

Book 2

List No 1.

DIETZGEN
TRADE MARK

1081

No. 410

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

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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Chas. E. Boyack,
Independence, Iowa.

FILED
FEB 27 '23
CHAS. E. BOYACK
COUNTY CLERK

Prelim

Branch Page.

J-Left. 10

K .. 12

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Aug 16-19

Branch. J. Left Sheet 13

comat Sta 67. B 3 L

Angle 46° Right

at Sta 5 Angle 40° Right

Sta 13+55 S. Road Fence

Sta 14+14 N " "

Sta 13+82 $\frac{1}{2}$ E + W Road on N
Line sec 26 at 1/4 Post

Sta	R R	H I	Elev out	Elev in
				<u>GT = .56</u>
0	6.72	86.99	80.27	4.27 76.00
1	6.47		80.52	3.96 76.56
2	5.74		81.25	4.13 77.12
3	5.16		81.83	4.15 77.68
4	4.61		82.38	4.14 78.24
5	4.35		82.64	3.84 78.80
6	3.50		83.49	4.13 79.36

11 Aug 16 - 19
Branch J. Left sheet 13
Sta R R H I Elev Out Elev D

→ BS 7.00 90.47
7 6.27 84.20 4.28 79.92
8 5.50 84.97 4.49 80.48
9 4.98 85.49 4.45 81.04
10 4.43 86.04 4.44 81.60
11 4.51 85.96 3.80 82.16
12 4.24 86.23 3.51 82.72

→ BS 5.81 92.04
13 4.85 87.19 3.91 83.28
S.F. 13+55 4.45 87.59 4.01 83.58
2 Road 13+82 4.00 88.04 5.66 83.70
14 4.55 87.49 3.65 83.84
N F 14+14 3.68 88.36 4.45 83.91
C.R.H. C.R.H.

Aug 16 - 19
Branch K. Left
Sheet 13, 12

Com at Sta 5 B.J.L
Angle 15° Left
Sta 5 at W Line of NW-
NE - Sec 26. and 720° S of
NW - cot -

Sta R R H I Elev Out Elev D
0 6.58 89.22 82.64 3.84 78.80
1 6.10 83.12 4.62 79.40
2 5.23 83.99 3.99 80.00
3 5.02 84.20 3.60 80.60
4 4.18 85.04 3.84 81.20
5 2.57 86.65 4.85 81.80

Sta cut 4.50 C.R.H. C.R.H.

Aug 16-19
Branch, L. Left Sheet, 13.

corn at Sta 76. B, 3, L

Angle 35° Right

at Sta. 1, Angle 18° Right

Sta 5+64 at W. Line. SW-NE-26

and 311.5 of N.W. cor

Sta	R R	H I	Elev	Out	Elev D
0	5.49	28.93	83.44	3.04	80.40
1	5.38		83.55	2.95	80.60
2	5.02		83.91	3.11	80.80
3	4.60		84.33	3.33	81.00
4	3.44		85.49	3.89	81.60
→ BS	5.79	91.28			
5	4.82		86.46	4.26	82.20
5+64	3.89		87.39	4.83	82.56
			CRH		CRH

Add 1.00 to all
Elevations to correct

C. 4.50

Aug 16-19
Branch, M. Left Sheet, 13

corn at Sta 74. B, 3, L

angle 38° Left

Sta -532.5 of N Line SW-

NE sec 26

at Sta 4+50 Angle 16° Left

Sta 14+38 at N Line NE-SE-

sec 26. and 88 E of NW. cor

Sta	R R	H I	Elev	Out	Elev D
0	7.70	90.82	83.12	3.72	79.40
1	7.25		83.57	3.65	79.92
2	6.44		84.38	3.94	80.44
3	5.60		85.22	4.26	80.96
4	4.95		85.87	4.39	81.48
4+46	4.50		86.32	4.81	81.51
4+50	4.57		86.25	4.51	81.74
5	4.59		86.23	4.23	82.00
6	3.55		87.27	4.52	82.75
→ BS	7.23	94.50			

CRH

CRH

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Aug 16-19

Branch M Left sheet 13

Sta RR HI Elev Cut Elev D

7 6.37 88.13 5.63 83.50

8 5.09 89.41 5.16 84.25

9 5.30 89.20 4.20 85.00

10 4.95 89.65 3.90 85.75

11 4.08 90.42 3.92 86.50

→ BS 6.59 97.01

12 5.47 ~~91.54~~ ~~92.54~~ 5.29 87.25

12+93 4.71 92.30 4.36 87.94

13 4.75 92.26 4.26 88.00

14 4.24 92.77 4.02 88.75

14+38 3.43 93.58 4.57 89.01

CRH

CRH.

Aug 16-19

Branch N Left

Sheet, 14¹⁶

com at sta 12 B.M.L

Angle 24° Right

Sta 1+95 at N Line NW-

SE, Sec 26. and 17 W of

NE Cor

Sta RR HI Elev Cut Elev D

0 5.39 97.93 92.54 4.54 ~~88.00~~ ~~88.25~~1 4.65 93.28 4.03 ~~89.25~~ ~~90.33~~1+95 2.84 95.09 4.76 ~~80.33~~

CRH.

CRH.

Aug 18 - 19

Branch 4 Left sheet 14

Central- Sta 66 Main

angle 48° left

Sta 4+44 N Fence

Sta 4 + 91 S Fence

Sta 4+67 @ E & W Road Thru

N $\frac{1}{2}$, Sec 23, and 506^E East of

NW-107, SW-NE-Sec 23-

Sta	RR	H	I	Elev	Cut	Elev. D
0	11.58	68.06	56.48	5.98	50.50	Gr=1.00
1	11.28		56.78	5.28	51.50	Gr=3.30
2	9.34		58.72	6.22	52.50	
3	6.65		61.41	5.61	55.80	
4	4.16		63.90	4.80	59.10	
V F + 44	3.41		64.65	4.10	60.55	
Road + 67	1.40		66.66	5.35	61.31	
F + 91	1.28		66.78	4.78	62.00	
	(Cut 4.80)					

Aug 18-19

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Branch 5 Left
Sheet, 14.

com at Sta 74, Main

Angle 64° Left

Sta 4433 N Fence

Sta 4+84 S Fence

Sta 4+58 E & W Road Thru

N $\frac{1}{2}$ Sec 23 and 395 West of

NE. cor - SE-NW - sec 23

Sta	RR	H	I	Elev	Cut	Elev. D
0	11.99	68.98	56.99	5.69	51.30	Gr. = 2.00
1	10.75		58.23	4.93	53.30	
2	6.98		62.00	6.70	55.30	
3	5.73		63.25	5.95	57.30	
4	4.92		64.06	4.76	59.30	
4+33	3.98		65.00	5.04	59.96	
4+58	2.80		66.18	5.72	60.46	
4+84	3.67		65.31	4.33	60.98	

Aug 18-19

Branch 6. Left Sheet 14

Corn at Sta 100. Main
 Angle 66° Left
 Sta 4+26 at N Line $S\frac{1}{2}$ SW-NW
 Sec 23. and 642° East, NW. cor
 at Sta 4+50 Angle 22° Right
 Sta 12+97 at E Line, $S\frac{1}{2}$ SW-
 NW-sec 23. and 531° South
 of NE cor
 at Sta 13 Angle 17° Right
 at Sta 21. Angle 21° Right
 Sta 29+57 at S Line SE-
 SW-sec 23. and 650° E
 of SW. Cor.

Sta

Aug 18-19

Branch 6 Left

N

RR	H I	Elev	Cut	Elev. _{Gr=95}
----	-----	------	-----	------------------------

0	7.55	70.78	63.23	5.73 57.50
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1	7.62		63.16	4.76 58.40
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2	6.46		64.32	5.32 59.30
---	------	--	-------	------------

3	5.51		74.32	5.22 59.10
---	------	--	-------	------------

4	4.40		65.27	5.27 60.20
---	------	--	-------	------------

4+26	3.75		66.38	5.48 61.10
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4+50	3.82		67.03	5.90 61.33
------	------	--	-------	------------

5	3.35		61.55	5.61 61.35
---	------	--	-------	------------

6	2.73		62.00	5.63 61.80
---	------	--	-------	------------

7	6.70		67.43	5.35 62.30
---	------	--	-------	------------

8	6.71		68.05	5.35 62.70
---	------	--	-------	------------

9	5.09		63.80	4.99 63.60
---	------	--	-------	------------

10	3.94		64.70	4.08 64.50
----	------	--	-------	------------

11	3.38		65.60	4.80 65.40
----	------	--	-------	------------

12	2.84		66.50	5.05 66.30
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13	6.30		67.24	4.87 67.04
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12+97	6.23		67.98	4.67 67.78
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BS	6.75	79.20		68.10
----	------	-------	--	-------

12+97	6.23		72.97	4.48 72.49
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13	6.30		72.90	4.38 72.52
----	------	--	-------	------------

BS	6.75	79.20		68.10
----	------	-------	--	-------

12+97	6.23		72.97	4.48 72.49
-------	------	--	-------	------------

13	6.30		72.90	4.38 72.52
----	------	--	-------	------------

BS	6.75	79.20		68.10
----	------	-------	--	-------

Aug 18-19

Branch 6 Left

N

RR	H I	Elev	Cut	Elev. _{Gr=95}
----	-----	------	-----	------------------------

0	7.55	70.78	63.23	5.73 57.50
---	------	-------	-------	------------

1	7.62		63.16	4.76 58.40
---	------	--	-------	------------

2	6.46		64.32	5.32 59.30
---	------	--	-------	------------

3	5.51		74.32	5.22 59.10
---	------	--	-------	------------

4	4.40		65.27	5.27 60.20
---	------	--	-------	------------

4+26	3.75		66.38	5.48 61.10
------	------	--	-------	------------

4+50	3.82		67.03	5.90 61.33
------	------	--	-------	------------

5	3.35		61.55	5.61 61.35
---	------	--	-------	------------

6	2.73		62.00	5.63 61.80
---	------	--	-------	------------

7	6.70		67.43	5.35 62.30
---	------	--	-------	------------

8	6.71		68.05	5.35 62.70
---	------	--	-------	------------

9	5.09		63.80	4.99 63.60
---	------	--	-------	------------

10	3.94		64.70	4.08 64.50
----	------	--	-------	------------

11	3.38		65.60	4.80 65.40
----	------	--	-------	------------

12	2.84		66.50	5.05 66.30
----	------	--	-------	------------

13	6.30		67.24	4.87 67.04
----	------	--	-------	------------

12+97	6.23		67.98	4.67 67.78
-------	------	--	-------	------------

BS	6.75	79.20		68.10
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12+97	6.23		72.97	4.48 72.49
-------	------	--	-------	------------

13	6.30		72.90	4.38 72.52
----	------	--	-------	------------

BS	6.75	79.20		68.10
----	------	-------	--	-------

12+97	6.23		72.97	4.48 72.49
-------	------	--	-------	------------

13	6.30		72.90	4.38 72.52
----	------	--	-------	------------

BS	6.75	79.20		68.10
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Aug 18 - 19

Branch 6, Left

Sheet 14

Sta	RR	H.I.	Elev	Cut	Elev D
14	5.56	79.25	73.64	4.38	79.46 79.26 70.20
15	5.15		74.05	4.05	80.00 70.94
16	4.39		74.81	4.07	80.74 71.68
17	3.85		75.35	3.87	81.48 72.42
18	2.75		76.45	4.23	82.22
→ B.S.	7.21	83.66			73.16
19	6.32		77.34	4.38	82.96 73.90
20	5.56		78.10	4.40	83.70 74.64
21	4.95		78.71	4.27	82.97 75.38
22	4.20		79.46	4.28	85.18 76.12
23	3.12		80.54	4.62	85.92
→ B.S.	7.21	87.75			76.86
24	6.51		81.24	4.58	86.66 77.60
25	5.80		81.95	4.55	87.40 78.34
26	5.26		82.79	4.35	88.14 79.08
27	5.05		82.70	3.82	88.88 79.82
28	4.45		83.30	3.68	89.62 80.56
29	3.52		84.23	3.87	90.36 80.98
29+57	1.92		85.83	5.05	90.78 c.p.m.

Aug 18 - 19

Branch 7, Left Sheet 14

Com at Sta 103 Main.

Angle 39° Left

Sta 2+18 at S Line N 1/2

SW-NW-sec 23, and 61.5

East of SW corner

Sta	RR	H.I.	Elev	Out	Elev D
0	5.52	68.87	63.35	4.95	58.40 Gr = 55
1	5.07		63.80	4.60	59.20
2	4.57		64.30	4.30	60.00
2+18	4.18		64.69	4.55	60.14 c.p.m.

Aug 19-19

Branch. 8. Left. Sheet 15

Corr at Sta 13h Main

Angle 65° Left

Sta 10+26 W Fence

Sta 10+89 E Fence

Sta 10+57 E N & S Road

on East Line Sec 22, and

797^FN of SE Cor

at Sta 11+25 Angle 37° Right

Sta 19+46 N Fence

Sta 20+15 S Fence

Sta 19+80 E & W Road on

South Line Sec 23, and 416^FE of SW Corat Sta ²⁵11+25 Angle 40° Left

Sta 32+66 at E Line, NW-NW

Sec 26, and 781^FS. of. NE Cor

Aug 19-19

Sheet 15 26

Branch. 8. Left N

Sta RR HI Elev Cut Elev

0 6.74 76.71 69.97 5.27 64.70

0+50
Ditch 9.35 67.36
66.86
70.54

1 6.17 69.54 4.21 65.33

2 5.75 70.96 5.00 65.96

3 5.29 71.42 4.83 66.59

4 5.08 71.63 4.41 67.22

5 4.31 72.40 4.55 67.85

6 3.67 73.04 4.56 68.48

BS 7.37 80.41

7 6.97 73.44 4.33 69.11

8 6.51 73.90 4.16 69.74

9 5.92 74.49 4.22 70.37

10 5.19 75.22 4.22 71.00

10+26 W F 4.52 75.89 4.76 71.13

E Road 77.29
10+57 3.12 77.49 6.18 71.31

E F 10+89 4.20 76.21 4.73 71.48

11 4.30 76.11 4.56 71.55

11+25 4.27 76.14 4.46 71.68

BS 7.56 83.70

Aug 19-19

Branch. 8. Left

V

Sta	R R	H I	Elev	Out	Elev D
		83.70	76.98		
12	6.72		77.98	5.88	72.10
13	6.15		77.56	4.90	72.65
14	5.55		78.15	4.95	73.20
15	5.39		78.31	4.56	73.75
16	5.33		78.37	4.07	74.30
17	4.67		79.03	4.18	74.85
+ BS	8.55	87.58			
18	7.98		79.60	4.20	75.40
in ditch					
19	8.60		78.98	3.03	75.95
N F					
19+46	6.55		81.03	4.83	76.20
2 Road					
19+80	5.48		82.10	5.71	76.39
			79.55		76.50
20	8.03			3.05	
S F					
20+15	6.51		81.07	4.48	76.59
21	6.56		81.08	3.92	77.16
+ BS	6.72	87.80			
22	6.32		81.48	3.66	77.82
23	5.75		82.05	3.57	78.48
24	5.37		82.43	3.29	79.14
25	4.57		83.23	3.43	79.80

Aug 19-19

Branch. 8. Left

Sheet. 15

Sta	R R	H I	Elev	Out	Elev D
		87.80			
26	4.08		83.72	3.26	80.46
+ BS	8.54	92.26			
27	7.67		84.59	3.47	81.12
28	6.60		85.66	3.88	81.78
29	5.72		86.54	4.10	82.44
30	4.94		87.32	4.22	83.10
31	4.02		88.24	4.48	83.76
32	3.54		88.72	4.30	84.42
32+66	3.02		89.24	4.39	84.85

Aug 19-19

Branch. Q. Left Sheet 15

Com at Sta 11+25 B.S.L.

Angle 12° Right

at Sta 5 Angle 17° Left

Sta 14+64 at E Line SW-

SW- Sec and 100^F N of SE cor

at Sta 14+75 Angle 49° Right

Sta 15+44 N. Fence

Sta 16+10 S. Fence

Sta 15+77 E & W Road on

S Line o Sec. and 41^F

E of SE cor of SW-SW-

Aug 19-19

Branch. Q. Left

Sheet 15 30

V

Sta	R R	H I	Elev	Out	Elev D Gr-30
0	6.50	82.64	76.14	4.24	71.90
1	5.96		76.68	4.28	72.40
2	5.54		77.10	4.20	72.90
3	5.12		77.52	4.12	73.40
4	4.85		77.79	4.89	73.90
5	4.21		78.43	4.03	74.40
B.S	6.66	85.09			
6	6.01		79.08	4.18	74.90
7	5.52		79.57	4.17	75.40
8	5.10		79.99	4.09	75.90
9	4.86		80.23	3.83	76.40
10	4.12		80.97	4.07	76.90
B.S	6.50	87.47			
11	5.95		81.52	3.95	77.57
12	5.39		82.08	3.84	78.24
13	5.20		82.27	3.36	78.91
14	4.21		83.26	3.68	79.58
14+68	3.25		84.22	4.22	80.00
14+75	3.70		83.77	3.69	80.08

C.P.

Aug 19-19

Branch Q Left

Sheet. 15.
Out Elev

Sta

R R H I Elev

BS 6.09 89.86

15 5.31

84.55

3.80

80.25

NF

15+44 4.81

85.05

4.01

80.75

2 Road

15+77 4.34

85.52

4.27

80.54

16 4.52

85.34

3.92

80.76

SF

16+10 4.24

85.62

4.14

80.92

80.99

C.R.H.

C.R.H.

Aug 20-19

Branch 9 Left Sheet. 15.

CORN at Sta 148. Main

Angle 69° Left

at Sta 3+79. Angle 23° Left

Sta 8+5. E Line. W 26 3/4° @. NW-

NE. sec 27. and 638° South
of NE corSta 20+50 N Line S.E. - NE and
300 W of NE cor

Sta 23+73. West Fence

24+51 E Fence

24+12 & N+S Road E. Line

sec 27. and 187° South NE cor

SE-NE- sec 27.

at Sta 25. Angle 33° Right

Sta 36+91 at South Line SW--

NW- Sec 26 and 546° East
of SW. cor

33

Aug 20 -19 Sheet 15

Branch 9. Left

V

Sta	RR	H I	Elev	Cut	Elev D
0	9.15	81.80 83.95	72.65 74.80	3.80	Gr. 53 77.00
1	6.03		75.77 77.92	6.33	71.59
2	6.10		75.70 77.85	5.67	72.18
3	5.53		76.27 78.42	5.65	72.77
3+79	5.09		76.71 78.86	5.63	73.23
4	5.22		76.58 78.73	5.37	73.36
5	4.70		77.10 79.25	5.30	73.95
6	4.12		77.68 79.83	5.29	74.54
→ B.S.	6.81	84.49 86.64			
7	6.44		78.05 80.20	5.07	75.13
8	5.72		78.77 80.92	5.20	75.72
8+5	5.69		78.80 80.95	5.20	75.75
9	5.26		79.13 81.38	5.07	76.31
10	4.80		79.69 81.84	4.94	76.90
11	4.28		80.21 82.36	4.87	77.49
12	4.00		80.49 82.64	4.56	78.08
→ B.S.	7.28	87.77 89.92			
13	7.40		80.37 82.52	3.85	78.67
14	6.10		81.64 83.82	4.56	79.26

Aug 20-19

Branch 9. Left

V

Sta	RR	H I	Elev	Cut	Elev D
15	5.56		82.31 84.46	4.61	Gr. 53 79.85
16	4.80		82.97 85.12	4.68	80.44
17	4.15		83.62 85.77	4.74	81.03
18	3.71		84.06 86.21	4.59	81.62
19	6.85		91.57 93.72		
20	6.39		84.72 86.87	4.66	82.21
20+50	5.60		85.18 87.33	4.53	82.80
21	5.66		85.97 88.12	4.98	83.14
22	5.03		85.91 88.06	4.58	83.48
23	4.75		86.54 88.69	4.53	84.16
23+73	4.16		86.82 88.97	4.13	84.84
24	2.78		87.41 89.56	4.10	85.46
24+12	2.16		88.79 90.94	5.40	85.54
24+51	3.40		89.41 91.56	5.94	85.62
→ B.S.	6.16		88.17 90.32	4.44	85.88
25	6.05		94.33 96.48		
26	5.60		88.28 90.43	4.19	86.24
27	4.65		88.73 90.88	3.96	86.92
			89.68 91.83	4.23	87.60

85

Aug 20-19

Branch, 9, Left

Sheet, 15,

Sta	RR	H I	Elev	Out	Elev D
28	4.00	91.33	90.33 92.48 91.33	4.20	88.28
29	3.00		93.48	4.52	88.96
→ BS	7.40	98.73 100.88			Gr. = 76
30	6.68		92.05 94.20	4.56	89.64
31	6.48		92.25 94.40	4.00	90.40
32	5.78		92.95 95.10	3.94	91.16
33	5.09		93.64 95.79	3.77	91.92
34	4.22		94.01 96.66	3.98	92.68
→ BS	6.45	100.96 103.11			
35	5.06		95.90 97.95	4.51	93.44

See Page 37

Branch 10 Left

Sheet, 15,

Com at Sta 162 Main

Sta 0+71.1 at N Line SW-NE
- 27, and 30° E of S W. Cor

Sta	RR	H I	Elev	Out	Elev D
0	5.80	88.05 86.20	78.25 80.40	4.40	76.00
0+71	4.92		89.13 81.28	4.57	76.71
			CRH	apt	crth

Aug 20-19 36
Branch, 11, Left Sheet, 15.

Com at Sta 163. Main

Angle 28° Left

at Sta 4+50. Angle 48° Left

at Sta 9+93 Angle 28° Left

Sta 8+9 at W Line SW-NE

Sec 27, and 590° N of SW cor

Sta 17+84 at S Line SW-NE

Sec 27, and 746° E of SW con

Sta	RR	H I	Elev	Out	Elev D
0	7.40	85.40 87.55	78.00 80.15	4.15	76.00
1	6.54		78.86 81.01	4.51	76.50
2	6.00		79.40 81.55	4.55	77.00
3	5.47		79.93 82.08	4.58	77.50
4	5.40		80.00 82.15	4.15	78.00
4+50	5.20		80.20 82.35	4.10	78.25
5	4.64		80.56 82.71	4.21	78.50
6	4.13		81.27 83.42	4.42	79.00
BS	6.32	87.59 89.74			

434 ft
4.08 ft

Aug 20-19

Branch 11. Left

Sta R R H I Elev Cut Elev D

7 5.56 ~~87.59~~ ^{82.03} ~~84.18~~ 4.68 79.568 5.47 ^{82.12} ~~84.27~~ 4.27 80.008+9 5.26 ^{82.33} ~~84.48~~ 4.44 80.049 5.02 ^{82.57} ~~84.72~~ 4.22 80.509+93 4.90 ^{82.69} ~~84.84~~ 3.88 80.9610 4.91 ^{82.68} ~~84.83~~ 3.83 81.00→BS 5.90 ^{84.58} ~~90.73~~ ^{83.06} ~~85.21~~ 3.71 81.5011 5.52 ^{83.16} ~~85.31~~ 3.31 82.0012 5.42 ^{83.72} ~~85.87~~ 3.37 82.5013 4.86 ^{84.59} ~~86.74~~ 3.74 83.0014 3.99 ^{85.29} ~~87.44~~ 3.94 83.5015 3.29 ^{91.90} ~~94.05~~ ^{85.90} ~~88.05~~ 4.05 84.00→BS 6.61 ^{87.15} ~~89.30~~ 4.80 84.5016 6.60 ^{87.29} ~~89.44~~ 4.52 84.9217 4.75 ^{95.97} ~~98.12~~ 3.92 74.2017+84 4.61 ^{97.78} ~~99.93~~ 5.04 74.89

Branch 9. Left. Continued from 35

36 4.99 100.96 ^{97.97} ~~99.93~~ 5.04 74.8936+91 3.18 ^{97.97} ~~99.93~~ 5.04 74.89

Aug 21-19
Branch 12, Left
Sheet 15.

