KG
11365
925

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Notes pertaining to Photographic Instruments

No. 3. E. S. King.

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Wednesday April 6. 1904

Test of worm of 8-inch Draper Telescope

The method was similar to that used for the small cameras & for the 11-inch Draper Telescope. A rule graduated to mm and a metre long was placed on the west balcony of the East Equatorial, in the plane of the equator & at right angles to the collimation axis of the 8-inch Draper which was directed to the rule. The revolving arm of the governor was replaced by a piece of brass made solid with the shaft. Readings were made by means of the finder, using an eyepiece & fixed wire of a micrometer. It was so dark that the readings were made only to 0.1 cm. The readings were at intervals of 5 beats; ~~24 the~~ the effect. position was 3 30 2 Dec. $+25^\circ$ Tel W. Previous to experiment the junction at end of worm was thoroughly cleaned. Three positions of the worm were taken, "Down" in which the worm was directly against the R.A wheel, "½ rev" which was at a distance measured by the screw regulating the position of the worm, & "1 rev" at of the same screw.

R.A. plate motion set at 4 rev from the bottom down & check the latest at the latest on the moved eastward.

The reductions in the following pages are made on a basis that a revolution (120 beats) was measured by 33.6 cm. See Curves for last in

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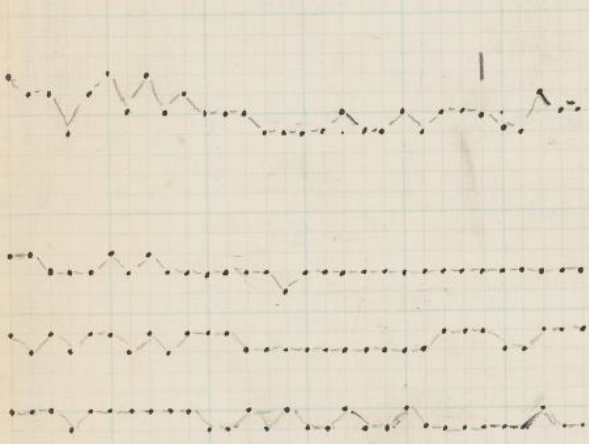
3 30 2

— 25 —

Wednesday April 6 1904

Off. — ½ rev.			Off. — 1 rev.		
.3	44.4	44.4	44.5	44.5	.12
.3	45.7	.3	45.9	.5	.11
.2	47.2	.4	47.3	.5	.11
.2	48.5	.3	48.6	.4	9
.2	50.0	.4	50.1	.5	.11
.3	51.4	.4	51.5	.5	.12
.3	52.7	.3	52.9	.5	.10
.3	54.2	.4	54.3	.5	.12
.2	55.5	.3	55.7	.5	.10
.2	57.0	.4	57.1	.5	.11
.2	58.4	.4	58.4	.4	10
.3	59.8	.4	59.8	.4	.10

Error of Worke of 8-inch Draper Telescope
April 6. 1904.



1 sec

1 sec

Sum of the 3 curves below

— Down
— Off ½ rev
— Off 1 rev.

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Wednesday April 6 1904

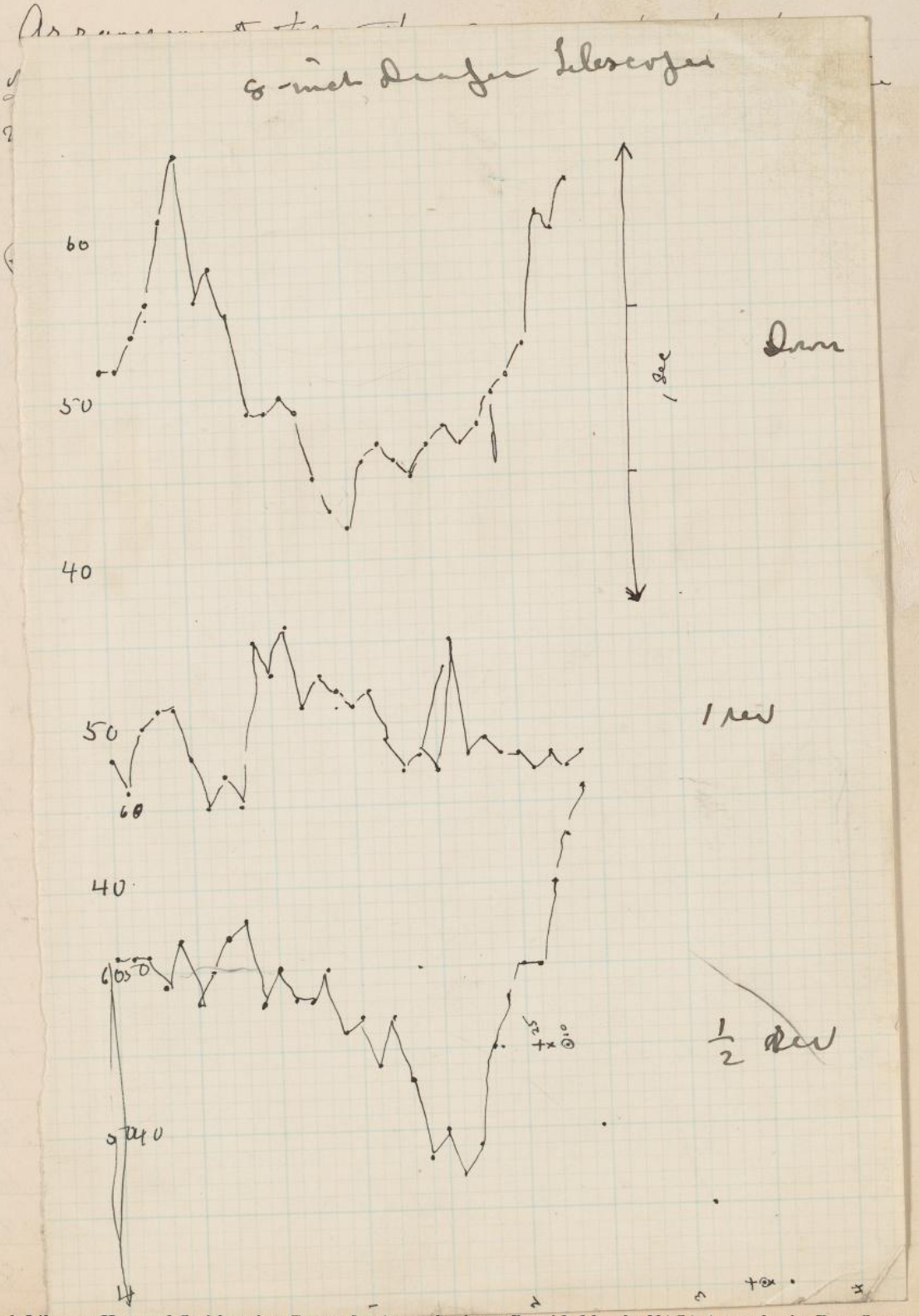
down			off. - ½ rev.			off. - 1 rev.		
44.3	44.3	.3	44.4	44.4		44.5	44.5	.12
45.7	44.3	.3	45.7	.3		45.9	.5	.11
47.0	44.2	.2	47.2	.4		47.3	.5	.11
48.4	44.2	.2	48.5	.3		48.6	.4	9
49.8	44.2	.2	50.0	.4		50.1	.5	.11
51.3	44.3	.3	51.4	.4		51.5	.5	.12
52.6	44.2	.3	52.7	.3		52.9	.5	.10
54.1	.3	.3	54.2	.4		54.3	.5	.12
55.4	.2	.2	55.5	.3		55.7	.5	.10
56.8	.2	.2	57.0	.4		57.1	.5	.11
58.2	.2	.2	58.4	.4		58.4	.4	10
59.6	.2	.3	59.8	.4		59.8	.4	.10
61.0	.2	.3	61.1	.3		61.3	.5	.10
62.4	.2	.3	62.5	.3		62.6	.4	.9
63.7	.1	.2	63.9	.3		64.1	.5	9
65.2	.2	.3	65.3	.3		65.4	.4	.9
66.6	.2	.3	66.7	.3		66.8	.4	.9
68.0	.2		68.1	.3		68.3	.5	.10
69.4	.2		69.5	.3		69.6	.4	.9
70.8	.2		70.9	.3		71.0	.4	.7
72.2	.2		72.3	.3		72.5	.5	.10
73.6	.2		73.7	.3		73.8	.4	.7
75.0	.2		75.2	.4		75.2	.4	.10
76.4	.2		76.6	.4		76.6	.4	.10
77.8	.2		78.0	.4		78.0	.4	.10
79.2	.2		79.3	.3		79.4	.4	.9
80.6	.2		80.7	.3		80.8	.4	9
82.0	.2		82.2	.4		82.3	.5	.11
83.4	.2		83.6	.4		83.6	.4	.10
84.8	.2		85.0	.4		85.0	.4	.10

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Friday April 8 1904

Testing worm of 8-inch Draper Telescope.



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Friday April 8 1904

½ rev.		1 rev.			down		
44.51	44 51	44.48	00	44.48	44.52	00	44.52
45.91	51	45.86	140	46	45.91	139	.52
47.~~20~~ 33	51	47.29	279 ~~289~~	50	47.32	278	.54
48.68	49	48.70	419	51	48.74	418	.56
50.10	52	50.09	538	51	50.18	557	.61
51.50	48	51.46	698	48	51.61	696	.65
52.88	50	52.83	838	45	52.91	835	.56
54.29	52	54.24	977	47	54.32	974	.58
55.70	53	55.63	1117	45	55.69	1114	.55
57.04	48	57.11	1256	55	57.02	1253	.49
58.46	50	58.49	1396	53	58.41	1392	.49
59.84	48	59.89	1536	56	59.81	1531	.50
61.23	48	61.26	1675	51	61.19	1670	.49
62.65	50	62.68	1815	53	62.55	1810	.45
64.00	46	64.07	1954	52	63.92	1949	.43
65.41	47	65.45	2094	51	65.30	2088	.42
66.~~87~~ 78	44	66.86	2234	52	66.73	2227	.46
68.20	47	68.22	2373	49	68.13	2366	.47
69.~~58~~ 56	43	69.60	2513	47	69.52	2506	.46
70.90	38	71.00	2652	48	70.90	2645	.45
72.32	40	72.39	2792	47	72.31	2784	.47
73.69	37	73.87	2932	55	73.71	2923	.48
75.10	39	75.19	3071	48	75.09	3062	.47
76.56	45	76.60	3211	49	76.50	3202	.48
~~78~~ 77.98	48	77.98	3350	48	77.91	3341	.50
79.40	50	79.38	3490	48	79.31	3480	.51
80.80	50	80.77	3630	47	80.72	3619	.53
82.24	55	82.17	3769	48	82.19	3758	.61
83.67	58	83.56	3909	47	83.58	3898	.60
85.09	61	84.90	4048	48	85.00	4037	.63

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Tuesday: June 28, 1904

Measured images for rate of clock
for 8-inch Draper Telescope I 31807
Dec +2.5 ~~H~~ 0 30 west. Tel 2.

		Ld	Exp.
0.3 mm.	longer intervals	150 grms	20 min
0.2 mm.	shorter intervals.	50 grms	20 min

0.5 mm = 100 grms
0.1 mm = 20 grams

True Ld = 90 grams.

1 mm = 2.72
60
15 | 163.20
10.88

200.00
66.666
65.28
1386
1088
2986

6.13 grams changes the position on the plate 0.1 mm in an hour.

If the experiment had been made with 0 & 200 grams the intervals would have been 0.55 and 0.45 mm.

Load for Dec +2.5 ~~H~~ 0 30 W
Tel 2. R.A. slow motion at middle of run = 90 grams.

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Friday Sept. 2 1904

Comparisons were made 0-day & final rates corresponding to Special Moon weight on 11-inch Central clock. From Chronograph sheet the following values are found.

			No of beats in 10 min
(1)	Moon weight	+ 0 g in Scale pan.	735
(2)	" "	+ 100 g " " "	737.5
(3)	" "	+ 200 g " " "	740.
(4)	" "	+ 300 g " " "	742.5

	No of beats (mean)	Diff from 4651 (mean) Beats
(1)	4410	241
(2)	4425	226
(3)	4440	211
(4)	4455	196

Moon weight

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Saturday Sept. 3. 1904.

Loads for following moon with 11-inch lens.

From Comparison with #1027 by means of Chronograph.

	Beat for 1 sec	Diff for 465 (1 mil)
M. weight + 0 g	4404	-2.47
" " + 200 g	4433	218
" " + 400 g	4463	188
" " + 700 g	4507 / 4508	144 / 143

247 / 3600 / 1692 / 72

218 / 3600 / 648 / 72

188 / 3600 / 3168 / 36

144 / 3600 / 1584 / 36

465.1) 889200 | 191 — 4651 — 42410 — 41859 — 5510 — 4651

) 784800 | 169 — 4651 — 31970 — 27906 — 40640 — 41859

) 676800 | 146 — 4651 — 21170 — 18604 — 25660 — 23255 — 2405

) 518400 (112 — 4651 — 5330 — 4651 — 6790 — 4651 — 2139

~~112~~ 114

~~1857~~

6 / 191 = 3.18

6 / 169 = 2.82

6 / 146 = 2.43

6 / 112 = 1.87

	M.W + 0 g	M.W + 200 g	M.W + 400 g	M.W + 700 g.	
3.55630	2.39270	2.33846	2.27416	2,15836	2,15534
1.77815	3.55630	8.11060	8.11060	8.11060	6.11060
1,77815	8.11060	0.44906	0.38476	0.26896	0.26594
3,66755	0,50330				
8.11060					
~~No of sec for 1 mil~~	3.187	2,812	2,425	1,858	1.845
Movement in 1 min					

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Table of Corrections & Load of Control Clocks.

Date.	Clock	Cor. or Load.	Page	Page
Sept 3 1904	8-inch	+ 2 g.	Not Posted.	~~8~~
Sept 6 1904	11-inch	146 g.	10	~~10~~
" 21 "	11-inch	146 g	15	
" 20 1905	11-inch	147 g	7	
Oct 5 1908	11-inch	143 g	36	
Mar 24 1909	11-inch	143 g	38	

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Tuesday Sept 6. 1904.

Comparison of 11 inch Control Clock and Sept 3 shows as follows

Load	Excess of Beat 4650 over 3600 sec.	Normal	Diff
0	+22.5	+21.4	+1.1
150	— 1.6	— 2.7	+1.1

1.1
6⅔
66
4
7.g.

Thumper load should be 139+7 = 146 g.

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1904phaa.proj..926K

Monday Sept 19. 1904

Effect of Parallax upon rate of clock for following Moon.

It was found recently the leads as directed on page 8 did not make the clock follow properly.

On Friday Sept 16 careful experiments, made visually in P.M. showed that the motion of Moon on the plate was about 1.4 sec per minute, when sid. clock was used. The experiment was made with 11-inch & 8-inch telescopes.

In the evening, I found that for the 8-inch the Moon moved 5. cm in 35 min. when sid. lead was used. The ratio exactly to almanac 2.23. The difference was referred to parallax.

By Chauvenet formula differentiated.

$$\frac{d(\alpha - \odot)}{dt} = \frac{\rho \pi \cos\phi' \cdot \cos t}{\cos\delta \quad 57.3}$$

dt. in hours.
d(α − ⊙) in sec.

Time about 20 15 ∴ ⊙A = 2 21
δ = −18°

∴ Rate for hour = 38 sec
" min = .63

Then 2.23 − .63 = 1.60 hour-min. Comp
1.54 hour-min. Obs.
.06
35
0.2 mm

11) 2.10
2.2

The error would be only 0.2 mm in the 35 min.

1 cm = 109
109
1 in
5 cm = 35 min = 1 hour
8½ cm = 1 hour 10 m 54 s
60 : 54 :: 2.6 : 1.54

Therefore allowance should be made for parallax in following Moon.

223

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Monday Sept 19. 1904

Computation of effect of Parallax in Apparent Rate of Motion

Formula Rate in sec = $\frac{\rho \pi \cos\phi' \cdot \cos t}{57.3 \quad \cos\delta}$

π (in sec of arc)

Assume $\pi = 57' = 3420''$

$\phi = +42\ 22\ 47.6$
$\quad -11\ 37.3$
$42\ 11\ 10.3$

	$t =$ 15°	30°	45°	60°	75°	90°
log ρ = 9.99933	9.98494	9.93753	9.84949	~~9.41300~~ 9.93753	9.41300	~~9.98494~~
log π = 3.53403	1.64501	1.64501	1.64501	1.64501	1.64501	
log $\cos\phi'$ = 9.86980	1.62995	1.58254	1.49450	~~1.58254~~ 1.34398	~~1.62995~~ 1.05801	
3.40316	1.77815	1.77815	1.77815	1.77815	1.77815	
log 57.3 1.75815	9.85180	9.80439	9.71635	9.56583	9.27986	
1.64501	1st	2nd	3rd	4th	5th	6th
9.86686						
Rate per min. 0.74	0.71	0.64	0.52	0.37	0.19	0.00
dec = 0						
dec = 5° 0.74	0.71	0.64	0.52	0.37	0.19	
= 10° 0.75	0.72	0.65	0.53	0.38	0.19	
= 15° 0.77	0.74	0.66	0.54	0.38	0.20	
= 20° 0.79	0.76	0.68	0.55	0.39	0.20	
= 25° 0.82	0.78	0.71	0.57	0.41	0.21	0.00
= 30° 0.85	0.82	0.74	0.60	0.43	0.22	0.00

See Book of Instructions for curves &c.

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1904phaa..proj..926K

Monday Sept 19 1904

~~I~~ Cut one of the lead weights which form part of the Special Moon weight in two, and used the two halves. This reduced the entire weight to about ½ it former value. This weight will be called "B". If the two parts are used, making it practically the same as before the change, it will be called A.

1.2. If the two small weights are used it will be designated B,

If the two small weight are used as one ~~the~~ with the weight remaining intact, the combination will be designated A.

From Comparison on Chronograph.

	Beat Interval	Diff from 4651
B	4480	171
B+700 grms	4596	55

Sunday 8

~~3.65128~~ ~~8.11060~~ ~~3.66238~~

2.23300	1.74036
8.11060	8.11060
~~1.12240~~	9.85096
0.34360	

~~2.206~~ 0.71 See for mean

2.21 See for mean

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Wednesday Sept. 21. 1904

Effect of Parallax in Hour Angle of Moon.

See page 12

Differentiating formulas (143) of Chauvenet Vol I p 123 we have

(1) $$\frac{d(\alpha - \alpha')}{dt} = \frac{\rho \pi \cos\phi' \cos t}{57.3 \cos\delta}$$

(Rate for hour in seconds of time) (Express π in seconds of arc.)

(2) $$\frac{d(\delta - \delta')}{dt} = 15 \frac{\rho \pi \cos\phi'}{57.3} \sin\delta \sin t$$

(Rate for hour in seconds of arc)

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Parallax

1 Chauvenet Vol I p 123

Formula (143)

Diff. $\frac{d(\alpha - \alpha')}{dt} = \frac{\rho \bar{\pi} \cos \phi'}{57.3} \cdot \frac{\cos t}{\cos \delta}$

(17)

$\rho \bar{\pi} \sin \phi \cos \delta - \cos \gamma \sin d$

1904phae.proj..926K

Wednesday Sept 21 1904

Comparison of Central Clock & 11-inch Repsold

Moon bright A 4404 beats for 5 min
A+20v 4508 " " "
See page 8.

Curve entered in Chart of Book of Instructions

Without Moon bright V 150 g bad Excess 200
found to be -1.6

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Monday Feb 13 1905

Examination of Plates.

Cooke Lens — AC 5969 shows bad images; AC 5970 shows fair images. The difference is apparently due to the altitude at which the plate was taken. This is shown by the improvement of the images on AC 5969 as the altitude increases across the plate.

Field Defect — I 32638 shows very poor images, the focus is decidedly bad. I 32641, ~~taken with same holder as 32638~~ shows much better definition. I 32633 Taken earlier the same night is in fair focus.

On examining the difficulty is apparently due to the great curvature of plate for 32638. A rule laid on the plate for holder 7 or more sheets of paper for small block to be inserted under the middle, while 32633 only required one thickness. When placed in the holder, the spring tended to flatten the plate. It could be made strong enough to make it entirely flat or even convex.

Remedy. — Remedy, a metallic holder with a plane surface of nearly the size of the plate. pressing ~~the plate~~ on the back of the plate will sufficient force to flatten it until the last ~~outer~~ surface ~~coat~~ is in contact at the edges.

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Wednesday Sept 20 1905

Comparison of 11-inch Control with F 1327
Stored as follows

Load	Excess of 4650 Beat over 3600 Sec. Hum		Diff
150 g	−1.4 sec	−2.7	+1.3
			6⅓
			78
			4
Hum for Load is 139 + 8 = 147 g			8.2 g

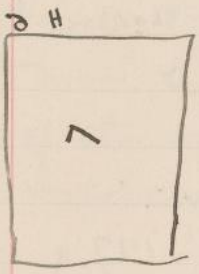
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Saturday Feb 9 1907.

Examination of Plates taken with 24-inch Mirror & adjust axis.

#6



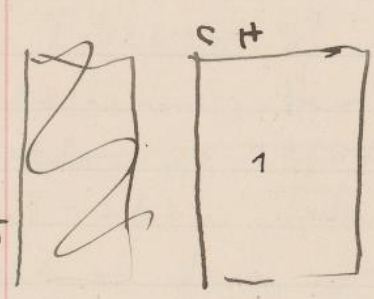
Glass side Eye.

~~Trail~~

Trail measured D10833 = 7 units

Sun = 33m

Equivalent for 60m = 13.



Glass side Eye

Trail = 1 unit 10 units = 2 mm.

Sun = 21m

Effect of moving South end of axis 2 rev to West.

Eq for 60m = 3.

(2 Rev = 10 units ∴ 3 units = equivalent to 0.6 rev)

2 Rev = 12 units for which see next page

will by raising South end by 0.5 rev.

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Monday Feb 11 1907

24" Telescope Adjustment

The threads of adjusting screws to the 24-inch Mirror i.e. to the optic axis of the instrument are 10 to the inch & act on a leverage of about 67". Call the focal length of mirror = 121"

Then ~~1 rev of screw~~ =

67 : 121 :: 0".1 : 0.181 Value of movement for length of tubes.

67) 12.1 (.181
67
540
536
40

25.4
.181
254
2032
254
4.5974 mm.

60 min

Limit for 60" = $\frac{\pi R}{12}$

log 4.60 = 0.66276
log π 0.49715
1.15991
1.07918
0.08073

Limit for 60" = 1.20 mm.

Diff for 2 rev for 1r = 2.40 mm

∴ 1 rev of screw produces limit in 60 minutes of 1.20 mm or 1.20 (arc)
= 72" of arc.

12
13
169
9
160
144
1600
1296
1476
1248
228
12.24
2 | 25.52 6
12.64 mean
0.2
2.528 mm
Effect of 2 rev of screw for 1 min.

247
246
25.52 | 12400 (96
100

From memo on preceding pg.

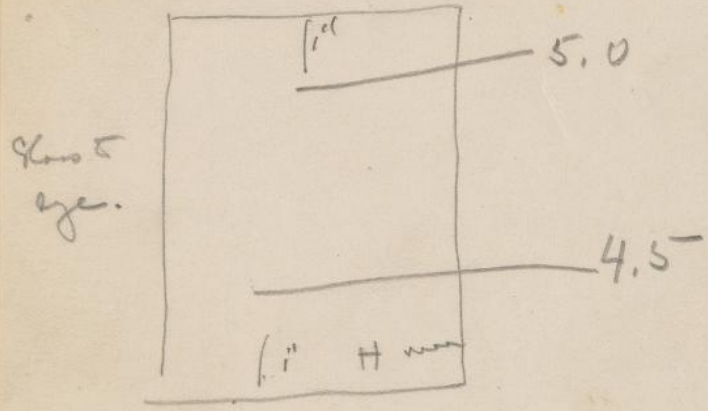
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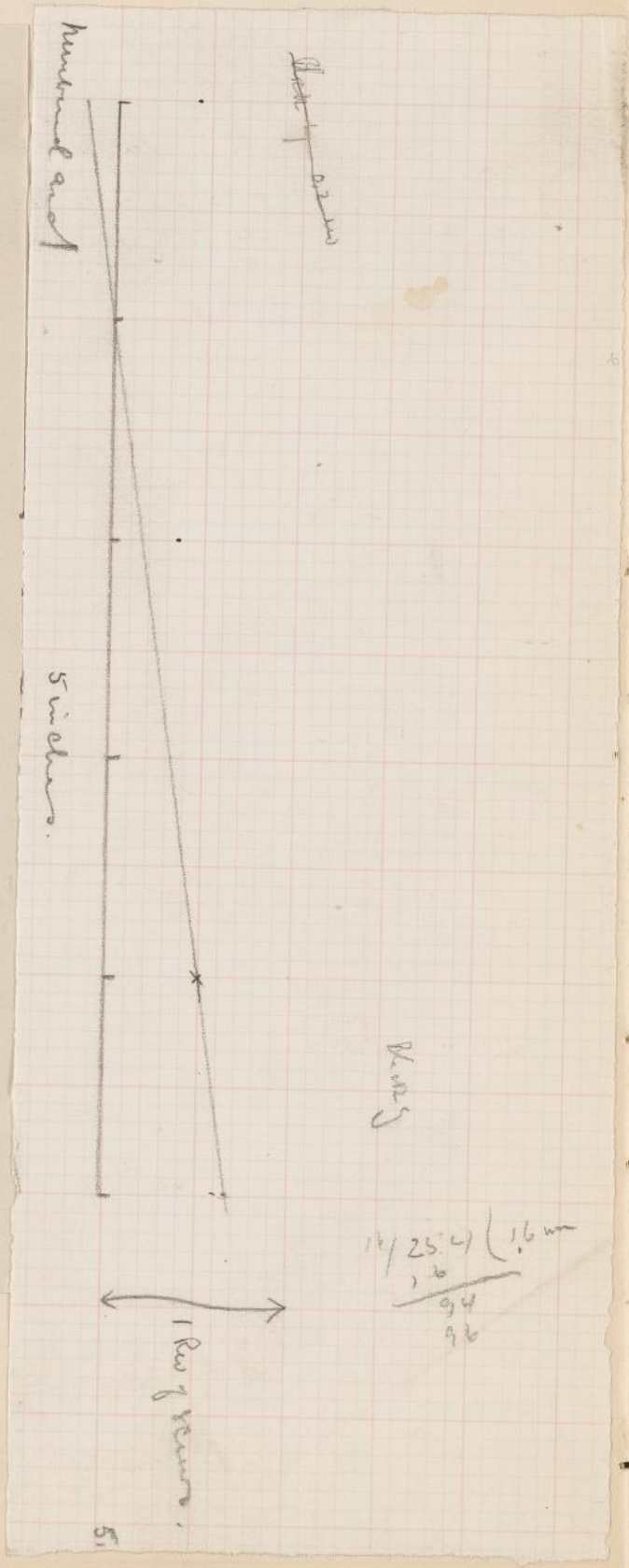
1904phae.proj..926K

Saturday Feb 16 1907

Examination of H Plates for correction of focus.

From	Plate
3.5	24
4.0	23
4.5	17
5.0	16
5.5	15
6.0	22
6.5	21





From the above found that End of plate opposite to number showed we set about 1.4 mm longer focus. The focus setting then should be 4.5 instead of 5.0

See next page.

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1904phag.proj..926K

The work preceding page was superseded by the adjustment of the secondary mirror.

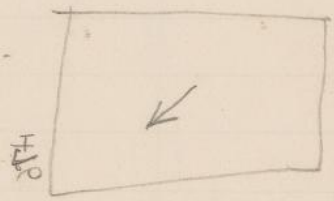
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1904phae.proj..926k

Monday April 29 1907.

24-inch Mounts -

From plates #68 & 72 as shown on slip on opp. page, it appears that to find movement of S. end of axis required to correct error, the plates should be turned through 180°. Thus

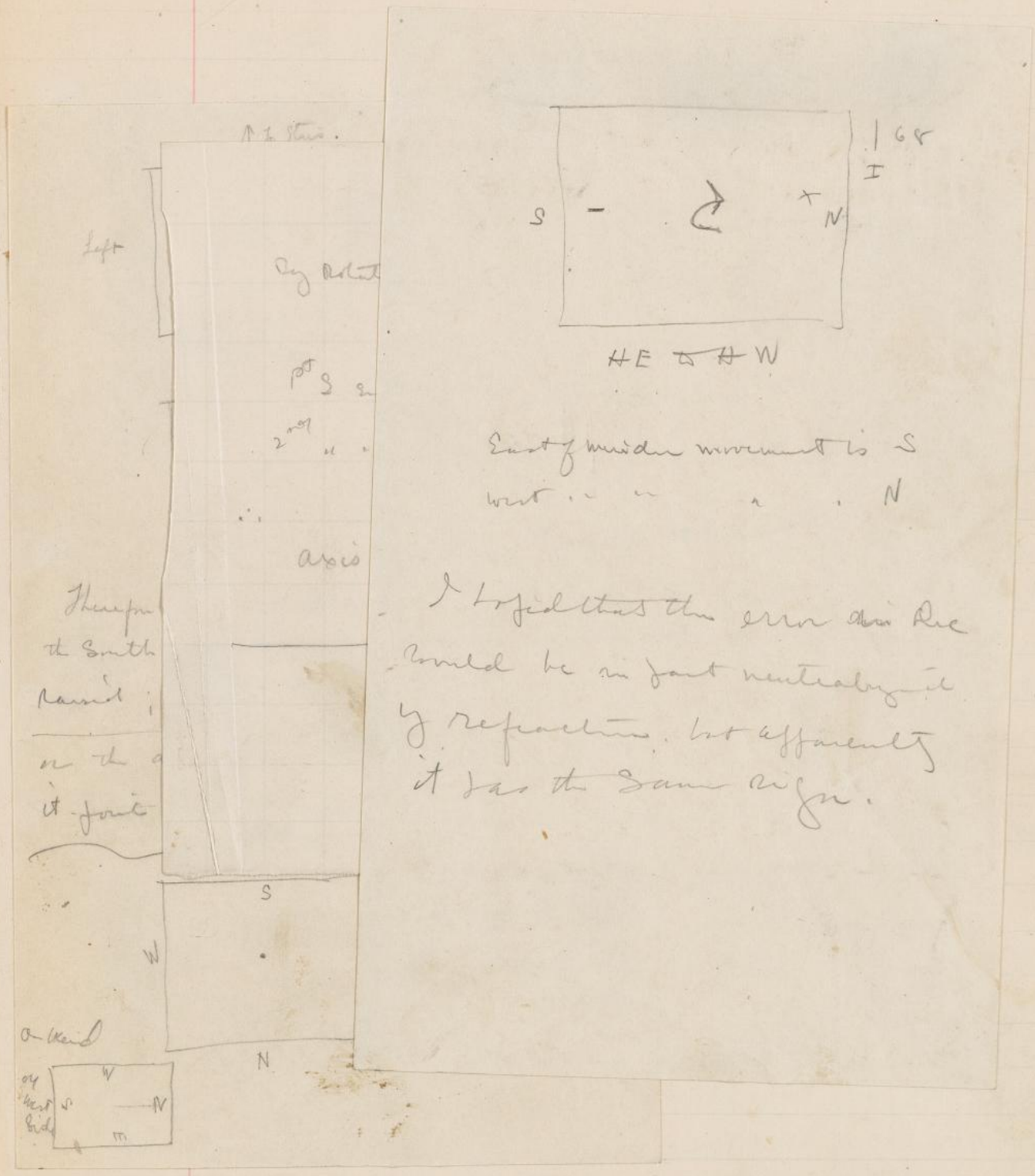


Thus #68 shows that for #E (i.e. when line of bearing of axis point above western bearing) the axis is below & east of true pole, while for #A.W. it is below & west. This corresponds to a flexure of the under fork being greater than that of the upper, & might be corrected by caps at the ends of the trunnions. On the other hand I believe that by judicious adjustment the error can be corrected in nearly all parts of the sky (except at the pole) by rating the clock. As a first step it will be best to adjust the altitude of the axis by taking plates with the east & west (or the two axes horizontal) & ~~the azimuth by plates taken 6h from the meridian~~

The pier axis will be adjusted as nearly as possible to position of #66 & the S. end lowered by ¼ rev.

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I hoped that the error due Rec would be in part neutralized by Refraction. but apparently it has the same sign.

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↑ 1 Stars.

Left

By Rotation Plate 180° thus

1st S end. should be moved down & East

2nd " " " " " " & West.

∴

Axis points 1st below & East

2nd below & West

Therefore the South Pole

on the

it points

S

W E

N

2" S end down & W

1st points below & East

2" " " & W

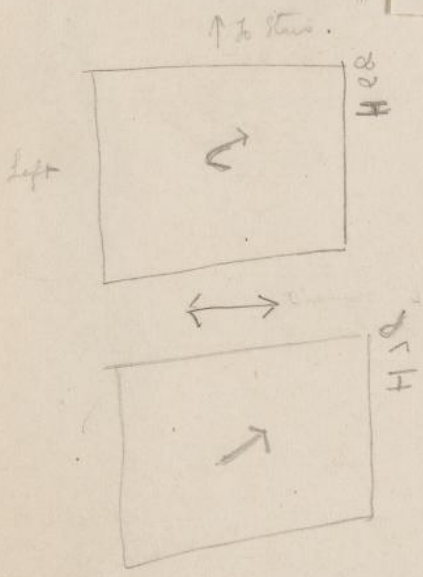
On Card

W

S N

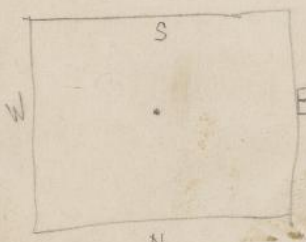
E

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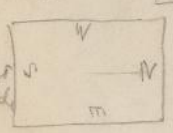


Therefore from #6 & it appears that for #8 E the South end ~~should be moved~~ is west & raised; for #8 W it is east & raised.

~~In the axes joint east & below for #8 E;~~
~~it joint west & below for #8 W~~



1st S end down & E
2nd S end down & W
1st North below & end E
2nd " " & W



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Saturday May 24 1907

Measures made of curvatures of the following plates. A steel ruler was laid across plate & the concavity measured by thickness of paper from small slit in rule.

67 thicknesses = 6 mm. ∴ 1 thickness = .09 mm.

	I32633	I32638	I32644 Refocused 38	I32641	Plate H
Plate No diagonal. +	0	7	8	2	0
Box No "	0	11	11	3	0
Short way	1	4	—	1	0
Long way	0	6	—	2	0

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Saturday May 24 1907

Put Plate H in Holder "7" of 8" Draper.

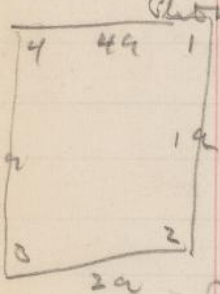
Corners number 154 beginning at Plate No.

Measures made with small steel rule from surface of plate to upper surface of steel rule laid flat on Holder:

1 1a 2 2a 3 3a 4

Plate H

in Holder 7 9.0 9.0 9.0 9.0



	1	1a	2	2a	3	3a	4	4a	Centers I.	Centers S	
~~Hol~~											
Holder 7	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	0
Premo No 1	9.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	0.5
~~PTS~~ No 1	7.0	7.0	7.1	7.0	7.5	6.9	7.0	7.0	7.1	6.9	0.6

Refrated with I 32633

~~9.0~~											
Holder "7"	9.0	8.8	9.0	8.9	9.0	8.8	9.0	9.0	8.8	8.8	0.2
Premo No 1	9.2	8.9	9.6	8.4	9.0	8.7	9.0	9.0	8.1	8.8	1.2
~~PTS~~ No 1	7.0	6.5	7.0	7.2	7.3	6.5	7.0	6.5	6.8	6.4	0.9
Holder "8"	~~9.0~~ 8.9	8.7	9.0	8.9	9.1	8.7	~~9.0~~ 8.9	8.8	8.8	8.7	0.4
Premo No 2	9.0	9.0	9.4	8.7	9.0	8.5	9.0	9.3	8.7	8.9	0.9
PTS No 2	7.0	7.0	7.9	8.0	~~7.9~~ 7.9	6.9	7.0	6.6	7.0	7.0	1.3

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Saturday May 24 1907.

