

W

392

MINING  
TRANSIT BOOK  
No. 422F

# 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) \* 2 or 2 ft. added to 30.6 = 32.6. For slopes of 1 on 1 1/2 see inside of back cover.

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Final X Sections

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N3680 to N3680 & N3780 to N3780  
E4450 E5130 E4450 E5130

45-54

Final X Sections

N3600 to N3600 & N3550 to  
E5140 5450 E5140 5450

55-67

Final X Sections of Diversion  
Tunnel Inlet Trench & Structure

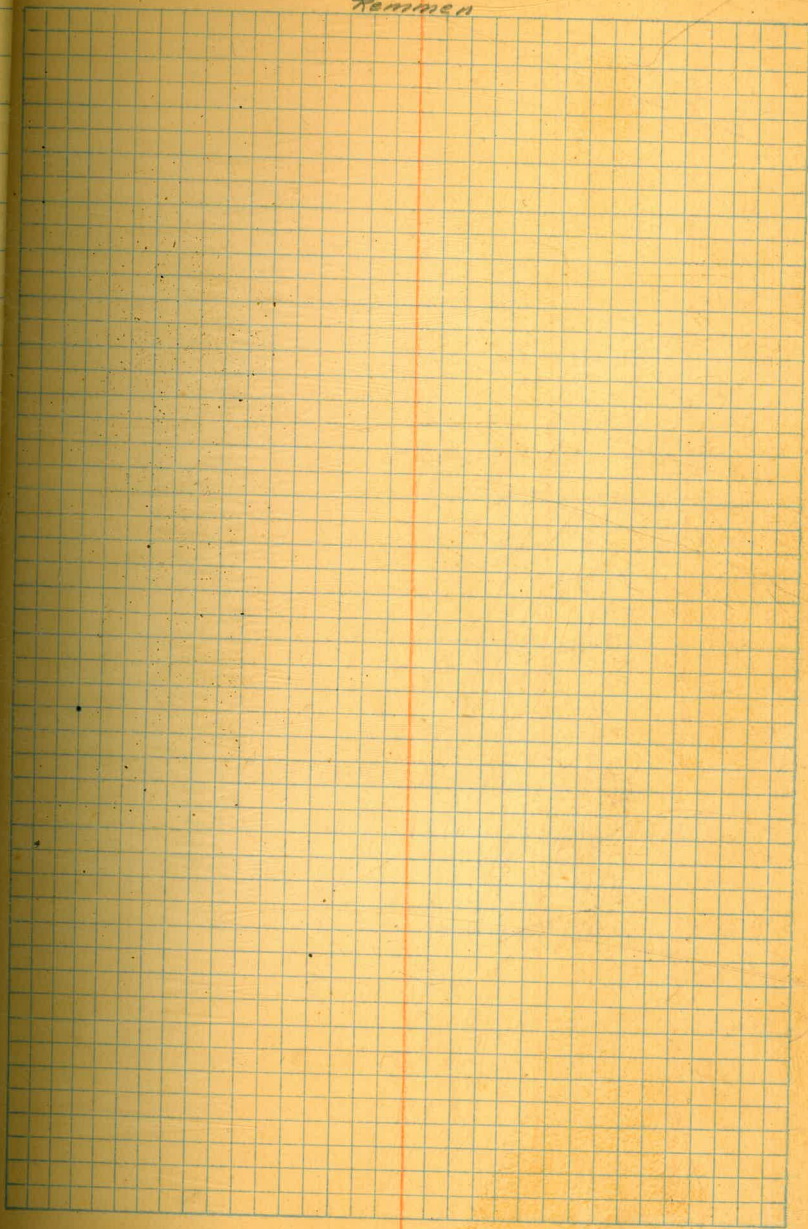
N3680  
Final Sections

B.M.	2.12	546.56	544.44
E 4450		8.4	38.2 ✓
460		9.4	37.2 ✓
470		7.7	38.9 ✓
480		7.8	39.1 ✓
490		7.3	39.3 ✓
498		7.8	39.1 ✓
498		—	
514		—	
514		8.2	38.4 ✓
520		7.9	38.7 ✓
530		6.9	39.7 ✓
540		3.1	43.5 ✓
550		4.0	42.6 ✓
560		4.2	42.4 ✓
570		4.1	42.5 ✓
580		4.1	42.5 ✓
590		4.1	42.5 ✓
600		3.6	43.0 ✓
610		3.6	43.0 ✓
620		3.4	43.2 ✓
630		3.1	43.5 ✓
640		3.1	43.5 ✓
650		2.0	44.6 ✓
660		1.2	45.4 ✓

Plotted

All Elev. ok for Plotting CBX

Aug 9-1932  
Elliott  
Simpson  
Soper  
Remmen



✓

N3680

2

3680

3

3680

4

546.56

E 4450	8.5	38.1	(
460	9.4	37.2	(
470	8.7	37.9	(
480	6.7	39.9	(
490	6.9	39.7	(
496	6.6	40.0	(
496	—		
513	—		
513	7.5	39.1	(
520	7.8	38.8	(
530	6.6	40.0	(
540	1.8	44.8	(
550	4.3	42.3	(
560	4.3	42.3	(
570	4.5	42.1	(
580	4.4	42.2	(
590	4.0	42.6	(
600	4.6	42.0	(
610	4.6	42.0	(
620	4.6	42.0	(
630	4.4	42.2	(
640	4.4	42.2	(
650	4.6	42.0	(
660	3.9	42.7	(

plotted

✓

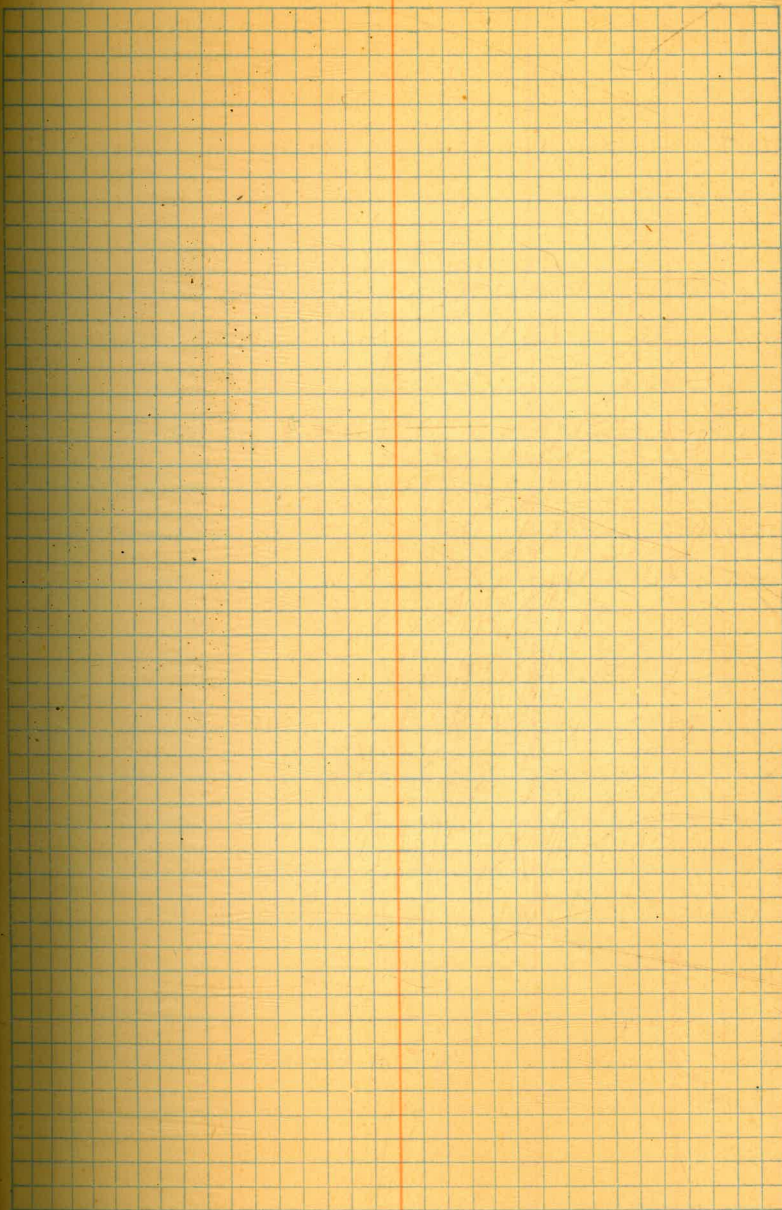


3690

6

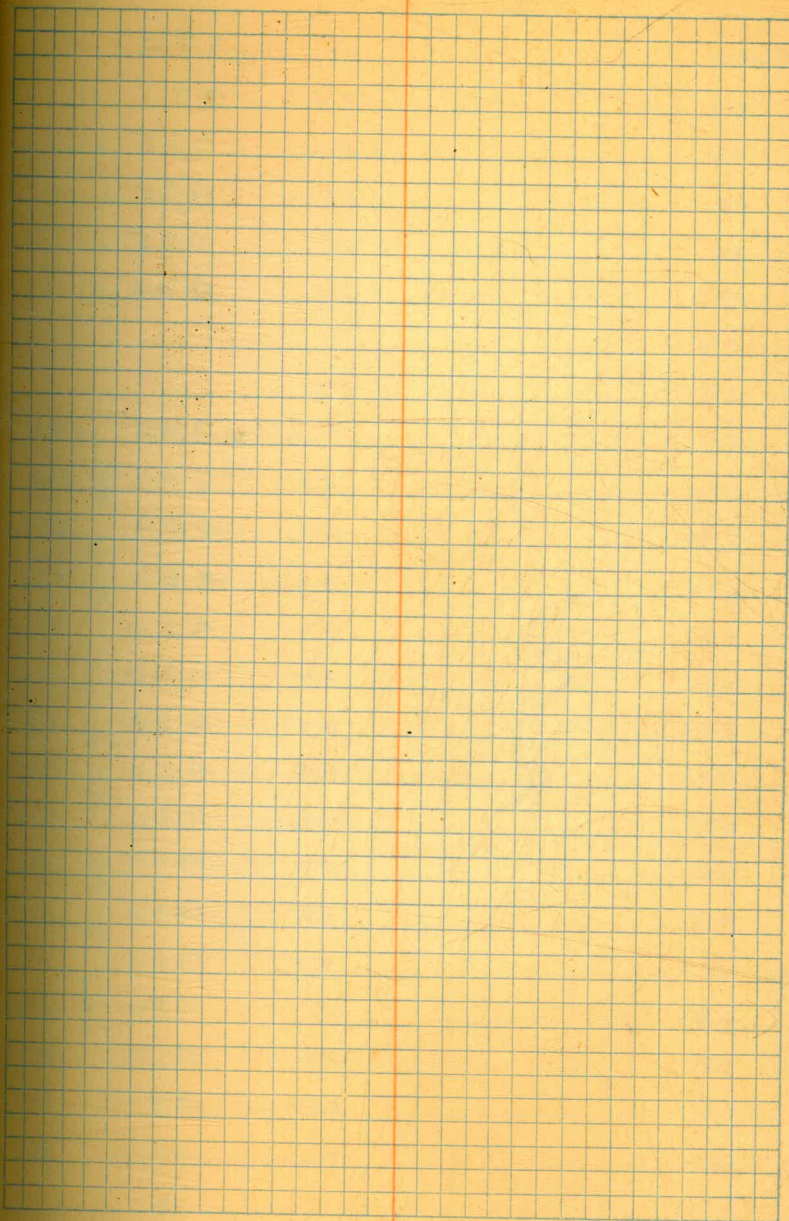
3690

7



3690

8



546.56

E 4450	9.2	37.4	✓
460	9.5	37.1	✓
470	8.1	38.5	✓
480	6.1	40.5	✓
490	6.1	40.5	✓
494	6.2	40.4	✓
494	—	—	
511	—	—	
511	7.1	39.5	39.5
520	7.3	39.3	39.3
530	5.7	40.9	40.4
540	3.9	42.7	40.8
550	4.0	42.6	40.8
560	4.2	42.4	41.0
570	4.4	42.2	40.9
580	4.5	42.1	41.0
590	4.5	42.1	41.0
600	4.7	41.9	41.0
610	4.7	41.9	40.9
620	4.8	41.8	40.9
630	4.5	42.1	40.4
640	4.7	41.9	40.7
650	4.5	42.1	40.7
660	4.2	42.4	40.9

plotted

End of Drain. for final profile see Boot 372 p. 25

used the Elev. But no way to check them

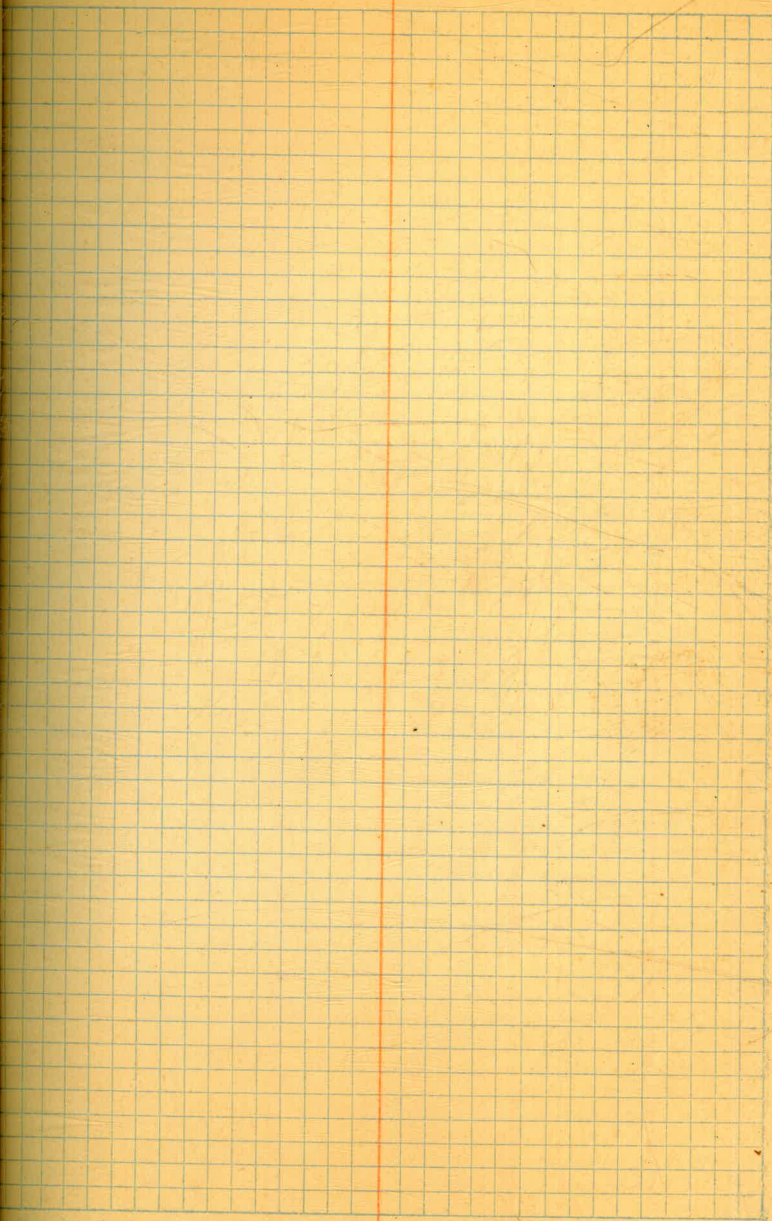
✓

N 3700

10

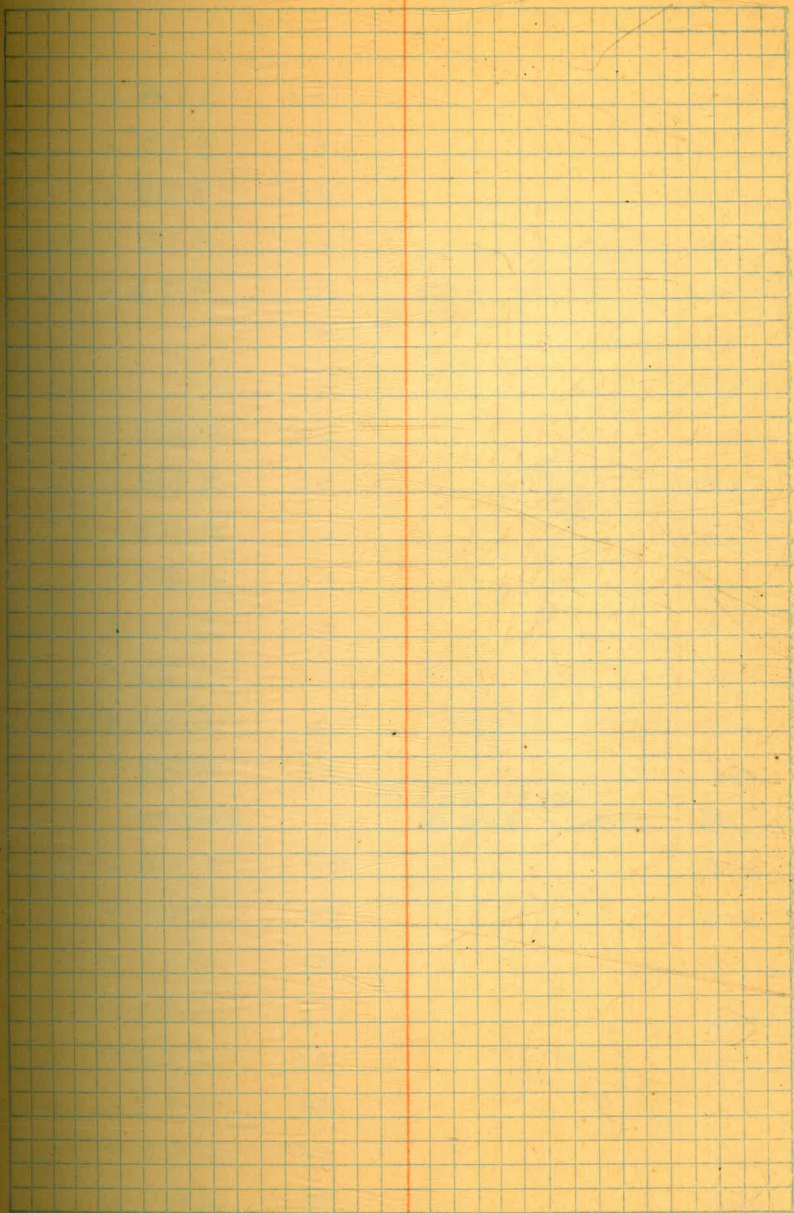
3700

11



3700

12



546.56

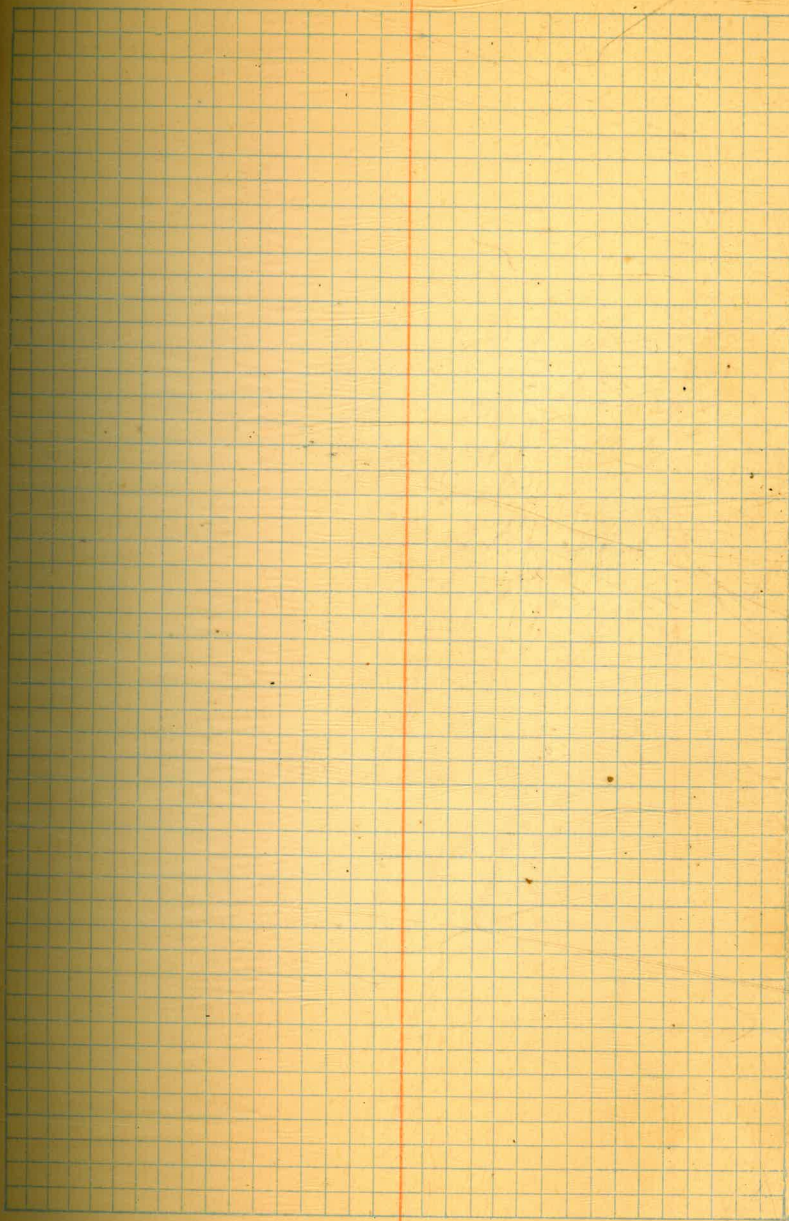
4450		8.2	38.4 ✓	
460		9.1	37.5 ✓	
470		7.8	38.8 ✓	
480		5.4	41.2 ✓	
491		6.0	40.6 ✓	
491		—		
508		—		
508		6.2	40.4 ✓	
520		7.2	39.4 ✓	
530	plotted	6.3	40.3 ✓	
540		3.7	42.9 ✓	
550		3.5	43.1 ✓	
560		3.9	42.7 ✓	
570		4.4	42.2 ✓	
580		4.3	42.3 ✓	
B.M.		2.98	552.96	549.98
590			9.8	43.2 ✓
600		8.9	44.1 ✓	
610		9.3	43.7 ✓	
620		9.3	43.7 ✓	
630	plotted	9.2	43.8 ✓	
640		9.0	44.0 ✓	
650		8.8	44.2 ✓	
660		8.3	44.7 ✓	
670		4.2	48.8 ✓	

