Superior region [with H.E. Wood and W.J. Mead]. No. 425 summer of 1907

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 ¾ 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 # 425

C. K. Leith, summer of 1907:-

Michipicoten Dist (with H.E. Wood)
Gogebic Range (with W.J. Mead)
Mesabi " " "
Western Vermilion (60-22 etc) Mine.

S. T. R.

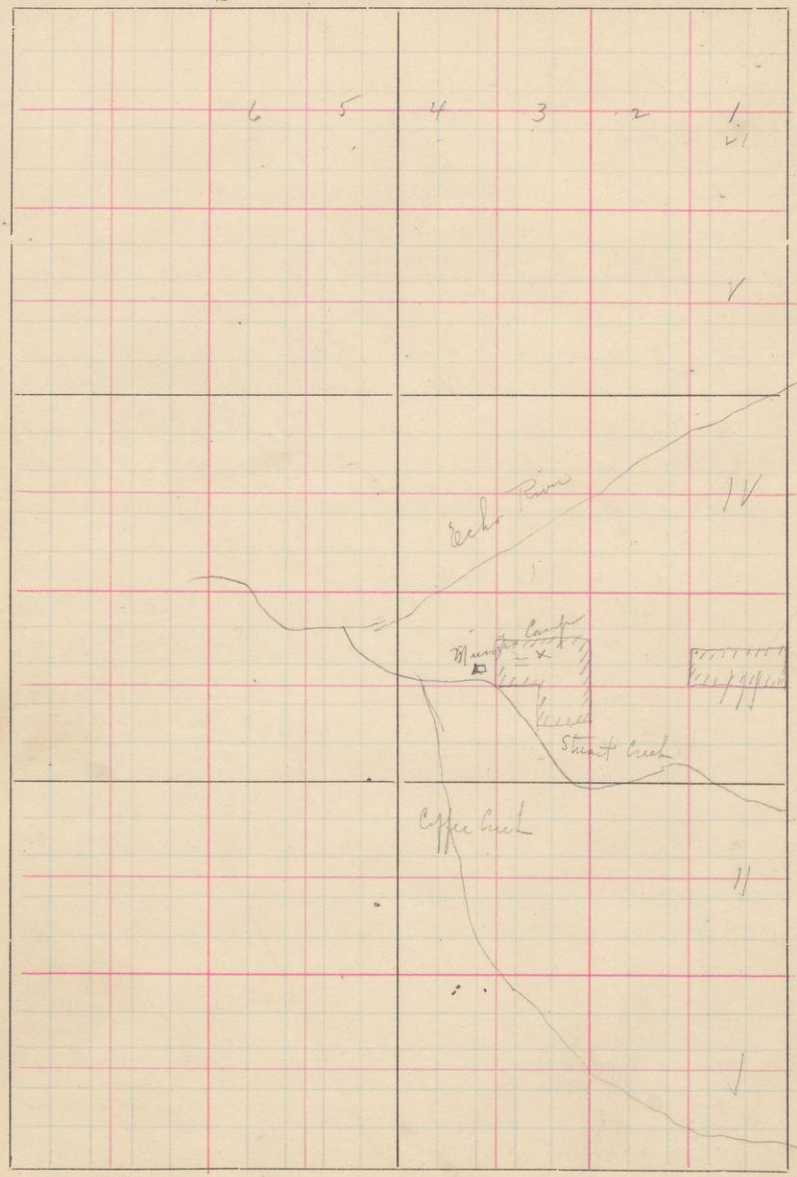
#252
Ld 811
S. 225
2.

#251
Ld 877
S. 167
Sl. 2.

2.05
0
Ld. 767
S 130
T 45
2 30

.51
Ld. 877
S. 292
T. 908'
2.

S. T. Chesley Add. R. Unit



6—747

N. Shore Lake Huron.

Mackinac Island May 21 — H.B. Nordo
J.W. Potter
W.B. Grundy

2

47480-2

47483

Echo Bay

J. H. McCall Caul
J. P. Pardee
Andrew L. Michael

47484
47485
47486
47487
47488
47489

[illegible] Distances.