Same Rind of means as last using ID 2638

	1	1a	2	2a	3	3a	4	4a	Center 4	Center 5	
Arlon 7	9.0	8.9	9.0	9.0	9.0	9.0	9.1	9.0	9.2	9.2	0.3 / 0.2
Prem. No 1	9.4	9.7	9.5	9.0	9.0	9.3	9.2	9.1	9.5	9.7	0.7
FFS No 1	7.0	7.0	7.1	7.0	7.0	7.0	7.0	7.0	7.5	7.3	0.5
Arlon 8	9.0	8.8	9.0	9.0	9.0	8.8	9.0	9.0	9.1	9.0	0.3
Prem. No 2	9.4	9.4	9.4	9.2	9.0	9.1	9.2	9.2	9.7	9.7	0.7
FFS No 2	7.0	7.1	8.0	8.2	8.0	7.5	7.1	7.0	8.0	7.6	1.2
No 7 with Dunning	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.1	9.0	0.1
No 8 and Dunning	8.9 9	8.8	9.0	9.0	9.0	8.8	9.0	9.0	9.0	9.0	0.2
with I 32637 No 8 + Dunning	9.0	8.8	9.0 / 8	9.0	9.1	8.8	8.9	8.9	8.8	8.7	0.4
No 7 + Dun	8.9	8.8	9.0	9.0	9.0	8.8	8.9	8.9	8.8	8.8	0.2

These made Wednesday May 22

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Saturday May 25 1907

Curvature of Plates.

aI 5911	7
5905	4
5908	5
ac 8516	3
8517	5
8506	4
8505	3
I 3469	7

Measured the curvature on number of blank plates on the two diagonals. Tested & adjusted. On Aug 6 1907 remeasured the with focus 32 = 3mm or 64 = 6mm

Measurements & after are as follows

			Def	
7	7	4	3	1 thickness = .09 mm
	6	4	2	
	5	4	1	
	4	4	0	
	5	5	0	
	5	4	1	
	4	3	1	
	4	5	1	
	4	4	0	
	7	4	3	
	5	4	1	
	4	4	0	
			14 12	

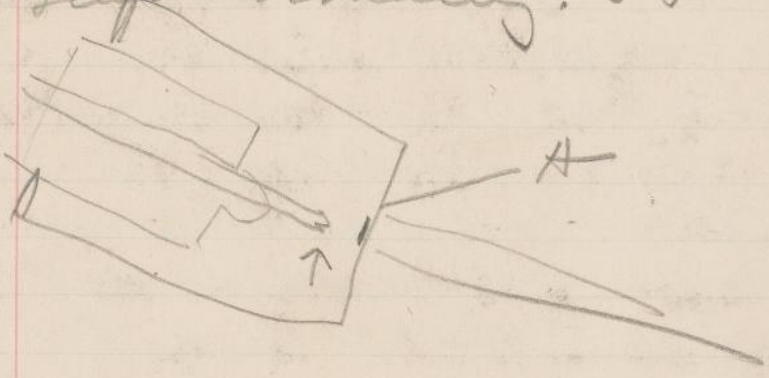
Average change is 1 thickness = .09 mm.
i.e. plates have less curvature for 2nd measures.

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Wednesday Oct 2 1907

Tested flexure of tube of Cooke Telescope visually.



The dew cap was removed & the camera tube drawn down as the axis. By means of a microscope a point at A was viewed as the instrument was set at different zenith angles. The joint consists of a ruled rectangle (by Jen) at intervals of 1/20 inches.

~~From zenith 0 to 12h west~~ N

From ZA 12h west no change was observed for ~~this set~~ ZA 6 h 9 18h west the difference in reticule was about twice the thickness of the ruled lines, say 0.4 mm. (For this set. top wedge between tube & bottom wedge.

ZA 6h 0 9 6h diff about 1/4 div.
ZA 0 9 12 " " thickness of lines.

Change of position is such that microscope objective has to be moved in direction of axis to restore + to original focus.

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Friday Nov 15 1907

~~From~~ Fixed Microscope firmly to Cook Lens Camera, passing it through the opening for the lens. A reticle similar to that described in preceding paige was used. Previous to making the readings below the crosswires of the eyepiece were adjusted with respect to the axes of the instrument

From circle E. to circle W tel. points higher. From circle east to circle west tel. points ~~to~~ westward From circle up to circle down tel. points lower From circle up to circle down no change:.

~~Tel~~ Circle east, position up	.1	position west	.2
~~Circle west~~ " "	.15	" "	.3
Circle up " "	.1	" "	.3
Circle down " "	.1	" "	.35

Circle east position up	.15	position west	.2
" west " "	.2	" "	.4
" up " "	.1	" "	.3
" down " "	.1	" "	.3

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Tuesday June 21 1904

Examination of Plates for testing New Cooke Lenses. and other Lots. Σ 8762, 3, & 4

Plates require long focus in center, short focus near edge.

II

O · O I

Inside outside Axis of Rev.

Lens No 13354

Σ 8762 1 9 is best focus of the three 78.99, which seem equal. Images unlike - diff part of plate. Central focus is between center and middle of side (not end) Long plate No.

Lens No 17486

Σ 8763 10 is best focus. Other four were 8 9 9. Images are quite symmetrical with respect to center.

Lens No 17480

Σ 8764 1 Focus is less than 8 the shortest focus in plate Images appear fairly symmetrical. The images in crosses at middle end are smaller & show tendency to wing, while those at opposite end are longer & do not show tendency to wing. Images have much different shape than those of other plates due to being outside focus fairly. Inside ✦ outside ●

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Friday Jan 24 1904

Exp. of Plate testing new Cooke Lens

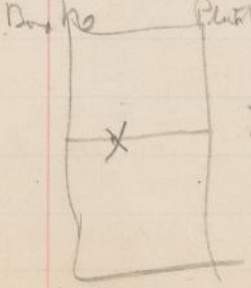
E 8765 taken at focus 10.0 with Lens No 17486 is a very good plate for symetry of images with respect to centres and also for ~~evenness~~ of focus.

E 8766 Focus plate with Lens No 17480 shows that focus should be shortened at end off plate No.

Attempt to shorten the focus as noted above by tipping lens. The plate bearing lens was tipped so that ~~part of plate~~ axis of lens would intersect plate at point near plate No. The lens setting was meanwhile shortened by 1 rev

E 8767 Focus plate ~~change~~ change made as mentioned by tipping Best focus was found at 6.0. Lens tipped by 1 rev of screw (the one ~~towards~~ end bearing plate No.) gave best results.

E 8768 taken at the focus found above shows fairly good images. The images are smaller or nearly so in the corners but a difference is noted across the plates from side to side.



The centre affects the nearer side having Box No.

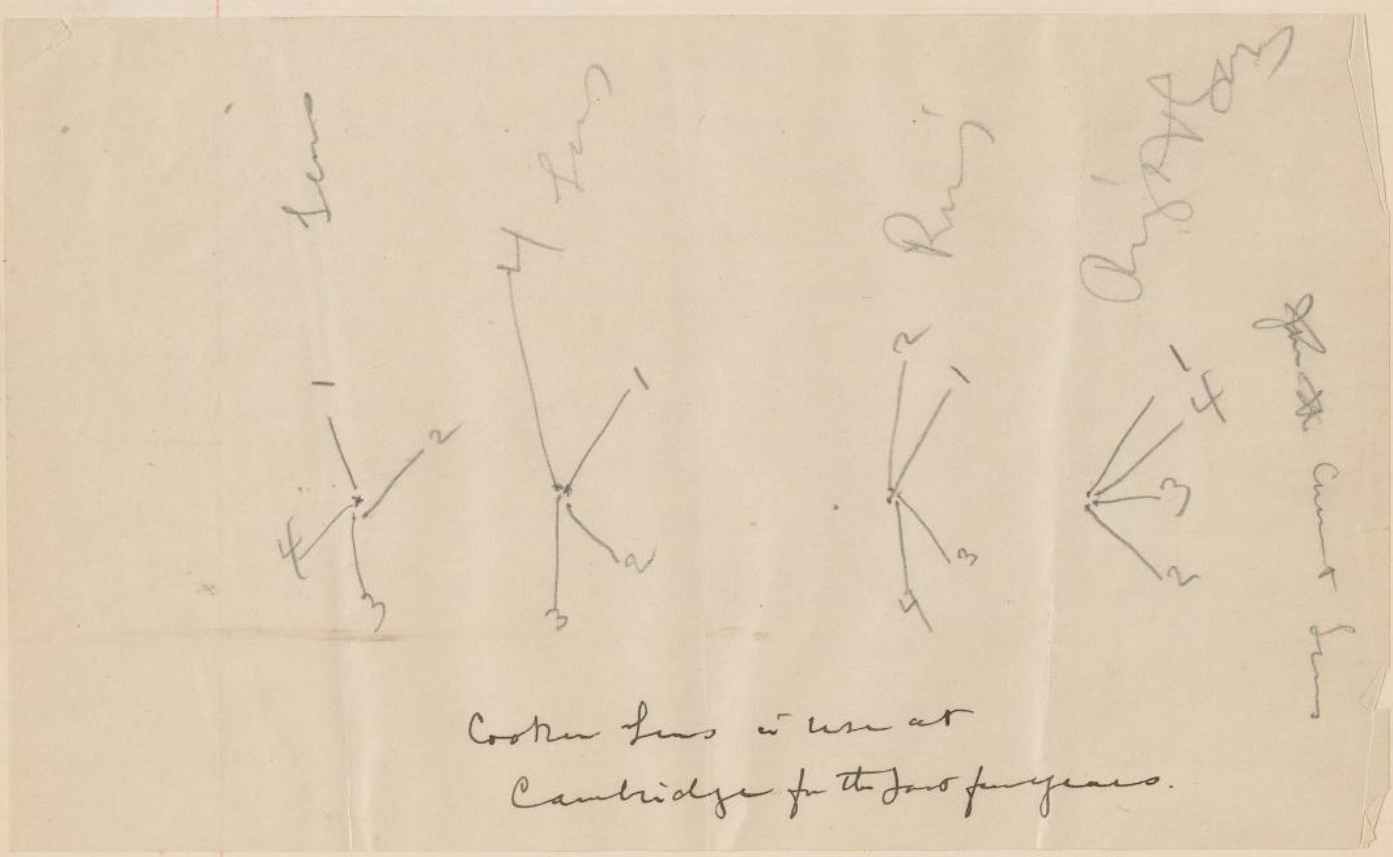
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The slips opposite show the results of

rotating 1st the lens in its thread,
2nd the focussing screw in its thread, &
3rd both lens & focussing screw but in opposite
directions thus making lens always keep the same
distance off.

The image was reversed on the
slips of paper, having been enlarged
about 4 times.

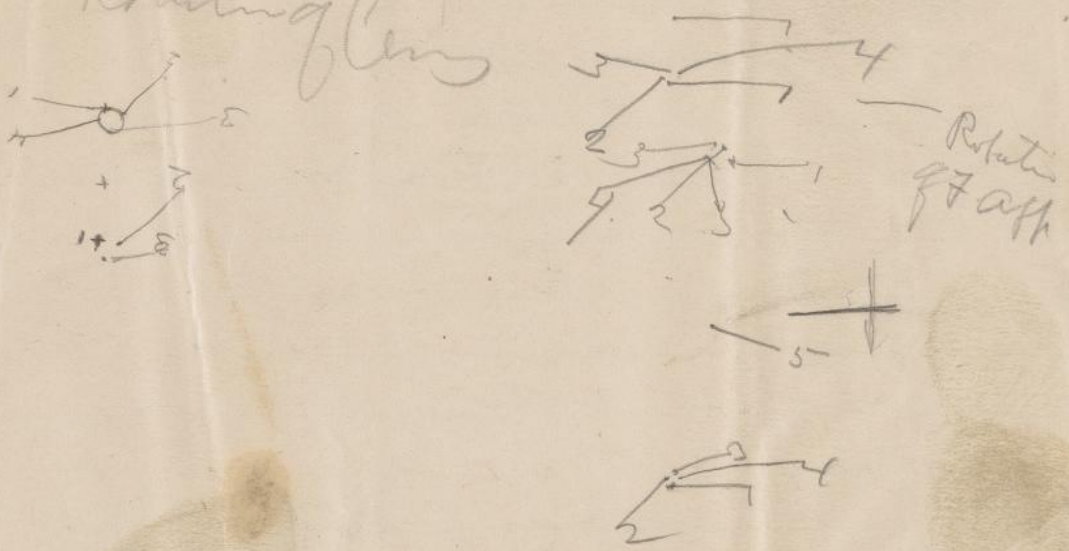


Cooke lens in use at
Cambridge for the last four years.

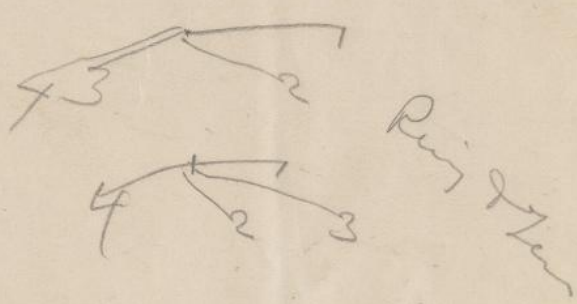
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Cooke Lens 832



Cooke Lens 832



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Thursday April 16 1908

Measures for Rate of Clock

I 3526 4 = ~~Δl~~ = 130

Movement in 60 m = 2.3 div of D10836

I 3426 + Δl = 70 " " 30 m = 1.1 " " "

1.15 + 1.1 : N :: 60 :

$$2.25 \overline{)66.0}\ 29$$
$$\begin{array}{r} 450 \\ \hline 2100 \\ 2025 \\ \hline 75 \end{array}$$

70 + 29 = 99 gr = 1d for

δ = 0 ~~H A~~ = 0

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Thursday May 28 1908

Measured diameters of lens of 8-inch and 4½ prisms for grey secondary

	c.m.
~~21.2~~ 21.1	21.1
~~6.3~~ 9.0	9.0
6.3	6.3
2.5	2.5
2.0	2.0

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Thursday May 28 1908

Measured diameters of lens of 8-inch and of frames for gang secondary mirrors.

	Diameter c.m.
Front lens	21.1
Outer diam of large frame	9.0
Inner " " " "	6.3
Out diam of frame attaches to lens	2.5
Inner diam of frame attaches to lens	2.0

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Monday Oct 5 1904

Tested Control Clock of 11" Draper last Saturday and found excess of 4.50 seconds (for Ld = 150) over 36000 sec. This was about + 5.8 sec. The normal excess is −2.7 sec.

This P.M. raised bob. Found will be raised by 4 rev. that excess for 150 g was −2.1 S.

Normal −2.7

Diff +0.6

6 1/3

3 6/2

+3.8 g

2.7 1800
2 1/2
4 | 8.5
2.1

Draper Ld = 139 + 4 = 143 grams.

+5.8
−2.1
8
4) 7.9
2.0

1 rev of the screw raising the bob changes the rate by 2.0 sec per hour.

3 | 1800
40 | 90
22.5

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Thursday Nov 11 1909

Examined Plates taken with 16-inch, 11-inch & 8-inch & Cooke ~~lens~~ for Comets.

I 3607 Faint ~~star~~ Star Seen K^2
WC 51 " " " K^2 Surface K^3
C 1909 " " " K^2
AC 11031 " " " C^3

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Friday Nov 26 1904

Inter Control Clock 11" Draper.

Exposure ~~[illegible]~~ 4650 Rate run 3600 sec

(Id = 150 g) is − 2.1 sec.

Normal − 2.7

+ 0.6

6 1/3

3 6

2

+ 3.8

Therefore Sid. load. = 139 + 4 = 143 grams.

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Tuesday Dec 7, 1909.

Study to effect of flexure of forks of 16-inch on zenith mounting.

From M.C. 77 I find that when forks are vertical, the axis is depressed below pole by about 1.5 mm, more than when they are horizontal. Thus as the telescope leaves the meridian in either direction the axis is depressed by a varying amount.

With the 24-inch Reflector (see page 22 TC) it was found that for H A E. the axis was below and to the eastward of Pole. While for H A west it was also below but west of Pole.

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Saturday Dec 18. 1904

Equivalence of Hefner & Std. rate of clock for 16-mcm Iol.

MC 10 has tarnished very slightly shutter than MC 109

MC 108 Id = 50
MC 109 " = 150.

This indicates that Id showed be slightly less than 100

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Tuesday March 15 1910

Measured diameter of fusin for
used for auxiliary comparison.
Marked A

Outer diam = 90.0 mm
Inner " = 63.4 mm.
See page 35.
This is the same fusin as measured before ^

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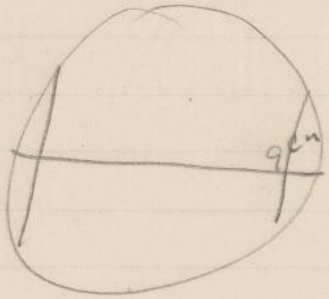
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Friday March 18 1910

Measured diameter of front lens of 16-inch by means of large pair of dividers. Diam = 41.25 cm.

Measured diameter of objective by putting eye at focus & noting marks on stick fenced across objective. Diam. = 41.4

Measured for ring Diam = 42.3



21.15
21.15
105.75
21.15
21.15
4230
447.0225
20.25
427.0725 | 20.66
406 | 2707 | 2
2436
4126 | 27125 | 41.32
21756

4.5
4.5
225
180
20.25

Prism on telescope is a duplicate of Prism A as far as can be measured.
Outer diameter 9.0 cm
Inner " 6.3 cm.

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Thursday March 24, 1910

Screen for 16-inch to cut off light of moon.

Recently I have used a screen to protect the lens from the light of the Moon in order to get to get sight stars near to the Moon.

Lens used is photo-lens covers with auxiliary lens having a diameter of 6.3 cm.

slit of screen for lens $f = 200$ cm.

least diameter of screen $= 6.3 + \frac{1.7}{3.5} = 8.0$ c.m. ~~= 9.8 cm.~~ ~~call it 10.0 cm.~~



Diameter of Screen $= d + \frac{l}{114.6}$

Inner Radius of penumbra $\frac{1}{4}^\circ$

Outer " " " $\frac{d}{57.3} + \frac{1}{4}^\circ$

Width of penumbra $= \frac{d}{57.3}$

Diameter of obstructed field $= \frac{2d}{l} \times 57.3 + \frac{1}{2} = \frac{d}{l} \times 57.3$

Diam of obstructed field $= 3.6 + 0.5 = 4.1^\circ$

i.e.: it is clear at a distance of 2.05° from center.

If $l = 400$ cm

Screen $= 6.3 + 3.5 = 9.8$ cm

Diam of obstructed field $= 1.8 + 0.5 = 2.3$

Clear field at a distance of 1.15° from center.

over

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Thursday March 24, 1910

Relation of aperture.

Take concrete Example.

$d = 2$ $\quad l = 57.3$

At distance of $2\frac{1}{4}^{\circ}$ from center, the full aperture is in use.

If $d = 4$ & $l = 57.3$

at distance of $4\frac{1}{4}^{\circ}$ from center, the full aperture is used and we have 4 times the amount of light.

With the same lens at distance of $2\frac{1}{4}^{\circ}$ from center, we shall have more than half of the aperture in use, as the edge of the shadow of the screen will then pass through the center of the lens. Therefore at a dist of $2\frac{1}{4}^{\circ}$, we shall have more than twice the amt. of light for the smaller lens at the same distance.

Some difficulty may arise from interference of the images due to lens not being perfect with unsymmetrical portions of the lens.

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Friday May 27 1910

Compared Cannon-ball Control with F 1327.

Change of 2 rev of Bob changed beat rate of 35.6 sec for 2 rev to 31.3 sec. This is 2.15 sec for 1 rev. Last position is shorter length, which will "gain".

~~Problem: Change of rate for 1 sec~~

Formula:

Change of rate for 1 sec $= 1800 \frac{dl}{l}$.

Call $dl = \frac{1}{20}$ inch. Call $l = 41$ inch.

Then change will be $\frac{900}{41} = 2.^{s}2$

~~Data for Curve~~

May 27	29^{s}	Raise for "1 rev" position.
28	24^{s}	1.0 rev.
29	19^{s}	3.3 "
30	16^{s}	5.6
31	14^{s}	7.0
		7.9

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Thursday June 2 1910

Compound 11-inch control (Ld = 150 g.) and
four exposures of 4650 Beats over 3600 seconds
Le — 2.0 sec.

Normal Expos = −2.7 "

Diff = + 0.7

$6\frac{1}{3}$

42

2

4.4

139

+ 4

Thumb load = 143 g.

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Monday June 20 1910

Used Micrometer Calipers to measure thickness of pieces of paper employed to determine curvature of curved plates produced by suction.

Pieces	Measured Thickness	Thickness
6	.026	.0043
13	.057	.0044
14	.060	.0043
10	.043	.0043
43	.186	
	172	.0043
	140	
	129	
	11	

Therefore Each piece is .0043 in thick.

Put plate on curved surface. Placed rule across center of the long way of plate. 7 strips went under. For flat plate 2 strips. Diff = 5

.0043

.0215 inch deflection

Tried on flat glass & found for strong light it would be practically straight. Diff = 7

.0043

.0301 in

Tried another and found deflection = 7 strips of paper. Another was deflected by 6 strips, but was deflected by 4 strips the short way.

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Monday, June 22, 1914.

The measurement of the three (4 x 5) double plate holders for the 24" Reflector, numbered from 1 to 6 consecutively is as follows:

The distance from outside of holder to the film of the plate. First measurement at plate number corner, second at box number corner third bottom corner under box number, etc.

Side	1st	2nd	3rd	4th	Mean
~~Side~~ 1.	.248	.246	.243	.249	.247
Side 2	.247	.247	.247	.251	.248
" 3	.247	.249	.253	.251	.250
" 4	.247	.247	.252	.248	.248
" 5	.255	.252	.255	.255	.254
" 6.	.248	.240	.247	.244	.245

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Monday August 16 1904

Conjunction 16-inch Content:

Ld

50 + 20 + 5 + 5 = 80 = 2.0 long ton
50 + 20 + 20 + 10 = 100 = 0.8 gang " "

2.8) 209 (7.2 grams charges
196
40

7.2
0.8
5.76

~~Sid = 9~~ 100

Sid Ld = 94

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Thursday August 17 1905

Compound Cotton Loss Cocktail.

$l_f = 50+20+20+10 = 100\,g$
$l_d = 50+20+20+10+10 = 110\,g$

1.7 Sec losing tension
0.2 " gaining "
1.9 Sec) 10. (5.3 grams
9 5
50
change cocktail
5.3 grams

1904phae.proj...926K

June — — 1917

Means of Holders.

2)	.260	.265 (262)	.277	-15
6)	.277	.273 (275)	.277	-2
12)	.273	.274 (274)	.270	+4
1)	.277	.277 (277)	.278	-1
7)	.275	.273 (274)	.269	+5
5)	.266	.268 (267)	.275	-8
X)	.249	.245 (247)	.248	-1
11)	.268	.268 (268)	.271	-3

6, 12, 1, 7 & 11

$\frac{1}{25} - \frac{5\sqrt{.040}}{.008}$

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Tuesday Jan 16 1917

Means of Holders

made with Micrometer Calipers

No. of Holder	End.	Plate No. Side	Box No. Side	Jan Means	Jan Mean
	.276	.279	.275		
1	.273	.277	.278	458	.276
	.259	~~.276~~	.275		
2	.260	.280	.275	427	.271 —
	.267	~~.278~~	.270		
3	.266	.274	.272	422	.270 —
4	.252	.262	.254	331	.255
	.268	~~.276~~	.275		
5	.272	.275	.275	440	.273 Broken at end
	~~.276~~	~~.284~~	.278		
6	.274	.280	.279	458	.276
	.273	.276	.275		
7	.276	.278	.275	463	.277
	.271	.278	.276		
8	.273	.278	.270	456	.276 Box No. edge broken
	.265	.275	.262		
9	.268	.275	.263	414	.269 —
	.262	.275	.262		
10	.261	.271	.262	391	.265
	.263	~~.271~~	.269		
11	.265	.280	.266	414	.269 —
	.268	.273	.267		
12	.269	.272	.263	412	.269 —
	.258	.252	.254		
13	.263	.256	.253	336	.256
	.248	.254	.252		
X 14	.248	.253	.255	310	.252

Thickness for front surface added to film of plate at the edges.

The distance at the center will vary due to the diff. curvature of diff. plates.

Four 10-inch Mitutoyo, use Holders 2, 3, 9, 11, and 12.

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Friday April 27, 1917

Measure of New Holders.

Made with Micrometer Calefin
Measured the same as on the previous occasion recorded opposite.

No of Holder		End.	Plate No Side.	Box No. Side.	Sum	Mean
15	15	.278	.274	.271	440	.273
		.276	.274	.272		
16	16	.269	.278	.266	419	.270
		.266	.274	.266		
17		.265	.270	.265	408	.268
	17	.268	.272	.268		
18		.269	.275	.269	421	.270
	18	.265	.273	.270		
19		.271	.268	.267	415	.269
	19	.272	.270	.267		
20		.272	.274	.267	423	.270
	20	.273	.269	.268		
21		.262	.264	.266	389	.265
	21	.270	.262	.265		
22		.271	.279	.270	427	.271
	22	.269	.270	.268		
23		.274	.272	.273	445	.274
	23	.277	.276	.273		
24		.263	.269	.261	384	.264
	24	.263	.268	.260		

The above holders are those just purchased for 10-inch Mt Wilson Telescope.

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Monday Oct 8 1917

Measured angles of prisms by means of inclinometer.

Prisms in cells were placed on level rod. Prism with inclined surface on top. A level, ⊥ to edge of prism, placed on inclined surface, & edge of prism raised until bubble came to center. Amount of inclination found by inclinometer placed on edge of cell.

Small single prism in cell used for 5" Draper = 6°

Each prism in the large combination from = 6°

When settings were	{342 / 144}	Means of both sides	{5.5 / 6.0} = 11.5
" " "	{288 / 36}	" "	{1.0 / 2.5} = 3.5

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Measure of Plates

Single fussi in cell = 6°
Two fussi contained in cell, each = 6°

	Obs	Computed
For settings (342/144) used for class D	11.5	11.4
" " (88/36) " " " I	3.5	3.7

Plates

Various kinds mostly Seed 26 X used until Nov 8 1894 when Seed GE27 began to be used. Cramer Crown was used extensively beginning Dec 1894
Since 1899 Seed GE27 was used almost exclusively until May 1911
Since May 1911 Hammer Special have been used

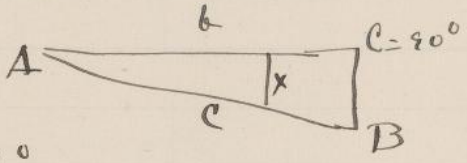
Oct 9 1917

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Monday Oct 8 1917

Computation of angle calling such $\mu_{\sin} = 6^0$



$\tan x = \tan A \sin b$

$A = 6^0$

In Setting $\begin{pmatrix} 342 \\ 144 \end{pmatrix}$ $b = 90 - 18 = 72^0$

$180 - 144 = 36$

$90 - 18 = 72$

9.02162	5^0 42′
9.97821	2
8.99983	11 24

In Setting $\begin{pmatrix} 288 \\ 36 \end{pmatrix}$ $b = 18^0$

$144 - 36 = 144$

$90 - 72 = 18$

9.02162	1^0 52′
9.48798	2
8.50960	3^0 44

In Setting $\begin{pmatrix} 342 \\ 144 \end{pmatrix}$ Computed $11.^0 4$ Obs $11.^0 5$

" " $\begin{pmatrix} 288 \\ 36 \end{pmatrix}$ " 3.7 " 3.5

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Friday Feb 8 1918

Measured distances on Hilger fes -

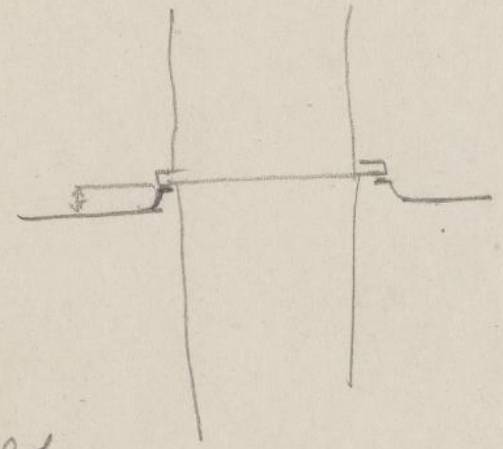
Distance from surface against which front surface of Solar rests to inner surface of flange on lens-cell as follows: -

10" Metcalf = 122.3 cm. (From = 14.8)

8" Draper = 115.5 cm (From = 12.0)

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10" - Metcalf
121.5 cm +
& Corr for elevation of point Sampson
122.3

8" Deaton 115.5 Cm

163 180

8 / 115.5
14
129.

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1904phae.proj..926K

Wednesday May 14 1919

Measure of Blocks used for Ast-g-fans work by means of m.m. Micrometer Calipers.

No	m.m.									Mean = 2.76
1	2.72	2.80	2.76	2.81	2.79	2.82	2.67	2.69	2.81	2.76
2	6.05	6.04	6.01	6.00	6.04	Mean = 6.04 mm.				
3	10.23	10.24	10.18	10.18	10.21	10.25	10.31	Mean = 10.23		
4	~~15.42~~ 14.92	14.89	14.78	14.87	14.81	Mean 14.85				
5	21.99	22.02	21.96	21.99	22.00					
6	30.35	30.38	30.19	30.38	30.38					
7	40.29	40.37	40.26	40.18	40.24					
8	Measure by mm rules									
8	53 mm									
9	69 mm									
10	90									

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1904phae.proj..926K

Wednesday May 21 1919

New set of Gauges for Out-of-focus Aph.

No		Thickness		
1	(2 of brass)	2.5 mm	✓	✓ ~~2.75~~
2	"	6	✓	✓
3	"	10	✓	✓
4	wooden (Mahogany)	15	15.1	
5	"	22	22.2	
6	"	30	30.2	
7	"	40	—	
8	"	53	—	
9	"	69	—	
10	"	90	—	

↑
Checking made on Dec 10, 1919.

Dec 22 1919 The gauges Nos 4, 5 & 6 (both new & old) have had pieces of brass inserted to establish the distance against swelling of the wood. Compared to-day with figures of Dec 10th & found substantially the same. All the gauges have had holes bored in them to correspond to Jupiter on out-of-focus apparatus, with the intention of using both old & new for each setting, on opposite sides. Old blocks which were evidently for a few days now normal, having been kept in a dry place

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Friday May 7 1920

Measures of thickness of pieces of glass used with O.H. eyep. on 8-inch Brashear & test focus.
These were used with new block "5"?

Piece	mm.	
1	2.05	
2	2.12	
3	2.20	all = 12.85
4	2.18	
5	2.19	
6	2.08	
6	12.82	
	2.14	

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Thursday June 3 1920

Measures with CB Mc Laughlin

I 39963

1	34.510	35.106	35.646	36.663	1.445
	33.023	33.661	34.185	35.214	1.461
	1.487	1.445	1.461	1.449	1.449
		33.244	33.605		2|155
		33.605			(1) 1.452
		1.639			
2	35.692	34.073	35.532		1.883
	33.809	32.169	33.642		1.904
	1.883	1.904	1.890		1.890
					2|2677
					(2) 1.892
3	35.711	36.621	37.107		2.399
	33.312	34.234	34.645		2.387
	2.399	2.387	2.462		2.462
					(3) 2|1248
					2.416
4	36.258	36.078	38.313		2.981
	33.277	33.075	35.338		3.003
	2.981	3.003	2.975		2.975
					(4) 2|8959
					2.986
5	36.559	38.066	38.550		3.749
	32.810	34.813	34.744		3.753
	3.749	3.253	3.806		3.806
					(5) 3|2308
					3.769
6	35.859	38.947	38.128		4.783
	31.076	34.153	33.937		4.804
	4.783	4.804	4.791		4.791
					(6) 3|2378
					4.792
7	38.043	38.138	38.131		6.030
	32.013	32.143	32.038		5.995
	6.030	5.995	6.093		6.093
					(7) 3|118
					6.039
8	38.163	38.838	38.925	(8) 7.606	(9) 9.530
	30.557	31.251	31.322	7.587	9.546
	7.606	7.587	7.603	7.603	9.522
				2|1796	3|98
				7.599	9.533
9	39.757	38.528			
	30.227	29.382			
	9.530	9.546			
10	40.619	39.522	39.664		(10) 11.846
	28.773	27.466	27.615		12.056
	11.846	12.056	12.049		12.049
					3|35951
					11.984

38.983
29.461
9.522

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1904phae.proj..926K

Thursday, June 3 1920

Measures with C.S. Micrometer

I 35961 Nov 21

(2)	37.403	39.250	36.374	(2) 1.576
	35.827	37.662	34.740	1.588
	1.576	1.588	1.634	1.619
			1.619	2|1783
				1.598
(3)	37.483	39.551	36.291	(3) 2.086
	35.397	37.475	34.213	2.076
	2.086	2.076	2.078	2.078
				2|2160
				2.080
(4)	37.953	38.335	36.654	(4) 2.687
	35.266	35.629	33.959	2.706
	2.687	2.706	2.695	2.695
				2|2088
				2.696
(5)	36.800	36.829	35.986	(5) 3.536
	33.264	33.284	32.436	3.548
	3.536	3.545	3.550	3.550
				2|1131
				3.544
(6)	37.609	35.831	36.367	(6) 4.523
	33.086	31.309	32.836	4.522
	4.523	4.522	3.531	4.531
				2|176
				4.525
(7)	36.830	37.975	36.019	(7) 5.725
	31.105	32.258	30.311	5.717
	5.725	5.717	5.708	5.708
				2|100
				5.717
(8)	37.288	36.246	36.260	(8) 7.335
	29.953	28.892	28.925	7.354
	7.335	7.354	7.335	7.335
				2|1124
				7.341
(9)	39.154	37.424	36.335	(9) 9.291
	29.863	28.120	27.033	9.304
	9.291	9.304	9.302	9.302
				3|1897
				9.299
(10)	39.729	37.041	39.301	(10) 11.803
	27.926	25.236	27.475	11.805
	11.803	11.805	11.826	11.826
				2|134
				11.411

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Thursday June 3 1920.

Reduction for I 39963 (See page 61

1/2400 of inch.

(1)	x +	12.5 y	= 145	156.25	18 12	
(2)	x +	.16 y	= 189	256	3024	
(3)	x +	20 y	= 242	400	4840	
(4)	x +	25 y	= 299	625	7475	
(5)	x +	32 y	= 377	1024	12064	
(6)	x +	40 y	= 479	1600	19160	
(7)	x +	50 y	= 604	2500	30200	
(8)	x +	63 y	= 760	3969	47880	
(9)	x +	79 y	= 953	6241	75287	
(10)	x +	100 y	= 1198	10000	119800	
	10x +	437.5 y	= 5246	271.25	511 442	
	437.5x +	26771.2 y	= 321542	26771.25	32,1542	

( ) x + 191406 y = 2251125 2295125

( ) x + 267712 y = 3215420 3215420

763064 y = 1973383 +920295

964117 5246

5553

4693

5246

6.395324

4.885256

1.412068

2.640980

4.053048

4.98416

4.885256

log y 0.10160

log 437.5 2.64098

2.74258

1.08137

4.42765

5.50902

321542

322860

1318

3.11992

2.64098

0.47894

− 3.0

5.96393

4.88525

log y 1.08137

2.64098

3.72235

+ 5246

− 5276

10) — 30

— 3.0

0.47894

1.08137

9.39757

0.025 mm

0.25 mm

y = 12.06

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Monday June 7 1920

Measured images with C S Measurer

I 39962

2	26.932	26.931	
	25.022	25.019	
	1.910	1.912	Mean 1.911

1	25.244	28.262	
	26.716	26.787	
	1.488	1.475	Mean = 1.482

I 39963

1	26.811	
	25.362	
	1.449	1.45

2	25.343	
	23.461	
	1.882	1.88

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Friday June 11 1920

Measures with C.S. McCormick

Form	Image	I 39964 Dot 1	
6 at 3	40.003		39.918
	35".435		35".377
	4.568		4.541
6 at 30	39.951		
	35".420		
	4.531		

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18

Friday June 19 1920

Measures with C.S. Micrometer.

