Crystal Falls region, Michigan: [specimens] 32068-32131. No. 287 1892

Maurer, E. R.
[s.l.]: [s.n.], 1892

LAKE SUPERIOR SURVEY

Crystal Falls Region
Michigan
E. R. Maurer

32068-32131

LAKE SUPERIOR SURVEY.

INSTRUCTIONS.

Topography.—On the left-hand page map as much of the section as has actually been seen, counting each of the spaces between the blue lines as 100 paces, and 20 of these spaces to one mile, or 2,000 paces. The scale is four inches to the mile, and the heavier blue lines, outlining one inch squares, mark forties. Denote streams, lakes, swamps, marshes, etc., by the topographical signs annexed.

The geologist will consult with the compassman, and describe as accurately as possible, the timber traversed. When pine is found, give its proportion; tell whether good or poor, and indicate kind—white, norway, jack. If hemlock is found, note the relative amount. In hard wood districts, designate as good or poor, heavy or light, and indicate predominant kinds, oak, maple, birch, etc. Cedar swamps, spruce swamps, tamarack swamps and meadow swamps will be always discriminated. Outline burnt timber.

Each day, just before leaving camp, the geologist will compare his own and the camp aneroids, and the reading of each, with time, will be recorded. At work the aneroid will be read on gentle slopes at intervals of 200 paces; on steeper slopes at intervals of 100 paces; also at all maxima and minima. When minima are streams the map and notes will indicate this, showing width and character of streams. When a stream has made a cut of importance, aneroid readings will be made where the banks break off and at water level. If instead of an abrupt break, the stream valley has steep slopes, aneroid readings will be made with sufficient frequency to show this character.

At reading points the compassman will stop, read the dial compass, and remain until the records are complete. The readings will, as fast as made, be placed upon the map at the right-hand side of the line traveled, and in the notes, the numbers being inclosed in parentheses, basing the work upon the bench-mark which served as a starting point. At bench-marks the absolute reading of the aneroid and the altitude as shown by the bench-mark will be recorded to serve as a base for subsequent readings. For instance, aneroid 29.13 inches; altitude on bench- mark, 275 feet. At each subsequent reading, by setting 275 on the altitude circle at 29.13 on the fixed dial, altitudes may be directly recorded. When the next bench-mark is found at two miles distance, the difference between the aneroid reading on the basis of the first bench-mark and the second bench-mark will be recorded. At intervals of a half hour during the day the time will be attached to the aneroid readings. Upon reaching camp, after the day's work, the geologist will record the readings of his own and the camp aneroid, and also the time. Interpolations will then be made, based upon the bench-marks and times (not distances) if the day has been one of no abnormal atmospheric disturbances, or upon both bench-marks and camp aneroid readings if there have been unusual disturbances, and the corrected numbers, less a constant of 4 feet, will be placed upon the face of the map at the left-hand side of the lines of travel, and in the notes without parentheses, but the parentheses numbers will not be erased.

At each aneroid reading the trend of a horizontal contour line will be indicated upon the face of the map, making the length of the line correspond as nearly as may be with the actual distance seen. In passing directly up or down a slope, the contour lines will be at right angles to the direction of travel. In passing up a hill diagonally the contour lines will intersect the lines of travel at various angles, which can be estimated and plotted with sufficient accuracy by an appreciation of the north and south direction.

The course of travel will be always north and south. In starting from a quarter or a sixteenth post, the work will be plotted on the assumption that the true course is followed, but upon reaching the next section line the geologist will remain in the position at which the line is struck by the compassman until the latter finds the adjacent bench-mark. The intervening distance will then be paced by the compassman, and the point of intersection of the section line marked. From this point to the starting-point, a right line will be drawn as the actual course of travel. The positions of the contour lines, aneroid readings, etc., will not be changed.

Geology. — In running the north and south lines, the compassman will, if possible, determine the course by the dial compass. At the time the geologist reads his aneroid, the compassman will determine the magnetic variation, which will be given to the geologist and recorded in the note-book. Each morning the watch of the compassman will be set to apparent time (corrections being made for the equation of time and for longitude), so that he will need to make no correction in reading magnetic variation. On cloudy days, and at times when the sun is too low for the use of the dial compass, the course run will be by needle upon the supposition that the magnetic variations indicated on the township plats are right when corrected by deducting 3° if the variation is east, or by adding the same amount if the variation is west.

Not less than once per week the accuracy of the watch of the geologist in charge of a party (who will give time each morning to the compassmen), will be tested. This may be done, first, by obtaining correct time from a railway station by means of a packer when sent out for provisions. Such time will be mean, i. e., watch time for the nintieth meridian. Second, corrected time may be found by blazing out a north and south section line, preferably a range line, for some distance, setting a signal on the line and placing the dial compass duly leveled, in a north and south direction upon a Jacob's-staff just before mid-day, and setting the watch at 12 at the time the line strikes the noon hour. In a watch thus set all corrections are made.

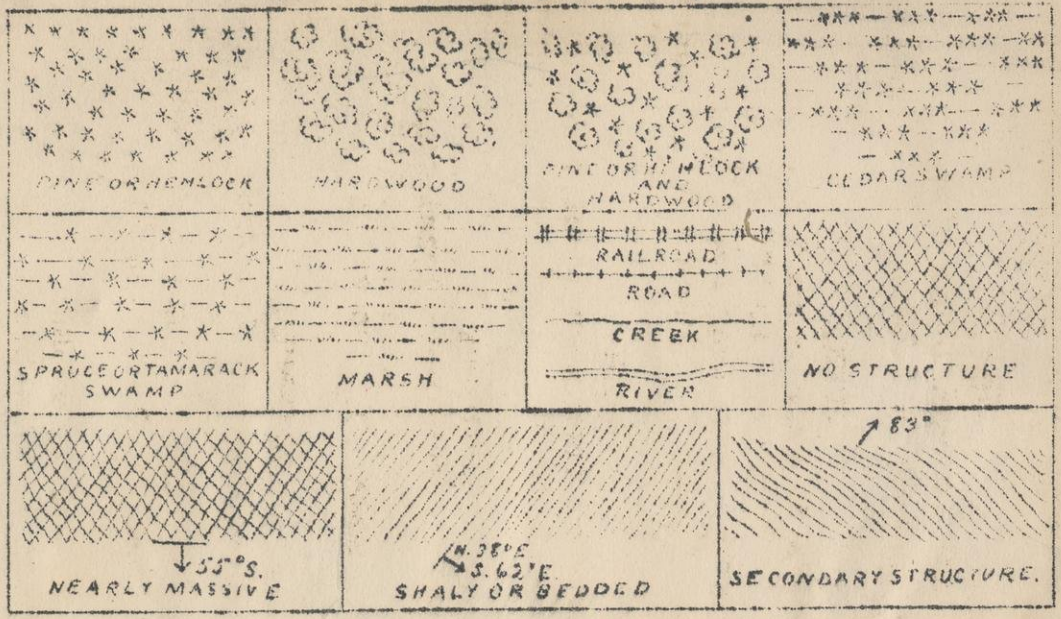
It will be the constant business of the geologist to search for outcrops. All hills within a reasonable distance of the course of travel will be examined. Oftentimes upon the steeper slopes of a hill a rock surface is covered with a coating a few inches thick of moss, leaves or vegetable mold and can be stripped with the pick. Where the exposure is small and there is the least possibility that it may be a large bowlder, indicate this fact in the notes and by a query on the map. All ledges off the line of travel of the compassman will be located by the geologist pacing to this line in an east and west direction, his course being determined by compass.

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, having strike line and dip arrow with numbers attached. 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 specimens representing it. On the right hand page place the notes descriptive of the exposures. Begin in each case with the number of the specimen, placing the number on the left hand side of the red line, after which give in order on the right of the same red line, the position of the ledges as reckoned in paces from the southeast corner of the section, and the dip and strike when observable, for instance, *No.* 437, 1226, *N.*, 353 *W.*, *Strike*, *N.* 47° *E.*, *Dip*, 68° *S. E.* Then follow with as full a description of the ledge as possible.

Collect a specimen from every ledge, and if the ledge exposes different kinds of rock, collect a specimen of all varieties. Take care to get fresh material, unless for a special purpose the weathered surface is desired. Where ledges are infrequent the normal size of specimens will be 3x4x1 inch. In case several specimens of the same ledge are necessary, and when ledges are numerous, specimens 2x2½x¾ inch will be allowed. In all cases collect chips for slicing. No two specimens will be given the same number. In the cases in which several specimens come from the same ledge, the different numbers assigned to them will enable an easy description of their relations. Specimens will be placed at once in paper bags provided, upon which shall be marked in at least two places, with a blue or red pencil, the specimen number.

TOPOGRAPHICAL SIGNS.



TIME EQUATIONS FOR 1892.

Days.	Min.	Days.	Min.	Days.	Min.	Days.	Min.

MAY.

Add to mean local time.

1- 5	3	6-21	4	22-30	3	-31	2

JUNE.

Add to mean local time.

1- 5	2	6-10	1	11-15	0

Subtract from mean local time.

16-20	1	21-24	2	25-29	3	-30	4

JULY.

Subtract from mean local time.

1- 5	4	6-12	5	13-31	6

AUGUST.

Subtract from mean local time.

1- 6	6	7-13	5	14-17	4	18-22	3
23-25	2	26-29	1	30-31	0		

SEPTEMBER.

Add to mean local time.

1-	0	2- 4	1	5- 7	2	8-10	3
11-13	4	14-15	5	16-18	6	19-21	7
22-24	8	25-27	9	28-30	10	-31	11

OCTOBER.

Add to mean local time.

1- 3	11	4- 7	12	8-11	13
12-15	14	16-21	15	22-31	16

Dip at Amasa 76°20' ±

SEPTEMBER.

Add to watch time.

1- 2	0	3- 5	1	6- 8	2
9-11	3	12-14	4	15-17	5
18-19	6	20-22	7	23-25	8
26-28	9	29-30	10		

OCTOBER.

Add to watch time.

1	10	2- 4	11	5- 8	12
9-12	13	13-16	14	17-22	15
23-31	16				

NOVEMBER.

Add to watch time.

1-13	16	14-19	15	20-23	14
24-26	13	27-29	12	30	11

BOOK NO 2 1892

E. R. Maurer Geologist
Felix Garcia Compassman

June 3 to July 13

Spec nos. 32068 – 32131

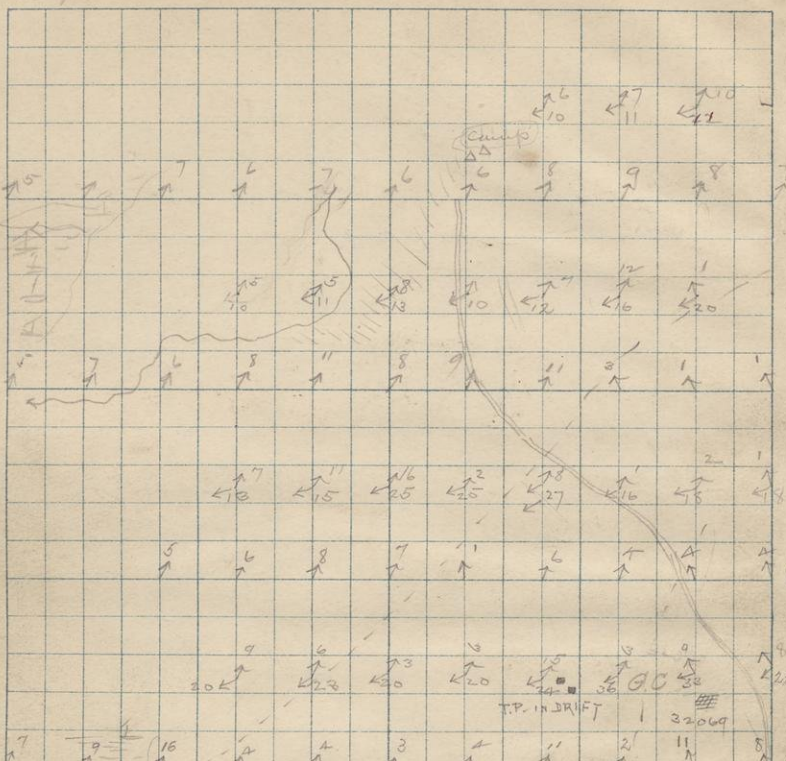
Dips and intensities on the first 16 pages are at the lower margin of the page and correspond with variations as map above on each page.

Intensities are ½ vibrations in 15 seconds.

After page 16 the intensity readings were discontinued and the dips were put on the map at the places where taken and are positive (N and down) in all cases except when a contrary dip is indicated by minus sign

2

SE 1/4 S. 20 T. 45 R. 33



1000 N										
750N	+12 10	+10 10	+10 10	+12 10	+12 10	+12 10	+12 10	+10 10	15 10	12 10	16 10
500N	+12 10	+12 10	+12 10	+14 10	+15 10	+19 10	+20 11	24	33	23	
250N	+14 10	+16 10	+16 10	+17 10	+18 10	+20 10	+24 10	16 10	+32 10	+28 10	+15 10
0.N	+17 10	+17 10	+23 10	+30 10	+20 10	+25 10	+18 10	+22 10	+30 11	+28 10	+13 10

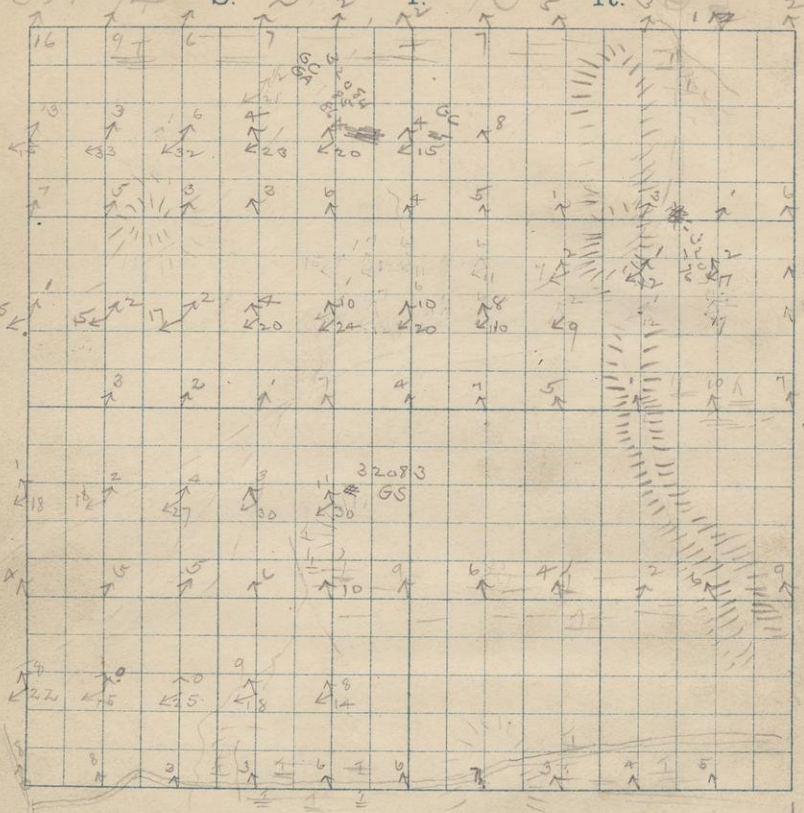
32068 Q. 1900 N 900 W of SE cor 28-45-33
Greenstone (diabase) outcrop.
Whole ledge is crystalline like spec #
~~There are no~~ are no other kind
here.

32069 Q.C. 100 N 100 W of SE cor 20-45-33
Greenstone and conglomerate
schist. Spec. shows no
pebbles but areas occur in ledge
that I took to be pebbles.

32070 Q.C. 1000 N 700 W of SE cor 21-45-33
Greenstone schist -
Strike of cleavage S 15° E Dip 85° E
I think this cleavage is only
local in the ledge. Most of
the ledge is old greenstone congl.
There occur also hard fine
grained greenstones here; all of
the varieties I think are
dykes in the cong.

