



LIBRARIES

UNIVERSITY OF WISCONSIN-MADISON

Vermilion district, 1897: [specimens] 27325-37392. No. 306 1897

Leith, C. K. (Charles Kenneth), 1875-1956
[s.l.]: [s.n.], 1897

<https://digital.library.wisc.edu/1711.dl/3DAVZXFNV5S3O8A>

<http://rightsstatements.org/vocab/InC/1.0/>

For information on re-use see:

<http://digital.library.wisc.edu/1711.dl/Copyright>

The libraries provide public access to a wide range of material, including online exhibits, digitized collections, archival finding aids, our catalog, online articles, and a growing range of materials in many media.

When possible, we provide rights information in catalog records, finding aids, and other metadata that accompanies collections or items. However, it is always the user's obligation to evaluate copyright and rights issues in light of their own use.

U. S. GEOLOGICAL SURVEY
FIELD SECTION BOOK

9-891

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.

306

Vermilion district, 1897 [1]

Continued from Book --

Had gicer throughout instead of
dip. therefore flat complement of beds. c.
July 31

Ran N on E line of 30-62-14
from Ry.

For a distance of 1500 paces
up to the lake, there is almost
continuous exposure of massive
aa greenstone, in most places,
especially to S, showing aa forms.

Reaching lake, offset 500 paces
W

1700 N 500 W, just off W end
of lake is greenstone containing
the lighter fragment-like areas of
cherty material.

Continues to 500 N of the Sec. line. (29)
Massive exposures.

1025 N on line Sec. ¹⁹ 29 is
a large outcrop of gasper. Strike
N 85° W, Dip 20° N.

S. $\frac{19}{30}$

T. 62

R. 14

19

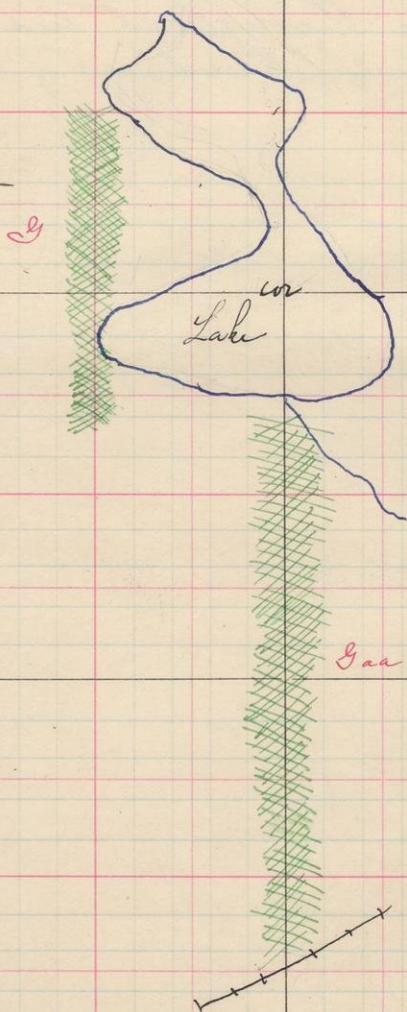
20

30

29

6-747

cor.



1100 η 80° E Sec. ²⁰ 78. Jasper
same strike and dip, with
layers of greenstone.
Continues in almost continuous
exposure to 1200 η .

The next hill 1300 to 1500 η .
is probably also jasper as many
fragments are seen. However no
actual exposures were found.

1815 η Jasper, on large hill
shown on map.

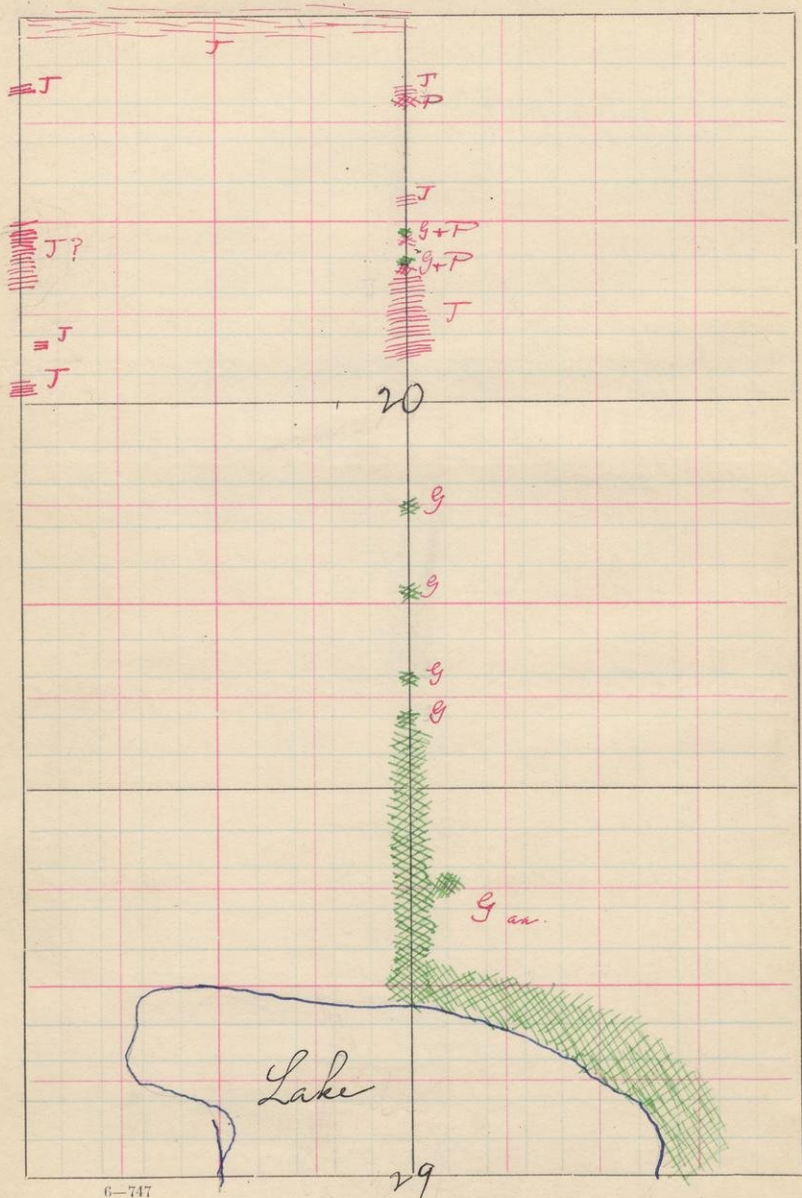
Strike η 80° E, Dip 10° η .

At the η Sec. line of ²⁰ 78 range
E from corner along η slopes
of hill indicated on map.
Till along has been test pitting,
and much jasper thrown out.
However the jasper does not appear
at surface until 725 E is
reached, where it is in large
knobs. At the West end the
knobs are margin folds of jasper.
The main strike of tilt here is
 η 85° E and the dip to the S 10°.

S.

T. 62

R. 14



although locally the dip is
 This belt was followed to the
 quarter line, the dips being
 mainly to the S.

1000 E 165 S in 20° 78. Small
 outcrop of gasper, much plicated.
 Strike E or W in general. Dip is
 10° N

Immediately to S. on same
 hill is porphyry, with large
 quartz eyes. Abundance N 85 E.

1000 E 450 S - 20° 78 Gasper.
 Strike N 80 E. Dip 50 N.

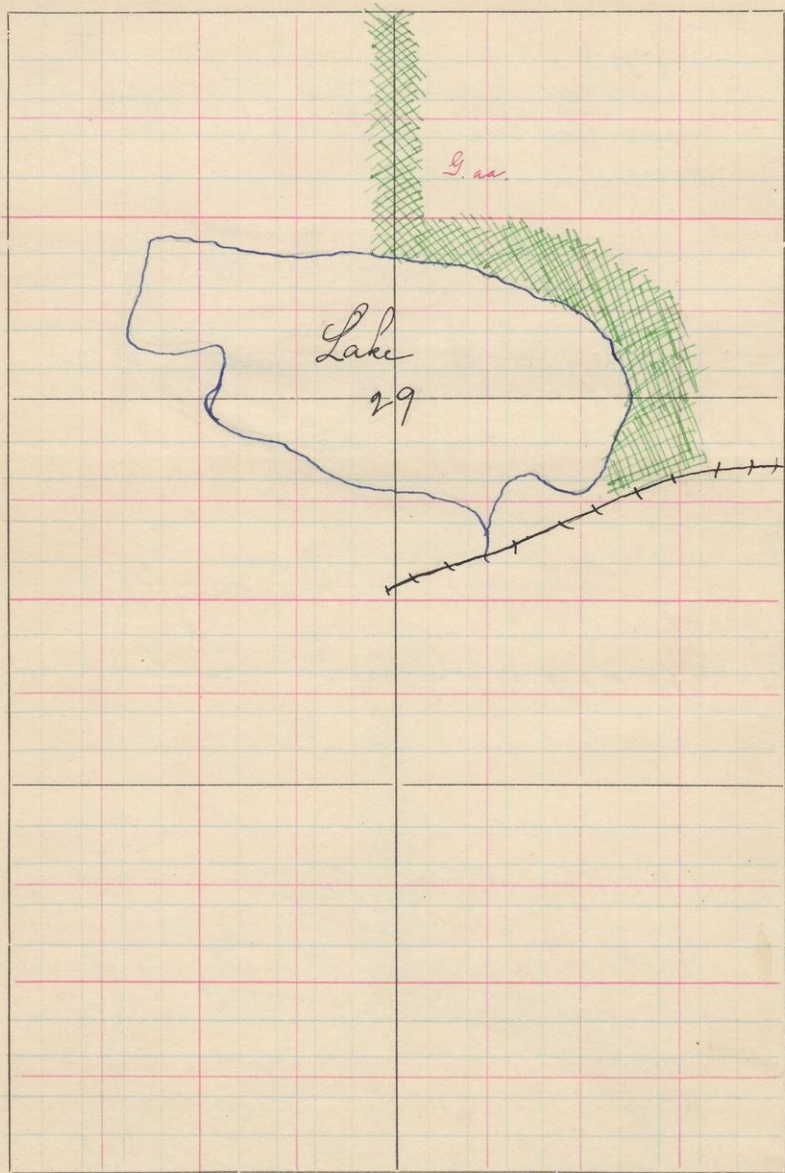
1000 E 550 S is a ledge in
 which greenstone and white-eyed
 porphyry are intermixed. The
 greenstone is evidently enclosed
 in the porphyry.

1000 E 610 S. Greenstone
 containing large fragments of
 gasper, and the whole tilted

S.

T. 62

R. 14



up with the white-eyed porphyry in a most intricate fashion.

This is immediately followed by 100 faces of Jasper, very much broken up.

Strike $N 85^{\circ} E$. Dip. vertical.

Jasper continues to $850 S.$, in the southern part several beds of greenstone appear.

$1000 E$ $1750 S$. Greenstone with chert fragments.

$1000 E$ $1475 S$ Greenstone with aa forms.

$1000 E$ $1700 S$. The greenstone is in bands of coarser and finer material. Looks like flow structure.

$1000 E$ $1800 S$ aa greenstone, directly in contact with darker colored schistose greenstone. No relations, but it seems as if darker material were un-

doubtedly older.

The aa greenstone continues in abundant exposure S to Ry.

At 2405 900 W in ²⁹30 is an exposure which is particularly mentioned. At one side are the large aa forms. On the other there have been greatly drawn out and broken, and the fragments of the matrix resemble the cherty fragments so frequently seen.

