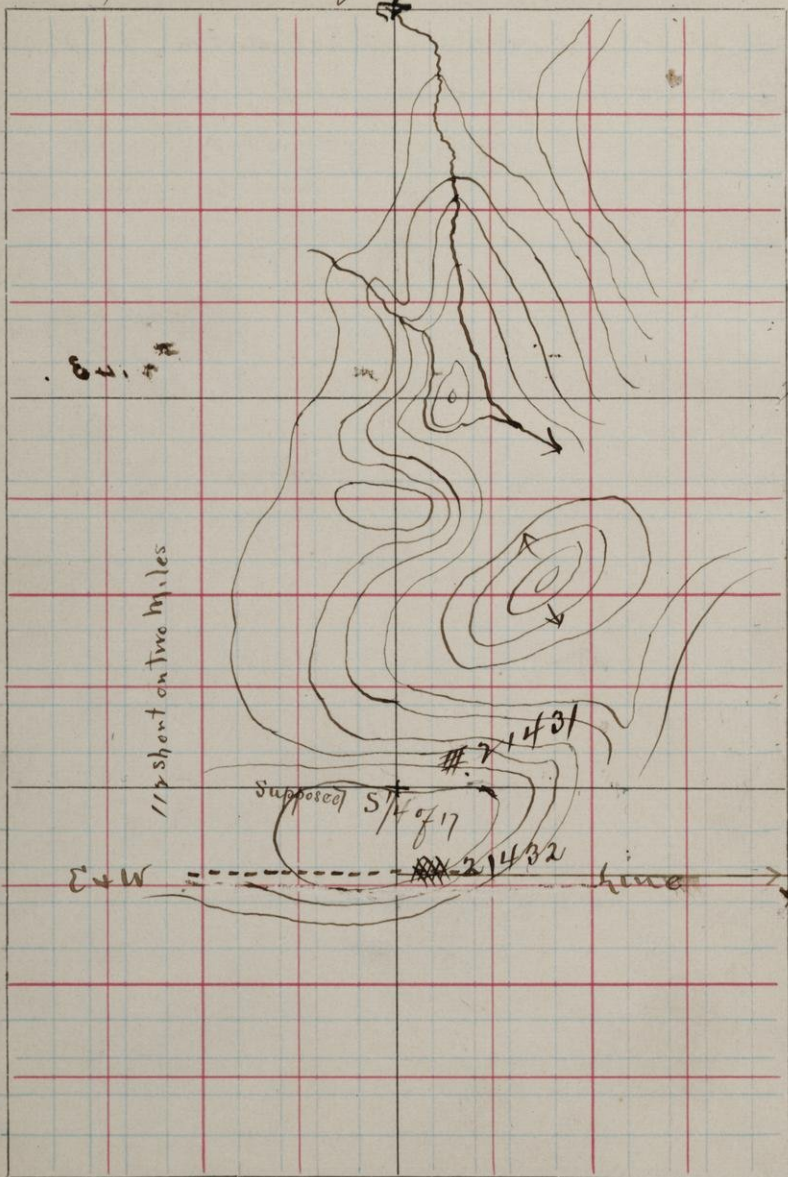
17

T.

48

R.

28



21424
21431

21429
21436

I have located these on my sketches and since I was so far out I think that this method of location is as accurate as that by paces would be.

All the rocks seem to be very acid gneisses or granites with the exception of #21431.

