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## **Field notes on north east half of Vermilion Iron Range, Minnesota for 1898: [specimens] 27757-27899, 27934-27986. No. 308 1898**

Clements, J. Morgan (Julius Morgan), 1869-  
[s.l.]: [s.n.], 1898

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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  $2 \times 2\frac{1}{2} \times \frac{1}{2}$  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.

27757-27849

No 1

27934-27986

1775E  
550

Book # 308

#

11  
K



Field Notes  
on  
North East Half  
of  
Vermilion Iron Range  
Minnesota  
for  
1898.

J. Morgan Clement.

 G. Si. Orient. Intrusive.

 Pr.; Q + Feld. Pophpy.

 H. Tuff or Gyl.

 B. Schist.

 Se. Metamorphic without chlorite & stau.

 Jasper.



Slate, Evk. Gyl. etc.



Slate, Evk. Gyl. etc. of  
Aminikio (?)





Started from shore of Kawishwi  
river & run north along  
section line between sec. 34/35

S.S.  
H.S.

27757 N195° W0 SE Cor. Sec. 34-63-11

On shore there is a small  
exposure of moss covered rock  
which is much broken so that  
could not get direction of schistosity.  
Seems to be a mica-<sup>quartz</sup> hornblende schist.

Going N. pass other exposures  
of a similar rock and at  
N70° W0 sec. 27-63-11 get schistosity  
striking N70° E.

Numerous moss covered exposures  
found to N. of above location

H.

27758 N80° W20 SE Cor. Sec. 27-63-11

Small moss covered exposure  
of a coarse hornblende rock.  
No relation seen to other rocks.

H.

27759 N935° W50 sec. 27-63-11

Rock is much finer grained + greener  
(more chloritic) than rocks thus far seen.  
Schistosity is also poorly marked.  
Looks much like the altered ellipsoidal

S22/23 T. 63

R.

Cor

Cor.

6-747

23

22

СФ.

Cor.

24

24



basalts which occur S. of Ely.

H. D.  
27760

N 97.5° W 25° Sec. 27-63-11

Coarse dolomite. No relations seen but presumed to cut the schists which surround it.

N 41.5° W 0° Sec. 22-63-11

We reach at this location a large clearing. A small hill occupies the center of the clearing and upon this we find small exposures of black and red gneiss + white chert. These occur in bands which are strongly plicated. Strike of axes of plications N 85° W. Axes plunge 15-30° W. Gneiss must be close to 100 feet wide here. A diamond drill hole + several test pits have been sunk but find no ore on dumps.

H. D.  
27761

N 47.0° W 197.5° SE Cor. Sec. 23-63-11

Just N. of gneiss, forming N face of hill and separated from gneiss by only a few feet of soil is found a gneiss exposure.

S. 27

T. 63

R. 11





Traced above mentioned gashes  
belt to E and found it trending  
about  $N 60^{\circ} W$ . Ends at valley  
which cuts it off to E.

Greenstone occurs just N. of eastern  
west exposure and can be seen in  
large outcrops East across the  
valley.

Returned to section line and followed the gasper belt to W. for one mile. See exposures shown on plat.

Near W. section line of 22 we find exposures which show that there are two or more belts of gneiss separated by quartzite. Could not trace these belts.

27762

g.w. (?)

Returned to starting point on river and then went W. along N. bank of river. Exposures occur as indicated of rock like 27757 & 9

On the point from which 27762 was taken there is a rock which looks like a sedimentary. It contains lenticular areas (pebbles?) of white vein quartz and also of a black vein quartz much like gneiss in appearance. Small rounded areas garnets (?) project from weathered surface.

The lenticular quartz areas seem to me more probably vein formations than pebbles. Just NE of where 27762 comes from there is a long E-W ridge of a green schist like 27759 and in it there was run a long lens, six feet long by four inches wide, in which black gasper composed centre of lens and sides formed of vein quartz. This seemed clearly not an inclusion in a lava flow but a secondary infiltration.



6—747

Cor

S. 26/25-T.

63

25-

R. 11

2.6

4. 11/22/65

Sc. Lib 27764

T. 1/2

Ss.  
 27764  
 Hb. W. Se. like 27763  
 1150'

MS. St.  
1760<sup>1</sup> W  
Lib. 27763

A Cor.

Cor.

27

21

20

21

H.S.  
27763

About N 70° W 25° Sec. 26-63-11  
on shore of Kaurishwi river  
there is an exposure of a  
mica-hornblende schist with  
schistosity striking about E-W.

H.S.  
27764

N 134° W 0° Sec. 26-63-11  
Knob of green schist finer grained  
than 27763 and apparently more  
chloritic. Strike of schistosity little  
N of E.

N 166° W 0° Sec. 26-63-11

Came upon 2 test pits with gopher  
fragments on dump. Can only see  
drift in sides of pits and believe  
pit was not bottomed in gopher but that  
the fragments on dump came from  
drift boulder found in digging pits.

H.S.  
27765

N 25° W 0° Sec. 23-63-11  
Knob of dense epidiotic gneiss.

M.P.  
27766

N 60° W 125° Sec. 23-63-11  
Large burned over area showing a  
number of exposures of a dense epidiotic  
gneiss like 27765 cut by dykes



Cor.

Cor.

S. 23/24 T. 63

R. 11

0-717

23

24

Lib. 27765  
# 27766

# Lib  
27765

# 27765

Cor.

Cor.

271

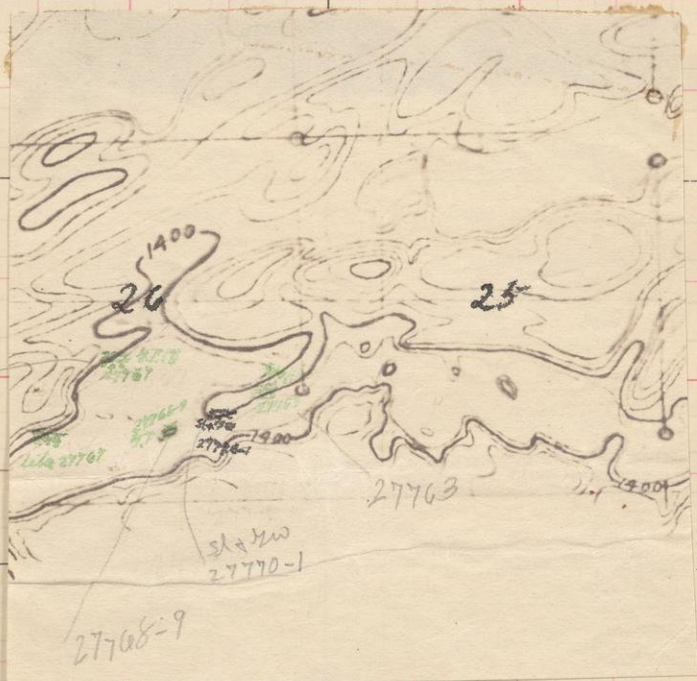
of red porphyritic granite 27766  
 These exposures continue to W. Exposures  
 drop steeply to S. and in places  
 I find on this steep S. face  
 patches of hematite, <sup>possibly</sup> a foot square.  
 This gneiss seems to be  
 continuous with the gneiss  
 found to N of gasper on yesterday's  
 traverse just west of here. If so  
 then gasper should occupy the  
 depression just south of these ex-  
 posures. Its presence would also  
 seem to be indicated by the  
 hematite on the south face of the  
 gneiss.

c (?)  
 27767

On the N. bank of the Rawishwi river  
 there is an exposure of a finely  
 banded schist. Strike of banding (agrees  
 with schistosity) is  $N70^{\circ}E$ , dip  $80^{\circ}-90^{\circ}N$ .  
 In places one finds pebbles or  
 lenses up to 4" in diameter lying  
 with long axes parallel to the banding  
 of the rock. These pebbles are of various  
 kinds of rock, granite (?), dense  
 gneiss, coarse hornblende rock  
 (meta-dolerite?), white & black veins

S. 24/25 T. 68

R. 11





quartz. Am not completely satisfied as to the character of this rock. Could only get specimens showing the supposed granite (?) This is different from the coarse granite occurring to S. Most probably this rock is a tuff and belongs to the L. Huronian with the green schists and hornblende schists which occur to the N.

Hb. & schist

U. H.?

The conglomeratic nature of this rock can only be well seen when the surface is very clean. Then the hard pebbles are seen to stand up from the matrix & the softer ones from the depressions in the matrix and the different colors of the pebbles are well brought out by the weathering.

This rock is exposed along the shore as indicated and probably occurs inland but was not definitely recognized on the moss covered ledges.

c

n. H. cgl.  
27768-9

On the island in the Kawishwi river there is an excellent exposure of the conglomerate and several large specimens 27768 were taken. The finer grained gneiss phase is represented by specimen 27769

S. 19/20  
30/29

T.

63

R.

10

19

卷五

27773

27792

*Wm. B. Dyer*

# # # # #  
# # # # #

il-27772  
Cov.

Mr. J. L. ...

5. 27772

Kawishiwi Riv

~~1877~~ 5.  
lib 27784

27773

g. 111 lib 27274  
g. 112 lib 27276

9. lib27272

Lib  
27772

3. *lehi*  
28772

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4. 27772

~~W. B. Smith~~

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XXXX 4. P.  
27777

29

W + Hb. Se.  
met. Sed.?

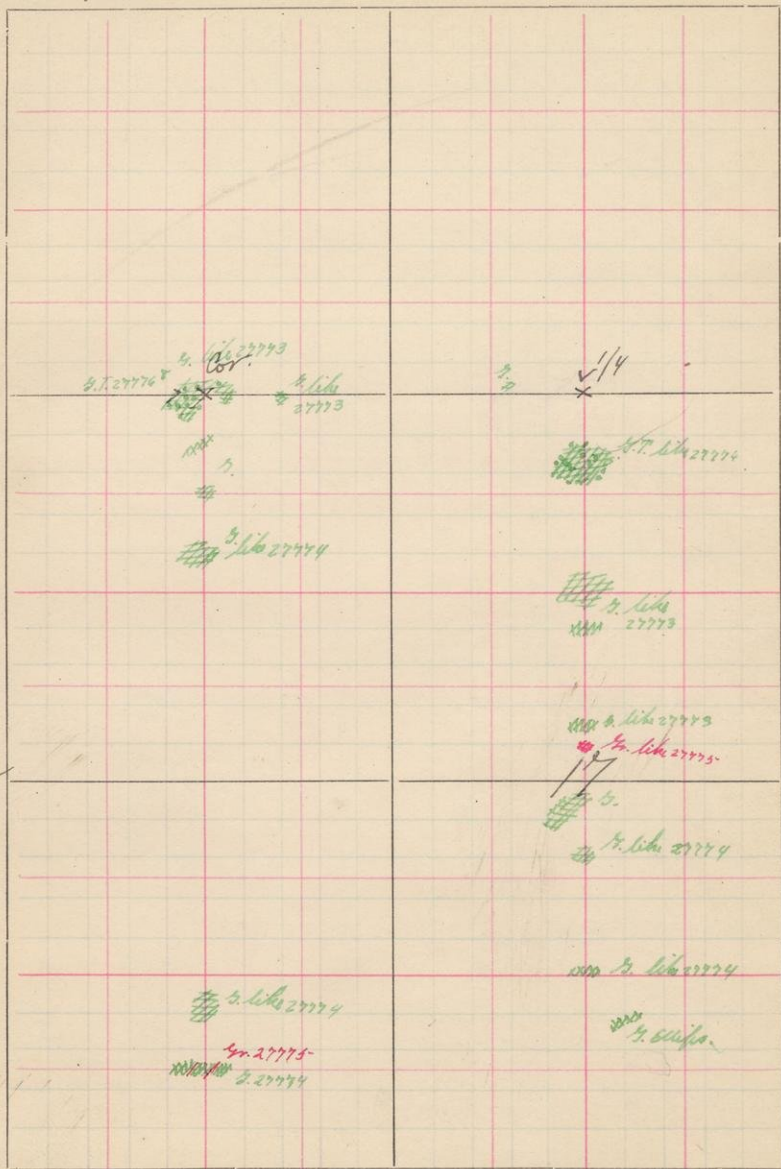
8.

27770-1 On the S. shore of the point just E.  
of above mentioned island there is an  
exposure showing alternating wavy  
bands of graywacke and slate 27770.  
Spec. 27771 is a moderately coarse phase  
of the graywacke. Strike of bands in  
general E-W.



