

W

497

ENGINEERS'
LEVEL BOOK

No. 412 F

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide.

Side Slopes 1 on 1.

For Single Track Embankment.

A97

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 1½ see inside of back cover.

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Date

Index

1934-1935

Tunnel Lining

1-35

General Notes

36-40

Basin Roads

42-69

W. Hill

D

to
of
ex
80

Dec. 7 1934

Well	D.	Fl.	Gr. D.	Fl.	
1	68.8	591.6	6637	6637	
3	107.0	636.1	742.0	743.1	
5	100.2	608.8	707.5	709.0	
6	79.5	622.5	701.0	702.0	

Upstr. toe 4.6 570.4

Golden - 8 men

Chambers 3 "

Gray shift "1-4, "2-4, "3-3.

Dec. 8

Golden 1 foreman, 1 carp. foreman
6 men.

Gray 1 fore, 3 labs.

Chambers no work.

Dec. 9

Golden 1 fore, 3 men

Gray 1 fore, 3 men, 2 shifts.

Dec. 10

Trail pipe length 2 lbs 5 1/2 oz

pipe connector 15.02

Secres 2 1/2 oz

N. side
sta. D. Hole Ht.S. side
sta. D. Hole Ht.

1	1+32	4.0	2'	1+55	2.0	Floor
2	1+40	1.5	Floor	1+65	5.7	2.5
3	1+90	5.1	4.5	1+76	5.3	5.0
4	2+00	1.2	4.0	2+20	2.2	5.0
5	2+08	3.1	4.0	2+80	2.2	4.0
6	2+35	4.5	4.0	3+00	5.8	3.5
7	2+55	2.9	4.0	3+35	7.9	4.0
8	2+80	3.9	8.0	3+50	4.0	4.0
9	2+85	5.5	8.0	4+05	5.8	4.0
10	2+95	4.0	8.0	4+10	3.3	3.5
11	3+15	5.0	4.0	3+70	4.4	3.9
12	3+38	5.9	4.0	3+80	2.8	3.5
13	3+90	5.9	4.0			
14	4+25	3.7	4.0			

Dec. 10

Goldsa 1 fore, 1 carp. foreman
3 carpenters, 5 laborers.

Gray 1 fore, 1 men.

Chambers 1 fore, 2 men

N. side sta. D. Hole Ht.	
15	4+35 1.6 3.5
16	5+00 4.4 4.0
17	5+20 6.0 4.0

Dec. 11

Golden 2 tons, 6 men.

Gray 1 ton, 2 shifters 7 men
" 2 & " 3 1 lab. " 1.

Chambes 1 ton, 2 lab's reinit,
set reinit, steel, drilled
holes to about sta. 5400
pumper etc man over haul-
ing machine

Dec. 12

3
Golden Brot in two truck &
trailer loads cement
1 ton, 1 time keeper
2 lab's, 1 portable compr
brot in io AM.

Dec. 13

Gray 1 fore, 3 lab. repairs &
drying sand.

Chamber 1 fore, 2 lab. bendings &
setting circum.

Golden 1 fore, 1 pump & d. man,
1 truck dr, 1 tk, 1 carp.
5 lab.

Grout pipe hookup
N. side

E. end 0

W. end 0

center 0

0 E. end

0 center

0 W. end

Dec. 14

Golden 10 men & carp's
placed 36' 4" pipe on plug

Dec. 16

Golden sand 98 damp per dry 100

 $\frac{3}{4}$ gravel 93 $\frac{1}{2}$'s $\frac{1}{2}$ " 95 $\frac{0}{2}$'s

1 fore, 2 corps, 1 pump w/ta

5 labs.

1 lab. screen sand

Mix

Sand - 465 65-35 75-25

 $1\frac{1}{2}$ gravel 455-460 175 544 $\frac{3}{4}$ " 265 250 181

Setting up pump w/ta machine
and laying pipe. Machine set
at about sta. 2450.

Length of pipe thru plug 86.

Dec. 17

 $25 \times 4 \times 30 = 3000$ $1.5 \times 8 \times 15 = 180$ $1.5 \times 17 \times 25 = 64$

$$\frac{3244}{27} = 120.1 \text{ cy.}$$

Pour 212 sacks in cones

2.3 sack batches great

1 mixer, 2 cement 9 lab 9 $\frac{1}{2}$

6 labs full day, 2 trucks down

2 batches wasted

Dec. 18

Mixer 1 mixer man, 2 cement
6 laborers, 2 trucks & driving
placing, 1 crete man 1 laborer
2 labor misc.

com. per 8:30 AM.

136 sacks cement

Mix 865 sand

" 210 $\frac{3}{4}$

" 465 $1\frac{1}{2}$

Dec 19

Templet 10.3 - 0.15 - 1.7

Golden No concrete placed.

3 carpenters, 1 pumpcrete
man, 2 truck drivers
6 laborers,

Dec. 20

Pumpcrete 1 oper & lab
3 corps forms, 2 plact
3 spread.
2 cement, 6 barrels
1 mixer man

7
Dec. 21

Golden pour required before
plug sealed. Lining 8 or 9 ft

Dec. 23

Dec. 25

Sandblasting crew of 4 men
com. at 10:15 AM.

No other work.

8
Dec. 26

1 Foreman, 1 mixer man, 8 at
mixer, 2 trucks & drivers.

1 pumper etc, 4 labs at machine
3 spreading, 4 carps, 2 helpers

Dec. 28

1 Fore, 4 carps, 1 mixer man,
12 laborers.

Dec. 29

1 Fore, 4 carpenters

1 mixer man, 8 labs at
mixer in AM. 5 in PM.

10 laborers on concrete

2 steel men

Dec. 31

1 foreman, 3 carps., 1 truck

slabs, 1 electrician, 1 pump
crete operator.

Water temp. lake 9 A.M. 50°

3 P.M. 51°

Gauge 577.2

Jan. 2 1935

1 foreman, 3 carps, 1 pump
crete man & slabs.

10
Jan. 3

1 fore, 1 pump oper, 1 mixer man,
8 lbs of mixer, placing slabs, 1 at
machine, 1 carpenter, 2 truck drivers
slabs misc.

327 sacks cement

Finished 1:15 PM

Gauge 577.3

Jan. 4

Golden - 1 fore, 3 carps, 1 mixer
man, 9 labs. at mixer, 2 tract
drivers, 1 pipecraft man, 3
laborers, 8 laborers in tunnel

Jan. 5

1 finisher $\frac{1}{2}$ day

2 laborers $\frac{1}{2}$ "

577.4 8 AM.

Gauge 578.0 7 PM.

Jan. 6

1 foreman

1 pumpcrete operator

1 electrician

4 laborers

Gauge 578.7

Jan 7

1 foreman
1 pump & cte man
1 electrician
3 carp's
6 lab's
6 " rcint.
1 fore "

Mix 510 sand

160 $\frac{3}{4}$

160 $\frac{1}{2}$

Jan Gauge 5-79.3

Spw. out in night

12

Jan 8

4 carp's
5 lab's
1 fore } steel
4 lab's }

Gauge AM. 5-78.0

Jan. 9

1 mixer man, 12 labs. at mixer

1 pumper etc oper., 8 labs. tunnel

4 carp's.

3 truck dr's, 10 lab's.

Tunnel invert from sta.

3+17 to 4+20.6 & part of side
wall

Gauge 578.3

rec'd 500 sacks cement

13
Jan. 10

Form pour sta. 3+15.

Mixer crew - 1 mixer man, 10 lab's.

Tunnel 1 pumper etc 8 lab's

3 truck dr's, 3 carp's.

Poured remainder of wall to
springline between sta's

3+17 & 4+20.6.

Gauge 578.5

see sacks on hand.

Jan. 11

1 fore, 1 pumperete oper.
1 finisher, 2 carp's., 6 laborers
No coner. reinforcing forms
setting timbers & painting

14
Jan 12

Mixer - 1 mixer man
6 lab's.
Trench 1 gun oper, 3 carp's.
7 lab's.
completed pour to sta.
3+47 (crown)
371 bags cem.

Jan. 14

Steel 1 fore, 8 slabs
Forms 3 carp's, 2 helpers
Cleanup 2 slabs, 1 truck

15

Jan. 15

Steel 1 foreman 3 slabs part
time
5 carp's on forms sta
3+17 to 4+20.6
5 slabs. P.C. man, electr.

P.M. 1 fore, 3 carp's, 6 slabs
drilled & set diaphragm for pump
completed bracing forms
from 4+20-5+00, cleanup
and strip arch sta. ~~3+17~~ 3+23
3+13

Jan. 16

Mixer 1 mix. man, 8 slabs.

Tunnel 8 slabs, placing

4 carps, 1 helper

Com. pour 4120-5400 at

12:30 P.M.

16
Jan. 17

1 foreman

2 carps

1 pumperete man

1 electrician

1 welder

4 laborers

crew knocked off

at noon

Jan. 18

1 foreman
1 pumper & tanner
1 electrician
2 carpenters
1 welder
5 laborers

17
Jan. 19

1 foreman
4 carpenters
1 pumper & operator
1 welder
1 electrician
8 laborers
1 fore } reinf. steel
6 lab. }

Jan. 20

elect. & pump man
1 fore, 6 lab. steel

Jan 21

1 foreman
 1 pumpcrete oper.
 1 electrician
 3 carpenters
 6 laborers
 cleaning up setting form

Jan 22

60% 2" max 1190
 40% 3/4" " 60
 714.00
 60-10 sand 1190
 476
 714
 60
 928.40
 714
 286
 176 sand
 1 carp's
 reg force
 4 laborers 7 1/2 hrs,
 15 laborers 1 1/2 "

296	2.16	29.6
60	60	1776
177.60	129.60	1002
6	6	
10656	7776	

Jan. 23

Mix with new aggregate

totaling 1140'

sand 460"

3/4" 250"

2" 430"

19
June 24

mixer & laborers

tunnel 7 "

1 truck (cem.)

4 cars

com. & tin. 2 PM.

Mix 980 sand

230 3/4"

430 2"

Jan. 25

Pipe 2x10 1 gal. bucket 41"

2x6 1 pint " 1'07"

Crew 1 fore.

1 electr.

1 pumpcrete oper.

1 welder

5 carpenters

2 laborers

1 foreman } reinf. steel

6 laborers }

20

Jan. 26

Mixer 10 laborers

Tunnel - 8 slabs, 4 carp's

reg. force

poured invert from

sta. 5+61 to 6+33

Jan. 27

1 foreman
1 electr.
1 welder
3 carp's
1 laborer

Setting arch forms from
sta 4+79 to 5+54.

21
Jan. 28

1 foreman
1 mixerman
1 electrician
1 welder
1 pumpman
2 truck drivers
10 labe. at mixer
7 " in tunnel
5 carp's

Poured sec. sta. 4+79 to
sta 5+54 (arch)

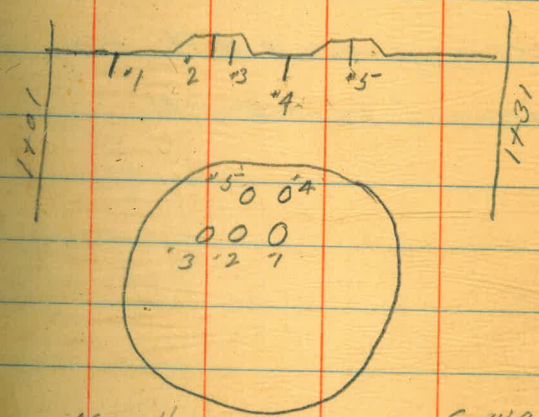
Jan 29

- 1 foreman
- 1 mixer man
- 4 carpenters
- 1 electr.
- 1 welder
- 1 p.e. man
- 2 truck drivers
- 8 laborers at mixer
- 7 " in tunnel

Arch pour sta. 4+22 to 5+54
 comm. pour 10 A.M. fin. 4 P.M.