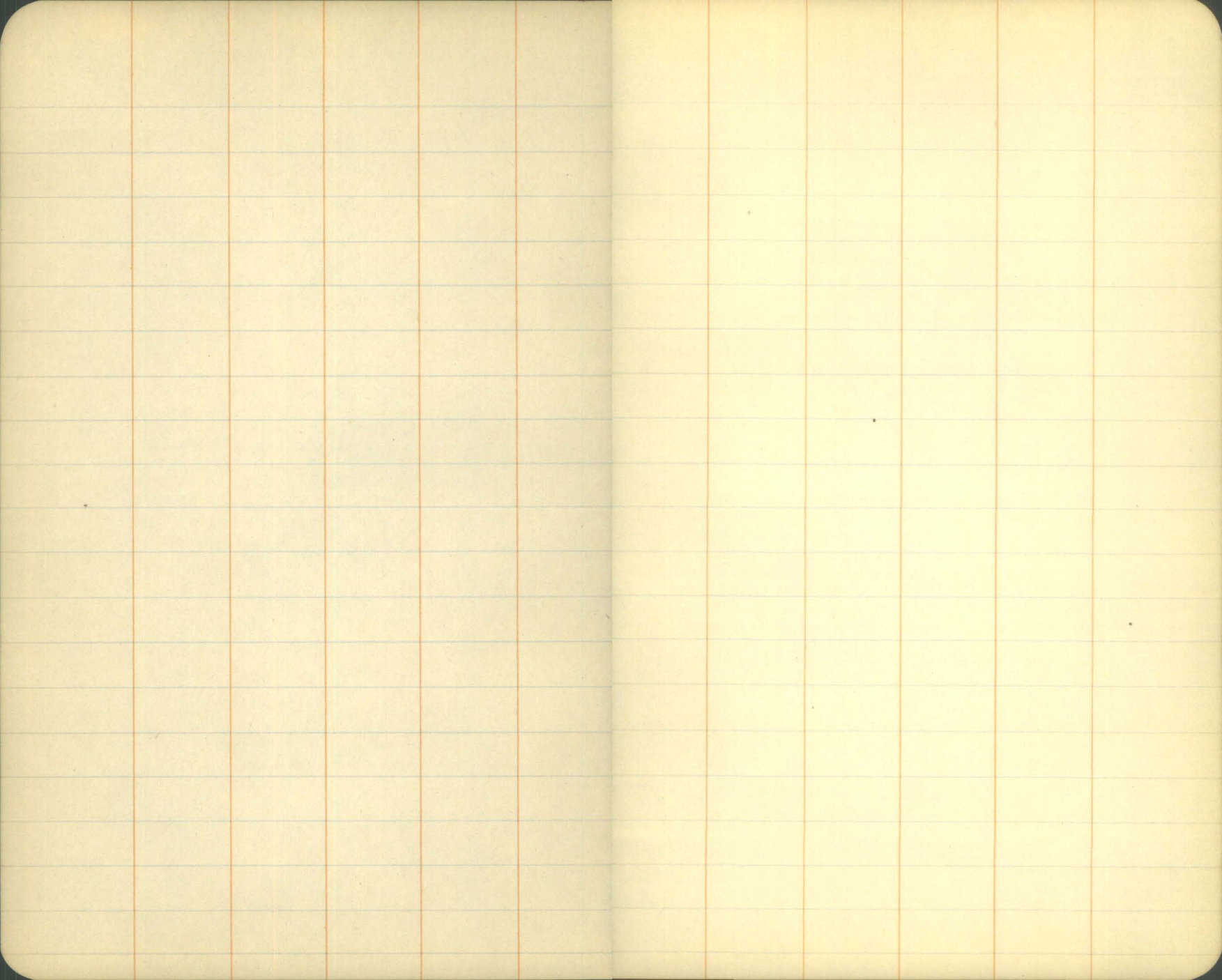
Com at Sta 177, Main

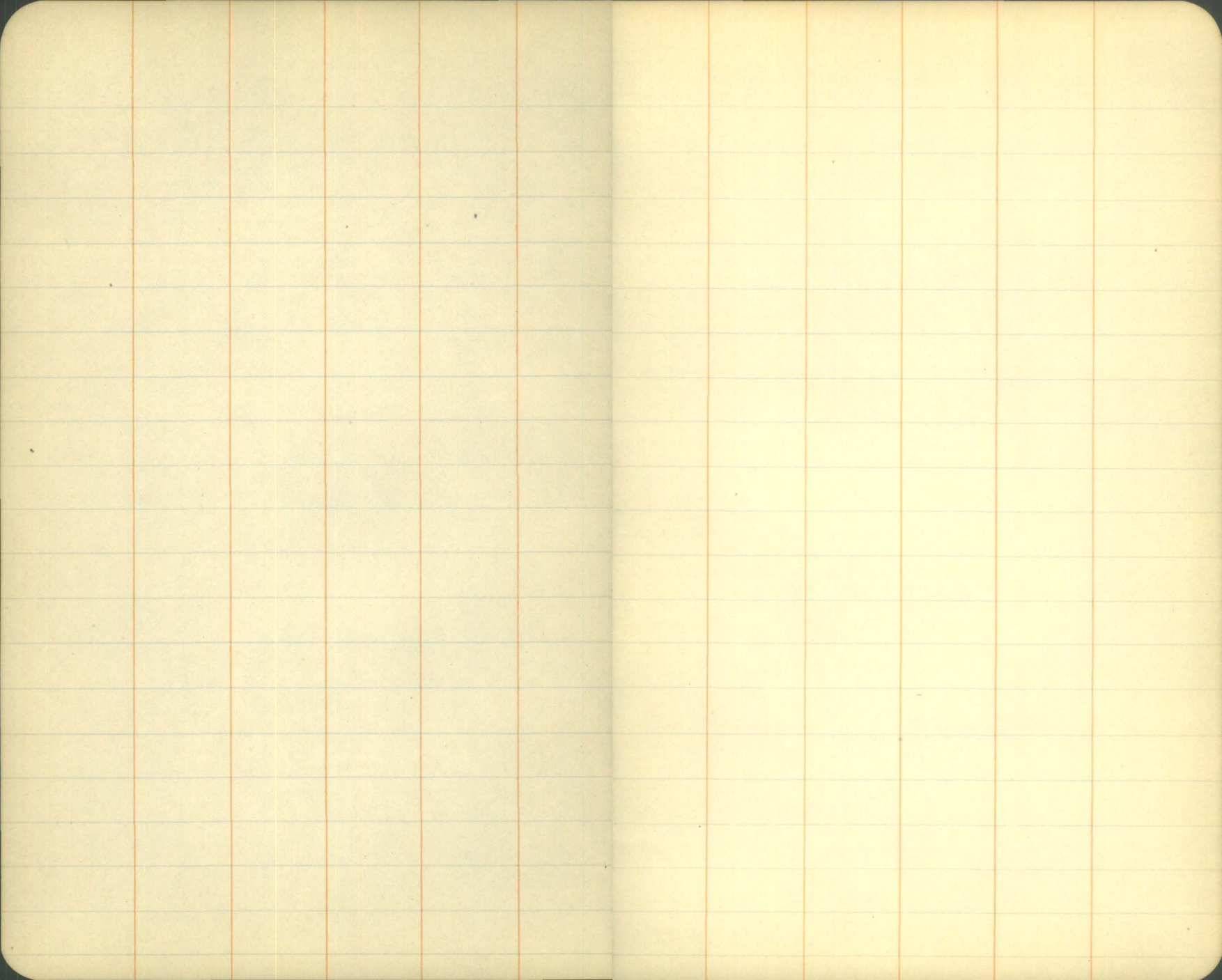
Angle 38° Left

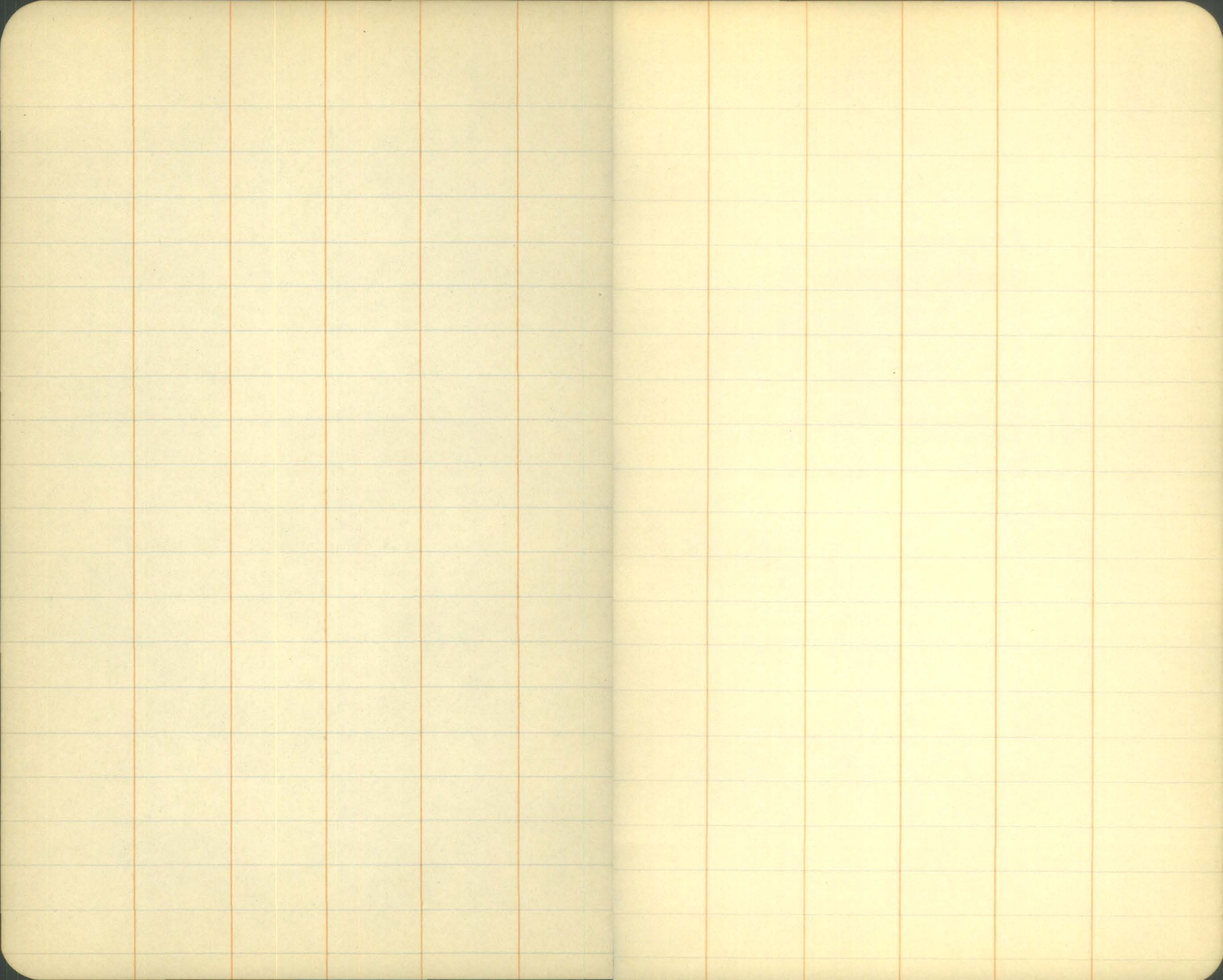
Sta 7+67, at S Line SW-NW-
Sec 27, and 1052' E of SW cor

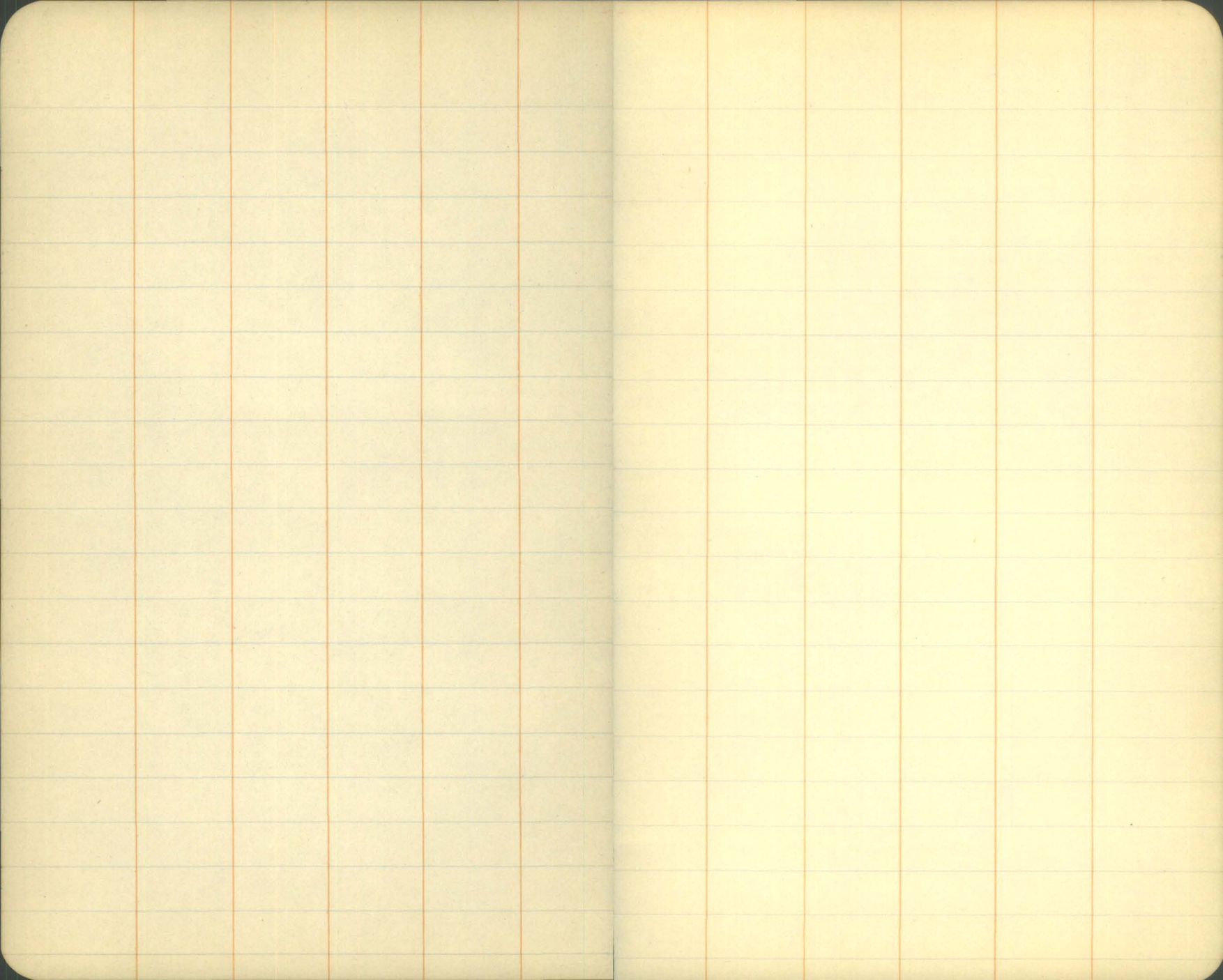
Sta	RR	H ±	Elev	Cut	Elev D
		91.80	84.87		Gr = 60
0	7.43	93.95	86.52	4.52	82.00
1	6.91		84.89		
			87.04	4.44	82.60
2	6.35		85.43		
			87.60	4.40	83.20
3	5.62		86.18		
			88.33	4.53	83.80
4	4.60		87.20		
			89.35	4.95	84.40
5	3.24		88.56		
			90.71	5.71	85.00
in Pond			87.60		
6	4.30		89.65	4.05	85.60
+ BS	6.21	93.71			
		95.86			
Pond	6.60		87.17		
			89.26		
in Pond			88.41		
7	5.30		90.56	4.36	86.20
			88.64		
7+67	5.07		90.79	4.19	86.60
			CRH.		CRH.

