

DR* 9 Blackhawk

Book 10



ENGINEERS'
LEVEL BOOK
No. 412

Notes as Constructed.

1090

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide.

Side Slopes 1 on 1.

For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be $30.6 + (20 - 16) \div 2$ or 2 ft. added to $30.6 = 32.6$. For slopes of 1 on 1 $\frac{1}{2}$ see inside of back cover.

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FEB 27 '23
COUNTY CLERK

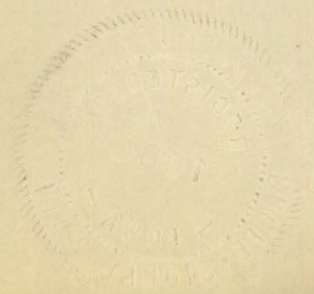
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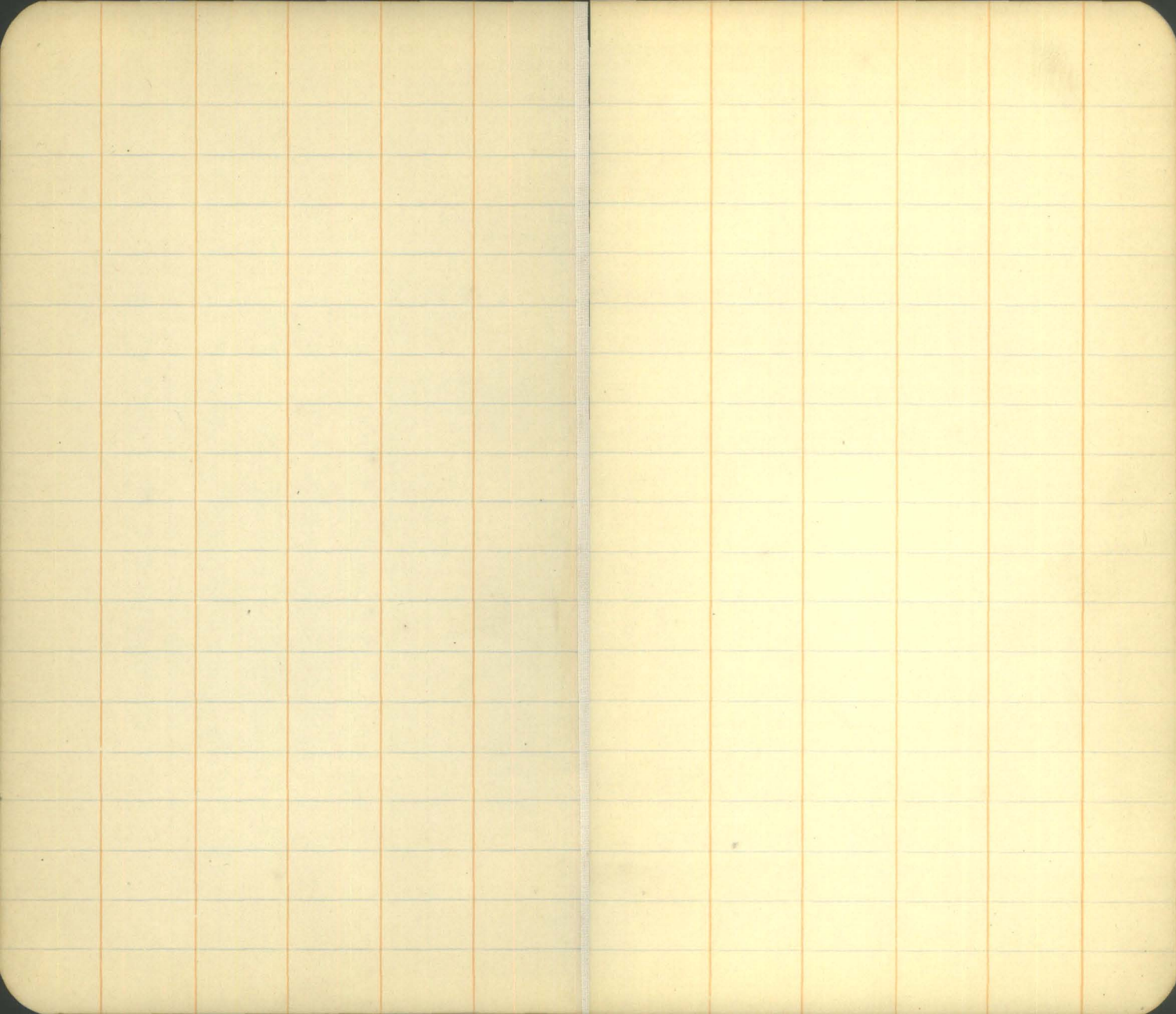
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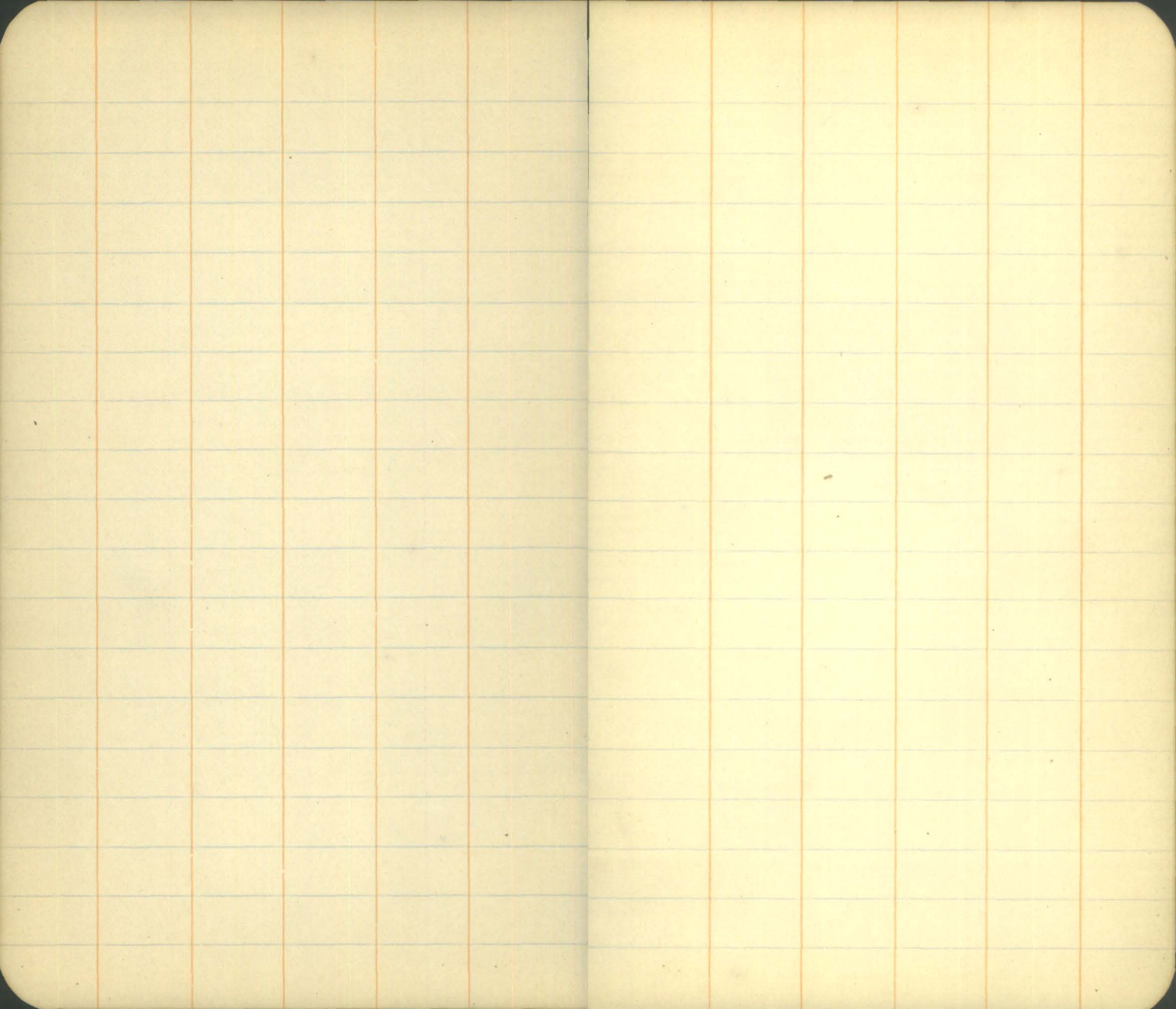
Page

Main

1-19.







Blackhawk County

Drain #9

CONSTRUCTION FIGURES

TRANSFERRED from Original Notes

Sta B.S. H.I. -S Elev Grade

Gut.

MAIN

LINE

B.M. 3.23 60.83 57.60

Spike S. end Farm wood Bridge by bulkhead.

O. Invert 13.79 47.04

= Grade Elev of tile in Bulkhead

0+50 7.30 53.53 47.20 6.33

1 6.11 54.72 47.30 7.42

+50 5.60 55.23 47.40 7.83

2 5.40 55.43 47.50 7.93

3 5.80 60.79 5.84 54.99 47.70 7.29

4 6.11 60.79 6.19 54.64 47.40 6.74

5 5.26 55.53 48.10 7.43

6 5.50 53.29 48.30 6.99

7 4.43 56.36 48.50 7.86

Raise Grade .3 at sta 4+00

B.M. 2.36 59.96 57.60

T.P. 5.72 62.91 2.77 57.19

7+50 4.45 58.46 48.90 9.56

8 5.62 57.29 49.00 8.29

Transferred from
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Main

62.91

8+50 5.21 57.70 49.10 8.60

9 5.11 57.80 49.20 8.60

+50 4.81 58.10 49.30 8.80

10 4.41 58.50 49.40 9.10

+50 4.15 58.76 49.50 9.26

11 4.05 58.86 49.60 9.26

+50 4.11 58.80 49.70 9.10

12 4.41 58.50 49.80 8.70

R.P. 2.48 60.43

2" x 4" Hub on Knoll between Sta 12/14/15 + Br 5.R4

Same R.P. 2.62 63.05 60.43

12+50 5.52 57.53 49.90 7.63

12+75 7.28 55.70 49.95 5.82

13+25 7.76 53.29 50.85 5.24

13+50 7.31 53.74 50.16 5.64

14 7.44 53.61 50.20 5.41

+50 7.50 53.55 50.30 5.25

15 6.59 56.46 50.40 6.06

+50 6.24 56.81 50.50 6.31

16 4.66 61.72 5.99 57.06 50.60 6.46

.29%
36"Book 6
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5

Main

61.72

16+50			4.49	57.23	50.70	6.53
17			5.00	56.72	50.80	5.92
17+50			4.65	57.07	50.90	6.17
18			4.67	57.15	51.00	6.15
18+50			5.00	56.72	51.10	5.62

19+50	6.00	62.75	4.97	56.75	51.30	5.45
20	5.85	62.74 62.72	4.85	56.87	51.40	5.47
21			4.42	58.32	51.60	6.72
22			4.09	58.65	51.80	6.85
23			4.94	57.86	52.00	5.80

24	4.89	63.11 63.09	4.52	58.22	52.20	6.02
25	4.85	63.08	4.51	58.23	52.40	5.83
26			4.56	58.53	52.60	5.93
27			3.56	59.53	52.80	6.73
28			3.37	59.72	53.00	6.72
29	5.67	65.28	3.48	59.61	53.20	6.41
30			6.02	59.26	53.40	5.86

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Main

65.28

31 5.53 59.73 53.60 6.12

32 4.96 60.32 53.80 6.52

33 4.60 65.28 4.60 60.68 54.00 6.68

34 4.16 65.27 4.17 61.11 54.20 6.91

+50 4.32 60.75 54.30 6.45

35 4.71 60.56 54.40 6.16

+50 4.39 60.88 54.50 6.38

36 4.34 60.93 54.60 6.33

+50 4.52 60.75 54.70 6.05

37 4.09 61.18 54.80 6.38

+50 4.06 61.21 54.90 6.31

38 3.90 61.37 55.00 6.37

R.P. 3.63 61.64

Same R.P. 4.65 66.29

38 4.88 61.41 55.00 6.39

+50 4.60 61.69 55.10 6.59

39 4.53 61.76 55.20 6.56

+25 4.45 61.84 55.05 6.79

.20%
36"

End of F 36' T/E - 37+90 = O Br 6 R.

Highest pt largest rock E of F. cor 50' N Sta 25

.20%
32"Book 6
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9

Main

66-29

40		4.38	61.91	55.40	6.51	
41		4.27	62.02	55.60	6.42	
42	6.67	69.22	3.74	62.55	53.80	6.75
43		6.31	62.91	56.00	6.91	
44		6.19	63.03	56.20	6.82	
+50		6.95	62.27	56.30	5.97	
45		4.65	64.57	56.40	8.17	
46		4.51	64.71	56.60	8.11	
+50		5.10	64.12	56.70	7.42	
47		5.41	63.81	56.80	7.01	
+50		5.85	63.37	56.90	6.47	
48		5.91	63.31	57.00	6.31	
B.M.		3.95	65.27	old 65.30		

.20%

32"

these cuts not used
from Sta 42

End of 32" tile - Sta 31+75 = 0.2066

Spike top 5. end Ecop Road Bridge Sta 44+50

BM 456 69.86 65.30

42 7.30 62.56 65.80 6.76

10.70 3.10 55.2.1

Sta 42

Top 32"

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69.86

43 6.91 62.95 56.00 6.95

44 6.80 63.06 56.20 6.86

+50 7.58 62.28 56.30 5.98

45 5.24 64.62 56.40 5.22

46 5.03 64.83 56.60 8.23

+50 5.67 64.19 56.70 7.49

47 5.93 63.93 56.80 7.13

+50 5.51 69.12 6.25 63.61 56.90 6.71

48 5.60 63.52 57.00 6.52

+50 5.52 63.60 57.11 6.49

49 5.53 63.59 57.22 6.37

50 5.06 64.06 57.44 6.62

+75 4.76 64.36 57.61 6.75

52 4.60 64.52 57.88 6.64

53 4.26 64.86 58.10 6.76

54 4.86 69.78 4.20 64.92 58.32 6.60

55 5.44 64.34 58.54 5.80

20%
32"

End of 32" tile - 47+75=0 BR 6 left.

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Main

69.78

grade
Givengrade
as checked

56

4.50 65.28 6.52 58.76

57

4.78 65.00 6.02 58.98

58

4.53 65.25 6.05 59.20

59

4.20 65.58 6.16 59.42

60

5.94 71.32 4.40 65.38 5.74 59.64

60 + 50

5.66 71.31 4.13 65.65 5.90 59.75

60 + 75

5.40 65.91 6.11 59.80

61

5.40 65.91 6.05 59.86

61 + 25

5.36 65.95 6.03 59.92

61 + 50

5.10 66.21 6.23 59.98

+ 75

5.25 66.06 6.02 60.04

Jc. Br West

62

5.03 66.28 6.17 60.11

End of 30" tie.

+ 50

4.97 66.34 6.11 60.23

63

4.85 66.46 6.10 60.36

+ 50

4.88 66.43 5.94 60.49

64

4.70 66.61 6.00 60.61

65

5.10 72.41 4.00 67.31 6.45 60.86

.2240

30"



.2540

28"

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Main

72.41

Grade
Given Grade
as Constr.
checked

66

4.80

67.61

6.50

61.11

67

4.40

68.01

6.65

61.36

68

4.20

68.21

6.60

61.61

69

4.11

68.30

6.44

61.86

End 28" tile

.25%
45"

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↖
↗

69+50

4.70

67.71

5.73

61.98

70

3.40

69.01

6.90

62.11

B.M.

5.69

73.68

4.42

67.99

Spike in tree W. Sta 69+50.

70+50

4.87

68.81

6.58

62.23

71

4.80

68.88

6.52

62.36

+50

4.84

68.84

6.35

62.49

72

4.73

68.95

6.34

62.61

73

4.46

69.22

6.36

62.86

74

4.35

69.33

6.22

63.11

75

5.65

74.98

4.35

69.33

5.97

63.36

76

5.21

69.77

6.16

63.61

77

5.11

69.87

6.01

63.86

+50

4.96

70.02

6.03

63.99

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17

Main

74.98

78

4.81 70.17 6.06

64.11

+50

4.90 70.08 5.85

64.78

79

4.65 70.33 5.97

64.36

B.M. 4.94 75.75

4.17 70.81

Spike Willow F Sta 78

80

5.35 70.46 5.79

64.61

+50

5.05 70.70 5.97

64.73

81

4.97 70.78 5.92

64.86

82

4.14 71.61 6.50

65.11

83

4.38 71.37 6.01

65.36

84

5.44 77.35 3.84 71.91 6.30

65.61

85

4.85 { 76.81 5.39 71.96 6.10

65.86

86

4.88 { 76.81 4.88 71.94 5.83

66.11

87

76.82 4.46 72.36 6.00

66.36

88

3.43 73.39 6.78

66.61

89

4.18 72.64 5.78

66.86

90

3.39 73.43 6.32

67.11

91

3.15 73.67 6.31

67.36

B.M.

4.48 72.34

3 Spikes Root Stump Opp 86

.25%

26"

78+60 End 26"

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89+50 - End 24"

19

Main

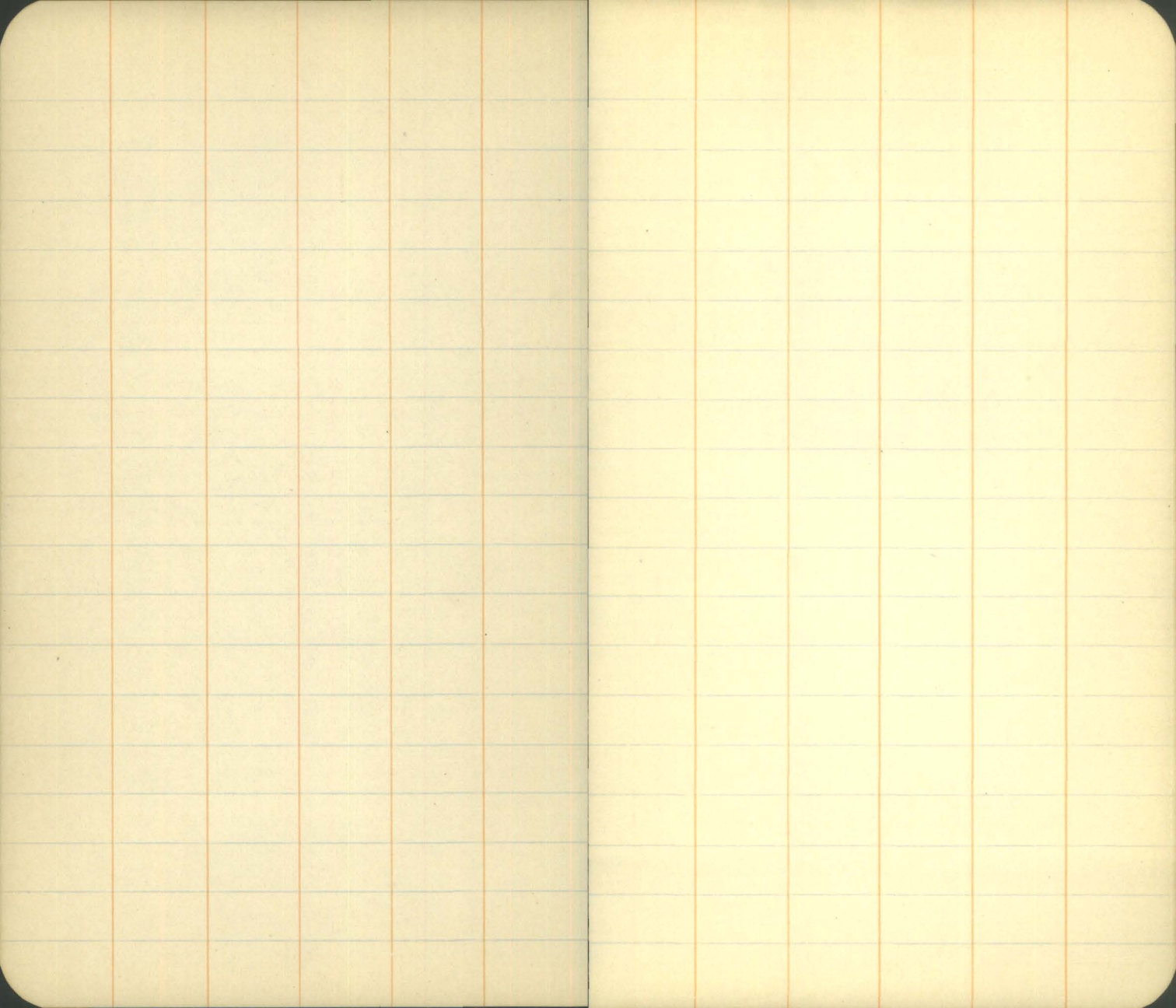
BM	5.68	78.62	72.31		51	79.86
Invert 91		10.48	67.54	67.36		
92		3.88	74.14	6.53		
93		3.77	74.25	6.39		
94		3.51	74.51	6.40		

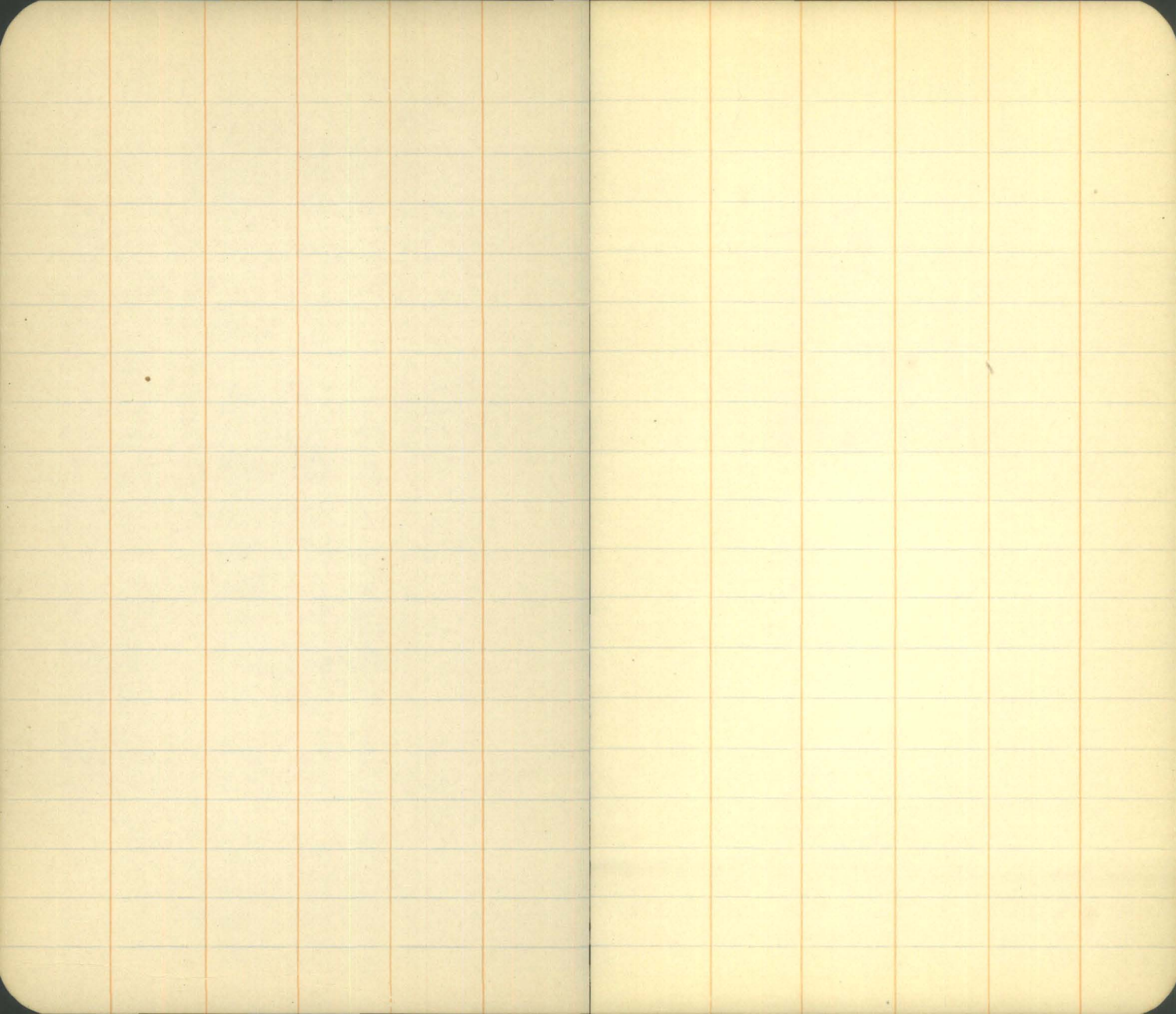
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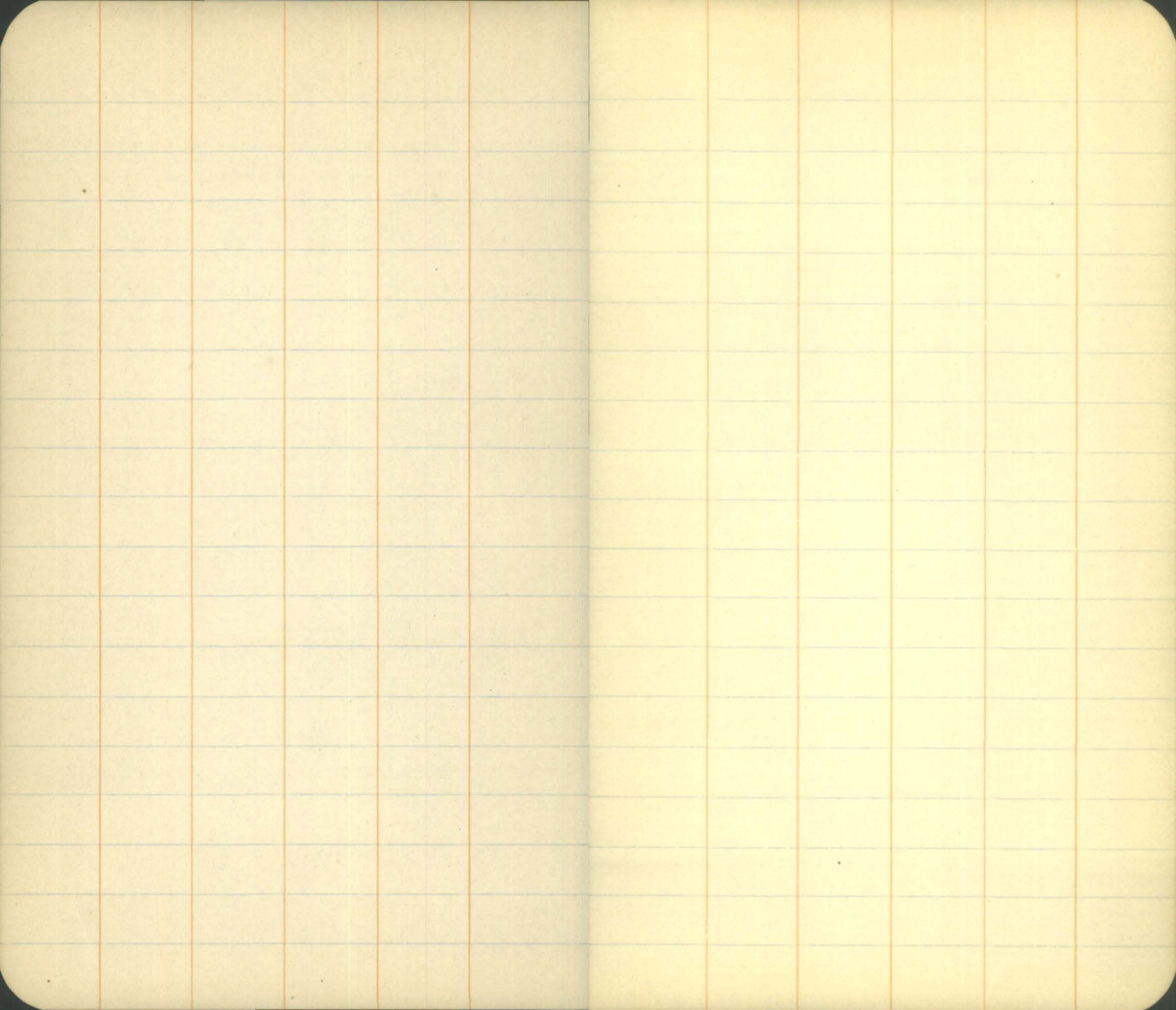
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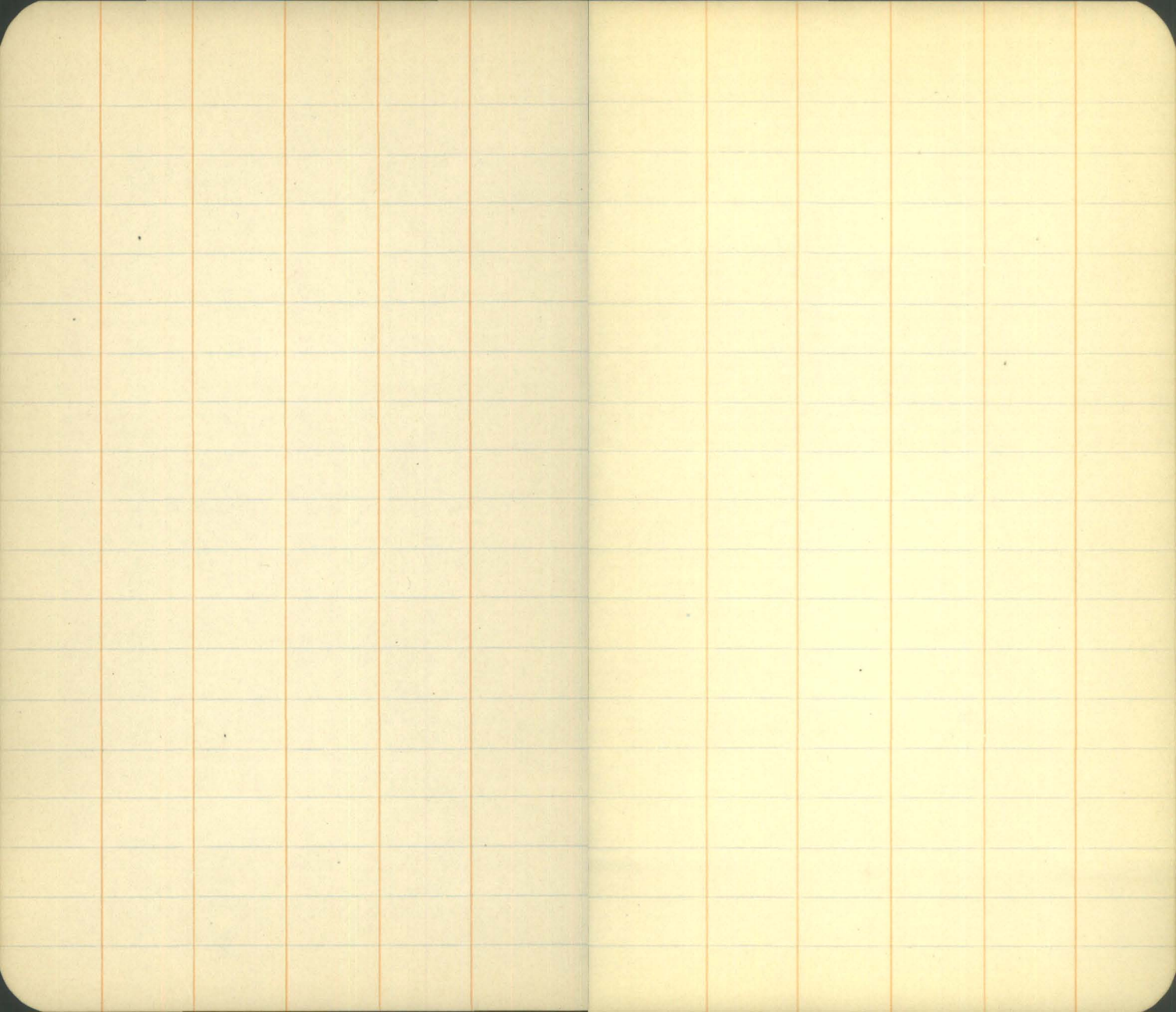
B.M.	4.23	81.90	77.67			Bridge Hawk Eye Hwy.
Tile 9475		13.60				Spike Bottom E end N Hand Rail Conc
95		7.33	74.57	6.21	68.36	
95475		7.20	74.70	6.15	68.55	
96		7.41	74.49	5.88	68.61	
+50		7.21	74.69	5.95	68.74	
97		7.18	74.80	5.94	68.86	
+50		7.05	74.85	5.86	68.99	
98		7.02	74.88	5.77	69.11	
99		6.67	75.23	5.87	69.36	