Gogebic Range

[illegible] 25 1907

[illegible] Upson [illegible] 24 [illegible] 80 [illegible]

[illegible]

Tylers Fork [illegible] 300 [illegible] 200 [illegible]

[illegible] 300 [illegible]

[illegible] 300 [illegible] 3 [illegible]

[illegible] 300 [illegible] 70° [illegible] 61° 35' [illegible]

[illegible] 5 [illegible] 15 [illegible]

[illegible] 20 [illegible] 40 [illegible] 40 [illegible]

[illegible] 35000 [illegible]

15 [illegible] 60% [illegible]

[illegible] 65% [illegible]

Instrument

Mozart. [illegible] 1907 [illegible] 14

[illegible] 200 [illegible] 7.677 [illegible]

[illegible] 14.6 [illegible]

S. T. R.

0211 282:475.
602
854

サンプル No. 29-56-24

ニューマン山 Jun 9

ウラン・バナジウム 60ポンド ドロップ・オフ

U	
V_2O_5	42.67
T	.084
SiO_2	21.94
Al_2O_3	5.05
CaO	.18

47490 ヒワヒー 58-15

ハーベイ・ウィーバー・クォーツ

ホーン・クリーク

900 フィート SW SW 3-58-15 ワトロー

S 85

Sl 200

T 118 403

> 455

ドロップ・オフ

6 マイル 403 ヒル

1200 フィート ヒル

E St James ヒル

S. 83

Sl 119

T 65 ~~34~~

T PR ヒル 78

ヒル 35 ヒル

S. T. 58 R. 15

NW 10

#2

S. 106

S 50 6

Cl. 50

L 135

L 85 [illegible] 76

[illegible] L + L 25

L 155

T 16

#1 [illegible]