S. 18/17 T. 63.

R. 10



6-747

co

1/4

S.S.

27772

N1670 W 0 Sec. 30-63-10

Dense greenstone is exposed on ridge overlooking Kawishwi river.

N1800 W 1925 Sec. 29-63-10

Here pink granite dykes cut the greenstone.

S.S.

27773

N1660 W 10 Sec. 19-63-10

Knob of dense greenstone. No relations.

S.S. Gr. P.

27774-5 N250 W 0 Sec. 18-63-10

Fine grained greenstone 27774 cut by granite porphyry 27745-

N1600 W 0 Sec. 18-63-10

Big eastern variation here of  $50^\circ$  in swamp. On hill to S of this place, at N400, found a number of large gasper boulders to which possibly the variation may be due.

(S.T.)

S.C.

27776

N 0 W 0 Sec. 7-63-10

Large knob of dense greenstone like 27773 and a greenstone tuffa 27774. Latter forms greater part of knob.

Gr. P.

27777

N1810 W 1000 Sec. 29-63-10

Ledge of granite porphyry. This <sup>kind of</sup> Gr. P. also cuts greenstones.





M.P. 3.

27778-9 N 1430 W 0 Sec. 20-63-10

From N. shore of Stone Lake for sixty  
 fathoms going north pass over a very  
 pretty granite porphyry. Sixty fathoms  
 north of shore reach greenstone  
 27779 with which the granite P.  
 is in eruptive contact.

N 1530 W 0 Sec. 20-63-10

Here the greenstone is seen  
 to contain small areas up to 18"  
 across of black gasher and vein  
 quartz. In places the greenstone is  
 brecciated and gasher cements fragments.

On W. flank of this hill about N 1600  
 the greenstone is cut by granite Porp. like 27778.

N 1650 W 0 Sec. 20-63-10

Here greenstone shows tufaceous character  
 like 27776. It has been sheared & where  
 most schistose black gasher has  
 been infiltrated. Schistosity N 70 E.

H. 21

27780 N 1720 W 0 Sec. 20-63-10

Greenstone 27780 is cut by granite porphyry.  
 The greenstone shows ellipsoidal flaking  
 imperfectly. The schistose material between

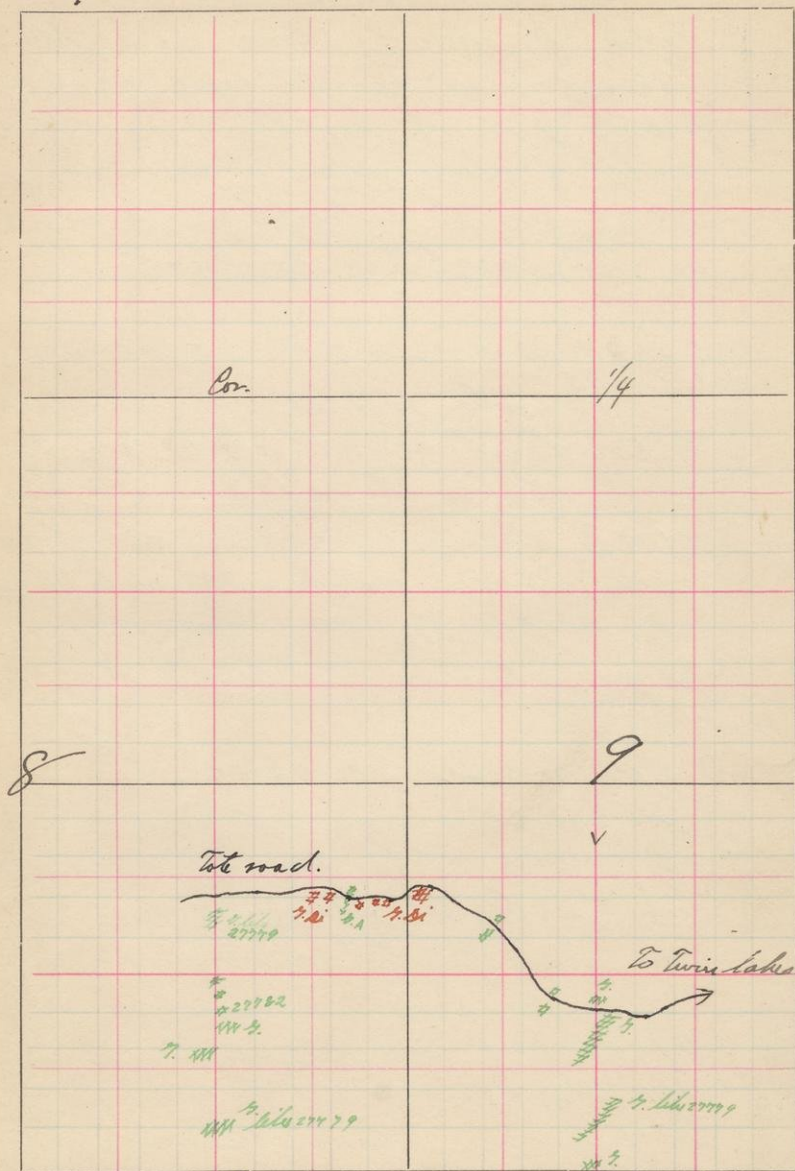
S. 8/9

T.

63

R.

R. 10



the ellipsoids is frequently ferruginous and sometimes has streaks of gasper through it. Farther N. on exposure find patches of white + black gasper with occasional streaks of red gasper. No regular banding. It appears to me that all of this gasperry material is infiltration in gneiss.

h.s.

27781

N600 W O Sec. 17-63-10

Green schist. Strike of schistosity N60°E.

N75 W 1000 Sec. 16-63-10

Small mass of vein quartz and gasper in gneiss like 27779. Bands not distinct.

h.

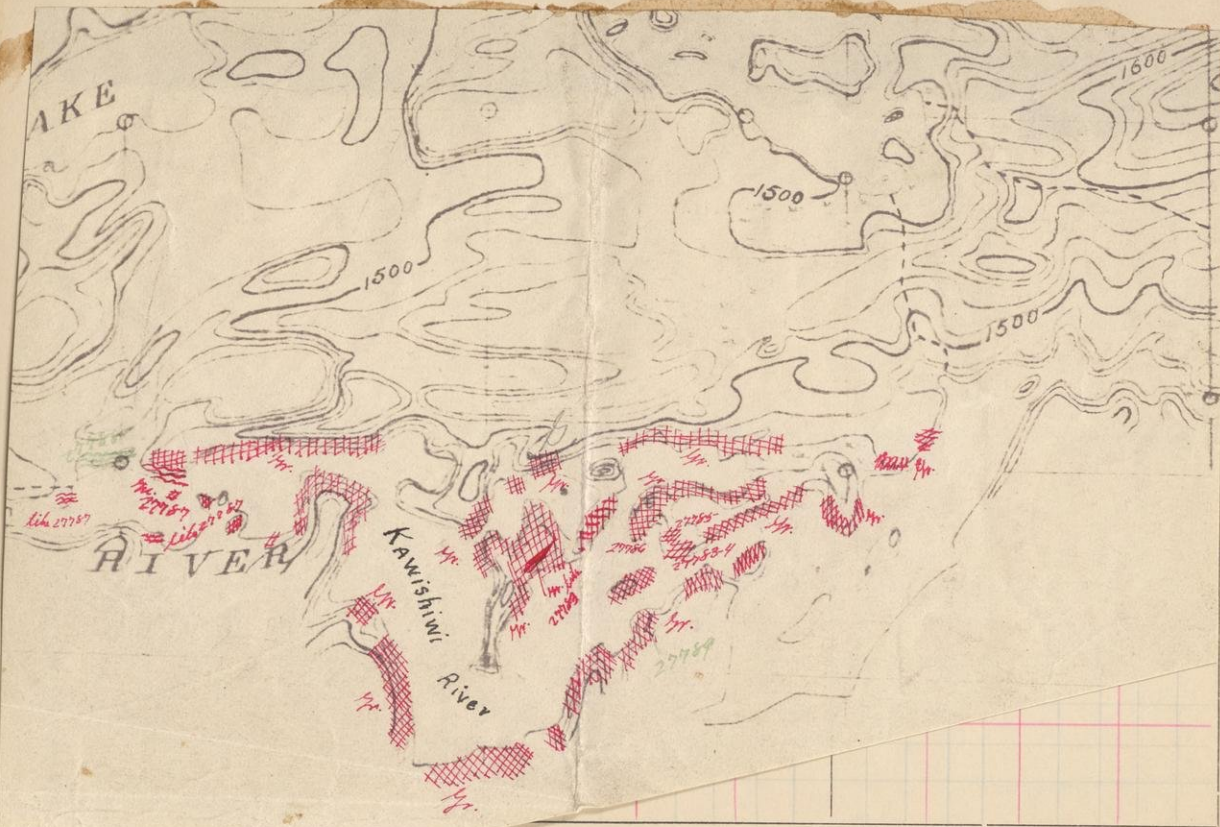
27782

N400 W O Sec. 8-63-10

Small exposure of rock which weathers with a very ferruginous crust.



2



W.  
 27783-4

Worked the river banks as shown on flat.

A point located by above numbers there is quite a dark basic looking hornblende <sup>27783.</sup> granite (?) cut by small dykes of aplitite 27784 from fraction of an inch up to 4" in width.

 W.  
 27785

Here the hornblende granite is seen cutting the normal red granite 27785 and both are cut by aplitite dykes like 27784.

 W.  
 27786

Dykes of aplitite 27786 from 3' up down to fraction of an inch in width cut granite at this place. One dyke has a very distinct coarse pegmatitic border. Is dyke of aqueo-igneous formation? Reverses conditions in dykes when border fine & center coarse grained.

Upon the long point projecting from N. bank of river one can find the normal granite & the hornblende facies 27783 cut by aplitite & pegmatite



S. 28/27

T.

63

R. 10

Lib 21147

N 70° W

S. bank of Kaurishari river.

Lib 21147

Give up as far  
 ahead along  
 line as Cau  
 tie that is for  
 nearly 1/2 mile  
 I judge!



dykes. Hornblende facies (27783) may  
be but a differentiation product  
of the normal granite like 27785-

patom. sed?  
m.s. (?)

27787 Fine grained, hard, banded, gray  
schist 27787. Banded more or  
less undulating. General strike  
of banding N70°W. Schist is  
cut by red granite like 27785-

m.s.

27788 Rotten greenstone schist.  
Strike of schistosity N70°W.

m.

27789 Granite like 27785 contains  
schlieren of hornblende schist?  
27789

S. 18/17  
19/20

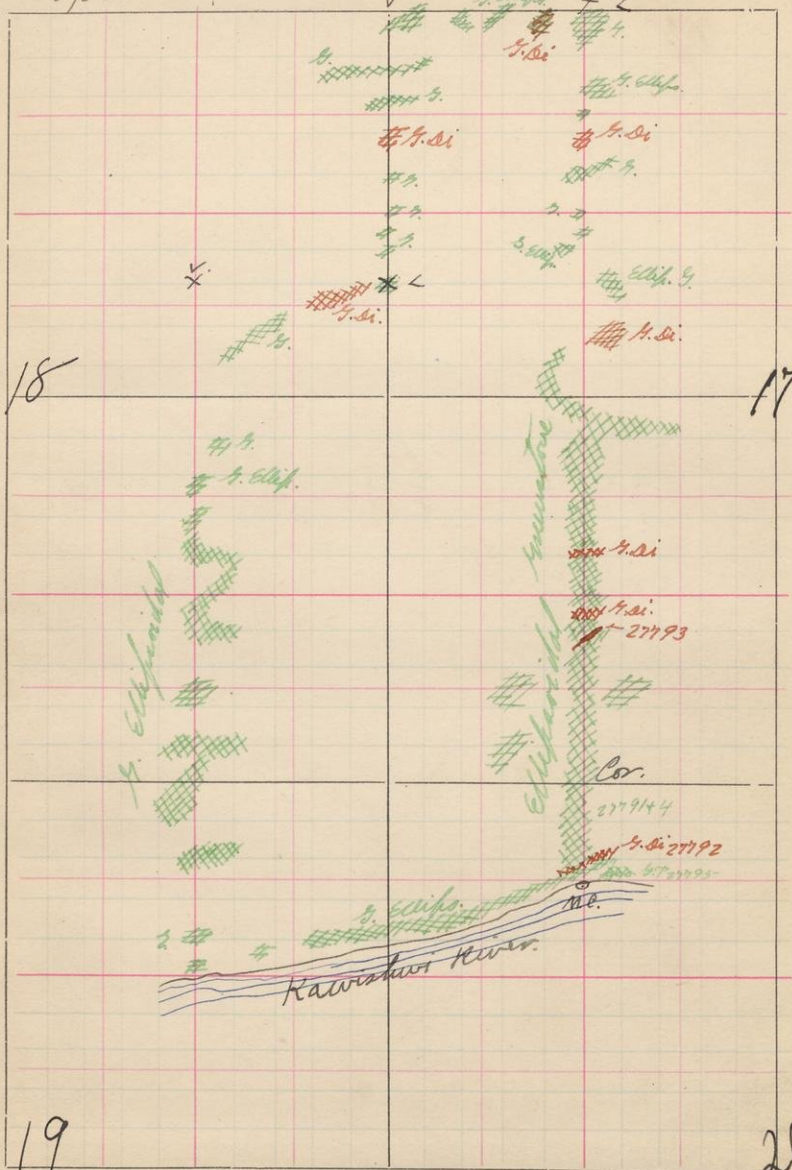
T.