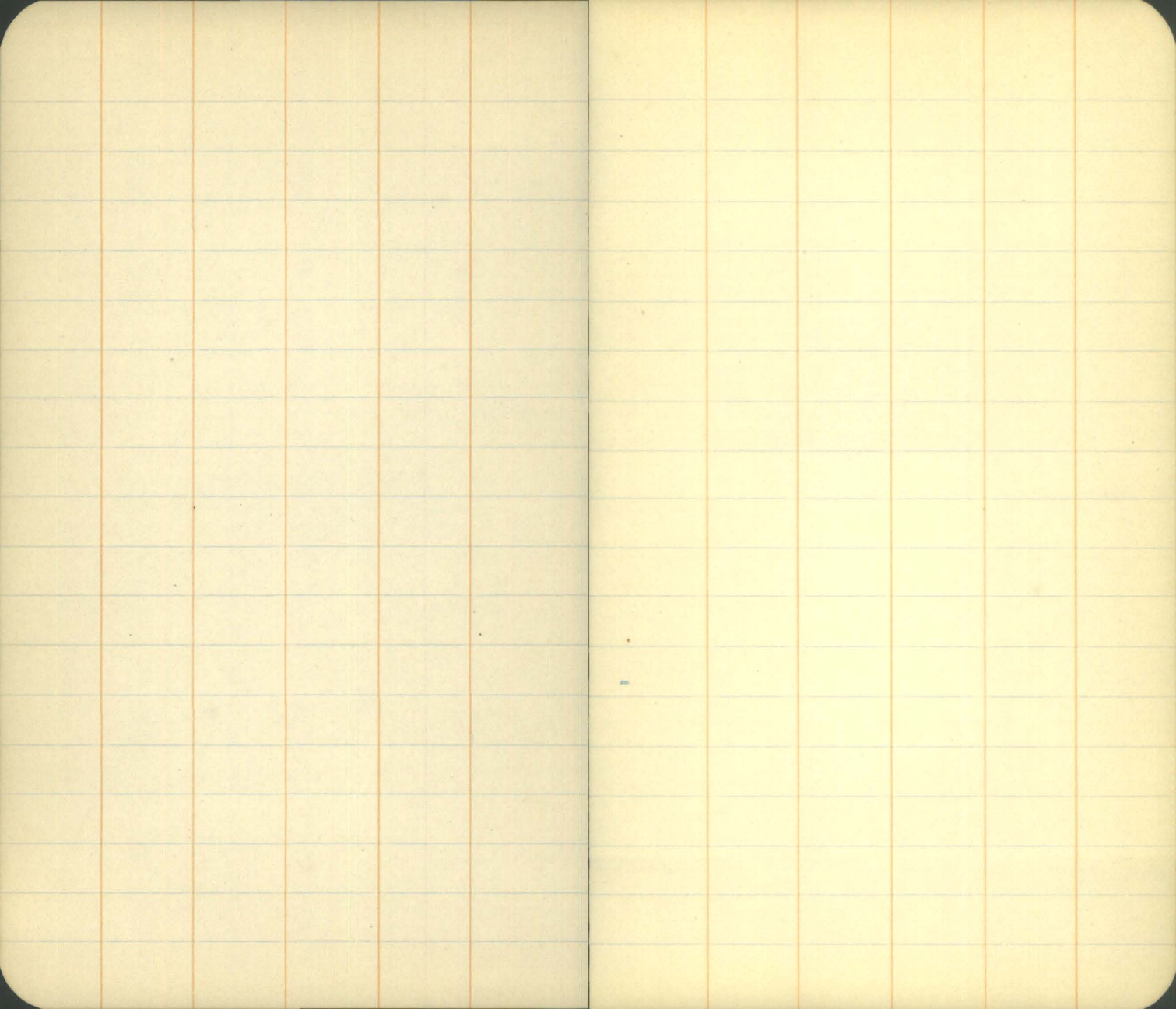
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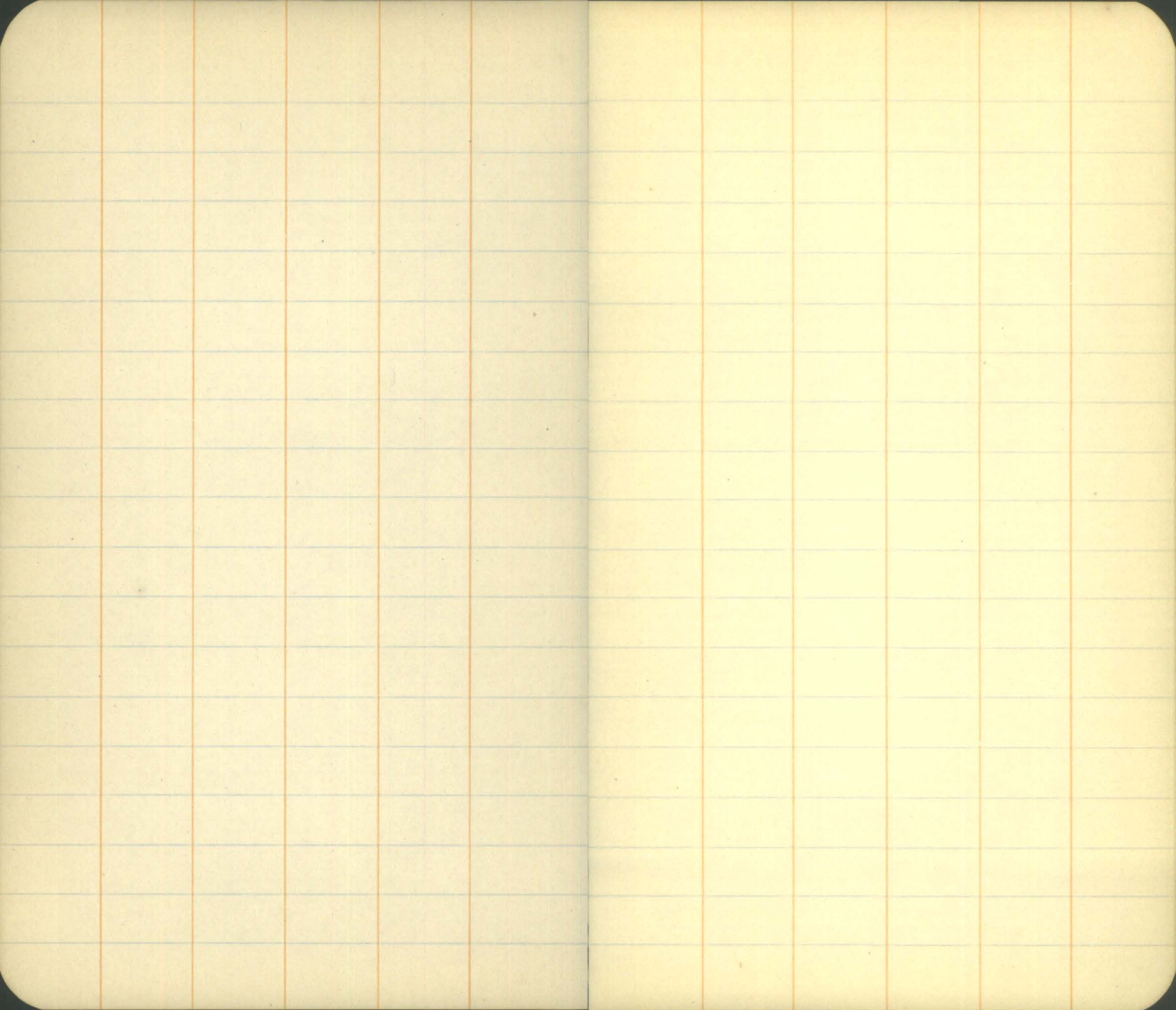