1600 E. 550 S ²⁹ along the shore of the lake a greenstone occurs showing on weathered surface large quartzes.

S. 31

T. 62

R. 14

9

31

~~Logging Ry.~~

~~X~~

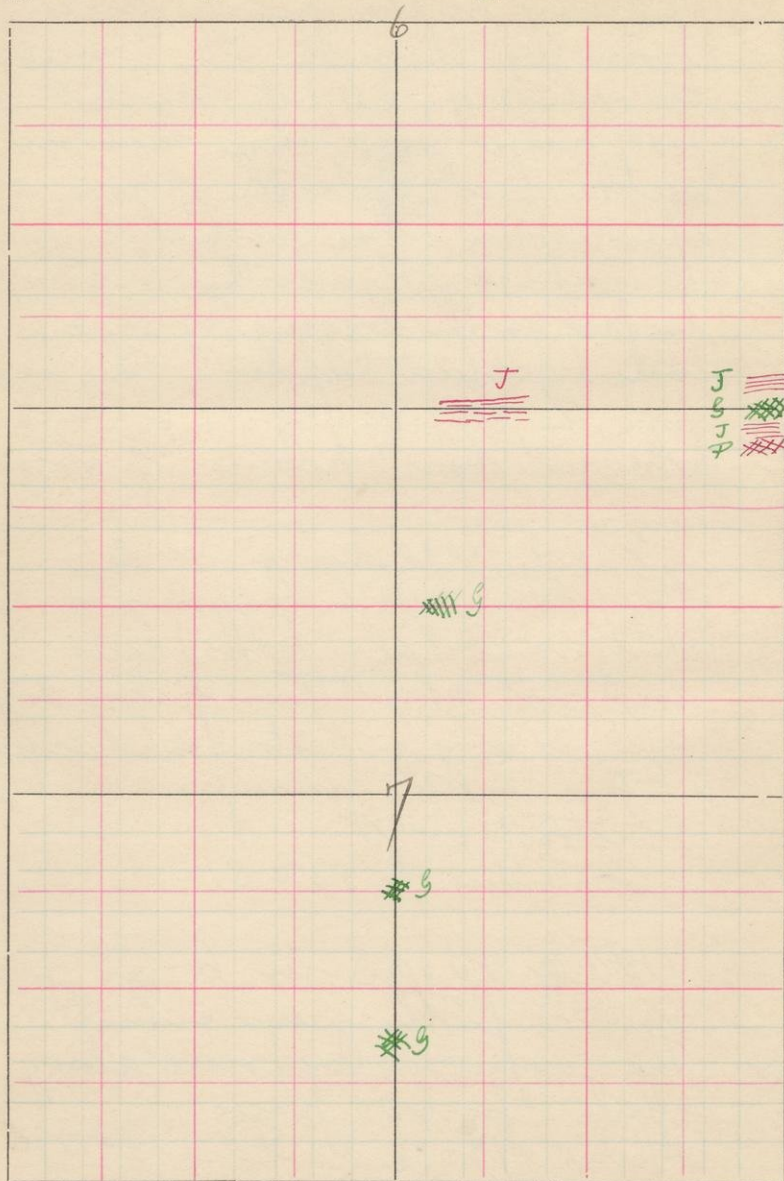
Ran S on the quarter line
from Ry through 31, 7, and 6
61 and Gr N., R. 14 W. Went N
1000 paces and then back on the
section line. In the N run an
approaching storm precluded use
of compass. However the locations
as fast as the logging Ry in 6
can be relied upon. The line
from the logging Ry N to track
was not run because of storm.

2905 1000 E in Sec. 31
Greystone, with fragments of
cherty material. In place it
does not show these fragments
and is very schistose and chloritic.
Pitted weathered surface.
Schistosity E & W.
Continues to 550 S.

1140 E 2000 S in 6 is jasper,
and a little green schist.
The jasper is exposed along
strike for 200 paces
Strike N 85° E. Dip 5° N.

S. 6+7 T. 61

R. 14



5005 1600E in 7 is green-
stone-schist. Schistosity E+W.
Cherty fragments; and aa forms.

12005 1000E in 7 greenstone.

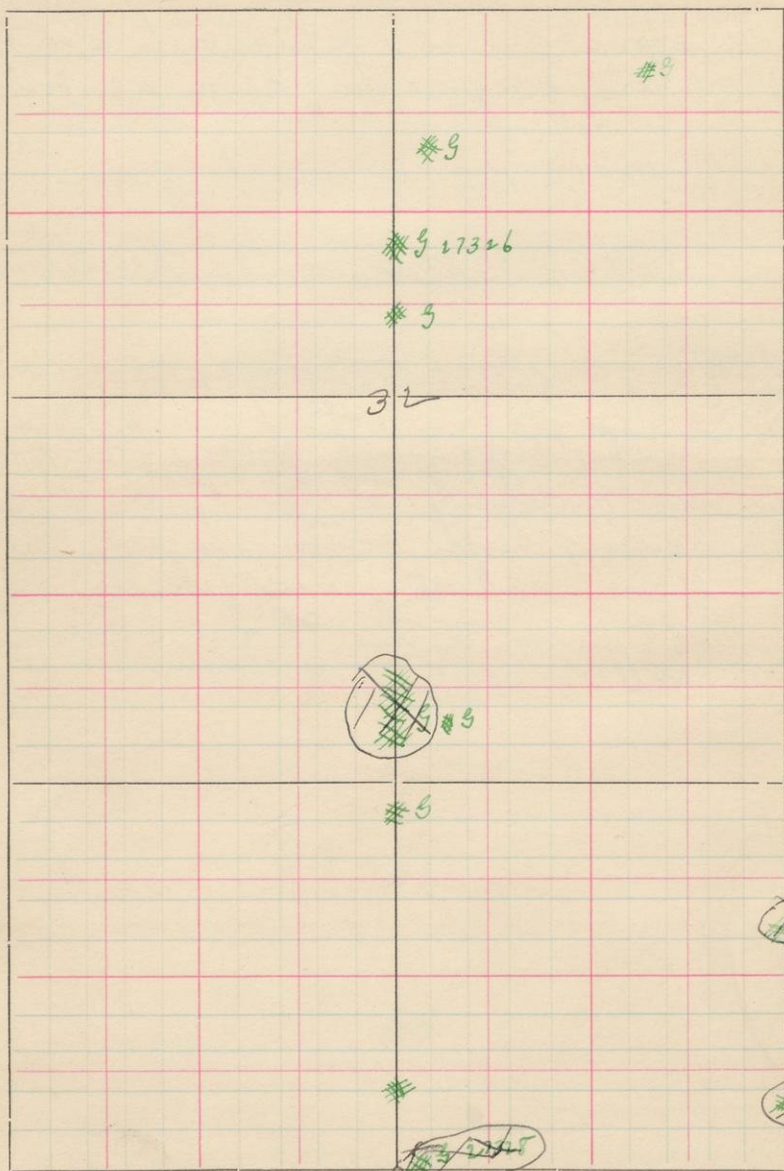
16405 1000E in 7 Greenstone

1900N 0W. Sec. 7. Porphyry
with large quartz eyes. Followed
immediately to the N on the
same hill with gneiss, then
green-schist and finally, about
100 paces to the N in 6 another
belt of gneiss

S.

T. 62

R. 14



440 W 120 S in 32-62-14
 Green-schist. Strike E+W.
 Cherty fragments, and pitted weather-
 ed surface.

900 W 325 S in 32. aa greenstone
 Well developed. Low lust.

900 W 360 S. Greenstone massive.
 An occasional cherty fragment
 appears

S.S.
 27326

1000 W 600 S in 32. Greenstone
 Massive.

1000 W 750 to 800 S. Green schist
 Strike E+W. Bright green and
 rotten, showing bright red
 iron oxide streaks on weathered
 surface.

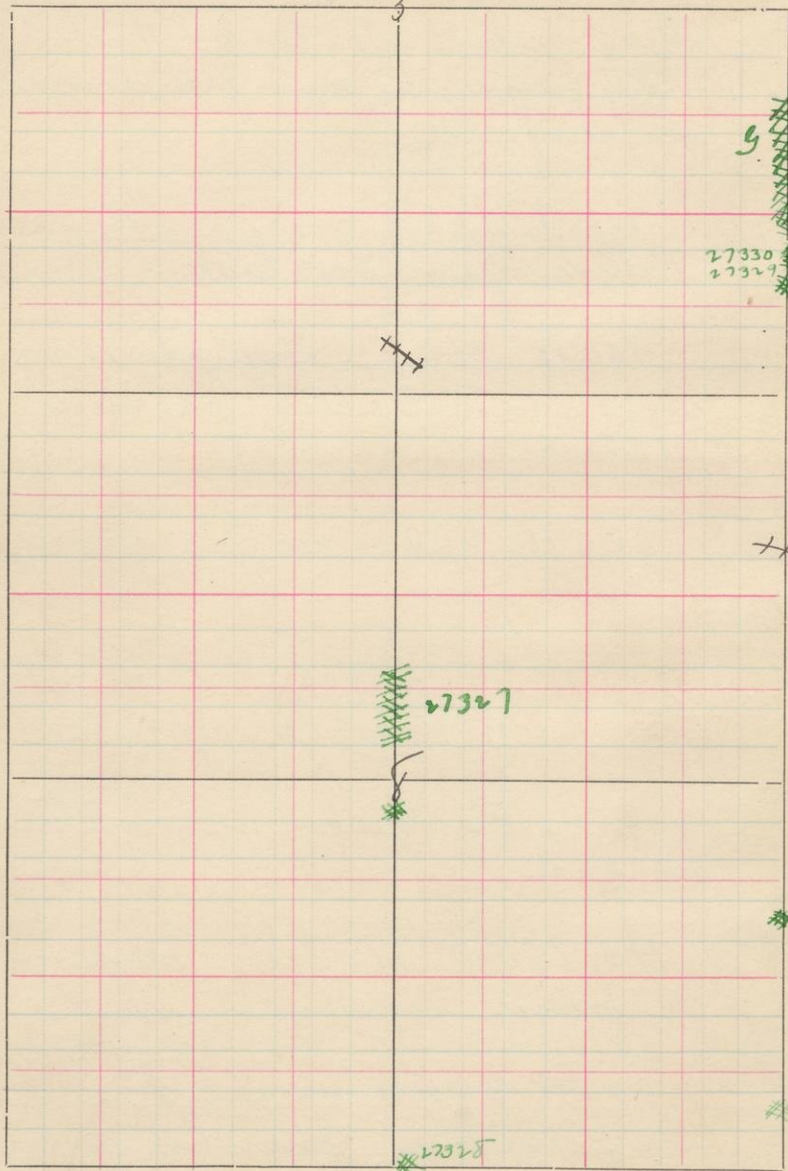
~~115~~ 850 W 1850 S. Greenstone.
aa forms..

1000 W 825 S in Sec. 5.
aa greenstone. Somewhat schistose
 and shows pitted surface Strike E+W.

S.

T.

R.



g. 1000 W. 775 to 9005 in
 27327 Sec. 8. Greenstone, massive,
 fine grained, showing faint
 banding.

1000 W. 10605. Same thing.
 g.
 27328 950 W. 20005. Greenstone.
 Peculiar mottling.

Q W 150 η in Sec. 8. Greenstone
 like 27327. Cut by porphyry with
 large quartz eyes. Large ledge.
 Cannot say certainly that the
 porphyry is intrusive.

Q W 675 η . Greenstone, like 27327
 associated with, and probably cut
 by porphyry with large quartz eyes.

Q W 370 η Sec. 5. Greenstone
 as found poorly developed.
 Pitted surface. Schistosity strikes
 27 W.

Q W 350 η Greenstone of two
 eruptions. One is taken to be aa.

Contains cherty fragments.

27329

S. Tyke

This is cut (presumably) by coarser grained greenstone, which contains small and rare fragments of the gneiss with large quartz eyes, and also small and rare fragments of another greenstone looking like dolerite, and looking not very different from the enclosing material.