Oct 26, 1932



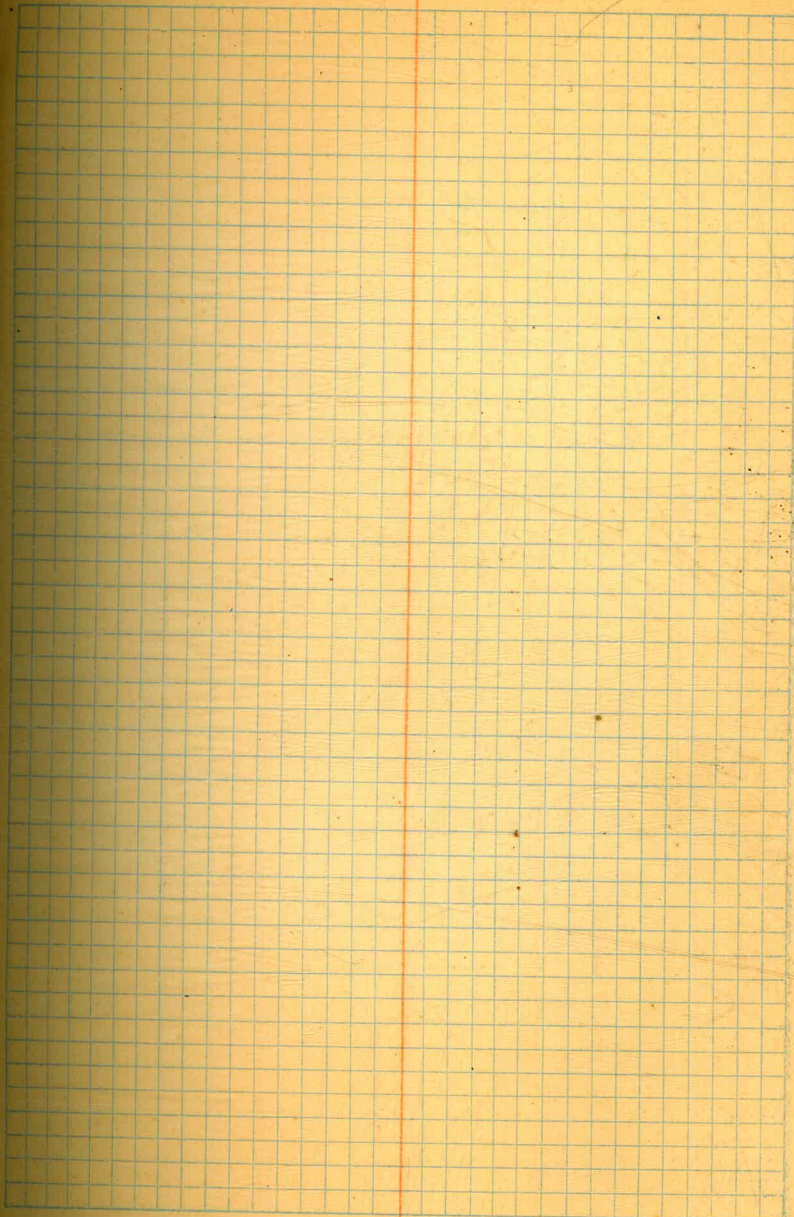
3710

14



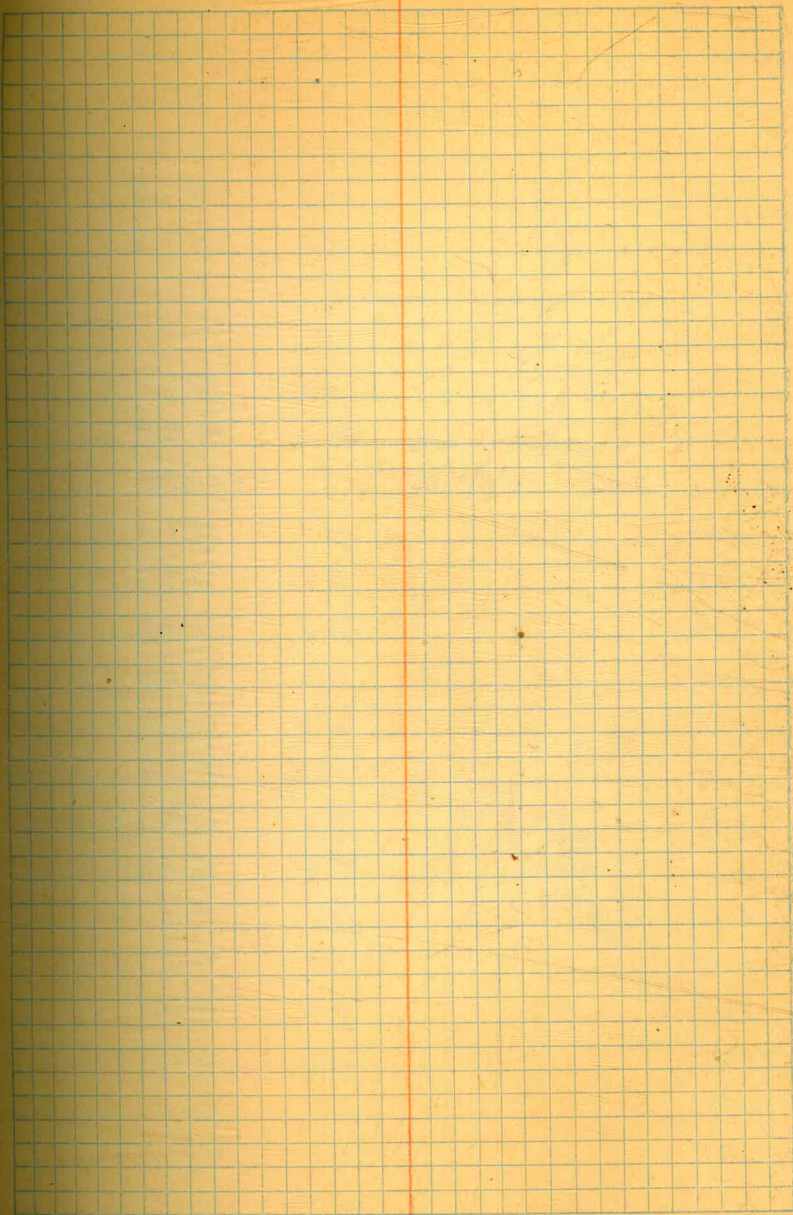
3710

15



3710

16



546.56

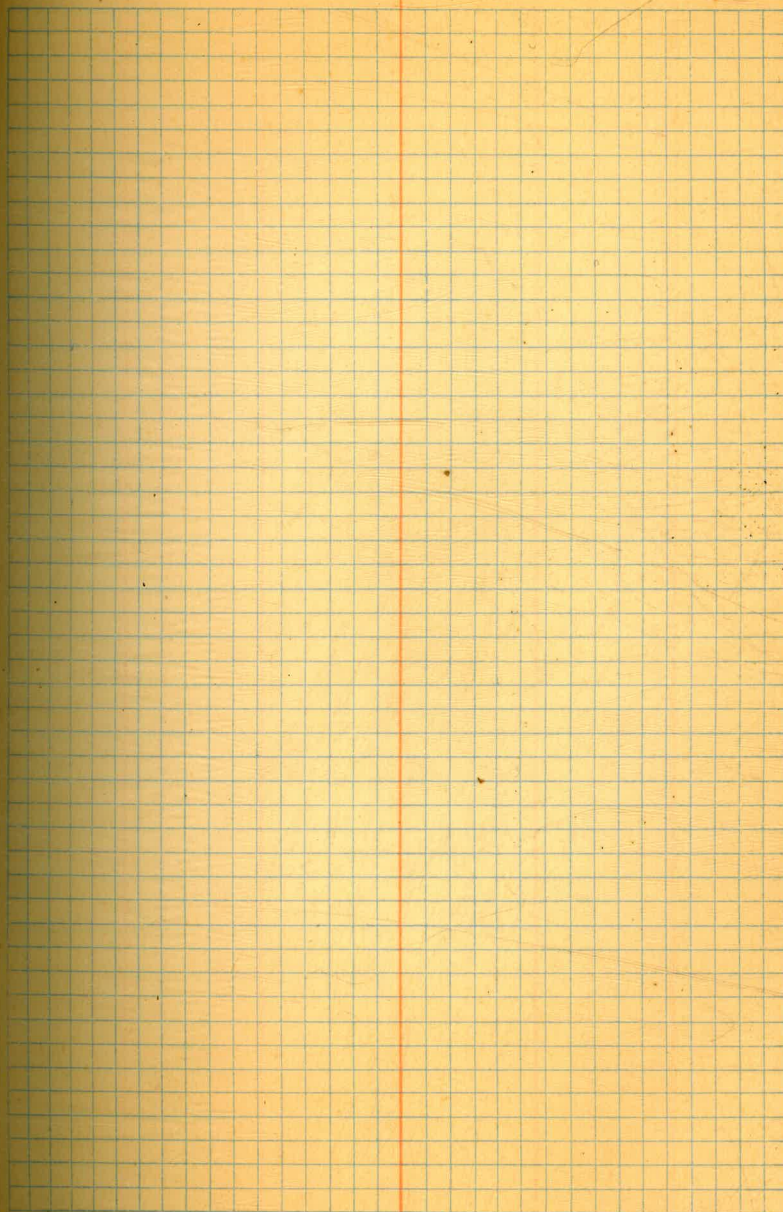
4450		8.3	393 ✓
460		9.0	376 ✓
470		7.5	39.1 ✓
480	plotted	4.8	41.8 ✓
490		4.8	41.8 ✓
490		—	
508		—	
508		5.5	41.1 ✓
520	—	6.2	40.4 ✓
B.M.	2.98	552.96	549.98
530		11.1	41.9 ✓
540		9.1	43.9 ✓
550		9.5	43.5 ✓
560		10.3	42.7 ✓
570		10.5	42.5 ✓
580		10.6	42.4 ✓
590	plotted	9.0	44.0 ✓
600		9.8	43.2 ✓
610		9.1	43.9 ✓
620		7.9	45.1 ✓
630		6.1	46.9 ✓
640		4.4	48.6 ✓
650		5.1	47.9 ✓
660		4.7	48.3 ✓

Oct 26 - 1932



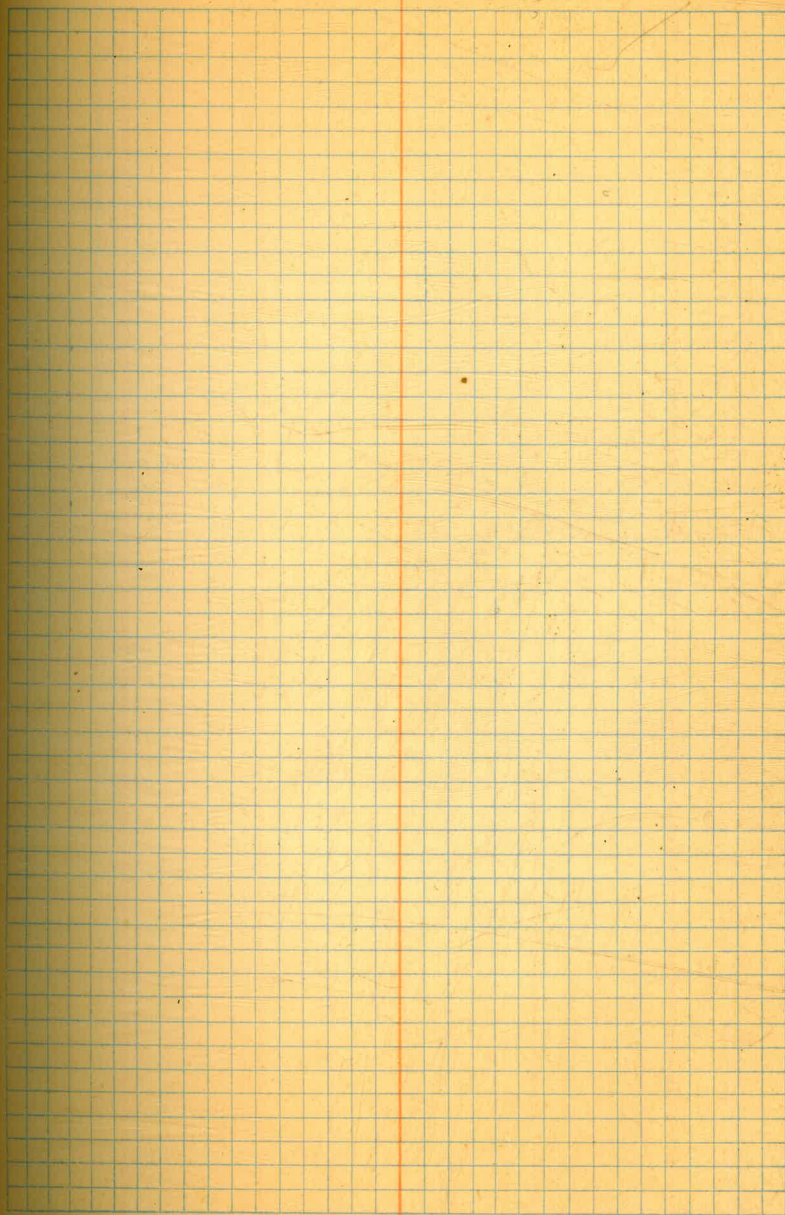
3720

18



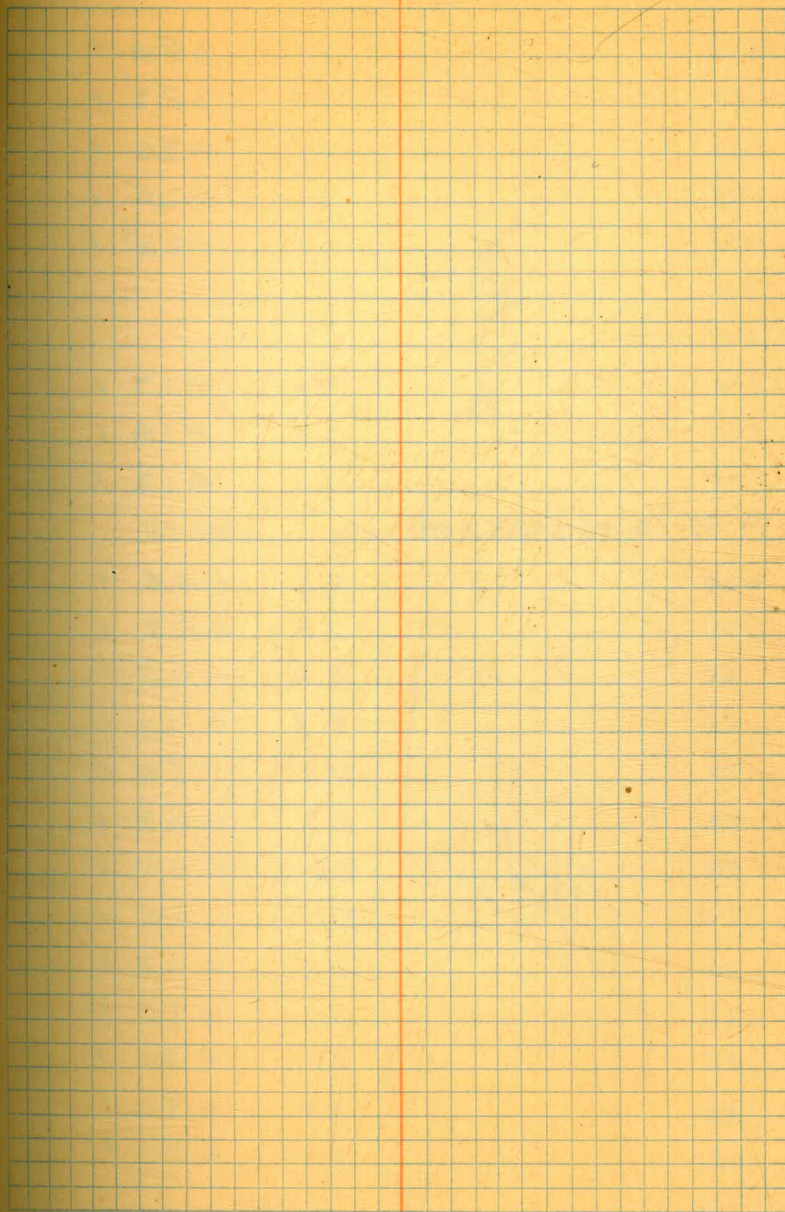
3720

19



3720

20



3730

546.56

4450		8.0	38.6	✓
460		8.3	38.3	✓
470		4.6	42.0	✓
480		4.1	42.5	✓
488		4.1	42.5	✓
488		—		
504		—		
504	plotted	4.9	41.7	✓
510		5.2	41.4	✓
520		5.4	41.2	✓

B.M 2.98 552.96 549.98

530		8.6	44.4	✓
40		8.8	44.2	✓
50		8.5	44.5	✓
60		5.7	47.3	✓
70		7.6	45.4	✓
80		7.7	45.3	✓
90		8.3	44.7	✓
600	plotted	8.1	44.9	✓
10		3.8	49.2	✓
20		4.0	49.0	✓
30		3.6	49.4	✓
40		3.4	49.6	✓
50		3.1	49.9	✓

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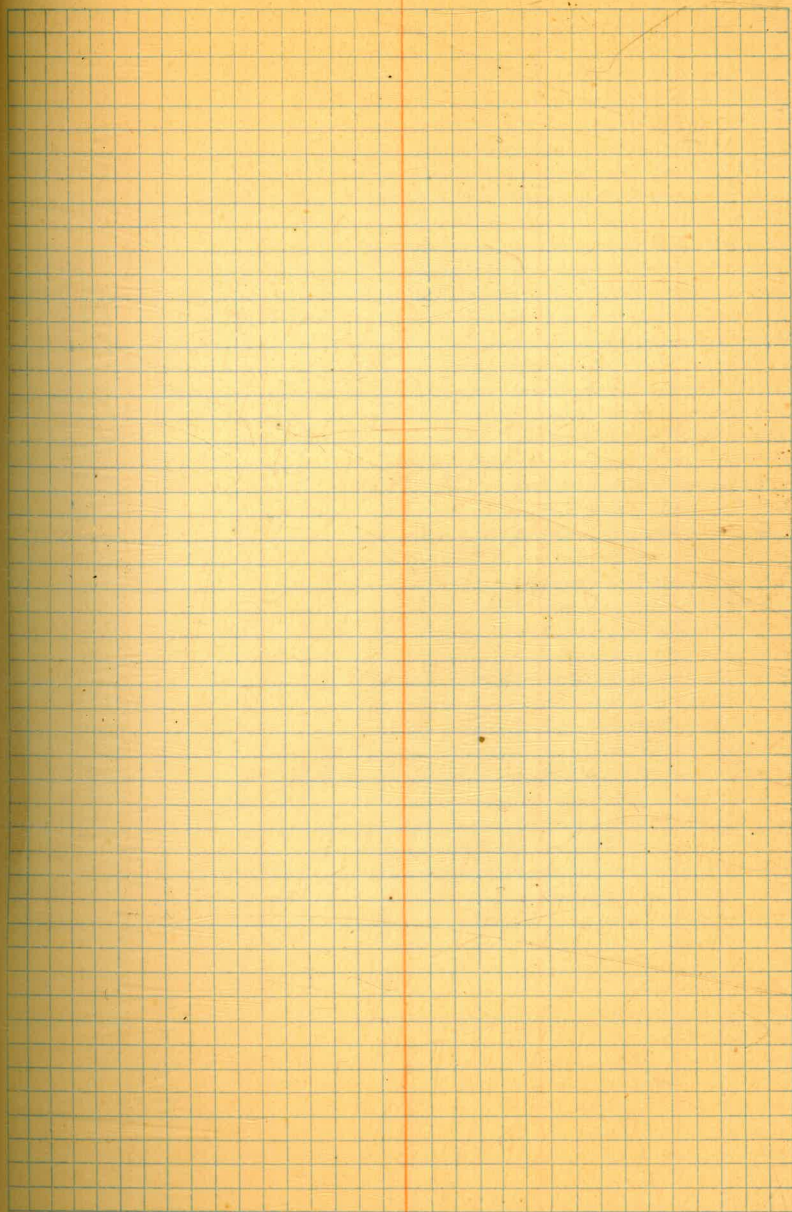
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v



3730

22

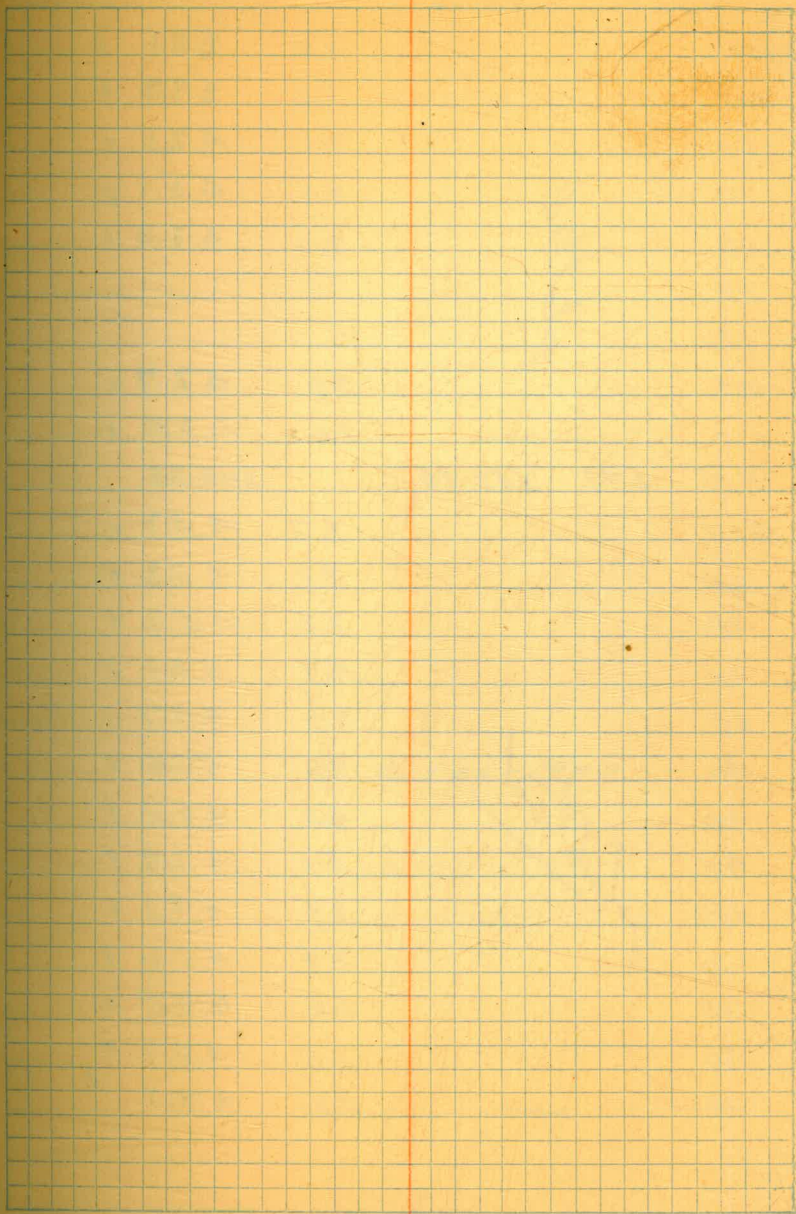


3730

23

3730

24



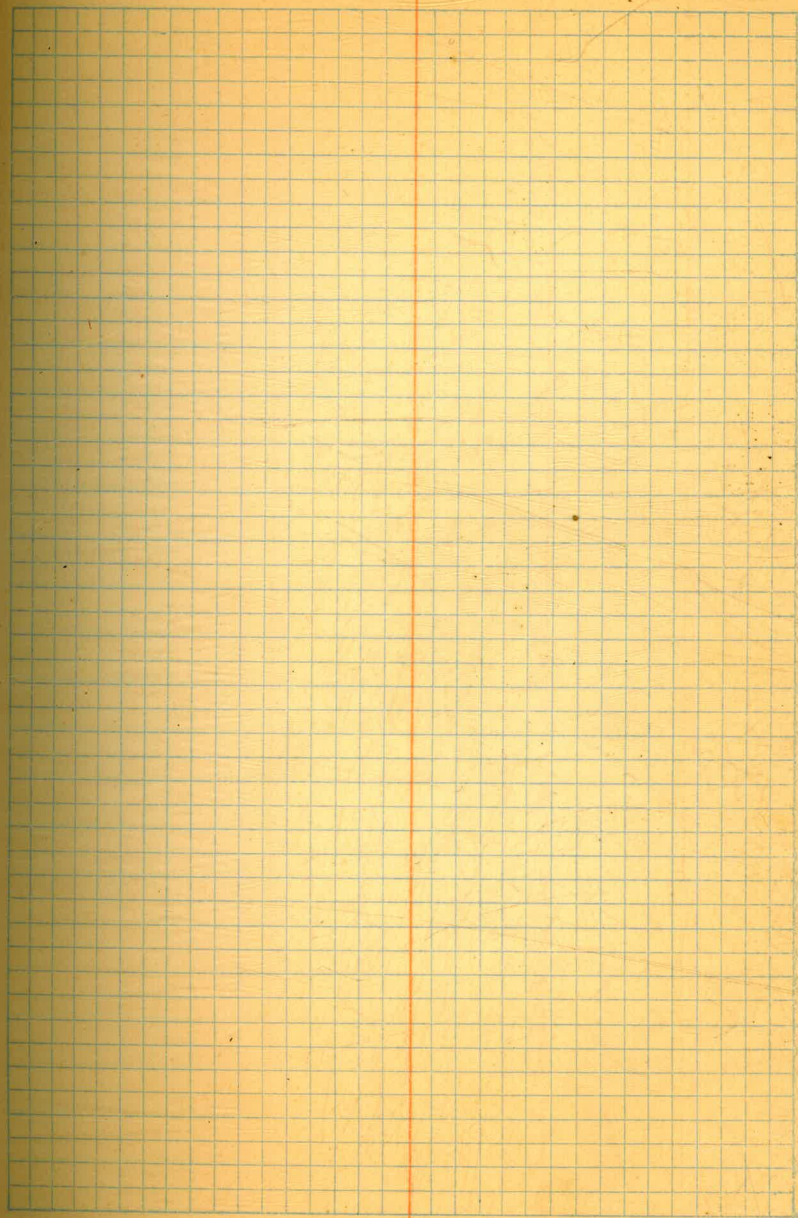
546.56

4450		7.5	39.1	✓
460		7.3	39.3	✓
470		4.1	42.5	✓
480	plotted	3.5	43.1	✓
486		3.0	43.6	✓
486		—		
502		—		
502		3.9	42.7	✓
510	—	3.2	43.4	✓
B.M.	2.98	552.96	542.98	
520		7.7	45.3	✓
30		7.7	45.3	✓
40		7.3	45.7	✓
50		4.9	48.1	✓
60		3.3	49.7	✓
70	plotted	4.6	48.4	✓
80		6.2	46.8	✓
90		5.1	47.9	✓
600		3.9	49.1	✓
10		3.4	49.6	✓
20		3.5	49.5	✓
30		3.3	49.7	✓
40	—	3.3	49.7	✓