S. & 20 T.

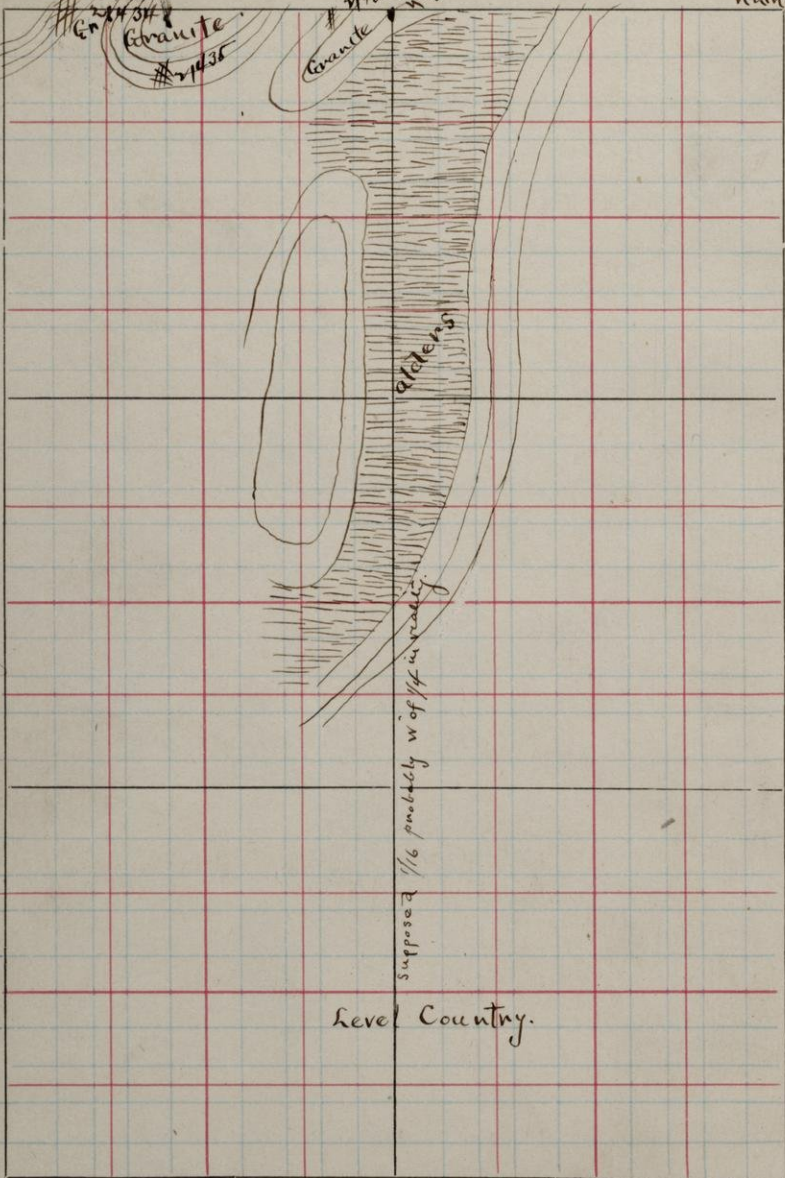
48

R.

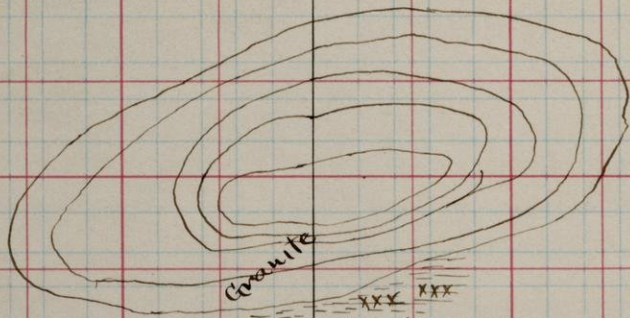
28

line of 20

Not apt flat for shute.



S. 20 T. 48 R. 28



Contour

xxx xxx
xxx - xxx

Suppose 98/16 * 1/4 stake.
E of 1/4.

