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Township 45 north, ranges 31, 32, and 33 west, specimens 31115-31147. No. 210 [1891]

Mathews, E. B.

[s.l.]: [s.n.], [1891]

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LAKE SUPERIOR SURVEY

Mathews

Index

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 boulder, 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 $3 \times 4 \times 1$ inch. In case several specimens of the same ledge are necessary, and when ledges are numerous, specimens $2 \times 2\frac{1}{2} \times \frac{3}{4}$ 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.

<p>PINE OR HEMLOCK</p>	<p>HARDWOOD</p>	<p>PINE OR HEMLOCK AND HARDWOOD</p>	<p>CEDAR SWAMP</p>
<p>SPRUCE OR TAMARACK SWAMP</p>	<p>MARSH</p>	<p>RAILROAD</p> <p>ROAD</p> <p>CREEK</p> <p>RIVER</p>	<p>NO STRUCTURE</p>
<p>NEARLY MASSIVE</p>	<p>SHALY OR BEDDED</p>	<p>SECONDARY STRUCTURE.</p>	

EQUATION OF TIME FOR 1891.

Day	Min.	Day	Min.	Day	Min.
-----	------	-----	------	-----	------

JUNE.

Add to watch time.

1-6	2	7-11	1	12-16	0
-----	---	------	---	-------	---

Subtract from watch time.

17-21	1	22-26	2	27-31	3
-------	---	-------	---	-------	---

JULY.

Subtract from watch time.

1-6	4	7-13	5	14-31	6
-----	---	------	---	-------	---

AUGUST.

Subtract from watch time.

1- 7	6	8-13	5	14-18	4
19-23	3	24-26	2	27-29	1
30-31	0				

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

L.S.S. field notes # 2

E.B. Mathews, geologist
J.H. McDonald compassman.

Worked 93/130

SPECIMENS = 1115-1147

100

June 18th.

3

Run quarter of 32 + 79 + west quarter of the same.

Bill 516. 28 Aneroid 515. 28.37 in

8.15 All. V 7.30' E, small dogwood bush.

200 N. (530) windfallen Cedar swamp.

400 N. (540) pine + hemlock, all burnt (8.40)

500 N. (540) V 0°

646 N. (540). Hardwood, maple, small poor.

800 N. (550) ^{V 0°} wood same as above but burnt at roots.

935 N. (545) ^{V 40° E.} small got holes on either side. (535)

1000 N. (550) V 0°

1200 N. (540)

(9.15)

1400 N. (545) East 200 paces is a tamarack

swamp fair in size + quality. A ridge

run N.E. separates it from a cedar + spruce

swamp to the north. ridge 20 feet above swamp.

1500 N. (530) V 0° 1530 N. (510), Cedar swamp.

1600 N. (540) Cedar swamp still. (9.25)

1790 N. (510) small creek run west.

1850 N. (510) thick small meadow marsh

wh. extends on either side of the creek

2003 N. shrub trail 1182 of cor. V 30° E

4

S.

29

T.

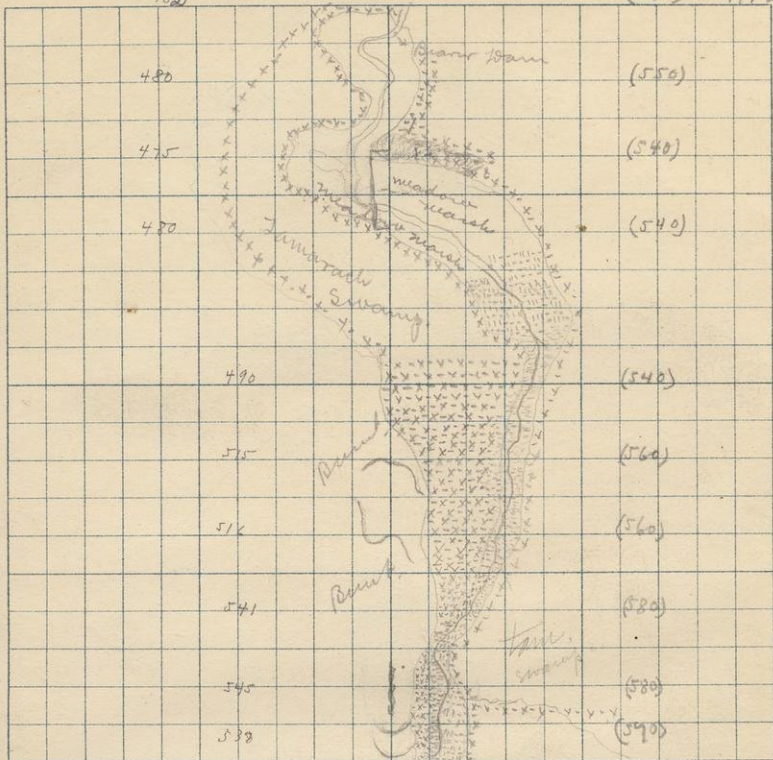
45

R.

31

484

(560) 1 1/2 S.



VTC

Bear
Swamp

570 E.

100 N. (570) Cedar + pine (white) good.

200 N. (580) Hardwood maple good. begin 1500

400 N. (580) contour N+S.

410 N. burnt strip. ^{spruce} swamphen east.

600 N. (560)

11.10

800 N. (560) 900 N. Tamarack + spruce (540)

1000 N. (540)

1400 N. (540) Tamarack changes to meadow
which is a continuation of the one on S2

1600 N. (540) in marsh.

1800 N. (550) "

2018 N. struck line S2 E of cor.

B.M. 486.70. arcoid 580. S2 E (12.10)

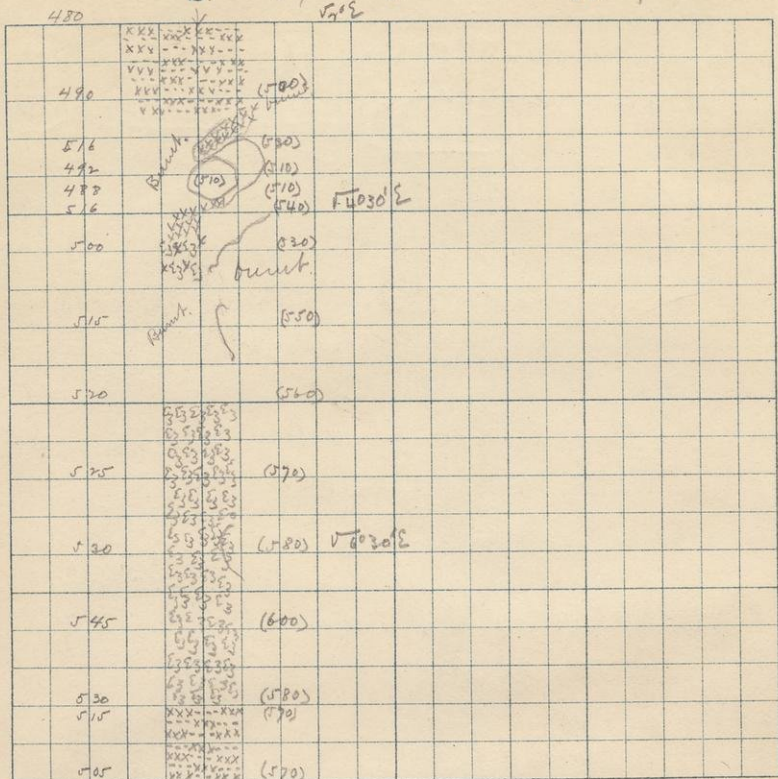
29

T.

45.

R.

37



west eighth

B.M., 484.58 aneroid 485. $\sqrt{2}^{\circ}E$. 12.50

Cedar swamp fair growth.

200 S. in Cedar swamp. (500.)

380 S. (530) end of pine ridge (burnt) extending E.

400 S. (510) narrow swamp land.

450 S. (510) pot hole.

500 S. (540) small unit of very good pine white, fair quality $\sqrt{40}^{\circ}30'E$. 1.45

600 S. (530) } line runs on boundary betw. burnt

800 S. (550) } chopping + a hardwood + pine growth

1000 S. (560) Hardwood maple + birch. good.

1200 S. (570) no contour.

1400 S. (580) $\sqrt{60}^{\circ}30'E$. 1.50

1600 S. (600) no contour.

1800 S. (580) Cedar swamp. (570)

2015 S. stench trail 24 E of 7/8 stake.

(570) (2.25 P.M.)

✓

32.

T.

45

R.

31

500

(570)

[illegible]

550

west eighth.

Cedar swamp. (570)

The swamp was the same level all the way.

1123 700 W 1500 W 32-45-31

1978S. struck trail on state partition
B.M. 505.47. ancient 590. 14⁴⁵

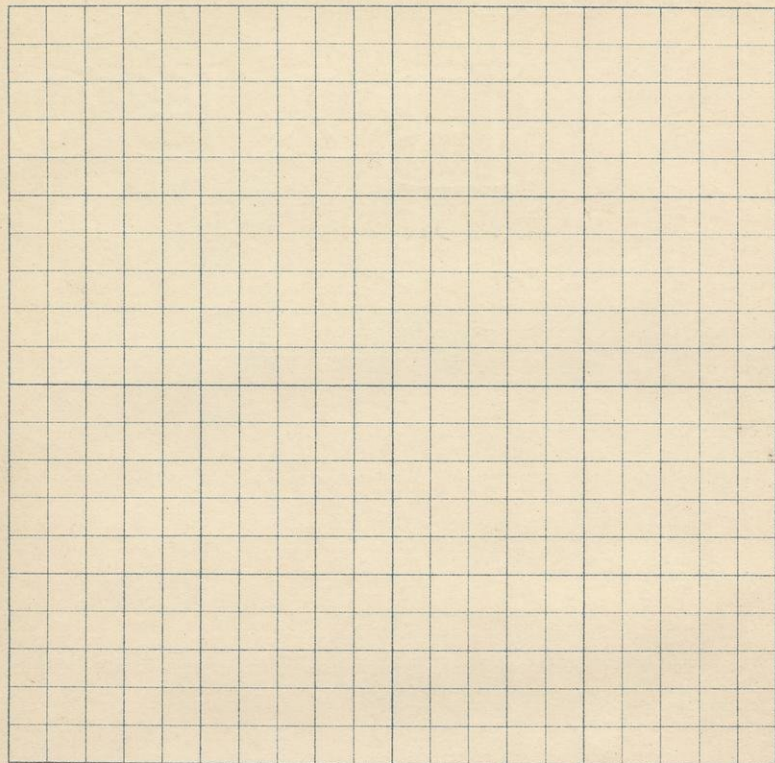
1115 ledge 4-7 feet high 50 x 40 in surface, 1270 W
1116. 1470 W of SE. cor sec 37 granite with
some gneiss structure no strike or dip
observable. Shelly weathering. Fire has been
over the rock & heated it. Specimens at least
6" from surface.

1117 ledge 900 W 1080 W of SE cor sec 37
1118. Chiefly composed of two large masses
one of the hornblende rock 1117 and the
other the orthoclase granite 1118. The

S.

T.

R.



contact line between the two appeared on digging only for a small distance.

At this contact line the hornblende rock (1117) rose at the side of and partially extended over the granite (1118).

The hornblende rock at the contact line became markedly schistose and very soft as shown in 1119 (It was impossible to get a larger specimen.) Besides these two principal rock masses there occurred in the 1117 several small veins of hematite + chloritic schist (C).

