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Mesaba [Mesabi] IV: [specimens 45065-45513]. No. 358 1900

Leith, C. K. (Charles Kenneth), 1875-1956
[s.l.]: [s.n.], 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 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 No. 358

358

Ranges 12 + 13

45056 - 68

45065

45064

45067
45062

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45069

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45072
45073

45074

45075

45076
77

45078 [illegible] 16 [illegible] 32 [illegible]

45079 [illegible] 34 [illegible]
3006 [illegible] 32 [illegible]

45080 [illegible] 124 150 [illegible]
32 [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible] 31
1500 [illegible]
[illegible] 1860 [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

45081 [illegible] 80

45082
3)

1487 [illegible] 31° [illegible]
[illegible]
[illegible]
160 [illegible]

1600 [illegible] 1700 [illegible]
[illegible]
1700 [illegible]
1850 [illegible]
1910 [illegible]

1950 [illegible] 1950 [illegible]
[illegible]

1150 [illegible]

S. T. R.

SEC. X T. X R. X

6	7	8	9	10
15	14	13	12	11
16	17	18	19	20

Published by Chamberlain & Taylor, 323 W. Superior Street, Duluth, Minn.

Remarks

Key for location samples on Mesabi Iron Co

[illegible] A D W. Hayden

45084 [illegible] 18 [illegible] 22 · 60-13

45085 [illegible] 160 [illegible] 20 [illegible] 23

45086 [illegible] 23 12 [illegible]
250 [illegible] 1000 · 22

45087 [illegible] 15 [illegible] × 360 [illegible] · 21
[illegible] 21

45088 [illegible] 9 · [illegible] 34 × 1100 [illegible] 500 [illegible]
13 ×

45089 [illegible] 10 [illegible] · [illegible] · 34
(10)
[illegible] 15 [illegible] [illegible] ×

45090 [illegible] 300 [illegible] · 10 [illegible] 34

45091 10 34

45092 24 -(15)
4 x 21

45093 14 250 200 ~~15~~ 13
27
10 x

45094 20 100 2 26

45095 500 13 26

45096 400 8 27

45097 76 27

45098 300 11 27

45099 7 27 x 300 100 24

45100 13 250 600 27

45101 12 100 60 14 29

45102 31 9 32
2

45103 300 13 32

45104 26 14 32
10 6a x

45105 32 32 12 4
1

45106 100 22 32

45107 34 200 15 32
6 6a 1

45108 24 150 15 32
6

45109 750 40 2 32

45110 50 ℓ 9 → 28

45111 [illegible] → 28

45112 300 ℓ 15 → 26

29

12+13

45113
14

45115

45116

[illegible]

[illegible]

45117 [illegible]

[illegible]

List

[illegible]

[illegible]

45119 [illegible]

45120 [illegible]

45121 [illegible]

122 [illegible]
~~123~~

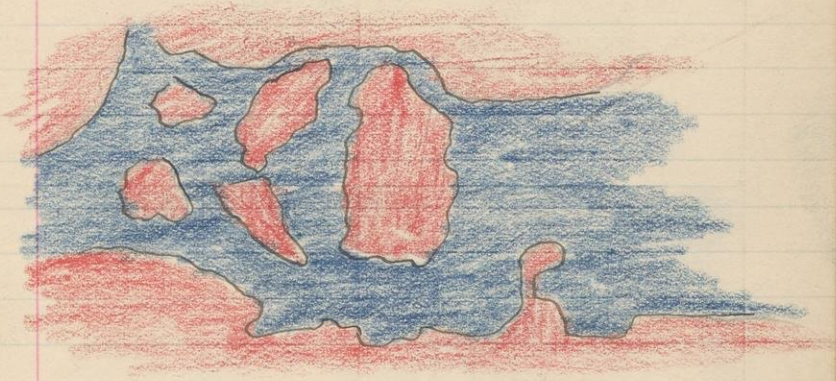
123 [illegible]

124 [illegible]

125 [illegible]

[illegible]
1800 m 1x

[illegible] 1500 m
126 [illegible]