Not yet flattened in photo

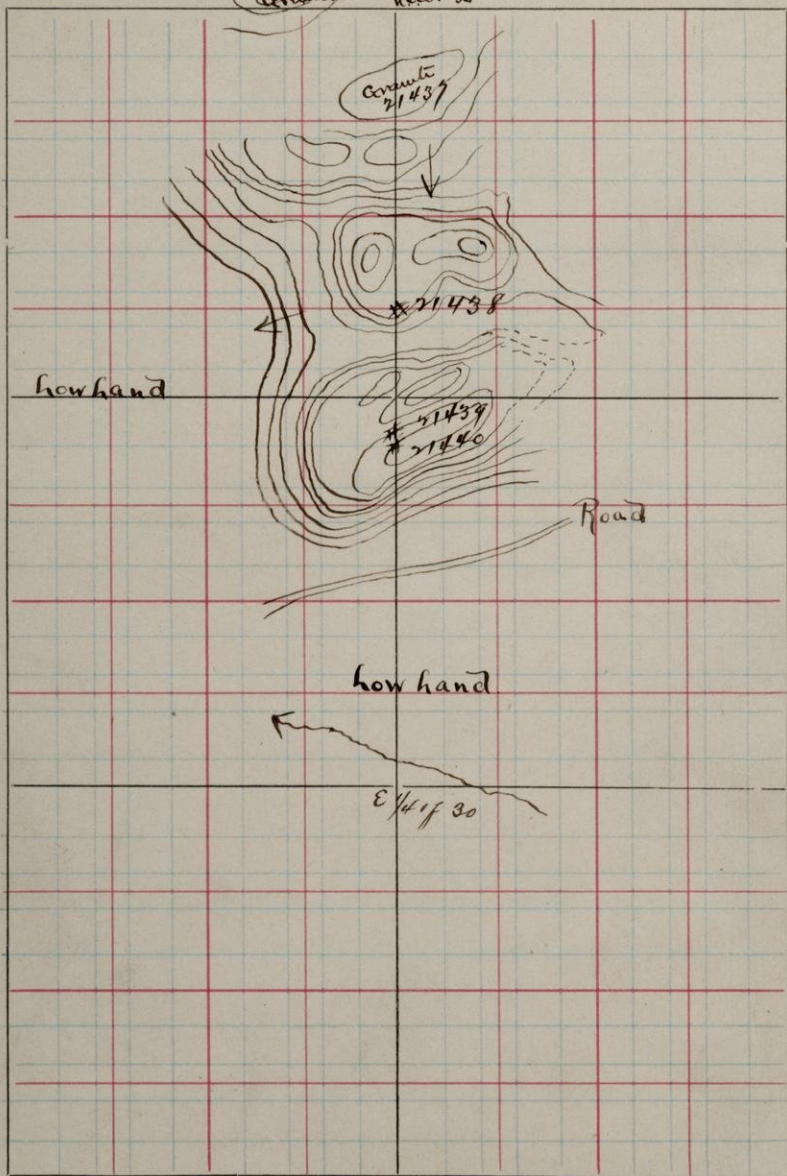
S.

T.

R.

Granite

near 30



June 10th

43

Running south on east line of 30

21430

21437

1900 N SE cor 30 # 21437 Granite or
gniss.

21431

21438

1620 N SE cor 30 # 21438 Granite.

21432

21439

1370 N SE cor 30 # 21439 Dyke of
diabase cutting the granite.

21433

21440

Slight line of erosion along
the north contact (as is common)
with none on the south and
no direct contact visible.

This dyke is about 75-80 feet
wide and runs in a direction
approximately N 75° E.

21440 shows a coarser
phase of the dyke. The granite
is just the same as usual
with a slight tendency towards
a pronounced development
of red orthoclase.