Jan 30

Pipe 2410 - 1 gal. bucket 35"



N. wall	S. wall
0'1	0'1
0'5	0'2
0'2	0'50

- 1 fore. 4 carps. 3 lab's
- req. force
- 1 fore. slab steel

Jan. 31

Mixer - 10 lab's 2 fr. dr's

Tunnel 8 lab's.

4 carps

com. pour 8 AM. tin

invert 12:50 PM.

Feb. 1

Tunnel 5 carpenters

2 laborers

1 welder

1 electrician

1 truck

Feb. 2.

1 foreman
1 pumperete operator
1 electrician
1 mixerman
2 carpenters
1 truckdriver
7 laborers at mixer
7 " in tunnel
1 welder

Com. concr. 8 A.M. to 2:45

P.M. sta. 6+54 to 6+29

crowd section 422 sacks
cement.

24

Feb. 4

1 foreman
1 finisher
1 electrician
1 welder
2 carpenters
1 laborer
1 truckdriver

Removing forms from
last invert section, moved
ramp, cleanup and plastering
pipe sta. 2+10 1 gal. 35"

Feb. 5-

1 taraman
1 electrician
1 welder
5 carpenters
1 wate pumpman
2 laborers

25
Feb. 6

Gen. overhead as usual.
Mixer - 1 M.M. 9/abs.
Tunnel - 2 carp's 5/abs.
Poured arch sec. 6+29 to
2+00 - con 8:30 AM. Fin 3:30 PM.
cement sec
1 gal., 34 sec. pipe at 2+10

Feb. 7

1 foreman
1 mixer man
1 electric
1 welder
2 carp
1 pumpman
1 truck driver
6 lbs at mixer
5 " in tunnel
Com. last crown pour at
10:30 A.M. Fin. 5:30 P.M.
Photo "1" concrete plant 11 AM
" 2 " " " "
Photo "3" pumpcrete in tunnel 11 AM
" 4 crown pour " "

26

Feb. 8

1 foreman
1 electric
1 pumpman
1 welder
1 truck driver
pipe at 2+10, 9 A.M. 50 gal.
30"

Feb. 9.

1 foreman
1 pumpman
1 electr.
1 welder
4 labs.

clean up work.

Feb. 11

1 foreman
1 electr.
1 pumpman
2 trucks & drivers
2 laborers

Pipe 2410 1 gal. 37"

Feb. 12

Photo's	Pumpcrete	10 AM	19.4	Invert	4+14	-	7.8	ct.
Well	D	Flr		Crew	"	3+93	3.8	"
1	72.6	590.8		6631	"	3+72	0.4	"
3	117.8	625.3		7431	S side	4+06	0.0	"
						4+03	0.0	"
5	104.8	604.2		7090	"	4+03	Arab	66.0
								Av. 40
6	82.5	619.5		7020	N side	4+03	1.0	1.0
1	Foreman					3+88	1.2	
1	electrician					Torch	3+52	4.0
								2.2
1	pumpman					"	3+40	3.8
1	welder					S. side	3+49	2.5
1	truck driver					"	3+38	2.7
3	laborers					N. side	"	1.0

Feb. 13

Crew 1 fore, 1 electrician
1 groutman, 1 welder
4 abs.
Pipe 7+10 1 gal. 40"

Feb. 14

2+77 S. side 3.2 C.F.
 2+58 invert 1.0 " " 4.0 C.F.
 2+58 N. side 10.2 " 11 1/2

2+17 S. side 17.1
 See report at shift #2

3.0
 4.0
 2.1, 1.4, 1.3

air end spurt at 17:22
 not observed in others

2+34 N. side 1.0 C.F.

Air applied to this pipe
 showed at 2+08 + 1+98
 after blowing pot was
 charged but before air
 applied compr. broke
 down unable to force
 grout thru

2+08 N. side 7.2 C.F.
 2+18 " 0.0 "
 2+35 invert 1.2 "
 2+17 " 1.1 "

Feb. 15 cutt

Feb. 16

1+27 N. side	1.0 ²	9:30	4+91 invert	1.0	cutt.	
1+39 "	1.0 ²	10 AM	5+12 "	"	"	1
1+38 "	1.0 ²	10:15	5+31 "	"	"	
1+37 S. "	1.0	10:20	5+15 N. side	"	"	
1+39 invert	1.0	10:45	5+18 "	2.2	$\frac{1}{2}$	
1+58 "	"	11 AM	5+29 "	4.0		
1+78 "	"	11:30 AM	5+52 invert	19.7	19.7	2.5 in pot 1" 4
4+13 crown	36.9	11:11	5+65 "	2.0		
Used 40 sacks cement			5+67 N. side	0.1		12 H
1 foreman			5+82 S. "	18.0	12:45	3, 3, 32, 4 4, 3, 4, 2 0.5
1 electr.			6+03 S. "	1.0	1:15	
1 welder			5+66 invert	1.0		
			5+90 invert	1.0		
1 grout man			6+10 "	0.5		
3 laborers			6+28 "	0.5		
Air applied at 1+87 showed at			6+47 "	1.0		
1+39, 1+40 N. side			6+44 N. Side	1.0	2:30	
1+37 S. side & 1+38			6+53 "	2.1	2:45	
invert						

Feb 17

6+70

1.0 cu. ft.

sta. Location Grout et.

6+90

1.0 "

5+75 Arch Trail

cement 37 sacks

61.1

60 sacks from city

~~|||||~~
~~|||||~~
~~|||||~~
 285.6 Cu. Ft.

1 foreman

74 " "

1 electr.

66 " "

200

1 welder

197 sacks cement

1 groutman

1 foreman

4 laborers

1 electrician

1 groutman

1 compressor man

5 laborers

1 truck driver

Feb. 18

3+38	Barck wall	1.0	cult	4.0
2+79	"	1.0	"	1.0
2+75	"	25	3.4	14.5
2+60	Arch Trail	XXXXXXXXXX		

Cement 95 sacks

Total grout 142.5

Feb. 19

Com. 9 AM. Observed color after 3 batches, closed valve when stream remained colored after 6 batches. 9:30. closed valve at 1+38 at 9:45. Moved to 1+55 at 11:30 PM. began 12:15 tried lower trail to +5 N. & S. Moved to upper +5. 2:30 PM. 148 sacks cement 197.4 cult.

192.2 sacks cement

1 foreman, 1 grout man, 1 electrician, 5 laborers.

Foreman, welder hrs 2+60 56 c.f.

1 elec. hrs. 3" 1+38 87.4

" 5" 60

1+55 30

Feb. 20

1+38 Arch crown ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~
(14 pots) 58.8

*3 Plug. 4 pots 16.8

*2 refused 8.6

*1 2 pots 8.4

bypass 6 pots 25.2

Cement 84 sack 109.2

35 sacks returned to city camp

33

Feb. 21

Force a ect - 1 fore. 4 hrs.
1 carp. 8 hrs

1 " 6 "

1 helper 2 "

1 welder 7 hrs.

1 helper "

General 1 fore.

1 truck driver

4 laborers

Feb. 23

Walkway

1 fore. 4 hrs

2 carp's 8 "

1 " 5 "

1 laborer 8 hrs

1 truck + driver 8 hrs

cutting off pipe

1 finisher 8 hrs

1 lab. "

General

1 fore. 4 hrs

4 laborers

Feb. 24

1 dectr.

1 finisher } fore & dectr.
1 laborer }

Feb. 25

1 fore.
1 electrician
2 carpenters
1 truck driver
1 laborer

General cleanup and
hanging flanges.

35

Feb. 26

1 foreman
5 men

Hanging flanges and
loading out equip.

Feb. 27

Photo "6" City crew
grouting at spot
9 AM. 1" - 16"

1 fore. 4 men loading
out equip, on flanges

Feb. 28

1 fore. part time -

1+37 4+32

1+55 4+54

1+71 4+75

1+73 5+03

2+15 5+27

2+39 5+49

2+62 5+71

2+86 5+95

3+07 6+16

3+28 6+39

3+49 6+63

3+71 6+85

3+93

4+15

March 1.

Dip at W. end tunnel
 Lining $\frac{7}{8}$ gal. 1' 26"
 Springs - $\frac{7}{8}$ gal. 30"
 Cippolatti weir - see J.W.
 1 truck & driver, 1 electr
 1 laborer - equip,

March 5

Vons cabin 1 2 $\frac{1}{2}$ x 4 table
 1 cot & mattress
 1 chair
 1 sheet iron stove
 Manns 1 2 $\frac{1}{2}$ x 4 table
 1 cot
 1 chair
 1 sheet iron stove

March 6

Quarry

458' 4" 1.12. screw pipe

233 2" " " " (uncorrad)

74 2" " " " " "

76⁵police camp
3" wld jt. pipe

21.6 16.7 19.9 21.4 19.9

18.5 22.8 21.5 19.3 22.2

21.5 20.0 21.0 17.3 22.8

21.7 21.0 19.6 21.0 19.0

19.7 19.8 18.4 21.8 83.9

17.3 10.3 22.8 22.1

22.0 17.3 22.2 22.2

14.0 127.9 145.4 145.1

18.0 (hole flange)

21.2 238.4

22.6 127.9

17.3 145.4

145.1

83.9

235.4 737.7

40' 2" screw 739.0

42' 4" " "

March 6

~~2-3~~ 3-3" stop valves needed

24-1" couplings "

48-2" " "

24-1" caps "

Toldeo - 1 stock bar dyes

1 1/2-2" dyes on hand

1" & 1 1/4" needed

Cholla - get 1/2 & 3/4 dyes

52' 3" pipe under road at Golden

66' at Eng's camp from sprinkling system

March 6

Material in city store house

✓ 1 - 2" - 1 $\frac{1}{2}$ " coupling reducer ✓ 1 $\frac{1}{2}$ " plug

✓ 1 - 2" - 1" reducer

✓ 1 piece 1 $\frac{1}{2}$ " pipe 10"

✓ 1 - 1" sprinkling nozzle

✓ 5 - 3 $\frac{1}{2}$ " coupling✓ 2 - 3 $\frac{1}{2}$ " caps

✓ 2 - 2x3 reducers

✓ 1 - oil tawcet with 3 $\frac{1}{4}$ " pipe conn

✓ 1 - 2" gate valve

✓ 1 - 2" plug

✓ 1 - 1" globe valve

✓ 1 - 1" valve with 3 $\frac{1}{4}$ " reducer✓ 1 - 3 $\frac{1}{4}$ " "✓ 1 - 1 $\frac{1}{2}$ " - 1" reducer

✓ 1 - 1" - union

✓ 1 - 1" T

✓ 2 - 1" 90° bends

✓ 1 - 1" coupling

✓ 2" hose conn ✓ 1 - 1" x 6" nipple

March 7

Flange bolts - 42"