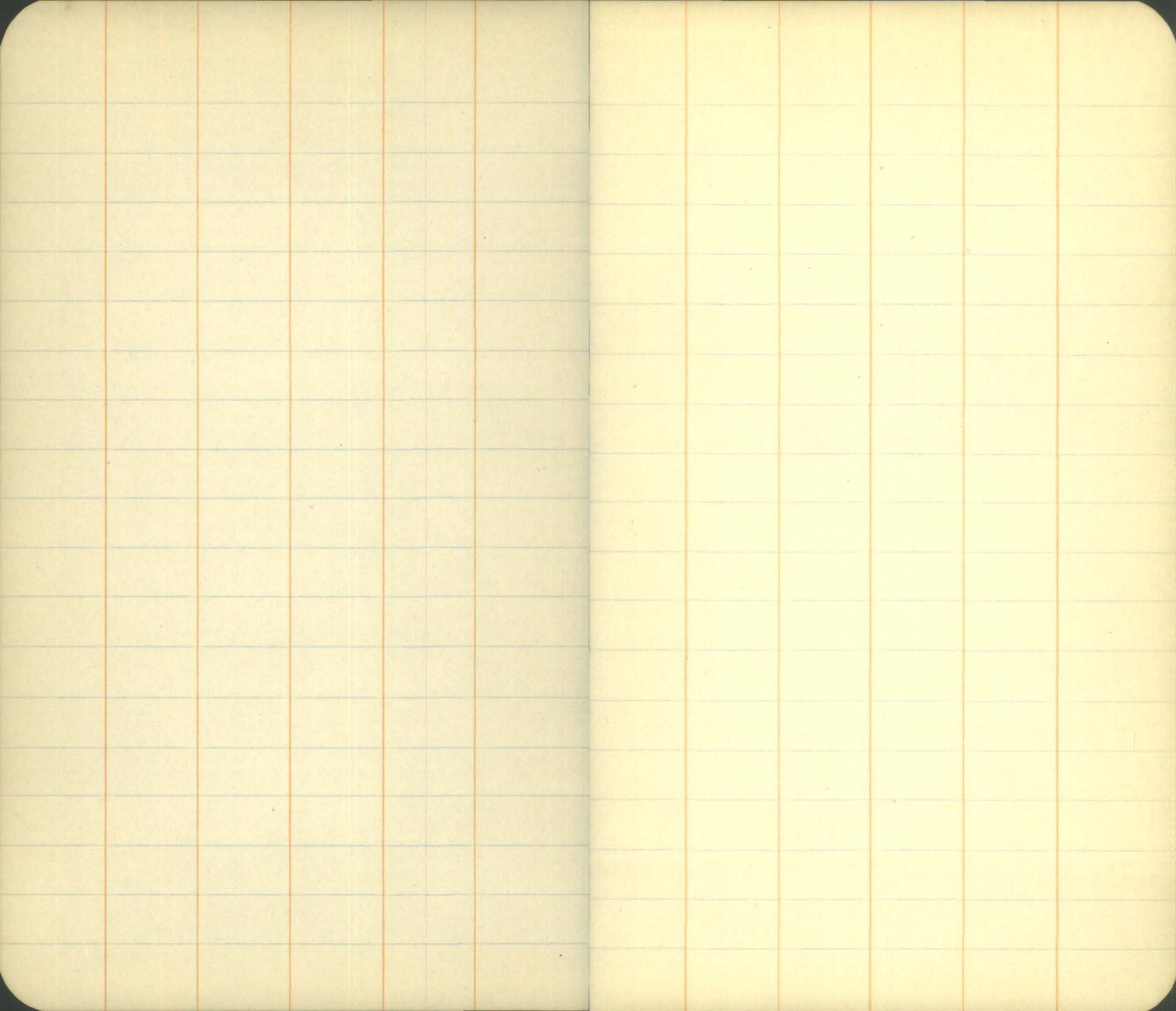


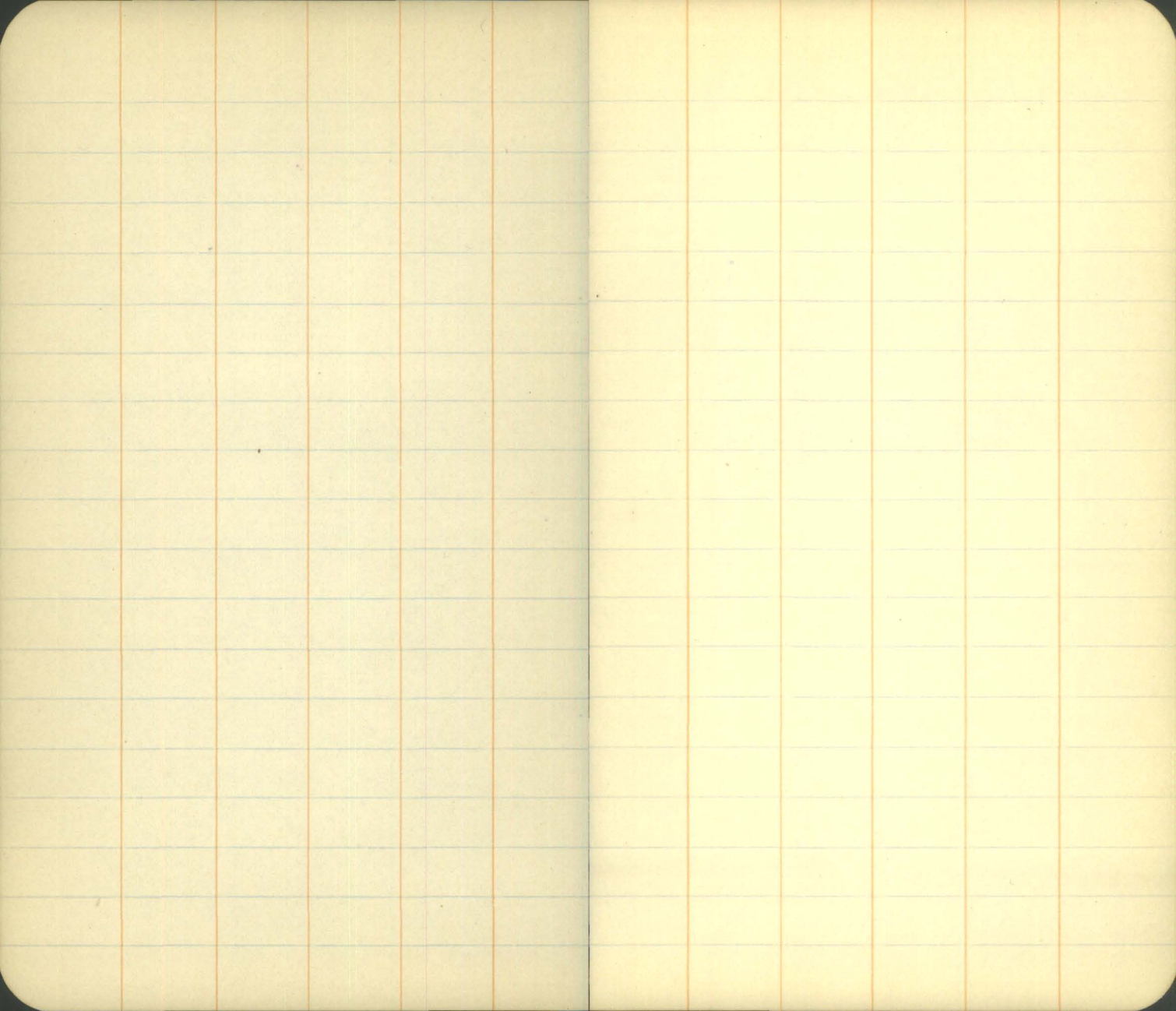


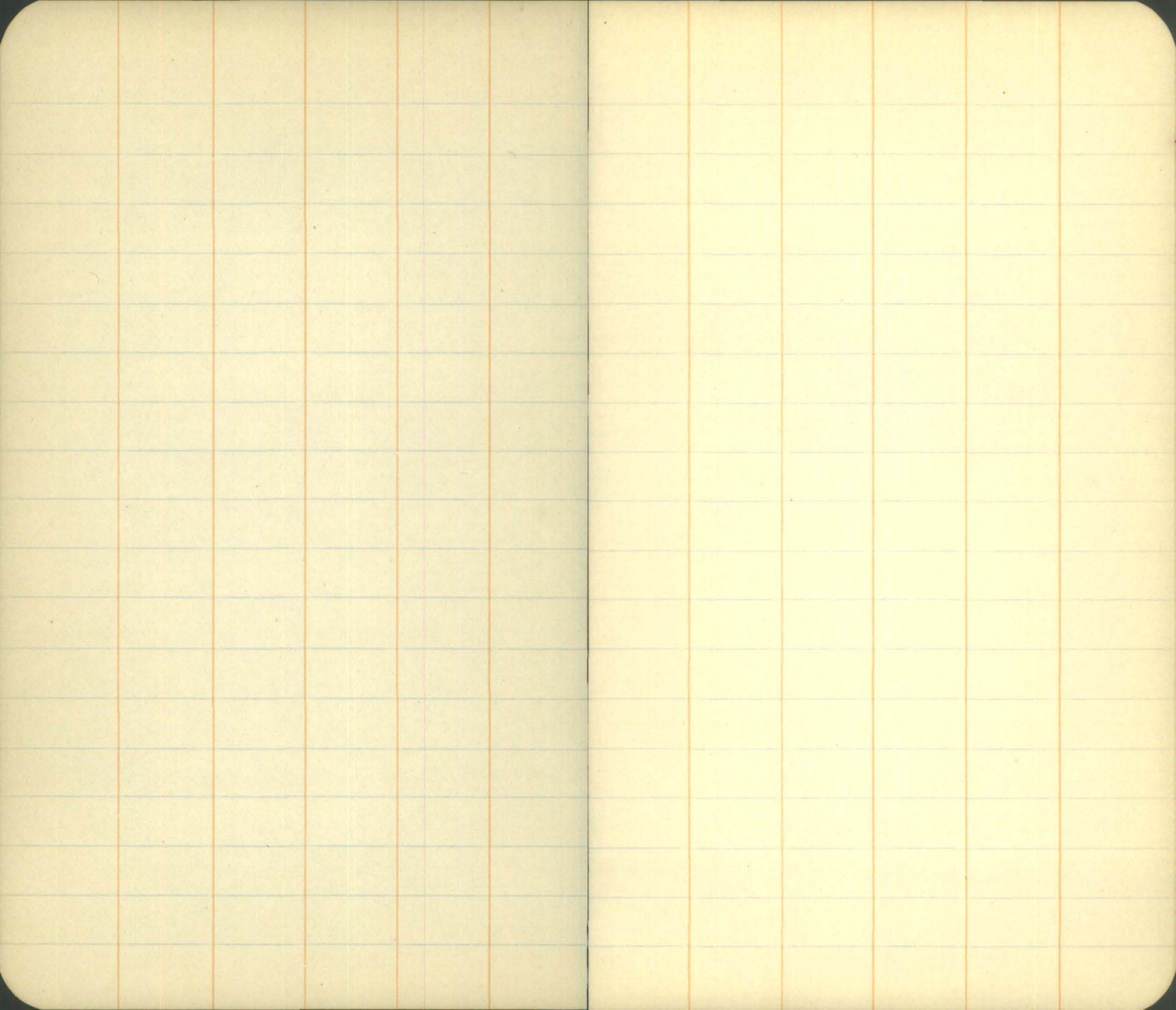


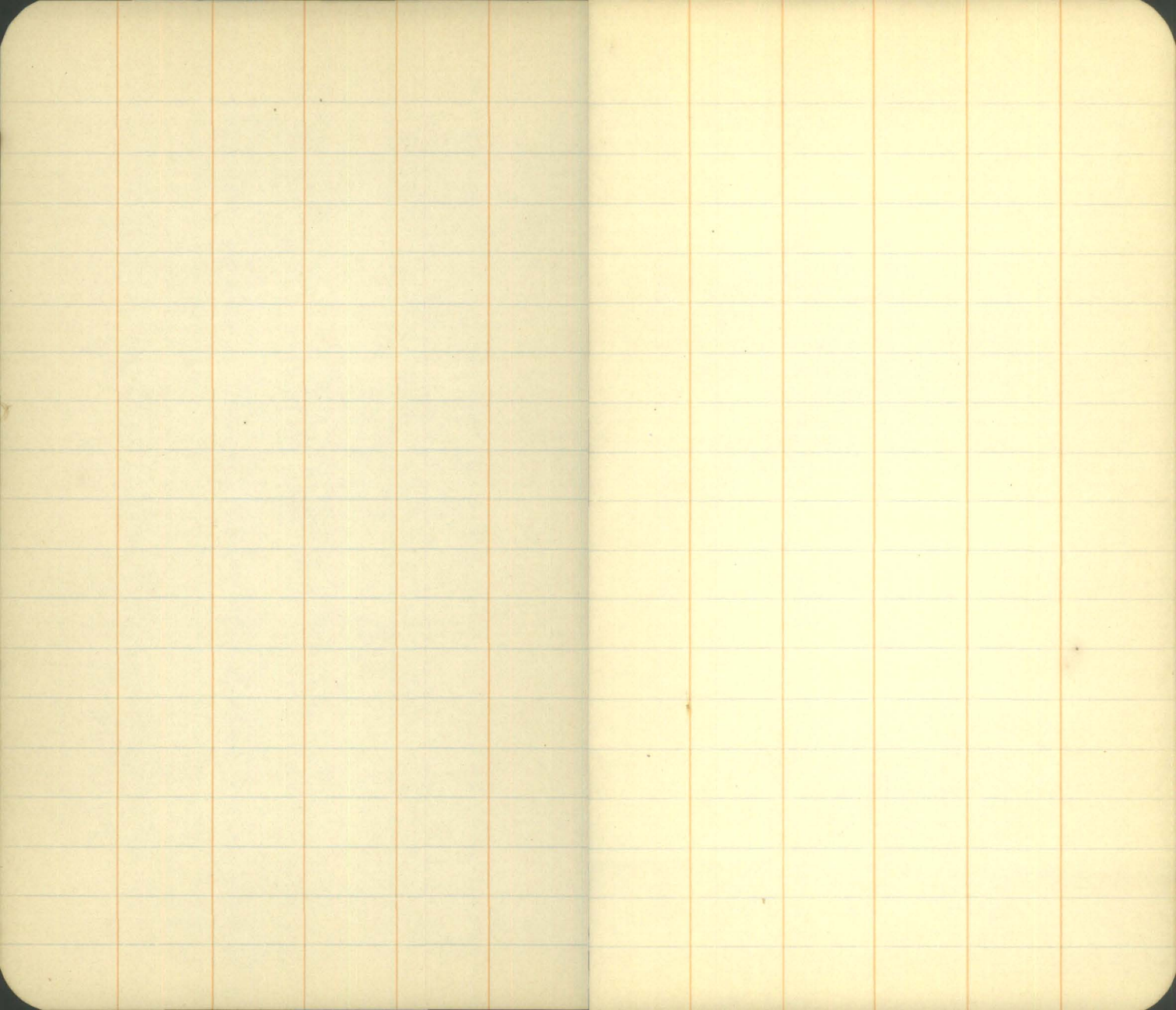


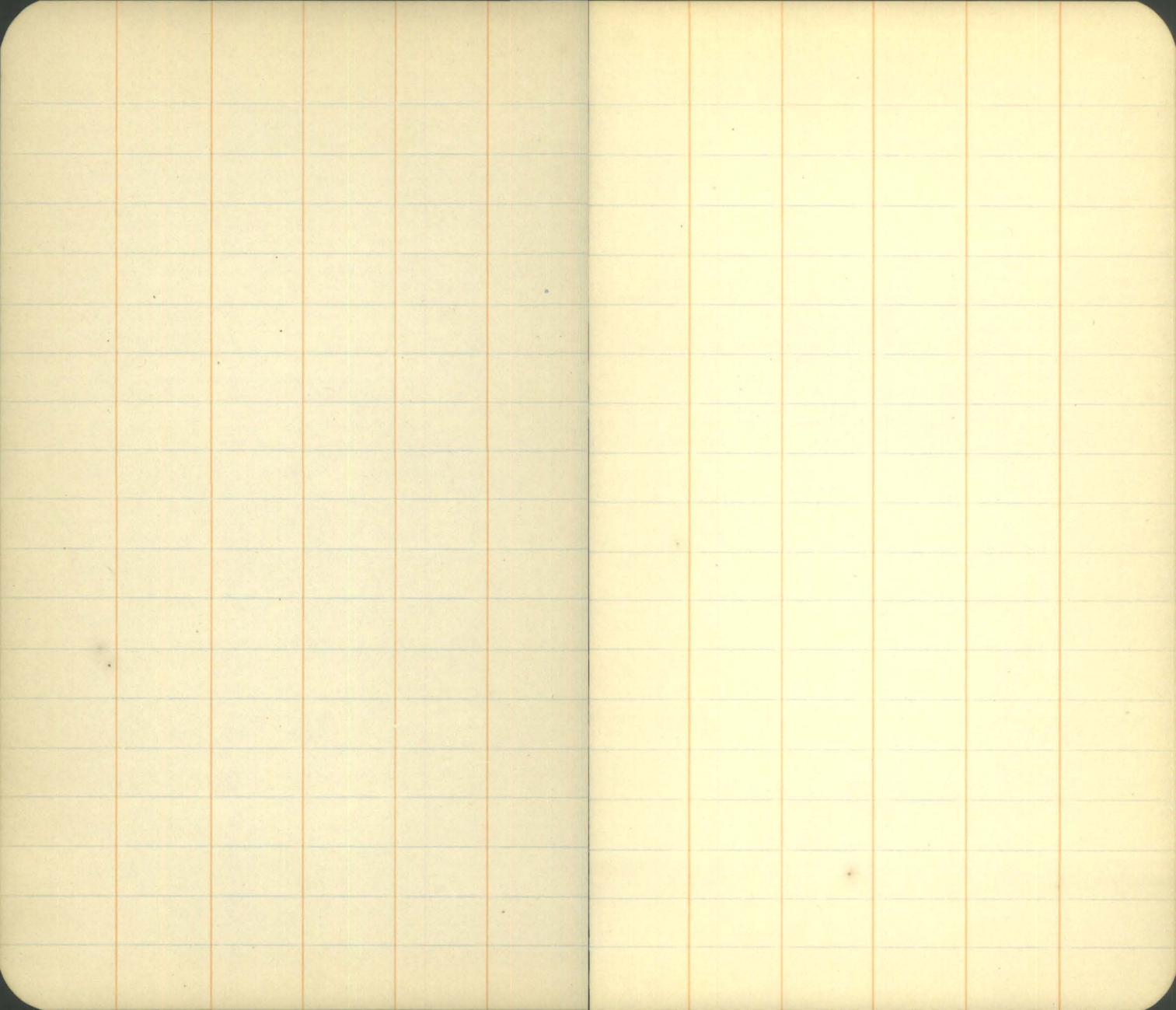


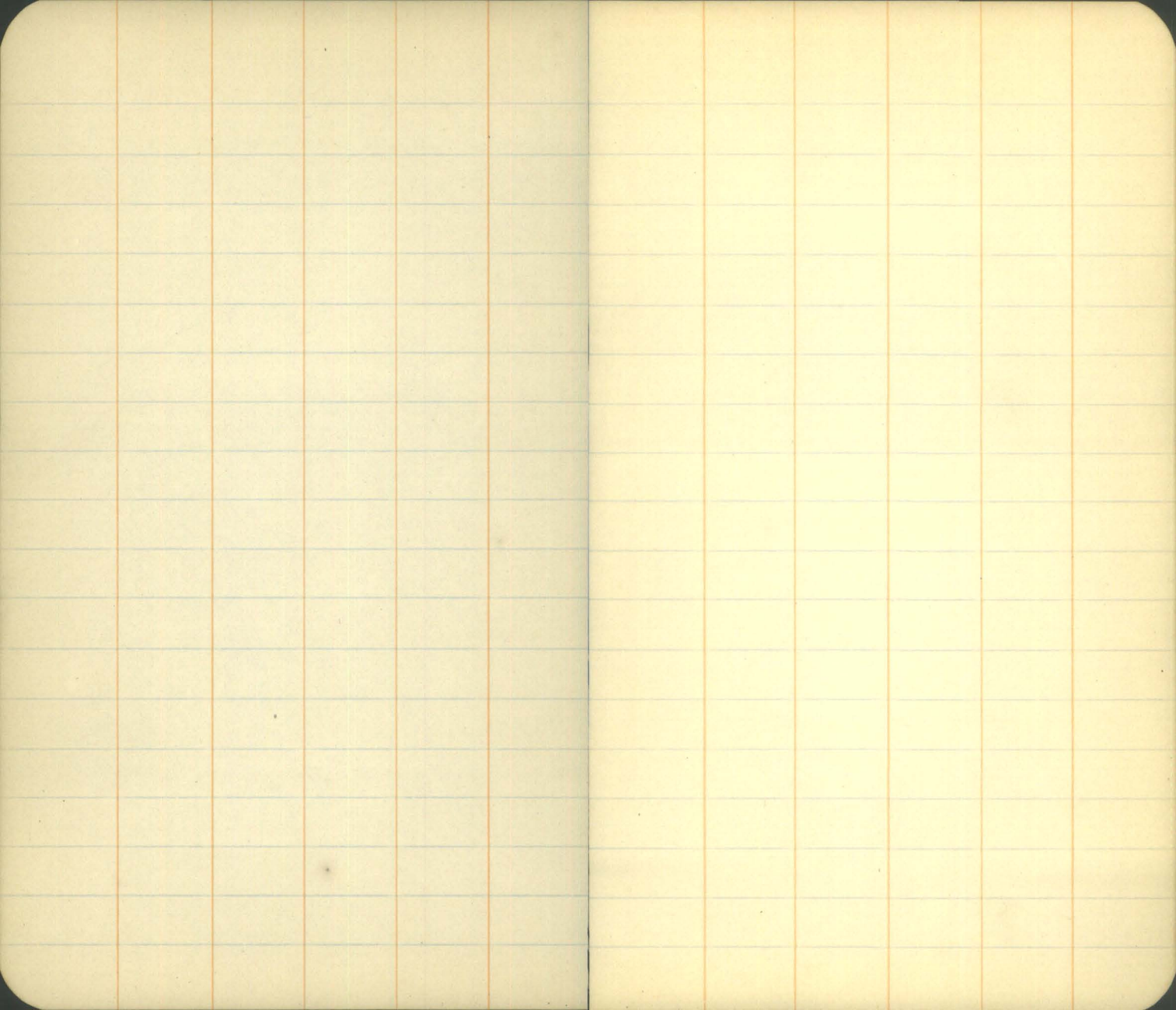


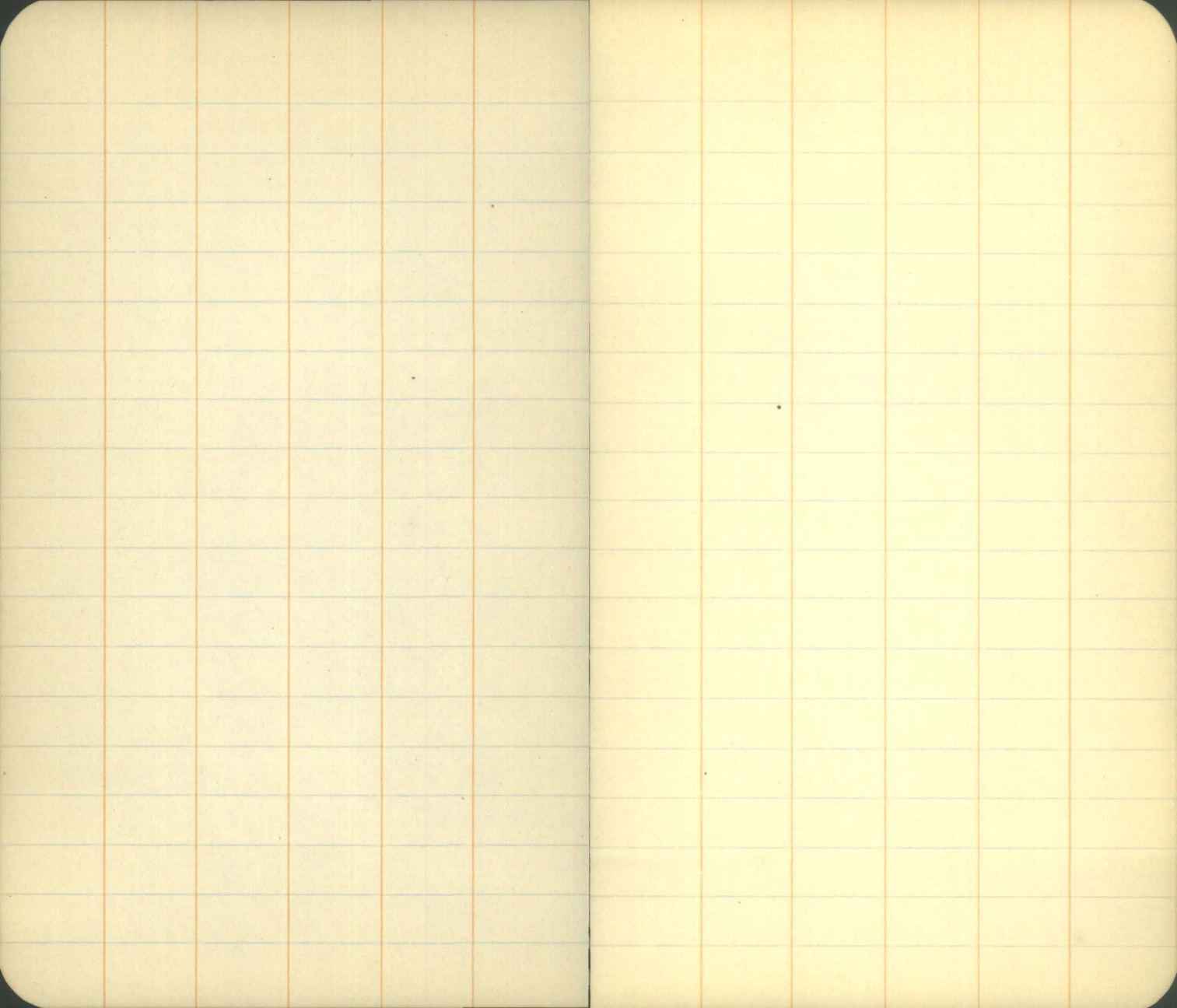


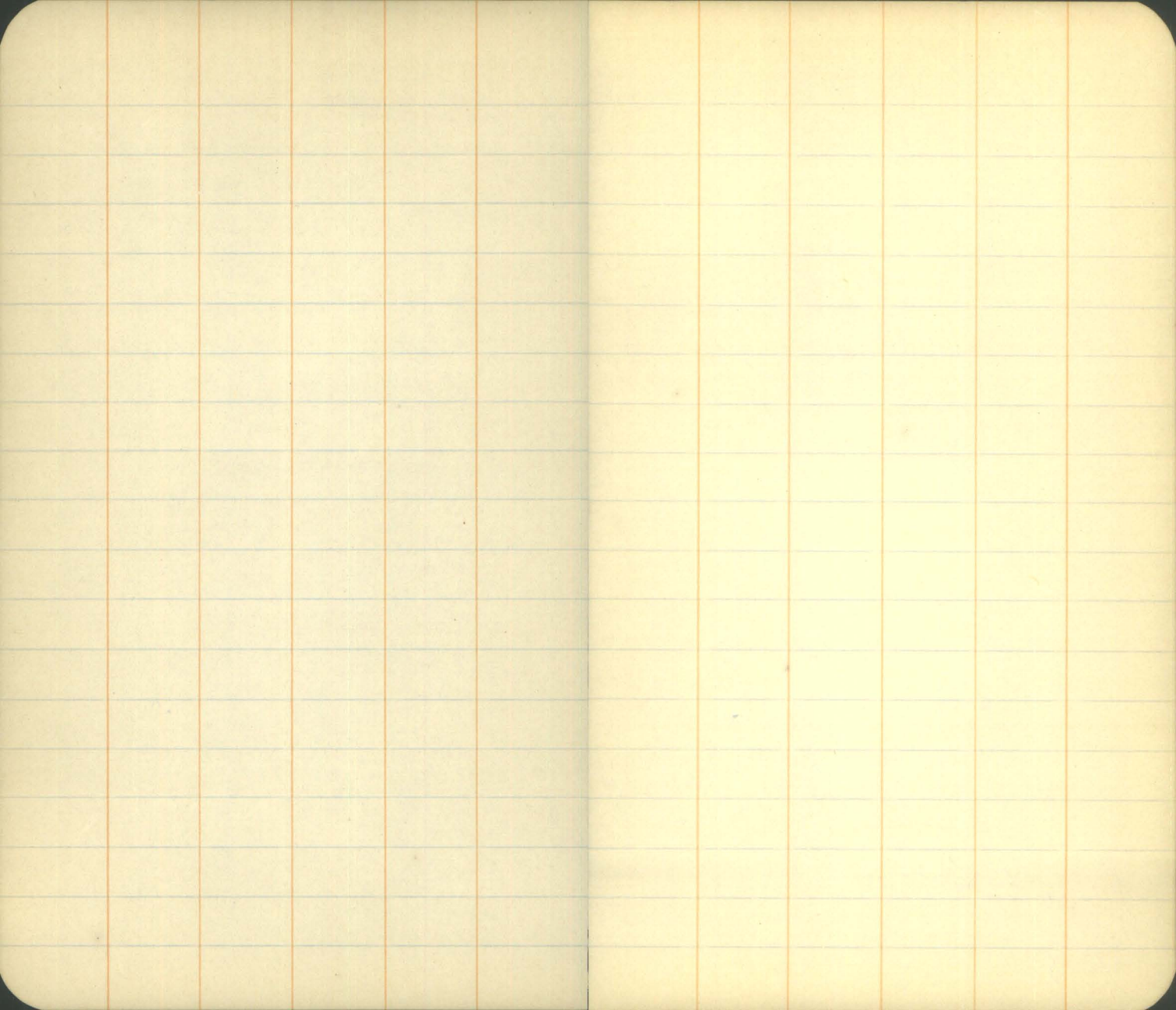


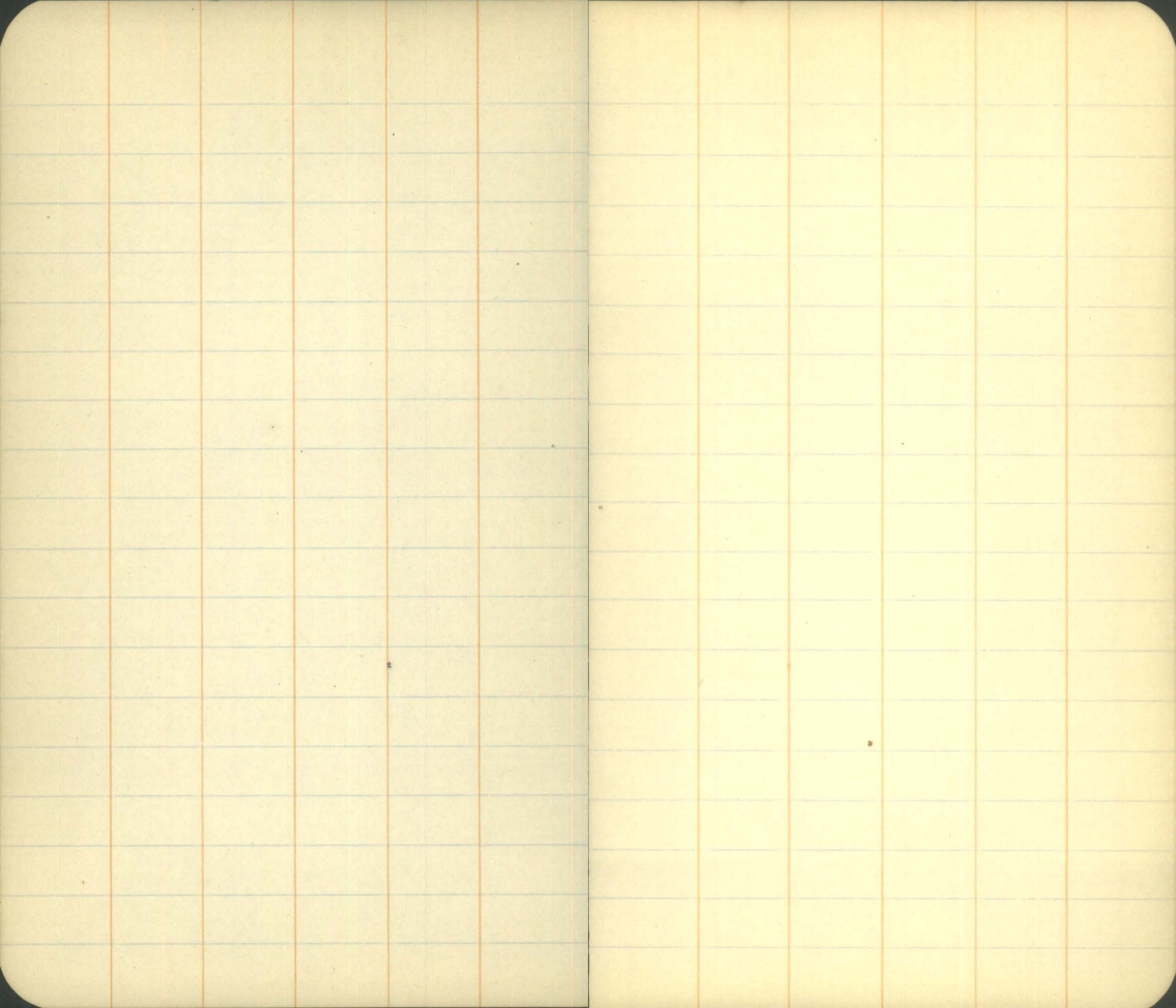


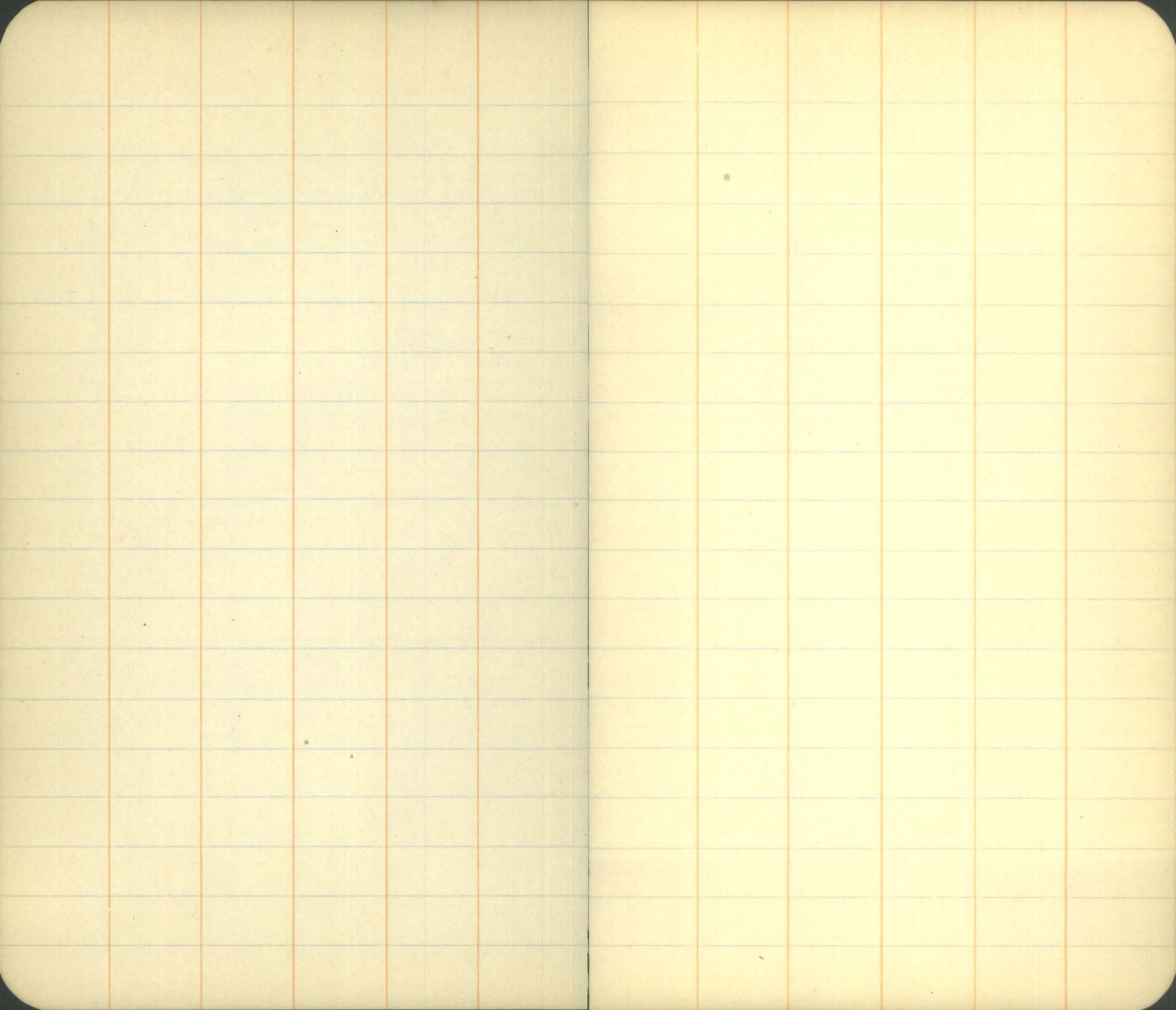


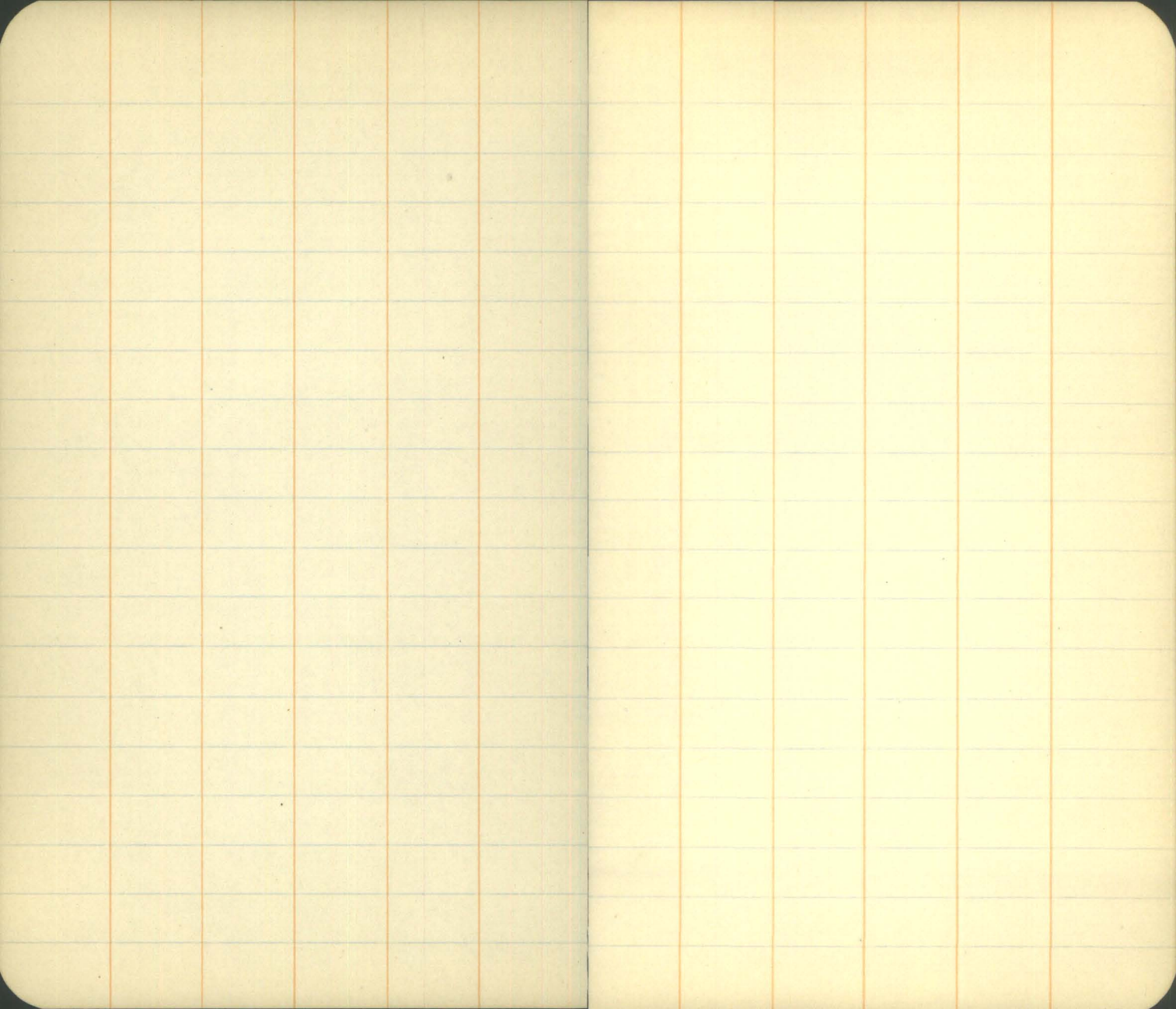


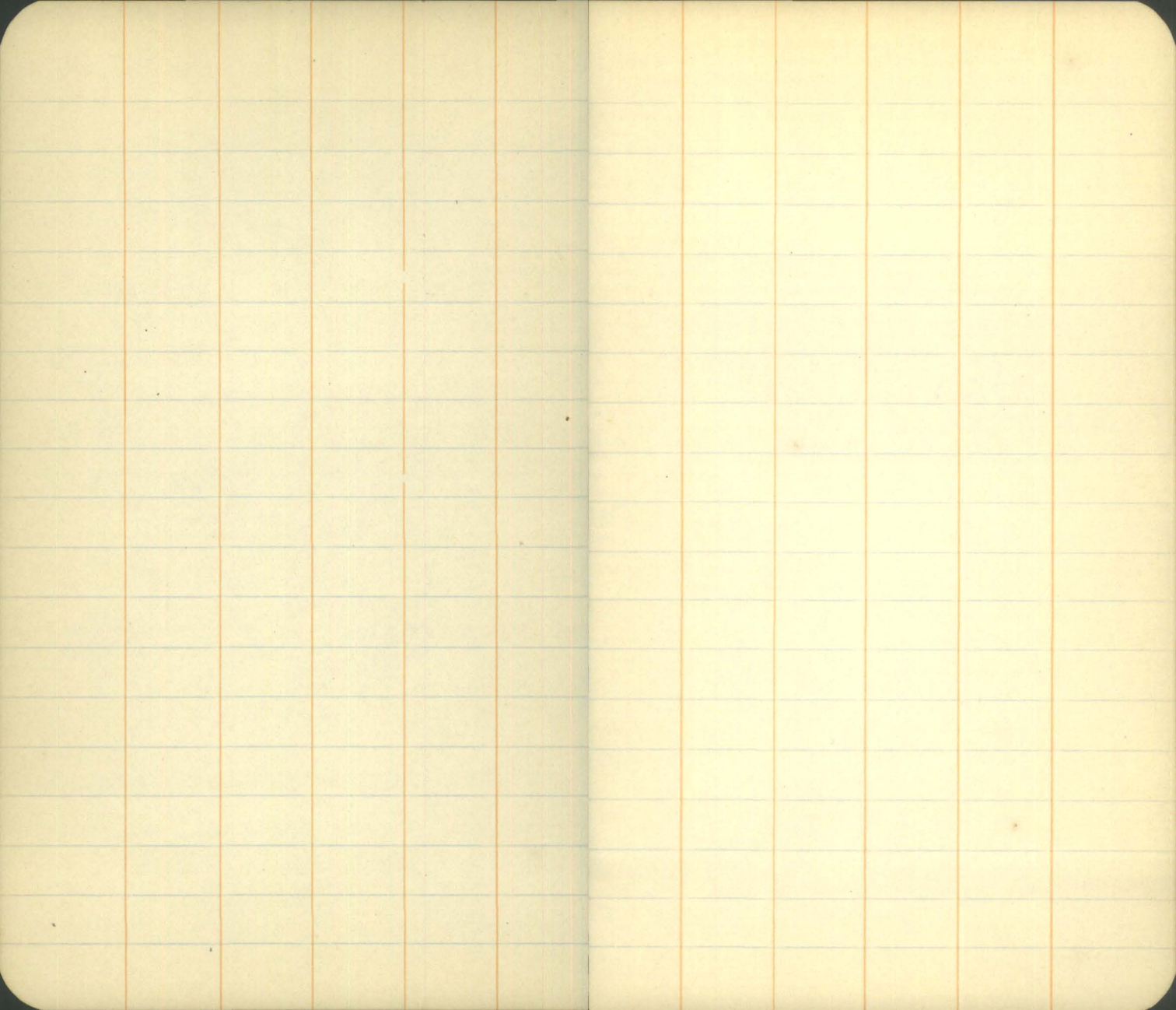


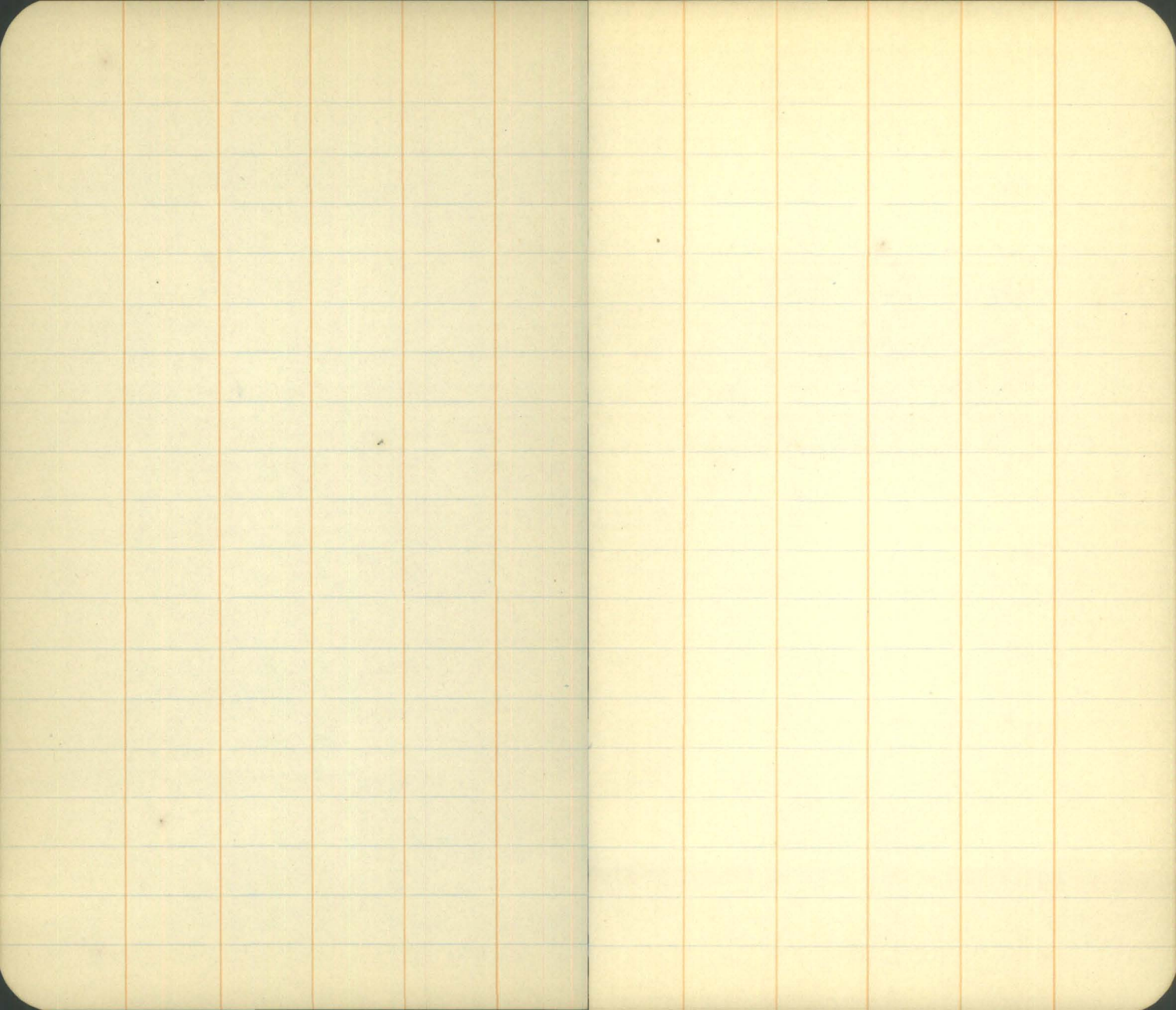


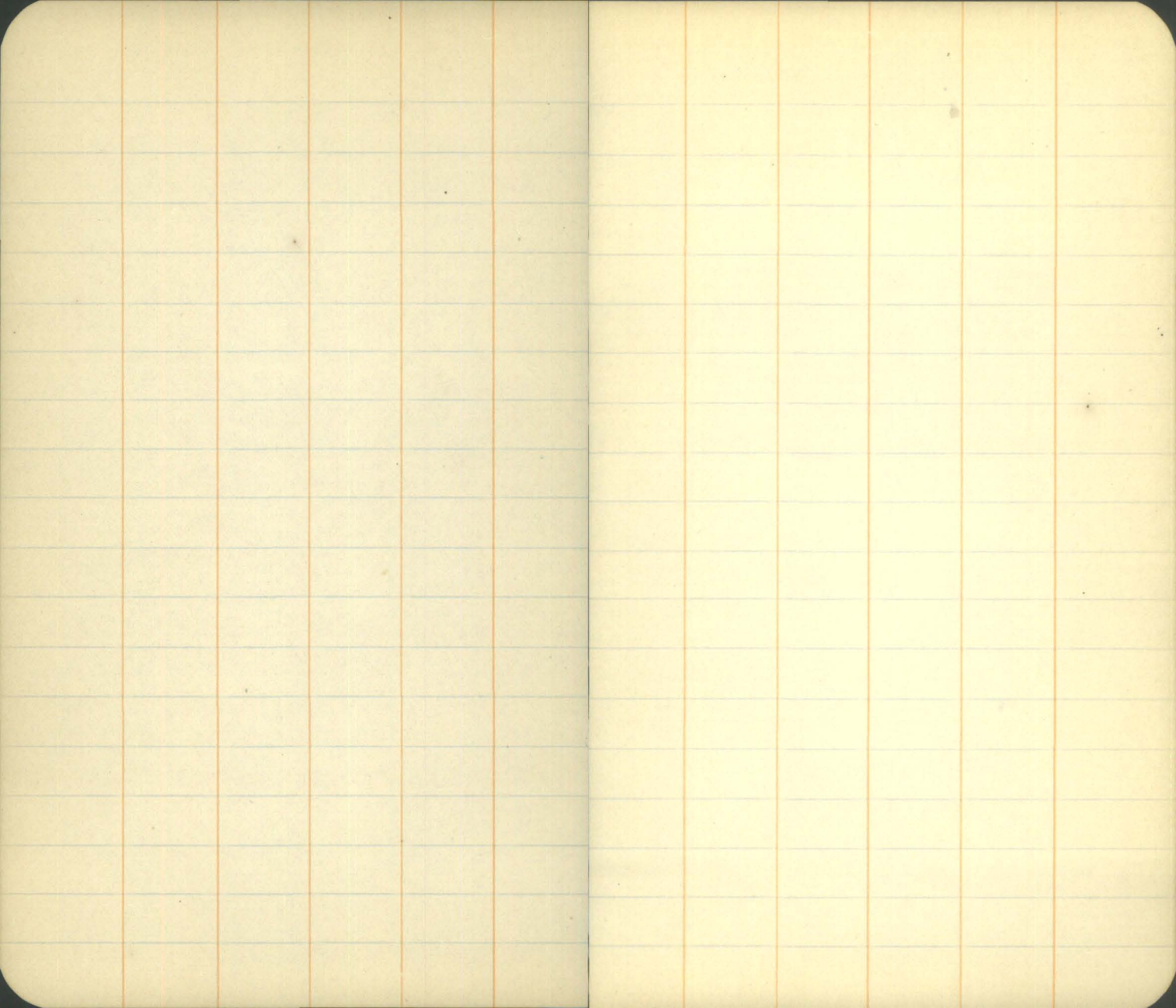


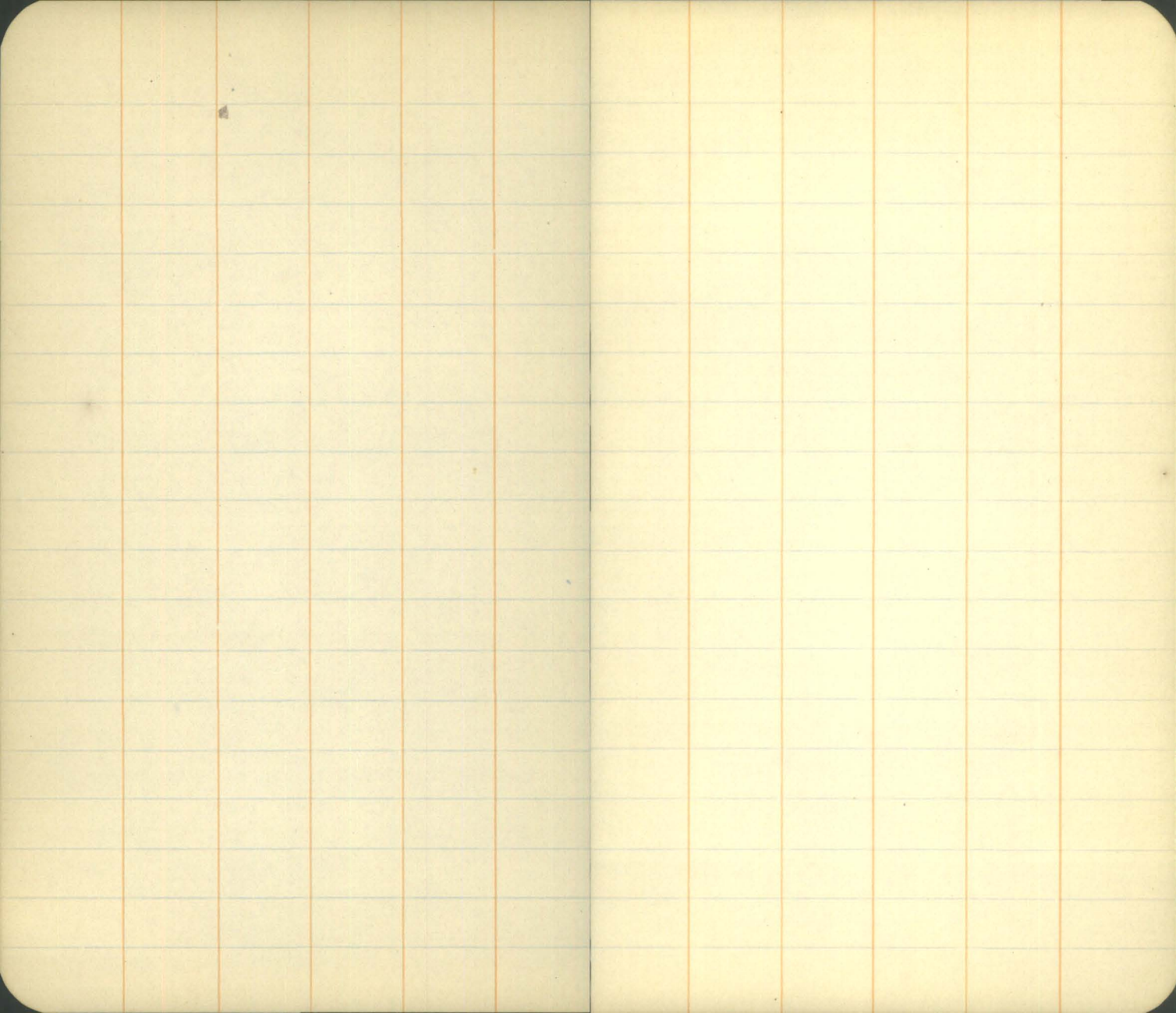












CHK 6 R

S. o Rod 10"
 $\frac{1.0}{60}$

BM. 2.57 72.71 70.14

T.P. 8.94 78.27 2.28 69.33
 $\frac{6.00}{72.27}$

+ 102+50 9.50 62.77

22 9.00

+ 8.40

23 7.80

+ 7.30

24 6.80

25 5.90

26 4.82

27 3.85

28 2.80

29 5.20 75.59 1.88 70.39

30 4.15 71.44

31 3.15

32 2.15

32+50 End 1.70

BR 6" off 6-R
 Sta-27
 72.27

0 3.80

+ 50 3.40

1 2.70

+ 2.00

2 1.20

2+45 End 0.70

#9

5.00

tile check

10/14/22

12

68.68

6.70

61.98

61.90

H. Left

+

6.45

13M.