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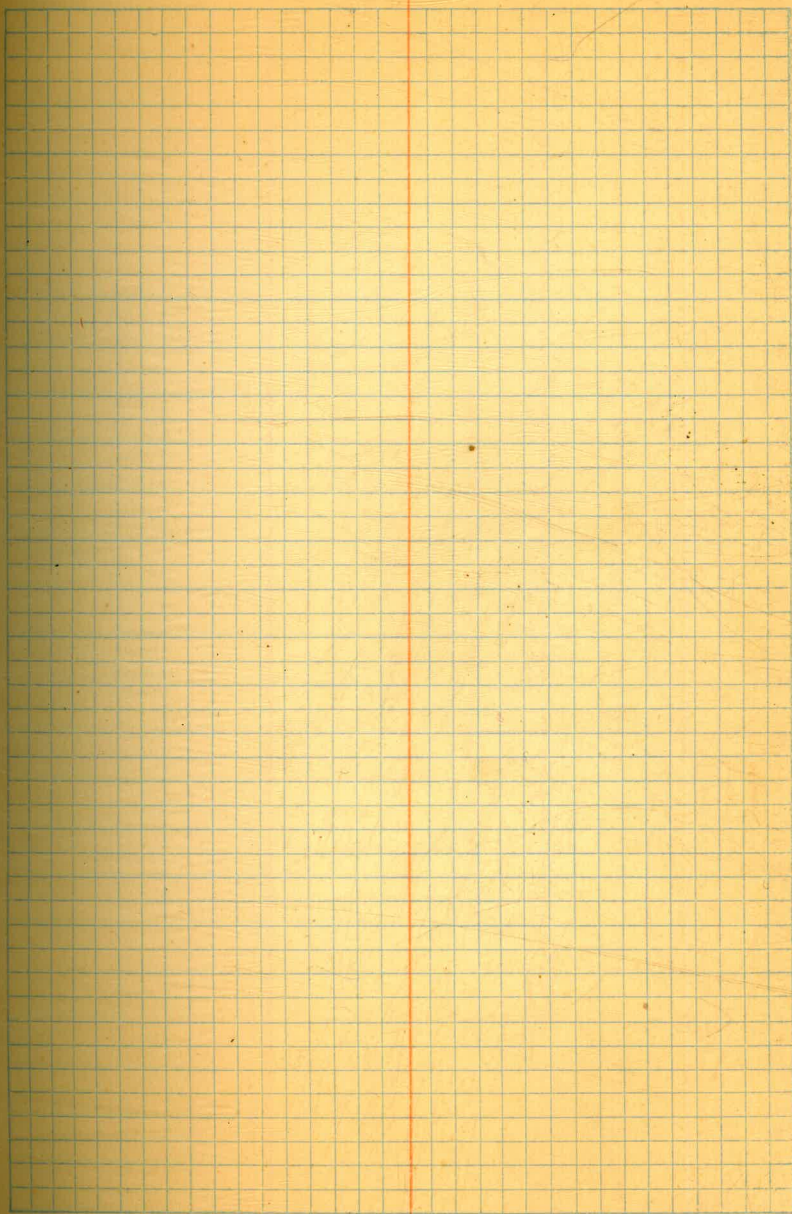
3740

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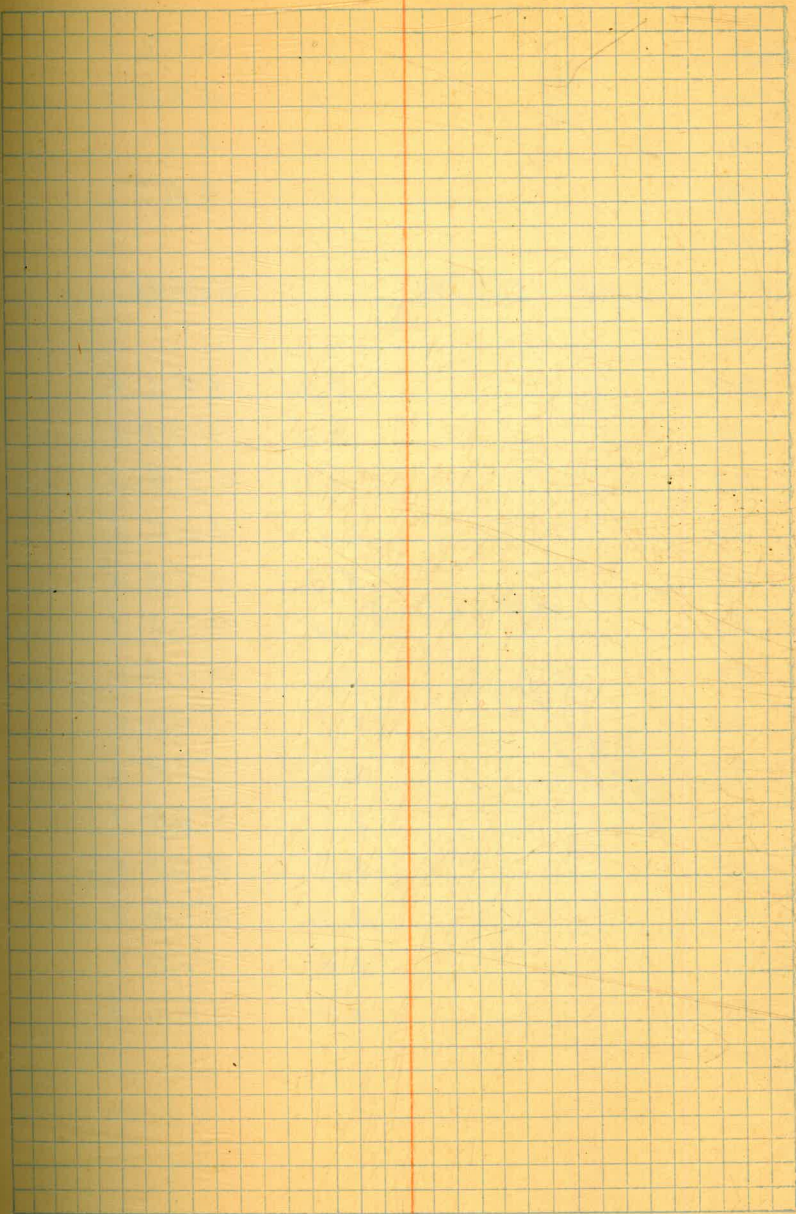
3740

27



3740

28



546.56

4450 5.4 41.2 ✓  
 460 4.6 42.0 ✓  
 470 1.5 45.1 ✓  
 483 1.9 44.7 ✓  
 483 ✓

B.M. 2.98 552.96 549.98

490

500 8.9 44.1 ✓

10 7.2 45.8 ✓

20 7.1 45.9 ✓

30 6.6 46.4 ✓

40 5.7 47.3 ✓

50 5.5 47.5 ✓

60 2.1 50.9 ✓

70 2.7 50.3 ✓

80 2.2 50.8 ✓

90 2.1 50.9 ✓

600 2.3 50.7 ✓

10 2.2 50.8 ✓

20 2.0 51.0 ✓

30 0.4 52.6 ✓

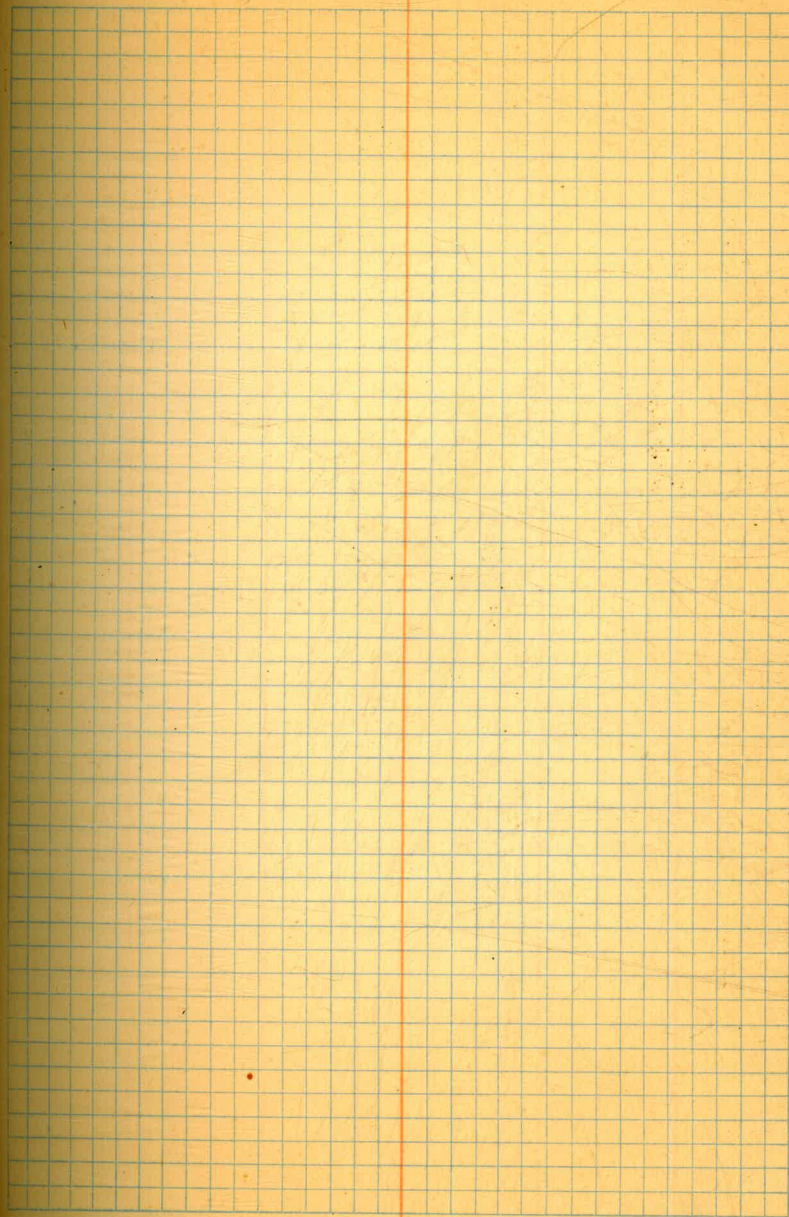
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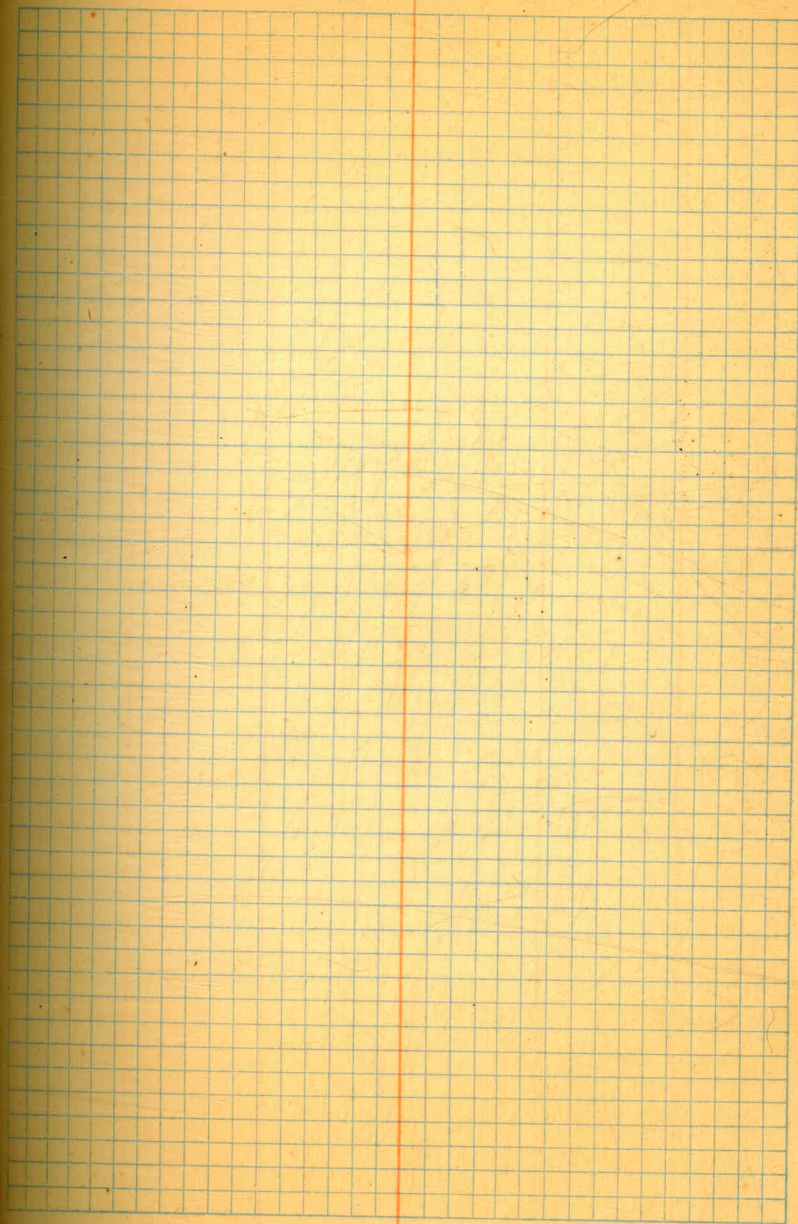
3750

30



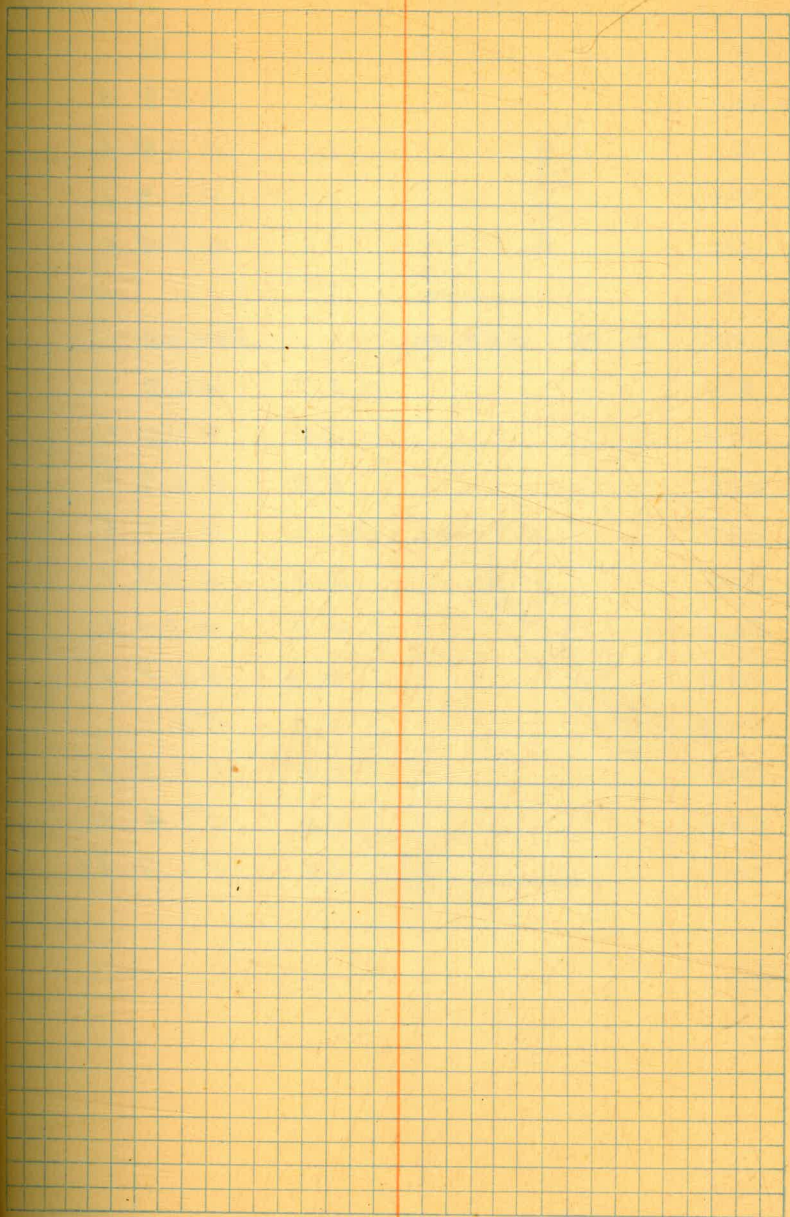
3750

31



3750

32



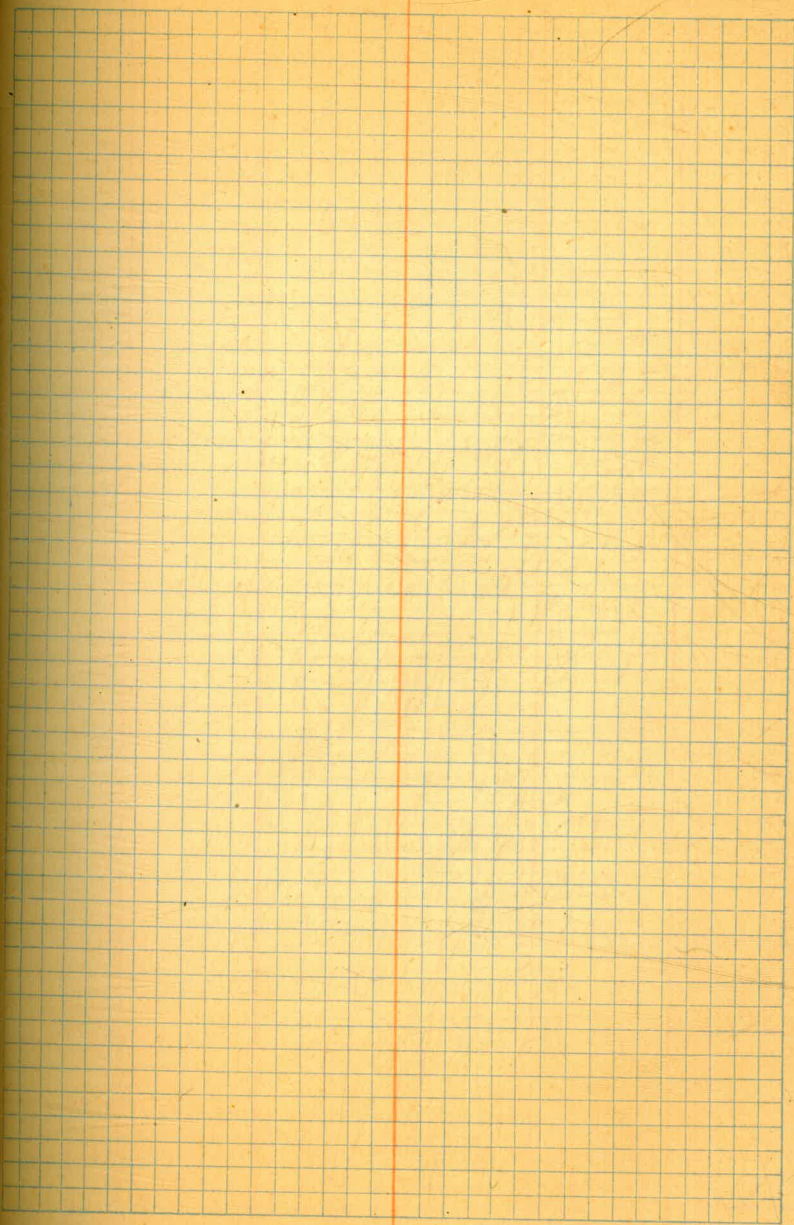
546.56

T.P.	12.68	553.52	5.72	540.84
4450			9.7	43.8 ✓
460	plotted		8.7	44.8 ✓
470			7.2	46.3 ✓
480			7.7	45.8 ✓
480				
B.M.	2.98	552.76		549.98
500			6.7	44.3 ✓
510			7.0	46.0 ✓
520			6.3	46.7 ✓
530			6.3	46.7 ✓
540	plotted		5.3	47.7 ✓
550			4.2	48.8 ✓
560			3.2	49.8 ✓
570			1.3	51.7 ✓
580			1.5	51.5 ✓
590			1.6	51.4 ✓
600			1.3	51.7 ✓