27330

S.S.

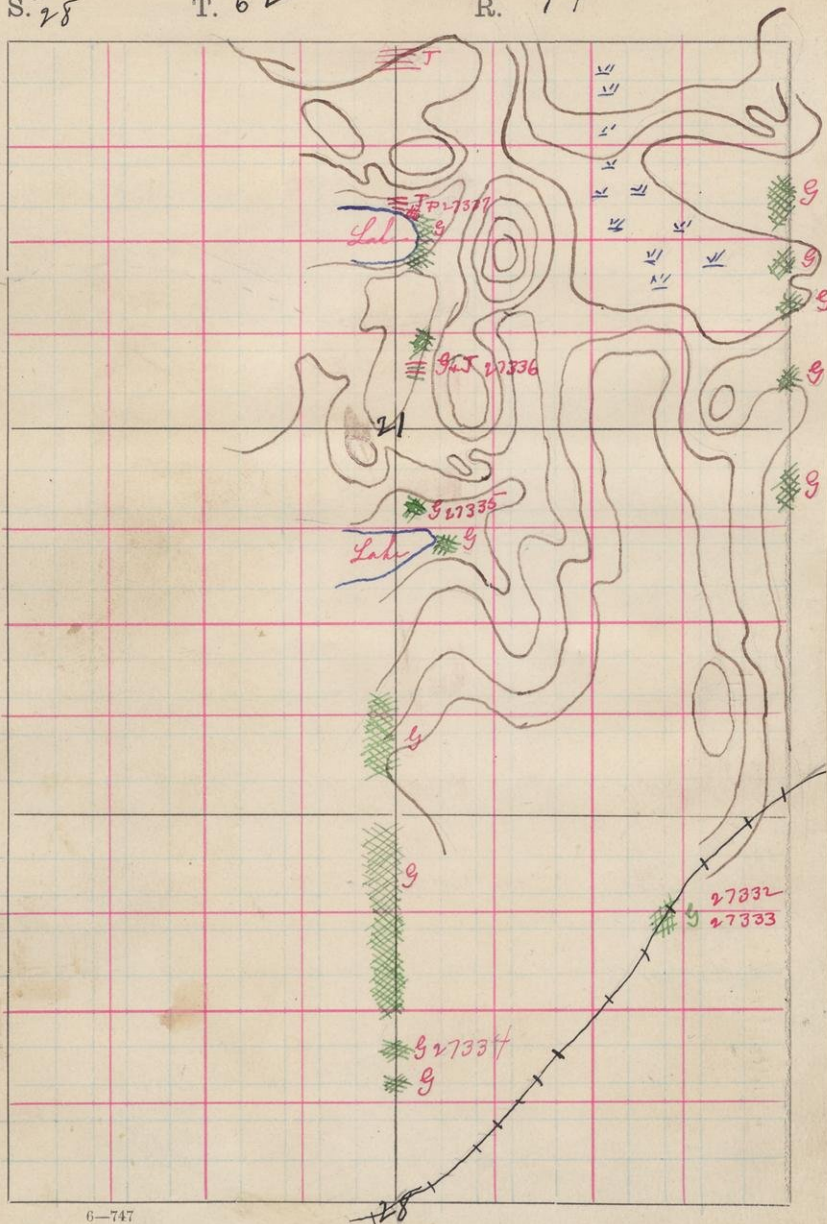
This is followed 20 paces to the N by light green greenstone schist. schistosity striking E + W. On the weathered surface a slightly buffaceous character may be observed.

O N 400 to 800 M are frequent exposures of the aa greenstone.

S. $\frac{21}{28}$

T. 62

R. 14



In the Py cut a little W.
 of the section line in Sec. 28 is
 massive, fine grained greenstone
 27332 Normal phase
 27333 Another phase.

Ran N on quarter line of 28
 and 21, and 16 E. 1000 feet,
 and then S to track.

1300 N 150 W in Sec. 28. Greenstone.
 cherty fragments. Taken to be the aa.
 greenstone

27334 1400 N 1000 W. Greenstone,
 massive. aa? Weathered surface
 shows a slightly buffaceous appear-
 ance.
 Continues in frequent exposure to
 1900 N.

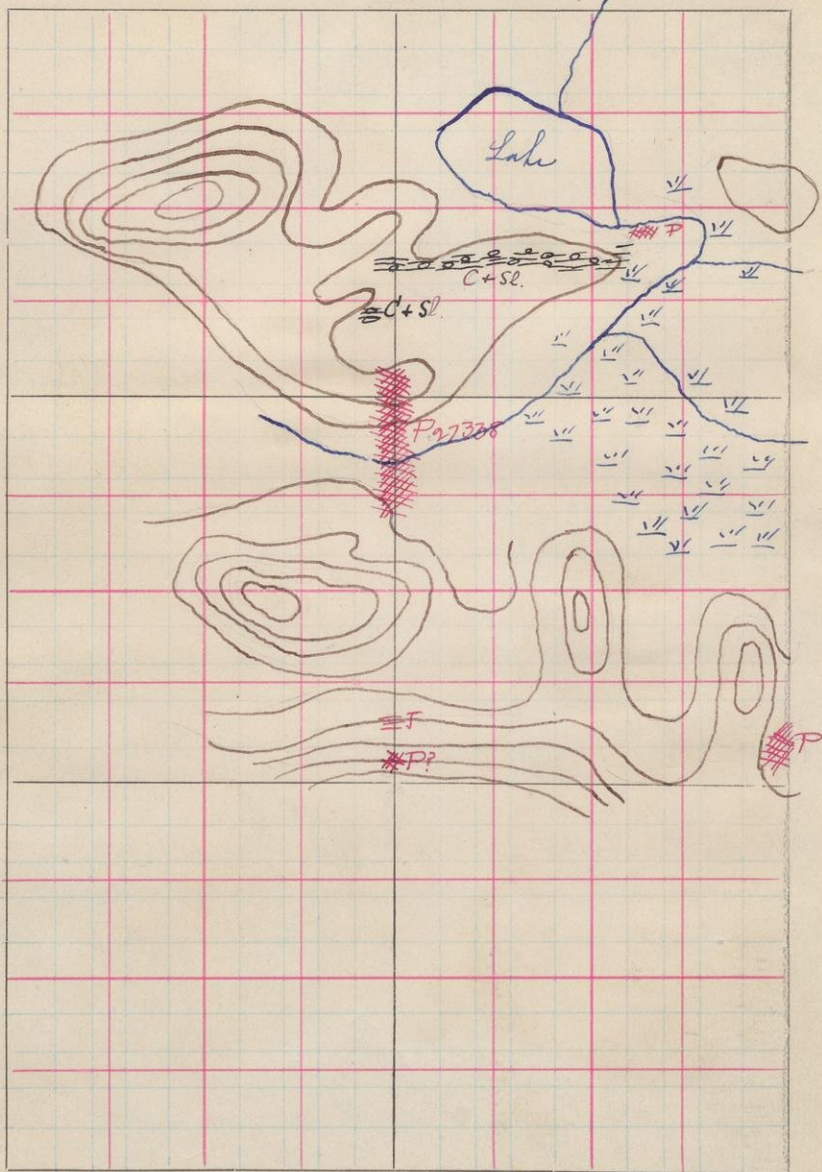
100 N 1000 W in Sec. 21
 aa greenstone. Continues to 300 N

650 N 950 W at the end of the
 lake is greenstone like 27334.

S. 16

T. 62

R. 14



27335

800 N 950 W Sec. 21
Massive fine grained greenstone.

1150 N 950 W is a ridge on which are 2 narrow belts of jasper, associated with green schist. Strike E + W, Dip 45° N.

S.

27336

Banding

At the contact of the jasper and greenstone there is a beautiful banding brought out by weathering.

1150 to 1260 N 950 W.

Almost continuous exposure of greenstone. To the S. next to the jasper bands, large fragments of jasper are caught in the greenstone.

1600 N 850 W Sec 21 At E end of small hill is greenstone similar to 27334 though not distinguishable from other greenstone mixed with the jasper.

Exposure continues around end of lake, in place showing

the small chert fragments.

1650 N 950 W Sec. 21

Belt of jasper 8'-10 ft wide.
Strike E-W, Dip 15° N.

Q.P.

27337

The greenstone is here cut by
porphyry with large quartz eyes.
More basic than the ordinary
porphyry heretofore met with.

1950 N 1000 W Jasper belt
10 ft wide. Strike E-W, Dip 20° N.
The entire hill has been test
pitted. There is strong magnetic
attraction and it is evident
that the hill is largely jasper.

75 N 1000 W Sec. 16. Porphyry
with quartz eyes up to three 1/2 inches
in diameter. This exposure is
small, and may not be in situ.

175 N 1000 W, Sec. 16

Black jasper in large ledge,
about 15 ft wide. Dips 1°
and strikes E-W.

QP

27338

700 N 1000 W. Sec. 16

White-eyed porphyry, which continues to 1100 N in almost continuous exposure.

c.

27340

1200 N 1060 W. Sec. 21

27339

sl.

Interbedded conglomerate? and slate. The slate occurs in several narrow bands about a foot wide. The conglomerate? is fine grained and resembles a tuff, but it contains fragments of porphyry, greenstone, and gneiss.

1450 N 325 W in Sec. 16

Conglomerate and slate, cut by a great mass of the white-eyed porphyry. Quarries up to 1/2 inch in diameter.

1750 N 0 W Sec. 16 is a ledge of the rotten porphyritic and brecciated material, met with on the Burnt Forties on Lake Vermilion, which may be porphyry or possibly conglomerate.

S. $\frac{9}{16}$

T. 62

R. 14

9



Visited the fig knob just
on and N of the SE cor. of
9-62-14.

The first knob is massive
porphyry with large quartz eyes
 $\frac{1}{2}$ inch in diameter.

The second knob is a
greenstone, in most beautiful
development. In places it
might almost be taken for a
conglomerate. In places it is
slightly porphyritic.

The two rock knobs stand
high, and are conspicuous
for a great distance.

Returned S on sec. line
1900 S in 16 is quartz-porphyry.
Reddish, and similar to that
of the isolated outcrops in
central Wis.

330 to 440 S on E. line of 21
is almost continuous exposure
of greenstone.

