



LIBRARIES

UNIVERSITY OF WISCONSIN-MADISON

Vicinity of Michigamme Reservoir, Michigan: [specimens] 24973-24997. No. 174 1894

Smith, Geo O.

[s.l.]: [s.n.], 1894

<https://digital.library.wisc.edu/1711.dl/VW7SSZD7EYDID9E>

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

For information on re-use see:

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

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

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

U. S. GEOLOGICAL SURVEY
FIELD SECTION BOOK

9-891

LAKE SUPERIOR DIVISION.

INSTRUCTIONS.

1. Ordinarily at least two pages of this book will be devoted to one section. On the left-hand page, place a map of as much of the section as has *actually been seen*. Denote rivers, lakes, marshes, etc., by the usual topographical signs. Denote the ledges of rock, when no structure is made out, by cross-hatching, making the cross-hatching cover as nearly as possible the areas occupied by the exposures. If the rock is a massive one, but still more or less plainly bedded, use the same sign with a dip arrow and number attached, showing the direction and amount of the dip. Denote a shaly or other very plainly bedded ledge by right parallel lines, and a ledge having a secondary structure by wavy parallel lines running in the direction of the strike, with dip arrow and number attached as before. The greatest care must be taken to avoid confusing slaty or schistose structure with bedding, and in all cases where there is the least doubt about the true bedding direction, indicate it by a query. To each exposure on the face of the map attach the number of the specimen representing it. In mapping the section count each of the spaces between the blue lines as 100 paces, and twenty of these spaces to one mile, or 2,000 paces. Usually the southeast corner will be placed at the bottom of the page, or at the first black line above the bottom of the page, and at the right-hand side. If, however, for any reason, it is desirable to show portions of an adjoining section, the southeast corner may be shifted up, or the map may be turned around and the north placed at the left-hand side of the page. The ruling of the left-hand pages is also arranged so that, if desirable, a larger or a smaller scale can be used, eight inches, two inches, one inch, or one-half inch to the mile. With the two-inch scale, the squares outlined in black represent sections, and those in red, quarter sections and "forties," while the space between the blue lines is 200 paces.

2. On the right-hand page place the notes descriptive of the exposures. Begin in each case with the number of the specimen, placing the number on the left-hand side of the red line, after which give in order on the right of the same red line the position of the ledges as reckoned in paces from the southeast corner of the section and the dip and strike when observable, the latter always being expressed from the north; for instance 4025, 250 N., 300 W., Strike, N. 78° E., Dip 50° S. Then follow with a full description of the ledge. When topographical maps are used for locations this paragraph applies only in part.

3. Collect a specimen from every ledge, or wherever there is a change of rock on any one ledge, taking care to get fresh material, unless for a special purpose the weathered surface is desired. In case of trips made on foot or in canoes, for long distances, neighboring ledges, unquestionably of one kind of rock, need not be specimened. The position and extent of the ledges not specimened should be marked on the map, with notes that each is of a rock identical with specimen so-and-so. Under the same conditions small-sized specimens, trimmed to a uniform size of 2 x 2½ x ¼ inches will be allowed, but in all other cases *large-sized specimens*, trimmed to a size of 3 x 4 x 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.

174

174

Geo. O. Smith.

Sept. 1894.

24973 - 97.

Sept. 8.

Running S from $\frac{1}{4}$ line of 1-44-32
2½ miles on 1750 W line and return=
ing on 750 W line.

24973. 500 N 1550 W 1-44-32.

Knob about 25 paces in diameter of
pink quartzite, very calcareous; possi-
bly might better be termed a lime-
stone. The weathered surface is very
similar to that of the Goose Lake Holomite.
There are several systems of joints
and the bedding is not plain, but the
strike appears to be $N 25^{\circ}-35^{\circ} W$, with
a dip of 45° to the E, but the latter
observation is very uncertain.

24974 1900 N. 1570 W 12-44-32.

Outcrop on NW slope and top of
low hill, perhaps 100 paces in whole
extent. A dark fine grained rock
with what seems to be an amygdaloid=
al structure. Amygdules are both
dark and light colored, and show
a constant direction of their long dia-
meters. This gives a strike of
 $N 25^{\circ} W$

S.

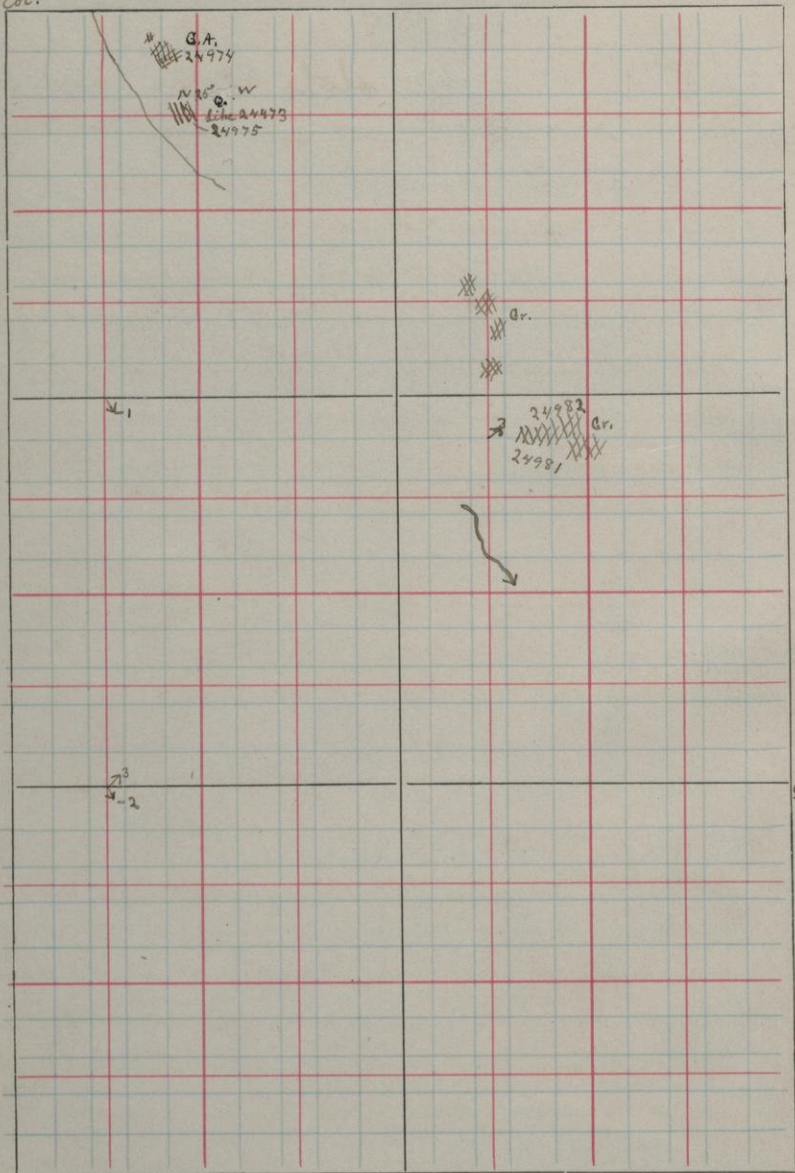
12

T.

