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Menominee Iron district, Michigan: [specimens] 41462-41564. No. 394 Summer 1900

Bayley, William Shirley, 1861-1943

[s.l.]: [s.n.], Summer 1900

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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 $2 \times 2\frac{1}{2} \times \frac{3}{4}$ inches will be allowed, but in all other cases *large-sized specimens*, trimmed to a size of $3 \times 4 \times 1$ inches, must be selected, in accordance with section 3, chapter IV, p. 44, Regulations of the U. S. Geological Survey. Specimens should not be placed together without protection in the collecting bag, as the fresh surfaces, important in determining the character of rocks, are thus destroyed. They should be damaged by no temporary mark, but the numbers should be at once marked in at least two places upon the inclosing paper or cloth bags. Specimens may be permanently marked in camp by painting the numbers upon them in white upon a black background, using Silver White and Ivory Black oil tubes for color, with turpentine as a diluent.

4. On the last twenty-five pages of the book give, as may seem desirable, a general account of the examination of the region mapped in the previous pages, correlation of observations, sketches, cross sections, etc.

5. Forward this note book as soon as filled as registered mail matter to C. R. Van Hise, U. S. Geologist, Madison, Wis.

41462-41564

Notebook No. 394.

Menominee Iron
District,
Michigan.

Summer 1900.

W. S. Bayley

1
The season of 1900 comprised
my about 5 weeks. This time
was spent in visiting the
Mennemee Iron District with
the view to discovering any new
information that would add to
that obtained in earlier years.

Very little mapping was done,
and few specimens were taken.
The principal work done con-
sisted in correcting maps, re-
locating ledges, correcting road
locations, etc. and in collecting
maps, drill hole records and other
information from mining men.

During a part of the season was
assisted by V. S. Kelly and Will
Corybeane, locating pits and
running magnetic lines.

41462

The first specimen taken was from a *Lichas*-*Trachis* covered pit in the NW corner of the Skelton School location at Iron Mountain. The pit is now filled in but a lot of slate like specimens can be seen in the old dump.

About 50 paces a little E of this is a pit which appears to be in the contact between the slates and an iron formation.

150 W of a group of pits in a line between the old shaft S. of the Millie line and the smoke stack of

Walpole is a pit apparently in one (it is about 100 ft of the NE. corner of the Skelton School)

The next pit consists of 4 ap. probably all in the iron formation. They are 200 W of old shaft

50 { $\frac{8}{10}$ } - $\frac{200}{100}$ - $\square$ old shaft.

"C" shape of Willie's mine is 280 ft
S. and 300 E of 2 1/4 West of the Sec-
tion.

Row of Pewabic pits² located in
place furnished by Mr. Hardentough.
At the R.R. Spur running into
the Walpole is a ledge of mic. for-
mation stuff dipping 75° S.

The pits occur at every few feet
to some little distance South of
"B" Street.

At the Walpole shape ^{of} the Mnai
41464 Slates are well seen in dump. They
are identical with those at Mnai
Hill.

At 3rd pit S. of this shape the mic.
41465 formation begins. It is evenly bed-
ded like the Trades's

41466 At the 2nd pit North of "B" Street is
good one and Jasper

41467 2nd pit S. of "B" Street. Jasper

41468 Many slates, Southern strike
of row.

Several pits East of this are in line of formation.

Made a run about Limestone again to try to locate ledges. Map and specimens few pages beyond (Nos. 41481-41484).

B shaft. Linderholm, on surface, is 1067 ^{ft} N. 297 ^W JSW Cor Sec 30.

Chapin 6th level is 360 ft. deep at C shaft.

Drill Holes in Chapin:

545 ft. W of B shaft in 10th level started drill 12 ft. S. of old level. Run is horizontal to the South penetrating.

4 feet Soapstone
49 " banded iron
218 " cherted shale

Another directed ^{north} drill from C' shaft in 10th level began 30 ft from side of shaft and went

through

132 ft slates

48 " jaspers

41461 75 " quartzite

Another S. from South side of
New South lens 10th level cut.

212 ft slates

80 " banded one

114 " one

10.8 " Jaspers slate

416.8 Total.

Fredericks Shaft in Sandstone is
625 S and 10 ft E of 1/4 post Sec 33
T. 40 R 30.

Traders mine

Pit 19 (located on map) is in one

" 20 is in one

A pit in gray slate is 36 feet
from pit 19 along Extension of
line between office and shaft.
100 ft W of this is a pit in red slate
and 30 ft N of last is one in lean
one.

Pit 19 is 765 ft. N and
315 ft W of 1/4 post.

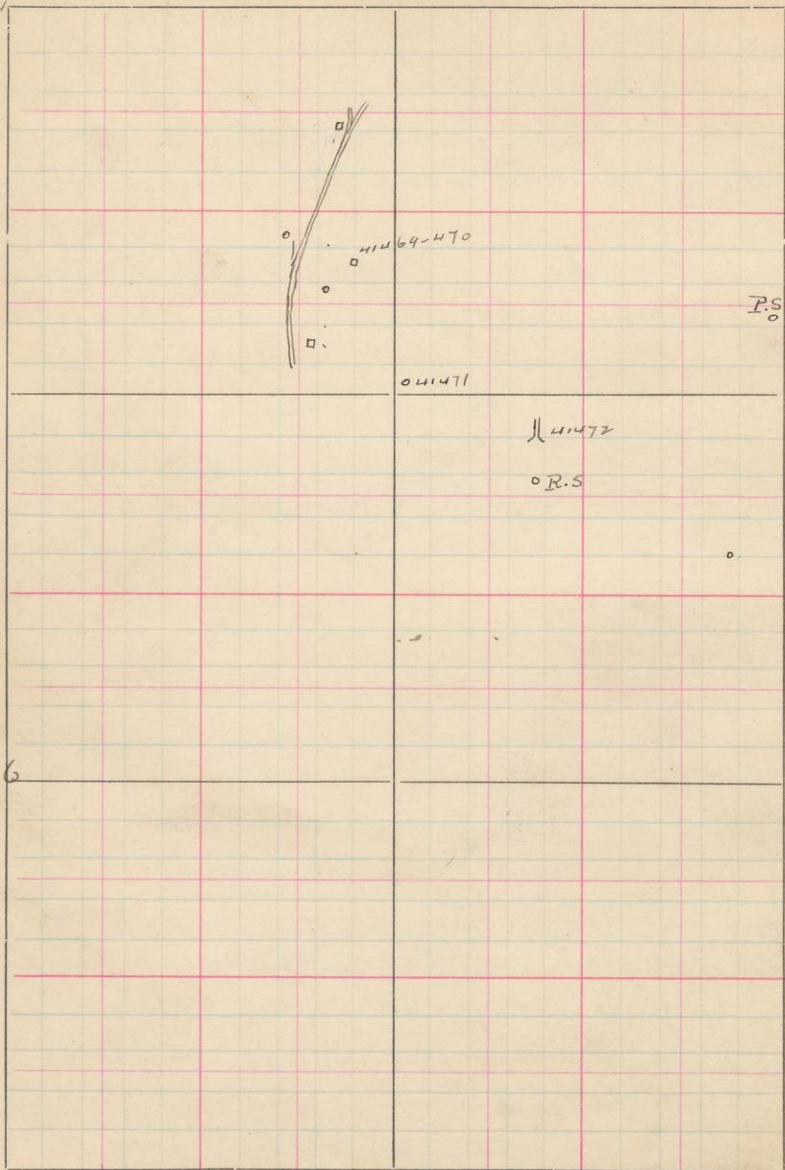
S. 26

T. 40

R. 31

Cor

N 1/2



41475 Specimen from W. Clinton's
pit in R.R. from Grader's shaft.

41475 Quartzite from same pit.

The board shaft at old Ludwig's
is 460 S. 41.5 E, and inclined
shaft 424 S. 41.0 E. of Center Sec 25
T. 40 N. R. 31 W.

35° S 7 E of inclined shaft is a lit.
the path of one material 100
paces distant from the incline

Relocated shafts and pits in T.E.

1/4 Sec 26. 40-31 and 7/8 Sec 25

At shaft 320 S. 55° W of T.E. cor Sec 26

is a great pile of Jasper, slaty-
one and apparently black slate?

41469 Two specimens were taken from

41470 this dump.

at 430 S. 61° W of same corner is
another large shaft in sand rock,
or same rock as in dump. In ad-
dition there is a red slate that may
be very burned greyish slate?

At 490 S. 49° W of same corner is pit

- in dump which are reddish talc-
 41471 the slates like those given associa-
 ted with the dolomite; and at
 550 S. 320 W is a drift in the side
 of the hill. The drift is in one and
 41472 slate, with latter in south side
 of former.

A pit in similar slates lies 50
 further south, and at
 700 S. 60 W is an immense dump
 heap of the same materials.

Other pits and shafts located as per
 opposite map.

- 41473 At the Candy Shaft Humberly slate
 is said to run 100 ft. N of shaft, then
 one, in first level which is 100 ft
 from surface. Dip little S. nearly vertical

41474 } One coding page.

41475 }

41476

Little Poplar river

At the Cuff mine a small pit has been opened since last visit just E of shaft in broken one and red slate? The pit consists of two parts, a smaller East Hole and the larger, main, West Hole.

The East Hole is apparently entirely in red slate?

In the main hole is broken Jasper, one, etc., with the characteristic green color of the Norway one. On the S. side of the pit the dip seems to be very flat. At its west end the dip is 25° N. and on the north side it is again very flat. The one seems to be in the trough for *Uromodius* found



The best one seems to be very much like the Candy one, but toward the N side where found it is much broken like the Norway one, forming a crushed conglomerate?

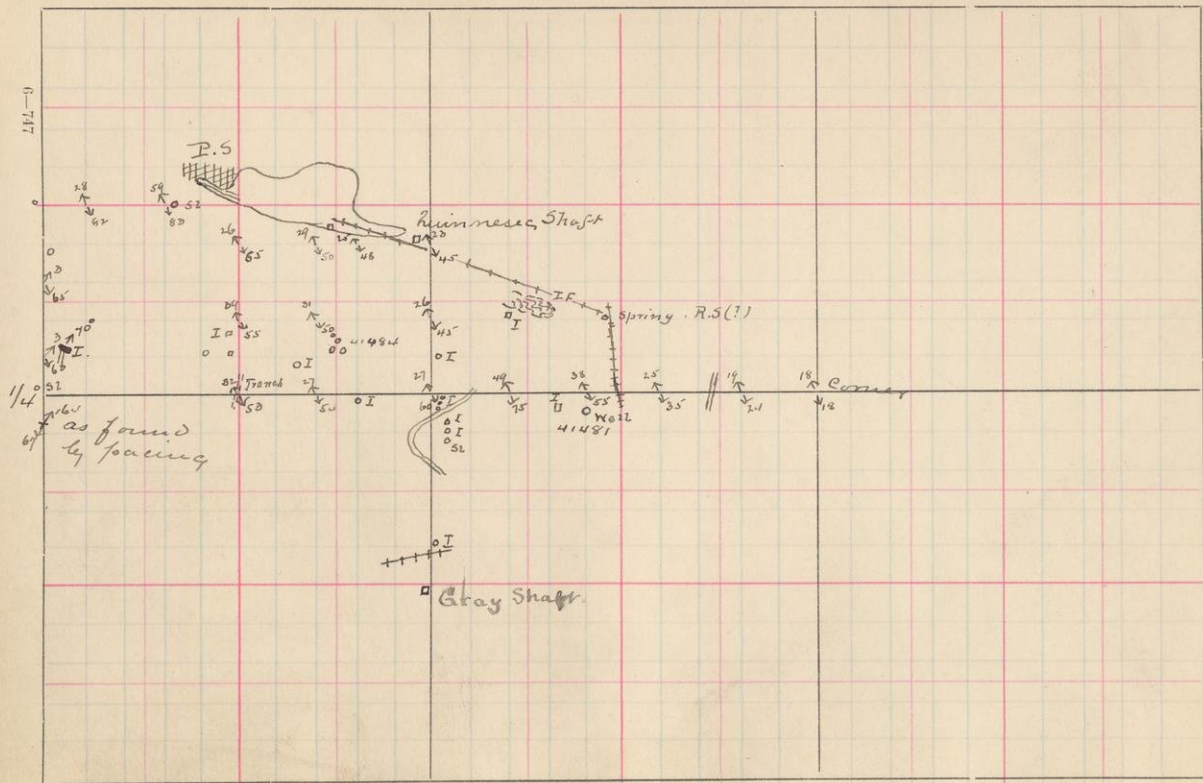
41477

41478

S. 34

T. 140

R. 30



At the East end of the pit the jaspers
seem to strike S.W.