0.41

69.25

68.84

13

6.05

62.63

62.80

6.00

tile 4+50

63.25

7.17

56.08

56.00

+

5.60

5

6.70

56.55

56.60

14

5.20

63.48

63.60

+

6.55

+

4.90

6

6.30

56.95

15

4.30

+

5.70

+

3.80

7

OK

5.20

58.05

58.00

16

3.45

55.23

55.20

+

5.05

+

3.15

8

4.50

58.75

58.70

17

2.75

+

4.20

+

2.35

9

4.00

59.25

18

2.00

+

3.70

+

5.65

72.82

1.51

67.17

10

3.15

60.10

60.30

19

5.30

67.52

67.60

+

2.70

+

4.80

11

7.38

74.48

2.15

67.10

20

4.55

+

5.80

68.68

7.00

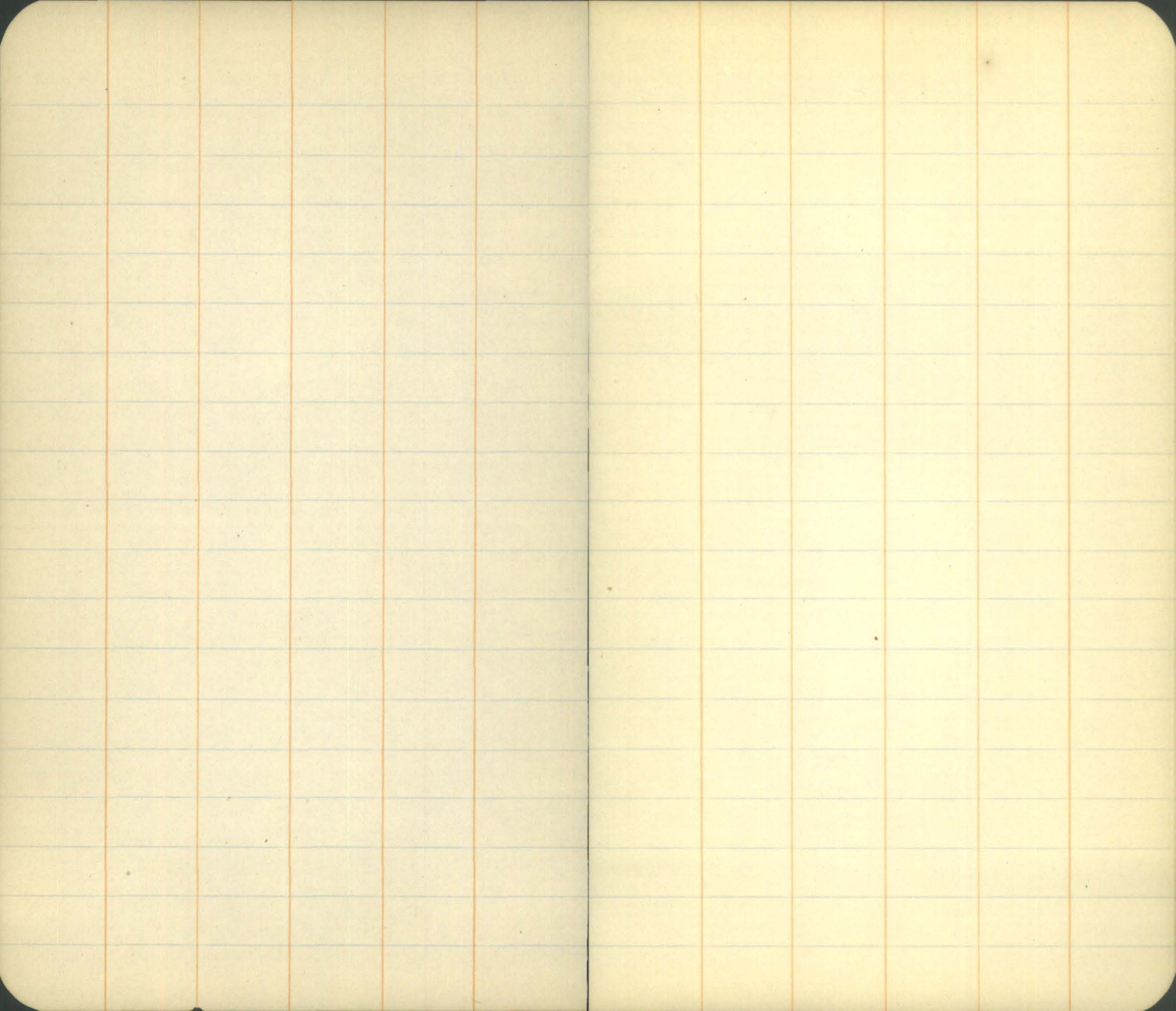
+

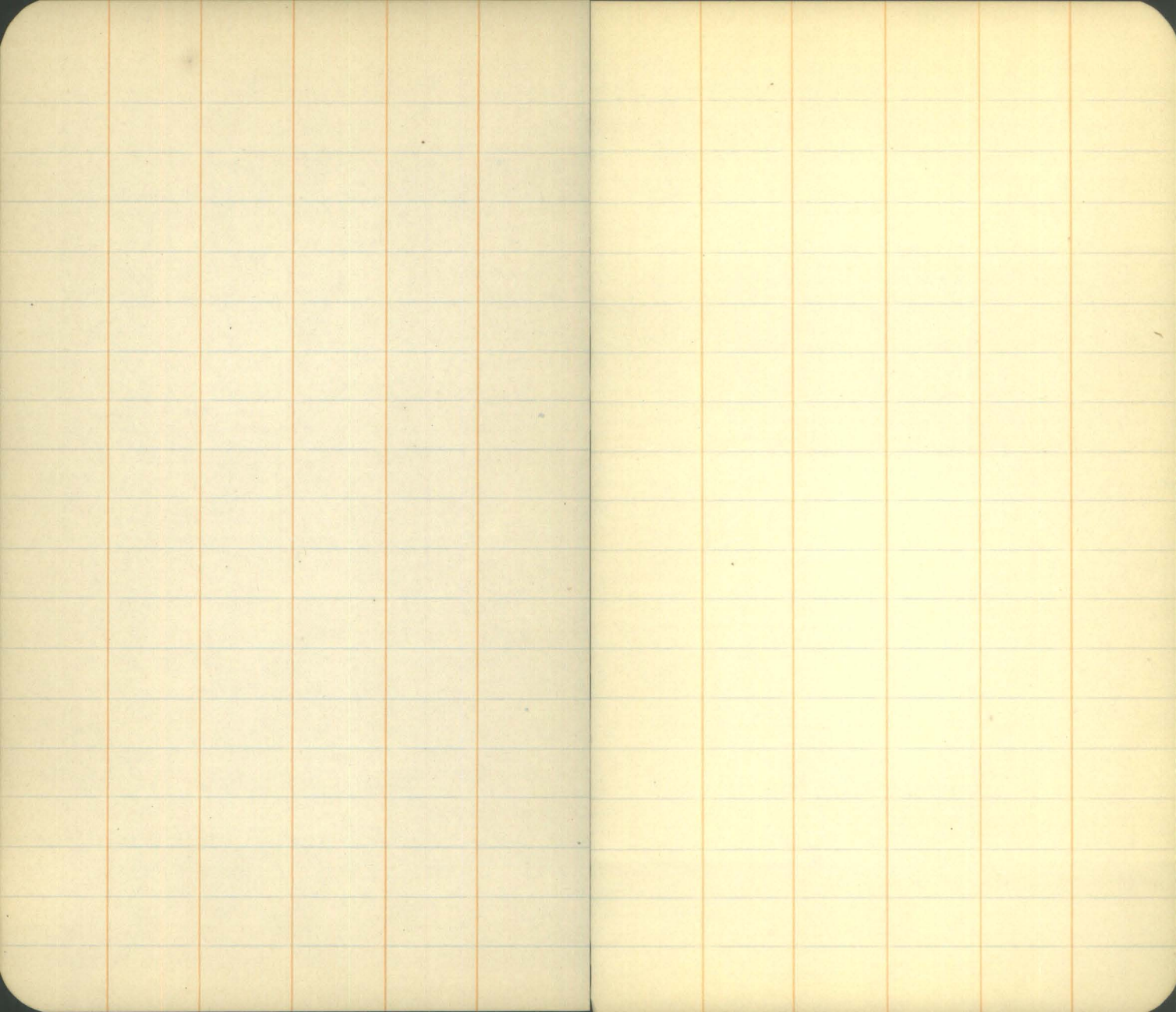
4.20

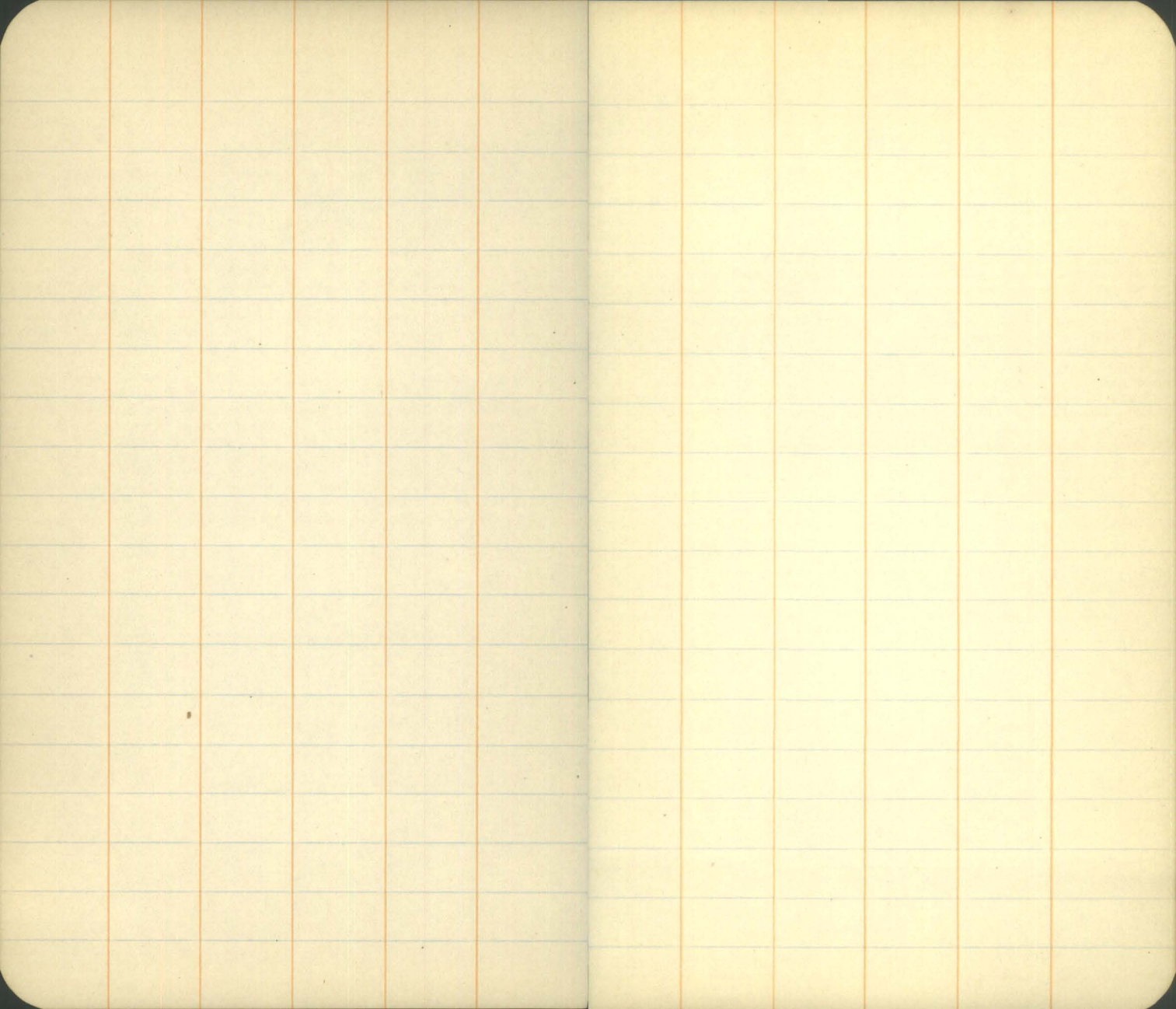
71 71.82 3.65
 + 3.15
 22 2.90 69.92 70.00
 + 9.55
 48 2.10 70.72 70.80
 23 + 52 End 1.50 71.22 71.21

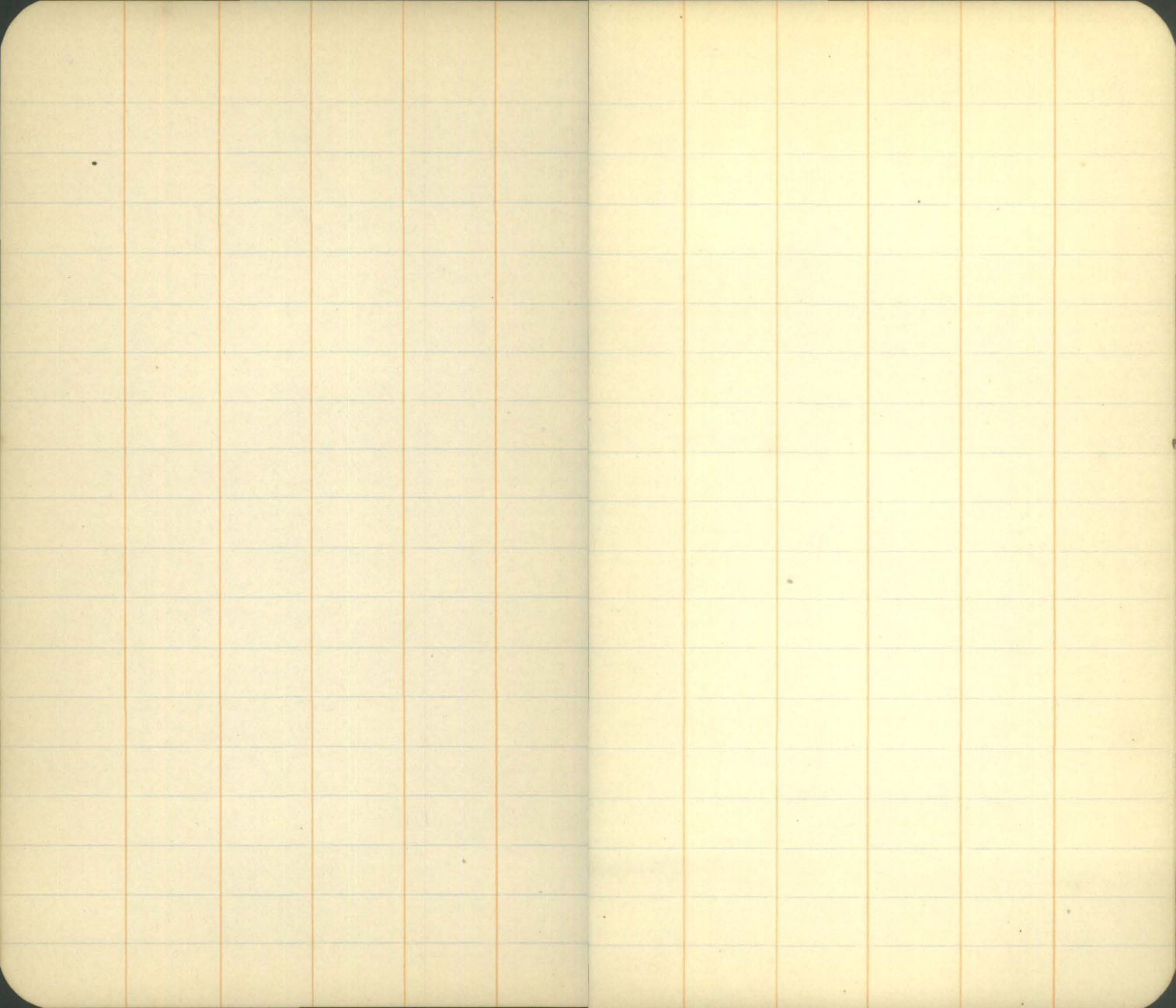
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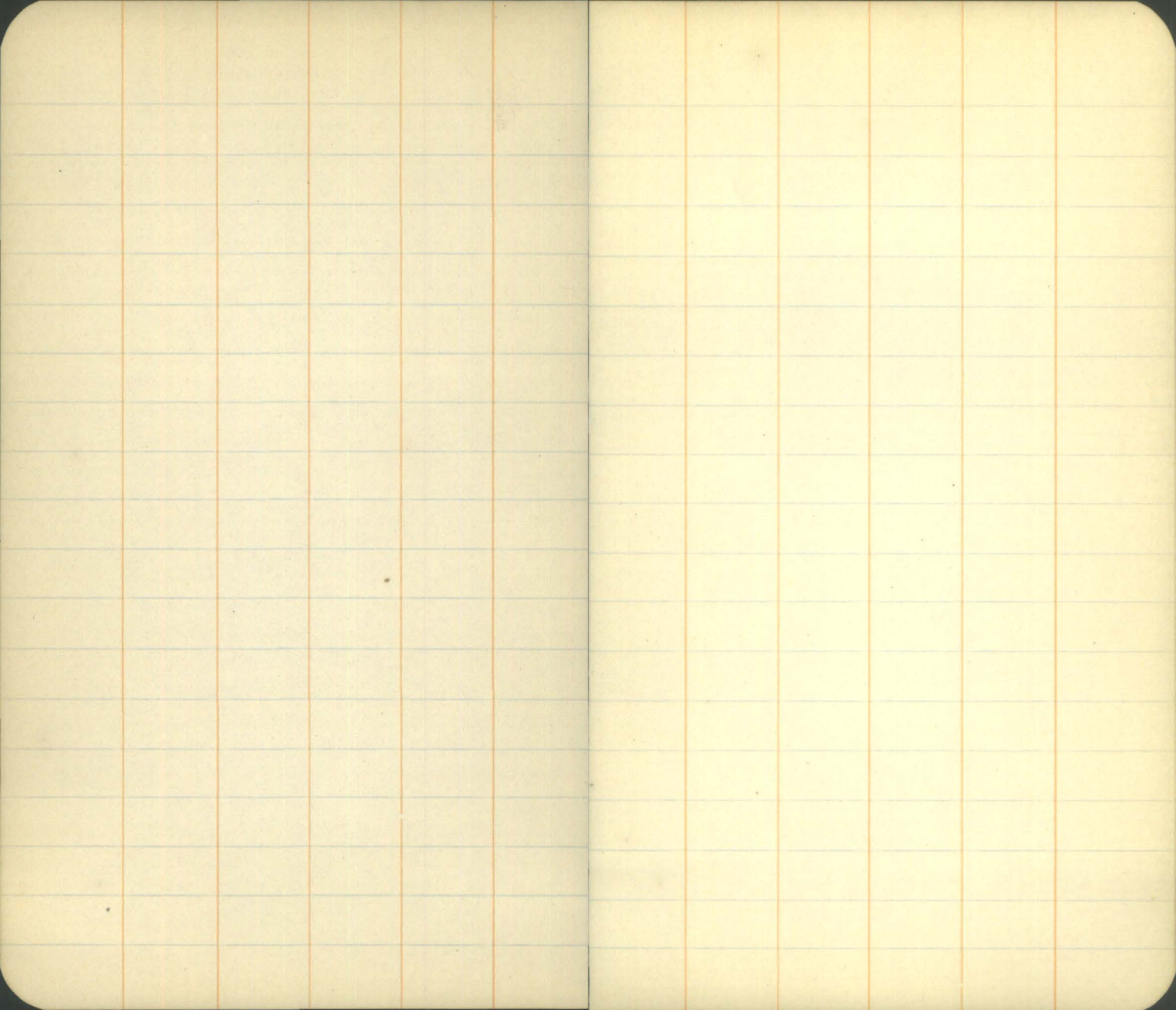
71.21
 BR I. Left
 69.25 4.00
 0
 + 2.65
 1 3.20
 + 2.65
 2 2.20
 + Road —
 3 1.50
 +
 4 0.00