44

R. 32

NW cor.

SE
cor.

24975

1750 N 1550 W

12-44-32

On the SW slope of the same hill, the calcareous quartzite like 24973 again outcrops. Along the upper edge of the outcrop, the character of the rock changes and it now contains large grains of clear quartz. Specimen 24975 shows this new character. The rock in its normal phase here resembles a limestone even more than in the other outcrop. Strike $N 25^{\circ}-35^{\circ} W$.

24976.

1200 N 1750 W

13-44-32

Outcrop on N side of hill. A dark, quite fine grained greenstone with a tufaceous appearance. Weathered surface shows red inclusions rounded, but, the larger ones show a constant direction of their long diameters, which is $N 35^{\circ} W$. The inclusions are of a general character and grain like that of the mass of the rock. From the field study, the rock appears to be a volcanic conglomerate.

S.

13

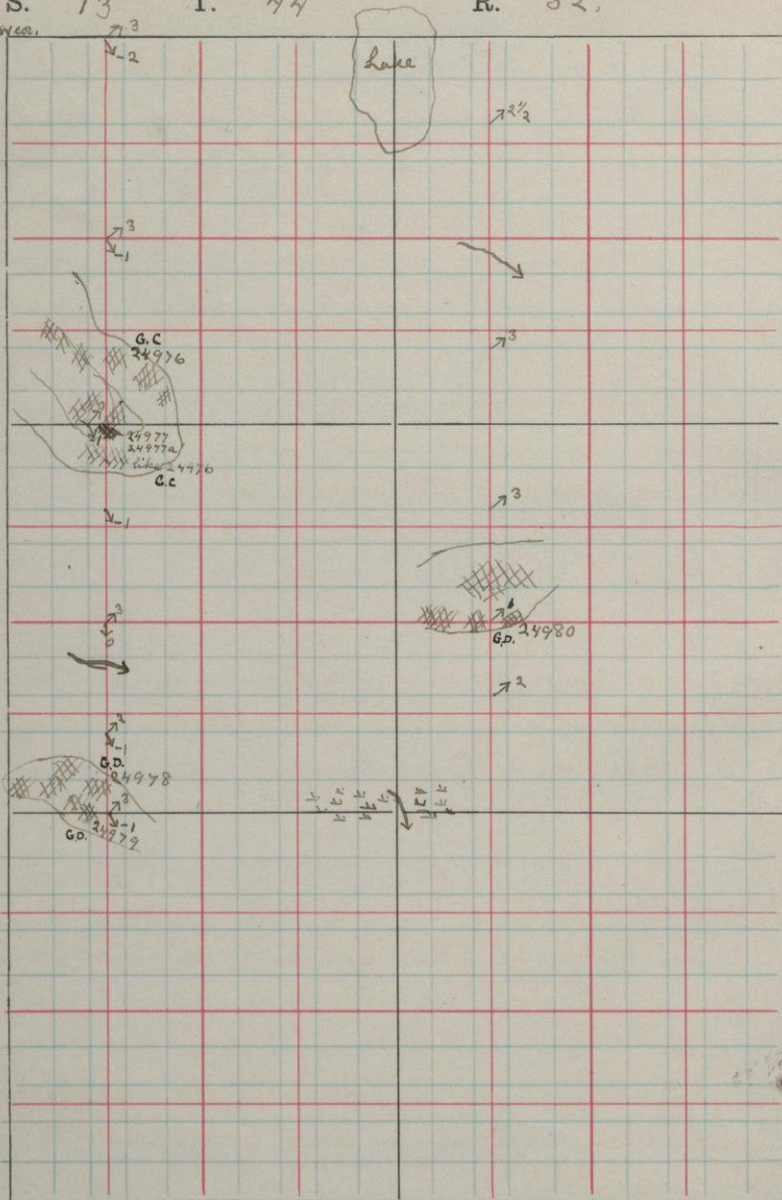
T.

44

R.

32.

NW 60.

SE
Cor.

24977 975 N 1775 W 13-44-32.

On the S slope of the same hill, there is a band several feet in width, with a strike N 40° W, of a fine grained rock. In appearance, it resembles a slate, but from its relations would seem to be rather a vein filling. It is cut by veins of quartz and in places by a granitic material. The band is bounded both above and below by the rock 24976.

24977a

24978. 100 N 1900 W 13-44-32.

A large hill of greenstone, extending several hundred paces both E + W.

The greenstone is quite coarse grained but becomes finer grained to the E.

24979 0 N 1800 W 13-44-32.

Fine grained phase of the greenstone.

24980 500 N 700 W 13-44-32.

Large knob of very coarse gabbroic greenstone. This phase occupies the N. + E part of the hill, while below to the

S & W, the rock becomes quite fine grained.

24981.

900 N 600 W

12-44-32.

On the S. slope of the long granite ridge, a dark, fine grained phase, in places quite gneissoid. In places, it seems to be the older and intruded by the granite, which also contains large angular pieces of this rock. Nothing was seen, however, definite enough to justify a statement that these relations may not be due to magmatic differentiation of the granite.

24982.

The typical granite of this ridge is much more massive. On the weathered surface, it is very nearly white, but a fresh surface shows the unbleached feldspar to be quite red. The granite is very coarse in grain and feldspar phenocrysts two inches in length are common. In most of the large exposures, there are no evidences of jointing and quartz veins were not noted.

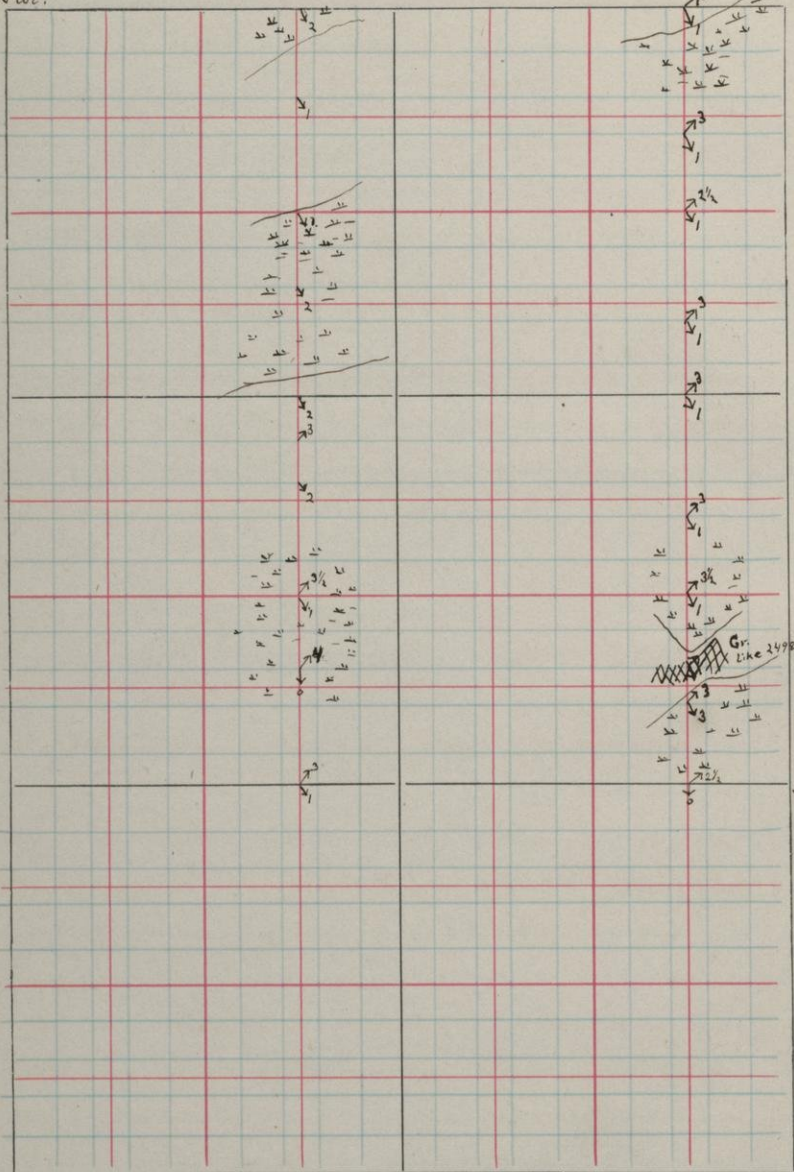
S. 36
NW cor.