41479 On the S.W. end at surface is an ex-
posure of a white sandstone or dol-
omite striking E-W and dipping a-
bout 45° N.

41480 In the top it looks like the Sandstone.

During run west of Lunnese
to locate pits also took three or four
specimens as follows

41481 Limestone from well

41482 Slates like those north of the Lunnese
are ore-body. These are associated
in pit dump with quartzites

41483 One from W. Lunnington - Candy
Shaft - Cf. 41473.

41484 Slates from pit 650 W. 50 N.

N.B. The run around Lunnese's brook
more correctly than run of last year
(Cf. 41456 - 41461)

५७

T. 39

७५.

R. 30

$50 \text{ } | \text{ } 2 = 130 \text{ } | \text{ } 5 \text{ } r.$

Gray Shaft

Cundy Mine

6-747

Curdy mine

The two shafts of the Curdy mine
are the Gray shaft (Eastern one),
and Footh shaft (Western one).
Former is 1350 W. 680 S of Corner
Latter is 1880 W. 600 S of Corner

Slates were struck in 1st level of the
Footh shaft 31.5 ft from surface
about 50 ft E of shaft.

In the open pit of the Curdy mine,
north of the Footh shaft the rocks dip
uniformly about 70° S. On South side
of the pit a coarse grained quartzite
marked by rusty spalls is interlamina-
tated with thin seams of ore. The
ore gets thicker toward the north
and near the center of the pit is a
strongly ferruginous quartzite. Seams
of quartz cut this at right angles to
the bedding along joint planes. The
appearance is that of a purely
fragmental ore.

41485 Red slate from S. side of Linnecroft
pit. Looks very much like a Schistose
greenstone.

41486

pit 81 S. of 1/2 post.

41487

pit 100 S of 1/2 post.

41488 From open pit, Candy mining. one and

41489 one and quartzite.

Analyses of rock from Traders' test
pits.

Pit 1. Fe 33.30 Pit 6 Fe 29.40 ✓
P .011 .011

Pit 3 Fe 31.50 Pit 12. Fe 33.019
P. .008

The above are described as Gray slates
in Traders maps.

Pile ^d Nos	7	8	9	11
Fe	35.10	45.30	49.40	44.20
P	.011	.008	.022	.009

Above described as ores

Pit "10 Red Jasper Fe = 37.80 P = .021

Pit "13. One side red slate.

Other side ore. Fe. 39.10 P = .040

Went into County P.E. of Ferris farm
to examine quartzite of the Palmer
Trough. Found the rock a heavily bed-
ded micaceous quartzite like that
of Uroay Perry in the Michigan
river. Went also S.E. to the quartzite
near the granite bordering the S.
side of the trough and found it to
be a vitreous black quartzite,
neither schistose nor micaceous. It
is not like the Uroay Perry quartz-
ite but still it is unlike the mica-
ceous rock.

Found the micaceous rock at so
many places across the trough at
this place that think the black
quartzite the same rock.

H. 496 Quartzite containing stannolite
near Co. Dec. 19

H. 495 Quartzite at Falls of Pine Creek
U.B. Located in tracing of map of
Palmer trough.

Walked along the rail road grade
from wagon road into Calumet
mine

Along the railroad found almost
continuous exposure of sandy look-
ing iron formation stuff, appar-
ently striking about E-W. This is
the same material that is in the
Calumet open pit, unconformably
beneath the Lake Superior Sand-
stone. The dip is probably toward
the south. It does not look like
the typical iron formation, but
is very much more sandy. The ore
is much lighter and contains
little specks that look like
mica. The hill on which these
rocks occur is capped by sandstone.
From this point went south
to Sturgeon river and looked
at ledges there. Here we find
the usual black micaceous
quartzite, in places cut by quartz
veins of great size and dotted with
knots of mica. The rock looks ex-
actly like the micaceous quartzite-

Elsewhere. From the top of hill
on the south side of the stream
saw granite about $\frac{1}{2}$ mile south,
separated from the quartzite by
a plain covered with low grass
and probably underlain by gran-
ite.

On the way back examined the
gorge between the Calumet and
the granite to the north. On south
side, the wall of the gorge ^{is lined by} the sand-
stones indicating pre-Cambrian
age of same.

Could find no quartzite between
the iron formation and the gran-
ite, which forms N. side of gorge.
At the east end of the gorge, not
far from the road granite ap-
pears on its south side. It is
really in the bottom of the valley
but is on the south side of the stream
that flows through it. The rock
is a pink, feldspathic variety, γ
platy and a little sheared. It
looks as though it might be
a metamorphosed rock.

If it is a recrystallized granite the explanation of the geology is clear. If not a recrystallized rock, the Calumet ore formation is probably an upper Huronian one overlapping the Lower Huronian at this place and in part the Archean.

It is said that the bottom of the Calumet shaft is in granite.

- 41490 Granite or recrystallized granite of Kesla mine at base of hill, on south side of creek
- 41491 Sandstone Conglomerate or breccia of iron formation stuff in old rail-road grade to Calumet mine.
- 41492 Iron formation stuff. Dump of Calumet mine.
- 41493 Jasper. Dump of Calumet mine.
- 41494 Iron formation stuff. Showing weathering.

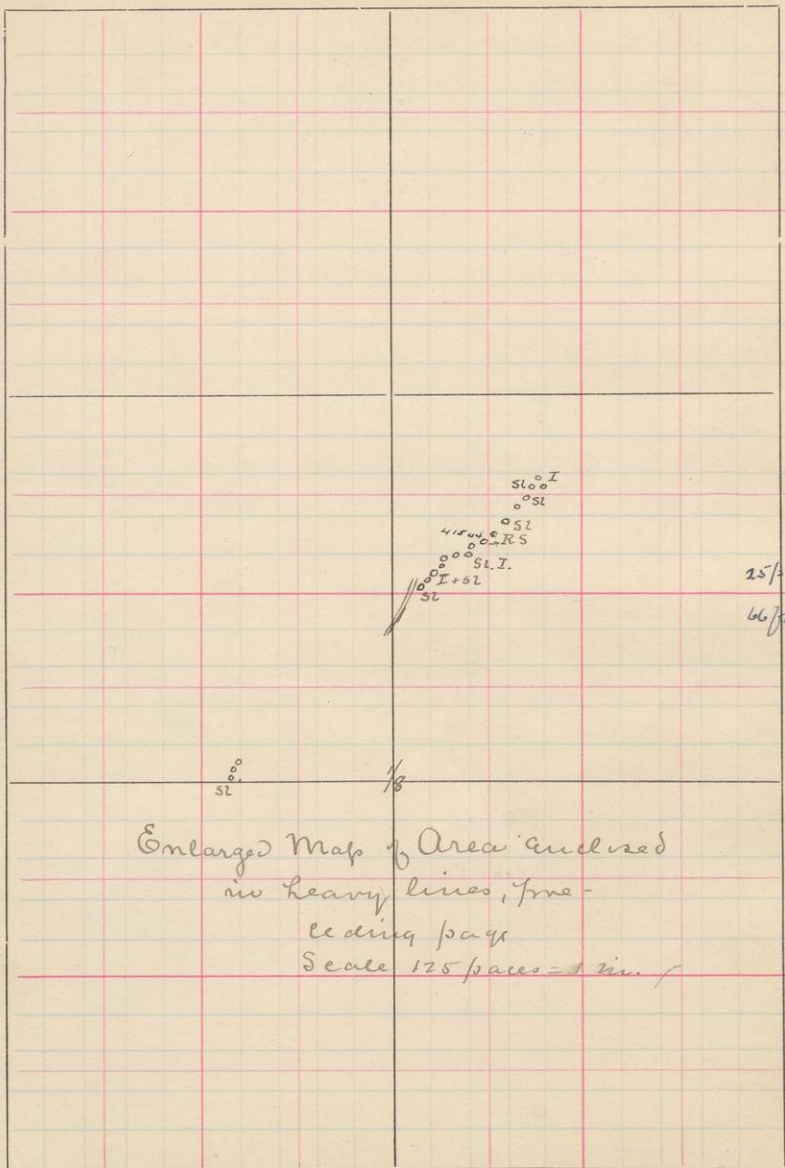
Examined pits and shafts in the
 D. & W. Dec 30. J. 40 R. 30 West
 Linnings. Shafts located in map,
 furnished by Waukena in Co.

Pit 1. Banded slate? Looks like inter-
 mediate? slate?

- 41497
- | | |
|-----------------------|----------------------------|
| 2. Hamburg slate? | 14 Iron formation |
| 4. Iron formation | Strike 10 N. 70 W. D. 85 N |
| 5. Sandstone | 15. Slate? |
| 6. Sandstone | 16. Slate? |
| 7. Intermediate slate | 17. Iron formation |
| 8. Iron formation | 18. " " |
| 10. " " | 19. Slaty one |
| 11. " " | 22. Slate |
| 12. " " | |
| 13. " " | |

Shaft 1. White sandstone

- " 2. Sandstone, iron formation. slates
 " 3. Iron formation, interm. slate. Sandst.
 " 4. Sandstone and iron formation
 " 5. Iron formation. dips N.
 " 6. " "
 " 7. " "
 " 8. " " like pit #9
 " 9. " and poro. limestone slates.



Shaft 10. D.D. record - see next page

" 11. Sandstone

In pit 1 are banded slates with layers of gray wacke - like stuff very much as in the open pit at Candy. Lots ferruginous on the south side as though near the iron formation. The layers of ore become thicker and more abundant on this side.