L. 7 $\frac{1}{2}$ "D. 1 $\frac{1}{2}$ "Nut 2 $\frac{3}{8}$ "

No. 36

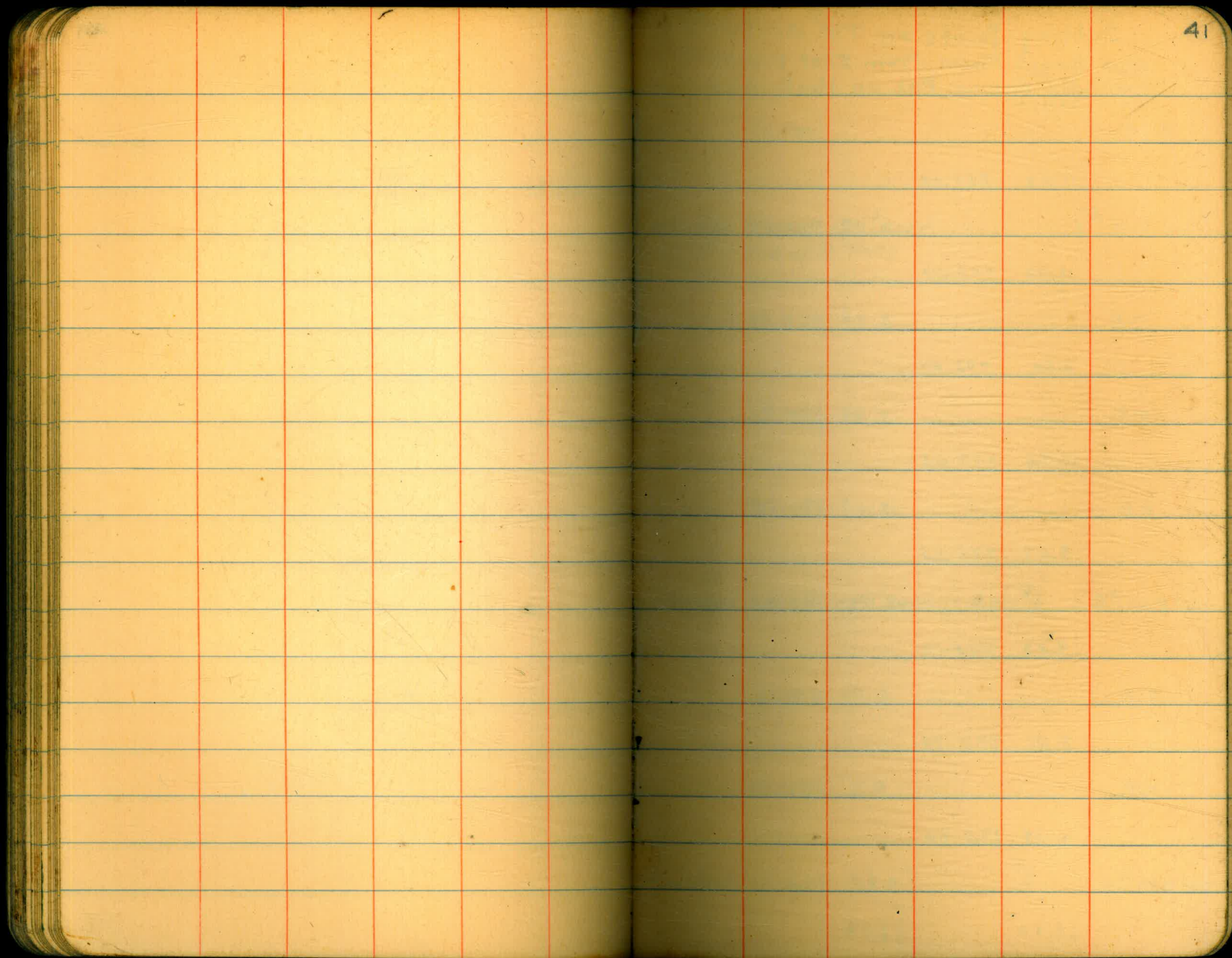
Cippolatti weir 1 $\frac{1}{2}$ "

March 10

Cippolletti weir 1 1/4"

Seepage 700 7/8 gal 1' 25"

Spring 7 1/8 gal. 23"



Setting Points on 770' Contour
 And Bench Marks, From East End of
 Spillway Around Res. on North Side

764.75
 749.89
 +14.86

69.40
 54.54
 +14.86

B.M.		749.89	
	11.28	761.17	
Set B.M. #1	0.28	760.89	High Point of Large Boulder 150' East of East end of Spillway
	12.78	773.67	
T.P.	3.78	769.89	
	6.20	776.09	
T.P.	5.38	770.71	
	12.94	783.65	
T.P.	12.07	771.58	
	3.67	775.25	
Set B.M. #2	10.56	764.69	Point on Boulder About 1000' East of B.M. #1
	9.43	774.12	
T.P.	2.76	771.36	
	8.41	779.77	
T.P.	9.76	770.01	
	4.69	774.70	
Set B.M. #3	9.95	764.75	Point on Boulder " " " " " #2
	69.40	54.54	

T.P. 764.75

75.05
67.14
+7.91

772.66
764.75
+7.91

10.94 775.69

T.P. 1.33 774.36

0.15 774.51

T.P. 5.45 769.06

6.42 775.48

Set B.M.#4 7.95 767.53 High Point of large Boulder

12.44 779.97

T.P. 5.16 774.81

5.17 779.98

T.P. 12.85 767.13

12.39 779.52

T.P. 6.15 773.37

5.90 779.27

Set B.M.#5 11.70 767.57 set in ground with Red Head in Top
ix² Marker.

12.15 779.72

About 700' So. of Olive Orchard.

T.P. 9.71 770.01

9.49 779.50

75.05 6.84

67.14

	779.50				
T.P.		6.84	778.66	✓	
	5.02	777.68			
Set B.M. #6		9.15	768.53	Point on	Boulder Above North End of Olive Orchard,
	9.47	778.00			
T.P.		8.65	769.35		
	12.08	781.43			
T.P.		11.39	770.04		
	12.83	782.87			
T.P.		11.53	771.34		
	6.60	777.94			
Set B.M. #7		12.35	765.59	Set in	State in Ground with Red Head in Top, About on Sec. Line Bet. Secs. 4-5 North of Borrow Pit 'K'
	11.27	776.86			
T.P.		8.74	768.12		
	12.53	780.65			
T.P.		11.18	769.47		
	7.88	777.35			
Set B.M. #8		11.48	765.87	Point on	Boulder 1000' East of B.M. #7
	77.68	84.47			

772.66	84.47
765.87	77.68
-6.79	-6.79

April-16-1935
Hill-Simpson
Soper-Remmen.

45

B.M.

765.87 ✓

12.00 777.87

10.15 767.92

10.13 777.85

7.81 770.04

9.37 779.41

1.80 777.61

12.58 790.19

Set B.M. #9

0.49 789.70 Top of

Boulder in Saddle North
of "Williams" Dam site.

0.42 790.12

12.51 777.61

1.98 779.59

9.62 769.97

9.94 779.91

9.89 770.02

11.01 781.03

11.03 770.00

67.43

63.30

770.00	67.43
765.87	63.30
+ 4.13	+ 4.13

April - 16 - 1935.

46

770.00 ✓

10.65 780.65

10.64 770.01

9.76 779.77

9.76 770.01

8.49 778.50

Set B.M. #10

6.88 771.62 Top of

Boulder About 1/2 Mi. North
of Junction of South Fork and
San Diego River.

5.35 776.97

11.43 765.54

9.58 775.12

5.06 770.06

12.68 782.74

Set B.M. #11

7.48 775.26 Top of

Boulder About 500' South of North
line Section 4.

1.06 776.32

12.98 763.34

12.28 775.62

3.22 772.40

69.85

67.45

69.85
17.45
+ 2.40

772.40
770.00
+ 2.40

April-17-1935.

47

772.40 ✓

7.33 779.73

9.64 770.09

11.91 782.00

12.01 769.99

8.03 778.02

T.P.

8.52 769.50

5.35 774.85

8.13 766.72

11.14 777.86

8.54 769.32

7.83 777.15

7.72 769.43

9.70 779.13

Set B.M. #12

11.63 767.50 Paint on Boulder

6.09 773.59

12.77 760.82 ✓

67.38

78.96

769.43
+ 1.49
770.92
1260
758.32
136
759.68
1287
746.81
11.81
49.81

78.96
67.38
- 11.58

772.40
760.82
- 11.58

April-17-1935

48

760.82

12.17 772.99

9.97 763.02

11.65 774.67

4.68 769.99

11.78 781.77

11.76 770.01

11.07 781.08

Set B.M. # 13

6.93 774.15 Point

of Boulder Opposite Remains
of Adobe Indian House on East side of River.

7.51 781.66

3.65 778.01

6.43 784.44

12.72 771.72

5.89 777.61

6.12 771.49

7.27 778.76

12.44 766.32 ✓

73.77

68.27

73.77
68.27
+ 5.50

766.32
760.82
+ 5.50

766.32 ✓

7.86 774.18

6.61 767.57

4.88 772.45

3.97 768.48

8.82 777.30

9.08 768.22

8.31 776.53

8.11 768.42

12.57 780.99

10.97 770.02

12.42 782.44

Set B.M. #14

8.36 774.08 →

8.10 782.18

12.20 769.98

12.29 782.27

9.26 773.01 ✓

75.25

68.56

on Boulder on North side of wooded Ravine
 About ½ Mi. So. of Old School House.

$$\begin{array}{r} 75.25 \\ 68.56 \\ + 6.69 \\ \hline \end{array}$$

$$\begin{array}{r} 773.01 \\ 766.32 \\ + 6.69 \\ \hline \end{array}$$

		773.01
9.31	782.32	
		9.58 772.74
8.14	780.88	
		10.92 769.96
9.98	779.94	
		9.88 770.06
11.46	781.52	
		11.50 770.02
11.45	781.47	
		11.42 770.04
12.45	782.49	
		12.46 770.03
9.50	779.53	
		9.43 770.10
9.45	779.55	

Set B.M. # 15

81.74

11.12	768.43	Point on
8.6.32		

Boulder on Rocky Ridge
About 1/2 Mi. South of old church.

86.32	773.01
81.74	768.43
- 4.58	- 4.58

768.43

11.44 779.87

8.00 771.87

8.00 779.87

11.05 768.82

12.98 781.80

Set B.M. #16

10.02 771.78 Point on

Large Boulder Opposite old church.
25' East of a Live Oak Tree

6.49 778.27

8.77 769.50

9.43 778.93

T.R

10.03 768.90

11.38 780.28

10.05 770.23

10.53 780.76

10.75 770.01

10.46 780.47

10.49 769.98 ✓

80.71

79.16

$$\begin{array}{r} 80.71 \\ 79.16 \\ + 1.55 \\ \hline \end{array}$$

$$\begin{array}{r} 769.98 \\ 768.43 \\ + 1.55 \\ \hline \end{array}$$

769.98

12.72 782.70

12.71 769.99

9.97 779.96

9.91 770.05

11.02 781.07

11.05 770.02

9.28 779.30

9.28 770.02

10.49 780.51

Set B.M. #17

8.13 772.38 Point on Rock in Small Oak Grove.