T.

45

R.

32.



SE cor.

Sept 9.

Running N. from $\frac{1}{4}$ line of 1-44-32 on the 250 W line to N. line of 25-45-32, and returning on 1250 W line.

In Sec. 1, 1250 N 200 W, there are several outcrops of granite, like 24982. There were similar outcrops at 1100 N 260 W.

In Sec. 36. 275 N 310 W and 300 N 240 W are other outcrops of the same granite.

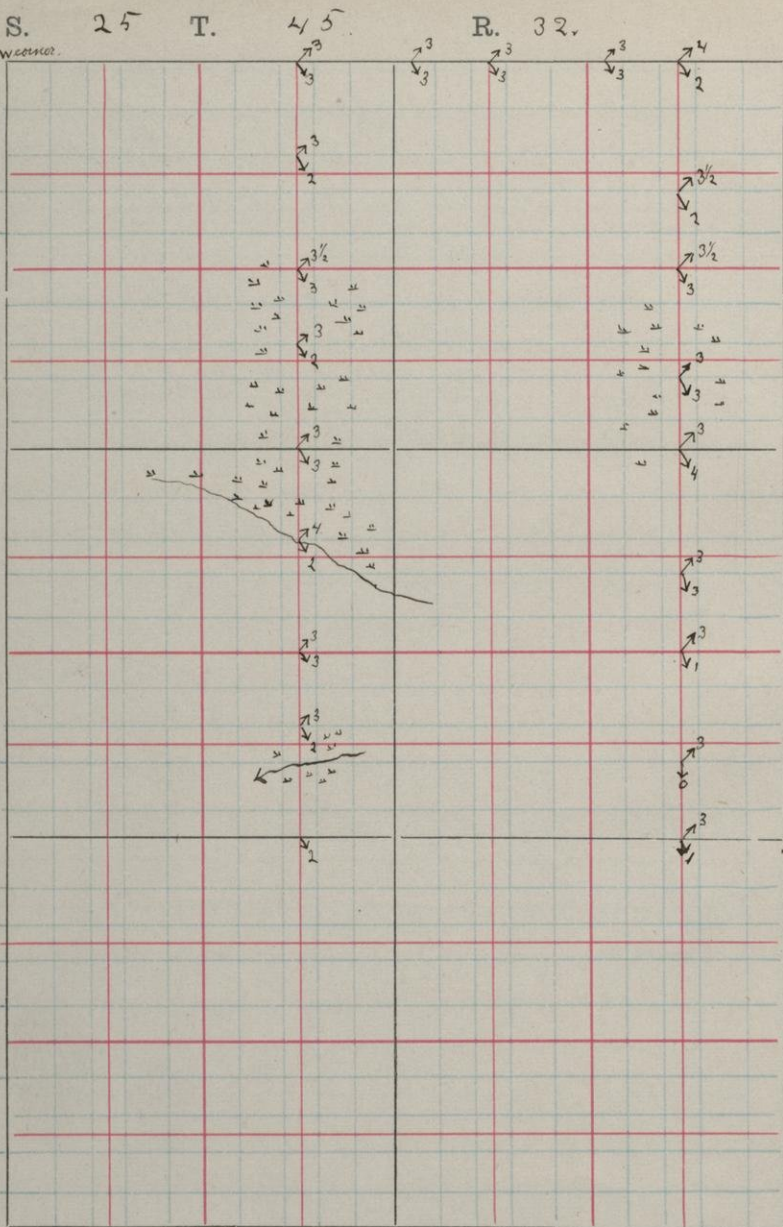
24983 1680 N. 1190 W. 1-44-32.

A knob of granite about 50 paces in diameter. The granite has more of a gneiss-like appearance, than had 24982, and is much seamed with vein quartz. This granite also extends over 100 paces to the S. E.

Also at 1560 N 1250 W, a smaller knob of granite of the more massive phase, like 24982. Aplitic veins occur near the base of this knob.

S. 25 T. 45 R. 32.

NW corner.



SE corner

The whole S. slope of the hill in the N½ of Sec. 1. is covered with outcrops of granite, which is mostly of the phase represented by 24983.

24984.

1060 N 1250 W 1-44-32.

Belt of hornblende schist. extending to the S.W. Contact with the granite observed, - an intrusive dyke, probably originally a fine grained diabase.

Another outcrop was found on the quarter line several hundred paces to the W. Located by Mr. Clements.

Sept 11.

Running N. on 1250 W line of
27-44-32 to N. section line of 22-44-32;
returning on 250 W line.

24985.

1870 N 50 W 27-44-32.

Knob of greenstone conglomerate, about
30 paces in length, N to S., and 10 paces
across.

The weathered surface of
this rock shows the character very
finely.

A series of outcrops of this rock
extends to the S E into Sec. 26.

24986.

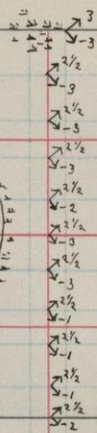
1570 N 1920 W 26-44-32

Large knob of fine grained greenstone.
The volcanic character of the preceding
rock is not to be seen in this exposure.

Doubtless, the two phases come together
in one of the exposures to the E.

३२

NW cor.



Deer skin
Lake.

S.E.
cor

9

Sept. 12.

Running N from Deer River in
25-44-32 on 1250 W line to N line of
24-44-32; returning on 250 W line.

24987.

490 N 1240 W

24-44-32.

A large exposure of medium-grained
greenstone on S slope of hill. Outcrop
about 75 paces in diameter. No relations
to be observed.

Also on SW slope of hill, 130 paces
to the W of above outcrop, is another
larger outcrop. Located by Mr. Clements.

580 N 1250 W

24-44-32

Small outcrop of same rock as
24987.

24988.

875 N. 1370 W.

24-44-32

Large outcrop
extending 75 paces to the W. and over
100 to the N.W. & N.

Greenstone, from the weathered surface
seeming to be coarser than 24987.