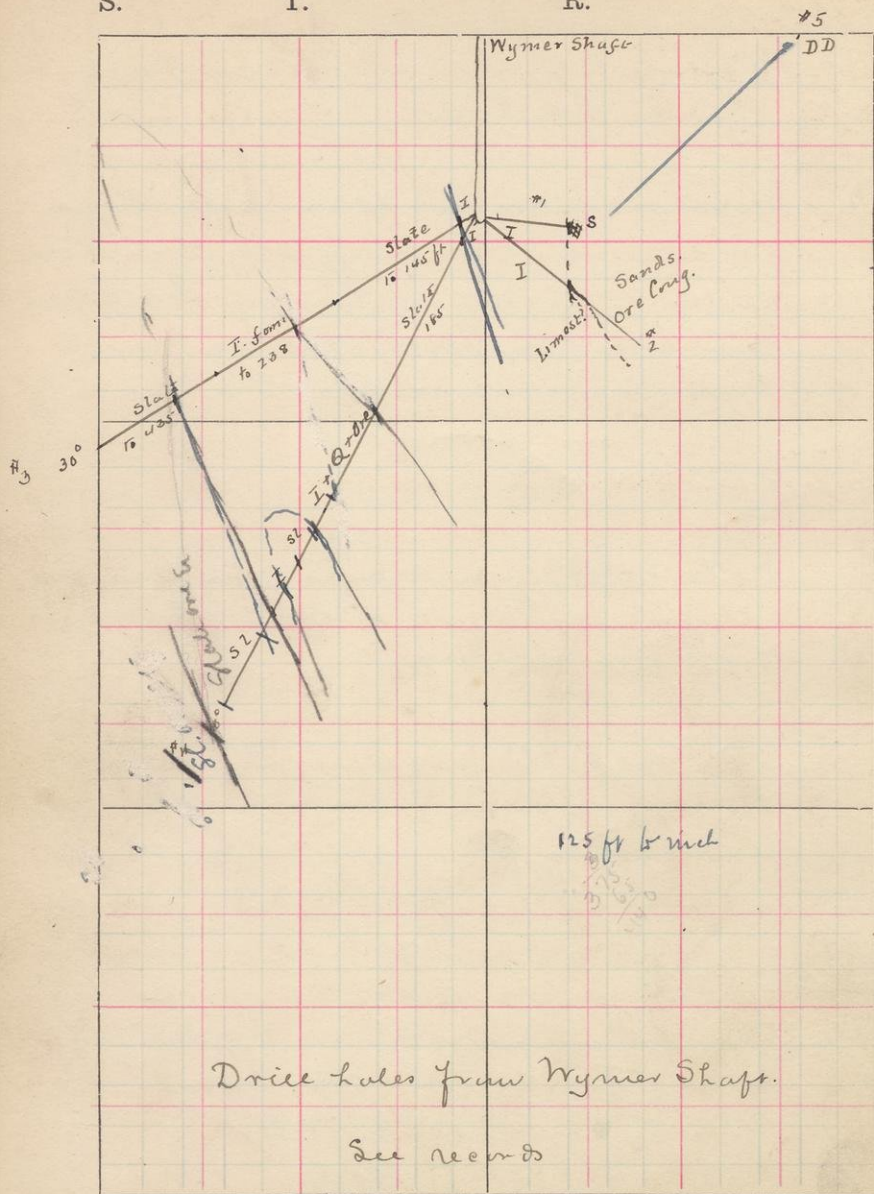
In the drift is a coarse gray wacke - iron formation with a strike a little E of W and dip 85° N.

- 41498 At Shaft 6 the iron formation seems to be a coarse gray wacke or quartzite with iron in it.
- 41499 Specimen from pit " 4
- 41498 " " Shaft 6
- 41499 " " pit 17.
- 41541 Iron formation, 500 E. 100 N. 75 W. or Sec.
- 41542 Margin - looks like basal.
- 41543 Black slate, 450 E. 50 N.
- 41544 Red slate, 560 E. 150 N.

S.

T.

R.



Forest Mine

The Forest mine is in the N.E. of the
 Sec 25 T. 40 N. R. 30 W. north of
 Lake Furnie. Limestone outcrops
 just north ^{west} of the shaft. On the south
 faces of the ledges is a conglomerate
 of ore and sandstone forming a ve-
 neering. South of this and dipping
 40° S is a slate band 4 or 8 ft thick
 and further south the iron formation.
 Five drills put in south of the shaft
 showed iron formation for 600 ft.

Churn drills 200 S of Diamond drills
 showed scales like those in road from
 Iron Mountain to Minnesag. Further
 S. 200 ft. another churn drill is
 said to have shown quartzite.

Shaft is said to be 700 feet S and
 150 ft W of center Sec 25.

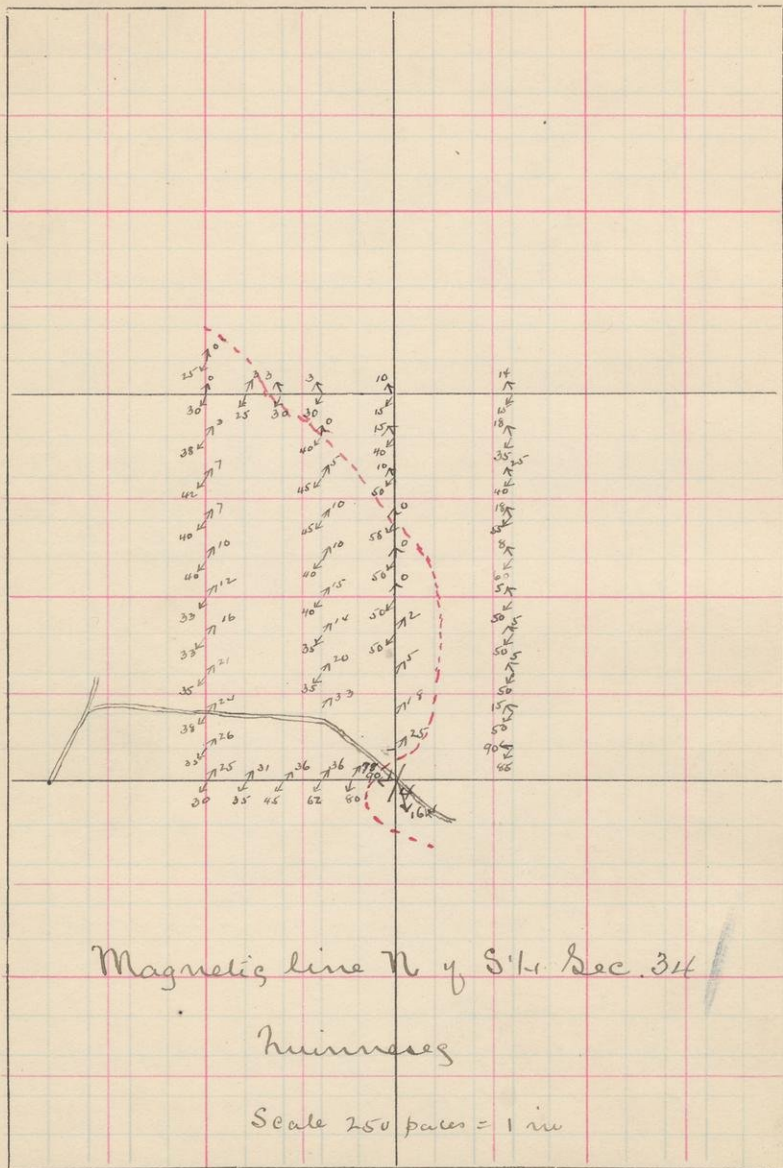
N.B. These data were obtained at
 mine. See maps and records sent
 by Dr Hulst.

At 400 E. 150 N of shaft sandstone out-
 crops on hill with great conglomerate
 of ore pebbles at base.

S. 34

T. 40

R. 30

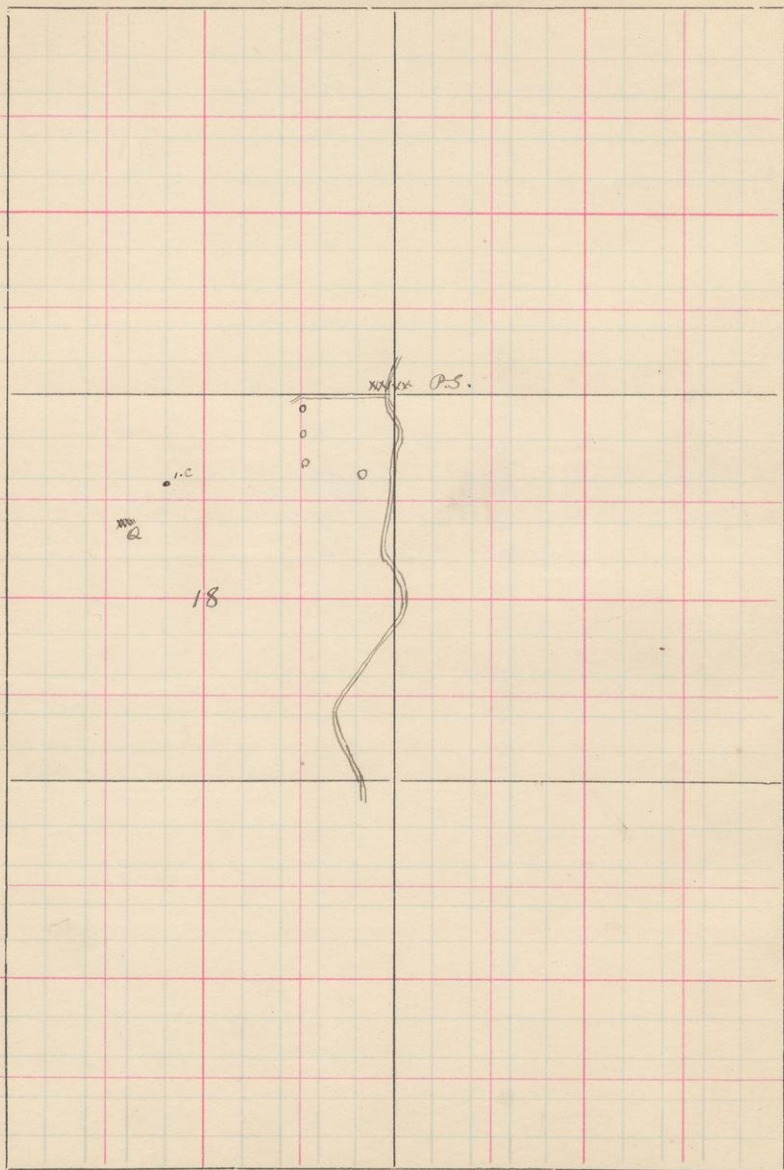


Drill hole #4 in Sec 33 is N 30°W of
shaft and 480 ft. distant. (T. 40 R 30)
Location of shaft given on Killip's
Copy of Manila in Co's map.

S. 18

T. J. 41

R. 28



Went into Sec 18 T. 41 N R. 28 to search
for ledges indicated on map, but because
of exceedingly heavy underbrush could find
nothing here.

Cf. Map of Calumet Tongue.

Margin^l ledgs 3003 of Center Sec 21.
dips 30° S.

100 N of this is another ledge dipping
N 10° E.

0-7117

#7

#6

#5

#2

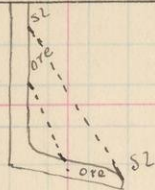
Sec 23

S.

T.

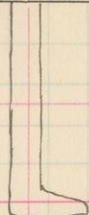
R.

Shaft 1. Sandstone



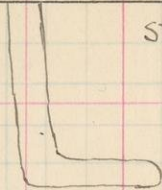
Strike E-W.

Dip 50° N



Strike E-W

Dip N.



Strike E-W

Dip N.

Limestone

Shafts in Sec 24.

Limestone

Pit #3. Seamy bands of fine and gray quartzite. Strike E-W. Dip 85° N

Went down the Pwabi mine and examined the fault in 4th level. Then looked at the gray slates in the north side of the 5th & 6th levels. Examined ends of these levels and looked at long drift at East end of the 3rd level of shaft ².

- 41500 6th level Gray slate near drill U. side of mine. Probably talcose slate.
- 41501 Red slates (Briars) near fault. Below No 3. Cross cut north in 3rd level. Specimen from 4th level
- 41502 4th level. Extreme U.E. end of 4th level. opp. ² shaft.
- 41503 5th level. U. side. Gray (talcose) slate.
- 41504 4th level. North side. East end. About opposite ² shaft.
- 41505 " } Phases talcose slates
- 41506 " }
- 41507 " }
- 41508 3rd level. U. cross cut. Specimen
- 41509 talcose slate taken at intervals
- 41510 from point 75 paces U. in cross-cut

41511 to mouth of same, to show variation
 41512 in the Slab.