580 S. 0 W. Sec. 21 Greenstone
like 27334

650 S. Same thing
580 S. "

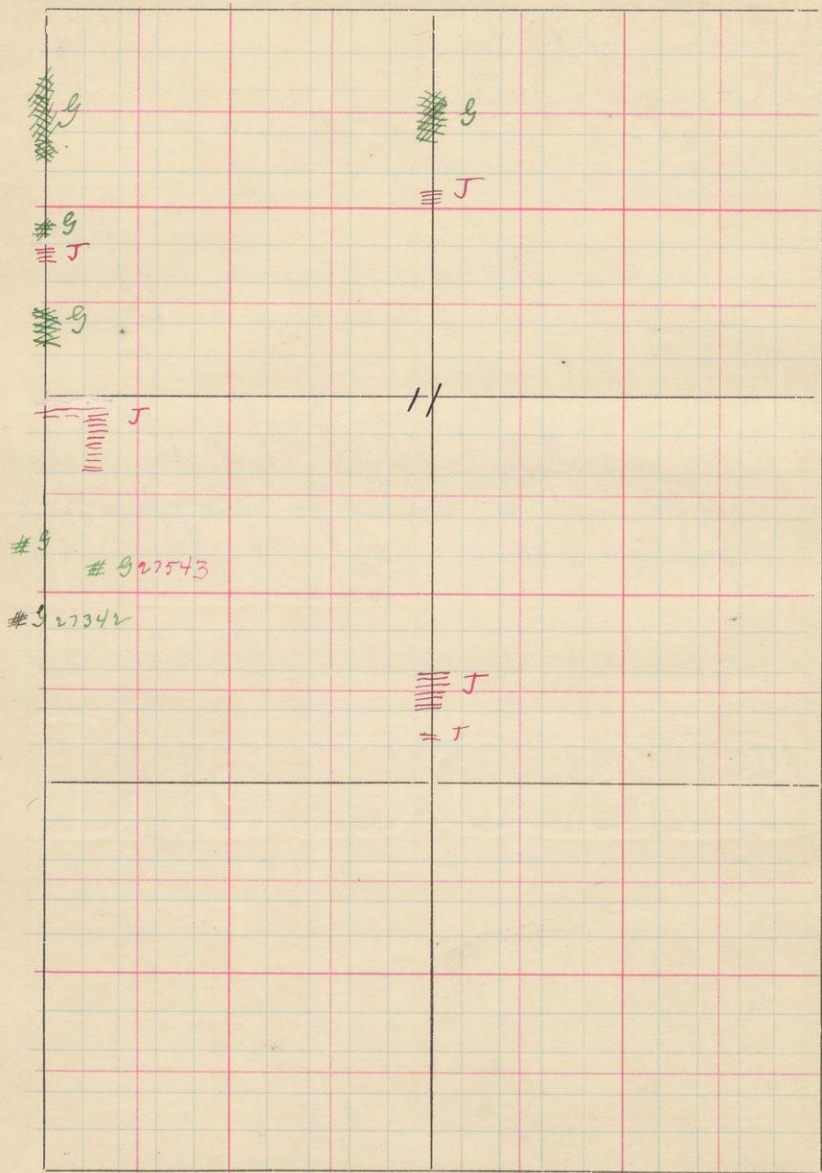
1100 to 1200 S. Several exposures
of greenstone, taken to aa.

Striking Ry in the SE cor of
21, went E, and the aa greenstone
is found to outcrop frequently
for 500 paces.

S. //

T. 62

R. 14



Ran η on N line of 11 and 2
62-14 offset to quarter line
and then S.

400 η 50 η of N line of 11
is a low bed of fine grained
aphanitic rock. Quartzite

600 η 50 η . Greenstone-schist
Contains cherty fragments.

540 η 170 η Sec. 11. Greenstone?
Continues to 590 η .

800 η 170 η Sec. 11 Jasper.
Strike E-W. Dip 15° η . Black.
This continues to 950 η .

1115 η 0 η . Greenstone?
Like 27343. Continues to 1240 η

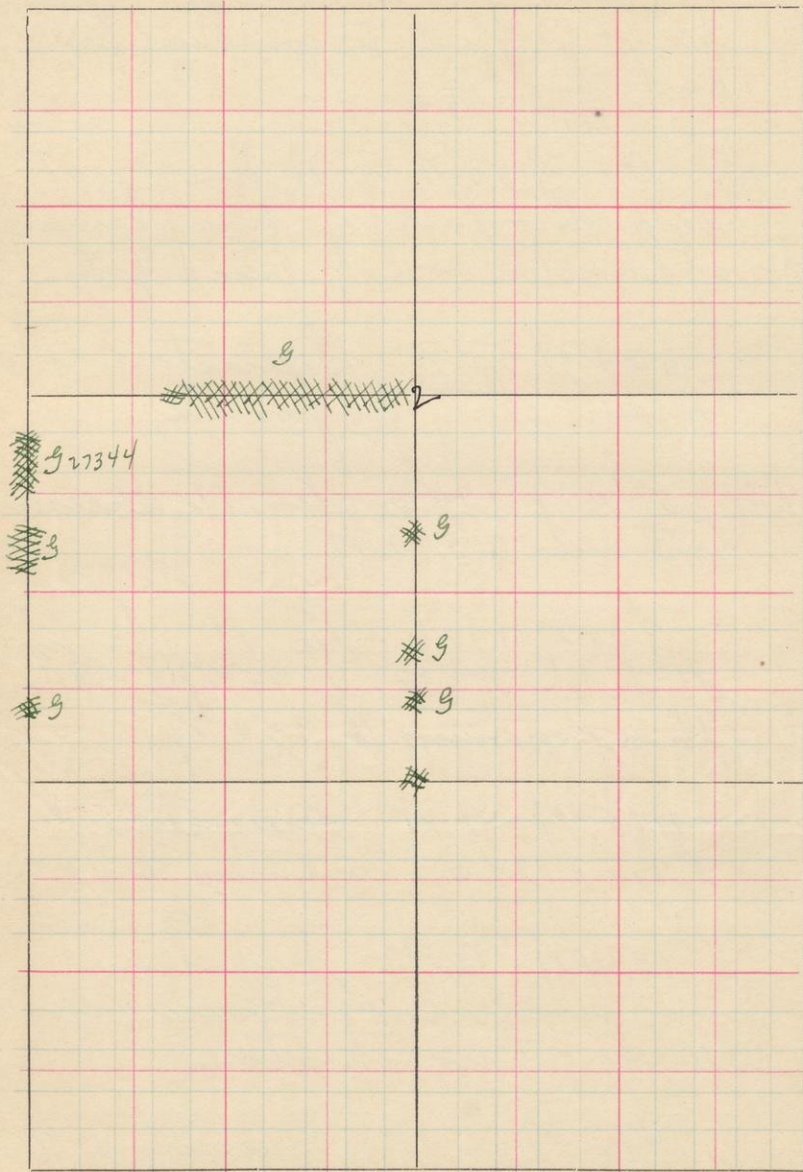
1330 η . 0 η . Jasper in
very small low exposure, could
make out no structure

1415 η 0 η . Greenstone like
27343

S. 2

T. 62

R. 14



1665 η 0 E. Sec. 11.
Greentown, with aa forms.
Continues to 1850 η .

900 η 0 E. in 2-62-14
Greentown, like 27343.

550 to 650 η 0 E. Same
thing

S. Riv
27344

700 to
900 η 0 E. Greentown

1000 η 380 E. 2-62-14.
Same greentown. Continues
practically to 1000 E.

Ran S on $\frac{1}{4}$ line of 2.

At 1350 S 1000 E Greentown
like 27344

1660 S 1000 E. Greentown
like 27343

1730 S 1000 E. Aa greentown
On the S line of 2 is green-

S. 14

T. 62

R. 14

14

~~JP~~

Road



JS+P

ston like 27344

2255 1000 E in Sec. 11
Greenston. Gr Like 27344.
Continues to 325 S.

465 S 1000 E Sec. 11. Jasper
in belt 5 ft wide. Poorly exposed
may be wider.

1700 S 1000 E Sec. 11. High
hill of black jasper in belt
100 ft wide. Strike E-W.
and dips high to N. However
is folded into a number of
minor rolls plunging off to
N. as at Jasper Bend.



In the S part of the hill
the jasper is red and less
folded. Here the strike is
N 80 E Dip 50 N.

1890 S 1000 E. Jasper, about

10 feet wide, with same strike and dip. This is on south slope of same hill as above, and may be part of same outcrop.

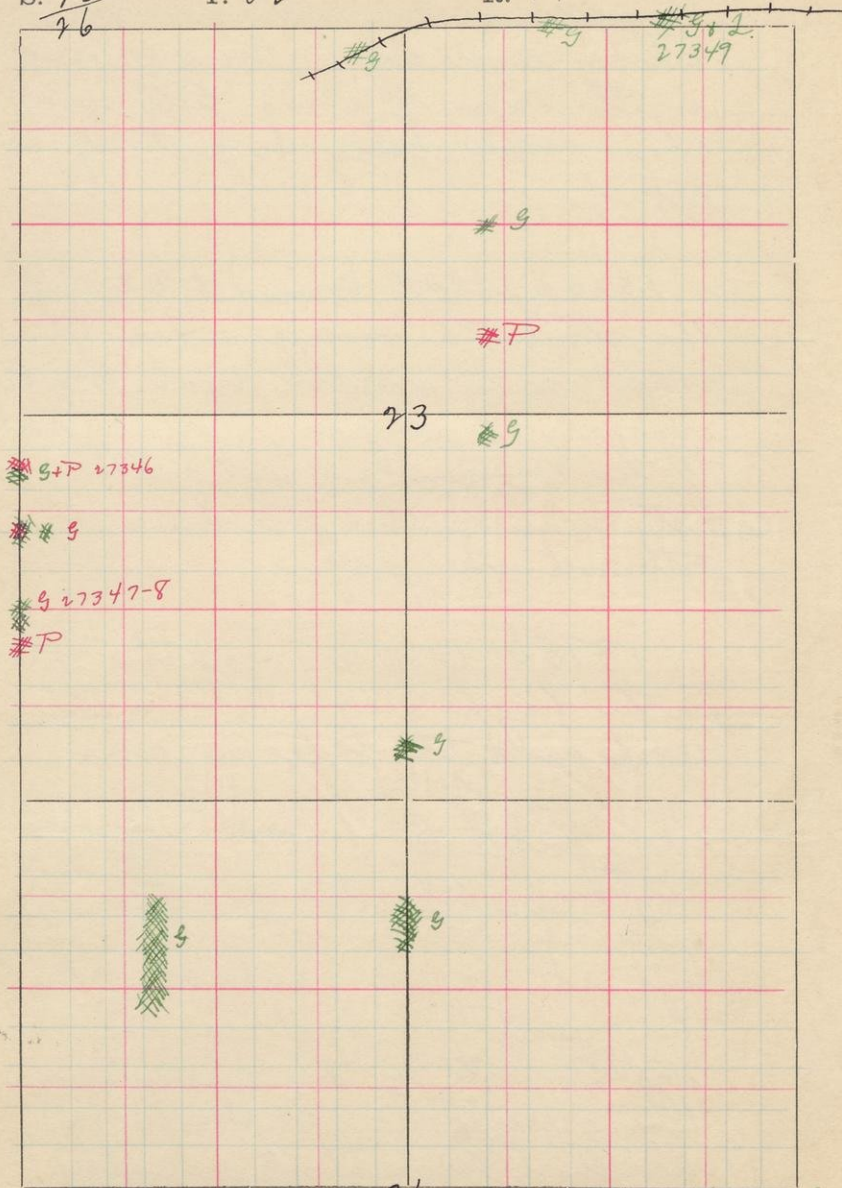
13005 1000 E in 14-62-14
We strike the road. In the road is a small and doubtful exposure of gneiss. For 100 feet to the N there is test further, but none of the pits have bottomed in gneiss.

13755 1000 E, S of the road
on the high knob between the road and the lake is an exposure of gneiss, green-schist, and porphyry, with intricate relations. I was unable to certainly make out relations, but it seems probable that the greenstone and gneiss are together cut by the porphyry. The greenstone is more massive than that usually associated with the gneiss.

S. 73
76

T. 62

R.



6—747 5

Lake

26

95

Lake

27

2

2

This gas fur is highly contorted and the strike and dip are not obtainable.

Ran S on the W. section line of
273-62-14

1160 S. Aa greenstone, well
F.P. developed, in sharp contact with
27346 purple quartz gneiss.

1300 S 50 E Sec. 23. Fine
grained massive greenstone with
uncertain trace of aa structure.
Schistose and sheared.

1300 S 0 E. Same material in
a large ledge which is com-
posed principally of the white-eyed
gneiss.

E.S.
27347 1500 S 0 E. Chloritic green-schist (Strike & W)
Cut by or cutting
27348 a gray acid greenstone. No
schistosity

Material like 27347
continues to 1550 S in Sec. 23.

1600 S 0 E Sec. 23. Large
exposure of the typical porphyry
with large quartz eyes.

300 S 360 E in Sec. 26
Schistose greenstone like 27347.
Continues to 550 S in frequent
exposure. To the S is less
schistose, and resembles the
aa greenstone.

