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Cutler, H. E.

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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 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.

Notebook No. 362.

atabant 1500 N a dia

Oct 8, 1900.

1

Start NE cor. sec 2 T 8 N
R 16 W. Ran N.

Immediately S & N of corner
are a number of large exposures
of green stone for the most part
massive but some of them have
an imperfect chistosity running
about N 80 E & dipping vertically.

700 N. 50 E to 50 N is mas-
sive greenstone no structure.
This forms the south base of the
large knoss on the highest part
of the ridge. The rock is rather fine
grained & cut through by quartz
veins.

No exposure of what was found
to a pt 500 N of NE cor of sec 2

At this point return what

Ran N 1000 paces. No exposure was
found in this distance. Boule is
practically all granite. But at one
place 375 N a band of banded gray.

rock & slate was found -
at 1000 W turn S.

2

No exposures are found
to a point 1200 south. 1250
S. greenstone boulders first
begin to appear

Incoming S when we struck N
line of 26. We found we were 100
paces W of the $\frac{1}{4}$ post, but continued
S on same line, struck S. E & W line
at 1900 paces.

At 250 W 150 S of the N E post
there are a number of boulders of
finely banded quartzite. These may
come from the belt at the north of the
green schist -

S.

T.

59

R.

15

28

11/07

Con

#

Con

33

Road

45181

~~45182~~

Start NE corner 33 T 59 R 13

135 N + 10 N is a test pit about
25 ft deep, cont. pre. 45181

45182

360 N - 15 N test pit about 10 ft deep
45182 found there.

45183

400 N - 35 N test pit struck ledge at 30 ft
struck gabbro

45184

430 N 125 N drill hole 26 ft. on top
of this gabbro is a "paint rock" about
6 ft thick.

45185

400 N 225 N test pit 30 ft deep. The
Red Rock struck at 9 ft then 5 ft of
this then ran into greenish.

45186

900 N 100 N test pit 25-30 ft deep

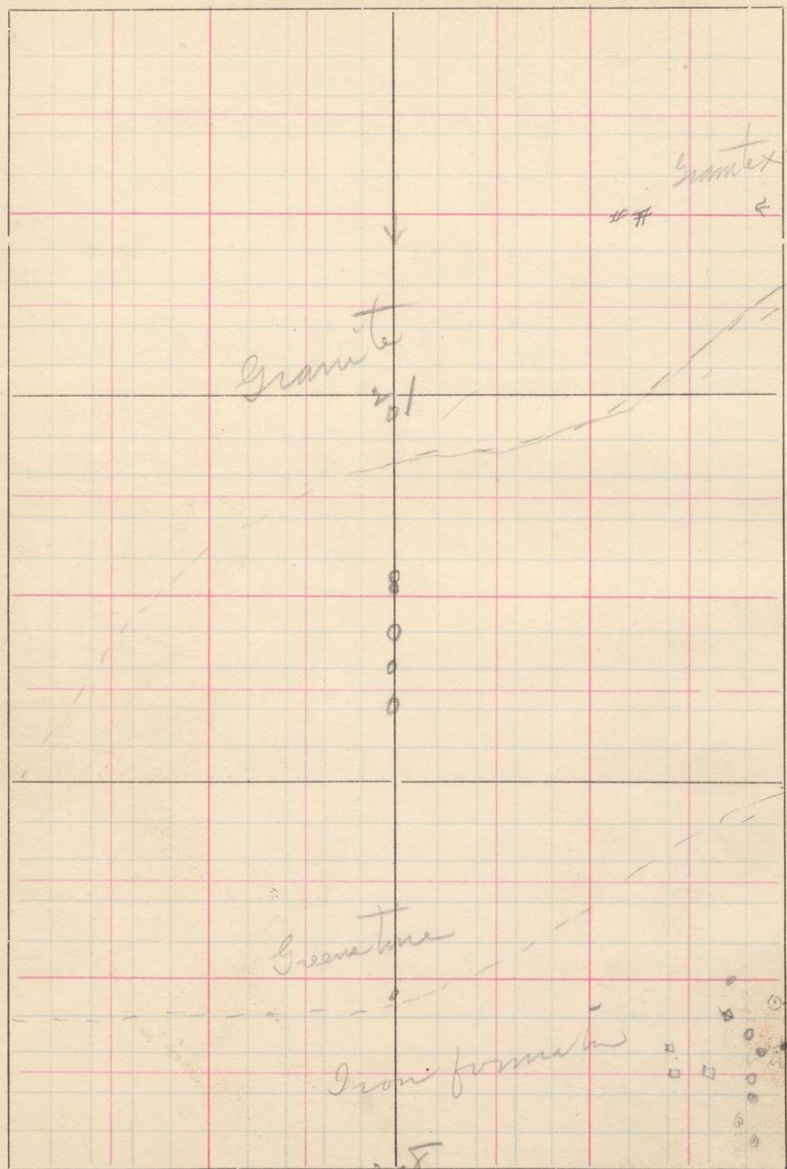
45187

1200 N 100 N test pit about 30 ft deep

T.

R.

R. 13



45188 1250 N-100 W lat pit 20-30 ft deep large
amt of red material thrown out on dump

45189 1300 N-50 W lat pit 30 ft deep also
large amt. of red material on dump.

45190 1330 N lat pit about 25 feet

45191 1350 N 100 W lat pit 30 ft.

45192 1400 N 150 W lat pit

1500 N 150 W 12 ft deep nothing

No outcrop found to 1500 N Sec 21
N₂ now turn W

45193 1500 N-370 W out crop granite mas-
sive apparently horizontal bedding

45194 1500 N-430 W outcrop same ledge of
granite massive coarse grained, strike
N 30 E fringing dump S.