56-SW-5-38-13

S. 292

Cl 56

C [illegible] 255

Cl 470

L 499

L [illegible] 10

L 50

L [illegible] 70

[illegible] 95 [illegible] 1263

NW NW 7-38-15

S. 157

Cl. 45

C + C Cl 80

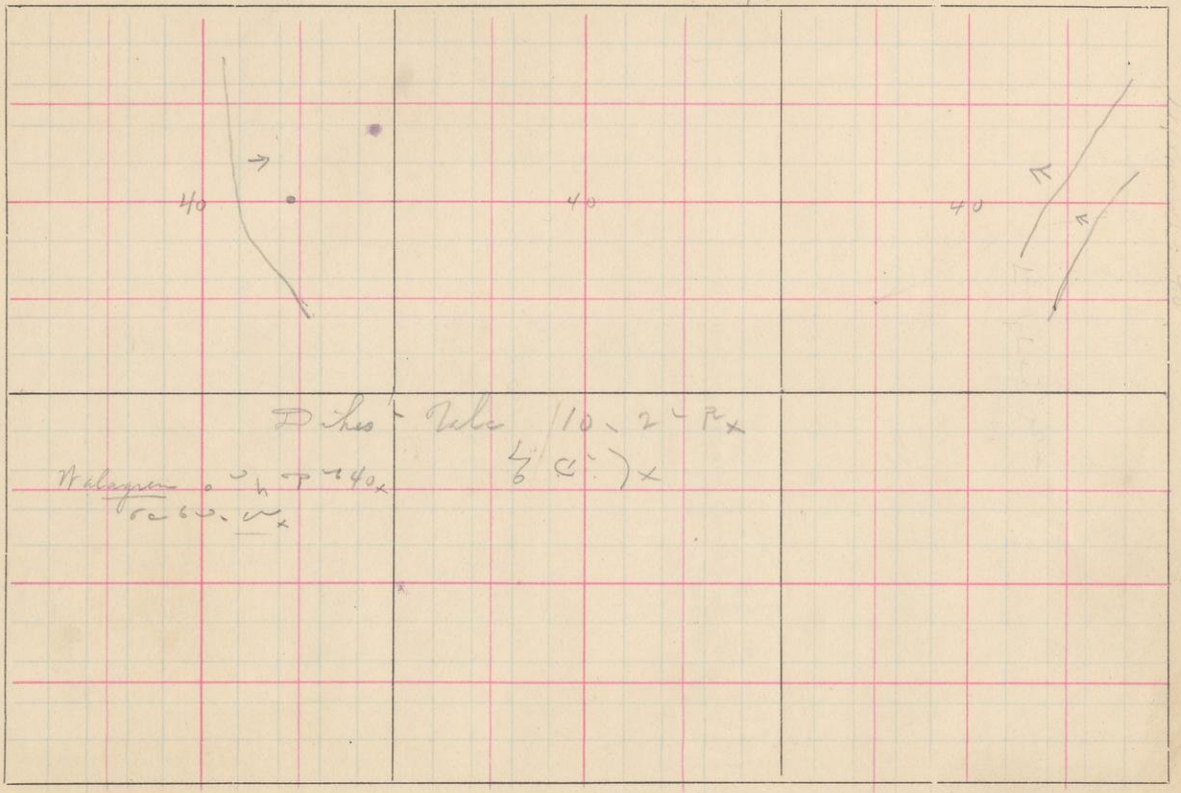
C Cl [illegible] 576

L [illegible] 651 [illegible]