June 19th

13

Run sect 3rd 31 30+29, + east eighth of 81⁺⁸⁰
B.M. 50 3.34 Aneroid 505. 8.056. 11.05.

Cedar swamp.

1410 N. changed to a close tamarack.

1400 N. 50°

2015 N. struck trail 94 East of
corner. Aneroid (540) [no apparent change in level]

The line was very hard & it was
almost impossible to get by sight.
10.00

1184 [1000 N. 125 E.] ledge with hornblende rock on
the south side & granite on the north.

1186. Strike of contact line N.W. (not uncovered suff.
to get it exactly) no hematitic veins.

1187 [1030 N. 15 W.] ledge of the same two kinds of
rock. The hornblende rock is on the east &
the granite on the west, chiefly granite.

1189 The strike of contact N N W dip 56°.
Small hematitic veins.

S. 19-30

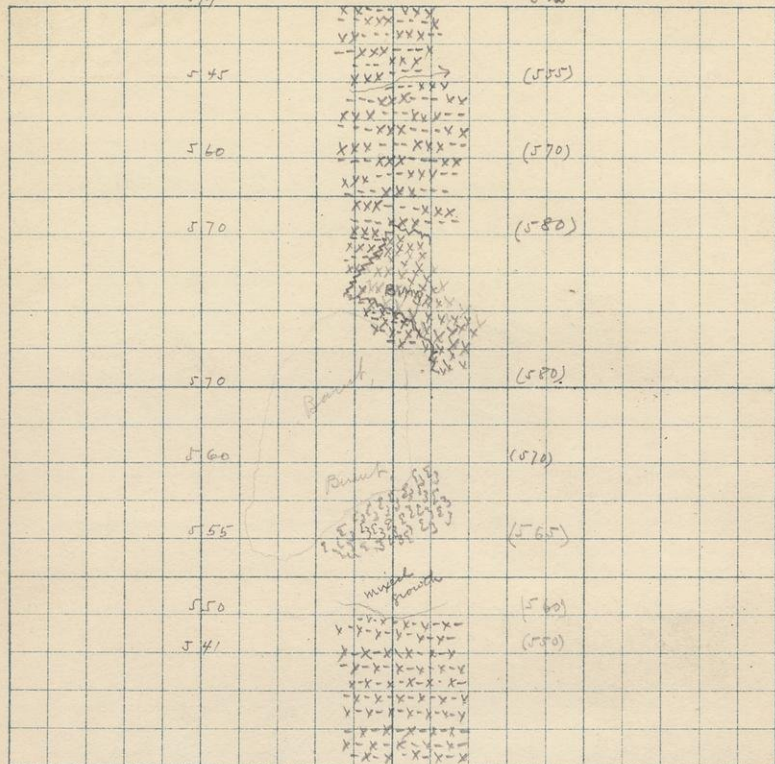
T.

45

R. 31

514

522



sec line

100 Close Tamarack + spruce ahead still.

350 N. Swamp ends. (550)

400 N (560) mixed growth, maple, birch, cedar
spruce fair quality

600 N (565) Hardwood good.

740 N. burnt timber.

800 N (570)

1050 N. (580) Pine ridge to the east of us.

1115 N. Spruce, tamarack + cedar swamp

1200 N. burnt white pine ridge.

1400 N (580) swamp. cedar, poor qual. hard going

1600 N (570) in swamp, still.

1800 N (565) creek, flowing E. small

2007 N (572) shink tail in swamp 40
pans east of corner.

Run 518.75 auroid (572)

11.35

540

(545)

SWAMP

544

(550)

539

(545)

542

(555)

552

(560)

552

(560)

571

(580)

571

(580)

5602

570

(580)

550

(560)

560

(570)

540

(550)

580

(540)

BURNT

HARDWOOD

BURNT

- B.M. 54398. Emerald 545, 570E, (12.30)
 swampy + scattering white pine good.
 1008, (5.50) cedar swamp.
 4008 (545) open tamarack.
 4608. hunt.
 6005. (5.55) (1.00)
 8005, (560) 1st contour. cedar swamp.
 10005 (560) swamp.
 12005 (560) " (1.30)
 13005 (580) hunt hard wood. hardwood to E. fair
 14005 (580) 560E. Shrub to the west.
 15405. "A#1" hardwood maple + birch.
 16805 (580) 17005 (570)
 170595 (560) min. 18005. 570.
 18715 (550) Cedar swamp (1.00)
 20735 (540) open tamarack. stunch
 trail 18E of stake (2.25)

1700 S. open tamarack.
 1750 S. Cedar swamp.
 2000 S. (530) " "
 4000 S. (530) " burnt
 6000 S. (520) tamarack.
 8000 S. (530) "
 10000 S. (540) " burnt.
 12000 S. (530) " "
 14000 S. (520) " "
 16000 S. (540) " "
 18000 S. (520) " "
 19500 S. (520) stinch trail Bull probably burnt.
 [Bull. 510. 15]

ledge on township line near east
 eighth of sec 31. quies. schistosity
 possessed no general direction but
 was crumpled & bent. Probably a part
 of the ledge SW in sec. 6 [44.31]

S. 36

T.

45

B.

[illegible]

June 20th

21

Ran quarter & west eighth of 36 + 15 -
(45-37) left camp 7.⁰⁰

B.M. 550.78 (550) 9.³⁰

2000 n (560). Hardwood, maple good. from 1000

400 n (560) "

600 n (560) " 700 n (560) 10.⁰⁰

800 n (555) "

900 n (550) swamp, cedar close

1000 n (555) " "

1200 n (550) " " 10.³⁰

1400 n (545) " "

1600 n (545) " "

1725 n 540 Hardwood "

1800 n (535) 11.⁰⁰

2073 n struck trail 1175 of stake (520)

Hardwood & pine good.

- 200 N (540) Hardwood & pine 11.32
 275 N (540) Cedar swamp.
 400 N (525) alder swamp
 600 N (530) " " } Hardwood + pine to 12.50
 700 N lean " " swamp to the E.
 800 N (520) hardwood & pine (white, good)
 1000 N hemlock ridge about 50 paces
 broad 1200 p. long good size & quality
 1025 N Cedar, tamarack & alder swamp. 12.40
 1360 N " " " " 12.50
 1400 N (540)
 1600 N Pine ridge good white (540)
 1750 N Black ash swamp. 12.80
 1968 N stunted trail 53 west of stake.

Bull 563.36. Aneroid 540. 1.15
 "

S.

45

T.

45

R.

۲۳

[illegible]

B.M. 572.44 aneroid 580. 2.00

swamp. cedar + alder.

200 S. (595) pine ridge (white good)

250 S. (580) swamp.

400 S. (560) "

600 S. (560) "

800 S. (550) "

840 S. pine ridge (white good.)

900 S. swamp. (550)

1000 S. " (550)

1200 S. " (550)

1770 S. " 58'E.

1387 S. white pine ridge fine quality

1500 S (580) hardwood + pine

1800 S (590) " 1900 S (570) swamp.

2098 S (570) stuck trail 8 1/2 of state

3.52 P.M.

52

3.6

T.

45

R. 52

[illegible]

530 E

400 S. (580) cedar swamp with white pine

1790 N 1500 W from S E Sec cor
ledge of granite 4-12 feet high extending
SW. 7100 paces.

400 S. creek flowing SW (570) 4.20

600 S. swamp with white pine. (590)

800 S. " (610)

900 S. Hardwood

1000 S. " (600) 4.55

1200 S. (570) swamp

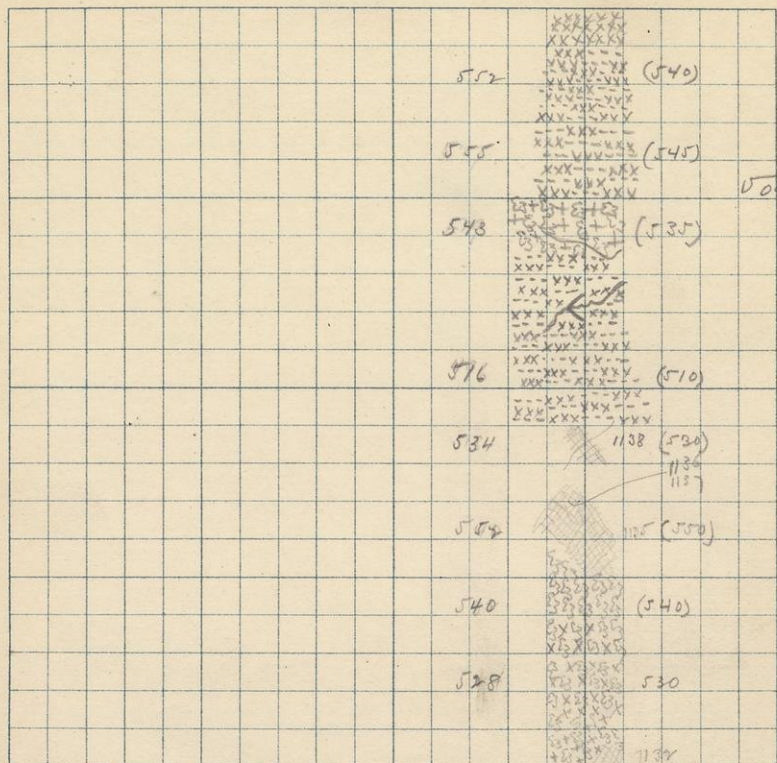
1400 S. (570) "

1600 S. (570) "

1775 S. 570 Hardwood

2000 S. storch trail 495 S of Postage 5.50

Bull. 5117 r. aurore (560)



113

113

113

113

113

11

June 22 1891. Cloudy.

Run section line of 36-35+35-26 & east eight of 35+26.

1132- Bell 585.77. amioad (525.) 700 with 19.19 (700) All

low ledge of quartzite, granite + chlorite rock 25 paces
1134 east of section corner crossing township line beto 44+45
no strike nor dip.

2000 N (520) Hardwood + pine from start. fair,

400 N (540) " No pine or aspen.

1135 560 N 21 E. ledge of granite extending in a
general NW direction.

600 N (550) mixed softwood small. (740)

650 N 75 W continuation of old ledge
terminates in abrupt knot.

1136 675 N 15 W ledge of granite (1136) with
1137 inclusion or seam of (1137) wh. has a strike of 21
+ S, dip 51° E

800 N. (530)

1138 845 N 60 W large granite ledge running NW.
(about N 30° W) (870) All cedar swamp

1000 N. (510) Good cedar swamp + boulders.

1215 N (520) Creek flowing E + W (845)

1346 N. End of swamp. Hardwood + pine fair.

1400 N. (535)

1500 N 15° Cedar swamp

1600 N (545) Cedar 1800 N (550) swamp.

1800 N (540) 1900 N. Ridge of pine good

1997 N strike trail beto, heavy trees + Ozotak.
(9.20 Aug.)

S. 75726 T. 45 R. 32

						574	XX XX XX XX XX XX XX XX XX XX XX XX (520)		
						571	XX XX XX XX XX XX XX XX XX XX XX XX (520)		
						570	XX XX XX XX XX XX XX XX XX XX XX XX (520)		
						564	XX XX XX XX XX XX XX XX XX XX XX XX (520)		
						556	XX XX XX XX XX XX XX XX XX XX XX XX (520)		
						540	XX XX XX XX XX XX XX XX XX XX XX XX (520)		
						554	XX XX XX XX XX XX XX XX XX XX XX XX (520)		
						552	XX XX XX XX XX XX XX XX XX XX XX XX (520)		
						558	XX XX XX XX XX XX XX XX XX XX XX XX (540)		
						555	XX XX XX XX XX XX XX XX XX XX XX XX (540)		

Section line.