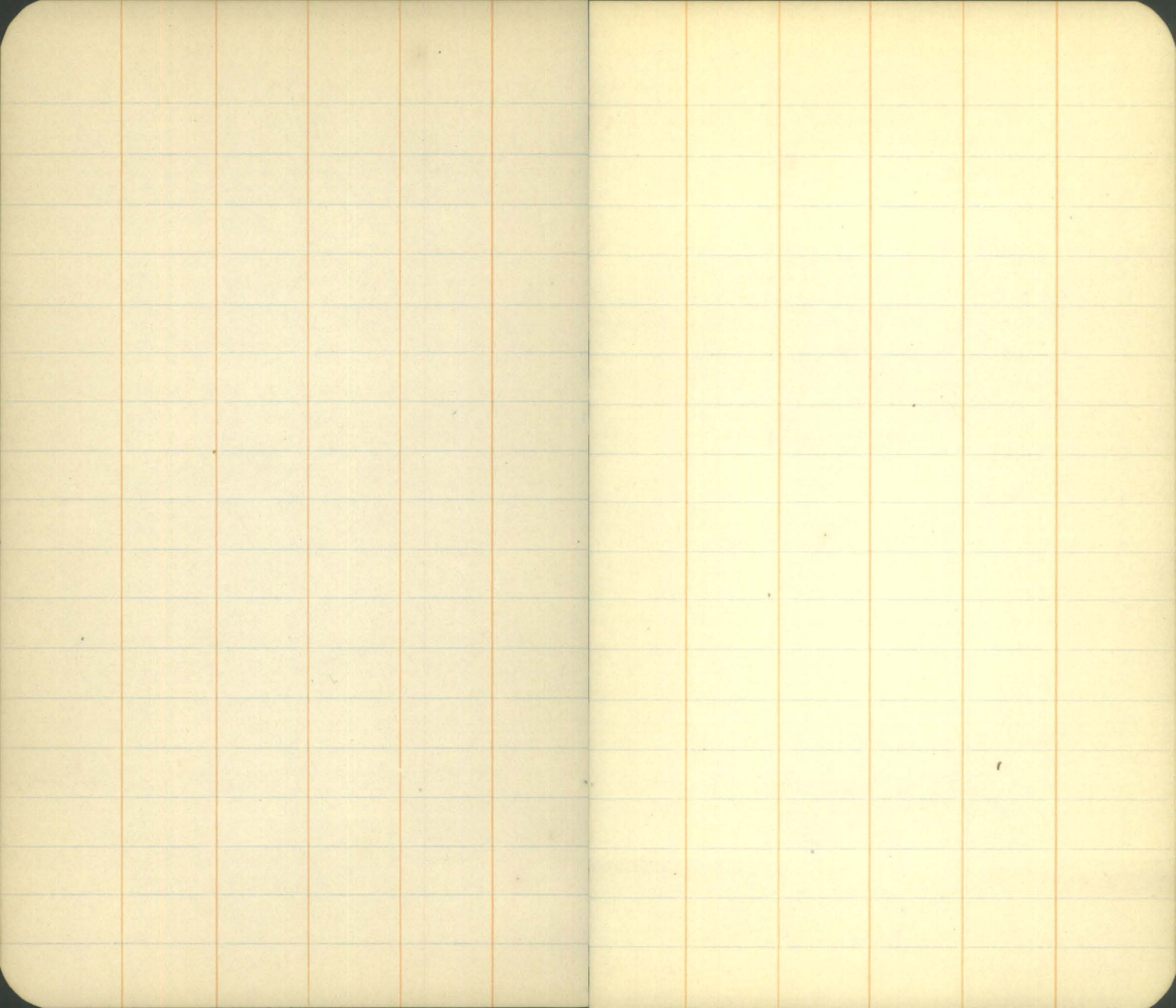


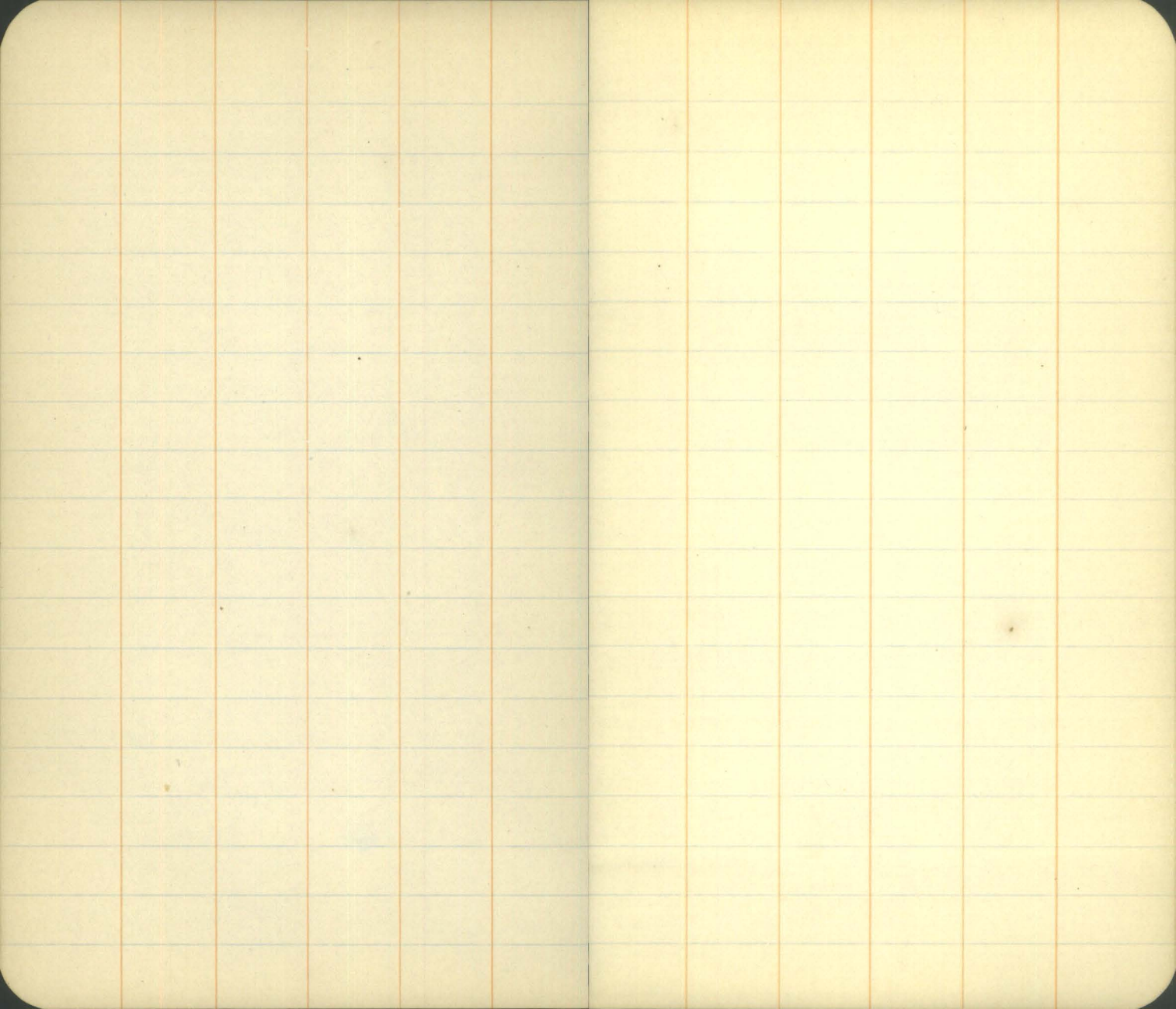


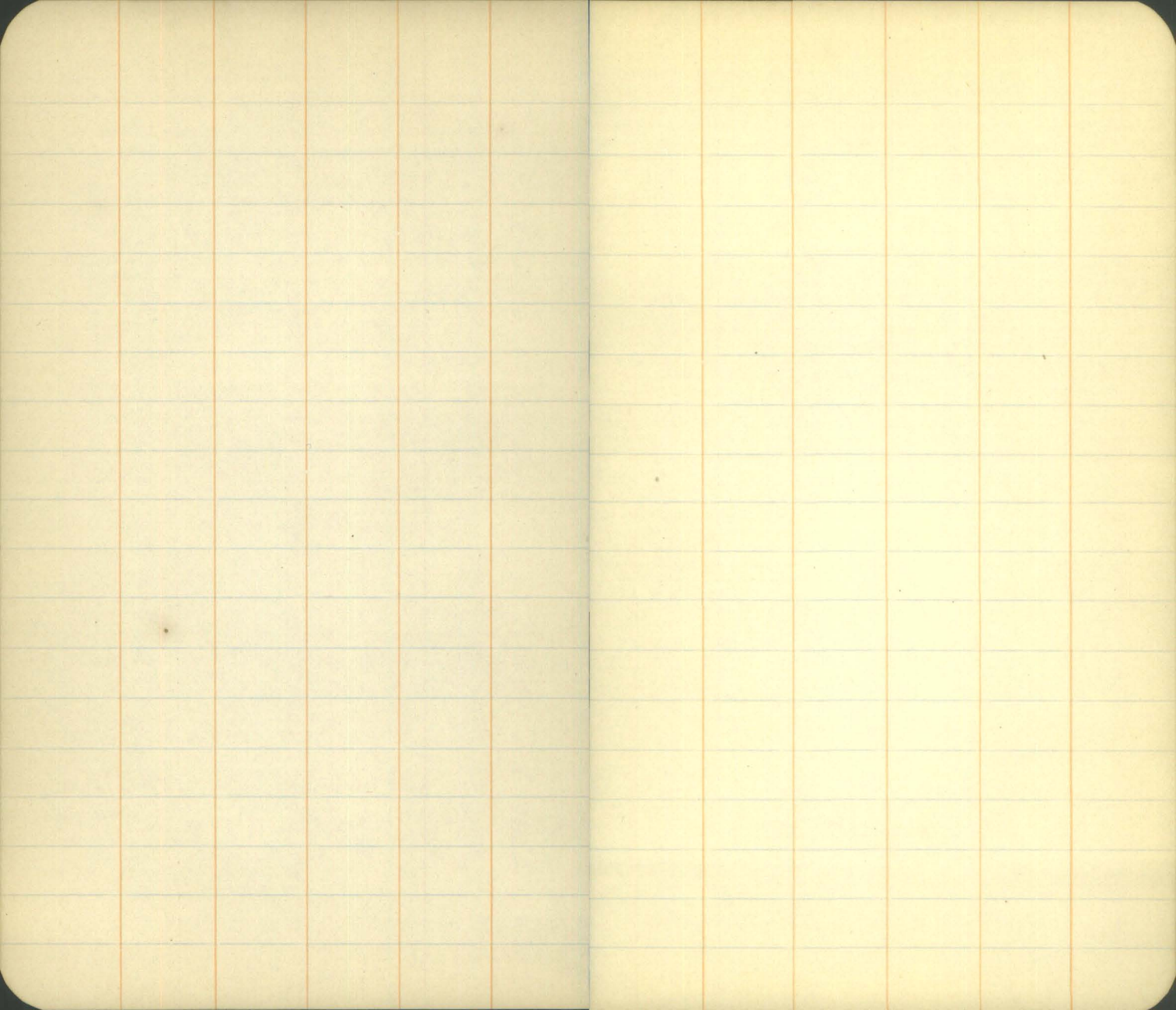


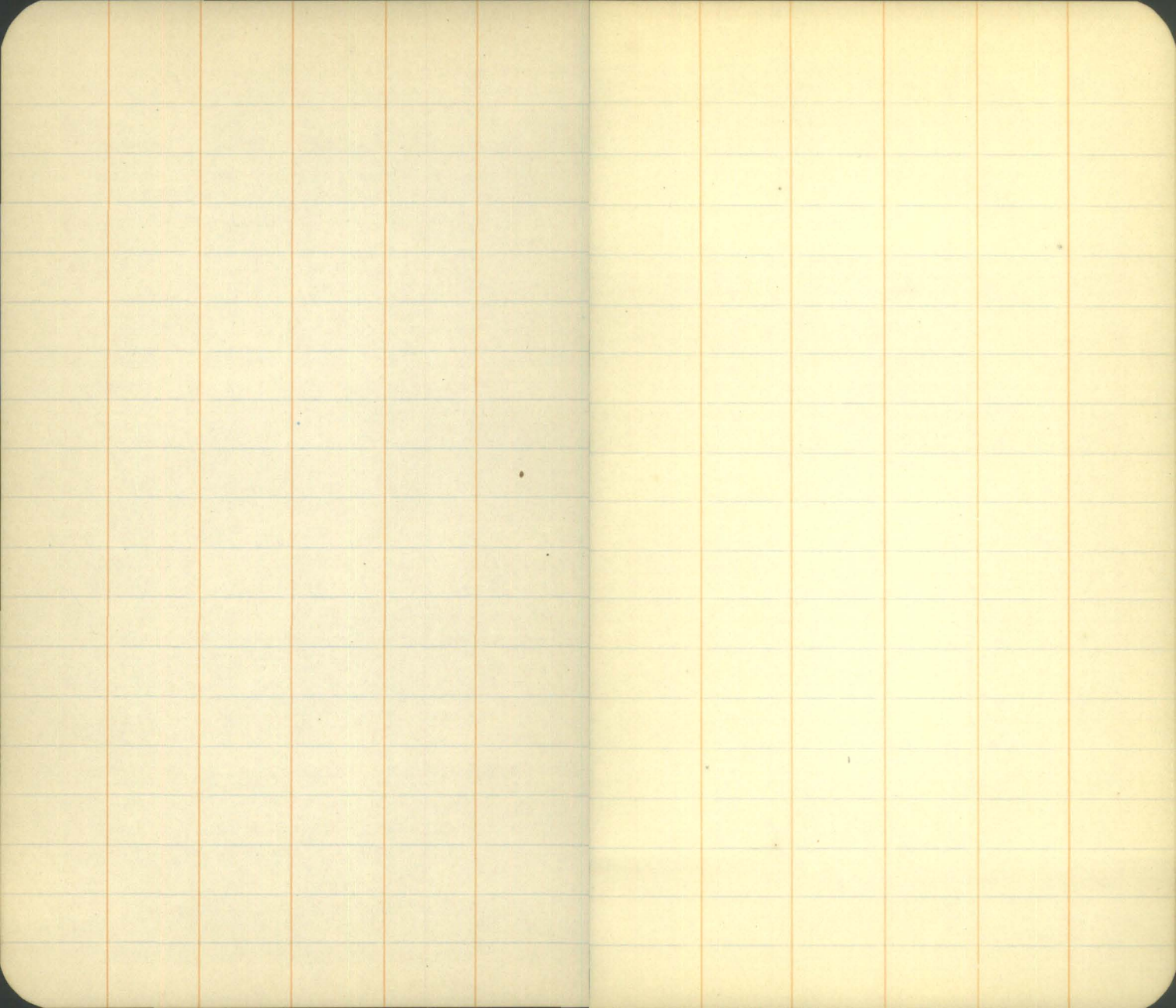


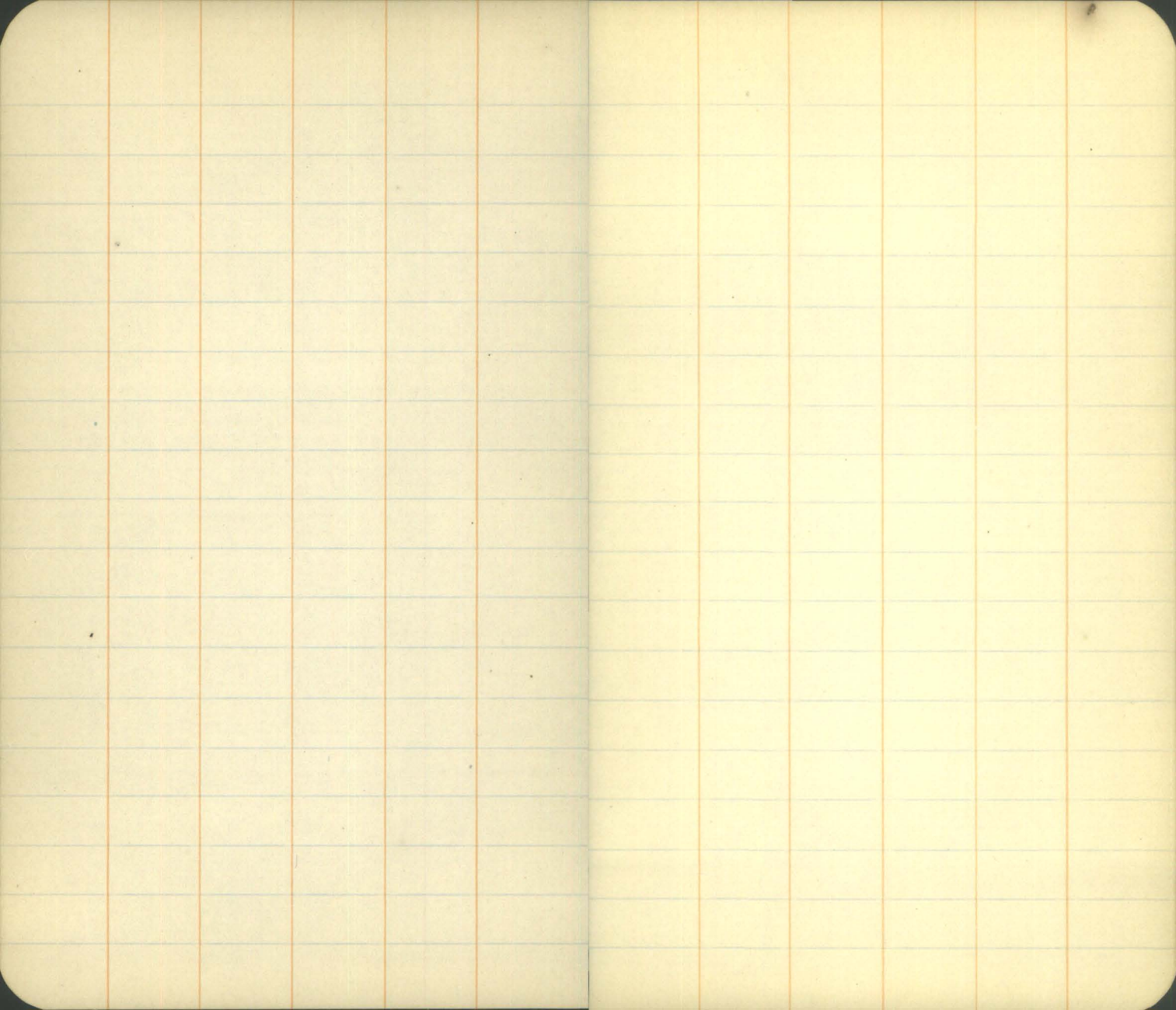


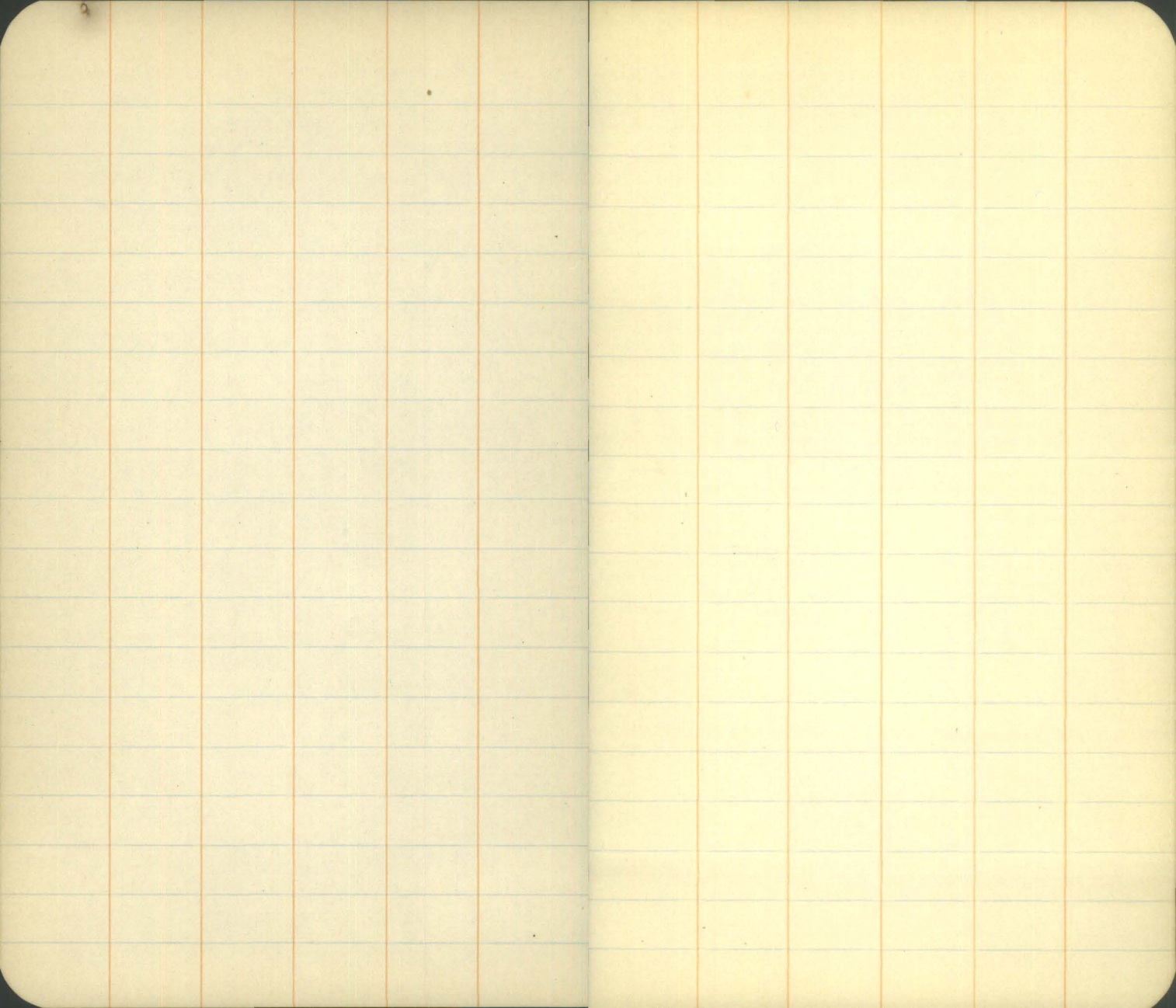


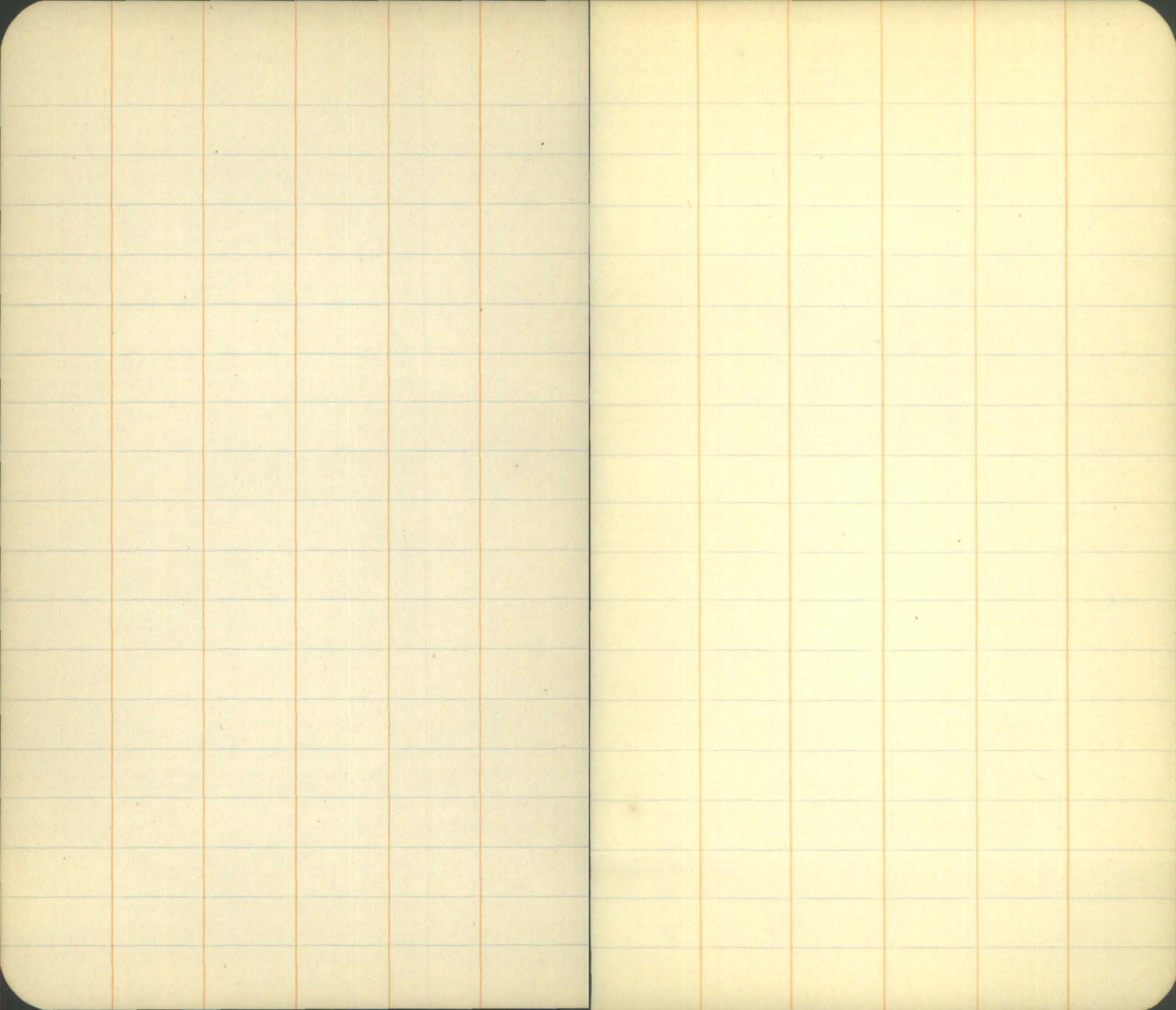


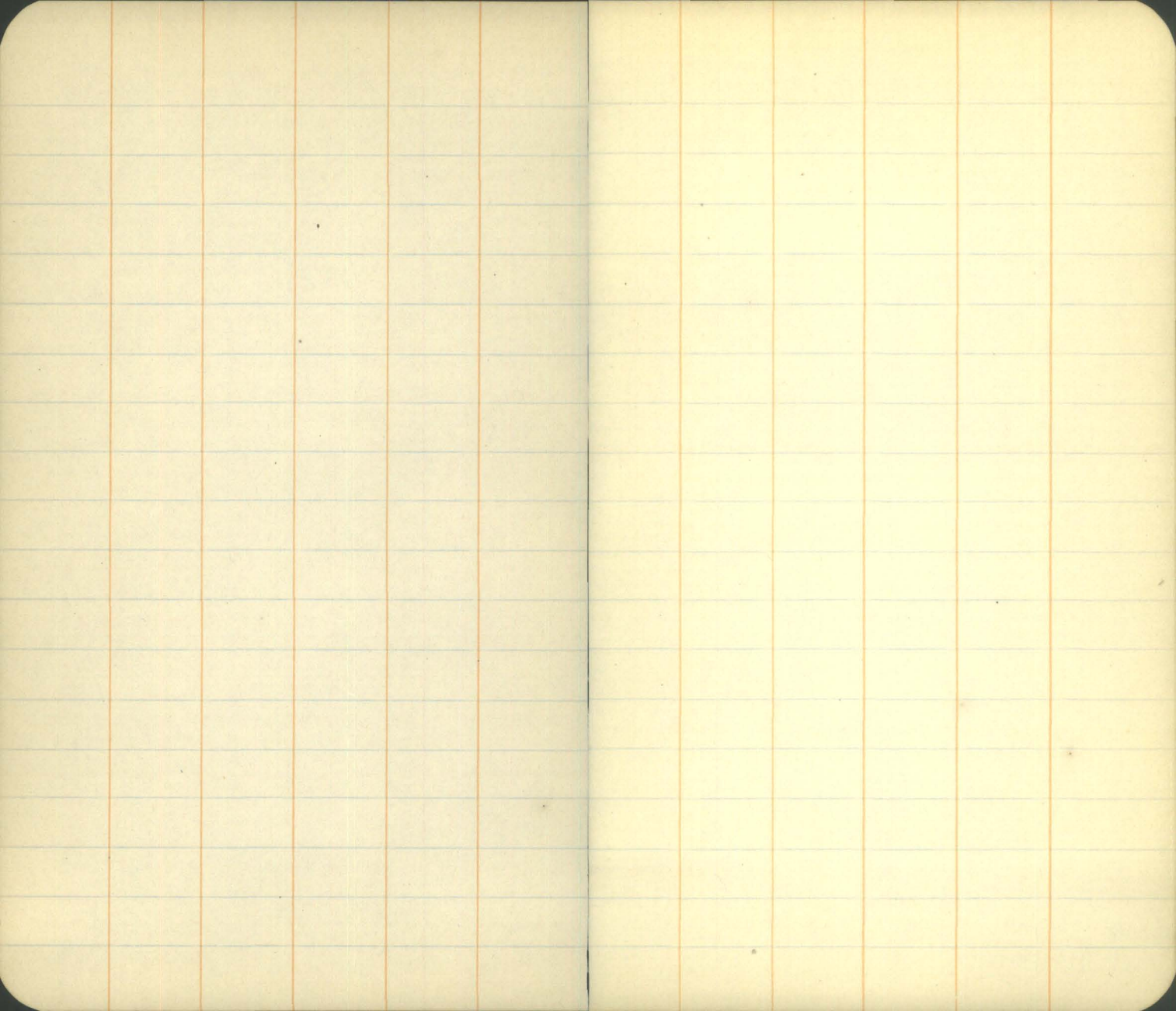


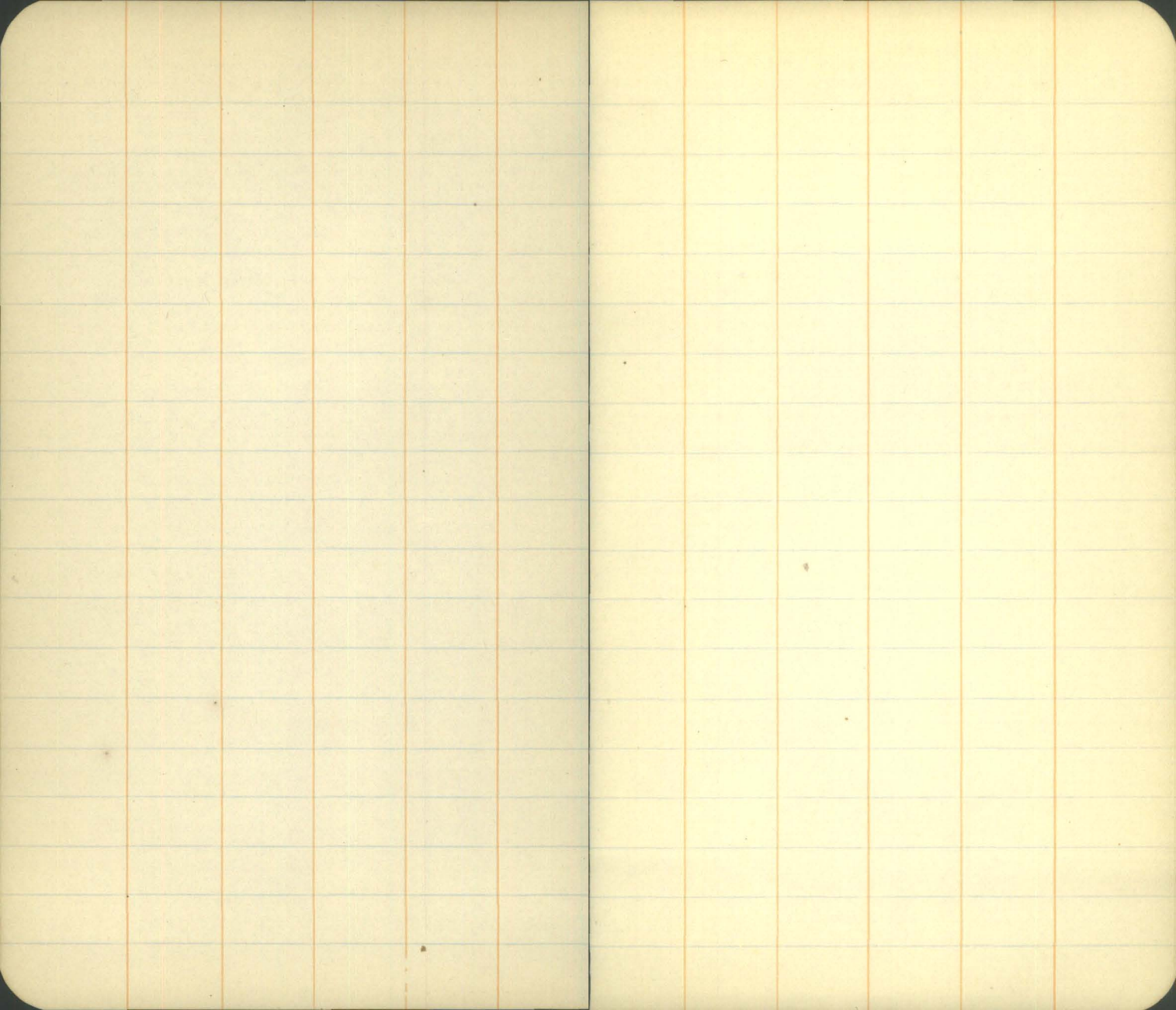


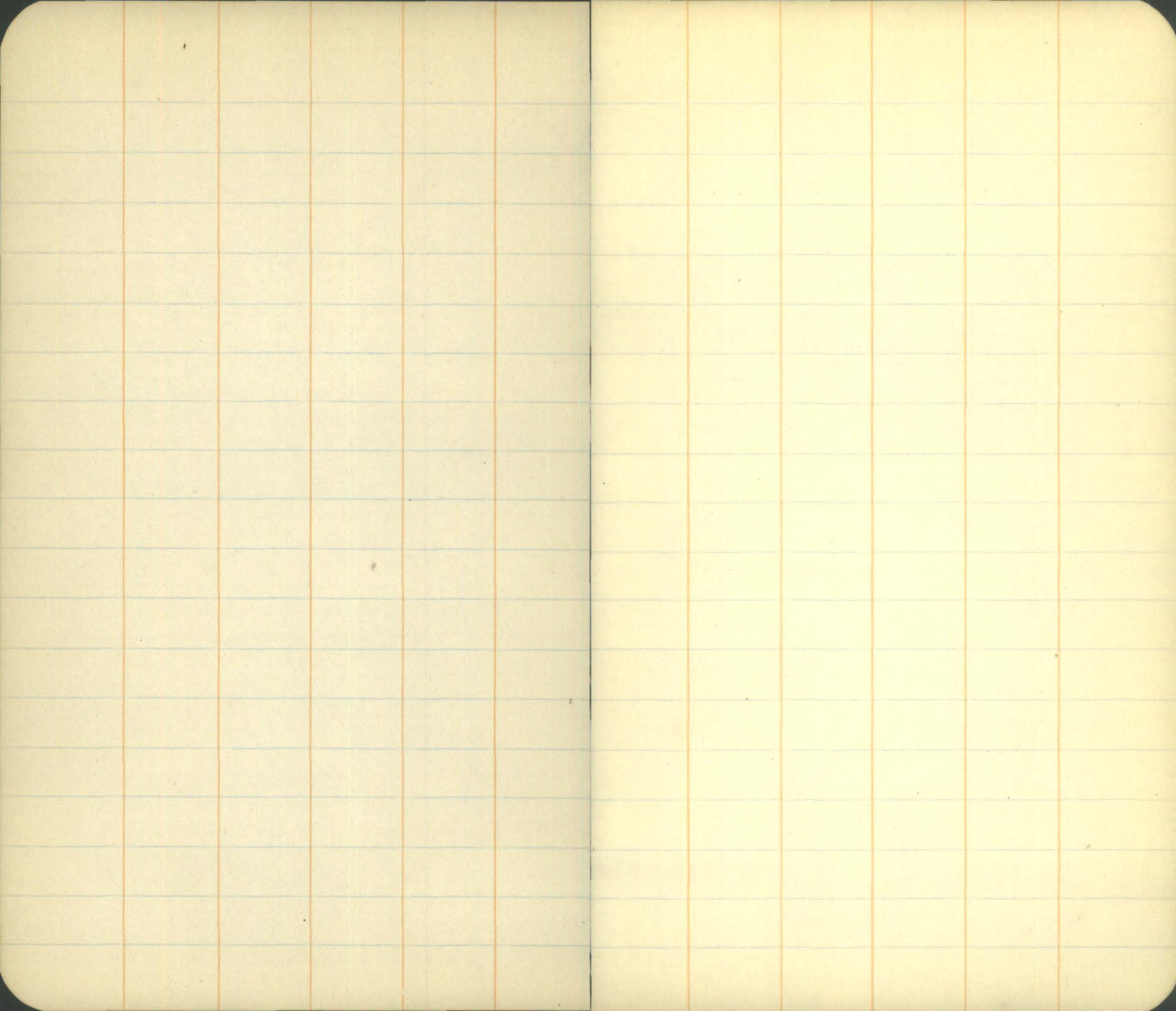


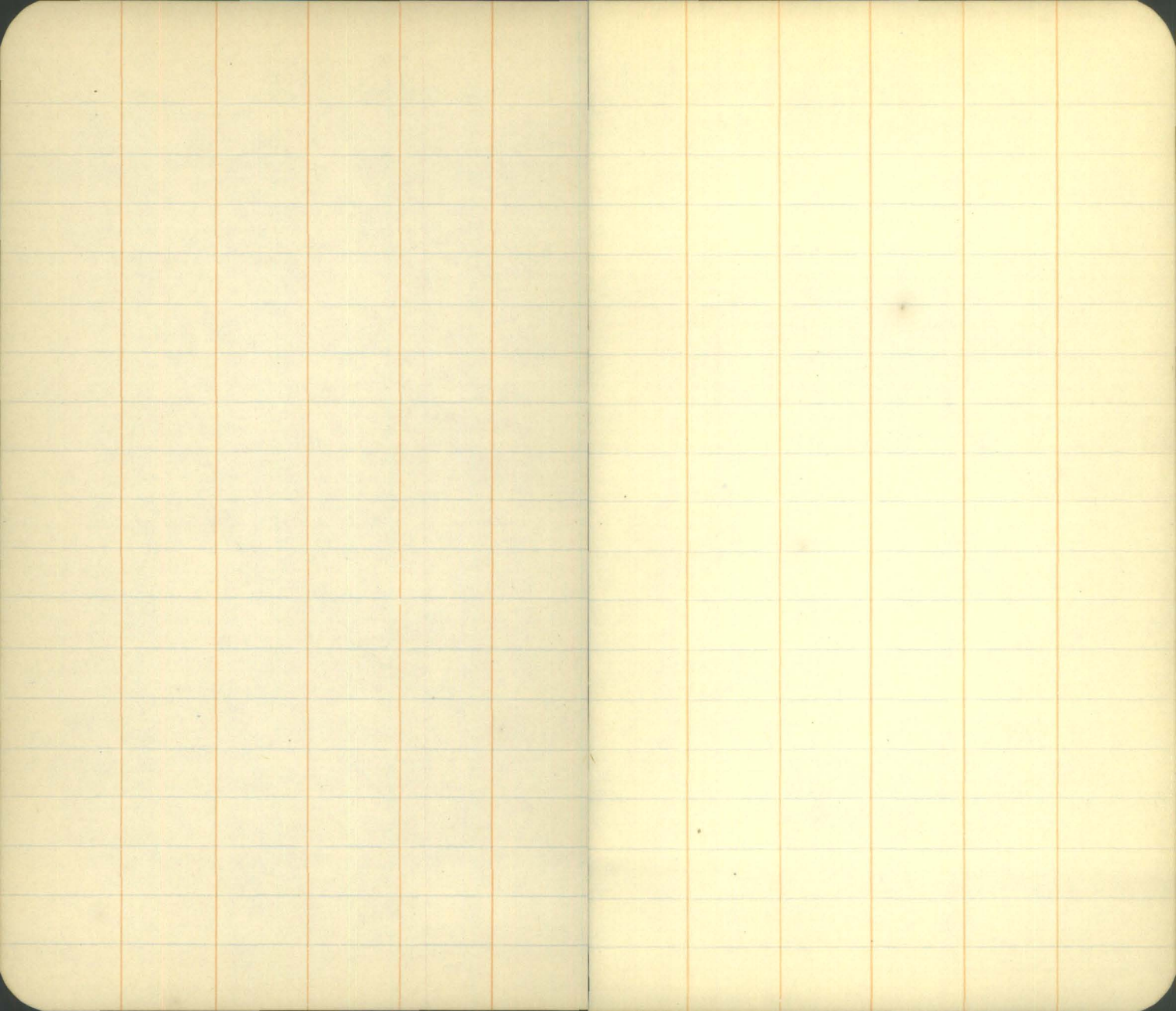


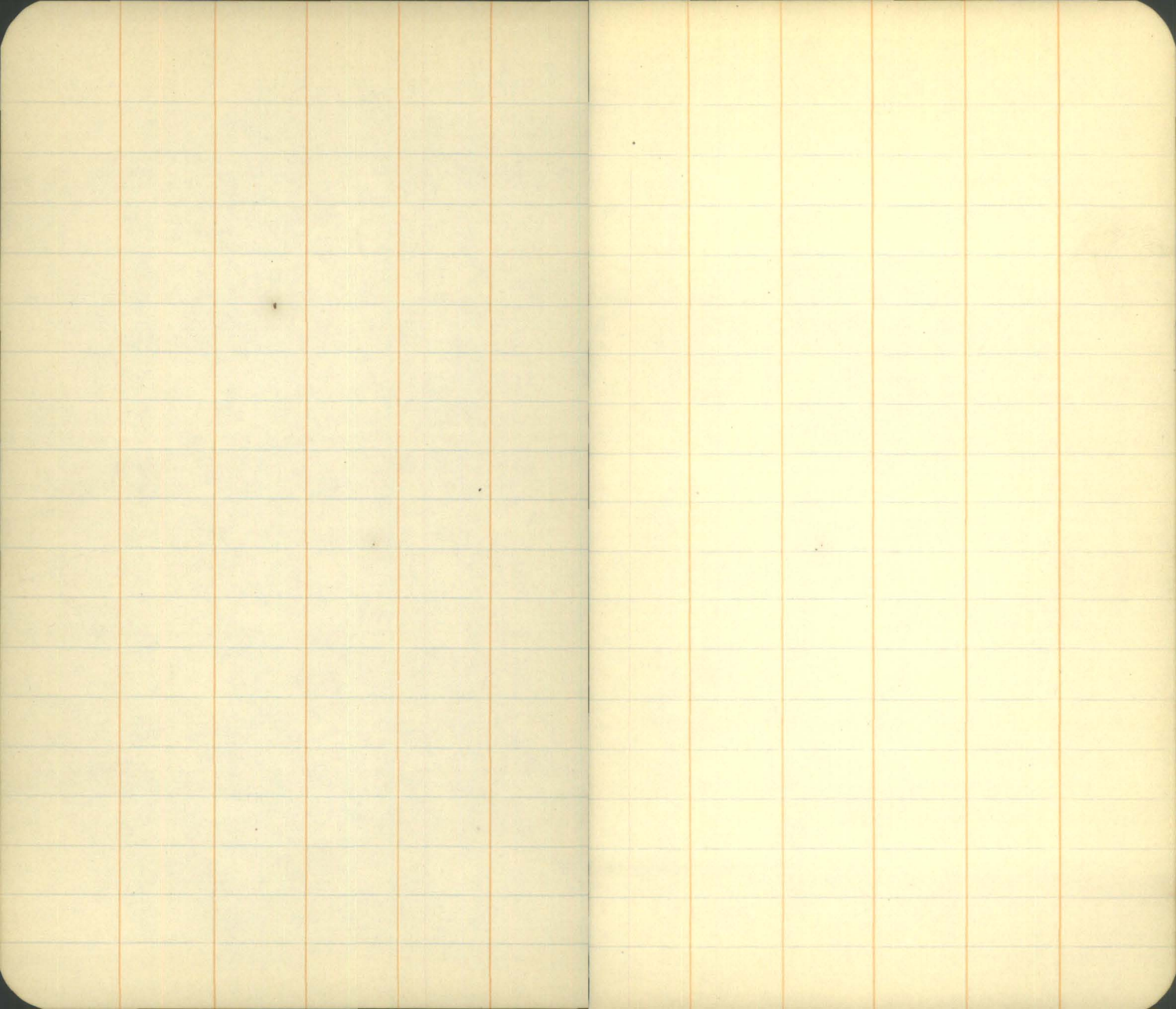


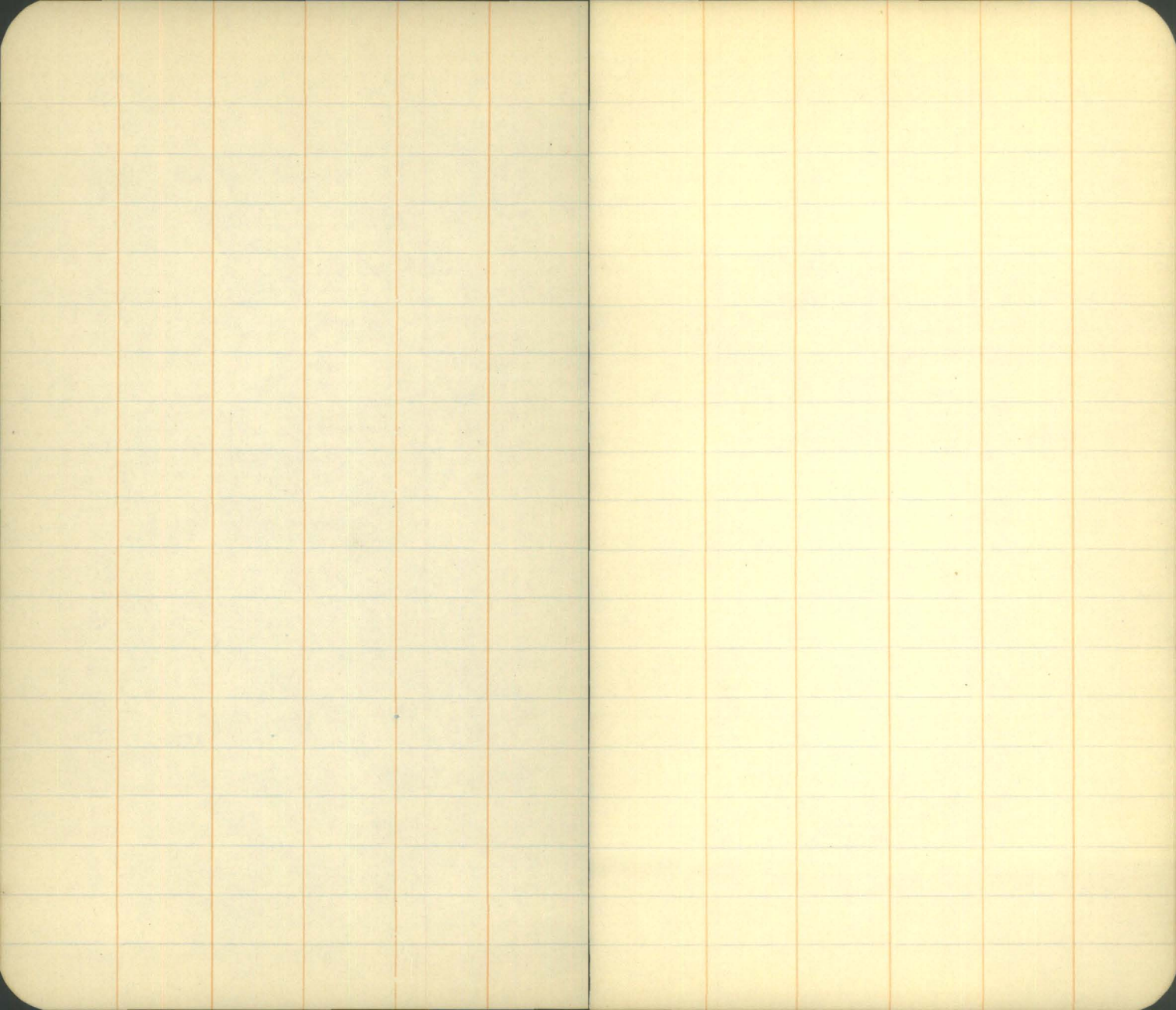


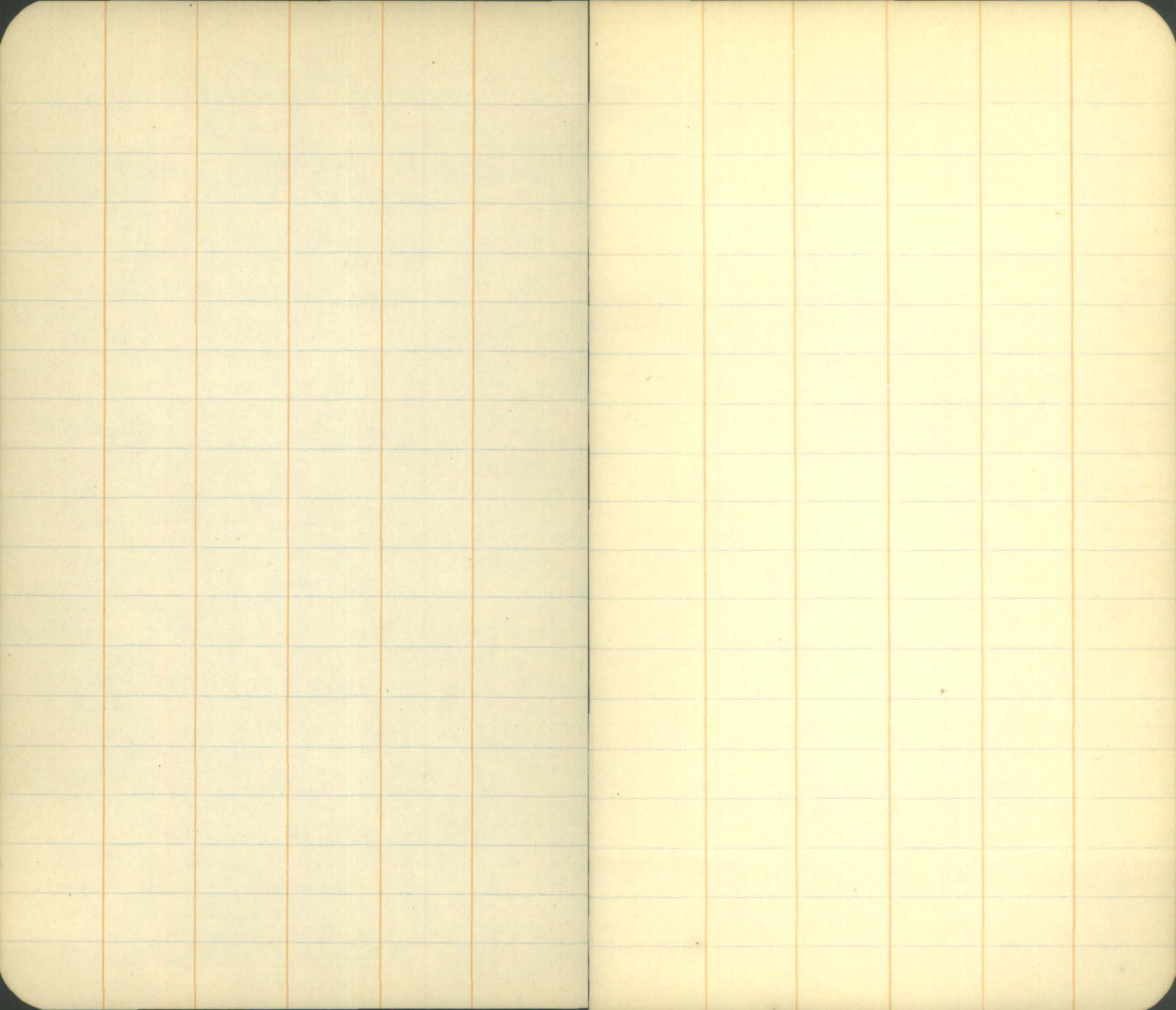


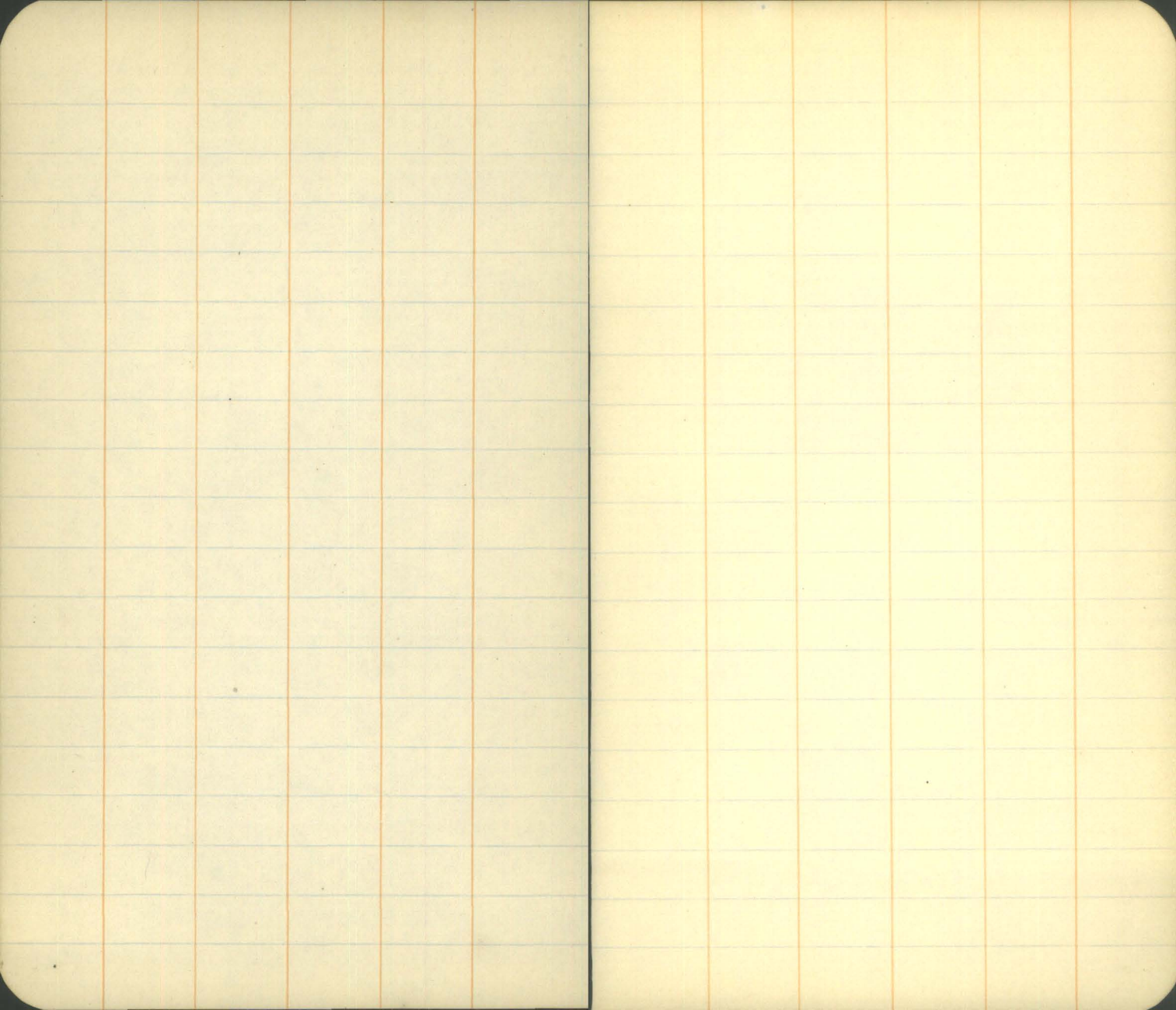


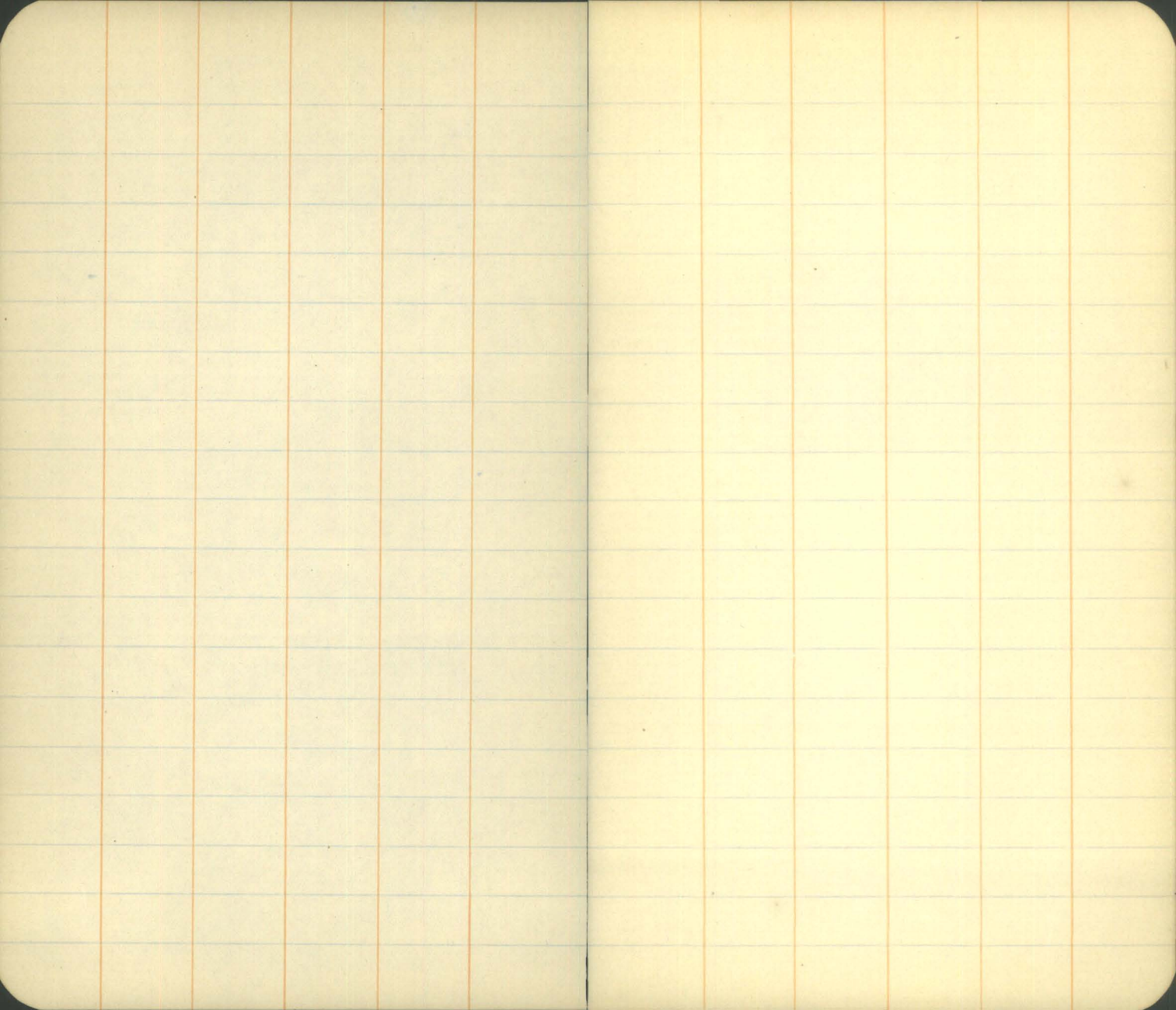


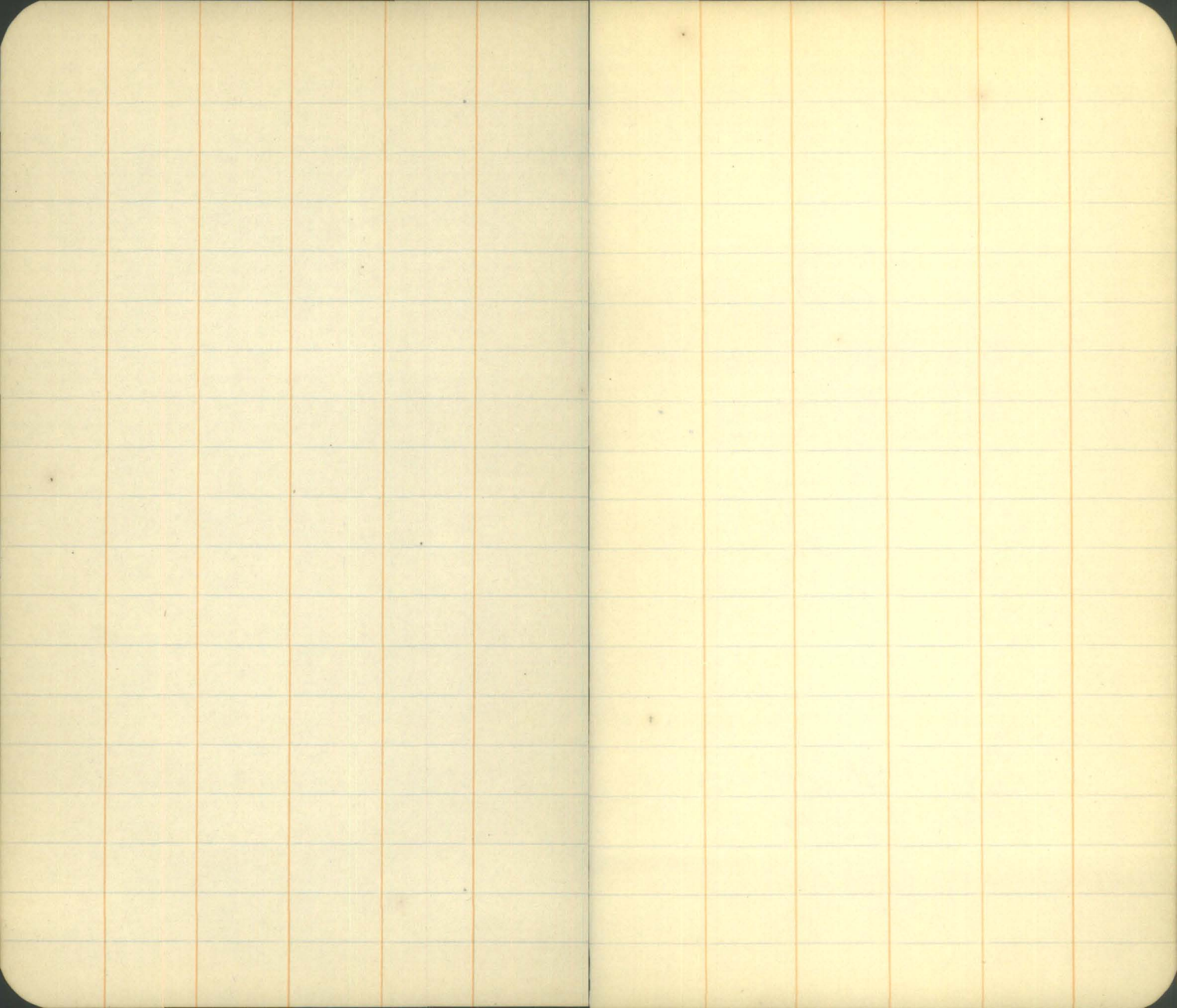


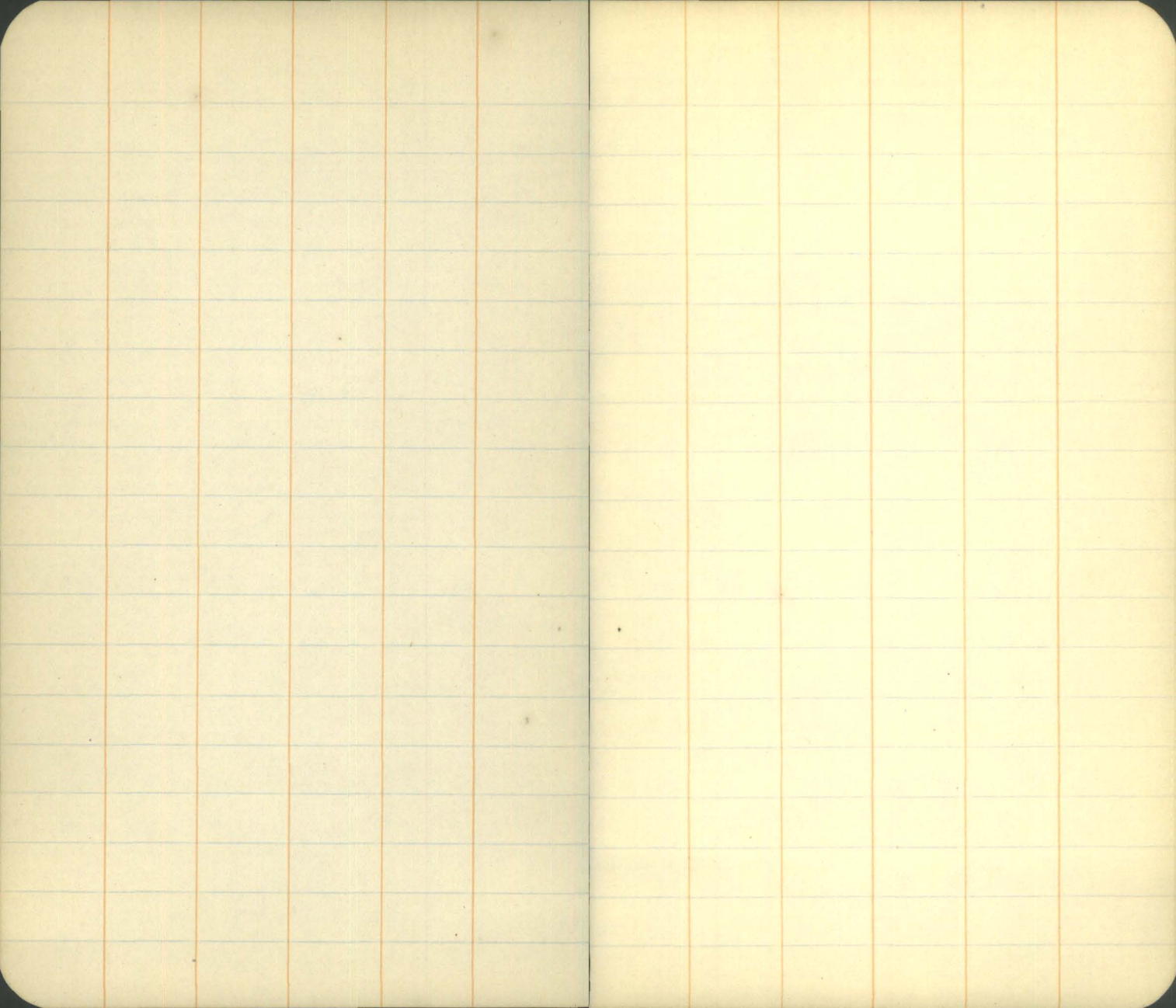


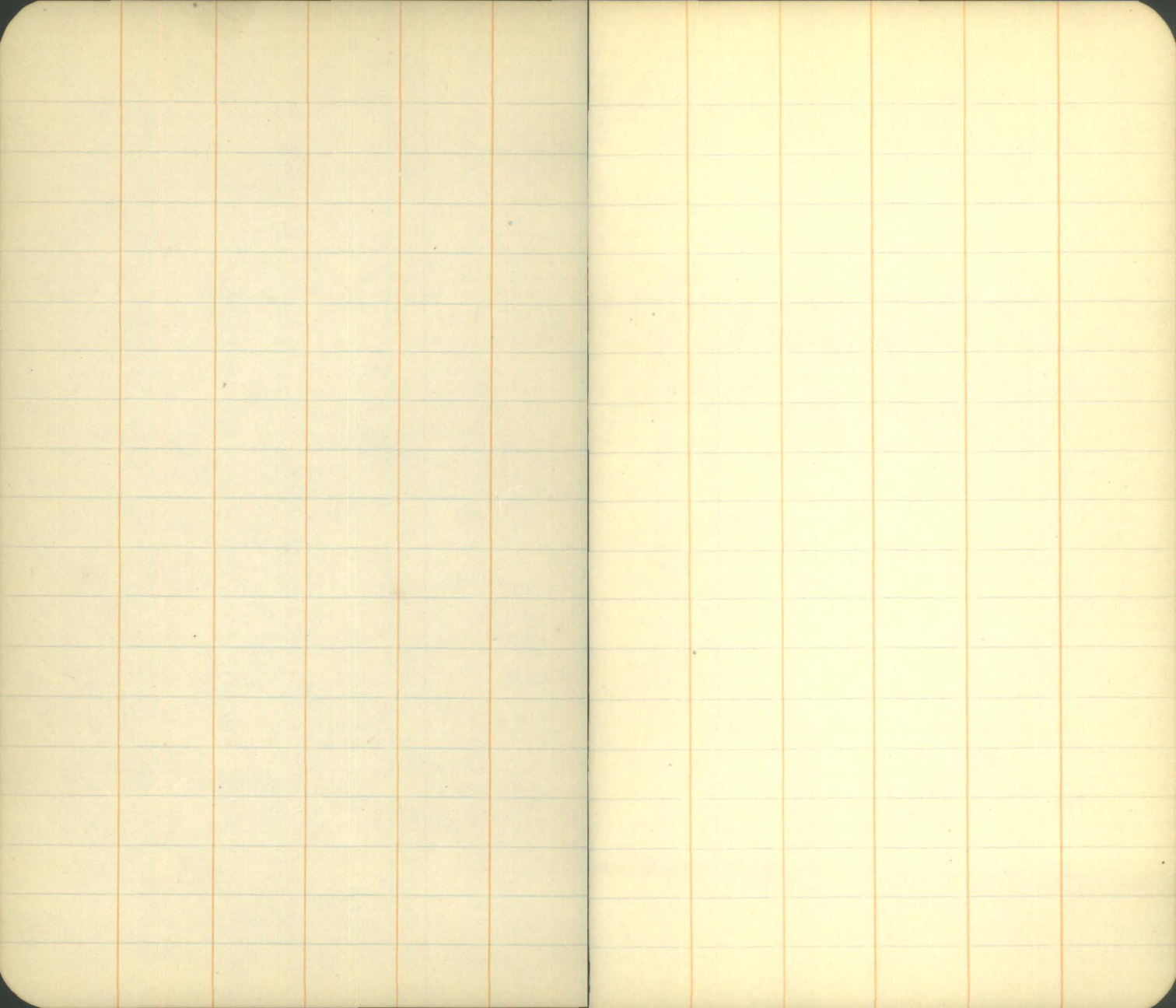


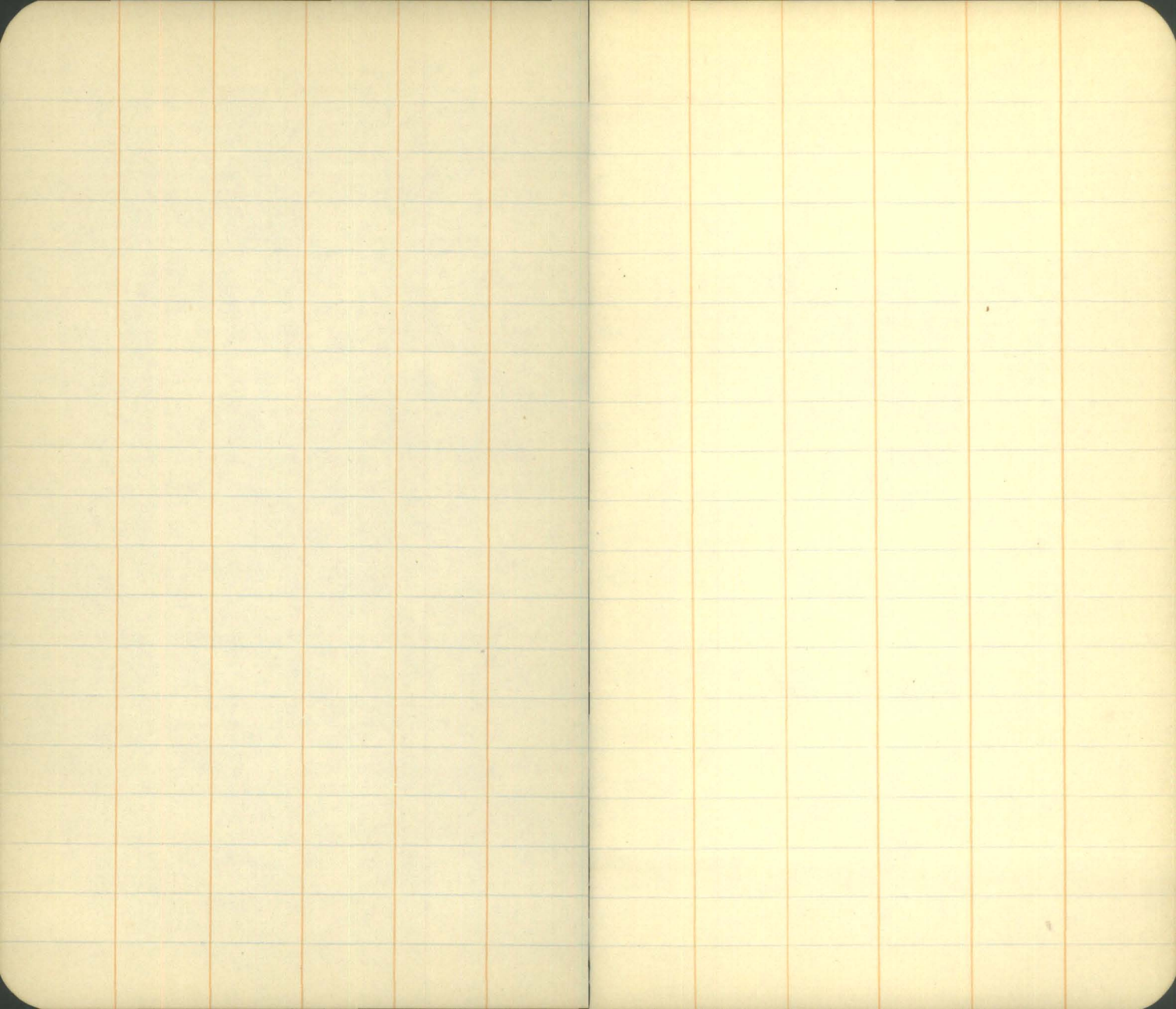


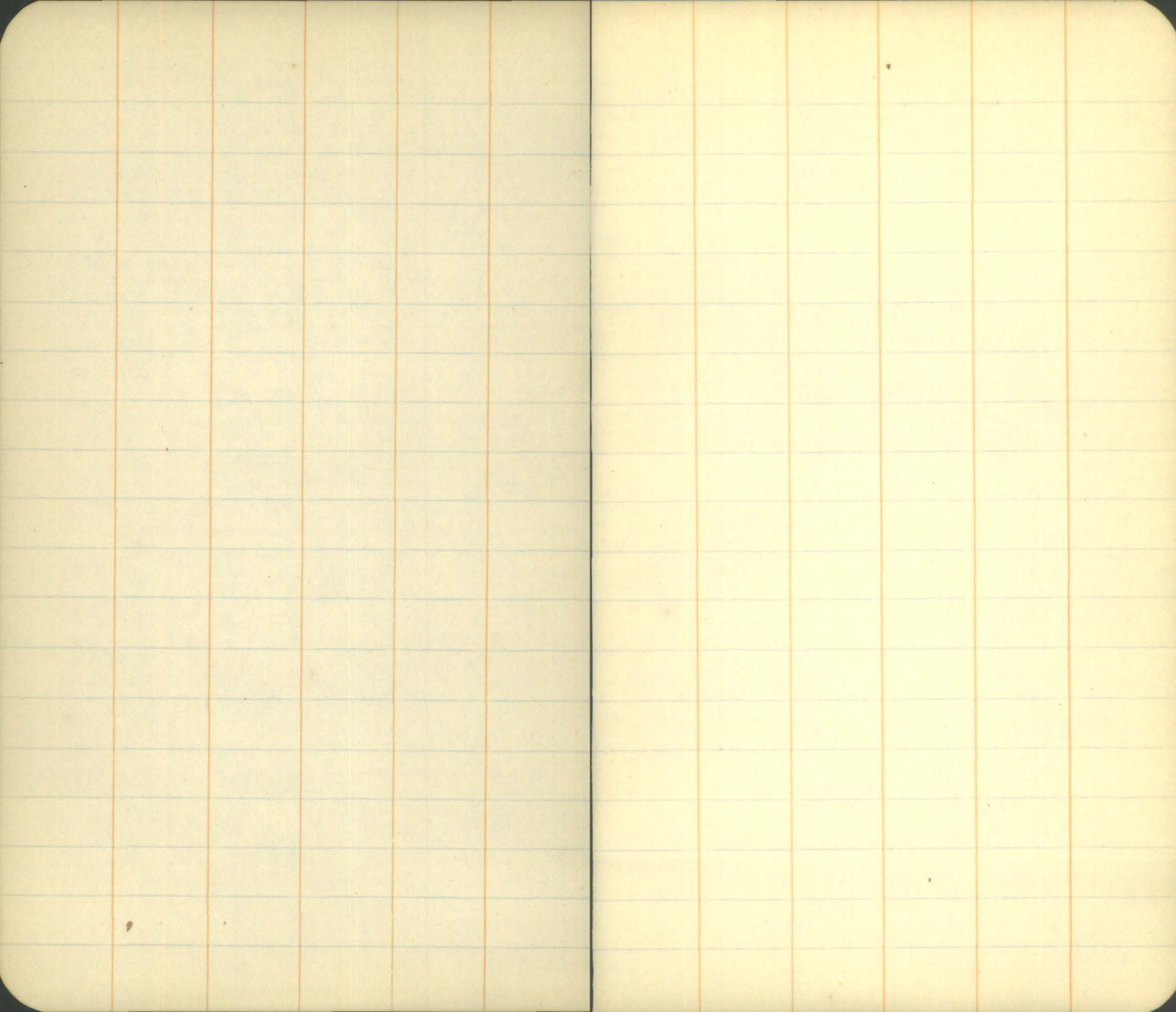


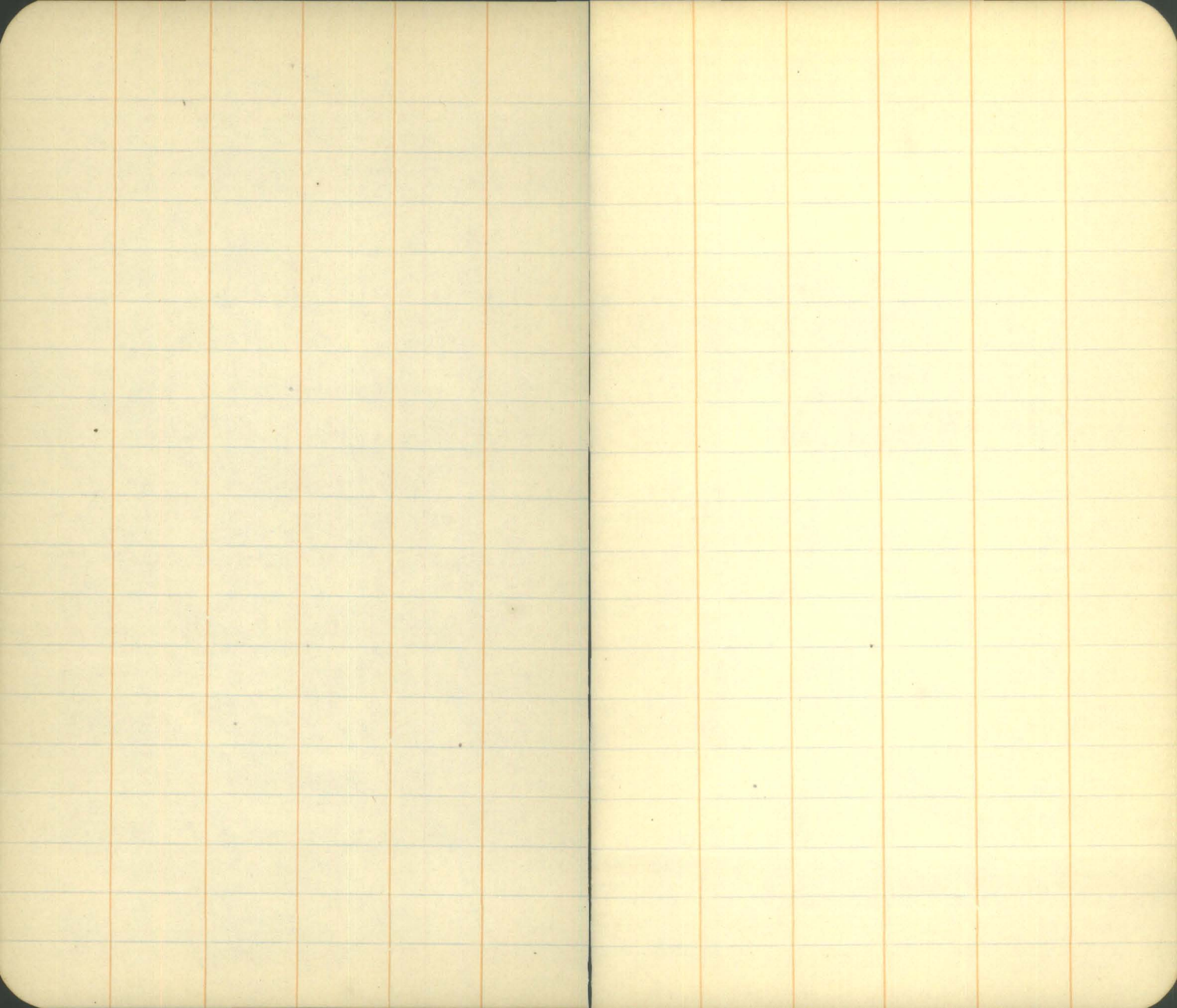


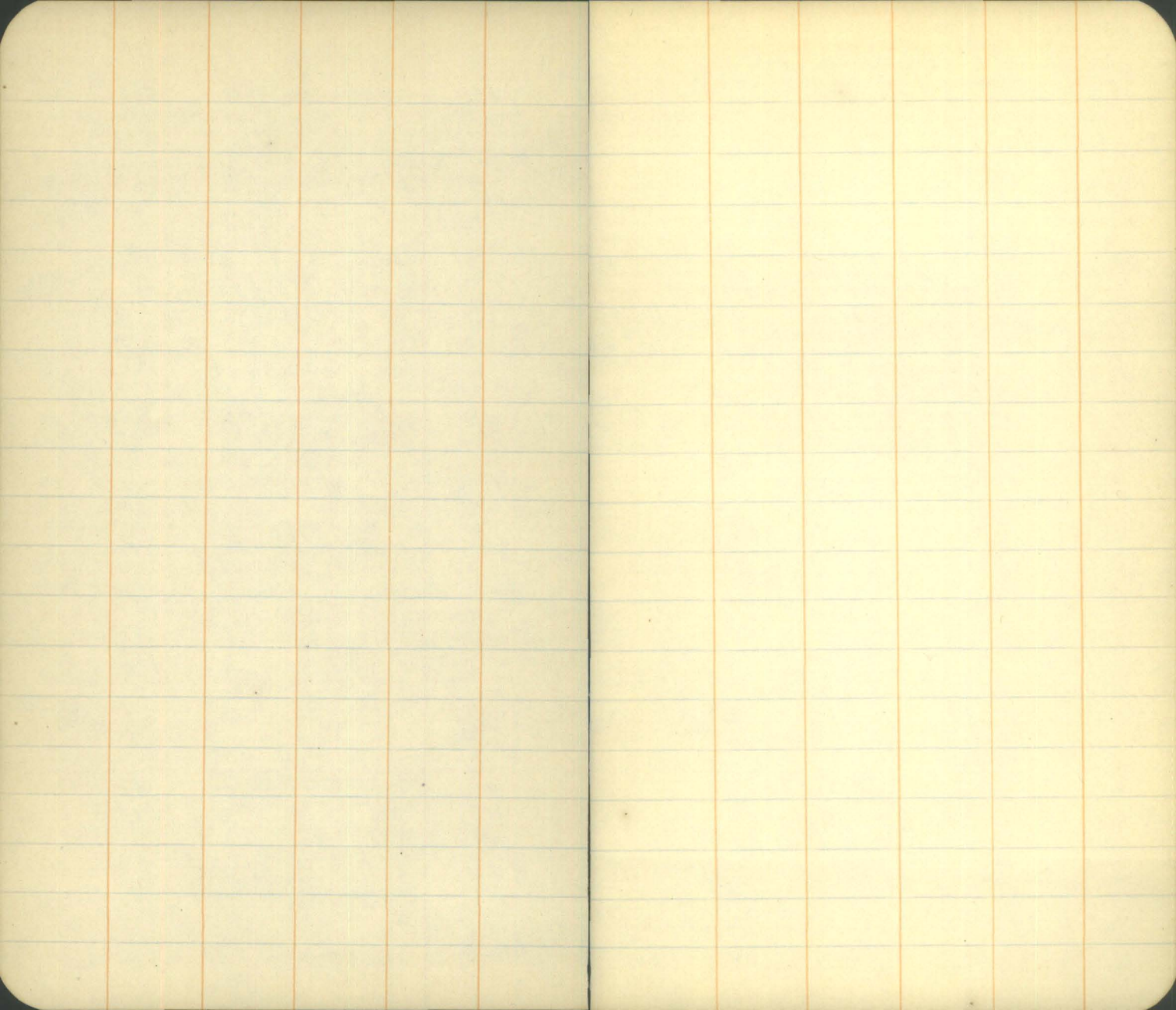


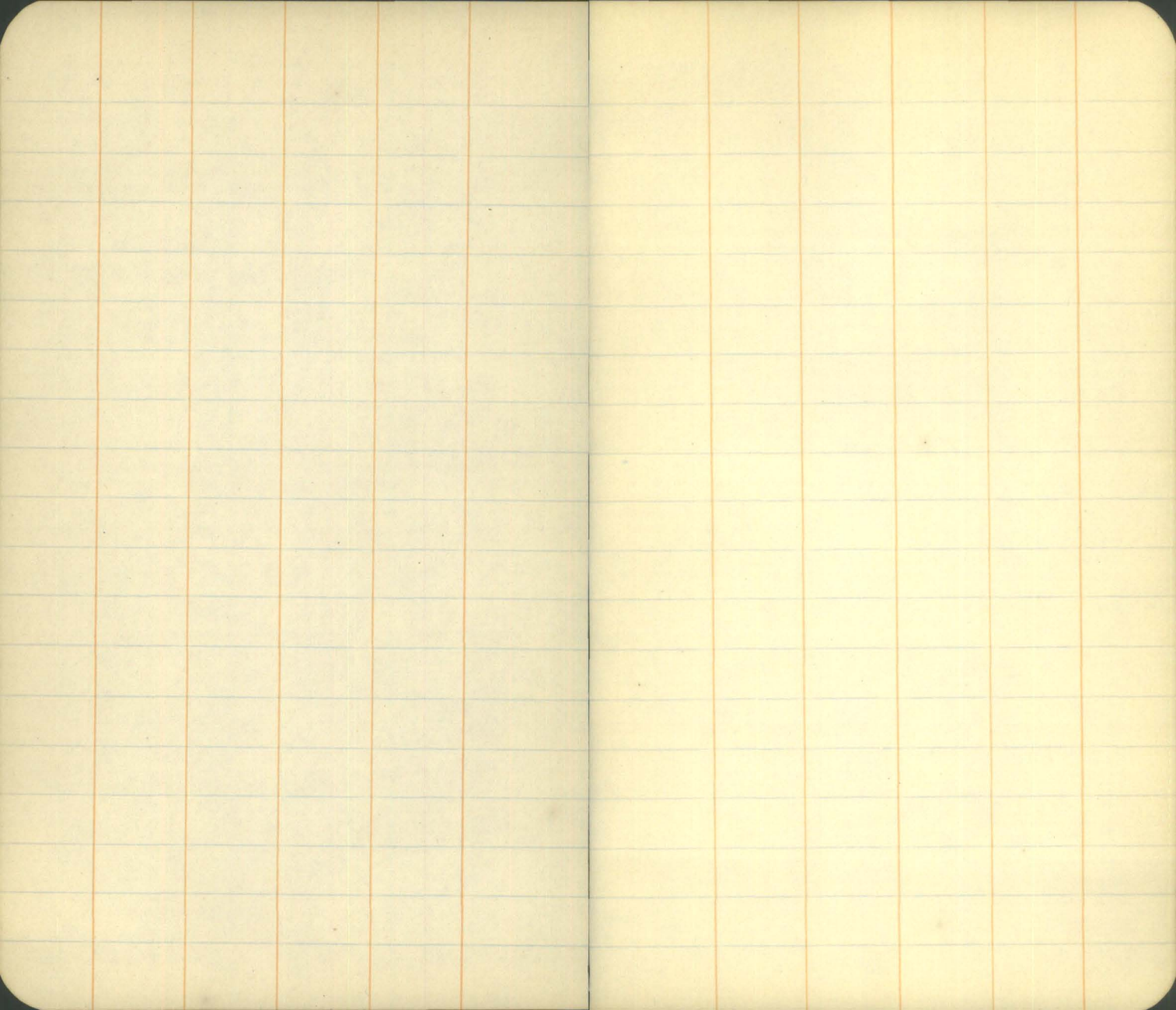


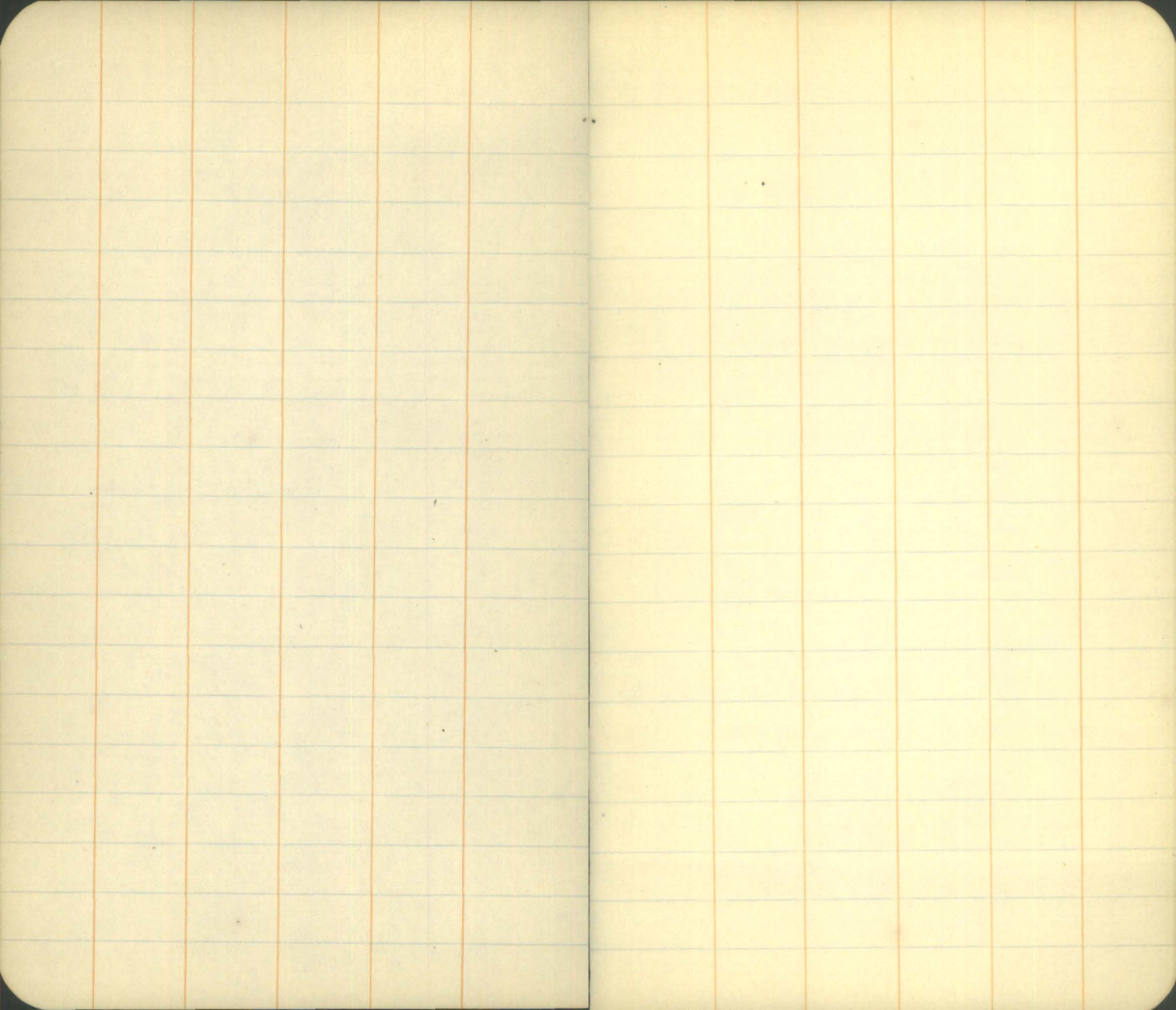


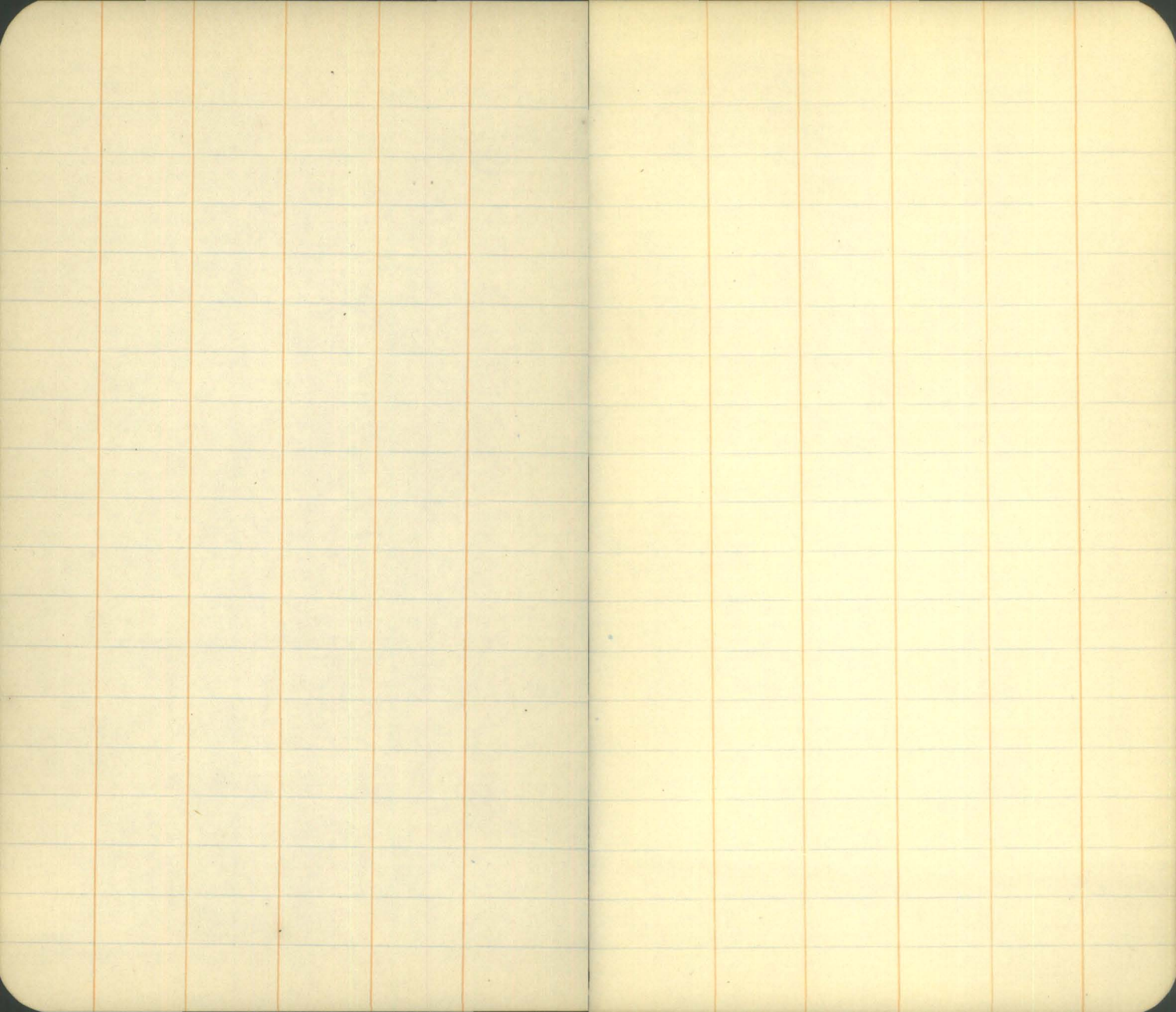


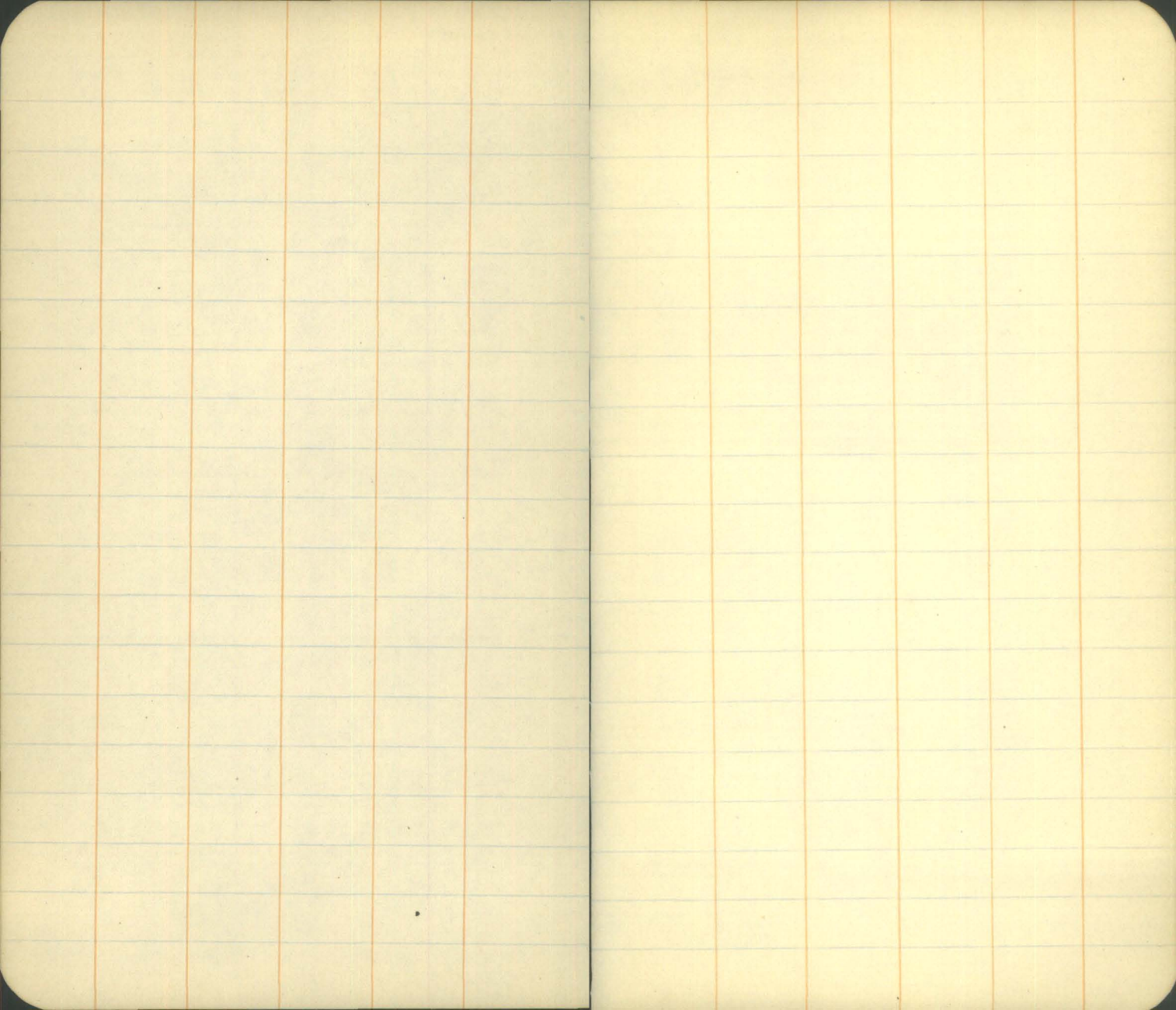


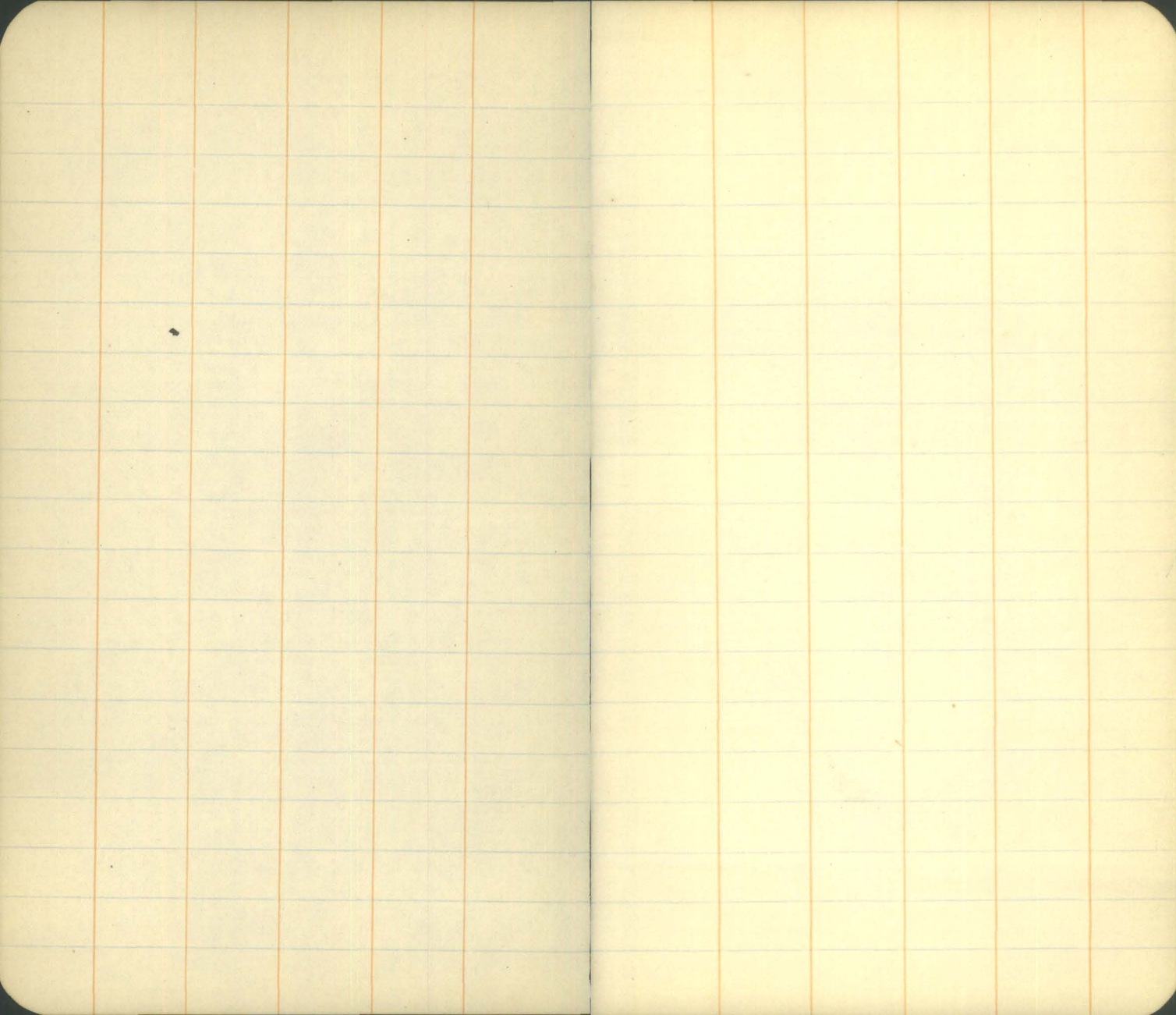


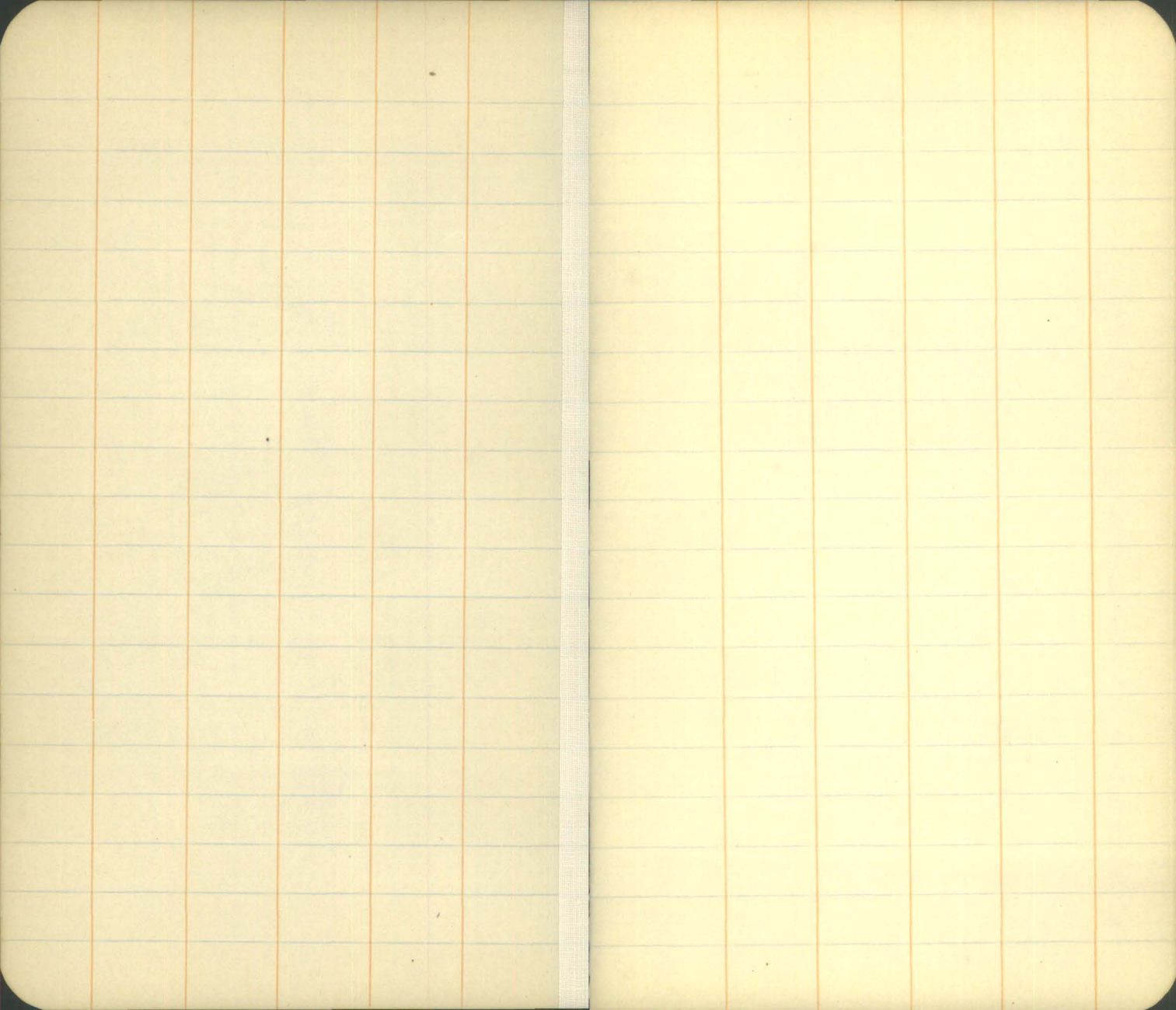


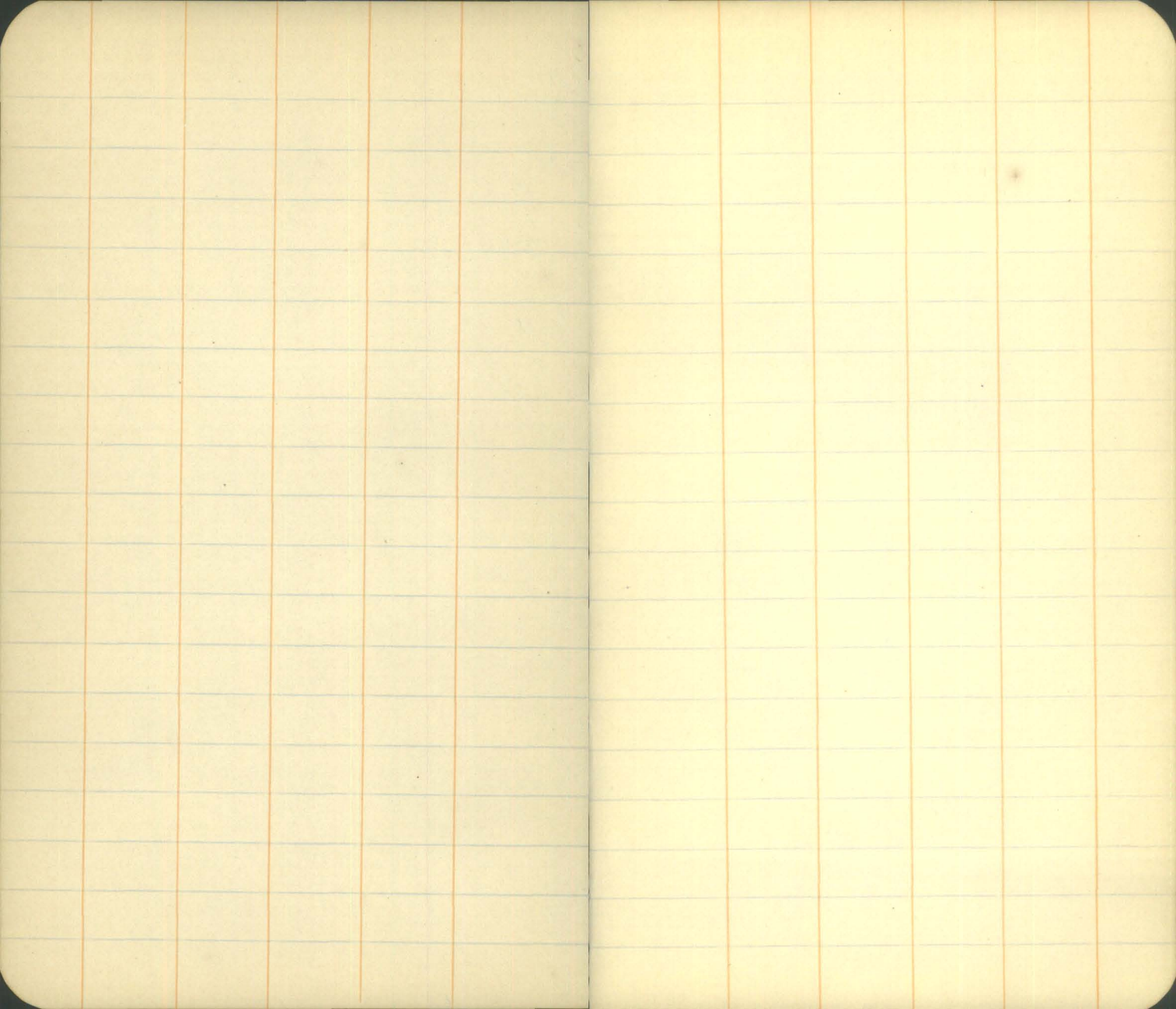


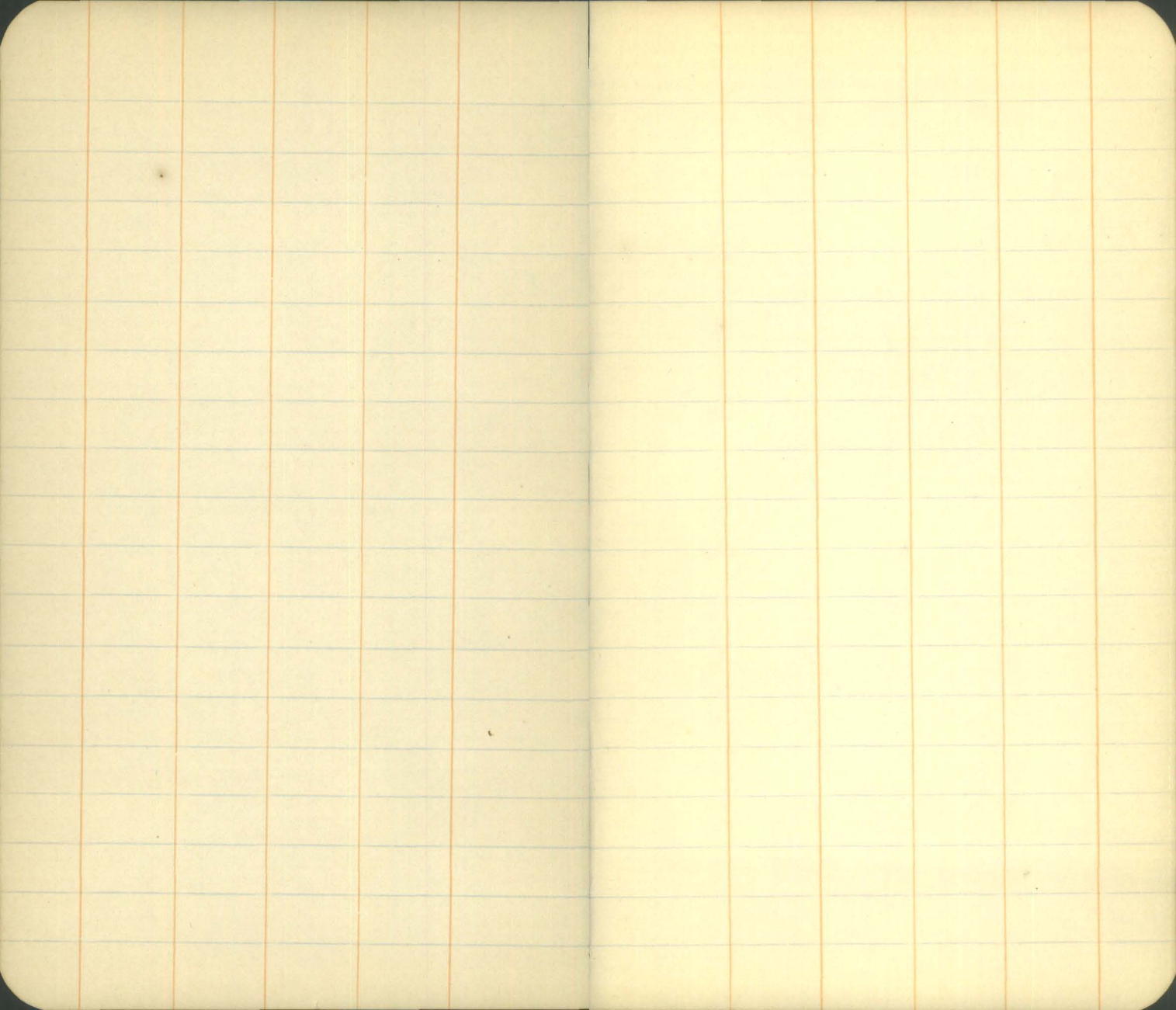


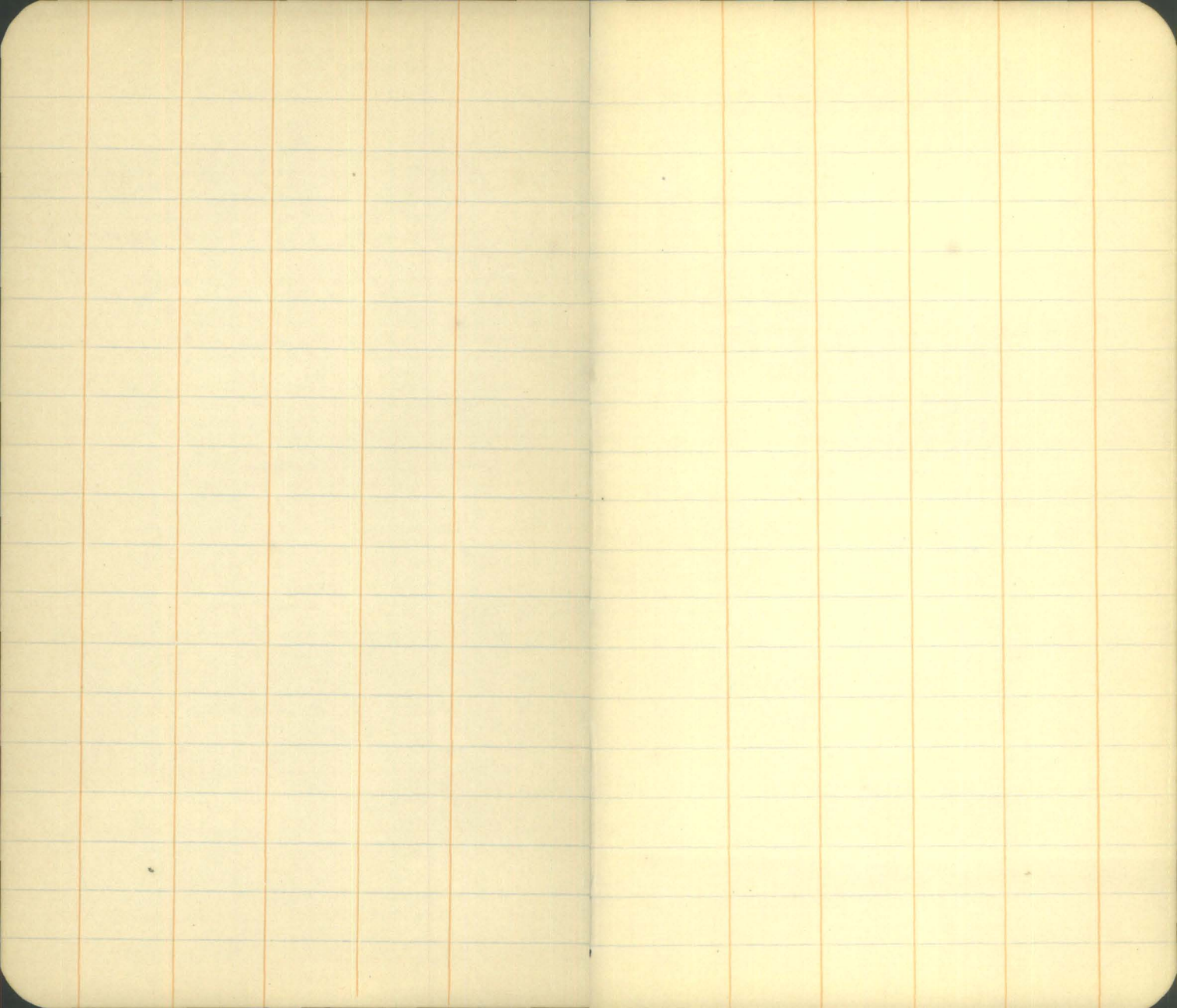


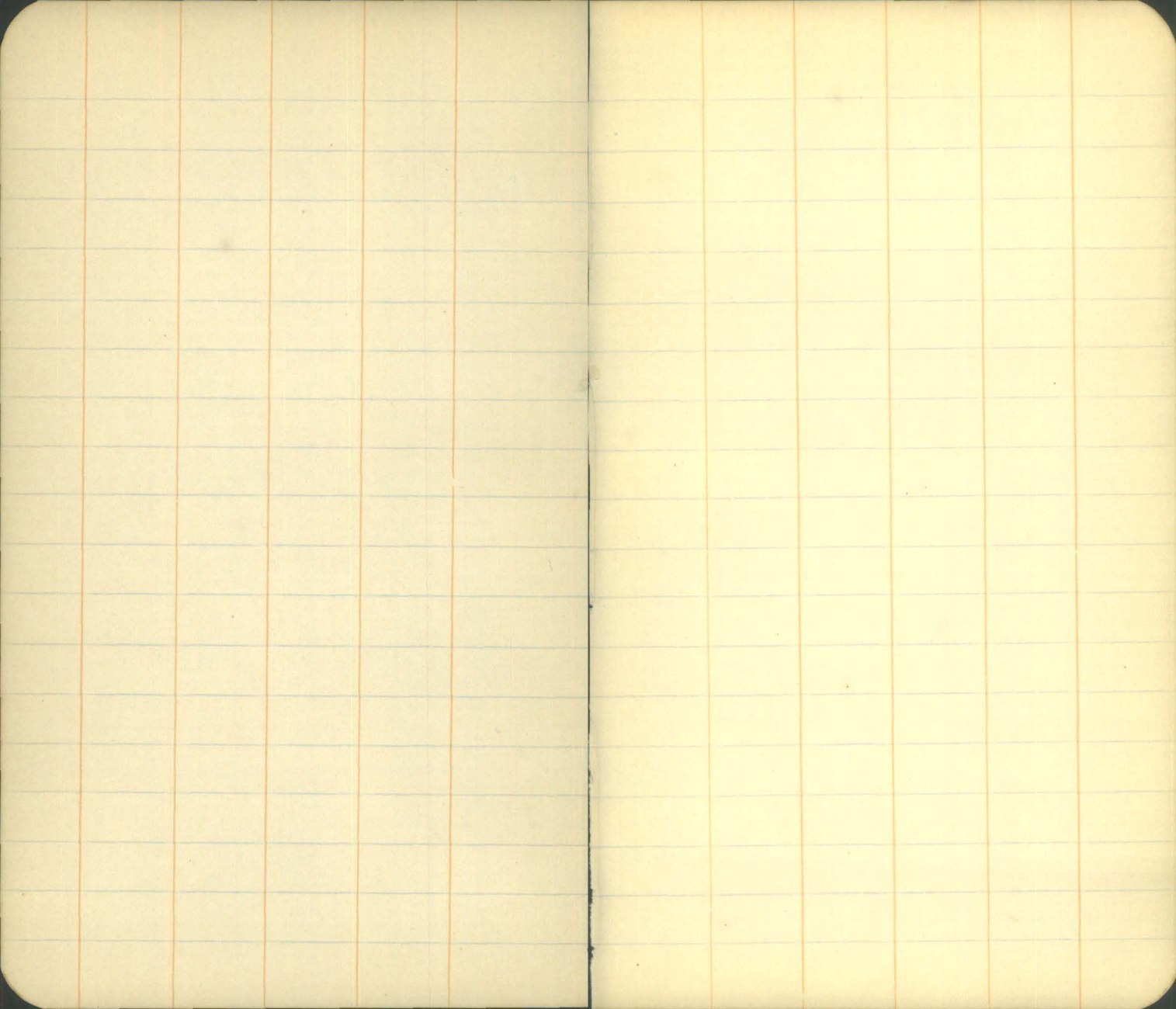


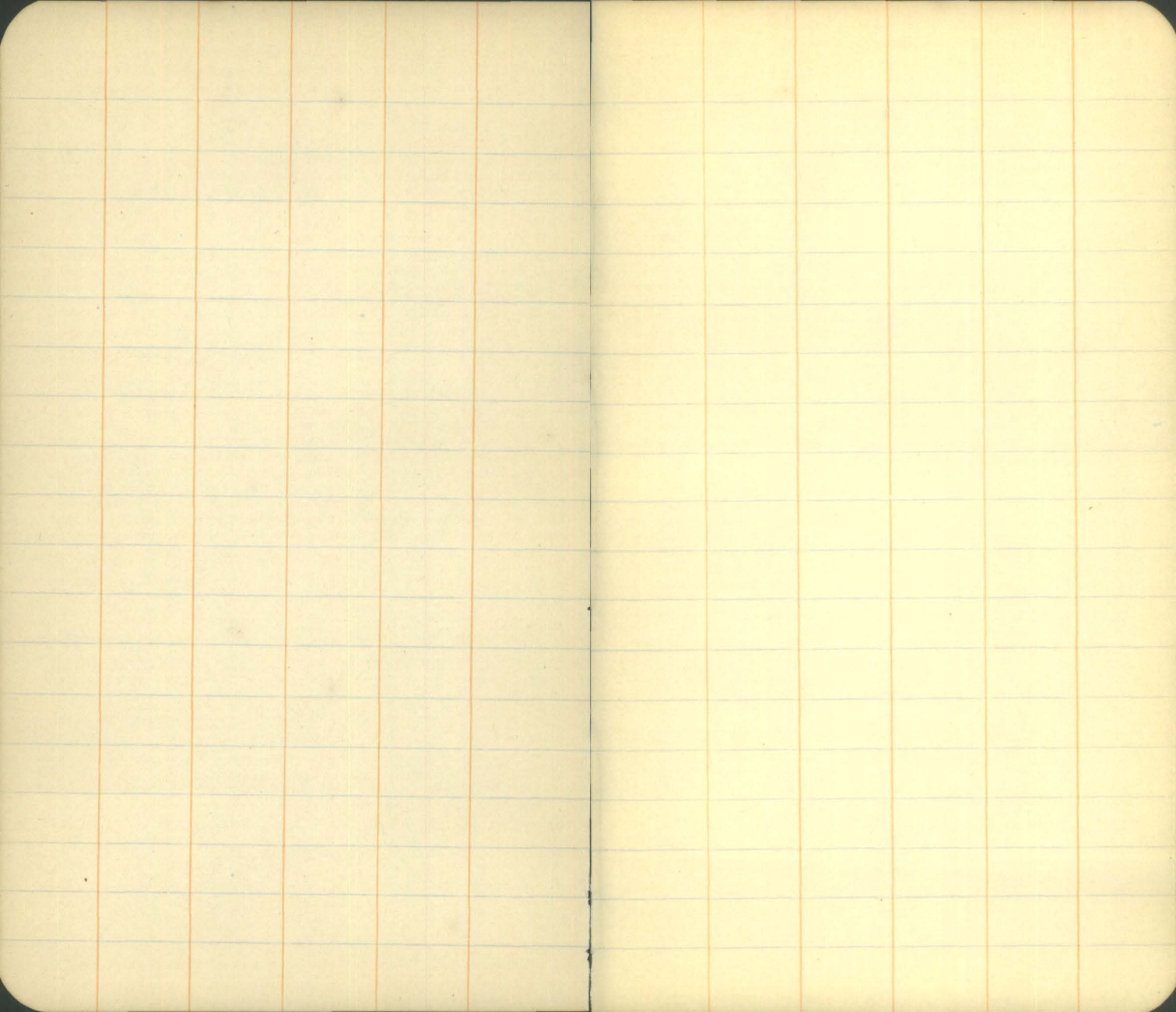


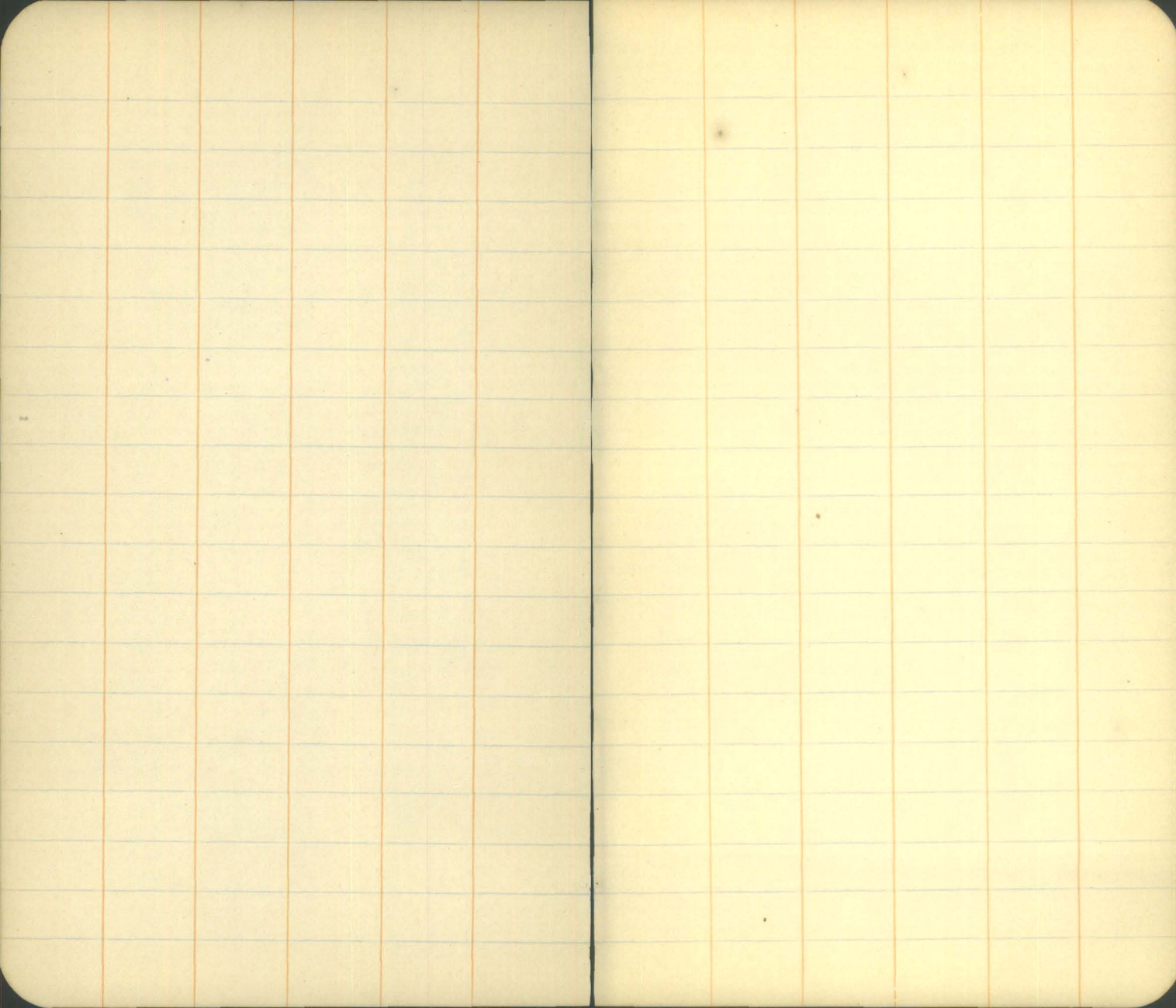


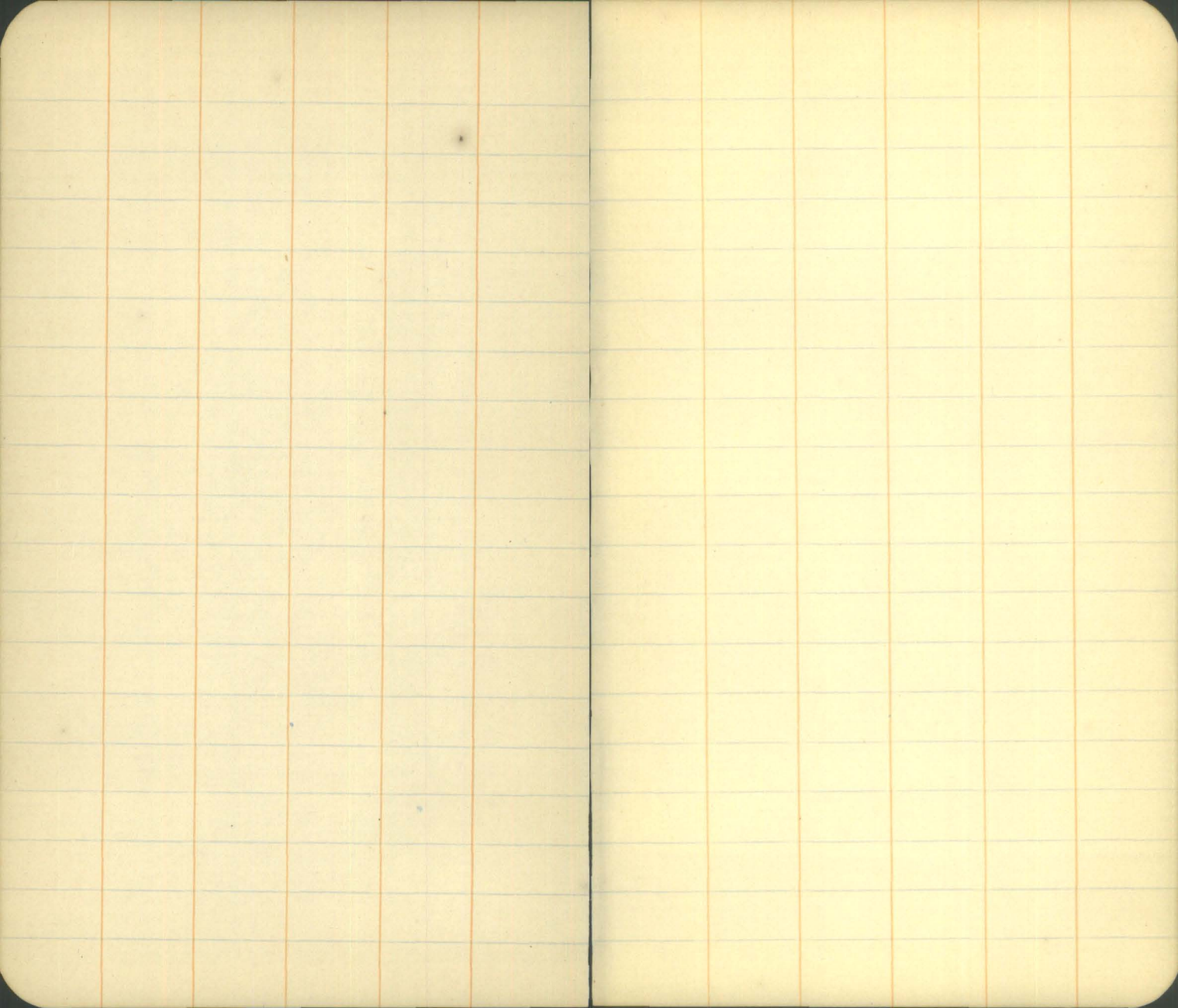












BR.

End

F-R

G-R

H-R