6—747

S.

1st Class


Mohawk
Mitchell
40
40
40
S.
T.
R.

9

St Clair Jr. June 8

47491 3-58-16

S. 273
Sl. 132
T 225
Sl. 36

St Clair

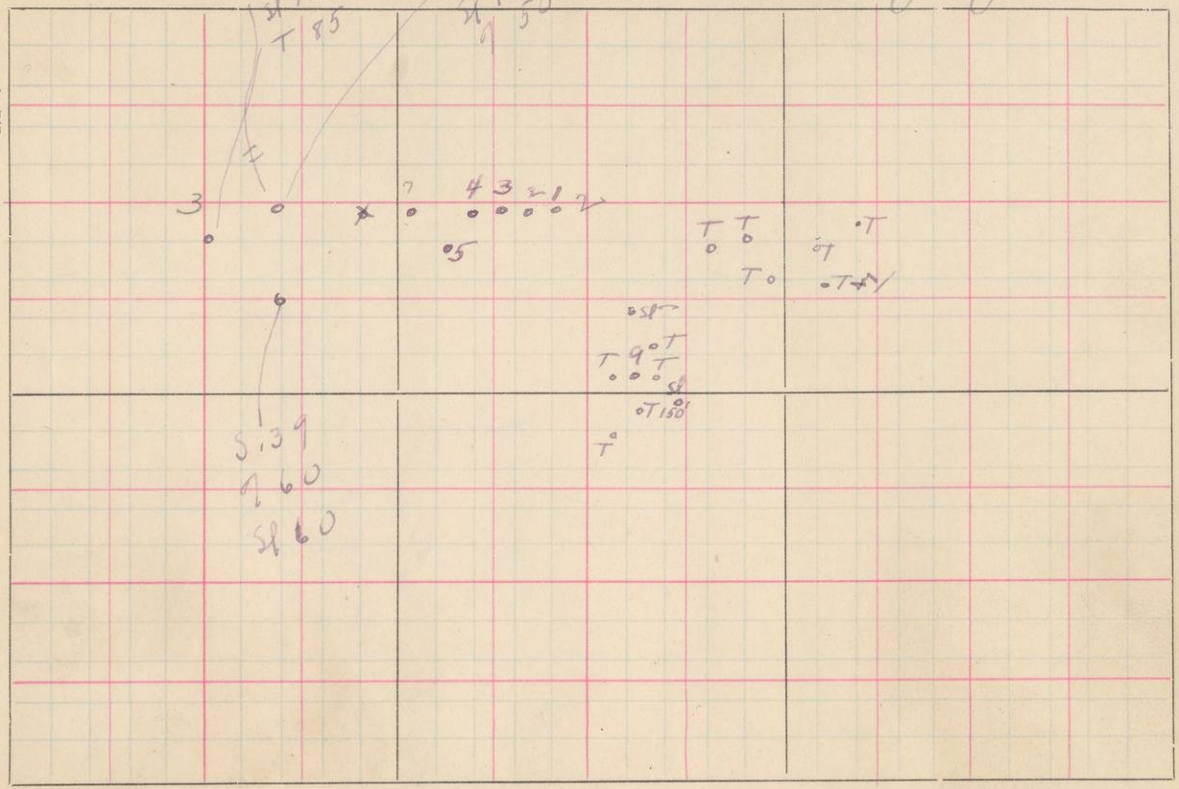
Fe	25.23	34.62	25.88	29.53
SiO_2	46.74	15.35	44.56	48.63
Al_2O_3	.32	1.60	1.17	.95