21434

21441

955 N 75° E SE cor 30 # 21441
Granite?

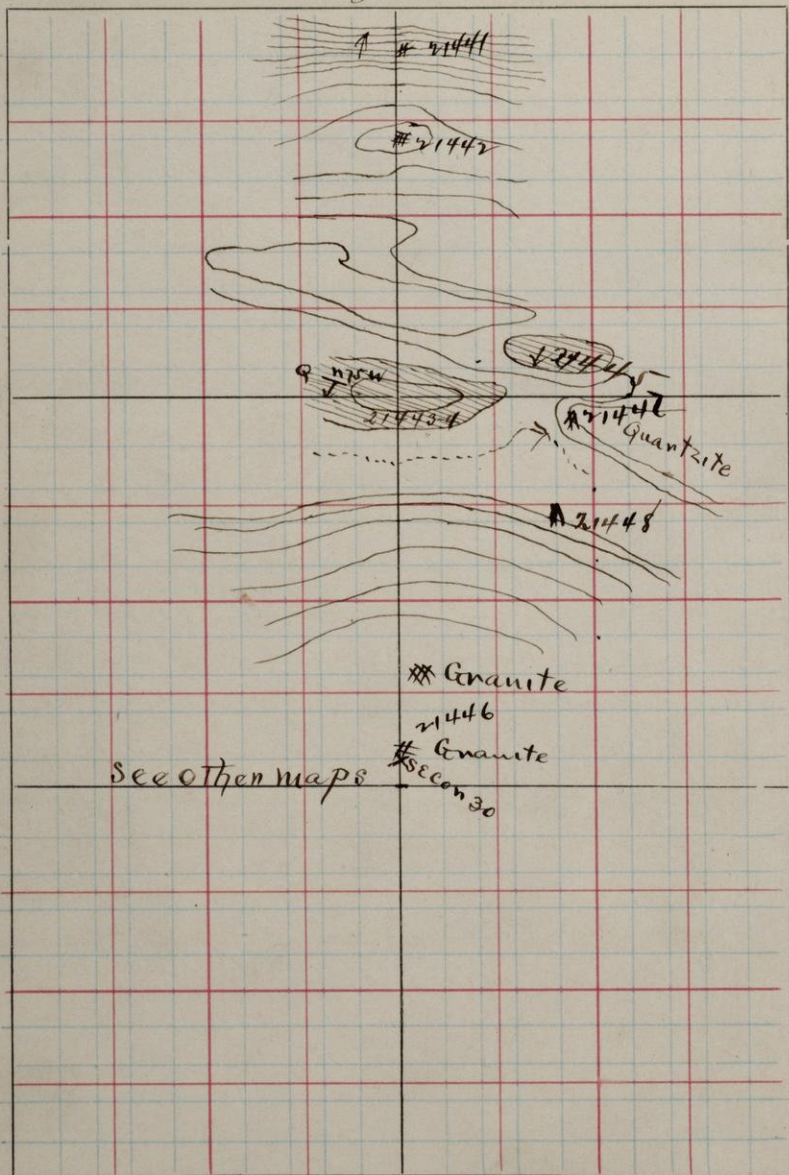
S. 30

T.

48

R.

28



21435

21442 850 n se cor 30 # 21442 Granite

21436

21443

485 n se cor 30 # 21443 Is what at first sight I took to be a very acid granite and think I would have continued to so consider it were it not for the fact that on the southern slope I found what I believe to be a bed of water-worn quartz pebbles which sometimes reach the size of a foot in diameter.

In some parts of the ridge it seems as if the rock must be a very acid granite since we find what appears to be a quite distinct feldspar. At other places we find that which looks just like ripple marks - this is near the conglomerate.

The present outcrop extends 130 paces east and about as far west of the section line, evidences of which are on a tree on the ridge -

21437

21444

The pebbles mentioned are represented by # 21444. The conglomerate on a smaller.

21/4 of 30



28

R.

148

T.

30

S.

attoutenop

#9 21457

9

9

9

#Gn 21460

#Gn 21448

#9 21449

Mostly Outenop.

#Gn

Gn

Gn

#9 21462

#Gn 21446
Secor 30

9-785

21438

21445

scale is represented by ± 21445

21439

21446

Gran

This specimen was taken by my
compassman from "at the corner"

There is also another outcrop
between 100 + 150 N of SE cor. The
tally at the corner was 1950 S.
This would put the top of the
quartzite ridge about 450 N.
The ridge extends across the
N + S line of 30-29. The ridge is
in part surrounded by swampy
growth and a small creek
flows eastward along its southern
slope.

The strike of the quartzite-conglomerate
is N 75° W with a southerly dip.

The upple marks referred
to above occur on the southern
slope and if true upple marks
the dip is 26° S. The parallel
lines of the markings seem to be
normal to the strike already
determined. The upple
marks are shown in ± 21447

21440

21447

R.

T.

S.



21441
21448 240 N 250 E Secor 30 # 21448 46
High outcrop of granite?

21442
21449 300 N 450 E Secor 30 # 21449
Quartzite.

21443
21450 300 N 240 E Secor 30 # 21450
Low outcrop of granite?

21444
21451 500 N 600 W Secor 30 # 21451
This is surely a later rock
than the quartzite, but whether
eruptive (schistose gneiss) or not-
(slate) I don't know. It did
contain one rounded boulder
of quartzite.

21445
21452 400 N 950 W Secor 30 # 21452
Quartzite part of a big ridge

21446-7
21453-4 280 N 1300 W Secor 30 # 21453-4
I had become confused in the
types so I thought it best not to
give names to the specimens but
to let them be determined in the
hand specimen

21448

21455 280 N 1350 W SE cor 30 # 21455.