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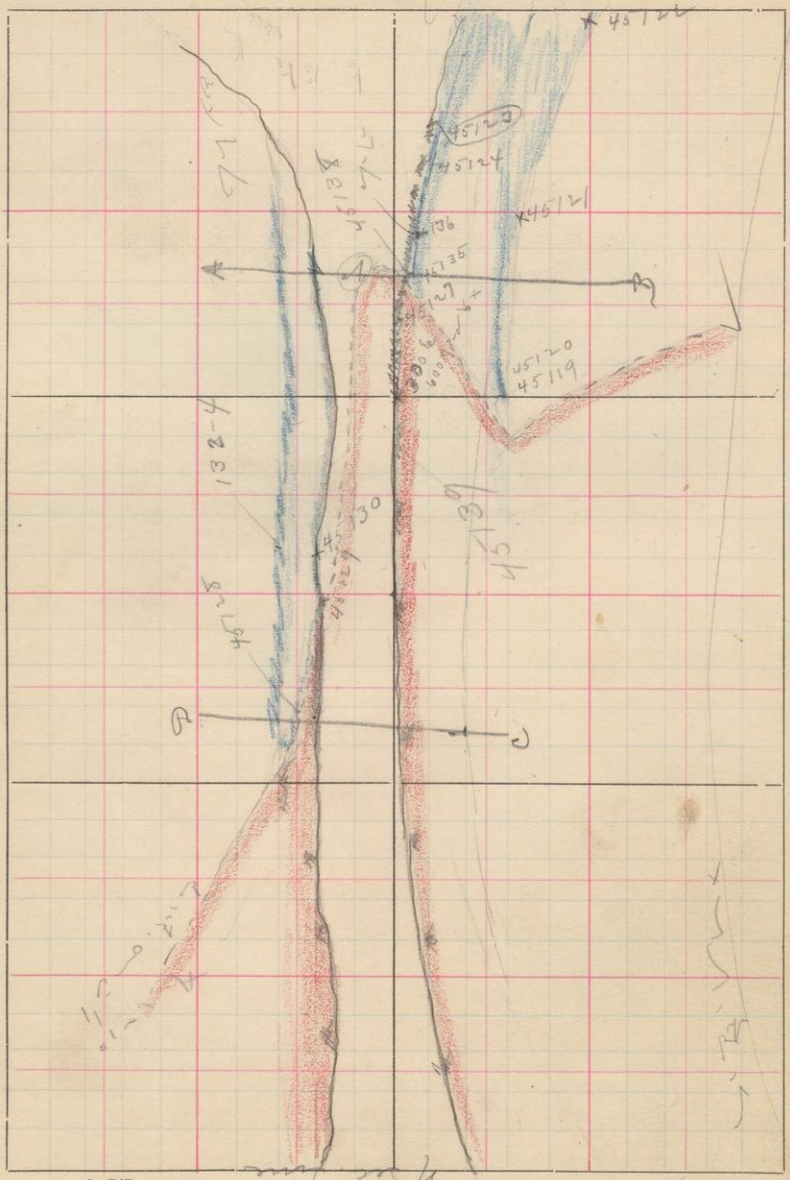