1500 N-1100 W now S

1000 N-540 S lat pit 15-20 ft deep nothing

45195 1000 W 950 S that pit gr stones 25 ft ⁵

45196 1000 W 975 S that pit gr stones 30 ft

45197 1000 W 1100 S that 15 ft

45198 1000 W 1200 S " " 15 ft

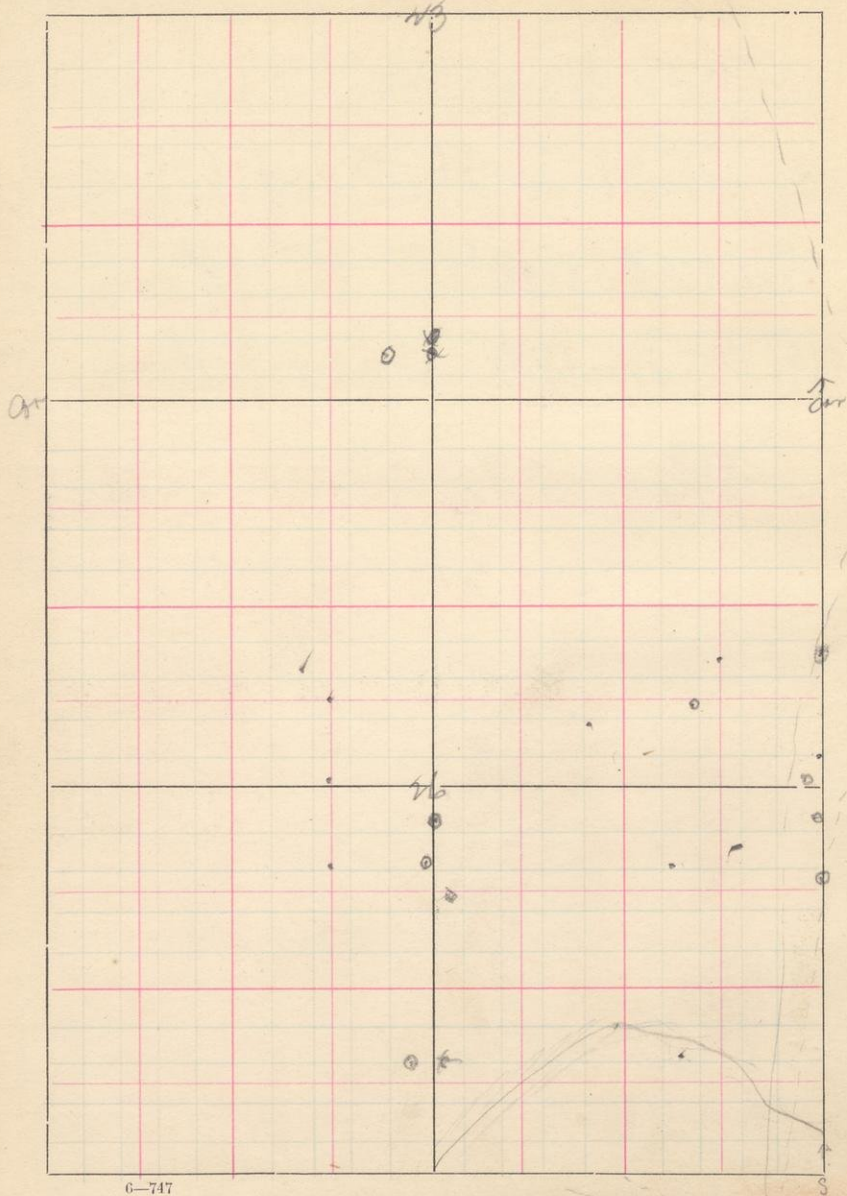
45199 1000 W 1300 " " 10 ft

950

S.

T.

R.



Start SE cor Sec 26 T59-R15

6

775 N that pit nothing found

45200 1225 N 320 N that pit about 25 ft. deep
This gravel came from pit but nothing
positive that it is from ledge.

1025 N 25 N that pit about 15 ft. Nothing
"Pit a"

940 N 10 N that pit 20-25 ft nothing (?)

We came to 1/4 post at 1100 paces N

1360 N on line that pit 10 or 15 ft deep. Nothing
but gravel & gravel over boulders.