21449-50

21456.7 350 N 1435 W SE cor 30 # 21456-7

21451

21458 450 N 2000 W SE cor 30 # 21458

21452-3

21459-60 1440 W SE cor 30 # 21459-60

21454

21461 75 N 780 W SE cor 30 # 21461

21455-7

21462-4 500 W SE cor 30 # 21462-4

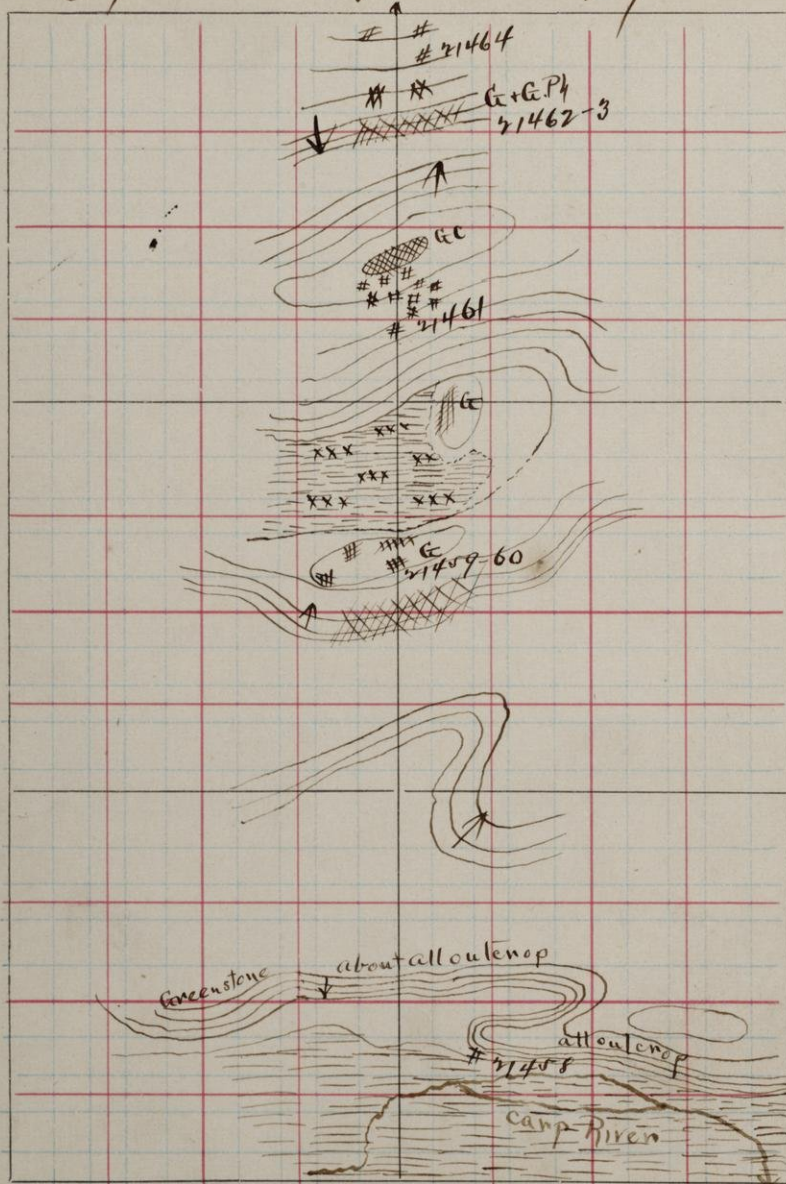
21461

Are not sure of numbers
I intended to add them in but
may have decided not to! used the
numbers a second time.

The following description of certain
numbers 58-64 is more reliable
than that above - Show above all
granite or gneiss except 21463 which
is diabase cutting through gneiss.

8

S. 24 T. 48 R. 27



June 13th

49

Run north on west line of 24 & 13-4827
than hunted from 5 AM. till 9 AM. to
find some corner or place to start
from. We have located this corner
by pacing from the range line. All
maps are different and show
different locations for the corner in
respect to the Carp River.

21458^{ck} 175 N 1900 W SE cor 24 # 21458 Diabase
greenstone. This outcrop shows
both this and a more schistose
phase. The whole ridge for a
quarter of a mile west seems to be
one continuous outcrop with it.

21459 800 N 2000 W SE cor 24 # 21459
Greenstone in which are many veins
of quartz interspersed with
chlorite and epidote(?) see also
21460 taken from the same place