6—747

45127

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133
134

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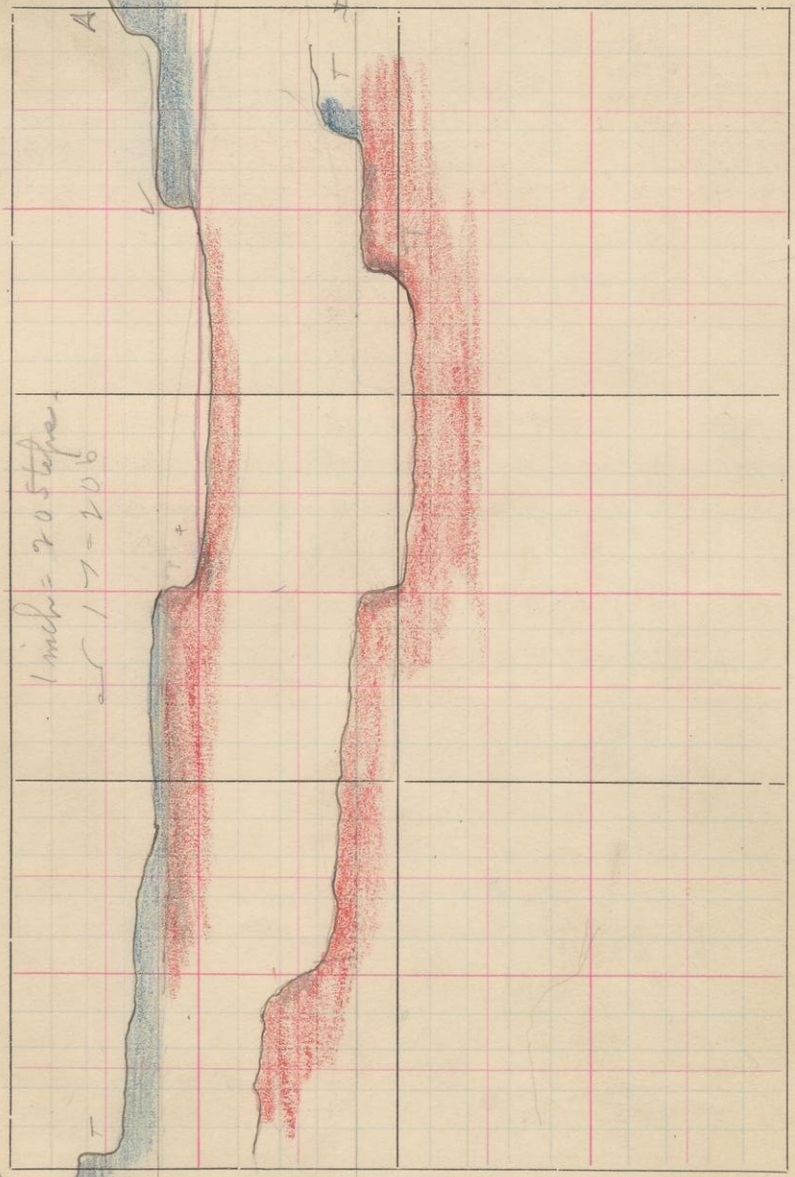
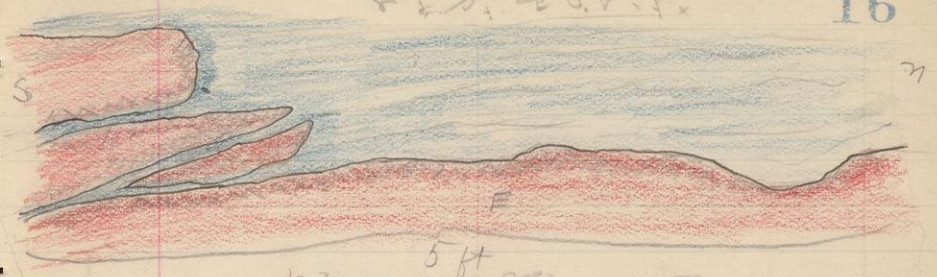
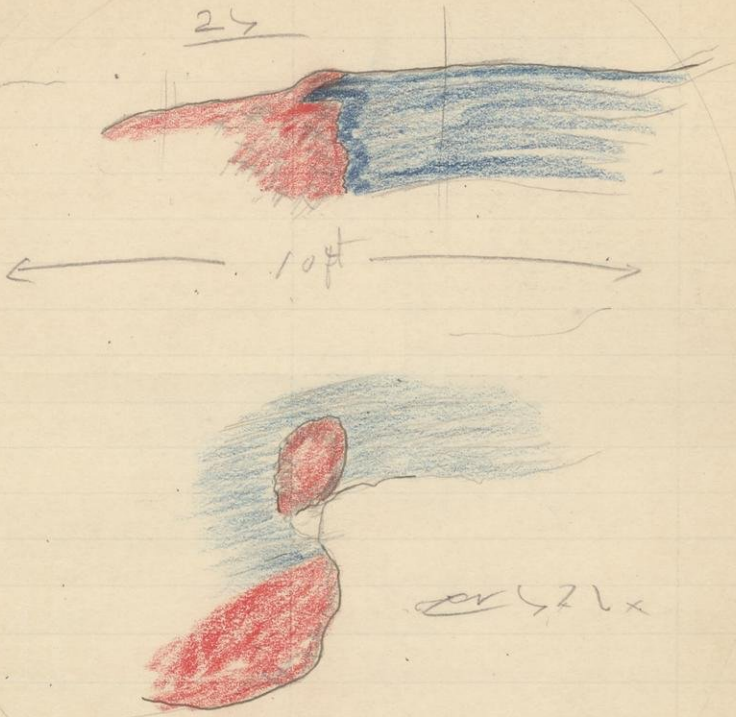
136