Focus Image I 39958 Dso

4 22

36.757	37.100		
34.067	33.596		
2.690	3.504		
Wires	Edges		



5 23

36.670	36.400	36.920	36.496
32.443	32.858	32.566	32.984
4.227	3.542	4.354	3.512

6 24

40.139	39.586		
34.605	35.092	40.183	39.739
5.534	4.494	34.658	35.195
		5.525	4.544

4 22

42.955	42.625	43.064	
39.650	39.954	39.051	
3.305	2.671	4.013	
I again			
42.975 ①	342.631	43.064 ④	42.701 ③
39.633 ④	③ 39.951	39.732 ①	39.051 ②
3.342	2.680	3.232	3.650

4 22

① 42.972	② 42.606	① 39.717	② 40.043
③ 39.946	④ 39.605	④ 43.072	③ 42.735
3.026	2.994	3.355	305
39.608	39.946		2.692
3.364	2.660		

4 22

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8

Friday June 18 1920

Focus	Image	I 1	I 2	II 1	II 2
		4	3	24	23
4	22	42.972 39.633 3.339	42.631 39.964 2.667	39.755 43.066 ~~59~~ 3.311	40.066 42.735 2.669
5	23	43.703 39.344 4.359	43.295 39.762 3.533	39.426 43.806 4.380	39.851 43.396 3.545
6	24	~~43~~.917 39.395 ~~24.522~~	~~39.508~~ ~~43~~.047 ~~8~~.539 4539	~~48~~.933 39.416 ~~3~~.517 4.517	39.512 44.054 4.542
3	25	38.566 36.482 2.084	36.596 38.713 2.117		

Measuring drawing of mm.

38.362	.934
37.428	.964
36.464	.958
35.506	.953
34.553	
33.643	.910
32.699	.944
31.748	.954
30.794	.925
29.869	.962
28.907	
9.455	

33.717
24.298
9.419

~~+7.8~~
43.178
33.717
9.461

19.437
4
9.859

2.54 | 24.00 (.9449
2286
1140
1016
1240
1016
2240

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Saturday June 19 ~~20~~ 1920

C.S Micrometer.
Restored nearly to original form.
Measures made with screw transverse to
vertical support for microscope.

Image	Focus				
~~27~~ 27	4	I 3995-8	Do.		
		54.447	Reversed. 54.456	51.850	
		51.718	51.755	54.533	
		2.729	2.701	2.683	
	Reversed	54.442	51.853		
		51.757	54.536		
		2.685	2.683	Mean 2.684	
23	5	54.459	51.013		
		51.921	54.539	Mean 3.532	
		3.538	3.526		
24	6	54.430	49.991		
		49.918	54.511	Mean = 4.516	
		4.512	4.520		
25	3	54.428	52.404		
		52.325	54.514	Mean = 2.106	
		2.103	2.110		
26	4	54.386	51.773		
		51.683	54.490	Mean 2.710	
		2.703	2.717		
27	5	54.469	50.920	54.385	50.927
		50.828	54.474	50.836	54.478
		3.641	3.554	3.549	3.551

Mean 3.550

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Saturday June ~~20~~ 19 1920

Focus I 39961 Do.

1	1 54.546 4 53.176 1.370	2 54.415 3 53.284 1.131	1 53.243 4 54.623 1.380 Mean 1.370 Mean = 1.375	2 53.388 3 54.513 1.125 Mean 10.64 1.128
2	54.703 52.772 1.931	54.538 52.961 1.577	52.873 54.781 1.908 Mean 1.920	53.037 54.620 1.583 7.90 1.580
3	54.889 52.357 2.532	54.681 52.602 2.079	52.464 54.969 2.505 Mean 2.518	52.662 54.760 2.098 9.30 2.088
4	55.214 51.915 ~~4~~ 3.299	54.892 52.218 2.674	52.023 55.309 3.286 Mean 3.292	52.312 54.995 2.683 5.7 2.678
5	55.640 51.298 4.342	55.224 51.677 3.547	51.383 55.733 4.350 Mean 4.346	51.778 55.327 3.549 8.1 3.548
6	56.170 50.610 5.560	55.658 51.137 4.521	50.723 56.273 5.550 Mean 5.555	51.222 55.752 4.530 7.42 4.526
7	56.901 49.804 7.097	56.152 50.458 5.694	49.893 56.974 7.081 Mean 7.089	50.557 56.256 5.699 7.12 5.696

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1904phae.proj..926K

Saturday, June 19, 1920

Tons				
8	57.747	56.886	48.766	49.645
	48.673	49.553	57.858	56.963
	9.074	7.333	9.092	7.318
			Mean 9.083	7.326
9	59.478	58.365	48.073	49.160
	47.952	49.068	59.548	58.447
	11.526	9.297	11.475	9.287
			Mean 11.500	9.292
10	59.619	58.142	45.063	46.433
	44.942	46.354	59.726	58.237
	14.677	11.788	14.663	11.804
			Mean 14.670	11.796

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1904phae.proj.r.926K

Saturday June 19, 1920

9 39963

Ordinary	59.755	59.593	58.107	58.250
Items	58.022	58.152	59.839	59.692
1	1.733	1.441	1.732	1.442
			Mean 1.732	1.442
2	60.155	59.923	57.971	58.154
	57.903	58.063	60.240	60.040
	2.252	1.880	2.269	1.886
			Mean 2.260	1.883
3	60.354	60.121	57.622	57.840
	57.505	57.762	60.433	60.211
Hazy Image	2.854	2.359	2.811	2.371
			Mean 2.832	2.365
4	60.665	60.344	57.140	57.448
	57.042	57.362	60.771	60.437
	3.623	2.982	3.631	2.989
			Mean 3.627	2.986
5	60.080	59.647	55.510	55.912
	55.448	55.848	60.187	59.763
	4.632	3.799	4.677	3.851
			Mean 4.654	3.825
6	60.416	59.863	54.675	55.168
	54.524	55.076	60.523	59.968
	5.892	4.787	5.878	4.809
			5.885	4.794
7	~~60.433~~	~~60.428~~	~~53.020~~	~~58.109~~
	~~53.710~~	~~59.699~~	~~59.194~~	~~53.808~~
	6.723	.729	774	.699
	60.428	59.699	53.109	53.808
	53.020	53.719	60.519	59.194
	7.408	5.980	7.410	5.986
			Mean 7.409	

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1904phae.proj..926K

Saturday, June 19, 1920

8	60.628	59.738	51.356	52.227
	51.257	52.133	60.738	59.825
	9.371	7.605	9.382	7.598
			Mean 9.376	7.602
9	61.021	59.883	49.297	50.441
	49.233	50.341	61.139	59.978
	11.788	9.542	11.842	9.539
			Mean 11.815	9.540
10	62.613	61.140	47.737	49.176
	47.658	49.068	62.693	61.222
	14.955	12.072	14.956	12.046
			Mean 14.956	12.059

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1904phae.proj..926k

Saturday June 19, 1920

9 39964 - 8 20

Focus 4	62.870	60.270	
Image 22	60.180	62.964	
	2.690	2.694	Mean 2.692
Focus 5	63.237	59.804	
Image 23	59.721	63.338	3.521
	3.516	3.534	Mean 3.525
Focus 6	63.361	58.942	
Image 24	58.844	63.496	
	4.517	4.554	Mean 4.536
Focus 6	63.393	58.874	
Image 30	58.889	63.411	
	4.504	4.537	Mean 4.520
Focus 3	61.008	58.974	
Image 31	58.886	61.090	
	2.122	2.116	Mean 2.119
Focus 4	61.051	58.415	
Image 32	58.300	61.160	
	2.751	2.745	Mean 2.748
Focus 5	61.071	57.616	3.546 / 3.524 / 0.022
Image 34	57.517	61.158	
	3.554	3.542	Mean 3.548

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1904phae.proj..926K

Monday
~~Saturday~~ June ~~9~~ 21, 1920

G 39965 Ord

Image	Trans		
22	b	49.483	44,768
		44.672	49.578
		4.811	4.810

Mean 4.810

		49,988	44.037
23	7.	43.939	50.072
		6.049	6.035

Mean 6.042

24	4	50.327	42.775
		42.728	50.410
		7.604	7.635

Mean 7.620

30	b	50.298	45.563
		45.472	50.387
		4.826	4.824

Mean 4.825

31	5	48.771	45.150
		44.927	48.991
		3.844	3.841

Mean 3.843

32	b	48.526	43.805
		43.715	48.620
		4.811	4.815

Mean 4.813

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1904phae.proj..926k

~~Monday~~ Tuesday June ~~21~~ 22 1920

Mag	I 39959 ord.				
22	48.508	42.975			
	43.699	47.281			
	4.809	4.306	Mean 4.808		
23	46.935	40.000			
	40.910	47.029	Mean 6.027		
	6.025	6.029			
24	47.475	39.657	47.171	39.623	47.163
	39.853	47.260	39.525	47.228	39.520
	7.622	7.603	7.646	7.605	7.643
	39.622	47.143	39.618	47.144	39.618
	47.229	39.519	47.249	39.530	47.207
	7.607	7.624	7.631	7.614	7.619

24 mean Vall = 7.621

Coll mean = 7.62

25	44.356	40.583	
	40.496	44.460	
	3.860	3.877	Mean 3.868
26	44.347	39.531	
	39.443	44.438	Mean 4.906
	4.904	4.907	
27	43.840	37.872	
	37.770	43.918	Mean 6.058
	6.070	6.046	

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1904phae.proj..926K

Tuesday June 22 1920.

Plates from I 39964

31	3	54.372	54.118	51.884	52.098
		52.793	52.018	54 444	54.204
		2.579	2.100	2.560	2.106
			mean	2.570	2.103

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1904phae.proj..926K

Monday June 28 1920

I 39970 Do C.S. Nicomachus. Institutio arithmetica

~~3T~~	5.917	2,443		
	2.353	5.994		
	3.562	3.553		
3.5–3.7	1,656	6.122	1.600	6.064
	6.243	1.580	6.134	1.523
	4.587	4.542	4.534	4.541
			4.538	
3.5	2,291	6.800	2.230	6.703
	6.863	2.210	6.775	2.155
	4.572	4.590	4.545	4.548
			4.546	

Returned to microcop from I 39962 Ord.

2 at 22	54.315	56.125	Shmedla
	56.223	54.226	Mendula
	1.908	1.899	page 78
1 at 28.2	56.875	55.492	
	55.385	56.973	
	1.490	1.481	

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1904phae.proj..926K

Tuesday June 29 1920

I 39970 Bo. Quick exposure

31	Diameter	Wire		
	67.378	67.691	70.614	70.312
	70.743	70.438	67.286	67.564
	3.365	2.747	3.328	2.748
			3.365	2.747
			3.346	2.748
32	67.099	67.436	70.364	70.060
Rather wiggly.	70.487	70.186	67.002	67.307
	3.388	2.750	3.362	2.753
			3.375	2.752

See page 77 for measures of I 39962

.172
.021
.2091
.046

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1904phae.proj..926K

Tuesday June 29 1920

I 39969 Do.

2 at 22

63,869	62.385
62,292	63.945
1.577	1.560

1.57

at 27

63.810	59.114
59.017	63.903
4.793	4.789

4.79

I 39960

1 at 22

62.737	61,590
61,52	62.828
1.216	1.238

1.23

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1904phae.proj..926K

Thursday July 1. 1920

C. S. Micrometer

Measure of steel rule

52.193 4.722
56.915 4.736
61.651 4.731
66.382 4.729
71.111 4.726
75.837
23.644

25 × 25.4 = 635.

24 | 635. (23.
48
155

25 mm × 24
25.4

254 | 600 (23.622
508
920
762
1580
1524
560
508
520

54.074
97.737
23.663

.644
.663
657
.653
4 | 2617
629
.654

98.037
74.380
23.657

50.727
23.650

Mean = 23.654
4

~~2540.~~

25.4 | 2400. | .9449
2286
1140
1016
1240
1016
2240
2286

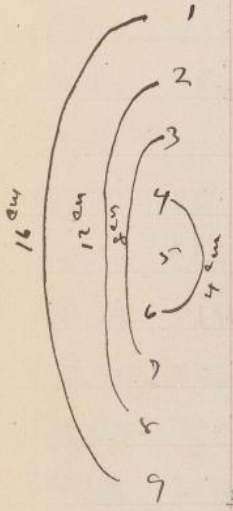
23.62

2365
again
2362

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1904phae.proj..926K

I 39482 Measures with C. S. Wicomico



21		22		23		24	
69.396							
~~69.419~~	69.520	65.832	65.909	64.770	64.836	65.~~446~~ 190	65.258
67.948							
~~67.932~~	68.019	65.643	65.735	64.530	64.624	64.910	65.007
66.425	66.494	65.477	65.563	64.324	64.385	64.613	64.706
64.902	64.997	65.297	65.375	64.080	64.154	64.305	64.396
63.394	63.466	65.102	65.186	63.820	63.905	63.984	64.078
61.871	61.958	64.898	64.995	63.590	63.662	63.677	63.786
60.351	60.425	64.721	64.805	63.317	63.400	63.365	63.465
58.838	58.926	64.549	64.603	63.087	63.187	63.077	63.176
57.367	57.452	64.419 (3)	64.408 (?)	62.871	62.969	62.803	62.897

25		26		27		28	
64.935	65.032	64.752	~~64.847~~ 64.886	64.636	64.741	64.580	64.677
64.582	64.659	64.272	64.383	64.039	64.147	63.850	63.943
64.192	64.275	63.801	63.905	63.445	63.548	63.092	63.192
63.805	63.913	63.313	63.416	62.837	62.944	62.335	62.435
63.424	63.516	62.819	62.897	62.214	62.318	61.574	61.653
63.042	63.144	62.331	62.432	61.596	61.703	60.806	60.906
62.671	62.768	61.857	61.947	60.985	61.071	60.078	60.146
62.316	62.391	61.353	61.466	60.391	60.475	59.321	59.416
61.945	62.034	60.910	61.000	59.800	59.906	58.573	58.678

29		30		31		21 Repeated	
64.784	64.880	65.920	66.020	66.875	66.967	69.147	69.253
63.843	63.946	64.746	64.849	65.360	65.462	67.660	67.755
62.884	62.992	63.554	63.652	63.867	63.954	66.165	66.257
61.921	62.025	62.338	62.447	62.320	62.440	64.628	64.727
60.964	61.073	61.139	61.234	60.810	60.916	63.102	63.210
60.010	60.097	59.936	60.030	59.288	59.384	61.569	61.680
59.031	59.153	58.733	58.852	57.768	57.860	60.064	60.173
58.095	58.197	57.560	57.653	56.263	56.360	58.558	58.660
57.164	57.269	56.391	56.487	54.816	54.886	57.100	57.203

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Wednesday Jan 5 1921

I 40200 Measures with C.S. Micrometer.

2x2		2x3		2x4		2x5	
57.633	57.600	57.938	57.926	59.550	59.560	61.069	61.074
57.425	57.402	57.675	57.671	59.220	59.224	60.628	60.623
57.211	57.200	57.405	57.405	58.869	58.880	60.182	60.187
57.013	57.010	57.140	57.138	58.510	58.526	59.720	59.729
56.794	56.787	56.863	56.865	58.165	58.160	59.264	59.265
56.572	56.559	56.592	56.573	57.816	57.820	58.817	58.816
56.367	56.341	56.306	56.303	57.456	57.456	58.340	58.350
56.146	56.135	56.027	56.023	57.098	57.102	57.879	57.886
55.923	55.913	55.768	55.768	56.759	56.773	57.435	57.438
2x6		2x7		2x8		2x9	
62.554	62.560	64.660	64.668	65.414	65.425	69.855	69.868
61.994	61.993	63.985 (4 ***)	63.954	64.508	64.508	68.695	68.691
61.421	61.417	63.231	63.232	63.597	63.613	67.540	67.537
60.838	60.843	62.551 (50 ***)	62.496	62.671	62.663	66.333	66.358
60.258	60.252	61.777	61.788	61.733	61.730	65.177	65.180
59.688	59.681	61.052	61.059	60.806	60.809	64.023	64.016
59.096	59.097	60.305	60.313	59.867	59.864	62.837	62.838
58.505	58.504	59.569	59.564	58.936	58.933	61.643	61.649
57.942	57.989 (3 *)	58.861	58.853	58.006	58.013	60.485	60.504
30 29		30 1		31 21		32 38	
71.105	71.125	65.256	65.260	57.728	57.743	62.689	62.690
69.645	69.648	65.130	65.120	57.596	57.603	61.213	61.210
68.172	68.169	64.973	64.953	57.420	57.401	59.723	59.733
66.669	66.670	64.804	64.802	57.260	57.264	58.220	58.226
65.176	65.176	64.616	64.645	57.110	57.104	56.744	56.742
63.713	63.710	64.450	64.464	56.951	56.943	55.255	55.246
62.197	62.202	64.284	64.292	56.776	56.776	53.748	53.750
60.696	60.696	64.138	64.121	56.594	56.592	52.290	52.277
59.224 (5 *)	59.225	63.933	63.957	56.443	56.458	50.827	50.823

* assumed Feb 1

* * assumed

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1904phae.proj..926K

I 40200 Measures with C.S. Micrometer.

	21		22		23		24	
9	58.214	58.206	58.549	58.543	58.919 ~~.553~~	58.923	60.375	60.383
8	58.089	58.072	58.350	58.353	58.668 ~~.411~~	58.664	60.046	60.068
7	57.902	57.891	58.145	58.183	58.410 ~~.132~~	58.403	59.701	59.708
6	57.755	57.750	57.930	57.928	58.134	58.133	59.355	59.352
5	57.577	57.589	57.720	57.714	57.852	57.859	59.001	59.005
4	57.418	57.426	57.500	57.500	57.582	57.588	58.651	58.643
3	57.258	57.256	57.286	57.293	57.306	57.303	58.300	58.290
2	57.086	57.100	57.053	57.058	57.025	57.017	57.944	57.953
1	56.924	56.932	56.844	56.847	56.758	56.755	57.599	57.600

	25		26		27		28	
9	61.408	61.483	63.276	63.286	64.203	64.190	65.449	65.458
8	60.975	61.038	62.718	62.717	63.480	63.475	64.540	64.537
7	60.519	60.595	62.156	62.143	62.766	62.757	63.620	63.634
6	60.067	60.136	61.571	61.573	62.034	62.025	62.694	62.696
5	59.600	59.674	60.979	60.977	61.304	61.307	61.763	61.759
4	59.152	59.216	60.394	60.402	60.582	60.562	60.831	60.840
3	58.674	58.748	59.822	59.810	59.838	59.843	59.874	59.893
2	58.221	58.286	59.243	59.232	59.102	59.090	58.954	58.949
1	57.771	57.852	58.667	58.669	58.385	58.385	58.046	58.030

× appr. readjusted at other point.

	29		30		31		38	
9	69.469	69.469	70.190	70.185	63.904	63.884	70.333	70.326
8	68.297	68.305	68.716	68.726	~~68.744~~	63.736	68.876	68.866
7	67.145	67.159	67.236	67.234	63.583	63.576	67.393	67.394
6	65.963	65.981	65.726	65.729	63.418	63.421	65.894	65.900
5	64.793	64.806	64.246	64.234	63.275	63.276	64.414	64.413
4	63.633	63.637	62.769	62.764	63.082	63.084	62.934	62.922
3	62.458	62.446	61.258	61.271	62.913	62.938	61.428	61.443
2	61.266	61.274	59.763	59.765	62.756	62.763	59.927	59.924
1	60.090	60.117	58.292	58.290	62.587	62.604	58.453	58.448

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1904phae.proj..926K

Thursday Feb 17 1921

Measures made with C.S. Mc Cormick

Wires 16 cm apart

I 39958

22	60.421	60.427	23	60.009	60.019	24	Too faint			
	~~58.470~~	55.482		53.992	~~53.~~ 54.006					
	57.754	57.766								
	~~55.482~~	~~55.738~~								
	~~2.988~~	.256		6.017	6.013	Repeated Feb. 18.	59.844	59.~~844~~ 833		
	2.667 2.664	2.661		6.015			~~58.833~~ 55.304	~~58.833~~ 55.297		
							4.540	4.536		
23	59.274	~~58~~ 59.280	24	61.588	61.585	30	61.333	61.630		
	55.741	55.756		53.984	53.990		57.114	~~58~~ 57.096		
	3.533	3.524		7.604	7.595		4.219	4.534		
	3.528			7.600				4.538		
24	60.075	~~60~~ 58.082	25	59.918	59.905	31	60.771	60.771		
	55.594	55.597		56.051	56.070		58.660	58.666		
	4.481	4.485		3.867	3.838		2.111	2.105		
	4.483			3.852				2.108		
25	60.684	~~60~~ 58.704	26	61.174	61.179	32	63.064	63.060		
	58.600	58.597		56.291	56.280	Uncertain	60.375	60.337		
	2.084	2.107		4.883	4.899		2.689	2.723		
	2.096			4.891				2.706		
26	61.107	~~61~~ 58.103	27	62.688	62.690	34	62.344	62.334		
	58.404	58.395		56.634	56.624		58.796	58.798		
	2.703	2.708		6.054	6.066		3.548	3.536		
	2.706			6.060				3.542		
27	61.677	~~61~~ 58.681	I39964	57.246	57.237	I39965	59.691	60.380		
	58.151	58.135	22	54.548	54.547	22	54.897	55.568		
	3.526	3.546		2.698	2.690		4.794	4.812		
	3.536			2.694				4.803		
I39959 22	57.586	57.592	23	57.951	57.947	23	60.419	60.408		
	52.797	52.798		54.402	54.403		54.383	54.379		
	4.789	4.794		3.549	3.544		6.036	6.029		
	4.792			3.546				6.032		

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1904phae.proj..926K

Thursday Feb 17 1921

Same as preceding

30	63.552	63.556	25	63.091	63.096	26	62.160	62.169
24	58.730	58.729	6	58.305	58.295	5	58.368	58.342
	4.822	4.827		4.786	4.801		3.792	3.827
	4.824			4.794			3.810	
31	64.365	64.361	26	62.494	62.487	27	62.813	62.811
	60.509	60.513	5	58.662	58.650		58.028	58.045
	3.856	3.848		3.832	3.837	6	4.785	4.766
	3.852			3.834			4.776	
32	65.721	65.736	27	63.215	63.228	I39970 23	61.023	61.028
	60.905	60.903	7	57.235	57.230	1 Uncertain	59.848	59.863
	4.816	4.833		5.980	5.998		1.175	1.165
	4.824			5.989			1.170	
33	67.175	67.175	I39969	64.267	64.263	24	62.605	62.610
	61.127	61.128	22	62.693	62.702	2	61.036	61.039
	6.048	6.047	2	1.574	1.561		1.569	1.571
	6.048			1.568			1.570	
I39968 22	65.620	65.625	23	63.940	63.934	28	61.603	61.607
4	62.659	62.664	Hazy 3	61.877	61.863	4	58.900	58.900
	2.961	2.961		2.063	2.071		2.703	2.707
	2.961			2.067			2.705	
23	64.558	64.555	24	63.924	63.934	29	61.839	61.849
5	60.767	60.757	4	61.026	61.028	5	58.304	58.294
	3.791	3.798		2.898	2.906		3.535	3.555
	3.794			2.902			3.545	
24	64.894	64.896	25	61.320	61.315	31	60.746	60.745
6	60.106	60.104	4	58.377	58.374	4	58.004	57.986
	4.788	4.792		2.943	2.941		2.742	2.759
	4.790			2.942			2.750	

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1904phae.proj..926K

Thursday Feb. 17 1921
Same as preceding.

32	60.201	60.204	I39973	59.183	59.179	
4	57.466	57.471	22	57.556	57.554	
	2.735	2.733	2	1.627	1.625	
	2.734			1.626		
33	61.097	61.103	23	58.790	58.804	
5	57.536	57.539	Hazy 3	56.705	56.705	
	3.561	3.564		2.085	2.099	
	3.562			2.092		
I39972 22	57.897	57.892	24	58.176	58.178	
3	55.516	55.522	4	55.494	55.491	
	2.381	2.370		2.682	2.687	
	2.376			2.684		
23	58.561	58.553	25	58.804	58.847	
4	55.575	55.574	Hazy 5	55.263	55.273	
	2.986	2.979		3.541	3.574	
	2.982			3.558		
24	59.896	59.911				
4	56.894	56.898				
	3.002	3.013				
	3.008					
25	59.848	59.853				
5	56.007	56.014				
	3.841	3.839				
	3.840					
26	60.091	60.102				
6	55.302	55.288				
	4.789	4.814				
	~~4.8~~ 4.802					

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1904phae.proj..926K

Friday Feb 18 1921

Measures with C. S. Micrometer.

Lines 16 cm apart

I 39975

22	1	57.496	3	57.494		62.081	62.071	23	58.334	58.318
3	2	54.941	4	54.956	29	57.276	57.281		56.736	56.712
		2.555		2.538	b	4.805	4.790		1.598	1.606
		2.546				4.798			1.602	
23					I 39987					
					22	53.900	53.894	24	59.531	59.524
						52.017	51.989		57.464	57.456
						1.883	1.905		2.067	2.068
						1.894			2.068	
24		58.304		58.310	23	57.478	57.474	~~25~~		
4		55.265		55.269		55.061	55.049			
		3.039		3.041		2.417	2.425			
		3.040				2.421				
25		58.479		58.475	24	56.809	56.794	~~26~~		
3		56.067		56.067		53.751	53.738			
		2.412		2.408		3.052	3.056			
		2.410				3.054				
26		60.796		60.790	25	60.061	60.059	~~27~~		
3		58.373		58.384		56.221	56.217			
		2.423		2.406		3.840	3.842			
		2.414				3.841				
27		61.253		61.271	26	60.318	60.321	~~28~~		
4		58.258		58.253		55.490	55.481			
		2.995		3.018		4.828	4.840			
		3.006				4.834				
28		61.531		61.528	I 39988			~~29~~		
b		57.691		57.699	22					
		3.840		3.829	Tovfaunt					
		3.834								

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1904phae.proj..926K

Friday, Feb. 18, 1921. Same as preceding.

25 / ~~30~~	60.326	60.323		32 / ~~37~~	63.258	63.264		24a	66.725	66.724
	58.223	58.221			60.533	60.530			64.604	64.594
	2.103	2.102			2.725	2.734			2.121	2.130
	2.102				2.730				2.126	
26 / ~~31~~	61.953	61.945		33 / ~~23a~~	66.978	66.989		25a	67.817	67.811
	59.231	59.229			64.833	64.824			64.243	64.245
	2.722	2.716			2.145	2.165			3.574	3.566
	2.719				2.155				3.570	
27 / ~~32~~	62.745	62.746		34 / ~~24a~~	63.839	63.833		26a	68.688	68.677
	59.192	59.187			61.083	61.077			62.939	62.988
	3.553	3.559			2.756	2.756			5.749	5.738 / ~~5.697~~
	3.556				2.756				5.744	
~~28~~ / ~~33~~	64.495	64.487		35 / ~~25a~~	64.874	64.874		27a	66.994	66.992
	58.748	58.734			62.113	62.108			61.248	61.248
	5.747	5.753			2.761	2.766			5.746	5.744
	5.750				2.764				5.745	
29 / ~~34~~	63.973	63.975		36 / ~~26a~~	64.936	64.937		I 39989	57.354 / 57.327	57.353 / 57.348
	60.387	60.400			62.172	62.175		Sunbeam	55.492 / 55.480	55.470 / 55.477
	3.586	3.575			2.764	2.762			1.847 / 1.862	1.871 / 1.883
	3.580				2.763					
30 / ~~35~~	64.223	64.224		37 / ~~27a~~	61.524	61.536		23	61.267	61.267
	61.495	61.495			59.393	59.391			58.885	58.863
	2.728	2.729			2.131	2.145			2.382	2.404
	2.728				2.138				2.393	
31 / ~~36~~	60.639	60.640	I	23a	38.696 / ~~38.684~~	38.694 / ~~38.697~~		24	59.365	59.365
	58.509	58.521			36.581 / ~~36.587~~	36.570 / ~~36.575~~			56.377	56.373
	2.130	2.119			2.115 / ~~2.097~~	2.124 / ~~2.122~~			2.988	2.992
	2.124				2.120				2.990	
								22 Remeasured	58.490	58.485
									56.595	56.594
									1.895	1.891
									1.893	

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1904phae.proj..926K

~~Saturday~~ ~~Friday~~, Feb. 19, 1921.

Same as preceding.

25	60.309	60.305	27	Not to be		34	59.959	59.958
	56.469	56.463		measured			57.241	57.248
	3.840	3.842					2.718	2.710
	3.841						2.714	
26	62.457	62.453	28	62.187	62.184	35	59.471	59.466
	57.661	57.656		56.447	56.446		56.754	56.753
	4.796	4.797		5.740	5.738		2.717	2.713
	4.796			5.739			2.715	
I 39990	59.833	59.850	29	59.799	59.801	36	61.943	61.946
22	58.680	58.687		56.279	56.273		59.839	59.833
Dark and uncertain	1.153	1.163		3.520	3.528		2.104	2.113
	1.158			3.524			2.108	
23	60.453	60.451	30	63.336	63.337	37	60.880	60.883
	58.847	58.839		61.235	61.242		58.788	58.773
Measured Feb. 19	1.606	1.612		2.101	2.095		2.092	2.110
	1.609			2.098			2.101	
24	59.278	59.280	31	62.732	62.740	22a	64.099	64115
	57.183	57.181		60.015	60.015		62.007	62.014
	2.095	2.099		2.717	2.725		2.092	2.101
	2.097			2.721			2.096	
25	57.226	57.235	32	63.700	63.698	23a	63.473	63.459
	55.133	55.143		60.987	60.979		59.924	59.922
	2.093	2.092		2.713	2.719		3.549	3.537
	2.092			2.716			3.543	
26	Not to be		33	60.215	60.227	24a	63.390	63.391
	measured			58.120	58.116		57.675	57.674
				2.095	2.111		5.715	5.717
				2.103			5.716	

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1904phae.proj..926K

Saturday Feb 19 1921

25a	58.043	58.044	26	Faint		33	50.283	50.275
	52.318	52.320					~~55.394~~	~~55.418~~
							47.545	47.549
							~~52.679~~	~~52.657~~
	5.725	5.724					.715	~~2.761~~
	5.724						2.738	2.926
							2.732	
26a	59.809	59.816	27	Faint		34	55.951	55.951
	52.525	52.524					53.846	53.845
	7.284	7.292					2.105	2.106
	7.288						2.106	
27a	62.947	62.946	28	61.~~541~~ 458	61.468	35	~~Faint to be~~	
	~~60.858~~	60.861		55.727	55.716		measured	
	2.089	2.085		5.731	5.752			
	2.087			5.742				
I 39995	Faint		29	60.750	60.747	36	Just to be	
22				58.642	58.638		measured	
				2.108	2.109			
				2.108				
23	Faint		30	61.368	61.359	I 40097	64.979	64.978
				58.618	58.615	22	61.163	61.154
				2.750	2.744		2.816	2.824
				2.747			2.820	
24	Faint		31	62.566	62.553	23	64.~~4~~0 44	64.041
				59.820	59.820		61.214	61.224
				2.746	2.733		2.830	2.817
				2.740 39			2.824	
25	57.539	57.559	32	59.014	59.023	24	63.414	63.411
	~~55.~~ 481	55.477		56.288	56.291		58.810	58.824
	2.058	2.082		2.726	2.732		4.604	4.587
	2.070			2.729			4.596	

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1904phae..proj..926K

Saturday Feb 19 1921

25	62.436	62.436		32	Not to be			23	56.564	56.560
	60.663	60.658			measured				53.847	53.853
	1.773	1.778							2.717	2.707
	1.776								2.712	
26	62.114	62.146		33	64.163	64.168		24	Too faint	
	59.318	59.346			62.224	62.225				
	2.796	2.800			1.939	1.943				
	2.798				1.941					
27	63.723	63.716		34	Too faint			25	Too faint	
	60.888	60.876								
	2.835	2.845								
	2.840									
28	Too faint			35	66.067	66.062		26	59.177	59.180
					58.674	58.676			57.055	57.052
					7.393	7.386			2.122	2.128
					7.390				2.125	
29	64.424	64.400		36	65.244	65.255		27	57.094	57.099
	59.770	59.787			59.456	59.446			54.367	54.369
	4.654	4.623			5.788	5.809			2.727	2.730
	4.638				5.798				2.728	
30	64.545	64.553		37	Too faint			28	Too faint	
	61.763	61.762								
	2.782	2.791	I39998							
	2.786		22							
31	64.437	64.406	I39998		62.427	62.423		29	53.391	53.385
	61.613	61.618	22		56.645	56.640			50.650	50.644
	2.824	2.788			5.782	5.783			2.741	2.741
	2.806				5.782				2.741	

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1904phae.proj..926K

Saturday ~~Feb~~ 19, 1921.
Monday " 21 " I40135

	30	60.789	60.784	I 40135	58.426	58.427	31	71.449	71.444
		55.004	55.007	I ~~38 22~~	53.863	53.868	~~29~~	~~69.599~~ 69.253	69.505 69.255
		5.775	5.777	~~58.426~~	4.563	4.559		~~67.320~~ 67.323	67.323
		5.776			~~64.148~~ 4.564	64.152		~~2.279~~	~~2.182~~
					60.559	60.547		2.196	2.186
					3.589	3.605		2.191	
	31	61.164	61.164	~~37 23~~	64.148	64.152	30	68.347	68.336
		53.783	53.776		60.559	60.547		63.727	63.732
		7.381	7.388		~~4~~ 3 4.559	~~4~~ 3 4.605		4.620	4.604
		7.384			3.597			4.612	
	34	62.087	62.081	~~36 24~~	58.746	58.7~~7~~ 34	~~27 31~~	68.373	68.374
		~~59.323~~	59.315		56.573	56.582		64.749	64.743
		2.764	2.766		2.173	2.152		3.624	3.631
		2.765			2.162			3.628	
I40110	23	57.550	57.547	~~31 25~~	60.557	60.572	~~28 32~~	64.933	64.920
		53.922	53.923		58.412	58.407		62.~~675~~ 152	62.155
		3.628	~~4~~ 3 4.624		2.145	2.165		2.~~781~~ 782	2.765
		3.626			2.155			2.774	
	24	57.973	57.969	~~34 26~~	61.035	61.030	~~27 33~~	61.096	61.097
		55.182	55.187		58.876	58.883		58.935	58.934
		2.791	2.782		2.162	2.147		2.161	2.163
		2.786			2.154			2.162	
	25	57.953	57.948	~~33 27~~	63.776	63.757	~~22 34~~	65.108	65.105
		55.174	55.184		61.588	61.594		62.943	62.953
		2.779	2.764		2.188	2.163		2.165	2.152
		2.772			2.176			2.158	
	26	59.371	59.353	~~32 28~~	65.178	65.185	~~25 35~~	4 65.828	4 65.833
		~~57.187~~	57.170		63.002	63.002		62.684	62.683
		2.184	2.183		2.176	2.183		~~2~~ 3.144	~~2~~ 3.150
		2.184			2.180			~~2~~ 3.147	

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1904phae.proj..926x

Monday Feb. 21, 1921

	24 ~~26~~	65.006	65.010	25	58.795	58.793	25	Not to be measured	
		57.613	57.621		56.606	56.612			
		7.393	7.389		2.189	2.181			
		7.391			2.185				
	23 ~~27~~	63.596	63.602	26	58.355	58.359	26	60.437	60.434
		57.815	57.811		55.545	55.548		56.511	56.511
		5.781	4.791		2.810	2.811		3.926	3.923
		5.786			2.810			3.924	
	22 ~~28~~	66.917	66.917	27	59.635	59.633	27	62.324	62.332
		63.323	63.323		56.014	56.017		57.405	57.407
		3.594	3.594		3.621	3.616		4.919	4.925
		3.594			3.618			4.922	
I40203		60.557	60.558	28	59.731	59.727	28	62.361	62.372
	26	56.657	56.663		55.114	55.116		56.263	56.257
		3.900	3.895		4.617	4.611		6.098	6.115
		3.898			4.614			6.106	
	27	61.969	61.974	22	54.541	54.530	I40224	59.374	59.378
		57.069	57.060	I40223	51.457	51.460	22	57.211	57.203
		4.900	4.914		3.084	3.070		2.163	2.175
		4.907			3.077			2.169	
	28	64.893	64.898	23	Faint		23	61.493	61.496
		58.769	58.761					58.706	58.703
		6.124	6.137					2.787	2.793
		6.130						2.790	
I40222	24	58.812	58.814	24	~~Faint~~ k		24	58.099	58.096
		57.131	57.130		measure			55.309	55.307
		1.681	1.684					2.790	2.789
		1.682						2.790	

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1904phae.proj..926K

Monday Feb. 21, 1921.

25	59.430	59.441		32	52.164	52.170			
	56.663	56.660			49.374	49.379			
	2.767	2.781			2.790	2.791			
	2.774				2.790				
26	60.024	60.022		33	57.284	57.285			
	57.237	57.243			54.497	54.492			
	2.787	2.779			2.787	2.793			
	2.783				2.790				
27	59.557	59.551		34	57.651	57.654			
	55.932	55.913			54.863	54.857			
	3.625	3.638			2.788	2.797			
	3.632				2.792				
28	60.476	60.463	Reticule		67.007	57.538	4.736		
	54.668	54.671			62.271	52.813	4.733		
	5.808	5.792					4.725		
	5.800								
29	60.443	60.448	Reticule		76.506		69.902		
	53.053	53.044			71.778	4.728	65.172	4.730	
	7.390	7.404			67.044	4.734	60.444	4.728	
	7.397				62.314	4.730	55.708	4.736	
30	58.656	58.650			57.582	4.732	50.979	4.729	
	55.863	55.856			52.858	4.724	46.248	4.731	
	2.793	2.794			48.128	4.730			
	2.794								
				b	28.378				
					4.729				
31	58.193	58.199							
	55.403	55.396							
	2.790	2.803							
	2.796								

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1904phae.proj..926K

Wednesday March 2 1921

I 403 ~~28~~ Int'y settings. Measures in C.S.M.