980 N 1250 W

24-44-32.

Small outcrop - like 24987.

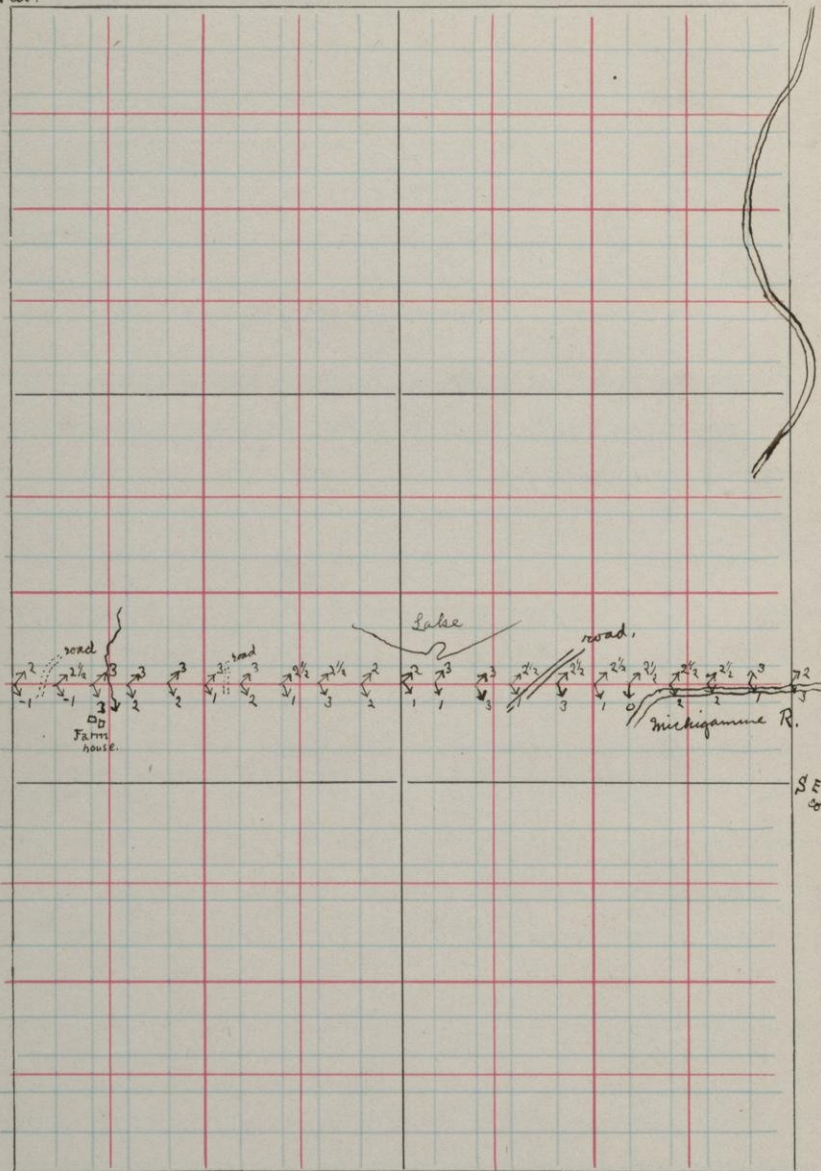
S. 29

T. 44

R. 31,

NW cor.

Road.



Sept. 15.

Running W from 250 N on E line
of 29-44-31 to 800 W in 30-44-31.

No rock exposures.

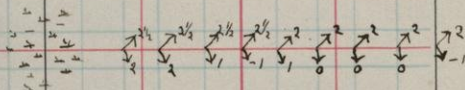
S. 30

T.

44

R. 31.

NW cor.

S.E.
cor.

NW corner



Sept. 16.

Running W from 750 N. on E. line
of 20-44-31 to W line of 19-44-31;
returning E on 1750 N line.

710 N 1825 W 19-44-31

760 N 1825 W 19-44-31.

Small outcrops of greenstone on a
gentle W. slope. This rock is
like 24987. The series of outcrops
extends, perhaps 50 yards to the NW.

24989. 1750 N 150 W 19-44-31.

Red granite with all the constituents
crystallized in large grains. The red
feldspar phenocrysts are very large,
two and three inches in length in some
places.

This granite forms the country
rock of the ridge which extends to the
E for $1\frac{1}{2}$ miles.

24990 1750 N 60 W 19-44-31.

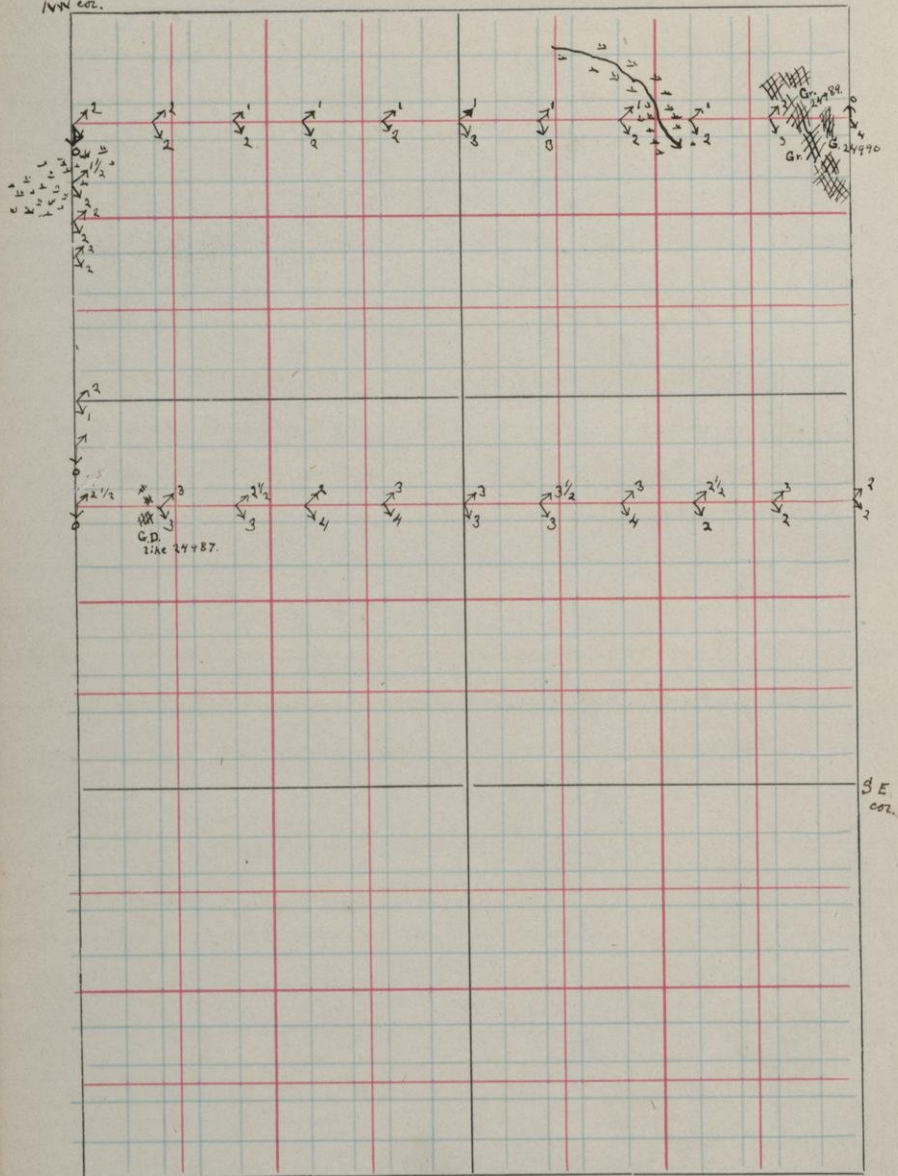
A band of fine grained greenstone,
Relations - dyke in the granite.