I-R.

J-R.

K-R.

L-R.

M-R

22+20

7+65

21+00

54+47

21+81

7+00

16+00

End-Lines.

BR

End

V-R

2+22

9-R

36+53.

8-L

26+60.

Q-L

9-L

37+00

10-L

11-L

19+20

12-L

8+00

6-R

N-R

O-R

56+32.

P-R

29+00

Q-R

W-R

7-R.

65+63.

R-R

1+60

S-R

7+25

BR	END
T-R	18+00
U-R	10+57.
D-L	1+70
E-L	3+50
F-L	3+81
G-L	22+91
H-L	
I-L	
J-L	15+46
K-L	3+20
L-L	6+90
M-L	13+92.
N-L	1+92.
O-L	13+00
P-L	
5-R	115+06.
D-R	14+00
E-R	

TABLE IX.—CALCULATION OF EARTHWORK.

Width	HEIGHT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.02	.04	.06	.07	.09	.11	.13	.15	.17	.18	.20	.22	.24	.26	.28
2	.04	.07	.11	.15	.18	.22	.26	.30	.33	.37	.41	.44	.48	.52	.56
3	.06	.11	.17	.22	.28	.33	.39	.44	.50	.56	.61	.67	.72	.78	.83
4	.07	.15	.22	.30	.37	.44	.52	.59	.67	.74	.81	.89	.96	1.04	1.11
5	.09	.19	.28	.37	.46	.56	.65	.74	.83	.93	1.02	1.11	1.20	1.30	1.39
6	.11	.22	.33	.44	.56	.67	.78	.89	1.00	1.11	1.22	1.33	1.44	1.55	1.67
7	.13	.26	.39	.52	.65	.78	.91	1.04	1.16	1.30	1.42	1.55	1.68	1.81	1.94
8	.15	.30	.44	.59	.74	.89	1.04	1.19	1.33	1.48	1.63	1.78	1.92	2.08	2.22
9	.17	.33	.50	.67	.83	1.00	1.17	1.33	1.50	1.67	1.83	2.00	2.17	2.33	2.50
10	.18	.37	.56	.74	.93	1.11	1.39	1.48	1.67	1.85	2.04	2.22	2.41	2.59	2.78
11	.20	.41	.61	.82	1.02	1.22	1.43	1.63	1.83	2.04	2.24	2.44	2.65	2.85	3.06
12	.22	.44	.67	.89	1.11	1.33	1.56	1.78	2.00	2.22	2.44	2.67	2.89	3.11	3.33
13	.24	.48	.72	.96	1.20	1.44	1.68	1.92	2.16	2.41	2.65	2.89	3.13	3.37	3.61
14	.26	.52	.78	1.04	1.30	1.55	1.81	2.08	2.33	2.59	2.85	3.11	3.37	3.63	3.89
15	.28	.56	.83	1.11	1.39	1.67	1.94	2.22	2.50	2.78	3.06	3.33	3.61	3.89	4.17