Jan 22		Means	24		Means
67.448	67.447	67.448	63.215	63.199	63.208
65.950	65.943	65.946	61.703	61.715	61.709
64.433	64.427	64.430	60.193	60.188	60.190
62.903	62.900	62.902	58.660	58.656	58.658
61.390	61.385	61.388	57.156	57.163	57.160
59.884	59.886	59.885	55.635	55.631	55.633
58.340	58.345	58.342	54.098	54.091	54.094
56.870	56.858	56.864	52.614	52.604	52.609
55.387	55.392	55.384	51.126	51.132	51.129

39		Means.
68.650	68.657	68.654
67.151	67.156	67.154
65.644	65.644	65.644
64.109	64.108	64.108
62.610	62.600	62.605
61.093	61.093	61.093
59.548	59.546	59.547
58.068	58.072	58.070
56.585	56.588	56.586

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1904phae.proj..926K

Measures in C.S.M. March 7, 1921

Wires 16 cm apart.

I40349

22	59.351	59.345	29	62.313	62.314	36	63.860	63.864
	57.818	57.808		59.252	59.251		54.298	54.302
	1.533	1.537		3.061	3.063		9.562	9.562
	1.535	9.98		3.062	8.47		9.562	6.00
23	59.602	59.608	30	62.419	62.413	37	65.703	65.695
	57.665	57.665		58.579	58.572		53.632	53.628
	1.937	1.943		3.840	3.841		12.071	12.067
	1.940	9.46		3.840	7.98		12.069	5.48
24	58.948	58.944	31	64.284	64.276	38	66.134	66.134
	56.979	56.984		58.218	58.216		54.058	54.075
	1.969	1.960		6.066	6.060		12.076	12.059
	1.964	9.44		6.063	6.99		12.068	5.48
25	Too hazy		32	64.658	64.657	39	66.225	66.223
				58.598	58.595		51.102	51.086
				6.060	6.062		15.123	15.137
				6.061	6.99		15.130	5.00
26	59.615	60.030	33	61.736	61.737	I40350	57.245	57.253
	57.153	57.577		54.094	54.105	22	54.806	54.816
	2.462	2.453		7.642	7.632		2.439	2.437
	2.458	8.94		7.637	6.44		2.438	8.97
27	60.414	60.409	34	62.127	62.141	23	57.806	57.805
	57.923	57.932		54.489	54.498		54.798	54.788
	2.491	2.477		7.638	7.643		3.008	3.017
	2.484	8.93		7.640	6.48		3.012	8.50
28	61.602	61.598	35	63.667	63.653	24	57.967	57.947
	58.522	58.511	Hazy line	54.128	54.134		54.070	54.074
	3.080	3.087		9.529	9.519		3.897	3.873
	3.084	8.46		9.529	6.07		3.885	7.96

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1904phae.proj..926K

Measures in C.S.M.
March 7, 1921

25	58.865	58.863	
	53.988	53.972	
	4.877	4.891	
		4.879	7.44
26	60.307	60.308	
	54.247	54.245	
	6.060	6.063	
		6.062	6.97
27	62.134	62.136	
	52.563	52.576	
	9.571	9.560	
		9.566	6.00
28	63.897	63.894	
	51.795	51.795	
	12.102	12.099	
		12.100	5.48
29	66.401	66.404	
	51.131	51.118	
	15.270	15.286	
		15.278	4.98
30	cannot be measured		
31	cannot be measured		

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1904phae.proj..926K

Measured in C.S.M. — March 16, 1921

Diameters of rings (6 cm)

I 40200	56.025	55.880	54.597	54.446	70.427	69.294	70.428	69.300
	55.010	55.858	54.598	54.450	58.825	59.939	58.824	59.947
			1.283	1.581	11.602	9.355	11.604	9.353
		Mean	1.260	1.560	11.603	9.354		
			1.272	1.570				
23	54.720	54.908	56.754	56.603	71.543	70.105	71.549	70.103
	56.773	56.590	54.900	54.730	56.788	58.216	56.803	58.230
	2.053	1.682	+1.854	+1.873	4.755	1.889	4.746	1.873
Mean	2.038	1.692	2.024	1.703	4.750	1.881		
24	59.085	58.787	59.085	58.774	57.056	56.809	57.038	56.809
	55.661	55.983	55.675	55.989	54.401	54.639	54.412	54.630
	3.424	2.804	3.410	2.785	2.655	2.170	2.626	2.179
	3.417	2.794			2.640	2.174		
					I 40350			
25	60.585	60.196	60.582	60.187	65.310	64.713	65.308	64.715
	56.145	56.543	56.140	56.538	59.274	59.831	59.307	59.830
	4.440	3.653	4.442	3.649	6.036	4.882	6.001	4.885
	4.441	3.650			6.018	4.884 ✓	(4479)	
26	62.496	61.947	62.488	61.969	63.773	63.489	63.774 / 63.770	63.487
	56.833	57.344	56.830	57.354	60.770	61.034	60.764	61.040
	5.663	4.603	5.658	4.615	3.003	2.455	3.010	2.447
	5.660	4.609			3.006	2.457	(2437)	
					I 40349			
27	64.450	63.771	64.436	63.766	65.202	64.943	65.193	64.951
	57.270	58.961	57.253	58.955	62.793	62.980	62.790	63.994
	7.180	4.810	7.183	4.811	2.409	1.963	2.403	1.956
	7.182	4.810			2.406	1.960	(1964)	
28	65.762	64.915	64.775	64.906	65.370	65.069	65.367	65.083
	56.636	57.497	56.646	57.504	62.364	62.622	62.358	62.610
	9.126	7.418	8.129	7.402	3.006	2.447	3.009	2.473
	9.125	7.410			3.008	2.460	(2468)	

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Measures Continued March 16 1921

I 40349	27	65.264	64.979	65.243	64.970				
		62.274	62.499	62.263	62.496				
		2.990	2.480	2.980	2.474				
		2.985	2.477	(2.484)					
				Friday March 18, 1921 [I 39964]					
I 39959	22	68.614	68.445	68.615	68.452 (3)	60.187	59.976	60.195	59.977
		62.670	63.243	62.677	63.247	57.635	57.863	57.631	57.872
		5.944	4.802	5.938	4.805	2.552	2.113	2.564	2.105
		5.94	4.80						
							I 39968		
	25	65.802	65.333	65.798	65.357 (22)	63.524	63.188	63.516	63.184
		61.037	61.487	61.646	61.486	59.901	60.228	59.885	60.221
		4.765	3.876	4.752	3.871	3.623	2.960	3.631	2.963
							I 39972		
I 39958	22	62.640	62.312	62.646	62.317 (22)	62.208	61.928	62.206	61.932
		59.316	59.633	59.305	59.624	59.273	59.538	59.265	59.542
		3.324	2.679	3.341	2.693	2.935	2.890	2.941	2.390
							I 39973		
	25	60.628	60.384	60.628	60.380 (22)	60.939	60.766	60.942	60.768
		58.027	58.273	58.042	58.272	58.921	59.125	58.904	59.113
		2.601	2.111	2.586	2.108	2.018	1.641	2.038	1.655
							I 39975		
	26	61.747	61.440	61.750	61.424	22 Double 66.653	66.342	66.652	66.340
		58.433	58.733	58.411	58.728	63.736	63.999	63.751	63.987
		3.314	2.707	3.339	2.696	2.917	2.345	2.901	2.353
								These values are written down on page 47	
I 39964	22	57.810	57.530	57.805	57.516 (21)	65.011	64.665	65.004	64.663
		54.517	54.830	54.505	54.821	61.298	61.656	61.287	61.652
		3.293	2.700	3.300	2.695	3.713	3.009	3.717	3.011
									(over)

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Continuation, March 18, 192

I 39987	22	62.541	62.348	62.541	62.342	
		60.218	60.456	60.214	60.460	
		2.323	1.892	2.327	1.882	
I 39988	23	63.099	62.935	63.106	62.943	
		61.155	61.338	61.154	61.354	
		1.944	1.597	1.952	1.589	
	23A	42.794	42.599	42.778	42.550	
		40.199	40.438	40.192	40.433	
		2.595	2.161	2.586	2.117	
			2.111			
I 39989	22	62.705	62.492	62.682	62.483	
		60.408	60.619	60.393	60.608	
		2.297	1.873	2.289	1.875	
I 39990	22	63.010	62.887	63.008	62.874	
		61.556	61.725	61.558	61.744	
		1.454	1.162	1.450	1.130	
	28	65.761	65.069	65.404	64.700	
		58.636	59.324	58.264	58.995	
		7.125	5.745	7.140	5.705	
		65.396	64.703			
		58.266	58.954			
		7.130	5.749			

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1904phae..proj..926K

Tuesday. March 22 1921

Measures of diameters of out-of-focus images, using C.S. Micrometer.

Plate & Image				Plate & Image			Plate & Image		
I 39654 P.V	23	45.990	45.993	I 39675-7 P.V (4)	41.162	41.163	I 39696	38.361	38.366
		43.367	43.384		37.851	37.846	11	36.844	36.830
	(3)	2.623 2.61 2.4 2.37	2.609 2.61 4.7 2.14 9.25		3.311 3.31 2.4 3.07	3.311 3.31 6.1 2.70 3.317 8.74	(3)	2.517 1.53 2.4 1.29	2.536 1.53 3.6 1.29 10.41 9.30
	24	47.120	47.119	I 39695 9a P.V	37.357	37.354	13	35.608	35.603
		43.794	43.805		35.368	35.356		33.660	33.665
	(4)	3.326 3.32 2.4 3.08	3.314 3.32 6.1 2.71 8.73	(4)	1.989 1.99 2.4 1.75	1.997 1.99 3.5 1.84 9.82	(5)	1.948 1.94 2.4 1.70	1.938 1.94 3.4 1.60 9.87
Possible movement of Image	25	47.726	47.719	10a	37.880	37.870	14	35.748	35.744
		43.353	43.354		35.243	35.226		33.203	33.199
	(5)	4.373 4.37 2.4 4.13	4.365 4.37 8.2 3.56 8.15	(3)	2.637 2.64 2.4 2.40	2.644 2.64 4.8 2.16 9.22	(3)	2.545 2.54 2.4 2.30	2.545 2.54 4.6 2.08 9.31
I 39655 P	24	50.187	50.182	11a	39.323	39.310	15	36.074	36.065
		46.494	46.491		35.968	35.965		33.734	33.733
	(4)	3.693 3.70 3.9 3.04	3.691 3.70 6.6 3.04 8.49	(4)	3.355 3.35 2.4 3.11	3.345 3.35 6.2 2.73 8.72	(4) Prob = 3.34	2.340 2.34 2.4 2.10	2.332 2.34 4.2 1.92 8.99
	25	51.469	51.459	I 39696 P.V	38.950	38.928	18	40.093	40.109
		46.726	46.737	10	35.661	35.647	(2)	38.231	38.228
	(5)	4.743 4.73 3.2 4.34	4.722 4.73 8.7 3.86 7.96	(4)	3.289 3.28 2.4 3.04	3.281 3.28 6.0 2.68 8.76		1.862 1.87 2.4 1.63	1.881 1.87 3.2 1.52 9.44
I 39674 P.V	5	51.722	51.720	8	37.515	37.505	19	39.844	39.831
		49.173	49.163	(3)	34.932	34.923	(3)	37.347	37.363
	(3)	2.549 2.55 2.4 2.31	2.557 2.55 4.6 2.09 9.29		2.583 2.58 2.4 2.34	2.582 2.58 4.6 2.12 9.26		2.497 2.48 2.4 2.24	2.468 2.48 4.4 2.04 9.35
	6	52.173	52.146	9	37.853	37.856			
	(4)	48.883	48.886	(4)	34.543	34.547			
		3.290 3.28 2.4 3.04	3.260 3.28 6.0 2.68 8.76		3.310 3.31 2.4 3.07	3.309 3.31 6.1 2.70 8.74			

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1904phae.proj..926K

Tuesday, March 22, 1921 Continued

I 39697 PV.	3	30.636	30.634	I 39942 -26-	31.59	31.56	I 39948 P 23	26.23	26.22	
	(3)	28.075	28.073		29.56	29.55		31.44	31.44	
		2.561 (2.56 2.4 2.32 / 2.56 46 2.10)	2.561 9.28		2.03 2.02 =	2.81 9.24		4.79 4.78 =	4.78 2.54	
	4	31.743	31.743	27	31.95	31.95	27	37.36	37.37	
	(4)	28.334	28.328		29.38	29.38		32.57	32.58	
		3.409 (3.41 2.4 3.17 / 3.41 63 2.78)	3.415 6.68		2.57 2.57 =	2.57 9.28		4.79 2.74	4.79	
	5	36.648	36.653	28	31.62	31.63	30	35.41	35.41	
	(4)	33.313	33.316		28.31	28.30		32.46	32.46	
All Images irregular on one edge.		3.335 (3.34 2.4 3.10 / 3.34 61 2.73)	3.337 6.72		3.31 3.32 =	3.33 8.63		2.95 8.92	2.95	
	7	37.438	37.447	I 39943 P. 24	39.35	39.32	31	35.77	35.77	
	(3)	34.823	34.815		35.60	35.63		32.08	32.06	
		2.615 (2.62 2.4 2.38 / 2.62 4 2.15)	2.632 9.24		3.75 3.72 =	3.69 6.57		3.69 3.70 -	3.71 8.48	
	8	35.487	35.483	26	36.33	36.32	I 39949 PV 23	35.70	35.70	
	(4)	32.136	32.140		32.58	32.58		34.20	34.18	
		3.346 (3.35 2.4 3.11 / 3.35 61 2.74)	3.343 6.71		3.75 3.74 =	3.74 8.41		1.50 1.51 =	1.52 10.40	
	10	31.313	31.305	32	33.66	33.68	24	36.33	36.30	
	(4)	27.975	27.963		30.74	30.75		34.31	34.31	
		3.338 (3.34 2.4 2.10 / 3.34 61 2.73)	3.342 8.72		2.92 2.92	2.93 8.98		2.02 2.01 =	1.99 9.80	
I 39942 PV	25	31.92	31.92	33	34.19	34.22	27	37.45	37.45	
		30.42	30.42		30.54	30.54		35.40	35.41	
		1.50 1.50	1.50 10.39		3.65 3.66 =	3.68 8.50		2.05 2.04	2.04 9.76	

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1904phag.proj..926K

Tuesday, March 22, 1921, Continued.

I 39949	28	38.35	38.34	I 39979 P.V	36.77	36.78	I 39.995	35.64	~~35.62~~
		35.75	35.75	23	35.33	35.35	27	31.23	31.32
		2.60	2.59		1.44	1.43		4.41	4.30 Refund
		2.60 =	9.25		1.44	10.50		8.13	8.18
	29	39.10	39.09	24	37.32	37.31	I 40097 P.V	39.12	39.14
	3.32 = 8.74	35.77	35.77		35.37	35.37	22	35.74	35.69
		3.33	3.32 =						
I 39950 P.V	24	29.90	29.90		1.95	1.94		3.38	3.45 Refund
		28.40	28.41		1.94	9.87		8.70	8.65
		1.50	1.49	I 39988 P.V	31.99	32.00	25	37.71	37.72
		1.50	10.42	22	30.52	30.54		34.33	34.34
	25	29.31	29.32		1.47	1.46		3.38	3.38
		27.33	27.32		1.42	10.47		3.3Y	8.70
		1.98	2.00	24	32.47	32.47			
		1.99	9.82		30.50	30.52			
	26	33.33	33.34		31.97	1.95 Refund			
		31.32	31.31		1.42	9.85			
		2.01	2.03	I 39995 P.V	32.63	32.62			
		2.02	9.74	22	31.25	31.25			
	27	34.47	34.48		1.38	1.37			
		31.84	31.84		1.38	10.58			
		2.63	2.64	23	32.50	32.51			
		2.64	9.72		30.56	30.56			
I 39951 P	33	33.37	33.36		1.94	1.95			
		30.42	30.45		1.94	9.84			
		2.95	2.91	25	34.48	34.46			
		2.93	8.98		31.98	31.96			
	34	33.69	33.69		2.50	2.50			
		30.04	30.05		2.50	9.34			
		3.65	3.64						
		3.64	8.52						

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1904phae.proj..926K

Thursday March 24, 1921.

Measure C S M. Height of Image ↕

I 3496 1	8.04	8.03	I 3496 1	84.80	84.03
22	4.93	4.95	22	83.91	84.93
	3.11	3.08	Dj	0.89	0.90
23	12.25	12.25	23	76.47	76.46
	10.85	10.85		75.27	75.27
	1.40	1.40		1.20	1.19
24	22.16	22.15	24	66.98	66.99
	21.37	21.38		65.40	65.40
	0.79	0.77		1.58	1.59
25	32.50	32.50	25	58.90	58.88
	30.23	30.24		56.84	56.84
	2.27	2.26		2.06	2.04
26	41.21	41.20			
	38.33	38.31			
	2.88	2.89			
27	50.40	50.40			
	46.74	46.74			
	3.66	3.66			

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1904phae.proj..926K

Friday March 25 1921

Plate I 40363.

Image at ~~25~~ 22. Measures made with wooden mm rule on diameter of "Grid" Calf.

Dist. between wires (16cm apart) = 50.5 mm

Diameter of major = 63.5

~~The~~ Breadth of min major = about 1 mm

Diameter of opening in Cap = ~~202~~ 201.5 mm

Distance between min = 160 mm

Thickness of min = 2 mm

Measured min more accurately with Micrometer Calipers = 1.6 mm.

(combrok calfs; this mm 9 that used in net-of-focus work)

Thickness of cross-bar of Grid = 3.2 mm

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1904phae.proj..926K

Friday March 25 1921

I 40363 — C.S. Nicanula

Image 22

			Mean	
Edge	66.77	67.73	67.25	6.17
1st line	60.59	61.57	61.08	5.94
2 "	54.62	55.66	55.14	6.04
3	48.64	49.55	49.10	6.03
4	42.59	43.55	43.07	
Edge line	37.05	—	—	
5	36.58	37.54	37.06	6.01
edge of ring	36.08	—	—	
6	30.56	31.54	31.05	6.01
7	24.46	25.44	24.95	6.10
8	18.52	19.55	19.04	5.91
9	12.61	13.57	13.09	5.95
Edge	6.60	7.60	7.10	5.99

Means of Cross-bars

47.84	47.79	.78
46.48	46.46	42
1.36	1.33	.36

Mean 1.35 = 1.44 mm

Width of wire for above 37.05
26.08
0.97 = 1.05 mm

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1904phae.proj..926K

Friday March 25 1921

I 40163 (continues)

			Mean	
Image 38				
Edge	46.88	46.90	46.89	1.48
1	45.40	45.42	45.41	1.49
2	43.92	43.92	43.92	1.48
3	42.43	42.44	42.44	1.54
4	40.89	40.90	40.90	1.52
Edge fuzzy	39.54	39.52	39.53	
5	39.37	39.38	39.38	1.52
Edge fuzzy	39.21	39.23	39.22	
6	37.86	37.87	37.86	1.53
7	36.34	36.32	36.33	1.52
8	34.81	34.81	34.81	1.49
9	33.33	33.32	33.32	1.49
Edge	31.84	31.82	31.83	

Cross-bar	33.78	.75	71
	33.24	.27	26
	054	0.48	0,45

Mean = 0.49

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1904phae.proj..926K

Saturday March 26 1921

Measures with C. S. Micrometer

I 39696 Height of images

11	27.14	27.13	16	71.36	71.35	6	37.70	37.70
	25.58	25.58		68.59	68.63		34.23	34.22
	1.56	1.55		2.77	2.72		3.47	3.48
	1.56 = 2.50			2.74 = 4.38			3.48 = 5.56	
13	47.48	46.44	18	7.18	7.19	7.	46.56	46.56
	47.44	46.24		6.00	6.00		44.92	44.91
	1.04	1.20		1.18	1.19		1.64	1.65
		1.2		1.18 = 1.89			1.64 = 2.62	
14	55.89	54.30	19	14.30	14.29	8	56.79	56.79
	54.88	54.31		12.74	12.74		54.70	54.70
	1.01	.00		1.56	1.55		2.09	2.09
				1.56 = 2.50			2.09 = 3.34	
13 +5	47.73	47.73	I 39695	7.89	7.89	9	66.95	66.95
	46.50	46.50	3	6.26	6.28		64.87	64.87
	1.23	1.23		1.63	1.61		2.08	2.08
	1.23 = 1.97			1.62 = 2.59			2.08 = 3.33	
14	55.84	55.84	4	19.17	19.16	10	74.23	74.24
	54.25	54.23		17.04	17.05		72.14	72.14
	1.59	1.61		2.13	2.11		2.09	2.10
	1.60 = 2.56			2.12 = 3.39			2.10 = 3.36	
15.	65.08	65.08	5	28.16	28.18			
	62.99	62.96		26.08	26.09			
	2.09	2.12		2.08	2.09			
	2.10 = 3.36			2.08 = 3.32				

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1904phae.proj..926K

Tuesday April 5 1921.

I 39606 Measures with C. S. Micrometer

Image 8

	13.74						
	12.11						
	1.63						
	9.25						
9	7.20						
	20.83						
	2.07						
	8.72						
10	30.66						
	28.65						
	2.01						
	4.27						
17	40.66						
	37.22						
	3.44						
	7.66						

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Tuesday April 5 1921

Measured thickness of Filter Y6
which is duplicate from same
for set-of-four Workbook Argument

Thickness = 3.555 mm by micrometer caliper

Thickness of Z1 = 3.32 mm

Used slow motion of microscope as micrometer
& determining the value found 1 rev = 0.482 mm.

Thickness of Z1 (optical thickness) = 4.4 rev

= 2.12 mm

Optical thickness of Y6 measured in
same way = ~~4.1~~ 4.6 rev = 2.22 mm

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Friday April 8 1921

Measures with C. S. Micrometer (New Cross-wire)

I 39696 PV		60.32	50 40.45	I39698 (cont.)	7	60.67	54.17	I39699	63.43	58.59
	8	57.74	48.82			57.40	52.05	7	60.84	56.97
		2.58	1.63			3.27	2.12		2.59	1.62
		9.26	9.26			8.74	8.64		9.26	9.26
		101 = 9.26	109 = 9.25							
	9	60.45	41.80		9	61.35	73.28	9	63.49	—
		57.14	39.75			58.00	71.20		60.16	—
		3.31	2.05			3.35	2.08		3.33	
		8.74	8.76			8.71	8.72		8.73	—
		101 = 8.74	109 = 9.72							
	10	59.05	33.88		10	62.40	83.10	I39929 PV	64.48	82.58
		55.77	31.96			59.07	81.01	22	62.36	81.29
		3.28	2.02			3.33	2.09		2.12	1.31
		8.76	8.77			8.72	8.71		9.64	9.70
		101 = 8.76	109 = 8.77							
	17	57.13	22.68		11	60.86	58.94	23	64.80	33.27
		57.56	19.24			57.54	56.84		62.16	31.63
		3.57	3.44			3.32	2.10		2.64	1.64
		7.62	7.64			8.73	8.71		9.22	9.24
			109 = 7.66							
I 39698 PV	2	57.21	9.26		12	63.74	65.98	24	64.83	65.34
		55.91	7.19			60.42	63.84		61.37	63.19
		3.30	2.07			3.32	2.14		3.46	2.15
		8.74	8.74			8.73	8.67		8.64	8.66
	5	60.74	35.84	I39699 PV	4	64.71	86.68	28	65.11	25.42
		58.16	34.22			61.40	84.62		62.49	23.96
		2.58	1.62			3.31	2.06		2.62	1.46
		9.27	9.26			8.74	8.75		9.24	9.20
	6	59.60	44.17		6	70.14	67.40	29	65.54	17.52
		57.00	42.52			67.54	65.79		62.16	15.40
		2.60	1.65			2.60	1.61		3.38	2.12
		9.25	9.22			9.24	9.27		8.70	8.64

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Monday April 11 1921

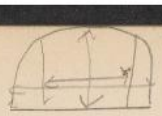
C.S. Micrometer

Measures

		Diam	Diam						
I 39930 P	22	63.17	77.55	Same	28	64.45	84.04	I 39933	64.10	75.26
		59.46	75.23			61.02	21.90	22	60.40	72.94
		3.71	2.32			3.43	2.14		3.70	2.32
		8.48	8.48			8.66	8.67		8.46	8.48
	23	64.28	69.69		31	62.57	59.15	23	63.46	65.64
		61.32	67.83			60.48	57.83		60.48	63.77
		2.96	1.86			2.09	1.32		2.98	1.87
		8.95	8.94			9.71	9.69		8.94	8.94
	24	64.24	59.81		32	62.12	50.12	24	62.79	65.03
		60.51	57.49			59.40	48.42		60.41	53.53
		3.73	2.32			2.72	1.70		2.38	1.50
		8.47	8.48			9.16	9.16		9.41	9.40
39932 PV	22	66.54	78.96		33	61.66	41.12	I 39942 PV	60.60	18.45
		64.98	78.00			58.24	38.95	22	57.11	16.30
		1.56	0.96			3.42	2.17		3.49	2.15
		10.34	10.36	1935		8.67	8.66 8.64		8.62	8.66
	23	66.35	69.26		34	63.21	—		62.10	28.46
		64.30	68.00			56.06		23	58.62	26.31
		2.05	1.26			7.15			3.48	2.15
		9.76	9.79	9.78		7.08			8.63	8.66
	24	67.05	60.91		36	58.27	15.04	24	62.69	40.45
		64.43	59.29			52.62	11.51		59.20	38.29
		2.62	1.62			5.65	3.53		3.49	2.16
		9.24	9.26	9.25		7.59	7.60		8.62	8.65
	27	64.28	33.99		27	67.61	99.56	25	61.82	49.46
		62.00	32.33		again	64.91	97.89		59.14	47.80
		2.28	1.66			2.70	1.67		2.68	1.66
		—	—			9.17	9.18 9.20		9.19	9.22

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Monday April 11 1921

Measures continued

Same	29	61.91	57.19		24	61.20	27.30	39903	25	56.33	30.68
		58.50	55.09			57.77	25.20	PV		53.50	28.90
		3.41	2.10			3.43	2.10			2.83	1.78
		8.68	8.71			8.67	8.71			9.07	9.06
	30	60.81	64.89		25	61.06	40.06		26	57.84	42.54
		57.41	62.79			57.65	37.93			54.33	40.36
		3.40	2.10			3.41	2.13			3.51	2.18
		8.68	8.71			8.68	8.68			8.60	8.63
	32	58.83	80.21		26	60.89	48.24	39918-22		59.74	24.89
		54.38	77.46			58.14	46.52	PV		57.20	23.30
		4.45	2.75			2.75	1.72			2.54	1.59
		8.10	8.14			9.14	9.14			9.30	9.30
39860 PV	22	63.46	34.82		29	58.40	75.62		23	61.50	35.72
		60.11	32.70			53.91	72.86			58.18	33.66
		3.35	2.12			4.49	2.76			3.32	2.06
		8.71	8.68			8.09	8.12			8.73	8.75
	23	63.47	—		39902-26	59.29	35.98		24	57.89	43.90
		54.43	—		P	56.08	33.96			54.57	41.84
		9.04	—		K	3.21	2.02			3.32	2.06
		6.58	—			8.78	8.76			8.73	8.75
39861 PV	22	59.96	9.36		27	59.06	—		25	60.67	53.90
		56.53	7.24			55.22	—			57.33	51.84
		3.43	2.12			3.84				3.34	2.06
		8.67	8.68			8.41	~			8.72	8.75
	23	63.94	19.00		28	59.88	—		26	59.58	63.84
		60.55	16.98			55.02	—			56.24	61.78
		3.39	2.02			4.86				3.34	2.06
		8.69	See Pg. 115			9.90	~			8.72	8.75

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Monday, April 11, 1921 Continued

	29	59.76	29.56	39936-22	67.64	84.36	23	65.94	65.86
		56.42	27.48	PV	64.32	82.30		63.34	64.27
		3.34	2.08		3.32	2.06		2.60	1.59
		8.72	8.73		8.79	8.75		9.25	9.21
	31	59.50	29.42	24	66.55	67.20	25	64.53	47.17
cannot measure		56.14	27.34		63.89	65.35		61.17	45.12
		3.36	2.08		2.66	1.85		3.36	2.05
		8.70	8.73		9.20	8.9		8.70	8.76
	32	56.83	cannot measure 56.04	26	64.71	47.93	26	60.68	37.16
		52.45			62.67	45.67		57.28	35.00
		4.38			2.04	2.26		3.40	2.16
		8.14	—		9.76			8.68	8.65
	38	58.44	54.23	28	64.51	38.86	39950- 24	51.83	10.47
		55.83	52.60		61.88	37.23	PV	50.38	9.57
		2.61	1.63		2.63	1.63		1.45	0.93
		9.24	9.25		9.23	9.25		10.48	10.43
39935 P	28	64.55	49.35	28	64.13	28.14	25	[illegible]	21.44
		62.32	47.90		60.78	26.07			20.22
		2.33	1.45		3.35	2.07		[illegible]	1.22
		9.46 8.70	9.46		8.72	8.74			9.86
	29	64.48	40.59	31	61.82	29.59	26	56.55	32.02
		61.55	38.76		58.43	27.48		54.52	30.75
		2.93	1.83		3.39	2.11		2.03	1.27
		8.96	8.98		8.66	8.70		9.17	9.77
	30	64.43	30.83	39939-22	66.22	73.87	Negative Image 27	58.80	42.70
		60.75	28.54	PV	64.21	72.62		55.18	41.08
		3.68	2.29		2.01	1.25		2.62	1.62
		8.49	8.50		9.79	9.81		9.24	9.26

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Monday April 11, 1921.

Measures Continued.

28	faint?	52.73	26	no star found	43.95	28 faint	69.93	37.87
		50.66			41.96		66.50	35.82
38990-22 PV		2.07			1.99		3.43	2.05
		8.69 24			8.82		8.66 8.72	8.77
22	59.07	58.23	27		34.62	39958 PV 22	62.38	61.88
	57.62	47.36 5			31.90		60.92	60.98
~~23~~	1.45	10.87			2.72		1.46	0.90
	10.46	10.52			8.15		10.42	10.50
23		39.72	35		27.88	23	62.13	50.76
		38.55			25.20		60.18	49.57
~~24~~		1.17			2.68		1.95	1.19
		9.95			8.18		9.66	9.90
24		29.27	40097-22 PV	65.40	27.19 25.09	24		41.92
		27.72		61.96				40.36
		1.55		3.44	2.10			1.56
		9.36		8.66	8.70			9.34
39995 - 22 PV	79.84		28	61.50	20.44	39861-23	64.61	28.14
	78.99			58.85	18.83		61.21	26.02
	0.85			2.65	1.61		3.40	2.12
	10.61			9.21	9.27		8.68	8.68
23	0.35 ~~78.99~~		39998-24 PV	61.76	74.81			
	69.18			57.37	72.12			
	1.17			4.39	2.69			
	9.95			8.13	8.18			
Defective 24			25	60.32	65.68			
				56.95	63.65			
				3.37	2.03			
				8.70	8.78			

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Friday April 15 1921

Measures with C.S. Hitchcock

		Diam	Pl.		Diam	Pl.	Diam		
I 3986		65.69	40.79	Same	61.26	72.73	61.01		
	29	61.23	38.02	31	58.68	71.13	58.91		
		4.46	2.77		2.58	1.60	2.10		
		8.10 8	8.11		9.24	9.28	9.28		
I 3991 8		55.60	37.30	32	62.46	60.94	62.17		
	31	53.14	35.65		59.11	58.88	59.45		
		2.46 6	1.65		3.35	2.06	2.72		
		~~9.37~~ 9.20	9.22		8.71	8.75	8.72		
I 3936		66.34	86.37	IS 40349	64.06	66.53	63.87		
	24	63.67	84.73	22	62.16	65.38	62.34		
		2.67	1.64		1.90	1.15	1.53 5	mean 9.93	
		9.20	9.24		9.88	9.95	9.91		
	26	64.39	66.13	25	—	38.68	—	again 38.67	
		62.34	64.86		—	37.52	—	37.52	
		2.05	1.27			1.16		1.15	
		9.76	9.74			9.93			
	32	63.23	41.76	22 again	64.32	66.32	64.10		
		58.80	39.02		62.42	65.16	62.57		
		4.43	2.74		1.90	1.16	1.53		
		8.12	8.14						
I 3996 4		65.67	80.02	65.14					
AV	24	60.04	76.57	60.57					
		5.63	3.45	4.57	mean 7.61				
		7.60	7.64	7.60					
	30	64.62	83.06	64.02					
		59.05	79.58	59.57					
		5.57	3.48	4.45	mean 7.63				
		7.62	7.63	7.65					

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1904phae.proj..926K

Friday April 15 1904

Measures (continued)

I 403.85 Focus 43

Declination	Axis	Height
78.73	72.65	61.18
19.23	25.36	23.78
59.50	47.29	37.40
again 78.76	72.65	61.18
19.25	25.34	23.77
59.51	47.31	37.41
Mean 59.50	47.30	37.40
2.51	2.72	2.50

~~Mean 2.51~~

Focus 10.

48.76	47.79	60.36
39.52	40.49	54.53
9.24	7.30	5.83
Again 48.77	47.79	60.37
39.52	40.48	54.52
9.25	7.31	5.85
Mean 9.24	7.30	5.84
6.53	6.58	6.51

~~Mean 6.54~~

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1904phae.proj..926K

Monday May 16 1921

Measures with C.S. micrometer.