S. 19
144 cor.

T. 44

R. 31,

1444 cor.



1750 N 1970 W 20-44-31.

A granite gneiss, like 24981, and with a general N-S strike of the schistosity. In places, there is quite a distinct banding.

1750 N 1860 W 20-44-31.

Another dyke of greenstone in the granite. The relations again are the same as those of 24990, and the rock is the same.

1770 N 1475 W 20-44-31.

Another greenstone dyke with a strike of schistosity $N45^{\circ}E$ and a steep dip to the W.

1750 N 1346 W 20-44-31.

Facing of greenstone on the E slope of the granite knob. Here the relations are not so plain as in the exposures to the W.

24991. 1780 N 1325 W 20-44-31.

The greenstone in the centre of the gap,

in the granite seems fresher and less schistose.

1750 N 525 W 20-44-31.

On the E face of the granite knob, there is a gneissoid phase like 24981.

The gaps in this granite ridge seem to indicate greenstone dykes, as ~~there~~ here the granite usually has a facing of the greenstone, more or less extensive; and often in the center of the gap there are several small areas of greenstone. In all cases, the greenstone is markedly more affected by weathering than is the granite. Study of the relations at the few points of contact did not yield much more than negative results, but these pointed to the intrusive character of the greenstone.

Nothing at all resembling a fragmental rock was seen, tho' carefully hunted for.

Sept. 17.

Running W from E line of 17-44-31
on 250 N line to W line of 18-44-31;
returning on 1250 N line to E line of
17-44-31.

225 N 75 W

17-44-31.

Small low outcrop of granite like
24989 but finer grained.

Also 50 paces to the W another outcrop
of the same, extending to the S.

24992.

250 N 300 W

17-44-31.

A gray gneiss, possibly granitic,
but showing little evidence of mode of
origin. Strike of schistosity $N10^{\circ}W$.
dip not plain, but seems to be steep
to the E. One feature especially
noticeable about this gneiss is the
sugary appearance of the quartz.

250 N 400 W

17-44-31.

A large exposure of a granitic
gneiss, much like 24992, but in
places, the granitic character is very
marked. The strike is about
 $N50^{\circ}W$.

250 N 460 W 17-44-31.

Another large knob of this same gneiss extending 100 paces to the S.E.

210 N 525 W 17-44-31.

Large exposure of gneiss extending about NW + SE several hundred paces on both sides of the line.

24993

At this location, the gneiss is more a fine grained schist, dark and showing no traces of origin.

24994.

A few feet W of 24993 and in the same ledge, the schist becomes even finer in grain, and almost resembles a slate. The strike of the schistosity is N 25° W, dip 70° to the E.

N. + W. of this location, the ledge becomes steeper to the W. and the rock has more of a gneissoid character, and at 250 N 550 W it is plainly a granite gneiss.

The rocks 24993-4 in their relation to the granite gneiss are wholly of a different class from the dyke rocks occurring in the granite mass to the S.

in Sec. 20. These ~~seem~~ ³ to represent rather different phases of the granitic gneiss.

At 250 N 600 W, the typical granite of this area is again found.

To the W. small outcrops of granite are constantly found. The granite is like 24989 in general, but seems to be finer grained to the W.

270 N 1480 W 17-44-31.

A small outcrop of granite gneiss with a NW-SE strike.

250 N 1640 W & 1700 W 17-44-31.

The typical coarse grained granite again occurs, extending to the N & S several hundred paces and 150 to the W. This is on the W slope of hill.

Granite outcrops also occur in the small swamp at the foot of the hill.

1730 N 1675 W 17-44-31.

Several exposures of granite like 24989, with a facing on the W, of granite gneiss, very micaceous.

1720 N 1300 W 17-44-31.

Large outcrop of the granite, rather finer grained than 24989.

Another ledge of the same granite occurs at 1720 N 650 W - 17-44-31.

S.

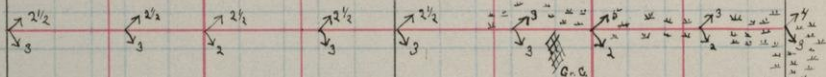
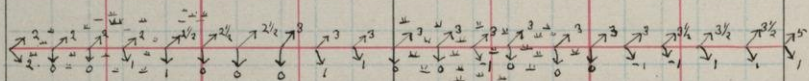
8

T.

44

R. 31.

NW 22.

S.E.
Cor.

Sept. 18.

Running W. from 250 N of SE corner of 8-44-31, to W sec. line of 7-44-31; returning E on 1250 N. line to E sec. line of 8-44-31.

250 N 620 W 8-44-31.

Granite gneiss like that to the S. in Sec. 17. Outcrop on edge of swamp.

310 N 1560 W 7-44-31

Large outcrop of granite like 24989. on W slope of hill.

52

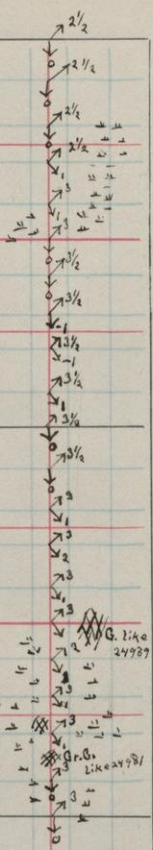
5.

T.

4/4

R.

31



Sept. 19.

Running N from 250 W of S.E. corner of 5-44-31, to road 250 N of S sec. line of 29-45-31.

150 N 250 W 5-44-31.

Small outcrop of granite gneiss in swamp.

Also at 215 N 250 W, the same.

In places there are traces of an E. & W. schistosity.

500 N. 145 W. 5-44-31.

A large outcrop of granite like 24989, on the NE edge of swamp.

52

32

T.

75

R.

