

W
396

WINNIE
TRANSIT BOOK
No. 422

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

MICROFILMED

Distances from Center of Roadway for Cross-Sectioning
Roadway 16 feet wide. Side Slopes 1 on 1.
For Single Track Embankment.

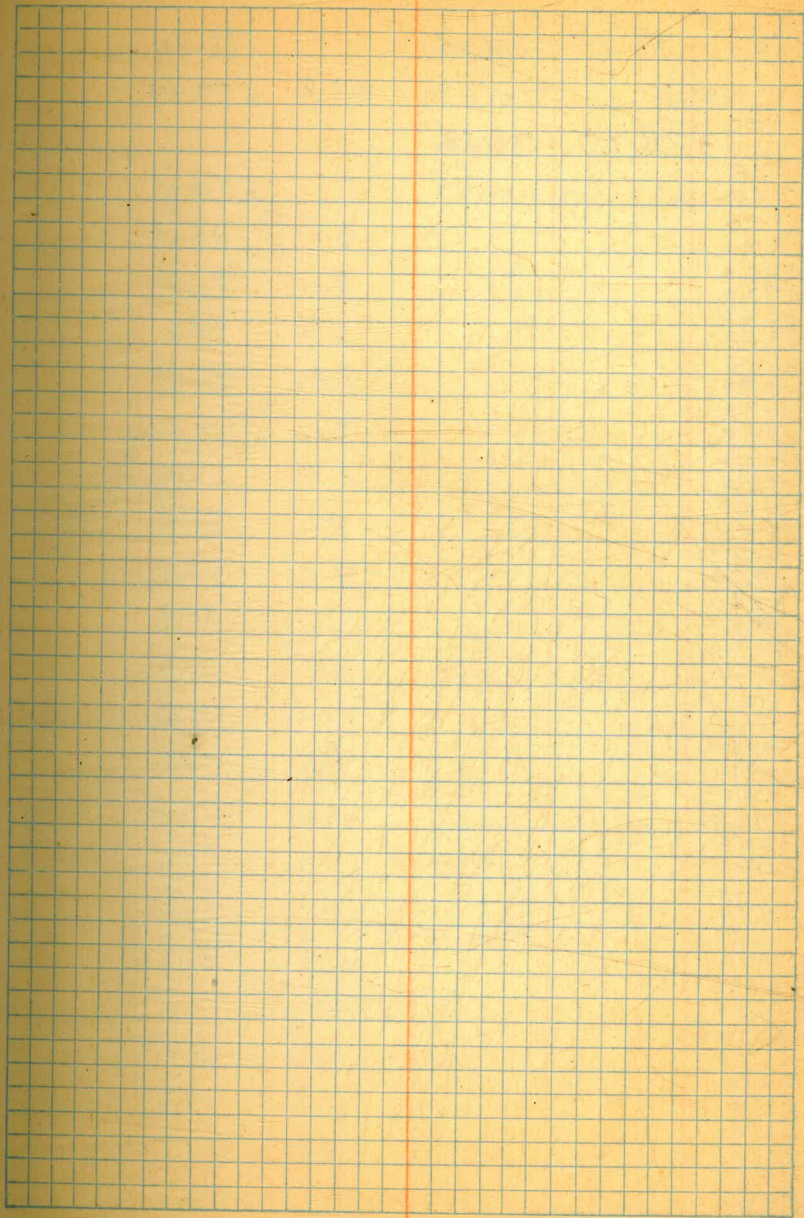
JAN 11 1965

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 1½ see inside of back cover.

X Sections extended over dumping area
N+E of entrance of Div. Tunnel 3-11

X Secs extended over dumping
area N+W of exit of Div. Tunnel 12-80



BM	12.28	578.12		565.84
			0.83	577.29
	11.25	588.54		
3270				
5910			5.1	583.4
3270			6.1	82.4
5920			3.0	85.5
3260			4.9	83.6
5920			8.3	80.2
3260			9.2	79.3
5930			5.9	82.6
3270			3.1	85.4
5940			4.8	83.7
3260			7.6	80.9
5950			10.6	77.9
3270			12.1	76.4
5960			9.0	79.5
3260			6.0	82.5
5960			2.4	86.1
3240			4.0	84.5
5970			6.9	81.6
3250			10.0	78.5
5970			11.7	76.8
3260			11.3	77.2
5970			14.8	73.7
3280			11.9	76.6
5980				

X

May 19 - 1932

Simpson T
 Elliott Notes
 Cooper Rod
 Remmen Tape

Reduced & Checked
 6/21/32
 R.E.L.

Copied from
 FB # 348

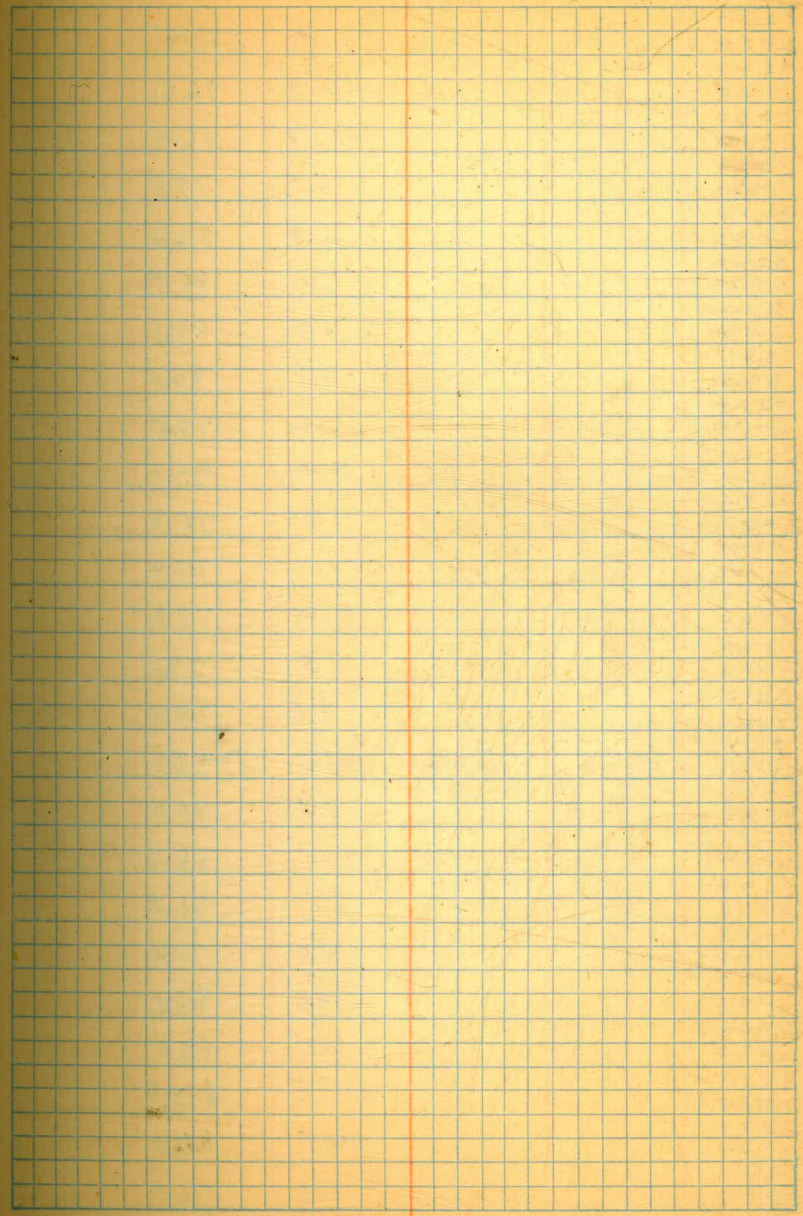
Began 10/31/32

Ended 11/7/32

588.54

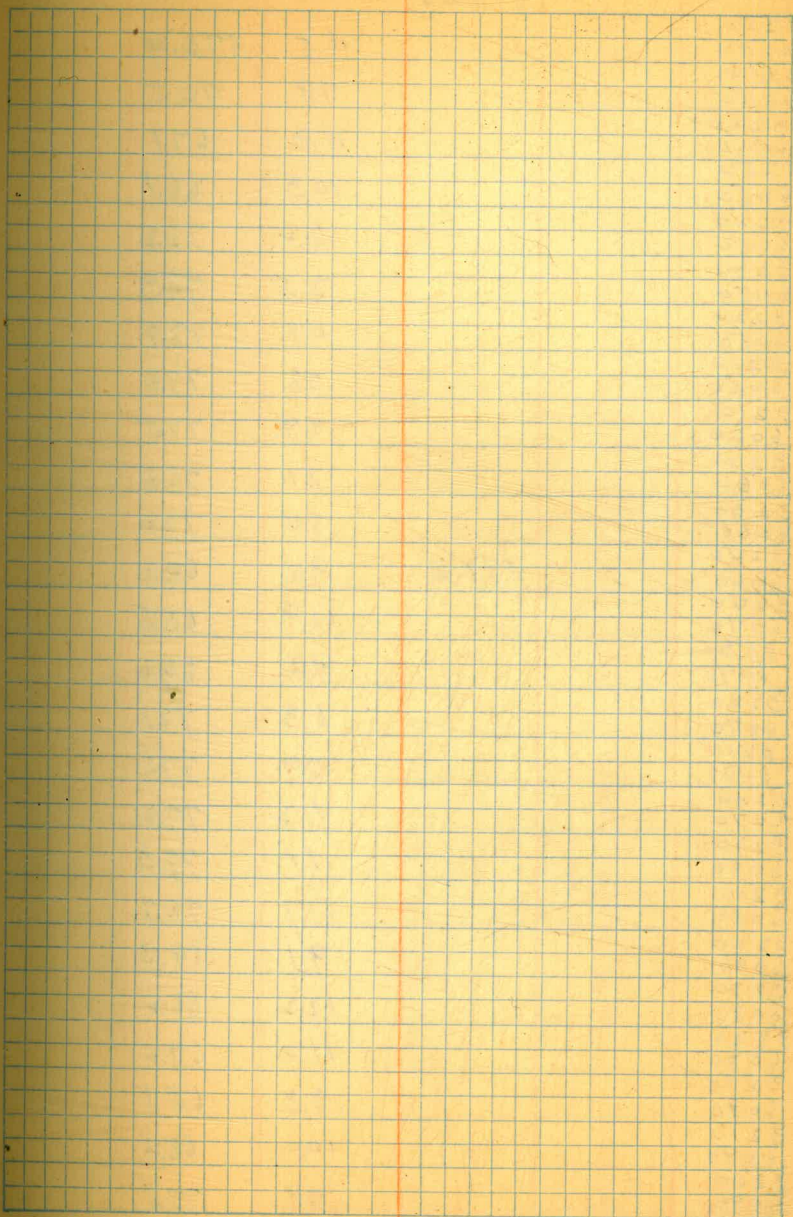
3260			
5980		11.9	576.6
3250			
5980		8.0	80.5
3240			
5780		5.4	83.1
3230			
5980		2.5	86.0
3220			
5990		2.4	86.1
3230			
5990		5.3	83.2
3240			
5990		7.5	81.0
3250			
5990		11.9	76.6
3260			
5990		12.0	76.5
3270			
5990		12.8	75.7
3280			
5990	588.5	17.7	70.8
3270			
6000		15.1	73.4
3260			
6000		11.4	77.1
3250			
6000		11.8	76.7
3240			
6000		10.0	78.5
3230			
6000		7.5	81.0
3220			
6000		4.5	84.0
3210			
6000		0.8	87.7
3210			
6010		3.6	84.9
3220			
6010		6.9	81.6
3230			
6010		10.3	78.2
3240			
6010		11.7	76.8
3250			
6010		11.3	77.2
3260			
6010		13.1	75.4