~~July 22~~
Run section line north Letw. 25226

31

(540) Pine still white good

200 n (540)

400 n (540)

600 n (540)

800 n (540) Hardwood with a few pine

1000 n (540) " " " " 10¹⁰

1200 n (540) Cedar swamp, very close

1400 n (540) " " " "

1600 n (540) " " " " 10³⁵

1800 n (540) " " " "

2027 n (540) struck trail at corner. We
had a trail the greater part of the time.

Bill .578.56 aneroid 540. 10⁵⁵

52.

26

T.

45-

R.

32

596 ✓ (600)

606

(610)

52

(590)

594

[600]

584

(590)

568

(525)

573

(580)

(090)

578

(580)

567

4701

580

90)

58

311

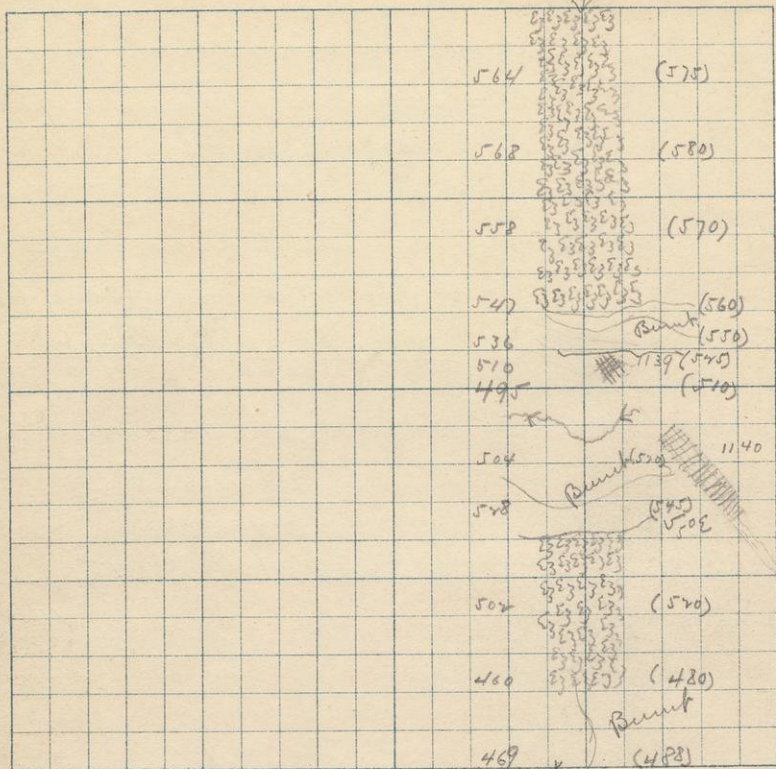
579

East eight.

June 22.

33

- Run east eight of sec 26, going south
600.47' and wind (600) (610.20³⁰⁰) 11.35
- 700 S. (610) mixed soft wood + hardwood. poor.
400 S. (590) Cedar swamp. 12.03
- 600 S. (600) Hardwood + pine (white) good.
800 S. (590) " " " " " "
- 1000 S. (575) " " " " 12.25
- 1153 S. (580) cedar swamp.
1200 S. (590) " " " " " "
- 1400 S. (580) " " " " 1.45
- 1500 S. - 1600 S. (570) alder swamp. 1540 S. small creek.
1740 S. (590) small ridge of white pine. fair.
1800 S. (590) Hardwood + pine (white, fair)
2012 S. (590) stick trail 17 W of stake. 1.15



Summit
East eight foot sand.

200 S. Shu in sort of swale, end of pine (575)
400 S. Hardwood maple + birch just dunes (580)

600 S (570)

800 S. (560)

875 S (550) burnt.

1139 1175 N 475 W ledge of gneissoid granite.

no dip nor strike obtainable.

915 S. (575)

1000 S (510)

1060 S little creek

1140 850 N 300 W. ledge of granite extending in the
general direction N 370 W

1200 S. (520)

1300 S. (535)

1400 S (545) 150 S. Hardwood. Maple.

1600 S (520)

1800 S (480)

1979 S. stink trail 87 W of stake

B.M. 473.36. Anuroid (488)

3.10

36 ✓

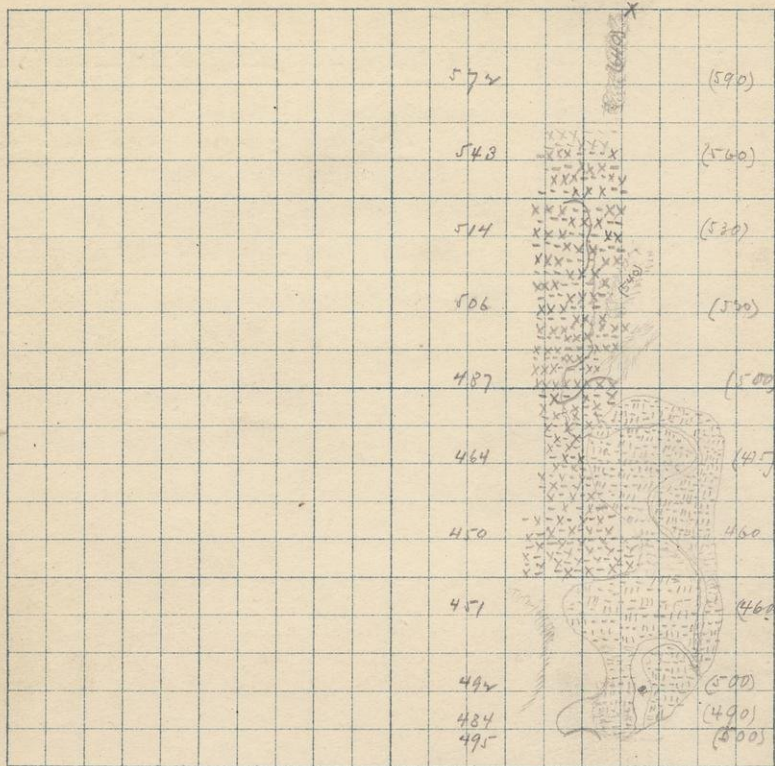
S. 34+35

T.

45

R.

32



474

↑ (473)

sec line

June 23 Pleasant.

37

Run north on section line betw 34+35, 27+26
+ south on east eighth line of 27+34.

B.M. 478.09 Aneroid (478) 50° (7.42 AM)
burnt land.

175 N. (500) map. 160 N. (490) run on line.

200 N (500). Large meadow marsh to the East

400 N (460) dead + burnt sp. *spice pine* + tamarack

600 N (460) " " " 8.14

800 N (475) " " " "

850 N (475) creek flows S.E.

1000 N (500) Pine ridge very poor.

1200 N (500) Cedar swamp run 1050

1400 N (520) " "

1600 N (560) " " 1700 N. Hardwood

1800 N (590) Hardwood maple + birch good.
from 1700 - 2050 N ridge run parallel
to line about 50 paces East (640) steep on
both sides.

2053 N stench trail 132 E of stake. 9.45

S. 47.46

T.

45

R.

3

598

640

Station	Notes	Depth
586		(630)
599		(640)
578		(620)
603		(650)
585	mid growth	(630)
576		(640)
597		(640)
598	mid growth	(640)
600		(640)
642		(650)
623		(650)
625		(630)
626		(650)
618		(640)
589		(610)
620		(640)

section line

Run north on section line of 27 & 26

45 N. (640) Hardwood good

100 N. (610) glacial valley short to the east.

200 N. (640)

300 N. (650) max

375 N. (630) min.

400 N. (650)

467 N. (670) max.

475 N. 40 W. (640) min.

530 N. (660)

600 N. (640)

800 N. (640) 2nd growth, 1000 N. (640)

1160 N. (640)

1200 N. (630)

1400 N. (650) Hardwood maple & birch good.

1600 N. (620) 1660 N. (640) valley to W (600)

1800 N. 630

2018 N. stench trail 87 E of stake.

Ball 603.00, Aneroid (640) 11.30

There must be some trouble with our dial graduation for it does not give enough variation to the E. When run by dial we strike to the E going N & to W going S. While when we run by compass & township plot variations we make good direction lines.

Run south on east right of 27.

Beu. 597.39. amirid (598) Hardwood, (18.05)

200 S. (605). Hardwood, maple + birch. good.

400 S. (605).

500 S. (595)

600 S. (595)

800 S. (595) 2nd growth ^{close} small, 945 S. (615)

1000 S. (640)

18.43

1200 S. (640)

1245 S. (640)

1270 S. (660)

1285 (678)

1306 S. (700) max

1325 S. (690)

1350 S. (680) min.

1400 S. (690)

1442 S. (700)

1464 S. (730) max

1514 S. (710)

1540 S. (700) min

1600 S. (720) max

1632 S. (710)

1700 S. (690) 1750 S. (680)

1820 S. (670)

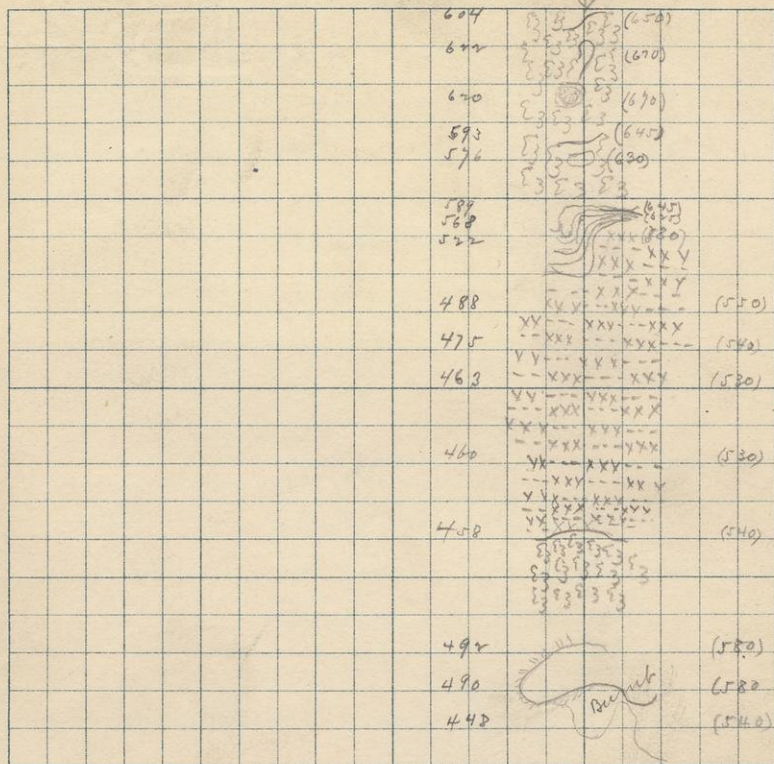
1860 S. (685)

1900 S. (650)

1980 (660)

2019 S. stuck trail 50 W of 1/8 stake.

1.40



Hardwood maple & birch T402.

515. (650)

1785. (670) deep valley to the E (6700)

3705. (670)

3705. (645)

4005. (630)

5355. (645)

7005. (590)

8005. (550)

Cedar swamp.