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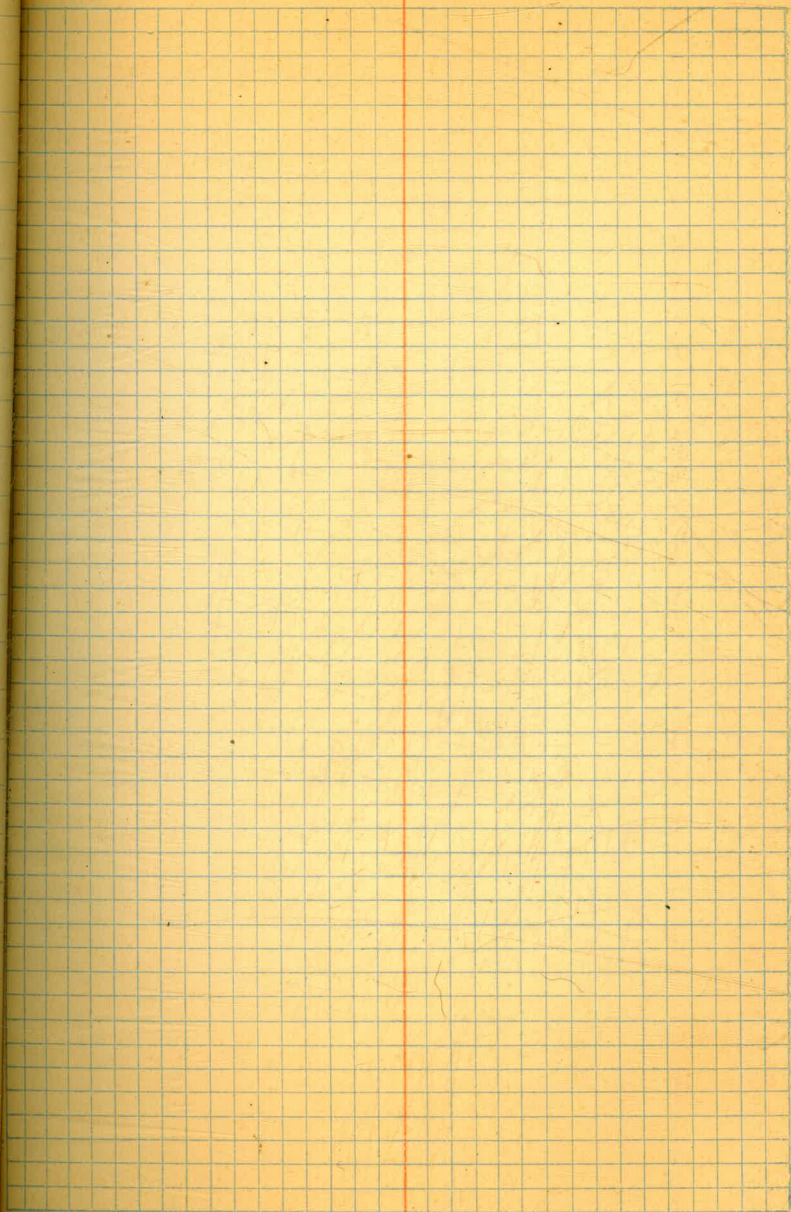
3760

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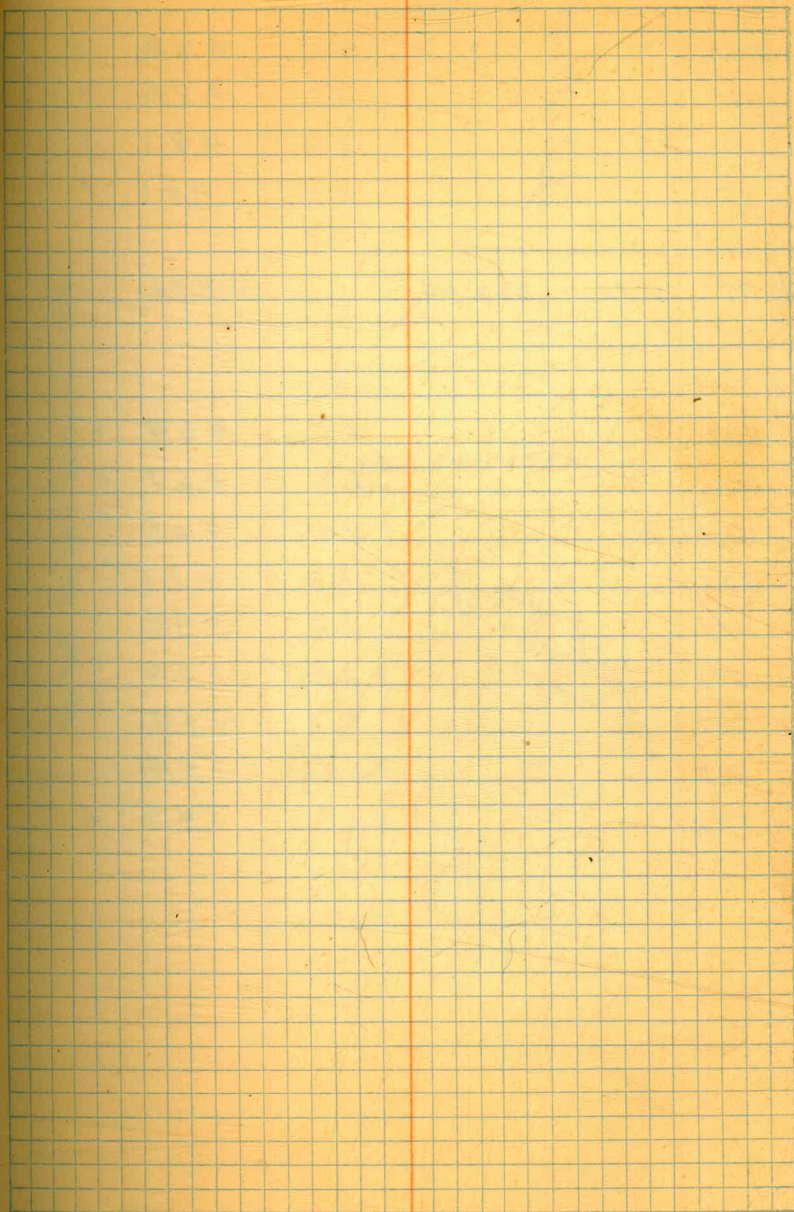
3760

35



3760

36



553.52

4450	<i>plotted</i>		6.6	46.9	✓
460			5.1	48.4	✓
470			5.4	48.1	✓
477			5.4	48.1	✓
477					
B.M.	2.98	552.96		549.98	

495	<i>plotted</i>		6.6	46.4	✓
500			6.9	46.1	✓
510			7.0	46.0	✓
520			4.3	48.7	✓
530			3.2	49.8	✓
540			+2.6	55.6	✓
550			0.9	52.1	✓
560			+1.4	54.4	✓
570		+1.7	54.7	✓	

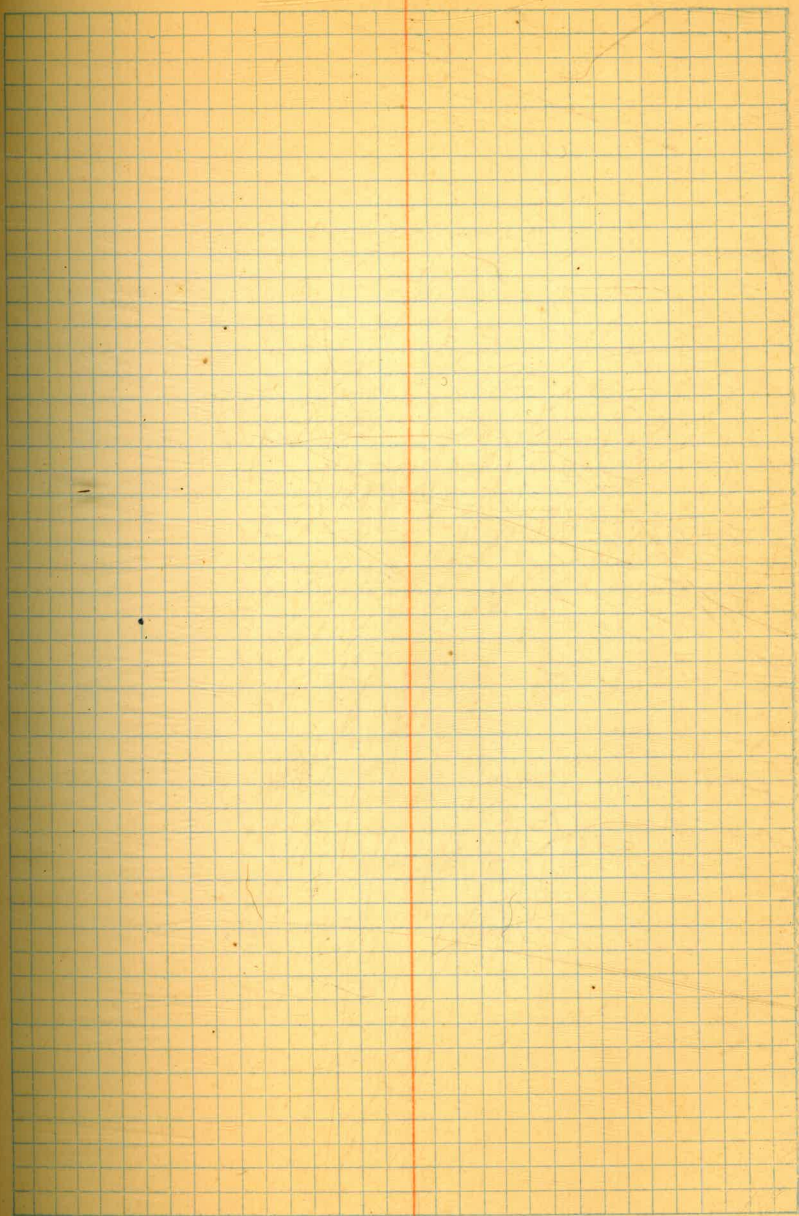
All Elev. ok for plotting CGM

Oct 26-1932



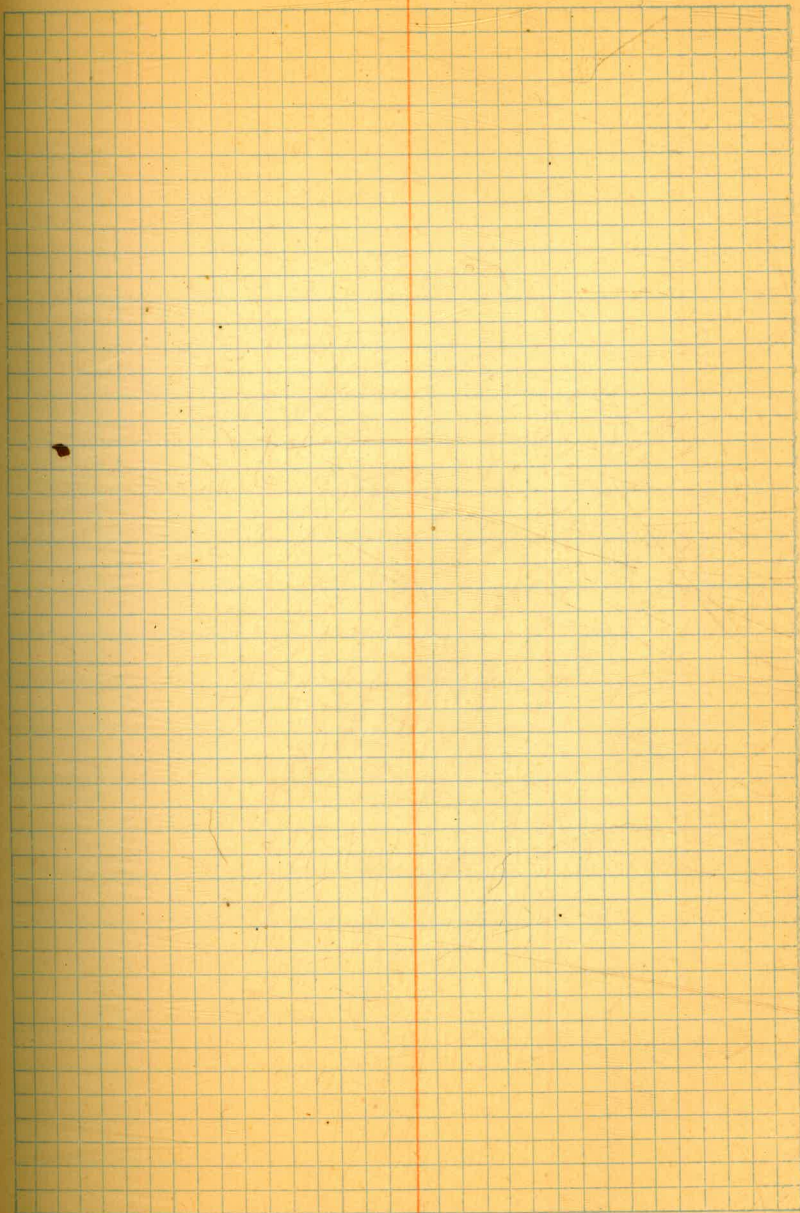
3770

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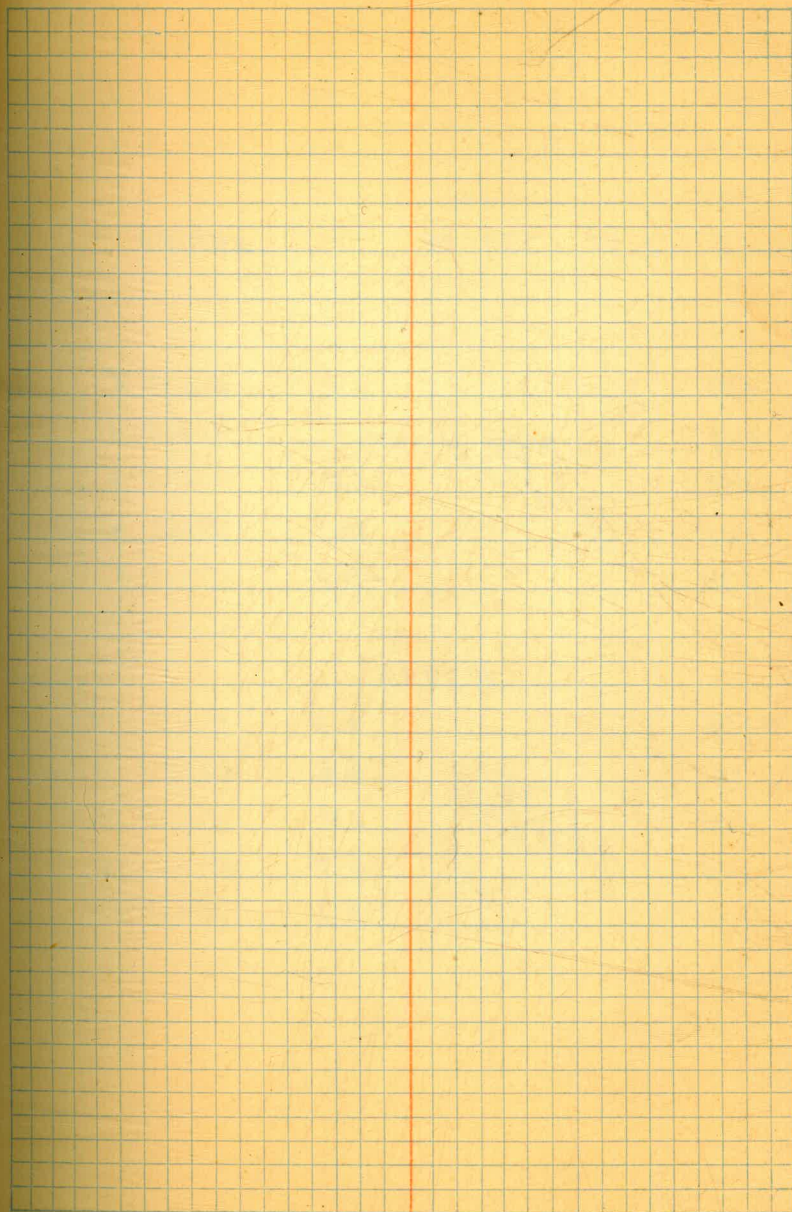
3770

39



3770

40



3780

553.52

4450	plotted		3.7	49.8	✓
460			4.0	49.5	✓
474			4.2	49.3	✓
474					
B.M	2.98	552.96		549.98	

490	plotted		6.6	46.7	✓
500			6.7	46.3	✓
510			5.5	47.5	✓
520			2.8	50.2	✓
530			10.9	53.9	✓

N3790

4485	plotted		6.7	46.3	✓
90			6.6	46.4	✓
500			6.4	46.6	✓
05			5.7	47.3	✓
10			73.8	56.8	✓✓

549.98 41

553.52  
9.06  
B.M 544.46 = 544.44

^

Oct 26 - 1932

y

y

N3800

B.M.	2.15	552.13	549.98
4480		5.7	46.4 ✓
90	<u>plotted</u>	5.3	46.8 ✓
500		3.8	48.3 ✓
505		+6.1	58.2 ✓

N3810

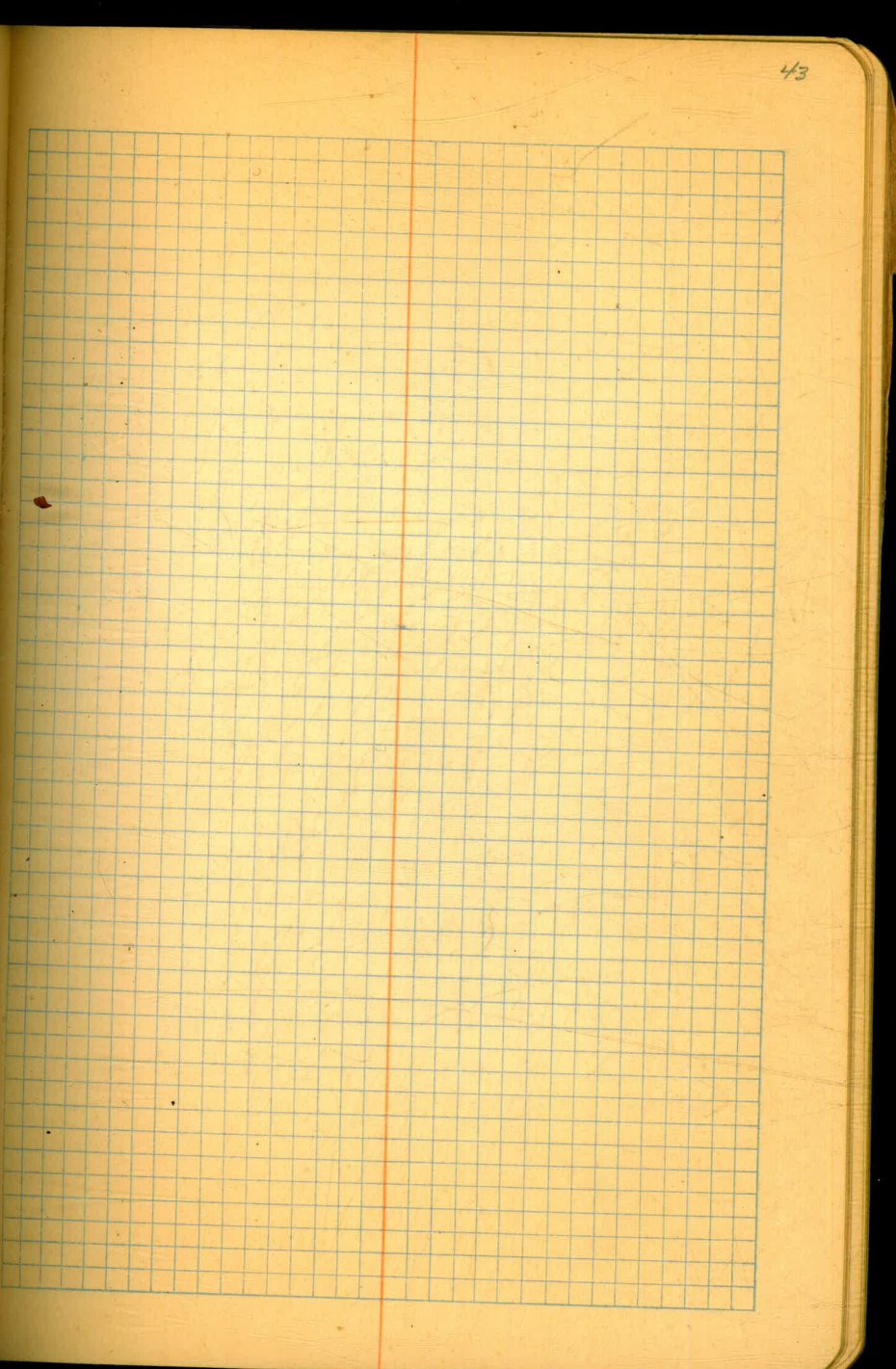
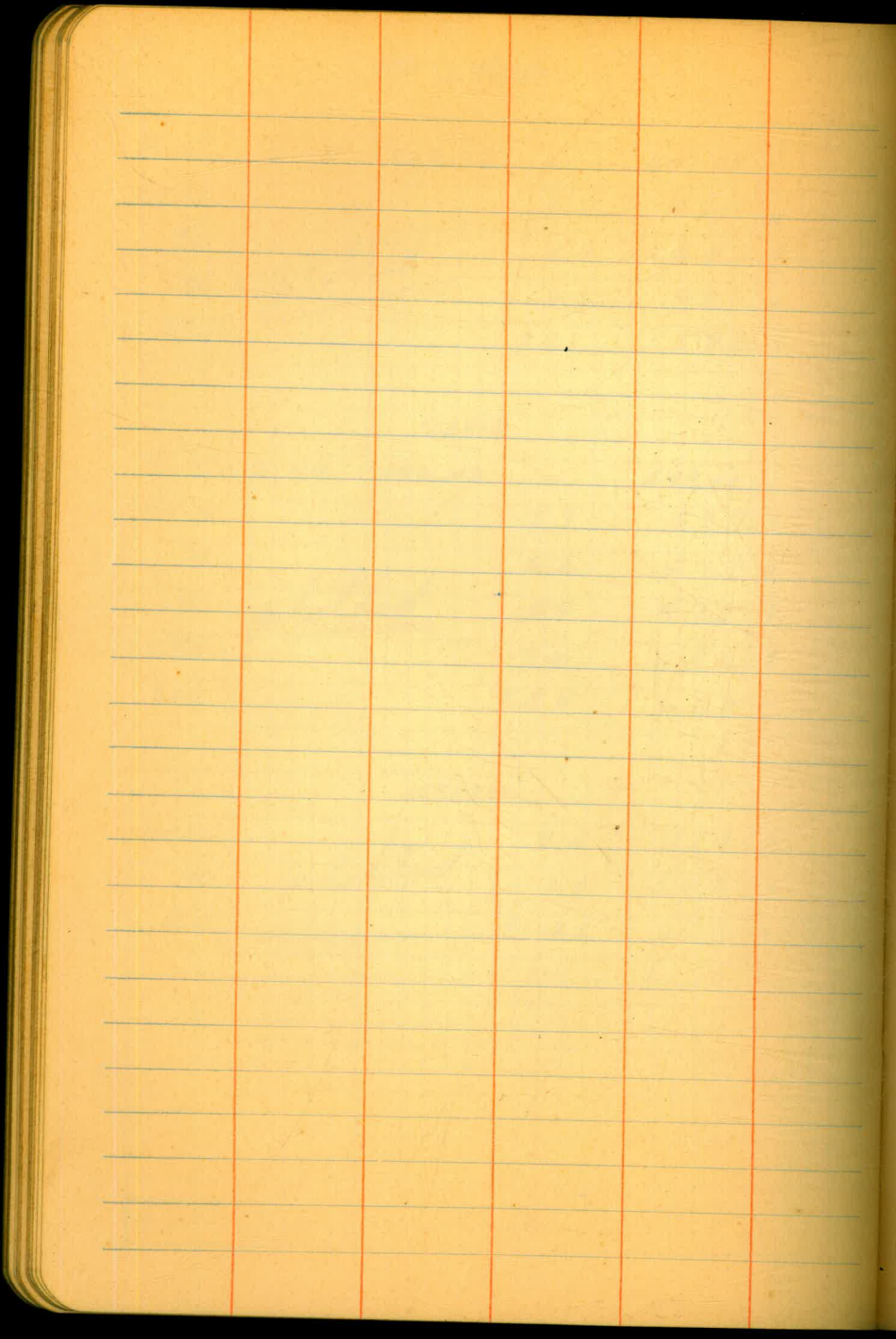
B.M.	2.45	552.43	549.98
4475		8.7	43.7 ✓
80	<u>plotted</u>	5.2	47.2 ✓
90		4.9	47.5 ✓
95		3.0	49.4 ✓
500		+8.4	60.8 ✓