63

R.

9

Cor.



9. El of my. fr. P 15.

27790 Hornblende schist phase of ellipsoidal basalts. Specimen taken from near what <sup>is called</sup> the mining plane?

14. El. 8. Di.

27791-2 N 1800 W O Sec. 19-63-9

27794 Beginning just back of shore and continuing on to N, as shown on plat. I find practically a continuous exposure of ellipsoidally parted gneiss. 27791 Ellipsoids with  $\frac{1}{2}$ "-2" of matrix between them show character of rock. Rock itself much changed. Now appears as a massive hornblende rock.

Cut by a dyke, 30' wide, of micaceous dolomite 27792

Gabbro is south across the river. 27794

Long direction of ellipsoids E-W. In many places there is a very evident silicification (gasification) of the matrix 27794 and it even encroaches upon the ellipsoids proper.

Basaltic dyke  
8. Di.

27793 N 400 W O Sec. 18-63-9

Ellipsoidal gneiss is cut by dykes of granite 27793 from 18"-3' across.



S.

T.

R.

6-717



✓ Southern land with m. p. 117

N 970 W 1950 sec. 17-63-9

Spots of ferruginous chert, clearly  
infiltration product occurs here  
in the ellipsoidal greenstone.

At one place a test pit has been  
made but no ore shows.

C 2

27795

At place located by specimen number  
there occurs a small exposure of a  
dark grey conglomeratic (tuffaceous)  
rock. Fragments scarcely distinct —  
quartzite from matrix. All look very  
hornblende and micaceous.

Is this a graywacke or a greenstone tuff?

Tab.

27796

Tabbo occupies south bank of  
Kavishwi river as shown on plat.

C

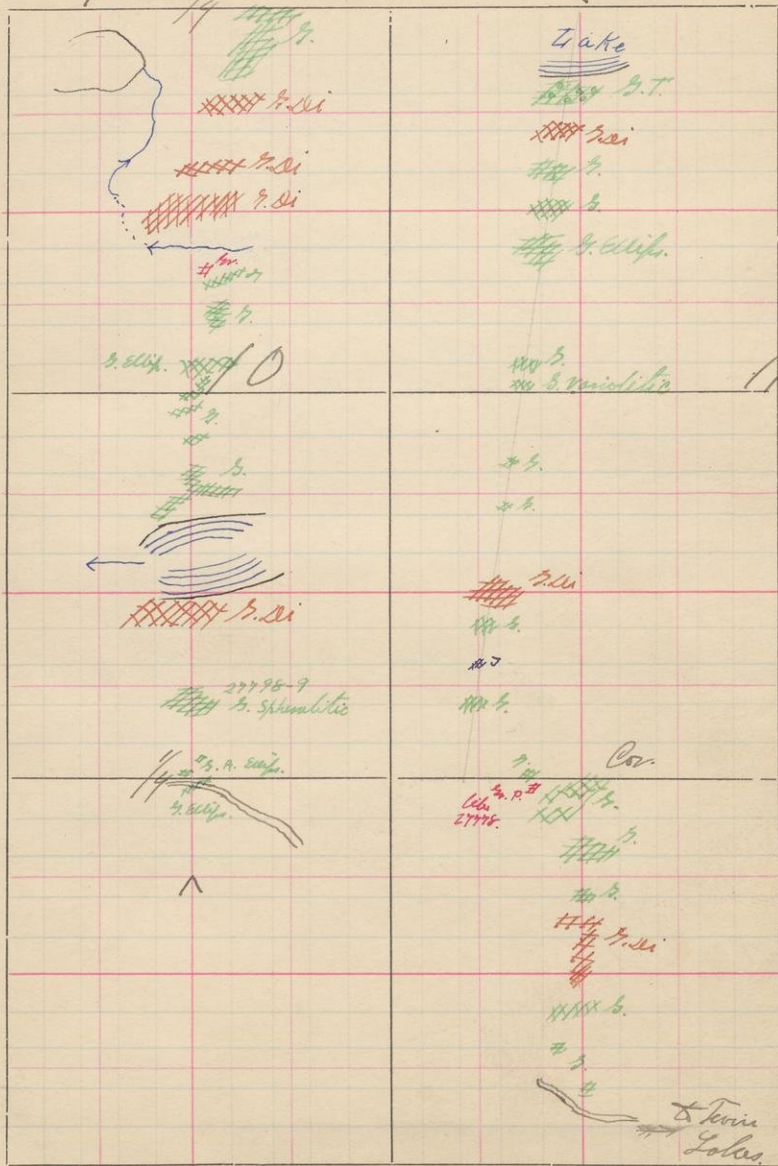
27797

Quartzite like rock on N. shore of main  
river. Does not this belong with the  
qz. found to W + N.?



S. 10/11 T. 63

R. 10 v. 2.





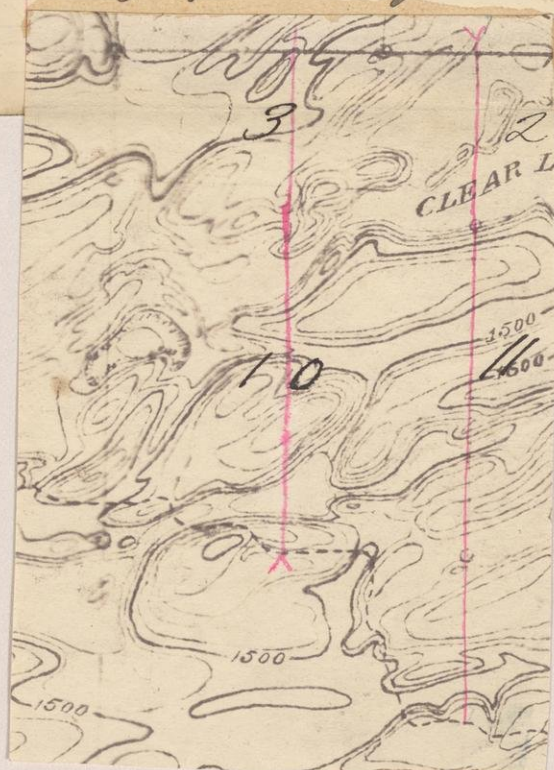
27798-9 N 200 W 1000' Sec. 10-63-10

Started at  $5\frac{1}{4}$  foot to run N. through Sec. 10. Paired over ellipsoidal gneiss and at above location reached a very fine variolite. Rock is separated into large ellipsoids and the varioles are in concentric circles around the ellipsoid. The smallest varioles occur in interior of ellipsoids the largest at the periphery  $2\frac{1}{2}$ " in diameter. These larger varioles show in natural sections on weathered surface of rock their sphenolitic structure. In places the rock is thoroughly silicified 27799 and only on surface by means of small manumillas can one recognize the sphenolitic character.

N 300 W 0 Sec 10-63-10

Now covered gopher ledge. Can get no relations. Bands seem to strike E-W but not well enough uncovered to enable me to be sure.

Topographic map of Sec. 10-63-10



S.  $\frac{34}{3/2}$

T.  $\frac{64}{63}$

R. 10

34

35

S.T. (?)

27503

27502

N 53° E

Lib 27503

44

Lib 27501

S.T. (?)

27504

N 70° E

Cor. (?)

1/4 (?)

# 2

# S.T. Lib

27500

3

# 2

# Lib 27501

N 70° E

27500-1 S.T.

# 2

4

^

✓

S.T. (?)

27504

27505

27505

N 70° E Lib 27501

Lib 27502

2

Lib 27505

Lib 27500

Cor.



27800-1 N 140 W 1000 Sec. 3-63-10

Immediately E + S. of 1/4 foot there is an exposure of rock which I suppose is gneiss. Farther N. reach at above location exposure of alternating bands of fine, medium, 27800 and coarse 27801 tuff and slate. Strike N70°E, dip 90°.

Continuing N ascend a steep hill on which are numerous little more covered exposures. Rock looks like gneiss.

SL

27802 N 830 W 1000 <sup>(SE. Cor)</sup> Sec. 3-63-10

Was not sure of correction on Range line so carried location from SE. Cor. Sec. 3.

More covered ridge of green schist. Schistosity strikes N50°E. dips 90°.

SL

27803 N 900 W 1000 <sup>(SE. Cor)</sup> Sec. 3-63-10

Here get good fresh specimen of same kind of rock as 27802.

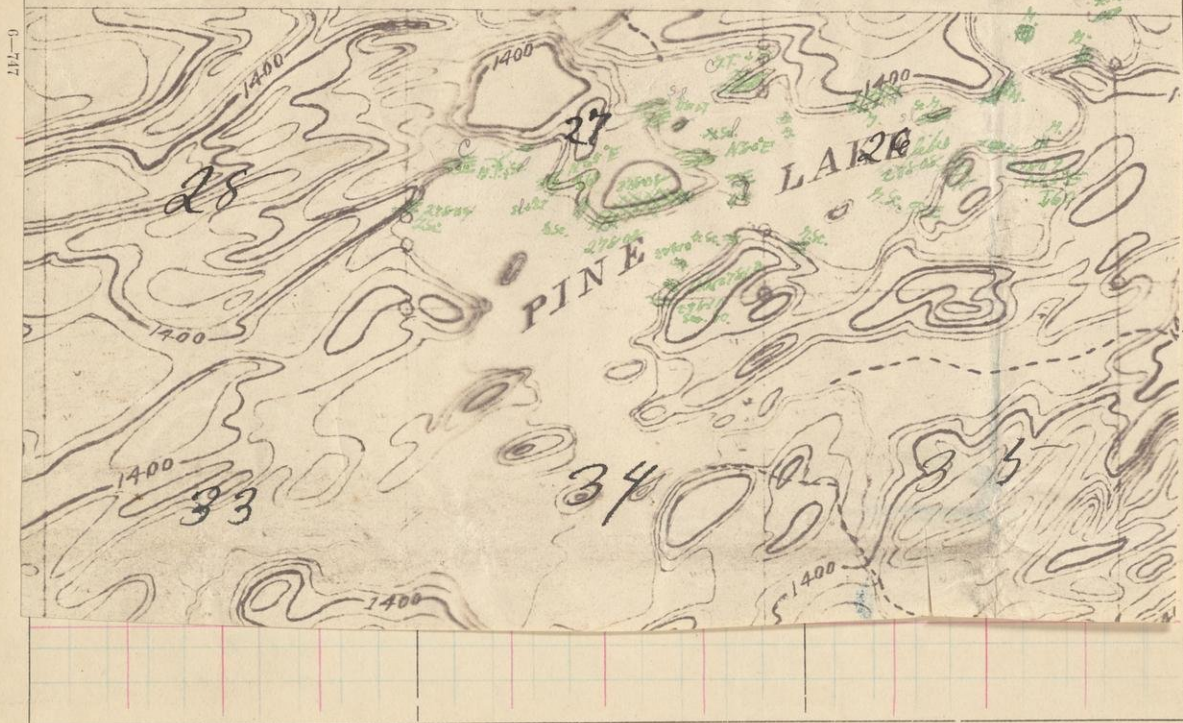
C

27804 N 800 W <sup>(SE. Cor)</sup> 11 Sec. 3-63-10

Exposure of gneiss tuff. Schistosity strikes N70°E.