7.43 779.81

10.83 768.98

10.68 779.66

9.69 769.97

7.92 777.89

7.80 770.09 ✓

79.51

79.40

79.51
79.40
+0.11

770.09
769.98
+0.11

0.11

770.09

~~8.83 778.92~~~~8.88 770.04~~~~11.30 781.34~~

770.09

11.63 781.72

11.68 770.04

8.73 778.77

6.41 772.36

7.91 780.27

10.25 770.02

8.64 778.66

8.67 769.99

7.86 777.85

7.78 770.07

6.23 776.30

9.63 766.67 ✓

51.00

54.42

$$\begin{array}{r} 54.42 \\ 51.00 \\ \hline -3.42 \end{array}$$

$$\begin{array}{r} 770.09 \\ 766.67 \\ \hline 3.42 \end{array}$$

		766.67
11.10	777.77	
		9.72 768.05
8.11	776.16	
T.P. "A"		6.15 770.01
" "B"		12.95 763.21
0.12	763.33	
		12.04 751.29
5.14	756.43	
		4.34 752.09 = check
T.P. "A"		770.01
11.75	781.76	
		5.24 776.52
11.60	788.12	
		12.91 775.21
2.27	777.48	
		7.27 770.21 ✓

752.09
6.92
<hr/> 759.04
- 1.21
<hr/> 757.83
+ 5.41
<hr/> 763.24
- 11.48
<hr/> 751.76
+ 1.27
<hr/> 753.03
- 2.37
<hr/> 750.66

31
17
<hr/> 1.8

181
119
<hr/> 52

on B.M. Set By P.O. G.
on Willow Tree in River Bottom.
Mkd. Elev. 752.0.

770.21

11.42 781.63

11.55 770.08

11.13 781.21

0.64 780.57

12.59 793.16

0.23 792.93

12.50 805.43

0.62 804.81

12.22 817.03

0.77 816.26

10.56 826.82

11.90 814.92

10.94 825.86

10.82 815.04

5.43 820.47

10.49 809.98 ✓

86.79

47.02

$$\begin{array}{r} 86.79 \\ 47.02 \\ + 39.77 \end{array}$$

$$\begin{array}{r} 809.98 \\ 170.21 \\ + 39.77 \end{array}$$

809.98

7.81 817.79

7.85 809.94

12.66 822.60

1.74 820.86

7.96 828.82

8.35 820.47

8.84 829.31

5.76 823.55

8.96 832.51

Set B.M.

5.03 827.48 on Top of Diverting Dam 21' East of the West End.

8.26 835.74

Set B.M.

7.67 828.07 on Top of Diverting Dam at West End

May-3-1935.

Elev's. on Tentative Road Crossing San Diego River
about 1 Mile Below Diverting Dam.

Hill-Simpson
Soper - Remmen.

57

B.M.	6.75	758.84		752.07	
T.P.			5.01	753.83	
	10.25	764.08			
459+55			12.4	51.7	in Main channel of River; Lowest Elev. of Crossing
460+10			11.3	52.8	channel near East Bank.
461+60			0.9	63.2	E of Present Traveled Road at intersection of Line Crossing River
T.P.			0.45	763.63	
	7.29	770.92			
T.P.			0.88	770.04	
	10.23	780.27			
			9.91	770.36	
	11.37	781.73			
			10.79	770.94	
	6.12	777.06			
	10.34	773.97		763.63	
			7.02	766.95	
	9.23	776.18			

May 3-1935

Tentative Road Location over Sand Creek
Tunnel on Flume Bench Location
(Tunnel #1)

12+13 = 366' No. of inlet Portal of Tunnel #1.
on Flume Bench.

- 5.0 %

6+00 =
5+35 =

+ 6.4 % ±

0+00 = 310' So. of Outlet Portal of Tunnel #1
on old Flume Bench (abandoned)

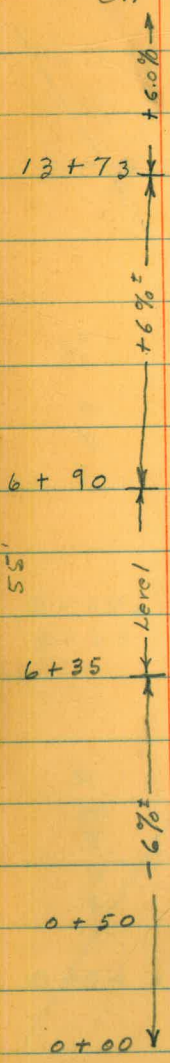
340' So. of Tunnel

+ 5.0% to 6+00

- 5.0% to 12+13

Tentative Road Location Crossing
Sand Creek And Over Tunnel #1
On Flume Bench Location

May-6-1935



6+90 = No Bank of Sand Creek. 127+60
Use Trestle Bridge Height 15'±. 127+80
6+35 = So. Bank of Sand Creek. 128+13
0+50 = B.C. of Curve at South end of Old Sand Creek Trestle.
0+00 = on old Flume Bench

Profile And Cross-Section of
Proposed Bridge Crossing Sand Creek. 59
6/18/35

B.M.			750.0
	6.1	756.1	
T.P.		8.2	747.9
	13.0	760.9	
T.P.		3.4	757.5
	10.5	768.0	
127+58	4.0 20	64.0 E 61.2	RT 59.5 8.5 20
T.P.	3.2	758.2	13.0 755.0
127+80	8.5 20	49.7 E 43.6	49.0 9.2 20
	5.3	E 52.1	52.4 5.8 20
128+01	6.7 20	6.1	
T.P.	8.0	765.8	0.4 757.8
128+18	5.0 20	60.8 E 61.9	61.9 3.9 20
128+95	4.1 20	61.7 4.1	4.1 20
129+20		Elev. 770±	

D. G. And Sandy Loam Formation. Suitable For Pile Trestle Bridge

Tentative Road Location Cont'd.

12+13 = 366' No. of inlet Portal of Tunnel #1
on Flume Bench.

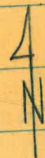
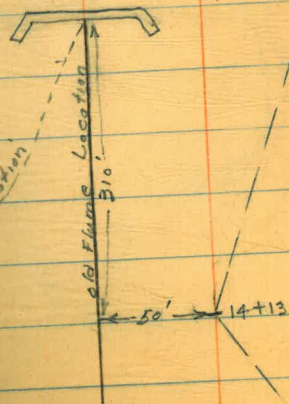
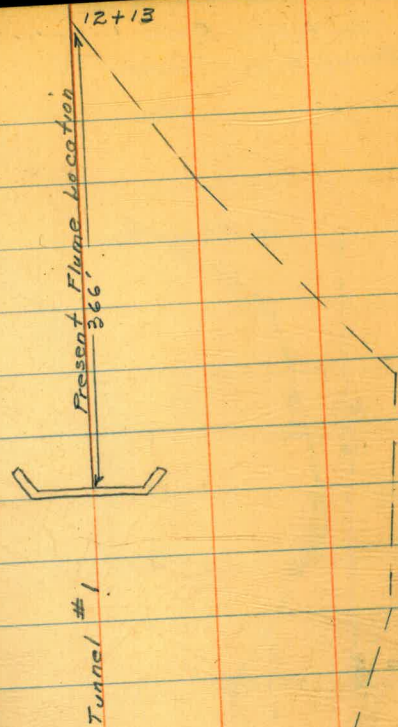
-5.0%

6+00 =
19+40

+5.7%

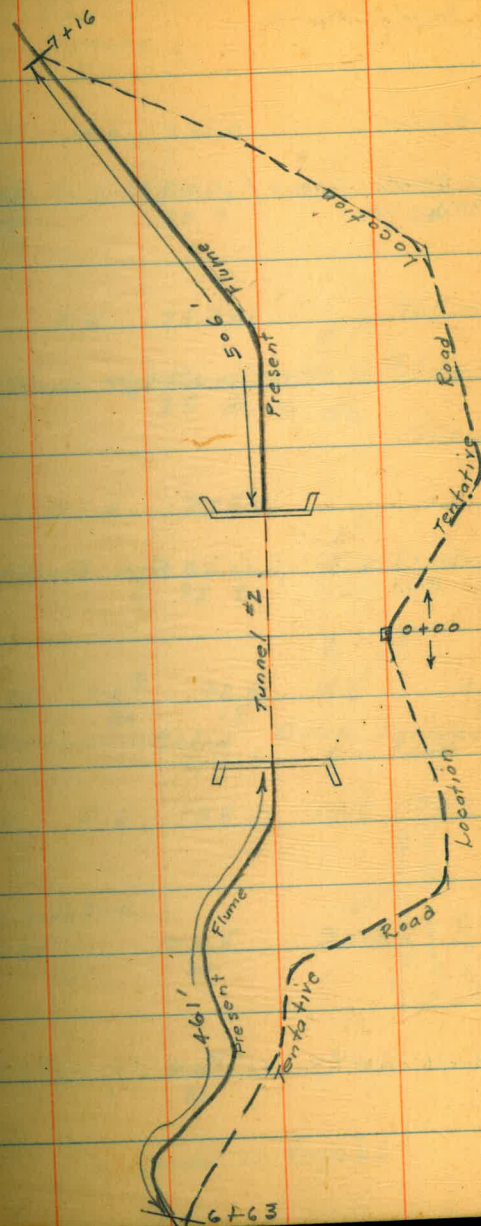
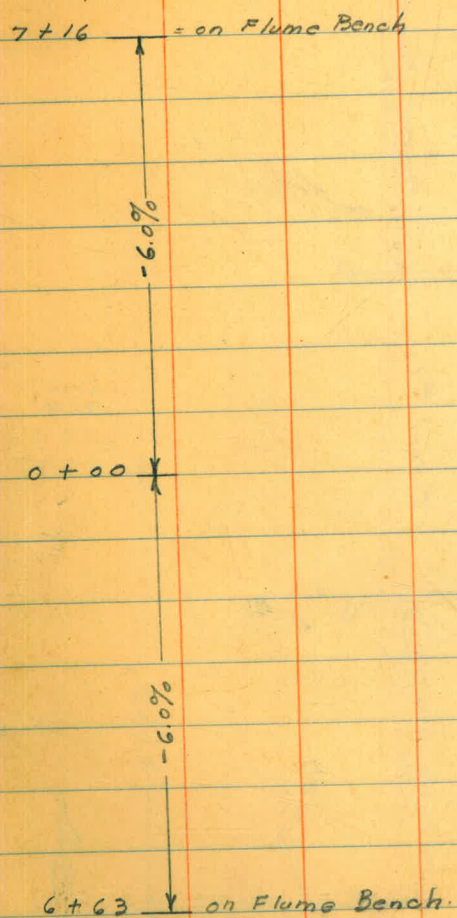
14+13 = 310' So. of Outlet Portal of Tunnel #1

+6.0%



Tentative Road Location From Flume
Bench over Tunnel #2.

May-6-1935.



Tentative Road Location Around
South Fork.

388+40 = South Side of South Fork Crossing.
Elev. 765±

Level

Use Pile Trestle Bridge with
1 - 50' Span.

386+78⁶⁸ = North Side of South Fork Crossing.
Elev. 765±

383+18

on old Flume -5%

Bench and C.C.C.
Road

(Flume Bench
Abandoned)

355+80 = North end South Fork Syphon

May-14-1935.
Hill - Simpson
Soper - Remmen

5.8

62

386+68 10.0 775.0

765.0 = Bridge,

386+68
Beg. of Bridge

+5.7 From
20 ±

£ 65.0

10.0 +1.1 From
20 ±

0.0 765.0

765.0

£ 52.0

386+93

+6.0 From
25 ±

13.0 752.0

-6.4 From
25 ±

752.0

0.0 752.0

387+13

+4.5 From
25 ±

£ 39.6

12.4 -0.4 From
25 ±

+26

-0.4
30

+2.4
15

£ 32.9

19.6

+1.2

+1.2

-25.0

Solid Rock Formation
Location for Bent.

T.P. 5.8 738.2 19.6 732.4

Bottom of South Fork.