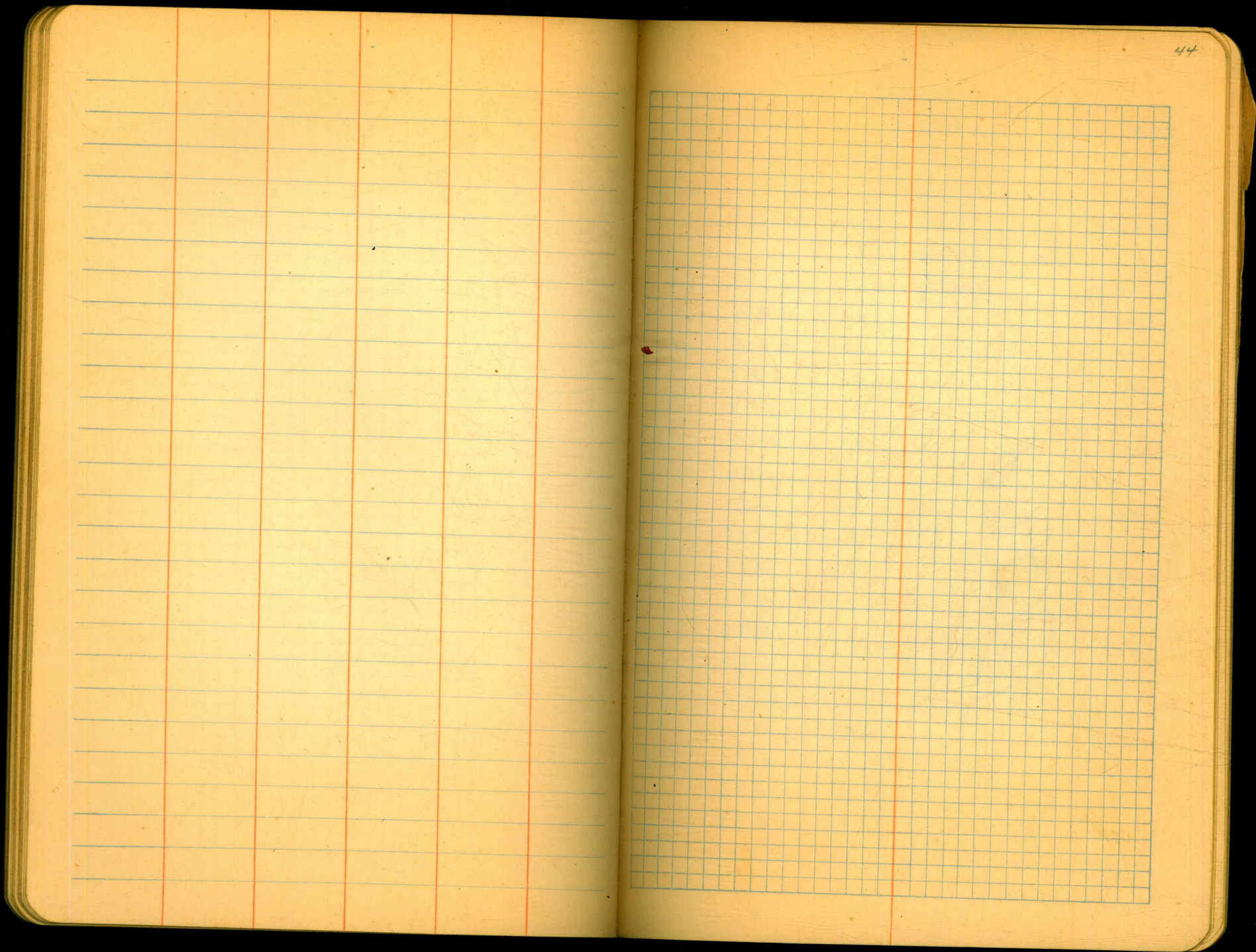
N3820

4485	<u>plotted</u>	3.5	48.9 ✓
90		1.9	50.5 ✓
500		+13.6	66.0 ✓ ✓

Oct 26 - 1932

42



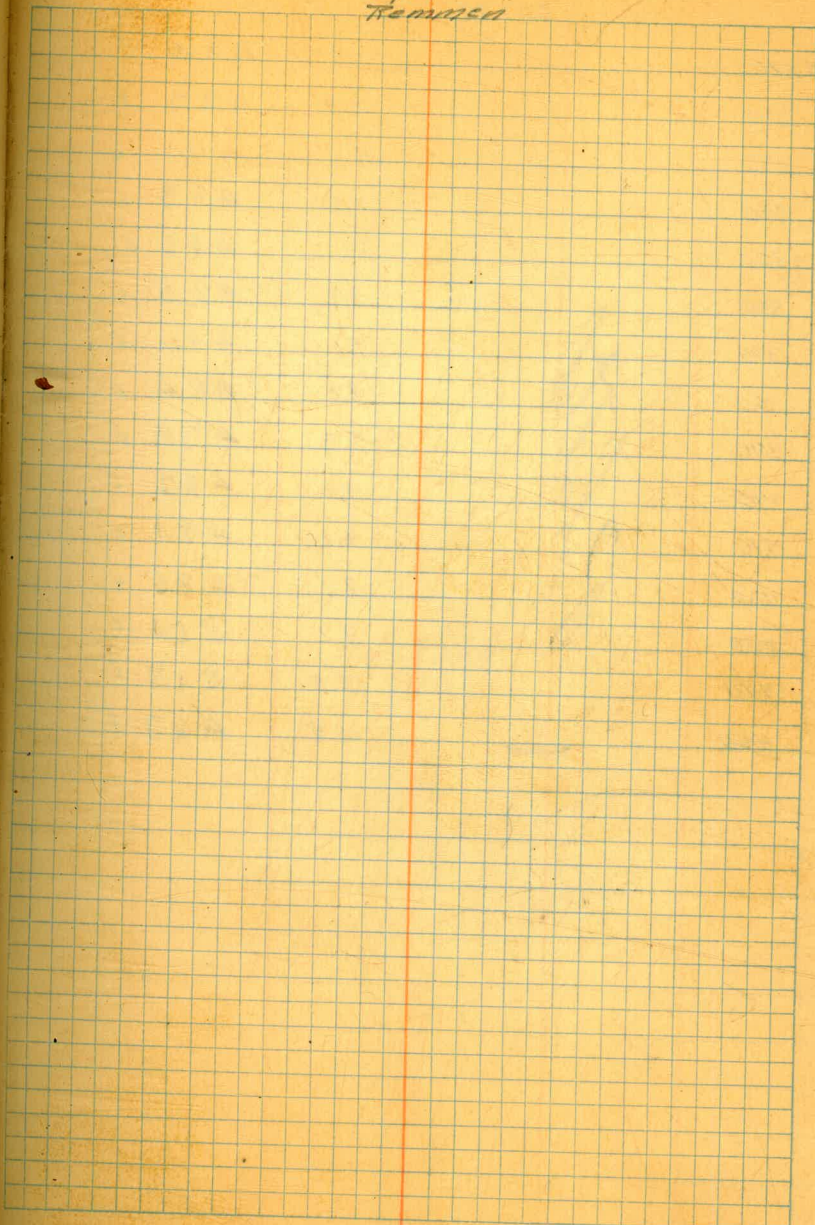


Final X Sections

Aug 10 - 1932  
 Elliott  
 Simpson  
 Soper  
 Remsen

B.M.	2.74	569.21		566.47
			12.29	556.92
	0.25	557.17		
Set B.M.			3.30	553.87
	3.30	557.17		
		N 3600		
5140			7.6	49.6
150			7.8	49.4
160			8.1	49.1
170			8.5	48.7
180			8.4	48.8
190			8.6	48.6
200			8.5	48.7
210			8.4	48.8
220			8.4	48.8
230			8.1	49.1
240			8.0	49.2
250			7.8	49.4
260			7.8	49.4
270			8.1	49.1
280			8.6	48.6
290			8.6	48.6
300			8.0	49.2
B.M.	3.23	557.10	3.30	553.87

Plotted



✓



N3600

557.20

5310

7.8

49.4 ✓

320

7.9

49.3 ✓

330

8.1

49.1 ✓

340

7.9

49.3 ✓

350

8.6

48.6 ✓

360

8.7

48.5 ✓

370

9.1

48.1 ✓

380

8.8

48.4 ✓

390

9.3

47.9 ✓

400

9.0

48.2 ✓

410

9.1

48.1 ✓

420

8.7

48.5 ✓

430

7.1

50.1 ✓

440

5.5

51.7 ✓

450

10.5

46.7 ✓

Plot

N 3590

557.10

E 5140	7.6	49.5	
150	8.2	48.9	
160	8.3	48.8	
170	8.6	48.5	
180	8.5	48.6	
190	8.4	48.7	
200	8.5	48.6	
210	8.5	48.6	
220	8.2	48.9	
230	8.0	49.1	
240	7.7	49.4	
250	7.7	49.4	
260	7.7	49.4	
270	7.6	49.5	
280	7.7	49.4	
290	8.0	49.1	
300	7.5	49.6	
310	7.5	49.6	
320	7.5	49.6	
330	7.6	49.5	
340	7.8	49.3	
350	7.6	49.5	
360	7.0	48.1	
370	9.5	47.6	

Plotted

✓

47

N3590

557.10

5380	9.2	47.9	✓
390	9.2	47.9	✓
400	9.4	47.7	✓
410	8.6	48.5	✓
420	7.7	49.4	✓
430	5.2	51.9	✓
440	8.6	48.5	✓
450	8.9	48.2	✓

Plotted

N3580

5140	7.7	49.4	✓
150	8.1	49.0	✓
160	8.4	48.7	✓
170	8.5	48.6	✓
180	8.5	48.6	✓
190	8.6	48.5	✓
200	8.6	48.5	✓
210	8.6	48.5	✓
220	8.2	48.9	✓
230	8.1	49.0	✓
240	7.9	49.2	✓
250	7.7	49.4	✓
260	7.4	49.7	✓
270	7.2	49.9	✓
280	7.3	49.8	✓

Plotted

✓

N3580

557.10

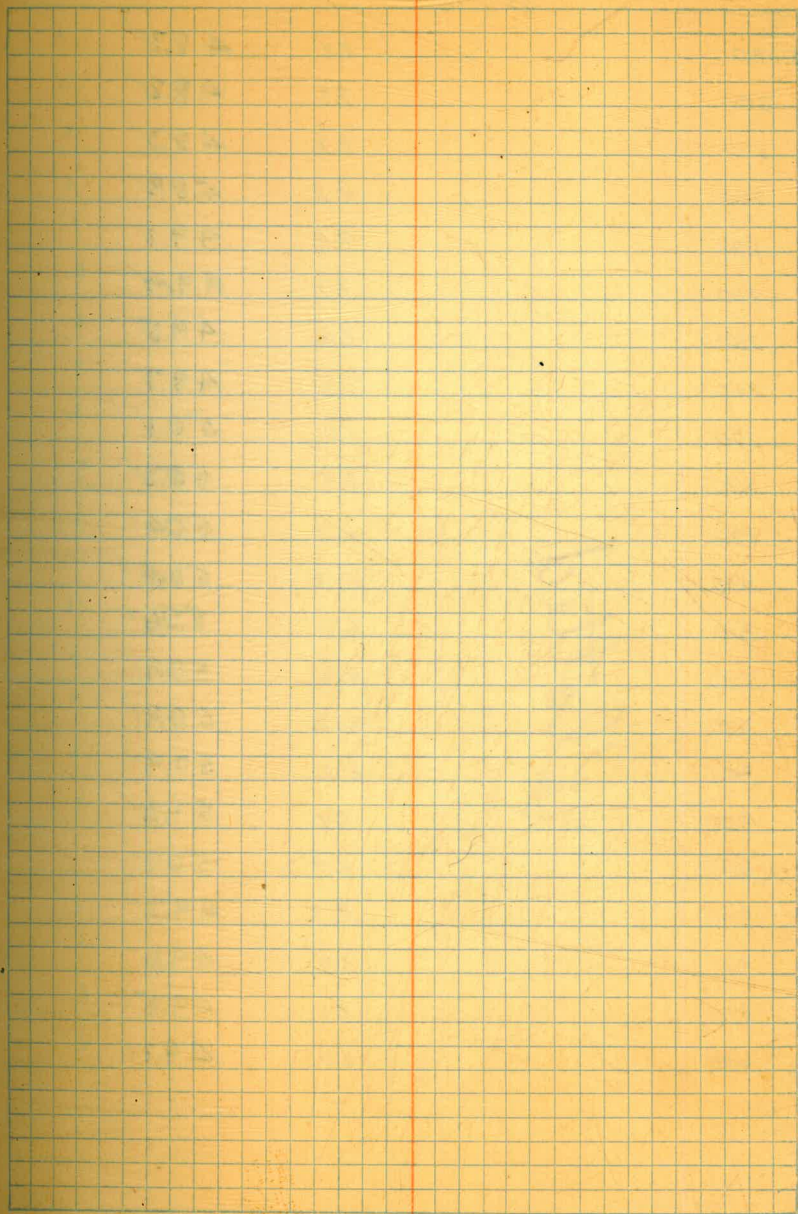
5290	7.4	49.7	✓
300	7.3	49.8	✓
310	7.1	50.0	✓
320	6.9	50.2	✓
330	6.9	50.2	✓
340	7.1	50.0	✓
350	7.5	49.6	✓
360	8.6	48.5	✓
370	7.2	49.9	✓
380	8.1	49.0	✓
390	8.3	48.8	✓
400	8.3	48.8	✓
410	7.7	49.4	✓
420	7.4	49.7	✓
430	7.2	49.9	✓
440	7.4	49.7	✓
450	8.0	49.1	✓

Plotted

N3570

5140	7.7	49.4	✓
150	8.3	48.8	✓
160	8.4	48.7	✓
170	8.7	48.4	✓
180	8.7	48.4	✓

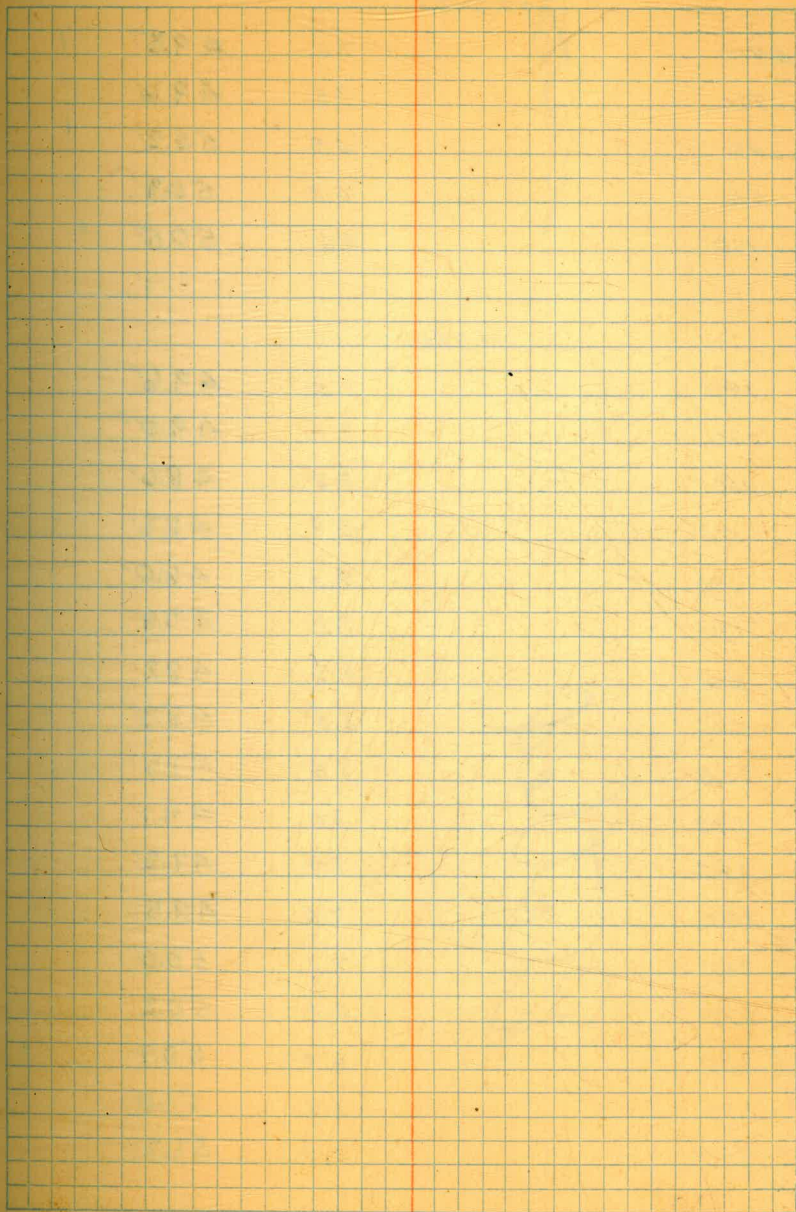
49



557.10

5190	8.8	48.3
200	8.9	48.2
210	8.8	48.3
220	8.2	48.9
230	8.0	49.1
240	7.7	49.4
250	7.6	49.5
260	7.4	49.7
270	7.0	50.1
280	6.8	50.3
290	6.7	50.4
300	6.7	50.4
310	6.5	50.6
320	6.2	50.9
330	6.2	50.9
340	6.2	50.9
350	5.9	51.2
360	6.4	50.7
370	7.9	49.2
380	7.5	49.6
390	7.6	49.5
400	8.0	49.1

Plotted



N3570

557.10

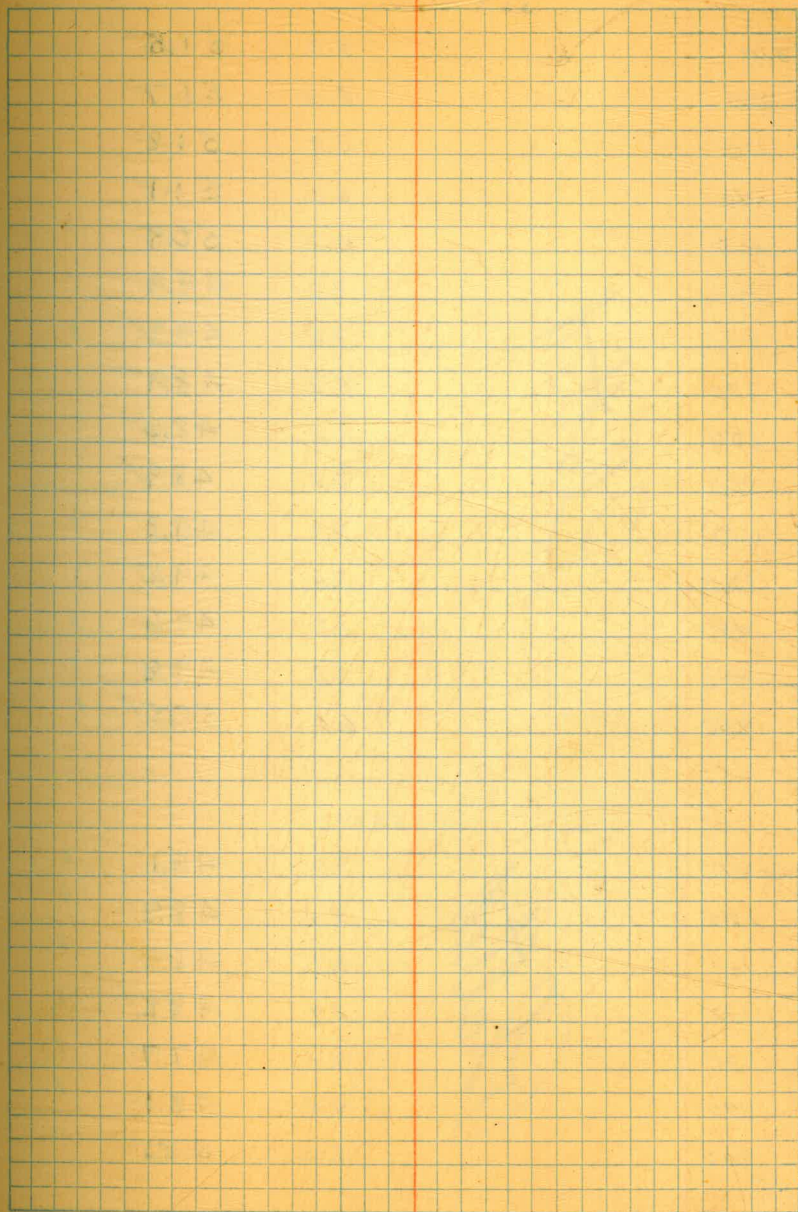
5410	7.6	49.5	'
420	7.5	49.6	'
430	6.9	50.2	'
440	6.8	50.3	'
450	6.6	50.5	'

N3560

140	7.5	49.6	'
150	8.1	49.0	'
160	8.5	48.6	'
170	8.8	48.3	'
180	9.1	48.0	'
190	9.2	47.9	'
200	8.9	48.2	'
210	8.8	48.3	'
220	8.5	48.6	'
230	8.0	49.1	'
240	7.9	49.2	'
250	7.6	49.5	'
260	7.1	50.0	'
270	6.9	50.2	'
280	6.4	50.7	'
290	6.1	51.0	'
300	5.9	51.2	'

Plotted

51



N3560

557.10

5310	5.7	51.4	✓
320	5.4	51.7	✓
330	5.3	51.8	✓
340	6.0	51.1	✓
350	6.2	50.9	✓
360	7.2	49.9	✓
370	7.8	49.3	✓
380	8.2	48.9	✓
390	8.5	48.6	✓
400	8.2	48.9	✓
410	7.9	49.2	✓
420	7.6	49.5	✓
430	7.5	49.6	✓
440	7.2	49.9	✓
450	6.6	50.5	✓

Plotted

N 3550

5140	8.0	49.1	✓
150	8.4	48.7	✓
160	8.7	48.4	✓
170	8.9	48.2	✓
180	9.4	47.7	✓
190	9.0	48.1	✓
200	9.0	48.1	✓

Plotted

✓

52

557.10

5210	8.7	48.4	✓
220	8.5	48.6	✓
230	7.7	49.4	✓
240	7.6	49.5	✓
250	7.6	49.5	✓
260	7.2	49.9	✓
270	6.4	50.7	✓
280	6.3	50.8	✓
290	6.1	51.0	✓
300	5.6	51.5	✓
310	5.3	51.8	✓
320	4.9	52.2	✓
330	5.2	51.9	✓
340	5.8	51.3	✓
350	6.1	51.0	✓
360	6.9	50.2	✓
370	7.6	49.5	✓
380	8.1	49.0	✓
390	8.3	48.8	✓
400	8.3	48.8	✓
410	8.0	49.1	✓
420	7.8	49.3	✓
430	7.4	49.7	✓
440	7.0	50.1	✓
450	7.0	50.1	✓

Plotted.

All 176 checked for plotting &amp; B.A.



		557.10			
T.P.			1.39	555.71	
	11.63	567.34			
B.M.			0.87	566.47	Record 566.47

Thurs X Sec. Not a Plotting  
 Sept. 24-1934  
 C.B.H.

Advised that not  
 necessary to check Exit  
 + Exit Rental Cal.

Thurs X Sec. Not ch. Plotting  
Sept. 24-1934 EBN

Advised that not  
necessary to check Exit  
& Exit Rental Cal.