47491A

#47491A

47491B 28-59-14

St Clair



S. T. 58 R. 16

6—747

#1 58-16 #2 #3
S. 35' 52 60
Sh 84 58 42

#4 S. 49
T. 90
Sh+9.87
3-23

#5 S.32
T 158
#6 S 40
T 3
Sh 23
#7 S.40
T 50
3.Sh 1/2

#8 S 80
T 43
T 10
#9
S.122
T 42

J. 9

47492

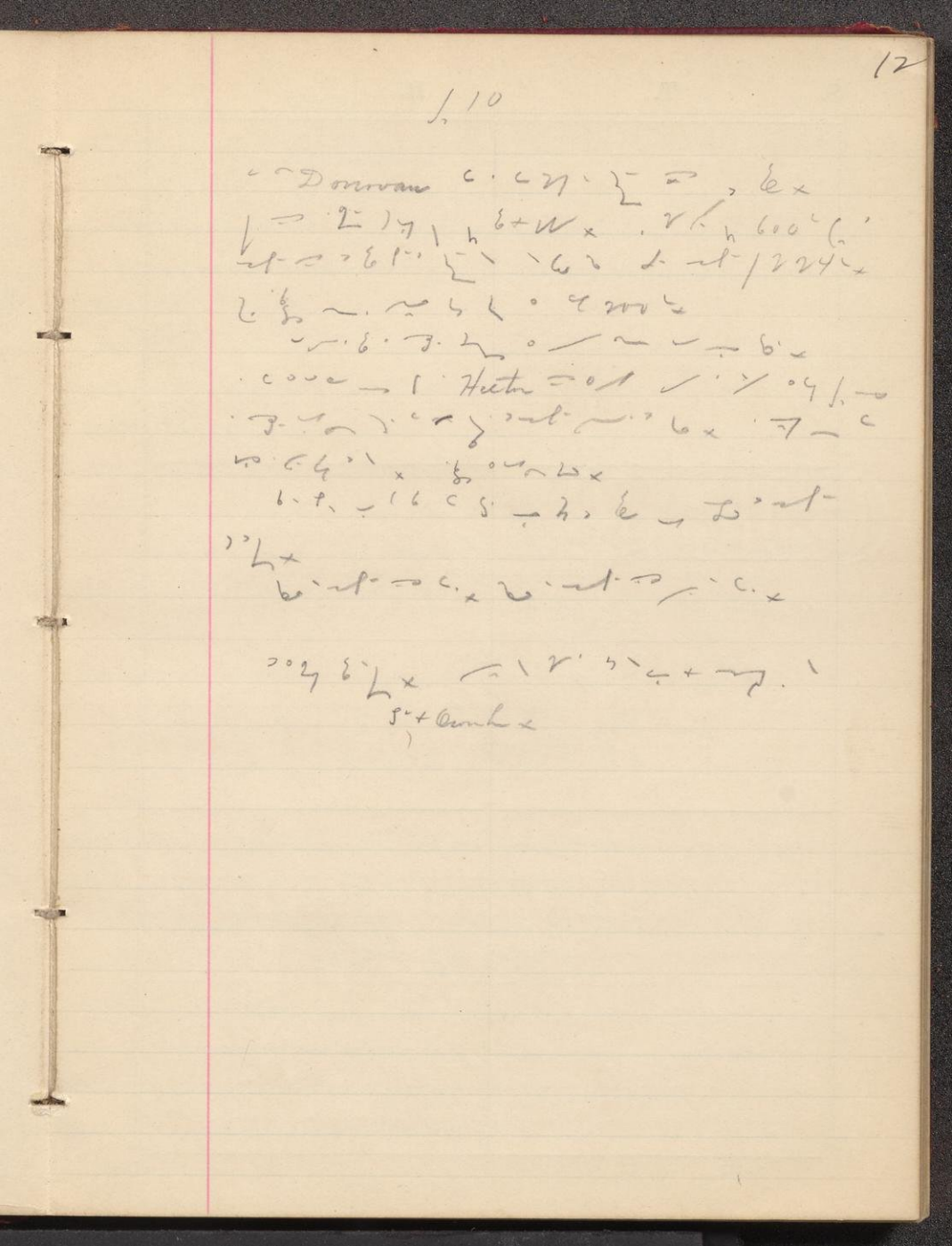
47493

47494

47495

47496

1.10



13

Sawin, Cushy & Hawkins — Yarbrough

Sawin

Cushy

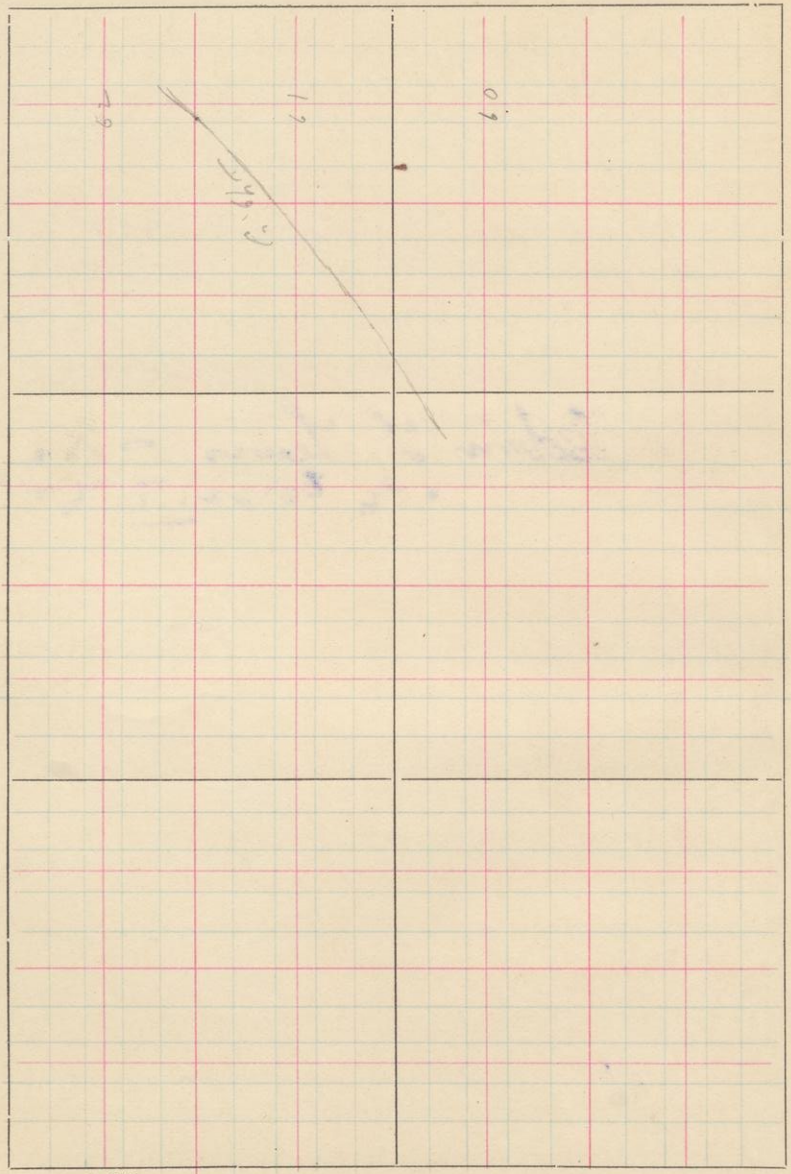
Hawkins

Cretaceous

Western Vermilion

47497
47498

S. T. R.



6—747

Edwin L. Lewis

Jan. 24

48394a

SPECIMES COLLECTED BY E. T. HANCOCK, JANUARY, 1908, FROM QUINCY AND WINONA MINES, KEWEENAW POINT, FOR ANALYSES TO SHOW THE COMPOSITION OF FRESH BASIC ROCKS IN THE COPPER DISTRICT AND THE EQUIVALENT ALTERED PHASE NEXT TO THE COPPER ORE AT DEPTHS PRESUMABLY BEYOND THE REACH OF RAPIDLY OXIDIZING WATERS.