+40

+0.5
30

07.4

30.8

-0.5

30

"

+65

+0.5
30

706.9

31.3

-0.5

30

Contd. on Page 63

Tentative Road Location Around
South Fork

420+36 = Flume Sta.
428+10 = South End of South Fork Syphon

On Flume Bench
Now in use
(Feeder Line
South Fork)

391+00 = on Flume Bench (Feeder Line)
South Fork.

+5%

388+40 = So. Side of South Fork Crossing
Elev. 765±

Contd. From Page 62

63

738.2

	Lf			Rt.		
	31.1	34.5	32.7	18.4	25.9	31.9
387+80	+6.2	+2.5	+6.8	-7.5	12.3	+6.0
	37	25	18	14		15
						17
						19

Solid Rock Formation
Location For Bent.

T.P. 3.5 741.7 0.0 738.2

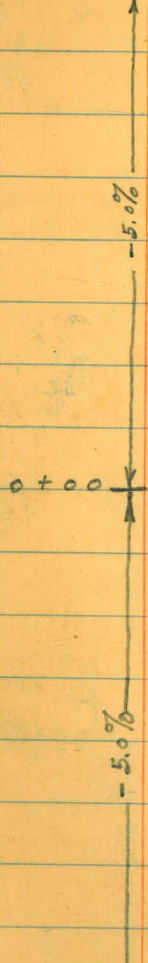
	35.4	39.0	37.9	41.7	39.1	32.1
388+00	-6.3	-2.7	-3.8	0.0	-2.6	-9.5
	34	28	10		25	32

			4.7			
388+20	-20.5	-5.5	751.8	-3.5	-0.2	-15.2
	30	25		16	22	32

			4.9			
388+40	-12.0	-7.0	765.0	-0.5	-6.2	
"End of Bridge South Side	35	25		10	25	

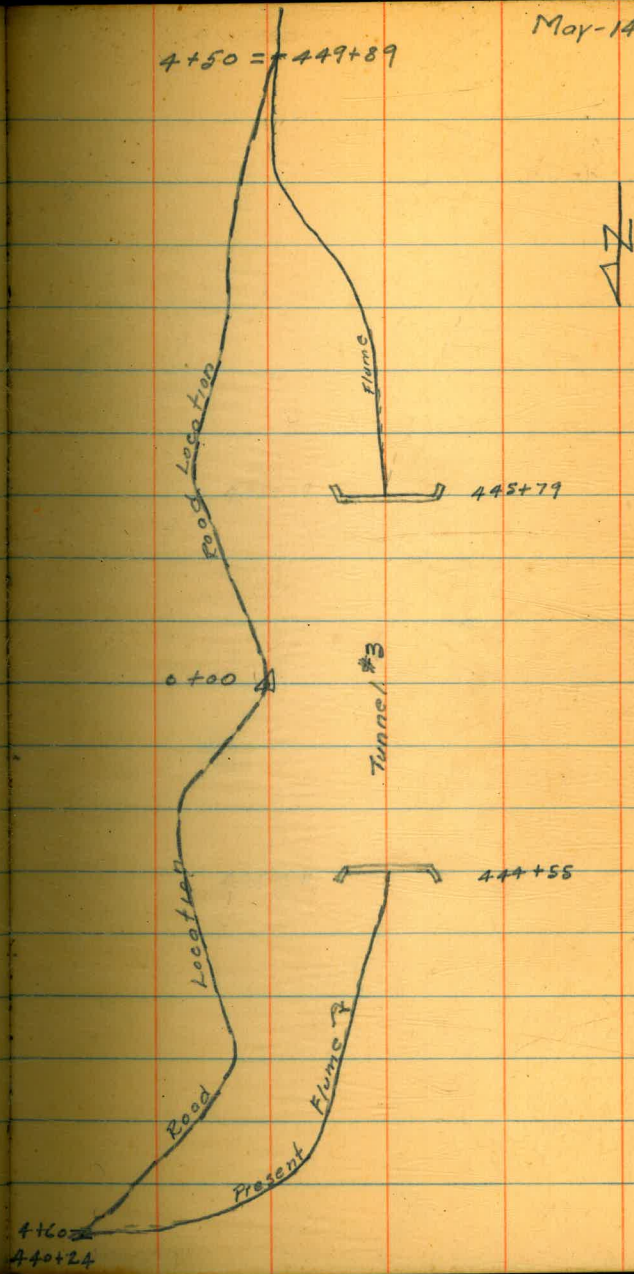
Tentative Road Location over
Tunnel #3

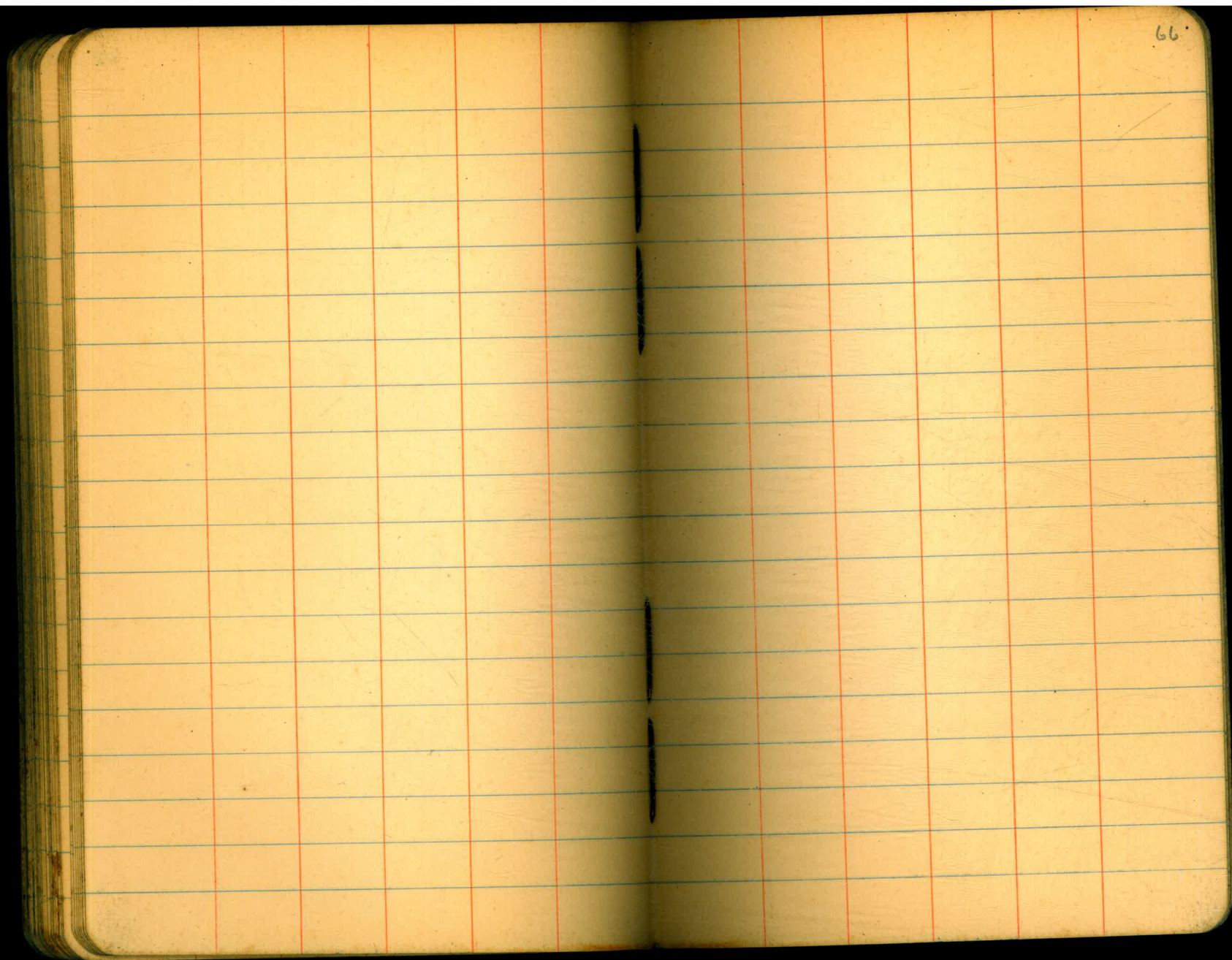
449+89 = Flume Sta.
4+50 on Flume Bench

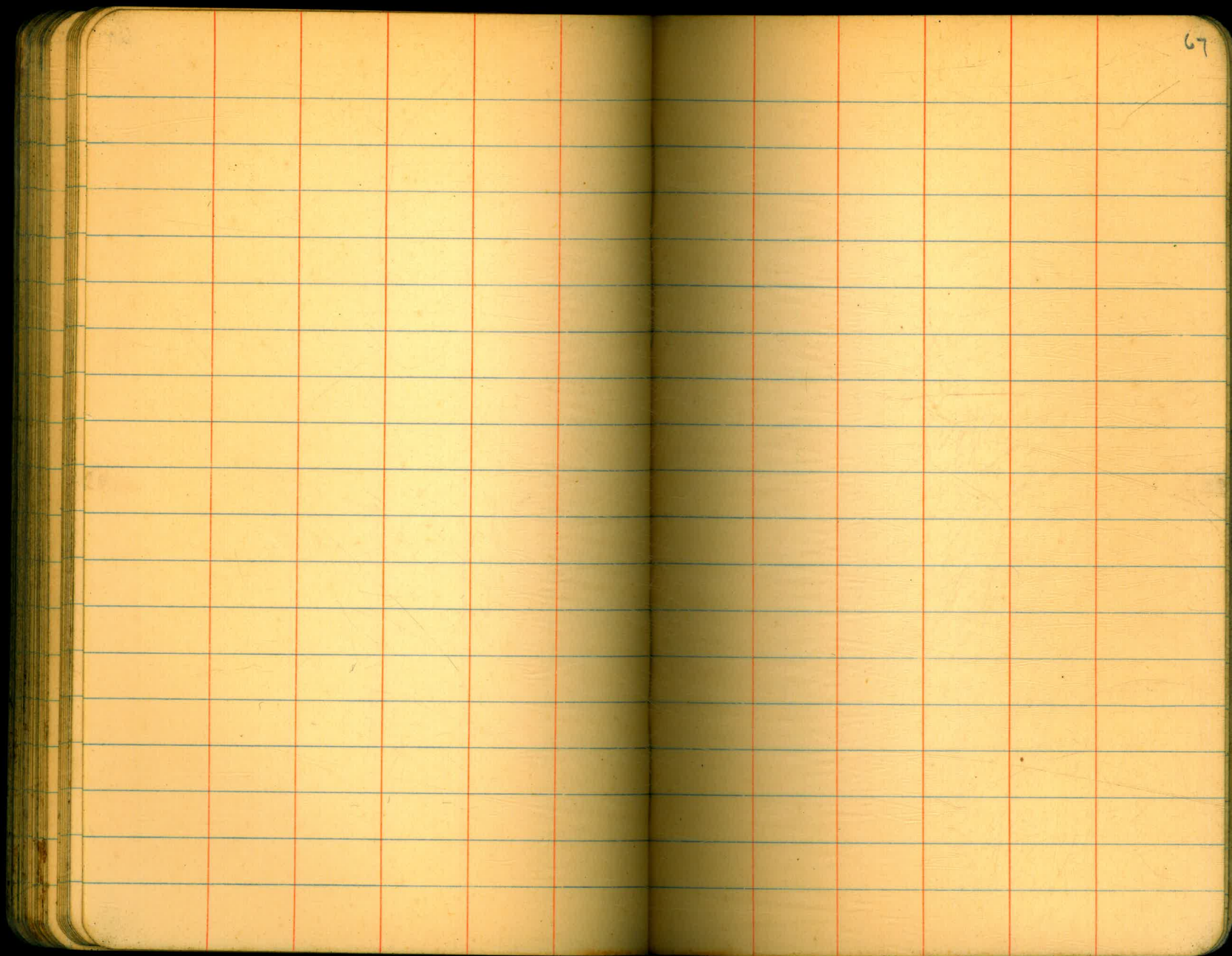


4+60 on Flume Bench
440+24 = Flume Sta.