41509 seems like quartzite.

41510 Hard nucleus enclosed in tal-
 cose material

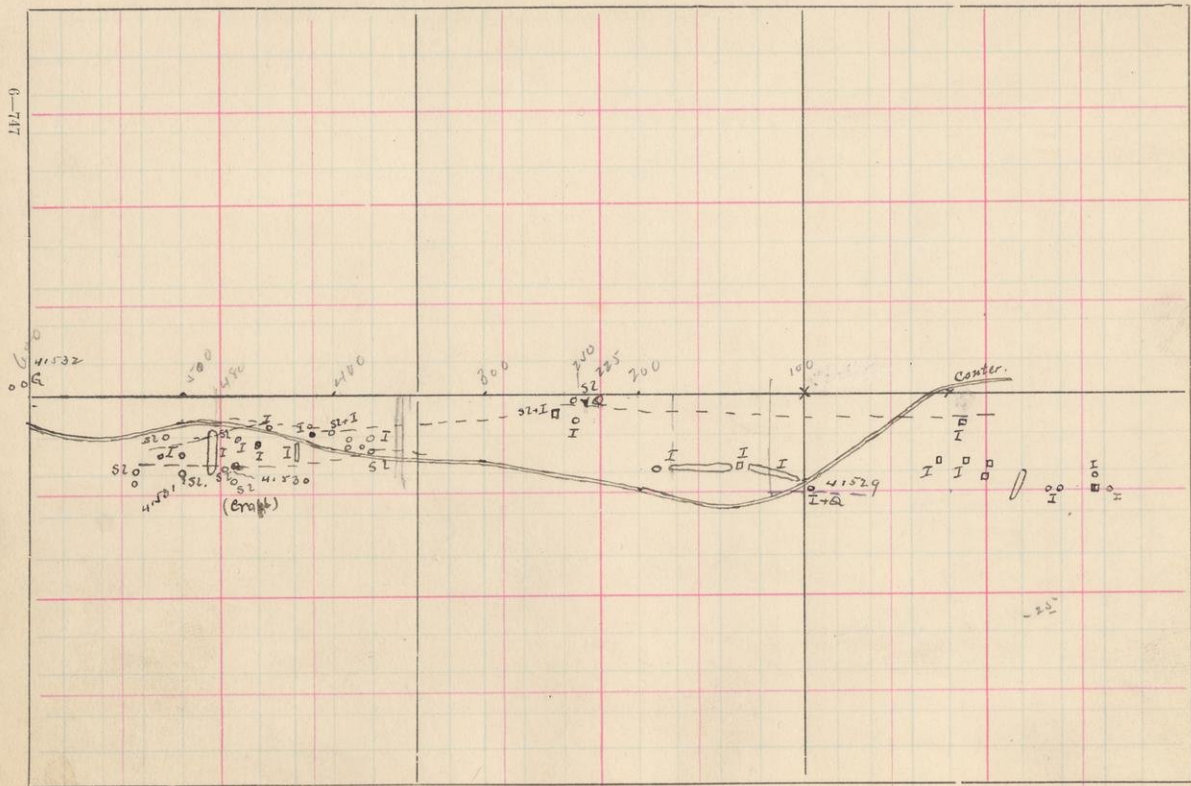
41513 } Red slates, south side.

41514 } " " " "

S. 14

T. 39

R. 28

24) 1000 (40
960

Dec. 19 J. 39 R. 28

Turner's place is in the $N\frac{1}{2}SW\frac{1}{4}$ Sec. 19. The three fathoms explored are the two north nos of the SW $\frac{1}{4}$ of the Section and the NW $\frac{1}{4}$ of the NE $\frac{1}{4}$.

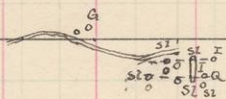
A number of pits - running near the center line of the Section have been put down showing greenstone in some, Hamburg slate in others, and an ore impregnated stuff in others. The slates are dipping north on the N. side of the one bed and south on its south side in some places. In most places the dip on the south side was not determined. The greenstone usually much decomposed, but in places it is a dense green crystalline rock.

The ore formation appears to be about 50 ft. wide. In many pits it looks brecciated as though a slate conglomerate. Elsewhere in the top of the ore is a cherry ochreous material with crystalline ore particles in clots or druses. In the deepest shaft the covering of ochre has been penetrated and good hard ore banded ore has

S.

T.

R.



Center
X

Map preceding page

been obtained. This is of two kinds,
a band banded one with bands con-
sisting of slightly different textured
one, and a porous crystalline variety,
with the pores succeeded with little
one crystals

- 41515 Greenstone
✓ 41516 Northern slate
✓ 41517 Southern slate
41518 one
41519 one
41520 One banded with chert or quartz. This
is full of quartz veins
41521 Graphite slate occurring with one
in western part.

Additional specimens were obtained
later as follows: [of Sec.

- ✓ 41529 Quartzite - from S. side road, near Clark,
✓ 41530 Quartzite - " near trench, western part
✓ 41531 Slate, S.W. of trench
41532 Greenstone? N. side of road

Drill Holes - Appleton Union
Hole No 2 - North.

Jasper 49

Slates 31 41522 from 50'-80' down

Jasper 8 41522 Upper portion of gray

Gray Slates 331 scales

Jasper 162 41523 Lower portion ditto.

Red Slates 42

41525

" 22 Scales associated with Dolomite

" 21 " " " "

41526

41527

Quartzite 10 Cherty phase of Dolomite

676

Hole No 7, South

Surface 32

Slates 205

One 5

Slates } 25 broken

Jasper

Jasper 97

Jasper ore 21

Slates 525

Slates 41

527

The present workings for the Appleton
are at 3855 and 60 W from Corner
of $21\frac{1}{4}$ SW $\frac{1}{4}$ Sec

The Wood Shaft is 215 feet deep - 700
in gesser and 15 in slates. Cross cut
tunnels to find gesser. Contact dips
N. 45° - 50° .

41528 Examined pits near Shaft ^{of Appleton mine}. Most of
these are in transformation but the
Smotherman ones are in slate. To the
north these slates are like the intermediate
ones - are banded and clear. They
are often charged with ferruginous
material.

Further south they are more like
the Hambury slates.

[See map of Appleton mine
and environment.]

The Pennebe mining Company's operations are about 12 miles South of the Menominee river near the Sioux road - South of Norway.

The road is very rough. Within a mile of the Exploration it strikes high bluffs of a beautiful green-stone conglomerate as fine as I ever saw

41533 is from top of the green bluffs
The pit is in the side of the Pennebe creek in the sloping side of a hill. The ore looks like a stratified one and forms chert cut by quartz veins. It is very light in weight but carries 40%-44% Fe. The strike is $N 55^{\circ} E$ and dip $45^{\circ} S.E.$ It looks like the iron formation but is very narrow. While no definite contacts were seen the ore is plainly bordered in the East, west and North-East by greenstone. The formation may run the stream and run S. 60 but of so it is finally cut off by greenstone.
Looks very much like a scree

unfaded trees.

41534 one

41535 Check associated with the one.

Drill hole S. of Cuff mine, Sec 27.

300 ft S. 600 ft W of NE corner of

40 acres ^{S of that} in which Cuff mine stands.

Shale vertical Red slates 12 ft

one 100 ft.

Reexamined west bank of Menominee river at Four foot Green in order to search for the slate said to be in greenstone.

The sequence of rocks on the bank beginning at the C & W R. R. bridge is greenschist, massive dense greenstone and ledges of very fissile black slate like rocks that look graphitic. ^{above} these are schistose greenstones. The slate-like rocks form a steep almost perpendicular bank so soft that it has been dug into in search of ore. The rock is not in contact with others in such a way as to give any evidence as to its character. Believe it, however, to be a schistose greenstone.

Beginning at the north the sequence is represented by

Greenstone

41536 greenstone in contact with slate-like rock.

41537 Black-slate like rock

41538 more slaty phase

41539 more massive phase

41540

Greenstone to S. side, near R.R.
Indgs.

Dec 6. J. 39 R. 29 W

Examined the 100 or more pits in
Dec 6 and took record of the water-
ing obtained from them. This record
is in the original map furnished by
the Mammoth Iron Co, which see.

41545

Limestone slate from pit #91

41546

"

" 92

The iron formation found in the south-
ern pits apparently rolls up over
the limestone in the upper portion
of the hill and seems as a standard
capping unit covered by the sand-
stone. That is its dip becomes flat
to the north.

41547

Iron formation pit 117

41548

"

"

"

152

41549

"

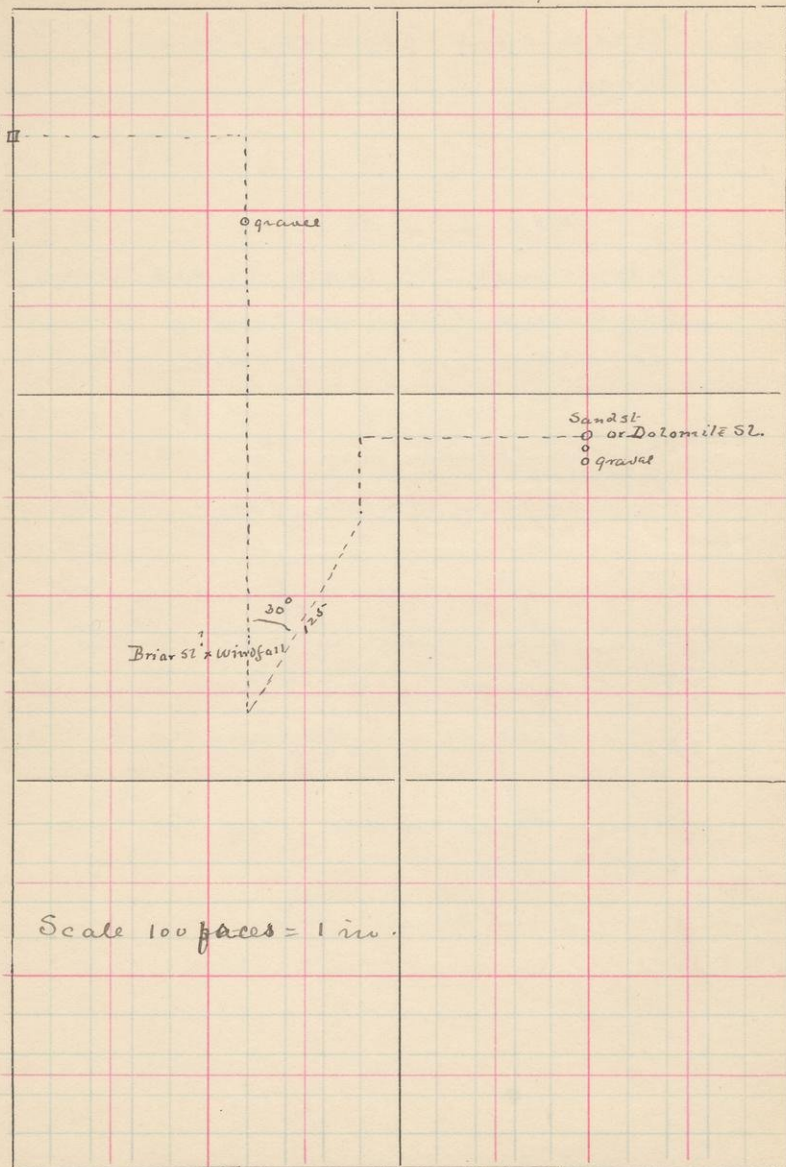
"

S. 5

T. 29

R. 39

710



Scale 100 paces = 1 in.

Located a few piles near the
line between Secs 6 and 5.