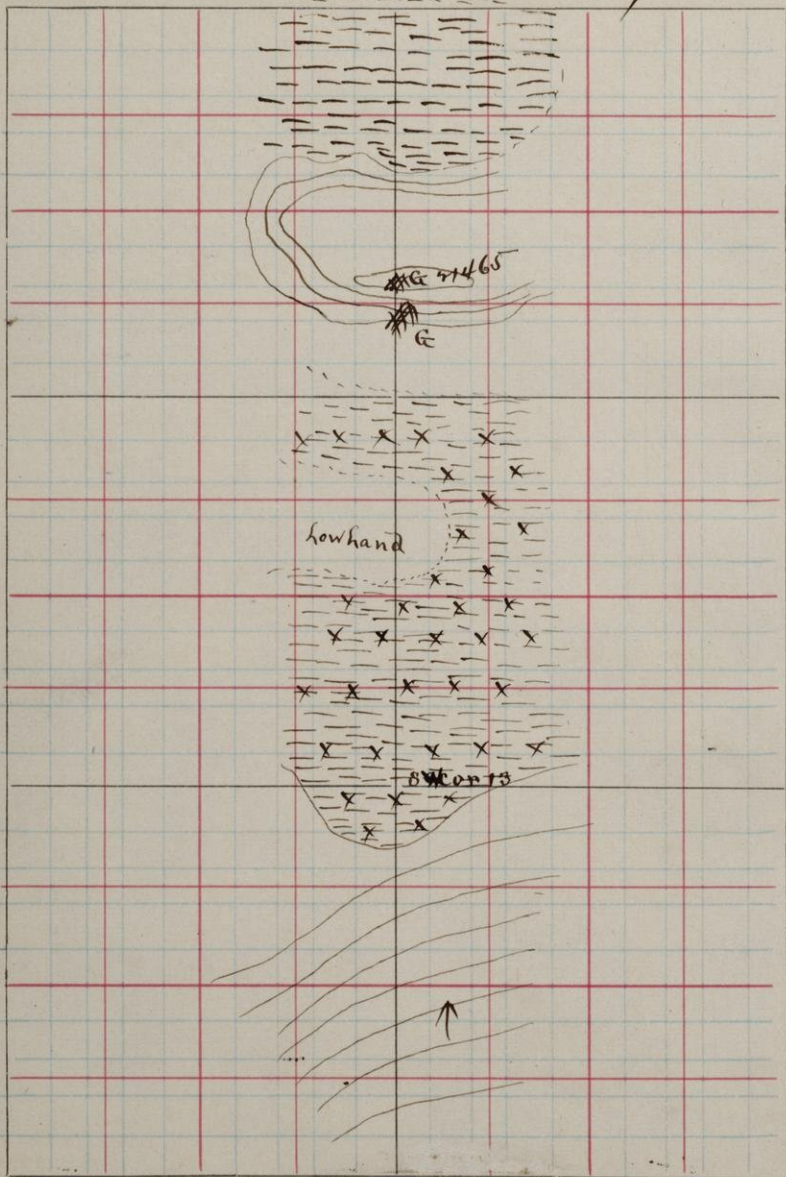
21461 1100 N 2000 W SE cor 24 # 21461
Greenstone - a part of a new ridge.
This is finer grained and more
fissile than the preceding specimens
taken today. Certain phases of the

S. 24-13 T. 48

W 1/4 13

R.

27



outcrop tend towards a development of pyrite.

About 100 paces farther north this rock locally takes on a conglomeritic phase.

21462-3 1250 N 2000 W Secor 24 # 21462-3.

This outcrop consists of massive greenstone and greenstone porphyre

21463 is a peculiar phase of the rock at one (local) point. While

21462 does not well show the porphyritic character of the rock, yet the outcrop gives the same appearance as the porphyritic greenstones just south of Deer Lake.

21464 1460 N 2000 W Secor 24 # 21464
Coarse grained greenstone.

21465 650 N 2000 W Secor 13 # 21465
Small outcrop of fine grained compact greenstone.