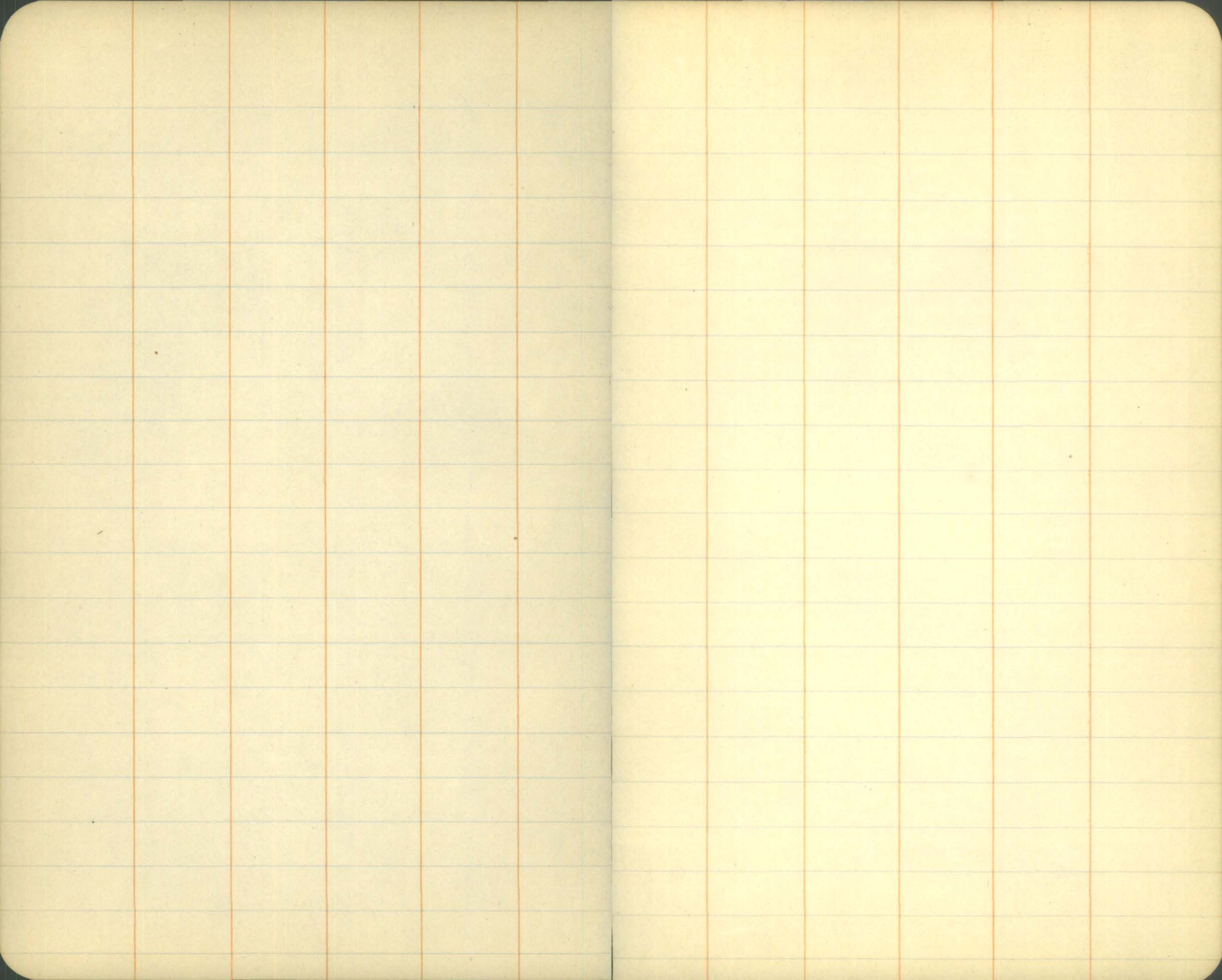
41-End

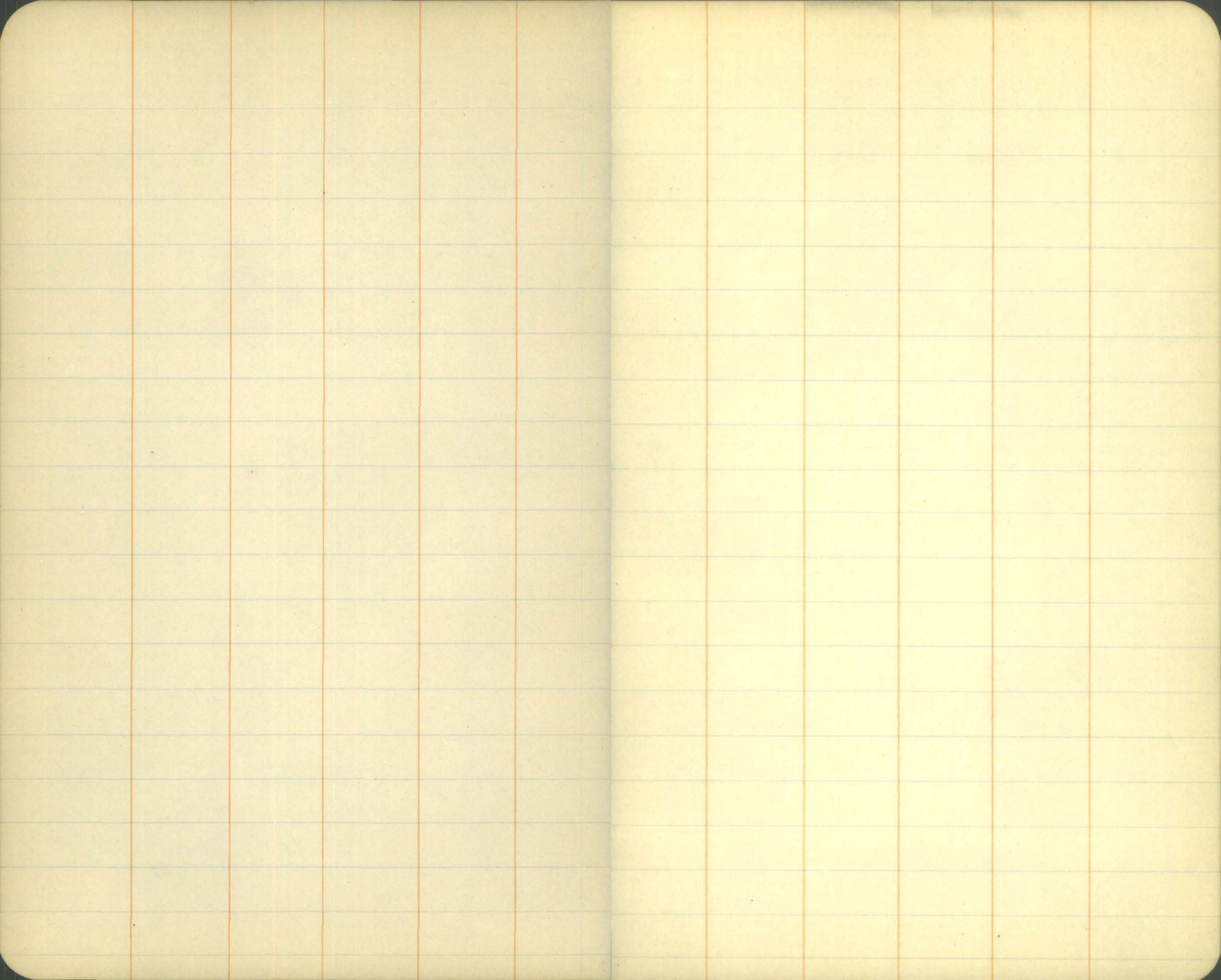


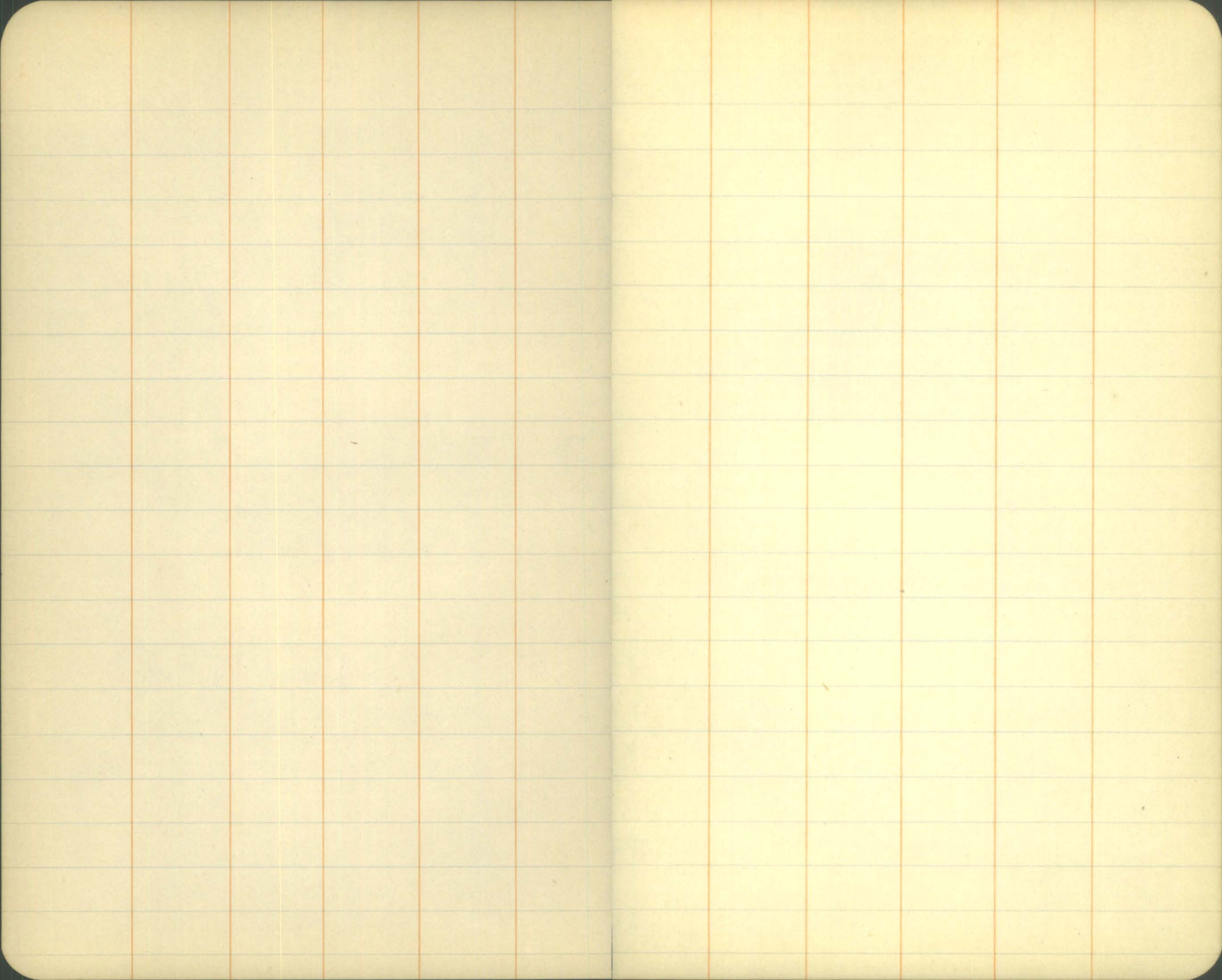


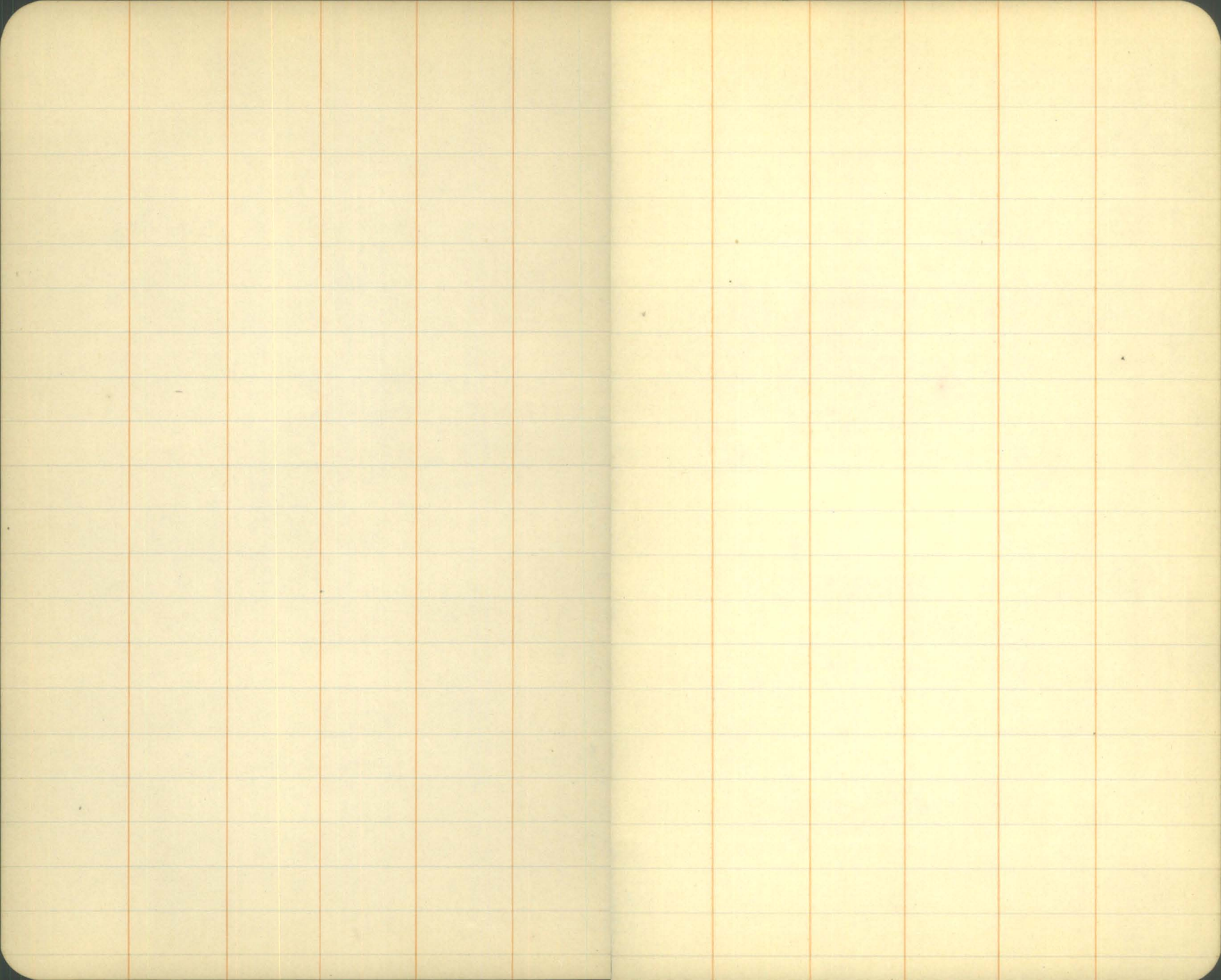


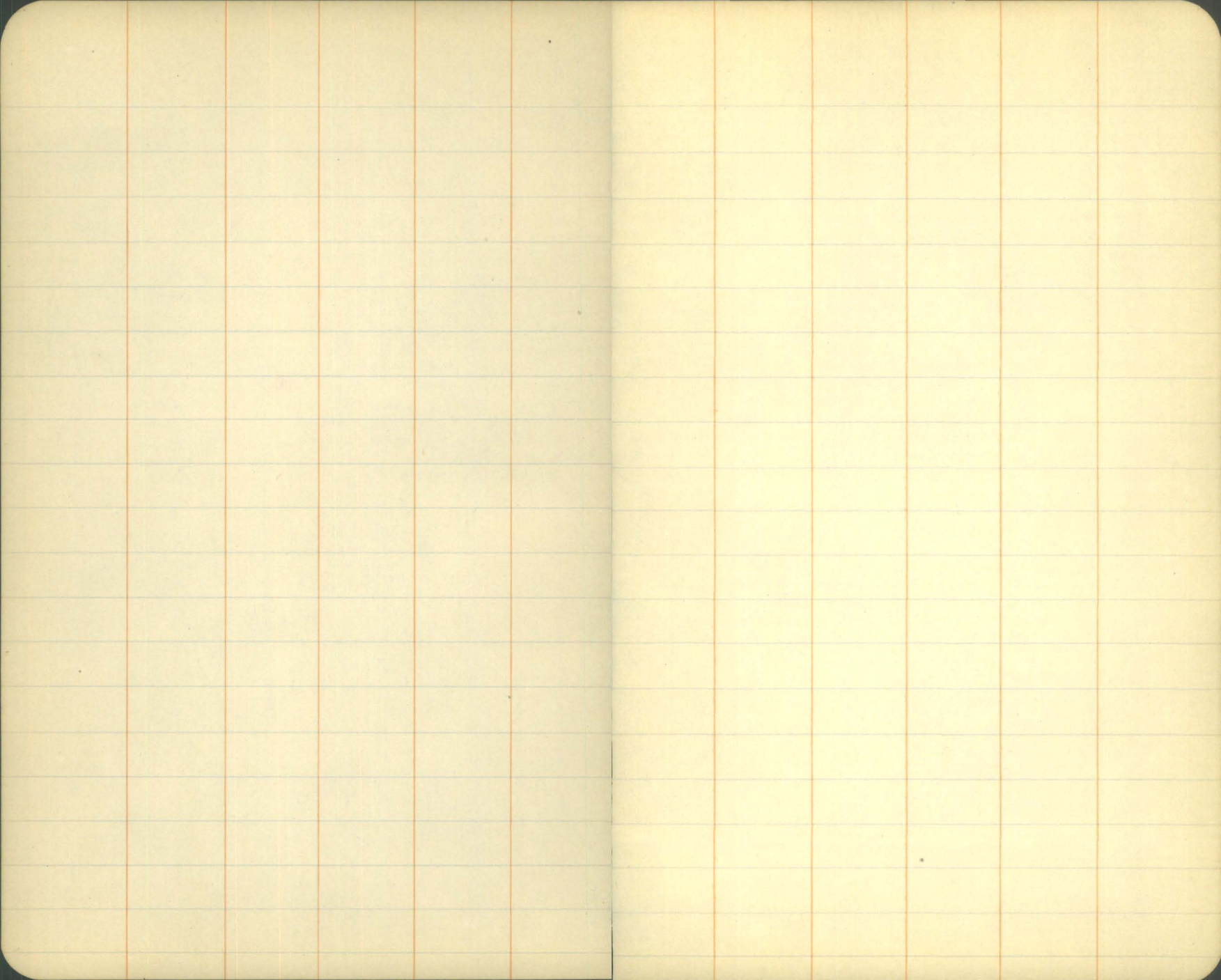


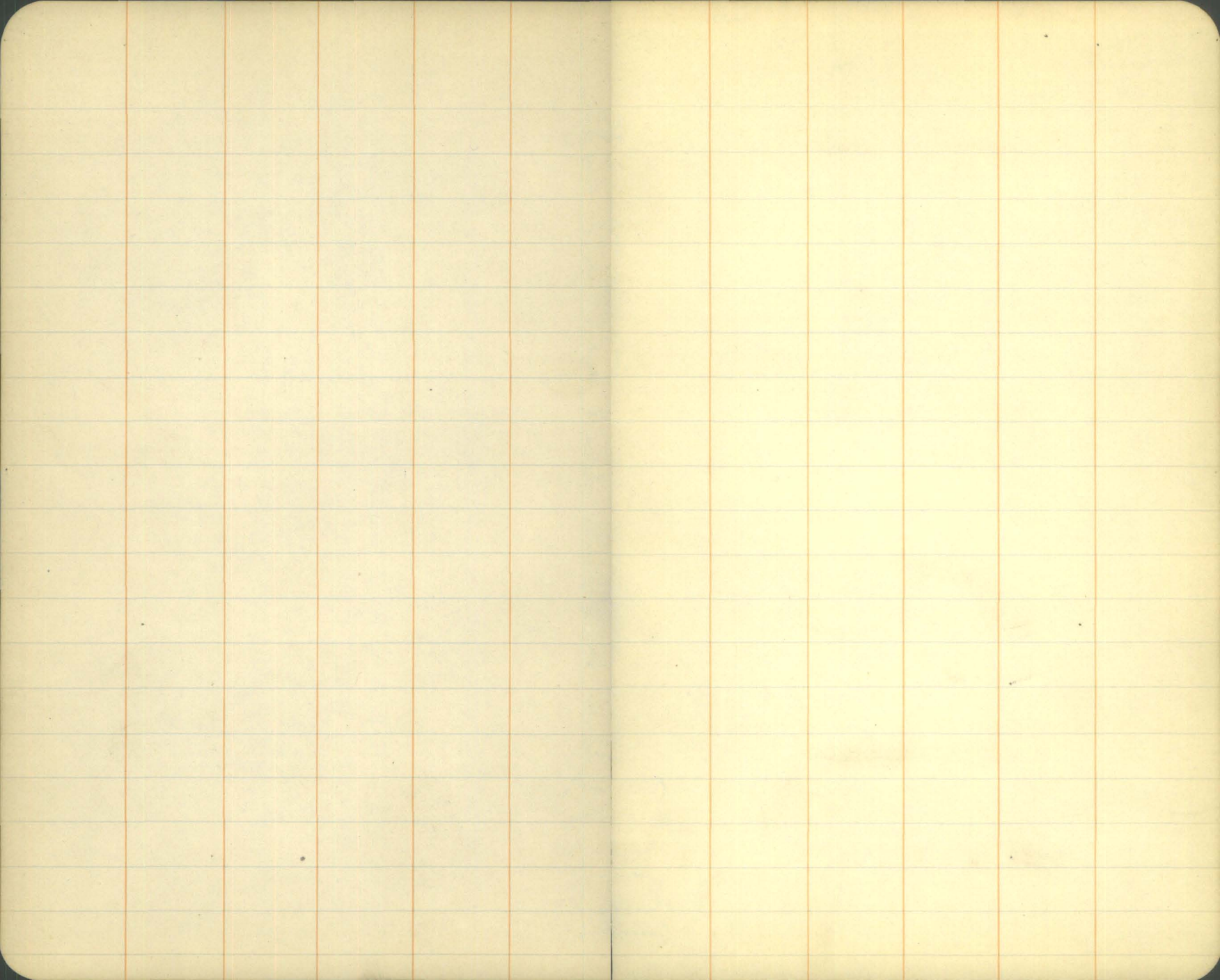


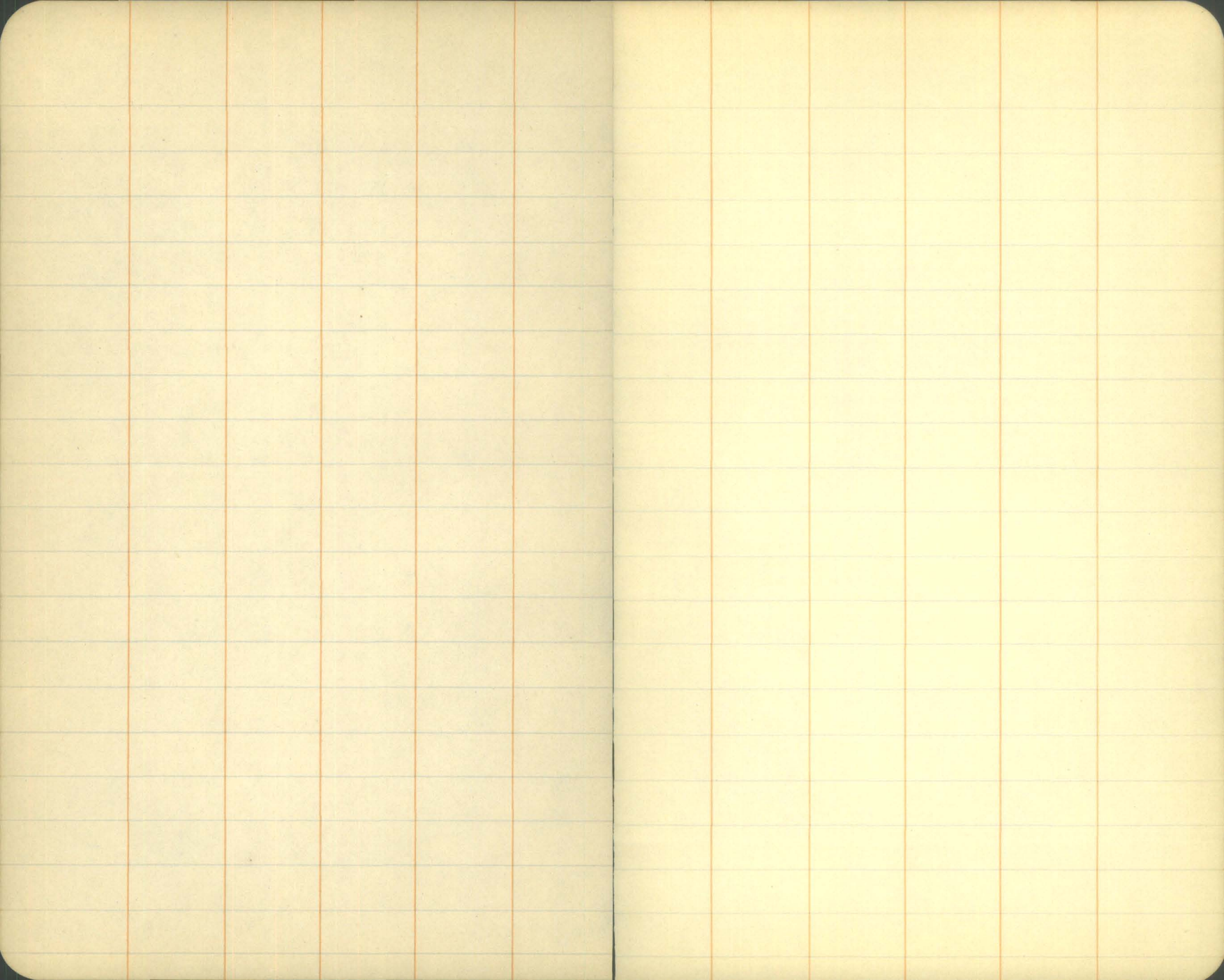


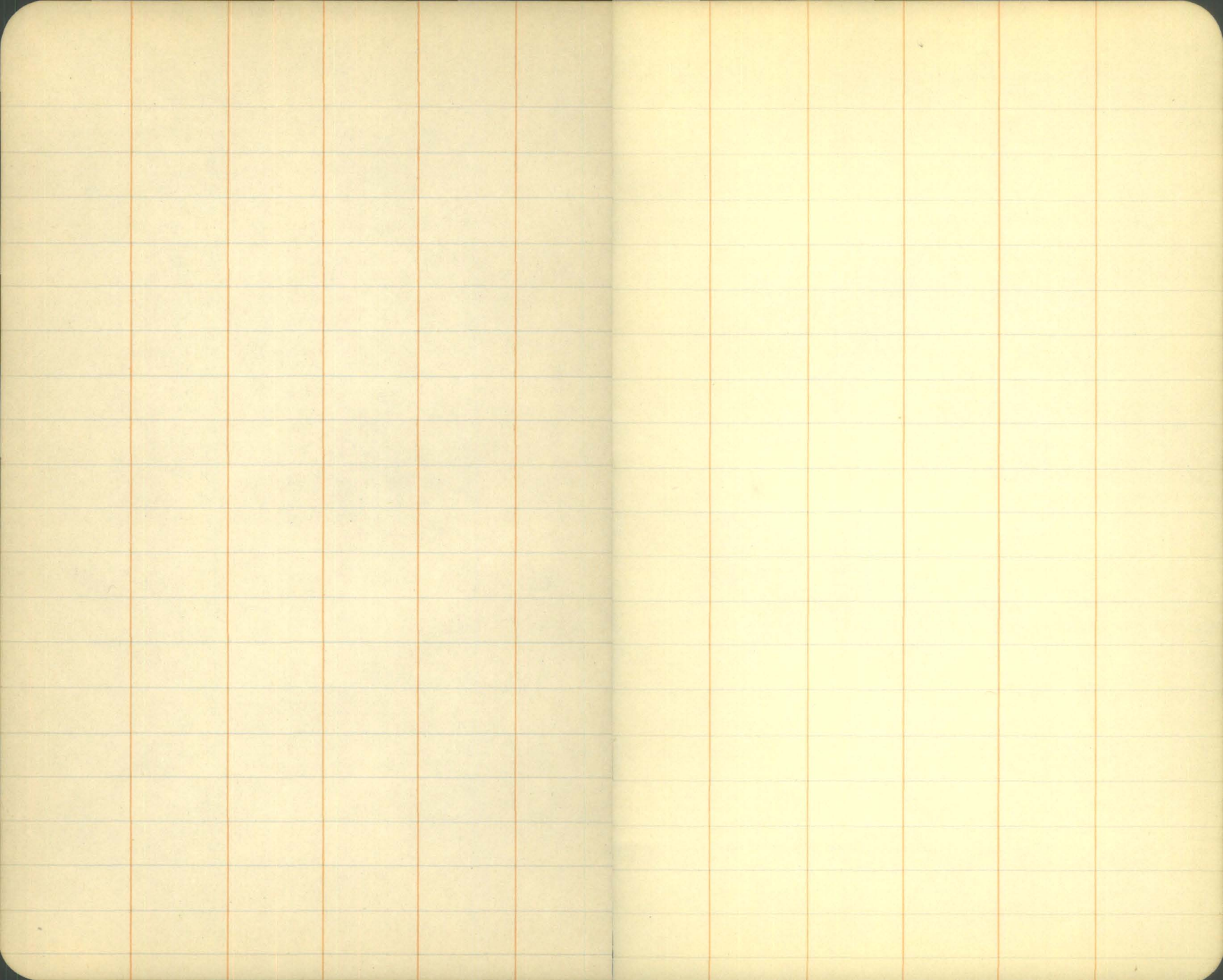


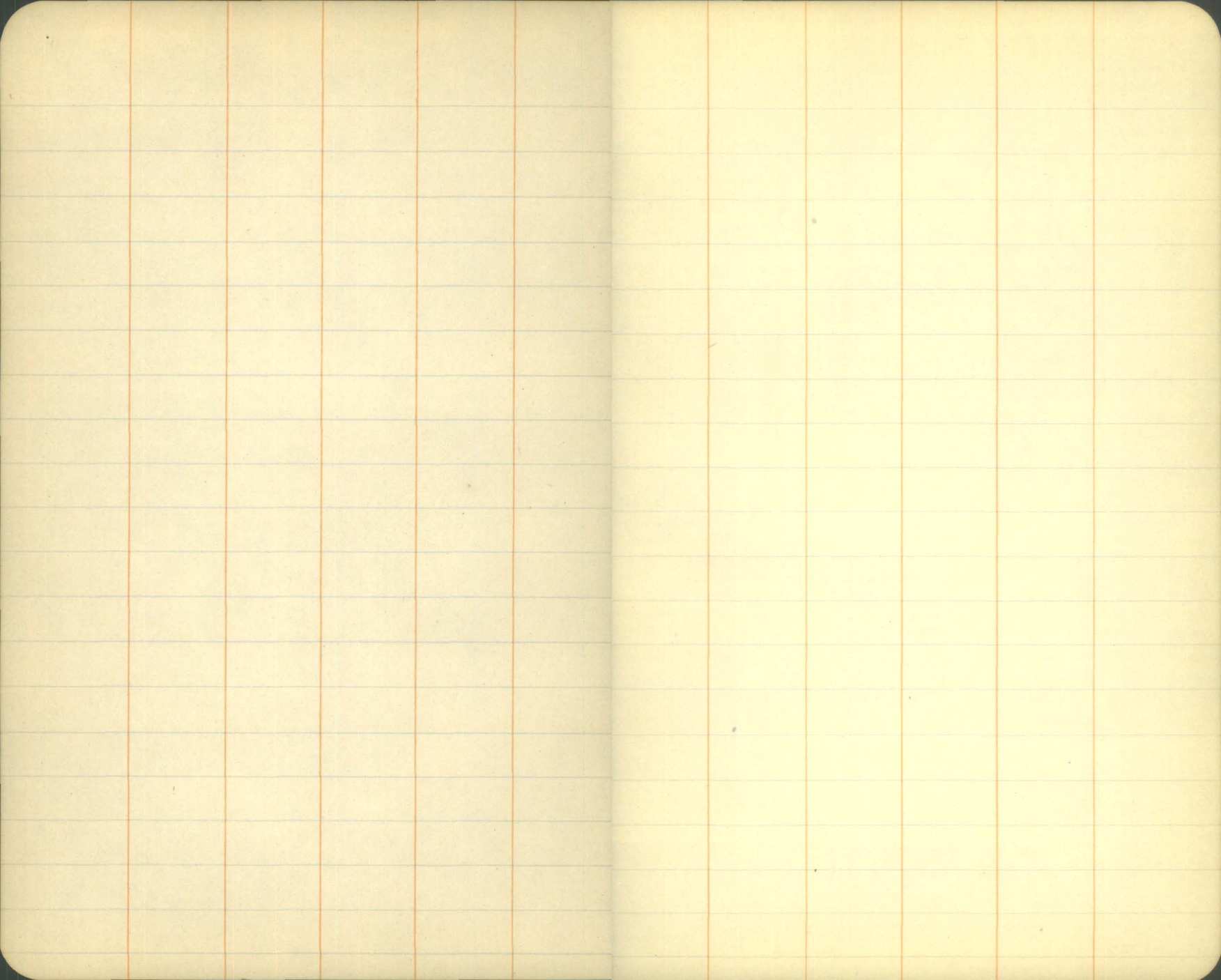


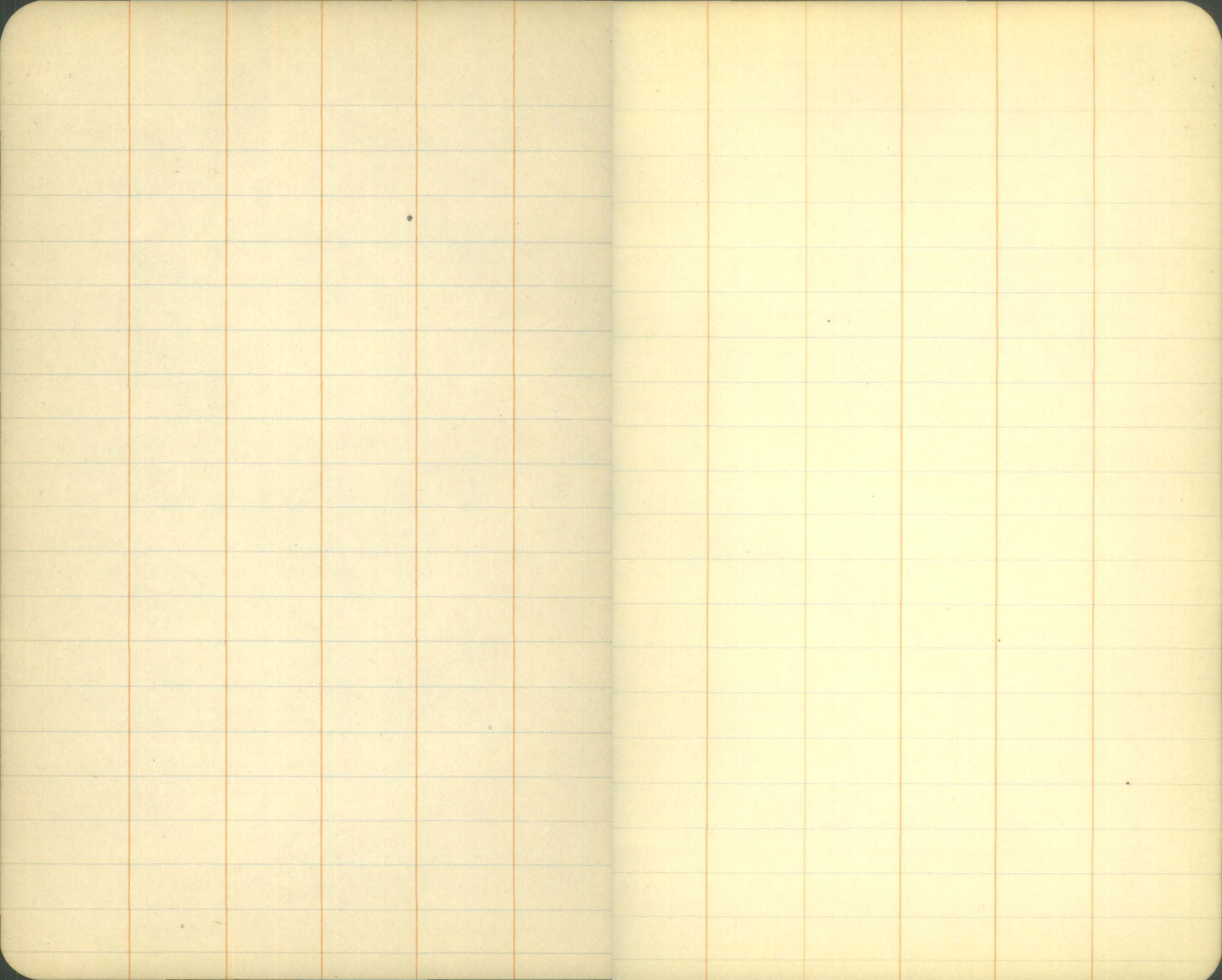


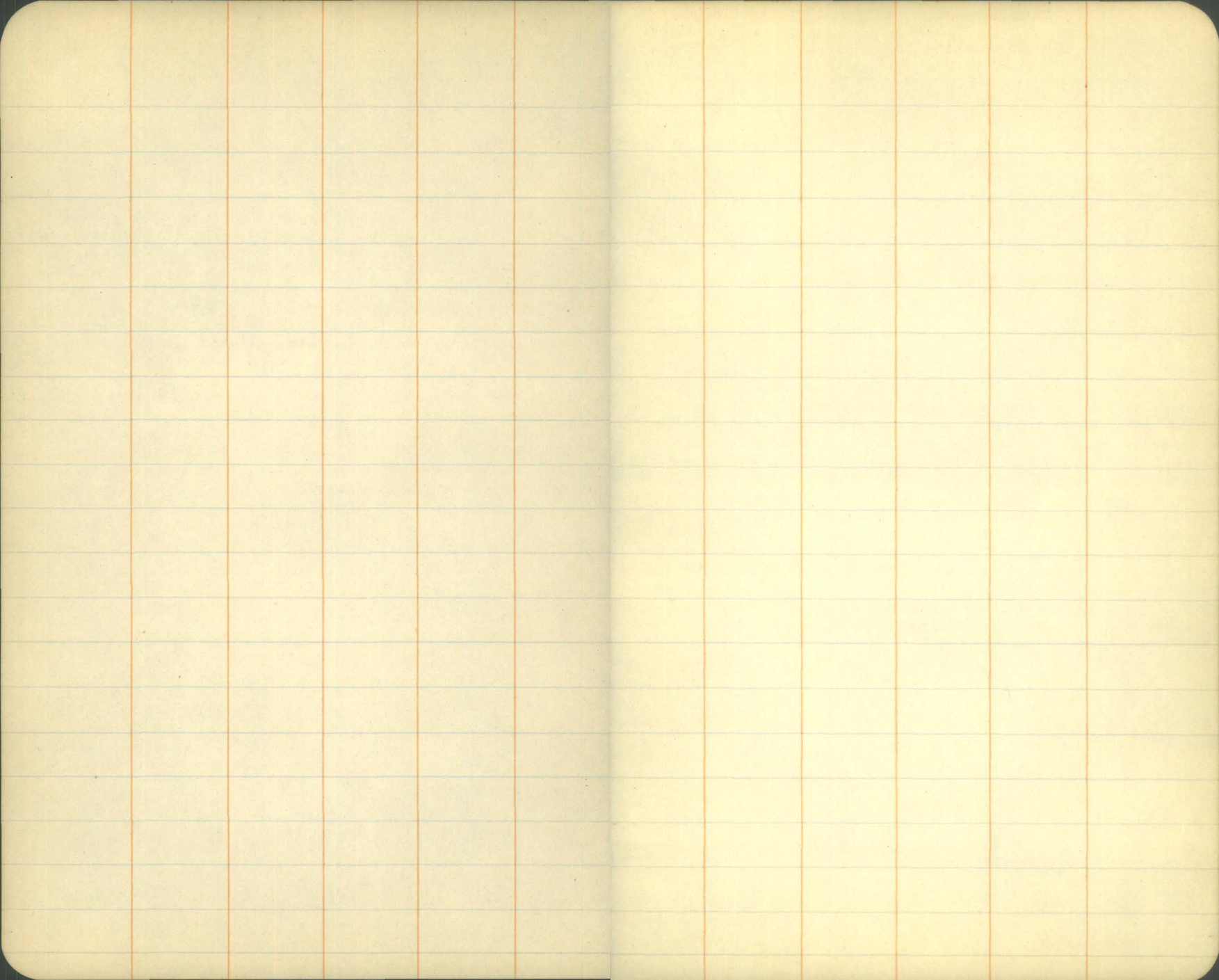