9005. (540)

10005. (530)

" "

12005. (530)

14005. (540)

just out of swamp. Hardwood poor.

16005. (580)

16505. (590)

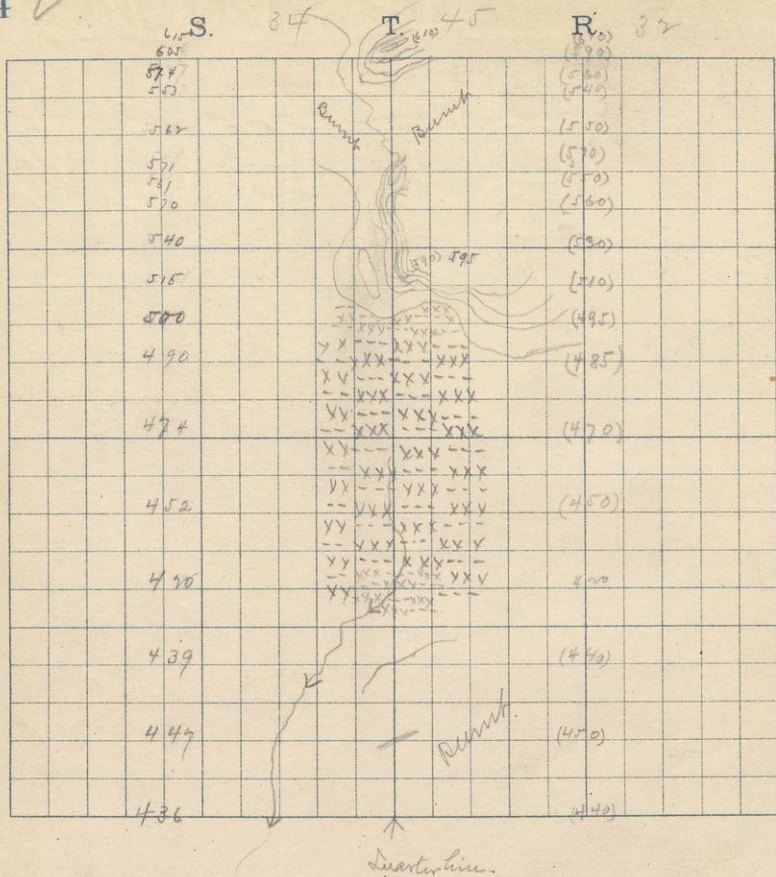
18005. (580) Summit.

19335. (540)

20225. (520) stuck trail 50 W of 1/8 stake.

BM, 449.87 anroid (520)

3.20



June 24 cloudy

45

Ran north on quarterline of 84 + 27 + south
on the west eighth.

Bill. 440, 06. amroid (440) 7.30

7000 N (450) Bunt.

4000 N (440)

6000 N (420) Entered cedar swamp at 550. 8.00

6300 N + 7740 N crossed creek (clear + swampy))

8000 N (450)

10000 N (470)

12000 N (485)

8.30

13000 N (495) cedar.

14000 N (510) bunt. + dead, mid growth.

14500 N. 125 E (590). bunt. + " "

15000 N (520)

9.00

16000 N (560)

1665 N (550)

1712 N (570)

18500 N (550)

1930 N (540)

1970 N (560)

20000 N (590)

2050 N (610)

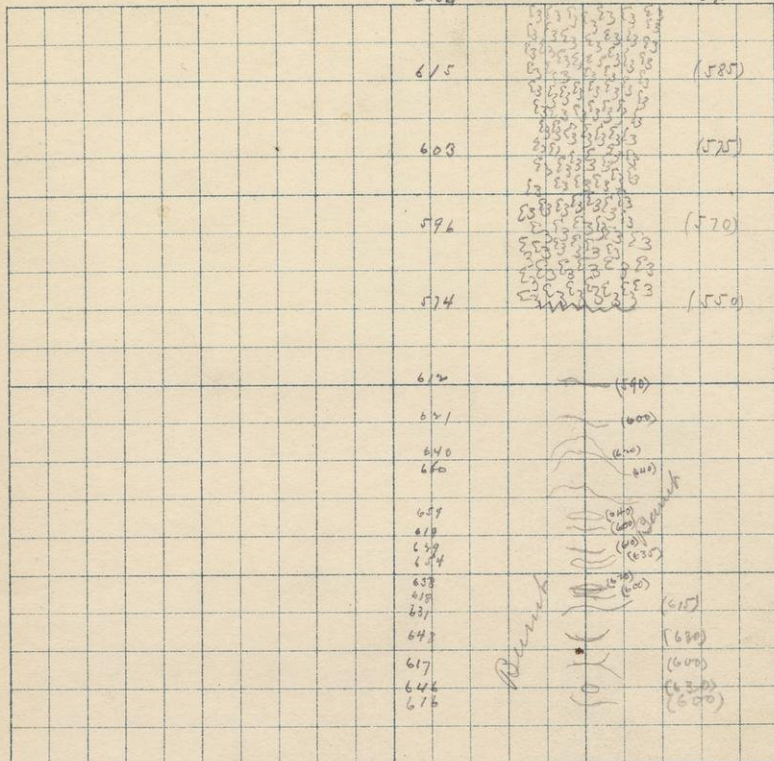
2003 N stench trail 93 E of stake 9.30

Bill. 193 amroid (590)

S. 27 T. 45 R. 3

624

595



↑
 should be 1/4 line

Run north on quarter line of 27.

9⁴⁵

1402N (600) 1882N (630) Summit.

2852N (600) 3402N (630)

4062N (615) 4702N (600) 2402N (620)

5322N (635) 5602N (610)

6102N (600) 6582N (640)

8102N (640) (max) 8652N (620) 9102N (600) min.

9392N (600) 10002N (590) 12³⁰

12002N (550) Hardwood maple + birch good.

14002N (570)

16002N (575)

18002N (585)

20229N (590) struck trail 43 W of stake 11²⁶

B.M. 624.93. Aneroid (590)

At the beginning of the mile the variation on the map was 2° E while our dial gave 2° W. Since the dial could be used only occasionally & we were not sure of it then we ran by needle & map variations with result as above.

48

S.

27

T.

45

R.

3

618

623

618

(625)

611

(620)

609

(620)

597

(612)

605

(620)

mid growth.

624

(640)

622

(640)

D. growth.

630

(650)

619

(640)

598

(620)

602

(620)

574

(600)

551

(520)

west growth.

Run south on west-clyth of r. 7
 Bull. 62808. Aneroid 625. $18. \frac{m}{m}$

200 S. (625) Hardwood, maple + birch. good.

400 S. (620)

600 S. (620)

800 S. (610)

1000 S. (640)

$14. \frac{30}{m}$

1154 S. (640) Second growth small + close.

1400 S. (640)

1400 S. (650)

1547 S. (640)

1558 S. (620)

1600 S. (625)

1800 S. (600)

1975 S. struck trail 16 W of stake (580)

$1. \frac{15}{m}$

[illegible]

Run south on west edge of 34

51

Burnt + dead with close mid growth

200 S. (540) Cedar dead + burnt

400 S. (520)

600 S. (540)

800 S. (570) Hardwood mixed with cedar.

1000 S. (570) Hardwood, maple + birch good? ¹⁵

1100 S. (600)

1221 S. (580)

1400 S. (570)

1600 S. (550)

1800 S. (540)

1985 S. Stuck trail 19 W of stake.

Run 445.57. Area (510)

2.00

S. 82 + 83

T.

45

R.

32

[illegible]

Section line

June 15 Cloudy.

53

Run north on section line of 32+33 + 1938
+ south on east eighth of 32+39.

B.M. 542.84. Aneroid (542) 7.45

Hardwood, maple + birch. good.

200 n. (550)

400 n. (565)

600 n. (580)

800 n. (580)

1000 n. (590)

8.15

1200 n. (585)

1400 n. (585)

1600 n. (590)

1800 n. (590)

2000 n. (595) stench trail 6 W of stake 8.50

45

32 ✓

611	(600)
591	(580)
610 590	(580) (500)
582	(580)
588	(580)
587	(580)
602	(595)
596	(590)
595	(590)

section here

Run north on section line of r & r. 55
Hardwood still.

200 n. (590)

400 n (590)

600 n (595)

800 n (580)

1000 n (580) surely a rise of ten feet,

1200 n (580)

1400 n (580)

1600 n (580)

1800 n (600)

2010 n (610) stretch trail r & E of cor.

Bill, 631.53. aneroid (615)

10.⁰⁰

760 n. (600) 9.15

(meadow)
860 n. creek flows SW

S.

29

T.

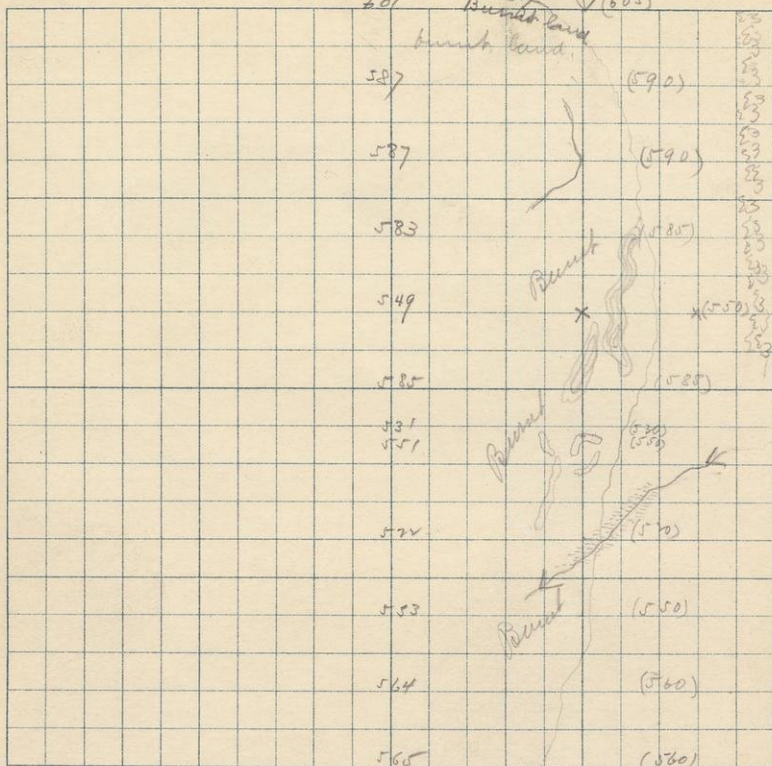
601

45
outline of
Burnt Land

R.

32

V (605)



outline of
Burnt Land

Run south on east eighth of sec 20,
 R.M. 605.94 Aneroid (605) 10.²⁸

Hardwood. Burnt to N+W.

700S. (590) burnt since 90S.

400S (591)

600S (585)

800S. (550) 500S. 150-200E hill (600)

1000S. (585) 10.²⁰

1133S. (530)

1176S. (550)

1400S (520) 1445S. creek meadow 50 paces on
 either side. Flows SW.