16	.30	.59	.89	1.18	1.48	1.78	2.07	2.37	2.67	2.96	3.26	3.56	3.85	4.15	4.44
17	.31	.63	.94	1.26	1.57	1.89	2.20	2.52	2.83	3.15	3.46	3.78	4.09	4.41	4.72
18	.33	.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33	3.67	4.00	4.33	4.67	5.00
19	.35	.70	1.06	1.41	1.76	2.12	2.46	2.82	3.17	3.52	3.87	4.22	4.57	4.92	5.28
20	.37	.74	1.11	1.48	1.85	2.22	2.59	2.96	3.33	3.70	4.07	4.44	4.81	5.18	5.56
21	.39	.78	1.17	1.55	1.94	2.33	2.72	3.11	3.50	3.89	4.28	4.67	5.06	5.44	5.83
22	.41	.81	1.22	1.63	2.04	2.44	2.83	3.23	3.63	4.07	4.48	4.89	5.30	5.70	6.11
23	.43	.85	1.28	1.70	2.13	2.56	2.98	3.41	3.83	4.26	4.68	5.11	5.54	5.96	6.39
24	.44	.89	1.33	1.78	2.22	2.67	3.13	3.56	4.00	4.44	4.89	5.33	5.78	6.22	6.67
25	.46	.92	1.39	1.85	2.31	2.78	3.24	3.70	4.17	4.63	5.09	5.56	6.02	6.48	6.94
26	.48	.96	1.44	1.92	2.41	2.89	3.37	3.85	4.33	4.82	5.30	5.78	6.26	6.74	7.24
27	.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
28	.52	1.04	1.55	2.07	2.59	3.11	3.63	4.15	4.67	5.18	5.70	6.22	6.74	7.26	7.78
29	.54	1.07	1.61	2.15	2.68	3.22	3.76	4.30	4.83	5.37	5.91	6.44	6.98	7.52	8.06
30	.56	1.11	1.67	2.22	2.78	3.33	3.89	4.44	5.00	5.56	6.11	6.67	7.22	7.78	8.33
31	.57	1.15	1.72	2.30	2.87	3.44	4.02	4.59	5.17	5.74	6.32	6.89	7.46	8.04	8.61
32	.59	1.18	1.78	2.37	2.96	3.56	4.15	4.74	5.33	5.92	6.52	7.11	7.70	8.30	8.89
33	.61	1.22	1.83	2.44	3.05	3.67	4.28	4.89	5.50	6.11	6.72	7.33	7.94	8.55	9.17
34	.63	1.26	1.89	2.52	3.15	3.78	4.40	5.04	5.67	6.29	6.93	7.56	8.18	8.81	9.44
35	.65	1.30	1.94	2.59	3.24	3.89	4.53	5.18	5.83	6.48	7.13	7.78	8.42	9.08	9.72
36	.67	1.33	2.00	2.67	3.33	4.00	4.66	5.33	6.00	6.67	7.33	8.00	8.67	9.33	10.00