X



588.54

3250				
6020		12.7	575.8	
3240				
6020		11.7	76.8	
3230				
6020		11.7	76.8	
3220				
6020		8.7	79.8	
3210				
6020		5.9	82.6	
3200				
6020		2.0	86.5	
3200				
6030		4.0	84.5	
3210				
6030		8.5	80.0	
3220				
6030		11.0	77.5	
3230				
6030		11.4	77.1	
3240				
6030		11.9	76.6	
3240				
6040		14.1	74.4	
3230				
6040		11.2	77.3	
3220				
6040		11.0	77.5	
3210				
6040		9.5	79.0	
T.P.	0.74	578.42	1086	577.68
3280				
6000		8.4	70.0	
3280				
6010		12.1	66.3	
3270				
6010		8.1	70.3	
3260				
6020		4.0	74.4	
3270				
6020		9.0	69.4	
3280				
6020		15.1	63.3	
3280				
6030		15.5	62.9	
3270				
6030		14.5	63.9	
3260				
6030		8.3	70.1	



X

578.47

3250		
6030	4.5	573.9
3250		
6040	7.9	70.5
3260		
6040	11.3	67.1
3250		
6050	10.3	68.1
3250		
6050	6.2	72.2
3230		
6050	2.5	75.9
3220		
6050	0.7	77.7
3210		
6050	0.8	77.6
3210		
6060	0.9	77.5
3220		
6060	2.0	76.4
3230		
6060	6.4	72.0
3240		
6060	9.4	69.0
3240		
6070	12.9	65.5
3230		
6070	9.4	69.0
3220		
6070	6.3	72.1
3210		
6070	0.9	77.5
3200		
6070	1.2	77.2
3200		
6080	1.1	77.3
3210		
6080	5.7	72.7
3220		
6080	9.1	69.3
3230		
6080	12.2	66.2
3220		
6090	11.2	67.2
3230		
6090	13.3	65.1
3210		
6090	10.0	68.4
3200		
6090	0.9	77.5

578.4

X

578.42

3200				
6100		6.6	571.8	
3210				
6100		11.2	67.2	
3220				
6100		13.2	65.2	
3210				
6110		12.9	65.5	
3200				
6110		11.5	66.9	
3200				
6120		11.8	66.6	
3210				
6120		14.1	64.3	
3200				
6130		12.9	65.5	
TP		12.75	565.67	

3.39 569.06

BM 3.21 565.85 Record 565.84

3.21 569.05

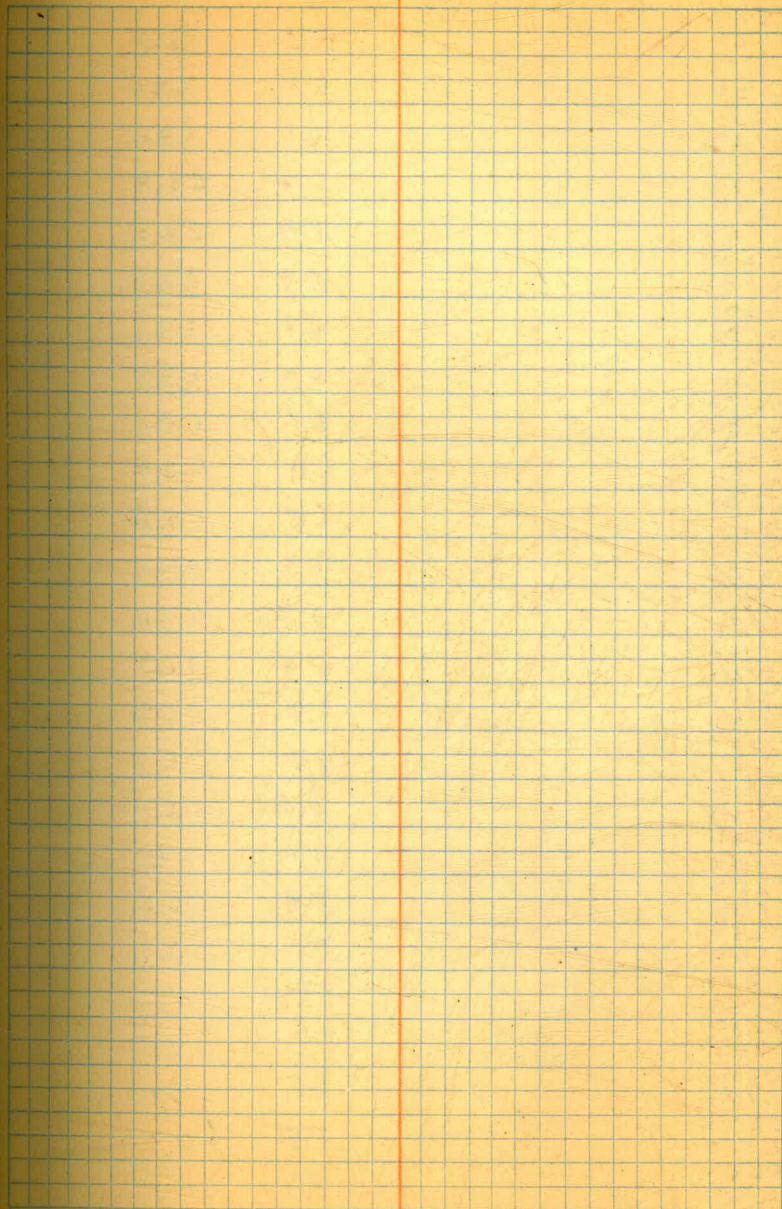
3270				
6040		6.1	63.0	
3280				
6040		6.3	62.8	
3280				
6050		5.6	63.5	
3270				
6050		6.2	62.9	
3260				
6050		6.5	62.6	
3250				
6060		5.4	63.7	
3260				
6060		6.6	62.5	
3270				
6060		5.7	63.4	
3280				
6060		6.2	62.9	
3280				
6070		6.1	63.0	
3270				
6070		6.2	62.9	
3260				
6070		6.4	62.7	
3250				
6070		6.3	62.8	

X

569.05

3240			
6080		5.4	563.7
3250			
6080		6.5	62.6
3260			
6080		6.0	63.1
3270			
6080		6.2	62.9
3280			
6080		6.2	62.9
3280			
6090		6.2	62.9
3270			
6090		6.2	62.9
3260			
6090		6.0	63.1
3250			
6090		6.3	62.8
3240			
6090		6.1	63.0
3230			
6100		5.6	63.5
3240			
6100	569.1	6.4	62.7
3250			
6100		6.1	63.0
3260			
6100		6.2	62.9
3270			
6100		6.4	62.7
3280			
6100		6.5	62.6
3280			
6110		6.0	63.1
3270			
6110		6.4	62.7
3260			
6110		6.3	62.8
3250			
6110		6.1	63.0
3240			
6110		6.2	62.9
3230			
6110		6.2	62.9
3220			
6110		5.3	63.8
3220			
6120		5.9	63.2
3230			
6120		6.4	62.7

X



569.05

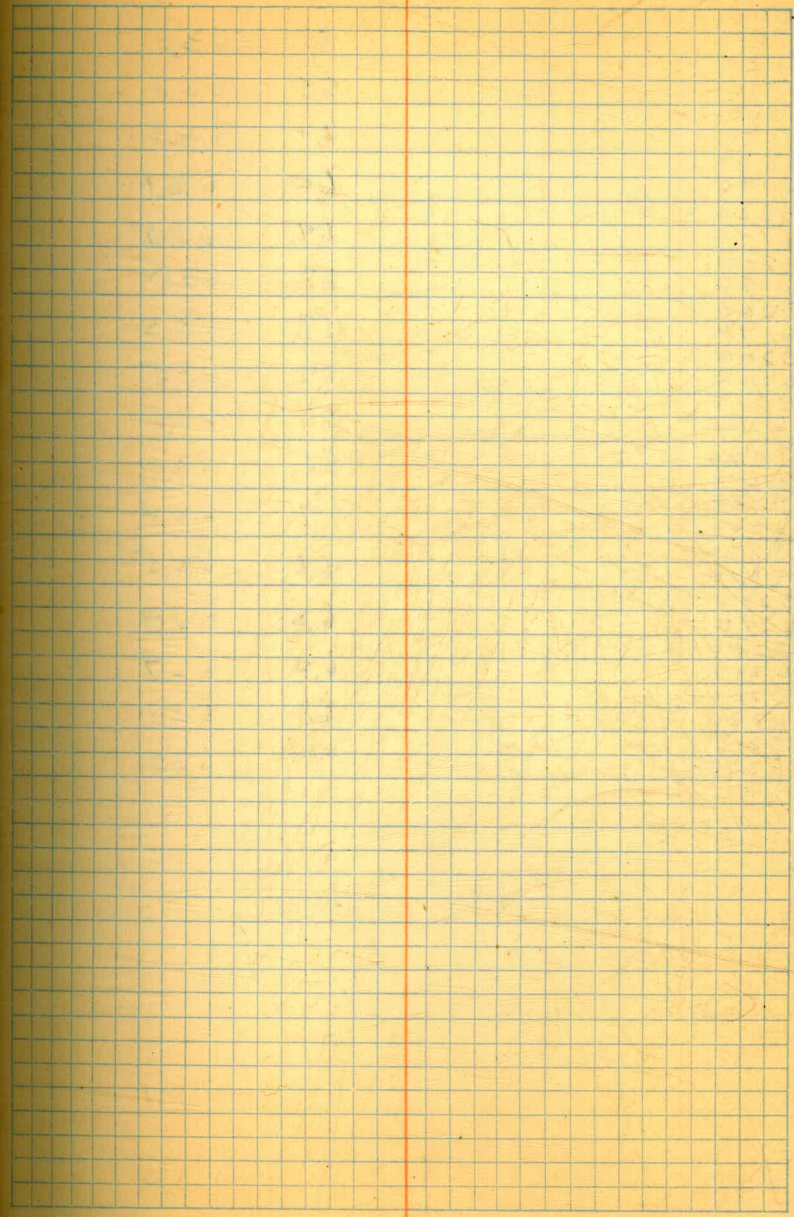
3240			
6120	6.5	5626	
3250			
6120	6.5	626	
3260			
6120	6.1	630	
3270			
6120	6.2	62.9	
3280			
6120	5.9	63.2	
3280			
6130	5.9	63.2	
3270			
6130	6.1	63.0	
3260			
6130	6.0	63.1	
3250			
6130	6.1	63.0	
3240			
6130	6.2	62.9	
3230			
6130	6.5	62.6	
3220			
6130	6.3	62.8	
3210			
6130	5.7	63.4	
3200			
6140	5.0	64.1	
3210			
6140	6.9	62.2	
3220			
6140	6.4	62.7	
3230			
6140	6.4	62.7	
3240			
6140	6.4	62.7	
3250			
6140	5.9	63.2	
3260			
6140	5.5	63.6	
3270			
6140	5.8	63.3	
3280			
6140	5.7	63.4	
3280			
6150	6.1	63.0	
3270			
6150	5.8	63.3	
3260			
6150	5.8	63.3	

X

569.05

3250			
6150	5.8	563.3	
3240			
6150	5.9	63.2	
3230			
6150	6.1	63.0	
3220			
6150	6.4	62.7	
3210			
6150	6.4	62.7	
3200			
6150	5.8	63.3	
3200			
6160	6.3	62.8	
3210			
6160	6.3	62.8	
3220			
6160	6.1	63.0	
3230			
6160	5.8	63.3	
3240			
6160	5.7	63.2	
3250			
6160	5.9	63.2	
3260			
6160	6.0	63.1	
3270			
6160	6.4	62.7	
3260			
6170	6.5	62.6	
3250			
6170	5.9	63.2	
3240			
6170	5.7	63.4	
3230			
6170	5.6	63.5	
3220			
6170	5.5	63.6	
3210			
6170	5.8	63.3	
3200			
6170	6.3	62.8	
3200			
6180	5.7	63.4	
3210			
6180	5.7	63.2	
3220			
6180	5.6	63.5	
3230			
6180	5.5	63.6	