R.10 W. 35'



2.

T.

64

R.

10

F.P. 8<sup>th</sup>

27805-6 N 60° W 0 SE Cor. Sec. 3-63-10

Greenstone tuff cut by hornblende  
porphyry 27805 which follows along  
imperfect schistosity of tuff. N 70° E.  
27805 is cut by a 16" wide dyke  
of basalt 27806. Similar dyke  
farther south is now following  
schistosity of tuff.

H.S.

27807

Go out to work N. shore of Pine lake.  
Thin schist occurs on shore at W.C. of  
N. & S. line between 28/27 and continues  
to E. some distance. Schistosity strikes N 70° E  
(magnetic) and dips 60° S.

At end of point there is a band 20'  
wide of schistose greenstone tuff with  
schist like 27807 both to N & S. Could  
not get specimen of tuff that would  
show anything. Some fragments in the  
tuff were plainly amygdaloidal.

H.S. (?)

27808

This is a dense greenstone. It appears  
macroscopically to have a good deal  
of quartz in it. Is it perhaps a graywacke.

omit

27809

On lake shore there is a banded  
schist or slate. Strikes N 65° E, dips 60° S.



۷۵

T.

64

R.

10



Pine Lake.

273  
Cm

278

272

27809

Cntrl.

Rock is very dense. Is this a contact rock produced from schist like 27807 by intrusion of 27808.

Occurring farther S and W. on the shore there is a much foliated schist. Schistosity in general E-W. Vein quartz has been infiltrated parallel to the schistosity.

Same occurs farther S & W and shows still better the minor plications. Schistosity E-W, dips 60° S.

Two

27810

Much plicated schist. Schistosity strikes N 60° W, dips 90°. Rock looks very much like folded and schistose mass of 27808.

SE

27811

Very dense hornstone like rock. Fingering strikes about E-W.

The point where W.C. of E-W line is there is found a very rotten piece of yellow sericite schist. Schistosity strikes 1 E-W, dips 70° S.





like  
27812

N 1220 W 0 Sec. 28-64-10

On N face of NE-SW trending  
pine covered knoll this is exposed on  
a moss covered ledge of yellowish  
to pink sericite schist. Strata of schistosity  
N 75° E, dip 65° N.

gl.  
27812

N 1370 W 0 Sec. 28-64-10

Large N. facing cliff of sericite  
schist from which fresh specimen was  
obtained.

H.  
27813

N 1475 W 1000 Sec. 28-64-10

Mossy hill with exposure of a grey  
rock with imperfect E-W striking  
schistosity. In places looks like a  
sericite schist.

H.  
27814

N 1275 W 1000 Sec. 28-64-10

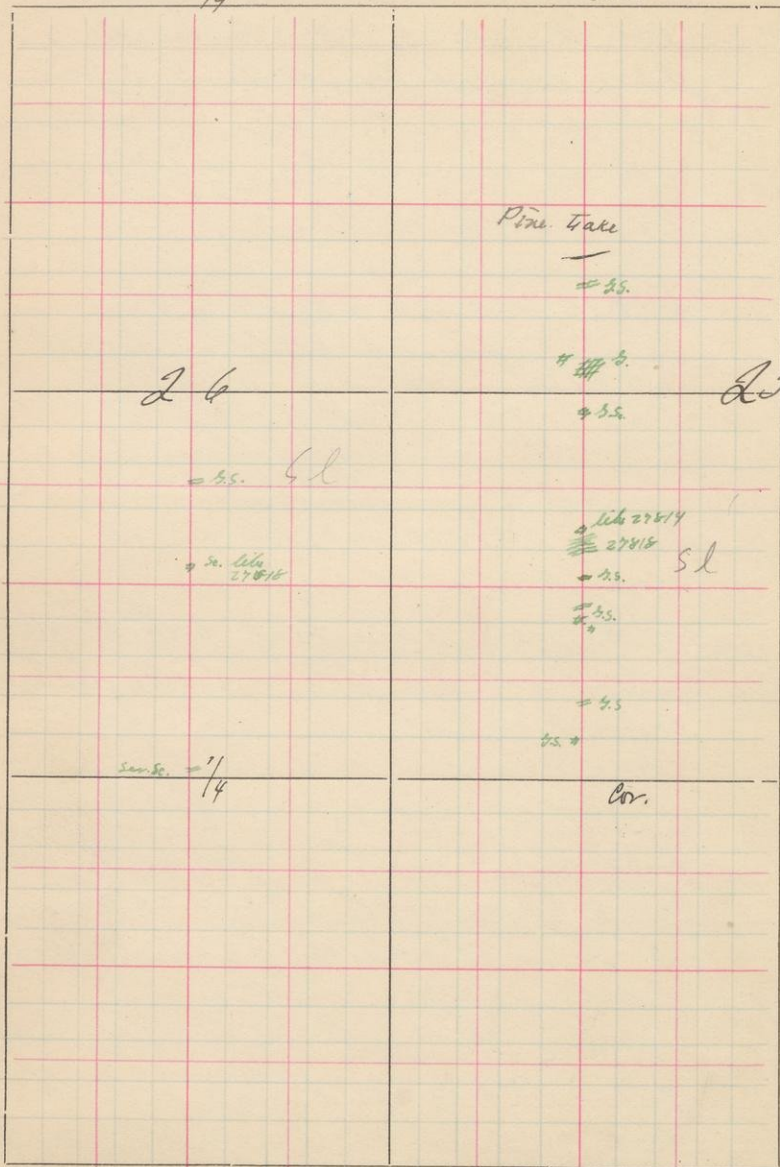
High ridge with imperfectly schistose  
dense gray rock 27814 exposed on  
it. Trend of schistosity = that of ridge,  
little N of E.

When this rock is very rotten it is a  
greenish gray and may well be what  
I have called green schist when I have  
seen it in small, poor exposures E of here.



S. 26/25- T. 64

R. 10 Cr.



Mr. A.H.?

27815 N 1400 W 900 Sec. 33-64-10  
 Poor broken exposure of a graywacke?

sl

27816 N 1200 W 1000 Sec. 33-64-10  
 Just  $\frac{1}{2}$  E of claim shaft there is a  
 broken exposure of hard grey gran  
 banded rock 27816 that looks like  
 a graywacke.

rw

27817 N 960 W 720 Sec. 33-64-10  
 Small imperfect exposure of a  
 green quartzite rock (graywacke?)

sl

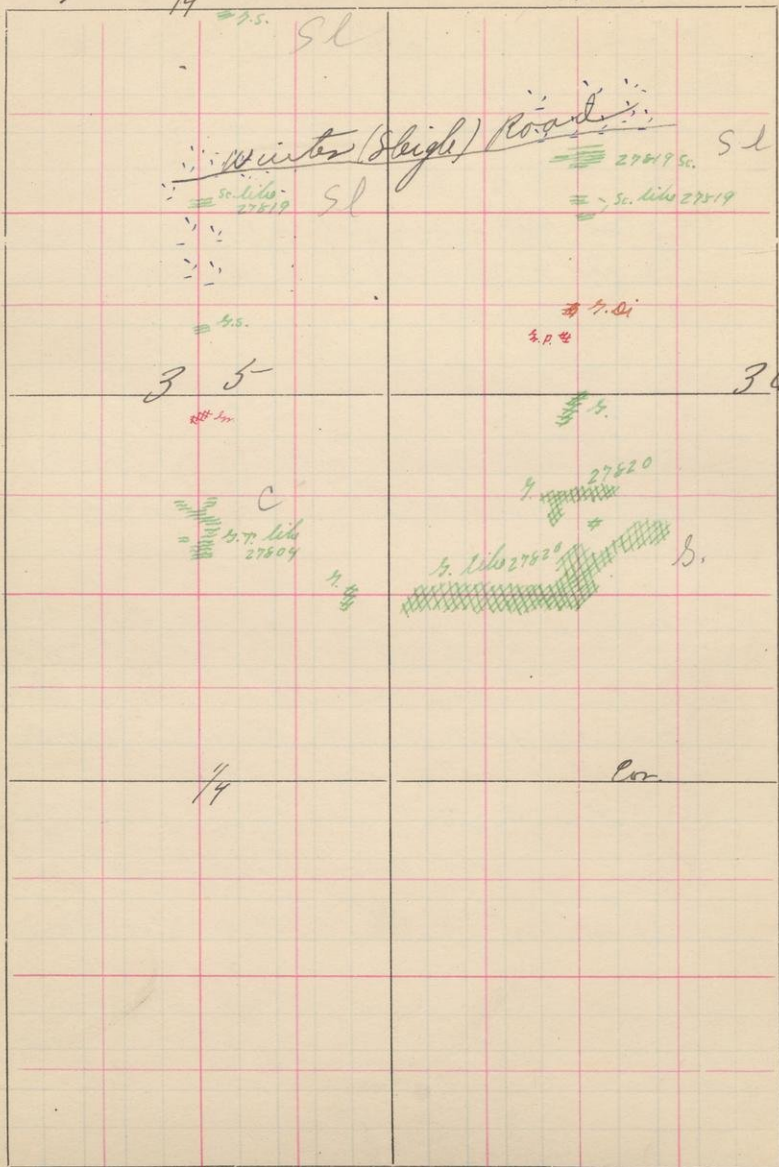
27818 N 660 W 0 Sec. 26-64-10  
 Broken exposure of a clean greenish  
 gray banded rock. Bands strike  
 about N 70° E & dip 70° S.  
 Surface portion of exposure may have  
 been moved considerably so am  
 not too sure of strike and dip.



S. 35/36

T. 64

R. 10 v. Cor.



sl.

27819

N1620 W0 Sec. 35-64-10

N. facing cliff of rotten grey schist. Strike is about E-W but surface portion of schist has been moved and can't be sure of exact strike and dip. Rock is like 27803

S. di

27820

N760 W0 Sec. 35-64-10

Anticline of  
granite?

Very high hill with N. facing cliff. Hill is composed of very dense granstone with here and there a cube of pyrite scattered through it. No structure or relation.

N620 W1000 Sec. 35-64-10

Schistose granstone tuff. Schistosity strikes N70°E. No fragments other than granstone seen in rock.





Mr

27821

N1180 W1300 Sec. 17-64-9

Find biotite granite beginning  
at N shore of Wind Lake and  
continuing on N for 300 paces.  
Now run E over granite and  
then S.

Hb.S.

27822

N450 W0 Sec. 17-64-9

High hill composed of coarse  
hornblende rock (meta dolomite?). This  
is permeated by minute veins of  
red granite like 27821 and also cut by  
large dykes of same kind of granite.

H.

27823

N1950 W60 Sec. 20-64-9

Broken exposure consisting  
chiefly of green chloritic schist  
cut by dykes of red granite.

In one place on Knoll a rock 27823  
is exposed for width of 18" and  
lying next to it is a wavy band  
of gneiss 2" wide (so much exposed)  
+ beyond this is covered area of few inches  
in width followed by chloritic schist.  
It looks as though the gneiss and 27823  
were interbanded with the schist.  
Strike is about S-W.





Sn-P  
27824

is not this a Feld. gne. metamorphosed + foliated like F. K<sup>2</sup> 24.  
Remember gne. SE of this place!!! C

N1840 W 20 Sec. 20-64-9

Band 16" wide of altered feldspar  
or gneiss interbedded with  
green schist. Strike N70°E. Slightly  
developed schistosity + this agrees with  
the banding.

From here on to N1550 outcrops  
are very numerous but one only has  
broken edges of rock sticking out  
of moss covered knolls. The exposures  
are so numerous as to be practically  
continuous still I am not able to  
get a succession of schists or the relations  
of one kind to another.

The schists are coarse to fine chlorite +  
hornblende schists varying in color from  
green to black.

41.5  
27825

N1430 W 0 Sec. 20-64-9

Leaving the libd. schists I cross small  
swamp and then begin on S. side exposures  
of a dense chlorite schist 27825.

Schistosity strikes N70°E.

This is very different from the chloritic  
schists seen to N. of this place.



M. A. S.  
27826

25

N 1100 W 0 Sec. 20-64-9

Found here a steep S. facing cliff composed of schistose amygdaloidal greenstone 27826. There is best seen on specimen showing weathered surface.

Found small, narrow masses of talc associated with the amygdaloid. Fragments all of amgd. greenstone and lie in a green schistose matrix.