Pair 1.

47499a A. Rock from near center of lode 7th level, Winona Mine.

47500 B. From footwall 70 feet from lode, the longest cross cut away from lode in the mine. Winona Mine.

Pair 2.

47501 A. From 10th level, in hanging wall, just off from the lode. Winona Mine.

47502 B. From 10th level in hanging wall 15 to 20 feet from the edge of the lode and as far in the hanging wall as the cross cut was run.

Pair 3.

47503 A. 25th level, just off from the vein on the footwall side, Quincy Mine.

Pair 3. (Cont.)

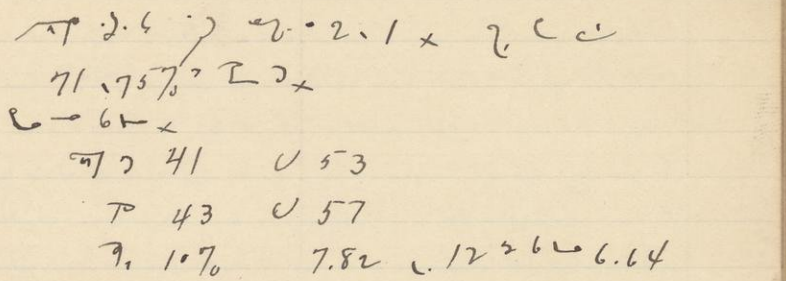
47504	B. 25th level, from 12 feet in foot wall near 1, Quincy Mine.

Pair 4.

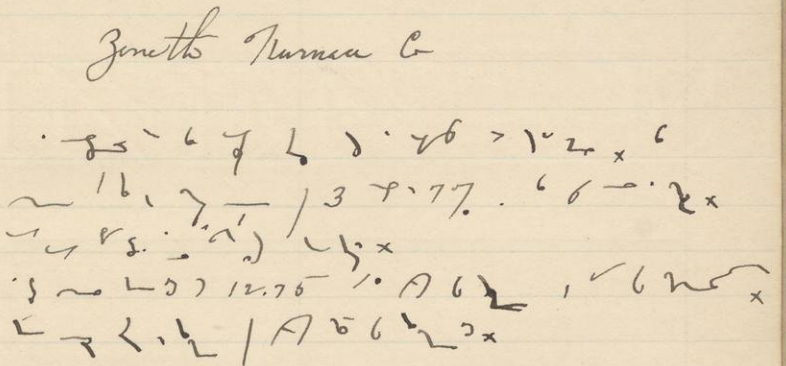
47505	A. 63rd level, just off from the lode in foot wall, Quincy Mine.
47506	B. 63rd level, from 12 feet from lode in foot wall, Quincy Mine.