1600S (550)

1800S (560)

1947S. (560) struck trail 6 paces W of stake 11.⁰⁶

S. 32

T. 45

R. 8 ✓

						540	(545)	10
						556	(550)	11
						551	(545)	12
						547	(540)	13
						545	(535)	14
						551	(540)	15
						552	(540)	16
						553	(540)	17
						558	(545)	18
						549	(535)	19

Run south on East eighth of sec. 32. 11.25
 200 S. (545) Hardwood sapling buck good

400 S. (550)

600 S. (545)

800 S. (540)

1000 S. (535)

11.30

1200 S. (540)

1400 S. (540)

1600 S. (540)

1800 S. (545)

2000 S. (535) stench trail 17 W of stake

Run 552.29. Aneroid (535) 11.52

S.

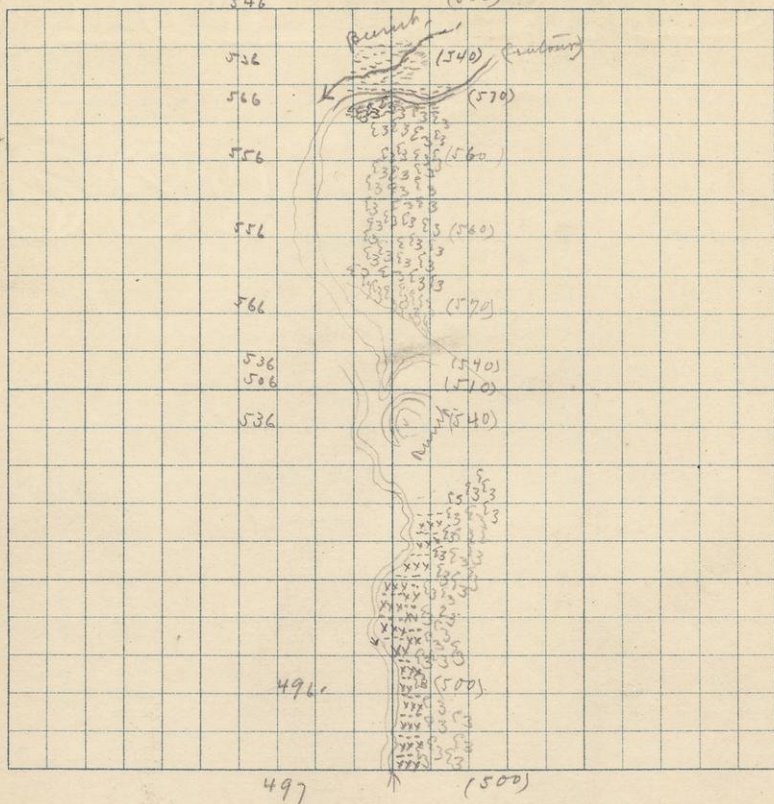
32

T.

245

R.

32



June 25th

61

Ran north on quarter line of 34 + 19 cond
on west right of same.

Bull 501. 44 Aneroid. 500. 12.35

Dier River at 30 N. - 780 N. in bed of stream.

700 N. (500). Cedar with hardwood to E.

900 N. (540) glacial hill. No aneroid readings

taken because I was meandering the river +

this line ran so near the river that there

was no change of importance. 1.18

1000 N. (510)

1090 N. (540)

1200 N. (570) Hardwood maple + birch. good.

1400 N. (560)

1600 N. (560)

1793 N. (570)

1847 N. (540) creek meadow 50 paces N. side

1940 N. stink trail 21 west of stake 1.50

(550)

Quarter line of sec 29. north.

200 N (550)

400 N (545)

600 N (550)

800 N (550)

1000 N (540)

1200 N (540)

1400 N (540)

1600 N (590)

1800 N (590)

1989 N (550) struck trail 7 W of stake.

R.M. 549.72 America (550) 2.5'

Hills to east about 600

This whole basin looks like

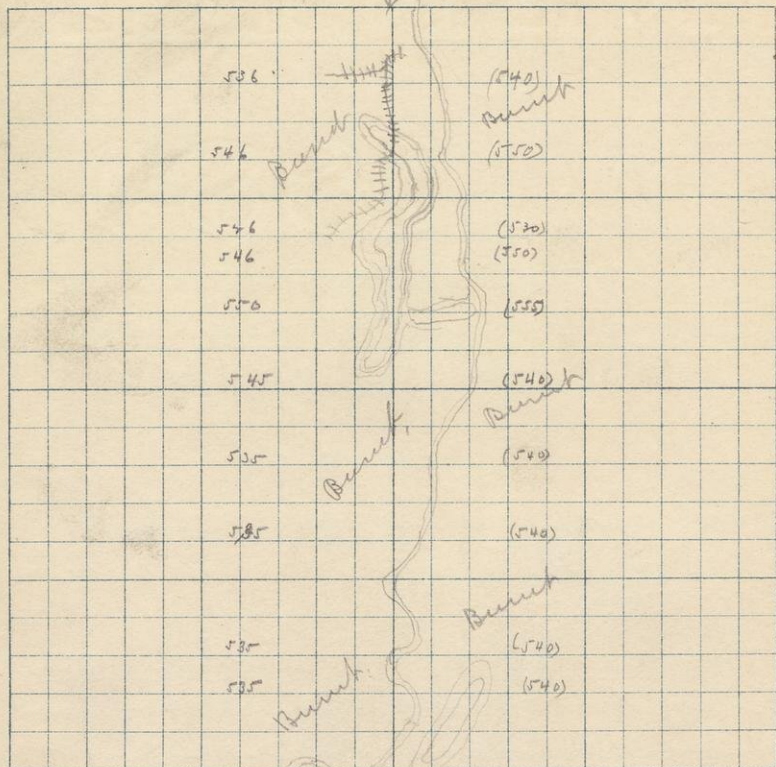
the bottom of some old pond

Tamarack swamp.

1448 N (560) 1476 N (595)

Large creek or watery marsh north of
the line formed by a logging dam
built at the eighth stake

S. 29 T. 45 R. 32



West end.

South on west eighth of 29. 3.15

Well 567.63 around (567.)

1505 wagon road WOS. (540)

3005-3605 " "

11005 (550)

600 S (530) 650 S. (550) (10 foot contours)

800 S (555) valley on east side steep slope.

1000 S (540)

1200 S (540)

1400 S (540)

1485-1500 S. Deer River

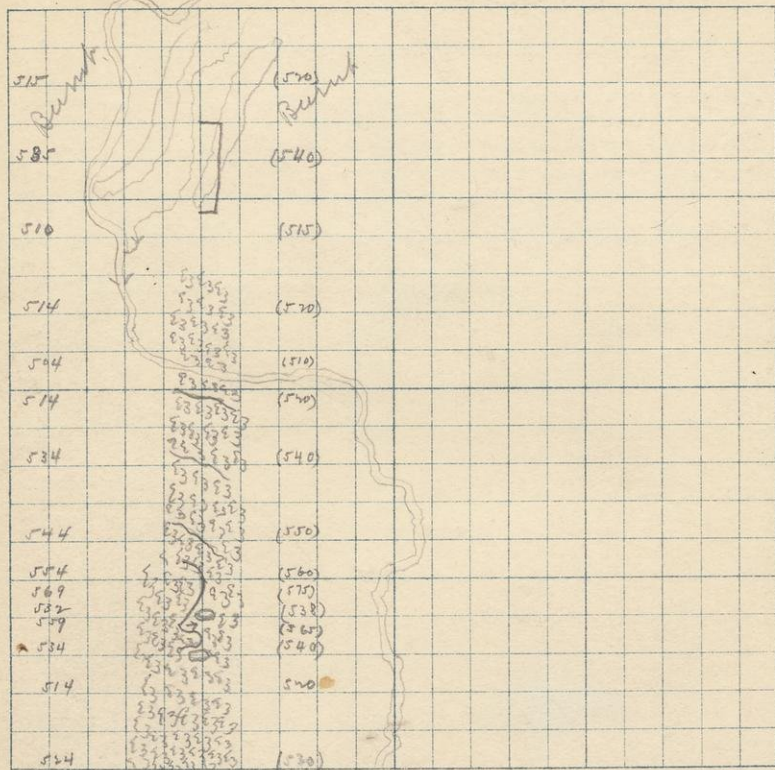
1700 S. (540)

1520 S (540)

1963 S. stench trail at stake 4.08

Burnt land & burnt swamp all the way.

S. 32 T. 45 R. 32



Run west eighth of 3^r south

1500 scrub Bunt.

700 S. (520) Hills on either side

300 S. Set off 60 paces E to avoid swamp.

400 S. (540) 4.30

553 S. Returned 60 paces west to line

600 S. (515) 685 S. Hardwood.

800 S. (520)

975-980 S. Drier River (560) 4.45

1017 S. (520) Hardwood maple & birch good

1200 S. (540)

1400 S. (550)

1500 S. (560) max. about (575) $\frac{1}{2}$ W

1600 S. (538) (min) 1662 S. (565)

1700 S. (540) (min)

1800 S. (540)

2039 S. (530) stuck trail 1/3 E. of B.L.C.

B.L.C. 528.87. Arcoid (530) 5.20

S.

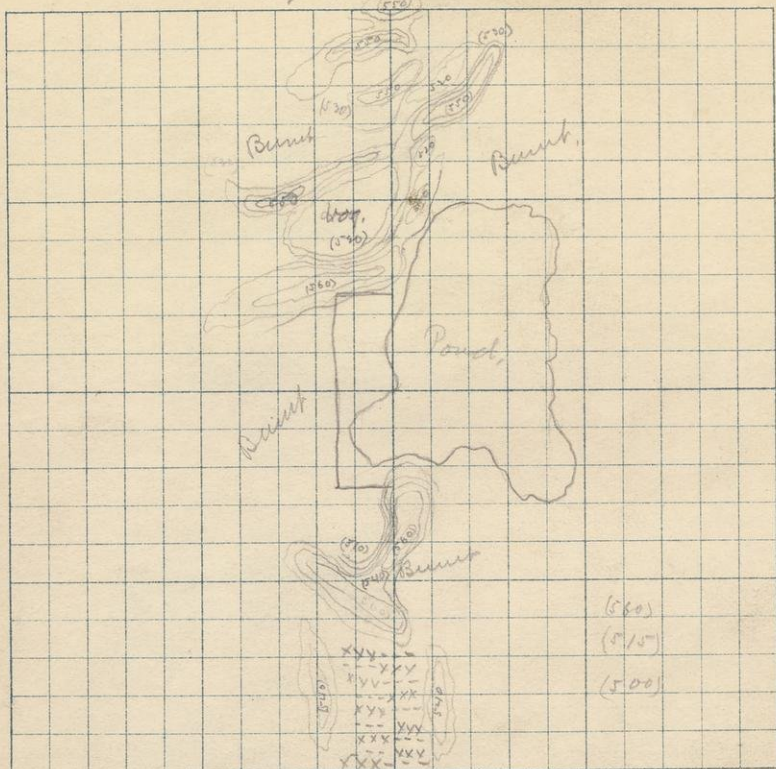
32-31

T.

45

R.

32



Section line

(500)

June 26 Pleasant

69

Run section line north section 31 & 32 & 30 & 29. Cedar with hardwood on west. 7.15

BMC 503.11 aneroid (508)

200 N (500)

360 N (515)

410 N (560)

600 N (550)

814 N (520) Pond

740 N set off 130 paces W 500 N 130 E. 8.05

1350 N 75 W (560)

1500 N bog (520)

1520 N Bog ends.

1800 N (535)

2130 N struck trail east of corner 9.45

Have not made corrections in aneroid readings for fear of confusing them, all should have + subtracted from them + the additions as indicated should be made.