NE cor Sec finds 11200 paces SE.

At 2200 N. WE turn N. on line 23
2000 N of NE cor Sec 26

45205

S.

T.

R.

Om

Om

NB

45201 At 2000 N - 300 W find granite?
ldg. Pyro 25 paces long. Massive
gray. Rather coarse grained
at 2000 N - 375 W same type of
granite there

45202 Ridge N 700 W dip massive granite
coarse grained faces South same
as in other 2 instances

45203 2000 N 1000 W ledge of granite same
gen. characteristics as others
at 1000 W we turn S.

45204 1000 N 1840 S that pit 15-20 ft

45205 1000 N 1080 S that pit 50-60 ft iron

45206 1000 N 1180 S that pit 50-60 ft iron

45207 950 N 1760 S that pit 40 ft iron

45208 950 N 1700 S that pit 40 ft non-forma.

S.

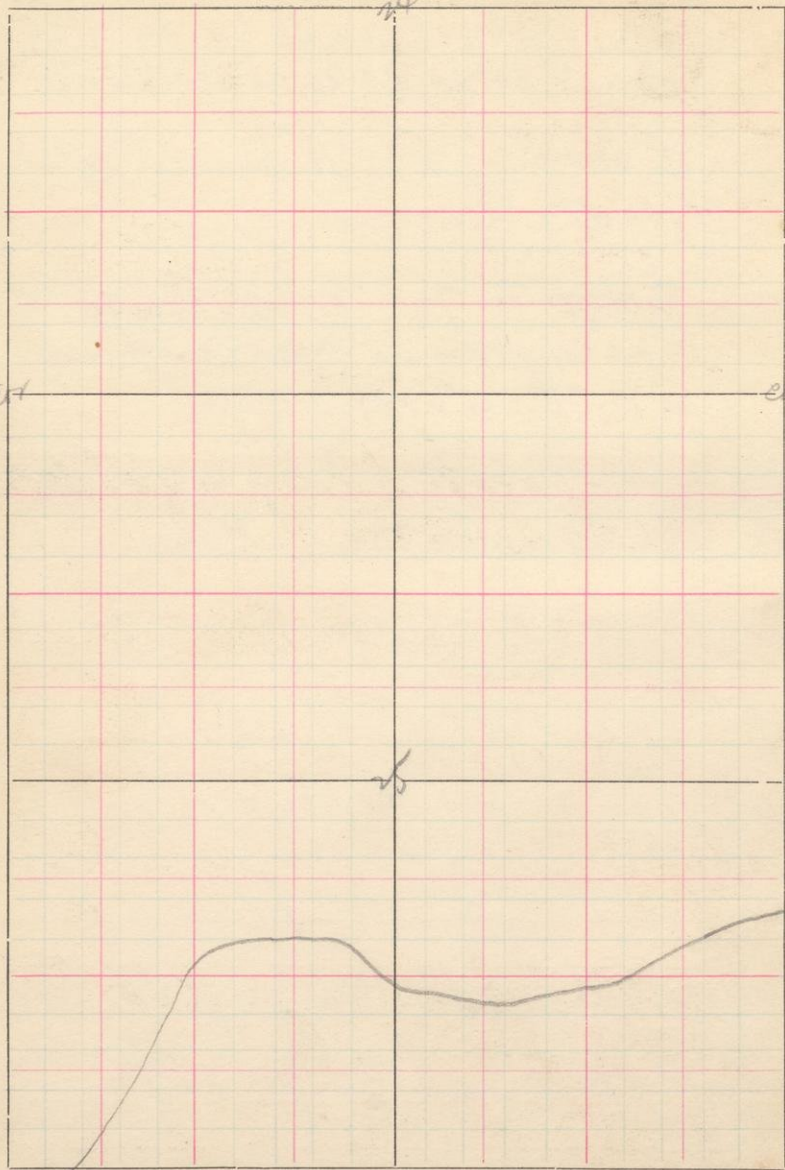
T.