	557.10			
T.P.		1.37	555.71	
11.63	567.34			
B.M.		0.87	566.47	Record 566.47

End Aug 10 - 1922

Final X Sections of Div. Tunnel  
Inlet Trench & Structure

3450

B.M.	12.16	579.38	567.22
5830		16.1	<sup>0.6</sup> 63.3
5820		16.1	63.3
5810		15.4	64.0
800		13.0	66.4
790		5.0	74.4
780		0.2	<sup>0.6</sup> 79.2

N3440

5830		16.5	<sup>0.6</sup> 62.9
20		16.4	63.0
10		15.5	63.9
800		13.9	65.5
790		9.4	70.0
80		4.2	75.2
70		0.7	<sup>0.6</sup> 78.7

N3430

5840			0.6
30		16.0	63.4
20		16.1	63.3
10		16.0	63.4
800		15.3	64.1
90		11.5	67.9

Oct 6-1932

Elliott  
Simpson  
Soper  
Hammer

55

N3430

579.38

5780

2.3

77.1

770

1.0

78.4

B.M.

12.40

579.62

567.22

N3420

E 5870

0.6

60

16.2

63.4

50

16.3

63.3

40

16.5

63.1

30

16.6

63.0

20

16.5

63.1

10

16.4

63.2

800

16.1

63.5

90

16.2

63.4

80

14.9

64.7

70

9.0

70.6

60

4.9

74.7

750

2.5

77.1

✓

Oct 7-1932

Some Grew

56

N3410

579.62

5870		0.6
60	16.6	63.0
50	16.6	63.0
40	16.6	63.0
30	16.6	63.0
20	16.6	63.0
10	16.6	63.0
800	16.6	63.0
90	16.6	63.0
80	16.6	63.0
70	16.6	63.0
60	16.6	63.0
50	14.5	65.1
40	10.0	69.6
30	4.9	74.7
20	3.6	76.0 0.6
710	1.5	78.1

N3400

5680	0.5	0.6 79.1
90	3.8	75.8
700	5.6	74.0
10	9.4	70.2
20	14.1	65.5 ✓

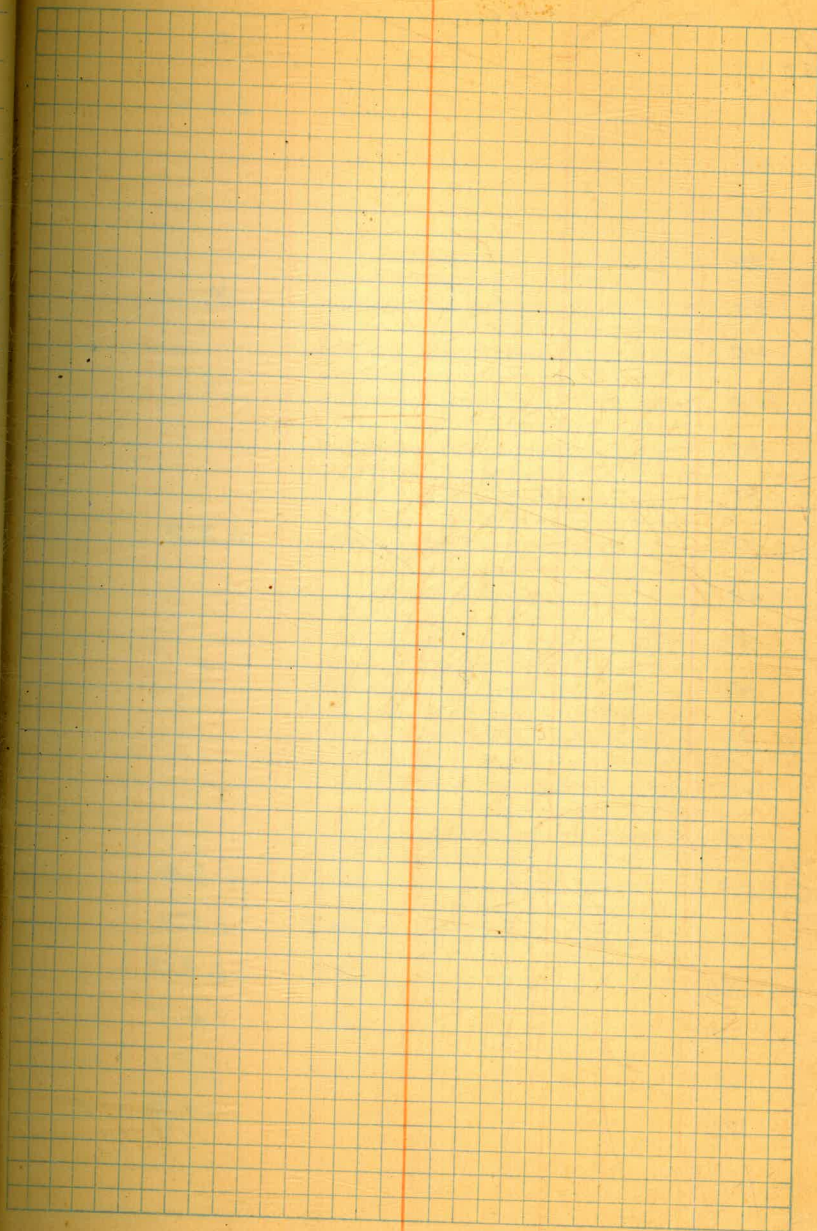
57

N 3400

579.62

5730		16.6	63.0
740		"	
50			
60			
70		"	"
80			
90			
800			
10		"	63.0
20			
30			
40		"	"
50			
60			
70		16.6	63.0
80			0.2

58



N3390

579.62

5870		0.6	
60			
50	16.6	63.0	
40	"		
30			
20	"	"	
10			
800	"	"	
90			
80			
70	"	63.0	
60			
50			
40	"	"	
30			
20			
10			
700	16.6	63.0	
90	14.5	65.1	
80	9.9	69.7	
70	5.1	74.5	
60	1.5	78.1	
55	+0.3	79.9	✓

11.8

59

7.4



3390

579.62

5650	+0.4	80.0
40	+0.6	80.2
34	+1.2	80.8
34	9.3	70.3
32	9.3	70.3
32	0.6	79.0
30	0.6	79.0
25	+3.2	82.8

N3380

5600	+8.1	87.7
05	+7.3	86.9
10	+1.6	81.2
20	4.7	74.9
27	9.9	69.7
27	16.6	63.0
36	16.6	63.0
36	6.2	73.4
40	6.2	73.4
50	11.2	68.4
60	14.0	65.6
70	16.6	63.0
80	"	63.0
90	"	"
700	"	"

13

5.7

7.2

60

N3380

579.62

5710

16.6

63.0

20

30

40

"

"

50

60

70

"

80

90

5800

"

63.0

10

20

30

"

"

40

50

60

16.6

63.0

70

11.4

68.2

80

0.6

61

N3370

579.62

5890

11.9

0.6

67.7

80

9.3

70.3

70

8.2

71.4

60

13.2

66.4

50

13.6

66.0

40

10.4

69.2

30

13.0

66.6

20

11.4

68.2

10

12.7

66.9

800

16.6

63.0

90

63.0

80

"

70

60

"

"

50

40

30

"

"

20

10

"

"

700

90

80

"

"

70

60

"

50

63.0

62

N3370

579.62

T.P. 8.23 584.52 3.33 576.29

5640 21.5 63.0

30 " "

20 " "

15 " "

15 21.5 63.0

T.P. 8.52 584.81 8.23 576.29

10 20.3 64.5

600 9.9 74.9

90 +0.3 85.1

80 +8.8 93.6

575 +9.8 94.6

N3360

5580 +12.9 97.7

87 +10.0 94.8

87 21.8 63.0

90

600

10

20 " "

30

40

50

60

70 " 63.0 ✓

16.4

63

N3360

58481

5680	21.8	63.0
90		
700		
10		
20		
30	"	"
40		
50		
60		
70	21.8	63.0
80	21.8	63.0
90	17.9	66.9
800	13.8	71.0
05	9.8	75.0
10	9.8	75.0

N3350

5890	9.3	75.5
80	10.6	74.2
70	13.6	71.2
60	18.7	66.1
50	21.8	63.0
40		
30	"	
20	"	63.0

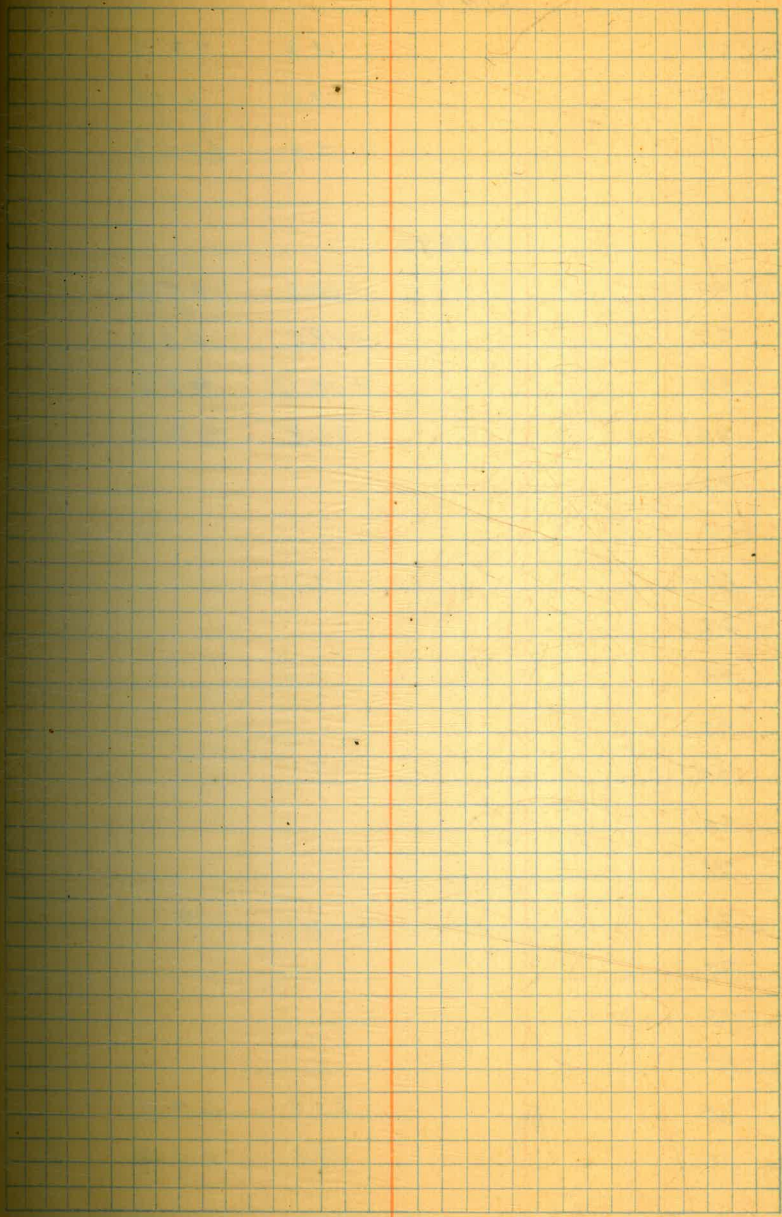
64

3350

7

584.81

5810		21.8	63.0
800		"	
90			
80		"	"
70			
60			
50		"	"
40			
30			
20			
10			
700		"	63.0
90			
80			
70			
60		"	"
50			
40			
30		"	"
20			
10			
600			
590		21.8	63.0



N3350

584.81

55	89	11.8	73.0
85		17.0	67.8
80		+ 15.5	600.3

N3540

55	70	+20.6	0.6 0.54
77		+18.5	0.6 03.3
80		+10.4	95.2
85		21.8	63.0

600

10

20

30

40

50

60

70

80

90

700

10

20

30

21.8 63.0

18.8 66.0

584.81

5740			12.8	72.0
750			7.9	76.9
60			2.2	82.6
70			2.3	82.5 <sup>0.6</sup>
80			3.8	81.0 <sup>0.6</sup>
T.P.	3.70	588.04	0.47	584.34

3330

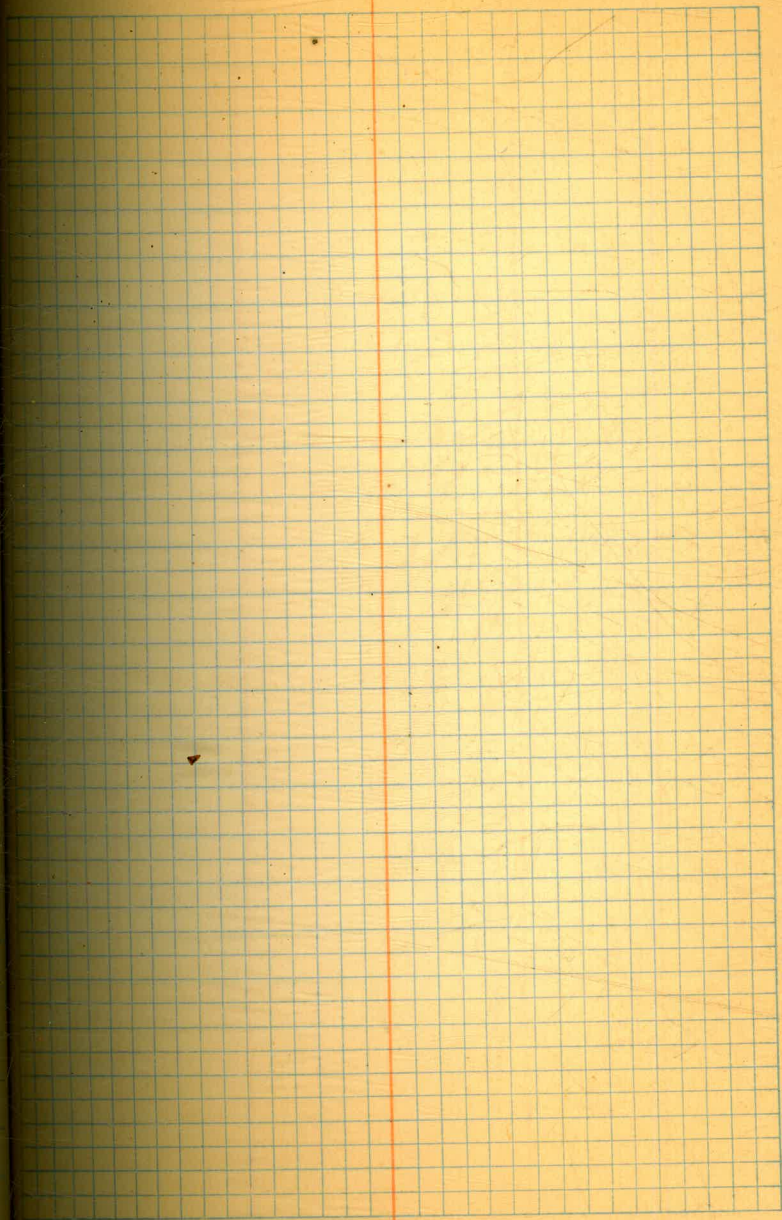
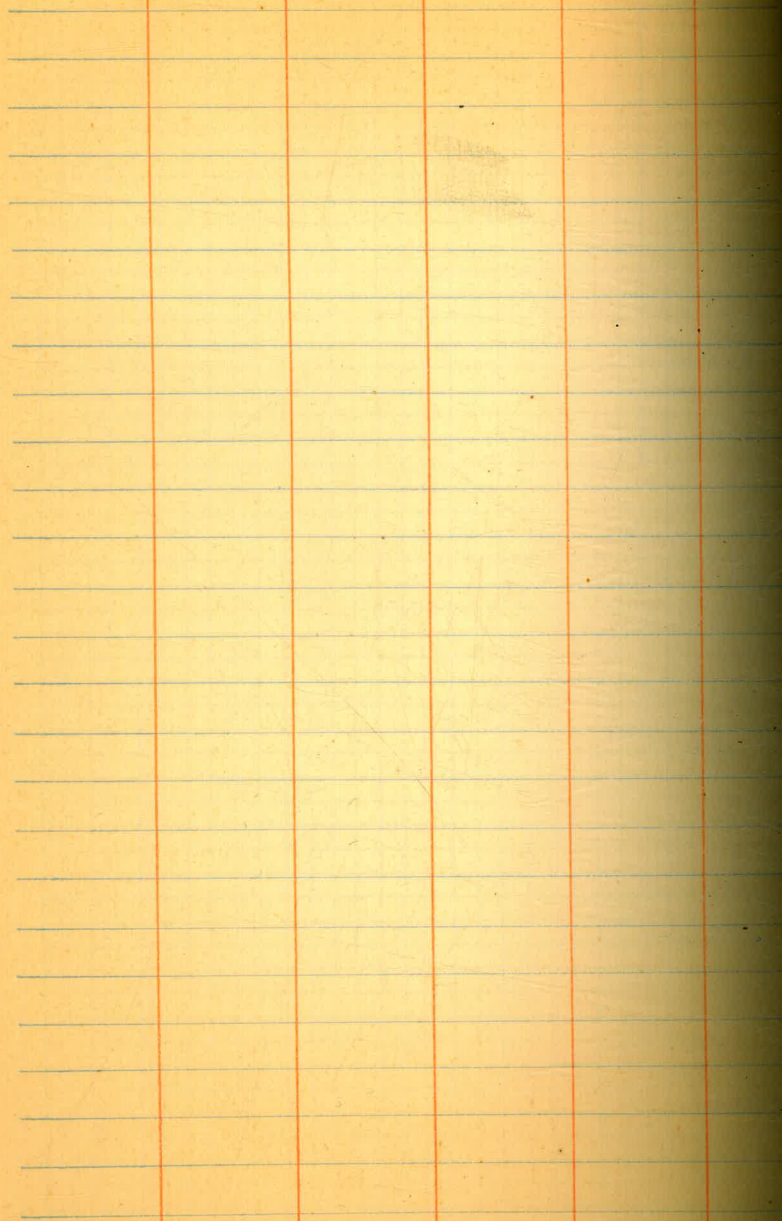
5740			1.7	86.3 <sup>0.6</sup>
30			6.4	81.6
20			12.1	75.9
10			19.1	68.9
700			25.0	63.0
70				
80			"	"
70				
60			"	"
50				
40				
30			"	"
20				
10				
600			"	"
90				
85			25.0	63.0 ✓

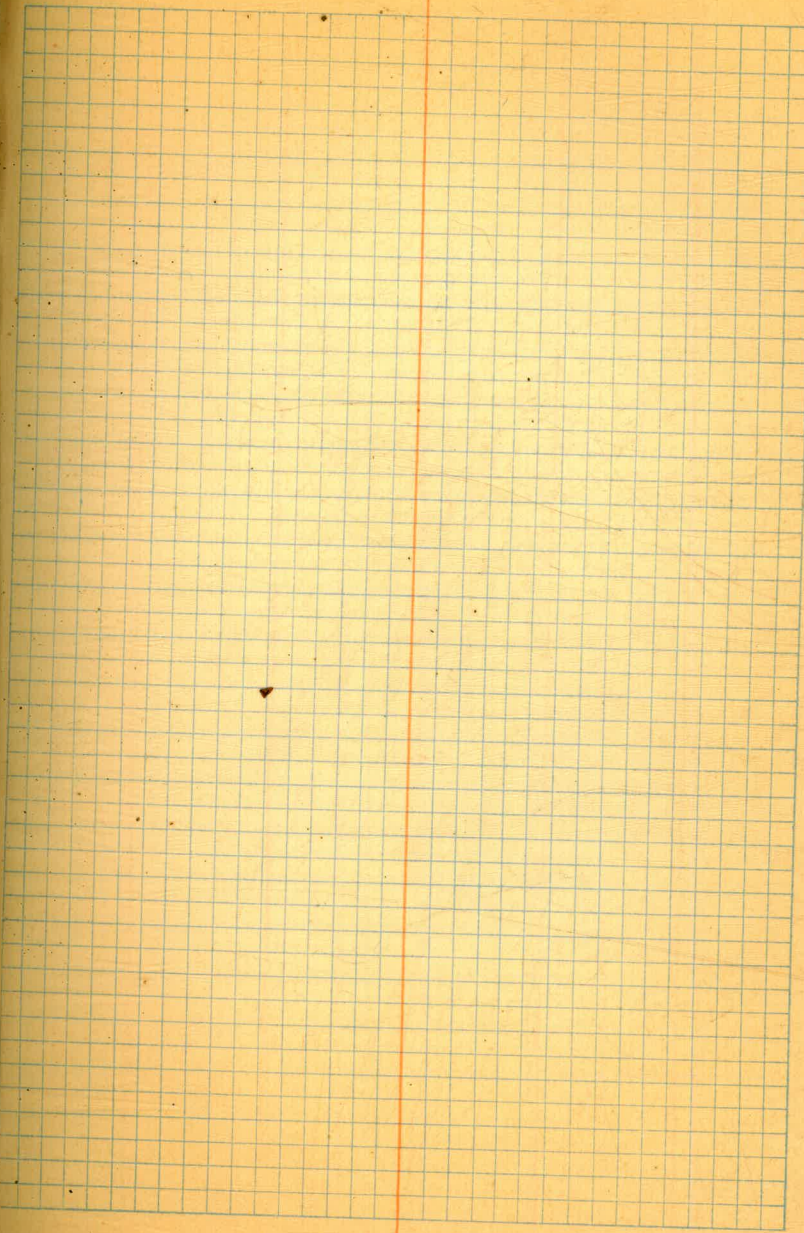
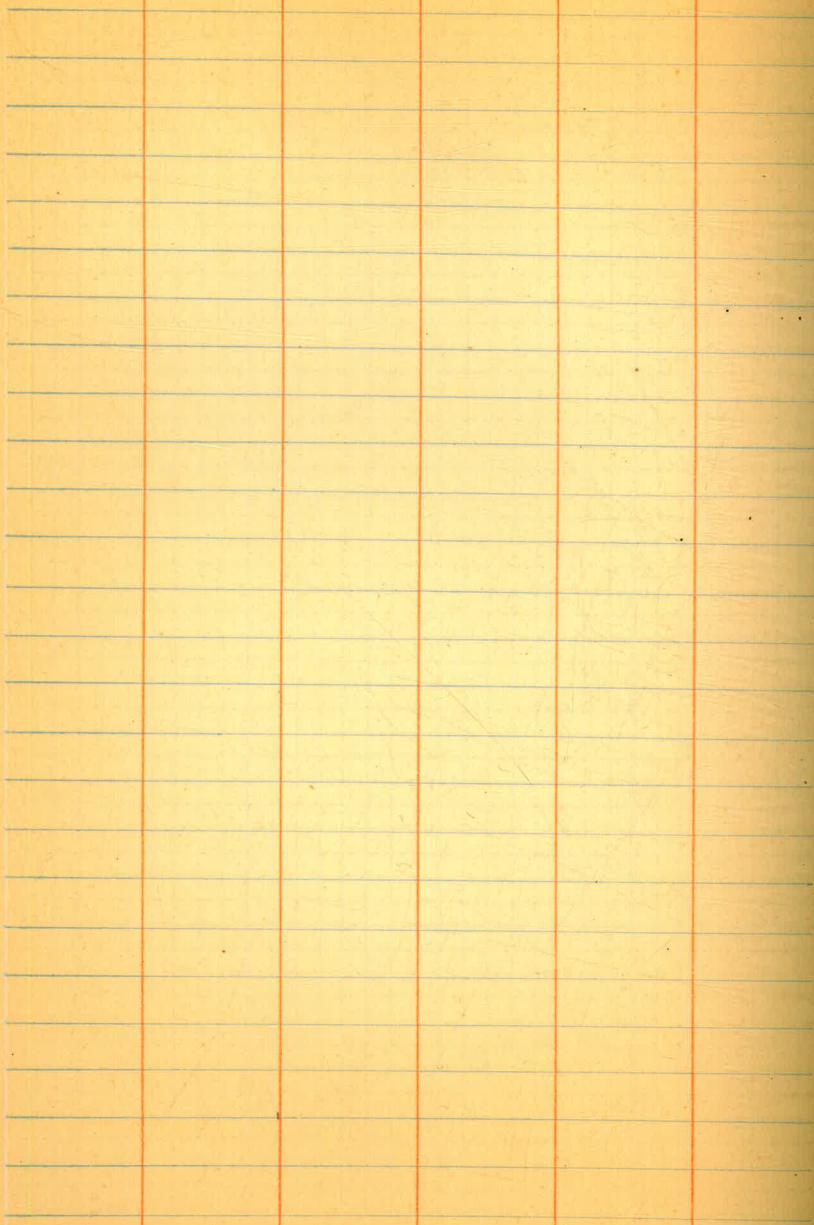
End oct 7-32