I 40252 (22)		63.26	63.00	76.44	~~94.81~~	65.74	65.24	
PV		60.60	60.82	74.81	I40329 (24)	60.91	61.35	
		2.66	2.18	1.63	Same	4.83	3.89	
		9.29	9.21	9.24 mean 9.23		7.91	7.95	mean 7.93
	25	65.65	65.12	—	25	67.88	67.40	77.6 ?
		59.93	60.48	—		63.05	63.48	74.7
		5.72	4.64			4.83	3.92	
		7.57	7.57	mean 7.57		7.91	7.93	mean 7.92
I 40254	22	64.61	64.35	84.13	~~82.53~~	65.96	65.71	78.76
PV		62.00	62.21	82.53	I40351 (22)	63.29	63.54	77.12
		2.61	2.14	1.60	PV,	2.67	2.17	1.64
		9.24	9.25	9.24 mean 9.26		9.20	9.22	9.24 mean 9.22
	25	65.11	64.96	54.96	~~52.83~~	65.21	64.88	69.85
		61.68	61.99	52.83	23	61.80	62.11	67.75
		3.43	2.77	2.13		3.41	2.77	2.10
		8.66	8.64	8.64 mean 8.67		8.67	8.64	8.71 mean 8.69
I 40255	22	62.32	62.44	59.91	~~58.7~~	65.92	65.59	59.85
P		59.33	59.58	58.07	24	62.48	62.80	57.74
		2.99	2.46	1.84		3.44	2.79	2.11
		8.94	8.94	8.91 mean 8.93		8.66	8.67	8.70 mean 8.68
I40329	22	62.52	62.22	48.95	~~47.06~~	65.45	64.99	49.57
P		59.50	59.76	47.06	25	60.96	61.38	46.84
		3.02	2.46	1.89		4.49	3.61	2.73
		8.90	8.94	8.91 mean 8.92		8.08	8.11	8.15 mean 8.11
	23	63.89	63.54	58.31	~~55.94~~	66.12	65.78	77.73
		60.12	60.47	55.94	I40352	63.03	63.31	75.84
		3.77	3.07	2.37	P 25	3.09	2.47	1.89
		8.44	8.46	8.43 mean 8.44		8.86	8.94	8.91 mean 8.90

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1904phae.proj..926K

Monday May 16 1921
Same as last

	26	64.57	64.18	67.59	Same	27	61.47	61.03	
Same		60.74	61.09	65.21			57.07	57.47	
		3.83	3.09	2.38			4.40	3.56	
		8.41	8.45	8.42 mean 8.43			8.13	8.14	mean 8.14
	27	66.06	65.46	58.67	I40355	23	59.67	59.46	10.53
		59.99	60.56	54.91	PV		57.08	57.33	8.88
		6.07	4.90	3.76			2.59	2.13	1.65
		7.43	7.45	7.44 mean 7.43			9.24	9.24	9.22 mean 9.25
	28	64.88	64.59	48.81		24	60.44	60.23	20.06
		61.78	62.02	48.88			57.83	58.09	18.42
		3.10	2.57	1.93			2.61	2.14	1.64
		8.84	8.84	8.82 mean 8.83			9.24	9.25	9.24 mean 9.24
	29	63.87	63.47	37.82		25	62.39	62.08	30.68
		60.03	60.38	35.47			58.97	59.29	28.54
		3.84	3.09	2.35			3.42	2.79	2.14
		8.40	8.45	8.45 mean 8.43			8.67	8.67	8.67 mean 8.67
	30	64.71	64.24	29.07		26	55.37	55.06	39.90
		59.84	60.29	26.07			51.95	52.26	37.79
		4.87	3.95	3.00			3.42	2.80	2.11
		7.90	7.92	7.92 mean 7.92			8.67	8.67	8.70 mean 8.68
I 40354 PV	25	59.36	59.13	20.87		27	58.73	58.41	49.86
		56.75	57.02	19.22			55.29	55.63	47.72
		2.61	2.11	1.65			3.44	2.78	2.14
		9.24	9.24	9.22 mean 9.25			8.66	8.64	8.66 mean 8.67
	26	60.60	60.30	28.51		28		62.46	
		57.24	57.57	26.41				59.64	
		3.36	2.73	2.10				2.82	
		8.70 9.46	8.72	8.71 mean 8.71				8.65	mean 8.65

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1904phae.proj..926K

Monday May 16 1904

Same as last

I 40355 Same PV	29	62.34	62.09	68.20	Same	39	63.49	63.28	81.52
		59.71	59.95	66.53			60.91	61.16	79.90
		2.63	2.14	1.67			2.58	2.12	1.62
		9.23	9.25	9.20 mean 9.23			9.27	9.26	9.26 mean 9.26
	30	63.50	63.57	77.12	I 40361 PV	26	64.67	64.42	
		61.12	61.42	75.41			62.02	62.26	
		2.68	2.15	1.71			2.65	2.16	
		9.19	9.24	9.14 mean 9.19			9.21	9.27	mean 9.22
	31	64.08	63.74	85.60	I40355 PV	22a	44.65	44.42	56.12
		60.63	60.99	83.47			42.07	42.30	54.53
		3.45	2.75	2.13			2.58	2.12	1.59
		8.64	8.70	8.64 mean 8.67			9.27	9.27	9.30 mean 9.28
	35	59.41	59.12	45.70	I40367 PV	25	58.14	57.90	19.88
		56.02	56.35	43.60			55.50	55.75	18.22
		3.39	2.77	2.10			2.64	2.15	1.66
		8.68	8.69	8.71 mean 8.69			9.22	9.24	9.21 mean 9.22
	31	61.48	61.06	57.02		26	59.72	59.42	30.40
		57.00	57.44	54.22			56.35	56.65	28.30
		4.48	3.62	2.80			3.37	2.77	2.10
		8.09	8.10	8.10 mean 8.10			8.70	8.69	8.71 mean 8.70
	37	61.93	61.61	59.38		31	58.11	57.88	50.10
		58.54	58.86	57.27			55.47	55.72	48.44
		3.39	2.75	2.11			2.64	2.16	1.66
		8.68	8.70	8.70 mean 8.69			9.27	9.27	9.20 mean 9.22
	38	61.24	61.02	64.88		32	60.48	60.18	58.45
		58.65	58.89	63.25			57.09	57.40	56.35
		2.59	2.13	1.63			3.39	2.78	2.10
		9.26	9.26	9.25 mean 9.26			8.68	8.68	8.71 mean 8.69

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Monday May 16, 1921

Same	33	61.40	61.16	71.07	Same	27	55.28	54.97	60.44
		58.78	58.99	69.42			51.91	52.22	58.34
		2.62	2.17	1.65			3.37	2.75	2.10
		9.23	9.22	9.22 mean 9.22			8.70	8.70	8.71 mean 8.70
	36	58.83	58.61	73.09		28	63.46	63.15	67.90
		56.21	56.46	71.47			60.09	60.40	65.80
		2.62	2.15	1.62			2.37	2.75	2.10
		9.23	9.24	9.24 mean 9.24			8.70	8.70	8.71 mean 8.70
	22a	38.86	38.56	19.73		29	62.82	62.53	79.48
		35.52	35.81	17.66			59.44	59.75	77.42
		3.34	2.75	2.07			3.38	2.78	2.06
		8.72	8.70	8.74 mean 8.72			8.69	8.68	8.75 mean 8.71
	24a	42.24	42.00	42.39		32	61.35	60.95	36.69
		39.60	39.84	40.75			56.93	57.36	33.92
		2.64	2.16	1.64			4.42	3.59	2.77
		9.22	9.23	9.24 mean 9.23			8.12	8.12	8.12 mean 8.12
I40368 P.V.	24		57.58 / 55.65 / 1.93 / 9.48	Refracted 58.63 / 56.49 / 2.14 / 9.24 July 1 1921 / mean 9.48		33	60.16	59.86	48.25
							56.78	57.10	46.16
							3.38	2.76	2.09
							8.69	8.69	8.72 mean 8.70
	25	58.92	58.63	41.23	Refracted 59.38 / 56.56 / 2.80	34	59.57	59.35	55.89
		55.58	55.84	39.11			56.96	57.20	54.24
		3.34	2.79	2.12			2.61	2.15	1.65
		8.72	8.69	8.66 mean 8.69			9.24	9.24	9.22 mean 9.23
	26	61.43	61.14	49.85		35 / 24a	40.37	40.13	21.28
		58.06	58.38	47.75			37.75	38.01	19.62
		3.37	2.76	2.10			2.62	2.12	1.66
		8.70	8.70	8.71 mean 8.71			9.23	9.27	9.21 mean 9.24

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Monday May 16 1921
Same as usual

Same I40368	25a	40.29	40.08	32.67	Same	30	64.54	64.23	56.12
		37.71	37.92	31.02			61.14	61.49	54.05
		2.58	2.16	1.65			3.40	2.74	2.07
		9.27	9.23	9.22 mean 9.24			8.68	8.71	8.73 mean 8.71
	26a	42.10	41.80	41.26		31	60.88	60.65	64.93
		38.75	39.06	39.15			58.21	58.49	63.31
		3.35	2.74	2.11			2.67	2.16	1.62
		8.71	8.72	8.70 mean 8.71			9.20	9.22	9.26 mean 9.23
	28a	40.10	39.80	61.42		32	63.78	63.48	74.46
		36.76	37.02	59.33			60.42	60.73	72.39
		3.34	2.78	2.09			3.36	2.75	2.07
		8.72	8.68	8.72 mean 8.71			8.70	8.70	8.74 mean 8.71
I40380 P.V	25	60.75	60.57	19.24		35	62.04	61.78	52.32
		58.64	58.85	18.95			59.36	59.64	50.68
		2.11	1.72	1.29			2.68	2.14	1.64
		9.69	9.72	9.74 mean 9.72			9.17	9.24	9.23 mean 9.21
	26	61.62	61.43	16.70	I40384 P.V	22/36	54.71	54.50	13.02
		59.04	59.28	15.07			52.15	52.40	11.44
		2.58	2.15	1.63			2.56	2.10	1.58
		9.27	9.24	9.24 mean 9.25			9.28	9.29	9.32 mean 9.30
	28	62.61	62.42	35.26		23/37	56.59	56.38	22.05
		60.56	60.77	33.97			54.00	54.26	20.45
		2.05	1.65	1.29			2.59	2.12	1.60
		9.75	9.81	9.74 mean 9.77			9.26	9.27	9.26 mean 9.27
	29	63.42	63.17	47.40		38	61.25	61.01	31.71
		60.76	61.01	45.75			58.67	58.91	30.11
		2.66	2.16	1.65					
		9.20	9.22	9.22 mean 9.21					

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Monday May 16 1921
Same as last.

Same	28	66.81	66.58	70.84	Same	27	60.39	60.07	61.52	
		64.16	64.42	69.15			57.00	57.32	59.42	
		2.65	2.16	1.69			3.39	2.75	2.10	
		9.21	9.23	9.17 mean 9.20			8.68	8.70	8.71	(8.70)
	29	68.21	67.91	81.04		28	60.58	60.16	71.14	
		64.85	65.17	78.93			56.14	56.56	68.40	
		3.36	2.74	2.11			4.44	3.60	2.74	
		8.70	8.71	8.70 mean 8.70			8.11	8.12	8.14	(8.12)
I40361 PV	26	62.81	62.56		I40366 PV	2	57.72	57.47	76.85	
		60.16	60.41				55.09	55.38	75.20	Kirpa Tanzy
		2.65	2.15				2.63	2.09	1.65	
		9.21	9.24 9.22				9.23	9.30	9.22	(9.23)
	27		63.21			3	60.17	59.59	66.24	
			60.42				56.54	57.15	64.14	
			2.79				3.33	2.74	2.10	
			8.64				8.72	8.71	8.71	(8.71)
	29		63.29		I40367 PV	27	59.03	58.63	52.42	
			59.69				54.60	55.01	49.65	
			3.60				4.43	3.62	2.77	
			8.12				8.12	8.10	8.11	(8.11)
I40364 PV	25	58.93	58.53	16.73		34	59.36	59.04	52.96	
		54.42	54.86	13.89			55.99	56.30	50.88	
		4.51	3.67	2.84			3.37	2.74	2.08	
		8.07	8.07	8.07			8.70	8.72	8.72	(8.71)
I40365 PV	26	59.67	59.44	52.19		35	60.78	60.47	58.58	
		57.02	57.28	50.54			57.41	57.72	56.45	
		2.65	2.16	1.65			3.37	2.75	2.13	
		9.21	9.22	9.22			8.70	8.70	8.68	(8.69)

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Friday May 20, 1921

I 40367 Same	37	60.70	60.30	51.21 (8)	I 40367 Same	36	62.31	62.01	76.47
		56.29	56.72	78.45			58.90	59.22	74.36
		4.41	3.58	2.76			3.41	2.79	2.11
		8.12	8.13	8.12 (8.12)			8.64	8.68	8.70 (8.69)
	23a	40.24	39.85	35.39		38	62.61	62.21	70.75
		35.80	36.28	32.65			58.15	58.60	67.94
		4.44	3.57	2.74			4.46	3.61	2.81
		8.11	8.13	8.14 (8.13)			8.10	8.11	8.09 (8.10)
	25a	46.65	46.27	55.24		37a	56.31	56.00	72.11
		42.29	42.67	52.47			52.93	53.26	70.00
		3.36 (4) 8.16 8.10	3.60	2.77			3.38	2.74	2.11
			8.12	8.11 (8.13)			8.69	8.71	8.70 (8.70)
	26a	40.76	40.35	64.83	I 40380	36	66.31	66.00	78.43
		36.35	36.75	62.07	PV		62.94	63.25	76.33
		4.41	3.60	2.76 (2)			3.37	2.75	2.10
		8.12	8.12	8.12 (8.12)			8.70	8.70	8.71 (8.70)
	27a	43.43	42.89	73.21		37	66.94	66.53	87.48
		37.78	38.33	69.68			62.54	62.95	84.75
		5.65	4.56	3.53			4.40	3.58	2.73
		7.59	7.60	7.60 (7.60)			8.12	8.13	8.14 (8.13)
I 40368 PV	23	61.10	60.76	~~67.67~~	I 40384	28	61.61	61.35	32.50
		57.72	58.04	~~65.54~~			58.94	59.22	30.83
		3.38	2.72				2.67	2.13	1.67
		8.69	8.72	(8.70)			9.20	9.26	9.20 (9.22)
	35	61.27	60.98	67.67		29	62.98	62.66	42.73
		57.87	58.19	65.54			59.61	59.93	41.61
		3.40	2.79	2.13			3.37	2.73	1.12
		8.64	8.64	8.68 (8.64)			8.70	8.72	9.79 (8.74)

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Friday May 20, 1921.

I 40384	30	64.24	63.81	51.09	I40386	26	62.03	61.80	51.74
Same		59.83	60.25	48.31	Same		59.44	59.68	50.12
pv		4.41	3.56	2.78			2.59	2.12	1.62
		8.12	8.14	8.11 (8.13)			9.24	9.27	9.26 (9.26)
	31	56.25	55.84	62.19		27	61.91	61.68	60.89
		—	52.28	59.43			59.31	59.56	59.27
			3.56	2.76			2.60	2.12	1.62
			8.14	8.12 (8.13)			9.25	9.27	9.26 (9.26)
I 40381	22	63.98	63.78	48.03		28	62.42	62.19	69.75
p		61.64	61.86	46.56			59.82	60.07	68.12
		2.34	1.92	1.47			2.60	2.12	1.63
		9.45	9.46	9.43 (9.43)			9.25	9.27	9.25 (9.26)
	23	65.38	65.14	60.44		29	65.21	64.99	79.32
		62.43	62.69	58.56			62.63	62.86	77.68
		2.95	2.45	1.88			2.58	2.13	1.64
		8.96	8.96	8.92 (8.93)			9.27	9.26	9.24 (9.26)
	24	66.41	66.10	68.44		30	65.80	65.52	87.87
		62.73	63.06	66.10			62.48	62.79	85.78
		3.68	3.04	2.34			3.32	2.73	2.09
		8.50	8.46	6.46 (6.48)			8.73	8.72	8.72 (8.72)
I40386	22	56.24	56.02	12.75		33	64.12	63.82	68.73
pv		53.70	53.94	11.16			60.76	61.11	66.62
		2.54	2.08	1.59			3.36	2.71	2.11
		9.30	9.31	9.30 (9.30)			8.70	8.73	8.72 (8.72)
	23	56.39	56.10	21.00		34	66.56	66.14	78.08
		53.07	53.38	18.92			62.16	62.60	75.34
		3.32	2.72	2.08			4.40	3.54	2.74
		8.73	8.73	8.73 (8.73)			8.12	8.16	8.14 (8.14)

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Friday May 20, 1921

I40387 P	22	57.58	57.29	7.34	I40391 Same	26	56.82	56.53	46.33
		54.56	54.87	5.41			53.49	53.81	44.24
		3.02	2.42	1.93			3.33	2.72	2.09
		8.71	8.94	8.86	(8.98)		8.72	8.73	8.72 (8.72)
	23	58.38	58.11	15.40		29	59.19	58.97	75.76
		55.38	55.70	13.47			56.62	56.85	74.16
		3.00	2.41	1.93			2.57	2.12	1.60
		8.92	8.99	8.86	(8.92)		9.27	9.25	9.24 (9.27)
	24	59.80	59.45	25.25		30	62.15	61.92	85.62
		56.05	56.42	22.87			59.56	59.80	84.00
		3.75	3.03	2.38			2.59	2.12	1.62
		8.41	8.49	8.42	(8.46)		9.26	9.25	9.26 (9.26)
	28	60.08	59.81	62.66		31	57.60	57.32	9.25
		57.10	57.39	60.77			54.30	54.59	7.16
		2.98	2.42	1.89			3 2.30	2.73	2.09
		8.94	8.98	8.91	(8.94)		8.74	8.72	8.72 (8.73)
	29	61.96	61.64	74.12		35	60.27	60.14	48.58
		58.24	58.59	71.75			57.76	58.00	46.95
		3.72	3.05	2.37			2.61	2.14	1.63
		8.47	8.48	8.43	(8.46)		9.24	9.27	9.24 (9.24)
I40391 PV	23	52.71	52.46	20.35		36	61.51	61.28	58.10
		50.00	50.24	18.67			58.91	59.16	56.47
		2.71	2.22	1.68			2.60	2.12	1.63
		9.16	9.17	9.18	(9.17)		9.25	9.25	9.24 (9.25)
	24	55.68	55.44	28.86		37	62.18	61.87	66.81
		52.97	53.24	27.17			58.83	59.12	64.73
		2.71	2.20	1.69			3.35	2.75	2.08
		9.16	9.18	9.17	(9.17)		8.71	8.70	8.73 (8.71)

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Friday May 20, 1921.

I 40391	(38)	63.43	63.12	75.84	28	62.60	62.31	71.58	
Same		60.76	61.04	74.24		59.26	59.58	69.47	
		2.67	2.08	1.60		3.34	2.73	2.11	
		9.20	9.30	9.29 (9.26)		8.72	8.72	8.70 (8.71)	
I 40396	22	57.33	57.11	15.25	29	63.38	63.07	81.33	
PV		54.73	54.97	13.62		60.00	60.31	79.22	
		2.60	2.14	1.63		3.38	2.76	2.11	
		9.25	9.24	9.24 (9.24)		8.69	8.69	8.70 (8.69)	
	23	56.94	56.72	25.41	30	65.85	65.45	90.70	
		54.34	54.58	23.77		61.45	61.85	87.95	
		2.60	2.14	1.64		4.40	3.60	2.75	
		9.25	9.24	9.23 (9.24)		8.12	8.12	8.14 (8.13)	
	24	57.05	56.74	34.05	31	63.67	63.14	—	
		53.70	54.00	31.96		58.04	58.58	—	
		3.35	2.74	2.09		5.63	4.56		
		8.71	8.71	8.72 (8.71)		7.60	7.60	(7.60)	
	25	61.70	61.49	44.25	34	58.09	57.77	87.42	
		59.08	59.32	42.60		54.70	55.03	85.28	
		2.62	2.17	1.65		3.39	2.74	2.14	
		9.23	9.22	9.22 (9.22)		8.64	8.71	8.67 (8.69)	
	26	60.60	60.35	56.46	I 40398 (26)	59.21	—	28.47	
		57.92	58.17	54.81	PV	55.69	—	26.21	
		2.68	2.18	1.65		3.52		2.26	
		9.19	9.21	9.22 (9.21)		8.61		8.55 (8.58)	
	27	61.42	61.18	62.39	27	57.53	~~56.02~~	36.95	
		58.76	59.01	60.72		56.02		35.98	
		2.66	2.17	1.67		1.51		0.97	
		9.21	9.22	9.20 (9.21)		10.40		10.34 (10.37)	

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Friday May 20 1921

I40398 Same	28	58.63	58.46	46.24	
		56.61	56.82	44.97	
		2.02	1.64	1.27	
		9.76	9.82	9.77	(9.79)
	29	59.14	58.96	58.19	
		57.09	57.33	56.90	
		2.05	1.63	1.29	
		9.75	9.84	9.74	(9.78)
	30	61.30	61.06	66.29	
		58.66	58.90	64.66	
		2.64	2.16	1.63	
		9.22	9.22	9.24	(9.23)
	31	62.47	62.15	76.09	
		59.10	59.42	73.99	
		3.37	2.73	2.10	
		8.70	8.72	8.71	(8.71)
	32	60.78	60.39	86.33	
		56.42	56.81	83.60	
		4.36	3.58	2.73	
		8.15	8.13	8.14	(8.14)

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Thursday, June 16 1921

I40399 PV.

	diam	width	height					
22	63.37	63.16	71.05	I40399	35	64.53	64.25	64.90
	61.42	61.58	69.83			61.28	61.60	62.87
	1.95	1.58	1.22			3.27	2.65	2.03
	9.86	9.90	9.86 (9.87)			8.76	8.74	8.77 (8.77)
23	63.59	63.38	68.96		36	66.53	66.12	72.79
	61.07	61.34	61.37			62.20	62.62	70.10
	2.52	2.04	2.59			4.33	3.50	2.69
	9.32	9.34	9.30 (9.32)			8.17	8.18	8.18 (8.18)
24	64.54	63.95	X	I40413	27	56.89	56.61	34.18
	58.90	59.48				53.62	53.91	32.11
	5.64	4.47				3.27	2.70	2.07
	7.64	7.64	(7.64)			8.76	8.74	8.74 (8.75)
30	64.64	64.41	65.52		25	52.02	51.72	64.14
	62.63	62.79	64.27			48.75	49.04	62.06
	2.01	1.62	1.25			3.27	2.68	2.08
	9.81	9.85	9.81 (9.82)			8.76	8.76	8.73 (8.73)
31	64.62	64.38	56.87		26	58.93	58.73	55.79
	62.09	62.30	55.27			56.38	56.64	54.20
	2.53	2.08	1.60			2.55	2.09	1.59
	9.32	9.30	9.26 (9.30)			9.29	9.29	9.30 (9.29)
32	64.94	64.66	47.32		27	62.00	61.73	84.46
	61.72	61.94	45.28			58.73	59.03	82.45
	3.22	2.72	2.04			3.27	2.70	2.01
	8.80	8.72	8.74 (8.76)			8.76	8.74	8.80 (8.77)
34	61.84	61.60	27.78					
	59.21	59.44	26.12					
	2.63	2.16	1.66					
	9.23	9.22	9.21 (9.22)					

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1904phae.proj..926K

Thursday June 16 1921
Measures with the C.S.M.

I40400

22	57.47	57.32	26.26	I40400	3½	60.23	59.90	71.92
	55.50	55.70	24.06			56.86	57.17	69.84
	1.97	1.62	1.20			3.37	2.73	2.08
	9.54	9.85	9.80 (9.76)			4.70	8.72	4.74 (8.72)
23	58.29	58.07	36.91	I40453	3½	57.00		10.00
	53.69	55.98	35.31		2½	53.51		9.05
	2.60	2.09	1.60			1.49		0.96
	9.25	9.29	9.29 (9.28)			10.43		10.38 (10.40)
29 ~~24~~	X	X	38.85		~~24~~ 29	58.64	58.47	25.31
			37.62			56.65	56.85	24.07
			1.23			1.99	1.62	1.24
30			(9.84)			9.82	9.85	9.86 (9.84)
~~26~~	X	X	48.41		30	59.38	59.16	34.08
			46.79			56.79	57.05	32.48
			1.62			2.59	2.11	1.60
			(9.26)			9.26	9.27	9.28 (9.27)
31 ~~29~~	X	X	58.89		33	58.36	58.16	40.41
			57.26			56.34	56.54	39.12
			1.63			2.0 ~~1.9~~ 2	1.62	1.29
32			(9.24)			9.70 29	9.85	9.74 9.79
~~30~~	X	X	68.93		34	59.84	59.58	50.37
			66.87			57.22	57.48	48.75
			2.06			2.62	2.10	1.62
33			(8.75)			9.24	9.28	9.26 (9.26)
31	57.86	57.61	78.40		35	61.02	60.73	61.33
	55.23	55.49	76.76			57.68	58.01	59.25
	2.63	2.12	1.64			3.34	2.72	2.08
	9.22	9.26	(9.23) (9.24)			8.72	8.72	8.73 (8.72)

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Saturday June 25 1904

I 4009 Re-measures. Cyc Image 91

	Diam.	Wire	Diff.	
Image 33	65.03	64.78	65.81	
	62.41	62.54	64.20	
	2.62	2.24	1.61	
	9.24	9.15	9.27	Mean = 9.22
Image 35	67.77	66.88		~~29 87~~ (6.
	58.63	59.49		Mean = 6.54
	9.14	7.39		
	6.56	6.55		
Image 31	62.96	62.64	47.52	
	59.52	59.83	45.46	
	3.44	2.81	2.06	
	8.66	8.65	8.73	Mean = 8.69

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1904phae.proj..926K

Monday Oct 24 1921

I 40583 Measures by C. S. Mackenzie

1st image next "Plate No" end of plate — Distance from edge of field = 1.7 cm

57.28	57.30
55.59	55.60
1.69	1.70

10.4 cm

5th image 1.2 mean centre of plate

77.38	77.38
76.11	76.12
1.27	1.26

10.4 cm

5th image

67.55	
66.28	
1.27	

12.5 cm

6th image

81.11	.10
79.88	.86
1.23	1.24

8.1 cm

4th image

78.18	78.18
76.89	77.89
1.29	1.29

14.7 cm

7th image

81.30	
80.04	
1.26	

16.9 cm

8th image

81.50	
80.19	
1.31	

19.1 cm

9th image

81.70	
80.36	
1.34	

5.9 cm

3rd image

79.05	78.99
77.66	77.66
1.34	1.33

3.6 cm

2nd image

82.85	82.83
81.43	81.42
1.42	1.41

Image	Dist	Mean
1	1.7 cm	1.70
2	3.6	1.42
3	5.9	1.33
4	8.1	1.29
5	10.4	1.26
6	12.5	1.23
7	14.7	1.26
8	16.9	1.31
9	19.1	1.34

Size of field = 240 (4.9)

The figures in this give the distance of image from edge of field on end of plate bearing "Plate No."

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1904phae.proj..926K

Monday Oct 24 1921

San Juan

I 40599	2.08	2.095	2.005
5th image	0.69	0.686	0.775
for 2 edges on	1.39	1.409	1.230
side of plates.	again	2.098	1.991
		0.687	0.780
		1.411	1.211

4th image	22.503	22.427	22.501	22.412
	21.130	21.204	21.113	21.220
	1.373	1.223	1.388	1.192

3rd image	42.641	42.757
	41.470	41.567
	1371	1.210

9.94

2rd image		63.734	62.723	.713
		61.553	61.584	58.2
		2.177	1.139	.131

1st image	83.341			
	82.185			
	1.156			

10.27

Image	dist from edge of field		
1	1.7 cm.		1.16
2	3.9		1.18
3	6.0	1.37	1.21
4	8.2	1.39	1.21
5	10.3	1.41	1.22

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1904phae.proj..926K

~~I 40484~~ Measured with C.S.M. Nov. 21, 1921.

	Diameter	Width	Height				
I 40484 PV.	63.93	63.61	81.39 ~~99~~ 79.33 ~~79.7~~	same 33	61.73	61.48	58.97
22	60.62	60.93			59.08	59.32	51.31
	3.31	2.68	2.06		2.65	2.16	2.66
(8.75)	8.74	8.76	8.75	(9.21)	9.21	9.22	9.20
	62.29	62.08	62.83	34	62.59	62.24	
24	60.26	60.47	60.55		59.19	59.49	
	2.03	1.61	2.28 ~~8.53~~		3.40	2.75	
(9.80)	9.76	9.86	9.76	(8.69)	8.64	8.70	
25	61.57	61.33	49.74	36	62.46	62.19	54.51
	58.95	59.18	48.10		59.81	60.06	52.86
	2.62	2.15	1.64		2.65	2.13	1.65
(9.24)	9.24	9.23	9.24 ~~9.27~~	(9.23)	9.21	9.25	9.22
26	60.26	59.99	44.07	38	61.36	61.11	36.40
	57.63	57.88	42.41		58.69	58.99	34.76
	2.63	2.11	1.66		2.65	2.12	1.64
(9.24)	9.23	9.27	9.21	(9.23)	9.21	9.26	9.23
30	62.95	62.70	80.62	39	60.66	60.33	27.38
	60.32	60.57	78.99		57.30	57.61	25.30
	2.63	2.13	1.63		3.36	2.72	2.08
(9.24)	9.23	9.25	9.24	(8.72)	8.70	8.72	8.73
31	62.60	62.29		I40491 (22 PV	60.41	60.10	66.63
	59.27	59.57			57.10	57.41	64.55
	3.33	2.72			3.31	2.69	2.08
(8.72)	8.73	8.72		(8.74)	8.74	8.75	8.73
32	61.31	62.97	62.96	27	65.96	65.69	19.22
	59.93	60.24	61.86		63.37	63.59	17.61
	2.38	2.73	1.10		2.59	2.10	1.61
(8.71)	8.70	8.71	8.71	(9.26)	9.26	9.28	9.25

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Measured with C.S.M. Nov. 21, 1921

	Diameter	Iowis	Height
Same 28	65.54	65.23	—
	62.20	61.51	—
	3.34	2.72	

Reductions by Slide Rule

PV

Iowis Set indices at 1512
3.8 = 8.0
12.0 = 5.5

Diameter
Set indices at 1885 & add 0.06
& measure diameter

Height
Set indices at 118 & add 0.04
& measure.

Photographs

Iowis Same as for PV

Diameter
Set indices at 189 & add
0.10 & measure diameter

Height
Set indices at 118 &
add 0.06 & measure

Same 32	64.78	64.41	34.79			
	61.39	61.68	32.72			
	3.39	2.73	2.07			
(6.73)	6.69	6.72	6.74			
33	64.06	63.80	22.85			
	61.44	61.68	21.24			
	2.62	~~1.92~~ 2.12	1.61			
(9.26)	9.24	~~9.46~~ 9.26	9.27			
(24)	54.36	—	69.75			
	52.46	—	68.60			
	1.90		1.15			
(9.95)	9.98		9.96			
(22)	61.38	—	79.90			
	59.84	—	79.00			
	1.54		0.90			
(10.42)	10.36		10.49			
23	62.49	—	71.37			
	61.00		70.49			
	1.49		0.88			
(10.48)	10.42		10.54			
24	65.66	—	59.78			
	64.16	—	58.88			
	1.50		0.90			
(10.46)	10.42		10.49			
25	64.25	—	49.73			
	62.73	—	48.82			
	1.52		0.91			
(10.43)	10.36		10.46			

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1904phae.proj..926K

Measured with C.S.M. Nov. 21, 1921

		Diameter	Axis	Height				
Same	28	65.54	65.23	—	Same 32	64.78	64.41	34.79
		62.20	62.51	—		61.39	61.68	32.72
		3.34	2.72			3.39	2.73	2.07
	(8.72)	8.72	8.72		(8.73)	8.69	8.72	8.74
0496 PV	23	65.59	65.24	76.90	33	64.06	63.80	22.85
		62.24	62.57	74.84		61.44	61.68	21.24
		3.35	2.67	2.06		2.62	1.92 2.12	1.61
	(8.74)	8.71	8.76	8.75	(9.26)	9.24	9.48	9.27
	24	65.43	65.10	67.84	I40548 (24	54.36	—	69.75
		62.10	62.42	65.77	Plat.	52.46	—	68.60
		3.33	2.68	2.07		1.90		1.15
	(8.74)	8.73	8.75	8.74	(9.95)	9.92		9.98
	25	62.15	61.88	60.66	I40552 (22	61.38	—	79.90
		59.57	59.77	59.07	PV	59.84	—	79.00
		2.58	2.11	1.59		1.54		0.90
	(9.28)	9.27	9.27	9.30	(10.42)	10.36		10.49
	26	62.44	62.10	42.92	23	62.49	—	71.37
		59.06	59.37	40.89		61.00		70.49
		3.38	2.73	2.03		1.49		0.88
	(8.73)	8.70	8.71	8.78	(10.48)	10.49		10.54
	30	63.94	63.68	49.93	24	65.66	—	59.78
		61.32	61.56	48.32		64.16	—	58.88
		2.62	2.12	1.61		1.50		0.90
	(9.26)	9.24	9.26	9.27	(10.46)	10.42		10.49
	31	64.38	64.05	40.38	25	64.25	—	49.73
		61.01	61.34	38.32		62.73	—	48.82
		3.37	2.71	2.06		1.52		0.91
	(8.73)	8.70	8.73	8.75	(10.43)	10.36		10.44

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Measured with C.S.M. Nov. 21, 1921

Same	26	64.08	—	42.00	Same	33	64.78	—	62.37
		62.58	—	41.11			63.25	—	61.46
		1.50		0.89			1.53		0.91
	(10.48)	10.42		10.51		(10.42)	10.37		10.48
	27	63.93	—	32.82		34	64.53	64.33	55.56
		62.43	—	31.92			62.47	62.47	54.32
		1.50		0.90			2.06	1.86	1.24
	(10.46)	10.42		10.49		(9.79)	9.75	9.79	9.82
	28	64.31	—	23.83		35	62.93	62.76	43.08
		62.80	—	22.92			61.42	61.57	42.17
		1.51		0.91			1.51	1.19	0.91
	(10.44)	10.40		10.48		(10.46)	10.40	10.51	10.48
	29	61.36	—	13.62		36	63.63	—	33.97
		59.83	—	12.73			62.12	—	33.06
		1.53		0.89			1.51		0.91
	(10.44)	10.37		10.51		(10.44)	10.40		10.48
	30	63.31	63.08	82.71		37	62.60	—	37.48
		60.71	60.96	81.12			61.09	—	36.56
		2.60	2.12	1.59			1.51		0.92
	(9.27)	9.24	9.26	9.30		(10.42)	10.40		10.45
	31	68.85	65.53	83.78		38	62.39	62.20	27.12
		62.46	62.76	81.71			60.37	60.56	25.88
		3.39	2.77	2.07			2.02	1.64	1.24
	(8.70)	8.69	8.66	8.73		(9.81)	9.79	9.82	9.82
	32	66.95	—	69.66		39	59.55	—	16.49
		65.44	—	68.75			58.06	—	15.59
		1.51		0.91			1.49		0.90
	(10.44)	10.40		10.46		(10.46)	10.43		10.49

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1904phag..proj..926K

Measured with C.S.M. Nov. 21, 1921.

Same	22a	80.02	79.71	79.52	Same 25	63.31	63.06	53.31
		76.68	77.00	77.44		60.72	60.96	51.72
		3.34	2.71	2.08		2.59	2.10	1.59
	(8.73)	8.72	8.73	8.73	(9.28)	9.26	9.26	9.30
	23a	79.38	78.95	69.96	27	65.64	—	32.11
		74.97	75.37	67.25		64.13	—	31.21
		4.41	3.58	2.71		1.51		0.90
	(8.13)	8.12	8.12	8.16	(10.44)	10.40		10.49
	24a	75.54	75.34	61.56	28	58.70	—	23.48
		73.50 ~~58~~	73.~~50~~ 68	60.32		57.20	—	22.58
		2.04 ~~1.86~~	1.~~84~~	1.24		1.50		0.90
	(9.79)	9.78	9.80	9.82	(10.46)	10.42		10.49
	25a	73.20	73.01	50.97	30	68.26	—	64.69
		71.14	71.33	49.74		66.73	—	63.78
		2.06	1.68	1.23		1.53		0.91
	(9.78)	9.74	9.76	9.84	(10.42)	10.37		10.48
I 40553 Phot	(22	61.02	—	71.38	31	63.50	63.36	73.98
		59.20	—	70.28		61.99	62.14	73.08
		1.82		1.10		1.51	1.22	0.90
	(10.00	9.97		10.04	(10.45)	10.40	10.46	10.49
I 40558 RV	22	63.79	63.66	79.79	32	64.63	~~63.13~~	68.20
		62.34	62.49	78.91		63.13	—	67.29
		1.45	1.17	0.88		1.50		0.91
	(10.53)	10.48	10.56	10.54	(10.45)	10.42		10.48
	23	64.99	64~~.83~~ 8	69.19	33	63.12	—	58.26
		63.50	63.66 16	68.32		61.59	—	57.32
		1.49	0.~~81~~ 17	0.87		1.53		0.94
	(10.51	10.42	10.~~46~~ 56	10.56	(10.38	10.37		10.40

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1904phae.proj..926K

Measured with CSM Nov 21, 1921.