S. T. R.



6—747


S
N
E
5 ft


24
10ft

45138

45139

[illegible]

[illegible]

① [illegible]

② [illegible]

③ [illegible]

④ [illegible]

⑤ [illegible]

⑥ [illegible]

⑦ [illegible]

S. T. R.

[illegible]

[illegible]

45140 [illegible]

17

45141 } [illegible]

43 [illegible]

44 } [illegible]

46 [illegible]

[illegible]

45147

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4

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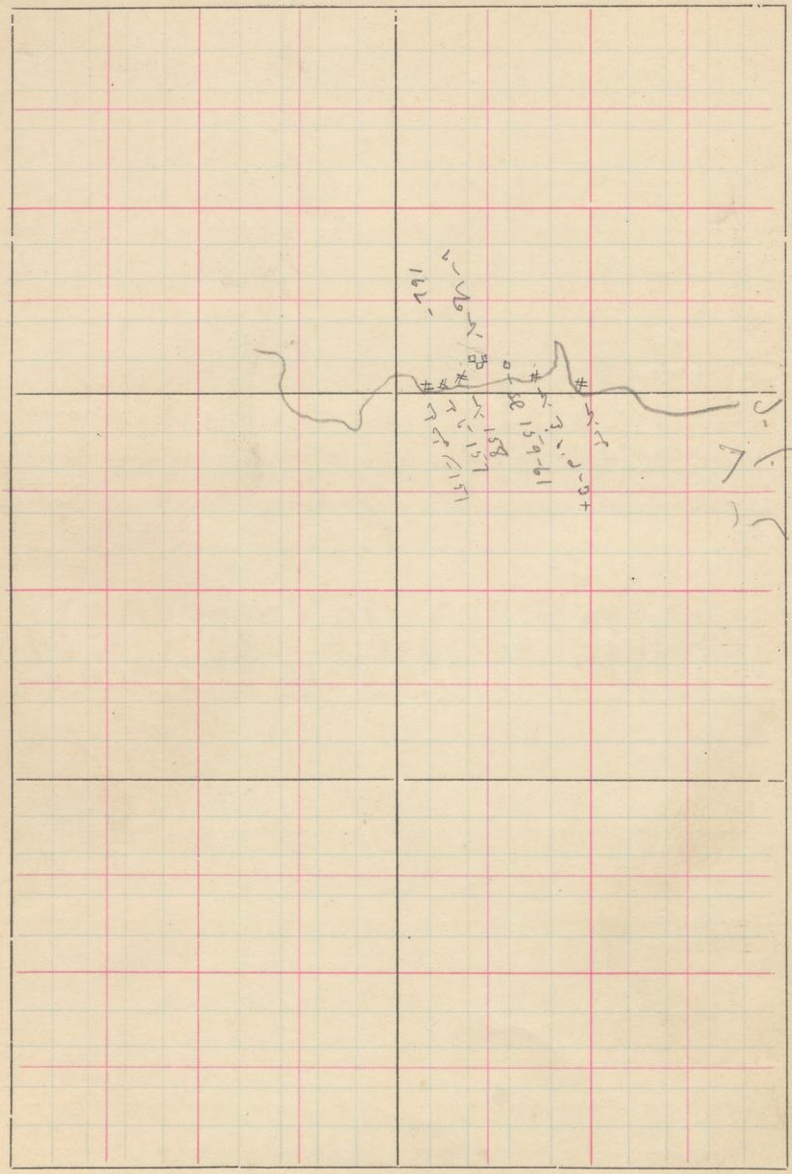
S. T. R.