31

IV VV col. 2

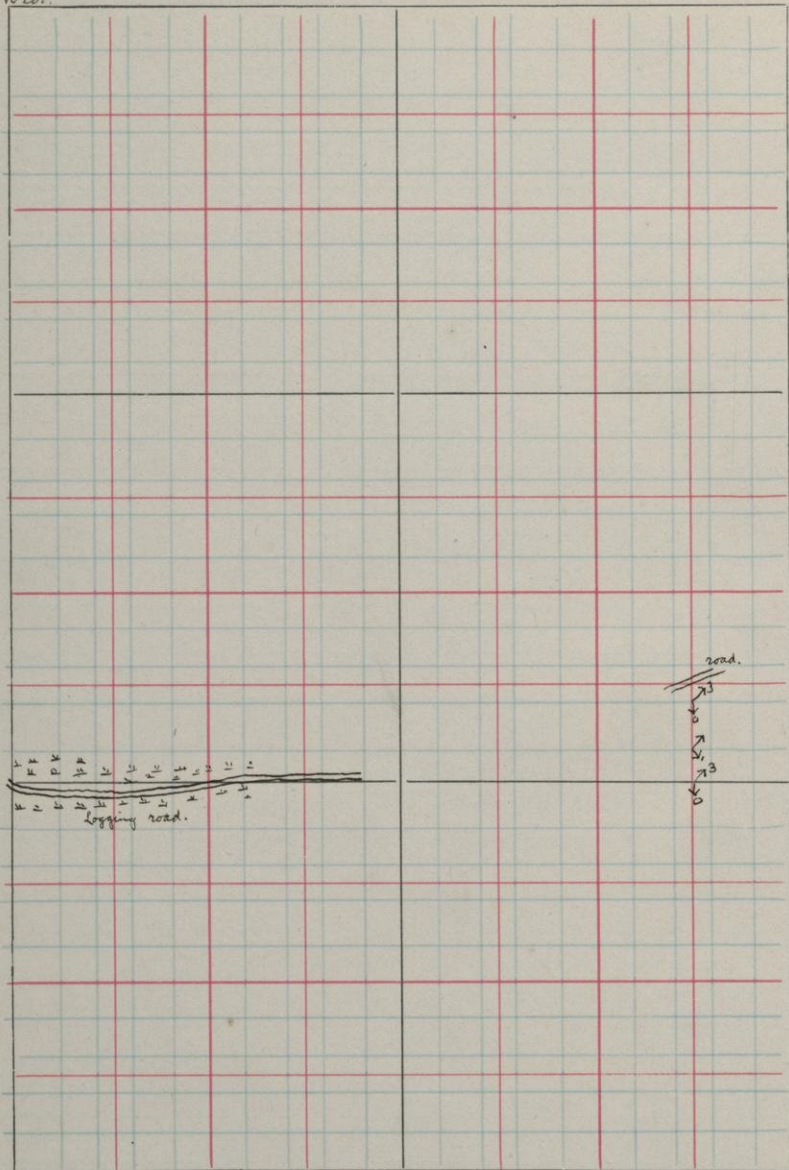
²² Logging Road

Lake

SE
CR

S. 29 T. 45 R. 31.

NW cor.



SE
cor.

S. 31
NW cor.

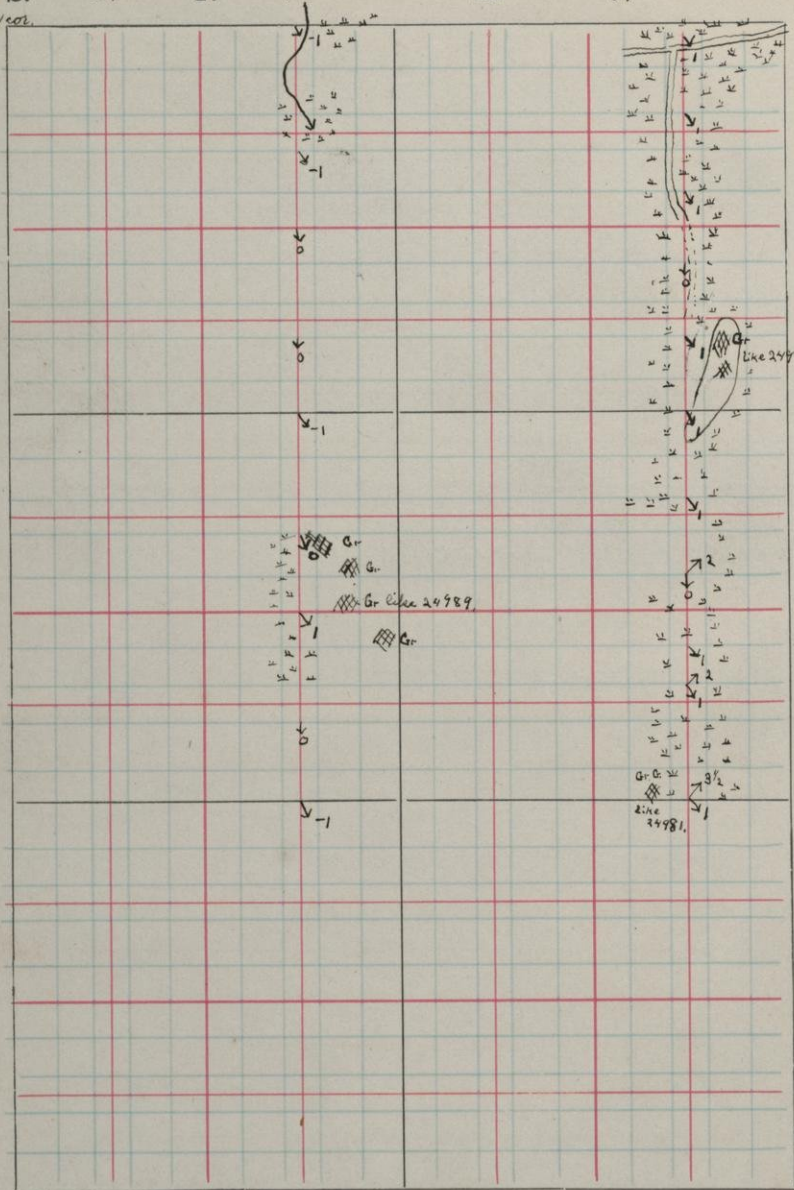
31

T.

45

R.

31



Sept. 20.

Running S. from 250 W. on N sec. line of 31-45-31, to S. sec. line of 6-44-31; returning on 1250 W. line.

1190 N 160 W 31-45-31.

Granite outcrops in swamp.

Granite like 24989, but squeezed so as to be quite gneissoid in places, with a strike of schistosity about N.-S.

14 N 350 W 31-45-31.

Small outcrop of granite gneiss on edge of swamp. Same as other occurrences of granite gneiss noted earlier.

1925 N 110 W 6-44-31.

24925

A large outcrop of hornblende schist cut by pegmatite veins. Strike of the schistosity N 40° W.

Passing along the strike to the SE the rock suddenly assumes a new character, ~~and~~ being more massive

24996

and resembling the greenstone found to the S W in Town 44-32.

Still further to S.E., about 50 paces, there is another large exposure of the hornblende schist, so that the greenstone may represent a dyke. The boundary between the two rocks in the first ledge, is quite well defined. The greenstone also has the NW-SE schistosity to some degree.

1325 N 290 W 6-44-31.

Low outcrop of granite like 24989, about 80 by 40 paces in extent.

1300 N 325 W 6-44-31.

24997

Close to the last granite outcrop occurs a small exposure of lustre mottled greenstone. No relations observed.

The granite is again found to the S W, 80 paces distant.

1230 N 0 W 6-44-31.

Small outcrop of granite like 24989.

1075 N 370 W 6-44-31.

Outcrop of granite like 24989, but
finer grained and slightly gneissoid
in places.