See page opposite

Examined pits located by Wampan
in Cis work near Wampan. [See
map furnished by the Company].

Found most of the west pits in gravel
but a few in iron formation. This
is partly jasper and one and partly
a slaty sandy one which shows plainly
its fragmental character.

H1550 Banded one } from Test pit 64
H1551 Jasper }

H1552 "Original" jasper, test pit 63

H1553 At pit 46 found red slaty rock
looking like basal layers of the
Sandstone in great quantity in the
dump and a few fragments of
jasper. The main dump is well
banded sandy one. In many
instances it is interbedded with
thin bands of red slaty rock that
may be layers of sandstone. The
rocks suggest a basal ferruginous
layer of the Sandstone underlying
one formation.

41554 Curved ledge of ferruginous slates
or possibly iron formation with many
folds pitching about 30° W.

41555 Iron ore - best. Near pit 19

41556 Shale of ore in chert. West end of
Exposure near pit 216

41557 Fragmental slaty ore. North side of
Green western pit.

Iron Hill.

Located a number of pits & shafts
and ledges at Iron Hill. Map
opposite

41558 Iron and shaft near road

41559 Shale, 225 W. 460 S. of E 1/4 Post Rec.

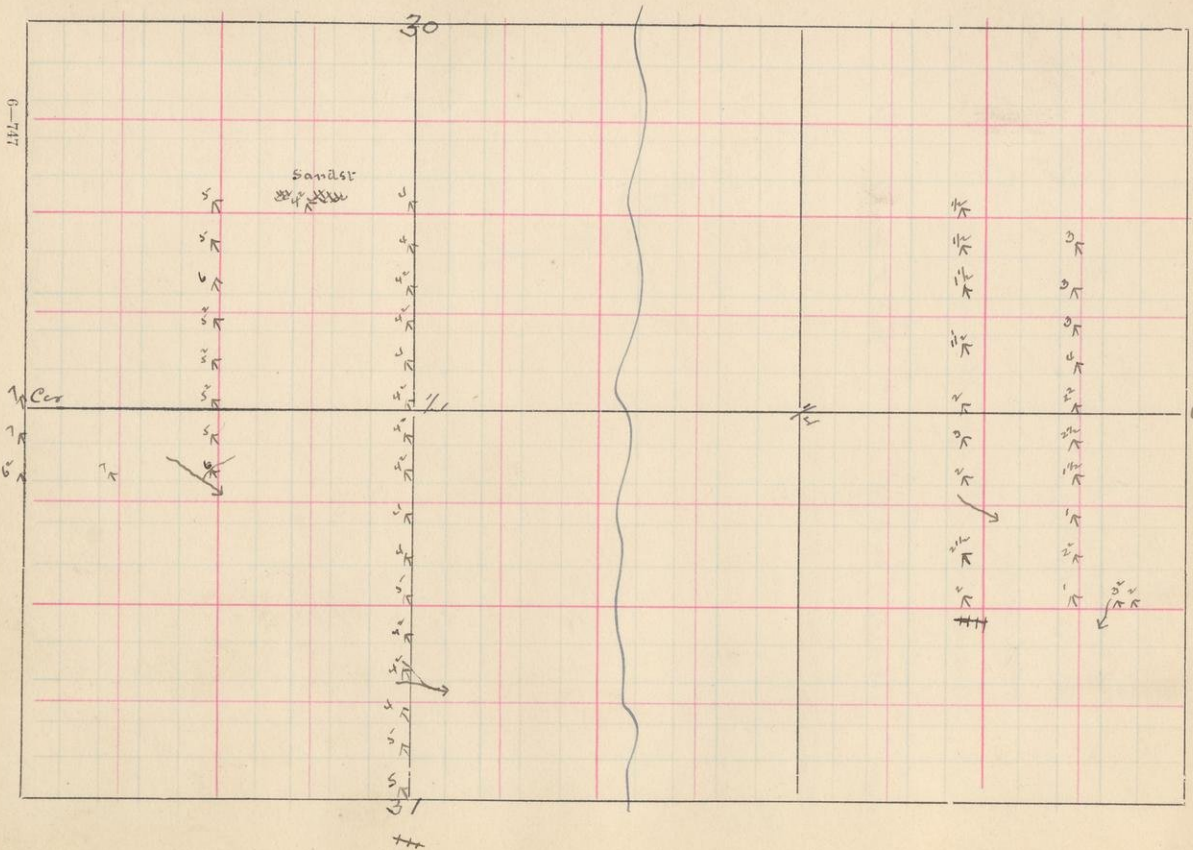
41560 Kame's shaft. One formation.

S. 32-31

T. 40

Cemís

R. 29



6-747

Raw magnetic observations as indicated in Sec 32 T. 40 R. 29. then went over into Sec 31 same town and ran a few other lines

Examined hills east of the U. Y. farm in search of one solid blue in slates.

It seems that the one is an impregnation of slates by ferruginous materials and perhaps veins of ore. In some places as in little ledge at 6505. 4506 ^{2500 ft.} the material looks like Jasper.

In other places as in the hill near the State road it is a good fissile slate. Some of which is black like a graphite slate.

41561

41562

41563

41564

} all from this place.

This looks as though the Hamburg slates came up against the greenstone to the South.

Map of Exposures and pits near East
 Vulcan opposite. Specimens from these
 were taken last year.

8
 I
 7
 78°

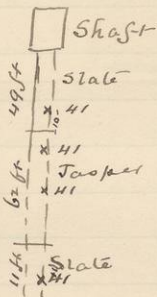
From the tunnel running south
from the Norway shaft (see map)
the Captain brought up four specimens
showing the slate & the jasper, two
specimens of the jasper and one of the
slate south of the jasper

41

41

41

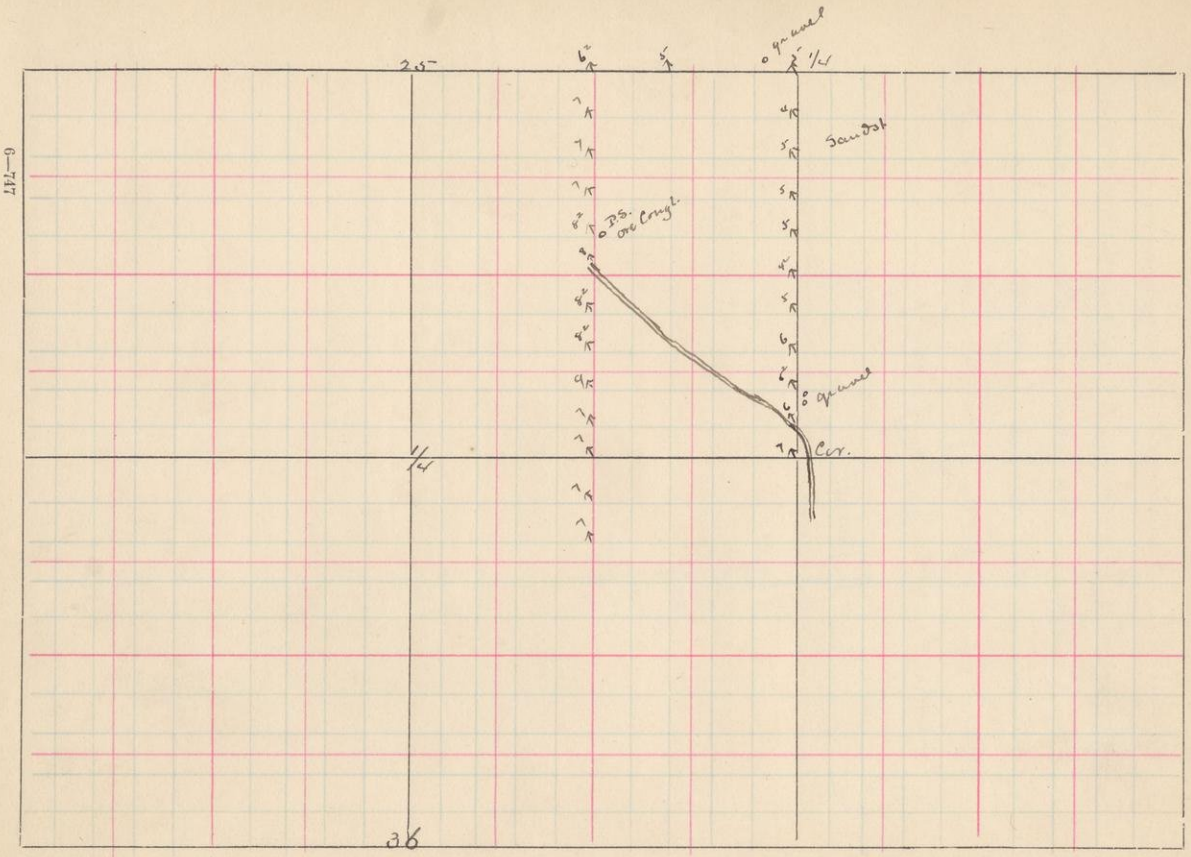
41



S. 25

T. 40

R. 29



6-747

on the old road running past the
 old one pocket of Norway mine, back
 of houses in Linnesees road iron forma-
 tion appears. It occurs on N side of road
 N of 3rd house and again a little distance
 west. Further west in hill is broken
 red slate like the slate above the one
 at Norway pit

May this one be Grader's and in
 syncline with that at West Green's
 pit, and the one in west end of West
 pit west the upper one?

— " —

At the Hancock mine the dip is
 N 35° W. Strike N 40° W.

In the Eastern pit the dip is 60° N
 and strike N 45° E.

No magnetic attraction in either case

— " —

At 455 N. 200 N of fence west of last
 house in Norway - Linnesees road, west
 of Norway are 4 pits in gravel and
 red slates

Dec 6. T. 39 R. 29

D. Drill No. 1. Direction 5° W of N.1528 N. 1100 W of SE cor. Dip 52° .

At 588 struck quartzite which was analysed and found to contain CaCO_3 .
Continued to end 652 ft. deep.

D. Drill No. 2. Direction 45° .

1740 N. 2830 W of SE cor.

Stand pipe	128	128
Slate 10	247	159
Soapstone 10	261	
Black sl. 5	287	
Jasper	301	75
Slate	315	
Slate 7	325	
Jasper 3		
Slate	332	
Jasper	345	260
Soapstone	351	
Slate	362	
Jasper	622	
Slate	629	9
Limestone	639	10

Green Mine

D. V. Hole #1 N. 5° W. Dip 45°

1840 U. 2008 W. S.E. Sec 22

N.B. Located 1/2 mile 100 yds South
To correct add 2640 N to location.

Standpipe 120

Sourstone 132

Jasper & One 216.

1840
2640
4480
132 | 4480 (38)
396
620
528

Hole #2 N. 18° W. Dip 45°

1696 U. 2008 W. S.E. Sec 22

Standpipe 36

Jasper & One 238

One Jasper 237

Lean one 322

Slate

Marble } 380

Mixed Slate }

Hole Bottom of shaft - 2410 ft be-
low R. R. track. S. Horizontal.

Jasper & one 49

Slates 129

Greenstone 138

Slates 147

Slates & 265 165.

Dec 31. T 40. R. 30

D. D. Hale #1. 908 U. 1521 W 3

D. 1/2 D. 1/2.

From bottom of shaft 115 ft deep.
U. 5°

Jasper 41

Slate 45

Sandstone 98

132/908 (7)
132/1521 11/2
132/201

Hale #2. U. 45°.

From bottom same shaft.

Jasper 55

Sandstone } 191.

Slate }

Hale #3. S. 30°.

From bottom same shaft.

Jasper 12 ft.

Slate 131

Quartzite 185

Jasper }

Leam ore 227

Jasper } 238
ore }

Slates 424.