4

SW 1/4 S. 21 T. 45 R. 33



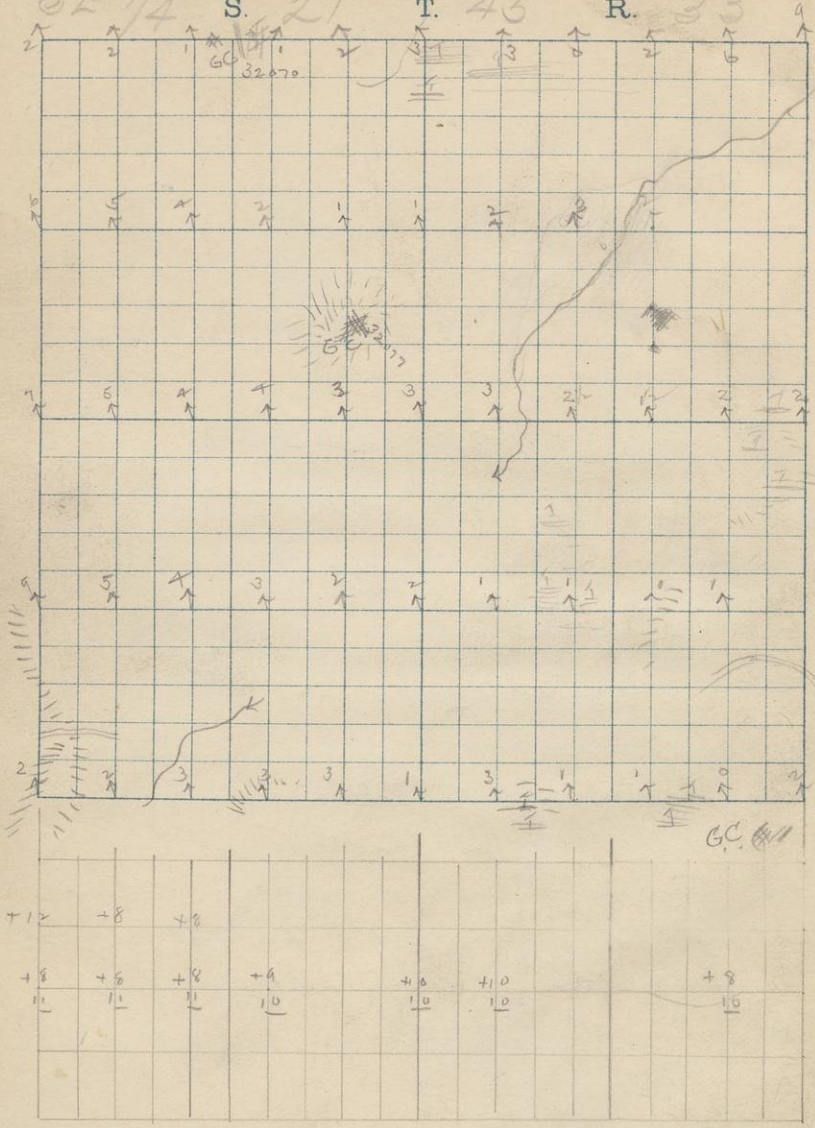
Dip +20	+18	+21	20	+20	+25	+21	+15	+20		
INT. 11	10	10	11	10	10	11				
Dip +15	+18	+21	+20	+15	+12	+10	+10	+15	+20	+12
INT. 10										
Dip +20	+20	+20	+23	+30	+21	+14	+11	+12	+15	
INT 10	10	10	10	10	10	10	10	10	11	
DIP	+20	+25	+33	+15	+15	+13	+11	+17	+23	
Dip +15	+17	+14	+14	+17	+8					
INT 10	10	10	11	10	10					

3207/ Q.S.F. 600 N, 100 W of SE cor 21-45-33
Greenstone schist?
Small knob which is ledge
no doubt but only a few
fragments are exposed.

3207/2 Q.C. 1500 N, 900 W of SE cor 21-45-33
Specimen looks like squeezed
altered dyke. The ledge is
mostly greenstone conglomerate.
at 1500 N and 600 west
is a ledge of greenstone I think.
I could not find ledge Q.W. got at
it but at this location is a suspicious
looking ridge. Attractions are
high but this seems point and are
due to ledge under the ridge I think

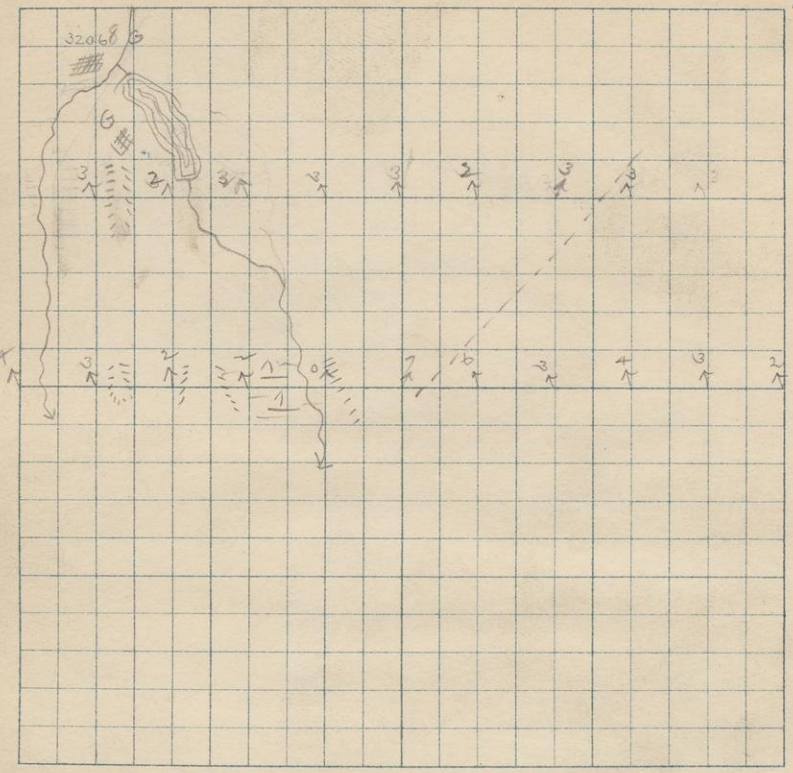
6

SE 1/4 S. 21 T. 45 R. 33



32073 1250 n 600 W. of SE cor 21-45-3E
G.C. Greenstone Schist. F.[illegible]
This specimen is from east side of a hill in swamp which I think is all ledge. At various places it is exposed and weathers it resembles the old greenstone congl. in its weathering its various imperfect cleavage or foilings. No good weatherings of pebbles are seen however. and whether it is a congl or not I can not say. I think tho' that it belongs to the same general class and may be called an ash.

8 NE 1/4 S. 28 T. 45 R. 33



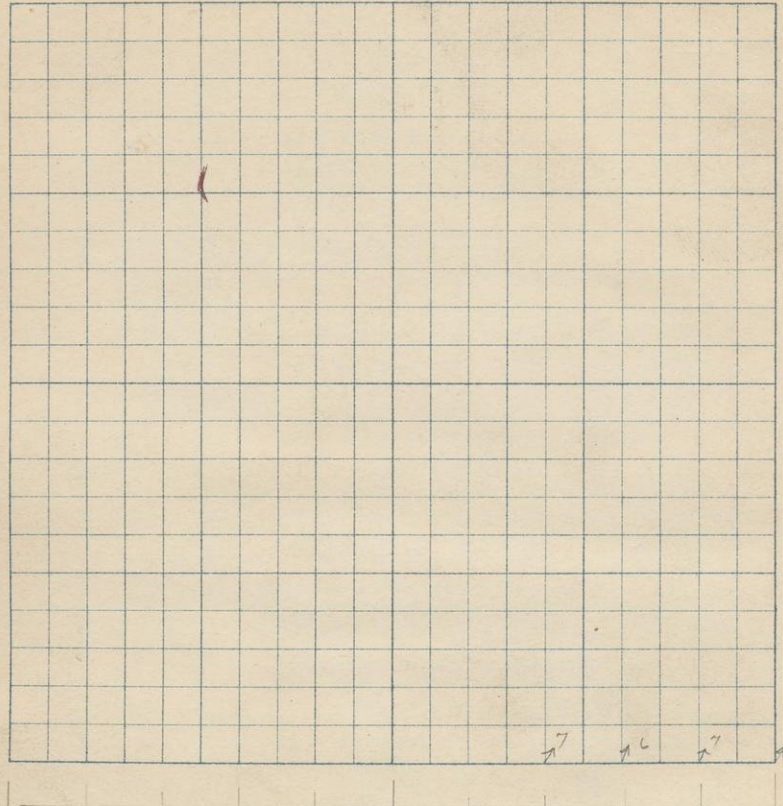
+8 +10 +7 +6 +6 +7 +12 +6

+20 +6 +10

32074 1250 N - 50 W of SE cor 21-4V-33
A.S.F. Greenstone ferruginous
from a pinnacle low exposure
which looks like an intruded
boss. The rock in this hill
looks more like the old greenstone
tongle.

32075 1150 W - 750 N of SE cor 21-4S-23
32076 Greenstone schist sedimentic.
A.C. From prominent knob covered
with large fragments.
The one spec. is weathered and
shows iron oxides: the other is
fresh and contains glassy crystals
of (?). ~~How~~ The two rocks
seem quite different in content
of iron.

10 S.W 1/4 S. 20 T. 45 R. 33

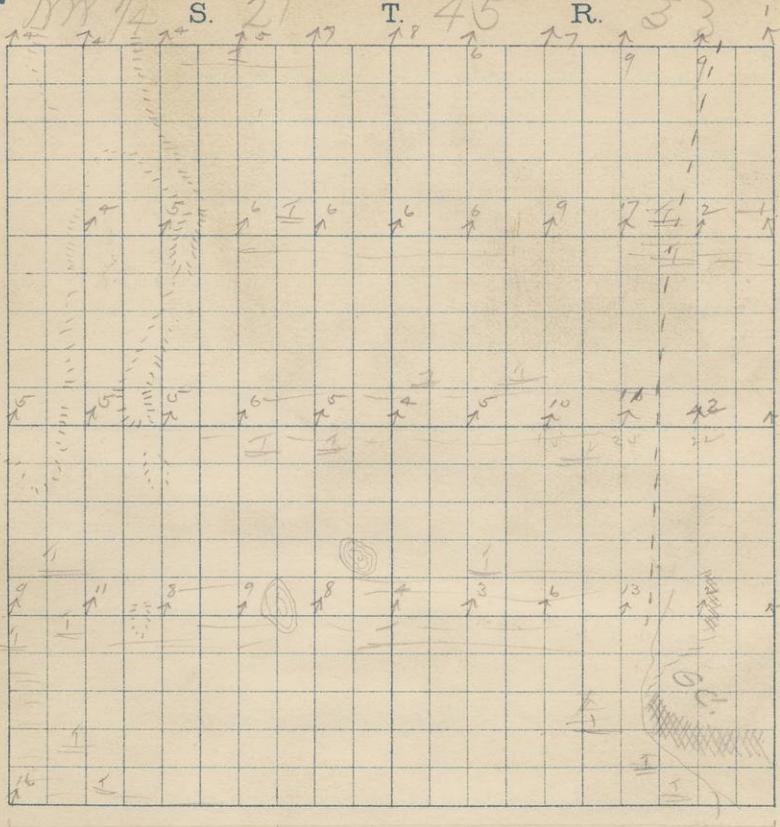


+15/10 +15/10 +17/10 +18/10 +17/10 +17/10 +17/10

3207 600W - 600N of SE cor - 21-45-33
G.C.

Typical conglomerate -
large and small pebbles - weather white and show prominently.
Matrix is both fine grained and coarse or ashy. Rock breaks with knobby fracture and it is hard to shape into specimen. Predominant direction of arrangement of pebbles and elongations of same is about N 40 W. This I would hardly call true strike.

NW 1/4 S. 21 T. 45 R. 33



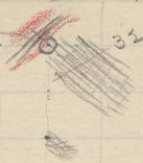
+8 +8 +8 +12 +11 +10 +10 +21

+8 +10 +8 +8 +10 +10 +11 +18 +28

+15 +13 +16 +20 +22 +19 +12 +15 +22 +19

DYKE - 32080

200 W
650 N



SE cor 21-45-33

Small out crop

32078
v 79
G.C.

180 W. 650 N. of SE cor 21-45-33

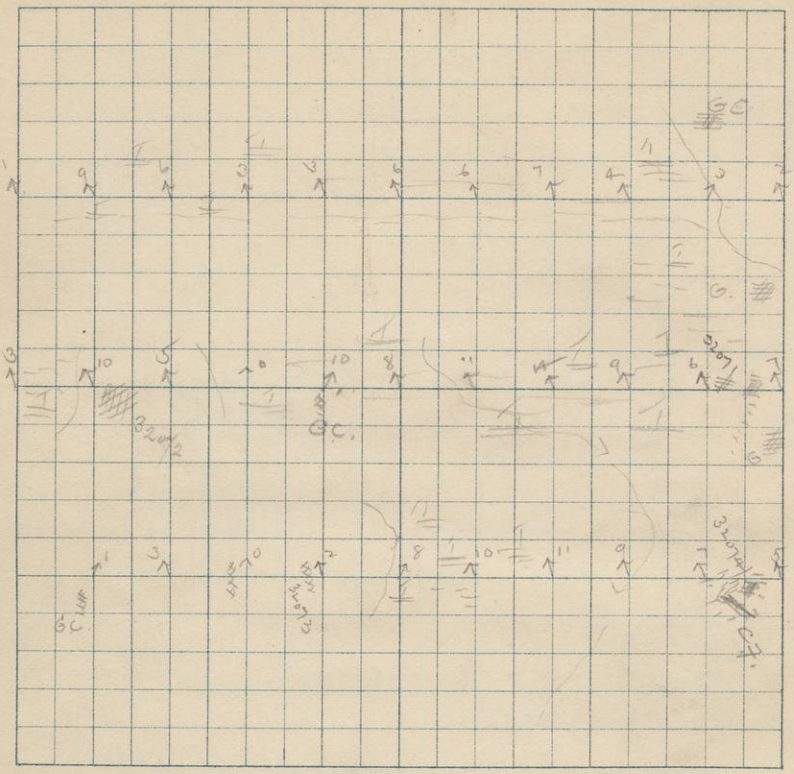
Breccia conglom. and ash and amygdaloid. This rock is somewhat different from any yet seen. Contains large and small fragments that possess some general arrangement in ledge and in one spot show flow structure on large scale. Strike of this arrangement in lines is N. 60 W. and is 3 below true bedding of the flow. The amygdaloidal phases always occur in the pebbles or fragments and not in the matrix

Across the N.E. end of the ledge cuts a big dyke like spur.

32080
G.

Breccia (dyke) contains fragments of 32078-9 and cuts across the ledge

14 NE 1/4 S. 21 T. 4S R. 33



+27 +18 +13 +11 +13 +10 +8 +9 +10 +5

+28 +18 +12 +10 +20 +28 +20 +15

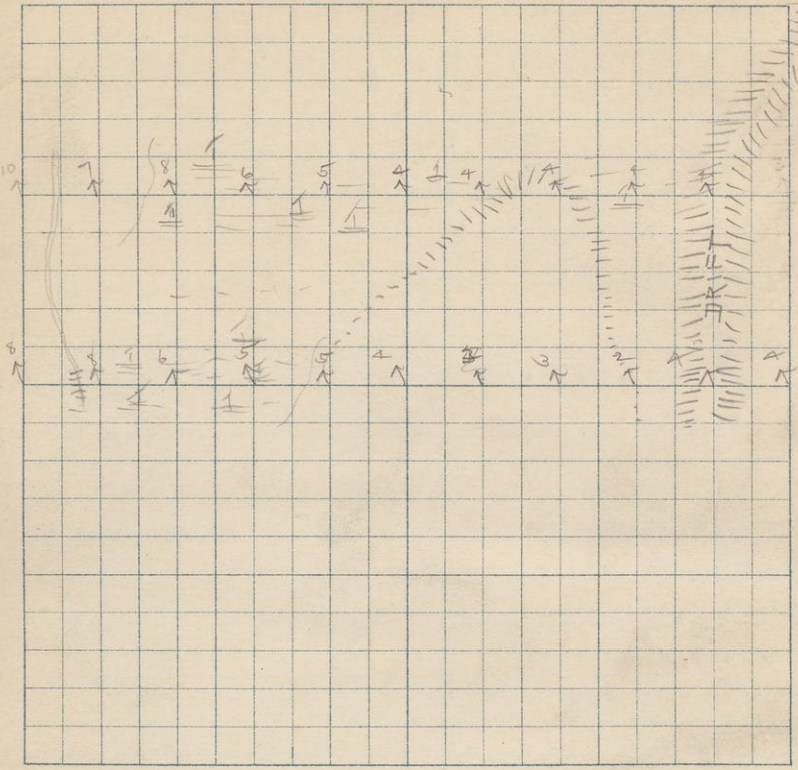
+25 +12 +15 +13 +16 +20 +12 +10 +9

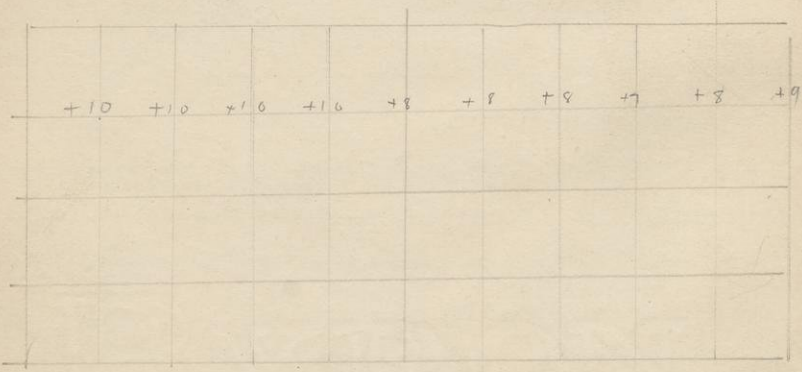
at strike N 50 E. – perfectly massive)

At 200 W 600 N. of SE cor. 21-45-23 is an isolated ledge of rock like 32078-9 but has more cleavage and cracks readily in many directions. Predominant cleavage coincides with strike of larger ledge. This cleavage is not bedding for the large pebbles possess it as well as the matrix.