R.

C-1

C-1

b



Sec 25 T59 R15

Start at 320 paces N of road strike $\frac{1}{4}$ ⁸
on Sec 25-

Run N on E line of Sec 25 T59
R15 from the $\frac{1}{4}$ line

45209 1000 N of SE cor Sec 13 large out
crop of granite, running E & W about
100 paces each side of line
at 1100 N within N

45210 1100 N - 880 W small granite
outcrop. massive.

1100 N - 955 W granite outcrop
same sort.

1000 N 1100 N within South

45211 1000 W 280 S massive granite out
crop

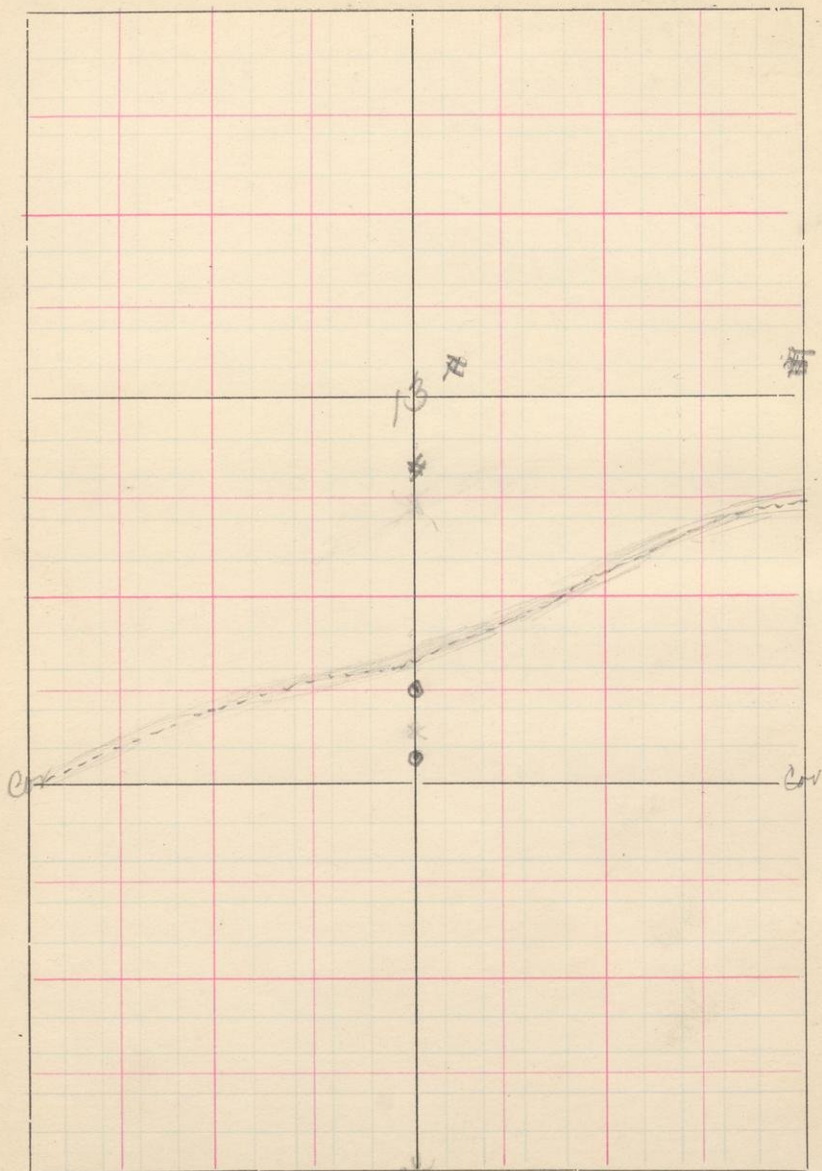
45212 1000 W 850 S that pit about 5 ft
west of date