Dec. 31. T. 110 U R. 30 W. ✓

Stale "1 S. 45°.

From bottom same shaft.

Jasper ore 30

Slates 150

Marzite ore 147

" jasp ore 226

" and slates 234

Slates 246

" ore 256

Slates 273

Marzite ore 279

Slates, ore, etc 360

Slate 382

↓

Stale "3 S. 45°.

Standpipe 42

Saddleline 358

Jasper ore 419

Not complete at
present date

Dec 33. T. 40 R. 30

Shale ^N1 D. 220.In shaft 100 ft. from surface.
617 N. 596 W SE cor.
$$\begin{array}{r} 137 \\ 617 \\ \hline 524 \\ 890 \end{array}$$

One of Jasper 44

Slates, black,

Gray, quartzite 369

Shale ^N2 U. 100

Same place.

One and Jasper 30

Lean one 34

One of Jasper 60

Sandstone 73

131

Shale 3 U. 450.

614 N. 596 W. JSE cor.

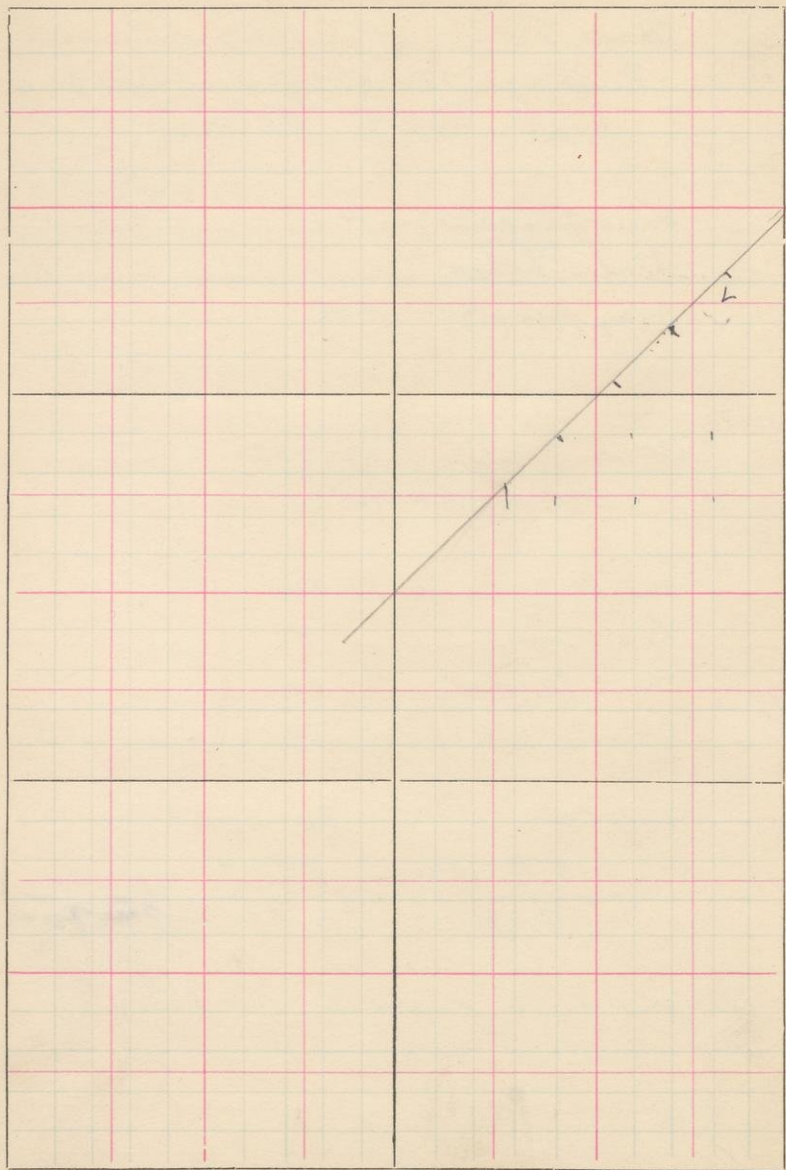
In shaft 100 ft from surface.

One and Jasper 112 ft.

S.

T.

R.

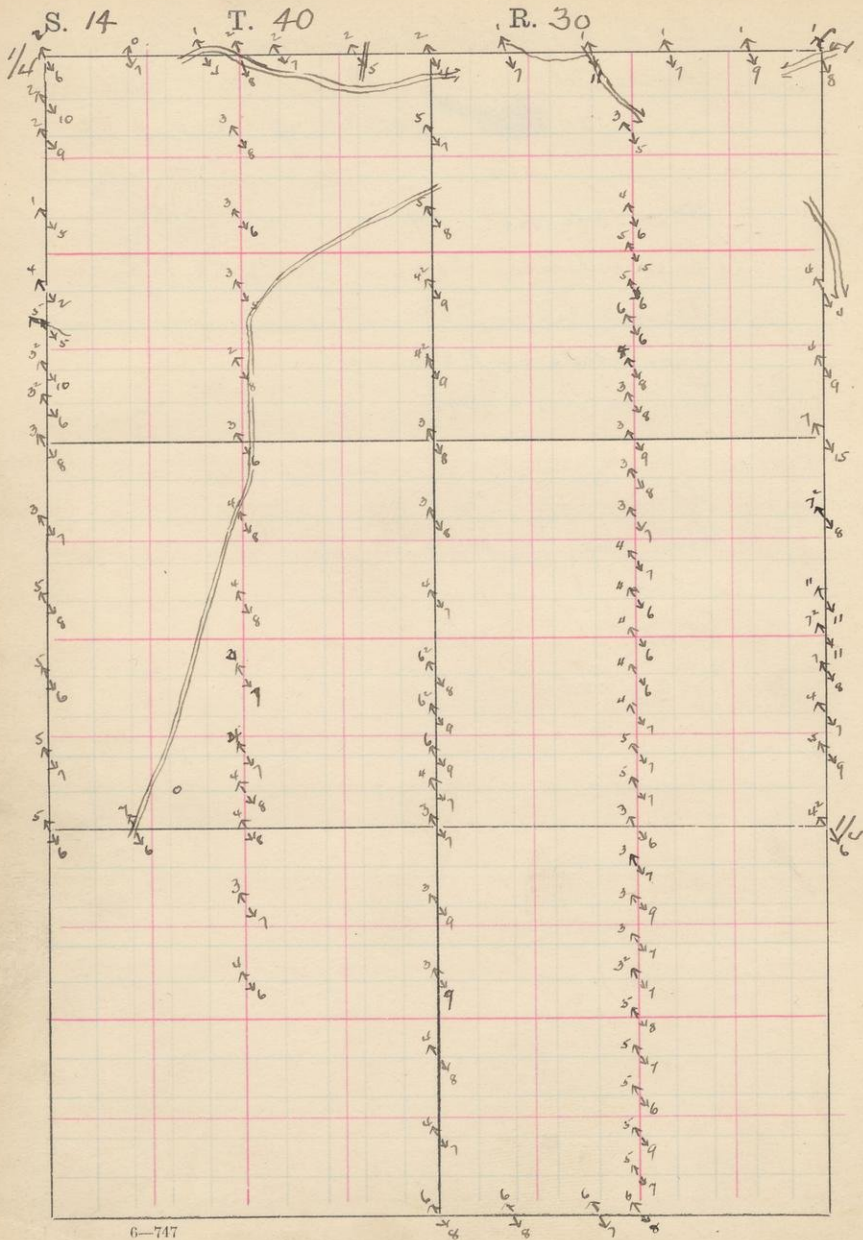


Sec 33. T. 40 R. 30

Stale "H" S. 1217, 450
104 H. 596 W of SE cor.

- Standopie 89
- Limestone 320
- Quartzite 382
- Sandstone 386
- Limestone 396
- One 412
- Slate 439
- Limestone 447
- Slate 1
- Slate 462
- One & Jasper 515

132 / 1077 / 8
956 / 5



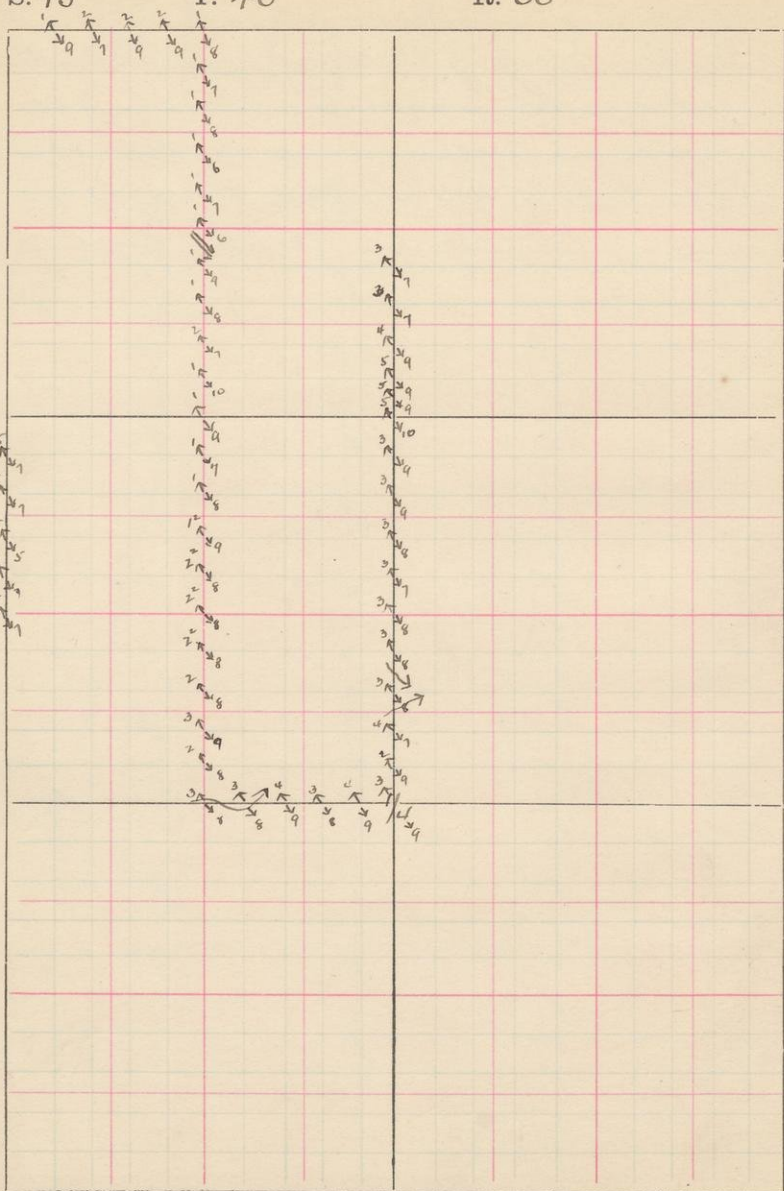
Sent young Hilges and Woodsman
to make magnetic study of certain
sections where map is left blank
in hope of discovering some trace of
line formation. Maps follow.