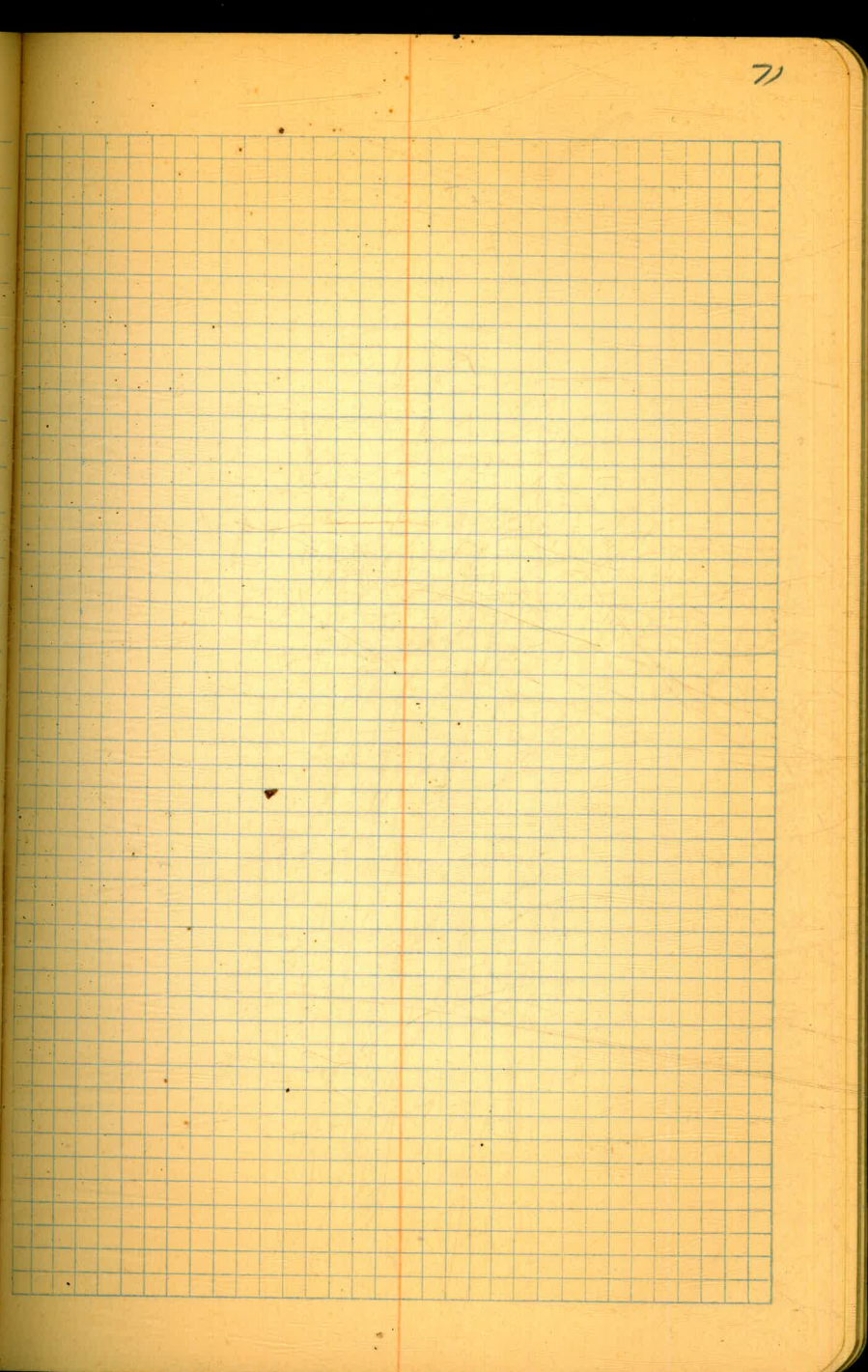
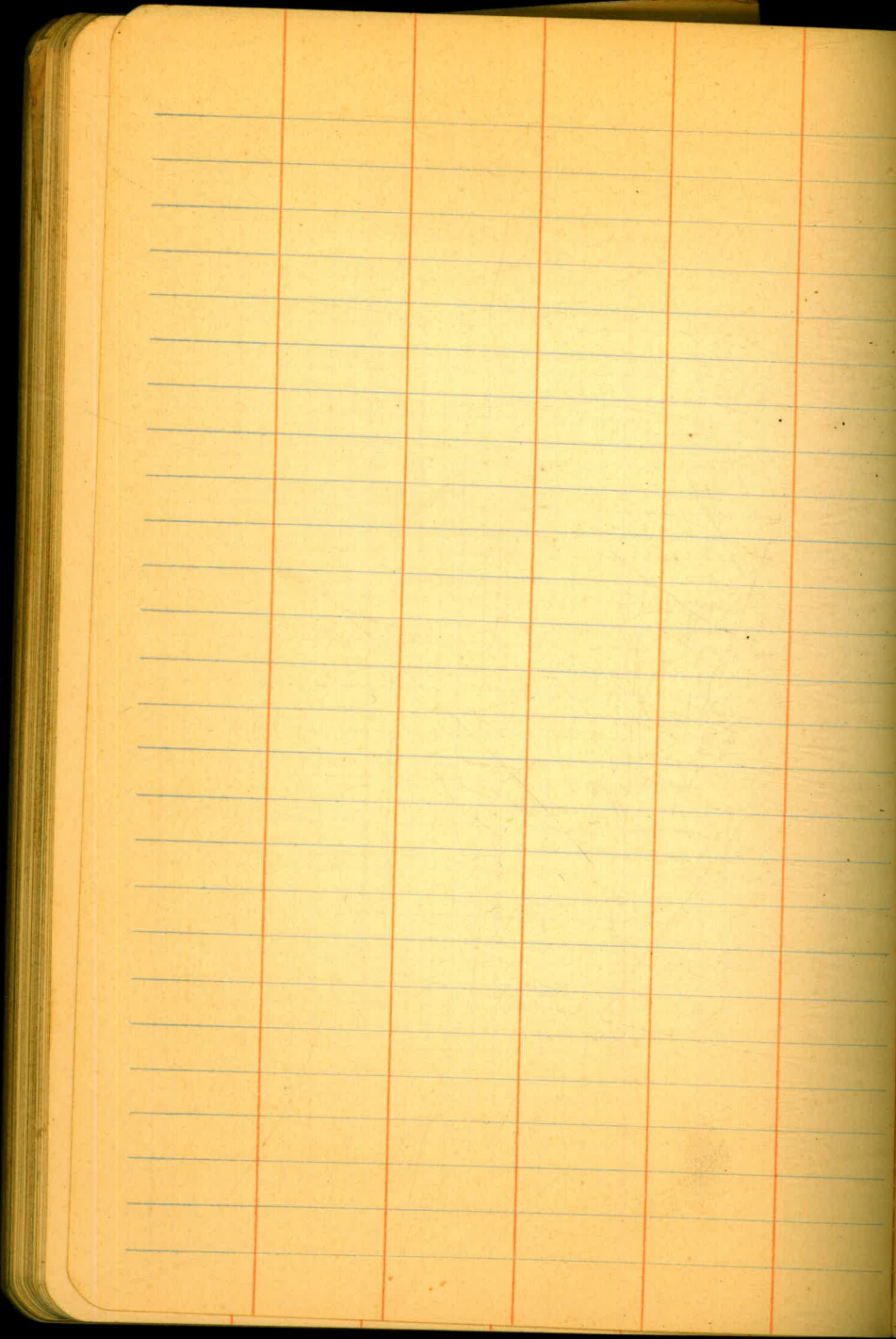


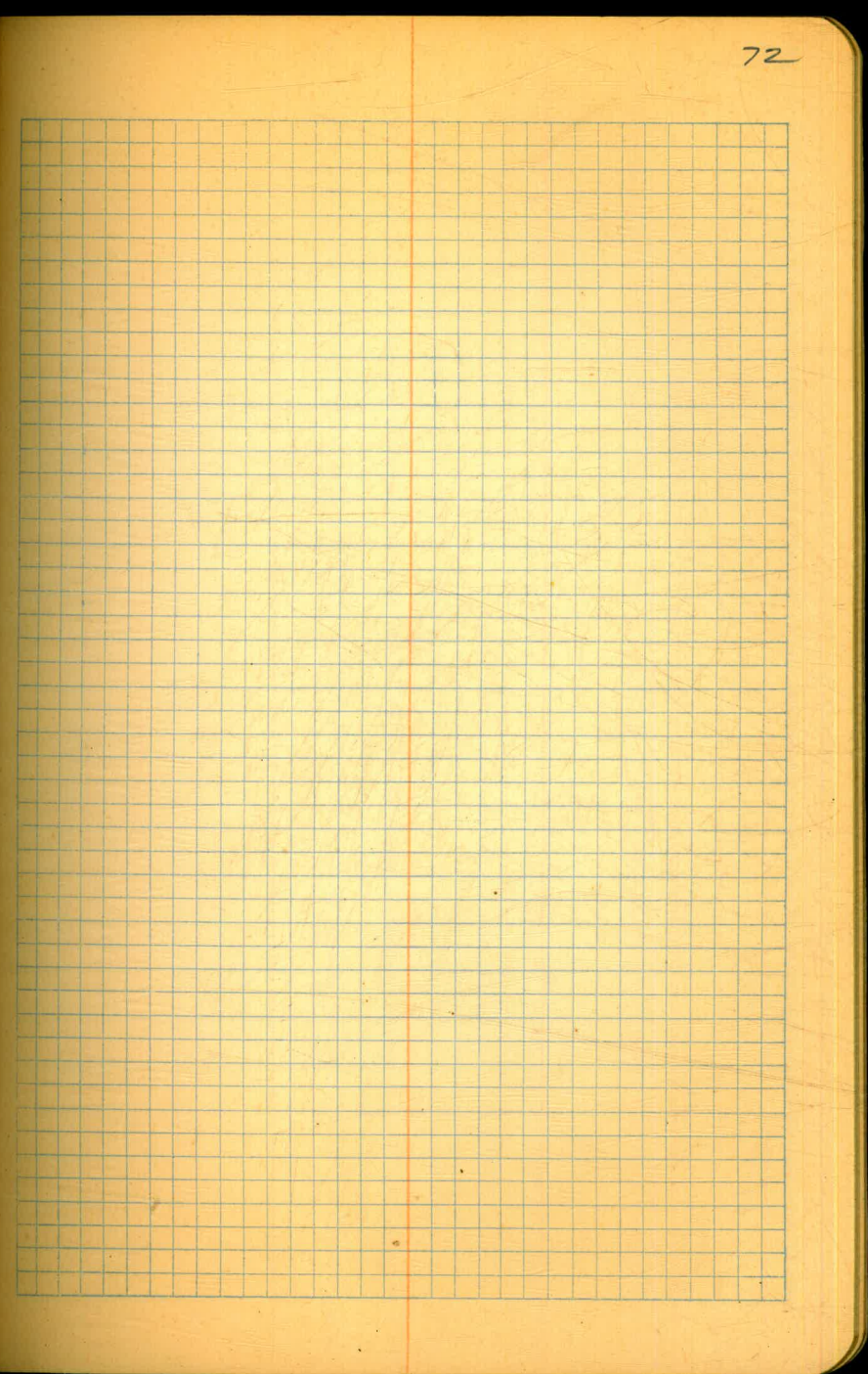
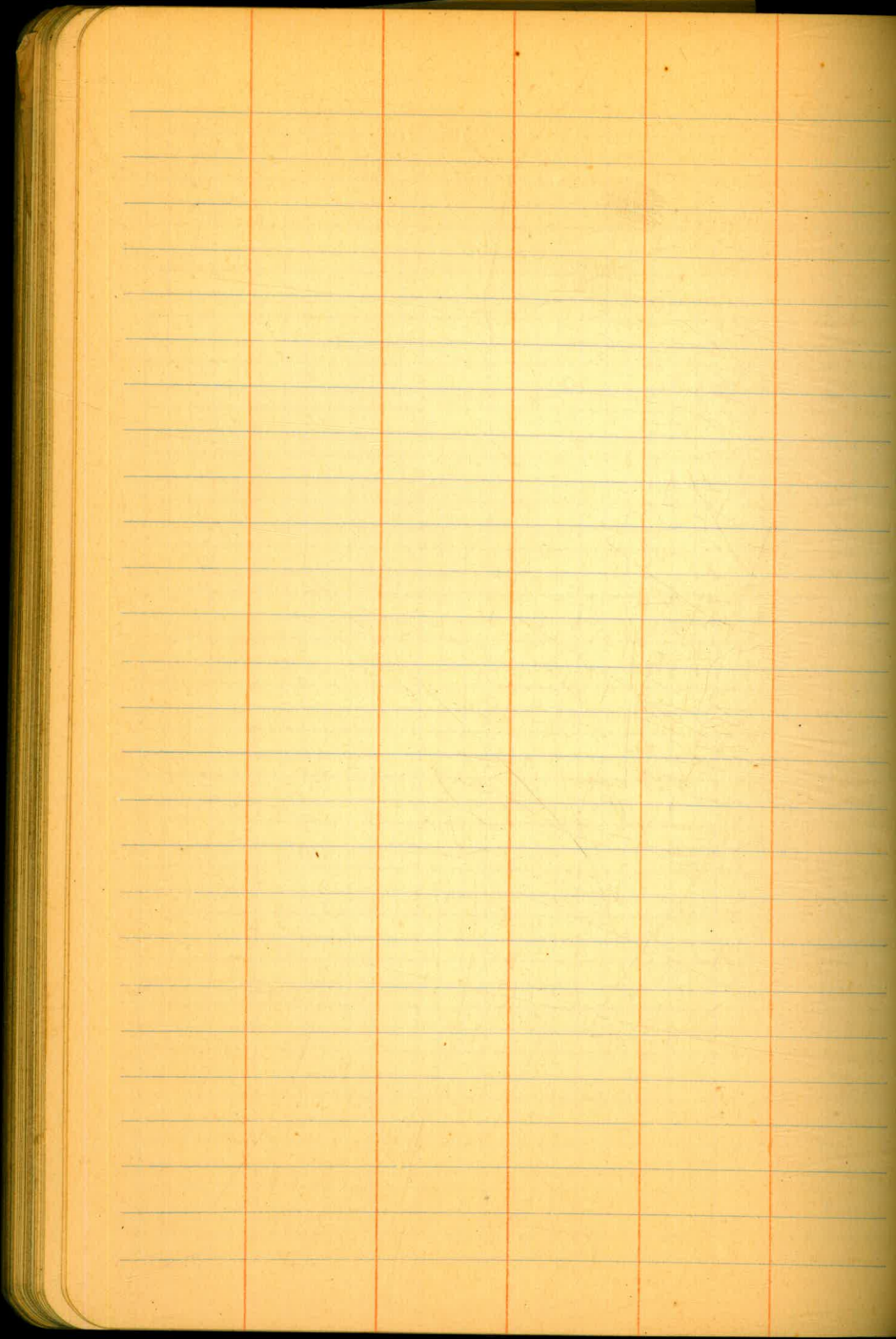
This page is a blank ledger sheet. It features horizontal blue lines for writing, with three vertical red lines creating four columns of varying widths. The columns are approximately 15%, 35%, 35%, and 15% of the page width from left to right. The paper is aged and shows some staining.

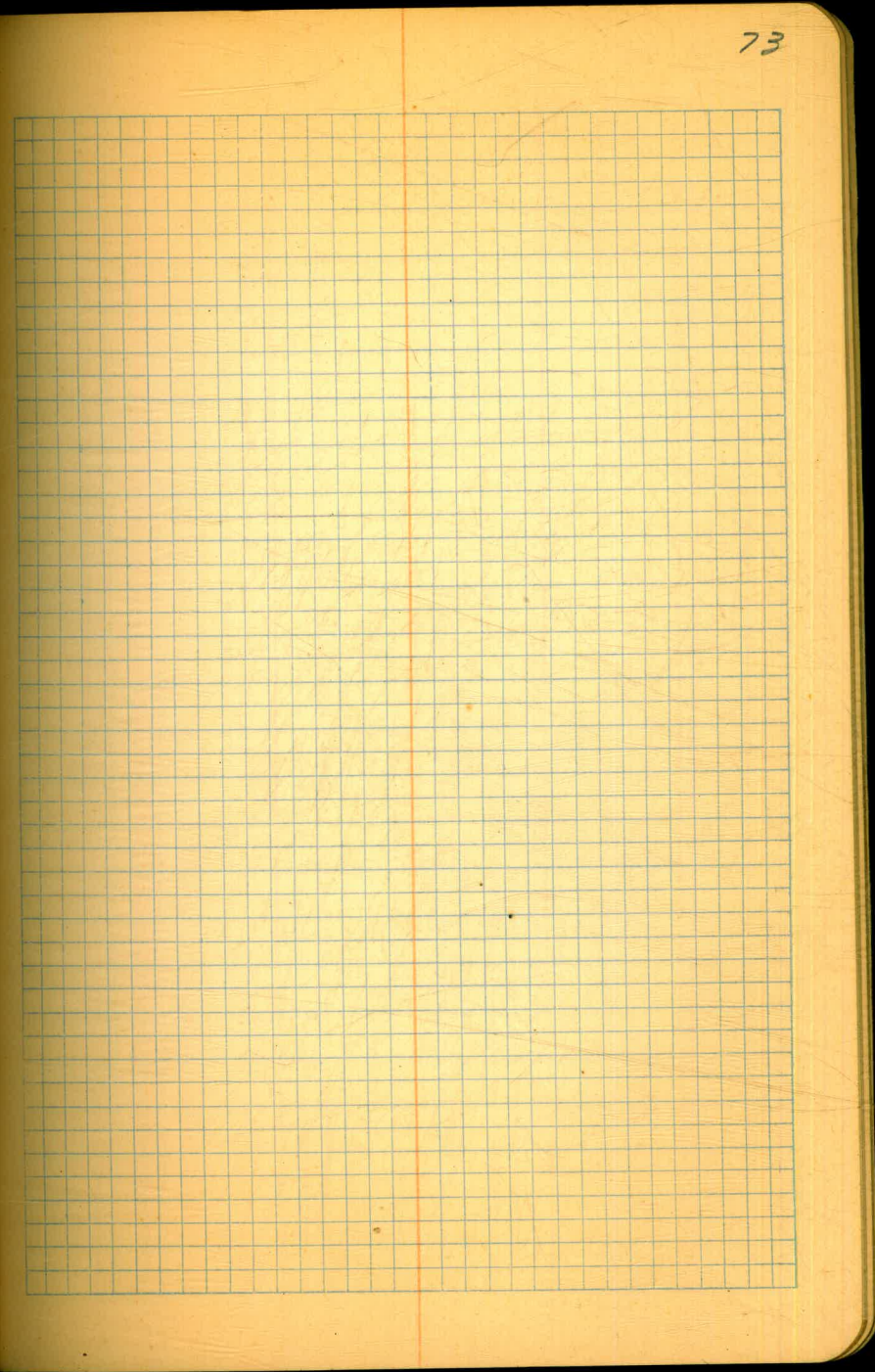
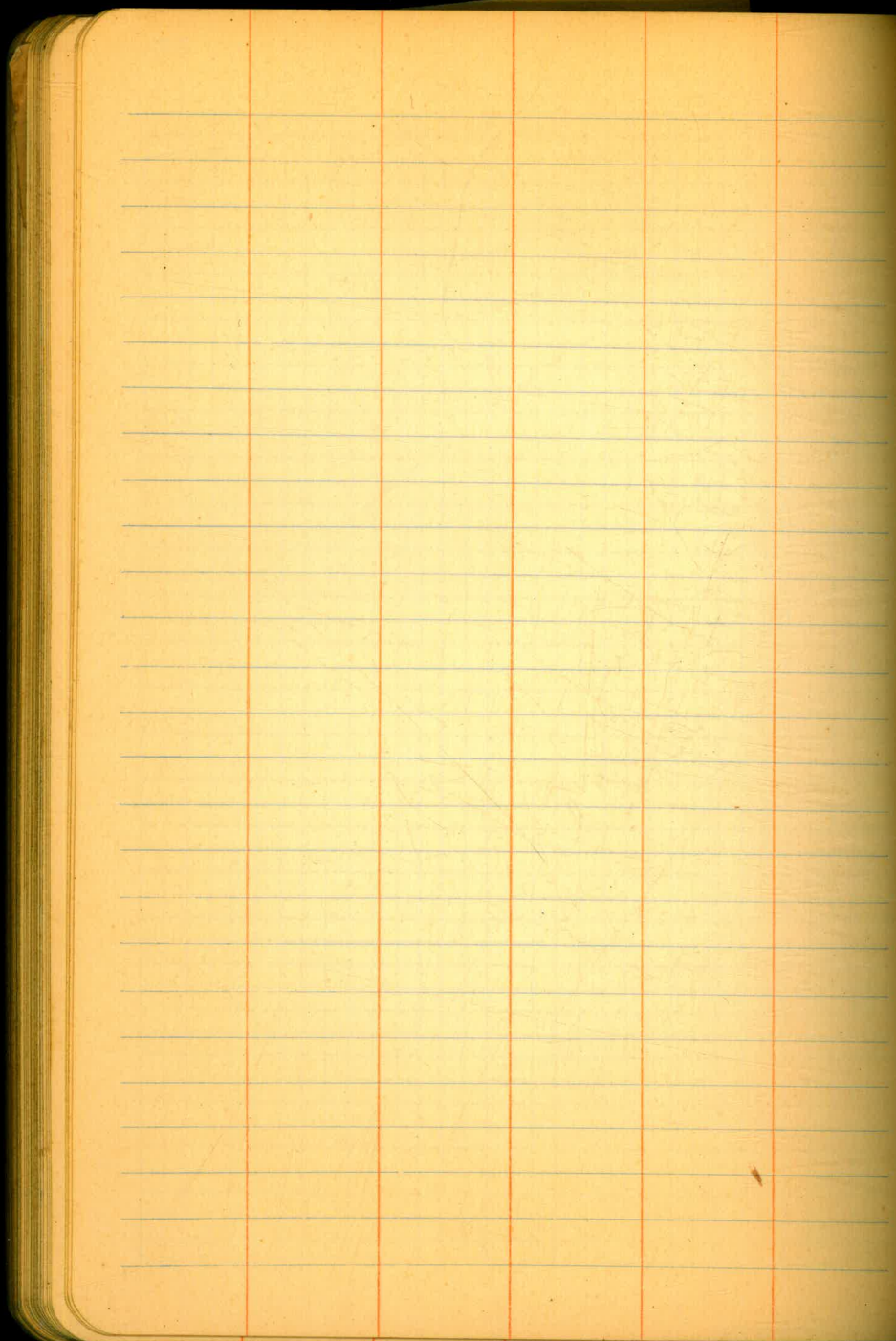
This page is a blank ledger sheet with a grid pattern. It features a vertical red margin line on the left side, creating a narrow left margin. The rest of the page is filled with a blue grid pattern. The paper is aged and shows some staining.