Same	34	62.79	62.62	47.15	Same 23a	76.65	76.46	65.82
		60.75	60.95	45.90		74.64	74.89	63.60
		2.04	1.67	1.25		2.01	1.57	2.22
	(9.78)	9.76	9.78	9.81	(9.86)	9.79	9.92	9.86
	35	63.53	—	36.97	24a	79.75	79.56	56.03
		62.04	—	36.05		77.73	77.91	54.80
		1.49		0.92		2.02	1.65	1.23
	(10.44)	10.47		10.45	(9.81)	9.76	9.81	9.84
	36	61.84	—	29.95	25a	79.57	—	45.43
		60.32	—	29.06		78.03	—	44.47
		1.52		0.89		1.54		0.96
	(10.43)	10.38		10.52	(10.36)	10.34		10.36
	37	60.70	60.58	19.14	26a	72.35	—	34.48
		59.19	59.34	18.23		70.83	—	33.56
		1.51	1.24	0.91		1.52		0.92
	(10.44)	10.40	10.43	10.48	(10.41)	10.38		10.44

Measured Nov 23 1921

	38	60.23	60.06	36.14	I 40604 PV (22)	62.38	62.20	70.95
		58.19	58.39	34.93		60.87	61.00	70.04
		2.04	1.67	1.21		1.51	1.20	0.91
	(9.80)	9.76	9.76	9.87	(10.46)	10.40	10.50	10.47
	39	57.60	—	30.09	23	59.60	59.45	63.12
		56.06	—	29.18		58.09	58.22	62.19
		1.54		0.91		1.51	1.23	0.93
	(10.42)	10.36		10.48	(10.42)	10.40	10.44	10.42
	22a	80.47	80.29	71.58	24	61.89	61.57	52.60
		78.94	79.10	70.67		58.52	58.82	50.50
		1.53	1.19	0.91		3.37	2.75	2.10
	(10.46)	10.37	10.52	10.48	(8.72)	8.74	8.84	8.71

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1904phag.proj..926K

~~Nov~~ Wednesday Nov 23 1921

(2nd. beginning of this measurement)

25	62.21	61.79	44.02	Same	32	61.15	60.96	34.48
	57.79	58.22	41.26			59.11	59.32	33.22
	~~4.42~~	3.57	2.76			2.04	1.64	1.26
(8.12)	~~8.12~~	8.13	8.12		(9.79)	9.77	9.82	9.77
26	61.94	61.67	34.60		33	61.88	61.68	54.55
	59.30	59.54	32.96			59.83	60.03	53.29
	2.64	2.13	1.64			2.05	1.65	1.26
(9.23)	9.22	9.25	9.23		(9.79)	9.76	9.81	9.79
27	62.92	62.60	26.36		34	62.32	62.12	—
	59.54	59.84	24.27			60.25	60.46	—
	3.38	2.76	2.09			2.07	1.66	
(8.70)	8.70	8.64	8.72		(9.76)	9.74	9.79	
28	65.69	65.56	71.82		36	60.26	60.12	24.00
	64.14	64.32	70.86			~~58~~ 59.67	~~59~~ 59.84	23.03
	1.55	1.24	0.96			~~2~~.59	~~1~~.28	0.97
(10.38)	10.34	10.43	10.36		(10.33)	10.29	10.36	10.34
29	65.13	64.97	63.10	40611	22	79.42	79.27	76.74
	63.57	63.71	62.17	RV		77.89	78.05	75.82
	1.56	1.26	0.93			1.53	1.22	0.92
(10.38)	10.33	10.39	10.43		(10.43)	10.37	10.46	10.45
30	64.10	63.96	53.36		24	77.75	77.61	56.57
	62.55	62.72	52.41			76.21	76.37	55.66
	1.55	1.24	0.95			1.54	1.24	0.91
(10.38)	10.34	10.43	10.36		(10.42)	10.36	10.43	10.47
31	63.52	63.32	42.74		25	76.09	75.74	48.99
	61.46	61.66	41.48			72.66	72.99	46.87
	2.06	1.66	1.26			3.43	2.75	2.12
(9.78)	9.75	9.79	9.79		(8.68)	8.66	8.70	8.66

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1904phae.proj..926K

Wednesday Nov. 23 1921

Measured with C.S.M.

Same	26	77.34	76.91	40.13				
		72.88	73.32	37.40				
		4.46	3.59	2.73				
	(8.12)	8.10	8.12	8.14				
	27	78.67	78.42	26.47				
		76.00	76.27	24.83				
		2.67	2.15	1.64				
	(9.22)	9.20	9.23	9.24				
	28	78.86	78.57	—				
		75.44	75.75	—				
		3.42	2.82					
	(8.66)	8.67	8.64					
I 40612	(22	60.13	59.95	58.38	58.36			
Phot		58.26	58.43	57.21	57.21			
		1.87	1.52	1.17	1.15			
	(9.93)	9.91	9.94	9.91	9.94			
I 40624	(22	56.46	56.32	56.84				
Phot		54.56	54.72	55.68				
		1.90	1.60	1.16				
	(9.89)	9.86	9.87	9.93				

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Tuesday Feb 21 1922

Measures of apertures for Zeiss work at Arequipa

	Narrower		Longitudinal			
Smallest apertures	27.61	45.04	~~45.79~~	48.62	50.63	58.77
	22.80	40.23		45.69	45.69	53.80
	4.81	4.81		3.93	4.94	4.87
2nd apertures	47.70	54.24		62.81	~~26~~ 62.01	
	38.80	44.82		53.35	53.55	
	9.40	9.42		9.46	9.46	
3rd apertures	71.44	84.01		77.15	67.40	
	57.24	69.78		60.97	53.20	
	14.20	14.23		14.18	4.20	

Means

~~1st~~ 1st	2nd	3rd
4.81	9.40	14.20
.81	.42	.23
94	.46	.15
87	.46	.20
4|348	4|14	4|1
4.86	9.44	14.20

2.54 0.4048
240 0.3802
0.9846

0.6866	0.9750	1.1523
0.0246	0.0246	0.0246
0.7112	0.9996	1.1769
	0.7112	0.7112
	.2|.2884	.2|.4657
	1.44 mean diff 1st	2.33 mean diff 1st
5.14 mm	9.99 mm	15.03 mm

1/24 inch.

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		Diam.	Wire	Height					
I40825 PV	22	59.76	59.57	83.22		29	61.93	61.62	
		57.65	57.84	81.93			58.52	58.84	
	Means	2.11	1.73	1.29			3.31	2.78	
	(9.71)	9.69	9.71	9.74		(8.71)	8.74	8.64	
	23	59.48	59.29	72.67	I40834 PV	22	61.42	61.23	89.23
		57.38	57.58	71.40			59.30	59.50	87.95
		2.10	1.71	1.27			2.12	1.73	1.28
	(9.73)	9.70	9.73	9.77		(9.71)	9.69	9.71	9.72
	24	58.72	58.55	64.98		23	59.12	58.89	76.25
		57.12	57.28	64.03			56.96	57.15	74.92
		1.60	1.27	0.95			2.16	1.74	1.33
	(10.34)	10.27	10.38	10.37		(9.67)	9.64	9.70	9.64
	25	61.80	61.62	55.82		24	57.84	57.67	67.31
		60.23	60.37	54.90			56.18	56.34	66.30
		1.57	1.25	0.92			1.66	1.33	1.01
	(10.35)	10.32	10.41	10.44		(10.23)	10.20	10.28	10.21
	26	60.48	60.33	46.87		25	59.55	59.70	59.79
		58.92	59.07	45.93			58.20	58.35	58.80
		1.56	1.26	0.94			1.65	1.35	0.99
	(10.39)	10.37	10.40	10.40		(10.25)	10.21	10.25	10.30
	27	61.06	60.81	37.91		26	59.58 [19]	59.39	48.86
		58.92	59.13	36.64			57.90 [18]	58.08	47.84
		2.14	1.68	1.27			1.68	1.31	1.02
	(9.74)	9.66	9.78	9.77		(10.25)	10.18	10.32	10.24
	28	61.75	61.46	29.41		28	58.26	58.14	30.05
		59.03	59.26	27.73			56.21	56.42	28.74
		2.72	2.20	1.68			2.15	1.72	1.31
	(9.17)	9.16	9.18	9.14		(9.70)	9.66	9.72	9.71

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29	61.27	61.01	23.17	36	62.27	62.06	27.81
	58.54	58.78	21.47		60.14	60.35	26.52
	2.73	2.23	1.70		2.13	1.71	1.29
(9.16)	9.15	9.16	9.16	(9.71)	9.69	9.73	9.74
30	61.30	60.97	84.86	37	57.29	57.14	16.66
	57.84	58.16	82.72		55.66	55.82	15.68
	3.46	2.81	2.14		1.63	1.32	0.98
(8.65)	8.64	8.65	8.66	(10.29)	10.24	10.30	10.32
31	64.52	64.52	74.99	38	57.20	57.04	49.29
	62.07	62.32	73.32		55.54	55.71	48.29
	2.75	2.20	1.67		1.66	1.33	1.00
(9.17)	9.13	9.18	9.20	(10.25)	10.20	10.28	10.24
32	60.39	60.16	64.48	39	63.92	63.76	39.50
	58.20	58.40	63.17		62.31	62.48	38.52
	2.19	1.76	1.31		1.61	1.28	0.98
(9.66)	9.62	9.67	9.70	(10.31)	10.26	10.36	10.32
33	60.66	—		I 40849 22	63.62	63.51	81.96
	59.02	—		PV	62.06	62.22	81.02
	1.64				1.56	1.29	0.94
(10.22)	10.22			(10.36)	10.33	10.34	10.40
34	60.05	59.92	45.85	23	65.89	65.68	72.78
	58.47	58.65	44.89		63.78	63.99	71.49
	1.61	1.27	0.96		2.11	1.69	1.29
(10.33)	10.26	10.38	10.36	(9.73)	9.69	9.76	9.74
35	59.93	59.70	36.10	24	64.52	64.32	62.17
	57.77	57.97	34.80		62.42	62.60	60.87
	2.16	1.73	1.30		2.10	1.72	1.30
(9.69)	9.64	9.71	9.72	(9.72)	9.70	9.72	9.73

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25	65.04	64.89	54.04	33	65.44	65.25	55.91
	63.41	63.60	53.07		63.31	63.53	54.59
	1.63	1.29	0.97		2.13	1.72	1.32
(10.30)	10.23	10.34	10.34	(9.70)	9.66	9.72	9.69
26	61.40	61.22	42.94	34	62.34	62.12	43.96
	59.29	59.48	41.66		60.20	60.41	42.66
	2.11	1.74	1.28		2.14	1.71	1.30
(9.72)	9.69	9.70	9.76	(9.70)	9.66	9.73	9.72
27	59.94	59.65	37.03	35	60.46	60.30	37.00
	57.24	57.49	35.35		58.84	58.98	36.02
	2.70	2.16	1.68		1.62	1.32	0.98
(9.19)	9.17	9.22	9.14	(10.29)	10.25	10.29	10.32
29	64.66	64.48	19.13	36	61.29 [15]	61.14	27.54
	63.02	63.19	18.14		59.67 [12]	59.83	26.56
	1.64	1.29	0.99		1.62	1.31	0.98
(10.29)	10.22	10.34	10.30	(10.29)	10.25	10.30	10.32
30	61.61	61.34	85.15	37	68.72 [15]	68.57	37.94
	58.88	59.13	83.50		67.13 [15]	67.28	36.97
	2.73	2.21	1.65		1.59	1.29	0.97
(9.15)	9.15	~~9.18~~	9.22	(10.32)	10.29	10.34	10.34
31	60.30	60.08	76.30	38	62.94	62.80 [8]	33.76
	58.14	58.34	74.99		61.33 [17]	61.50	32.79
	2.16	1.74	1.31		1.61	1.30	0.97
(9.68)	9.14	~~9.70~~	9.70	(10.31)	10.26	10.32 ~~5.70~~	10.34
32	64.47	64.27	66.42	39	63.40	63.25	25.13
	62.35	62.55	65.14		61.82	61.98	24.17
	2.12	1.72	1.28		1.58	1.27	0.96
(9.72)	9.66	9.72	9.76	(10.35)	10.30	10.36	10.36

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I 40849	22	78.09	77.73	61.95	26	61.08	60.64	63.42
RV		74.64	74.98	59.84		56.26	56.73	60.43
		3.45	2.75	2.11		4.82	3.91	2.99
	(8.68)	8.64	8.70	8.70	(7.93)	7.92	7.94	7.94
	23	77.45	77.01	53.25 (?)	28	61.78	61.20	46.17
		73.00	73.40	50.45 (?)		55.76	56.34	42.41
		4.45	3.61	2.80		6.02	4.86	3.76
	(8.11)	8.10	8.12	8.10	(7.45)	7.44	7.46	7.45
I 40875	~~22~~ 25	64.84	64.68	74.38	I 40879 6	57.02	56.85	84.45
P.		62.90	63.08	73.17	P	55.06	55.25	83.22
		1.94	1.60	1.21		1.96	1.60	1.23
	(9.85)	9.84	9.88	9.84	(9.84)	9.82	9.88	9.81
	~~23~~ 26 ~~28~~	64.99	64.74	63.87	7	60.24	60.00	75.71
		62.49	62.72	62.34		57.73	57.96	74.14
	(9.35)	2.50	2.02	1.53		2.51	2.04	1.57
	27	9.31	9.38	9.36	(9.32)	9.30	9.35	9.30
	~~24~~	66.33	66.03	51.88	8	61.28	60.98	62.41
		63.23	63.53	49.98		58.24	58.51	60.50
		3.10	2.50	1.90		3.04	2.47	1.91
	(8.89)	8.86	8.91	8.90	(8.90)	8.90	8.93	8.86
I 40876	24	59.78	59.51	81.11	9	60.82	60.44	53.81
P		56.74	57.03	79.23		57.05	57.36	51.43
		3.04	2.48	1.88		3.77	3.08	2.38
	(8.91)	8.90	8.92	8.92	(8.44)	8.44	8.46	8.42
	25	60.38	60.06	71.92	10	60.62	60.15	—
		56.62	57.00	69.59		55.76	56.22	—
		3.76	3.06	2.33		4.86	3.93	
	(8.46)	8.44 ~~8.50~~	8.41 ~~8.33~~	8.47	(7.92)	7.90	7.93	

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	11	61.49	60.78	—	26	65.60	65.42	65.62
		55.30	55.88	—		63.95	64.12	64.61
		6.19	4.90			1.65	1.30	1.01
	(7.42)	7.39	7.45		(10.24)	10.21	10.33	10.25
	12	61.80	61.07	—	27	61.23	61.13	56.26
		54.24	54.94	—		59.61	59.76	55.28
		7.56	6.13			1.62	1.37	0.98
	(6.96)	6.96	6.96		(10.26)	10.25	10.22	10.32
I 40880 PV	6	60.16	60.01	80.51	28	65.79	65.66	47.57
		58.55	58.70	79.51		64.17	64.30	46.56
		1.61	1.31	1.00		1.62	1.36	1.01
	(10.29)	10.26	10.32	10.24	(10.25)	10.25	10.23	10.26
	7	59.92	59.72	69.64	29	66.90	66.76	39.42
		57.82	58.03	68.32		65.25	65.41	38.41
		2.10	1.69	1.32		1.65	1.35	1.01
	(9.72)	9.70	9.77	9.69	(10.24)	10.22	10.25	10.24
	8	59.19	58.93	62.42	30	64.61	64.44	29.46
		56.49	56.76	60.74		62.96	63.13	28.47
		2.60	2.17	1.68		1.65	1.31	0.99
	(9.22)	9.25	9.22	9.14	(10.28)	10.22	10.32	10.29
I 41001 PV	24	60.22	59.96	85.10	31	69.36	68.79	20.65
		57.55	57.80	83.45		63.62	64.20	17.08
		2.67	2.16	1.65		5.74	4.59	3.57
	(9.22)	9.20	9.23	9.22	(7.57)	7.54	7.59	7.57
	25	60.85	60.54	76.43	32	68.18	67.50	—
		57.40	57.73	74.34		60.92	61.64	—
		3.45	2.81	2.09		7.26	5.86	
	(8.65)	8.65	8.66	8.72	(7.06)	7.05	7.06	

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33	67.32	67.16	73.27
	65.76	65.92	72.33
	1.56	1.24	0.94
(10.35)	10.35	10.44	10.40
34	59.88	59.74	63.45
	58.30	58.44	62.52
	1.58	1.30	0.93
(10.36)	10.31	10.33	10.43
35	60.72	60.58	52.86
	59.18	59.30	51.93
	1.54	1.28	0.93
(10.38)	10.36	10.36	10.43

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Wednesday, May 3, 1922

		Diam	Wires	Height				
I 41108 PV poo.	22	48.56	48.30	96.34	23	56.68	56.25	34.89
		46.46	46.65	95.04		52.74	53.16	32.48
		2.10	1.65	1.30		3.94	3.09	2.41
	(9.75)	9.70	9.82	9.73	(8.39)	8.35	8.44	8.40 39
	23	49.25	48.96	89.92	24	58.01	57.48	27.83
		46.60	46.85	88.26		53.08	53.56	24.75
		2.65	2.11	1.66		4.93	3.92	3.08
	(9.23)	9.21	9.27	9.21	(7.87)	7.87	7.93	7.88
	24	49.26	48.93	78.35	25	57.56	57.03	—
		45.86	46.17	76.20		52.63	53.09	
		3.40	2.76	2.15		4.93	3.94	
	(8.67)	8.68	8.68	8.66	(7.40)	7.87	7.92	—
	25	46.87	46.63	67.30	26	57.39	56.77	—
		44.17	44.46	65.53		51.25	51.81	
		2.70	2.17	1.77		6.14	4.96	
	(9.15)	9.17	9.21	9.07	(7.41)	7.40	7.42	—
	26	46.74	46.41	58.65	27	50.80	50.44	27.14
		43.30	43.66	56.48		46.90	47.36	24.69
		3.44	2.75	2.17		3.90	3.08	2.45
	(8.67)	8.66	8.70	8.64	(6.40)	8.37	8.46	8.36
	27	47.46	47.06	Broke at 7.0	28	50.75	50.44	17.23
		42.94	43.38	—		47.65	47.98	15.24
	(8.08)	4.52 8.08	3.68 8.07	—		3.10	2.46	1.99
					(8.87)	8.86	8.94	8.76
41109 P Pht	22	57.00	66.67	46.14	I 41147 PV 22	65.46	—	
		53.84	54.17	44.15		63.98	—	
		3.16	2.50	1.99		1.48		
	(8.84)	8.82	8.91	8.80		10.44		

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S 41147	23	66.99	66.43	47.63	30	64.12	63.68	49.82
		61.20	61.70	44.02		59.71	60.10	47.56
		5.79	4.73	3.61		4.41	3.58	2.26
	(7.54)	7.54	7.52	7.55	(8.12)	8.12	8.13	8.54
	24	66.60	—	35.61	31	64.39	63.61	39.95
		65.28	—	34.63		58.77	59.26	36.17
		1.32		0.98		5.62	4.35	3.78
	(10.30)	10.26		10.23	(7.52)	7.61	7.50	7.44
					32	Symbol		
	25	65.57	65.39	27.10	33	59.34	59.19	19.70
		63.99	64.14	26.11		57.74	57.90	18.71
		1.58	1.25	0.99		1.60	1.29	0.99
	(10.34)	10.31	10.42	10.30	(10.30)	10.24	10.34	10.29
	26	66.99	66.86	16.79	34	61.10	60.95	9.55
		65.36	65.54	15.77		59.48	59.65	8.55
		1.63	1.32	1.02		1.62	1.30	1.00
	(10.26)	10.24	10.29	10.24	(10.29)	10.25	10.32	10.28
	27	67.57	67.41	7.39	35	53.05	52.90	70.60 / 69.57
		65.94	66.09	6.42		51.40	51.58	69.58
		1.63	1.32	0.97		1.65	1.32	1.02
	(10.29)	10.24	10.29	10.34	(10.26)	10.28	10.29	10.24
	28	61.33	61.05	67.30	36	53.89	53.70	60.14
		58.63	58.90	65.65		51.62	52.00	58.82
		2.70	2.15	1.65		2.27	1.70	1.32
	(9.21)	9.17	9.23	9.22	(9.75)	10.54 / 9.74	9.74 / 9.74	9.69 / 9.77 Sum 153
	29	62.40	62.10	58.31	37	51.97	51.62	49.77
		59.01	59.33	56.18		50.35	50.54	48.77
		3.39	2.77	2.13		1.62	1.08	1.00
	(8.68)	8.68	8.66	8.68	(10.28)	10.24 / 10.30	10.23	10.24 / 10.30 Sum 153

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Wednesday, May 3, 1922 Continued

I

~~I~~ 41147	38	53.64	53.45	43.02	28	60.10	59.80	22.79
		52.00	52.17	42.03		56.66	57.01	20.64
		1.64	1.28	0.99		3.44	2.79	2.15
	(10.30)	10.23	10.36	10.30	(8.66)	8.65	8.67	8.66
I 41165	22	59.66	59.49	79.80	29	60.56	60.17	14.75
PV		58.07	58.26	78.80		56.09	56.51	11.94
		1.59	1.23	1.00		4.47	3.66	2.81
	(10.28)	10.25 10.28	10.45	10.28 10.26 & 10.3	(8.09)	8.10	8.04	8.09
	23	58.70	58.55	69.98	30	60.12	59.82	61.76
		57.08	57.22	68.95		56.67	57.01	59.58
		1.62	1.33	1.03		3.45	2.81	2.18
	(10.25)	10.25	10.24	10.22	(8.67)	8.64	8.65	8.72
	24	57.06	56.89	58.21	31	60.87	60.46	52.62
		55.48	55.62	57.17		56.37	56.83	49.79
		1.58	1.27	1.04		4.50	3.63	2.83
	(10.29)	10.30	10.34	10.20	(8.08)	8.08	8.10	8.06
	25	60.40	60.26	48.12	32	63.54	63.39	40.67
		58.78	58.92	47.11		61.91	62.14	39.65
		1.62	1.34	1.01		1.63	1.25	1.02
	(10.25)	10.25	10.26	10.25	(10.30)	10.24	10.42	10.23
	26	61.26	61.01	42.02	33	54.55	54.41	33.19
		58.53	58.81	40.33		52.97	53.12	32.18
		2.73	2.20	1.69		1.58	1.29	1.01
	(9.17)	9.15	9.16	9.17	(10.30)	10.30	10.34	10.26
	27	61.42	61.13	31.78	34	58.00	57.55	20.44
		58.01	58.30	29.62		53.50	53.92	17.60
		3.41	2.83	2.16		4.50	3.63	2.84
	(8.65)	8.67	8.64	8.64	(8.08)	8.08	8.10	8.06

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1904phot.proj..926K

Friday, May 5, 1922.

Beginning with I 41165
Eg. 150.

35	57.63	57.08	12.65	24	61.67	61.55	57.91
	51.95	52.47	9.13		60.12	60.28	56.96
	5.68	4.61	3.52		1.55	1.27	0.95
(7.59)	7.56	7.56	7.60	(10.37)	10.34	10.38	10.38
36	60.36	60.08	68.83	25	61.71	61.50	45.98
	56.95	57.28	67.00		59.05	59.29	44.31
	3.41	2.80	1.83		2.66	2.21	1.67
(8.66)	8.67	8.66	9.00	(9.19)	9.20	9.17	9.20
37	53.64	53.48	58.22	26	61.82	61.60	36.95
	51.56	51.77	56.88		59.14	59.41	35.29
	2.08	1.71	1.34		2.68	2.19	1.66
(9.20)	9.72	9.73	9.66	(9.20)	9.18	9.20	9.21
38	52.13	52.00	49.84	27	63.47	63.26	27.53
	50.06	50.26	48.54		60.79	61.05	25.83
	2.07	1.74	1.30		2.68	2.21	1.70
(9.22)	9.74	9.70	9.72	(9.17)	9.18	9.17	9.16
39	56.42	56.23	38.15	28	63.94	63.67	18.06
	54.32	54.53	36.83		60.56	60.85	15.95
	2.10	1.70	1.32		3.38	2.82	2.11
(9.71)	9.70	9.74	9.70	(8.68)	8.70	8.64	8.70
I 41174 22	63.25	63.13	75.14	29	62.29	62.00	11.65
pV.	61.72	61.88	74.19		58.87	59.17	9.51
	1.53	1.25	0.95		3.42	2.83	2.14
(10.39)	10.37	10.41	10.36	(8.66)	8.67	8.64	8.67
23	63.24	63.12	67.35	30	58.57	58.25	64.96
	61.73	61.89	66.41		55.11	55.44	61.79
	1.51	1.23	0.94		3.46	2.81	3.17
(10.41)	10.40	10.44	10.40	(8.64)	8.64	8.64	8.64

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1904phae.proj..926k

Friday, May 5, 1922

I 41174	31	60.86	60.73	53.89	24? 9	60.04	59.47	73.43
		29						
		59.48	59.45	52.90		54.32	54.87	69.84
		1.57	1.28	0.99		5.72	4.60	3.59
	(10.33)	10.32	10.36	10.30	(7.57)	7.57	7.58	7.56
	32	60.89	60.75	45.15	25? 9	59.81	59.14	63.66
		59.34	59.48	44.19		52.62	53.32	59.18
		1.55	1.27	0.96		7.19	5.82	4.48
33 spoiled.	(10.36)	10.34	10.36	10.36	(7.08)	7.04	7.07	7.04
34 good [illegible]	35	60.23	60.07	55.45				
		58.67	58.82	54.50				
		1.56	1.25	0.95				
	(10.38)	10.33	10.42	10.36				
	36	58.83	58.64	43.05				
		56.75	57.94	41.78				
		2.08	0.70	1.27				
	(9.75)	9.73	9.74	9.77				
	37	65.86	65.73	37.05				
		64.27	64.40	36.05				
		1.59	1.33	1.00				
	(10.28)	10.29	10.26	10.26				
	38	61.90	61.48	25.70				
		57.38	57.81	22.90				
		4.52	3.67	2.80				
	(8.08)	8.06	8.07	8.10				
	39	—	61.42	—				
		—		—				
Short semi-diam.			56.85					
			4.57					
	(7.60)		7.60					

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1904phaa.proj..926K

Remeasurements.

Saturday, May 6, 1922

Those measurements not here, were not capable of being measured.

I 41147	24	55.10	—	73.65	I 41165 5/22	44.71	—	48.70 5
		53.57	—	72.63		43.11	—	48.69 4
		1.53		1.02		1.60		1.01
		10.36		10.23		10.28		10.26
	30	—	52.64	—	32	42.69	—	45.21
		—	49.03	—		41.08	—	44.21
			3.61			1.61		1.00
			8.10			10.26		10.27
	31	—	52.42	—	36	~~—~~	47.55	—
		—	47.63	—		—	44.74	—
			4.79				2.81	
			7.50				8.65	
	36	53.46	53.28	44.52				
		51.40	51.58	43.25				
		2.06	1.70	1.27				
		9.74	9.74	9.77				
	37	51.79	—	34.15				
		50.21	—	33.16				
		1.58		0.99				
		10.30		10.30				

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1904phae.proj..926K

Tuesday, May 9, 1922.

I 41090 P.V

	22	48.07	—	75.00?	30.	58.15	—	46.54
		46.53	—	74.06		41.62	—	41.65
		1.54		0.94		16.53		4.89
	(10.38)	10.35		10.46				
	x							
	23	49.08	48.84	66.06	31.	55.51	—	62.15
		46.45	46.69	64.43		39.09	—	57.32
	(9.24)	2.63	2.15	1.63		16.42		4.83
	(24 mt)	9.23	9.23	9.25				
	x							
	25	48.99	48.65	48.68	32	54.91 ~~62.15~~	—	53.60
		45.61	45.91	46.58		38.65	—	45.80
		3.38	2.74	2.10		16.26		4.80
	(8.70)	8.69	8.70	8.70				
	x							
	26	50.20	50.02	35.69	33	47.37	46.81	—
		48.15	48.34	34.43		41.63	42.20	—
		2.05	1.68	1.26		5.74	4.61	
	(9.77)	9.75	9.77	9.79	(7.59)	7.60	~~8.11~~ 7.56	
	x							
	27	49.76	49.58?	29.53	34	46.08	45.36	—
		47.72	47.90?	28.27		38.82	39.56	—
		2.04	1.68	1.26		7.26	5.80	
	(9.77)	9.76	9.77	9.79	(7.06)	7.05	7.04	
	x							
	28	52.25	51.71	—	35	45.29	44.93	60.31
		46.57	47.13	—		41.80	42.13	58.14
		5.68	4.58			3.49	2.80	2.17
	(7.58)	7.58	7.59		(8.64)	8.62	8.66	8.64
	x							
	29	53.29	52.41	—	36	43.58	43.14	50.15
		44.18	45.05	—		39.12	39.53	47.37
		9.11	7.36			4.46	3.61	2.78
	(6.56)	6.56	6.56		(8.10)	8.11	8.10	8.10

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1904phae.proj...926K

Tuesday, May 9, Continued.

	37	46.52	—	41.59	28	43.05	42.78?	36.47
		44.93	—	40.62		40.38	40.63?	34.83
		1.59		0.97		2.67	2.15	1.64
	(10.31)	10.26		10.34	(9.22)	9.20	9.23	9.23
	38	32.94	—	34.41	25 29	48.70?	48.00	64.26?
		31.37	—	33.47		41.58?	42.24	—
		1.57		0.94		7.12	5.76	
	(10.26)	10.31		10.40				
I 41095	22	50.51	—	90.73	I 41096	47.64	47.22	87.30
RV		48.44	—	89.46	P.	43.80	44.16	85.91
		2.07		1.27		3.84	3.06	1.39
	(10.76)	9.74		8.77	(8.48)	8.40	8.47	9.52
	23	50.54	50.27?	82.09	23	45.37	45.02	76.95
		47.90	48.15?	80.48		42.24	42.55	75.02
		2.64	2.12	1.61		3.13	2.47	1.93
	(9.23)	9.22	9.26	9.28	(8.88)	8.84	8.93	8.87
	24	48.93	48.62	74.78	24	44.64	44.39?	70.03
		45.55	45.85	72.72		42.08	42.79?	68.45
		3.38	2.77	2.06		2.56	1.96	1.58
	(8.71)	8.69	8.68	8.75	(9.28)	9.26	9.44	9.29
	26	45.33	44.80?	53.36	25	41.23	40.92?	60.66
		40.90	41.29	50.62		38.73	38.97	59.12
		4.43	3.61	2.74		2.50	1.95	1.54
	(8.12)	8.12	8.10	8.14	(9.32)	9.31	9.44	9.341
	27	43.48	43.14	44.04	26	40.25	39.90?	51.60
		40.05	40.35	41.91		37.15	37.45?	49.69
		3.43	2.79	2.13		3.10	2.45	1.91
	(8.67)	8.66	8.67	8.64	(8.88)	8.86	8.95	8.89

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1904phae.proj..926K

Tuesday, May 9, 1922. Continued

27	39.51	39.09	41.78
	35.65	36.03	39.40
	3.86	3.06	2.38
(8.43)	8.39	8.47	8.42
28	40.65	40.16	34.03
	35.77	36.23	30.99
	4.88	3.93	3.04
(7.91)	7.90	7.92	7.90
29	41.34	40.63	— D
	33.81	34.54	—
	7.53	6.09	
(6.34)	6.47	6.96	

A.G.

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1904photo.proj.:926K

Wednesday, May 31, 1922

I 41280 Faint P	60.00	59.78	67.70	25	45.64	45.33	57.14	
	57.58	57.79	66.24		42.26	42.58	55.05	
	2.42	1.99	1.46		3.38	2.75	2.09	
(9.41)	9.38	9.40	9.45	(8.70)	8.69	8.70	8.72	
I 41281 — P	52.50	52.35?	59.03	26	45.83	—	45.95	
	50.96	51.10?	58.05		43.69	—	44.30	
	1.54	1.25	0 0.98		2.14	—	1.65	
(10.34)	10.32	10.42	10.28		9.66		9.22	
41282 (1) P	49.31	49.16?	58.95	27	46.00	45.75?	37.48	
	47.72	47.88?	57.01		43.29	43.57?	35.80	
	1.59	1.28	1.94		2.71	2.18	1.68	
(10.32)	10.24	10.36	10.36	(9.18)	9.16	9.20	9.19	
41282 (2) P	46.56	46.40?	56.76	28	46.62	46.17	27.51	
	44.99	45.15?	55.76		42.36	42.77	24.91	
	1.57	1.25	1.00		4.26	3.40	2.60	
(10.34)	10.29	10.42	10.34	(8.23)	8.20	8.24	8.26	
I 41291 22 PV	43.50	—	85.65	29	45.72	45.30	68.13	
	41.93	—	84.66		41.27	41.69	65.38	
	1.57	—	00.99		4.45	3.61	2.75	
(10.31)	10.32		10.30	(8.12)	8.10	8.11	8.14	
23	44.58	44.37	76.19	30	47.31	46.35	—	
	42.51	—	74.91		38.05	39.00	—	
	2.07		1.28		9.26	07.35		
(9.75)	9.74	—	9.76	(6.54)	6.52	6.57		
24	44.72	44.49	67.58	31	48.79	47.63	—	
	42.06	42.32	65.96		37.18	38.32	—	
	2.66	2.17	1.62		11.61	9.31		
(9.23)	9.20	9.22	9.26	(6.04)	[illegible]	6.05		

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1904phae.proj..926K

Continued.

Wednesday, May 31, 1922

41291	32	50.90	49.44	—	27	55.88	55.52	42.40
		36.06	37.53	—		52.60?	52.37	39.90
		14.84	11.91			3.88	3.15	2.50
	(5.53)	5.52	5.52		(8.37)	8.38	8.40	8.32
Faint	33	53.25	51.45	—	28	56.37	55.90	33.30
and cut off		—	—	—		51.51	51.98	30.25
						4.86	3.92	3.05
					(7.51)	7.90	7.93	7.90
41292	22	46.33	46.02	89.32	29	56.96	56.37	24.90
		43.80	44.09	87.73		50.90	51.50	21.19?
		2.53	1.93	1.59		6.06	4.87	3.71
	(9.34)	9.26	9.47	9.27	(7.46)	7.44	7.46	7.48
	23	51.80	51.51	80.68	30	58.38	57.66	14.53
		48.76?	49.04	78.75		50.87	51.57	cut off
		3.04	2.47	1.93		7.51	6.09	
	(8.59)	8.90	8.92	8.86	(6.95)	6.96	6.96	
	24	53.37	52.97	71.45	31	65.74	64.45	cut off
		49.55?	49.93	69.06		53.43	54.70	
		3.82	3.04	2.39		12.31	9.75	
	(8.46)	8.47	8.49	8.42	(5.93)	5.91	5.95	
	25	54.99	54.54	62.00	32	60.63	59.06	—
		50.21	50.65	59.97		45.36?	46.89	—
		4.78	3.89	3.03		15.27	12.17	
	(7.93)	7.94	7.95	7.91	(5.47)	5.46	5.48	
	26	54.79	54.47	51.90	33	63.68	61.79	—
		51.72	52.03	49.97		—	—	—
		3.07	2.44	1.93				
	(8.90)	8.84	8.96	8.86				

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1904phao.proj..926K

Tuesday, June 6, 1922

Begins at beginning of this plate

I 41292/34	62.64	—	16.98	28	59.68	58.78	cut off
	46.05	—	11.11		50.53	51.42	
	16.59		5.87		9.15	7.36	
	5.27			(6.56)	6.55	6.56	
I 41336.22	51.00	50.82?	72.81	29	61.92	60.79	cut off
pv	48.97	49.16?	71.56		50.33?	51.48	
	2.03	1.66	1.25		11.59	9.31	
(9.77)	9.74	9.79	9.81	(6.04)	6.04	6.04	
23	52.11	51.88	63.47	30	61.39?	59.91	—
	49.41	49.67	61.83	Faint.	46.65?	48.11	—
	2.70	2.21	1.64		14.74	11.80	
(9.19)	9.17	9.17	9.24	(5.53)	5.52	5.54	
24	53.20?	52.91?	55.28	I 41337 22	46.72	46.33	90.15 5
Faint.	49.85	50.16	53.21	p	42.94	43.29	87.79
	3.35	2.75	2.07		3.78	3.04	2.36
(8.72)	8.71	8.70	8.74	(8.45)	8.44	8.48	8.44
25	55.20	54.93	44.64	23	47.66	47.21	81.05
	52.54	52.79	43.00		42.88	43.32	78.07
	2.66	2.14	1.64		4.78	3.89	2.98
(9.23)	9.20	9.24	9.24	(7.94)	7.94	7.94	7.95
26	56.52	56.19	35.75	24	49.50	48.90	72.56
	53.13	53.43	33.68		43.46	44.03	68.80
	3.39	2.76	2.07		6.04	4.87	3.76
(8.70)	8.66	8.69	8.74	(7.43)	7.44	7.46	7.45
27	55.92	55.51	26.94	25	51.33	50.87	64.16
	51.52	51.91	24.23		46.51	46.97	61.17
	4.40	3.60	2.71		4.82	3.90	2.99
(8.13)	8.12	8.11	8.16	(7.33)	7.32	7.34	7.34

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1904phae.proj..926K

Tuesday, June 6, 1922 Continued.

I 41337	26	52.62	52.04	54.45	(c)	49.93	48.41	66.30	I 4
		46.59	47.16	50.72		34.87	36.33	56.87	
		6.03	4.88	3.73		15.06	12.08	9.43	
	(7.46)	7.44	7.46	7.47	(5.48)	5.48	5.48	5.48	
	27	53.90	53.17	44.51	(d)	—	—	43.32	
		46.39	47.08	39.96		—	—	42.33	
		7.51	6.09	4.55				0.99	
	B (7.00)	6.97	6.98	7.04	(10.26)			10.26	
	28	—	57.86	—	(e)	—	—	43.54	
		—	42.74	—		—	—	42.32	
			15.12					1.22	
	(5.00)		5.00		(9.82)			9.82	
	29	58.37	—	25.99	I 41339 1	26.92	—	46.03	
		41.72	—	21.11	P	25.35	—	45.05	
		16.65		4.88		1.57		0.98	
		5.27		6.90	(10.25)	10.27		10.28	
	30	58.78	—	15.94	2	48.92	—	54.32	
		42.31	—	11.11		47.40	—	53.35	
		16.47		4.83		1.52		0.97	
		5.29		6.92	(10.32)	10.34		10.30	
I 41338	(a)	61.57	60.84	64.11	3.	47.24	—	52.42	
P		54.08	54.77	59.42		45.63	—	51.44	
		07.49	6.07	4.69		1.61		0.98	
	(6.98)	6.98	6.98	6.98	(10.23)	10.22		10.26	
	(b)	56.10	55.15	64.92	4	65.15	—	61.19	
		46.64	47.50	58.95		63.60	—	60.20	
		9.46	7.65	5.97		1.55		0.99	
	(6.47)	6.46	6.48	6.46	(10.22)	10.19		10.26	

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1904phae.proj...926K

Thursday, June 22, 1922.