45157 [illegible]

45158 [illegible]

45159-61 [illegible]

45162
3
4
5 [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

45166

45167

45168

45169

[illegible]

[illegible]

[illegible]

45170 [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

710

34 59-15

27 ~~+~~ 72x

27x

250 50% 22

~~100~~ 20x

45171

45172 6x

250 ~~200x~~ 100%

45173

4 26x

~~4500~~ 100%

Slx

SlCx

[illegible]

~~455~~ 45175 [illegible]

45176 [illegible]

45177 [illegible]

178 [illegible]

45179 835ｇ 50ｇ [illegible]

45180 [illegible]

Northwest of Mesaba Station.

Then running north the graywacke was examined with reference to its metamorphism in approaching the granite. It is found to become very much metamorphosed.

Beginning at 283 north numerous exposures begin to appear which may be followed to 300 north.

2 to analyzed 45400 and 45401 are collected in order from south to north.

45402. Specimen of granite 400 north, 100 west.

580 west, 385 North is a ledge showing beautiful the actual contact of the granite with the Lower Huronian sediments. The granite is on the north and the sediments to the south The relations are clearly those of intrusion. The solid granite on the one side is separated from the solid slate and graywacke on the other by about 8 feet which is neither one or the other, but a most intricate mixture of the two. See sketches. Injection is a most minute one. Layers of slate in the granite vary from a fraction of an inch to several inches and same can be said of layers of granite in the slate. The granite also cuts across the slate layers in a subordinate way, and both are contorted. Near the contact the graywacke series could not be distinguished from a schist derived from igneous rocks. There is no sedimentary texture left.

Further examination shows that the granite stringers are fuund to the southern extremity of the exposure. However, in an exposure about 20 paces to the south the solid slate and graywacke are found. In this exposure the rock is very much contorted and broken up.

45403. Specimen of the solid granite which is a few inches from the contact.

45404. Various phases of the contact rocks, some of them being partly granite and partly slate.

To be analyzed 45405. Phases of the slate close to the contact.

45406. Another phase of the slate a little eastward and from the south side of the exposure.

45407. Slate, contorted, from the south exposure.

Running north from the road on the east lines of sections 21, 16, and 9 of township 59 N. R. 14 W., Mesabi Range.

No exposures until a point 1300 north in 16 is reached, where there appear beautifully banded typical graywacke and slate: They are gently folded and the strike varies somewhat. As an average, however, it runs about n. 80° E. The dip is to the south at 70°.

- 45412. To be analyzed Siliceous, light colored and white weathering phase.

45413. At 1400 north is an intermediate rock intruding the graywacke and slate about 25 paces across. Is this associated with the granite? The graywacke and slate on the north side has the normal strike and dip.

- 45414. At 680 north is graywacke which becomes micaceous and hornblendic, however still banded. Strike and dip the same.

45415. Just N. E. of the corner. Sediment or green schist (?) probably sediment.

At 50 steps north of the quarter post in 9 is a high exposure of granite rising out of the swamp on the north side of which is much micaceous, hornblendic and schistose sedimentary material which has been injected by granite. The contact is almost a sharp one and is clearly an intrusive one. If found alone one could not say that the schist is a sediment, and it is possible that it is not, but when traced from the south there seems to be little questionabout this.