The dyke spec. 32080 precedes 32068 at 1900 N 900 W of SE 28-45-33

16 NW 1/4 S. 28 T. 45 R. 33

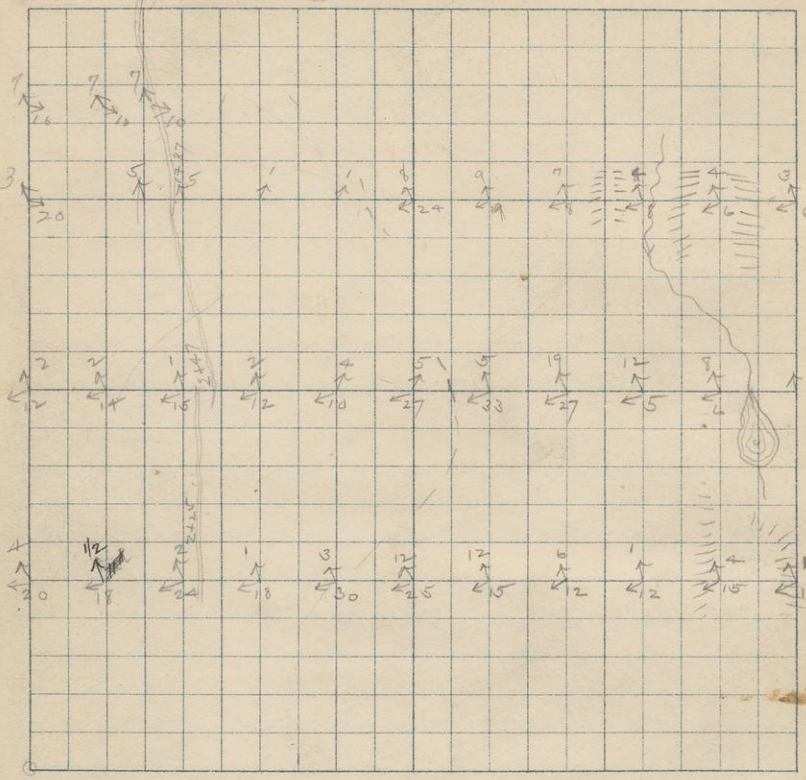




32081 500 N. of SE cor 28-45-33
Massive porphyritic grunstone.
From numerous samplings of
this ledge it appears to be like
specimen altho. on weathered
surface in some places it
looks like conglomerate

32082 75W 250 N. SE cor 28-45-33
G.C. Grunstone bowlder (?) small
ledge on west slope.
The is magnetic rock (see plat)
Specimen fails. needle. This ~~line of attraction is on~~ outcrop is
on a line of attraction

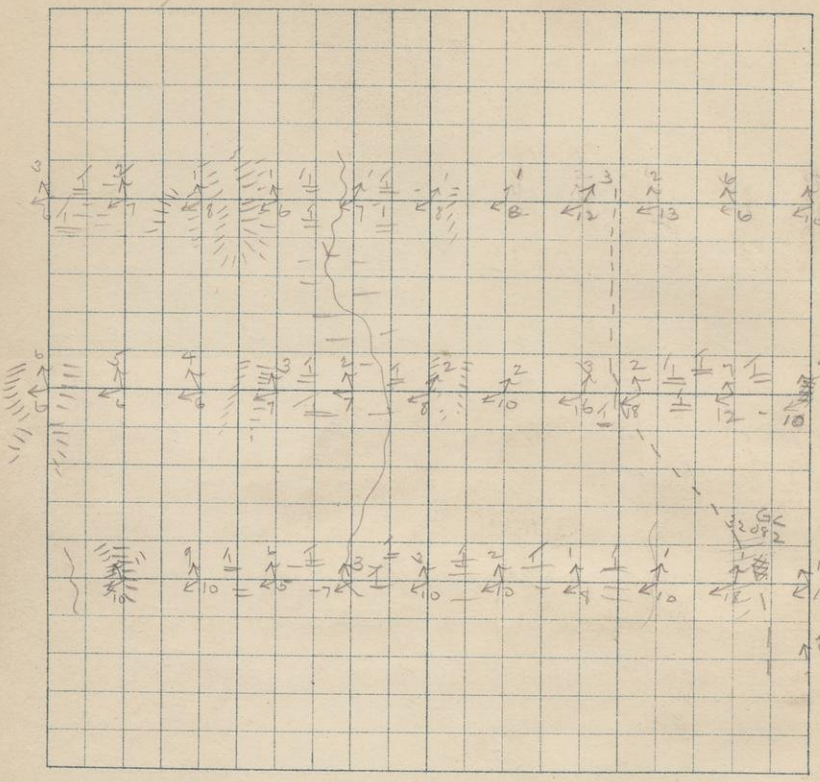
18 SW 1/4 S. 28 T. 45 R. 33



32083 400 N 1575 W of SE cor 21-45-33
G Greenstone schist or (Mica Sch?)
Whole ledge uniformly fine
grain like specimen and
contains no pebbles.
The red spots (squeezed garnets?)
are not numerous in ledge

32084 } about 0850 N 1550 W SE cor 21-45-33
32085 } Here is a large ledge of
32086 } volcanic rock that is mostly
&c. } greenstone. The ledge
shows some structure - strike
about S 75° E Dip vertical or
to S. On top (& south) are
32084 } spotted schist (Hbl. schist)
32085 } and about this a
coarse amygdaloid.
about 100 paces east
is another ledge of greenstone
being.

20 SE 1/4 S. 28 T. 45 R. 33



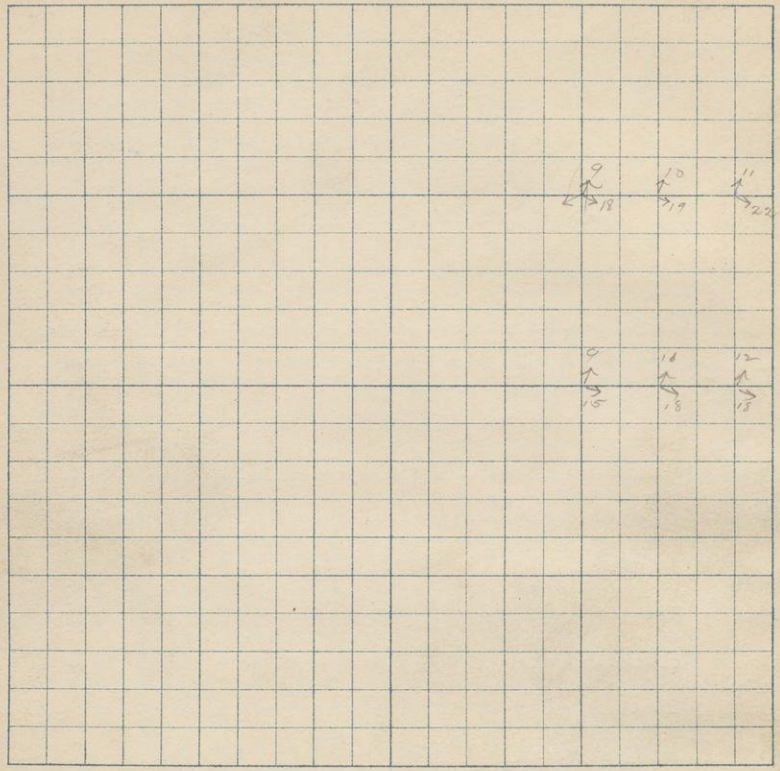
32087 } 1500 N – 400 W SE cor H-44-33
32088 } " 500 " "
32089 } " 650 " "
QC.

On the N 1/8 line from 400 W to Amelock Riv. is practically on ~~dyke~~ ridge. Everything in the ridge is nearly massive. 32089 exhibit some arrangement of pebbles, or fragments, strike of which is 5-10° S of E east. I do not think this is bedding, but rather cleavage. Here and there are hard fissile greenstones with many cleavages. All seems to be of igneous. 32089 is the predominant rock here. a large ridge of it is at 1750 N 600 W

32090 1525 N 650 W. SE cor H-44-33
QC. Dyke? fine greenstone

32091 1475 N 700 W SE cor - H-44-33
QC. Finer variety of Lava.

22 NE 1/4 S. 5 T. 44 R. 33



Q.A.
32092 1500 N - 750 W AE cor 4-44-33-

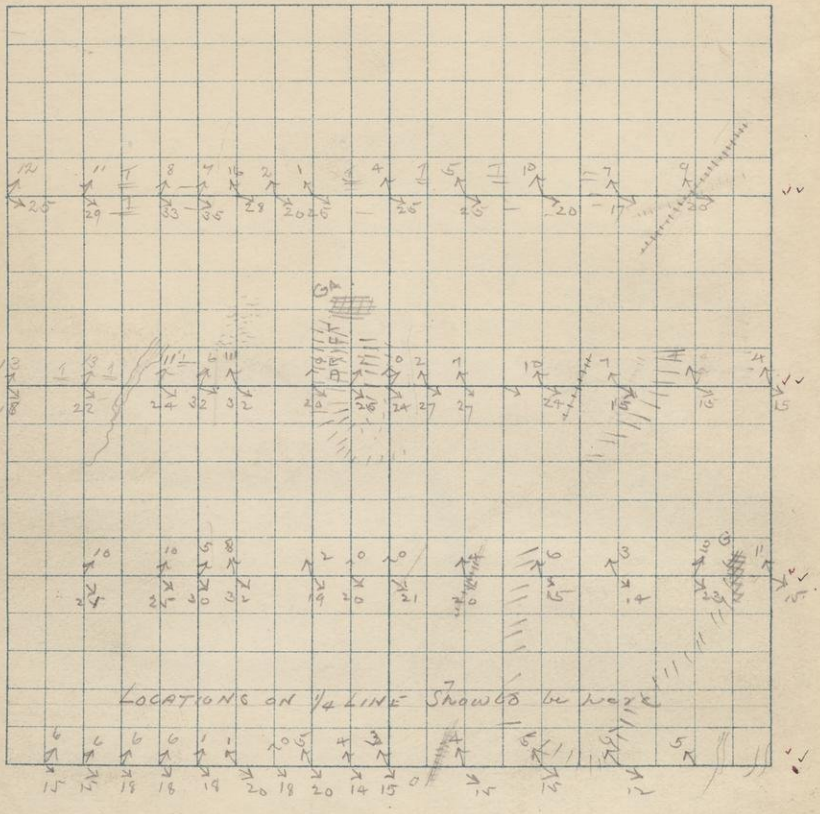
32093 Q.A. " " "
Greenstone - amygdaloidal and
fragmons.

32094 1250 N. 125 W AE cor 4-44-33
Fine grained greenstone.

32095 1100 N - 900 W. AE cor 4-44-33
Q.C. Greenstone conglomerates -
Lava.

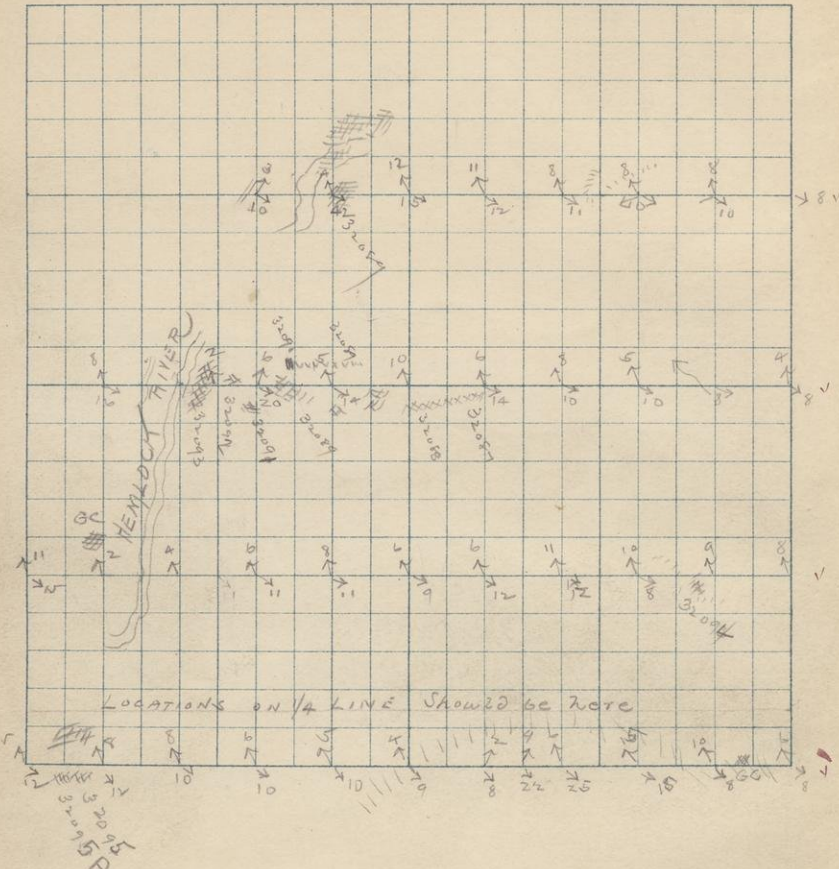
32095A 1100 N - 900 W AE cor 4-44-33
Q.C.

NW 1/4 S. 4 T. 44 R. 33

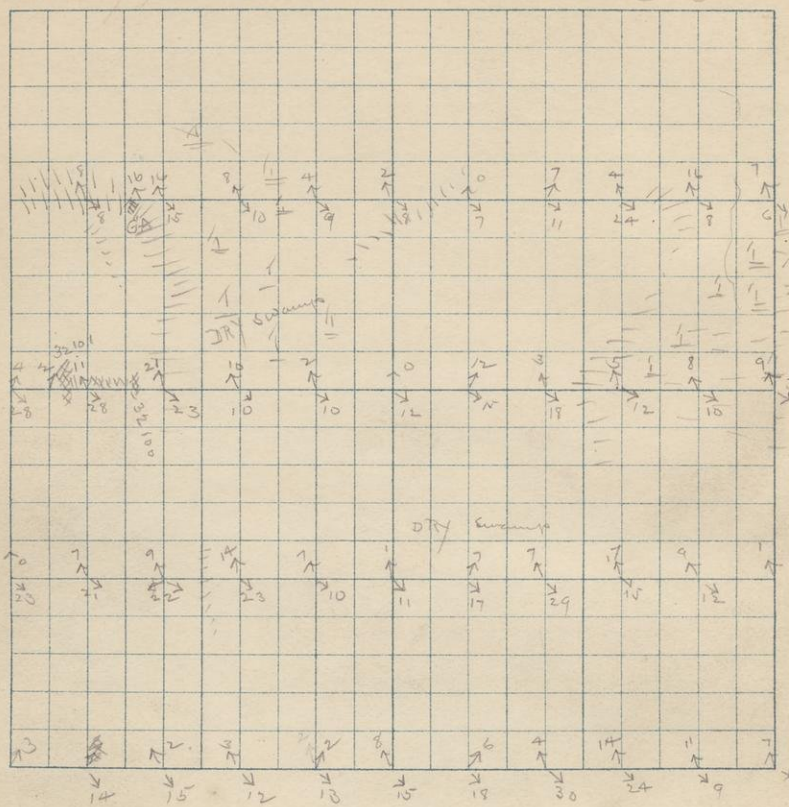


26

NE 1/4 S. 4 T. 44 R. 33



28 SE ¼ S. 4 T. 44 R. 33



Think they are vein filling &c.

32096 } 750 N 1225 W of SE cor. 4-44-33
32097 } " " " "

Limestone (massive) on top of hill east of Hemlock Mine. Chirty and ferruginous.

32098 About 20' south is a bed of fine grained also massive. There is no contact and no way to discover relative age.

32 To the north and east are many exposures of grandstone angl. ~~quartz~~ like

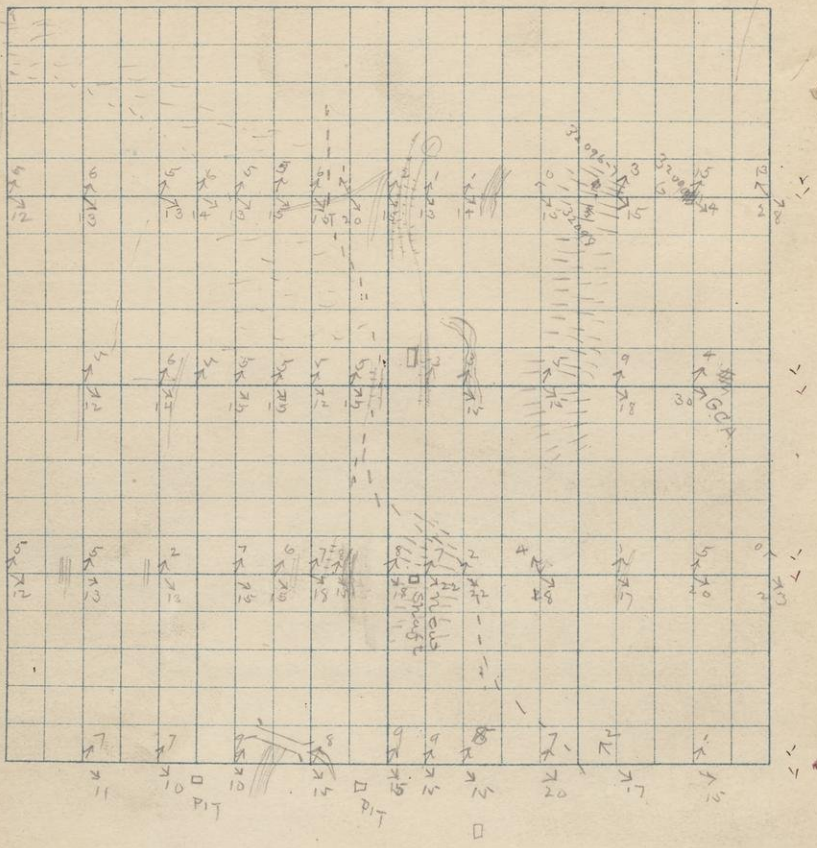
32099 750 N, 1100 W of SE cor 4-44-33
A.C.