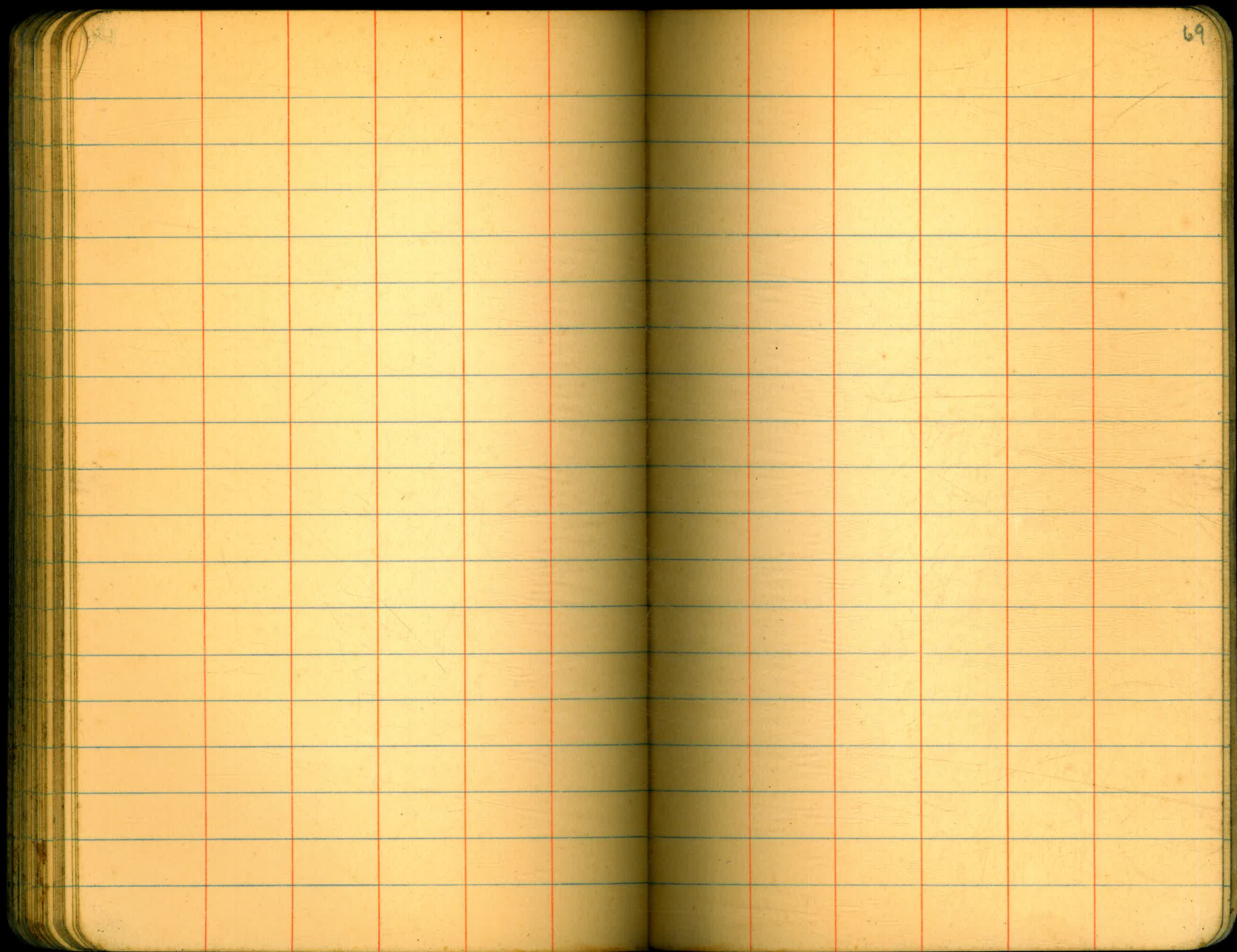
May-14-1935 64

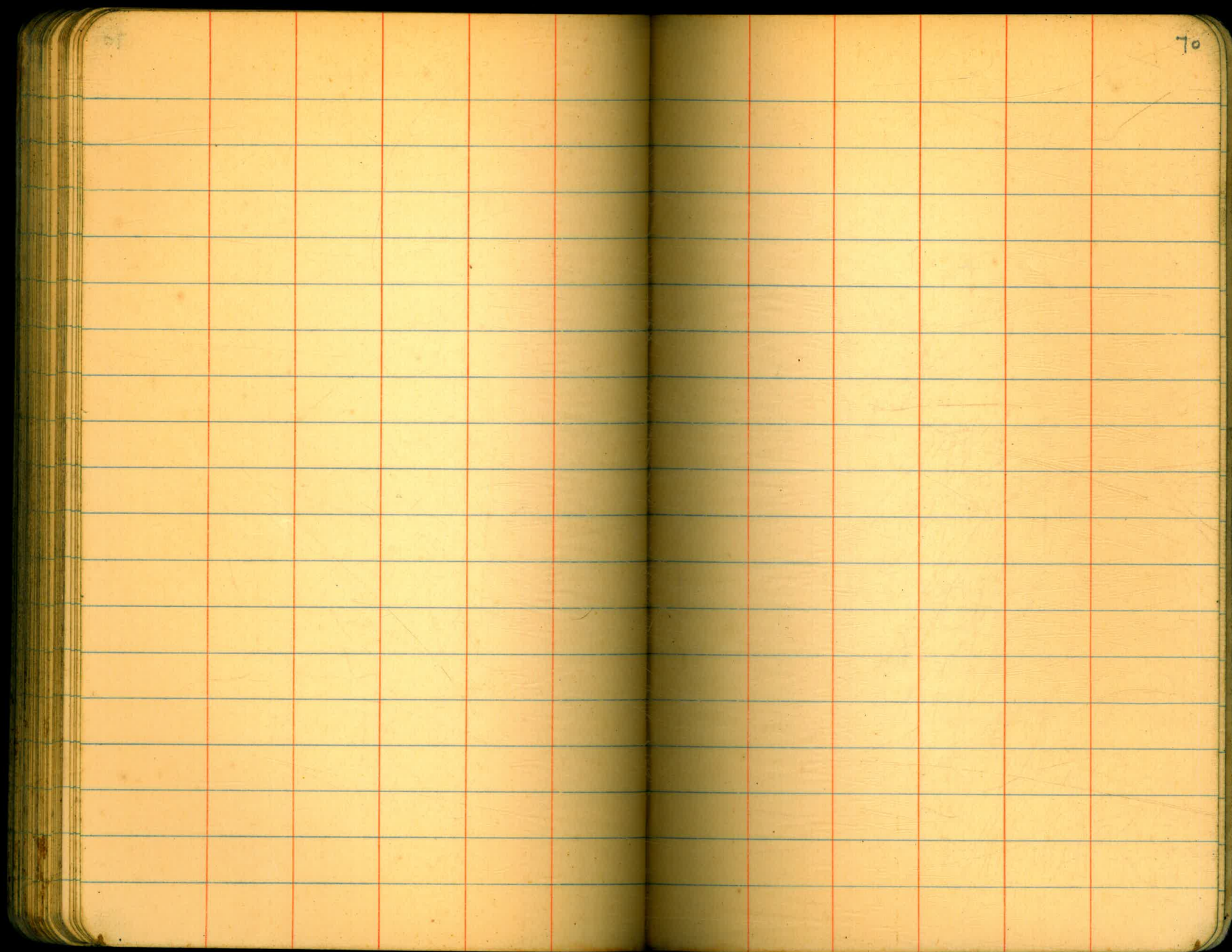


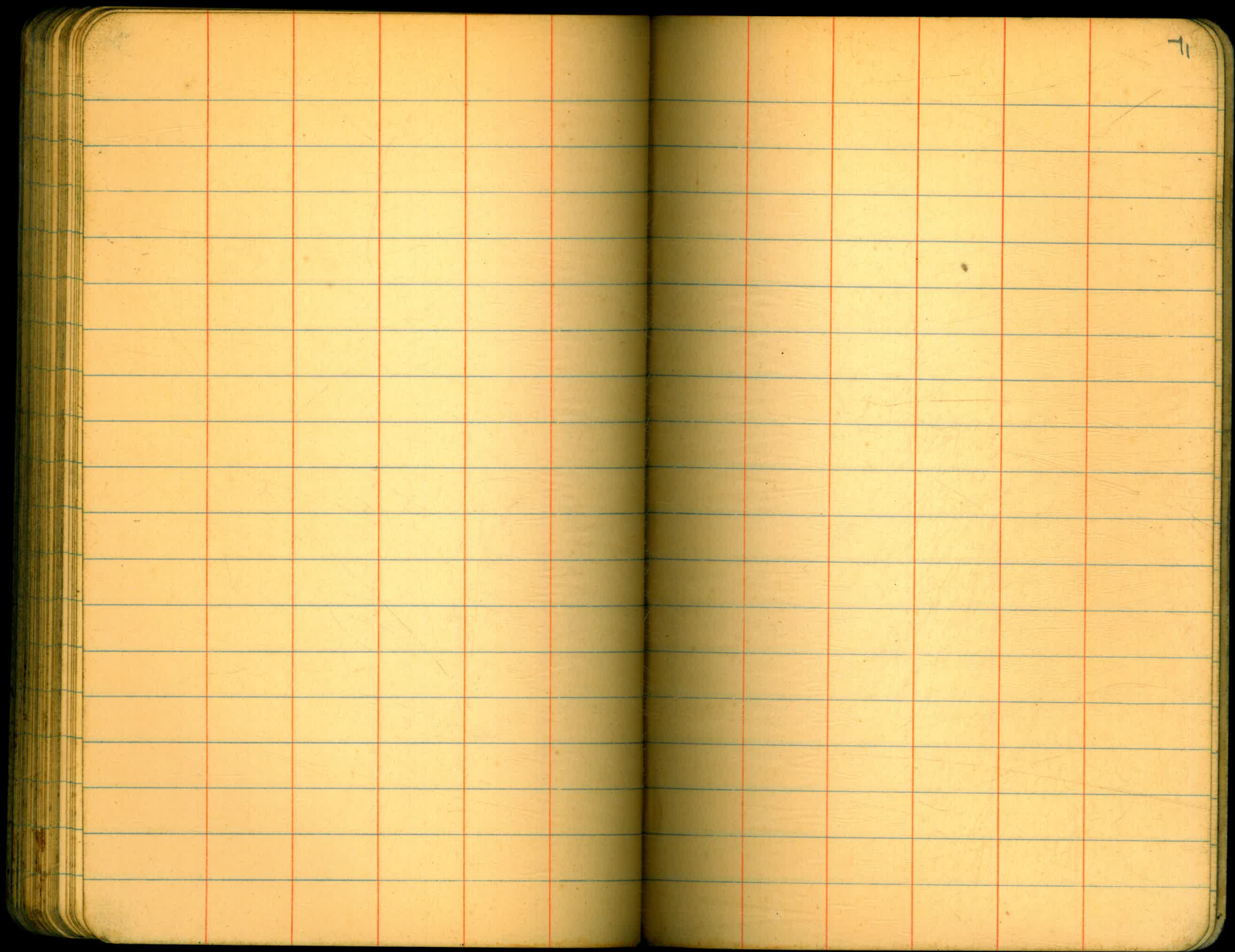




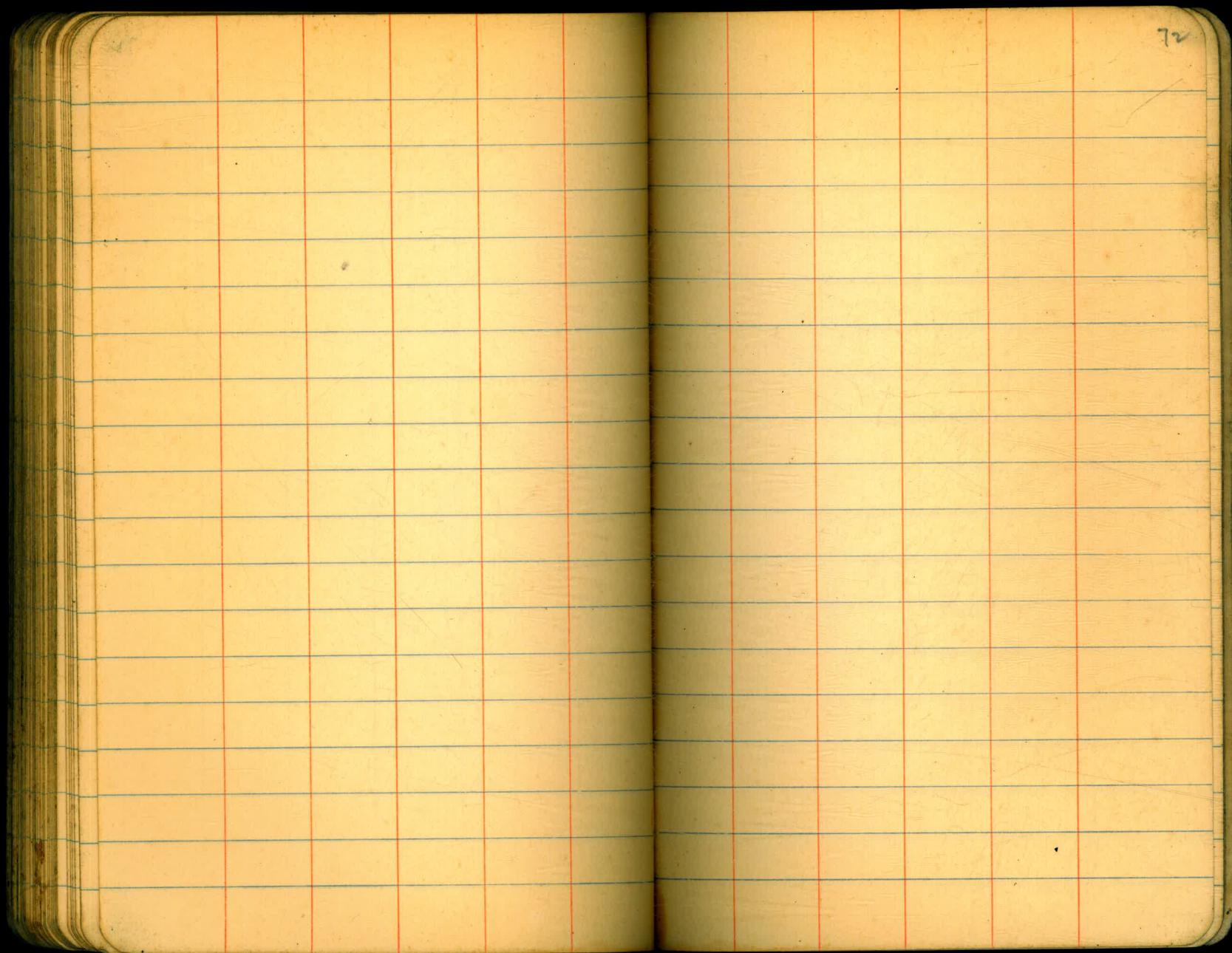
The image shows an open notebook with two facing pages. The pages are cream-colored and feature a grid of light blue horizontal lines and vertical red margin lines. The right page is numbered '68' in the top right corner. The notebook is bound in the center, and the edges of the pages are visible on the left side.