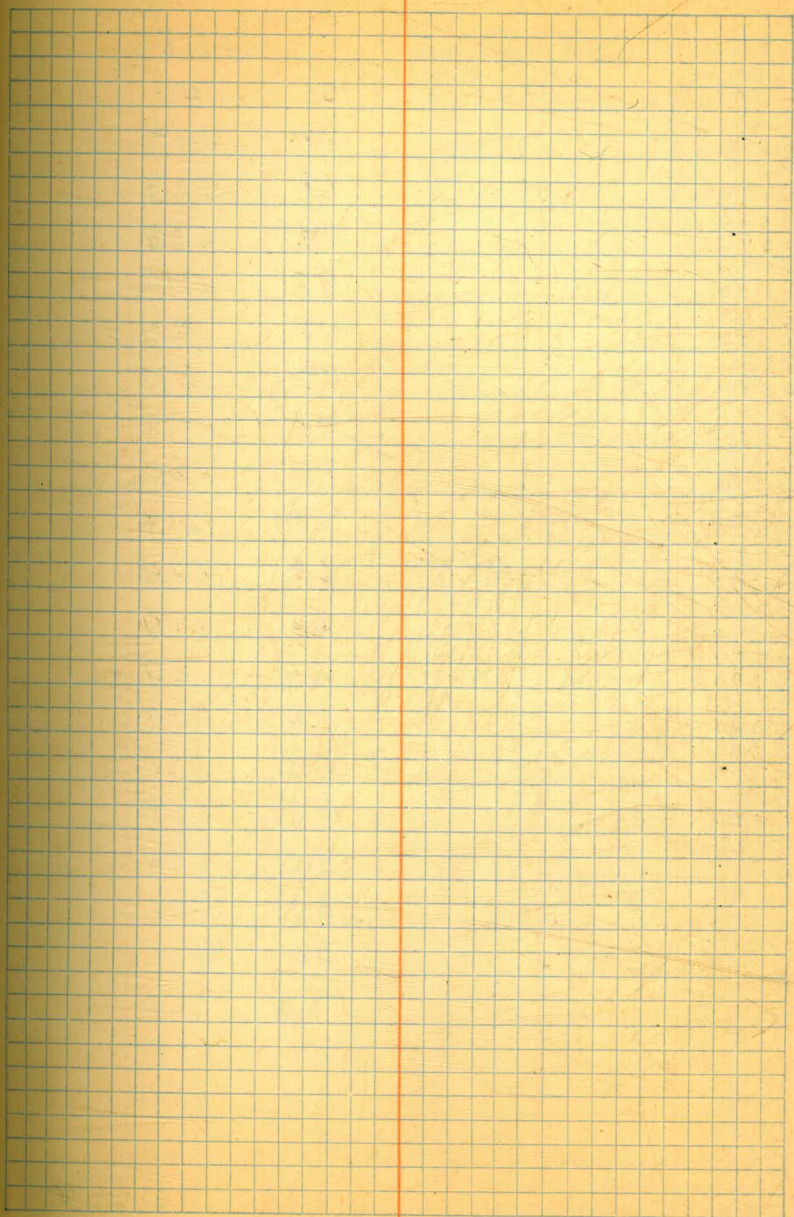
X



569.05

3240		
6180	61	5630
3250		
6180	65	62.6
3240		
6190	62	62.9
3230		
6190	60	63.1
3220		
6190	56	63.5
3210		
6190	56	63.5
3200		
6190	58	63.3
3200		
6200	56	63.5
3210		
6200	56	63.5
3220		
6200	61	63.0
3230		
6200	67	62.4
3220		
6210	66	62.5
3210		
6210	62	62.9
3200		
6210	64	62.7
3200		
6220	60	63.1
3210		
6220	7.1	62.0

x



BM	11.80	567.66		555.86
3630				
4390			13.6	54.1
3640				
4390			13.0	54.7
3650				
4390			11.8	55.9
3660				
4390			11.9	55.8
3670				
4390			9.8	57.9
3680				
4390			11.0	56.7
3690				
4390			10.2	57.5
3700				
4390			7.8	59.9
3710				
4390			7.0	60.7
3720				
4390			6.3	61.4
3730				
4390		567.7	6.3	61.4
3740				
4390			6.1	61.6
3750				
4390			6.0	61.7
3760				
4390			5.6	62.1
3770				
4390			5.2	62.5
3780				
4390			4.8	62.9
3790				
4390			4.3	63.4
3800				
4390			3.3	64.4
3810				
4390			3.0	64.7
✓ 3820				
4390			2.3	65.4
✓ 3830				
4390			2.2	65.5
3840				
4390			1.5	66.2
3850				
4390			1.0	66.7
3860				
4390			0.7	67.0

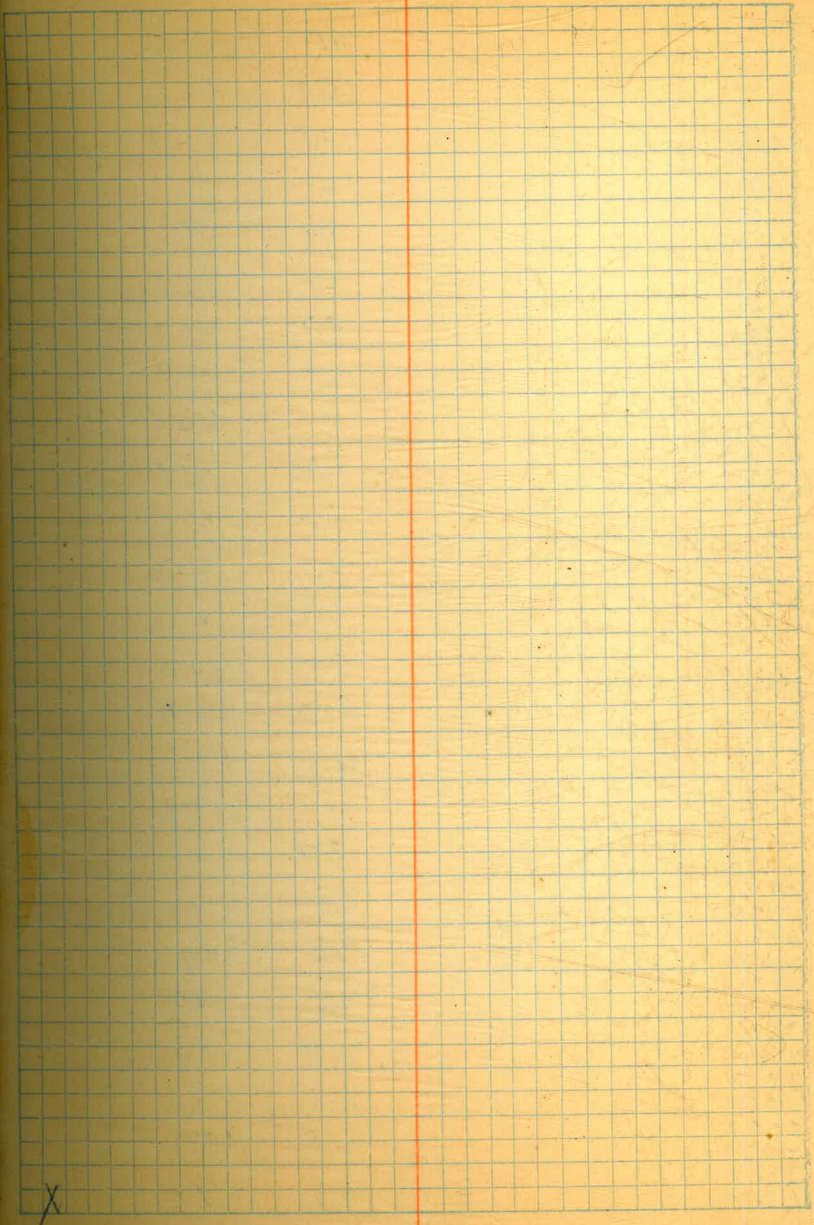
May 20, 1932

Simpson Level
Elliott Notes
Saper Rod
Remmen Tape

x

567.66

3870			
4380		0.0	567.7
3860			
4380		1.7	66.0
3850			
4380		2.1	65.6
3840			
4380		2.2	65.5
3830			
4380		2.2	65.5
3820			
4380		2.6	65.1
3810			
4380		3.2	64.5
3800			
4380		3.4	64.3
3790			
4380		4.1	63.6
3780			
4380		4.7	63.0
3770			
4380		5.3	62.4
3760			
4380	567.7	5.7	62.0
3750			
4380		6.0	61.7
3740			
4380		6.1	61.6
3730			
4380		6.3	61.4
3720			
4380		6.3	61.4
3710			
4380		6.4	61.3
3700			
4380		9.3	58.4
3690			
4380		7.4	60.3
3680			
4380		7.4	60.3
3670			
4380		8.7	59.0
3660			
4380		12.1	55.6
3650			
4380		11.5	56.2
3640			
4380		13.2	54.5
3630			
4380		13.7	54.0



X

567.66

3630		
4370	14.1	55.26
3640		
4370	13.2	54.5
3650		
4370	12.8	54.9
3660		
4370	12.1	55.6
3670		
4370	8.0	59.7
3680		
4370	6.4	61.3
3690		
4370	5.7	62.0
3700		
4370	8.8	58.9
3710		
4370	5.1	62.6
3720		
4370	6.2	61.5
3730		
4370	6.2	61.5
3740		
4370	6.1	61.6
3750		
4370	5.9	61.8
3760		
4370	5.7	62.0
3770		
4370	5.3	62.4
3780		
4370	4.6	63.1
3790		
4370	4.1	63.6
3800		
4370	3.7	64.0
3810		
4370	3.5	64.2
3820		
4370	3.0	64.7
3830		
4370	2.8	64.9
3840		
4370	2.5	65.2
3850		
4370	2.6	65.1
3860		
4370	2.5	65.2
3870		
4370	2.0	65.7

X

567.66

3880	0.5	567.2
4360		
3870	2.2	65.5
4360		
3860	2.8	64.9
4360		
3850	3.2	64.5
4360		
3840	3.0	64.7
4360		
3830	3.0	64.7
4360		
3820	3.5	64.2
4360		
3810	3.9	63.8
4360		
3800	4.1	63.6
4360		
3790	4.4	63.3
4360		
3780	4.8	62.9
4360		
3770	5.2	62.5
4360		
3760	5.5	62.2
4360		
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567.66