QB
32100 500 N 800 W SE cor. 4-44-33
32101 300 N 925 W "
QB

Sandstone (belong to the conglomerate or blowage breccia) very strongly magnetic (see map)

30

SW 1/4 S. 4 T. 44 R. 33

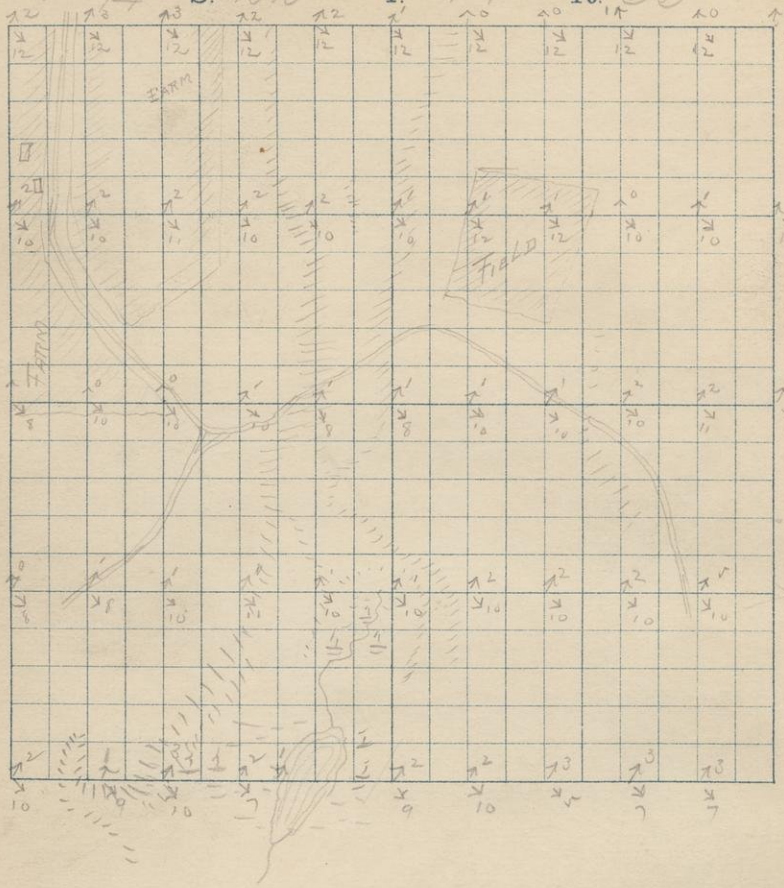


32102 1000N 1500W of SE cor 10-44-33
G.C. Greenstone (congl.?)
Small ledge at edge of swamp.

32103 1050N 800W of SE cor 10-44-33
G.C. From large ledge of nearly massive
green stone conglomerate.
Matrix is very conglomerate, light green.
In all this ledge I think there is
no amygdaloid though there are
a scattered white quartz fillings
that resemble amygdaloids and
many quartz veins.
Structure is nearly massive.
Strike (?) seems to be N 45° W.

32104 1050N 500W of SE cor. 10-44-33
G.C. Typical greenstone congl.

32 N.E. 1/4 S. 22 T. 44 R. 33



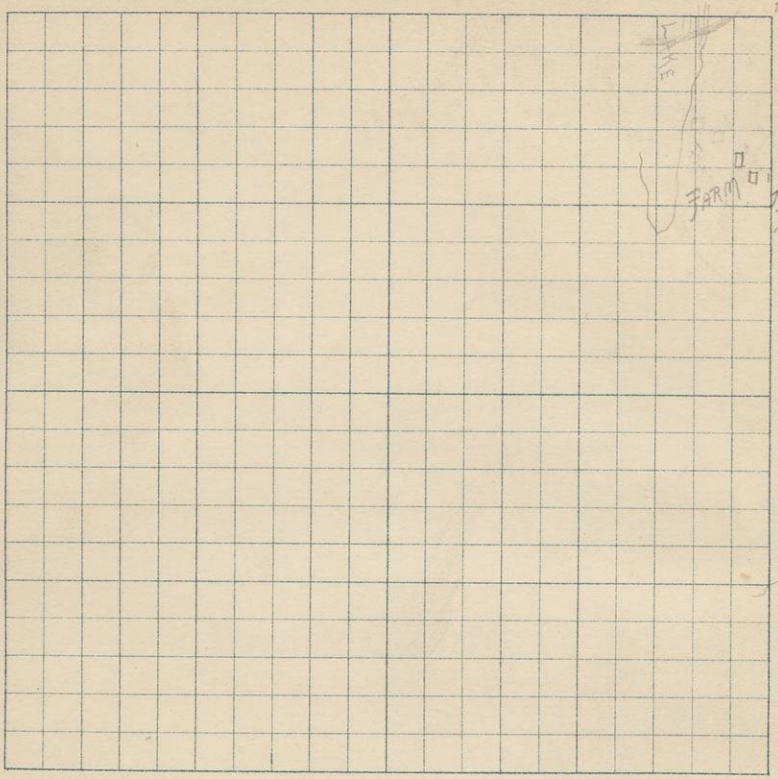
32105 300 W - 750 N SE cor 10-44-33
Q Fine grained massive greenstone
Belongs to lake supplies

32106 700 W - 790 N SE cor - 10-44-33
Q. G. Greenstone conglo. amygdaloidal
Massive - Specimen is full
of carbonate fillings and does
not show conglomerate character.
The pebbles or fragments are the
amygdaloidals and the matrix
greenstone

32107 800 N 900 W - SE cor - 10-44-33
Q, Greenstone - Dyke in
amygdaloid ridge

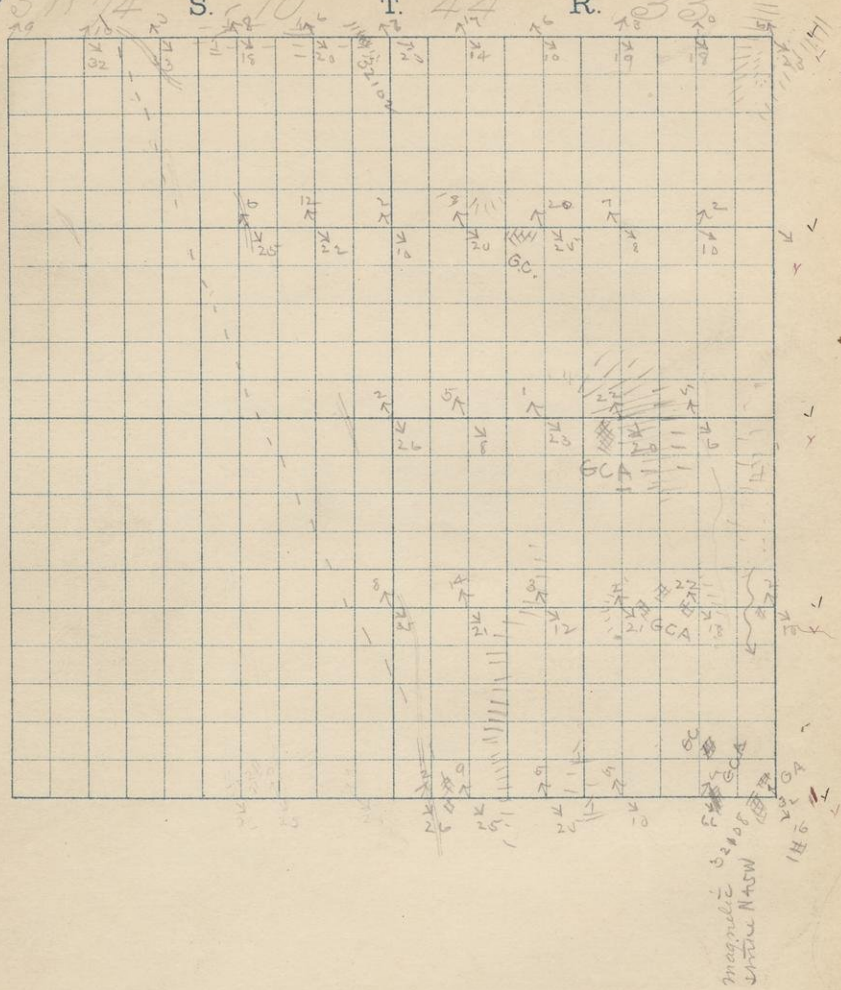
32108 1000 W SE cor 10-44-33
Q. A. Greenstone amygdaloid
Magnetic - see map page 36
Many large and small
quartz fillings. Nearly
massive

34 N.W 1/4 S. 22 T. 44 R. 33 1



3Z109 700W - AE cor 10-44-33
Q.C. fine local layer several feet wide
in a ledge of Jo.C. slightly—
amygdaloidal. Nearly massive
bedding(?) seems to strike N 45 W

36 S. T. R.



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37-41

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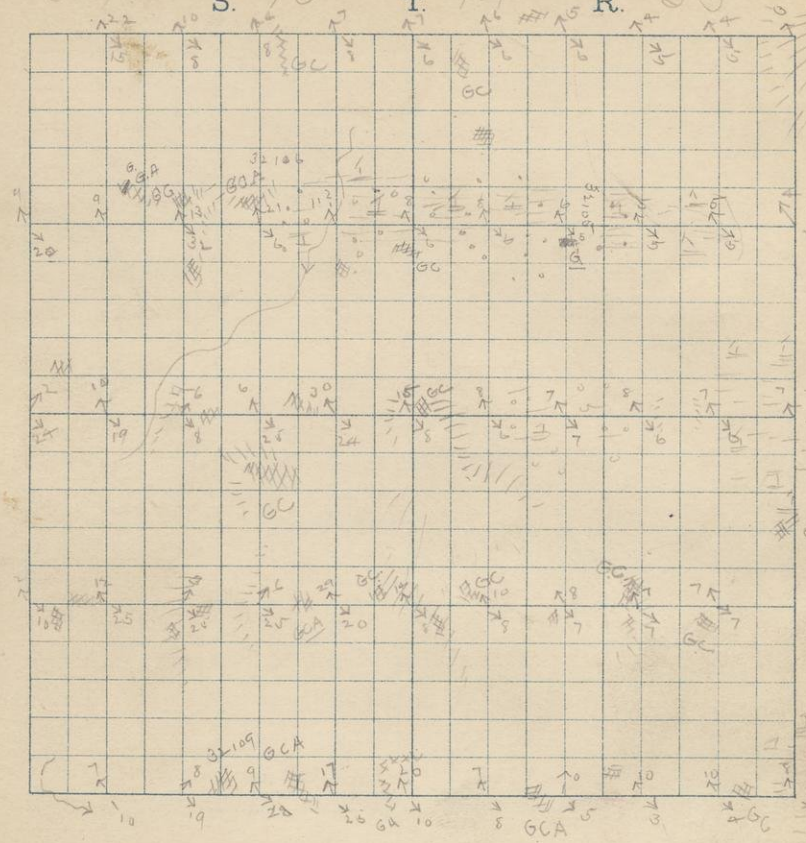
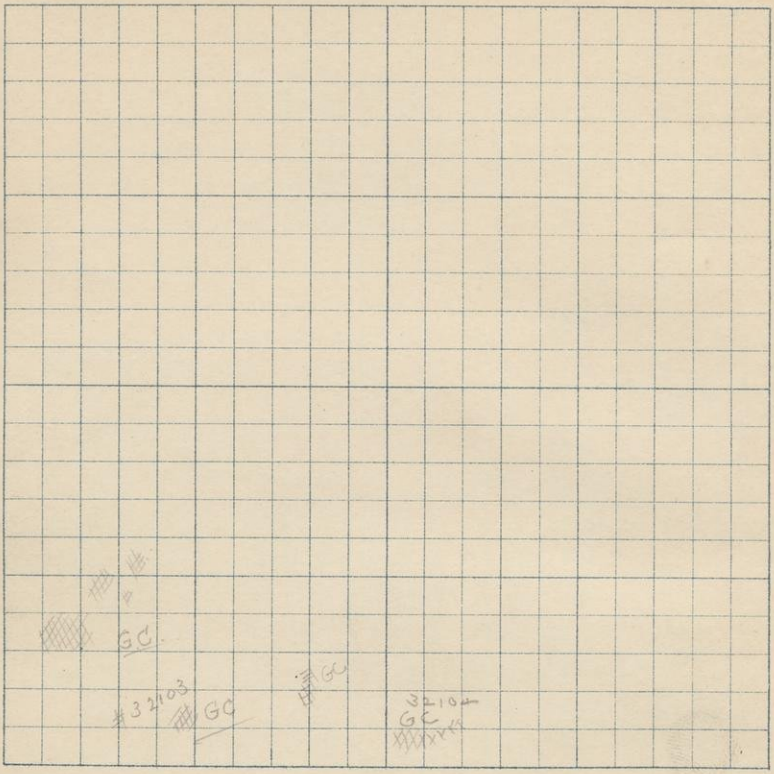
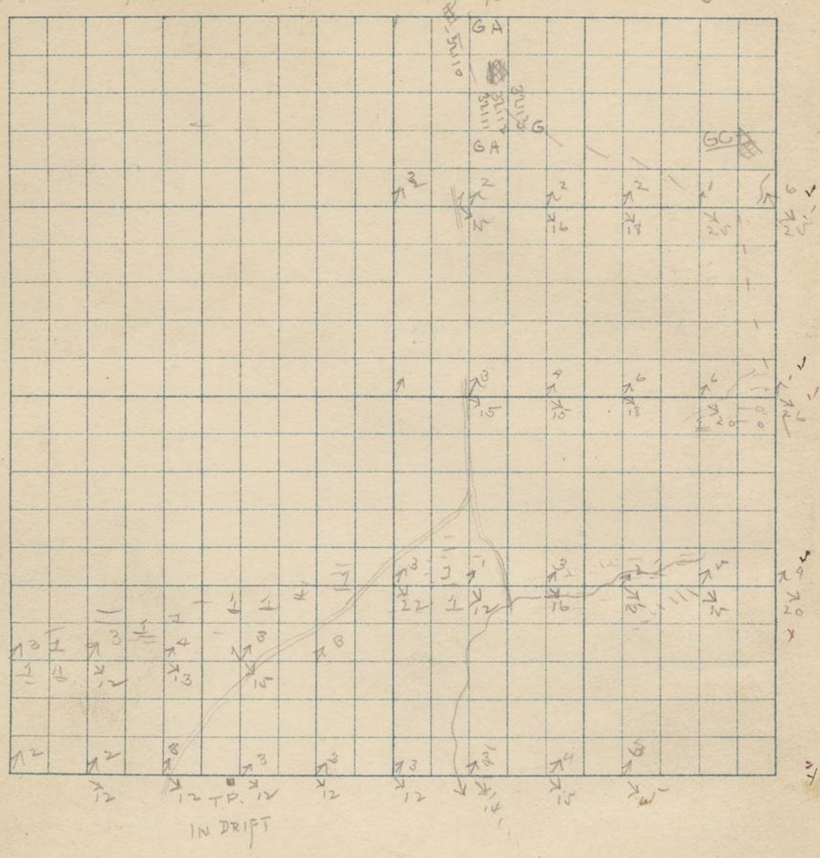
38 SE¼ S. 10 T. 44 R. 33



40 NE 1/4 S. 10 T. 24 R. 33



 N.W 1/4 S. 15 T. 44 R. 33

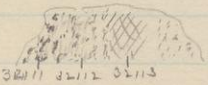


32110 1425 W 2000 N of SE cor 15-44-33
Q.A. Greenstone amygdaloid.

32111 1900 N 1375 W of SE cor - 15-44-33
Q.A. amygdaloid showing quartz filling

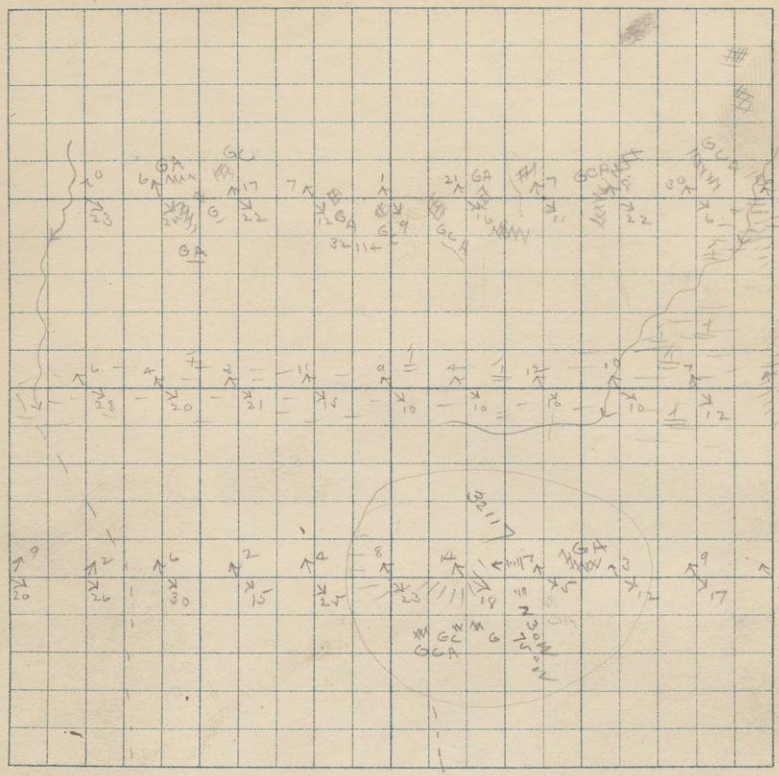
32112 1900 N 1350 W of SE cor 15-44-33
Q.A. Typical amygdaloid.

32113 1900 N 1340 W of SE cor 15-44-33
Q.A. Greenstone.
LOOKING NORTH.



Ledge from which 32111-3 were taken.
Coarse amygdaloid with large quartz filling on top then finer amygdaloid 32112, gradually merges into 32113
Line of separation of amygdaloid from greenstone is plain however.
It strikes about N-20 W.