1400 S 300 E Sec. 26 on the lake
shore. Green schist, so fissile
and rotten that a hard specimen
may not be obtained, with
the brown iron oxide specks
so frequently seen in this material.

Offset 1000 paces E and
ran N on the quarter line
of 26 and 23.

1630 N 1000 W, Sec. 26
Greenstone, aa form, which

rings in almost continuous exposure to 1740 η . To the η the aa forms disappear, and at about 1740 η it contains roundish to subangular fragments of white-eyed porphyry and occasional fragments of another greenstone.

1700 η 1000 η Sec. 23.
Greenstone, probably aa.

980 η 800 η Sec. 23. Schistose white-eyed porphyry, with schistosity striking E-W.

1500 η 800 η , Sec. 23.
Aa greenstone.

Ch. Ry 1125 to 1150 η in Sec. 23 are cuts in large exposures of the aa greenstones.

Ch. Ry 620 η in Sec. 23.
Cut in aa greenstone.

Ch. Ry 375 η in Sec. 23 is

presumably a greenstone,
which has then become
schistose and sericitic;
Q.P. associated with
27349 quartzite?
✓

Ran S from Ry on E line
of 273. No exposure whatever,
all drift until lake is
reached 1030 S ^{in Sec. 26} where greenstone
appears. Fairly massive. May
be aa.

G.
27350 In Ry in Sec. 22, 300 W
in a cut is
massive dark green chlorite
The exposure is breaks in
rectangular blocks. The weathered
surface in cracks has weathered
to brownish color.

S. 18

T. 62

R. 13

↑ J
~~g~~ g+h

* g'8

~~g~~ g+T

* g

Aug 7

Ran S on the E line of
24 and 25 - the E range line
of 62-~~15~~14

500 N 1700 to 1850 W Sec.
18-62-~~15~~¹³ is a long high
range of hills composed almost
entirely of a greenstone, in
good development.

This greenstone is cut(?) by a
typical white-eyed porphyry in
large exposures. This too
apparently cut another fine
grained massive greenstone
similar to 27347.

The material between the
spheroids has largely altered to
epidote.

G.
27351 St 350 N 1900 W Sec. 18-62-~~15~~¹³
Large ledge of greenstone, showing
a banded portion and an
aa development in other places.
The banding is in places very
regular and is well brought

S. 19

T. 62

R. 13

#9

#9 + P

19

#9

#9

#9

#9

#9

#9 + h

out by weathering, altering to epidote. In other places the rock has been brecciated, and fragments, partly rounded, are to be seen lying in a matrix of the same material.

Strike of bands E & W.

Looks as if one greenstone was intrusive in another. The banded portion, however, may be nothing but mashed aa greenstone.

1100S 50E in 19-62-13. aa greenstone

1340S 50E " "

1650S 25W in 24-62-14. Two large knobs of massive greenstone

2000S 50E in 19-62-14¹³. Large ledge of aa greenstone, cut (?) by granite, which weathers white. These continue to 1500S 90E in 30-62-14¹³, where both are associated with fine grained massive greenstone.

Gr.
27352

S. 30

T. 62

R. 13

g. g.
g. g.
g. g.

g

30

g

g

Offset 1000 paces E. and ran
 N in the quartz line of 30-62-13

225 N 1000 W. Sec. 30
 Fine grained greenstone-schist
 like 27347, cut by aa greenstone,
 and both in turn cut by
 granite like 27352. All in
 heavy layers which dip to N, because
 of jointing. The aa greenstone and
 granite are to N.

660 to 675 N aa greenstone.

700 N 1000 W. Granite
 similar to 27352 but with
 darker color. Contains fragments
 of coarsely crystalline gabbro?
 running up to 6 inches across.

800 to 890 N 1000 W. Greenstone
 part of it the aa material, cut (?)
 by granite.

1710 N 1350 W Sec. 30 Greenstone
 like 27351

360 N 1350 W in 19-62-13
 c. aa greenstone, apparently cutting
 17353. a schistose amygdaloidal
 greenstone.

385 N 1350 W. Black gneiss,
 in belt about 10 ft wide.
 Strike E+W, Dip N nearly
 vertical.

660 N 1250 W. Two greenstones
 in same ledge, one cutting
 other, but could not tell which
 way. One apparently aa

1175 N 1250 W. Greenstone
 apparently aa, cut by granite
 like 17352.

1620 N, 750 W. Aa greenstone
 associated with granite like
 17352, but with a reddish
 color. — white on weathered
 surface

From here on to 1825 N is
 almost continuous exposure of

aa greenstone

540 N 1250 W in 18-62-13.
aa greenstone.

950 N 1150 W, large ledge
of greenstone overlooking track
contains very numerous and
large fragments of a pink
and red cherty material. Frag-
ments angular to roundish.
In places the exposure is
almost a breccia. In places
it is free from fragments, and

1700 N 1300 W Sec. 18, and
continuing E for several hundred
feet is a large exposure of
greenstone, presumably aa.
This is cut by, and is in
contact with a great mass of
light red granite, containing
large eyes of quartz. The
greenstone and granite show
the most intricate relations
one being enclosed here and
there another. At the contact

Sr.
27354

of the two are much hegiat-
ed and impregnated places
of both. In places the granite
is very schistose; and to some-
what bleached.

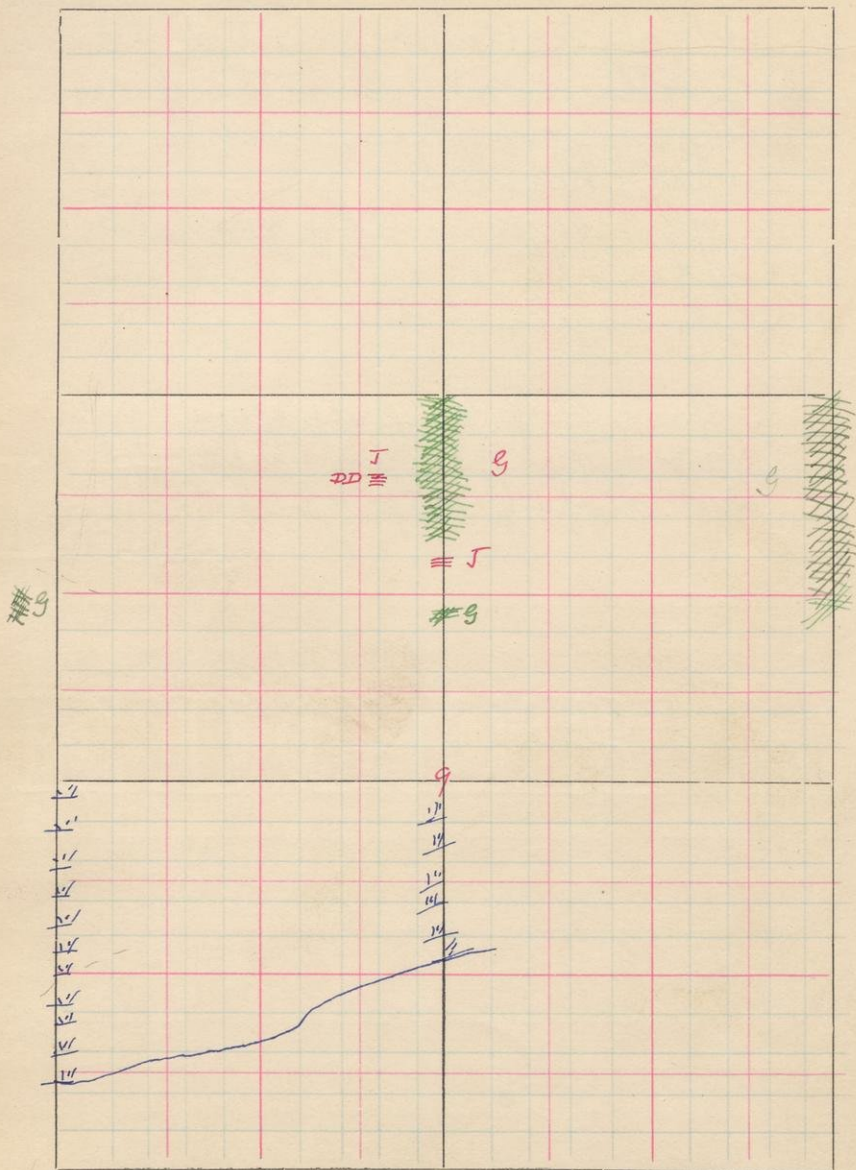
(In veins in the granite,
apparently a little iron ore
has segregated.)?

Just N of the greenstone and
granite is gneiss, striking N85E
and dipping steep to N.

S. 9

T. 62

R. 13



Aug 8.

Rams from Ry on N. line of
9+16-62-13. No corner but
we estimated the Ry to be on
the N line.

500 to 550 S 100 E. Large outcrop
of aa greenstone.

12855 0 E in 16-62-13
Gasper in exposure about 10 paces
wide.
About 25 paces farther on,
another belt is found.

13505 40 E Sec. 16 is a
narrow belt of gasper associated
with greenstone (?), with pink
surface. The gasper is in one
belt and in several lenses. In
places pink surface gives place to
a grayish one.

1500 to 1550 S 0 E Sec. 16
Exposure of granite and greenstone
in most intricate association.

S. 16

T. 62

R. 13

g ~~g~~

16

27355

$g + g_2$

9

$J+G$ ~~27356~~

3

27357

a case of injection of one
into the other, but I could
not tell which was older.

The greenstone has something
the appearance of the aa
material.

1800 S 250 E Sec. 16. Greenstone.
Coarse and massive.

Rain!! Cannot complete run.

Aug 11.

Ran S on E line of 4, 9 + 16
67-13 Met 1000 ft. N,
then N to track.

300 to 400 N OX in Sec. 4
aa greenstone, which continues
in frequent exposure to 600 S in
9

700 S OX Sec. 4¹⁶, Small
exposure of aa greenstone

1240 S OX, Sec. 16 Small

S. 4

T. 62

R. 13

4

g

g

PD $\equiv$ J

This is location of gas per
 as given us by prospectors who
 has claimed section. However,
 by our pacing this gas per is
 1800 N 1100 W in Sec. 9.

exposure of gneiss intermixed
with schistose greenstone.
The two are closely folded.
Associated with the two is
greenstone like 27355.

14305 ON in Sec. 16 Large
exposure of aq greenstone
associated with granite. The
greenstone encloses lenses of
the granite. The granite has
white surface, like 27352.

27356 L.
16005 ON Sec. 16, a
large exposure, in which
greenstone, gneiss, granite and
a rock I could not name (27356)
On the N is a heavy layer of
rock, a ferruginous and brecciated
greenstone containing numerous
angular fragments of a lighter
rock which was apparently
once a greenstone.

This is associated with
schistose greenstone, containing
layers and lenses of gneiss
6 inches wide.

Within the two ^{gaspur + greenst} is a belt of white granite, very much brecciated in places, and containing many fragments of material apparently like itself. In this granite are large angular masses, up to 4 or 5 ft across, of greenstone.

Immediately S of the green-schist, and gaspur is a large exposure of greenstone free from gaspur, associated with and apparently cut by large ledges of act greenstone.

S. Di.

17357

1800 S. 0° W Sec. 16

Massive greenstone - diabase, containing small fragments of granite (?) rarely running up to size of 1 inch.

On S line of 16, ran W 1000 to quarter line, and then N.

Material like 17357 continued for 400 paces N.

470 N 1000 W Sec. 16
Greenstone, similar to 77357
except that it lacks fragments
of granite.

1400 N 1000 W in Sec. 9
A greenstone in association
with white granite (352) in
about equal abundance.

1575 N 1000 W, Sec. 9
Belt of jasper about 20 paces
wide. Dip steep to W. Strike
E + W.

This is followed immediately
by a greenstone in good
exposure up to 1800 N.