27827-8 N 860 W 0 Sec. 20-64-9

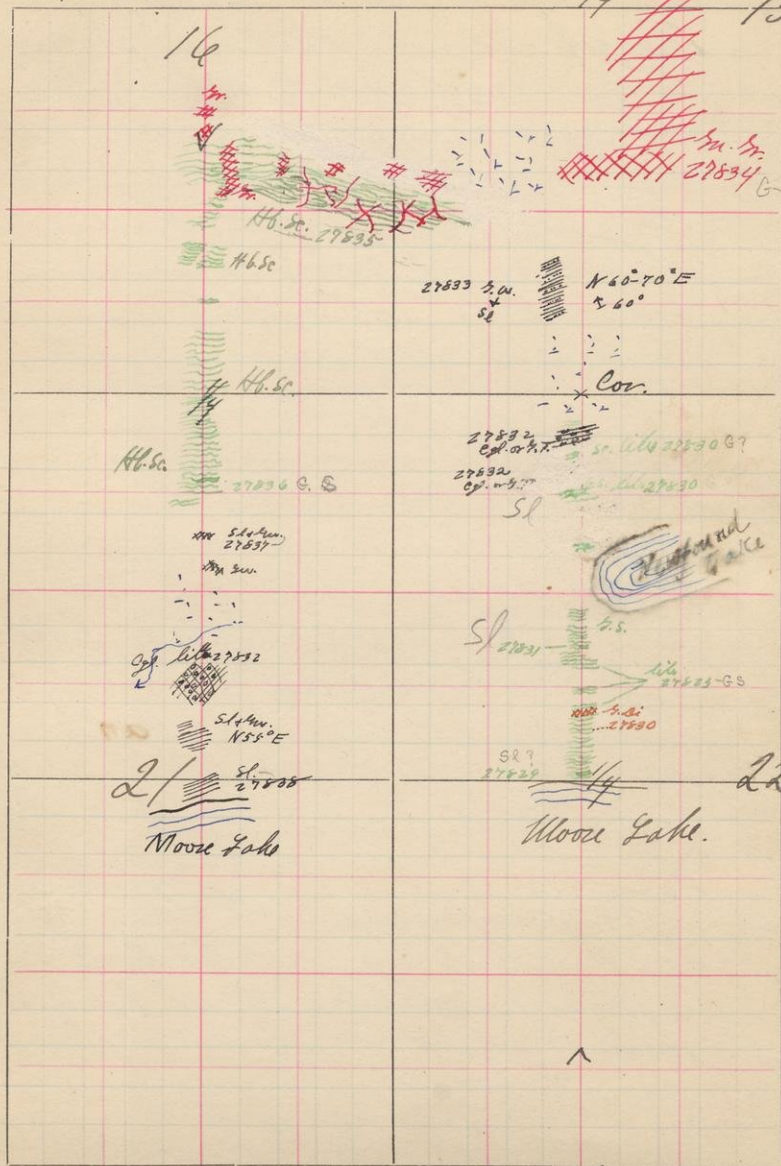
Here I find a ferruginous slate or schist 27827. It is followed to the N. by <sup>Stark's schistosity N 70° E.</sup> green schist 27828 which is full of infiltrated vein quartz & contains in places small masses of garnet. This like the vein quartz appears to be due to <sup>active</sup> infiltration. Farther N. in the schist granite is found cutting the schist.

The ferruginous slate shows very fine layers which are contorted. Rock looks in places much like slate ore. Ferruginous rock is about 8' wide & was followed for about 50 paces S-W. by occasional exposures. West of here the ferruginous slates have been tested, unsuccessfully, for iron.



S. 16/15-  
21/22 T. 64

R. 9 1/4



sl  
27829 N1000 W 0 Sec. 21-64-9  
Start from N. shore of Moose Lake.  
around steep cliff of reinit schist  
27829 trending little N of E and  
forming backbone of long point.  
Strike of schistosity is  $N60^{\circ}E$ , dip  $70^{\circ}$

sp (?)  
27830 N1150 W 0 Sec. 21-64-9  
Medium grained schistose green rock.  
Is it a gneiss or gneiss (crystalline)  
schist? Schistosity  $N60^{\circ}E$ .

The gneiss is followed to the N.  
by a dyke of coarse chlorite which  
is in its turn succeeded by a very  
fine chlorite schist like 27825 +  
like that S. of 27826.

at N1350 this schist is banded and  
strike of bands is on average  $N60^{\circ}-70^{\circ}E$   
agreeing in general with strike of schistosity.

sl  
27831 N1350 W 0 Sec. 21-64-9  
Specimen of coarse appearing phase of  
slates.

cg  
27832 N1910 W 0 Sec. 21-64-9  
High ridge, trending  $N60^{\circ}E$ , composed  
of a go conglomerate 27832. This grade



from phase with pebbles averaging  $\frac{1}{2}$ " across down to a fine sand.

Gradation is rapid and congl. and sand occur in short lenses in each other. Specimen shows a medium grained phase. Pebbles are fairly well rounded and consist of some white vein quartz, some gaffer (doubtfully viewed as true pebbles; possibly infiltration lens) and others which can not be determined in the field but are supposed to be greenstone and green schist. Rock appears like a volcanic conglomerate. Exposure of congl. sand is about 50 feet across wide and then comes a green schist. Strike of schistosity of conglomerate is  $N 60^{\circ} - 70^{\circ} E$ . Conglomerate is cut by dykes of porphyritic granite.

9W

27833 N 220 W 50 Sec. 16-64-9

Hill composed of alternating bands of slate and graywacke 27833. Possibly what I've taken for graywacke 27833 may be porphyry intruded parallel to slate laminae but don't believe it is. Strike of banding + schistosity  $N 60^{\circ} - 70^{\circ} E$ , dip  $60^{\circ} N$  of bands.

27834

N 625 W 19 95 SE 1/4 Sec. 22-64-9

Here begin exposures of a grey granite (weathers pink) which continues on to N. in low knolls that can be easily seen for 1/2 mi. The exposures also can be followed with eye for some distance to the E. Granite is slightly gneissose and contains numerous lenses, from those of minute size up to those a foot long, of dark basic aggregates of minerals.

The minute lenses aid in producing the gneissose structure of the rock.

These lenses may be inclusions in the granite but I can not determine character of any of them. They do not resemble any rocks so far as I can see but look more like aggregates.

Hb. Sec.

27835

N 500 W 400 Sec. 21-64-9

At this location there is a high hill of hornblende schist 27835 with some bands of very coarse schist like 27822. Strata of schistosity is undulating but about E-W.

Contact of granite like 27834 and



hornblende schist seen at N 575 W 450. The granite here intrudes and includes the schist. Going over top of hill I find many dykes of granite in the schist. Some of the dykes are porphyritic. Epidote veins occur in the schists and also in places gaseous infiltration. This bare hills offers best opportunity to study relations between granite and schist and to see the general character of the hornblende schist.

At one place coarse dolomite cuts the hornblende schist & includes pieces of it. It is in its turn cut by the granite.

H.S.C.

27836

N 740 W 1000 sec. 21-64-9

Rock here looks like a hornblende (actinolite) schist but it seems to be a <sup>little to</sup> westward continuation of S.L.s & G.W.s. found to E. and it is thought it may represent a metamorphosed gneiss.

Running S. from contact of Gr. & Hb. Sch. have been passing over

exposures of hornblende schist, chiefly fine grained, cut by dolerite and this cut by granite. Is it possible the hornblende schists are graywackes + slates metamorphosed by the dolerite + granite intrusions? I believe them metamorphically altered basalts. Found no dolerite in the graywackes + slates on run N. 1/2 mile to E.

sw

27897 N1640 W1000 Sec. 21-64-9  
This appears to be a much decomposed graywacke.

Graywackes appear to begin about 100 paces N of here - just S. of 27836 instead of at 27836.

N1320 W1000 Sec. 21-64-9

Well covered knoll of rock (cgl. or tuff) like 27832. Distinctly conglomerate. Appears to be somewhat coarser on N than on S side of exposure. No bedding noticeable.

gl.

27898 N930 W1000 Sec. 21-64-9

Blue black slate forming ridge along N. shore of lake. Strike of fining N 60-70° E, dip 90°.



29/28  
S 32/33

T. 64

R. 9 1/4

278

29

28

Moore Lake.

Uluore Gohc.  
44

Grant #  
Lib. Popk. #  
22805

8-11 ~~XXXX~~ G.P. station

~~1000~~ K.P. like  
27805

27842  Cpl or 4.7  
St. An.

GDI 7254

G. Si. Ellip  
Come Si

3214-100  
2.22849

27845-

↓ 90 27845-  
N 60° W.

27844  
247

A hand-drawn sketch of a geological feature, possibly a fold or a fault, with green hatching on the left and blue lines on the right.

27845-*Cor*

27839-40 N 290 W 1925 Sec. 28-64-9

Started at W.C. on S. shore of Moore Lake.

27840 is a  
microgr.?

Running S. pass over green schist, strike of schistosity N 60°-70° E, and schistose gneiss cut by dykes of granite porphyry. At places we find small areas of tuff in the gneiss.

At above location reach a large exposure of schistose volcanic gneiss tuff 27839 cut by fine grained acid eruption 27840 trending SE and cutting across schistosity.

Can not get definite bedding lines. Pebbles of gneiss up to 4" long. Long direction of pebbles agrees with schistosity which strikes little N of E. But one place a clear bedding of fine & coarse material was observed & strike here of bands was little S of E.

15.51

27841

N 120 W 50 Sec. 29-64-9

Well developed conglomerate like 27839 is here exposed for about 100 yds. both sides of line.

Banking strike N 80° E. Pebbles are of gneiss and green schist. No pebbles of granite or Q porphyry were seen here. Conglomerate is cut by E-W trending dyke of basic rock, 27841, 18" wide.

N 1770 W 0 Sec. 29-64-9

Mass of slate showing false bedding.



strike  $\approx$  E-W, dip  $85^{\circ}$  S. Boulders of conglomerate occur with the slates. Conglomerates full of pebbles of vein quartz + black Jasper - both metamorphic products? - in addition to pebbles of greenstone.

<sup>C</sup>  
27842

N 15-25 W 0 Sec. 32-64-9

Mus of E-W striking conglomerate. Specimen shows various kinds of pebbles. Many of vein quartz + also of Jasper. These are banded and bands lie at an angle with the boulders of the conglomerate. ~~No~~ pebbles of granite or quartz porphyry were seen.

P. Dr

27843

N 14-75 W 50 Sec. 32-64-9

Camptonite

Here the conglomerate is cut by a NE trending dyke 6" wide of 27843.

N 11 00 W 0 Sec. 32-64-9

After crossing valley with elliptically fractured greenstone on N. side we reach on S side at above location a very coarse massive dolomite. This grows even coarser as we go farther south.

27844 N 710 W 1975 Sec. 33-64-9

Exposures of a conglomerate much like 27842 begins here. Amygdaloidal character of the pebbles is well shown. Some but not many pebbles of vein quartz and gasper present. The conglomerate gets finer both to N and S. On the N. it is immediately overlaid by a fine to medium grained greenstone which grades up into a very coarse dolomite.

The conglomerate is bounded on the S by a valley. The south side of the valley is occupied by an ~~and~~ ellipsoidal + flatbedded amygdaloidal greenstone.

In the mass of conglomerate a portion of a bed or beds of volcanic conglomerate lying between thick lava flows?

The lava flows showing ellipsoidal + amygdaloidal character on surfaces + grading into massive coarse dolomite in the centers of the flows?

The <sup>ellipsoidal</sup> greenstone continues on south to N 400 feet across narrow valley then begins then exposures of dolomite.



N375 W 10 Sec. 32-64-9

Here I find in the matrix dolomite a small mass of contorted gashier, about 3' long and 18" across. Possibly a fragment caught in a flow or brought up by an intrusion?

As we go on south the dolomite grows coarser.

N75 W 0 Sec. 32-64-9

Ascend hill & pass over for fifty paces going S. exposures of gneiss + tuff metamorphosed to hornblende schists. The rocks resemble strongly those seen N. of Kawishwi river.

se

27845-

N20 W 20 Sec. 32-64-9

The tuffs are followed to S. by slates and graywackes in alternating bands. Some show false bedding. Strike of bands N50°W, dip 90°. These clastics are cut by quartz porphyry and also basic dykes. Narrow bands of fine conglomerate, one to four inches wide occur right in the slates.