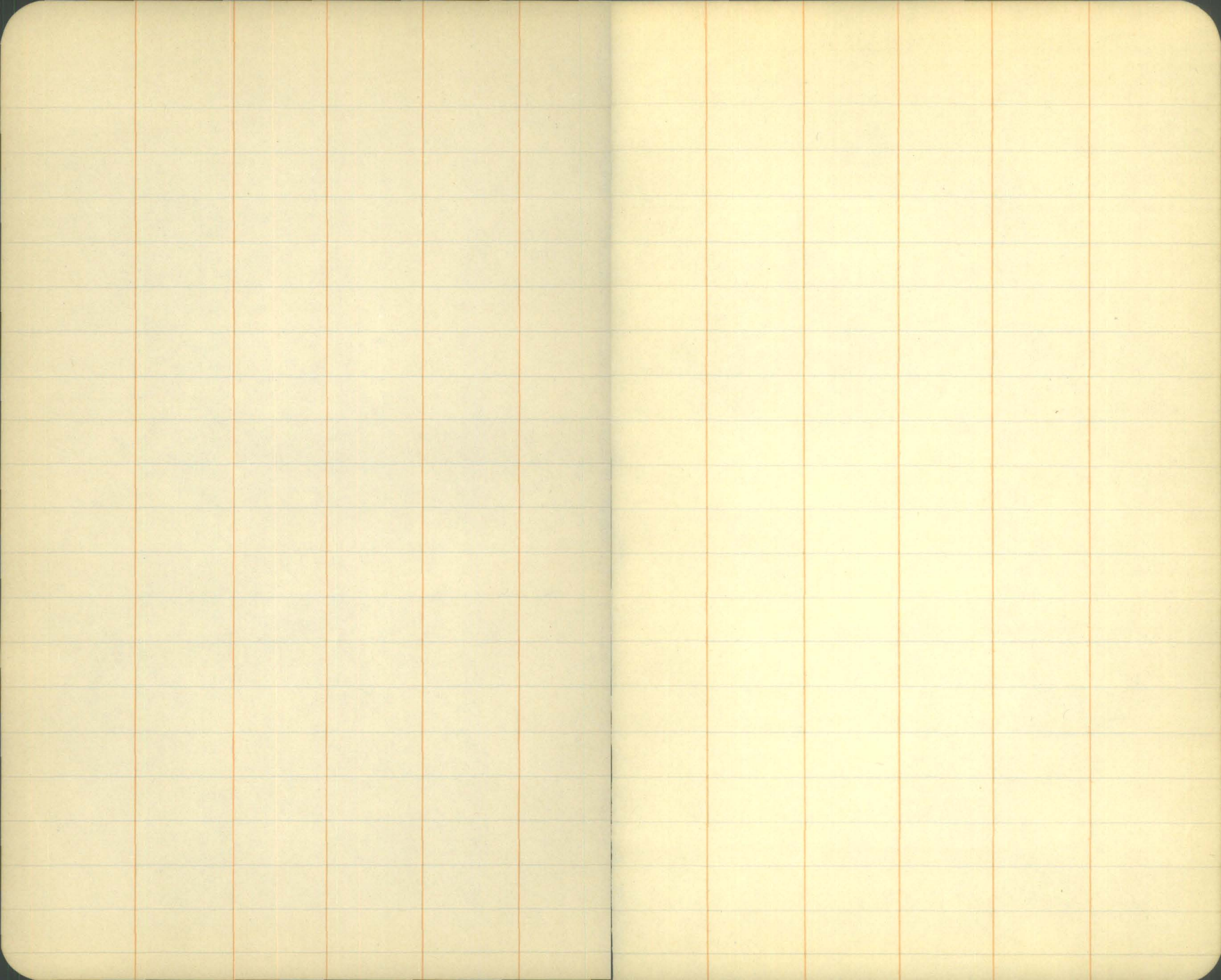


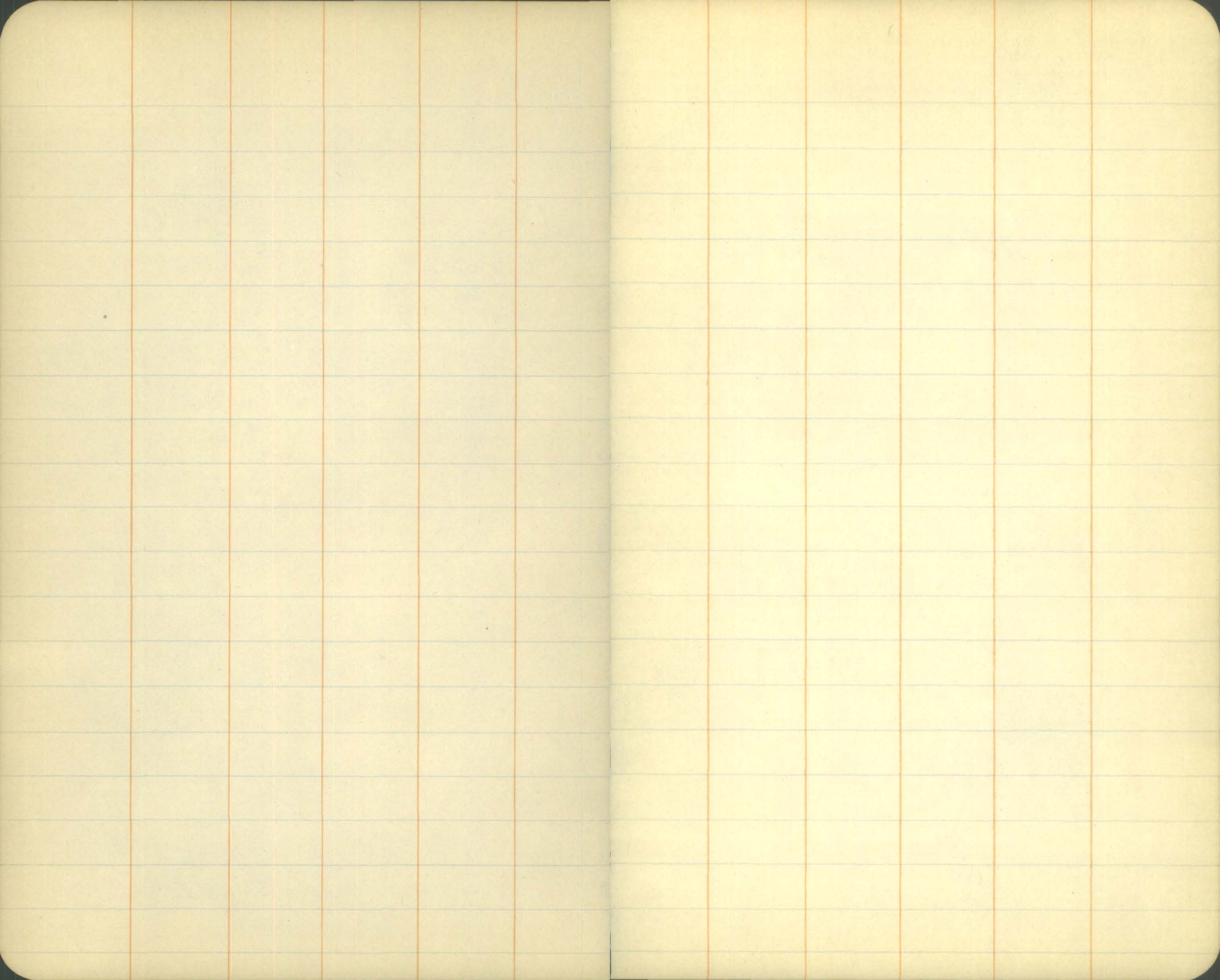


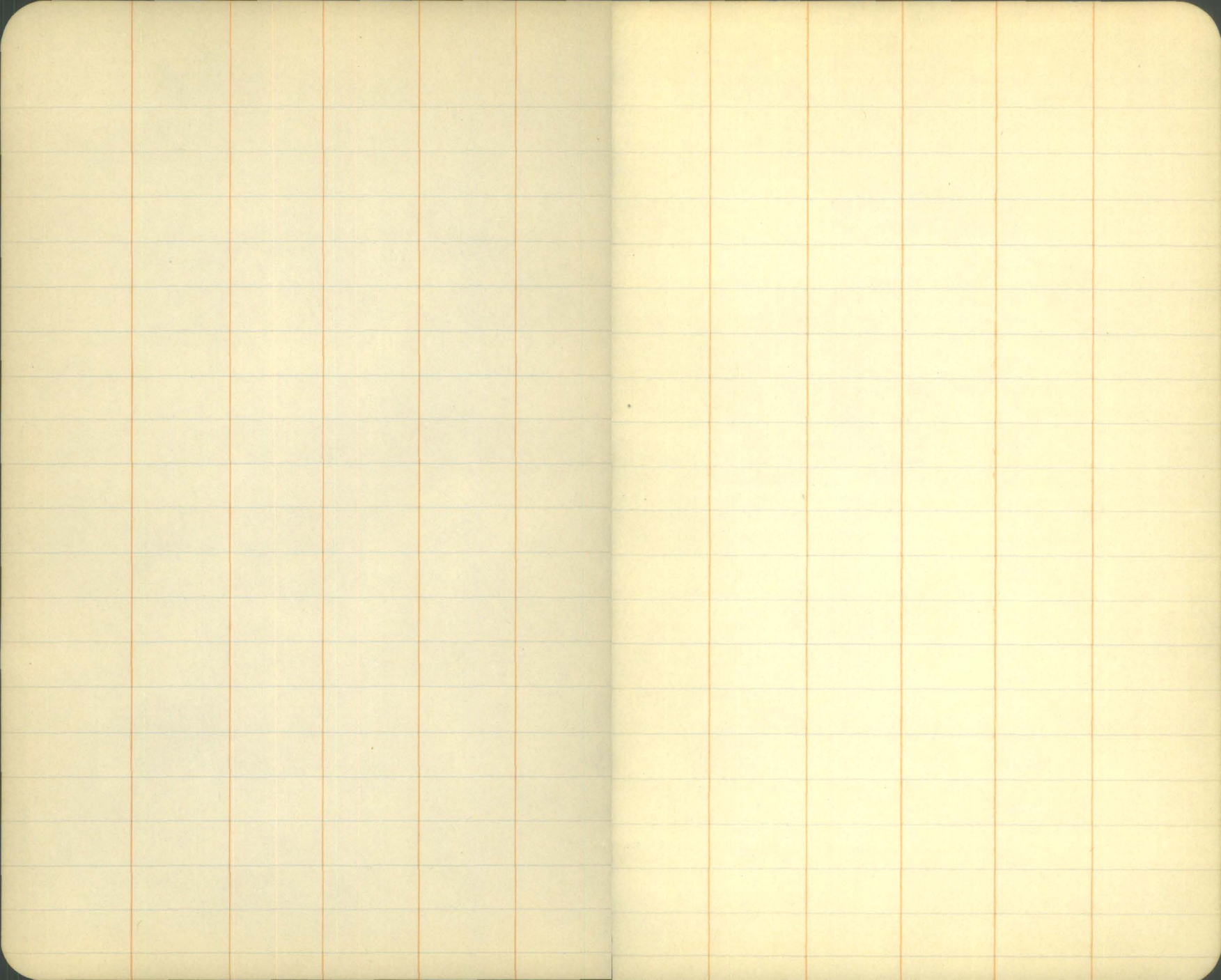


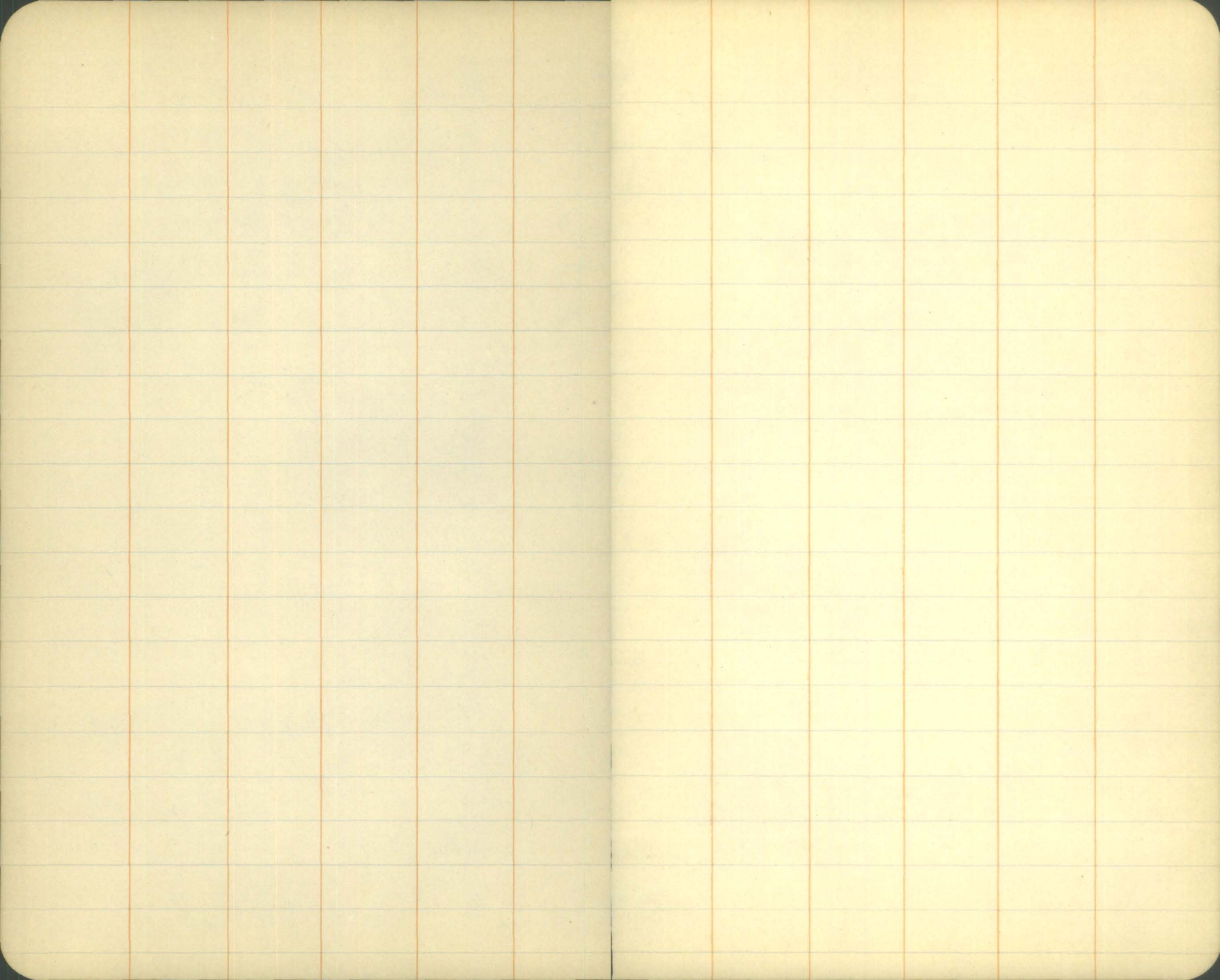


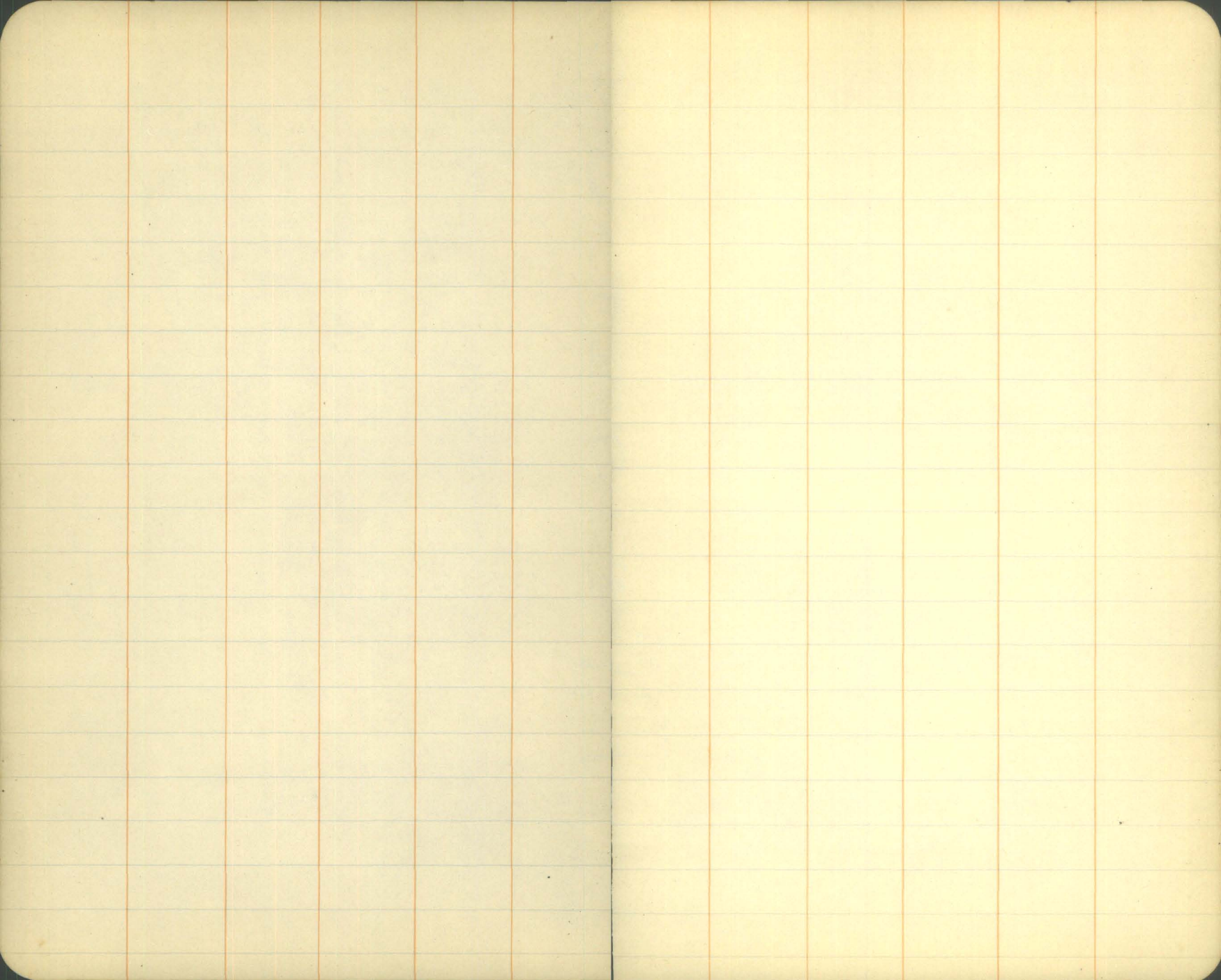


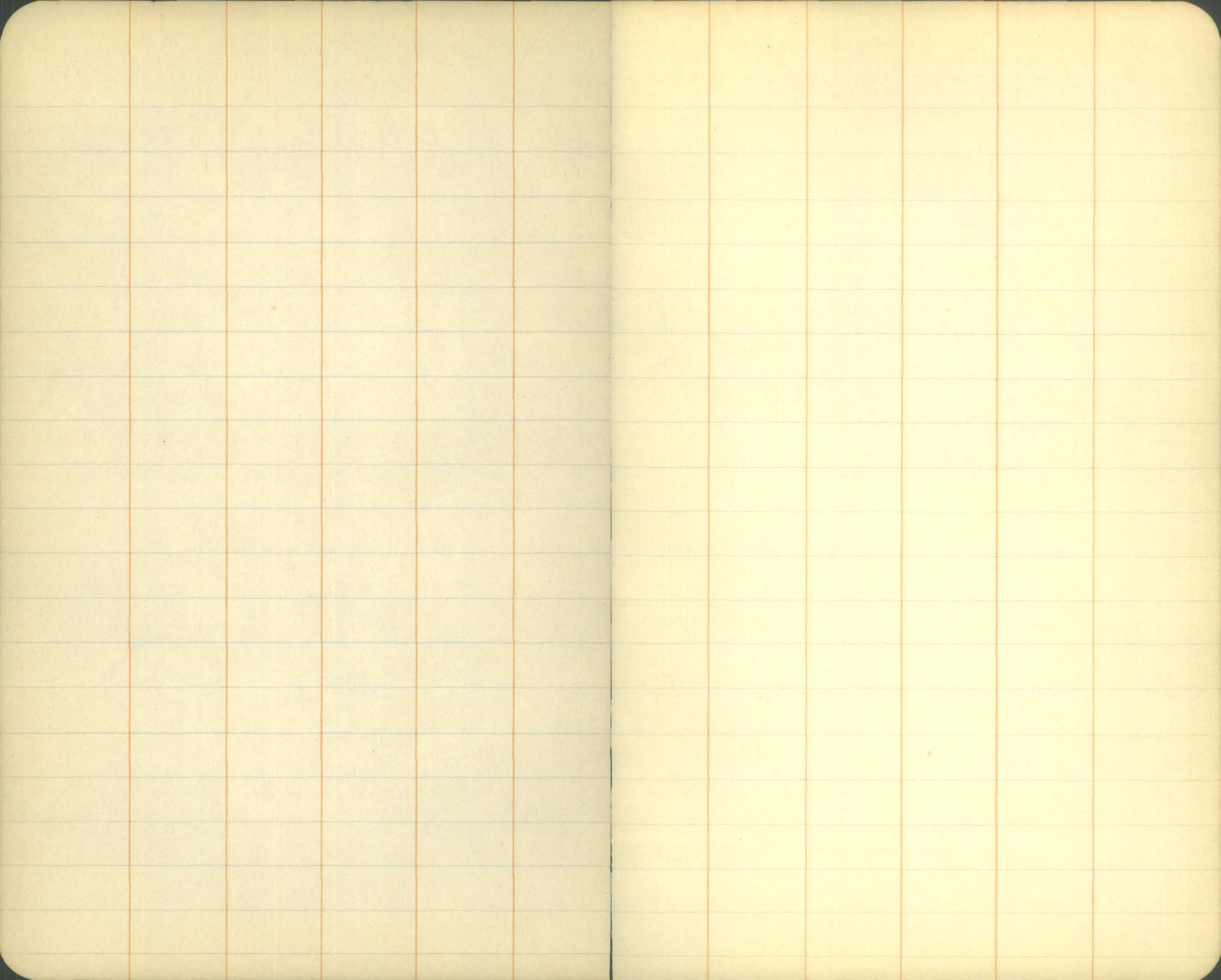


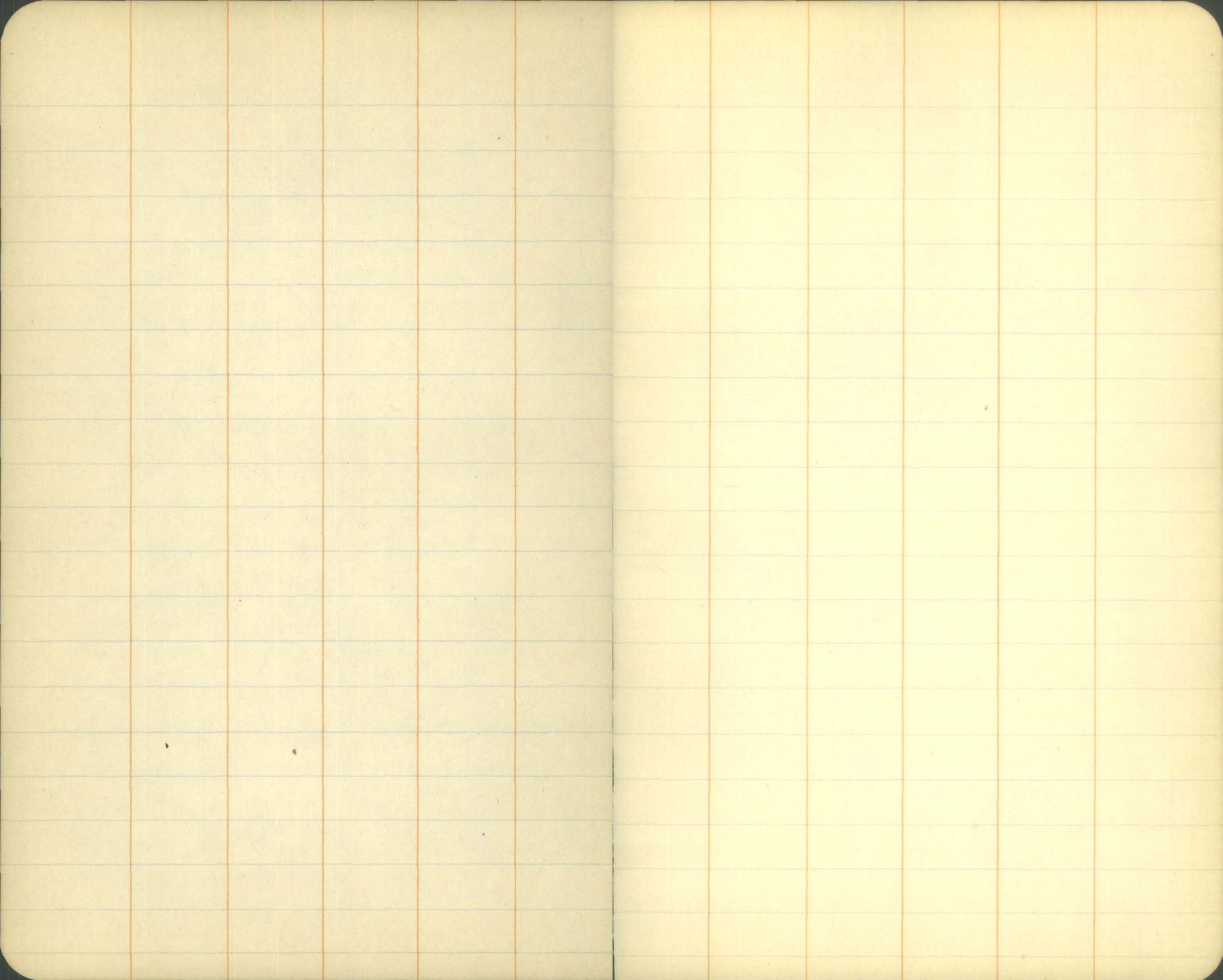


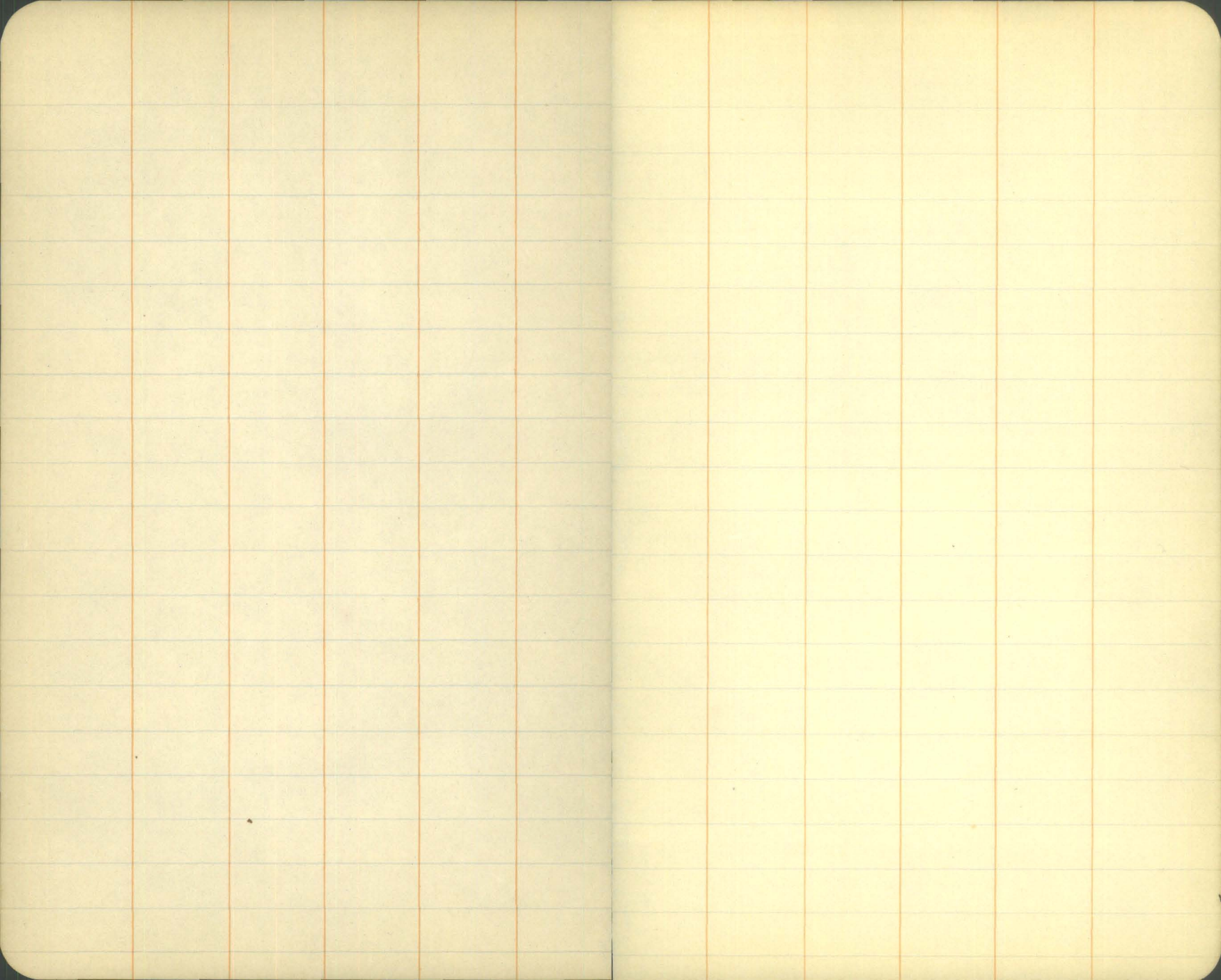


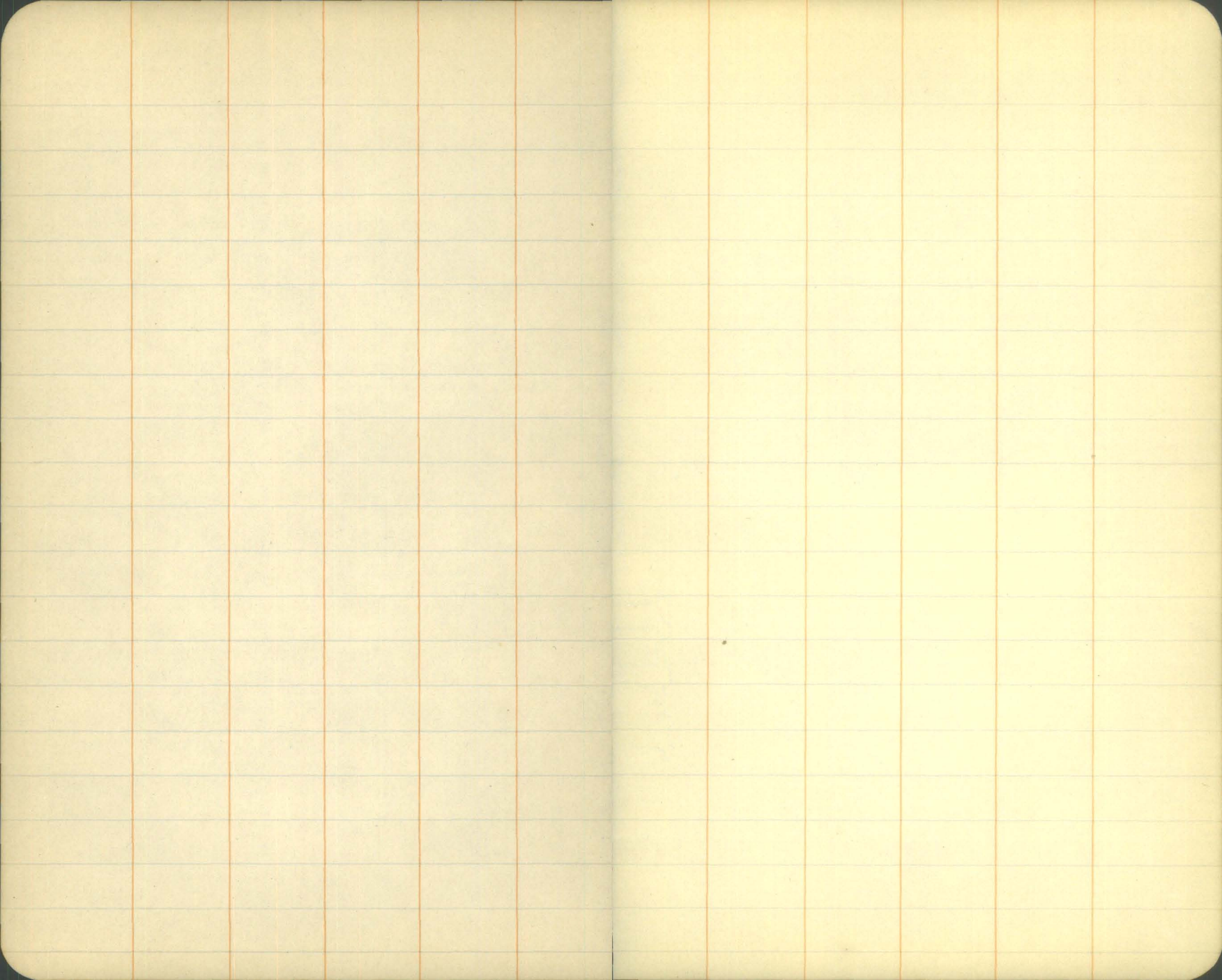


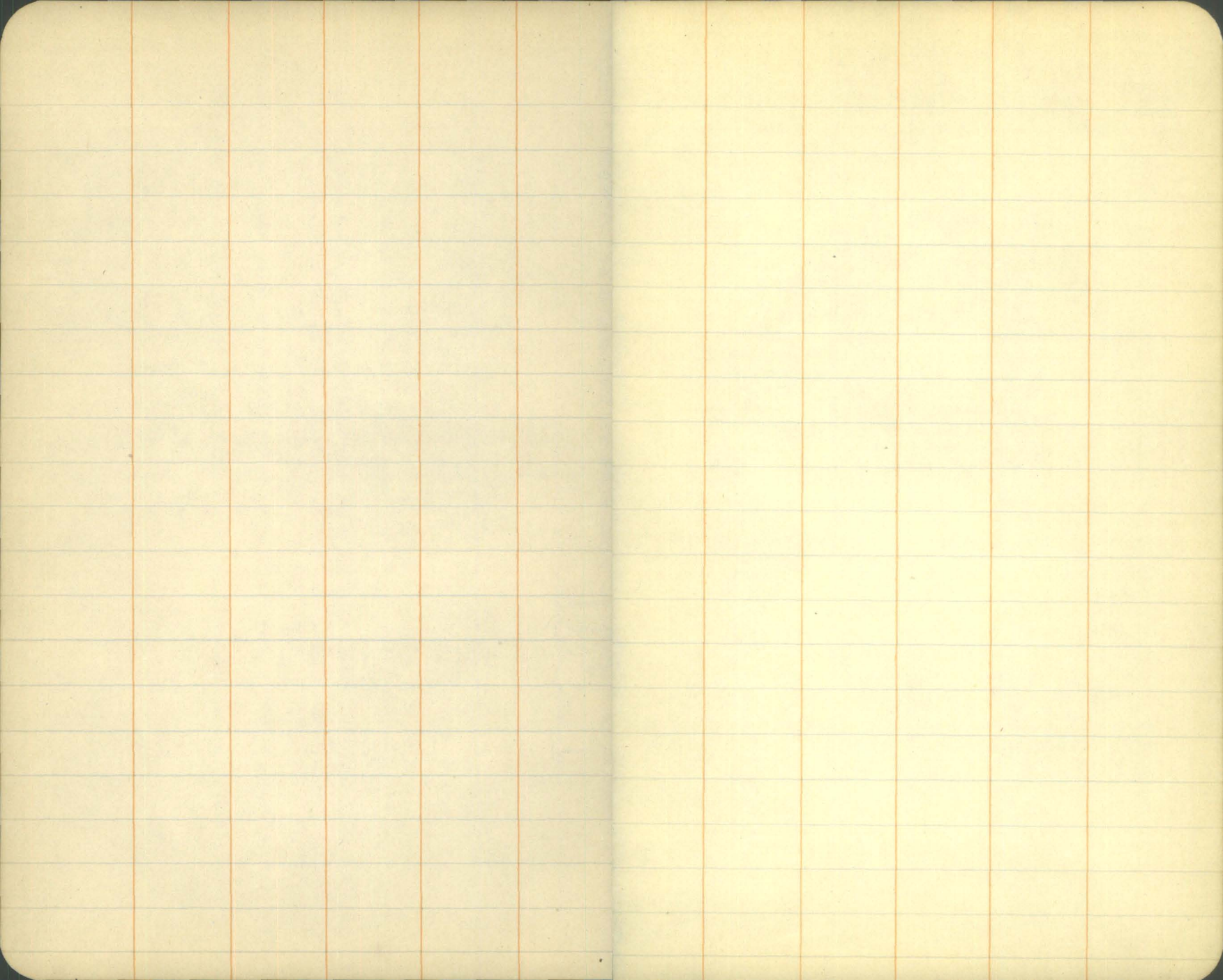