925 N 304 W 6-44-31.

620 N 55 W 6-44-31.

190 N 1250 W 6-44-31.

700 N 1195 W 6-44-31.

Exposures of granite like 24989.

755 N 1215 W 6-44-31.

Greenstone like 24996.

845 N 1250 W. 6-44-31.

1295 N 1250 W. 6-44-31.

1450 N 1315 W. 6-44-31.

435 N 1050 W. 31-45-31.

690 N 1220 W. 31-45-31.

540 N 1150 W 31-45-31.

650 N 1150 W 31-45-31.

Granite like 24989.

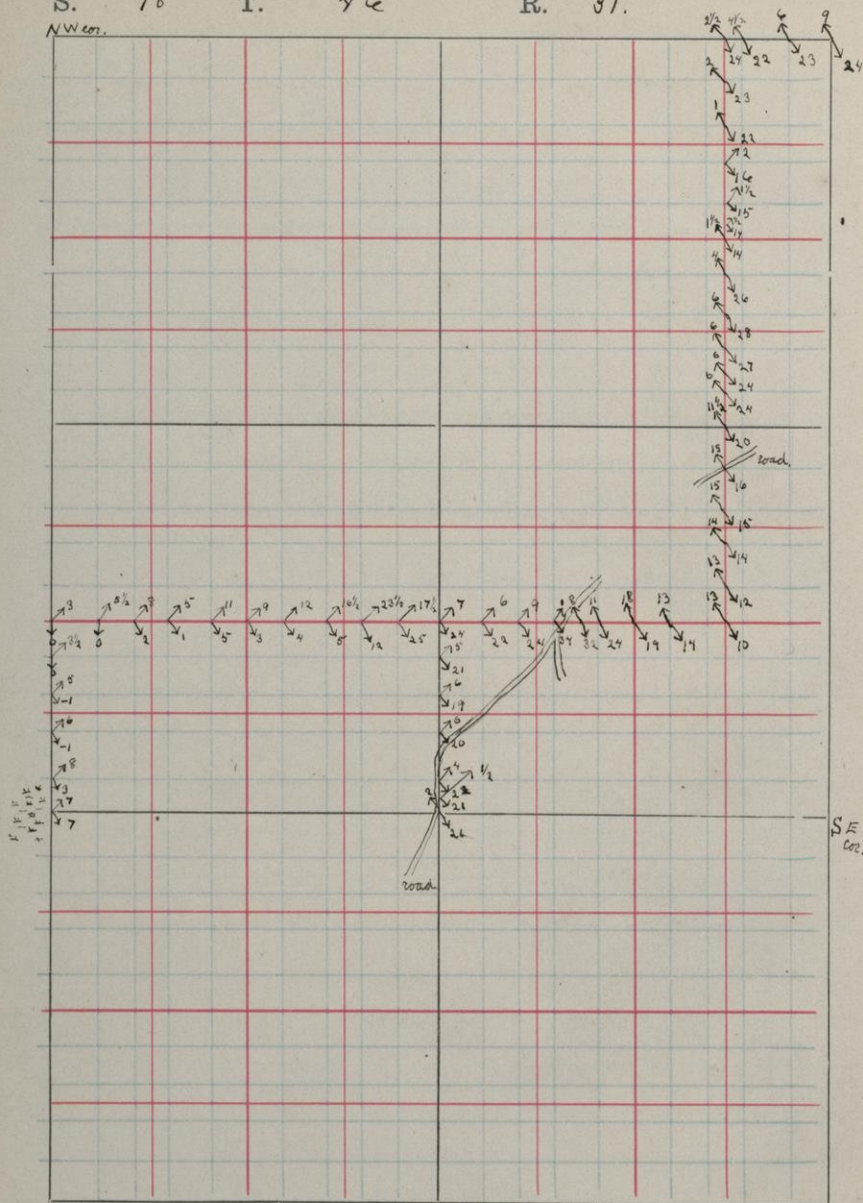
S. 18

T.

46

R. 31.

NW cor.



6—747

Sept. 26, 27, & 28, magnetic
work in Secs. 5, 7, 8, & 18, in
46-31, and 12-46-32.

S. 8

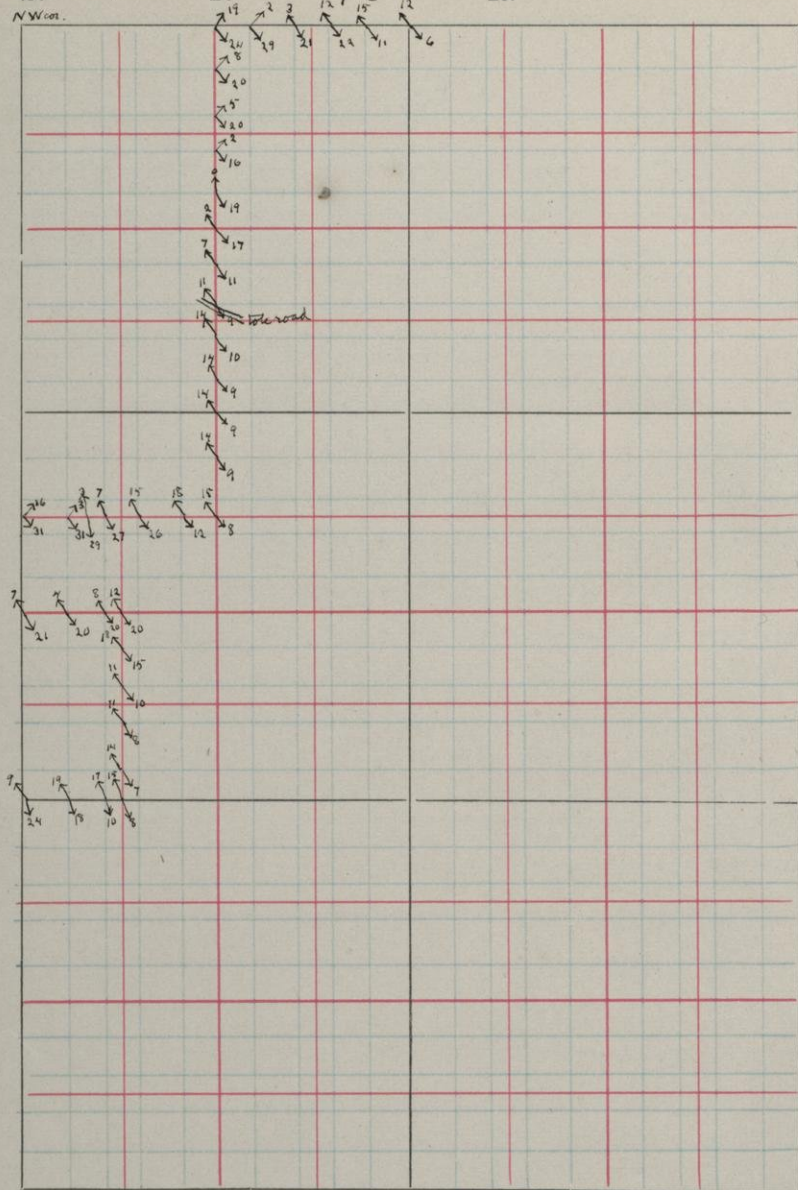
T.