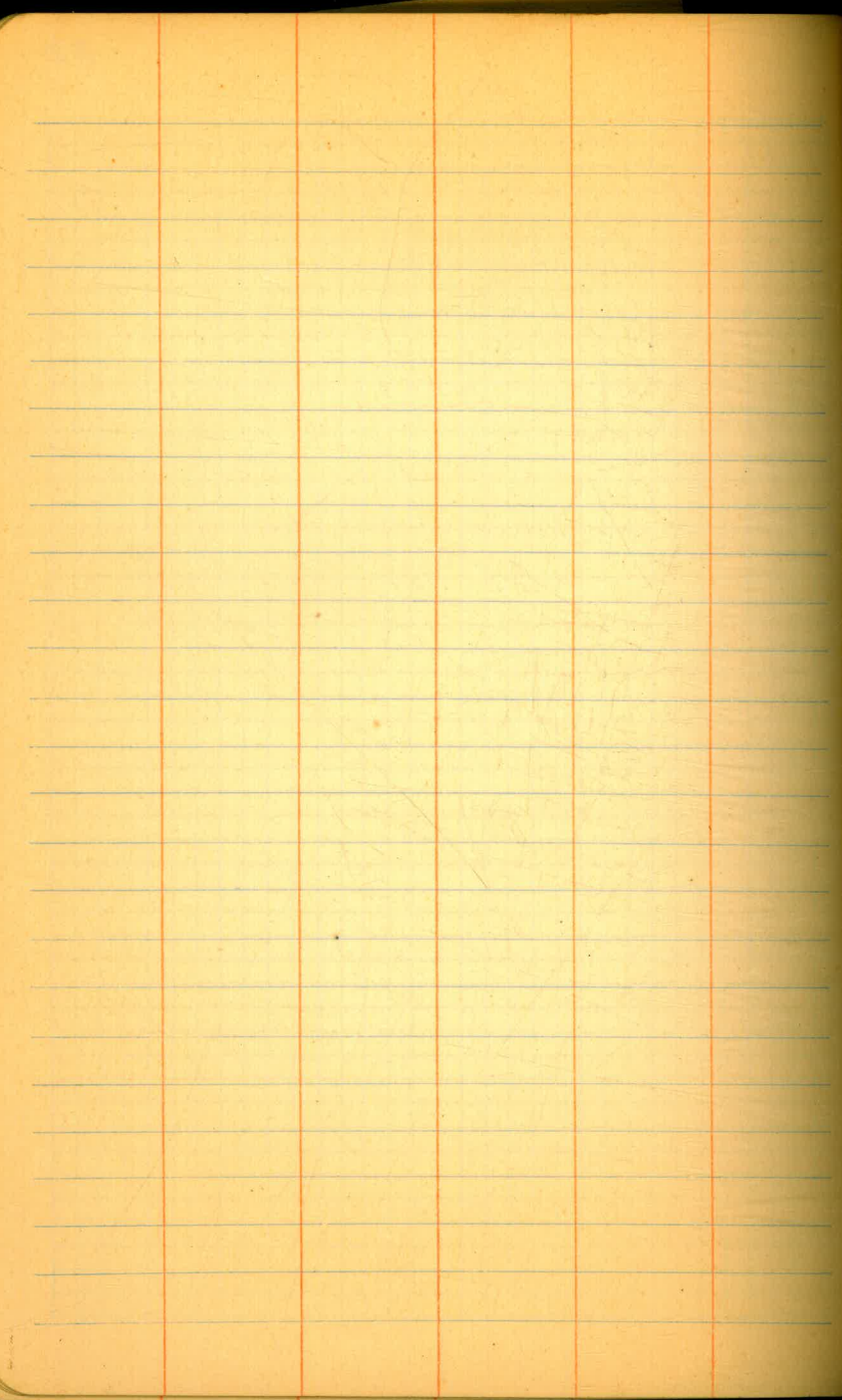
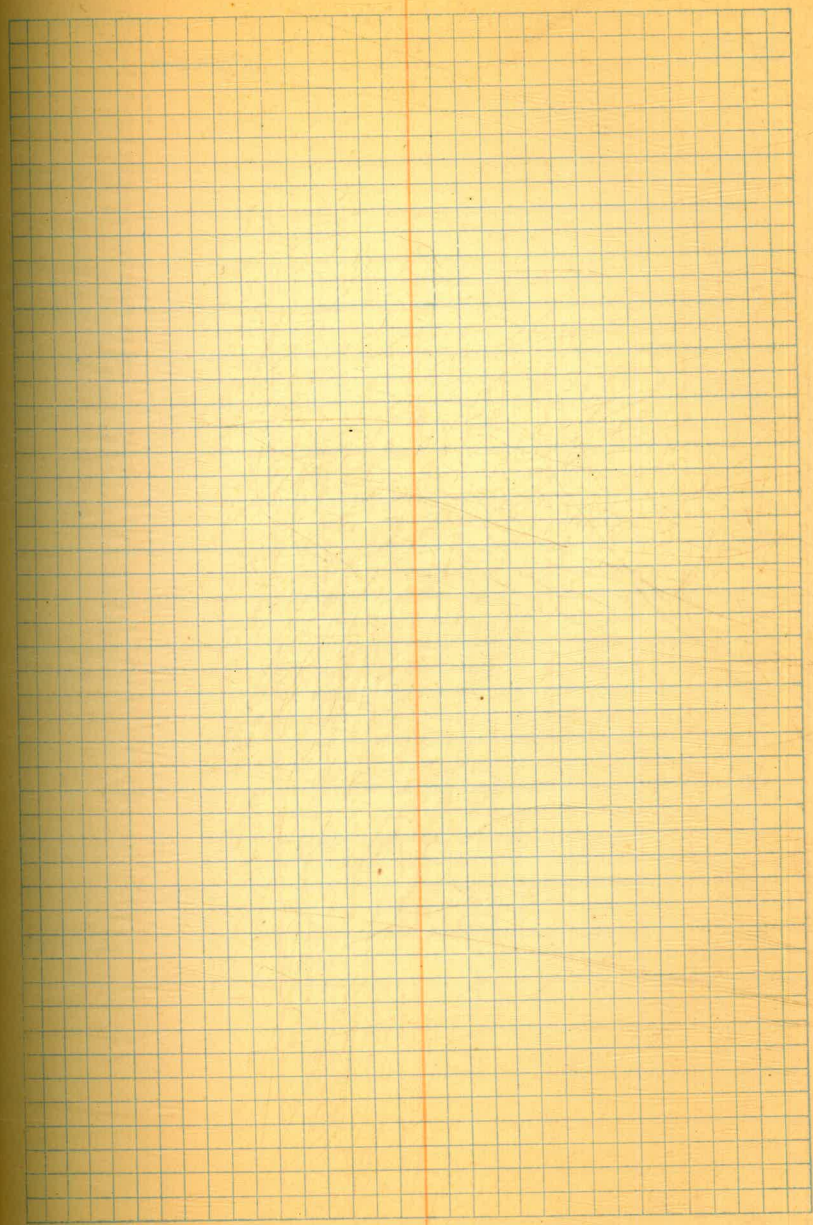










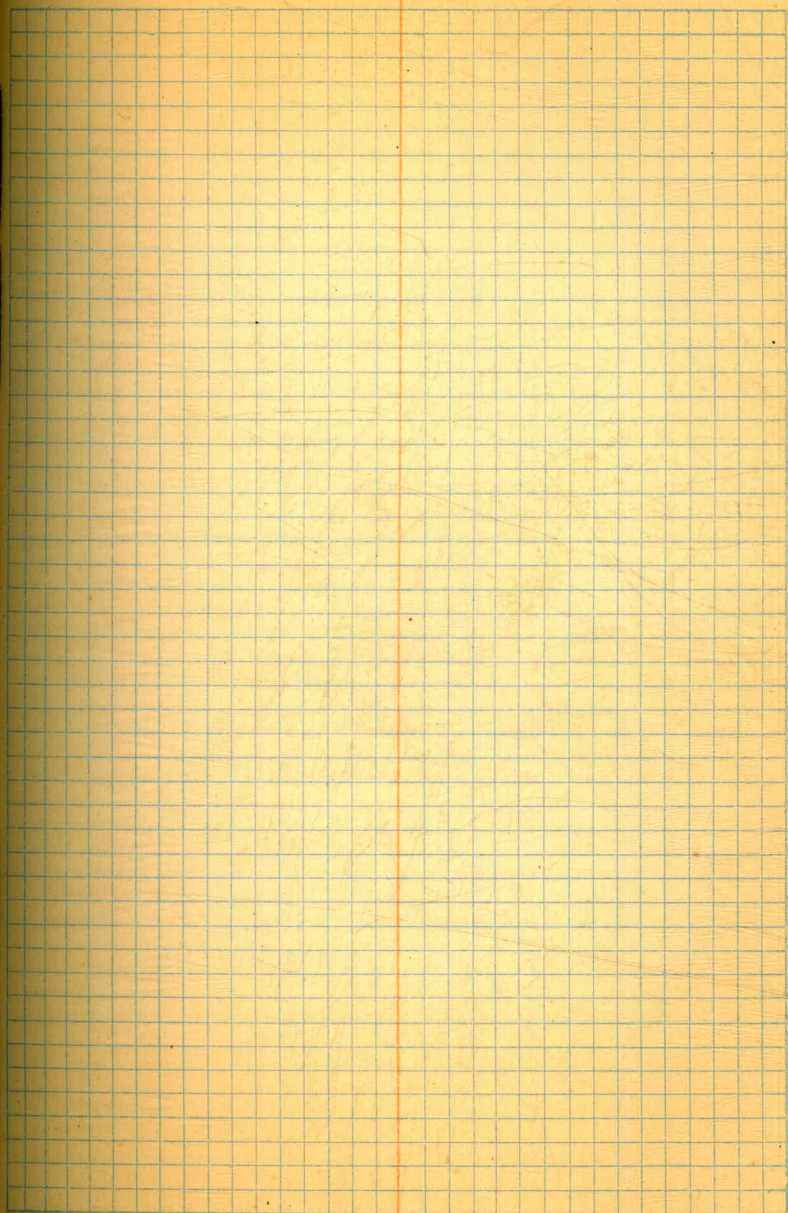


Profile of Core Wall  
Oct 6 - 1932

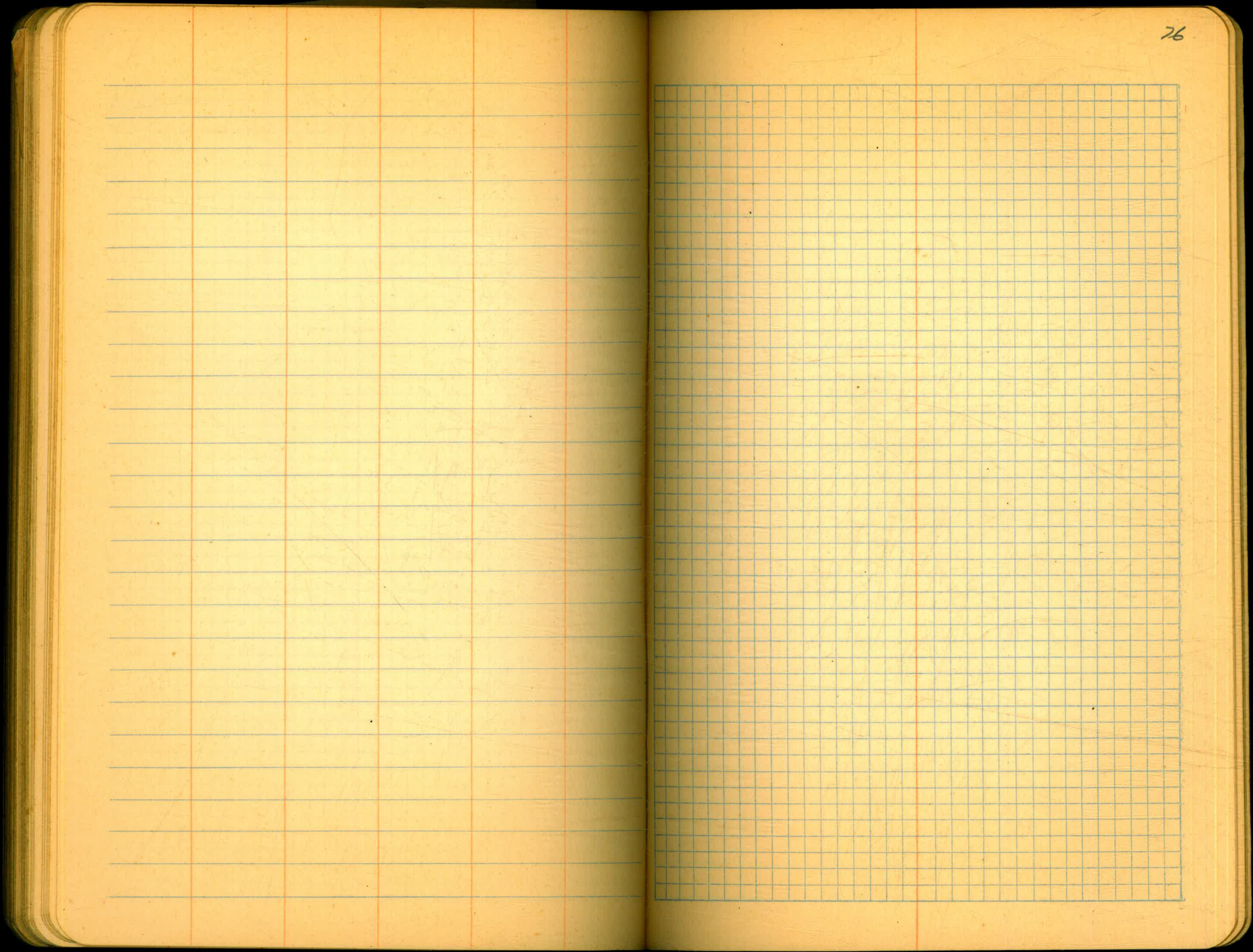
B.M.

539.39

75

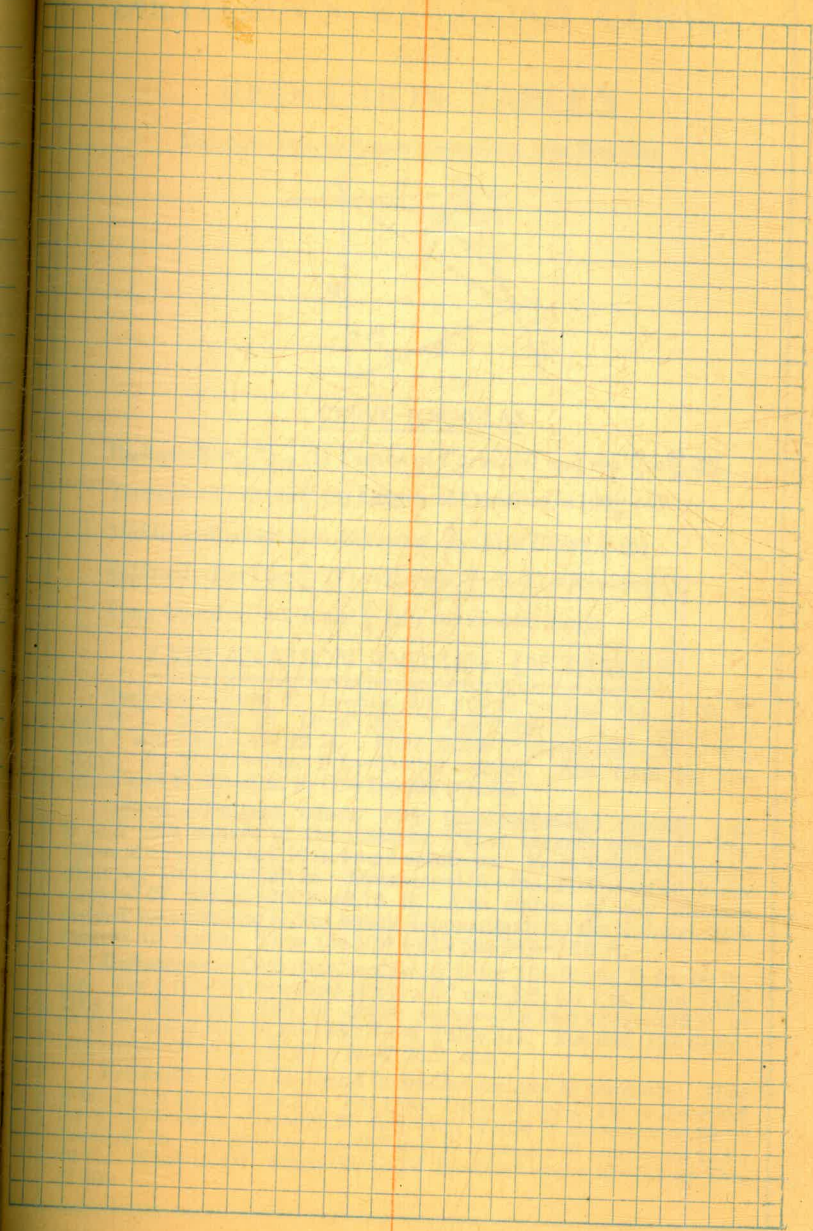
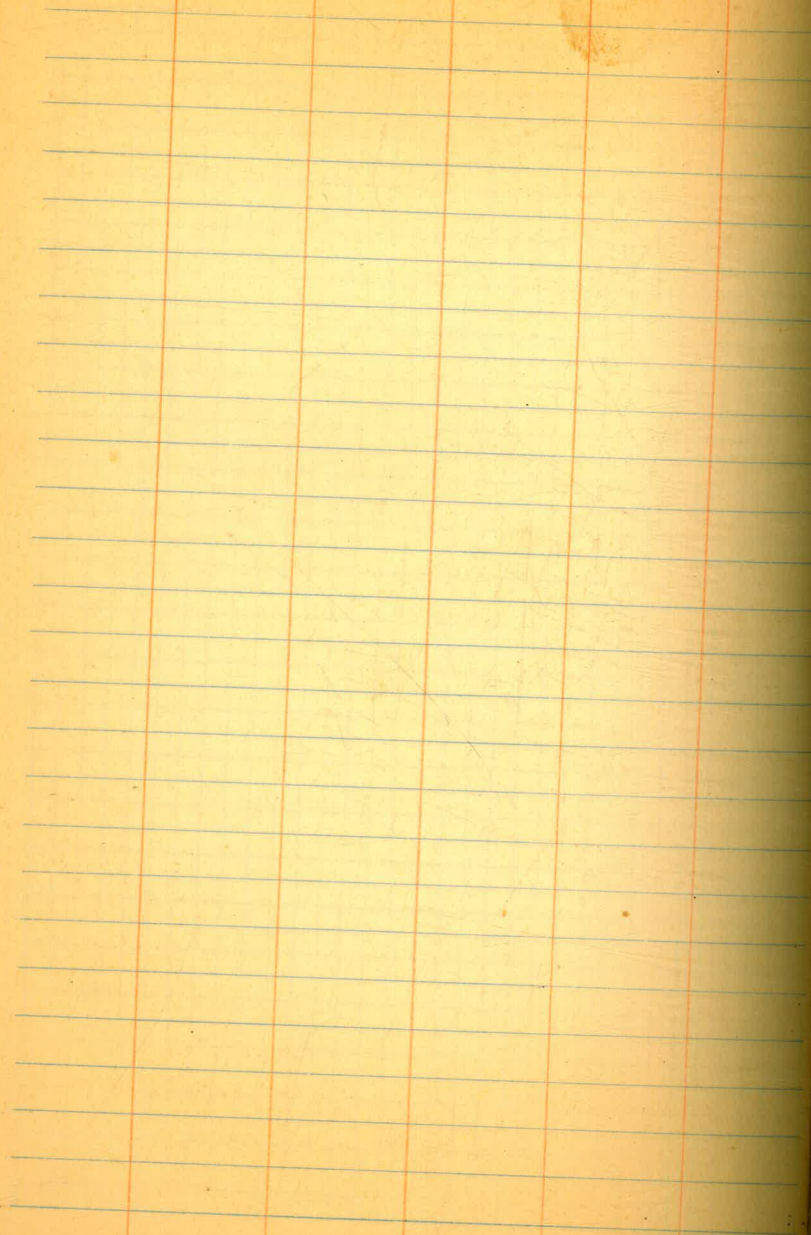






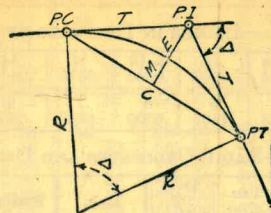
This page is a blank ledger with a yellowish background. It features horizontal blue lines for rows and vertical red lines for columns. There are four vertical red lines, creating five columns of varying widths. The leftmost column is the narrowest, followed by a wider column, and then two more columns of similar width on the right. The page is otherwise empty of any text or markings.

This page is a blank grid with a yellowish background. The grid consists of small squares formed by light blue lines. The grid covers most of the page, leaving a margin at the top and bottom. The page is otherwise empty of any text or markings.



# DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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### CURVE FORMULAS

Radius= $R = \frac{50}{\sin. \frac{D}{2}}$  (1) Degree of Curve= $D$  and  $\sin. \frac{D}{2} = \frac{50}{R}$  (2)

Tangent= $T = R \tan \frac{\Delta}{2}$  (3) Length of Curve= $L = 100 \frac{\Delta}{D}$  (4)

Middle ordinate= $M = R(1 - \cos. \frac{\Delta}{2})$  (5)  $= R \text{vers} \frac{\Delta}{2}$  (6)

External= $E = T \tan \frac{\Delta}{4}$  (7)  $= R \div \cos. \frac{\Delta}{2} - R$  (8)  $= R \text{exsec} \frac{\Delta}{2}$  (9)

Long Chord= $C = 2 R \sin. \frac{\Delta}{2}$  (10)  $\Delta =$  Central Angle

### EXPLANATION AND USE OF TABLES

**Stations.**—Given P. I.—Sta. 161+60.35 to find Sta. of P. C. and P. T.  $\Delta = 62^\circ 10'$   $D = 8^\circ 20'$ . From Table IV for  $1^\circ$  curve  $T = 3454.1$  and  $\div 8\frac{1}{3} = 414.49$  ft. From Table V correction = .36 or  $T = 414.85$  ft. P. C.—Sta. P.I.— $T = 157 + 45.50$ . Also from (4)  $L = 746.00$  and P. T.—Sta. P. C. +  $L = 164 + 91.50$ .

**Offsets.**—Tangent offsets vary (approximately) directly with  $D$  and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft. = 7.27 ft. Distance =  $158 - \text{Sta. P. C.} = 54.50$ , hence offset =  $7.27 (54.50 \div 100)^2 = 2.16$  ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus  $(54.50)^2 \div (2 \times 688.26) = 2.16$  ft.

**Deflections.**—Deflection angle =  $\frac{1}{2} D$  for 100 ft.,  $\frac{1}{4} D$  for 50 ft., etc. For  $c$  ft. = (in minutes)  $.3 \times C \times D^\circ$  or = defl. for 1 ft. from Table III  $\times C$ . For Sta. 158 of above curve =  $.3 \times 54.5 \times 8\frac{1}{3} = 136.2'$  or  $2^\circ 16.2'$ , or =  $2.50 \times 54.5 = 136.2'$  from Table III. For Sta. 159 deflection angle =  $2^\circ 16.2' + 8^\circ 20' \div 2 = 6^\circ 26.2'$ , etc.

**Externals.**—May be found in similar manner to tangents. Thus  $E$  for curve above is 91.37. For from Table IV for  $1^\circ$  curve  $E = 960.6$  for  $8^\circ 20' = 960.6 \div 8\frac{1}{3} = 91.27$  and from Table V correction = .10 or  $E = 91.37$  ft. Or suppose  $\Delta = 32^\circ$  and  $E$  is measured and found to be 42 ft. What is  $D$ ? From Table IV  $E = 230.9$  and  $\div 42 = 5.5$  or  $D = 5^\circ 30'$ .

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.

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