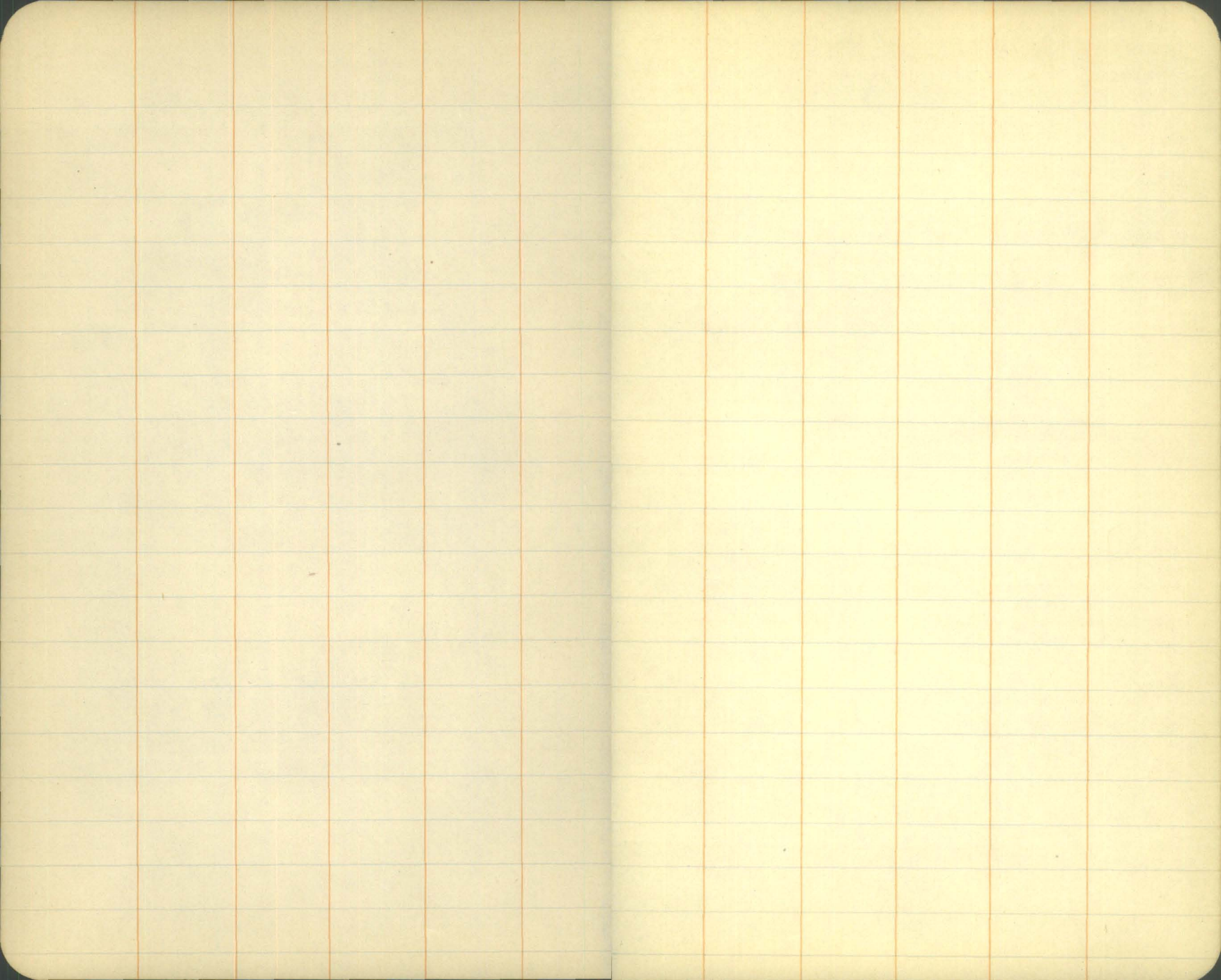


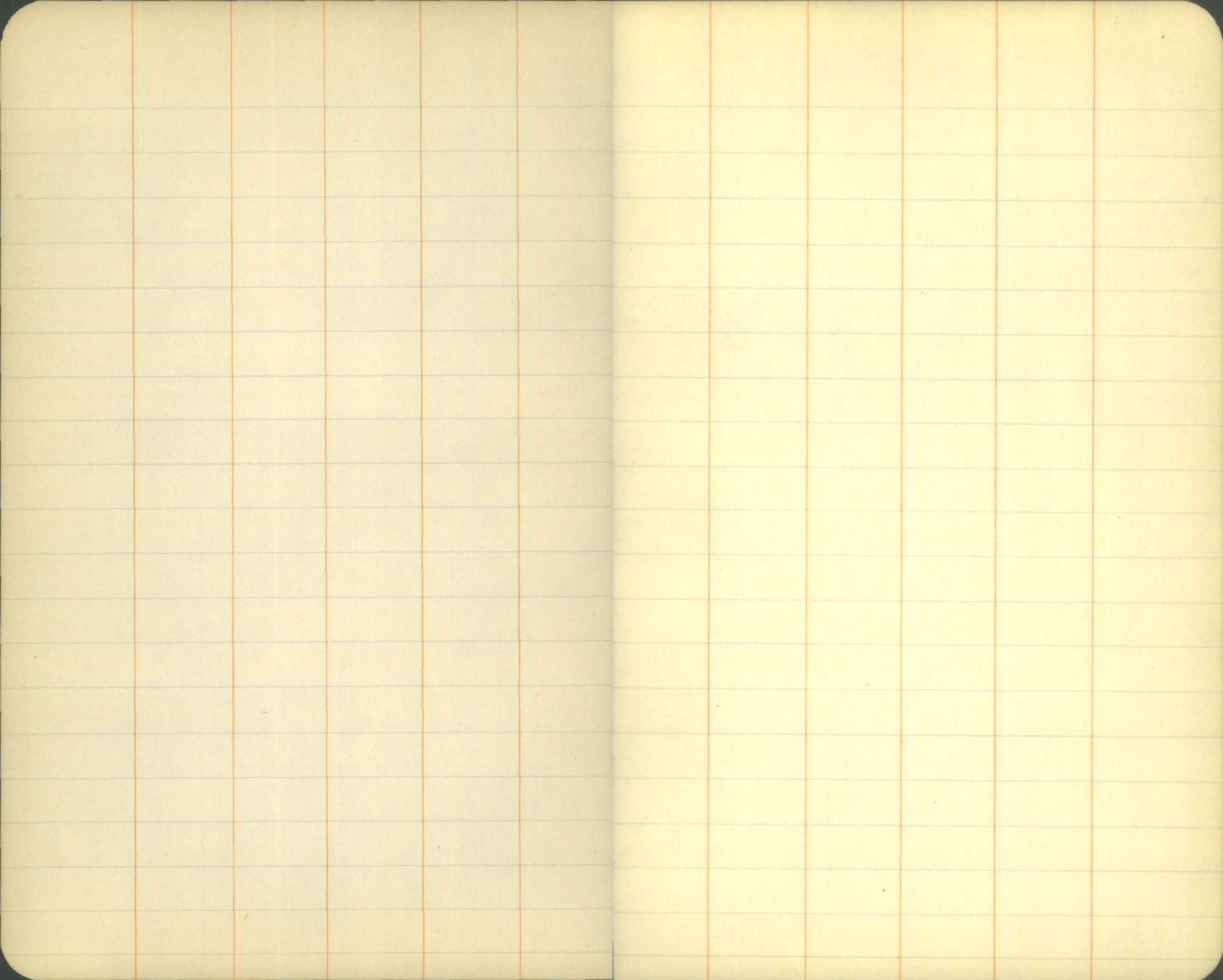


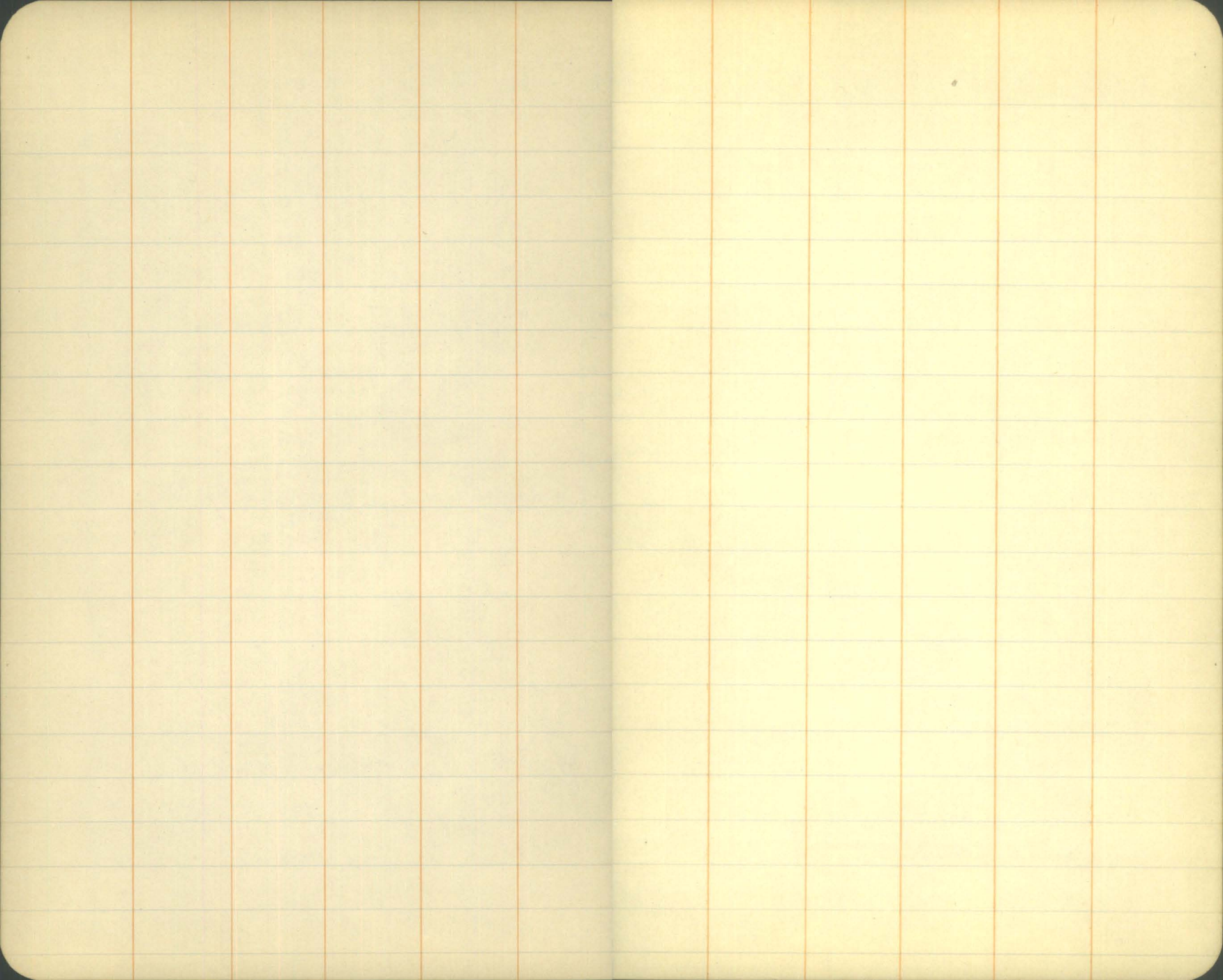


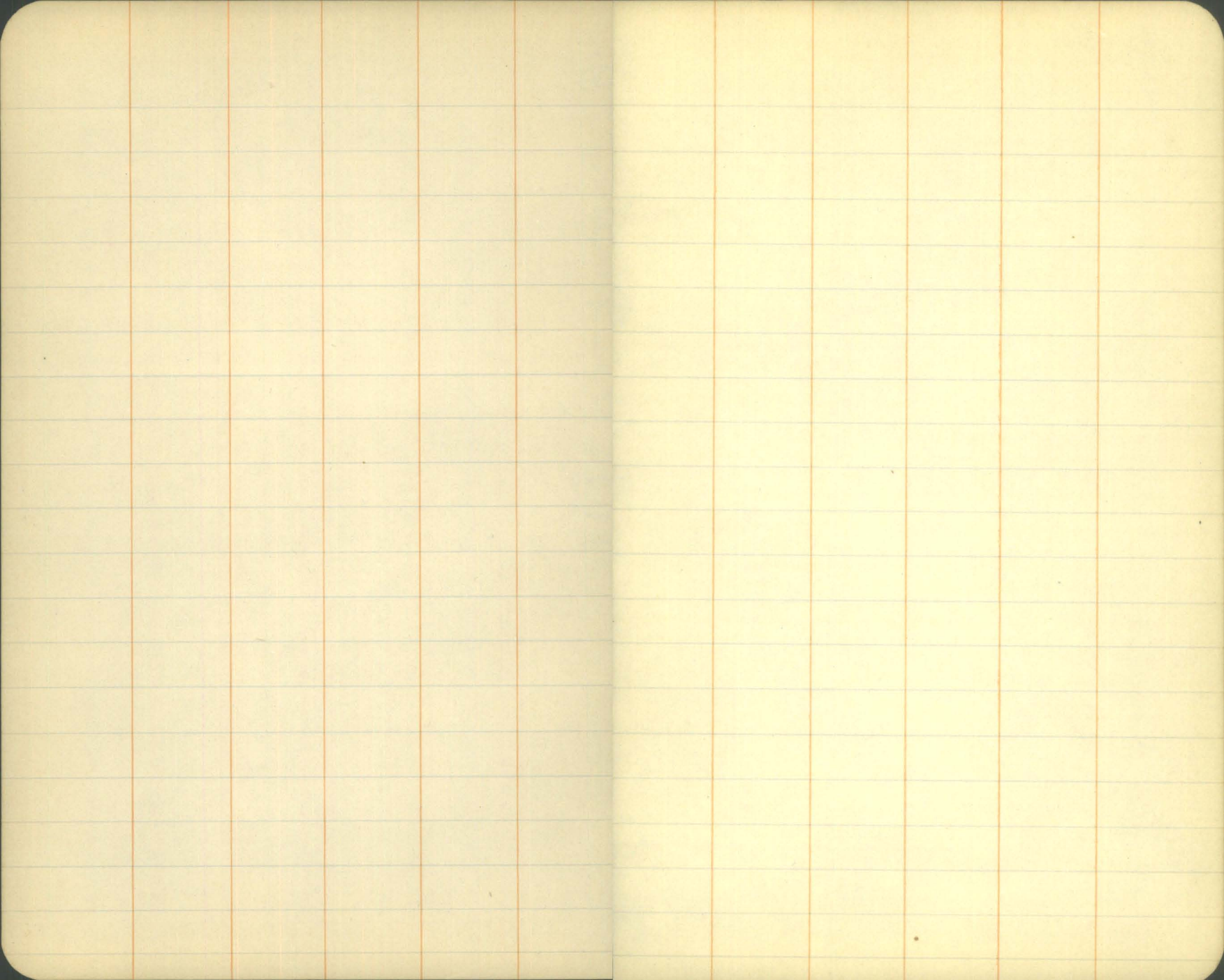


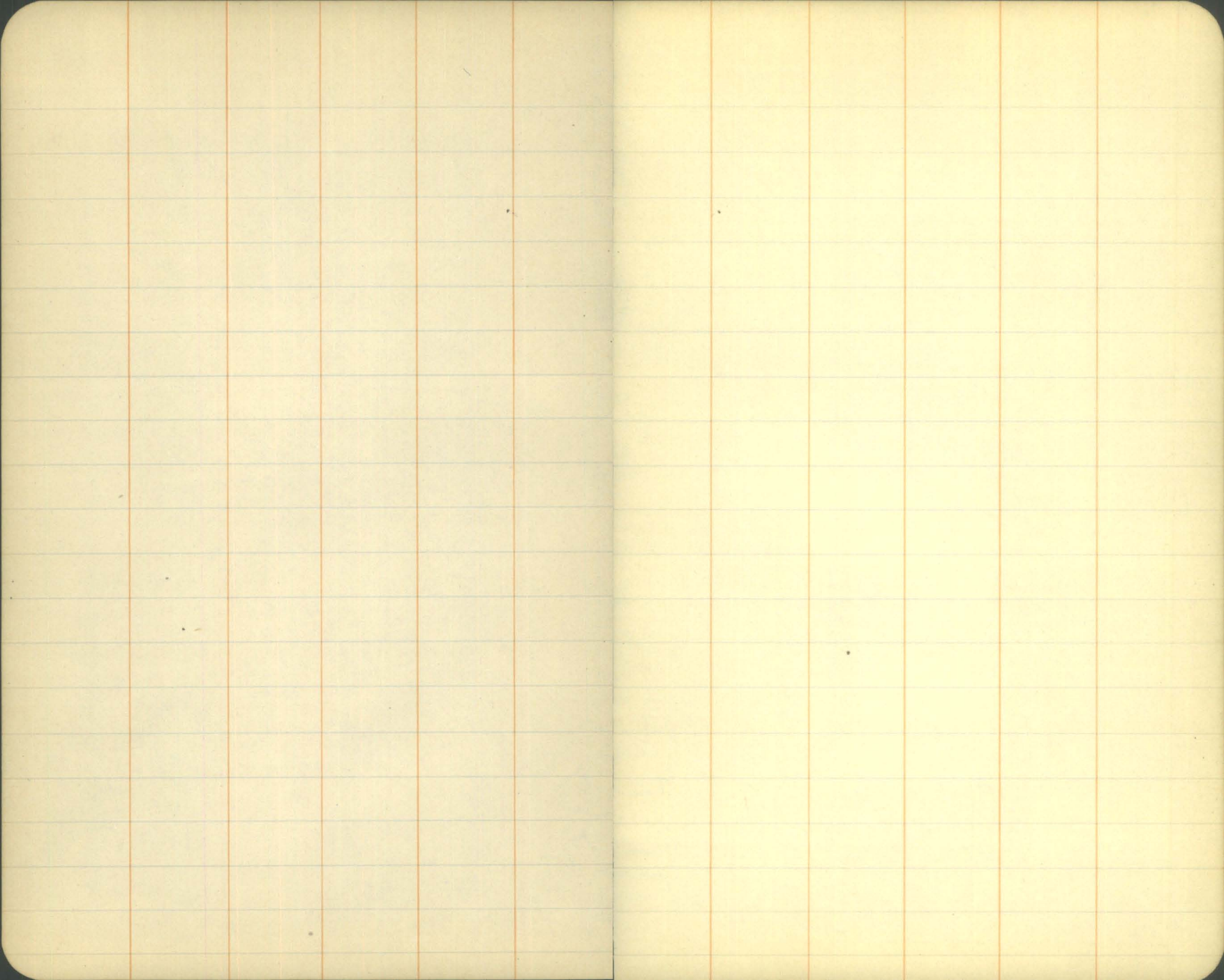


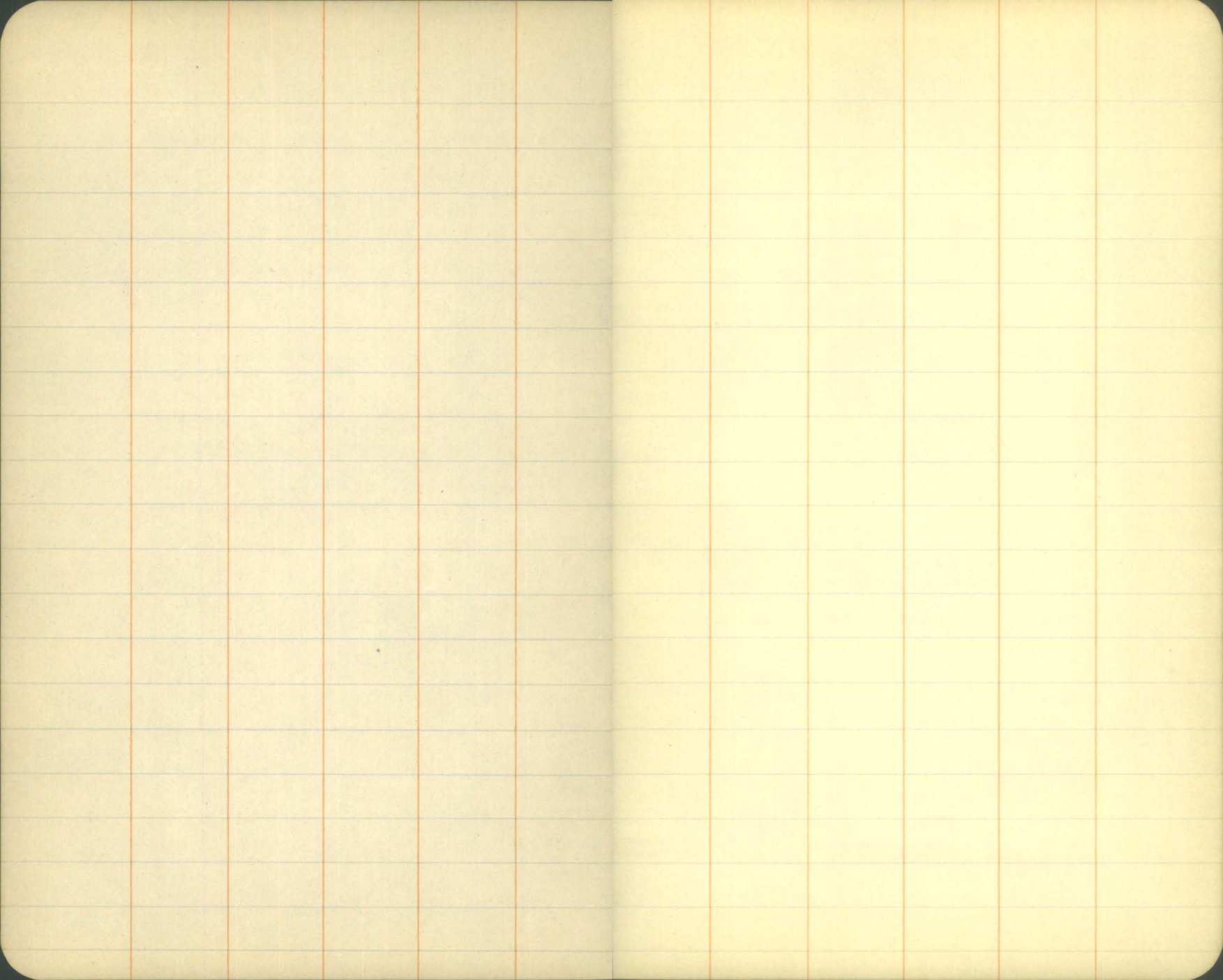


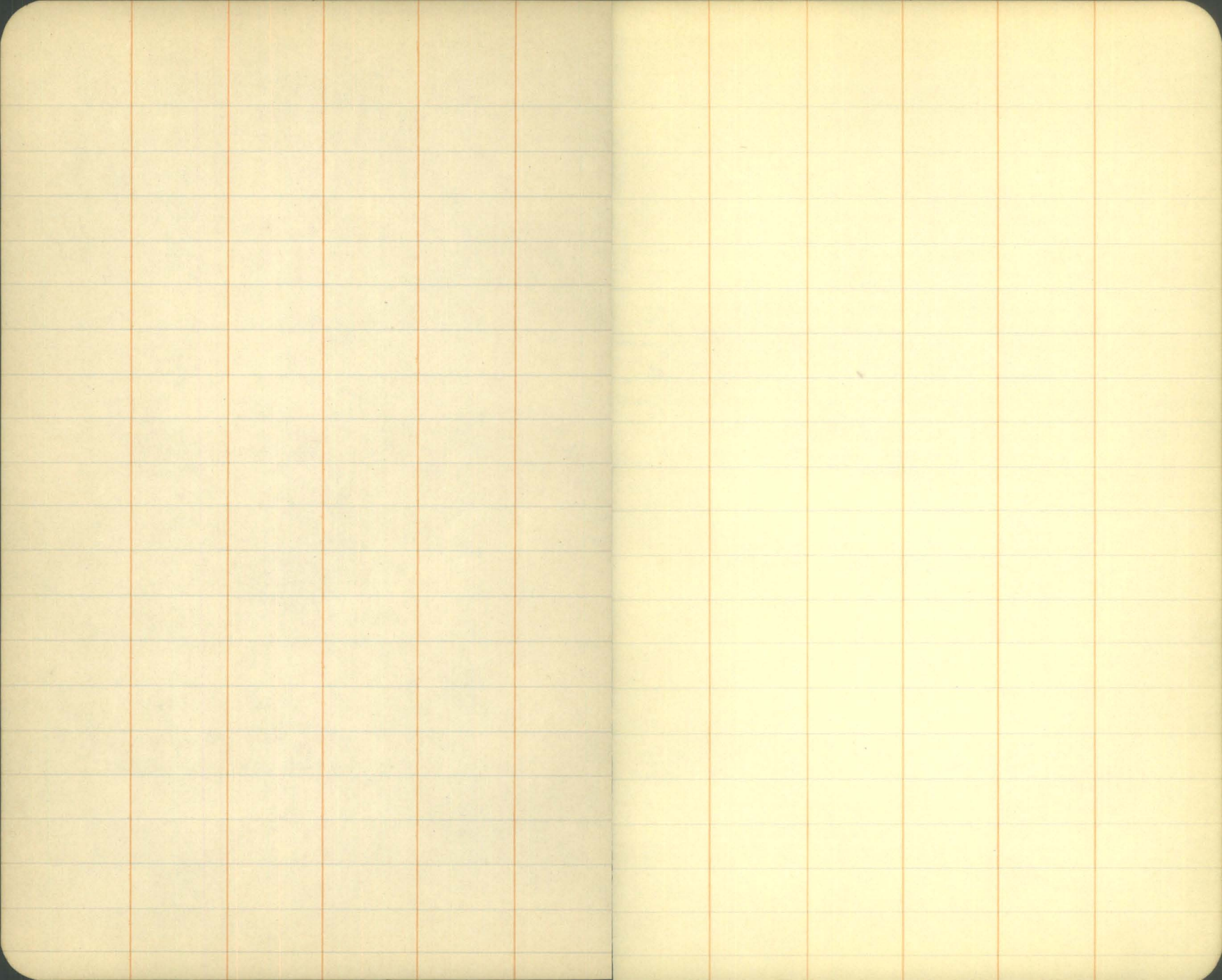


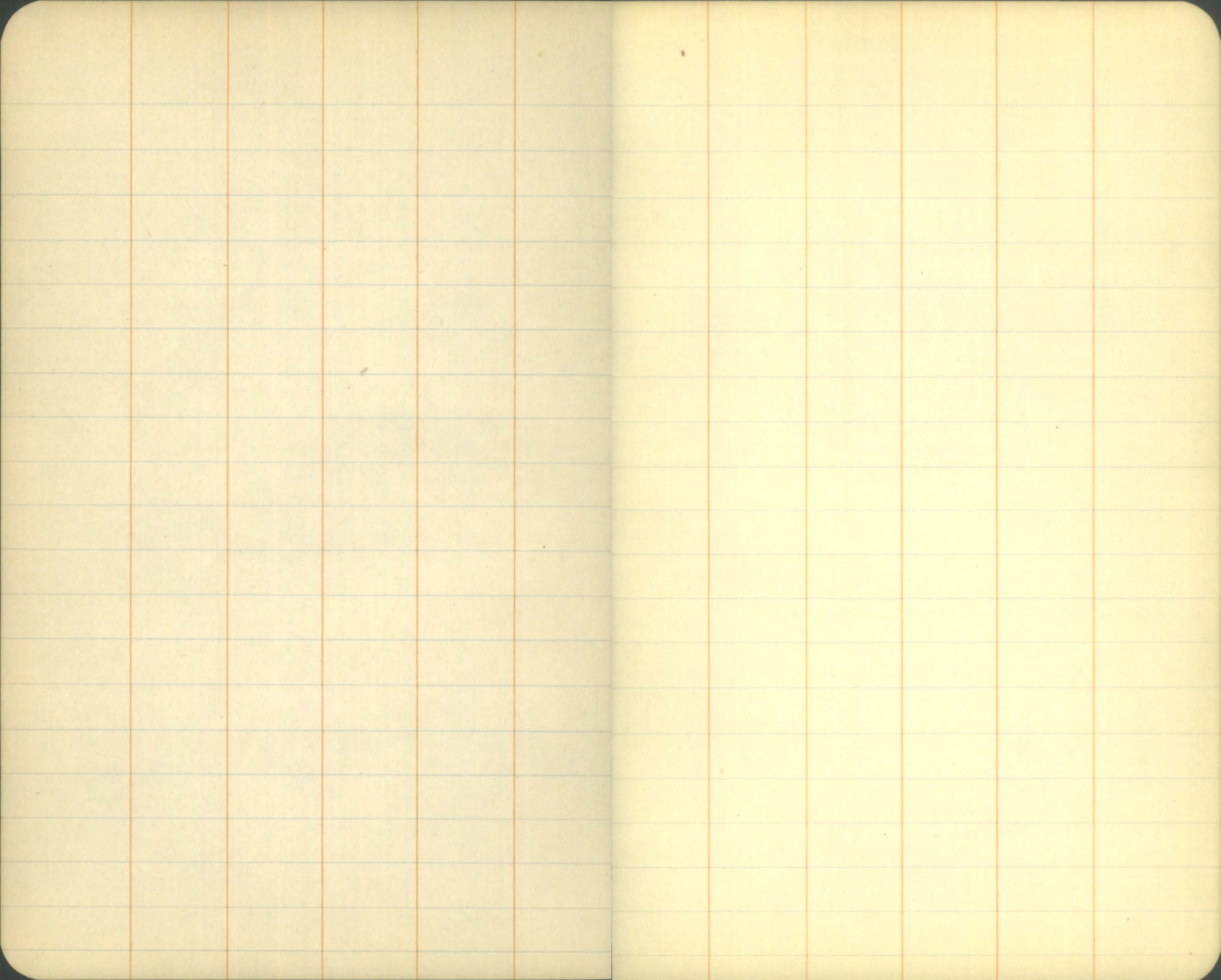


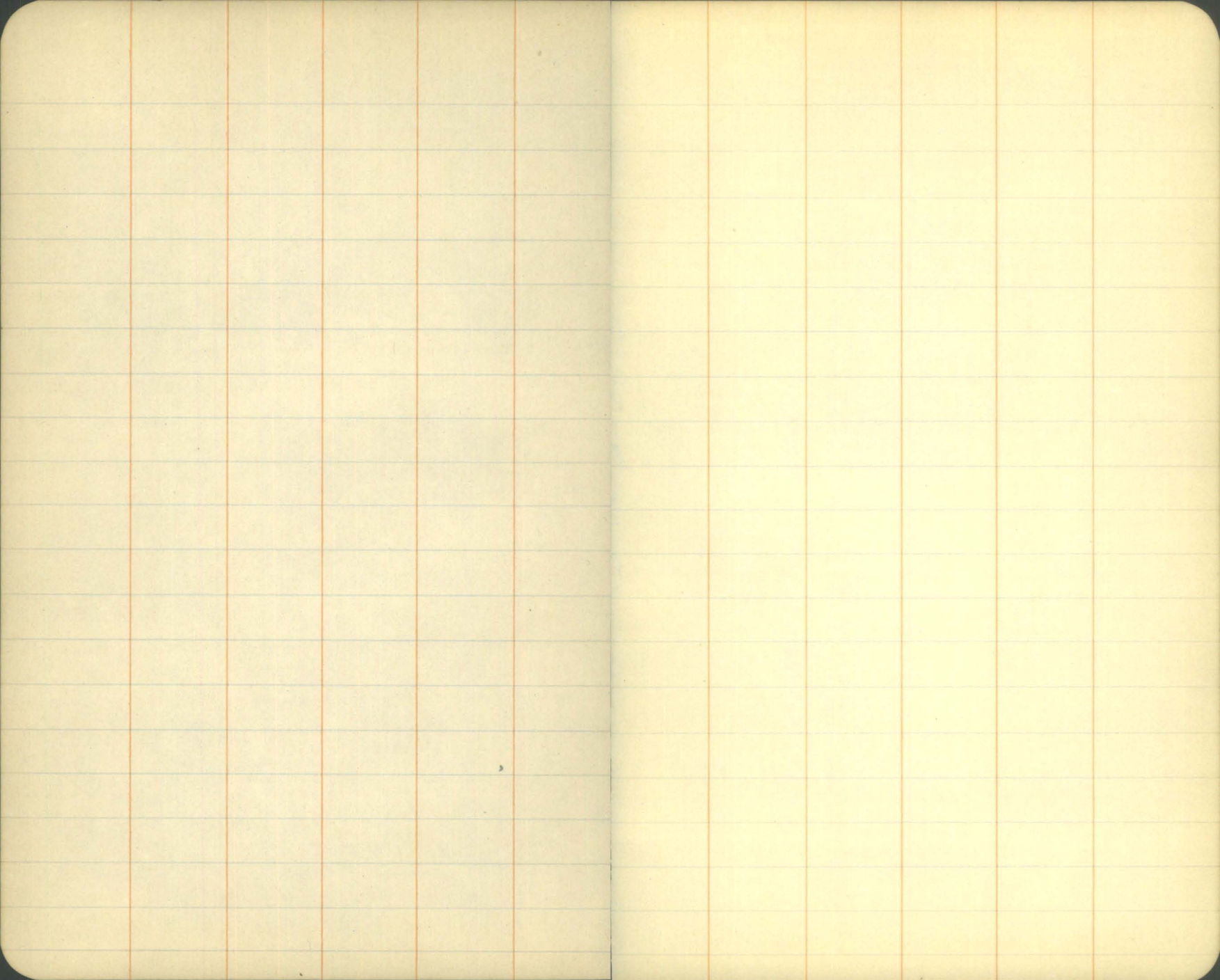


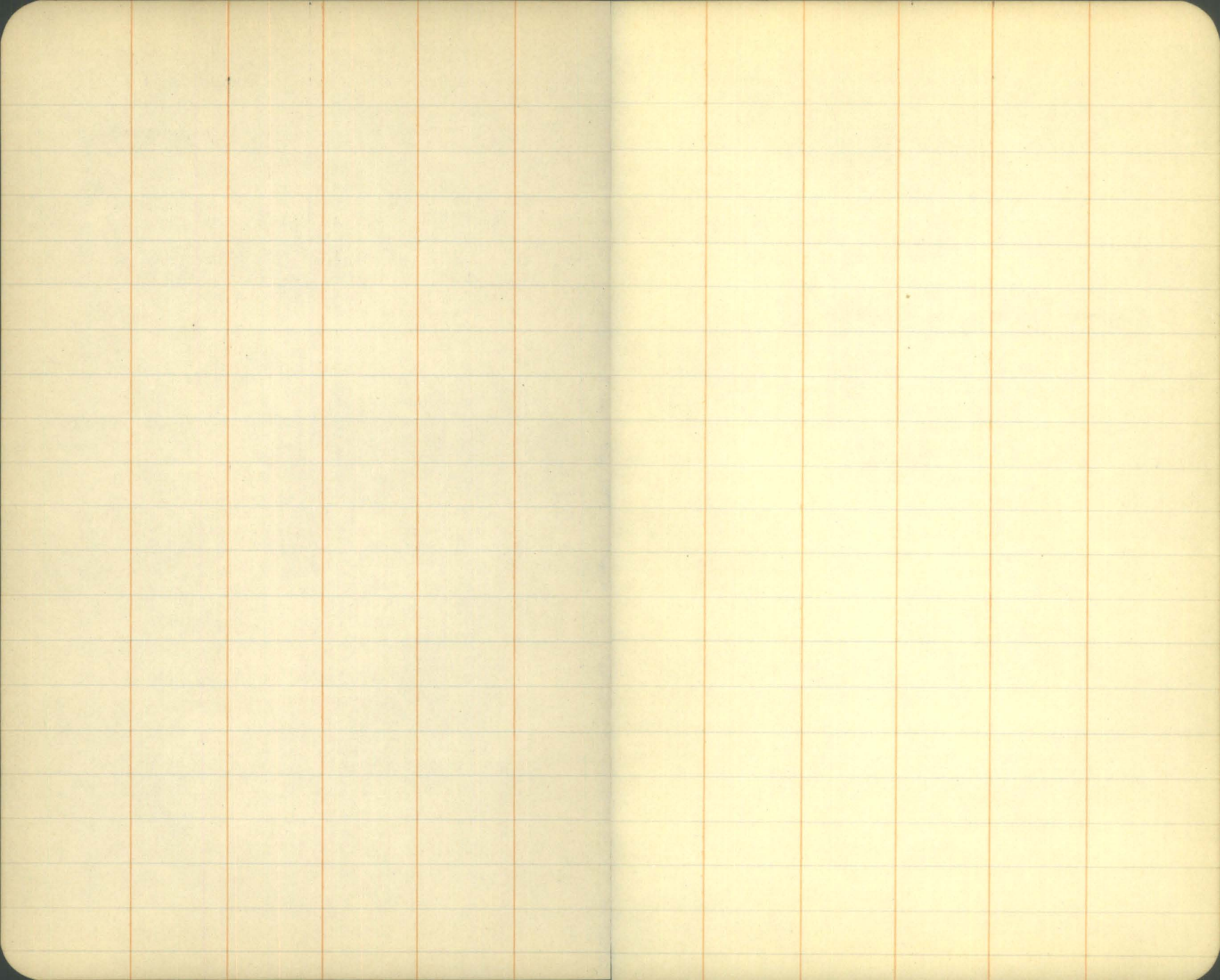


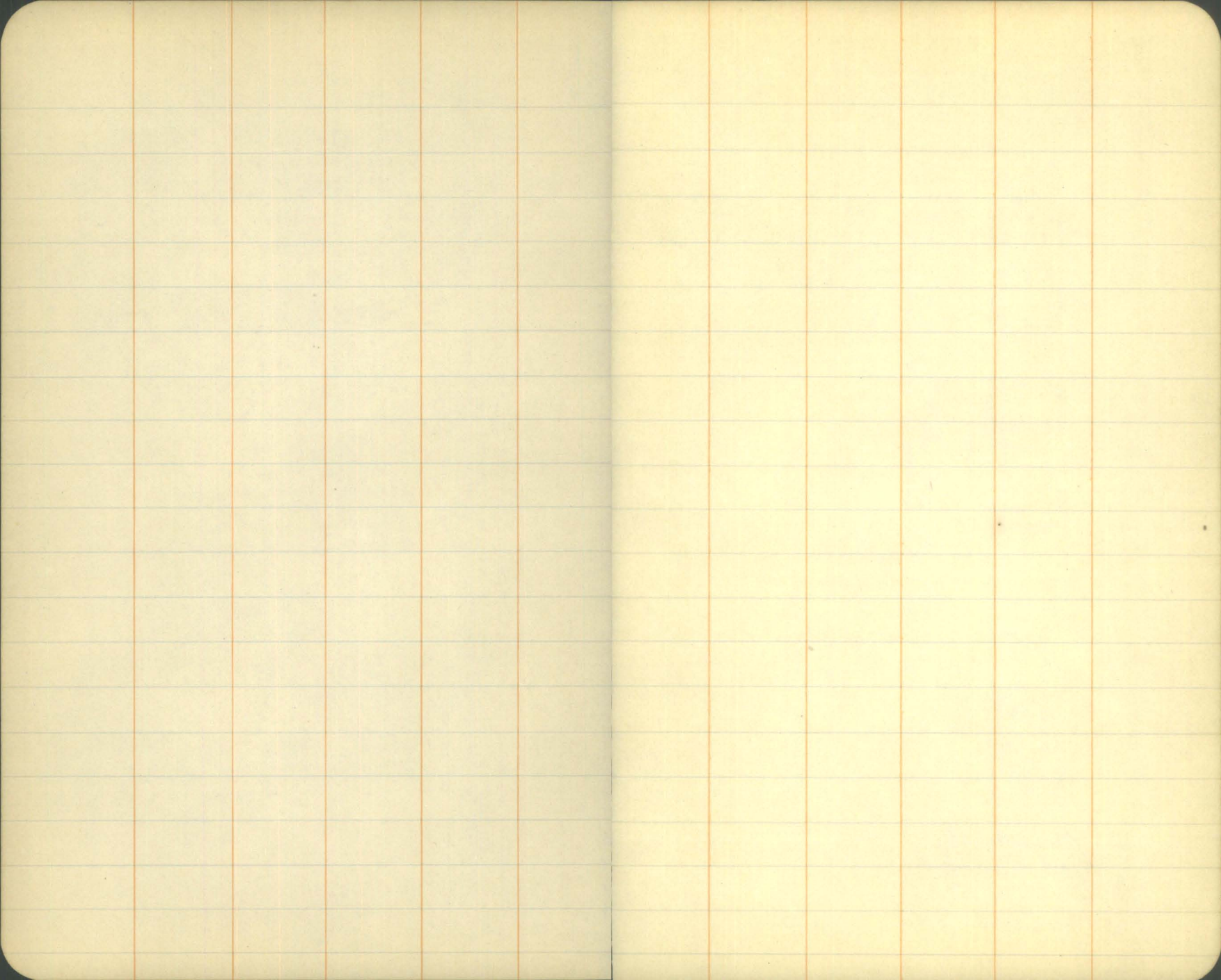