44 NE 1/4 S. 15 T. 44 R. 33



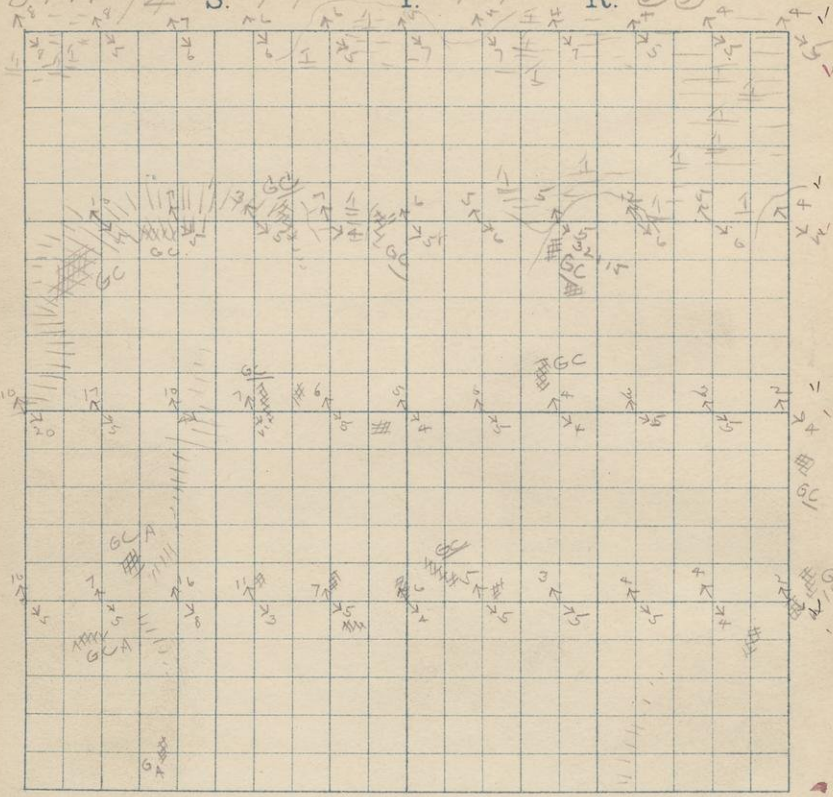
32114 1750N 575W of SE cor 15-44-33
G.A. Amygdaloid - Quartz fillings, "red" fillings, and very ferruginous.

In sec. 10 and in 15 & 14 44-33, as you go east from the limit of alteration the "sequence" seems to be
first - greenstone very amygdaloidal
second - dark greenstone conglomerate amygdaloidal and dark flowage breccia.
third - the second but much less amygdaloidal
fourth - typical light colored greenstone conglomerates like 32115

Of course there is a gradation and typical amygdaloids occur far to the east but in general, the amygdaloids grow less frequent to the east

46

NW 1/4 S. 14 T. 44 R. 33



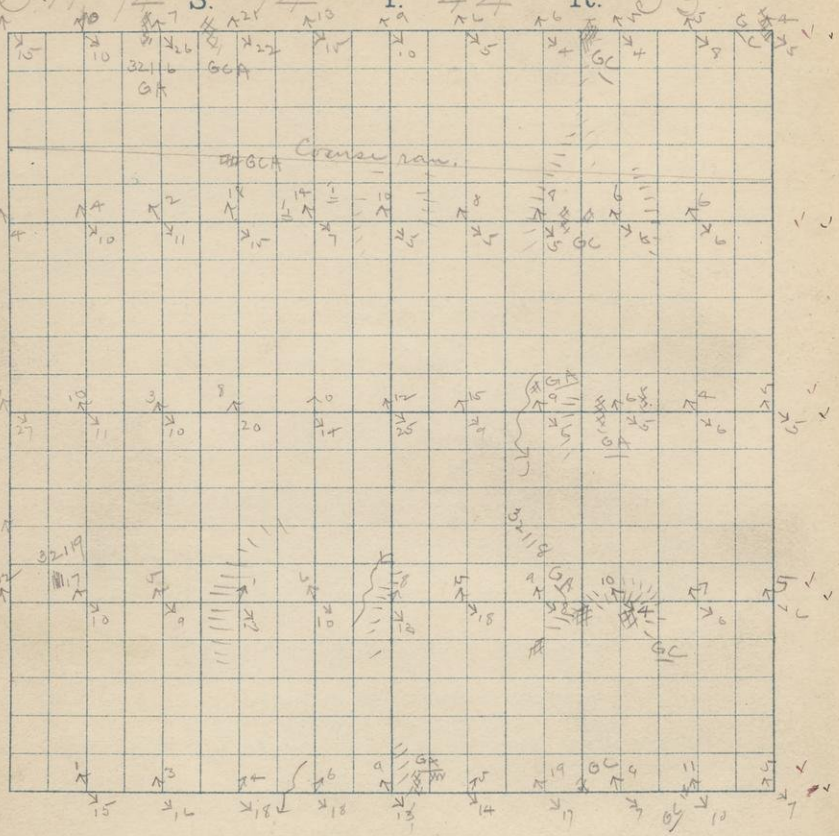
32115 1750 N 1300 W of SE cor. 14-44-33
GC. Typical Brunswick Congl. i.e. contains many fragments, all sizes and most of them rounded as though water worn and weathers out plainly. In Sec. 14 wherever a ledge is marked G.C. it is like this specimen.

Nearly all rocks in this section are of this kind except along west side where amygdaloidal conglomerates come in.

32116 1900 N - 1600 W of SE cor 14-44-33.
G.A. Brunswick ~~Congl~~. amygdaloid. Massive and magnetic (see plat) in ledge and in hand specimen.

These amygdaloids and dark plumage conglomerates and conglomerates amygdaloidal are the magnetic ~~rocks~~ ruptures. I have never seen a ledge like 32115 magnetic.

48 S.W. 1/4 S. 14 T. 44 R. 33



3217 1250 N. 0240 W of SE cor 15-44-33

I don't know whether it is eruptive or sedimentary. Looks some like a ferruginous quartzite ~~and~~ and except for minute crystals in specimen and quartz veins and other mineralization in ledge I should take it to be sedimentary. It has a very perfect strike and dip (of cleavage maybe). Strike N 30 W Dip 70° W.

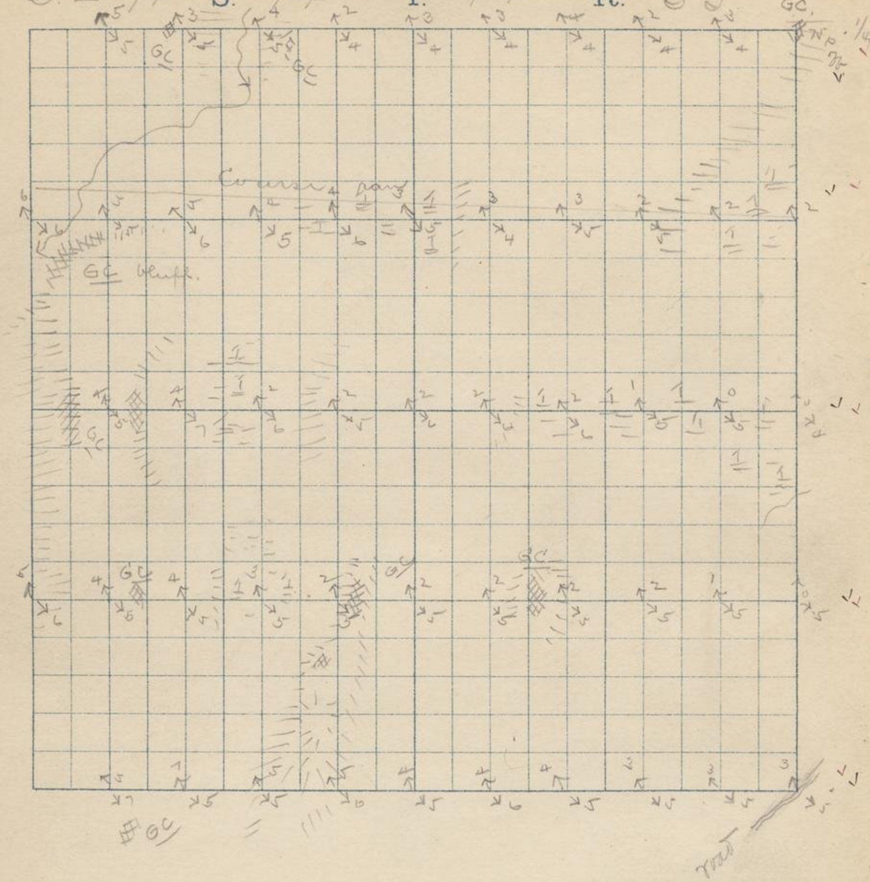
A few paces to east and south west are undoubted eruptive that are entirely massive. Of course this may be a dike and unless it is, it is strange that it should be so closely associated with massive rocks.

3218 250 N, 1250 W of SE cor 14-44-33

QA. Grunsolite amygdaloid.

Massive

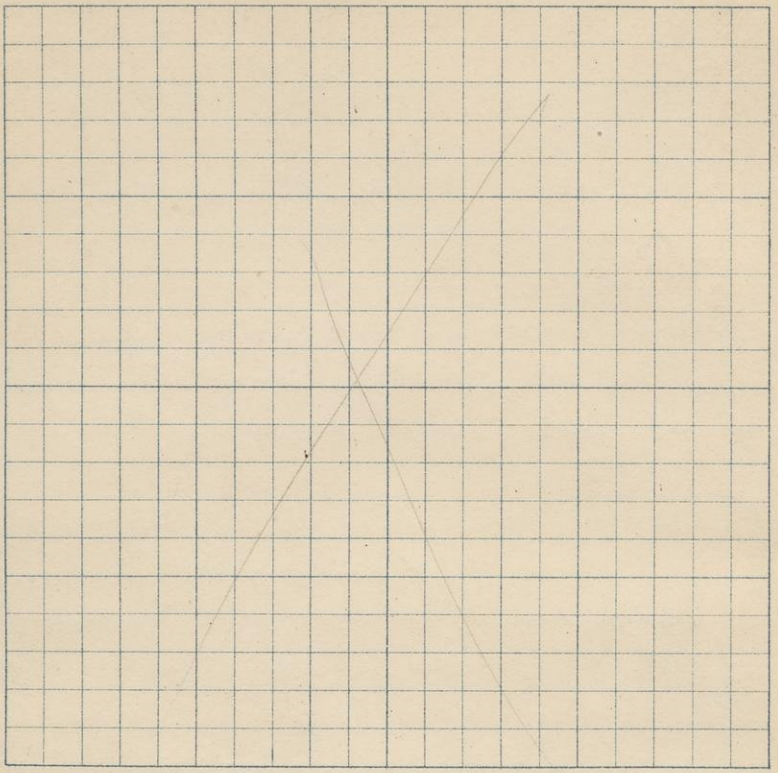
S.E 1/4 S. 14 T. 44 R. 33



32119 1750 N 1950 W SE cor 14-44-30
Eruptive or sedimentary.
See notes under # 32117. which this nearly resembles ~~exactly~~.
I could not observe strike here nearly but it is about N 70° W. Dip 75-80 W.

32120 1750 N, 1500 W. SE cor 23-44-33
QC. Ordinary dark greenstone conq. Specimen does not show fragment but they occur plentifully in ledge.
These ledges at this place seem to be magnetic (see plat page 76). I could not find continuation of ledge 32119 in this area.

S. T. R.

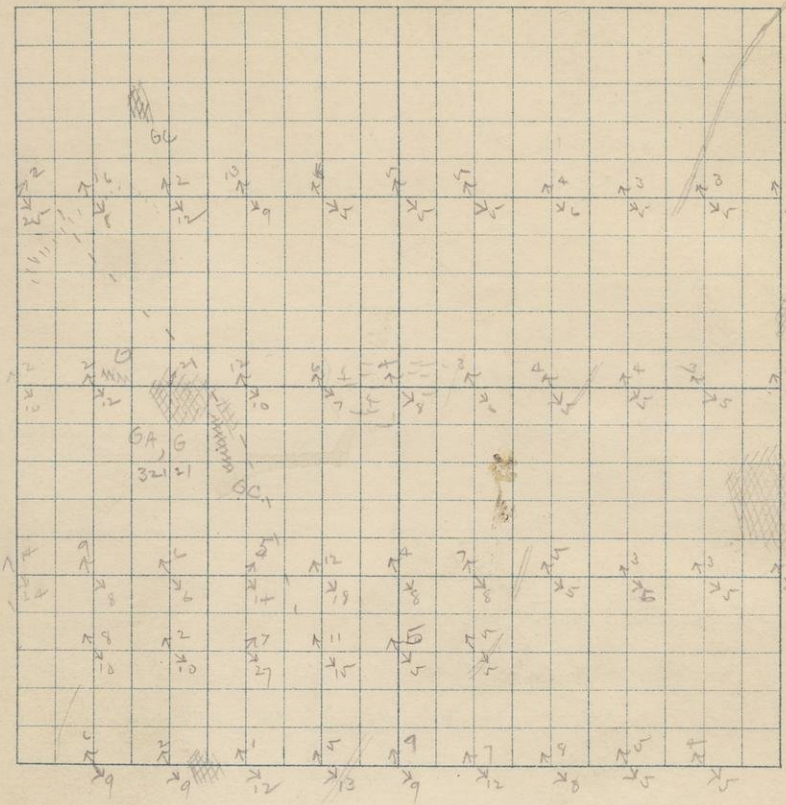


3Z121 1500 N, 800 W of SE cor 28-44-33
Q.A. From large ledge of greenstone. This ledge consist of amygdaloid like spec., fine grained massive greenstone, and dark greenstone conglomerate. Contacts are not plane and are very irregular. This ledge is magnetic (see map.

3Z122 1775 W of SE cor 24-44-33
Q.A. Greenstone amygdaloid (massive) contains besides the usual greenish feldspars, red and pink ones

3Z123 1750 N 1400 W SE cor 28-44-33
Q.C. Fine grained greenstone Massive. It does not weather out like conglomerate neither does it resemble one except in color and readiness with which it breaks in all

54 NE 1/4 S. 23 T. 44 R. 33

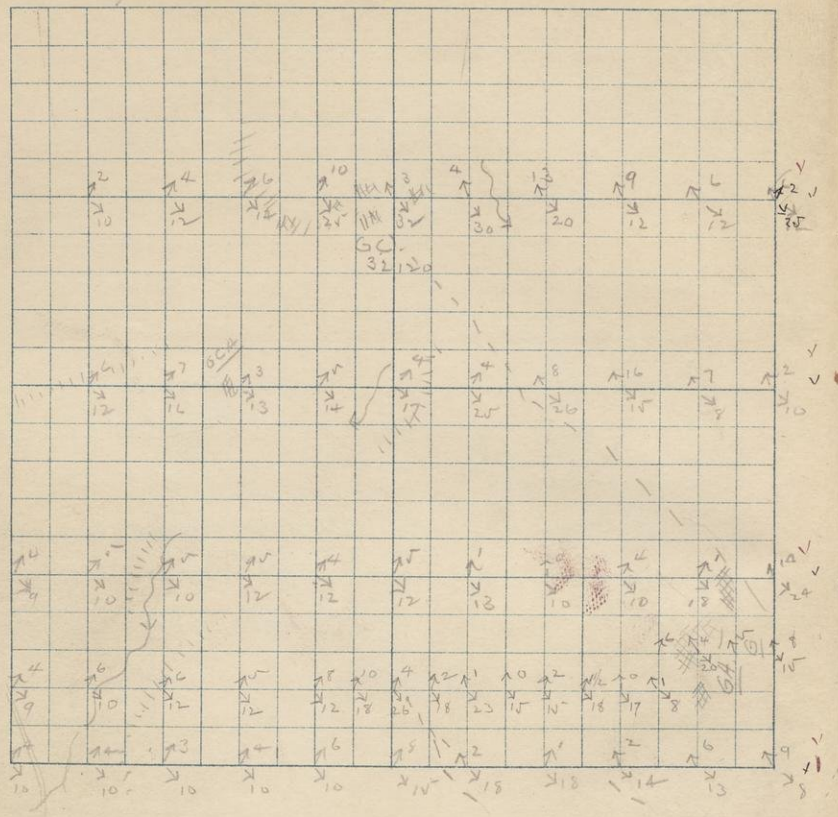


directions like the light colored conglomerate. ie. breaking into angular fragments as this / the rock were not homogenous.

3x24 1250 N 1300 W AE cor 25-44-33
G.A. Greenstone (or fg. amygdaloid)
Fine grained and massive.
Very few pillows. This rock resembles 32x23 1/2 mile north of this one & 24 is slightly magnetic (see also plate page 64) but 23 is not

32x25 1000 N, 1700 W AE cor 25-44-33
G.C. Greenstone (long?)
Massive - Magnetic see plat page 64. There may be more conglomeratic phases in this ledge but I could not find them. Conglomerate and these fine grained, homogenous greenstones are very often found in same ledge.