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4350	6.0	61.7	
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4350	4.1	63.6	
38.20			
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38.30			
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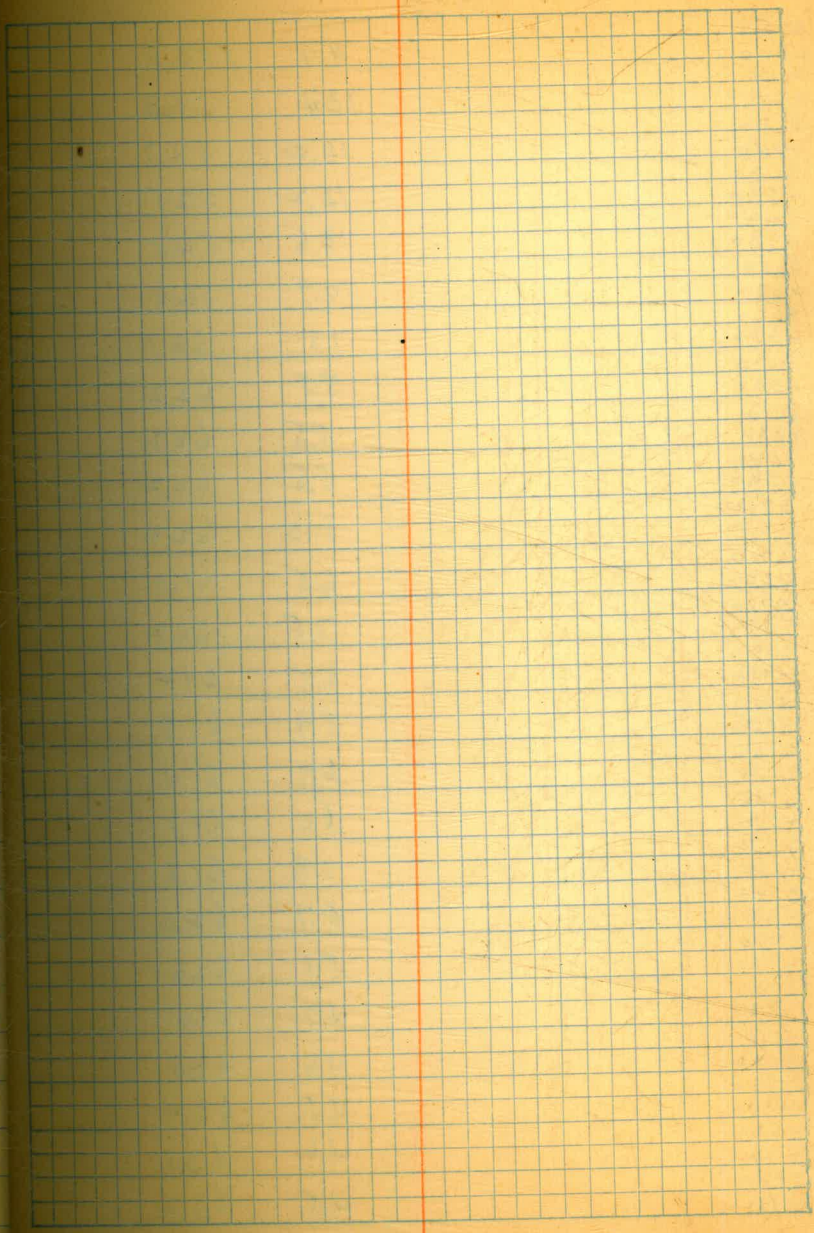
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3660		
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X



567.66

3650			
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567.66

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✓ 3830			
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✓ 4320	4.9	62.8	
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567.66

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567.66

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3730			
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3700			
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3720			
4290	5.5	62.2	
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4290	6.8	60.9	
3750			
4290	6.8	60.9	
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4290	6.4	61.3	
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4290	5.9	61.8	

X

567.66

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3790		
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3810		
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3820		
4290	5.3	62.4
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4290	3.0	64.7
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3900		
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3880		
4280	3.8	63.9
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4280	4.4	63.3
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4280	4.7	63.0
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4280	5.3	62.4
3830		
4280	5.5	62.2
3820		
4280	5.5	62.2
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3790		
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22

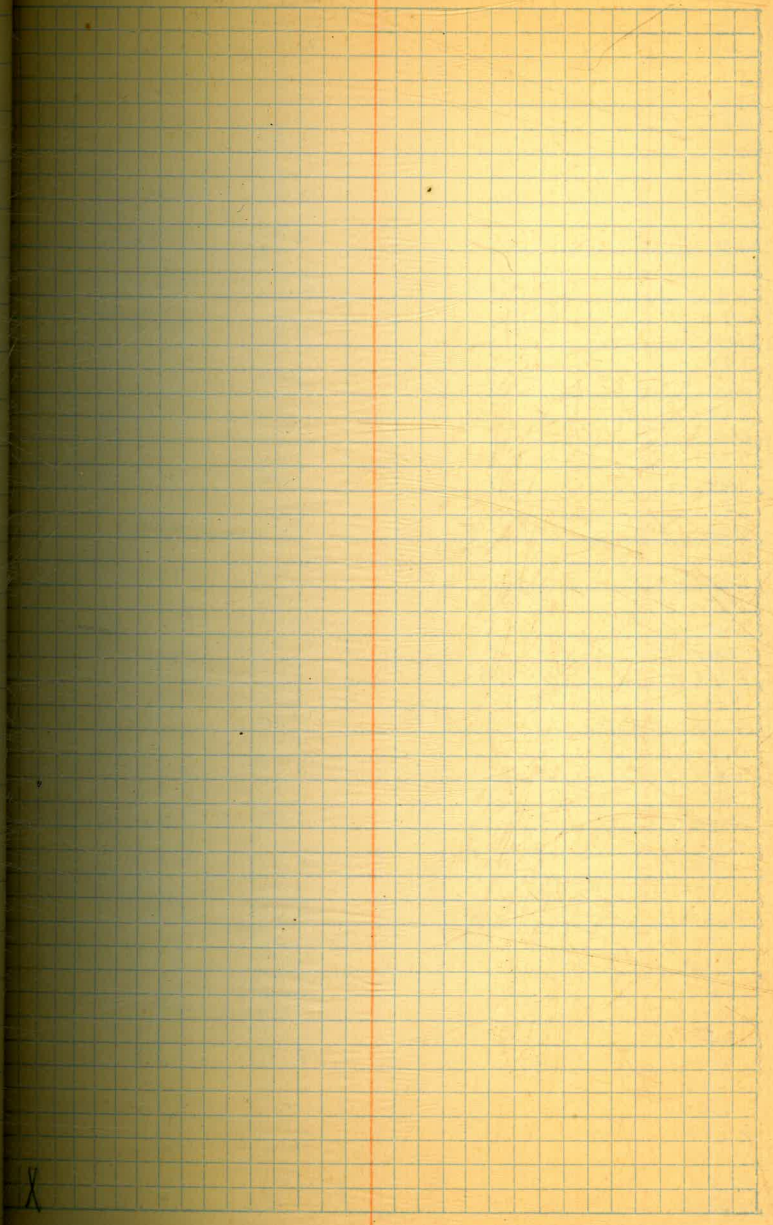
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740			
280		6.8	60.9
730			
280		5.7	62.0
720			
280		4.9	62.8
710			
280		4.7	63.0
700			
280		3.2	64.5
690			
280		4.0	63.7
680			
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670			
280		5.2	62.5
660			
280		6.9	60.8
650			
280		10.2	57.5
640			
280		12.9	54.8
3630			
4280		13.5	54.2
3630			
4270		14.5	53.2
640			
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650			
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270		7.1	60.6
670			
270		5.4	62.3
680			
270		5.1	62.6
690			
270		4.2	63.5
700			
270		3.5	64.2
3710			
4270		5.2	62.5

X

567.66

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730			
270		4.8	62.9
740			
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750			
270		6.9	60.8
760			
270		6.9	60.8
770			
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780			
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790			
270		6.1	61.6
800			
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810			
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820			
270		5.5	62.2
830			
270		5.6	62.1
840			
270		5.4	62.3
850			
270		5.0	62.7
860			
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870			
270		4.2	63.5
880			
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890			
270		3.3	64.4
900			
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3910			
4260		1.5	66.2
900			
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890			
260		3.6	64.1
880			
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3870			
4260		4.4	63.3



567.66

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850	4.6	563.1	
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830			
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820			
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810			
260	5.5	62.2	
800			
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790			
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780			
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770			
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760			
260	6.8	60.9	
750			
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740			
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730			
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720			
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710			
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690			
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670			
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660			
260	7.6	60.1	
650			
260	9.2	58.5	
640			
260	12.4	55.3	
3630			
4260	14.2	53.8	
3620			
4260	14.8	53.2	

X

567.66

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670			
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680			
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690			
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710			
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720			
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740			
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750			
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810			
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830			
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840			
250		5.5	62.2
3850			
4250		5.1	62.6

26

X

567.66

27

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880			
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250	2.9	64.8	
900			
250	3.4	64.3	
3910			
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3910			
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900			
240	3.8	63.9	
890			
240	4.0	63.7	
880			
240	4.3	63.4	
870			
240	4.6	63.1	
860			
240	5.0	62.7	
850			
240	5.5	62.2	
840			
240	5.8	61.9	
830			
240	5.8	61.9	
820			
240	5.6	62.1	
810			
240	5.7	62.0	
800			
240	6.0	61.7	
790			
240	6.3	61.4	
780			
240	6.2	61.5	
770			
240	6.8	60.9	
760			
240	7.1	60.6	
750			
240	6.5	62.2	
740			
240	4.5	63.2	
3730			
4240	5.1	62.6	

X

567.66

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710			
240		3.9	63.8
700			
240		4.0	63.7
690			
240		5.0	62.7
680			
240		5.5	62.2
670			
240		6.2	61.5
660			
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650			
240		9.3	58.4
640			
240		11.8	55.9
630			
240		13.6	54.1
620			
240		14.5	53.2
3610			
4240		16.2	51.5
3610			
4230		15.9	51.8
620			
230		14.6	53.1
630			
230		13.5	54.2
640			
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650			
230		9.2	58.5
660			
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670			
230		7.1	60.6
680			
230		5.8	61.9
690			
230		5.3	62.4
700			
230		4.0	63.7
710			
230		4.6	63.1
720			
230		5.6	62.1
3730			
4230		5.7	62.0

X

567.66

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760			
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770			
230		7.2	60.5
780			
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790			
230		6.4	61.3
800			
230		6.1	61.6
810			
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820			
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830			
230		5.6	62.1
840			
230		5.6	62.1
850			
230		5.5	62.2
860			
230		5.1	62.6
870			
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880			
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890			
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3860			
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29

X

567.66

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810		6.1	61.6
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800		6.2	61.5
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790		6.7	61.0
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750		5.1	62.6
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740		5.5	62.2
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730		5.7	62.0
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720		5.5	62.2
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700		5.4	62.3
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690		5.5	62.2
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680		6.1	61.6
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220			
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10.20 565.74

X

	565.74		
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700			
210		3.6	62.1
710			
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720			
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740			
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750			
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760			
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780			
210		6.5	59.2
790			
210		5.5	60.2
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210		4.9	60.8
810			
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3820			
4210		4.2	61.5

565.74

3830			
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840			
210	3.8	61.9	
850			
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870			
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890			
210	2.3	63.4	
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210	1.9	63.8	
3910			
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910			
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900			
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880			
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850			
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780			
200	5.2	60.5	
3770			
4200	4.8	60.9	

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	565.74		
3760		4.8	560.9
4200		3.3	62.4
750			
200		3.6	62.1
740			
200		3.5	62.2
730			
200		3.2	62.5
720			
200		3.1	62.6
710			
200		3.5	62.2
700			
200		4.1	61.6
690			
200		4.9	60.8
680			
200		6.0	59.7
670			
200		6.6	59.1
660			
200		7.2	58.5
650			
200		8.1	57.6
640			
200		10.2	55.5
630			
200		11.6	54.1
620			
200		13.3	52.4
610			
200		13.8	51.9
3600			
4200		14.1	51.6
3600			
4190		12.9	52.8
3610			
190		11.5	54.2
620			
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630			
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640			
190		7.0	58.7
650			
190		6.7	59.0
660			
190		6.4	59.3
3670			
4190			

X

565.74

3680			
4190		5.1	560.6
690			
190		4.0	61.7
700			
190		3.7	62.0
710			
190		3.6	62.1
720			
190		3.5	62.2
730			
190		3.6	62.1
740			
190		3.3	62.4
750			
190		4.1	61.6
760			
190		3.9	61.8
770			
190		4.2	61.5
780			
190		4.5	61.2
790			
190		5.4	60.3
800			
190		5.0	60.7
810			
190		5.0	60.7
820			
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830			
190		3.9	61.8
840			
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850			
190		4.0	61.7
860			
190		3.5	62.2
870			
190		3.1	62.6
880			
190		2.9	62.8
890			
190		2.8	62.9
900			
190		1.9	63.8
910			
190		1.5	64.2
3920			
4190		1.0	64.7