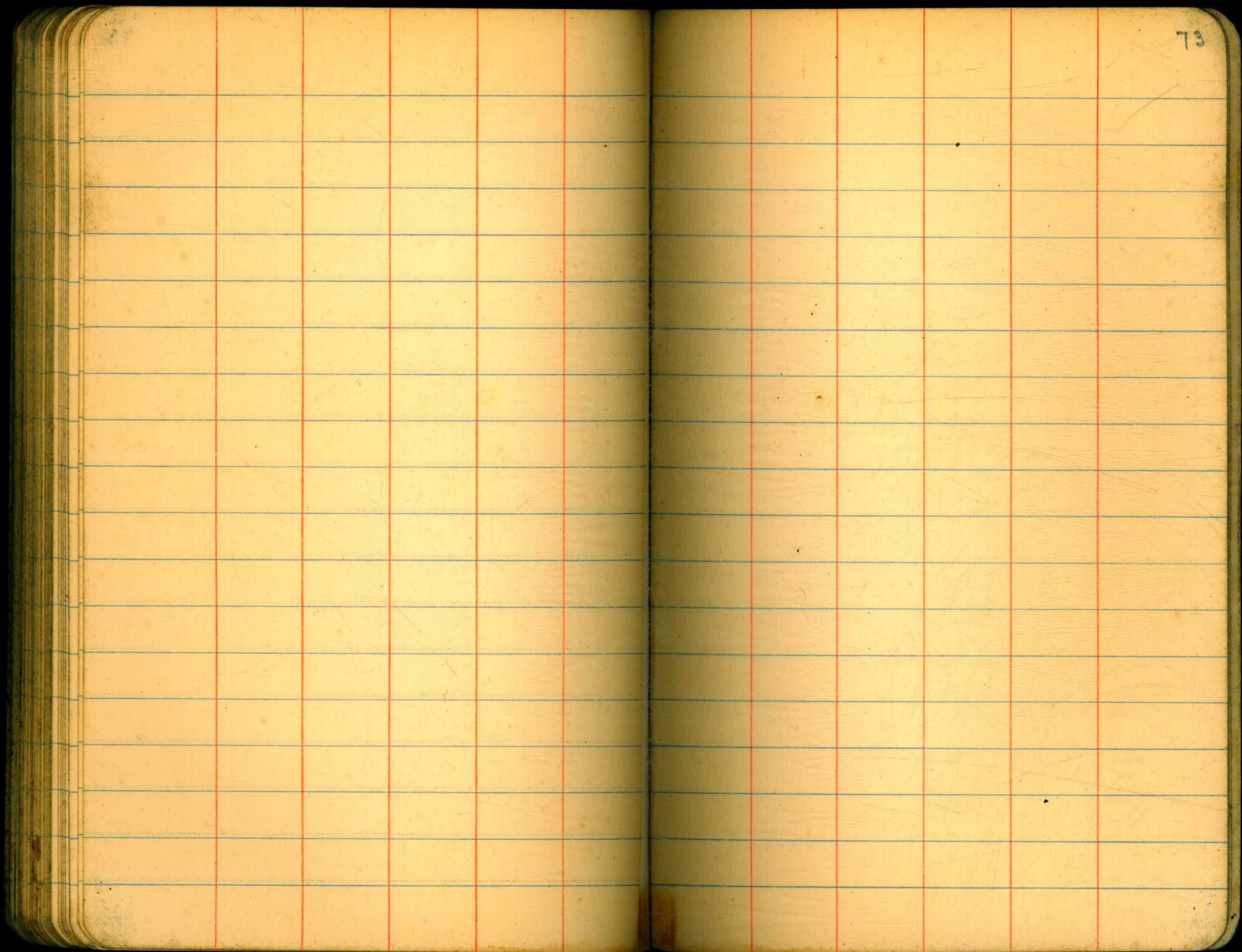


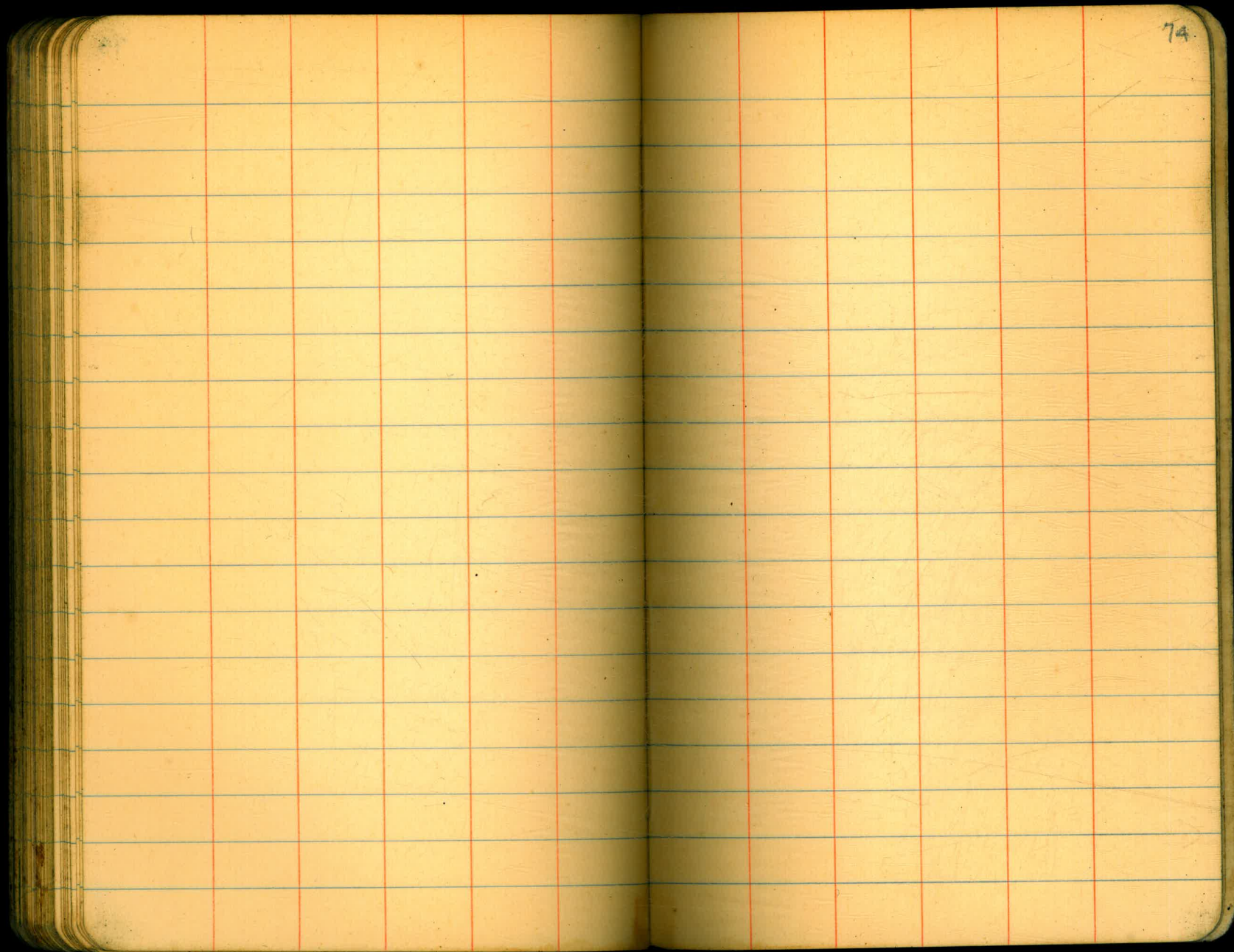


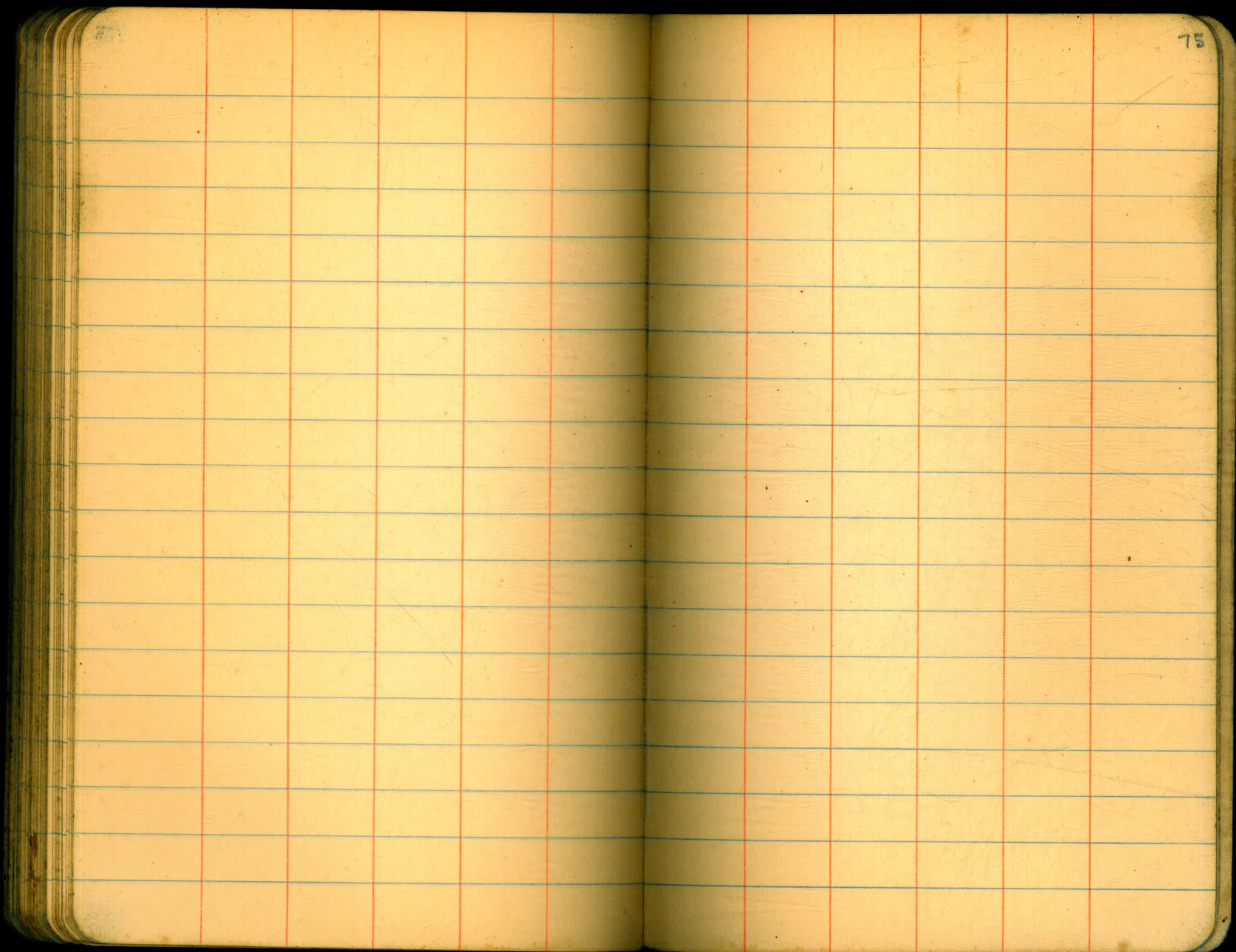
7

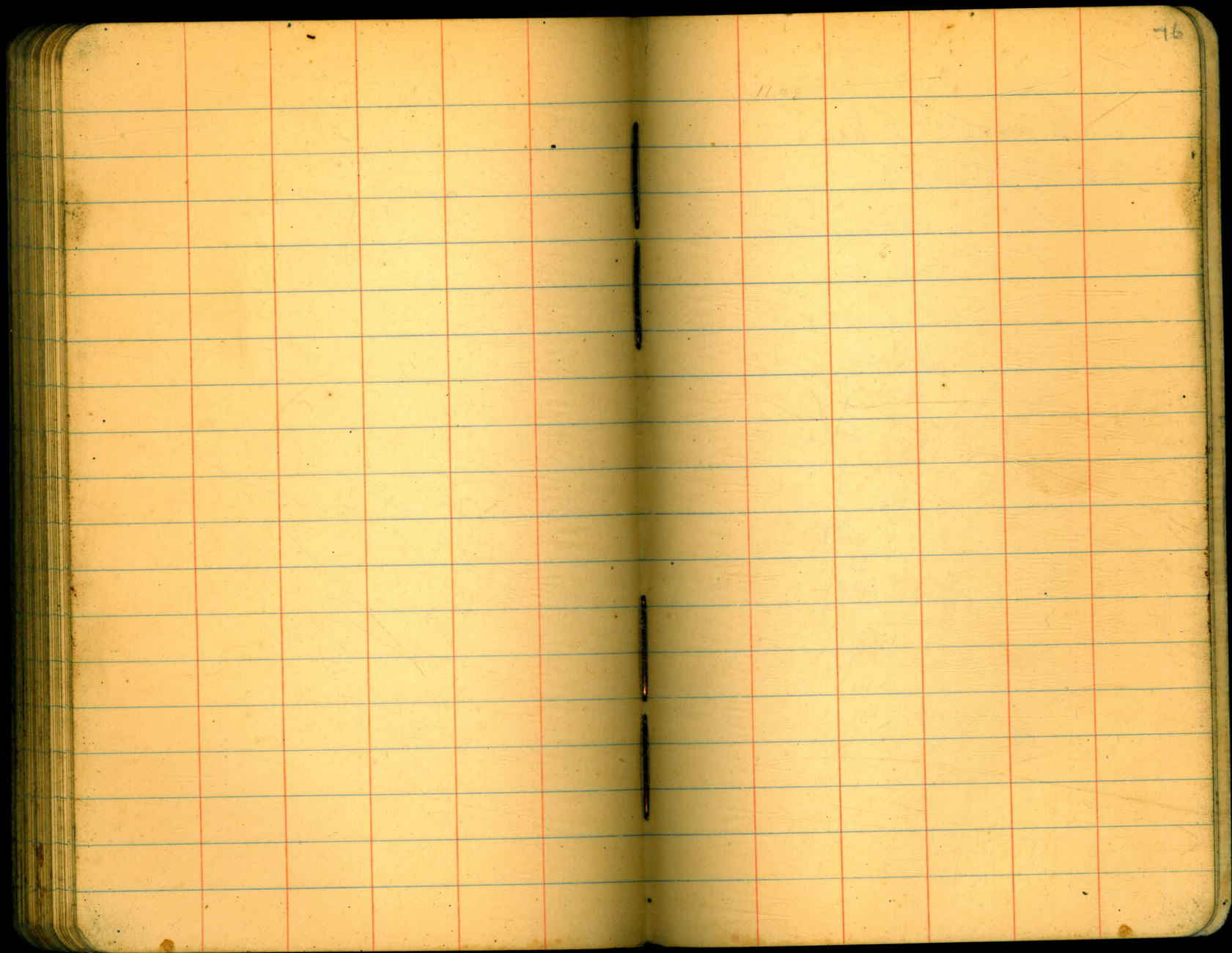


72









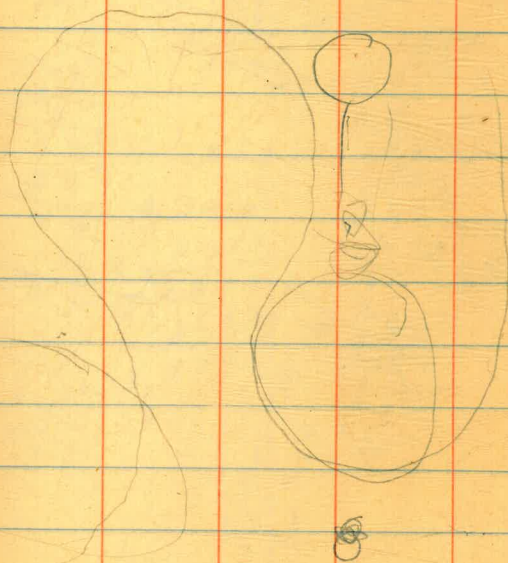
11/22

1 Welder 3 hrs

1 LABORER 3 hrs

1 Carpenter 3 "

1 welding outfit 3 hr



42
6
25.2

A²₁₄
16.8

13
5
65
3
68
42
30

Pot Full 4.3
" 2" from top 4.0*
" 4' " "

1A
4.2
28

56 8 30

54.8
16.4

18

81

26

18

25

4.2

109.2
109.

104
109.2

26
A²₁₂

5

104
109.2

1
27
28
5

142.5

30
17
47
42
94

188
197.4

765
40
805

1A2

78

71
71
71

497
5041

1.42
.50
1.90
95

1.42
20
1.62
81

.5
409

4.3000
2632
4.0368
2632
3.7736

31416

.604

125664

157080

15833664

95

3142

.0625

15710

6284

18852

196375-0

30

3.9500

2632

30

95

90

50

3000

150

55

42

110

220

231

158

2.5

790

316

3950

47

4.42

3.95

40

4.35

1316

30

95

90

50

3000

150

55

42

110

220

231

01

41
9
36.9

24
16

00² D.H. Wallace

El Cap. Lakeside PO.

2.16
75
1080
1512
162.00
6
972
650
322

212 750
71 150
212 378 46