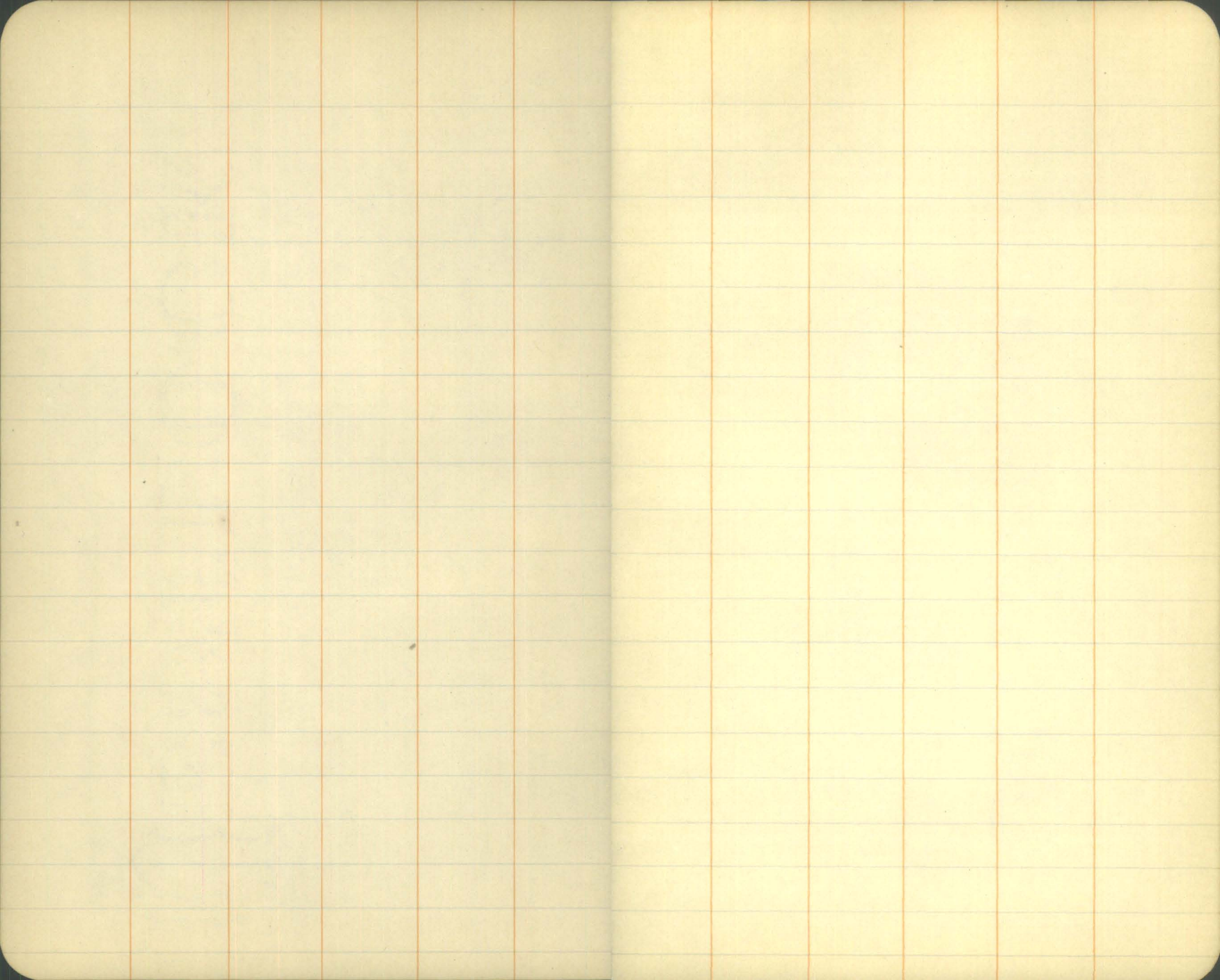


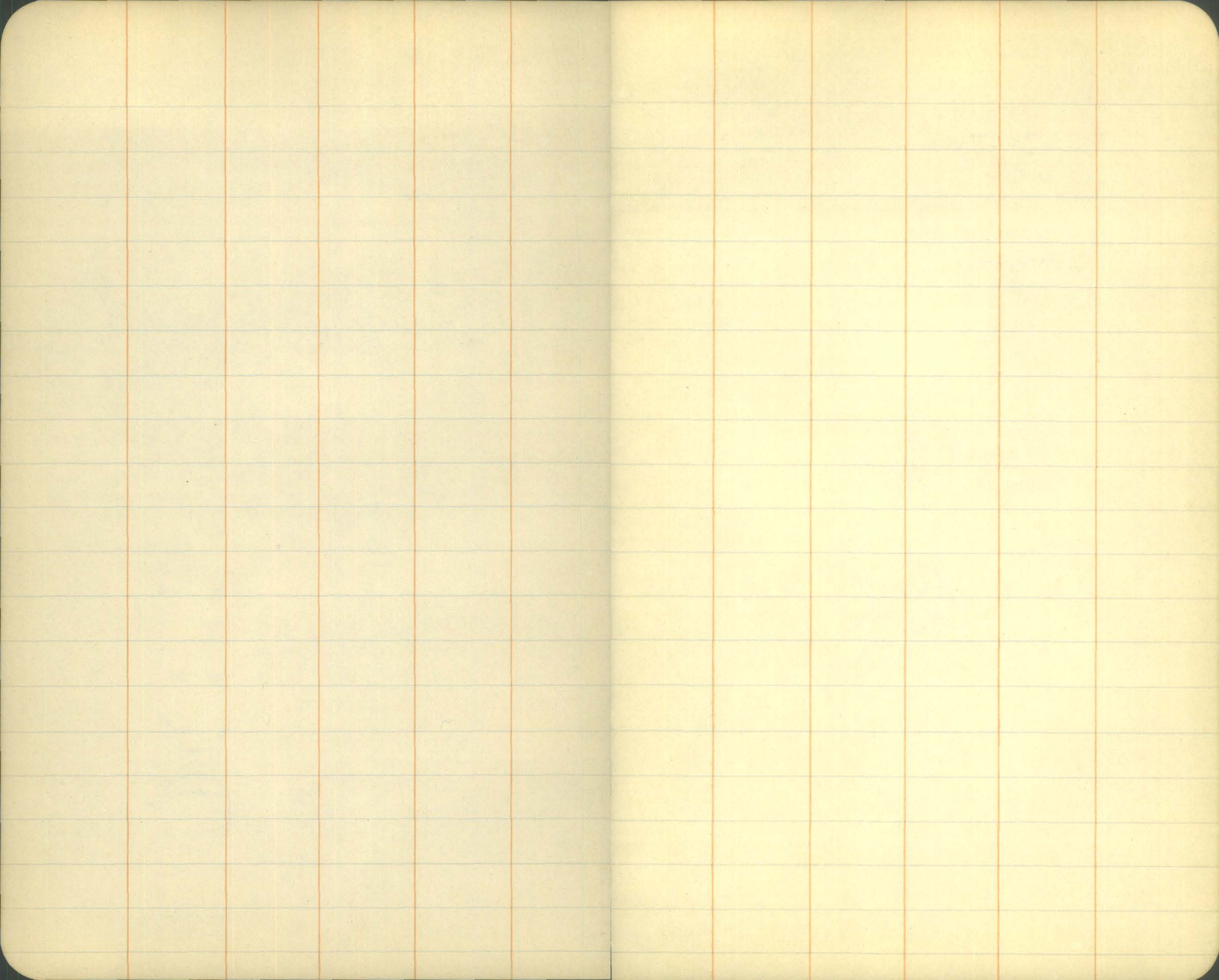


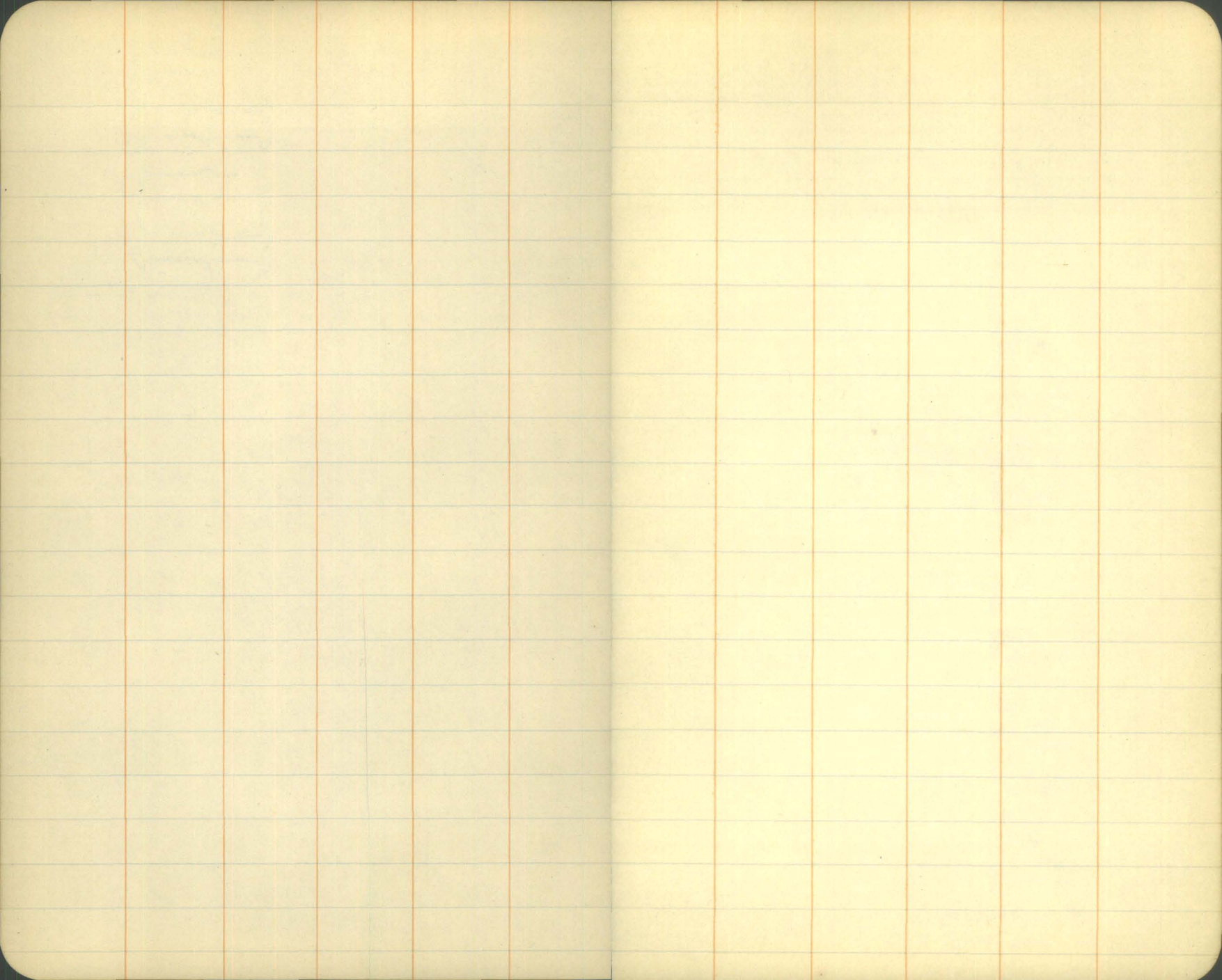


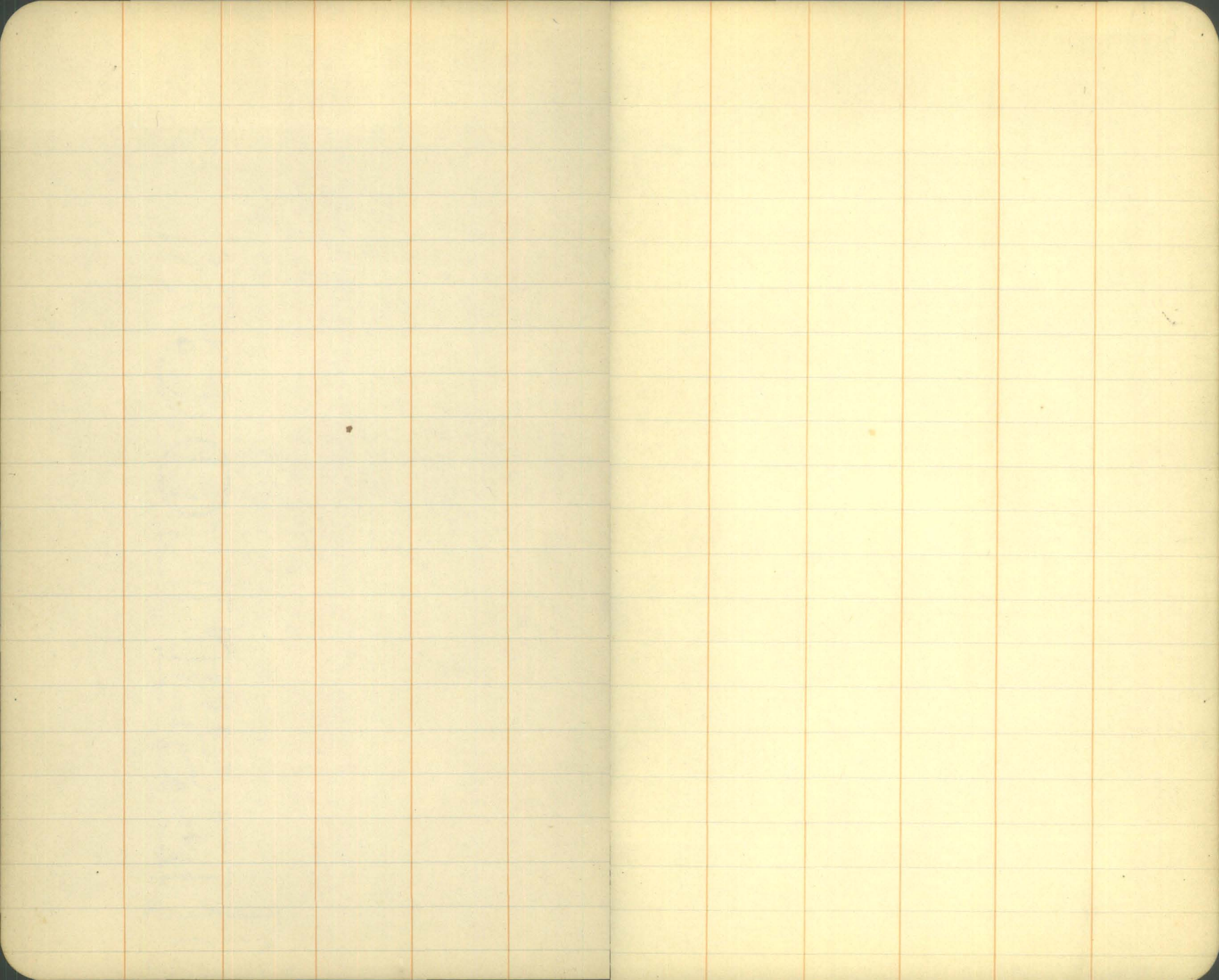


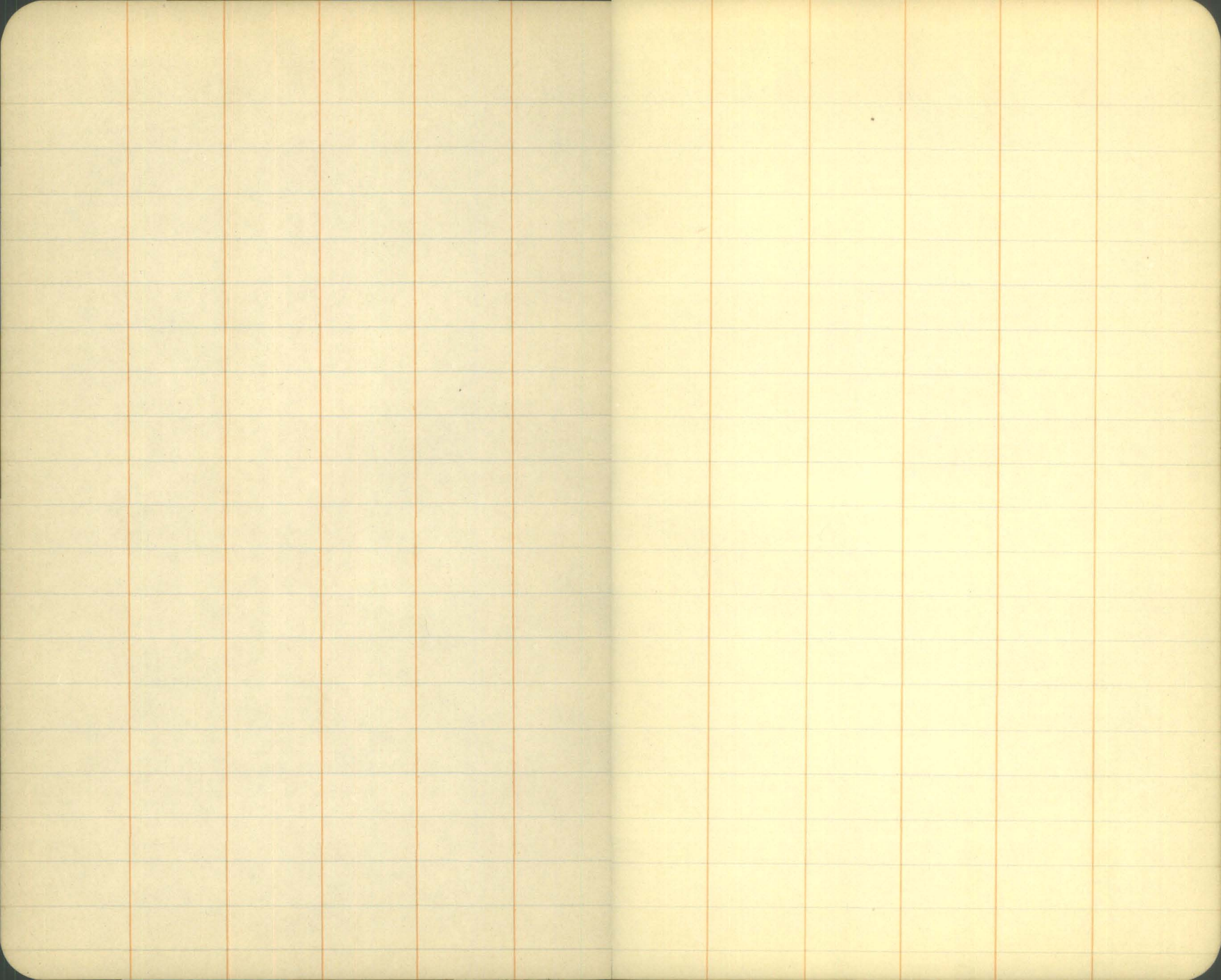


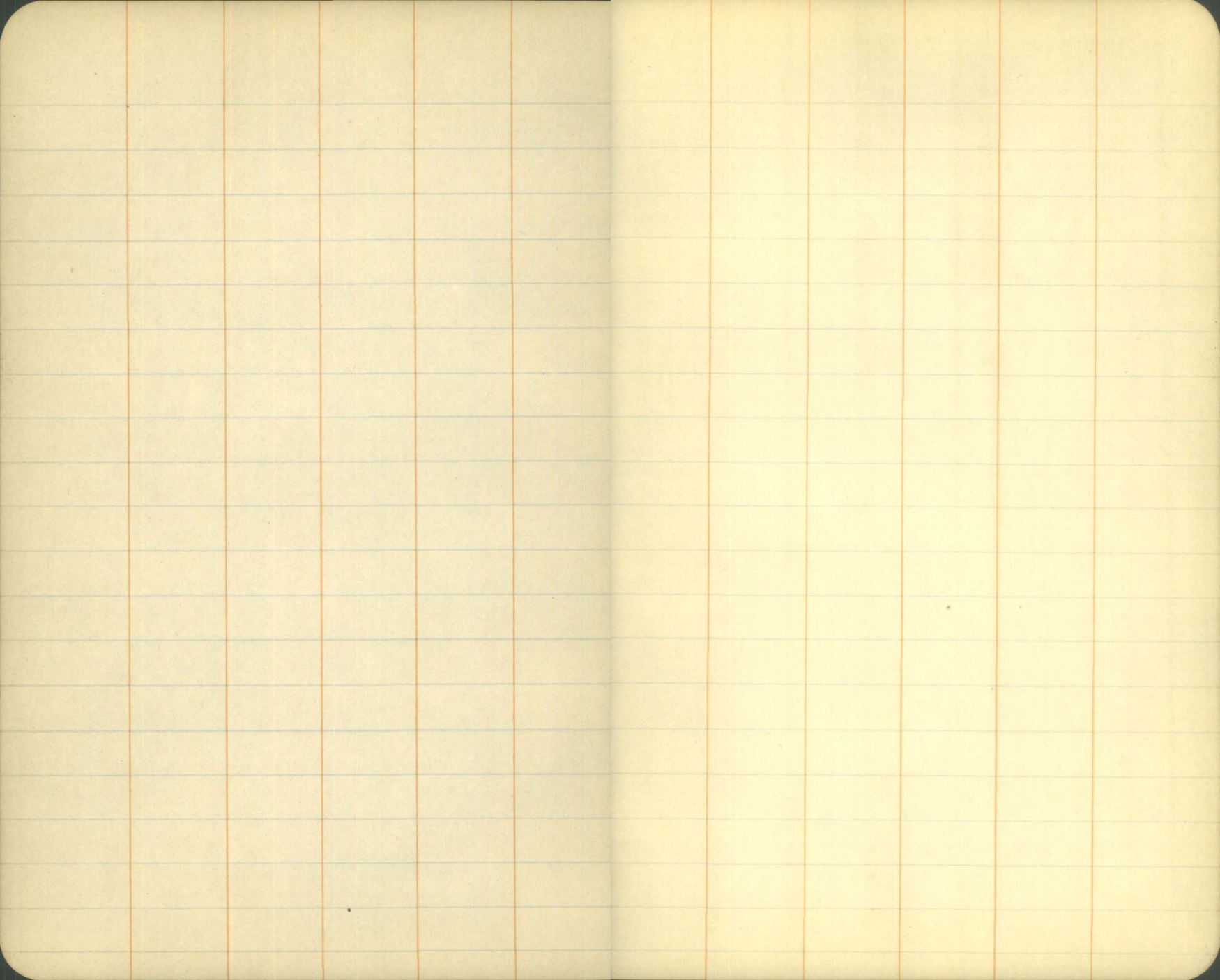


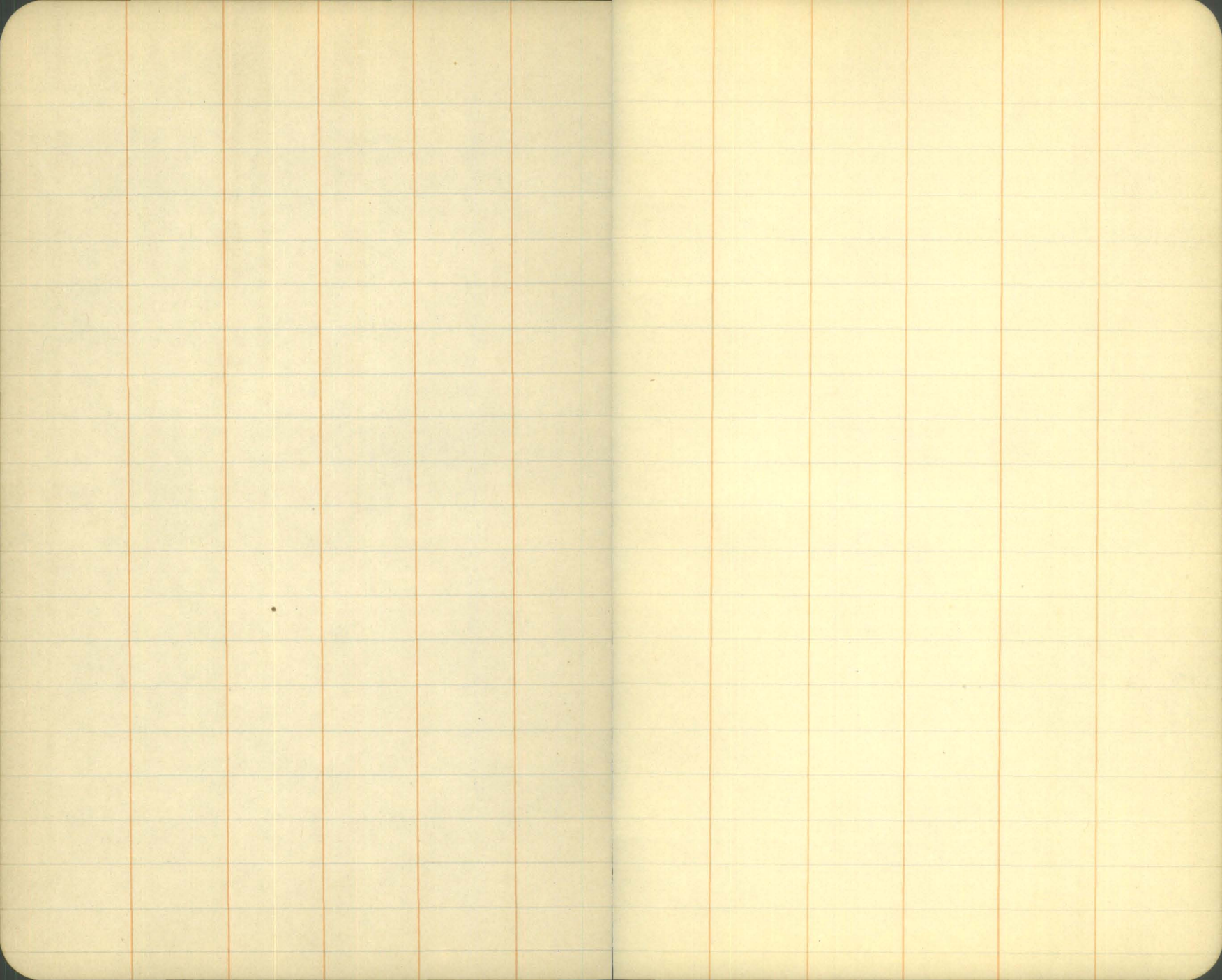


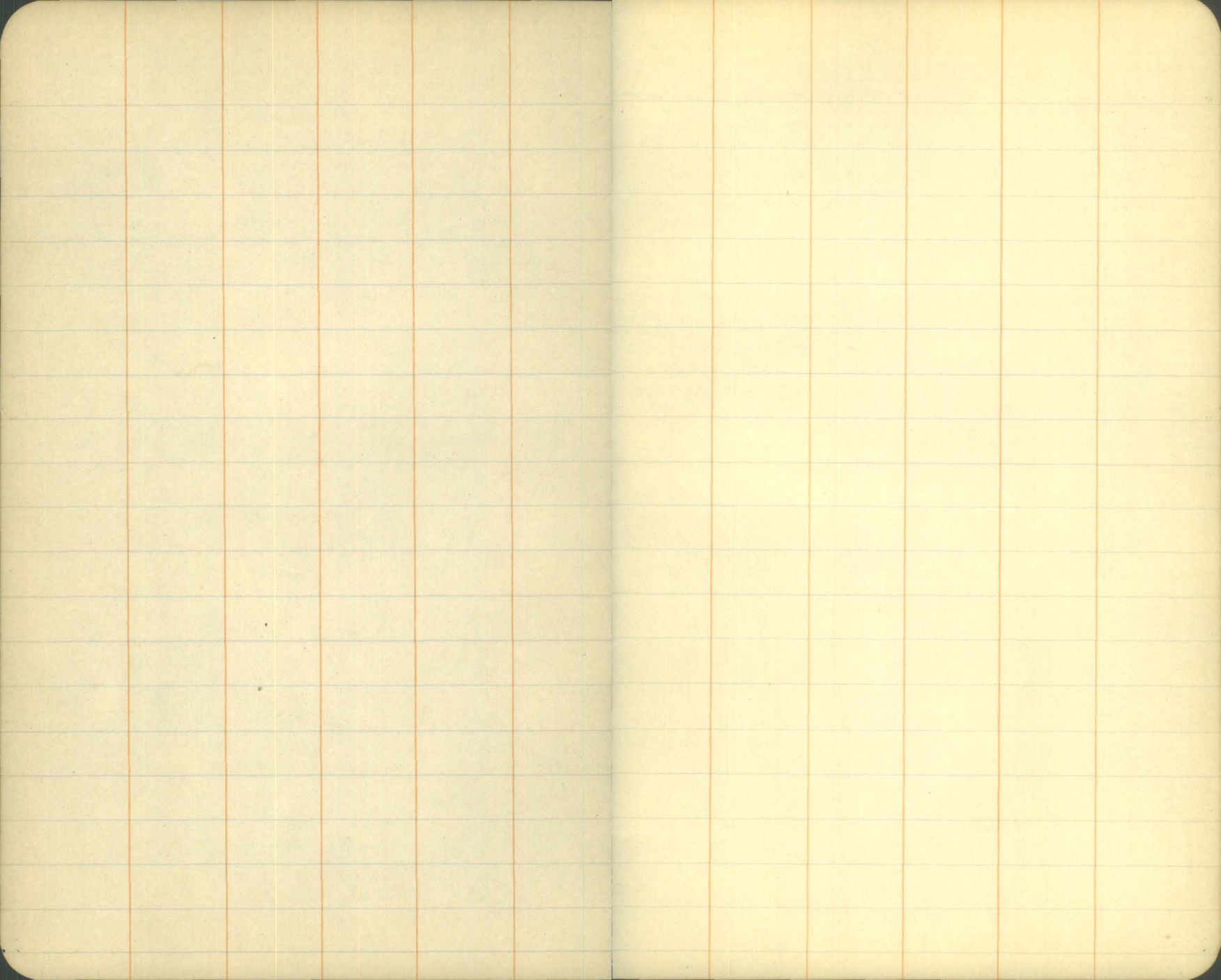


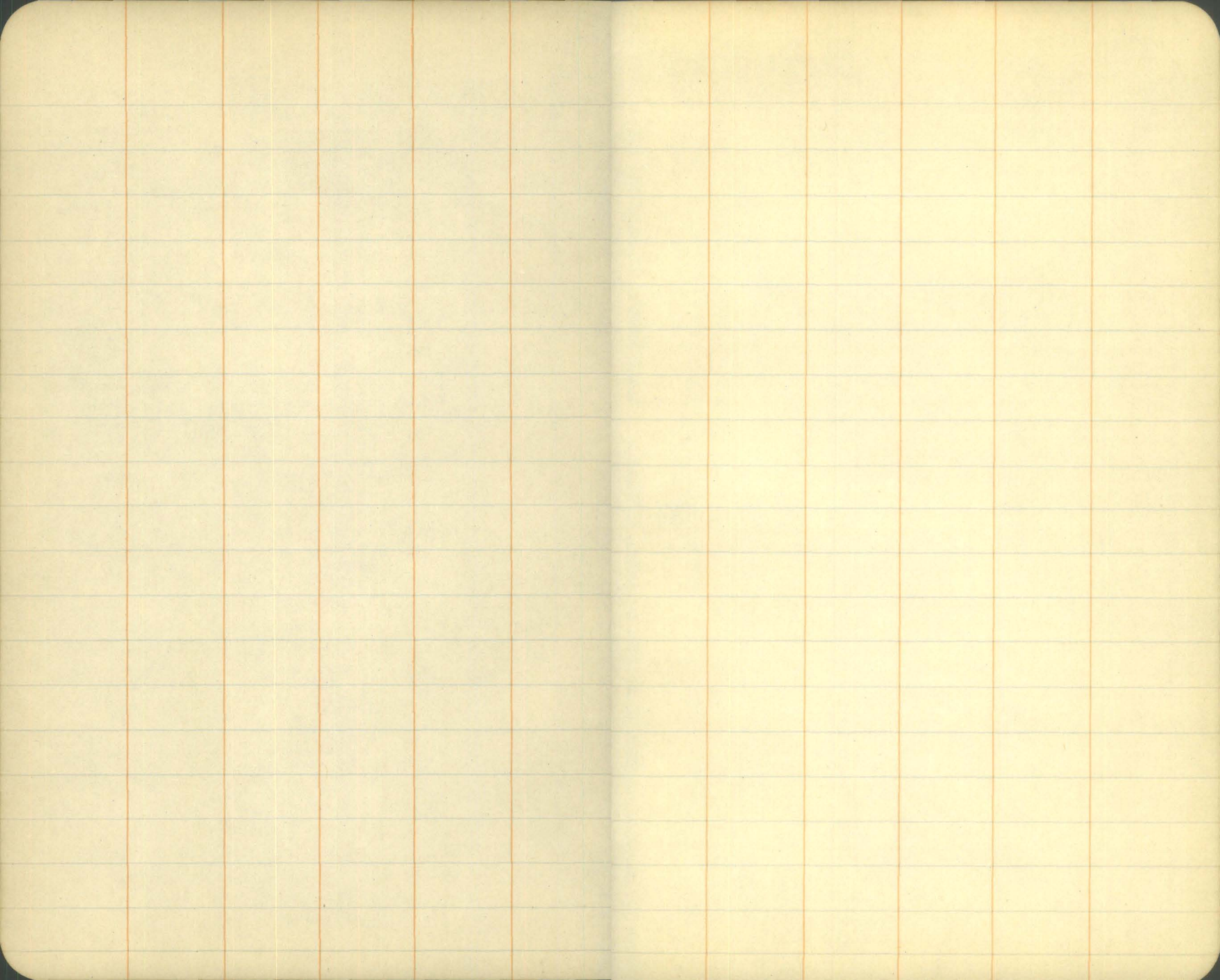


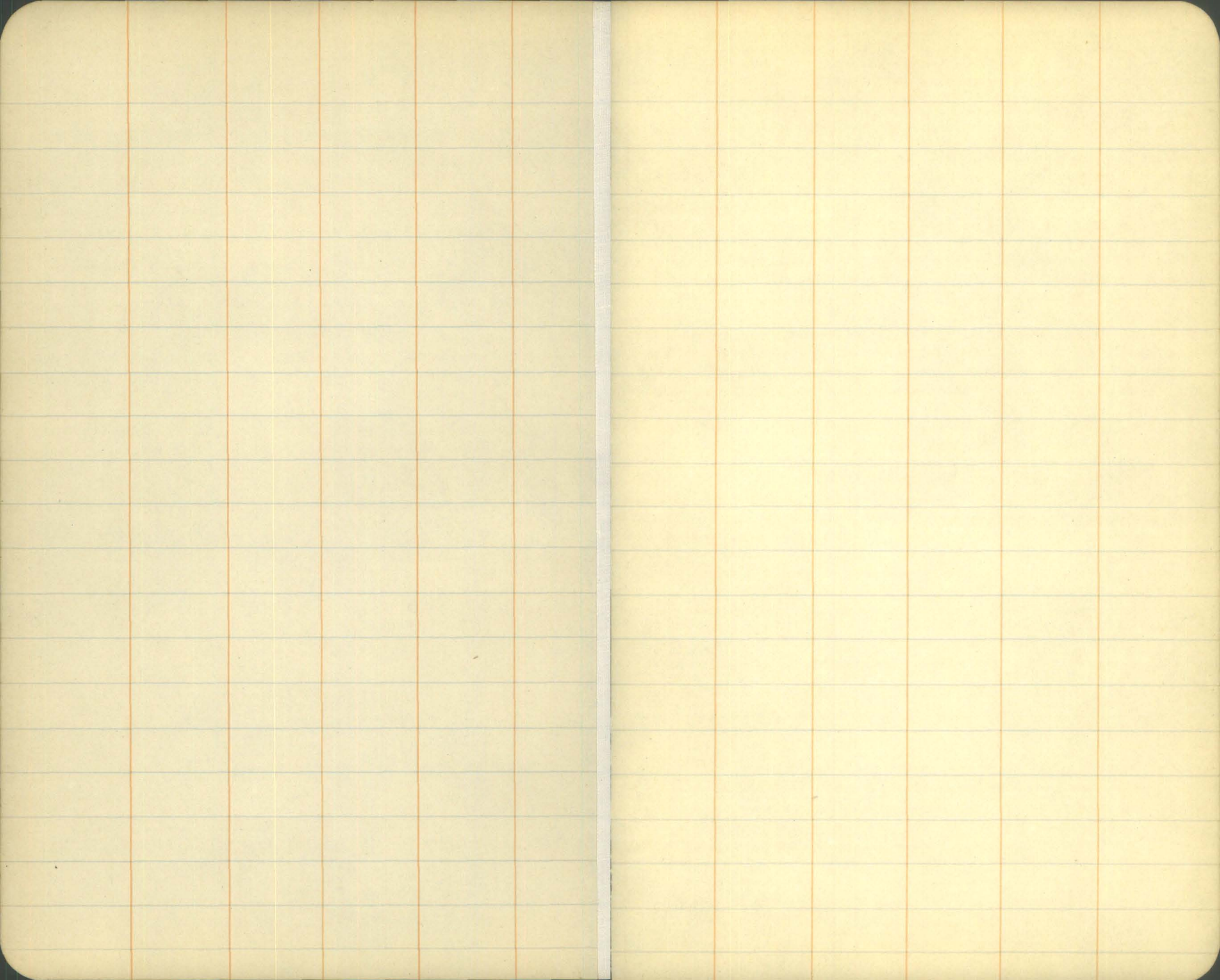


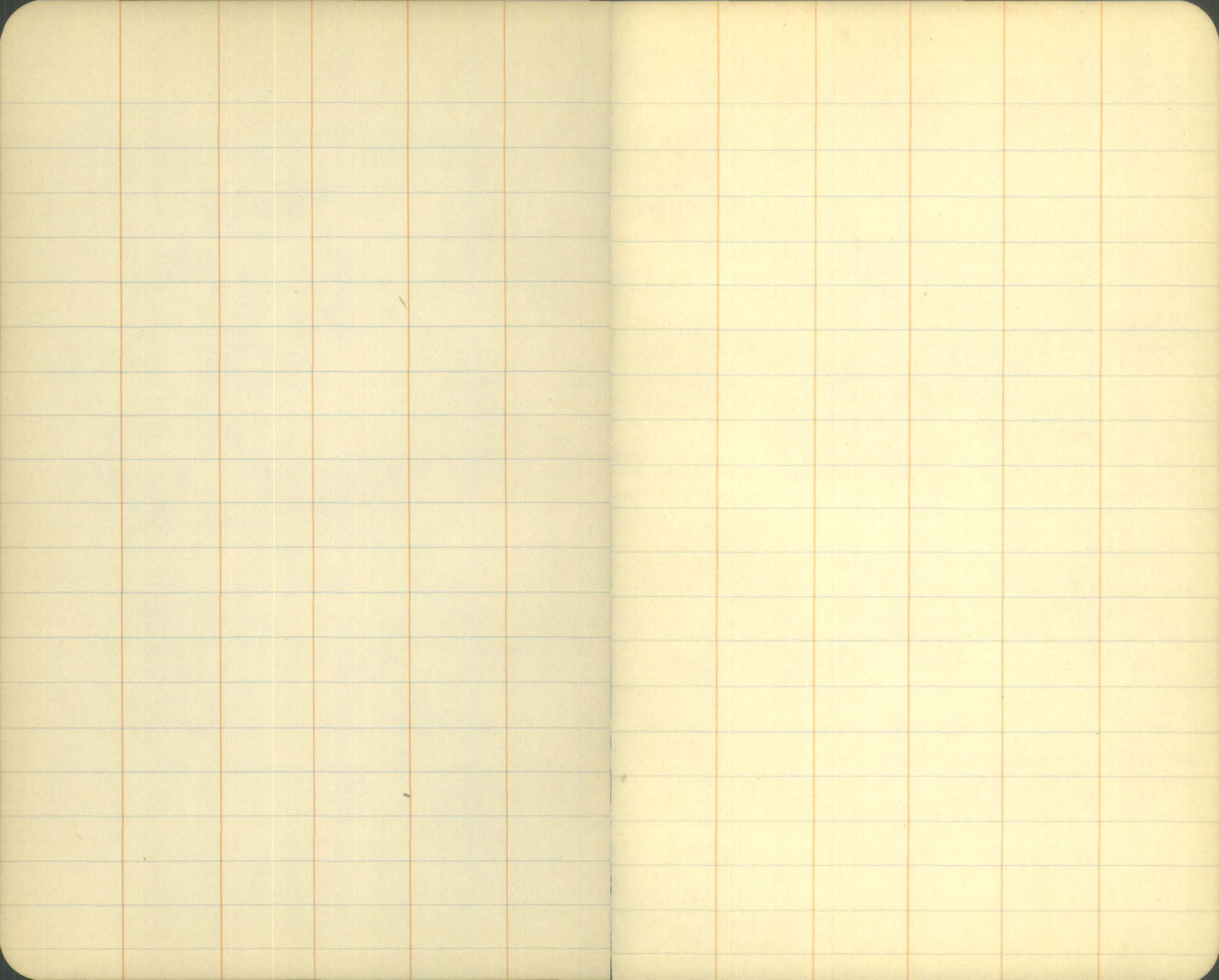