45416. To be analyzed Specimen of schist next to the contact. Fraction of an inch.

45417. Specimen showing schist and granite.

45418. Granite.

45400
401

S. T. R.

45408 1000 ft 175 [illegible] 180 [illegible]

[illegible]

45409 [illegible]

[illegible]

6—747

45403

45404

45405

45406

45407
~~4540~~

[illegible]

[illegible] 1500円 3000

[illegible] 1000 [illegible] 650円 ×
[illegible]

[illegible] ×

45410 [illegible] ×

411 [illegible]

411A [illegible]

~~413~~ B
~~414~~
~~415~~ C
416 D
417 [illegible]
418 [illegible]
419 [illegible]
420 H
421 [illegible]

~~45~~ 411 [illegible]
[illegible] ×

45412

413

45414

45415

45416 [illegible]

45417 [illegible]

45418 [illegible]

[illegible]

45419
20
21
22
23
[illegible]

[illegible]

[illegible] $\frac{1}{4}$ 14-59-14 [illegible]

45824 [illegible]
[4] [illegible]

[illegible]

[illegible] $\frac{1}{4}$ 11

[illegible] $3y+5l$

45825 [illegible]
[4]26 [illegible]

45827 [illegible]
45828 [illegible]
[4] [illegible] 6400 [illegible] 16 [illegible]
[illegible] 50 [illegible]
[illegible]

45429

45430
31

45432

45433.

45434

45435

4/5436 [illegible] 125 6 500円 [illegible]
[illegible] 11x

4/5437 450円
~~50~~ (220円 [illegible] 11x [illegible]
[illegible]
[illegible]
[illegible]

4/5438
39 } [illegible]
[illegible]

4/5440 [illegible]

[illegible] 6x [illegible]

4/5441
44 [illegible]
[illegible]

[illegible]
[illegible]
[illegible]

4/5442 [illegible] 40 [illegible]
500円 + 500円 [illegible] x

45443

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45445

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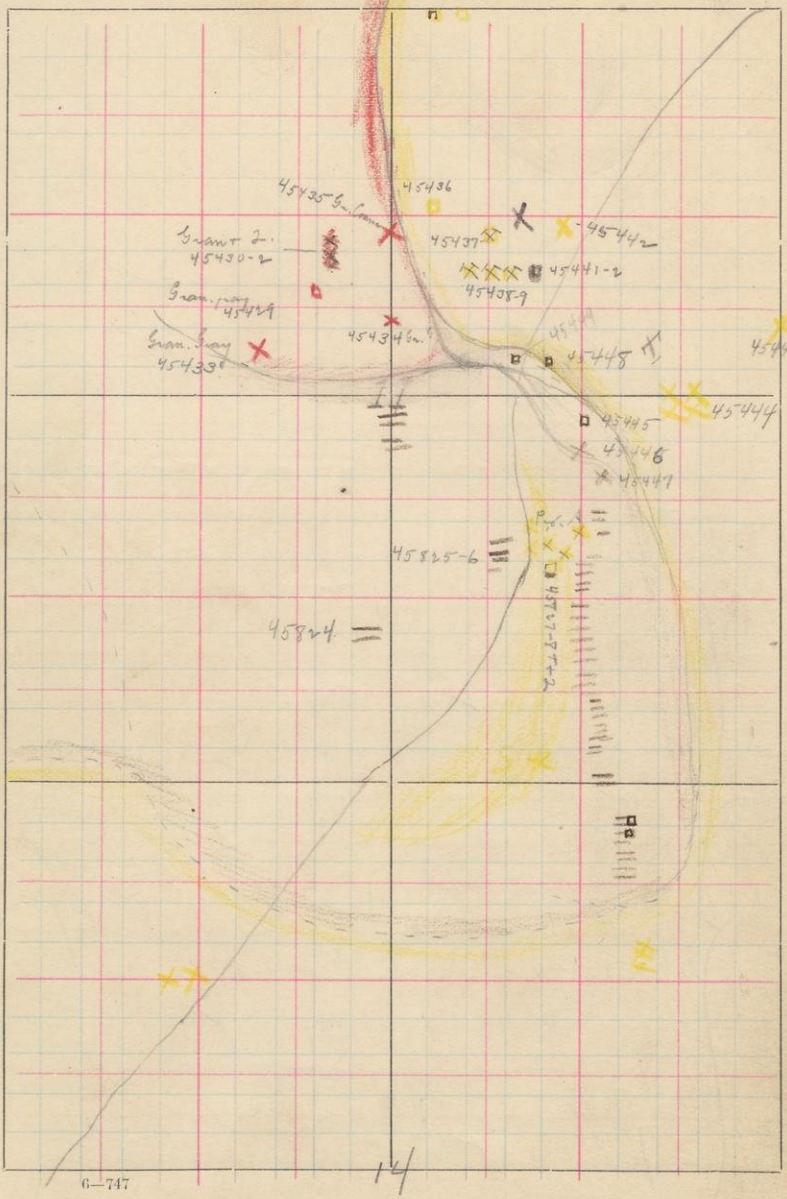
A.