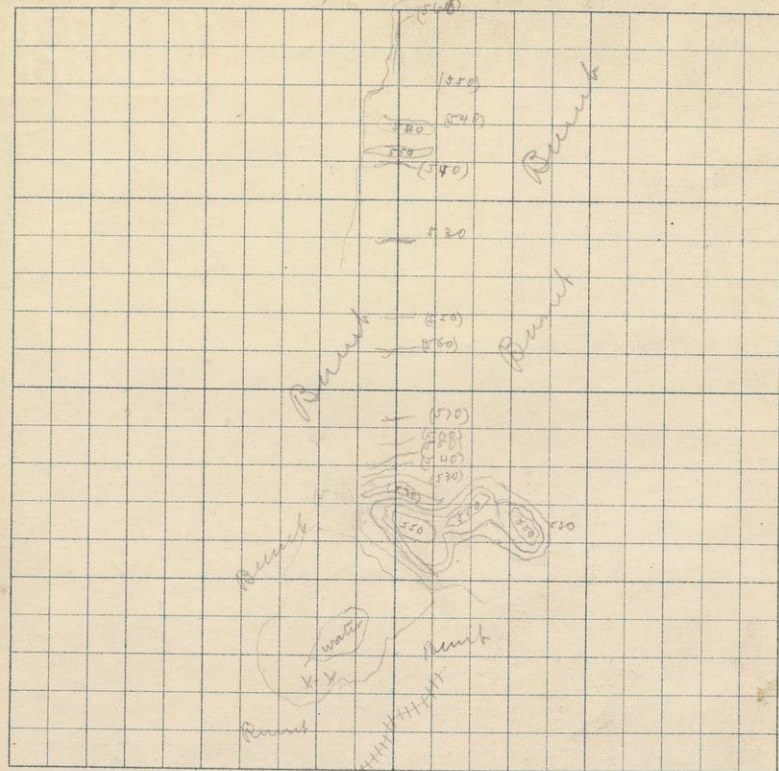
S. 3044

T.

45

R.

32



section line

Run north on section line of 30+29.

134 N. wagon road. Run.

200 N. (540)

347 N (520) spin tamarack swamp - 500 N.

400 N (520)

600 N (530) burnt

740 N (520)

800 N (540)

965 N (570)

1000 N (570)

1200 N (545)

1400 N (530)

1600 N (540)

1645 N (550)

1800 N (550)

(Tamarack to the west.)

1937 N (565) struck trail 5 paces E of cor.

B.C.L. 573.78. Aneroid 570.

11⁰⁰ M.

[See notes on p. 69. for aneroid corrections]

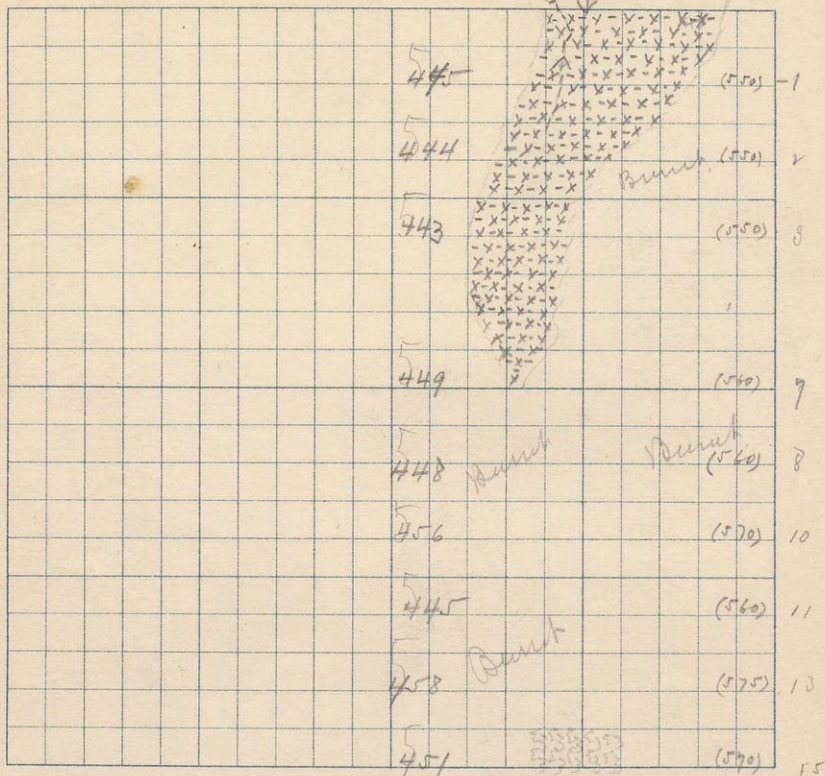
S. 20

T.

45

R.

32



Run south on east eighth of sec 30

Blk. 54. Acreage (550)

Open tamarack swamp 11.50

hunk toward the east green woods on the west.

2008. (550) } Alder swamp. + bare land

4008. (550) } after 4008

6008. (550)

10008. (560)

12.20

12008 (560)

1400 (570)

16008. (560)

18008 (570)

19008 Greenhardwood.

20168 (570) stunch trail 17 1/2 of stake. 17.50

S.

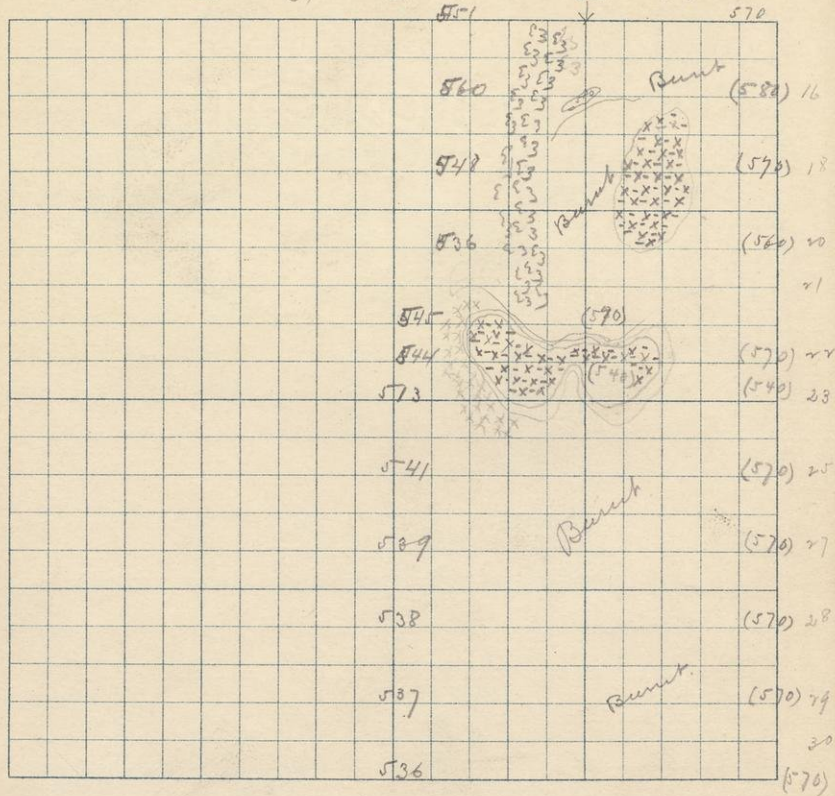
31

T.

45

R.

32



Run south on east eighth of sec 31.
Burnt.

2005 (580) burnt on East side hardwood on
4005 (570) the west side of line
6005 (540)

8005 (570)

8578 (570)

9465 (540)

10005 (540)

2.25

13005 (570)

14005 (570)

16005 (570) few white pine + maple fair.

18005 (570) burnt.

19905 (570) stench trail at stake.

Run 539.42 acreoid (570)

1.45

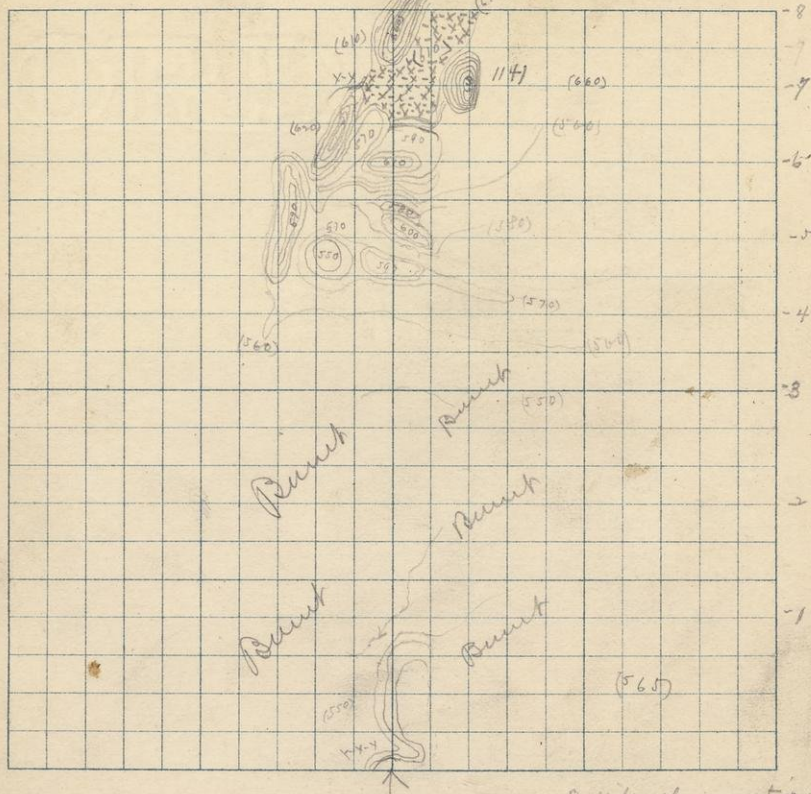
S. 36

T

245

R.

८३



pends the corrections indicated subtract the constant 4 feet.

June 27. Pleasant

77

Run north on quarterline of S 6 + 45 + south
on west eighth of same.

Blk. 571.84 anroid (570) 6.50

200 N (565) 300 N (565) 350 N (550)

400 N (550) creek flowing SW.

600 N (550)

7.30

800 N (550)

1000 N (550)

7.50

1200 N (560)

1370 N (590)

1400 N (550)

1450 N (600)

1600 N (610)

8.45

1800 N 150 E. knob of greenstone. (660)

1141 1800 N 85 W ledge of greenstone full of
inclusions (see rough sketch on p 76
strike N + S. dip varied from 28° - 37° W.