1000 W 1025 S that pit no formation 3 ft
45213 to ledge

S.

T.

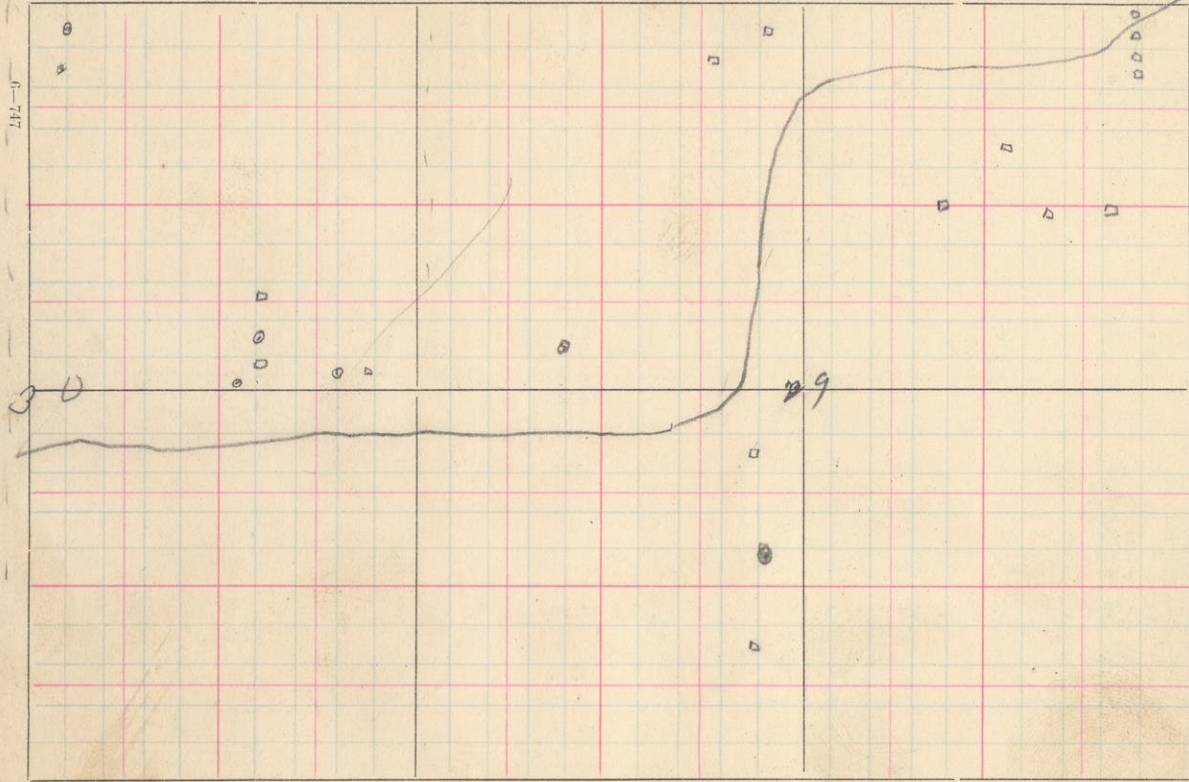
R.



Nothing more found in June⁹
to road.

Run out

6-747



R.

T.

S.

Sta X

Start cut no 30 run N. T59 R14

10

900 paces Test pit 30 feet deep but
no ledge yet.

950 N 75 N Test pit 10-15 feet no rock

45214 1015 N. Test on line is drill hole. This
material taken from a pile of similar
stuff on dump. Hole No 16 Aug 13 1920

45215 1050 N 100 E drill 65 feet struck ledge
at about 50 ft. Iron formation.