1800 N 1100 W, in Sec. 9
Large exposure of jasper in
belt 10 paces across, in which
there is being sunk a shaft.
The jasper is somewhat
conglomeratic, but has general
E + W strike.

Directly E of the jasper
apparently along the strike

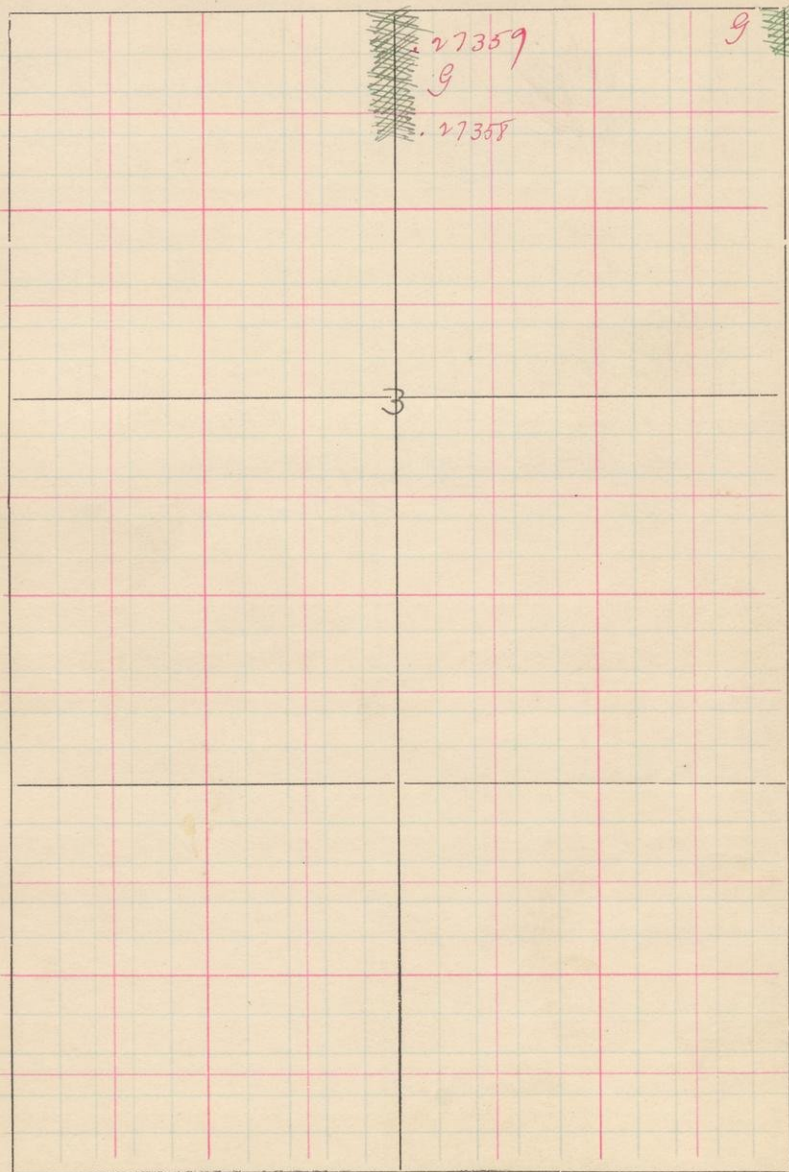
a greenstone appears.

After finishing, we talked with a prospector who had claimed this area. According to him, the sections are not properly measured, the corners and quarter posts being 100 to 300 feet out of the way, so that correct pacing ~~is~~ does not give true location according to township plats.

S. 3

T. 62

R. 13



Aug. 12
 Ran η for quarter line of
 3, 34, and 27.

27358 1700 η 1000 W in Sec. 3. Aa
 greenstone, with much quartz as
 phenocrysts. On η side of
 same hill, 1500 η , this rock
 is very schistose.

G.C.

27359 1930 η 1000 W Sec. 3
 Greenstone tuff, in places
 very schistose.

From 1930 η in Sec. 3 to 500
 η in Sec. 34, various forms of
 greenstone are passed in rapid
 succession, - greenstone tuff,
 greenstone-schist, and aa
 greenstone, each being repeated
 several times. No definite order
 ascertained.

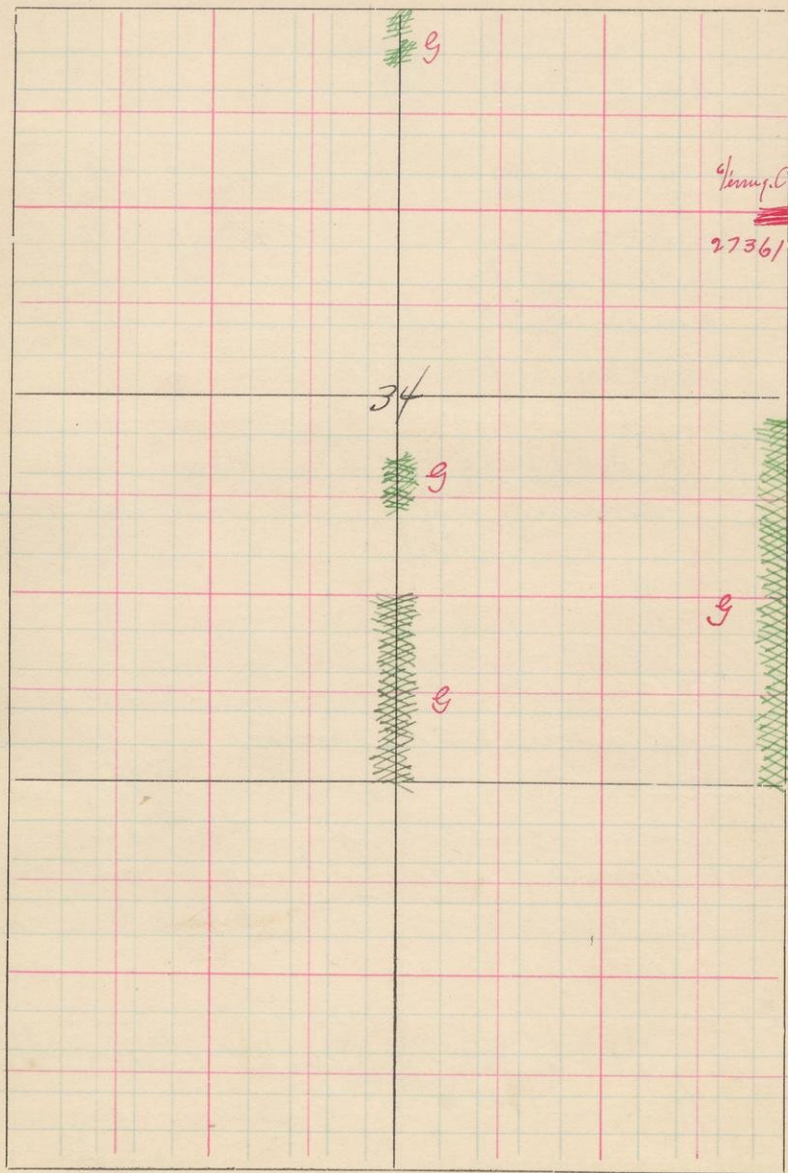
780 to 880 η ^{1000 W} Sec. 34 Greenstone -
 presumed to be aa.

1900 η 1000 W Sec. 34 Green -

S. 34

T. 623

R. 13



schist with fitted weathered surface like that generally associated with the gneiss.

Continues to 1007 1000 W in Sec. 27. From here it was followed E in frequent exposure to 75 1007 150 W Sec. 27.

27360
S. S.

A specimen from 1007 600 W. somewhat more schistose than the average.

Ran S on E line of 34 and 3.

27361
S. C.

5005 O W Sec. 34 Ironuginous chert. Resembles vein quartz but forms entire ledge. In places the quartz is stained to such a degree that the rock would probably be called gneiss. In other places quartz is white. Exposure 20 fathoms long, 5 fathoms wide.

10755 O W, Sec. 34. A greenstone, which continues in frequent exposure to

S. 27

T. 623

R. 13

27

g

27360

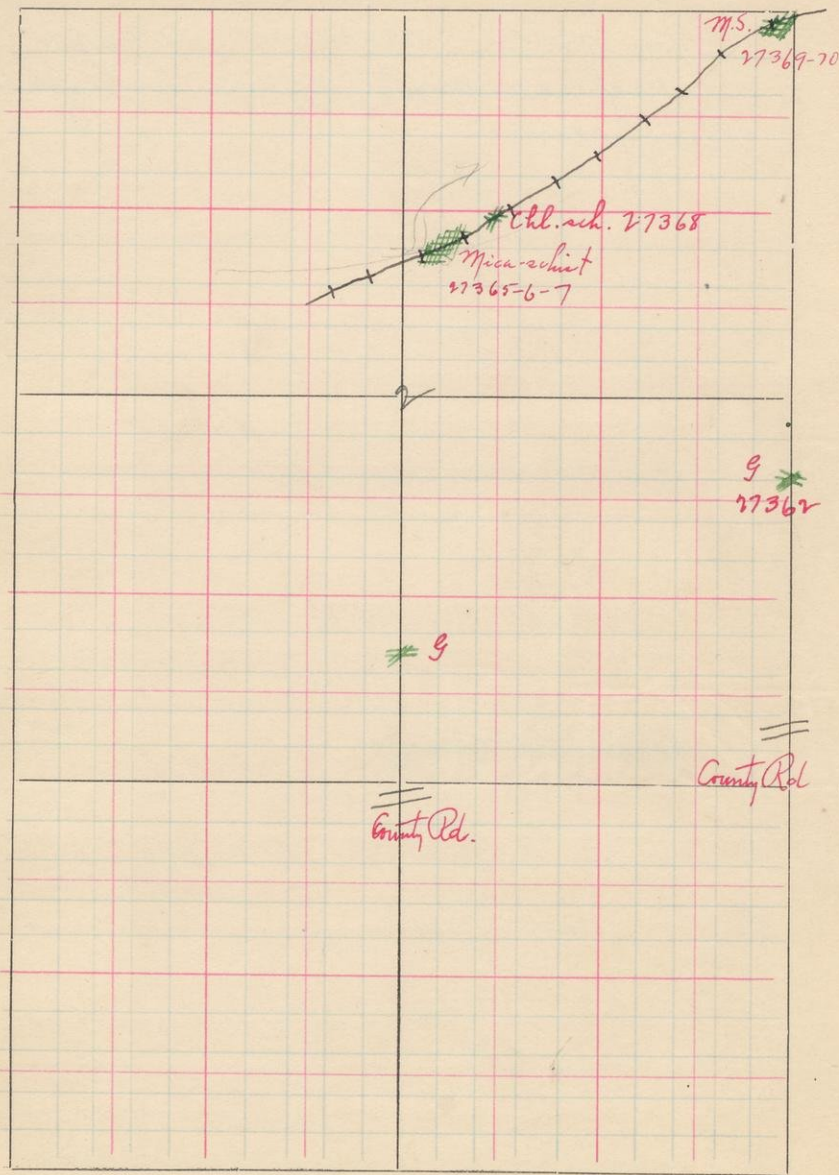
100 S. 0 W in Sec. 3

In place massive, again
schistose and again slightly
tuffaceous

S. 2

T. 62

R. 13



Aug 13

Ran S on E line of 2, 11 and 14 to lake. Spent 1000 paces N. and returned on quarter line to Ry.

G. S.
27369

At the Ry. 0 S in 2 Mica-schist, very much contorted. Many bands of schistosity resemble ripple-marks. Schistosity strikes E + N, and dips vertical.