56 NW 1/4 S. 23 T. 44 R. 33

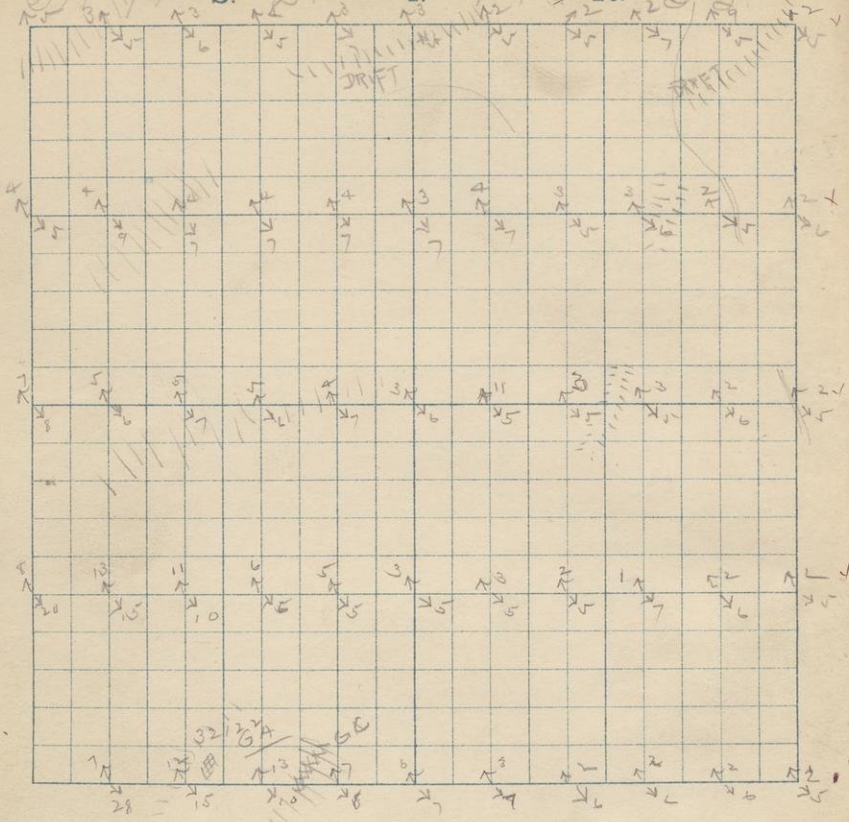


32126 Q.C. 250N 350W SE cor 25-44-33
Massive grunstone.
Fine grained, homogenous texture, and magnetic in specimen and ledge (see plat p 68)

32127 Q.A. 1750 N. 1765 W. SE cor-31-44-32
Grunstone basaltoneal-?!, fine textured and perfectly massive,

32128 Q.A. 250 N - 1700 W SE cor 31-44-32
Grunstone amygdaloid massive and magnetic (see map page 78) The ledge is on the west line of attractions I think. Along with this amygdaloid are fine grunstones like others farther north in this line of attractions. At these places it may be that I failed to find the amygdaloid, but in the south part of 7 44. amygdaloids are much scarcer than farther north

58 SW 1/4 S. 24 T. 44 R. 23

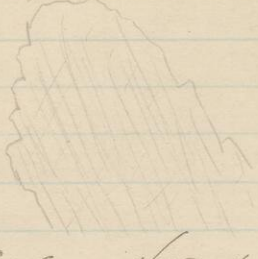


3x129 250 N 25° W SE cor 21-44-32
3x130 " " "
Q.C. Most of these conglomerates in sec 31 are very massive but some like specimens have been squeezed and have very regular cleavage so that at ledge from a distance looks as though nicely bedded. Strike of most prominent cleavage is about N 10° W dip 65-75 E.

3x131 550 N - 25° W SE cor 21-44-32
Q.C. This specimen is banded and shows true bedding of these. These fine bands agree in strike with coarser mass made up of fine and large pebbles. Strike at this ledge N 40 W Dip 85° W. Strike of cleavage N 10° W. Dip 70 E
This banding is not common but the cleavage is present more or less perfect in nearly all ledges throughout

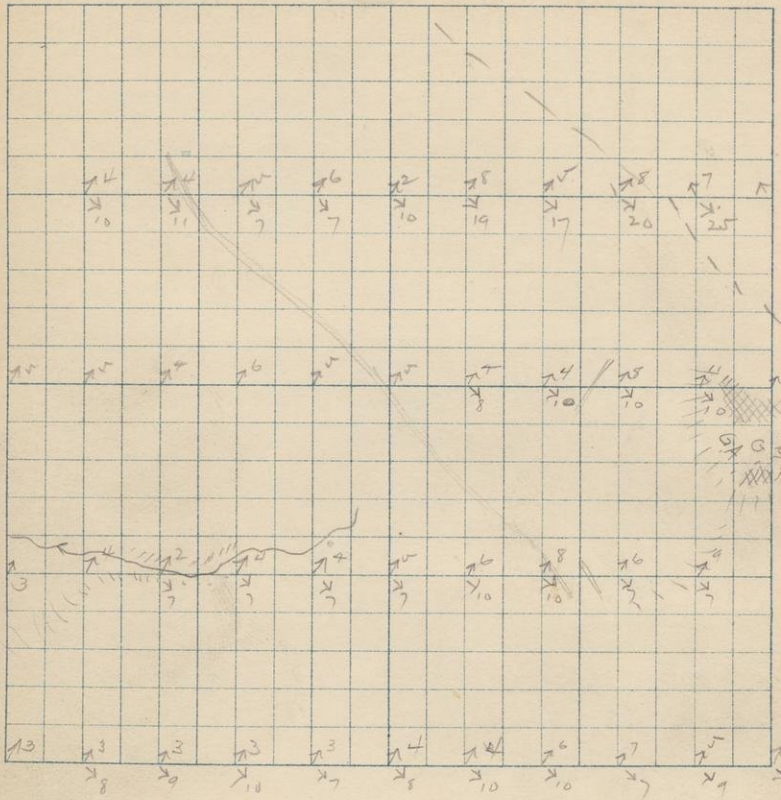
60 SE 1/4 S. 23 T. 44 R. 3

the ridges extend parallel with the strike and a ledge seen end on looks like this



LOOKING NORTH

62 SW 1/4 S. 23 T. 44 R. 23



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63-71

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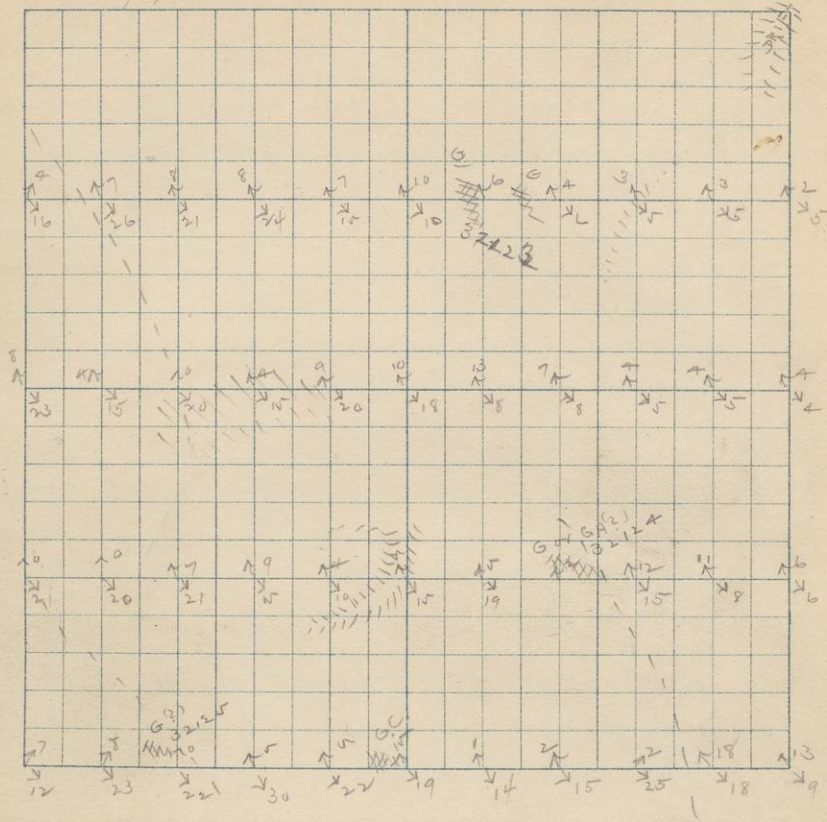
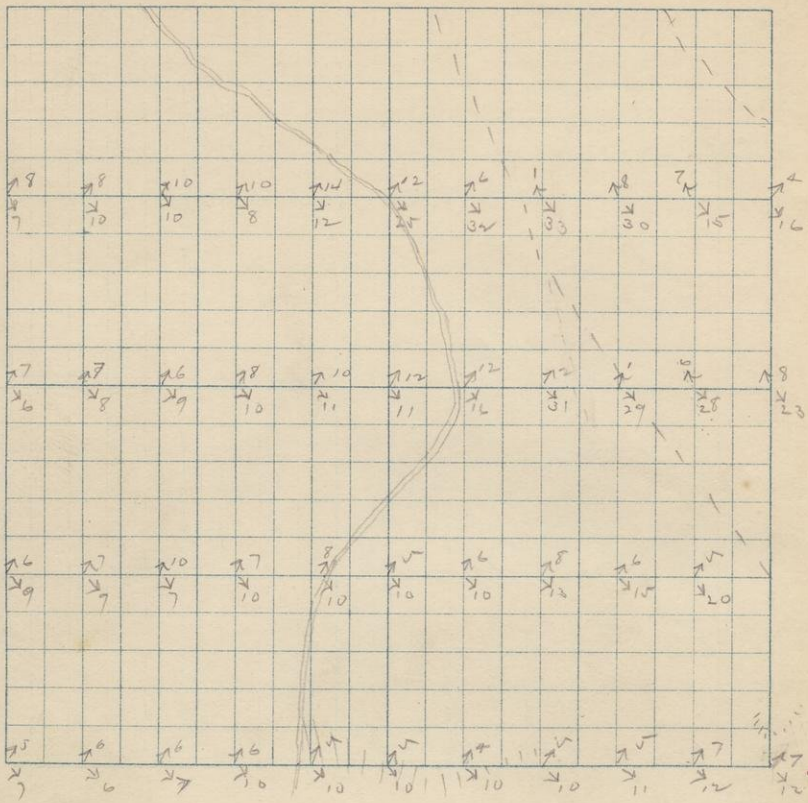
64

NW 1/4 S. 25 T. 44 R. 33

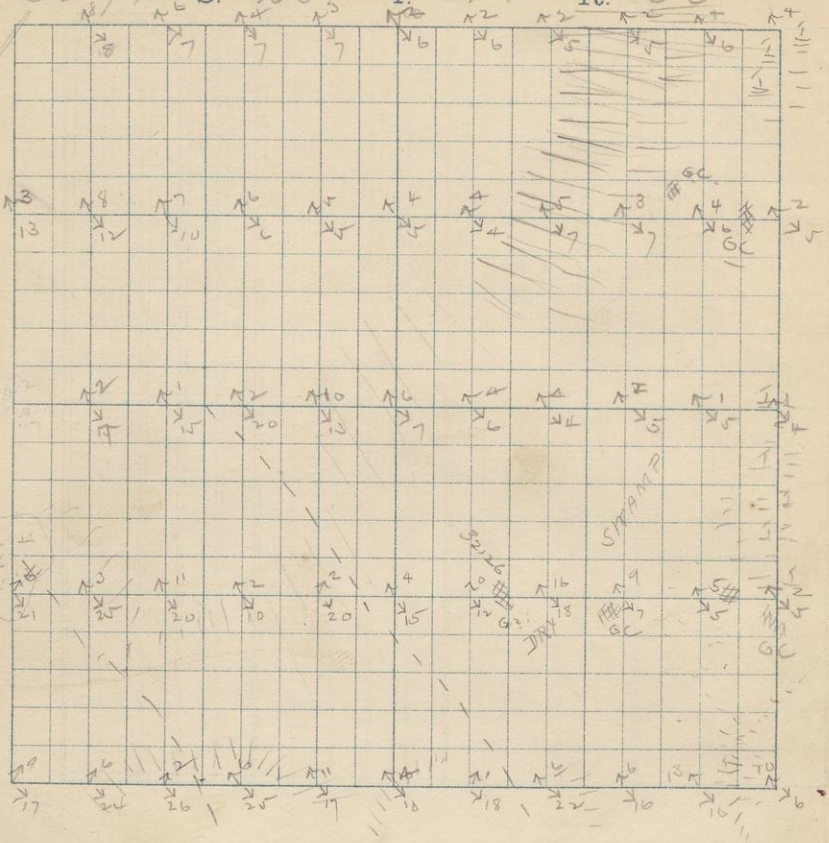


66

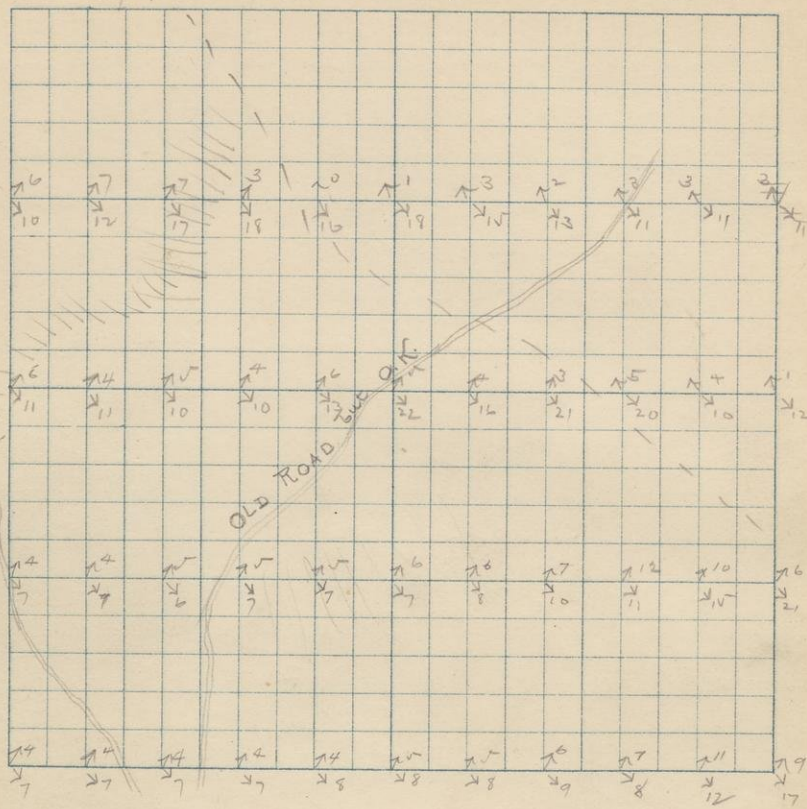
NE 1/4 S. 26 T. 44 R. 33



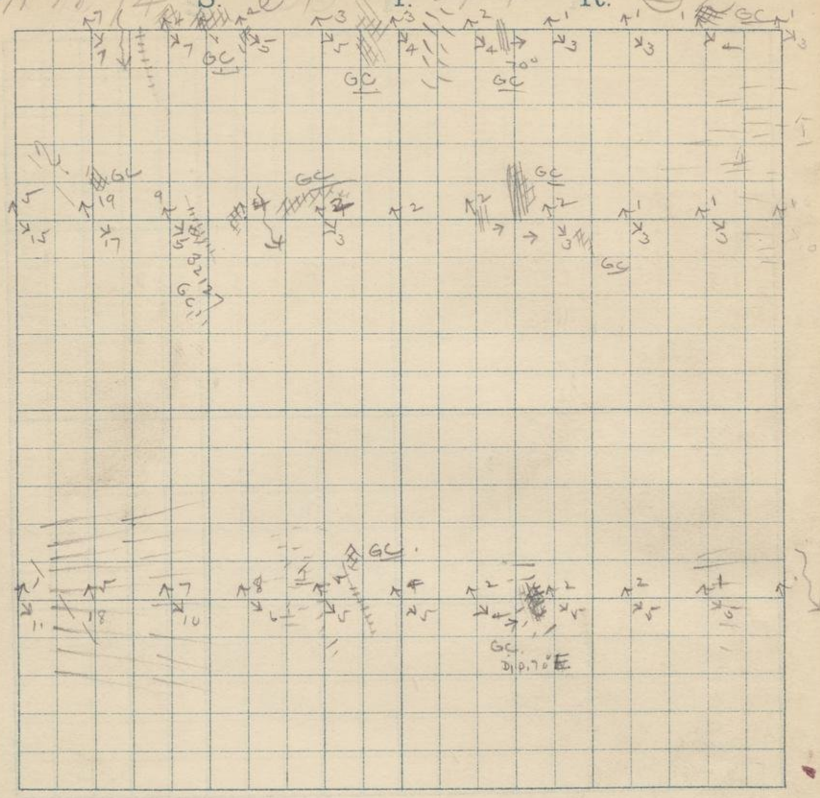
68 SE 1/4 S. 25 T. 44 R. 33



70 SW 1/4 S. 25 T. 44 R. 33



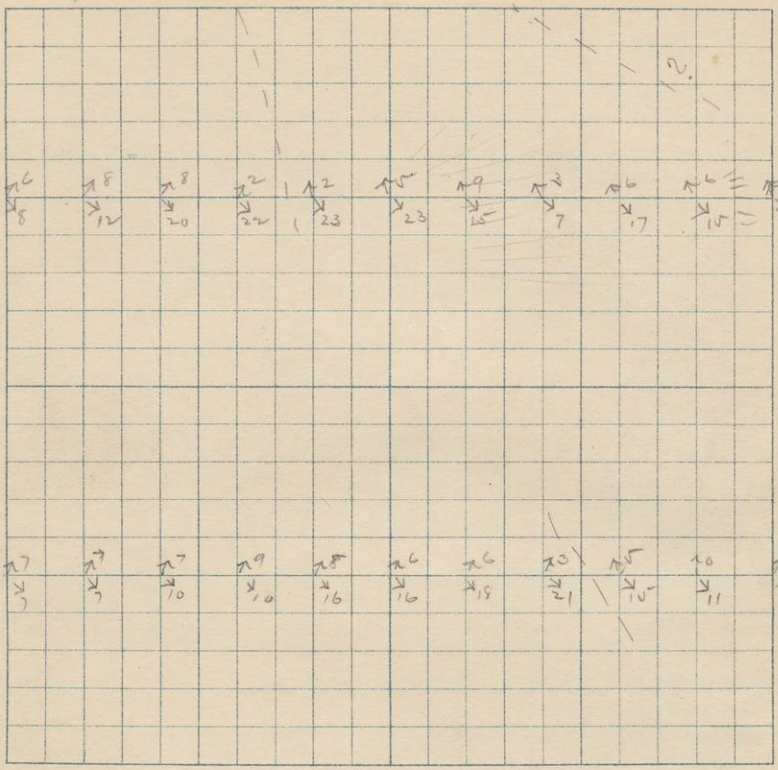
 NW 1/4 S. 31 T. 44 R. 32



At 1350 W on the N. sec line (sec. 31) and 750 pcs south thereof (see opposite page) are greenstone conglomerate that have a very regular cleavage developed.