27846

I continued to run on same N-S line which I have been following but failed to get connection for the town into which we now go. Hence locations are given as S. from S.E. Cor. Sec. 32-64-9. and Ford V. from this line which ~~which~~ is continuation of N-S. line between S. 32+33 T 64 R 9.

p. 81

27846

S 340 W 0 in Sec. 5-63-9

Vogel's?

Dyke of vogel's (?) 4' wide intruded along slate bands. Farther S. the dyke narrows down and cuts across lands.

Q.P.

27847

S 400 E 30 in Sec. 5-63-9

Rhyolite?

Dyke of aplit 10' wide following beds.

Q.P.

27848

S 75-0 W 0 in Sec. 5-63-9

Rhyolite

Mass of felsite looking in places almost like pitchstone. At places it seems to have been sheared and is then like a micritic schist. Felsite weathers with a very rough white surface. Going south it appears to grow coarser grained and at S 1500 it is a quartz porphyry almost a granite porphyry in fact.





Q.P.

27849 N970 W950 - Sec. 32-64-9

microgn.

Dykes of dense acid rock cut schistose  
ellipsoidal and amygdaloidal  
greenstone.

cyl

27934 S300 W0 Sec. 22-64-9

Start to run S. from NE. end of Moore  
lake. Ascended hill with N facing cliff of  
green schist and at above location  
reach outcrop of a coarse conglomerate.  
Pebbles are chiefly of quartz porphyry  
with others of greenstone and few of  
jasper. Matrix is green much like the  
green schist to N. trend of long direction of  
pebbles agrees with strike of schistosity N70°E.  
Cliffs of various pebbles, chiefly of acid rocks, with specimens.

cl

27935 S. 327. W 15- Sec. 22-64-9

Here is exposure of <sup>schistose</sup> Q rock which resembles  
the matrix of 27935. Scattered through  
this but not in very large quantity  
are large pebbles. These are chiefly of  
granite and quartz porphyry with  
few of greenstone and jasper.

Some boulders in the conglomerate  
are 2 feet in diameter.

It looks as though we pass from

on north  
 graywacke (green schist?) & graywacke  
 with scattering pebbles into coarse  
 conglomerate as we go south.  
 The pebbles in conglomerate vary so that  
 it runs as if at one place mainland  
 furnished chiefly granite pebbles at  
 other places gneiss and quartz  
 porphyry pebbles.

Continue south passing over some  
 beautifully developed conglomerate in five  
 large exposures. No bands show in exposures  
 until reach

S720 W O. Here get good strike of  
 N70°W, dip 40°N. This strike bends  
 around to E and get strike of N60°E  
 This seems to point to a syncline  
 pitching to E of north at angle of  
 40°-45°. If this structure is correct  
 then the conglomerate may  
 become thinner or disappear to  
 W. and may also disappear to  
 E if get into higher beds or may  
 find 2 bands of conglomerate on  
 eastern run, representing 2 limbs  
 of syncline.

Have put in with the spec. 22935-  
 a chip of graywacke & a piece of fine



conglomerate. Conglomerate seems  
as whole to grow finer as we  
go south.

h.w.

27936 S 875 W 85

Here begins a long exposure of graywacke  
which continues on to S. for some  
distance. In the graywacke—perhaps  
better designated as a grit—there are  
narrow beds of coarse conglomerate but  
varying in thickness from 3" up to 8"-12".  
Strike of such bands of conglomerate is N 60° W,  
dip 70° N.

A granite porphyry with large phenocrysts  
of quartz is the most striking rock seen  
in the cgl. and its pebbles seem to be most  
numerous.

Going on S. we pass some slate and  
graywacke but the slate is in small  
quantity and the graywacke is associated  
chiefly with conglomerate. From  
S 1300 on we are in conglomerate. Judging  
from mass of conglomerate piled over  
we could not be crossing strata but  
must have been running nearly  
along the strike.

h. 9.7  
 27937 S 2300 W 190 of starting point.  
 For several hundred feet we have  
 been passing over small exposures  
 of a rock like 27937. It appears to be  
 a gneiss though it may be a  
 sedimentary. It is cut by dykes  
 of feldspar porphyry.

7.  
 27938 (2) Ran W 900 fars and then N. Location  
 below are given from this starting point  
 on Moose Lake as above.

27938 S 1415 W 875  
 Rock from here on for some distance N.  
 seems to be a graywacke (or gneiss?)

Fr. Park.

27939 S 1360 W 900  
 Here I get a good fresh specimen of  
 a gneiss porphyry which where  
 rotten & covered with soil or moss is  
 schistose and then seems to be the same  
 as 27938.



S.

T.

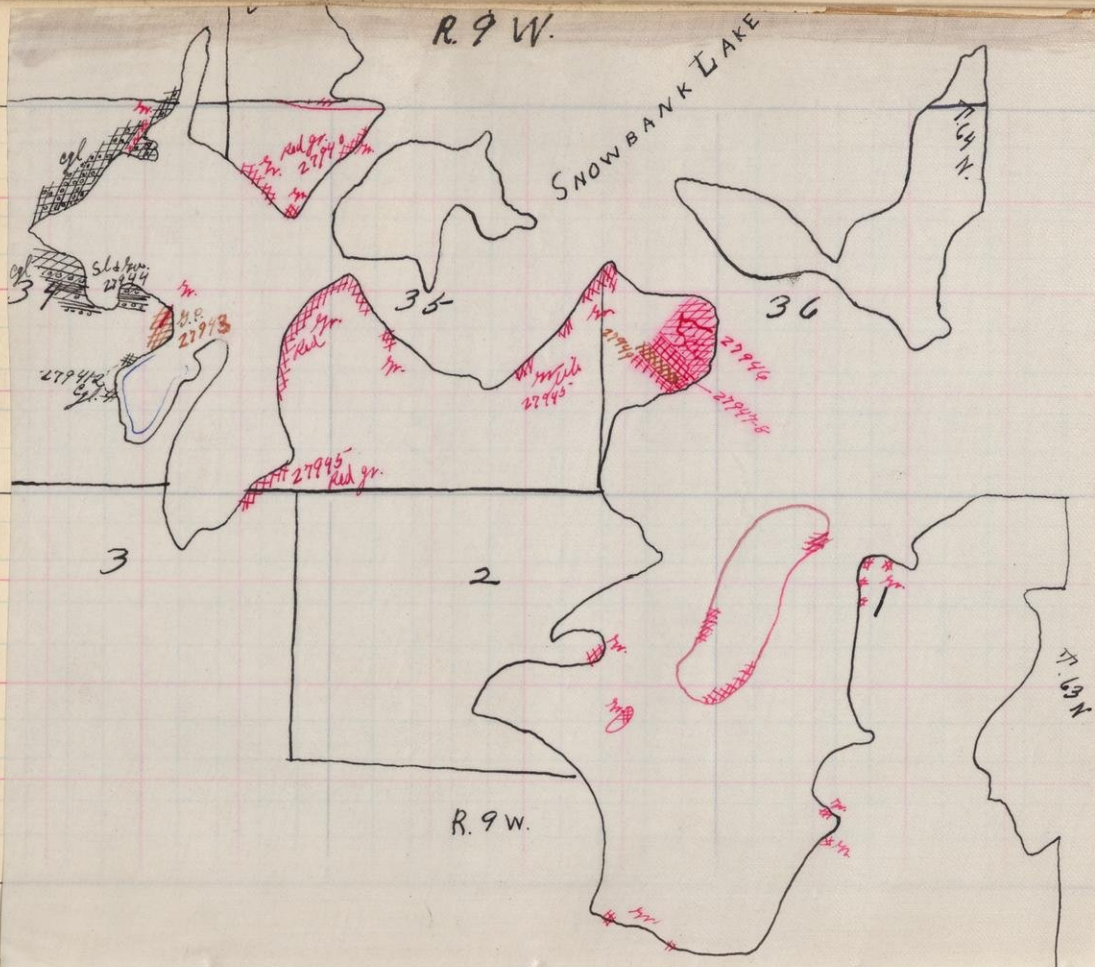
64  
03

R.

9 W.

R. 9 W.

SNOWBANK LAKE



In.

27940

Am to work the south west shore  
of Snowbank lake.  
Coarse red granite occurs along  
shore as indicated.

C

27941-2

Just back from shore there  
outcrops a grey conglomerate  
in which most of the pebbles  
are varieties of gneiss. 27941 shows  
matrix and granite (?) pebbles. Others  
may also be granitic 27942 but most  
are certainly coarse gneisses.

F. P.

27943

Grey feldspar porphyry forms  
point. Contains numerous small  
irregular basic inclusions whose  
characters I can't determine. Porphyry  
is cut by narrow dykes of fine  
grained red granite.

In.

27944

Slate and graywacke 27944 with  
some conglomerate like 27941-2.  
Strike of bands NW-SE, dip 80°-90°

In.

27945

Red granite from south shore of  
Snowbank lake.



p. si. (Barrett)

br  
27946-48

On this point I find several igneous rocks present and can get their relations.

The point is composed of a medium grained dark hornblende granite 27946 which gets coarser and then ~~from~~ lighter colored. This is cut farther inland by a medium grained red granite 27947 which occurs in narrow dykes a few inches wide and grades into a porphyritic grayish phase 27948. This granite is cut by a basalt 27949 dyke twenty paces wide which encloses pieces of it and near contact with a large mass of the red granite shows a distinct schlage.

Aug. 11.

Barrett

S. 23/24

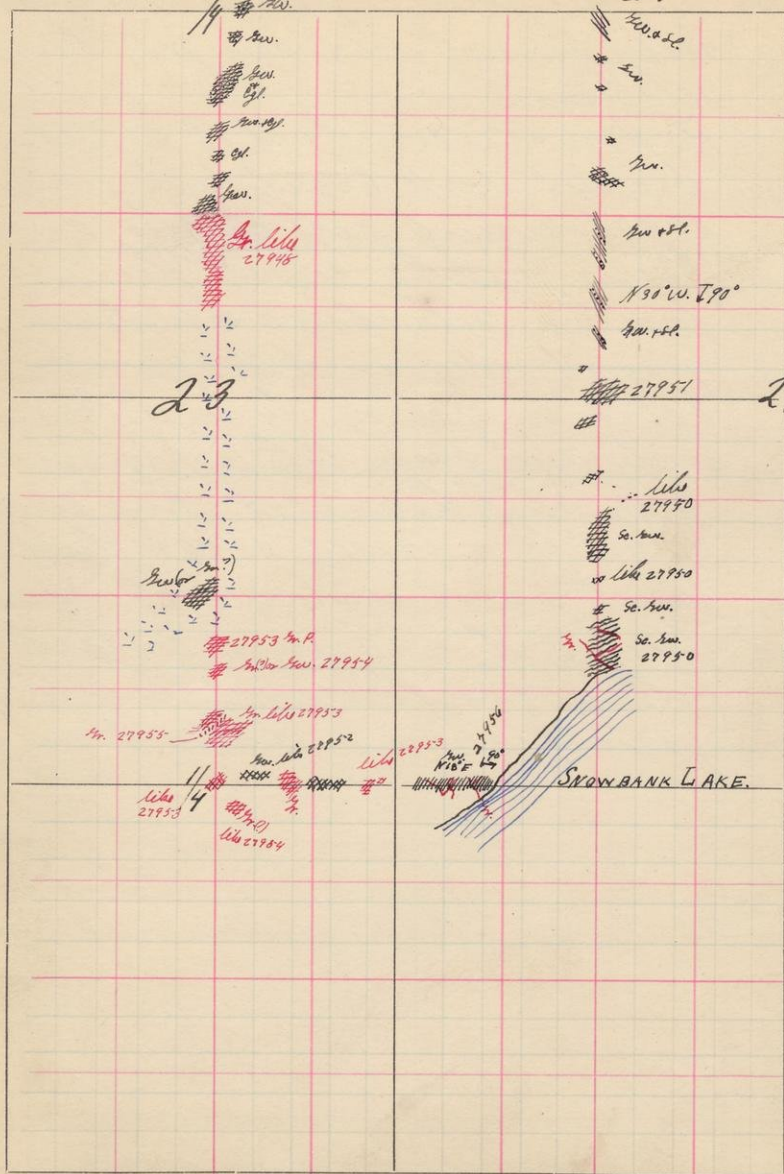
T.

64

R.

9

Cor.