G. S.
27370

205 ON Sec. 2, Chlorite and sericitic schist, apparently a less metamorphosed phase of 27369. In places contains flukes of more quartzitic character.

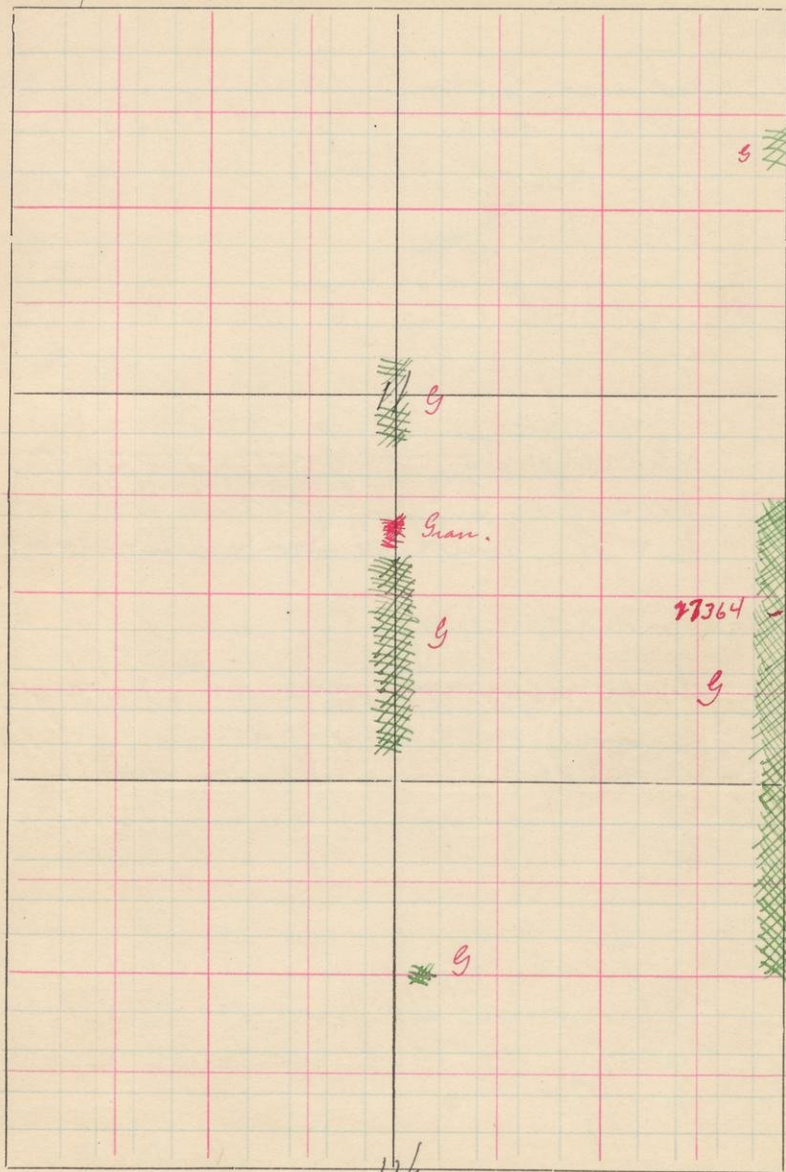
Struck $\frac{1}{4}$ foot at 800 S. The point is found at the back, so the section must be off.

at 2005 of the $\frac{1}{4}$ foot

S. $\frac{11}{14}$

T. 62

R. 13



27362 Sec. 2 Greenstone (?) Resem-
bles graywacke

According to Keller's facing
line from 1 foot to 100 ft
in 60 feet too long.

3005 ON in Sec. 11
S. Di. 27363 Very fine grained and
massive greenstone. Continues
for 100 ft.

1050 S to 1550 S
in Sec. 11. Same
rock.

S. Di. 27364 1550 S Greenstone. On
weathered surface if light
shingles form tree like forms.
In this greenstone was
found a fragment 3 or 4 ft
across of the white eyed
porphyry or granite. No
contact with 27363

A little farther on
apparently the same rock
shows as forms. It may
be that rocks from 63 on have

turn aa

Aa greenstone continues
to 500 S in Sec. 14

Ran S in 14 to swamp
1000 S., then back on line to
100 500 S., then offet. N. for
1000 paces; then N.

1500 N 920 N. Sec. 14
aa greenstone.

100 N 1000 N in Sec. 11
Greenstone (aa?) like 27364
showing same veining. No
rounded forms seen.
Continues to

750 N 1000 N, where it
includes tentacular area of
white-eyed porphyry.

Greenstone continues to
640 N 1000 N. in Sec. 11,
where granite appears. Dark
surface, but still a true
granite. Large exposure.

900 N 1000 N in 11 to

1100 N. frequent exposures
of greenstone like 27263-4

380 N 1040 N Sec. 2
Greenstone, like, 27362

sl
m.s.
27365-6 quarter line. Dark mica-
schist. Minor contractions but
schistosity in general strikes
E-W.

sl
G.S.
27367 Cutting this dark schist
are two or three belts of
lighter schist. These layers
strike E-W, and stand on
edge.

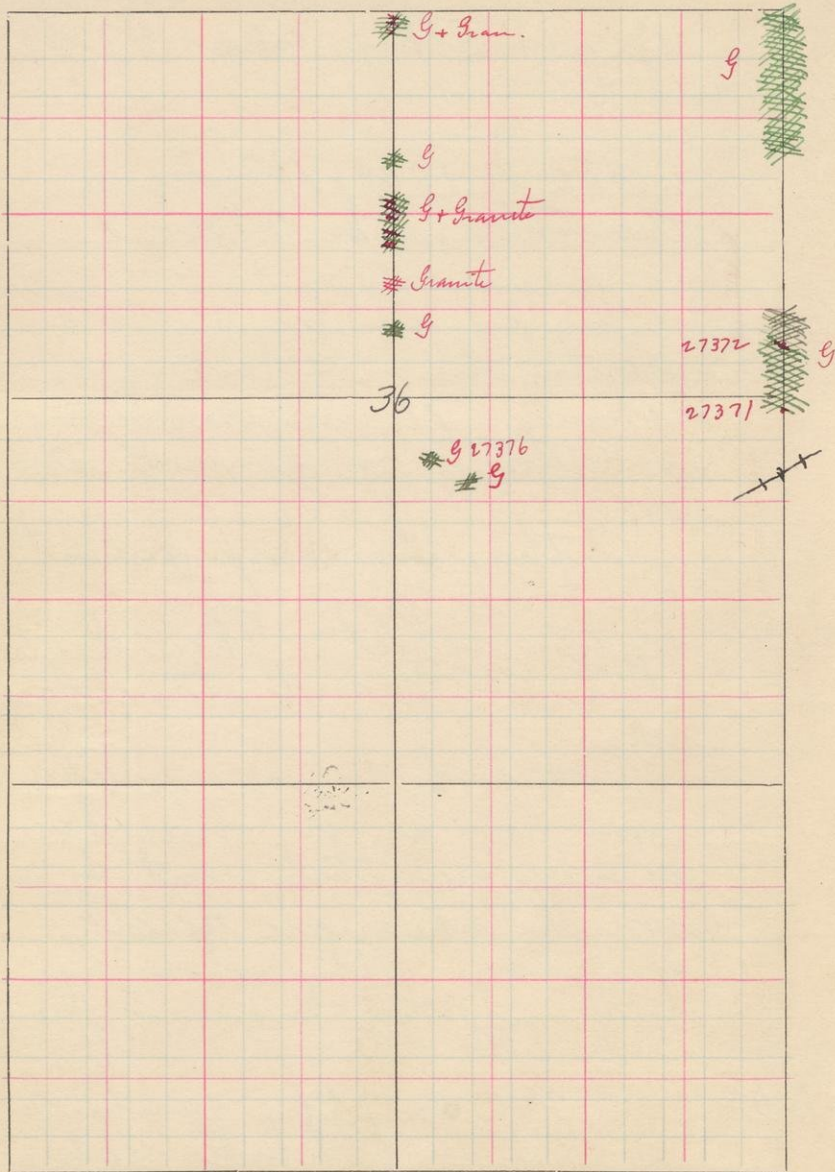
It looks to me as if we
have here a very much
sheared gneiss out by a
much sheared acid
eruption. The whole has
been subjected to same pressure.

G.S.
27368 at 200 E of the quarter line
in Sec. 2 of chlorite-schist
in out of Py

S. 36

T. 63

R. 13



Aug 14.

Started from Ry and ran N
on E line of 36 and 25 ⁶³⁻¹² to Burnside
Creek, about 1000 paces N, and
came back to Ry on quarter line.

Ry is about 895 N in 36

27371 at 960 N on Sec. 36 Green
schist. Continues for 150 paces.
It looks to me like sheared
aa greenstone.

E. C.
27372

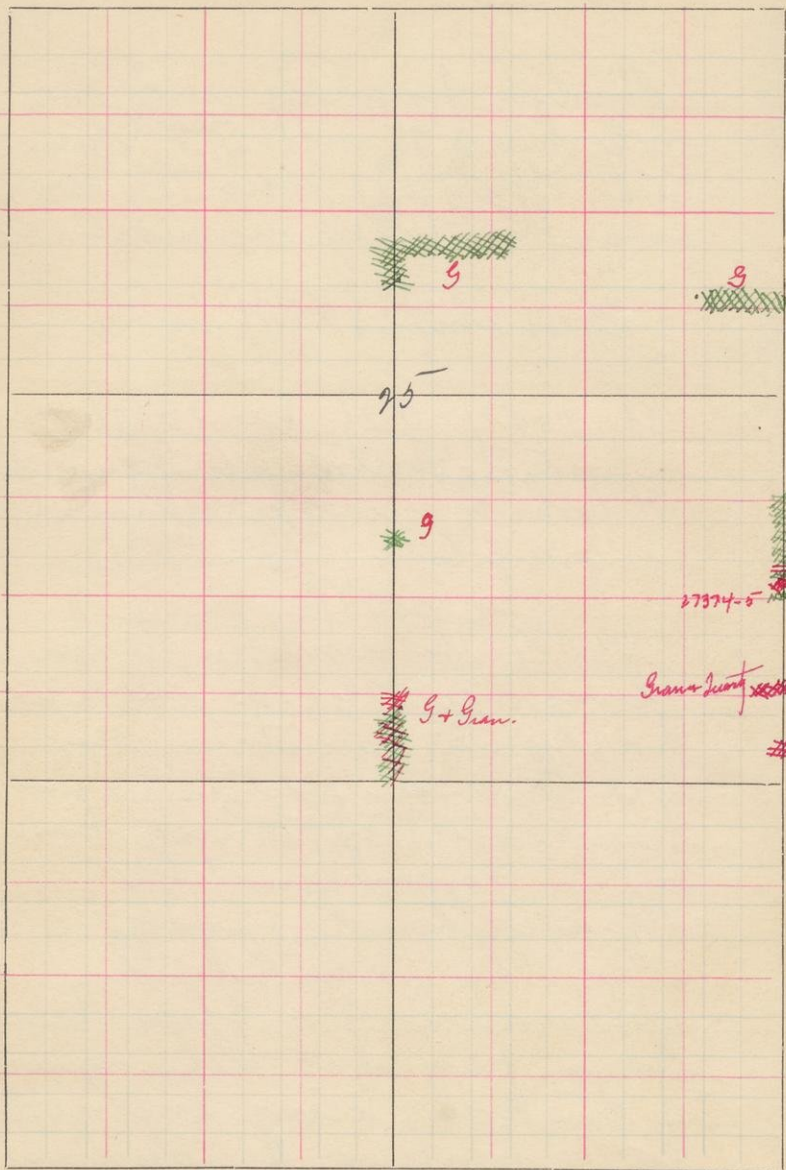
1100 N ^{to 1250 N} the greenstone takes on
phase like 372, a peculiar
porphyritic greenstone, on
weathered surface the small
phenocrysts ^{phenocrysts} appearing brown
in a brown matrix.