Mesati dist. Mallman Mine
now called Spring Mine.
July 20, 1908

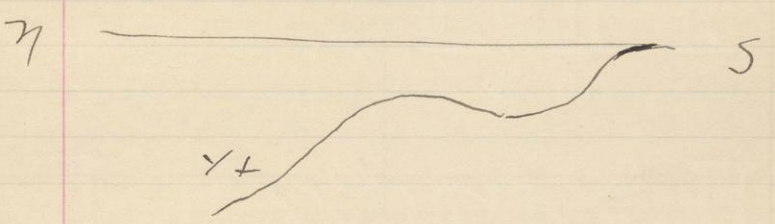
Concentrating tests. Mesabi Nat.



Zenith Furnace Co



Bonaboo. N.S. Steel Drilling



Houghton with Lowe July 21, 1905

July 22, Saturday, Ariz

July 23 Ashland

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⑤

NOTES TAKEN BY C. K. LEITH ON TRIP TO LAKE SUPERIOR REGION WITH STUDENTS IN GEOLOGY AT THE UNIVERSITY OF WISCONSIN, April 30th to May 10th, incl., 1909.

Keweenawan. Note thickness of the Keweenawan conglomerate as evidence of terrestrial origin. Cross bedding. Rounding of smallest grains. Absence of graphitic material in the Keweenawan. Irregularity of interlaminations of shales. Micaceous characteristics of shales. Mud cracks and very irregular false bedding. Similarity to the Connecticut Triassic, according to Mansfield. Scattered pebbles.

Marquette district. Contrast in two kinds of iron formations at Michigamme -- lower, specular jaspers; upper, amphibole magnetite rocks. Garnet and mica and chlorite in local areas, perhaps near dikes. Intrusives represent sills within the iron formation. Intrusions took place later than the Goodrich conglomerate, as shown by pebbles in conglomerate and as shown by cleavage in the greenstone dipping steeper than the conglomerate.

The concentration of the ore in the Negaunee formation took place before there was much folding.

Intrusives seem to have been stopped by the Goodrich quartzite as in the Michigamme district. This means that at least part of the concentration of the ore took place before the intrusions. The folding which followed the intrusions undoubtedly fractured the iron formation to a very large extent. This is the reason for secondary enrichment here. Doubtless also shattering due to intrusion.

Order of events seems to be: (1) weathering of Negaunee formation when exposed; (2) covering by Goodrich conglomerate; (3) intrusions and shattering; (4) folding and shattering; (5) erosion and concentration.

General. Argument that ore concentration in the iron formations is proportional to area exposed takes no account of subsequent burial.

Specimens 47556-47558 presented by R. C. Allen, State Geologist of Michigan, November 1909.

47556
Slides:
17467
17468
17469
17470

(Allen's No. 138) Iron ore from drift on third level of Dober Mine. This material grades along the strike in a distance of about 18 inches into specimen 47557.

47557
Slides:
17471
17472

(Allen's No. 139). This specimen is from the drift on third level of Dober Mine, Iron River district, Mich. Grades into specimen 47556 in a distance of about 18 inches in one direction, and into specimen 47558 in about the same distance in the opposite direction.

47558
Slides:
17473
17474
17475
17476

(Allen's No. 140) Ferruginous black slate from drift on third level of Dober Mine, Iron River district, Mich. This material forms the breast of the drift. Work was stopped when it was encountered on account of low iron contents. This material grades in a distance of about 18 inches into specimen 47557, and in an additional 18 inches into specimen 47556.

47557 - 575 Steidtmann Copper rocks

76

47559 Specimen showing oxidation of sideritic slate and apparently development of magnetite during this oxidation. From testpit near maximum magnetic line at Delphic exploration, sec. 24-42-33, Crystal Falls district, Mich. Collected by W. J. Mead, May 1910.

Slides
17494
17495
17496