S. T. R.


45436
45437
45442
45441-2
45439
45429
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45445
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45825-6
45824

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454

45453

45454-5

45456-7

45458

45459-60

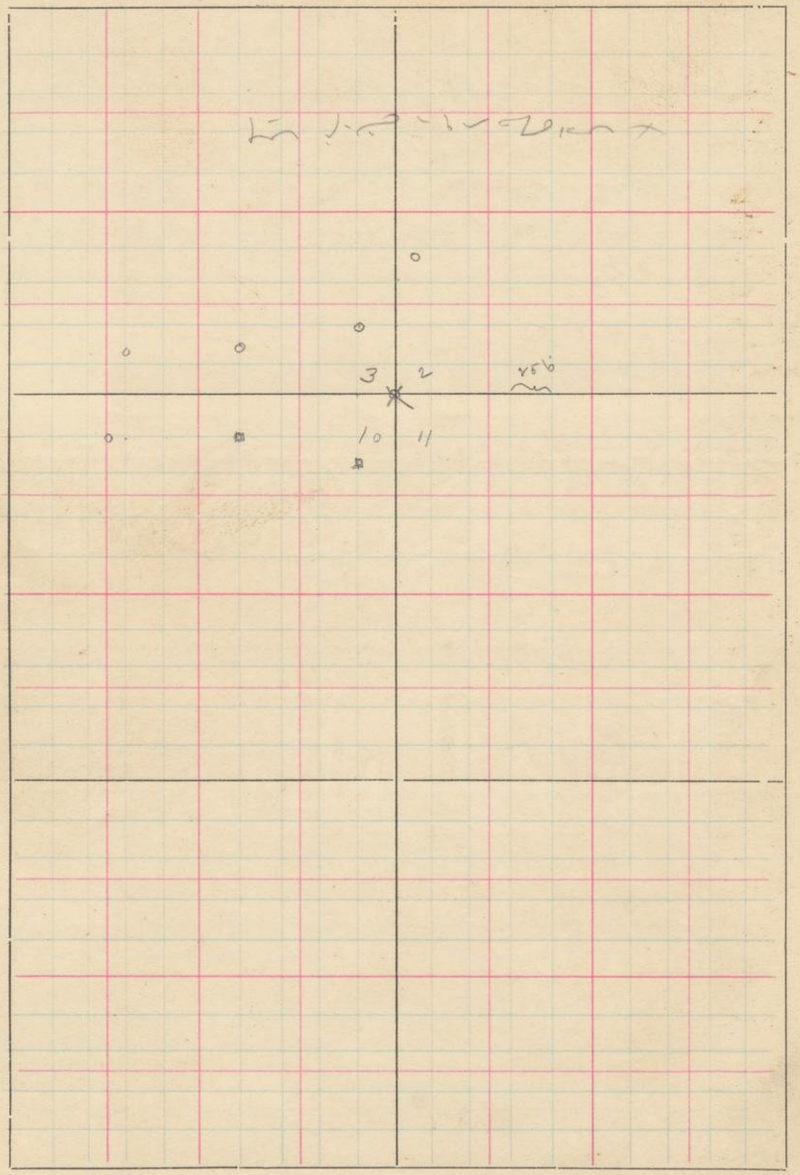
Moses

45461-2

Insert A

[illegible]

S. T. 58 R. 18



6—747

45463-5
45466
Cretaceous
3, 2, 10+11 58-18
45466
67
68

[illegible]

[illegible]

[illegible]

45469 [illegible]