45216 1175 N 65 E drill hole struck talconite
at 51 ft

950 N 100 E test pit 15 ft no ledge

850 N 75 E drill hole but no rock

45217 150 N 600 E test pit iron formation 15-20 ft

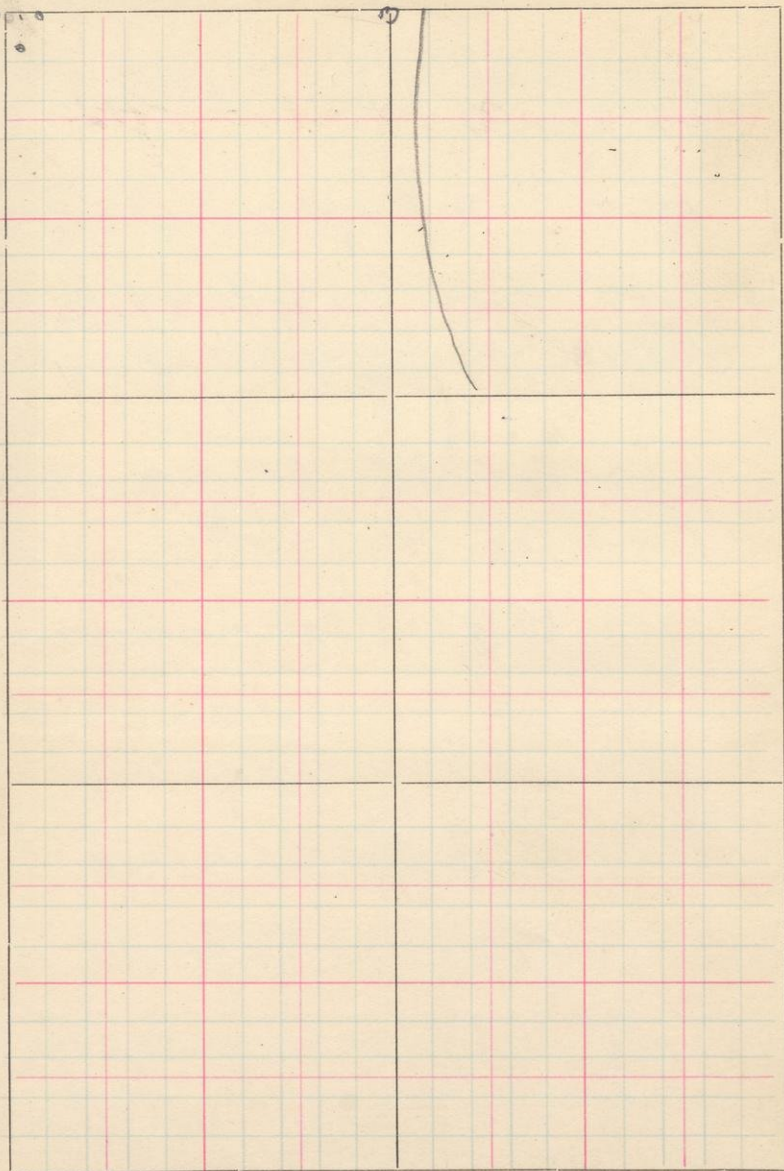
45218 25 N 550 E test pit iron formation 8 ft

50 N 800 E drill hole 19 ft to ledge 30 ft
through lake according to foreman

S.

T.

R.



We now come to the line of 29 ¹¹
still on 1/4 line.

45219 400 E 110 N test pit 10-15 ft deep -
Iron formation.

45220 900 E 430 S test pit, Very old pit & hard
to estimate depth - Perhaps 10 ft deep.

45221 900 E 630 S May be an old test pit
specimens picked from supposed dump
550 N - 75 N test pit quite shallow 8 ft deep. No ledge

T59-R14

12

Outcrop taeonite. Dip 6° to North
Strike N $55-60^{\circ}$ E. Near Pit (28.) Screen

900 E 300 S of N N Car Screen is a
large piece of rock dipping 10° to
S+ on other side of hill from former.
Looks like outcrop. Taconite. Strike
N $55-65^{\circ}$ E.

45222 - } 15+22+21-5-9-14
45232 } See Blue Print for
location

Start SE cor Sec 27 T59-R14

13

45233 Outcrop ^{rotten} gabbro 285 W 55 S. Massive
mound forming 1/4 acre in midst of swamp.

45234 650 W 200 N large massive outcrop
finely grained gabbro.