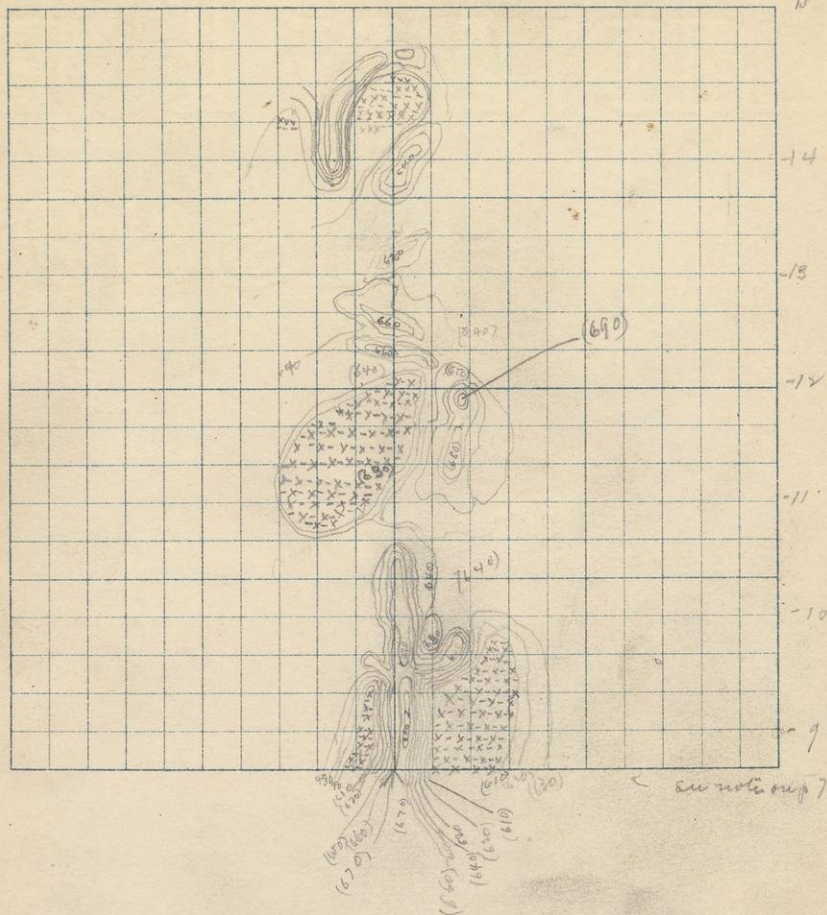
several smaller knobs of the same
rock to the east. The whole bluff had
inclusions which differed in character

Better specimens could not be obtained without
hammer + considerable time. ^{9 think strike + dip of little or}
no account.

2027 N. struck old stake

Hill to east (see map) (660)

There is no pond as indicated on plot but
large tamarack swamp open + dead.



On side of ridge, tamarack swamp on either
side. Ridge 60-70 feet high. Dense + med growth.

200 ft. (670)

300 ft. (660)

400 ft. (670)

600 ft. (640)

10.05

800 ft. (630)

1000 ft. (630)

90.20

1181 ft. (660)

1200 ft. (650)

1340 ft. (620)

(635)

1600 ft. (630)

1650 ft. (610) Cedar swamp.

1815 ft. (610)

1850 ft. (630)

1987 ft. stench trail 17 west of stake.

Bull 595.90. Aneroid (610)

11.45

S.

T.

R.

33

[illegible]

BM. 596, 96. amvial. 595.

12.00

7005. (610)

3605. (600) swamp cedar.

21605 about 850 W greenstone knob. (630)

1142

15401. 1750 W ne 25 ledge of greenstone like

1143

(1141) strike 263 W dip. 53 S.

This rock like 1141 contains many inclusions which weather so as to give a mottled appearance to the outcrop.

The ledge stands out above the surrounding country about 50 yds. It is about 300 paces in circumference at its base, almost all the exposure is free from vegetation.

Also 1142 & 1143

on page 93

6005. (630)

8005. (640)

8725. 10 W ledge like the rest (?)

10005 (640) bench.

1200 (640)

1400 (630)

1600 (620)

1800 (620)

2000 (620)

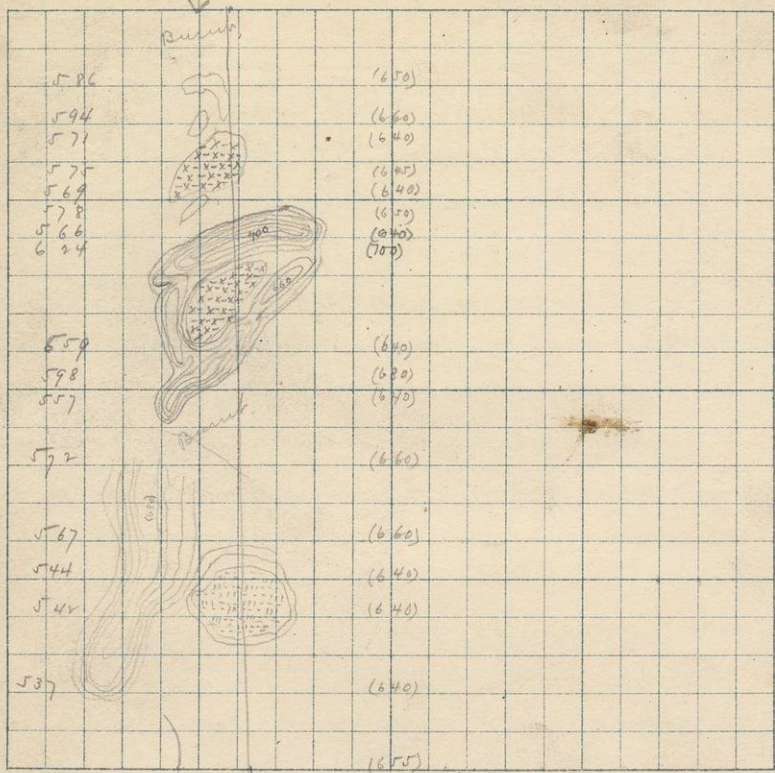
no trail

2.00

S. 36

T. 45

R. 33



58

58

60

64

65

67

70

72

74

77

79

82

84

87

89

92

94

96

99

101

102

102

Run west eighth of 36. (couch)

220 S. (650) Bunk

300 S. (660) 330 S. (640) Lam swamp

450 S. (640) end of swamp 475 S. (651)

500 S. (640) 540 S. (650)

600 S. (640) min. 645 S. 700 max.

780 S. 640 min. Lamarack swamp.

890 S. 640

945 S. (680)

1000 S. (640) burnt & mid growth of slough ^{3.25} thick.

1200 S. (660)

1400 S. (660)

1500 S. (640)

1600 S. (640)

1800 S. (640)

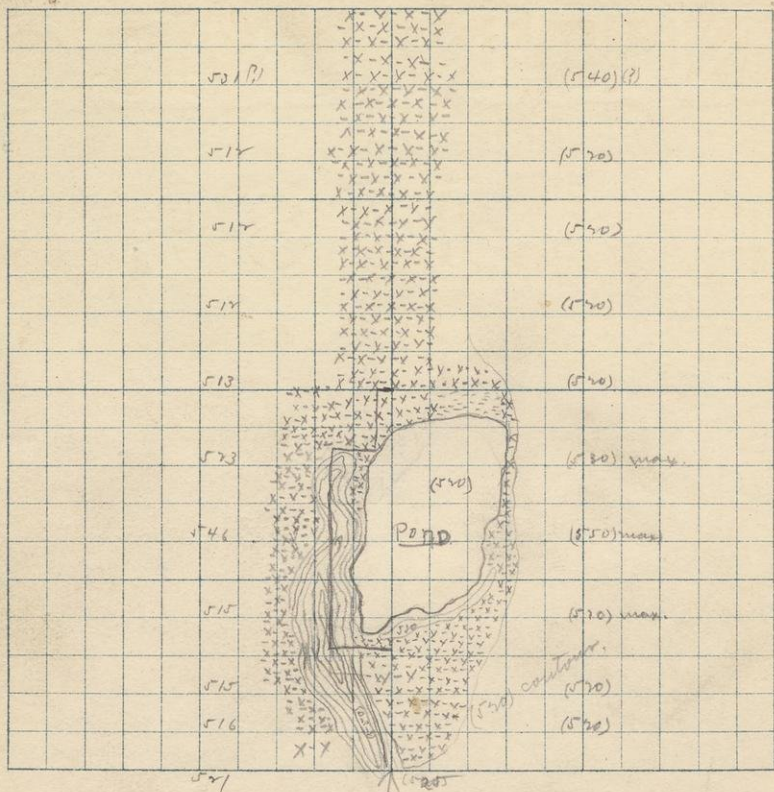
1967 S. struck trail 195 S. of stake

Ball 553.

Amoroid 655.

4.30

The reason of such a wild close is that no close was made after the first mile, no variations were given for the eighth & no sun was bright enough to give variations.



section line

June 29 Pleasant & cloudy

85

Run east section of 35 & 26 north & south
on east side of same.

B.M. 545.31 Aneroid (5-25) 9.15
1000 ft (5-20) Tamarack swamp - poor.
300 ft (5-20) " "
390 ft (5-20) Pond.
330 ft set off 175 W at 400 ft (5-20) max.
800 ft set off 125 E 7 (5-20) 10.15
1000 ft set off 50 E. to section line 10.35
1200 ft (5-20)
1400 ft (5-20)
1600 ft (5-20)
1800 ft (5-40) no change in elevation probably (5-20)
2030 ft stench trail 34 E of stake, 11.10

Burnt tamarack swamp with green
undergrowth of alders. $53^{\circ}30'W$.

200 n. (550?) (530) $570^{\circ}W$. 200 n. $570^{\circ}W$

400 n. (550?) (530) $570^{\circ}W$

11. 25

500 n. $550^{\circ}W$.

600 n. $530^{\circ}W$. (540?) (530)

800 n. $530^{\circ}W$ (540?) (530)

914 n. 560°

12. 25

1000 n. $570^{\circ}W$.

1200 n. $570^{\circ}W$. (550?) (540)

12. 15

1400 n. (570) Burnt dead cedar swamp

1600 n. (530) windfallen with green tamps of

1800 n. (570) alder + cedar

1978 n. stunk trail 88 W of corner.

B.M. 556.31. Annot 565.

12. 40

[illegible]

538

(550)

- 8

cloudy,

89

Run south on east right of 76

Bull, 543.02 aneroid (540) 1.18

Burnt, dead, windfallen cedar with alders.

3000 (540)

4000 (570) (540)

6000 (560) (540)

8000 (550) (540)

10000 (550) (540)

2.10

12000 (560)

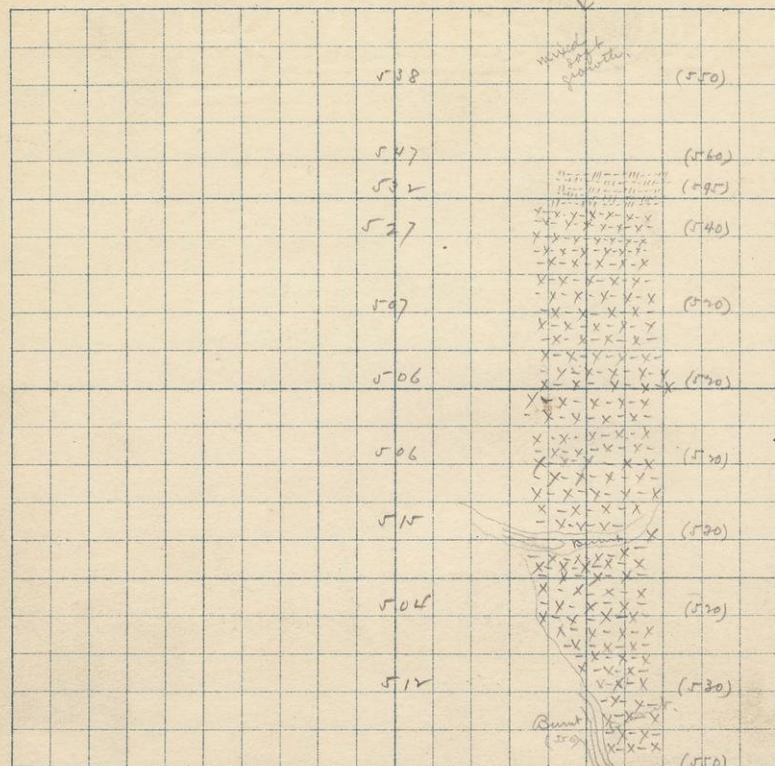
14000 (560)

16000 (580)

18000 (560)

20000 (550)

3.15



502

5/8 line

Run south on east eighth of 35
cedar etc shaded mixed small growth etc

200 S (550)

400 S (560)

490 S (545) meadow marsh - 517. 3.30

600 S (540) Good tamarack growth.

800 S (530) " " "

1000 S (520) Fair " "

1200 S (520) " " "

1250 S (520) bunt for 500 feet all along ridges

1600 S (520) open tamarack.

1800 S (530) End of tamarack swamp.

1998 S (550) stinch trail 18 W of Bell

Bel 53634. Aneroid (550) + 30

June 30 cloudy

93

Run quarterline of sec 34.27 north +
south on west quarter of the same.
B.M. 491.67. (490) 7.15

153N. small spring creek (470) cedar

180N 1075W. Conglomerate with greenstone
matrix no strike nor dip.