46

R.

31

NW corner



seen

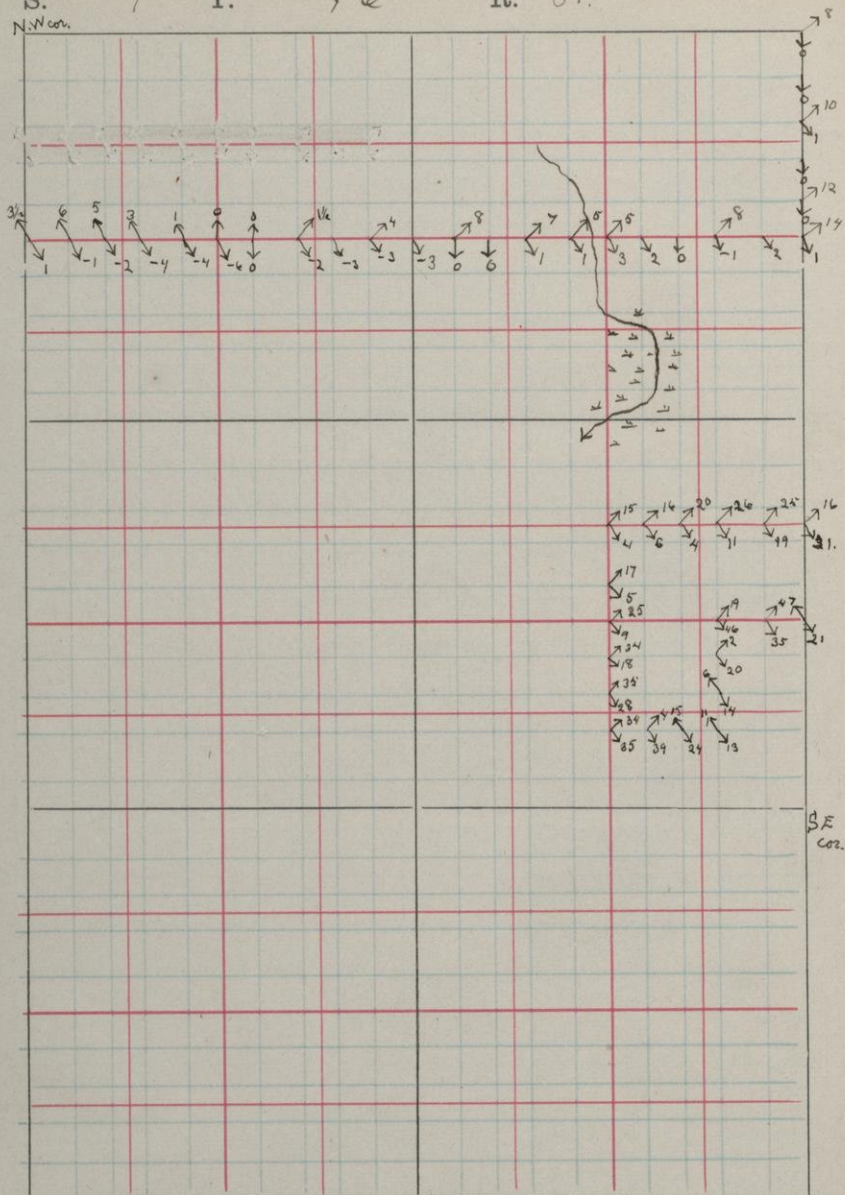
S.
N.W. cor.

7

T.

46

R. 31.



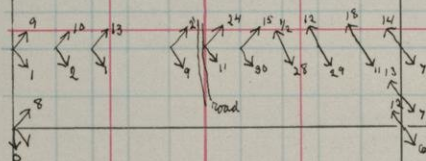
S.
NW cor.

5

T.

46

R. 31.



SE
cor.

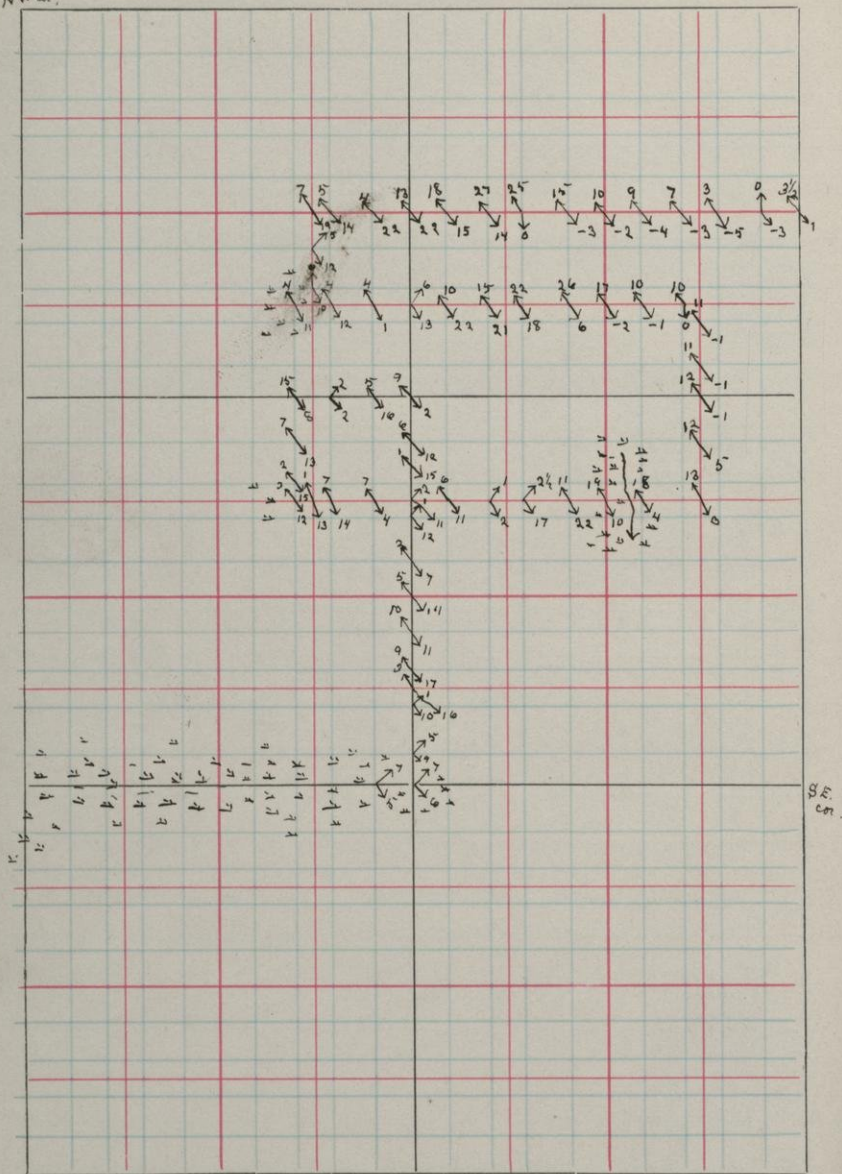
S.
NW cor.

12

T.

46

R. 32,



no 3M

22915-24986

23008

23637-23646

7

2M

75 23446

23632

7 24973

24997

7 23009

23189