37	.68	1.37	2.06	2.74	3.42	4.11	4.79	5.48	6.17	6.85	7.54	8.22	8.91	9.59	10.28
38	.70	1.41	2.11	2.82	3.52	4.22	4.92	5.63	6.33	7.03	7.74	8.44	9.15	9.85	10.56
39	.72	1.44	2.17	2.89	3.61	4.33	5.05	5.78	6.50	7.22	7.95	8.67	9.39	10.11	10.83
40	.74	1.48	2.22	2.96	3.70	4.44	5.18	5.92	6.67	7.41	8.15	8.89	9.63	10.37	11.11

Table gives cu. yds. in 1 ft. of a triangle of given width and height. Corrections for tenths of width are one tenth the values found under each height considering the widths from 1 to 9 as tenths and similarly the corrections for tenths of height are one tenth the figures opposite width considering the heights from 1 to 9 as tenths. Thus if $w = 16.2$ and $h = 5.3$, cu. yds. $= 1.48 + .028 + .089 = 1.597$ cu. yds. or practically 160 cu. yds. per 100 ft. If w exceeds 40 ft., use one half and multiply result by 2, if both w and h are large use one half of each and multiply result by 4. Any cross-section may be divided into triangles by the following rule. To the triangle of the sum of the outside cuts (or fills) $= h$, and $\frac{1}{2}$ the roadbed $= w$, add the triangles formed by taking the distance out to each break in turn ($= w$'s) by the difference between the cuts (or fills) on each side of it ($= h$'s) always subtracting the outer from the inner.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.
Roadway 16 feet wide. Side Slopes 1 on 1½
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	26.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be $41.9 + (20 - 16) \div 2$ or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.