On weathered surface
also, the rock has the
appearance of a flow breccia,
large fragment like pieces
of the rock being enclosed
in a matrix of identically
the same material.

S. 25

T. 63

R. 13



At 1250 N Dark green schist containing numerous cherty fragments.

1650 N ON, Sec. 36 Squiston greenstone like 27371, showing faint stringers of material like the aa greenstone cement. Continues to section line.

50 N ON Sec. 25 Ledge of massive medium-grained red granite.

284 N ON, Ledge of pure white quartz, very much brecciated, but by granite. Granite may be seen in irregular stringers all through it. It may be that the quartz is vein material in the granite, and I believe it to be so, though I could not tell from the exposure. The entire ledge has been exploited for gold.

Ledge about 20 fms wide was traced E-N for about 100 fms.

at 500 N 0 W Greenstone again
appears. Then any two kinds
mixed up with no apparent
order. Could find no contact
fine grained massive phase
(as natural?)

27373

S. Di

27374

So. P.

27375

Diorite. Rough weathered surface.

The greenstone is cut at 540 N
by granite-jasper, with
phenocrysts of feldspar.

Greenstone continues to 585 N

585 N 0 W. Sec. 25 Belt of
jasper about 10 feet wide.
Black, not crumpled. Strike N
65° E. Dip 10° S.

After this greenstone again
comes in, like 73, 74, and
continues to 760 N

At 620 N this greenstone is
cut by granite.

1375 N. 0 to 200 W. Sec. 25.
Green schist like 27371

1300 to 1400 N. 700 to 1000 W.
Green-schist, with angular cherty
fragments.

Ran S on Quarter line.

1385 S 1000 W in Sec. 25
Green-schist

1750 S 1000 W. Dark
granite, associated with
greenstone like 27374. Outcrops
S to 50 S in Sec. 36. In
general the granite predominates
to E N, and greenstone to S

325 S 1000 W Sec. 36
Greenstone like 27374.

440 S 1000 W. Same, in-
jected through and through by
granite, which weathers to
a dark color. In places granite
apparently occurs as lenses

in greenstone, and in other
vice versa.

Running through this
upturn is a narrow belt 2 ft
wide of greenstone like 27373,
very much pitted and
cherty, so that at first glance
it resembles a layer of chert.

This layer not cut by granite.
Besides the granite, the
darker greenstone contains
fragments and lenticular
masses of a lighter greenstone
which has largely weathered
to epidote.

575 S 1000 W Sec. 36
Greenstone like 27374

675 S Red granite.

800 S Greenstone like 27373

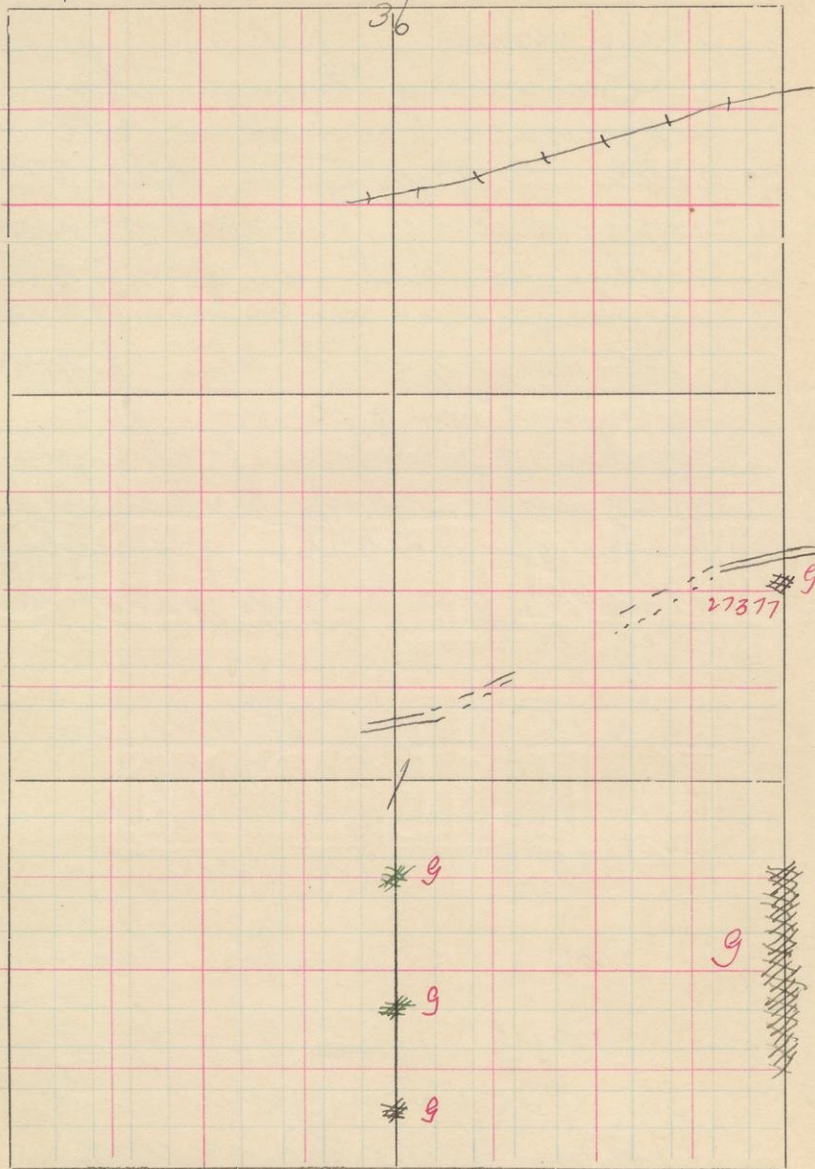
27376

115 S ~~1000~~ 900 W Sec.
36 Greenstone similar to
27373. However this is very
schistose and has numerous

S. $\frac{36}{1}$

T. $\frac{63}{62}$

R. 13



parallel veins of light
material, which stand out
on weathered surface, giving
the rock a banded appearance.

17005 800 ft Sec. 36
Identically the same material.

Aug. 16

Can S on E line of 36, 1, and
12, offset N. 1000 ft, then
N to track.

S.
27377 4605 10E in 1 near farm
house, large ledge of
Greenstone cut by numerous
veins of chert.

17255 0 ft. Greenstone
like 27377. Massive. Slightly
bucciated.

Continues in frequent exposure
to ~~14~~ 1740 S. Here the rock
has a white color, and looks like
bucciated chert. Here on weathered

surface may be seen a
very faint banding in E-W
direction due to varying amounts
of chert. Would call rock a
banded or cherty-greenstone.

2355 0W Sec. 12. Greenstone
like 27377.

7505 Same thing.

S. Di.
27378

12005 Greenstone.

19005 Same thing

S.
27379

At the lake 20005 0W in
Sec. 12. Quartzite? Very massive
and brittle and has numerous
lighter colored veins of same
kind.

S. dike
27380

Cutting this is narrow belt
12 inches wide, of fine grained
granite. Weathers red.

27379 continuing W. along
shore for 100 fms.

L.C. 2000 S 175 W Sec. 12
 27381 ferruginous chert, thin
 Banding dips to N. Strike E-W.
 Continues N. for 100 paces.

G.
 27382 At 400 W 100 S in Sec. 12
 Peculiar altered mottled
 greenstone, showing a banding.

700 W 0 N in Sec. 12
 Greenstone like 27378.

G. P. 950 W 0 N Sec. 12 Large
 27383 ledge of feldspar-quartz-
 porphyry. Phenocrysts very
 prominent.

G. P. 30 N 1000 W Sec. 12. Gneiss
 27384 diabase. Gneiss as Massin
 and tough.

100 ~~N~~ N 1000 W. Greenstone
 like 28, cut at

150 N 1000 W, by porphyry
 like 27383.

From here on is greenstone

similar to 27377 but showing
a faint suggestion of aa structure

From 300 to 600 η is
undoubtedly aa greenstone.

770 η 1000 η , White-
eyed granite porphyry.

770 to 850 Greenstone like
27378

1000 η Greenstone like 27377

1300 η is greenstone like
27378 |

1650 η greenstone like 84

1900 η ~~145~~ Greenstone like
27377

175 η 1000 η in Sec. 1
Same thing.

400 η same thing

7507. Same thing

Now raining hard. It is
very nice seeing that much
of this material is the aa
greenstone.

Struck road at 11607.

S. $\frac{16}{21}$

T. 63

Lake

R. 12

Locations from lake.
No bones found.

* Same as 27392

* G + Gran. hirsuta 27392

g

g

* 27391 g

g

O Lake

g

#6

sl

g. L. 27386-88

#1

= ch + sl. 27390

g

27389 g

27389 g

27387 g

27386 g

* g 27385 g

Long lake.

August 17

Ran N from E. end of Long
Lake on quarter line of R1 and
16, R. 12, T. 63. To Bonville
Lake.

756
S. 27385 75 N ~~975 N~~ 71 Sec. 71
Greenstone, buff & micaceous?
In places fragments are rounded,
resembling rather an separation
or spherulites.

S. Di. 27386 110 N ~~1000 N~~ Greenstone.
Heavy mass, and coarse.

S. Di. 27387 Followed immediately by
a finer grained gneiss, also
massive and perhaps but a
phase of 27386, as I could
find no line of separation.

At 140 N the greenstone is like
27385. The fragments, less than
an inch across have a slightly
lighter reddish color than the matrix.
Continues to 265 N

S. Di 965 N 1000 W. Greenstone. —
 27388 Diabase, about 10 feet
 across.

This is followed after a
 few feet of exposure by
 massive greenstone like 27386,
 in which are occasional
 narrow ramifying veins of
 chert? standing out on
 weathered surface.

From here to 530 N the rocks
 are massive ~~diabase~~ ^{greenstone} like
 27386 and 27388, in general
 27386 predominating. I could
 not trace their boundaries and
 one may be but a phase of
 the other.

S.
 27389 530 N 1000 W. Greenstone
 similar to 27385. This is
 cut by jointing planes, giving
 the rock the appearance of
 having been much becciated

580 N to 830 N. Massive
 greenstone like 27386 and 27388.

830 η 1000 η Sec. 21
 Green-schist, ^{strike η 80° E} with cherty fragments.
 Looks like cherted form of
 27388. This is cut by narrow
 dike like 27389. Contact not
 sharp, but on the contrary there
 is apparently gradation.

82.
 27390 / 850 η 1000 η . In the coarse
 greenstone appears a belt about
 8 ft wide of 27390, banded
 slate and chert? Sharp contact.
 Specimens shows very narrow
 black bands, but other parts
 of exposure show wider ones.
 Belt strike η 85° E

The coarse greenstone continues
 in frequent exposure to 2000 η
 Here another belt of slate, i to

3 ft wide, is seen. Belt strikes $N 85^{\circ} E$.

2515 $N 1000 W$, Sec. 16
Greens tone, massive, like 27389.

27391

2600 $N 1000 W$ Sec. 16 Coarse
greenstone containing a
great deal of feldspar, looking
like a porphyry. Taken to
be but a phase of the
massive dolomite to S.

Continues to 2750 N .

All greenstones up to this
point have been very slightly
jointed, except where
otherwise stated, and these
planes have had a general
 $N E - S W$. direction.

2850 N 1000 W. Sec. 16
Greenstone like 27387

27392 2900 N 1000 W. Greenstone
and granite breccia. Angular
fragments of greenstone are
embedded in granite. Fragments
sometimes 3 inches across.

Apparently a case of injection
Exposure is very small,
and there is a possibility
that it is not in situ.

N 2970 N is the same thing