34

565-74

3920			
4180		0.8	564.9
910			
180		1.4	64.3
900			
180		2.0	63.7
890			
180		2.8	62.9
880			
180		3.1	62.6
870			
180		3.5	62.2
860			
180		3.7	62.0
850			
180		4.1	61.6
840			
180		4.2	61.5
830			
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820			
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810			
180		5.4	60.3
800			
180		5.6	60.1
790			
180		5.0	60.7
780			
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770			
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760			
180		3.0	62.7
750			
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740			
180		3.8	61.9
730			
180		3.8	61.9
720			
180		3.6	62.1
710			
180		3.5	62.2
700			
180		3.3	62.4
690			
180		3.8	61.9
3680			
4180		5.7	60.0

35

X

565.74

3670			
4180		6.5	559.2
660			
180		6.9	588
650			
180		7.3	584
640			
180		8.2	57.5
630			
180		8.9	56.8
620			
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610			
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600			
180		13.9	51.8
3590		13.9	51.8
4180			
3590		14.0	51.7
4170			
600		13.8	52.2
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610		12.9	52.8
170			
620		11.7	54.0
170			
630		8.9	56.8
170			
640		7.6	58.1
170			
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170			
660		6.5	59.2
170			
670		6.6	59.1
170			
680		5.8	59.9
170			
690		4.4	61.3
170			
700		4.2	61.5
170			
710		4.1	61.6
170			
720		4.1	61.6
170			
730		4.0	61.7
170			
3740		3.8	61.9
4170			

565.74

3750			
4170		2.9	562.8
760			
170		3.2	62.5
770			
170		3.7	62.0
780			
170		3.3	62.4
790			
170		5.0	60.7
800			
170		5.3	60.4
810			
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820			
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830			
170		4.0	61.7
840			
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850			
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860			
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870			
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880			
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890			
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900			
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910			
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3920			
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3920			
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910			
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900			
160		2.5	63.2
890			
160		3.0	62.7
880			
160		3.1	62.6
870			
160		3.5	62.2
3860			
4160		4.0	61.7

X

	565.74		
3850			
4160		4.1	561.6
840			
160		4.1	61.6
830			
160		4.6	61.1
820			
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810			
160		5.3	60.4
800			
160		5.0	60.7
790			
160		4.6	60.1
780			
160		3.3	62.4
770			
160		3.6	62.1
760			
160		3.2	62.5
750			
160		3.2	62.5
740			
160		3.0	62.7
730			
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720			
160		2.9	62.8
710			
160		3.6	62.1
700			
160		3.9	61.8
690			
160		4.7	61.0
680			
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670			
160		6.8	58.9
660			
160		7.0	58.7
650			
160		7.2	58.5
640			
160		7.3	58.4
630			
160		8.3	57.4
620			
160		11.0	54.7
3610			
4160		13.0	52.7

3600	565.74		
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590			
160		14.0	51.7
3580			
4160		14.8	50.9
3580			
4150		15.2	50.5
590			
150		14.2	51.5
600			
150		13.2	52.5
610			
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620			
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660			
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670			
150		6.8	58.9
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690			
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700			
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710			
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750			
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760			
150		3.1	62.6
770			
150		3.6	62.1
780			
150		3.4	62.3
3790			
4150		4.6	61.1

565.74

3800			
4150			
810		4.8	560.9
150		5.2	60.5
820			
150		5.4	60.3
830			
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840			
150		4.4	61.3
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150		2.8	62.9
900			
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910			
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920			
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910			
140		1.6	64.1
900			
140		2.6	63.1
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140		3.7	62.0
860			
140		4.0	61.7
850			
140		4.4	61.3
840			
140		4.6	61.1
830			
140		5.2	60.5
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4140		5.5	60.2

X

565.74

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800		
140	4.8	60.9
790		
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780		
140	4.0	61.7
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760		
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610		
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600		
140	13.2	52.5
590		
140	13.8	51.9
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4140	14.3	51.4
3580		
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41

565.74

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640			
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650			
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660			
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690			
130	5.9	59.8	
700			
130	3.6	62.1	
710			
130	3.5	62.2	
720			
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730			
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740			
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750			
130	3.4	62.3	
760			
130	3.7	62.0	
770			
130	3.4	62.3	
780			
130	3.7	62.0	
790			
130	4.3	61.4	
800			
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810			
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820			
130	5.2	60.5	
3830			
4130	5.3	60.4	

565.74

3840			
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850			
4130		4.6	61.1
860			
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870			
130		3.9	61.8
880			
130		3.6	62.1
890			
130		3.0	62.7
900			
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920			
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910			
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900			
120		3.1	62.6
890			
120		3.3	62.4
880			
120		3.8	61.9
870			
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860			
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850			
120		4.5	61.2
840			
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830			
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820			
120		5.2	60.5
810			
120		4.8	60.9
800			
120		4.9	60.8
3790			
4120		3.8	61.9

43

565.74

3780		
4120	3.7	562.0
770	3.3	62.4
120		
760	3.2	62.5
120		
750	3.6	62.1
120		
740	3.5	62.1
120		
730	4.4	61.3
120		
720	3.4	62.3
120		
710	3.7	62.0
120		
700	3.7	62.0
120		
690	5.7	60.0
120		
680	6.7	59.0
120		
670	6.6	59.1
120		
660	6.6	59.1
120		
650	7.4	58.3
120		
640	7.2	58.5
120		
630	8.4	57.3
120		
620	8.5	57.2
120		
610	10.4	55.3
120		
600	13.3	52.4
120		
590	13.7	52.0
120		
3580	14.4	51.3
4120	14.4	51.3
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110		
600		
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4110		

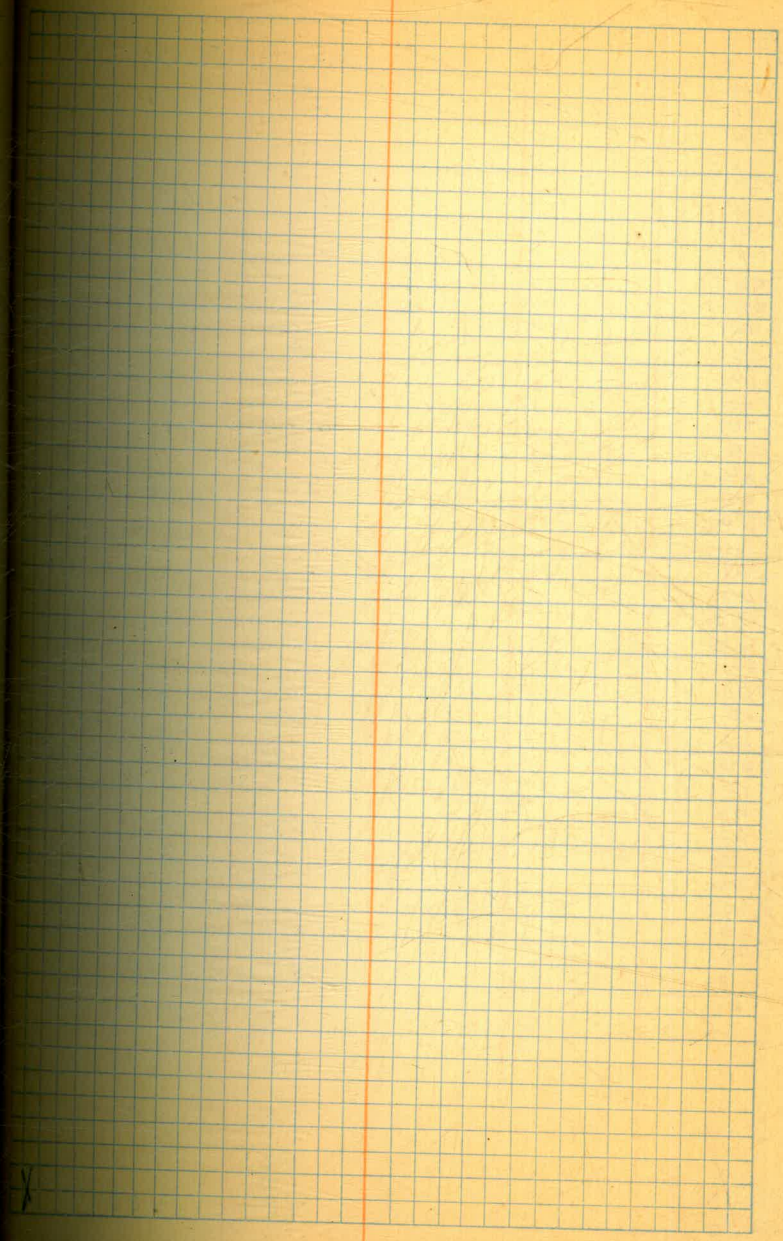
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730
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740
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760
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780
110
790
110
800
110
810
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820
110
830
110
840
110
850
110
3860
4110

565.74

8.9	556.8
8.6	571
7.3	584
7.5	582
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6.7	590
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3.8	61.9
3.8	61.9
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3.6	62.1
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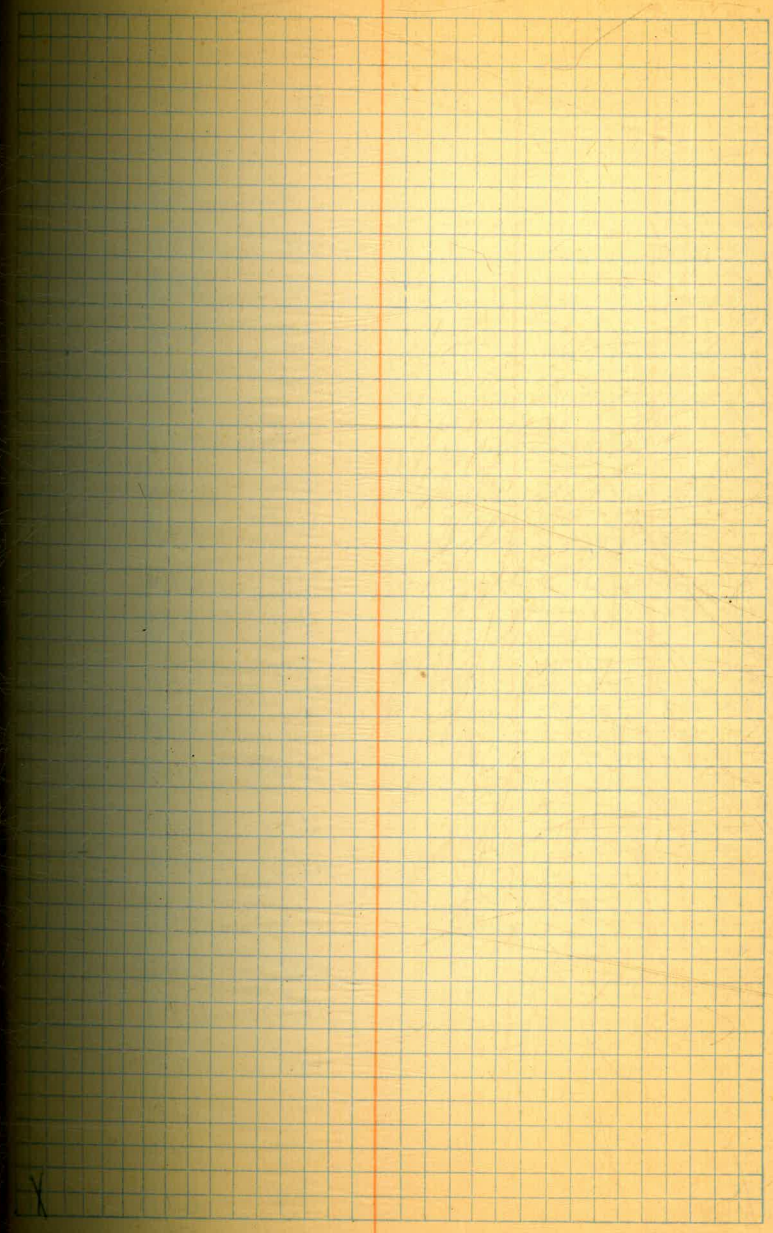
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4110		4.1	561.6
880			
110		3.8	61.9
890			
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900			
110		3.3	62.4
910			
110		3.4	62.3
920			
110		2.6	63.1
3930			
4110		2.4	63.3
3930			
4100		2.9	62.8
920			
100		2.9	62.8
910			
100		3.2	62.5
900			
100		3.5	62.2
890			
100		3.7	62.0
880			
100		4.0	61.7
870			
100		4.1	61.6
860			
100		4.3	61.4
850			
100		4.4	61.3
840			
100		4.7	61.0
830			
100		4.8	60.9
820			
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810			
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800			
100		4.9	60.8
790			
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780			
100		3.5	62.2
770			
100		5.0	60.7
3760			
4100		3.6	62.1