45470 [illegible]

[illegible]

4541

[illegible]

[illegible]

[illegible]

~~45475~~
45475

4

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45477

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45480	おのおのに	
81	1/8 × 1/6	

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45479

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45484 [illegible]

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45485 [illegible]

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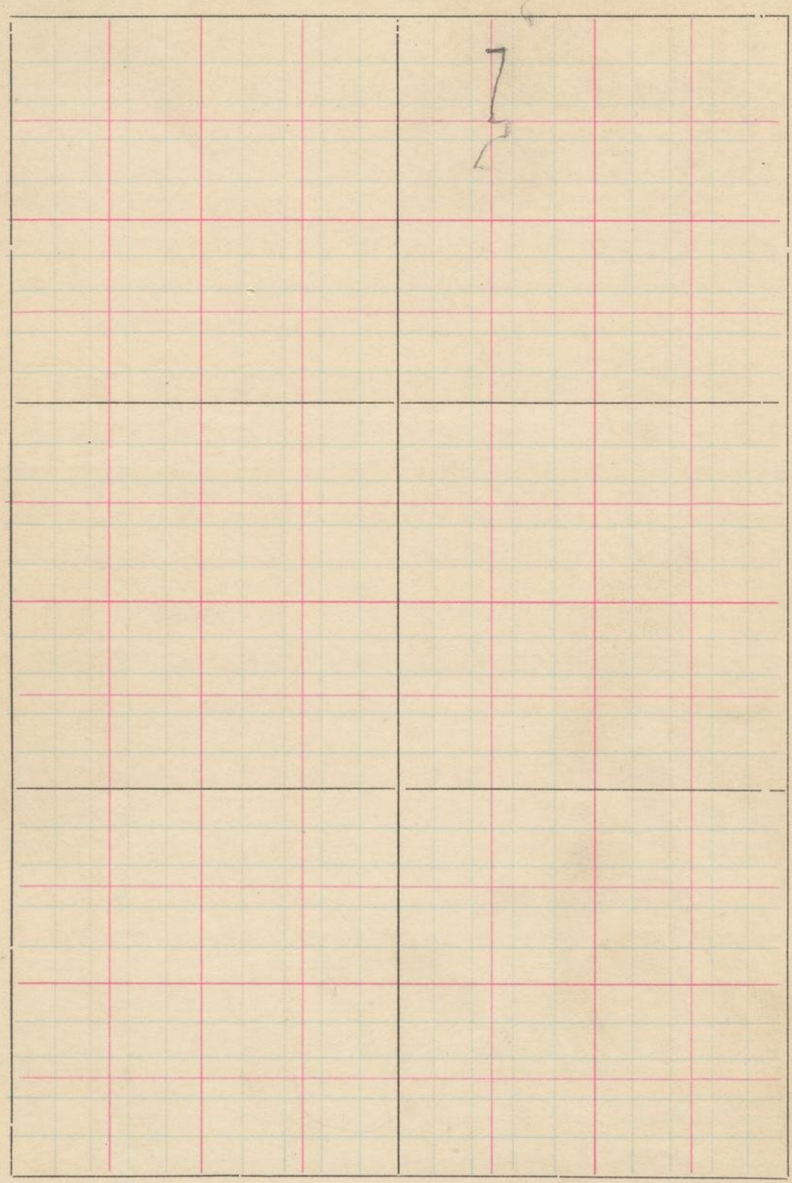
S. T. R.



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45487

45488

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45490

[illegible]

45491 [illegible]

45492 [illegible]

45493 [illegible]

45494 [illegible]

45~~506~~ 495 [illegible] 107 [illegible] 16-58-19

45~~507~~ 496 [illegible] 108 [illegible] 16-58-19

[illegible] DH. [illegible]

[illegible] 102. DH. 3x

45497 -104-114
498 114-124
499 -124-134
500 134-145

T

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109 DH. 13

45501 - 47-52
502 52-57
503 57-62
504 - 62-67
505 - 67-72

45506 [illegible]
7 [illegible]

[illegible] 45508-13 [illegible]