148.2000 750. 46
1505.2 2500
750 2700

7500 314.6
1050 121
112500 41.6

430 314.6
3 22

1290 628.32
150 628.32

6450 628.32

1290 69
26) 93800

1131.32

1628.32

10.5
72.5

79

Mid. ord. in art form see

L. on arc. 10.5 ord. 1.23

212
24 1190
452 33.3 1190.00
3570 396.27
3570 793.73
396.270

2.96

72

592

2072

213.12

1272.6

24
18
192
24
432
8

216

666

1296

1296

14266

8666

59

336

18
7
126
3

216			230
70	475	480	250
157	20	460	460
6	160	450	500
907	1095	450	150
	20	500	1140
24	115	500	
		500	gross am.
		20	
		2900	
480	500		500
460	460		250
160	160	1.13	460
1000	5180		180
			20

113	1600	
	565	
	3549	4+20.6
	3290	70
	192	3+49.6
6/11	152	4120.6
		3+69
		73.6
		296
		4416
		6624
		1972
		2192
		28

1000		
1500		
2700		
	103500	38
	8100	
	22800	

80

2791	725	465
55	460	460
3472850	265	265
	11990	
	725	725
	3625	40
	1450	27000
	181.25	
	4	
	725	
	35	
	3625	725
	2175	60
	253.75	43500
	544	
	181	
	725	
	65	
	3625	
	4350	
	47125	
	27	
	125	
	152	
	22	
	17	
	154	
	22	
	374	
	187	
	561	
	168.	
	27	
	1729	
	54	
	189	