565.74

3750		
4100	3.8	561.9
740		
100	3.5	62.2
730		
100	3.7	62.0
720		
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710		
100	4.0	61.7
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670		
100	6.5	59.2
660		
100	6.7	59.0
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100	7.4	58.3
640		
100	7.8	57.9
630		
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620		
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590		
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4100	14.2	51.5
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4090	15.1	50.6
580		
090	13.8	51.9
590		
090	14.0	51.7
600		
090	13.6	52.1
610		
090	10.0	55.7
620		
090	9.2	56.5
3630		
4090	9.0	56.7



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090		6.8	58.9
660			
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680			
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690			
090		5.4	60.3
700			
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710			
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720			
090		4.0	61.7
730			
090		4.0	61.7
740			
090		4.4	61.3
750			
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770			
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780			
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790			
090		4.4	61.3
800			
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810			
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830			
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4090		3.8	61.9

565.74

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900	3.5	62.2
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3930		
4090	3.6	62.1
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920	3.3	62.4
080	3.3	62.4
910	3.3	62.4
080	3.3	62.4
900	3.6	62.1
080	3.6	62.1
890	3.6	62.1
080	3.6	62.1
880	3.8	61.9
080	3.9	61.8
870	4.0	61.7
080	4.4	61.3
850	4.4	61.3
080	4.6	61.1
840	4.6	61.1
080	4.6	61.1
830	4.6	61.1
080	4.6	61.1
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080	4.7	61.0
810	4.9	60.8
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080	4.4	61.3
790	3.1	62.6
080	3.1	62.6
780	4.4	61.3
080	4.4	61.3
770	3.7	62.0
080	3.7	62.0
760	4.1	61.6
080	4.1	61.6
750	4.2	61.5
080	4.2	61.5
5740	4.5	61.2
4080	4.5	61.2

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720			
080		4.5	61.2
710			
080		4.4	61.3
700			
080		4.5	61.2
690			
080		4.7	61.0
680			
080		7.2	58.5
670			
080		7.0	58.7
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080		7.0	58.7
650			
080		7.1	58.6
640			
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080		8.0	57.7
620			
080		8.0	57.7
610			
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600			
080		13.3	52.4
590			
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580			
080		13.8	51.9
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4080		14.7	51.0
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4070		14.4	51.3
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070		13.6	52.1
600			
070		13.4	52.3
610			
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620			
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630			
070		8.3	57.4
3640			
4070		8.0	57.7

565.74

3650			
4070			
660			
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070			
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720			
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820			
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	4.2	61.5	
	4.0	61.7	
	3.8	61.9	
	3.8	61.9	
	3.5	62.2	

X

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the person to whom it was sent, etc.

565.74

3900		
4070	3.4	562.3
910	3.2	62.5
920		
930	3.3	62.4
	3.0	62.7
3940		
4070	1.4	64.3
3940		
4060	0.8	64.9
930		
060	2.7	63.0
920		
060	3.3	62.4
910		
060	3.2	62.5
900		
060	3.2	62.5
890		
060	3.5	62.2
880		
060	3.7	62.0
870		
060	3.8	61.9
860		
060	3.9	61.8
850		
060	4.5	61.2
840		
060	4.5	61.2
830		
060	4.5	61.2
820		
060	4.7	61.0
810		
060	4.6	61.1
800		
060	4.3	61.4
790		
060	2.7	63.0
780		
060	3.4	62.3
770		
060	4.4	61.3
760		
060	3.4	62.3
3750		
4060	3.7	62.0

52

	565.74		
3740			
4060		4.0	561.7
730			
060		4.2	61.5
720			
060		4.3	61.4
710			
060		4.5	61.2
700			
060		4.3	61.4
690			
060		5.2	60.5
680			
060		7.0	58.7
670			
060		6.7	59.0
660			
060		6.7	59.0
650			
060		7.1	58.6
640			
060		8.1	57.6
630			
060		8.4	57.3
620			
060		8.1	57.6
610			
060		10.6	55.1
600			
060		13.3	52.4
590			
060		13.4	52.3
580			
060		13.5	52.2
570			
060		14.4	51.3
3560			
4060		15.0	50.7
3560			
4050		14.9	50.8
570			
050		14.5	51.2
580			
050		13.2	52.5
590			
050		13.0	52.7
600			
050		12.8	52.9
3610			
4050		9.7	56.0

565.74

3620			
4050		7.7	558.0
630		8.7	57.0
050			
640		8.2	57.5
050			
650			
050		7.1	58.6
660			
050		7.1	58.6
670			
050		7.0	58.7
680			
050		7.1	58.6
690			
050		5.3	60.4
700			
050		4.5	61.2
710			
050		4.1	61.6
720			
050		4.3	61.4
730			
050		4.0	61.7
740			
050		3.9	61.8
750			
050		3.5	62.2
760			
050		4.0	61.7
770			
050		3.9	61.8
780			
050		3.7	62.0
790			
050		2.2	63.5
800			
050		4.4	61.3
810			
050		4.6	61.1
820			
050		4.5	61.2
830			
050		4.5	61.2
840			
050		4.5	61.2
850			
050		4.3	61.4
3860			
4050		4.0	61.7

X

565.74

3870		
4050	39	561.8
880		
050	37	620
890		
050	3.5	622
900		
050	3.1	626
910		
050	3.1	626
920		
050	29	628
930		
050	29	628
3940		
4050	1.8	639
3940		
4040	2.1	636
930		
040	2.3	634
920		
040	29	628
910		
040	3.0	627
900		
040	29	628
890		
040	3.3	624
880		
040	3.1	626
870		
040	39	61.8
860		
040	40	61.7
850		
040	42	61.5
840		
040	44	61.3
830		
040	44	61.3
820		
040	45	61.2
810		
040	44	61.3
800		
040	4.0	61.7
790		
040	2.1	636
3780		
4040	3.2	62.5

55

565.74

3770		
4040	3.8	561.9
760		
040	3.7	62.0
750		
040	4.1	61.6
740		
040	4.3	61.4
730		
040	4.4	61.3
720		
040	4.6	61.1
710		
040	4.2	61.5
700		
040	4.7	61.0
690		
040	5.7	60.0
680		
040	7.0	58.7
670		
040	7.3	58.4
660		
040	7.2	58.5
650		
040	7.4	58.3
640		
040	8.1	57.6
630		
040	7.8	57.9
620		
040	8.2	57.5
610		
040	9.9	55.8
600		
040	12.8	52.9
590		
040	13.5	52.2
580		
040	13.2	52.5
570		
040	13.9	51.8
560		
040	14.3	51.4
550		
040	15.1	50.6
3540		
4040	15.5	50.2

565.74

3550			
4030	15.2	550.5	
560			
030	14.5	51.2	
570			
030	14.0	51.7	
580			
030	12.9	52.8	
590			
030	13.4	52.3	
600			
030	13.5	52.2	
610			
030	10.5	55.2	
620			
030	8.4	57.3	
630			
030	7.9	57.8	
640			
030	8.1	57.6	
650			
030	7.5	58.2	
660			
030	7.5	58.2	
670			
030	7.3	58.4	
680			
030	7.1	58.6	
690			
030	5.7	60.0	
700			
030	4.4	61.3	
710			
030	4.3	61.4	
720			
030	4.4	61.3	
730			
030	3.9	61.8	
740			
030	3.9	61.8	
750			
030	3.7	62.0	
760			
030	3.6	62.1	
770			
030	4.0	61.7	
780			
030	3.1	62.6	
3790			
4050	2.5	63.2	

X

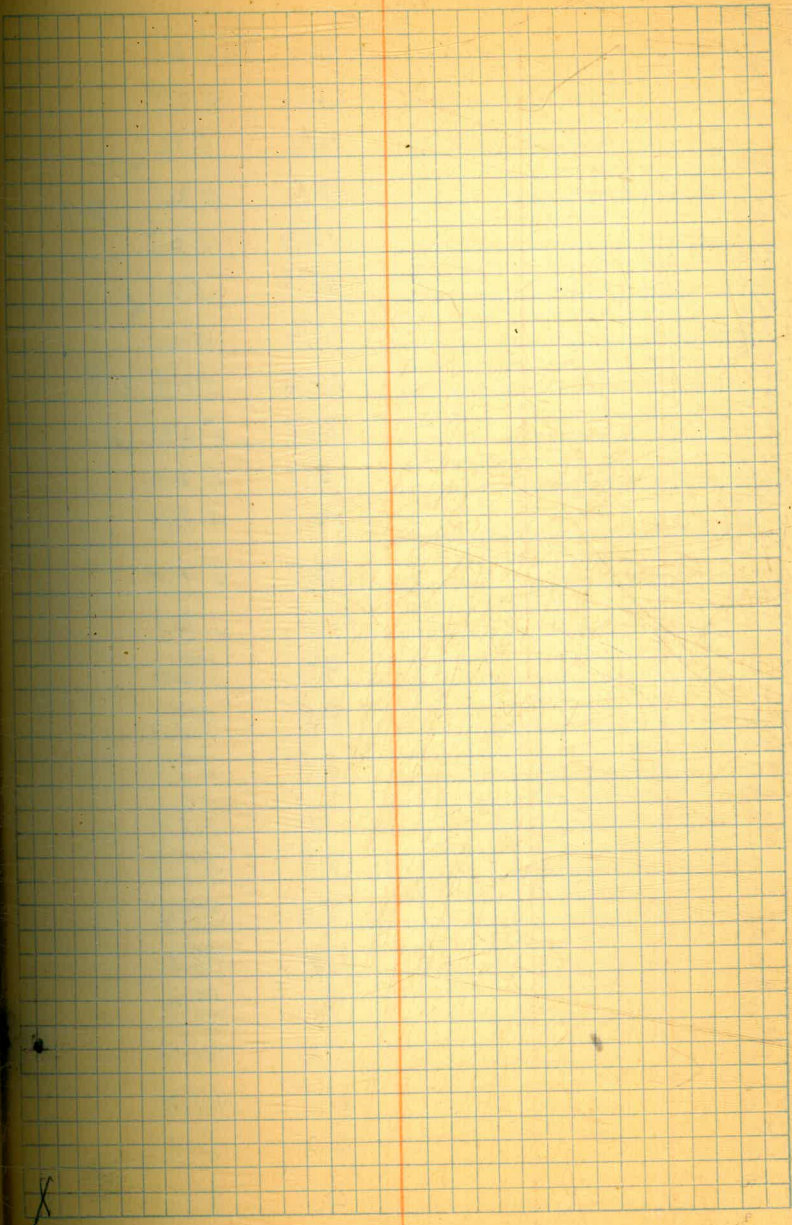
565.74

3800		
4030	3.8	561.9
810	4.2	61.5
020		
820	4.5	61.2
030		
830	4.4	61.3
030		
840	4.2	61.5
030		
850	4.1	61.6
030		
860	3.8	61.9
020		
870	3.6	62.1
030		
880	3.4	62.3
030		
890	3.2	62.5
030		
900	3.1	62.6
030		
910	2.9	62.8
030		
920	2.6	63.1
030		
930	2.4	63.3
030		
3940	2.5	63.2
4030	2.7	63.0
3940		
4020	2.6	63.1
930		
020	2.7	63.0
920		
020	2.8	62.9
910		
020	3.0	62.7
900		
020	3.2	62.5
890		
020	3.4	62.3
880		
020	3.6	62.1
870		
020	3.8	61.9
860		
020	4.0	61.7
3850		
4020		