27950  
(met. Sw)

N 300 W 0 Sec 23-64-9

42

Started on N. shore of Snowbank lake to run north along section line.

Lake shore consists of a complex of greenish grey bands of hornblende and mica schist cut and included in dykes of pink weathering granite like 27940. Strike of bands is apparently little N of E. South west of starting point I noticed on shore in passing a conglomeratic phase of the schists. It is probable that these schists are extremely metamorphosed sandstones and graywackes.

In going north I pass over a number of moss covered knolls with here + there a small rock exposure. Can get no relations or structures on them however.

Sw.  
27961

N 1025-W 0 Sec. 23-64-9

Hill formed of 27951 shows clearly banding of fine and coarse material. Strike N 50° W, dip 90°.

Sw.  
27952

N 730 W 0 Sec. 14-64-9

Exposure of slate and graywacke 27952. Bands strike N 10° W, dip 80°-85° W. Schistosity strikes N 10° E.





Going farther N. pass over  
exposures of similar slate with  
same strike prevalent N. 60° W.

At N 1500 I turn and run west  
and here find the strike has changed  
to N 30-40° E. dip 80° NW.

Seems to be a sharp flexure here  
or possibly even a fault in the slates  
trending NE-SW.

F. P.

27953

N 350 W 1000 Sec. 23-64-9

Porphyritic gray granite.

cut sw. ? by.

27954

N 220 W 1000 Sec. 23-64-9

Exposure of graywacke or arkose  
cut by porphyritic granite like 27953 (Granite?)

H. P.

27955

N 100 W 1000 Sec. 23-64-9

Loc 27953 is a trifle corner ground  
and is cut by a narrow dyke  
4"-12" wide of gray igneous rock 27955

Running E from S 1/4 P. Sec. 23 I pass  
large isolated but numerous exposures of  
rocks which look like quartzite or dike  
27952. Other exposures are of the arkose

S. 11/12 T. 63

R. 9 1/4

Cor.



11

1/4

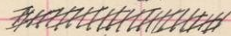
12

habbo  
28957



habbo.

habbo.



Cor.

1/4



or granite like 27953. Can't be sure of relations but it looks to me as though 27953 is along the  $\frac{1}{4}$  line intrusive in 27952.

Inv.

27956

N O W 300 Sec. 23-64-9

Specimen of graywacke 27956. This strikes N 10° E and dips 90°. It is cut by numerous dykes of a grey to pink granite like 27948 and is now metamorphosed to a mica schist or micaceous graywacke at least.

Continue around S. shore of Snowbank Lake joining on where left off at spec. 27949. When reached Sec line 11/12-63-9 ran south to get boundary between granite and gabbro.

(W) 27957

N 85° W 0 Sec. 11-63-9

Beginning of gabbro which extends on south in great bare exposures.

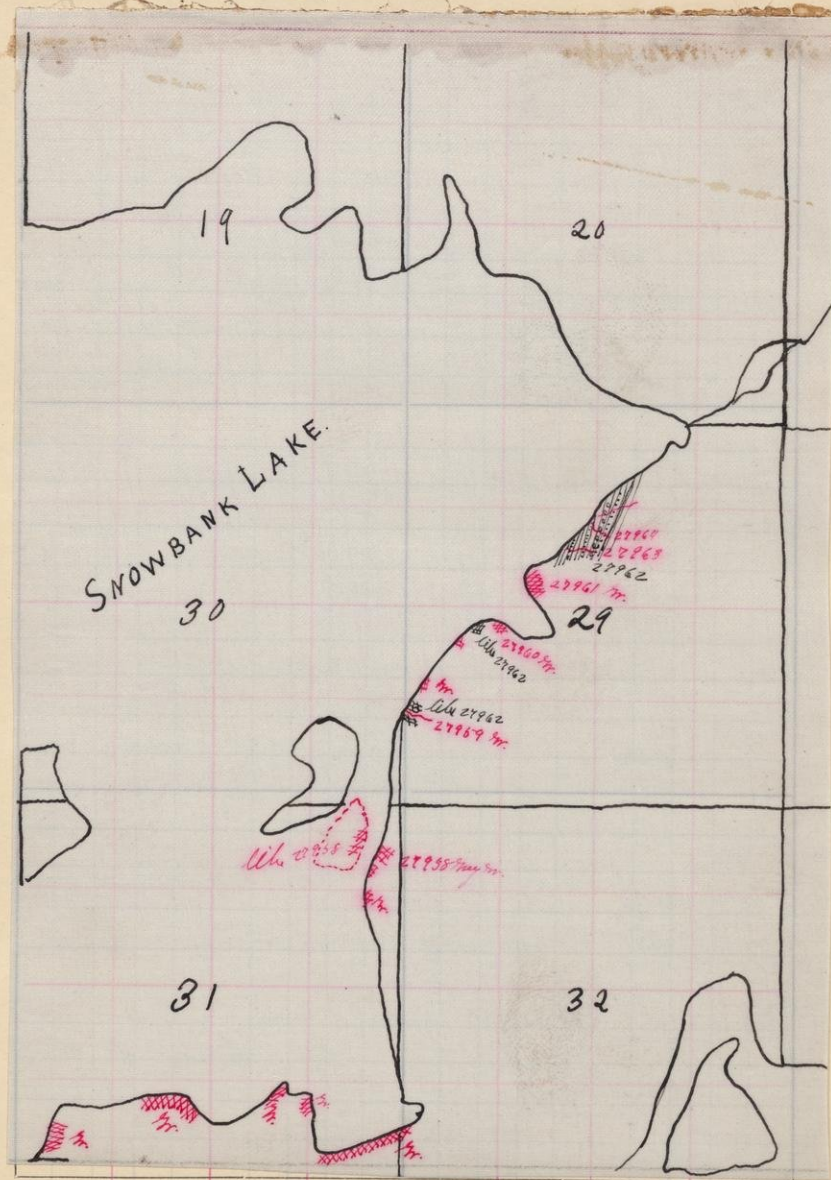
S.

T.

64

R.

8





Gr.

27958

Continuing east around south end of Snowbank lake I find a medium coarse hornblende granite ~~27958~~ which weathers pink from exposures on shore. At point located by 27958 the granite is finer grained grey but weathers pink and is but a facies of the coarse granite. Can get no relations.

Gr.

27959

Farther east I reach ledge which consists of a grey schist like 27962 <sup>27959</sup> cut by a fine grained red biotite granite.

NE. of this along the shore the usual medium grained pink to white weathering hornblende granite appears and at one place is present as dykes in a gneiss rock like 27962.

Gr.

27960

Brownish grey to reddish medium grained granite (augitic?).

Gr.

27961

Point across bay to NE of place from which 27960 came is composed of ~~dark red~~ rather coarse mica granite cut by dykes of basalt and aplite. No relations between the two observed.

Sw.

Sri

2796234

not so now  
granitiform  
U.S.

The NE. shore of lake just south of the outlet there is a large bare area in which excellent exposures can be seen. The rocks here exposed are interbanded sedimentaries, conglomerates, graywackes and slates - chiefly first two which strike  $N 10^{\circ} - 20^{\circ} E$  and dip  $90^{\circ}$ . These rocks have been much metamorphosed and are now mica schists or micaceous graywackes etc. Schistosity agrees with strike of bands.

This series of schists is cut by a grey porphyry like 27955. This and the schists are cut by numerous dykes of fine and coarse red granite 27963.

A few dykes of a grey to white weathering granite 27964 were <sup>rather squiggly</sup> seen but their relations to other igneous rocks could not be obtained.





Starting at end of portage from  
Round into Disappointment lake  
I canoed around West and north  
west shore examining exposures.

- c  
27965- A micaceous graywacke (or micaceous  
like 27962 is first seen. Both sandy  
and schistosity strike N10°E, dip 70°E.  
Farther on conglomeratic phases  
of the fragmentals appear. Spec. 27965  
shows some acid pebbles. Varities of  
quartzite constitute other pebbles.  
Fragmentals cut by dykes of red granite  
like 27963. Some pebbles show imperfect  
concentric structure probably caused by  
zonal alteration and production of new  
minerals.

- c  
27966-7 Here there are large well rounded  
boulders 2 feet in diameter in the  
clastic. Spec. 27966 comes from one of these  
boulders. In places the boulders lie in  
a slaty matrix 27967

- H.P.  
27968 Mass of rock showing no structure or relation.  
Is it gneissic mass in the clastics? or  
a massive graywacke?



C  
2796970127970 HB.P. is  
probably branch  
dyke for 27968.

The lake shores are bare & for some distance inland the exposures are large and numerous. On the point extending SE in Sec. 33 the exposures show the intertending of conglomerate and graywackes. Strike of bedding is  $N 30^{\circ} W$ , dip  $75^{\circ} - 85^{\circ} SW$ . Bedding as well as false bedding is perfectly plain here. Pebbles in conglomerate are of granite and acid porphyries and varieties of apophytic & coarse grained basic eruptives.

The clastics are cut by a dyke 8" wide of 27970. Chip gives contact of dyke with graywacke. (Compare chip sections with that of 27968. Are they not same?)

Clastics are also cut by dykes 6" to 5' wide of basic rock of bright green color and varying in texture from fine to coarse 27971

Pebbles in the conglomerate have their normal shape and do not seem to have been rolled out and flattened & pulled apart. The matrix however seems now to be crystalline and to be a mica or hornblende schist. Metamorphism was

probably caused by pressure, the fine matrix being most affected as thus the greatest movement would naturally be felt. Possibly the metamorphism is partly due to contact action although most of the dykes are too small to have had much effect. Study in this connection 27970.

I find the gneiss pebbles in the conglomerates are very commonly surrounded by concentric rim or rims apparently of different mineral composition. Acid pebbles were not noticed surrounded by such rims. In places where the pebbles are chiefly basic rocks the groundmass is more feldspathic than when pebbles of conglomerate are acid.

cf

27972

Specimen of conglomerate in which both in pebbles and matrix large secondary phenocrysts of hornblende have developed. This looks like gneiss conglomerate like that on Kawishwini river.

S. point

27973

Basic dyke varying in width from 2" to 3" cuts clastic. Has peculiar



rough surface and shows on fresh fracture rounded light green mineral areas surrounded by darker colored green fibrous rim.

At one place a basic dyke like 27971 can be seen to have been faulted but it has not been rendered schistose though the alteration which it has undergone is probably partly due to the dynamic action which faulted the rock.

Have only seen a very few and thus were very small, faults in the clastics.

g.?  
basic dyke?  
27974

Minette like rock cuts across bedding of clastics & in one place is parallel to the beds. Mica in the rock is arranged with general parallelism parallel to bedding of clastics.

Have noticed quite a number of basic dykes in this N. Western part of lake but no acid ones. They were very numerous south & west of here near contact of Snowbank granite with the clastics.

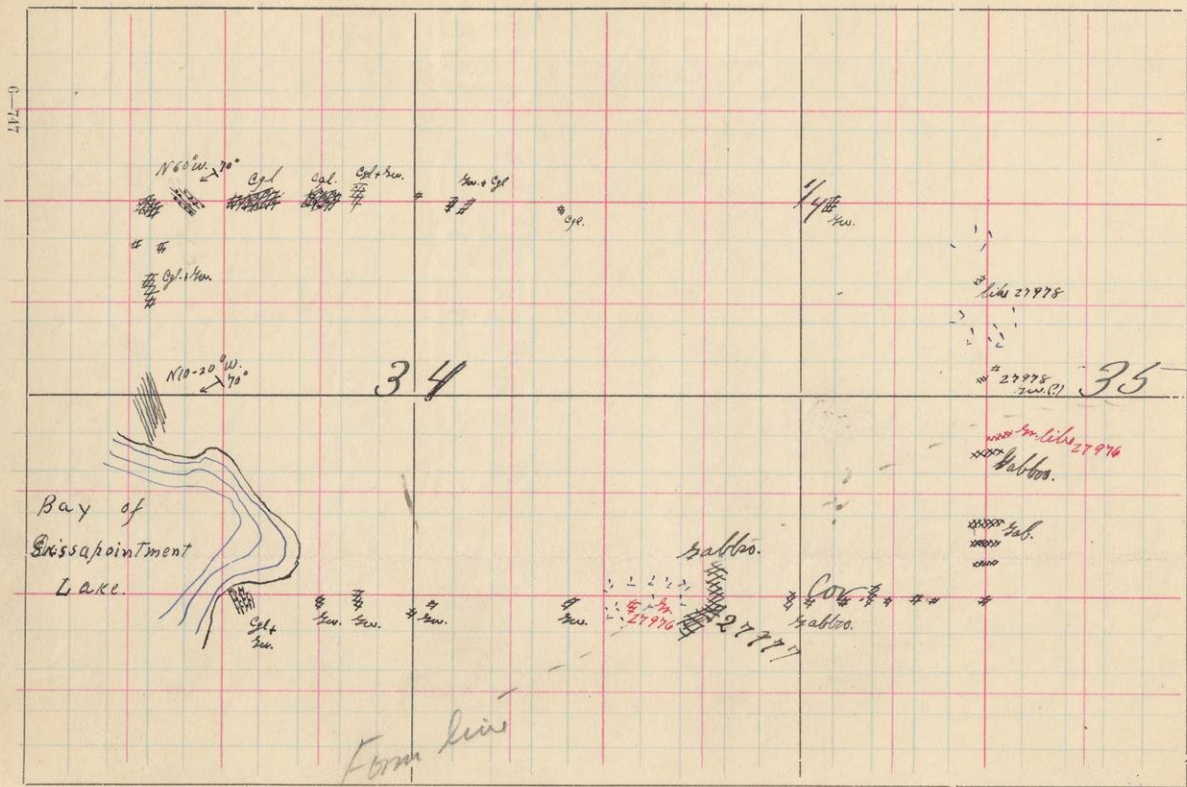
2. 34/35-

T.