180 ft end of cedar swamp.

300N 50E. (550) max.

400N (500) min.

575N 1030W greenstone conglomerate
containing considerable jasper strike
of fracture N + S. dip 75° W.

600N (510) Hardwood burnt underneath.

800N (500)

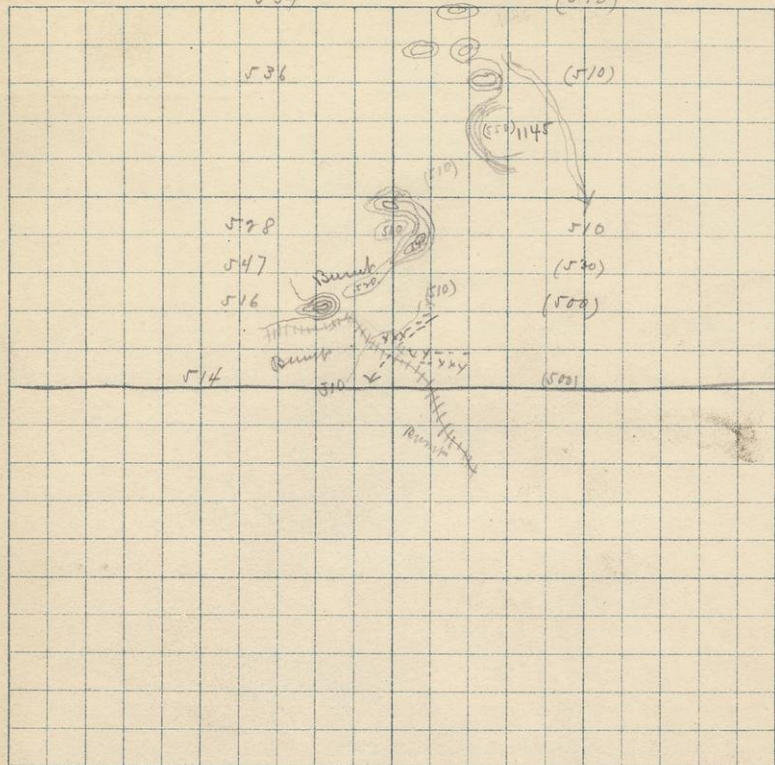
900N (450) Hemlock River.

1000N (500)

9.00

The ledge at the line is the same as 1143
as we go east or upstream it changes to
a rock like 1142 & finally passes into
1144 just below the dam. There is
no persistent strike but N 65 W
seems nearest this. Dip undetermined.
The ledges as a whole have no common
structure in the way of common dip
& strike.

S. 34 T. 45 R. 33
 534 (510)



1090 N wagon road. cedar swamp.

1130 N creek

1200 N. (500) about 1/4 SW (550)

1335 N (530)

1400 N (510)

1700 N 800W outcrop of conglomerate
with fewer pebbles & more of the greenstone.
These knobs of ledge occur
every two or three hundred feet
extending in a N & S line.

1800 N (510)

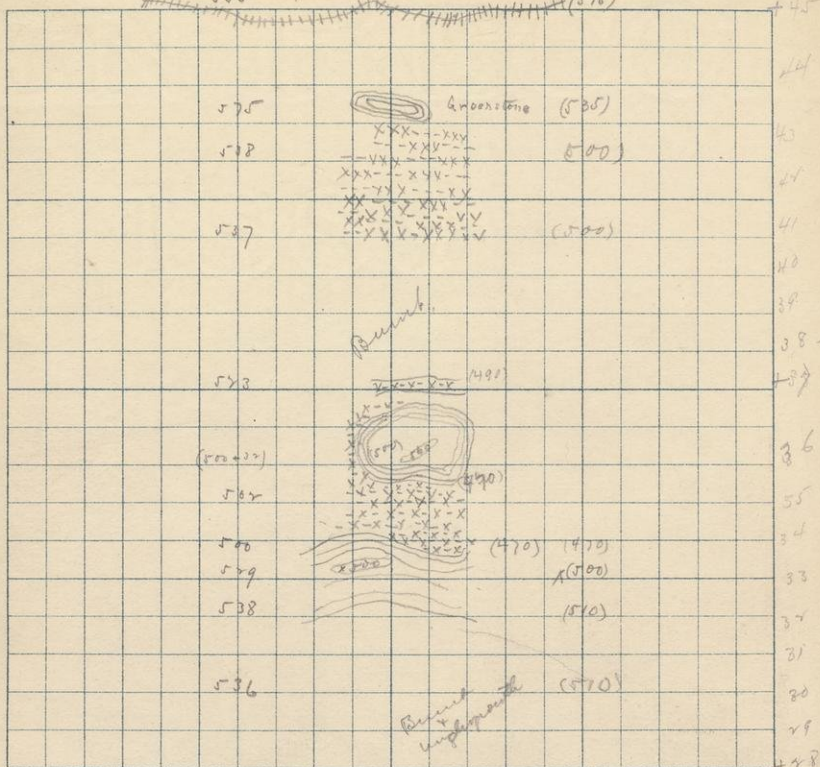
2000 N (510) No trail hence no close 10⁵⁰

(1145)

There is such a
specimen in the collection
but there appears to be
no accompanying description
in this work

E R M

S. 27 T. 45 R. 33



1/4 line

Rainy.

97

burnt + young undegrowth.

200 n. (510)

400 n (510)

500 n 25 w (500)

600 n (470) close tamarack.

800 n (500) burnt.

1000 n (480) tamarack.

1057 n (490) burnt

1147. 1100 n. 875 W, strike n 20° w dip 25° w.
greenstone, very lith conglomerate,

1200 n. (495)

1400 n. green cedar. (500)

1600 n (500) cedar 1700 n. burnt. (535)

1715-70 Greenstone ridge same as 1147.

The same rock outcrops in the valley.

1987 n. struck trail 87 E of stake.

B.M. 559.99. Aneroid 515. 12⁰⁰

Small bluffs of greenstone all
around here. They are all like the
specimens of greenstone + conglomerate
scattered without any apparent order

Run south on west side of 27.
 Bull. 587.88. Aeneoid (590) 12³⁰

Wagon road on line. burnt timber across
 700s. (590) country all full of greenstone knobs.
 400s (590)

500s ledge on the line has strike N. 10° W dip 45° W (?)
 600s. (580) E. 30° S Tamarack swamp. (570)

800s (560) Burnt.

1000s. (560) E. 50° N (600)

1080s (550) 1100 SW 500 600

1200s. (560)

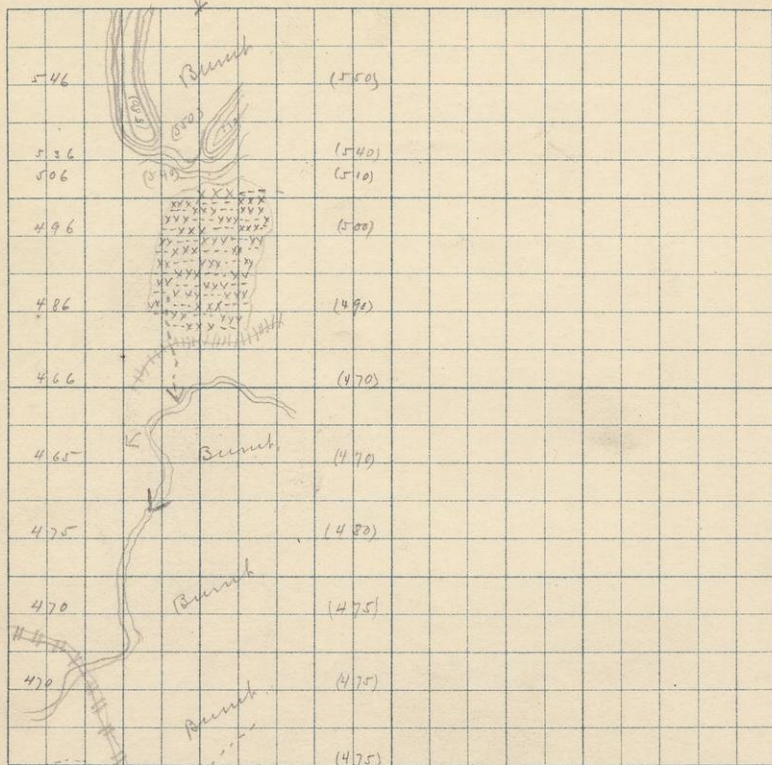
1357s. (540) close Tamarack.

1600s (550) " on line, burnt E.

1800s (550)

2000s (550) burnt.

3³⁰



470

W 1/2 line

Run south on west eighth of 34
 200 S. 550 bank

400 S. (540)

450 S. (510) Cedar swamp.

245

600 S. (500)

800 S. (490)

2800 S. Wagon road

1000 S. Hemlock River (470)

1400 S. (470)

1400 S. (480)

1600 S. (475)

1800 S. (475)

1994 S. (475) stinch trail 60 W of 1/8 stake

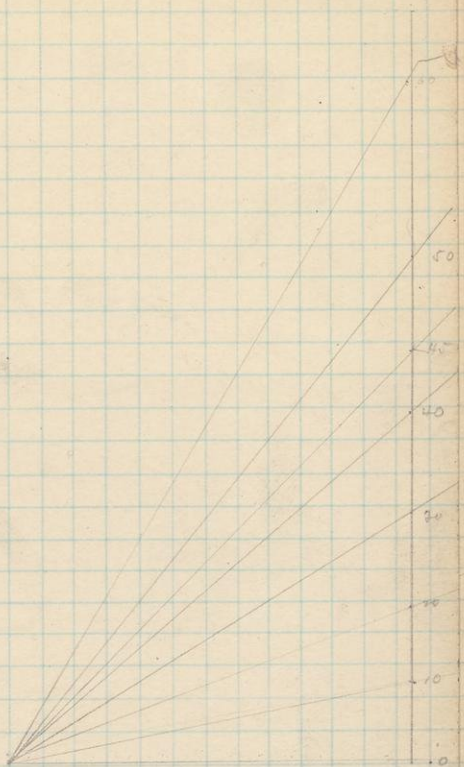
Ball. 43.84. Aneroid. (475)

400

Blank Pages

102-104

Skipped



2/5, 80
2.64
12