1044 N + 38 E we found $2\frac{1}{4}$ of 13

S. 13

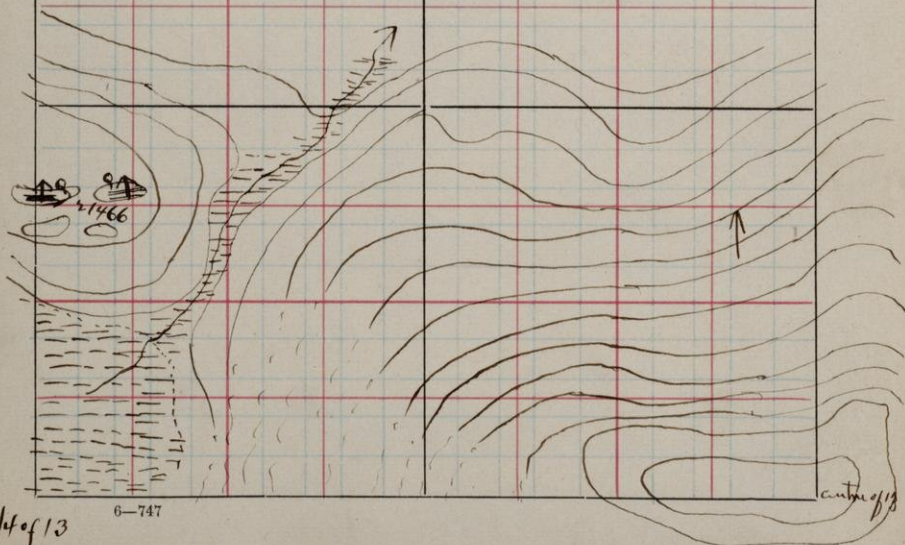
T.

48

R.

29 1 H.F.P.

W/4 of 13



6-747

W/4 of 13

contour 13

✓
21466

1350 N 1980 W SE cor 13 #21466

57

Low outcrop of quartzite conglomerate.
This outcrops about 100 paces east-
also but nowhere does it seem
to be over 10-20 feet thick. The
strike is about east and west
with a low northerly dip.

So far we have run north $1\frac{3}{4}$ mi, we
now run east $\frac{1}{2}$ mile thence south
to the valley of the Carp River.

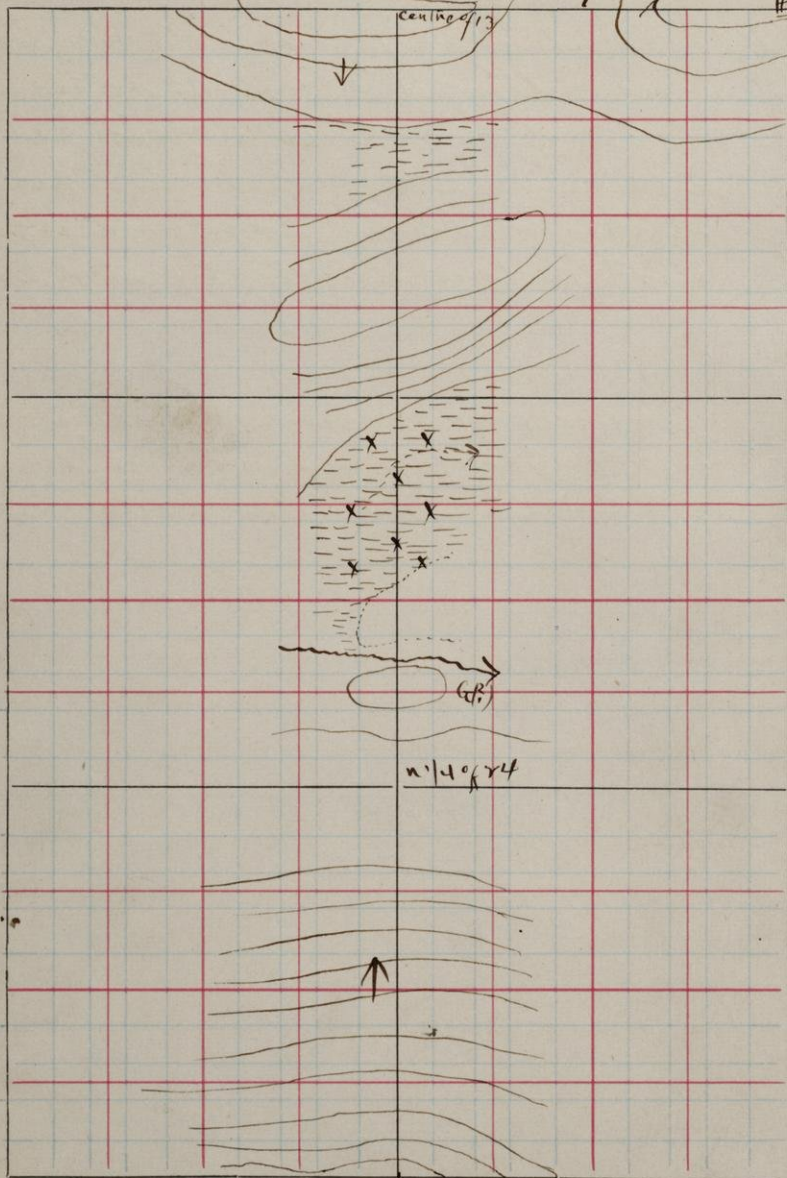
S. 13

T.