There are several cleavages but the one that is most perfect and which gives a ledge ~~or~~ a bedded appearance - strike N x S dip 70° E. Otherwise they do not differ from the very massive greenstone of Lenawee.

74 N.E. 1/4 S. 36 T. 44 R. 33



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75-105

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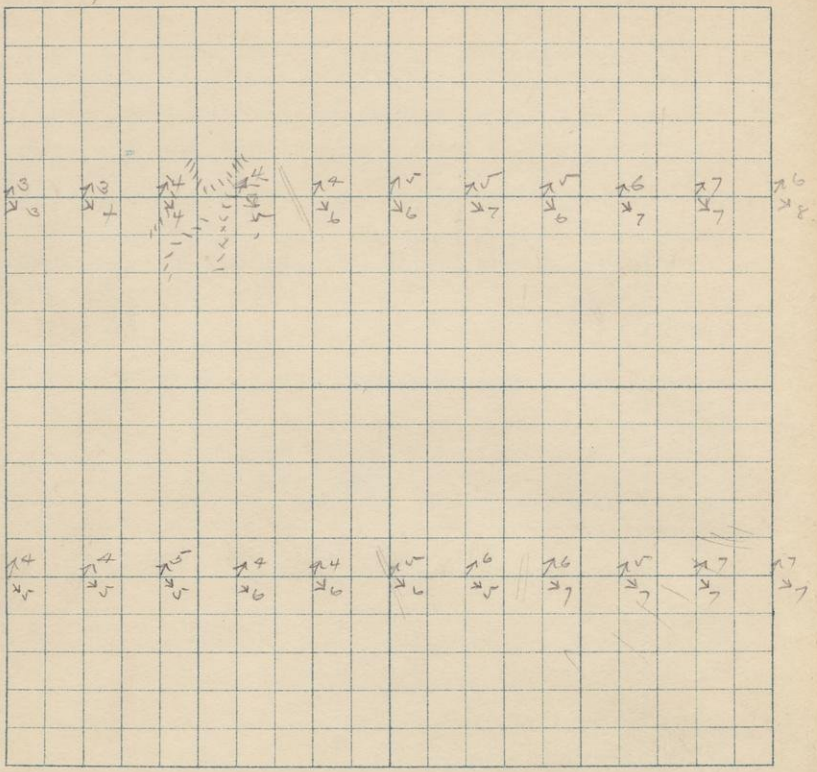
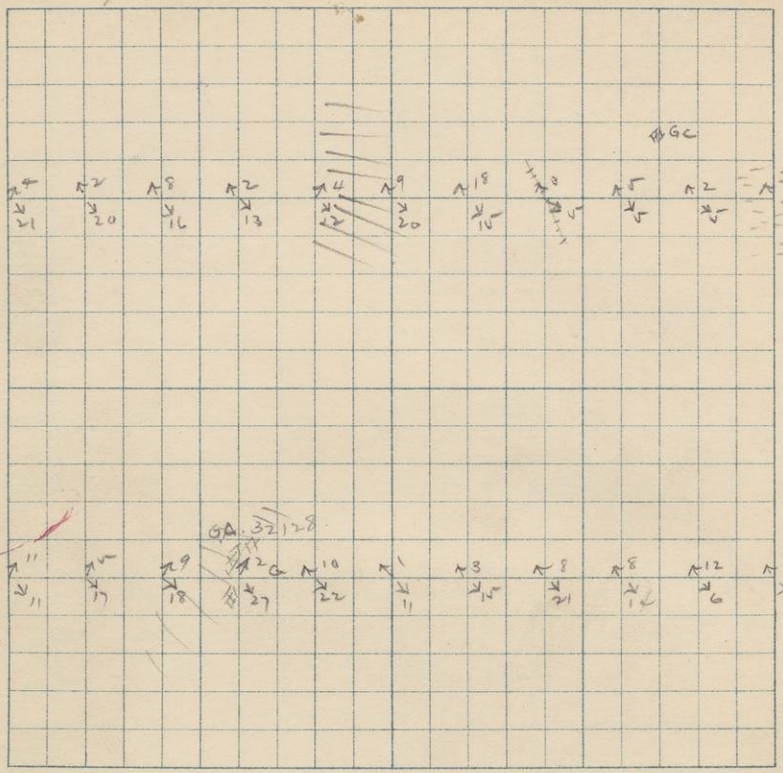
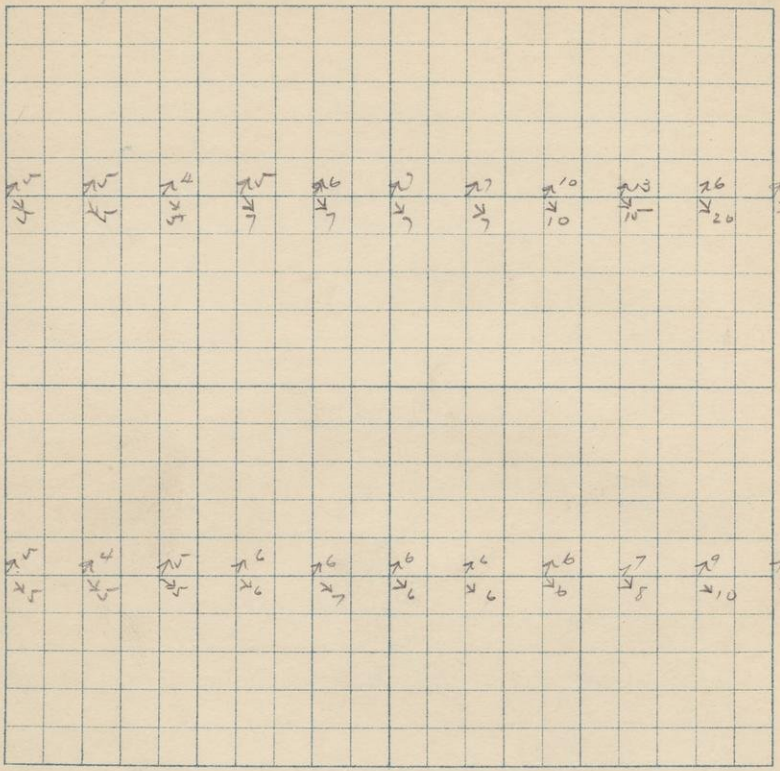
76 NW 1/4 S. 36 T. 44 R. 33