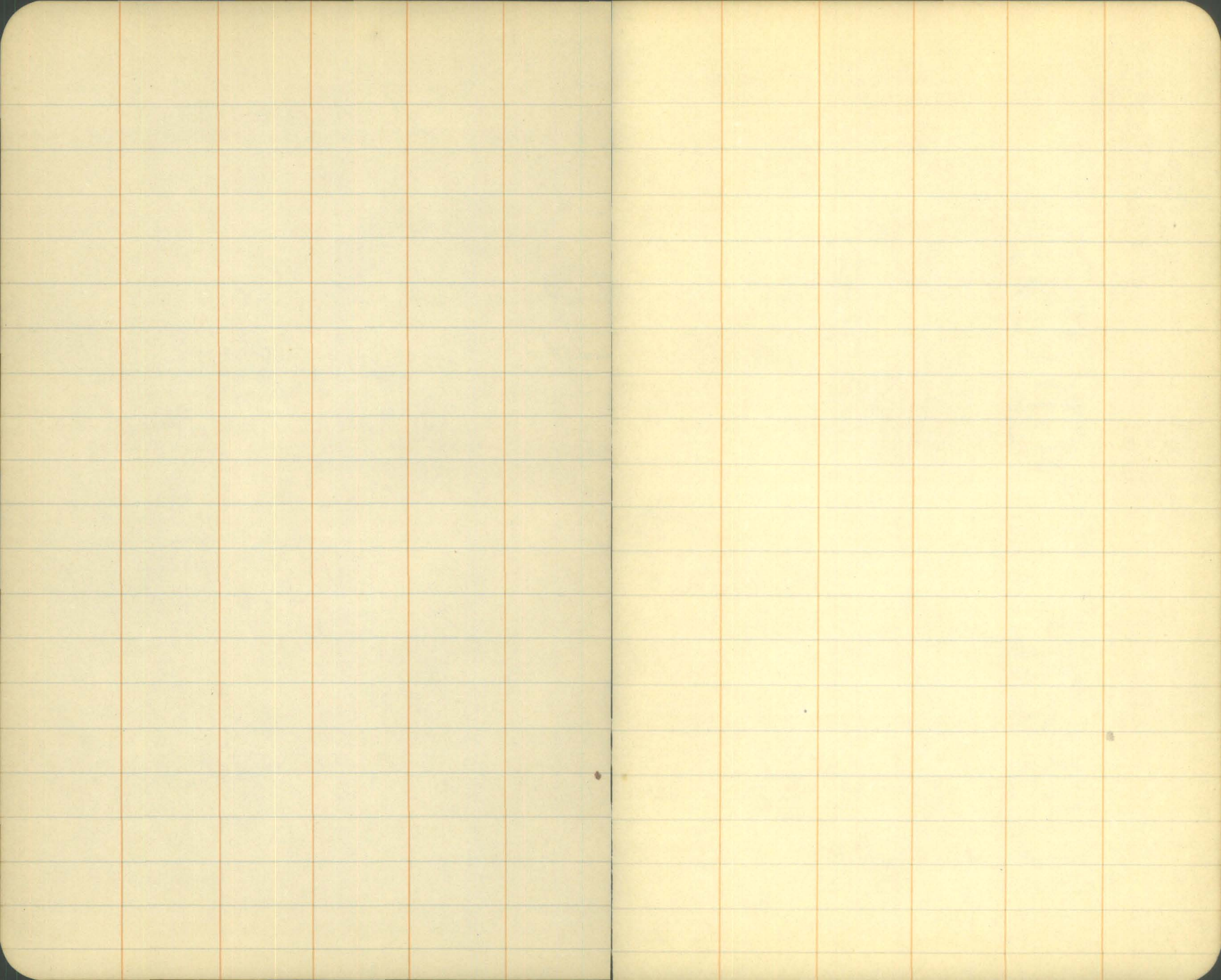


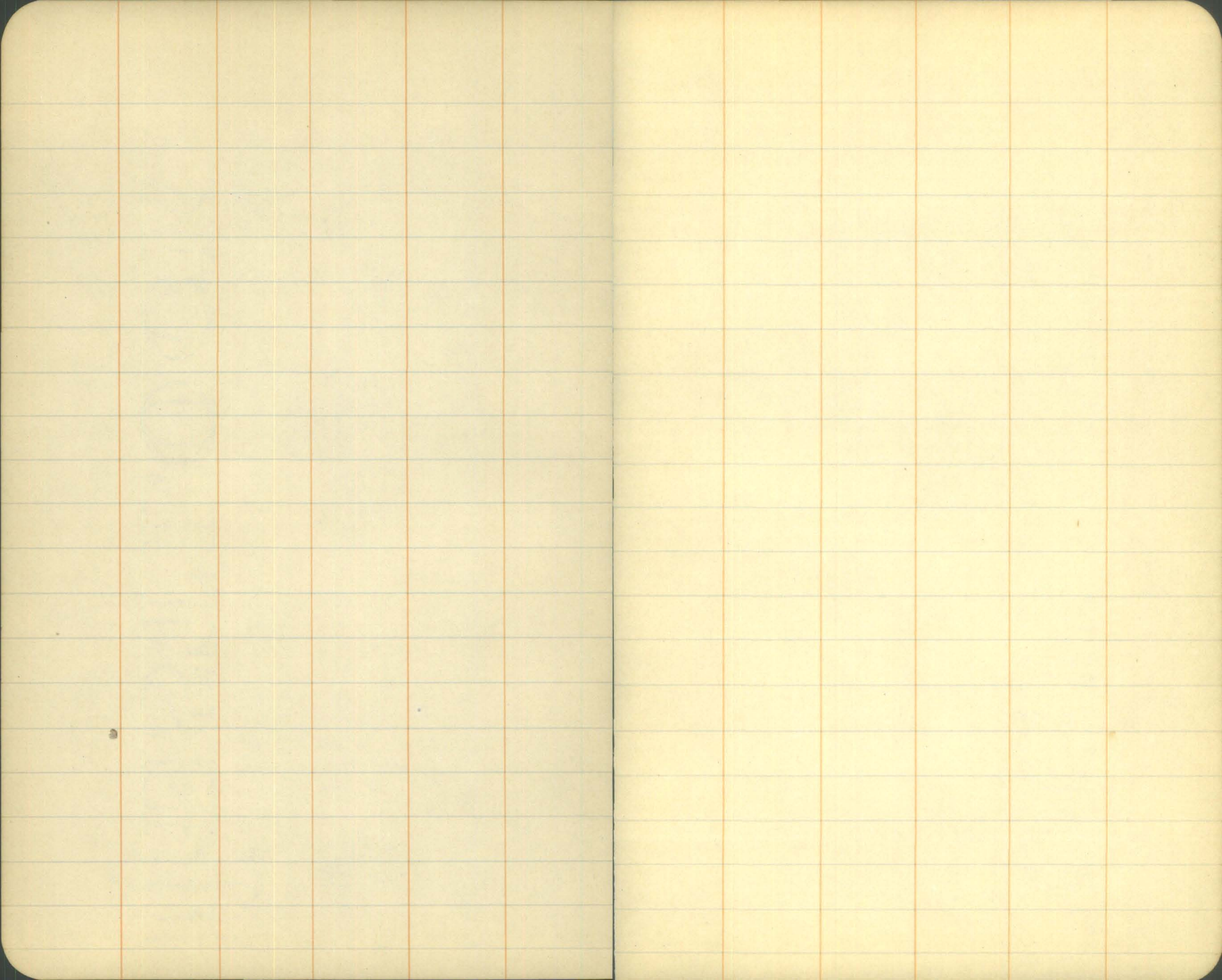


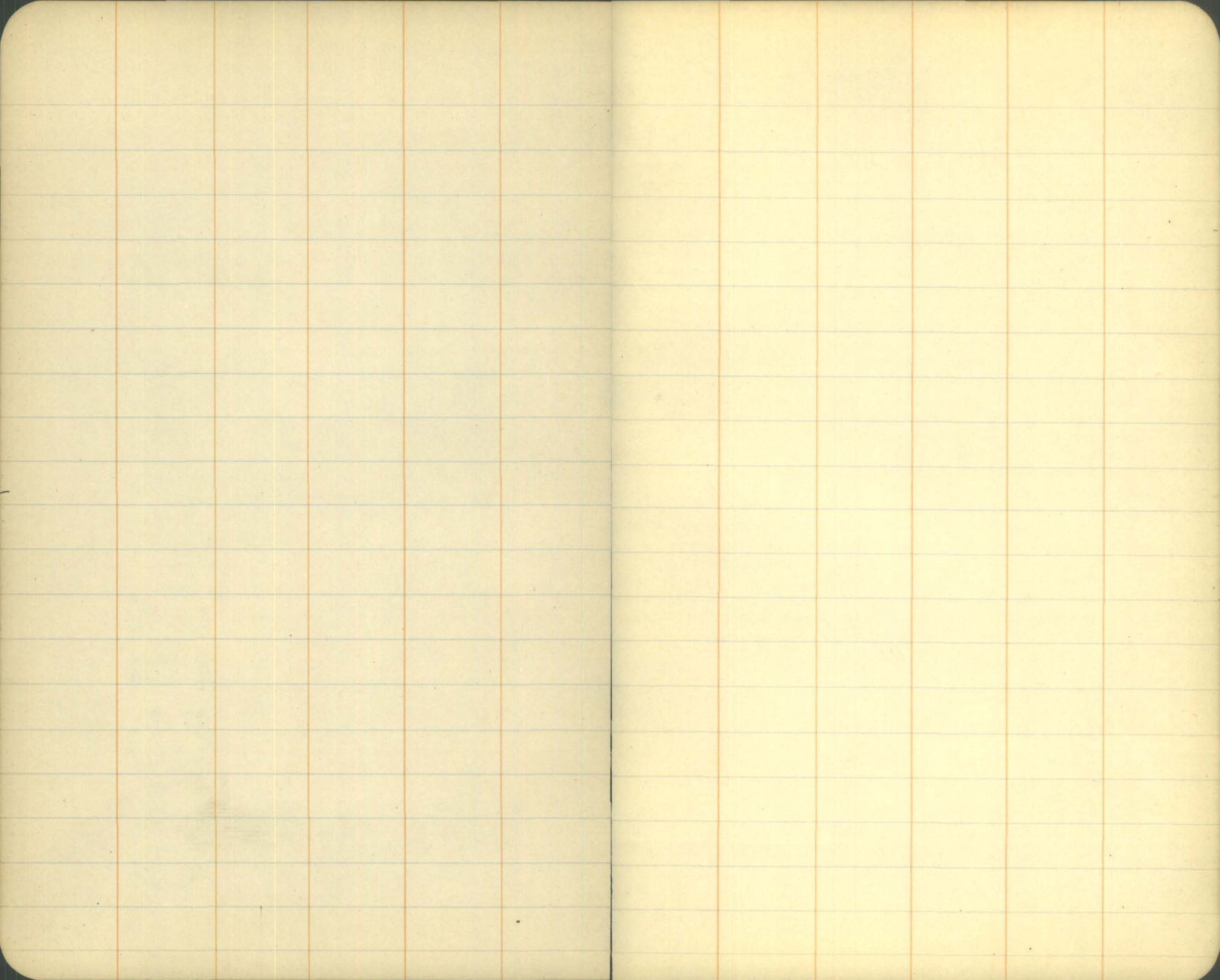


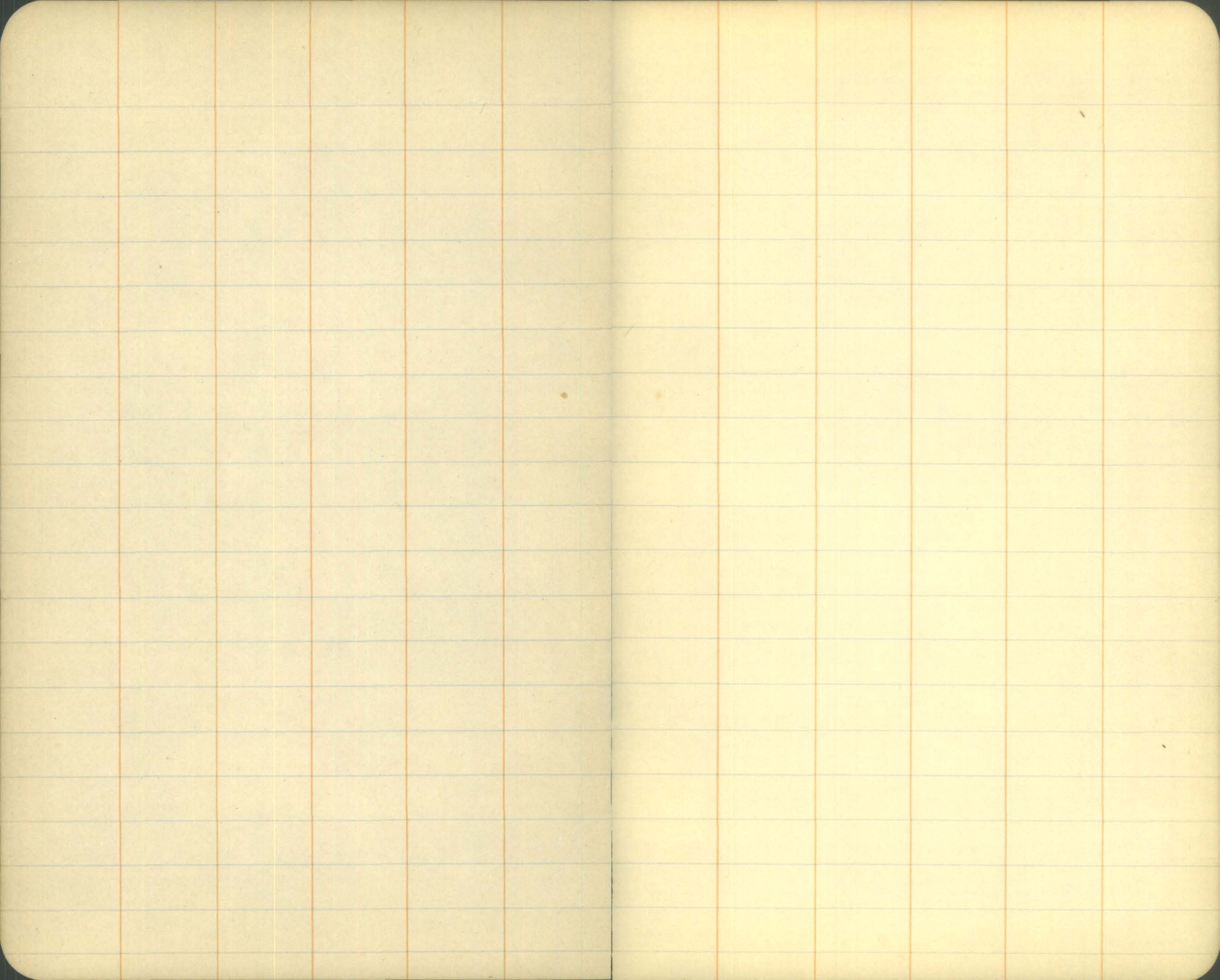


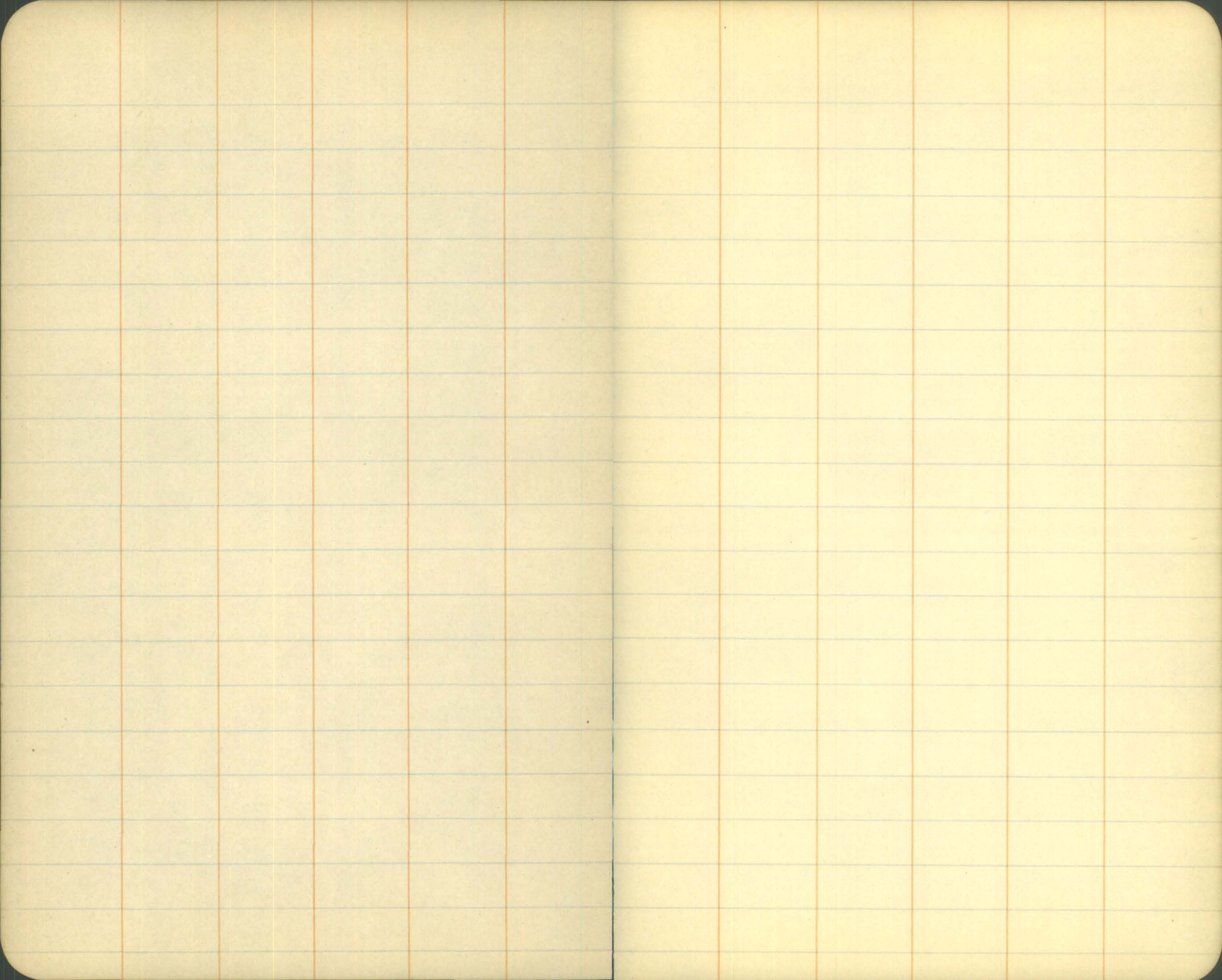


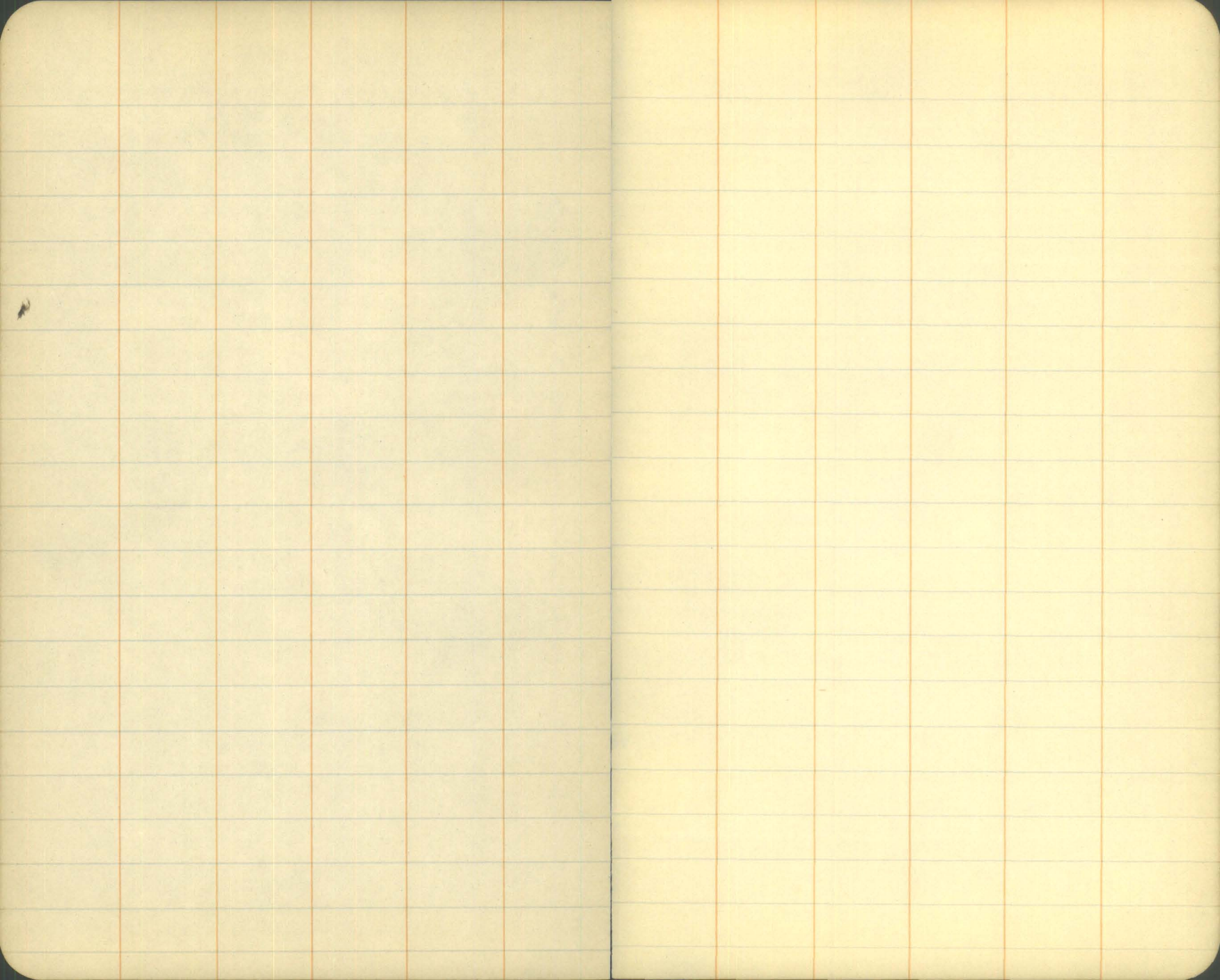


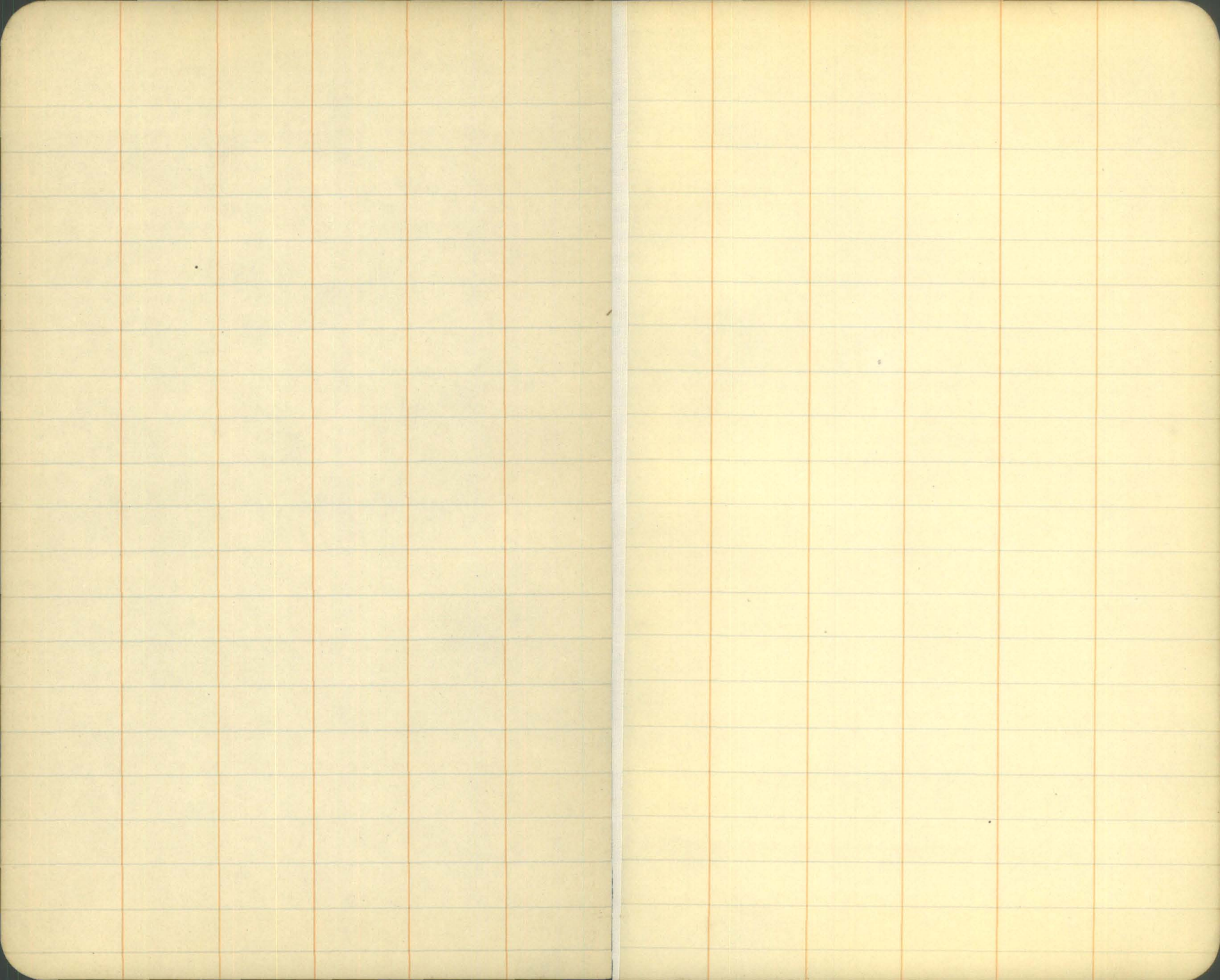












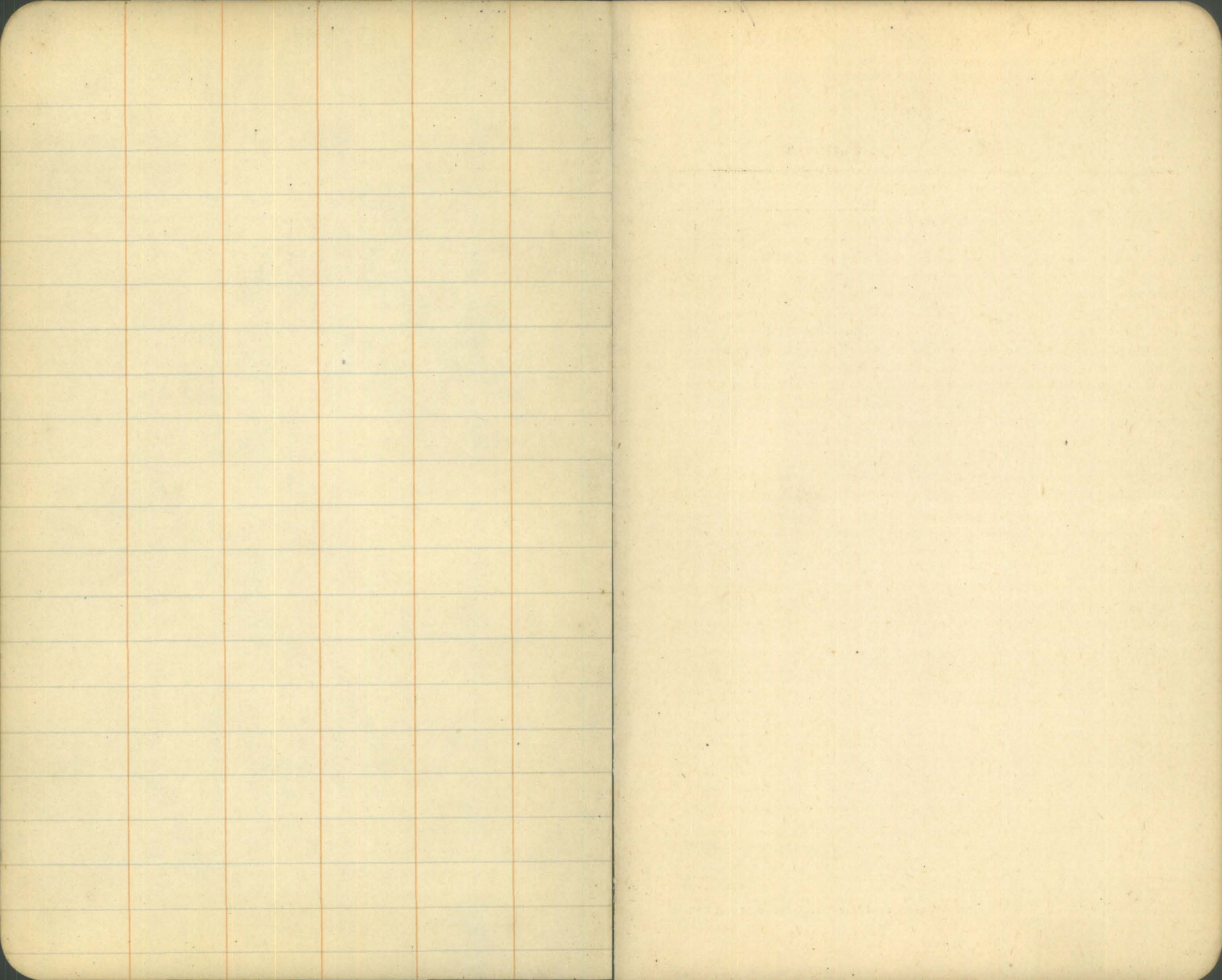


TABLE IX.—CALCULATION OF EARTHWORK.

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	1.30	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	2.11	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	2.85	3.26	3.67	4.07	4.48	4.89	5.29	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	3.11	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	5.55	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	1.21	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 $1\frac{1}{2}$.
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.