S. 13

T. 40

R. 30

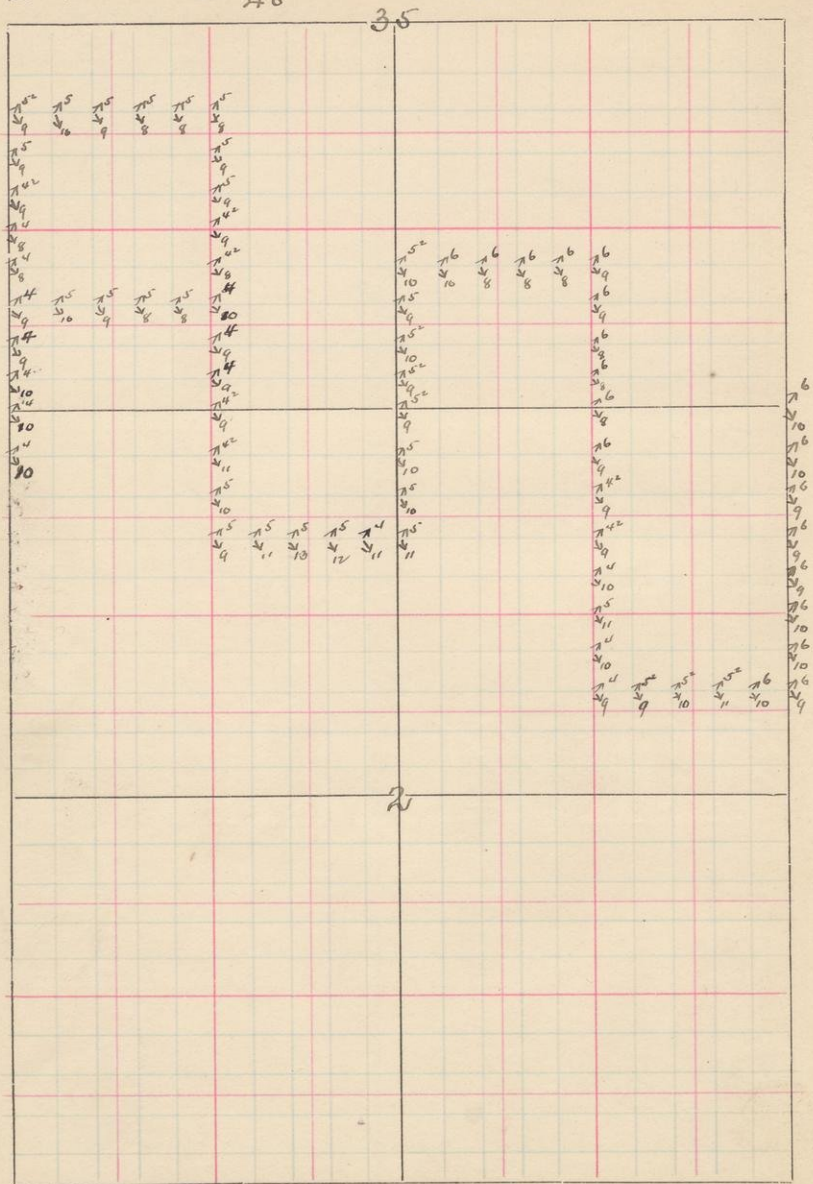
1/4
Cw



S. $\frac{35}{2}$

T. 39
40

R. 31



2

٧٩

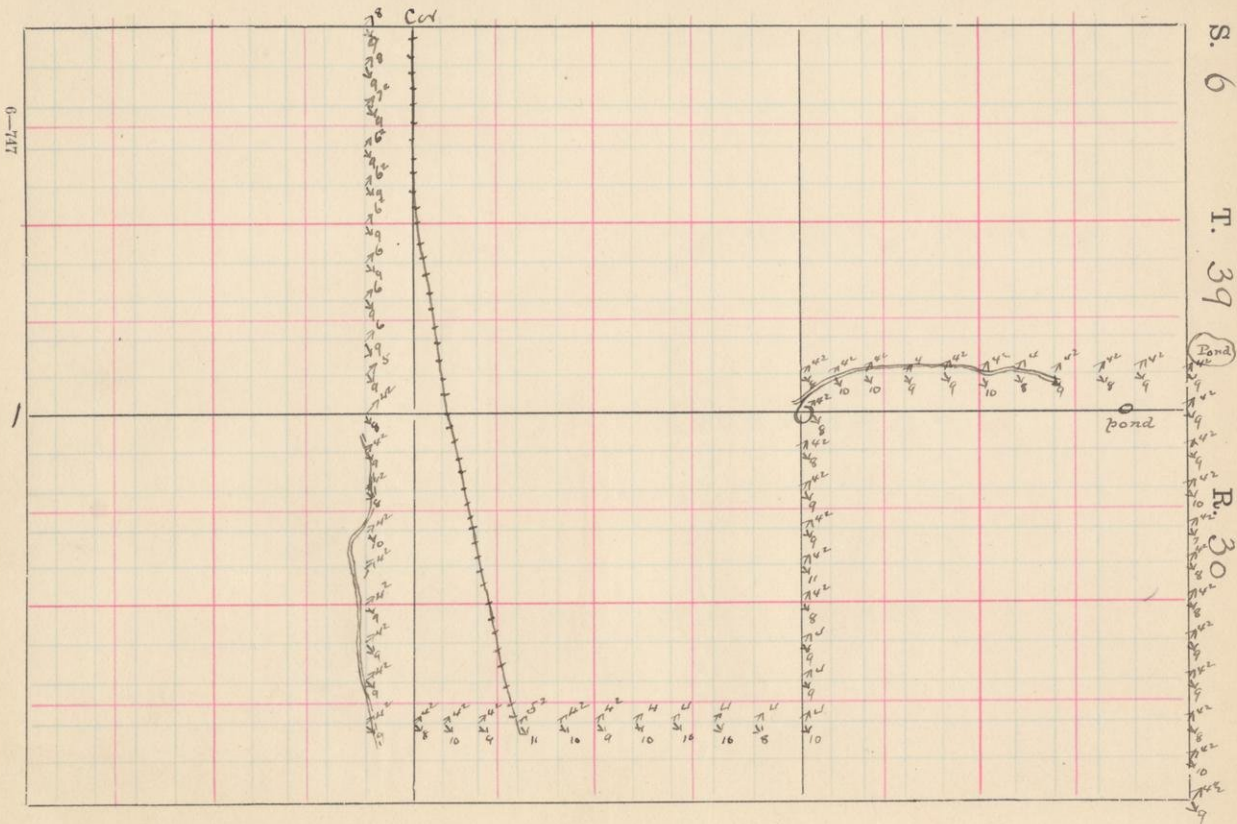
T. 39



Pond

30
31
32

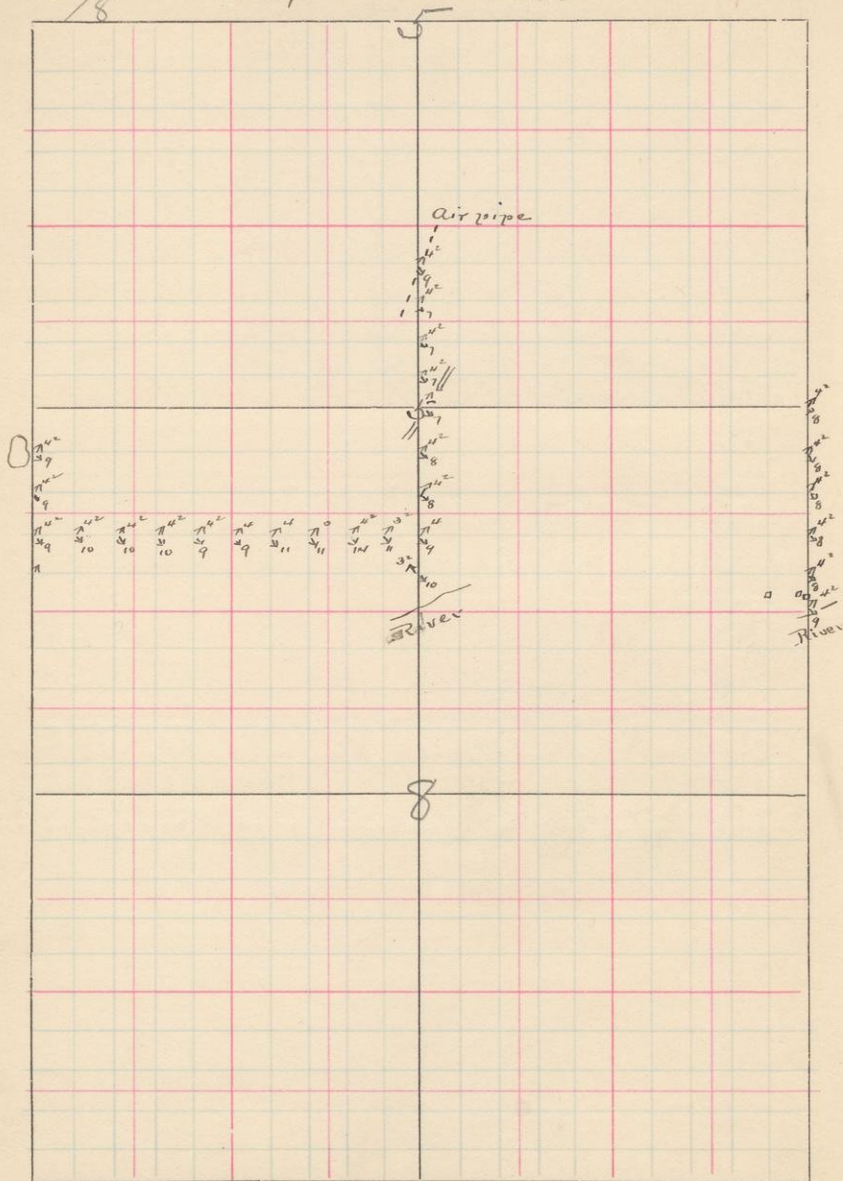
pond



S. 5/8

T. 39

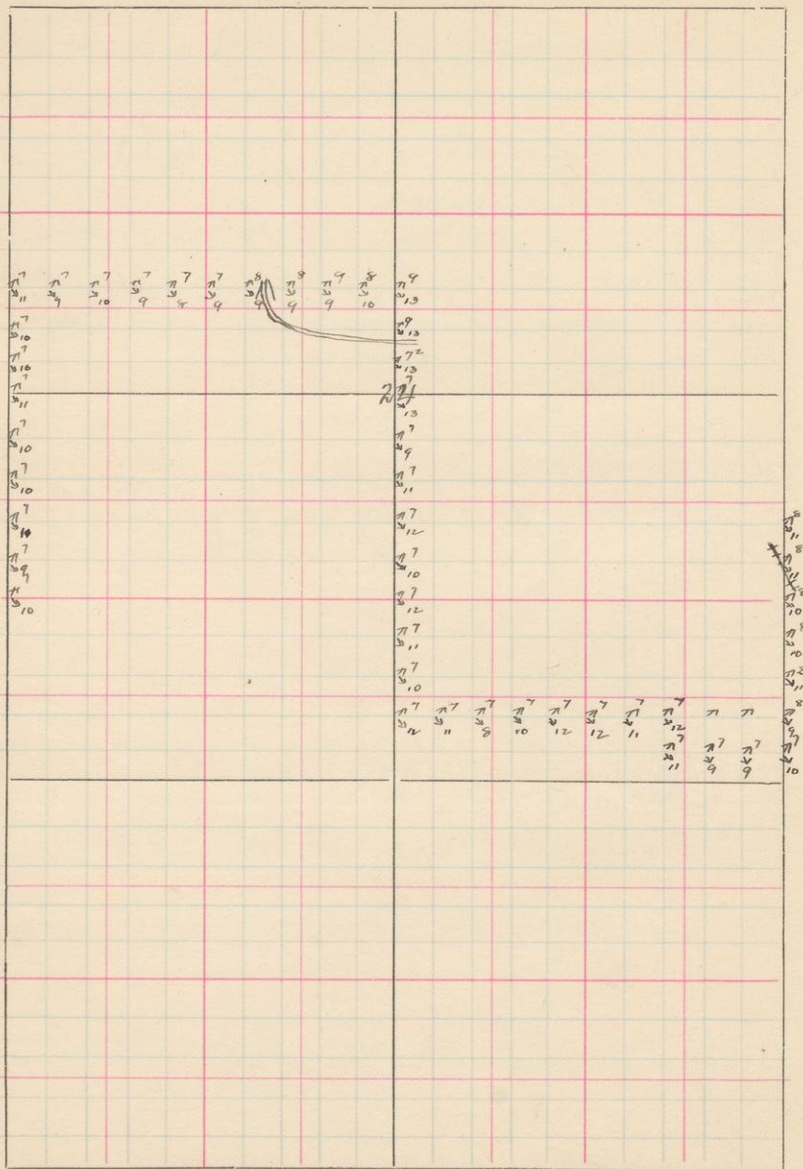
R. 30



S. 24

T. 40

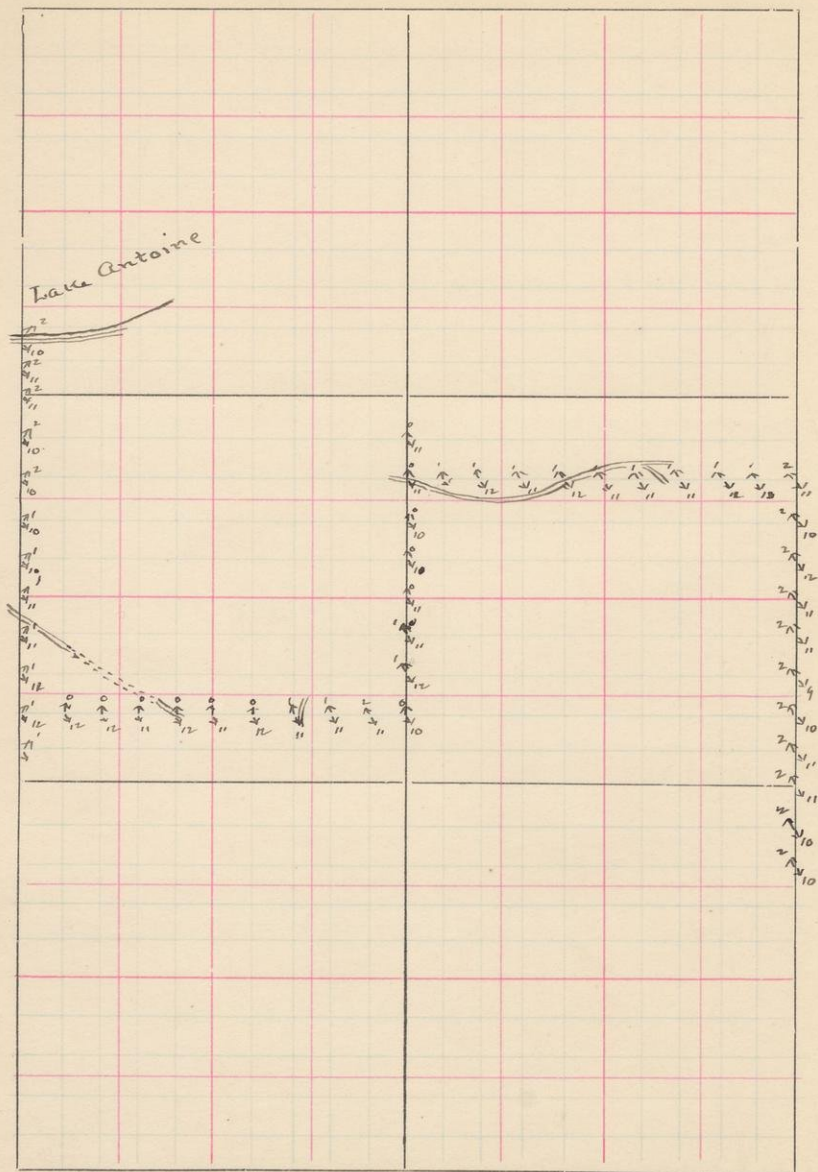
R. 31



S. 28

T. 40

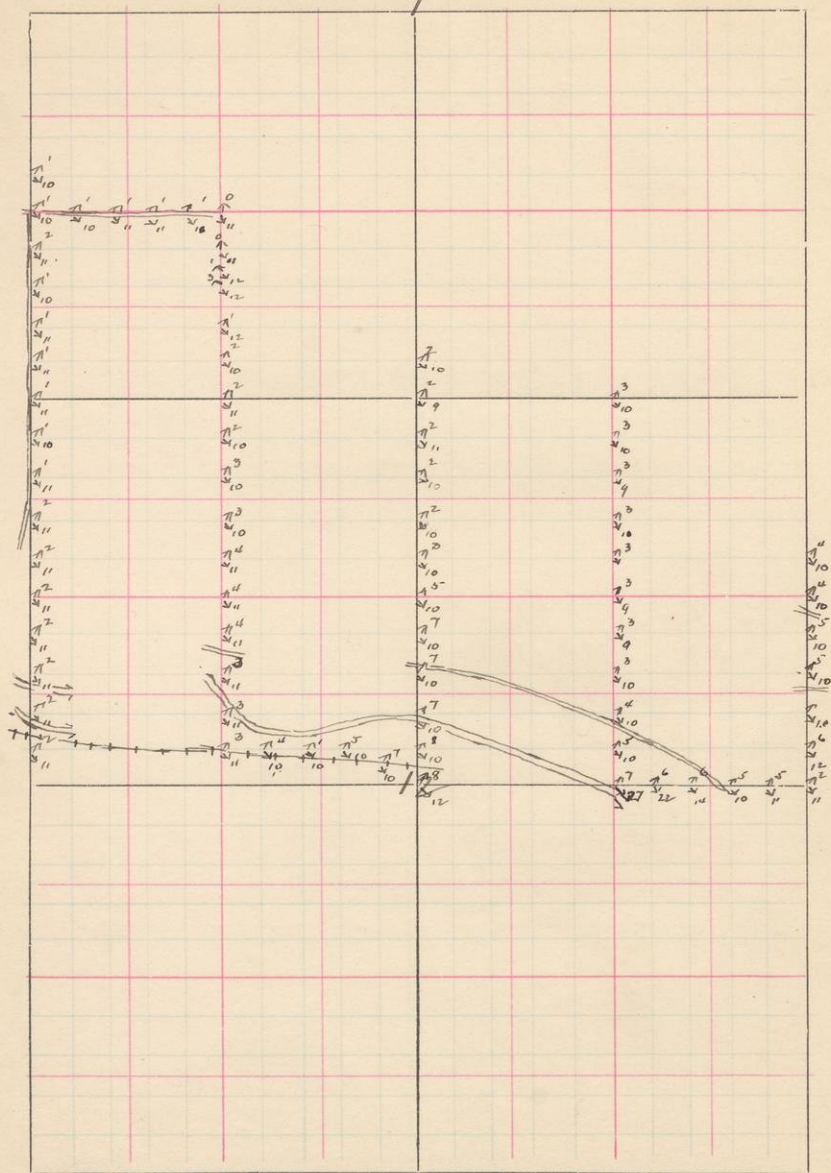
R. 30



S. $\frac{1}{12}$

T. 39

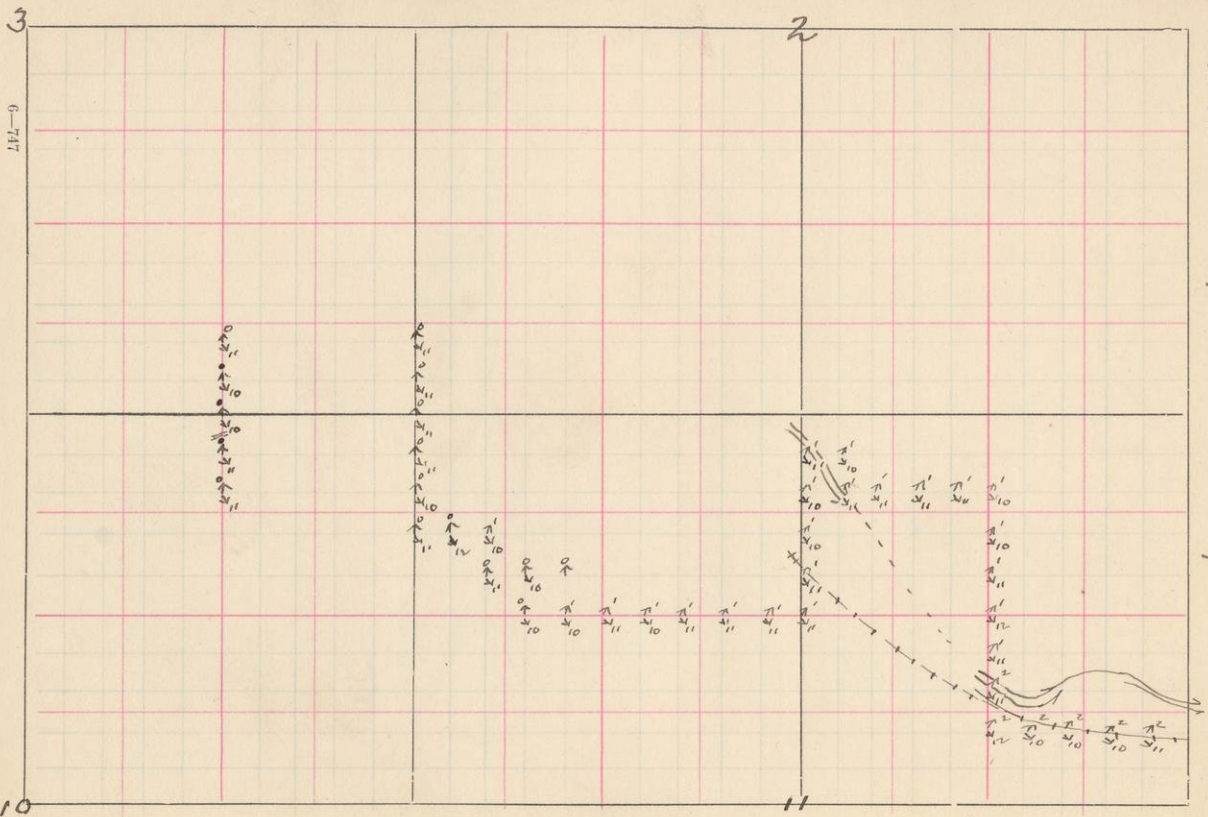
R. 29



3.2
S. 10 11

T. 39

R. 29



Appaletun 24, 25.
 Cuff 8, 27
 Cindy 10, 11
 Chapin 4.
 Calumet 12, 13, 14, 15

Turner 22
 Traders 5, 11.
 Woods 25
 Waukegan 31, 40.

E. Vulcan 36.

Vulcan 36

Forest 17.
 Four ft Trees 28
 Hancock 38.

Iron Mt. 2
 Iron Hill 33.
 Lexington 4, 6, 9
 Little Poplar
 McClintock 6
 Miller's Hill 2

N. Y. Farm 35
 Norway 37, 38
 Pennece 26.
 Pawabig 3, 20.

Runnec 4, 9, 10, 16, 41

Sec. 1. 39-29 54.
 2 39-31 47
 2. 39, 29 53
 3. 39, 29 55
 6. 39, 30 48
 5- 39, 30 49
 6 39, 29 29, 30, 39
 10 39-29 55
 11 39-29 53
 12 39-29 54
 13 40-30 46
 14 40-30 45

Sec 18 41-28 19
 19 39-28 22
 21 41-28 19
 23 40-30 51
 24 40-31 50
 25 40-31 6
 26 40-31 6
 27 40-30 53
 28 40-30 52
 32 40-29 34
 33 40-30 18, 43, 44
 34 40-30 41, 42
 35 40-31 47