Start SE cor Sec 27

45235 Outcrop flat, dipping to E-SE 975 N
Parallel banding, par. to dip

45236 1200 N 1300 E looks like massive outcrop
of gabbro

1200 N 1500 E outcrop gab.

1400 N 1700 E outcrop gab finer
grained more or less stained with iron
in places banded in strips with ^{lenticles} (botero)

1800 N 2200 E outcrop gab

Turn 1/2 for NE cor Sec 27

1200 E of NE cor Sec 27 gabbro

45237 1050 N - 100 E ^{159 R 137 N} ~~225 N of this outcrop~~ dipping 84
225 N of this outcrop ~~225 N of this outcrop~~ (2)

45238 1650 N - 100 E great massive outcrop
gab. fine grained

300 E of NE corner outcrop late dipping
SW

R 13

Number

0-717

T
59

S.

T.

R.

6

5

4

3

gab ✓
#45241

1

45240 #gab

7

8

9

10

11

12

18

17

16

15

14

13

19

45239 #
#gab
#slate

Start 650 paces E of N² cor S¹⁶ 15

at 200 N 1200 E we correct

200 N of S¹⁶ cor 18 gab outcrop

500 N 50 E outcrop gas

45239 600 N 125 E large outcrop gab

1000 N 2000 E of S¹⁶ cor S¹⁷ No
relation confirmed

550 N 1000 E Boundary of gab

Run along bore line E to S ~~46~~
bre 4

45240 350 E outcrop gab running 300 yds
paces each side of direction line
in NE & SW direction

R13 N

R12 N

S.

T.

R.

0-717

T60

lacustrine

lacustrine

sub-boulder

45-44

25

45-43

35

45-42

Start at the SE corner 3

17

45241 700 N outcrop gneiss

45242 950 N 1000 E of SE corner 35
outcrop, massive fine grained
gab(?)

45243 1450 E on N line of cor 35 outcrop

1900 N of SE corner 35 large
outcrop of taconite dipping South

45244 300 E of NE corner 35 ^{TWO RIBS} boulder of
gab

1100 N 1100 E large outcrop of taconite dip S

R 1971 R 1871

S.

T.

R.