I 41358	22	58.08	57.85?	90.89	32	53.80	53.39	36.84
pv		55.95	56.19	89.64		49.32	49.74	34.06
		2.13	1.66	1.25		4.48	3.65	2.78
	(9.76)	9.74	9.80	9.81	(8.10)	8.10	8.09	8.10
	23	59.22	58.98	82.73	33	53.79	53.24	28.87
		56.55	56.81	81.09		48.12	48.62	25.38
		2.67	2.17	1.64		5.67	4.62	3.49
	(9.21)	9.20	9.21	9.21	(7.59)	7.58	7.57	7.62
	24	57.64	57.33	73.58	34	47.97	47.75	63.34
		54.24	54.56	71.48		45.87	46.07	62.05
		3.40	2.77	2.10		2.10	1.68	1.29
	(8.69)	8.64	8.68	8.71	(9.74)	9.70	9.77	9.74
	25	56.16	55.95	64.27	35	4691	4670	5415
		54.05	54.26?	62.98		44.27	44.52	52.50
		2.11	1.69	1.29		2.64	2.18	1.65
	(9.73)	9.69	9.76	9.74	(9.22)	9.22	9.21	9.22
	26	55.53	55.28	55.48	36	46.47	46.16	46.05
		52.88	53.11	53.84		43.08	43.37	43.96
		2.65	2.17	1.64		3.39	2.79	2.09
	(9.22)	9.21	9.21	9.23	(8.69)	8.64	8.67	8.72
	27.	55.05	54.74	45.77	I 41359. 22	47.67	47.21	75.84
		51.56	51.86	43.64	p.	42.82	43.27	72.82
		3.49	2.88	2.13		4.85	3.94	3.02
	(8.63)	8.62	8.60	8.66	(7.92)	7.91	7.92	7.92
	31	54.17	53.82	47.92	31	42.13	41.54	73.88
		50.70	51.04	45.77		36.02	36.61	70.12
		3.47	2.78	2.15		6.11	4.93	3.76
	(8.66)	8.64	8.68	8.66	(7.43)	7.41	7.43	7.45

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Thursday, June 22, 1922. Continued.

34	46.06	45.77	63.31
	43.03	43.30	61.43
	3.03	2.47	1.88
(8.92)	8.91	8.94	8.92
35	45.44	45.10	53.19
	41.67	41.99	50.87
	3.77	3.11	2.32
(8.47)	8.50	8.43	8.48
36	44.67	44.22	44.68
	39.85	40.28	41.66
	4.82	3.94	3.02
(7.92)	7.92	7.92	7.92

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Friday, August 18, 1922

computed value

I 41379	22	55.17	54.30	—		29	—	63.37	—
(8) −6.59		46.05	46.95	—		(9) −6.07	—	54.11	—
measured value		9.12	7.35					9.26	
(6.56)		6.56	6.54			(6.06)		6.06	
+3									
Faint	23	56.31	55.23	—		30	—	66.20	—
(9) 6.07		44.61	45.86	—		(10) −5.52	—	54.26	—
(6.04)		11.70	9.37			(5.51)		11.94	
		6.03	6.04					± 5.51	
Toofaint	24					I 41382	22	52.04	—	91.86
						(1) −10.39		50.54	—	91.01
						(10.42)		1.50		0.86
								10.42		(10.60)
(2) −9.81	25	56.92	56.78	51.30		23		53.14	—	81.30
		54.90	55.05	49.90		(2) − 9.81		51.13	—	80.14
(9.74)		2.02	1.73	1.40		(9.80)		2.01		1.16
		9.74	9.70	(9.56)				9.80		(9.96)
(3) −9.24	26	57.55	57.28	42.45		24		54.44	—	72.79
		54.88	55.13	40.90		Faint (4) − 9.24		51.80	—	71.20
(9.26)		2.67	2.15	1.55		(9.22)		2.64		1.59
		9.20	9.23	9.36				9.22		(9.30)
Faint	27	59.12	58.75	33.61		25		54.46	53.88	—
(4) −8.70		55.74	56.02	31.52		(6) −7.63		48.73	49.28	—
(8.71)		3.38	2.73	2.09		(8.60)		5.73	4.60	
		8.70	8.71	~~8.72~~				7.62	7.56	
(8) −6.59	28	62.61	61.70	—		26		54.72	53.00	—
		53.42	54.32	—		(7) − 7.10		47.54	48.23	—
(6.53)		9.19	7.38			(7.08)		7.18	4.78	
		6.54	6.56					7.07	7.09	

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Friday, Aug. 18, 1922

27	55.94	55.68	—	Faint 34	51.35	51.10	44.49
(6)-6.57	46.85	47.71	—	(3)-9.24	48.75	48.97	42.96
	9.09	7.37			2.60	2.13	1.53
(6.56)	6.57	6.56		(9.28)	9.25	9.20	9.34
Faint 28	? 56.91	55.78	—	35	51.08	50.42	—
(8)-6.07	? 45.33	46.48	—	(7)-7.10	43.97	44.65	—
	11.58	9.30			7.11	5.77	
(6.04)	6.04	6.05		(7.10)	7.10	7.09	
29	51.44	—	25.16	36	52.20	51.35	—
(1)-10.39	49.92	—	24.29	(8)-6.59	43.13	43.99	—
	1.52		0.87		9.07	7.36	
(10.38)	10.38		(10.56)	(6.56)	6.57	6.56	
(2)-9.81 30	51.50	—	14.35	(9)-6.07 37	53.10	52.02	—
	49.46	—	13.17		41.61	42.70	—
	2.04		1.18		11.49	9.32	
(9.76)	9.76		(9.94)	(6.06)	6.07	6.04	
Faint 31	49.53	49.29	75.56	38			
(3)-9.24	46.93	47.11	73.95	Poor Image			
	2.60	2.18	1.61	(0)-11.00			
(9.24)	9.25	9.20	9.246				
(4)-10.39 32	50.80	—	64.49	(1)-10.39 39	54.51	—	12.39
	49.28	—	63.61		53.01	—	11.55
	1.52		0.88		1.50		0.84
(10.38)	10.38		(10.56)	(10.42)	10.42		(10.64)
(2)-9.81 33	51.04	50.88?	54.65	23a	61.96	61.64	
	49.02	49.21?	53.48	(4)-8.70	58.54	58.88	
	2.02	1.67	1.17		3.42	2.76	
(9.28)	9.78	9.76	(9.95)	(8.68)	8.67	8.69	

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Friday, Aug. 18, 1922.

24a	62.54	62.15	32.20	24	54.91	54.68	64.56
(5)-8.16	58.15	58.57	29.47	(3)-9.24	52.33	52.55	68.98
	4.39	3.58	2.73		2.58	2.13	2.58
(8.13)	8.14	8.12	8.14	(9.26)	9.27	9.24	(9.32)
25a	63.64	63.12	24.31	25	59.87	58.98	—
(6)-7.63	58.03	58.56	20.85	(8)-6.59	50.84	51.68	—
	5.61	4.56	3.46		9.03	7.30	
(7.62)	7.62	7.60	7.64	(6.58)	6.58	6.58	
26a	57.94	57.60	49.63	26	60.59	59.50	—
(4)-8.70	54.57	54.87	47.57	(9)-6.07	49.12	50.21	—
	3.37	2.73	2.06		11.47	9.29	
(8.72)	6.70	8.72	8.75	(6.06)	6.06	6.05	
27a	58.29	57.89	40.70	27	54.12	53.89	36.05
(5)-8.16	53.90	54.31	38.00	(3) 9.24	51.53	51.75	34.51
	4.39	3.58	2.70		2.59	2.04	1.54
(8.13)	8.14	8.12	8.16	(9.30)	9.26	9.35	(9.34)
28a	—	57.16	—	28	58.54	57.65	—
(6)-7.63	—	52.61	—	(8)-6.59	49.46	50.33	—
		4.55			9.08	7.32	
(7.60)		7.60		(6.57)	6.57	6.57	
I 41883 22	53.62	—	84.29	29	59.98	58.84	—
(2)-7.81	51.61	—	83.11	(9)-6.07	48.38	49.47	—
	2.01		1.18		11.60	9.37	
(9.79)	9.79		(9.93)	(6.04)	6.04	6.04	
(2)-9.81 23	54.21	—	73.51	Faint 30	51.85?	—	18.79
	52.21	—	72.33	(3)-9.24	49.27	—	17.21
	2.00		1.18		2.58		1.58
(9.80)	9.80		(9.93)	(9.27)	9.27		(9.35)

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Wednesday Oct 4 1922

I 41380

	22	63.78	—	42.29	29	61.05	60.84	86.91
(1) − 10.39		62.29	—	41.40	(3) − 9.24	58.39	58.66	85.30
		1.49		0.89		2.66	2.18	1.61
(10.42)		10.42		(10.52)	(9.23)	9.20	9.21	9.27
	23	65.69	65.52	31.67	30	—		
(2) − 9.81		63.66	63.90	30.45	(4) − 8.70			
		2.03	1.62	1.22				
(9.83)		9.74	9.85	9.86				
	24	67.45	67.21	22.77	31	65.64	65.50	65.82
(3) − 9.24		64.81	65.10	21.20	(1) − 10.39	64.14	64.30	64.88
		2.64	2.11	1.57		1.50	1.20	0.94
(9.27)		9.22	9.26	9.32	(10.44)	10.42	10.50	10.40
	25	—			32	66.86	66.67	56.50
(7) − 7.10					(2) − 9.81	64.84	65.04	55.26
						2.02	1.63	1.24
					(9.81)	9.78	9.84	9.82
	26	—			33	68.54	68.25	45.72
(8) − 6.59					(3) − 9.24	65.86	66.12	44.10
						2.68	2.13	1.62
					(9.24)	9.19	9.26	9.26
	27	—			34	—		
(9) − 6.07					(4) − 8.70			
	28	59.60	59.15	96.19	35	67.26	66.57	—
(2) − 9.81		57.60	57.78	94.94	(7) − 7.10	60.12	60.82	—
		2.00	1.37	1.25		7.14	5.75	
(9.80)		9.80	(10.22)	9.81	(7.10)	7.09	7.10	

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I 41389 22	58.90	—	67.28	34	67.65	—	41.04
(1)−10.39	57.34	—	66.45	(1)−10.39	66.16	—	40.21
	1.56		0.83		1.49		0.83
(10.34)	10.24		(10.66)	(10.42)	10.42		(10.66)
23	68.07	—	58.51	35	68.39	—	31.33
(1)−10.39	56.57	—	57.67	(2)−9.61	66.37	—	30.22
	1.60		0.84		2.02		1.11
(10.42)	10.42		(10.64)	(9.78)	9.78		(10.06)
27							
(2)−9.61	61.30	—	56.14	37	61.65	—	10.64
	59.21	—	54.96	(1)−10.39	60.16	—	9.76
	2.09		1.18		1.49		0.88
(9.72)	9.72		(9.92)	(10.42)	10.42		(10.54)
28	62.88	—	47.15	38	64.43	~~62.95~~	37.67
(2)−9.81	60.84	—	45.95	(1)−10.39	62.92	—	36.82
	2.04		1.20		1.51		0.85
(9.83)	9.77		9.89	(10.40)	10.40		(10.62)
29	62.28	—	37.17	22a	73.50 ~~71.55~~	—	64.97
(1)−10.39	60.82	—	36.26	(1)−10,39	~~71.06~~ 71.06	—	63.11
	1.46		0.91		1.44		0.86
(10.46)	10.46		10.47	(10.50)	10.50		(10.59)
32	62.99	62.80	59.85	23a	81.02	—	50.~~74~~ 30
(2)−9.81	60.99	61.16	58.65	(1)−10.39	~~50~~.62 29	—	49.~~79~~ 43
	2.00	1.64	1.20		1.40		0.87
(9.51)	9.80	9.82	(9.90)	(10.56)	10.55		10.56
33	63.55	—	48.72	24a	84.29	—	42.62
(3)−9.24	60.92	—	47.10	(1)−10.39	82.80	—	41.73
	2.63		1.62		1.49		0.89
(9.23)	9.23		(9.40)	(10.42)	10.42		(10.52)

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Wednesday Oct 4 1922

	25a	84.10	—	31.41	23	67.37	67.27	60.52
(2) − 9.81		82.03	—	30.35	(1) − 10.39	65.90	66.04	59.64
		2.07		1.06		1.47	1.23	0.88
	(9.73)	9.73		(10.16)	(10.45)	10.45	10.45	(10.54)
	26a	81.99	81.79	22.84	24	63.77	63.64	51.94
(2) − 9.81		79.94	80.15	21.57	(1) − 10.39	62.26	62.44	51.07
		2.05	1.64	1.27		1.51	1.20	0.87
	(9.78)	9.75	9.82	9.78	(10.41)	10.40	10.50	(10.56)
I 41420	24	62.53	—	55.16	25	66.73	66.58	41.30
(1) − 10.39		61.05	—	54.24	(1) − 10.39	65.20	65.38	40.45
		1.48		0.92		1.53	1.20	0.85
	(10.44)	10.44		10.45	(10.43)	10.37	10.50	(10.61)
	25	62.20	62.03	44.33	26	62.50	62.35	30.16
(2) − 9.81		60.24	60.42	43.12	(1) − 10.39	60.99	61.15	29.25
		1.96	1.61	1.21		1.51	1.20	0.91
	(9.56)	9.84	9.80	9.86	(10.45)	10.40	10.50	(10.46)
	26	62.08	61.85	36.41	(4) 8.70 27	63.88	63.56	22.02
(3) − 9.24		59.50	59.74	34.82		60.44	60.78	19.91
		2.58	2.11	1.59		3.44	2.78	2.11
	(9.28)	9.27	9.27	9.30	(8.68)	8.66	8.66	8.70
(5) − 7.10	27	63.59	63.12	—	(2) 8.16 28	63.10	62.68	11.89
		56.70	57.40	—		58.65	59.09	9.14
		6.89	5.72			4.45	3.59	2.75
	(7.14)	7.17	7.10		(8.12)	8.10	8.12	8.14
I 41656	22	60.49	60.37	70.32	(1) 10.39 29	64.84	64.71	28.85
(1) − 10.39		59.01	59.16	69.44		63.30	63.47	27.95
		1.48	1.21	0.88		1.54	1.24	0.90
	(10.46)	10.44	10.46	(10.54)	(10.40)	10.36	10.43	(10.49)

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I 41657	24	63.70	—	62.45	23	61.24	—	65.67
	(1)−10.39	62.18	—	61.56	(1)−10.39	59.71	—	64.78
		1.52		089		1.53		089
	(10.38)	10.38		(10.52)	(10.37)	10.37		(10.52)
	25	62.22	—	52.22	24	62.93	—	57.85
	(1)−10.39	60.69	—	51.35	(2)−9.81	60.90	—	56.61
		1.53		0.87	(9.80)	2.03		1.24
	(10.77)	10.37		(10.56)		9.74		9.83
	26	62.19	62.04	40.49	25	66.06	—	48.03
	(2)−9.81	60.14	60.32	39.22	(1)−10.39	64.56	—	47.15
		2.05	1.72	1.27	(10.42)	1.50		0.88
	(9.75)	9.77	9.72	9.77		10.42		(10.54)
	29	63.79	—	43.83	31	65.61	—	37.84
	(2)−9.81	61.76	—	42.57	(1)−10.39	64.04	—	36.90
		2.03		1.26	(10.32)	1.57		0.94
	(9.78)	9.76		9.79		10.32		(10.41)
	32	63.64	—	42.08	32	60.18	—	29.44
	(2)−9.81	61.55	—	40.81	(1)−10.39	58.61	—	28.52
		2.09		1.27	(10.32)	1.57		0.92
	(9.74)	9.72		9.77		10.32		(10.43) (10.45)
	33	63.86	63.67	29.12	33	61.61	—	—
	(2)−9.81	61.76	61.97	27.84	(1)−10.39	60.10	—	—
	(9.72)	2.10	1.70	1.38	(10.40)	1.51		
		9.79	9.74	(9.90)		10.40		
I 41665	22	65.00	—	75.01	34	61.45	—	9.50
	(1)−10.39	63.46		74.08	(1)−10.39	59.91	—	8.58
		1.54		0.93	(10.36)	1.54		0.92
	(10.40)	10.36		10.43		10.36		(10.45)

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	35	69.89	—	36.66				
	(1)-10.39	68.36	—	35.74				
		1,53		0.92				
	(10.37)	10.37		(10.45)				
I41666	22	59.42	59.16	71.80				
	(5)-9.24	56.72	56.96	70.17				
		2.70	2.20	1.63				
	(9.19)	9.15	9.18	9.24				
	23	60.56	60.20	61.13				
	(4)-8.70	57.07	57.39	59.01				
		3.49	2.81	2.12				
	(8.65)	8.62	8.65	8.69				
	25	61.39	—	42.73				
	(3) ~~(4)-8.70~~ 9.24	58.67	—	41.65				
		2.72		1.08				
	(9.18)	9.17		9.18				
	26	61.81	61.64	32.28				
	~~(3) (4) 9.81~~	59.74	59.94	31.01				
	~~(3) 9.~~							
	(3)-9.81	2.07	1.70	1.27				
	(9.75)	9.74	9.74	9.74				
	27	63.13	—	22.46				
	(1)-10.39	61.54	—	21.51				
	(10.33)	1						
		8.59		0.95				
		10.28		10.38				
		~~9.26~~						

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See below for #23 Monday, Oct. 23, 1922

	(1)	(2)				
4						
I 41681 22	56.66	56.51?	66.03	♯ 41691 22	48.24	47.98	76.22
Mean (1912)	55.07	55.20?	65.09		45.60	45.85	74.62
(10.30)	1.59	1.31	0.94		2.64	2.13	1.60
(10.33)	10.28	10.31	(10.41)	(9.24)	9.22	9.26	(9.29)
25	56.71	56.57	55.50	23	48.13	47.80	66.41
	54.65	54.83	54.27		44.80	45.06	64.31
	2.06	1.74	1.23		3.33	2.74	2.10
(9.72)	9.74	9.70	(9.84)	(8.92)	8.72	8.72	(8.71)
26	52.78	52.67?	47.19	24	51.30	—	53.90
	51.27	51.40?	46.30		49.82	49.98	53.05
	1.51	1.27	0.89		1.48	49.98	0.85
10.39	10.40	10.38	(10.56)	(10.44)	10.44	X	(10.61)
27	not measurable						
28	55.37	55.27?	28.57	25	51.92	51.76	46.17
	53.85	53.93	27.64		49.90	50.06	44.96
	1.52	1.34	0.93		2.02	1.70	1.21
(10.32)	10.38	10.26	(10.43)	9.76	9.76	9.74	(9.86)
29	57.28	57.07	18.10	26	46.88	46.70	38.21
	54.68	54.90	16.49		44.82	44.97	36.98
	2.60	2.17	1.61		2.06	1.73	1.23
(9.23)	9.24	9.22	(9.26)	(9.72)	9.74	9.71	(9.84)
30	57.35	57.03	10.03	27	46.34	46.19?	26.83
	53.96	54.26	07.94		44.79	44.93?	25.93
	3.39	2.77	2.09		1.55	1.26	0.90
(8.68)	8.68	8.64	(8.72)	(10.37)	10.34	10.40	(10.50)
# → 23	51.86	51.74?	75.23	28.	49.09	48.97	16.15
	50.34	50.46?	74.31		47.62	—	15.26
	1.52	1.28	0.92		1.47	48.97	0.89
(10.37)	10.38	10.36	(10.44)	(10.43)	10.45	X	(10.52)

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1904phae.proj..926K

Continued.

Monday, Oct. 23, 1922.

⊕41691	29	49.10	—	67.46	36	44.93	44.78?	13.67
		47.54	—	06.51		43.40	43.55?	12.75
		1.56		0.89		1.53	1.23	0.92
	(10.33)	10.33		(10.52)	(10.40)	10.37	10.44	10.45
	30	42.26	42.09	78.19	37	47.18	47.07	07.00
		40.21	40.42	69.98		45.65	45.77	06.07
		2.05	1.67	8.21		1.53	1.30	0.93
	(9.76)	9.75	9.74	(9.88)	(10.33)	10.37	10.53	10.43
	31	—	51.10	62.67	⊕41702.22	49.04	—	88.92
			48.33	60.63		47.54	—	88.00
			2.77	2.04		1.50		0.92
	(8.18)		8.64	(8.77)	(0.42)	10.42		10.45
	32	43.31	43.15	50.80	23	46.75	—	79.09
		41.27	41.45	49.57		45.20	—	78.20
		2.04	1.70	1.23		1.55		0.89
	(9.71)	9.76	9.74	(9.84)	(10.34)	10.34		10.52
	33	—	43.23	42.17	24	47.32	47.13	70.87
		40.81	41.04	40.58		45.31	45.50	69.66
			2.19	1.59		2.01	1.63	1.21
	(9.20)	X	9.20	(9.30)	(9.82)	9.79	9.84	9.86
	34	42.26	42.08	31.08	25	—	—	—
		40.19	40.36	29.84		49.78	50.65	—
		2.07	1.72	1.24		+	X	
	(9.72)	9.73	9.72	(9.82)				
	35	45.02	44.83	24.42	26	52.79	—	53.16
		42.92	43.11	23.16		51.25	—	52.25
		2.10	1.72	1.26		1.54		0.91
	(9.71)	9.70	9.72	(9.80)	(10.36)	10.36		10.47

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1904phae..proj..926K

Monday, Oct. 23, 1922. Continued.

I 41762 27	49.38	49.25?	43.66	34	43.49	—	39.78
	47.84	48.00?	42.75		41.92	—	38.88
	1.54	1.25	0.91		1.57		0.90
(10.39)	10.36	10.42	10.45	(10.33)	10.32		10.50
28	45.95	45.83	34.15	35	43.75	—	29.80
	44.42	44.57	33.22		42.18	—	28.89
	1.53	1.26	0.93		1.57		0.91
(10.38)	10.37	10.40	10.42	(10.32)	10.32		10.45
29	52.08	—	2387	Poor Imag 36	44.26	44.09	12.17
	50.53	—	22.99	37	42.20	42.38	10.97
	1.55		0.88		2.06	1.71	1.20
(10.34)	10.34		10.54	(9.54)	9.74	9.73	9.87
30	47.60	—	12.66	38	43.76	43.58	16.48
	46.03	—	11.76		41.75	41.89	14.23
	1.57		0.90		2.01	1.69	1.25
(10.32)	10.32		10.50	(9.78)	9.79	9.76	9.81
31	44.42	44.16	71.43	Poor 39	45.31?	—	06.59
	41.75	41.95	69.75	Image	42.72?	—	04.94
	2.67	2.21	1.68		2.59		1.65
(9.19)	9.20	9.18	9.14	(9.26)	9.26		9.32
32	—	45.85	—	I 41713 22	41.68	—	89.36
	—	43.03	—		40.15	—	88.50
		2.82			1.53		0.86
(8.64)		8.64		(10.37)	10.37		10.59
33	47.20	—	51.55	23	39.03	—	80.19
	45.62	—	50.65		37.56	—	79.30?
	1.58		0.90		1.47		0.89
(10.30)	10.30		10.50	(10.43)	10.45		10.52

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1904phae.proj..926K

Monday, Oct. 23, 1922

∓41713	24	44.87 43.35 1.52 10.34	—	71.60 70.71 0.89 10.52	31	44.67 41.18 3.49 8.62	44.35 41.55 2.80 8.66	05.94 03.82 2.12 8.68
	25	45.47 43.40 2.07 9.73	45.27 43.59 1.68 9.77	60.78 59.57 1.21 9.86	32	~~40.22~~ — — 7.58	40.22 35.63 4.59 7.58	— —
	26	42.20 36.59 5.61 7.62	41.69 37.08 4.61 7.57	52.54? 48.97? 3.57 7.57	33	— — — 8.07	39.91 36.23 3.68 8.07	— —
	27	— — — 7.07	42.26 36.45 5.81 7.07	— — — —	34	39.91 38.35 1.56 10.33	— — — —	44.59 43.63 0.96 10.38
	28	— — — 6.56	42.85 35.48 7.37 6.56	— — — —	35	38.55 36.56 1.99 9.82	38.39? 36.70? 1.69 9.76	34.52 33.28 1.24 9.82
	29	41.68 39.04 2.64 9.22	41.47 39.26 2.21 9.18	22.84 21.17 1.67 9.19	36	38.50 36.44 2.06 9.74	38.33? 36.65? 1.68 9.77	25.28 24.02 1.26 9.79
	30	42.19 38.78 3.41 8.67	41.88? 39.07? 2.81 8.65	12.90 10.79 2.11 8.70	37	36.19 34.66 1.53 10.27	36.08? 34.80? 1.28 10.36	15.80 14.89 0.91 10.47

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1904phae.proj..926K

Saturday, Mar. 4, 1922

I41714	22	66.26 64.73 1.53 (10.32)	— —		29	68.81 66.16 2.63 (9.21) 9.23	68.57 66.38 2.19 9.19	
	23	71.33 69.78 1.55 (10.34)	— —		30	67.19 63.81 3.38 (8.67) 8.70	66.90 64.08 2.82 8.64	
	24	70.09 68.59 1.50 (10.40) 10.41	69.98? 68.71? 1.27 10.38		31	63.62 60.17 3.45 (8.63) 8.64	63.31 60.46 2.85 8.62	
	25	70.91 68.88 2.03 (9.74) 9.77	70.78? 69.06 1.72 9.72		32	63.75 59.12 4.63 (8.02) 8.03	63.34 59.54 3.80 8.00	
	26	— —	69.48 64.91 4.57 7.60		Too faint 33			
	27	— —	70.04 64.22 5.82 7.07		34	71.63 70.06 1.57 10.32	— —	
	28	— — 2.8	70.67 63.27 7.40 6.54		35	70.39 68.81 1.58 10.30	— —	

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1904phae.proj..926K

Saturday, Nov. 4, 1922. Continued.

I 41714	36	56.79	56.45	
		53.30	53.59	
		3.49	2.86	
		8.62	8.61	
	37	60.68	60.49?	
		58.62	58.80?	
		2.06	1.69	
		9.75	9.75	

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1904phae.proj...926K

Monday, Nov. 6, 1922.

I 41800	22	53.92	53.68	89.51	I 4811.	23	53.56	53.29	79.69
		51.25	51.52	87.85			50.88	51.13	78.06
		2.67	2.16	1.66			2.68	2.16	1.63
	(9.21)	9.20	9.22			(9.20)	9.19	9.22	
	23	53.56	53.23	80.73		24	53.70	53.39	70.73
		50.09	50.40	78.61			50.28	50.60	68.69
		3.47	2.83	2.12			3.42	2.79	2.04
	(8.64)	8.64	8.64			(8.66)	8.66	8.67	
	24	55.09	54.67	70.67		25	53.85	53.41	61.61
		50.60	50.99	67.91			49.32	49.73	58.86
		4.49	3.68	2.76			4.53	3.68	2.75
	(8.08)	8.06	8.07			(8.07)	8.07	8.07	
Poor Image	25	57.09	56.97?	60.96		26	49.57	49.35?	49.90
		55.48	55.65	59.99			47.30	47.52?	48.56
		1.61	1.32	0.97			2.27	1.83	1.34
	(10.25)	10.26	10.30			(9.56)	9.54	9.59	
	26	58.47	58.32?	51.78		27	49.78	49.55	40.62
		56.38	56.57?	50.52			47.10	47.33?	39.00
		2.09	1.75	1.26			2.68	2.22	1.62
	(9.70)	9.71	9.68			(9.15)	9.19	9.16	
	27	60.02	59.68	42.46		28	50.63	50.30	30.26
		56.52	56.84	40.33			47.22	47.53	28.21
		3.50	2.84	2.13			3.41	2.77	2.05
	(8.62)	8.62	8.63			(8.14)	8.67	8.64	

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1904phae.proj..926K

Friday, Nov. 10, 1922

I 41814	22	68.98	68.85?	92.18	29	70.76	—	24.66
		67.45	67.59?	91.24		69.23	—	23.72
		1.53	1.26	0.94		1.53		0.94
	(10.38)	10.37	10.40		(10.37)	10.37		10.40
	23	72.60	—	80.34	30	72.95	—	15.65
		71.03	—	79.41		71.37	—	14.69
		1.57		0.93		1.58		0.96
	(10.32)	10.32		~~10.42~~	(10.30)	10.30		~~10.36~~
	24	—	—	73.18	31	69.89	69.72?	75.34
		73.72	74.11	70.40		67.80	67.99?	74.05
				2.78		2.09	1.73	1.29
	(8.10)			8.10	(9.71)	9.71	9.71	
	25	—	—	—	32	73.78	73.20	64.03
		72.83	73.31	—		68.00	68.51	60.50
						5.78	4.69	3.53
					(7.54)	7.54	7.54	
	26	70.20	69.98	54.25	33	74.25	73.59	—
		67.57	67.78	52.60		67.00	67.65	—
		2.63	2.20	1.65		7.25	5.94	
	(9.20)	9.23	9.18		(7.04)	7.05	7.03	
	27	70.06	69.83	44.30	34	74.45	—	46.73
		67.38	67.61	42.64		72.88	—	45.78
		2.68	2.22	1.66		1.57		0.95
	(9.18)	9.19	9.16		(10.32)	10.32		10.36
	28	71.27	70.98	34.84	35	72.18	72.00	36.23
		67.83	68.14	32.72		70.11	70.29	34.93
		3.44	2.84	2.12		2.07	1.71	1.30
	(8.65)	8.66	8.64		(9.74)	9.74	9.73	

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1904phae.proj..926K

Continued.

Friday, Mar. 10, 1922

36	73.56	73.40	26.88					
	71.48	71.66	25.58					
	2.08	1.74	1.30					
(9.72)	9.73	9.70						
37	71.75	71.56	13.79					
	69.64	69.83	12.51					
	2.11	1.73	1.28					
(9.70)	9.69	9.71						
38	47.72	47.53	29.74					
	45.63	45.81	28.46					
	2.09	1.72	1.28					
(9.72)	9.71	9.72						
39	50.54	50.38?	20.65					
	48.92	49.03?	19.68					
	1.62	1.35	0.97					
(10.25)	10.25	10.25						

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1904phae.proj..926K

Wednesday, Dec. 6, 1922.

		diam.	diam.				
I 41890	22	44.81	44.61	24	46.05	45.82	
		42.72	42.90?		43.38	43.60	
		2.09	1.71		2.67	2.22	
	(9.72)	9.71	9.73	(9.18)	9.20	9.17	
	23	44.46	44.20	25	47.06	46.72	
		41.78	42.00		43.62	43.90	
		2.68	2.20		3.44	2.82	
	(9.18)	9.17	9.18	(8.65)	8.66	8.64	
	24	44.39	44.05	26	49.65	49.52?	
		40.92	41.20		48.04	48.17	
		3.47	2.85		1.61	1.35	
	(8.63)	8.64	8.62	(10.26)	10.27	10.24	
	25	48.98	48.85?	27	48.36	48.22?	
		47.34	47.50?		46.78	46.89?	
		1.64	1.35		1.58	1.33	
	(10.24)	10.23	10.24	(10.29)	10.30	10.26	
	26	46.09	45.88	28	48.61	48.48?	
		43.97	43.17		47.03	47.15?	
		2.12	2.71		1.58	1.33	
	(9.70)	9.68	9.73	(10.29)	10.30	10.26	
I 41897.	22	51.57	51.38?	29	44.27	—	
		49.50	49.67?		42.71	—	
		2.07	1.71		1.56		
	(9.74)	9.74	9.73		10.34		
	23	51.95	51.77	30	43.39	43.24?	
		49.86	50.05		41.79	41.92?	
		2.09	1.72		1.60	1.32	
	(9.72)	9.71	9.72	(10.29)	10.26	10.30	

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1904phae.proj...926K

Wednesday, Dec. 6, 1922 ~~Catumet~~.

I 41897 30a	50.83	—		28?	48.26	47.96
	49.26	—			44.80	45.09
	1.57				3.46	2.87
	10.32				(8.62) 8.64	8.60
I 41916. 22?						
Too Hazy ~~for definition~~?						
23?	50.67	—				
	49.15	—				
	1.52					
	10.38					
24?	46.30	—				
	44.75	—				
	1.55					
	10.34					
25?	43.53	43.40?				
	41.96	42.10?				
	1.57	1.30				
	10.32	10.33				
26?	46.02	45.78				
	43.32	43.58				
	2.70	2.20				
	9.1	9.18				
27?	47.28	47.60				
	43.84	44.14				
	3.44	2.86				
(8.64)	8.66	8.61				

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1904phae.proj..926K

Thursday, Dec 14, 1922

I H 917	22	50.57 47.12 3.45 6.65	50.25 47.45 2.80 8.66			29	60.20 58.70 1.60 10.26	— 58.82?
	23	51.78 48.35 3.43 (8.16) 8.67	51.46 48.65 2.81 8.65		Harv	30	60.77? 59.15 1.62 (10.23) 10.26	60.62? 59.27? 1.35 10.24
Harv Bridges	24	55.20? 53.03 2.17 (8.63) 9.64	55.02? 53.26? 1.76 9.66			31	58.65 57.02 1.63 10.24	58.50? 57.15? 1.35 10.24
	25	57.00 54.28 2.72 9.16	56.75 54.52 2.23 9.15		Pon 1st Edge	32	59.93? 58.34? 1.59 (10.27) 10.42 28	59.82? 58.48? 1.34 10.26
	26	57.89 54.45 3.44 (8.65) 8.66	57.55 54.72 2.83 8.64			33	59.77 57.06 2.71 (9.14) 9.16	59.53 57.27 2.26 9.12
	27	58.12 56.00 2.12 9.64	57.92? 56.17? 1.75 9.64			34	61.17 59.56 1.61 10.26	— 59.67?
	28	59.87 58.27 1.60 10.26	59.72? 58.40? 1.32 10.29		excellent images	35	64.67 60.14 4.53 8.07	64.22 60.53 3.69 8.06

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1904phae.proj...926K

Thursday Dec. 14, 1922 Continued.

36	66.43 60.70 5.73 (7.53) 7.56	65.88 61.20 4.68 7.54		26a	65.53 63.42 2.11 9.69	65.35 63.60 1.75 9.64
37	65.50 63.86 1.64 (10.23) 10.22	65.33? 63.98? 1.35 10.24		I 41918, 22	62.95 60.80 2.15 (9.16) 9.16	62.75? 61.00? 1.75 9.68
38	63.35 61.72 1.63 10.24	— —		23	64.51 61.05 3.46 8.64	64.18 61.36 2.82 8.64
39	64.60 62.98 1.62 (10.24) 10.25	64.47? 63.11? 1.36 10.22		Hazy edge 24 (25 out)	63.07 61.00? 2.07 9.73	62.91? — —
23 a	55.71 54.10 1.61 (10.25) 10.24	55.55? 54.23? 1.32 10.29		26	63.42 60.70 2.72 9.16	63.17 60.93 2.24 9.15
24 a	59.33 57.74 1.59 10.26	59.19? 57.87? 1.32 10.29		27	64.74 61.28 3.46 6.64	64.41 61.57 2.84 6.63
25 a	59.30 55.79 3.51 (8.62) 6.6	58.96 56.13 2.83 8.63		Raggedy 28	63.09 61.45 1.64 10.22	62.95 61.58 1.37 10.21

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1904phae.proj..926K

Thursday Dec 14, 1922 Cautious

I 41918	29	65.39 63.78 1.61 10.26	65.25 —		36	46.77 45.22 1.55 10.34	46.68? 45.35? 1.33 10.24
						(10.31)	
1st edge "ragged"	30	69.53 67.92 1.61 10.26	69.40? 68.03? 1.37 10.21		37	51.84 48.38 3.46 8.64	51.50 48.66 2.84 8.63
(10.24) 2							
	31	65.99 64.37 1.62 10.25	65.84? 64.49? 1.35 10.24		again 37	51.91 48.45 3.46 8.64	51.57 48.76 2.81 8.65
	32	49.58 46.84 2.74 9.14	49.34 47.09 2.25 9.14		38	51.82 47.32 4.50 8.06	51.38 47.72 3.66 8.84
	33	45.00 43.40 1.60 10.28	44.89 43.52 1.37 10.21		39 10.29	55.31 53.73 1.58 10.30	55.17? 53.84? 1.33 10.28
(10.24)							
	34	44.28 42.68 1.60 10.28	44.12? 42.78? 1.34 10.26		22 ~~4~~ again ~~22~~ by mistake (9.26) by chance, sadly name	44.96 42.81 2.15 9.65	44.78? 43.03? 1.75 9.68
(10.27)							
	35	48.32 46.72 1.69 10.28	48.20? 46.83? 1.37 10.21		22a ragged edge.	37.27 35.68 1.59 10.28	37.16? —
(10.24)							

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1904phae.proj..926K

Thursday Dec. 14, 1922 Continued.