64

P.

3





Have seen one dyke of aphanitic  
basalt cutting the sediments.

F.P.  
27975

Can get no relations between this and  
other rocks. It seems to be an acid  
porphyry and probably cuts the  
sediments.

Hb. Tr.  
27976

NO W <sup>425</sup>~~440~~ Sec. 34-64-8

Starting at lake shore (Desaffoint  
ment lake) in conglomerate and  
graywacke run E. along Town line.  
Found exposures poor and scarce;  
moss covered so that difficult to tell rocks.

At above location reach outcrop of  
grey granite 27976 showing no relations.

gab.  
27977

NO W <sup>375</sup>~~542~~ Sec. 34-64-8

Here coarse gabbro begins to  
appear in large bare hills. Very rotten.

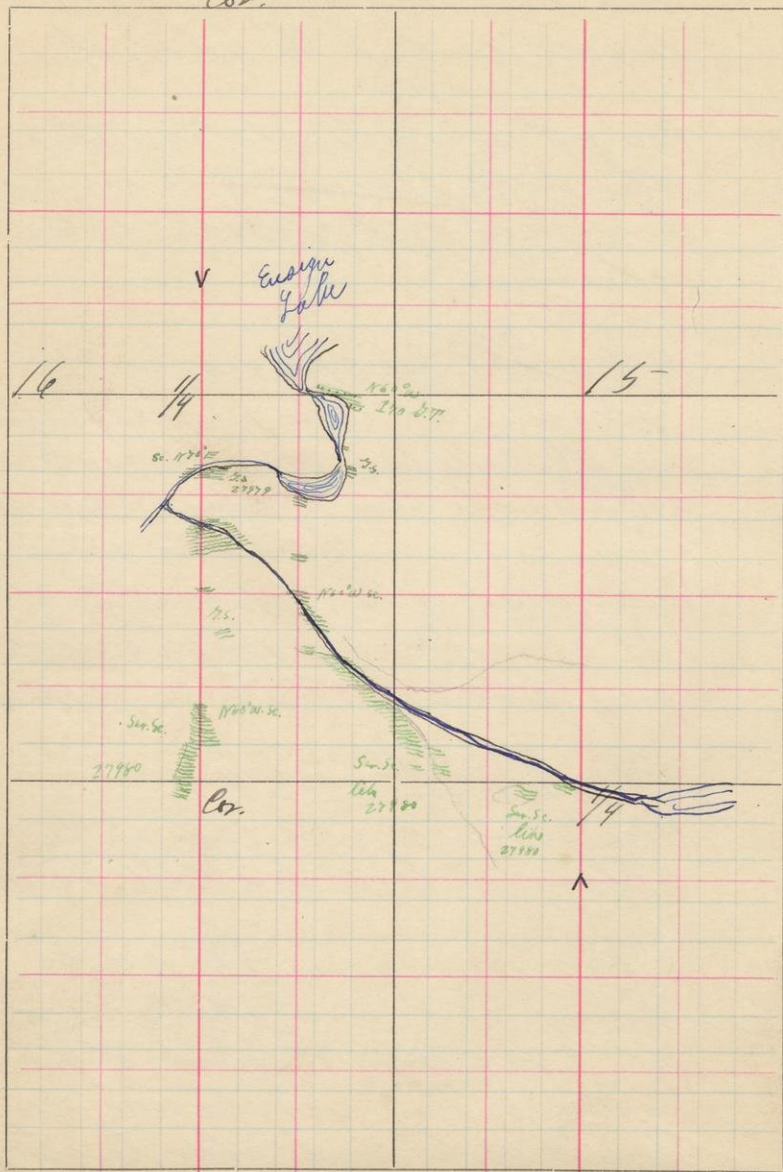
<sup>e</sup>  
27978

N 550 W 1500 Sec. 35-64-8

Running N. over gabbro reach  
at N 480 same kind of granite  
as 27976. Then no exposures are  
found until reach above location.  
Here find moss covered ledge of

S. 16/15 T. 64  
Cor.

R. *S*





very rotten dark gray micaceous  
 rock (micaceous gneiss or  
 quartzite). This seems to me to  
 be an altered form of the  
 clastics seen in fresh exposures  
 west of here on Desappointment  
 lake. It may have been altered  
 some by the gabbro which occurs  
 to south + E. of it.

sl

27977

N780 W 0 Sec. 12-64-8

Gneiss occupies both banks  
 of river here at head of first  
 rapids from Ensign (or Mt. Iron)  
 lake. Strike of schistosity N70°E dip 90°.

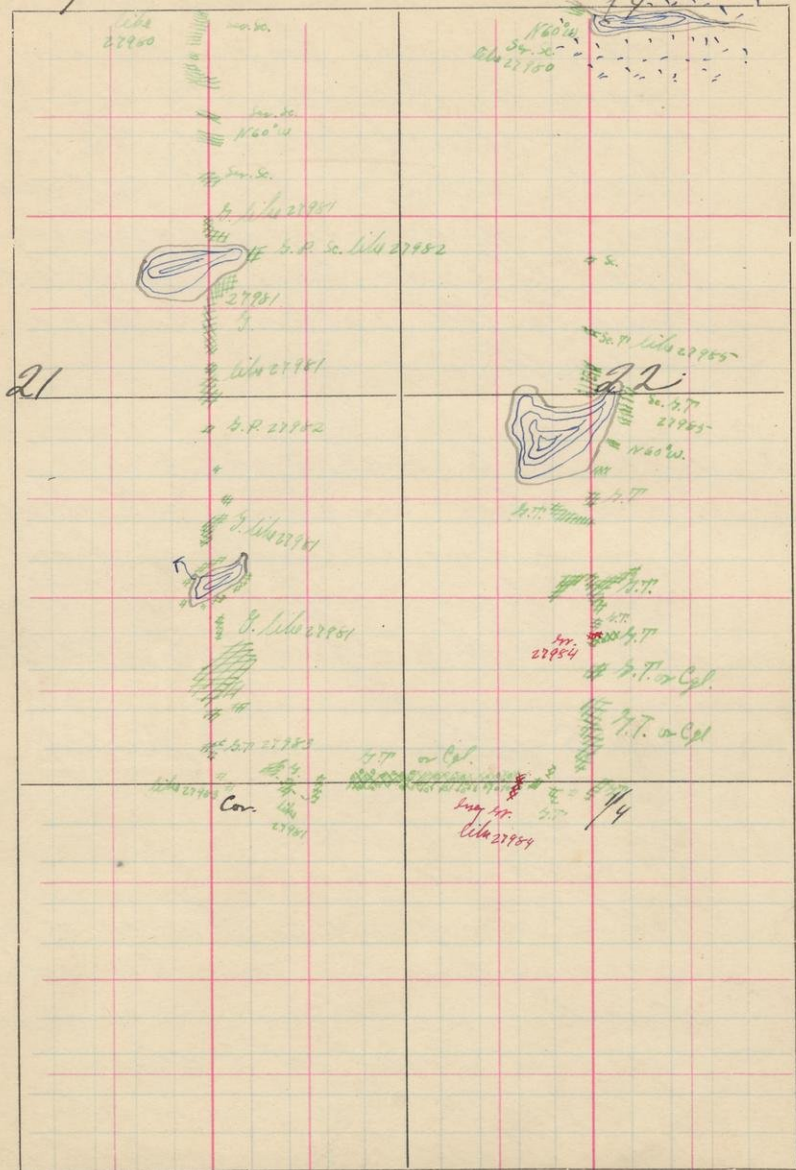
Young S pass over river covered  
 stages concerning whose character one  
 can tell but little.

N200 W 0 Sec. 16-64-8

Hill at this place is formed of an  
 exceedingly rotten micaceous (?) schist.  
 It breaks so readily and into such small  
 pieces that I can't get a specimen. It is  
 light gray to bluish gray in color and  
 differs from the green schist we  
 have been passing. 27979. Strike of schistosity

S. 2/22 T. 64

R. 8





sl  
27980

is N 80° W, dip 90. Some rock  
continues and at  
N 0 W 20 Sec. 16-64-8.  
got a fairly fresh specimen

stiff C?  
27981

N 130° W 0 SE. Cor. Sec. 21-64-8.

Forming hills on N + S shore of this  
little lake I find a dense greenish  
& gray colored rock with phenocrysts  
of quartz scattered throughout. Finer  
grained in exposures on S shore than on N.  
In places it is schistose and  
varies from a greenish to a cream  
colored schist.

Going around E end of lake I note  
exposures of greenstone - porphyritic  
with feldspar phenocrysts - which is  
in places very schistose and is then  
a green schist.

Is 27981 a micrified greenstone? The rock  
may all be fine grained greenstone sands or  
graywackes but I can see no fragmental  
characters on exposures

F.P.  
27982

N 93° W 0 Sec. 21-64-8

Porphyritic greenstone. More schistose

H.C. (tuff)  
27983

N150 W 0 Sec. 21-64-8

On top of this hill I find in one place a tufaceous rock 27983. Can get no structure on it. Fragments are small angular and can't be determined macroscopically. No relations to rest of exposures which show rock like 27981.

27983 is probably a tuff associated with basic lavas.

H.B.F.P.  
27984

N360 W1000 Sec. 22-64-8

Granite which cuts the clastics.

N830 W1000 Sec. 22-64-8

Reach lake and start around the east end. Pass from massive conglomerate into some which is very schistose and resembles the schist 27980. Strata of schistosity N40°W.

Pebbles are elongated in the direction of the schistosity. Could get no bedding. Farther E around lake come to a schistose granite originally probably like 27984

sw.  
(schist) NW

27985 N1040 W 925 Sec. 22-64-8

At east end of lake overlooking the





Again showing there is an excellent exposure of a well developed schistose tuff 27985. Strike  $N 60^{\circ} W$ , dip  $20^{\circ}$ . This is cut by schistose gray granite

Starting at camp camped around N. shore of West  $\frac{1}{2}$  of Ensign Lake.

(Hb. 2m.)  
27986

of these similar  
one on Pine Is.  
+ W. on Pine Is.  
of similar &.

Here is good exposure of fine grained schistose graywacke. Schistosity agrees with banding & strike  $N 80^{\circ} W$ , dip  $20^{\circ}$ . The graywacke is interbanded with a green schist. This green schist is apparently but a clastic derived chiefly from basic rocks and <sup>fragments</sup> alternating mainly to chlorite and epidote.

Farther east along the shore the graywacke is again seen alternating with green schist.

Shortly after entering long narrow E-W bay I find just where N-S. section line crosses on S. shore a good conglomerate with pebbles of granite, acid porphyry, vein quartz and slate. Matrix is schistose and green and similar in appearance to 27986. This looks like the conglomerate seen at Disappointment Lake and is certainly like that just south of Moore Lake. spec. 27934-5-6. While the



matrix is schistose the pebbles  
retain their usual shape, that is  
do not seem to have been flattened.  
Conglomerate is interbedded with  
graywacke.