6-717

T5971

33

34

35

36

31

32

T5871

4 # Schist

3

gran

2

1

6

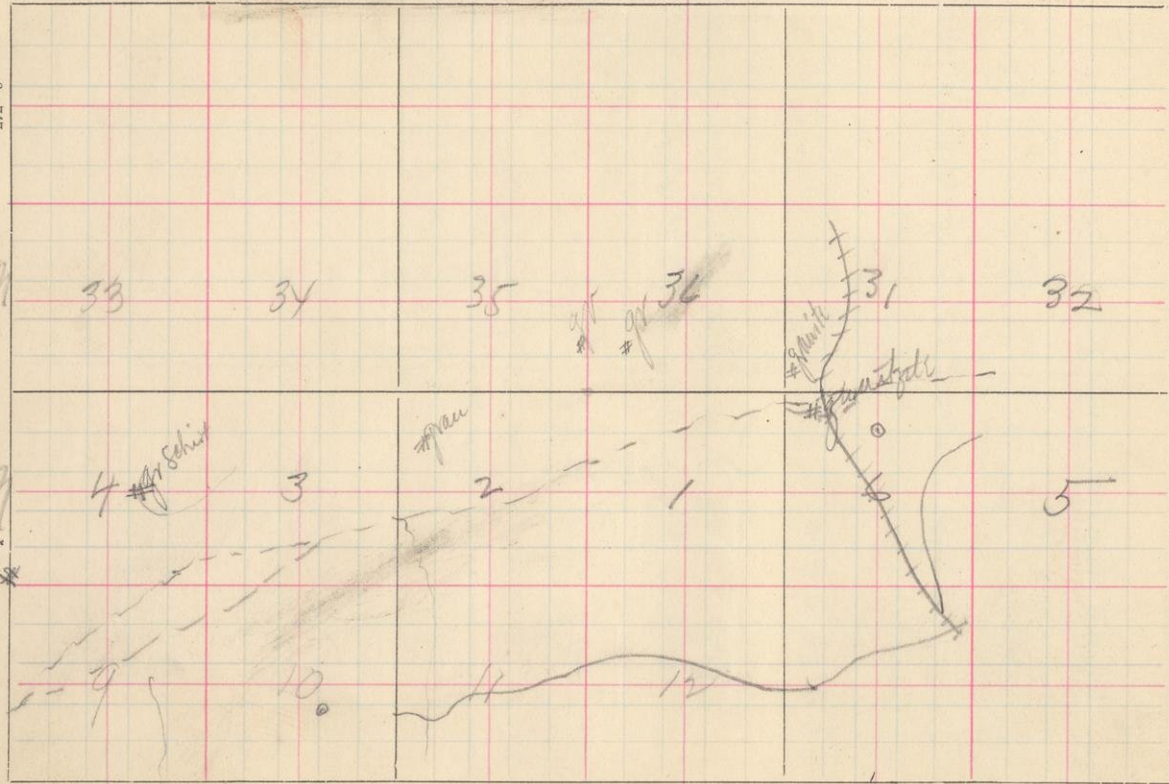
5

9

10

11

12



Start at 1/4 on No 6 from NW 1/4 18

45245 400 S 1/4 Tent pit about 20 ft deep
talcumite

45246 300 S 1/4 NW 1/4 Cor Sec 6 quartzite

45245
45246
45247

Start at Meers 1 R 19 N T 56 N 19

- 45247 325 N 100 E outcrop of granite
pretty well shattered. located pr. page
granite on 1/2 line bet. 31 & 32 estimate
550 N 75 E gran. same as 45247
- 45248 550 N 1600 N outcrop granite, more
or less cracked with quartz veins filling
some cracks
- 45249 550 N 75 N of line of 36 outcrop gran
550 N on N line of 36 found a taconite
concretion.
- 45250 500 S 1650 N ^{Meers 1/2} large outcrop
gray granite facing SE

Start N at N $\frac{1}{4}$ part of Sec 16 T58N
R19W ²⁰

45251 250 N S ~~West~~ Outcrop granite
cracked mon or less angular

45252 1000 N 1275 E large outcrop. flat
face + steep facing W

45253 1250 S ~~mon~~ ~~granite~~ flat pit 100 or more
feet,

S.

T.

R.

10

15

9

16

17

~~##~~ granite
8

 11.33 p.m. 2/11
 Here are 18 new

18

 granite
 sample

12

13

1

##

14

Start Nat W $\frac{1}{4}$ Sec 16 T 58 R 31
R 19 W.

Run to recorder then W 1000 paces

45254 1200 W large massive ledge granite

45255 1200 W 1200 W of Sec 8
ledge granite (gray)

45256 1200 W 1330 W gran ledge (pink)

45257

ledge massive
less broken of gray granite

Start at NW cor Sec 40 June 22

Run N 400

45257 770 South ledge granite running
SW gray with surfaces more or less
redish

45258 850 South Ledge pink granite
more massive probably 25-50 ft higher
than 45257 & further gray & higher
again.

45259 1300 S 700 W more or less
broken ledge fine grained gray
granite

45260 1400 S 850 W ledge massive gray
granite

45261 1800 S 1700 W ledge cracked granite

45262 1800 S 1900 W " " " fine

S.

T.

R.

0-717

8

9

10

11

12

17

16

15^{pr}14^{pr}13^{pr}12^{pr}

13

20

tagonite

22

18

19

Start at W $\frac{1}{4}$ of Sec 13 thru N

620 N of $\frac{1}{4}$ & 500 ft outcrop granite
Run N to Sec line then W 500

45763 230 N ledge granite massive
at 500 W turn S 400 then W

45764 780 N granite ledge

Go N to $\frac{1}{4}$ line then S to 870 N of $\frac{1}{4}$ line

45765 635 S 1000 N outcrop gr

45766 1000 S 1920 N ledge of quartzite

45767 150 N 550 N of $\frac{1}{4}$ bet 14 & 15

45768 60 S 900 N ledge massive granite
Run S to road from 1400 N but
no outcrop -

Start at S. E. corner Sec 16

24

45269 1000 S 1240 W. R.R. cuts this bed of
taconite or ore.

Could find no granite as hills
were too thickly covered with drift.

45269 not copied on big
map as direction is not given

Gat. 31

Rodda Nov. 1.

Wm

Wm