58

565.74

3840		4.1	561.6
4020			
830		4.3	61.4
020			
820		4.3	61.4
020			
810		4.3	61.4
020			
800		3.7	62.0
020			
790		2.5	63.2
020			
780		2.6	63.1
020			
770		3.9	61.8
020			
760		3.6	62.1
020			
750		4.1	61.6
020			
740		3.9	61.8
020			
730		3.8	61.9
020			
720		4.1	61.6
020			
710		4.2	61.5
020			
700		4.3	61.4
020			
690		5.1	60.6
020			
680		7.4	58.3
020			
670		6.1	59.6
020			
660		7.4	58.3
020			
650		7.4	58.3
020			
640		7.9	57.8
020			
630		8.1	57.6
020			
620		8.7	57.0
020			
610		9.9	55.8
020			
3600		13.6	52.1
4020			



565.74

3590		
4020	13.6	552.1
580		
570	12.8	52.9
560	14.1	51.6
550	13.6	52.1
3540	14.9	50.8
4020	15.6	50.1
3540	15.6	50.1
4010		
550		
010	15.2	50.5
560		
010	13.7	52.0
570		
010	13.7	52.0
580		
010	12.7	53.0
590		
010	13.5	52.2
600		
010	12.6	53.1
610		
010	9.7	56.0
620		
010	8.5	57.2
630		
010	8.1	57.6
640		
010	7.8	57.9
650		
010	7.8	57.9
660		
010	7.3	58.4
670		
010	6.9	58.8
680		
010	7.7	58.0
690		
010	5.0	60.7
700		
010	4.5	61.2
710		
010	4.2	61.5
3720		
4010	4.1	61.6

DUP

DUP

X

565.74

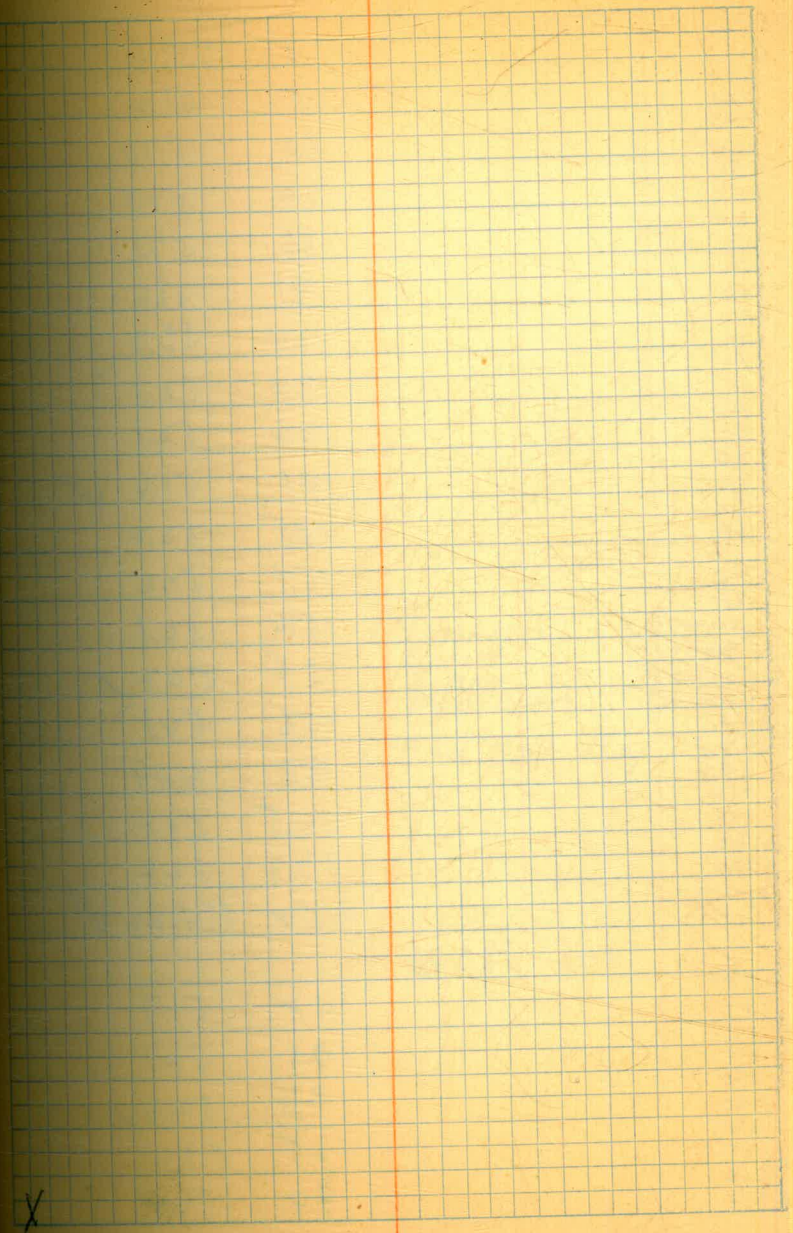
3730		
4010	4.1	561.6
3740		
010	4.1	61.6
3750		
010	4.0	61.7
760		
010	4.2	61.5
770		
010	3.8	61.9
780		
010	2.8	62.9
790		
010	2.7	63.0
800		
010	3.4	62.3
810		
010	4.3	61.4
820		
010	4.2	61.5
830		
010	4.1	61.6
840		
010	4.0	61.7
850		
010	3.7	62.0
860		
010	3.6	62.1
870		
010	3.4	62.3
880		
010	3.3	62.4
890		
010	3.0	62.7
900		
010	3.1	62.6
910		
010	3.0	62.7
920		
010	3.1	62.6
930		
010	2.8	62.9
3940		
4010	2.4	63.3
3940		
4000	2.8	62.9
930		
000	2.7	63.0
3920		
4000	3.2	62.5

61

X

565.74

3910		3.3	582.4
4000			
900		3.4	62.3
000			
890		3.1	62.6
000			
880		3.6	62.1
000			
870		3.5	62.2
000			
860		3.7	62.0
000			
850		3.9	61.8
000			
840		4.0	61.7
000			
830		4.0	61.7
000			
820		4.1	61.6
000			
810		4.2	61.5
000			
800		3.2	62.5
000			
790		3.7	62.0
000			
780		2.9	62.8
000			
770		3.2	62.5
000			
760		3.4	62.3
000			
750		4.0	61.7
000			
740		4.5	61.2
000			
730		4.5	61.2
000			
720		4.2	61.5
000			
710		4.6	61.1
000			
700		4.8	60.9
000			
690		4.3	61.4
000			
680		6.7	59.0
000			
3670		8.0	57.7
4000			



565.74

3660			
4000		7.7	558.0
650			
000		7.5	58.2
640			
000		8.0	57.7
630			
000		7.9	57.8
620			
000		8.6	57.1
610			
000		9.1	56.6
600			
000		12.4	53.3
590			
000		13.0	52.7
580			
000		13.6	52.1
570			
000		14.1	51.6
560			
000		13.5	52.2
550			
000		15.1	50.6
540			
000		15.6	50.1
3530			
4000		15.5	50.2
3530			
3990		15.6	50.1
540			
990		15.8	49.9
550			
990		14.5	51.2
3560			
3990		13.3	52.4
T.P.		11.52	554.22

DUP

DUP

11.71 565.93

3570			
3990		14.2	51.7
580			
990		13.8	52.1
590			
990		13.3	52.6
600			
990		12.5	53.4
3610			
3990		9.9	56.0

Simpson Level
 Elliott Notes
 Paper Rod
 Remmen Tape

End Day May 20, 1932

565.93

3620		
3990	9.0	556.9
630	8.1	57.8
990	8.0	57.9
640		
990	7.9	58.0
650		
990	7.8	58.1
660		
990	6.8	59.1
670		
990	5.4	60.5
680		
990	5.1	60.8
690		
990	5.3	60.6
700		
990	4.3	61.6
710		
990	4.9	61.0
720		
990	4.6	61.3
730		
990	3.6	62.3
740		
990	3.1	62.8
750		
990	3.7	62.7
760		
990	3.2	62.7
770		
990	3.0	62.9
780		
990	3.2	62.7
790		
990	3.6	62.3
800		
990	4.3	61.6
810		
990	4.4	61.5
820		
990	4.4	61.5
830		
990	4.2	61.7
840		
990	4.1	61.8
850		
990	4.0	61.9
3860		
3990		

64

May 21, 1932

Simpson - Level
 Elliott Notes
 Soper Rod
 Remmen Tape

X

565.93

3870		
3990	39	562.0
850	38	62.1
990		
890	37	62.2
990		
900		
990	37	62.2
910		
990	37	62.2
920		
990	33	62.6
990		
990	32	62.7
3940		
3990	32	62.7
3940		
3980	35	62.4
980		
980	32	62.7
920		
980	35	62.4
910		
980	39	62.0
900		
980	38	62.1
990		
980	37	62.2
880		
980	39	62.0
870		
980	41	61.8
860		
980	42	61.7
850		
980	42	61.7
840		
980	44	61.5
830		
980	44	61.5
820		
980	46	61.3
810		
980	44	61.5
800		
980	35	62.4
790		
680	33	62.6
3780		
3980	33	62.6

65

565.93

3770		
3980	3.1	562.8
760	3.3	62.6
980		
750	3.2	62.7
980		
740	3.4	62.5
980		
730	3.8	62.1
980		
720	4.5	61.4
980		
710	4.8	61.1
980		
700	4.8	61.1
980		
690	4.9	61.0
980		
680	5.5	60.4
980		
670	6.5	59.4
980		
660	7.5	58.4
980		
650	8.1	57.8
980		
640	7.8	58.1
980		
630	8.1	57.8
980		
620	9.3	56.8
980		
610	10.4	55.5
980		
3600	11.6	54.3
3980		
3600	12.5	53.4
3970		
610	10.2	55.7
970		
620	9.4	56.5
970		
630	8.3	57.6
970		
640	8.0	57.9
970		
650	7.8	58.1
970		
660	7.4	58.5
970		