48

R.

27

2467-70

21467

at 1000 ⁵⁰⁰³ N 47.5 W sec 13 is found
what is called by Rominger granite.
As will be seen from the specimen
the rock is decidedly porphyritic
in the development of its feldspar.
When fresh its color is as deep as
that of the greenstone but when
weathered it looks very much
like granite.

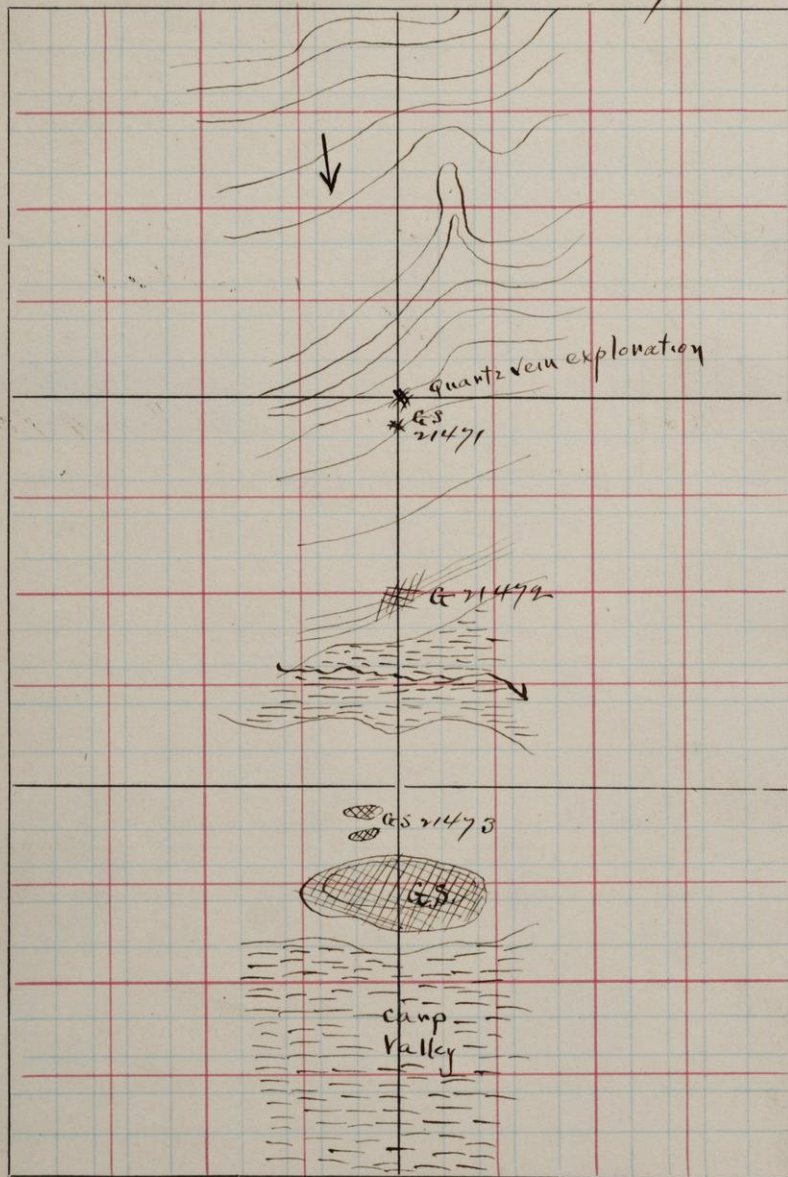
21470

21467 represents the general
character of the granite while # 21468
shows that of the weathering
21469 shows presumably a
contact between the granite and
the greenstone (taken from a boulder)

The granite is generally very
much seamed with quartz
veins and in general has a very
rough appearance due in
part to its porphyritic crystals

About 75 paces north of this
outcrop is another of banded
greenstone — shown in
21470

S. 24 T. 48 R. 27



- 21471 964 N 1000 W S E cor 24 # 21471
Greenstone schist in which
is a large vein of quartz which
has been explored somewhat.
- 21472 750 N 1000 W S E cor 24 # 21472
Greenstone forming a steep bluff
at this point.
- 21473 480 N 1000 W S E cor 24 # 21473
Greenstone schist.