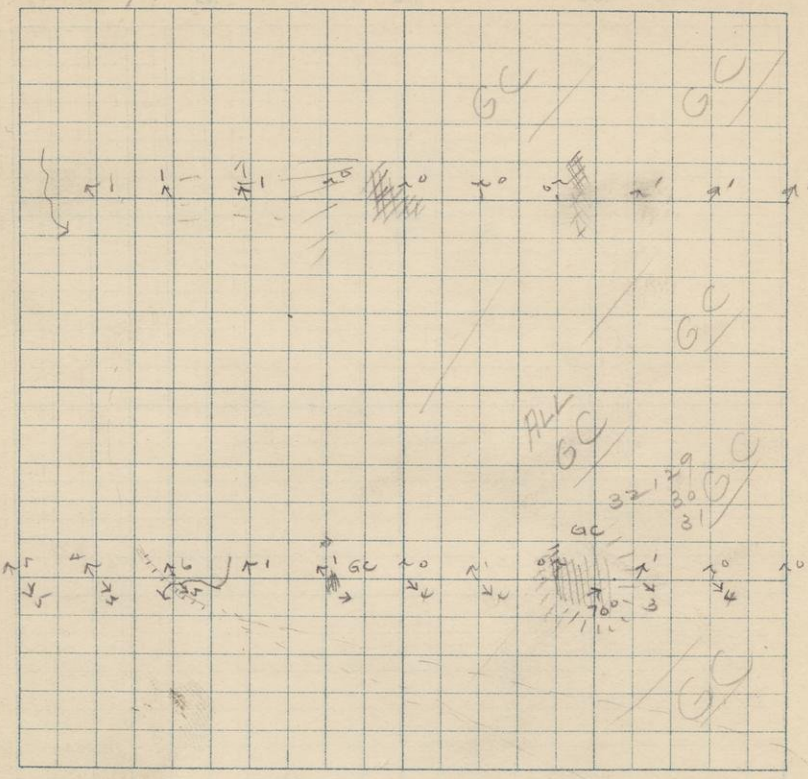
78 SW 1/4 S. 31 T. 44 R. 32



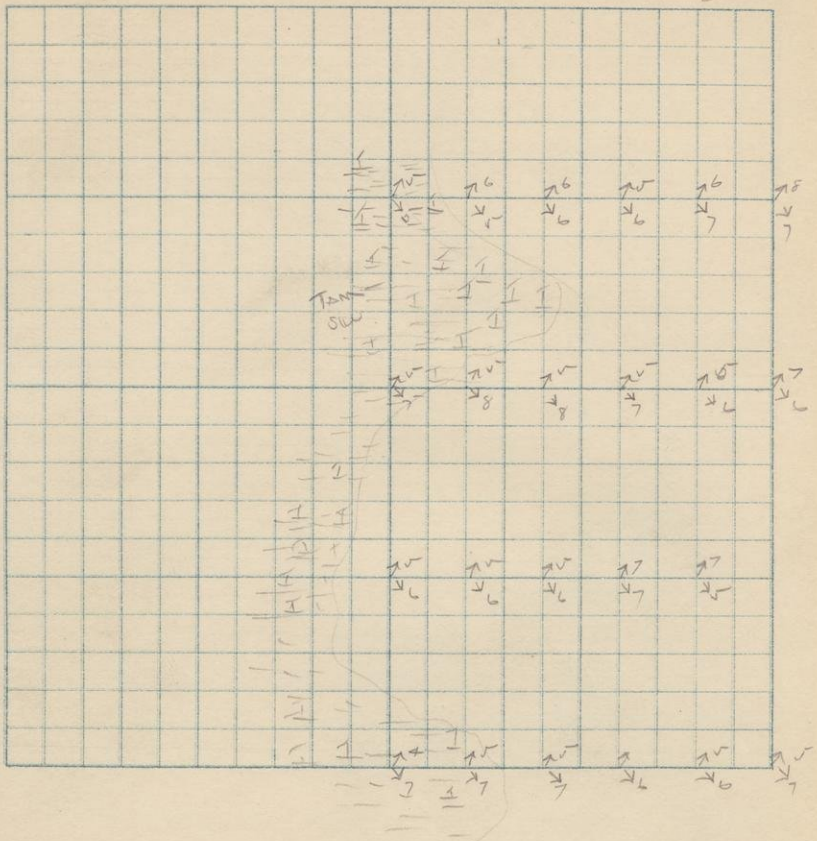
80 SE 1/4 S. 36 T. 44 R. 33



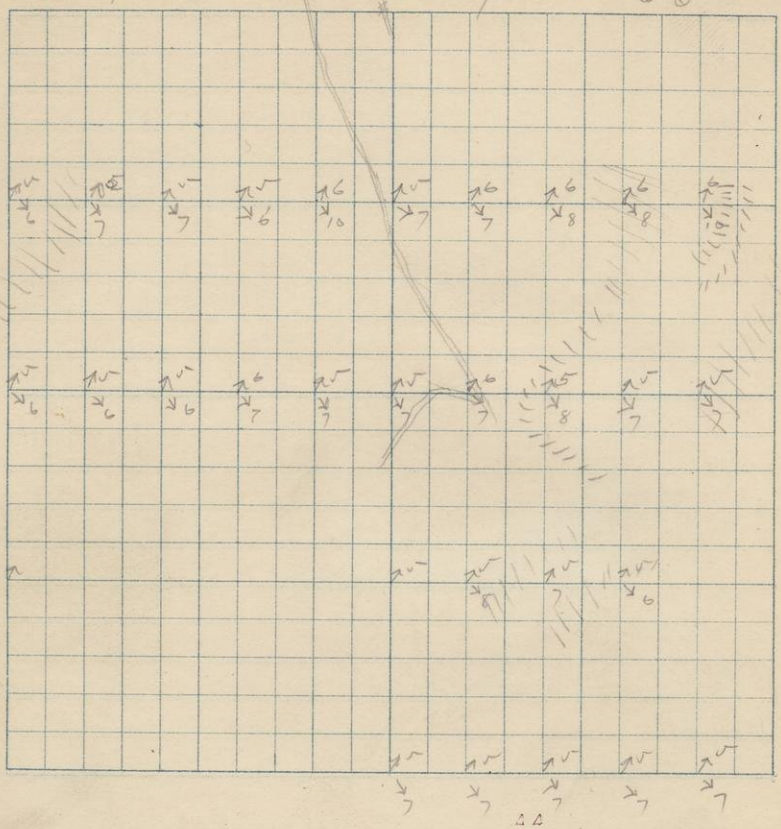
82 SE 1/4 S. 31 T. 44 R. 31



84 NW 1/4 S. 26 T. 44 R. 33

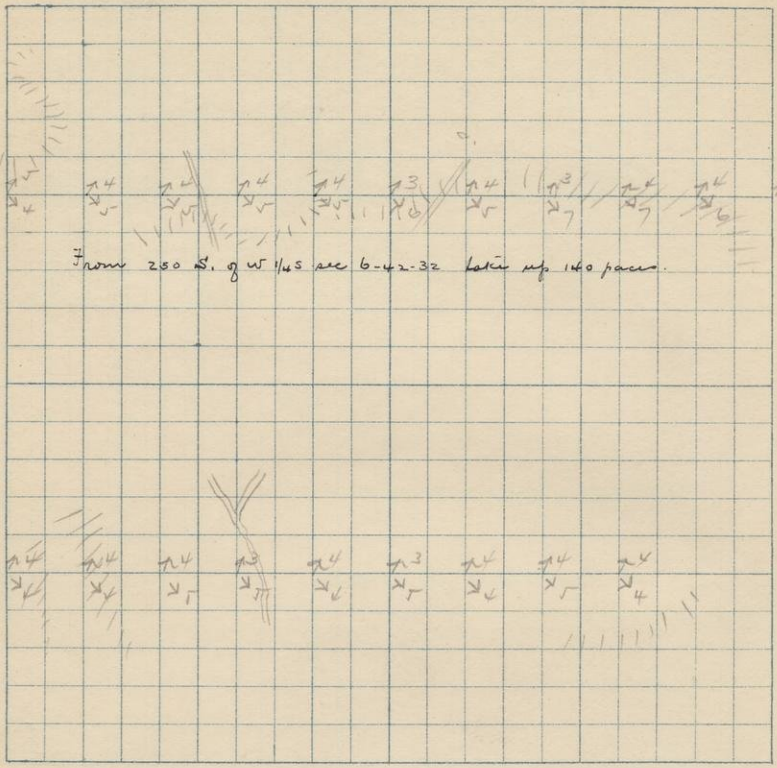


86 SE 1/4 S. 26 T. 47 R. 33

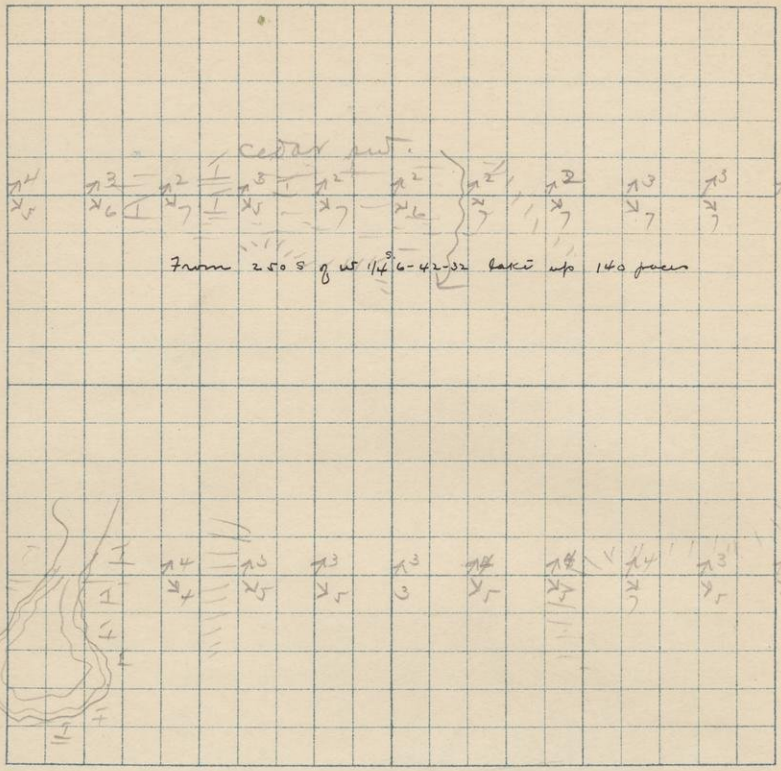


Camp # 8

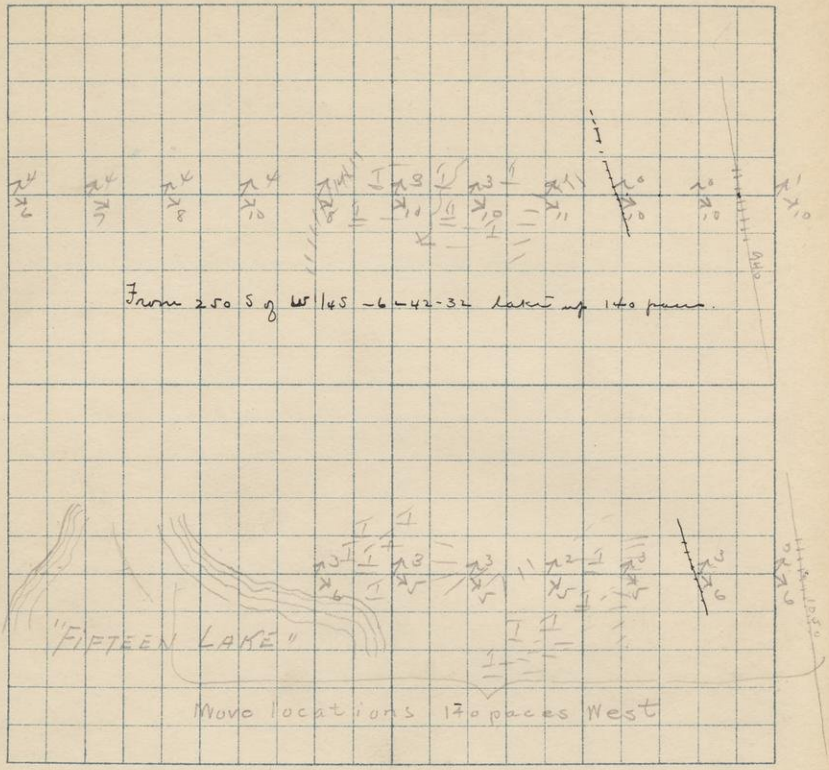
88 SW 1/4 S. 6 T. 43 R. 32



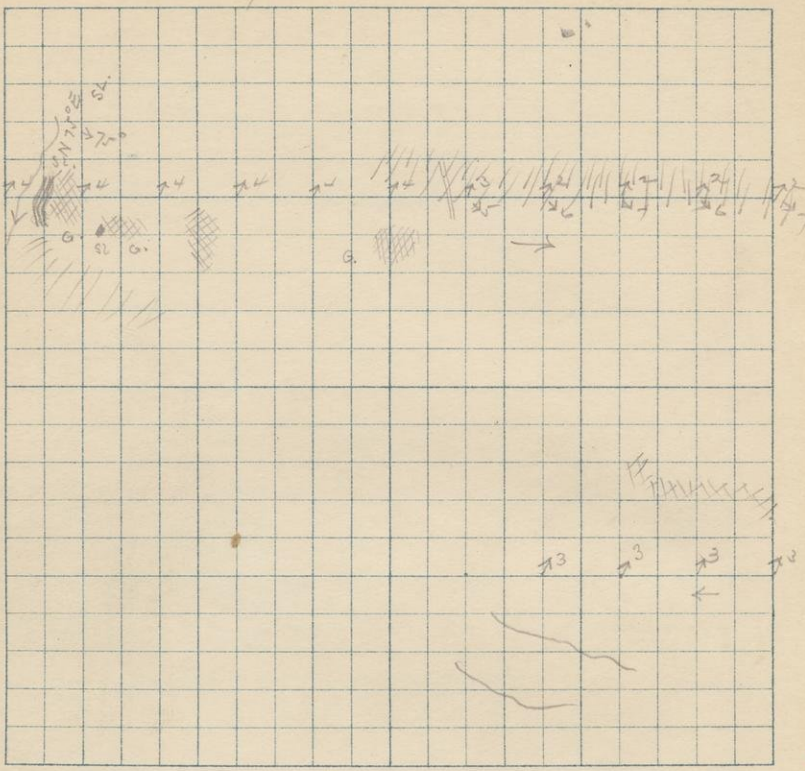
90 SE 1/4 S. 6 T. 43 R. 32



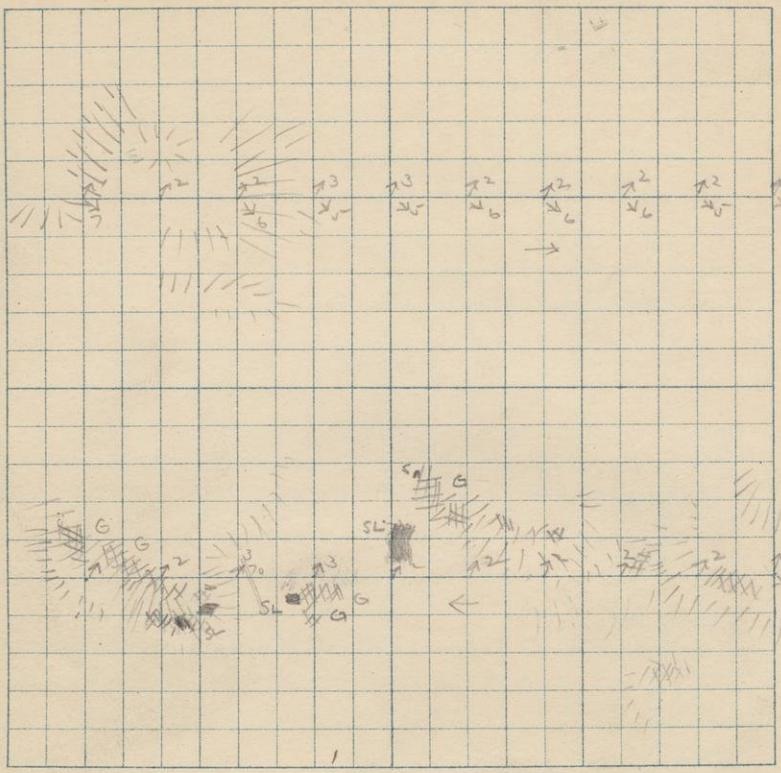
92 SW 1/4 S. 5 T. 43 R. 32



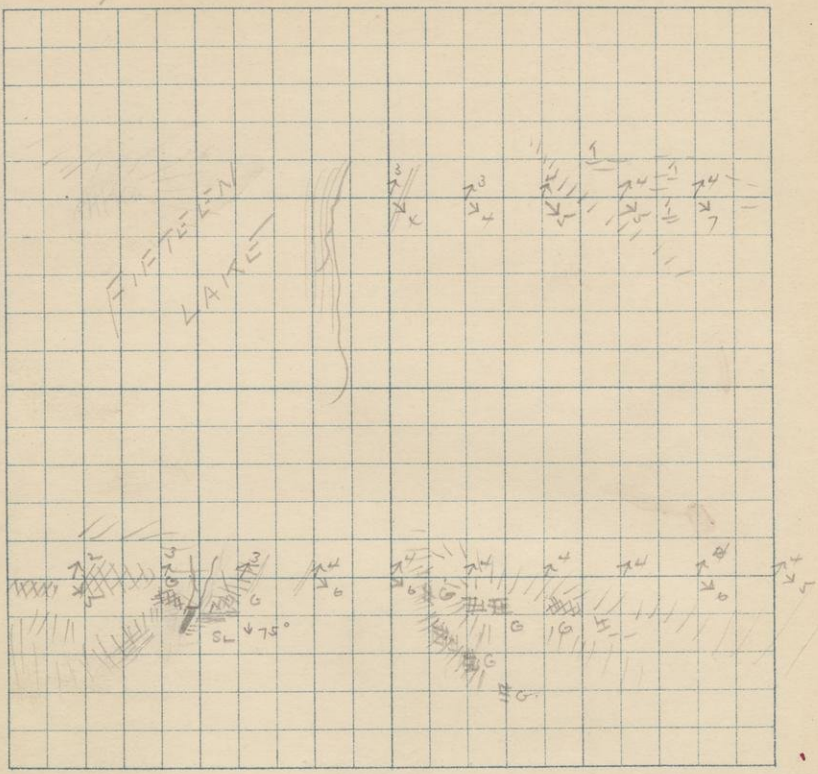
94 NW 1/4 S. 7 T. 43 R. 32



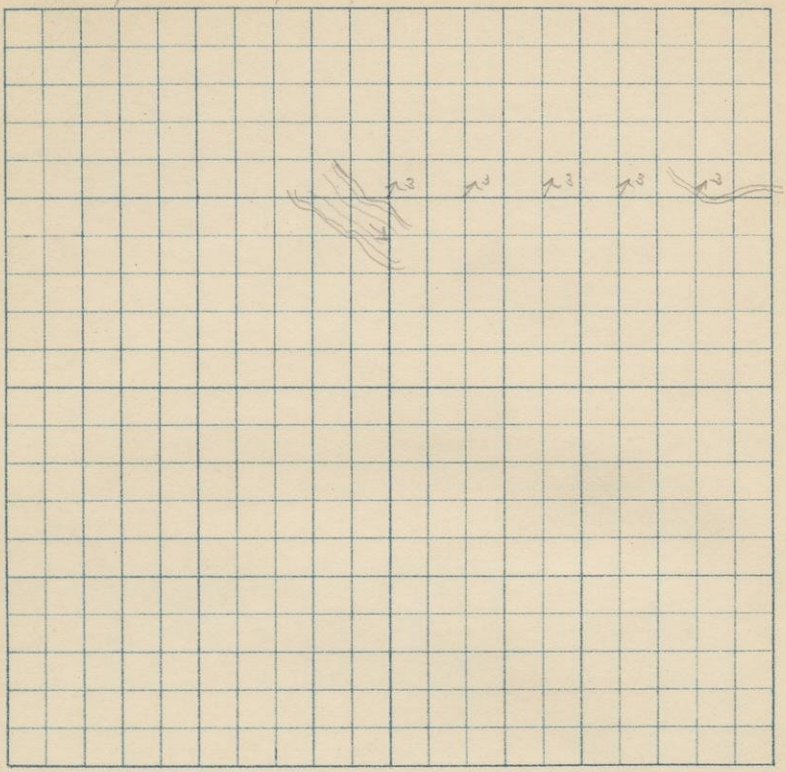
96 NE 1/4 S. 7 T. 43 R. 32



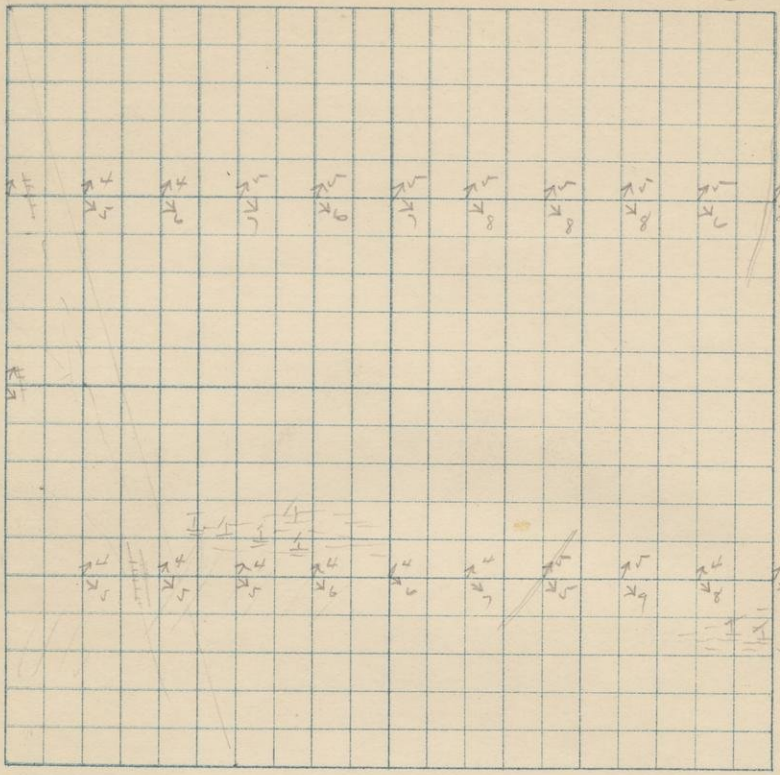
98 NW 1/4 S. 8 T. 43 R. 32



100 SE 1/4 S. 7 T. 43 R. 32

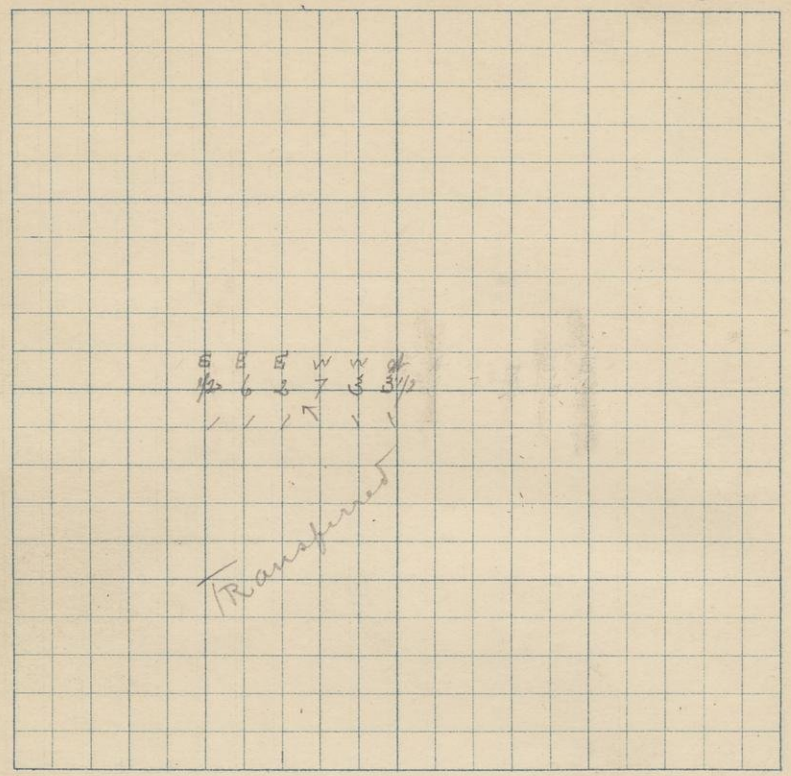


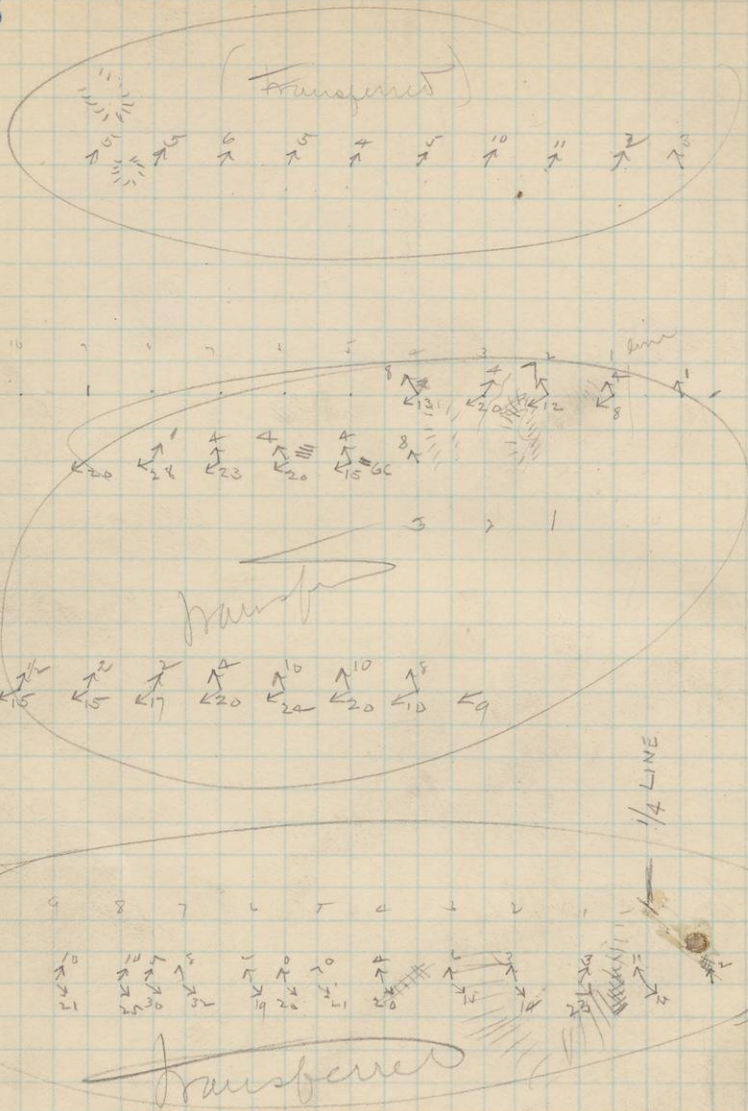
102 NE 1/4 S. 8 T. 43 R. 32

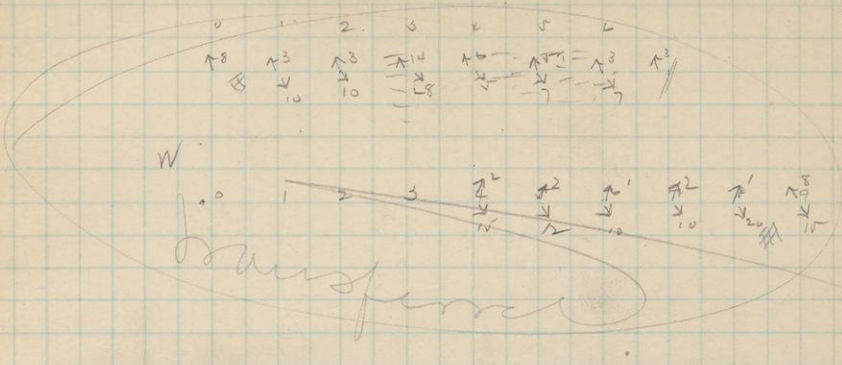


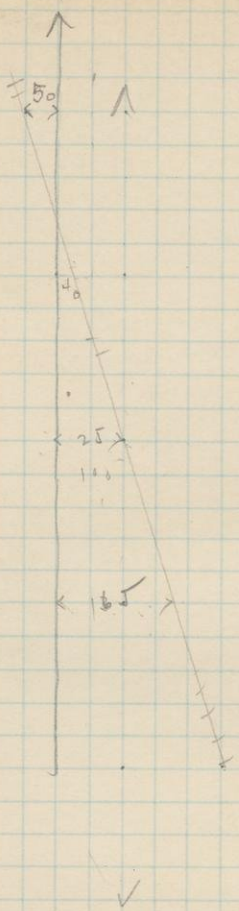
104

S. 15 T. 45 R. 33




Transparent
Transparent
1/4 LINE




50
25
65