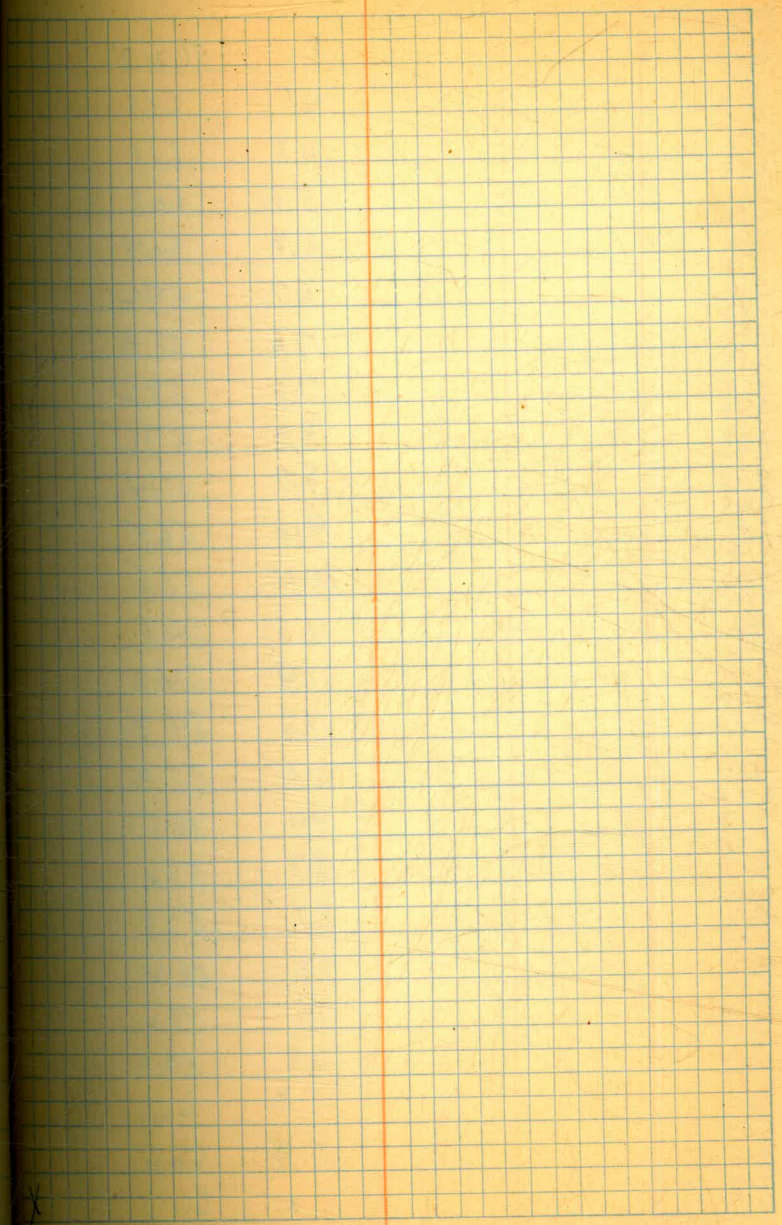
66

565.93

3670		
3970	6.7	559.2
680		
970	5.2	60.7
690		
970	5.1	60.8
700		
970	4.8	61.1
710		
970	4.5	61.4
720		
970	3.9	62.0
730		
970	3.3	62.6
740		
970	3.1	62.8
750		
970	3.3	62.6
760		
970	3.3	62.6
770		
970	3.3	62.6
780		
970	3.3	62.6
790		
970	3.2	62.7
800		
970	3.6	62.3
810		
970	3.7	62.2
820		
970	4.7	61.2
830		
970	4.6	61.3
840		
970	4.5	61.4
850		
970	4.4	61.5
860		
970	4.4	61.5
870		
970	4.4	61.5
880		
970	4.1	61.8
890		
970	3.9	62.0
900		
970	4.1	61.8
3910		
3970	4.0	61.9

565.93

3920	3.4	562.5
3970		
930	3.2	62.7
970		
3940	3.7	62.2
3970		
3940	3.7	62.2
3960		
930	2.9	63.0
960		
920	3.5	62.4
960		
970	4.0	61.9
960		
900	4.3	61.6
960		
890	4.4	61.5
960		
880	4.1	61.8
760		
870	4.3	61.6
960		
860	4.5	61.4
960		
850	4.6	61.3
960		
840	4.6	61.3
960		
830	4.7	61.2
960		
820	4.8	61.1
960		
810	3.7	62.2
960		
800	2.9	63.0
960		
790	3.0	62.9
960		
780	3.7	62.2
960		
770	3.4	62.5
960		
760	3.5	62.4
960		
750	3.4	62.5
960		
740	3.3	62.6
960		
3730	3.3	62.6
3960		



565.93

3720		
3960	3.6	562.3
710		
960	4.1	61.8
700		
960	4.8	61.1
690		
960	5.1	60.8
680		
960	5.2	60.7
670		
960	6.7	59.2
660		
960	7.6	58.3
650		
960	7.7	58.2
640		
960	8.3	57.6
630		
960	8.5	57.4
620		
960	9.4	56.5
610		
960	10.4	55.5
600		
960	11.8	54.1
3590		
3960	11.9	54.0
3600		
3950	11.6	54.3
610		
950	10.6	55.3
620		
950	9.4	56.5
630		
950	8.7	57.2
640		
950	8.1	57.8
650		
950	7.7	58.2
660		
950	7.7	58.2
670		
950	6.6	59.3
680		
950	5.3	60.6
690		
950	5.3	60.6
3700		
3950	5.2	60.7

X

565.93

3710		
3950	4.1	561.8
720		
950	3.4	62.5
730		
950	3.3	62.6
740		
950	3.4	62.5
750		
950	3.7	62.2
760		
950	3.6	62.3
770		
950	3.8	62.1
780		
950	3.2	62.7
790		
950	2.1	63.8
800		
950	2.2	63.7
810		
950	3.6	62.3
820		
950	5.0	60.9
830		
950	4.8	61.1
840		
950	4.7	61.2
850		
950	4.6	61.3
860		
950	4.5	61.4
870		
950	4.3	61.6
880		
950	4.5	61.4
890		
950	4.0	61.9
900		
950	4.2	61.7
910		
950	4.1	61.8
920		
950	3.6	62.3
930		
950	2.8	63.1
3940		
3950	3.0	62.9

70

565.93

3940			
3940	22	563.7	
930	28	63.1	
940			
920			
940	4.0	61.9	
910			
940	4.2	61.7	
900			
940	4.4	61.5	
890			
940	4.2	61.7	
880			
940	4.3	61.6	
870			
940	4.7	61.2	
860			
940	4.8	61.1	
850			
940	4.9	61.0	
840			
940	4.9	61.0	
830			
940	4.9	61.0	
820			
940	5.1	60.8	
810			
940	3.5	62.4	
800			
940	2.6	63.3	
790			
940	1.5	64.4	
780			
940	2.6	63.3	
770			
940	3.7	62.2	
760			
940	3.8	62.1	
750			
940	3.8	62.1	
740			
940	3.6	62.3	
730			
940	3.5	62.4	
720			
940	3.7	62.2	
710			
940	4.3	61.6	
3700			
3940	5.4	60.5	

565.93

3690		
3940	4.9	561.0
680		
940	5.0	609
670		
940	6.3	59.6
660		
940	8.6	57.3
650		
940	7.7	58.2
640		
940	8.3	57.6
630		
940	8.7	57.2
620		
940	9.3	56.6
610		
940	10.2	55.7
3600		
3940	11.2	54.7
3600		
3930	11.2	54.7
610		
930	10.0	55.9
620		
930	9.4	56.5
630		
930	8.8	57.1
640		
930	8.5	57.4
650		
930	7.8	58.1
660		
930	7.9	58.0
670		
930	6.1	59.8
680		
930	5.3	60.6
690		
930	5.2	60.7
700		
930	5.5	60.4
710		
930	4.7	61.2
720		
930	3.8	62.1
730		
930	3.7	62.2
3740		
3930	3.7	62.2

72

565.93

3750		
3930	4.1	561.8
760		
930	4.0	61.9
770		
930	2.7	63.2
780		
930	1.8	64.1
790		
930	2.2	63.7
800		
930	3.1	62.8
810		
930	3.4	62.5
820		
930	5.0	60.9
830		
930	5.0	60.9
840		
930	4.8	61.1
850		
930	4.9	61.0
860		
930	4.7	61.2
870		
930	4.6	61.3
880		
930	4.2	61.7
890		
930	4.4	61.5
900		
930	4.4	61.5
910		
930	4.4	61.5
920		
930	4.3	61.6
930		
930	3.5	62.4
3940		
3930	1.6	64.3
3940		
3920	3.4	62.5
930		
920	4.1	61.8
930		
920	4.3	61.6
910		
920	4.5	61.4
3900		
3920	4.5	61.4

565.93

3890		
3920	4.5	561.4
880		
920	4.4	61.5
870		
920	4.8	61.1
860		
920	4.9	61.0
850		
920	4.9	61.0
840		
920	5.0	60.9
830		
920	5.1	60.8
820		
920	5.1	60.8
810		
920	3.4	62.5
800		
920	3.3	62.6
790		
920	3.2	62.7
780		
920	2.3	63.6
770		
920	2.7	63.2
760		
920	3.9	62.0
750		
920	4.3	61.6
740		
920	4.1	61.8
730		
920	3.8	62.1
720		
920	4.2	61.7
710		
920	4.9	61.0
700		
920	5.6	60.3
690		
920	5.4	60.5
680		
920	5.6	60.3
670		
920	6.1	59.8
660		
920	7.7	58.2
3650		
3920	8.0	57.9

72

565.93

3640		
3720	85	5574
3630		
3920	90	569
3650		
3910	83	576
660		
910	76	583
670		
910	58	601
680		
910	5.5	604
690		
910	70	589
700		
910	60	599
710		
910	5.2	607
720		
910	4.4	615
730		
910	4.3	616
740		
910	4.3	616
750		
910	4.2	617
760		
910	35	624
770		
910	2.8	631
780		
910	3.3	626
790		
910	3.3	626
800		
910	3.4	625
810		
910	3.3	626
820		
910	5.3	606
830		
910	5.2	607
840		
910	5.1	608
850		
910	5.1	608
860		
910	5.0	609
3870		
3910	5.0	609

75

565.93

3880			
3910	4.8	561.1	
890			
910	4.8	61.1	
900			
910	4.7	61.2	
910			
910	4.7	61.2	
920			
910	4.6	61.3	
930			
910	4.5	61.4	
3940			
3910	3.2	62.7	
3940			
3900	3.0	62.9	
930			
900	4.6	61.3	
920			
900	4.8	61.1	
910			
900	4.8	61.1	
900			
900	4.9	61.0	
890			
900	4.9	61.0	
880			
900	5.1	60.8	
870			
900	5.1	60.8	
860			
900	5.3	60.6	
850			
900	5.3	60.6	
840			
900	5.3	60.6	
830			
900	5.4	60.5	
820			
900	5.6	60.3	
810			
900	3.4	62.5	
800			
900	3.5	62.4	
790			
900	3.5	62.4	
780			
900	3.6	62.3	
3770			
3900	3.5	62.4	

X

565.93

3760		
3900	3.4	562.5
750		
900	4.1	61.8
740		
900	4.3	61.6
730		
900	4.7	61.2
720		
900	5.0	60.9
710		
900	5.4	60.5
700		
900	5.6	60.3
790		
900	6.0	59.9
780		
900	5.7	60.2
770		
900	6.5	59.4
760		
900	7.5	58.4
3750		
3900	8.7	57.2
3700		
3890	6.0	59.9
710		
890	5.2	60.7
720		
890	5.2	60.7
730		
890	4.5	61.4
740		
890	4.4	61.5
750		
890	3.7	62.2
760		
890	3.9	62.0
770		
890	3.9	62.0
780		
890	3.8	62.1
790		
890	3.2	62.7
800		
890	2.1	63.8
810		
890	2.6	63.3
3820		
3890	5.7	60.2

77

565.93

3830		
3890	5.5	560.4
890	5.5	60.4
890	5.5	60.4
860	5.3	60.6
890	5.3	60.6
880	5.1	60.8
890	5.2	60.7
900	5.0	60.9
890	4.8	61.1
920	4.7	61.2
890	4.7	61.2
3940	3.2	62.7
3890	2.2	63.7
3880	4.9	61.0
930	4.9	61.0
880	5.0	60.9
910	5.2	60.7
880	5.1	60.8
890	5.4	60.5
880	5.4	60.5
870	5.5	60.4
880	5.7	60.2
880	5.8	60.1
3840		
3880		

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F.B. 350 Pg. 1

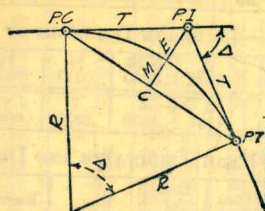
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DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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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) $\Delta = \text{Central Angle}$

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° curve $T = 3454.1$ and $\div 8\frac{1}{2} = 414.49$ 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 $\times 54.5 \times 8\frac{1}{2} = 136.2'$ 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° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8\frac{1}{2} = 91.27$ 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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