23a	35.29	35.14?		30a	47.34	47.15
	33.68	33.79?			45.20	45.36
	1.61	1.35			2.14	1.79
(10.25)	10.24	10.24		(9.64)	9.62	9.63
24a	37.56	37.41?		31a	39.85	39.72?
	35.95	36.13?			38.20	38.34?
	1.61	1.28			1.65	1.38
(10.31)	10.24	10.36			10.21	10.20
25a	39.01	38.58		32a	51.64	51.38
	34.51	34.90			48.91	49.12
	4.50	3.68			(9)2.73	2.26
	8.04	8.07		(9.14)	9.15	9.13
26a	40.77	40.22	cut off.	33a	—	54.22
	35.08	35.58			—	42.27
	5.69	4.64		Not to be measured		1.95
(7.57)	7.56	7.56				-9.44
27a	45.81	—				
Poor Image	44.21	—				
	1.60					
	10.28					
28a	52.02	51.68				
	48.54	48.81				
	3.48	2.87				
(8.62)	8.63	8.60				
29a	43.04	42.77				
	40.34	40.57				
	2.70	2.20				
	9.17	9.18				

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1904phae.proj..926K

Thursday, Jan. 18, 1923.

		Diam.	Wires				
I 4194-2	22	49.50	49.28	29	48.12	47.93	
		47.33	47.52		45.94	46.14	
		2.17	1.76		2.18	1.79	
	(9.66)	9.64	9.64	(9.63)	9.63	9.63	
	23	48.68	48.48?	30	49.38	49.22	
		46.88	47.04?		47.68	47.83	
		1.80	1.44		1.70	1.39	
	(10.07)	10.03	10.11	(10.17)	10.15	10.19	
	24	43.08	42.83	31	51.30	51.17	
		40.29	40.55		49.65	49.77	
		2.79	2.28		1.65	1.40	
	(9.10)	9.10	9.11	(10.20)	10.22	10.16	
	25	44.48	44.15	32	52.40	52.26	
		40.98	41.28		50.73	50.83	
		3.50	2.87		1.67	1.43	
	(8.62)	8.62	8.61	(10.45)	10.14	10.12	
	26	40.75	40.41	33	44.19	44.04	
		37.22	37.53		42.53	42.64	
		3.53	2.88		1.66	1.40	
	(8.60)	8.60	8.60	(10.18)	10.17	10.18	
	27	40.82	40.57	34	44.27	~~42.61~~	
		38.06	38.29		42.61	—	
		2.76	2.28		1.66		
	(9.12)	9.12	9.11	(10.17)	10.17		
	28	—	47.08	35	48.74	48.59	
		45.11	45.30		47.08	47.21	
			1.78		1.66	1.38	
	(9.64)		9.64	(10.18)	10.17	10.20	

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1904phae.proj..926K

Thursday, Jan. 18, 1923 Continued

36	49.44	49.28		25a	53.16?	52.95	
	47.80	47.94			50.43	51.68	
	1.64	1.34			2.73	2.27	
(10.24)	10.22	10.26		(9.14)	9.15	9.12	
37	55.51	55.38?		26a	55.76	55.60?	
	53.87	54.00?			54.11	54.26	
	1.64	1.38			1.65	1.34	
(10.21)	10.22	10.20		(10.30)	10.34	~~4.06~~ 10.26	
38	51.02	~~50.88~~		27a	64.41	62.96	
	49.39?	49.53?			49.59	50.97	
	1.63	1.35			14.82	11.99 5.50	
(10.24)	10.24	10.24		(5.57)	5.58	~~4.40~~	
39	51.98	51.85		28a	62.99	61.86	
	50.33	50.47			51.31	52.43	
	1.65	1.38			11.68	9.43	
(10.20)	10.21	10.20		(6.03)	6.03	6.03	
22a	50.20?	50.06?		37a	47.53?	—	
	48.67	—			45.92?	46.02?	
	1.53				1.61		
(10.37)	10.37			(10.24)	10.26		
23a	50.72	50.57					
	49.07	49.22					
	1.65	1.35					
(10.22)	10.21	10.24					
24a	52.48	52.29					
	50.32	50.50					
	2.16	1.79					
(9.64)	9.64	9.63					

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1904phae.proj..926K

Thursday, Jan. 18, 1923 Continued.

I 41945	22	51.00	50.80	29	54.10	53.97?	
		48.85	49.04?		52.46	52.62	
		2.15	1.76		1.64	1.35	
	9	9					
	(8.66)	8.65	9.68	(10.23)	10.22	10.24	
	23	52.38	52.15	30	53.51	53.40?	
		49.67	49.90		51.93	—	
		2.71	2.25		1.58		
	(9.15)	9.16	9.14	(10.30)	10.30		
	24	50.69	50.44	31	47.76	47.30	
		47.93	48.19		43.15	43.57	
		2.76	2.25		4.61	3.73	
	(9.13)	9.12	9.14	(8.04)	8.03	8.04	
	25	49.65	49.28	32	47.88	47.31	
		46.09	46.42		42.07	42.62	
		3.56	2.86		5.81	4.69	
	(8.60)	8.58	8.61	(7.54)	7.54	7.54	
	26	49.75	49.61?	33	41.67	41.55?	
		48.10	48.25?		40.07	40.20?	
		1.65	1.36		1.60	1.35	
	(10.22)	10.20	10.23	(10.26)	10.28	10.24	
	27	52.56	52.41	34	46.76	46.64	
		50.94	51.06		45.15	45.28	
		1.62	1.35		1.61	1.36	
	(10.24)	10.23	10.24	(10.24)	10.26	10.23	
	28	51.35	51.22	35	47.81	47.68?	
		49.73	49.88		46.20	46.34?	
		1.62	1.34		1.61	1.34	
	(10.26)	10.25	10.26	(10.26)	10.26	10.26	

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36	45.65	45.33
	42.16	42.46
	3.49	2.87
(8.62)	8.62	8.61
37	46.59	46.39
	44.44	44.63
	2.15	1.76
(8.66)	9 8.65	9.64
38	47.68	47.44
	44.90	45.15
	~~2.78~~	2.29
(9.10)	~~9.11 8.46~~	9.10
39	45.94	45.68
	43.16	43.38
	2.78	2.30
(9.10)	9.11	9.09
Poor Image 22a	59.18?	58.97
	56.47	56.68
	2.71	2.29
(9.13)	9.16	9.10
23a	57.54	57.29
	54.78	55.01
	2.76	2.28
(9.12)	9.12	9.11
24a	57.60?	57.43?
Poor Image	55.51?	55.67?
	2.09	1.76
(9.68)	9.71	9.66

25a	58.96?	58.54
	54.48?	54.82
	4.46	3.72
(8.07)	6.10	8.04
26a	58.17	58.04?
	56.52	56.65?
	1.65	1.39
(10.20)	10.21	10.16
27a	56.11	55.85
	53.35	53.58
	2.76	2.27
(9.12)	9.12	9.12
28a	64.21	63.08
Image cut off.	52.56?	53.61
	6 57	9.47
(6.02)		6.02

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1904phae.proj..926K

Saturday, Jan. 20, 1923

I 4947	22	52.26	52.12		29	56.78	56.59
		50.67	50.82			54.66	54.84
		1.59	1.30			2.12	1.75
	(10.31)	10.29	10.33		(9.68)	9.66	9.66
	23	53.00	52.85		30	54.05	53.87
		51.41	51.55			51.94	52.10
		1.59	1.30			2.11	1.77
	(10.31)	10.29	10.33		(9.68)	9.69	9.66
	24	55.63	55.49?	Poor Image	31	47.11?	46.96?
		54.07	54.20			45.47	45.61
		1.56	1.29			1.64	1.35
	(10.34)	10.33	10.34		(10.24)	10.23	10.23
	25	54.76	54.60	Very poor	32	~~46.98~~	46.98
		53.15	53.29			—	43.59
		1.61	1.31				3.39
	(10.29)	10.26	10.32		(8.25)		8.25
	26	53.69	53.42		33	54.75	54.02
		51.00	51.21	not measurable		50.88	51.18
		2.69	2.23				
	(9.17)	9.16	9.16				
	27	54.40	54.05		34	—	—
		50.92	51.22	M. Cy.		—	—
		3.48	2.83				
	(8.64)	8.67	8.64				
Faint Image	28	56.97?	56.65		35	54.35	54.02
		53.56	53.85			50.88	51.18
		3.41	2.80			3.47	2.84
	(8.66)	8.67	8.65		(8.64)	8.64	8.63

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1904phae.proj..926K

Saturday, Jan 20, 1923 Continued.

36	—	—						
	50.59	51.00						
Poor. 37	46.05?	45.92?						
	44.48?	44.59?						
	1.57	1.33						
(10.30)	10.32	10.28						
38	46.47	46.21						
	43.79	44.00						
	2.68	2.21						
(9.17)	9.19	9.17						
39	42.92	42.66						
	40.22	40.45						
	2.70	2.21						
(9.17)	9.17	9.17						
22a cut off	48.78?	47.88						
	39.58?	40.46						
	9.20	7.42						
(6.53)	6.52	6.54						
aut. off 23a	50.67	49.56						
	39.02	40.17						
	11.65	9.39						
(6.04)	6.04	6.04						

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1904phae.proj..926K

Saturday, Feb. 10, 1923

I 42007	22	51.65	51.45		30	62.27	61.84
		49.56	49.74			57.69	58.08
		2.09	1.71			4.58	3.76
	(9.72)	9.71	9.74		(8.03)	8.04	8.02
	23	48.82	48.65		31	68.68	68.14
		47.20	47.32			62.89	63.43
		1.62	1.33			5.79	4.71
	(10.26)	10.24	10.26		(9.54)	7.54	7.53
	24	47.53	47.34		32	63.82	63.61
		45.45	45.61			61.12	61.36
		2.08	1.73			2.70	2.25
	(9.72)	9.72	9.71		(9.16)	9.17	9.14
	25	47.63	47.44		33	61.47	61.11
		45.41	45.69			57.91	58.21
		2.22	1.75			3.56	2.90
	(9.63)	9.58	9.66		(8.58)	8.54	8.59
	26	67.55	67.31		34	63.34	62.47
		65.41	65.61			54.10	54.98
		~~2.14~~	1.70			9.24	7.49
	(9.70)	9.66	9.74		(6.53)	6.53	6.53
	27	64.36	64.22?		35	63.42	62.27
		62.75	62.90?			51.59	52.73
		1.61	1.32			11.83	9.54
	(10.28)	10.26	10.30		(6.00)	6.00	6.00
	28	64.96	—	Poor 1st edge	36	55.24	55.00
		63.32	—			52.53	52.79
29 missing		1.64				2.71	2.21
	(10.22)	10.22			(9.17)	9.16	9.14

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37	52.40	52.25	
	50.83	50.95	
	1.57	1.30	
(10.33)	10.32	10.33	
edge bay 38	53.63	—	
	52.00	52.16?	
	1.63		
(10.24)	10.24		
~~39~~			

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1904phae.proj..926K

Wednesday Feb 14, 1923.

I 42024	22	49.66	48.85?		29	42.62	48.28
		46.92	47.12			34.96	39.25
		2.14	1.73			7.66	3.03
	(9.68)	9.66	9.71		8.49		8.49
	23	49.28	49.10		30	38.54	38.15
		47.17	47.37			34.81	35.15
		2.11	1.73			3.73	3.00
	(9.70)	9.69	9.71		(8.50)	8.48	8.51
	24	46.27	45.89		31	39.69	39.24
		42.14	42.50			35.18	35.60
		4.13	3.39			4.51	3.64
	(8.26)	8.27	8.24		(8.07)	8.07	8.09
	25	47.01	—		32	41.66	41.42
		45.42	45.57?			38.96	39.22
		1.59	?			2.70	2.20
	(10.24)	10.24			(9.17)	9.17	9.14
	26	46.40	—		33	out of focus	46.10
		44.83	44.96			37.74?	38.66
		1.57	?			?	7.44
	(10.22)	10.32			(6.54)		6.54
	27	46.15	45.92		34	44.94	43.82
		43.45	43.72			33.27	34.40
		2.70	2.20			11.67	9.42
	(7.18)	9.17	9.14		(6.03)	6.04	6.02
	28	44.46	44.20		35	39.37	39.12
		41.75	41.98			36.68	36.90
		2.71	2.22			2.69	2.22
	(9.16)	9.16	9.16		(9.17)	9.14	9.16

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1904phae.proj..926K

Wednesday Feb 14, 1923. Continued:

36	38.82	—	
	37.20?	—	
	1.62		
(10.25)	10.25		
37	37.44	—	
	35.85	35.99?	
	1.59	?	
(10.28)	10.24		
38	38.88	—	
	37.27	37.45?	
	1.61	?	
(10.26)	10.26		
39	37.77	37.57	
	35.64	35.83	
	2.13	1.74	
(9.63)	9.66	9.70	

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1904phae.proj..926K

Tuesday Feb 20/23

I 42032	22	54.00	53.79?	29	47.46	47.15	
	Harv.	51.80	51.98?		44.00	44.38	
	Yerkes	2.20	1.81		3.46	2.85	
	(9.60)	9.61	9.60	(8.63)	8.64	8.62	
	23	52.23	52.03?	30.	42.09	41.75	
		50.03	50.22?		38.60	38.89	
		2.20	1.81		3.49	2.86	
	(9.60)	9.61	9.66	(8.62)	8.63	8.61	
	24	51.11	50.87	31	40.44	40.01	
		48.40	48.62		35.90	36.29	
		2.71	2.25		4.54	3.72	
	(9.14)	9.16	9.14	(8.05)	8.06	8.04	
	25	48.19	47.94	31b?	38.30	38.17?	
		45.48	45.70		36.70	36.83?	
		2.71	2.24		1.60	1.34	
	(9.15)	9.16	9.14	(10.27)	10.28	10.26	
	26	49.84	49.58	32	36.39	—	
		47.09	47.33	Poor.	34.81	—	
		2.75	2.25		1.58		
	(9.13)	9.13	9.17	(10.30)	10.30		
	27	46.76	46.59	33	31.67	—	
		44.62	44.77		30.06	—	
		2.14	1.80		1.61		
	(9.64)	9.66	9.62	(10.26)	10.26		
	28	48.74	48.48	34	31.67	—	
		45.97	46.20		30.06	30.18	
		2.77	2.28		1.61		
	(9.11)	9.12	9.10	(10.26)	10.26		

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1904phae.proj..926K

Tuesday Feb. 20/23 Continued.

35	30.94	30.72		25	38.32	—	
	28.22	28.45			36.68	36.82	
	2.72	2.27			1.64		
(9.14)	9.16	9.11		(10.23)	10.23		
36	26.98	26.81			38.95	—	
	24.90	25.03		26	37.32	37.44	
	2.08	1.78			1.63		
(9.68)	9.72	9.64		(10.24)	10.24		
37	24.58	24.39		27	40.64	—	
	22.49	22.65			38.97	39.10	
	2.09	1.74			1.67		
(9.70)	9.71	9.69		(10.17)	10.17		
38	22.21	22.02		28	37.69	37.50	
	20.10	20.27			35.50	35.68	
	2.11	1.75			2.19	1.82	
(9.68)	9.69	9.68		(9.60)	9.62	9.59	
I 42050 22	40.70	40.46					
	38.98	38.22					
	1.72	2.24					
(9.13)	9.14	9.14					
23	41.27	40.95					
	37.74	38.04					
	3.53	2.91					
(8.58)	8.60	8.57					
24	39.70	—					
	38.05	38.17					
	1.65						
(10.34)	10.34						

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1904phae.proj..926K

Saturday Feb. 24, 1923

I 42068

22	50.82	50.57		29	49.68	49.41	
	48.12	48.35			46.82	47.05	
	2.70	2.22			2.86	2.36	
(9.17)	9.18	9.16		(9.10)	9.06	9.13	
23	50.42	50.10		30	46.53	46.35	
	46.97	47.27			44.37	44.55	
	3.45	2.83			2.16	1.80	
(8.64)	8.65	8.64		(9.64)	9.65	9.62	
24	50.93	50.60		"Ragged" 31	52.27?	52.09?	
	47.45	47.77			50.09	50.28	
	3.48	2.83			2.18	1.81	
(8.64)	8.64	8.64		(9.62)	9.63	9.61	
25	51.95	51.52		32	42.37	—	
	47.43	47.83			40.74	40.90?	
	4.52	3.69			1.63	?	
(8.07)	8.04	8.06		(10.24)	10.24	—	
26	49.23	49.03?		33	42.54	42.38?	
	47.10	47.30			40.91	41.05?	
	2.13	1.73			1.63	1.33	
(9.69)	9.68	9.70		(10.26)	10.24	10.26	
27	49.85	49.67		34	47.36	—	
	47.73	47.92			45.78	45.90?	
	2.12	1.75			1.58	?	
(9.68)	9.67	9.64		(10.30)	10.30	—	
28	49.74	49.46					
	46.98	47.22					
	2.76	2.24					
(9.14)	9.13	9.14					

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1904phae.proj..926K

Saturday, Feb. 24, 1923 Continued:

I 42071	22	53.40	53.26?			29	56.78	56.65		
		51.74	51.87?				55.12	55.23		
		1.66	1.39				1.66	1.42		
	(10.19)	10.20	10.18			(10.16)	10.20	10.13		
	23	53.65	53.51			30	51.29	51.13		
		52.04	52.17				49.64	49.75		
		1.61	1.34				1.65	1.38		
	(10.26)	10.26	10.26			(10.21)	10.22	10.20		
	24	52.26	52.10			31	49.43	49.29		
		50.60	50.73				47.77	47.92		
		1.66	1.37				1.66	1.37		
	(10.20)	10.20	10.22			(10.20)	10.20	10.21		
	25	61.12	60.64			32	52.24	52.05		
		56.57	56.97				50.11	50.28		
		4.55	3.67				2.13	1.77		
	(8.06)	8.06	8.06			(9.17)	9.18	9.16		
	26	60.60	60.02							
		54.82	55.33							
		5.78	4.69							
	(7.54)	7.54	7.54							
	27	53.24	52.98							
		50.52	50.76							
		2.72	2.22							
	(9.16)	9.16	9.16							
	28	54.14	53.81							
		50.58	50.88							
		3.56	2.93							
	(8.57)	8.58	8.56							

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1904phae.proj..926K

Monday Feb. 26, 1923

J42072	22	48.93	48.67			29	47.30	—		I4
		46.25	46.47				45.71	45.84		
		2.68	2.20				1.59	—		
	(9.18)	9.19	9.18			(10.29)	10.29			
	23	49.22	48.91			30	45.85	45.72		
		45.81	46.08				44.25	44.37		
		3.41	2.83				1.60	1.35		
	(8.66)	8.68	8.64			(10.24)	10.24	10.24		
	24	46.62	46.44			31	43.85	43.72		
		44.56	44.73				42.25	42.35		
		2.06	1.71				1.60	1.37		
	(9.74)	9.75	9.73			(10.24)	10.24	10.21		
	25	49.34	49.19			32	36.48	36.21		
		47.70	47.79				34.34	34.48		
		1.64	1.40				2.06	1.73		
	(10.19)	10.22	10.16			(9.72)	9.74	9.70		
	26	50.90	50.79							
		49.29	49.38							
		1.61	1.41							
	(10.20)	10.26	10.15							
	27	50.53	50.41							
		48.92	49.03 (3)							
		1.61	1.38							
	(10.23)	10.26	10.20							
	28	48.39	48.27							
		46.78	46.89							
		1.61	1.38							
	(10.23)	10.26	10.20							

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1904phae.proj..926K

Monday, March 12, 1923.

I 42080	22	40.72	40.46		I 42083	47.94	47.67	
		37.99	38.26		22	45.17	45.42	
		2.73	2.20			2.77	2.25	
	(9.16)	9.15	9.18		(9.12)	9.12	9.13	
	23	40.89	40.57		23	46.08	45.78	
		37.41	37.71			42.66	42.95	
		3.48	2.86			3.42	2.83	
	(8.62)	8.63	8.61		(8.65)	8.66	8.64	
	24	43.95	43.59		24	47.69	47.34	
		40.40	40.75			44.13	44.49?	
		3.55	2.84			3.56	2.85	
	(8.60)	8.56	8.63		(8.60)	8.56	8.62	
very dark	25	44.35	44.06?		25	49.17	48.73	
		41.52	41.82?			44.62	45.05	
		2.83	2.24			4.55	3.68	
	(9.10)	9.07	9.14		(8.06)	8.06	8.06	
	26	42.63	42.49?		26	46.29	46.10	
		40.97	41.11?			44.15	44.32	
		1.66	1.38			2.14	1.78	
	(10.20)	10.20	10.20		(9.25)	9.66	9.64	
	27	44.41	44.27		27	46.38	46.23?	
		42.75	42.90			44.70	44.84?	
		1.66	1.37			1.68	1.39	
	(10.20)	10.20	10.21		(10.18)	10.17	10.18	
	28	43.45	43.25		28	46.85	46.70	
		41.30	41.48			45.21	45.34	
		2.15	1.77			1.64	1.36	
	(9.66)	9.66	9.65		(10.22)	10.22	10.23	

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1904phae.proj..926K

Monday, March 12, 1923. Continued.

42083	29	47.49 45.83 1.66 10.20	47.34 45.95 1.39 10.14				
(10.17)							
	30	51.08 49.43 1.65 10.21	50.95 49.55 1.40 10.16				
(10.18)							
	31	50.32 48.66 1.66 10.20	50.20 48.77 1.43 10.12				
(10.16)							
	32	49.87 48.19 1.68 10.17	49.72 48.32 1.40 10.16				
(10.16)							
	33	51.69 50.00 1.69 10.16	51.52 50.15 1.37 10.21				
(10.18)							
	34	52.19 50.50 1.69 10.16	52.02 50.64 1.38 10.20				
(10.18)							

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1904phae.proj..926K

Thursday, March 22, 1923.

B 42088 22	50.03	49.78		29	53.31	53.17		
	47.28	47.54			51.69	51.81		
	2.75	2.24			1.62	1.36		
(9.14)	9.13	9.14		(10.23)	10.23	10.23		
23	52.18	51.79		30	53.72	53.61		
	48.11	48.48			52.09	52.24		
	4.07	3.31			1.63	1.37		
(8.30)	8.30	8.29		(10.23)	10.24	10.21		
24	50.34	49.93		31	54.61	54.48?		
	46.22	46.62			53.00	53.15?		
	4.12	3.31			1.61	1.33		
(8.28)	8.27	8.29		(10.27)	10.26	10.28		
25	51.78	51.34		32	56.89	56.76?		
	47.22	47.65			55.28	55.40?		
	4.56	3.69			1.61	1.36		
(8.06)	8.05	8.06		(10.24)	10.26	10.23		
26	54.50	54.30		33	56.58	56.45		
	52.35	52.55			54.98	55.12		
	2.15	1.75			1.60	1.33		
(9.66)	9.65	9.64		(10.24)	10.24	10.28		
27	55.67	55.53		34	58.98	58.85?		
	54.02	54.17			57.36	57.50		
	1.65	1.36			1.62	1.35		
(10.22)	10.21	10.23		(10.24)	10.23	10.24		
28	56.12	—		35	60.80	60.63		
	54.51	54.64			58.68	58.87		
	1.61				2.12	1.76		
(10.26)	10.26			(9.68)	9.64	9.67		

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1904phae.proj..926K

Thursday, March 22, 1923. Continued.

D 42092 22	48.98	48.74		29	50.77	50.64		
	46.30	46.53			49.16	49.30		
	2.68	2.21			1.61	1.34		
(9.18)	9.18	9.17		(10.26)	10.26	10.26		
23	50.19	49.89		30	50.93	50.79		
	46.77	47.07			49.31	49.45		
	3.42	2.82			1.62	1.34		
(8.65)	8.66	8.64		(10.24)	10.23	10.26		
24	50.23	49.88		31	53.01	52.89		
	46.69	47.05			51.40	51.55		
	3.54	2.83			1.61	1.34		
(8.62)	8.59	8.64		(10.26)	10.26	10.26		
25	52.39	51.95		32	44.36	44.24		
	47.87	48.28			42.77	42.90		
	4.52	3.67			1.59	1.34		
(8.07)	8.07	8.07		(10.27)	10.28	10.26		
26	50.26	50.08?		33	45.16	45.05?		
	48.16	48.33			43.57	43.71		
	2.10	1.75			1.59	1.34		
(9.68)	9.69	9.68		(10.27)	10.28	10.26		
27	50.61	—		34	45.15	45.02		
	48.99	49.12?			43.53	43.67		
	1.62				1.62	1.35		
(10.23)	10.23			(10.24)	10.23	10.24		
28	49.63	49.52		35	46.77	46.57		
	48.05	48.17			44.65	44.83		
	1.58	1.35			2.12	1.74		
(10.27)	10.30	10.24		(9.68)	9.68	9.69		

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1904phae.proj..926K

Thursday, March 22, 1923 Continued.

I42093	22	39.69	39.45		29	42.62	—	
		36.99	37.23			41.01	41.15	
		2.70	2.22			1.61	—	
	(9.16)	9.16	9.16		(10.26)	10.26	—	
	23	41.05	40.72		30	41.80	41.68	
		37.58	37.88			40.19	40.32	
		3.47	2.84			1.61	1.36	
	(8.63)	8.64	8.62		(10.24)	10.26	10.23	
	24	41.79?	41.42		31	40.13	40.02	
		38.20	38.58			38.52	38.64?	
		3.59	2.84			1.61	1.38	
	(8.59)	8.56	8.62		(10.23)	10.26	10.20	
	25	43.59	43.15		32	37.83	37.70	
		39.03	39.47			36.22	36.38	
		4.56	3.68			1.61	1.32	
	(8.06)	8.07	8.07		(10.28)	10.26	10.29	
	26	41.17	—		33	39.76	39.65	
		39.01	39.19?			38.16	38.30	
		2.16				1.60	1.35	
	(9.64)	9.64	-		(10.26)	10.27	10.24	
	27	41.62	41.47		34	40.10	39.97	
		39.96	40.08			38.48	38.61	
		1.66	1.39			1.62	1.36	
	(10.17)	10.20	10.14		(10.23)	10.23	10.23	
	28	41.82	41.70		35	41.40	41.25	
		40.22	40.35			39.29	39.42	
		1.60	1.35			2.11	1.83	
	(10.26)	10.27	10.24		(9.64)	9.6✗	9.56	

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1904phae.proj..926K

Monday Dec 3, 1923.

I 42924	Diam	Wire	Height	I 42925			
23	65.~~567~~	65.~~331~~	70.824	23	66.613	66.374	77.375
	63.068	63.337	69.280		64.078	64.326	75.814
	2.499	1.994	1.544		2.535	2.048	1.561
(9.37)	9.34	9.40	9.37	(9.33)	9.30	9.34	9.34
24	65.237	61.207	62.235	24	67.686	67.352	67.395
	62.007	62.301	60.205		64.370	64.704	65.359
	3.230	2.606	2.030		3.316	2.648	2.036
(8.80)	8.80	8.81	8.78	(8.76)	8.74	8.74	8.77
25	64.831	64.403	52.404	25	—	66.895	55.~~756~~ 680
	60.526	60.931	49.768		62.941	63.395	53053
	4.305	3.472	2.636			3.443	2.627
(8.21)	8.22	8.20	8.22	(8.22)	—	8.22	8.22
26	62.772	62.585	41.975	26	59.958	59.783	—
	61.416	61.548	41.164		58.100	58.277	—
	1.356	1.037	0.811		1.858	1.506	
(10.79)	10.62	10.81	10.71	(9.98)	9.96	10.00	
27	62.173	61.968	31.173	27	58.868	58.674	—
	60.298	60.498	30.007		57.063	57.219	—
	1.875	1.470	1.166		1.805	1.455	
(9.99)	9.94	10.06	9.96	(10.05)	10.02	10.04	

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1904phae.proj..926K

Wednesday, Dec. 12, 1923.

I 42974	Diam.	Wires	Height
22	50.99	50.75	96.87
	48.52	48.73	95.32
	2.47	2.02	1.55
(9.36)	9.36	9.37	9.35
23	51.89	51.66	90.69
	49.40	49.63	89.18
	2.49	2.03	1.51
(9.37)	9.34	9.37	9.40
24	47.81	47.55	79.54
	45.23	45.53	77.96
	2.58	2.02	1.58
(9.32)	9.27	9.37	9.32
25	52.58	52.22	71.17
	49.28	49.61	69.15
	3.30	2.61	2.02
(8.78)	8.94	8.82	8.79
26	52.43	52.01	60.01
	48.10	48.51	57.40
	4.33	3.50	2.61
(8.19)	8.16	8.14	8.24
27	50.06?	49.90?	49.81
Poor Image	48.20	48.35	48.68
	1.86	1.55	1.13
(9.97)	9 +0.96	9.94	10.02

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1904phae.proj..926K

Tuesday, Dec. 18, 1923.

		Diam	Inis	Height				
I 42978	24	48.21 ?	47.85 ?	77.06	31	51.65	51.39	34.39
Indistinct	~~25~~	45.60	—	75.49		49.13	49.35	32.85
	~~26~~	2.61		1.57		2.52	2.04	1.54
(9.24)		9.24		9.32	(9.34)	9.30	9.35	9.36
	25	43.88	43.57	65.00	32	54.07	53.35	23.97
		40.65	40.94	63.00		47.00 ?	47.68	19.68
		3.23	2.63	2.00		7.07	5.67	4.29
(8.80)		8.78	8.80	8.81	(7.14)	7.10	7.14	7.18
	26	45.26	44.88	58.92	33	52.63	52.43 ?	16.06
		40.99	41.36	56.33	Faint	50.70	50.87	14.93
		4.27	3.52	2.59		1.93	1.56	1.13
(8.20)		8.14	8.16	8.26	~~9.94~~	9.87	9.94	10.01
	27	47.03 ?	46.49	—				
cut off		41.53 ?	47.02 (2)	—				
		5.50	4.47 (4)					
(7.64)		7.64	7.64					
	28	48.50 ?	48.33 ?	37.84				
Poor		46.60 ?	46.79 ?	36.68				
		1.90	1.54	1.16				
(9.94)		9.91	9.96	9.96				
	29	48.96	48.64	28.01				
		45.64	45.95 (3)	25.98				
		3.32	2.69	2.03				
(8.75)		8.72	8.75	8.74				
	30	49.05	48.81	19.67				
		46.52	46.74	18.08				
		2.53	2.07	1.59				
(9.31)		9.30	9.32	9.30				

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1904phae.proj..926K

Wednesday, Dec. 26, 1923

22-28, light of sky 29-37 artificial light

I 42997	22	57.19	56.93 ?	62.29	29	55.35	55.10	52.52
		54.59	54.87 ?	60.69		52.75	52.99	50.90
		2.60	2.06	1.60		2.60	2.11	1.62
	(9.29)	9.25	9.32	9.27	(9.26)	9.25	9.28	9.26
	23	54.65	54.43	54.77	30	58.93	58.51	44.65
		52.17	52.40	53.22		54.56	54.98	42.93
		2.48	2.03	1.55		4.37	3.53	2.72
	(9.36)	9.35	9.36	9.36	(8.15)	8.14	8.16	8.16
	24	58.12	57.77	47.58	31	59.12	58.57	35.39
		54.76	56.10	45.46		53.51	54.06	31.93
		3.36	2.67	2.12		5.61	4.51	3.46
	(8.71)	8.20	8.76	8.64	(7.62)	7.61	7.62	7.64
	25	58.61	58.06	37.72	32	53.69	53.35	23.55
		53.02	53.57	34.27		50.32	50.66	21.45
		5.59	4.49	3.45		3.37	2.69	2.10
	(7.64)	7.62	7.64	7.67	(8.72)	8.70	8.75	8.71
	26	58.70	58.50	29.70	33	52.46	52.03	cut off
		56.22	56.45	28.14		48.12	48.51	
		2.48	2.05	1.56		4.34	3.52	
	(9.34)	9.35	9.34	9.34	(8.16)	8.16	8.16	
	27	60.44	60.20	15.76	34	56.67	56.30	6.08
		57.88	58.13	14.19		53.33	53.67	4.02
		2.56	2.07	1.57		3.34	2.63	2.06
	(9.30)	9.28	9.31	9.32	(8.76)	8.72	8.80	8.75
	28	55.47	55.26	13.10	35	50.47	50.05	34.69
		52.98	53.18	11.56		46.12	46.51	31.95
		2.49	2.08	1.54		4.35	3.54	2.74
	(9.34)	9.34	9.30	9.37	(8.15)	8.15	8.16	8.14

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1904phae.proj..926K

Continued.

Wednesday, Dec. 26, 1923.

36	54.68	54.13	29.67
	49.07	49.63	26.15
	5 61	4.5 0	3.5 2
(7.61)	7.61	7.63	7.60
37	53.47	52.77	21.35
	46.37	47.05	17.00
	7.10	5.7 2	4.3 5
(7.12)	7.10	7.11	7.15

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1904phae.proj..926K

Monday, Dec. 31, 1923

Artificial Light.

		Diam.	Wires	Height
I 43006		51.74	51.61?	58.84
	#24	50.36	50.48?	58.02
		1.38	1.13	0.82
(10.63)		10.58	10.63	10.69
	25	52.95	52.41	51.78
		47.43	47.95	48.39
		5.52	4.46	3.39
(7.66)		7.65	7.66	7.64
	26	53.53	52.85	40.95
		46.49	47.17	36.67
		7.04	5.68	4.28
(7.14)		7.12	7.13	7.14
	27	51.22	51.12?	29.57
		49.84	49.93?	28.74
		1.38	1.19	0.83
(10.59)		10.58	10.52	10.66
I 43007		56.50	56.26?	53.48
	22	54.07	54.25?	51.95
		2.43	2.01	1.53
(9.37)		9.40	9.38	9.34
	23	55.81	55.57	38.71
		53.30	53.53	37.18
		2.51	2.04	1.53
(9.35)		9.32	9.36	9.34
	24	56.72	56.37	33.28
		53.45?	53.74	31.27
		3.27	2.63	2.01
(8.79)		8.76	8.80	8.60
	25	56.48	56.19	24.90
		53.25	53.55	22.94
		3.23	2.64	1.96
(8.81)		8.79	8.79	8.86
	26	58.62	58.18	13.99
		54.19	54.64	11.26
		4.43	3.54	2.73
(8.14)		8.12	8.16	8.15
	27	55.47	54.93	~~3822~~ (cut off)?
		49.86	50.38	
		5.61	4.55	~
(7.62)		7.62	7.62	
	28	56.00	55.29	cut off
		48.91	49.57	
		7.09	5.72	~
(7.10)		7.11	7.10	
	29	50.90	50.67?	20.99
		48.50	48.69?	19.51
		2.40	1.98	1.48
(9.43)		9.42	9.42	9.45
	30	48.92?	48.67	10.80
		46.53	46.73	9.35
		2.39	1.94	1.45
(9.46)		9.43	9.46	9.49
	31	50.66?	50.41	3.02
		48.26	48.46	1.58
		2.40	1.95	1.44
(9.45)		9.42	9.45	9.51

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1904phae.proj..926K

Monday Jan 21, 1924

Measure of Holders using plate glass making measure by means of triangular bars gauges at centers of plate

1	6.9	6.9		
2	6.8	6.8		
3	6.8	6.7		
— 4	6.2	6.3	Not to be used	
5	6.9	6.9		
6	6.9	6.8		
7	6.9	6.8		
8	6.9	6.8		
9	6.7	6.7		
10	6.7	6.6		
— 11	6.6	6.6	Not to be used	
12	6.7	6.8 (6.7+		
— 13	6.2	6.4	Not to be used.	
14	~~6.9~~			
Reserve (15	6.69	6.9	6.9	
16	—			
~~Send~~ (17	6.6	6.7	6.7	
& Penn 18	6.7	6.8	6.75	
19	6.7	6.8		
20	6.8	6.8		
21	6.8	6.7		
Reserve 22	6.9	6.8		
23	6.9	6.9		
24	6.6	6.6		

On Feb 19 1924
Examined holders & Camera
on No 1 Mounting
Full length of pin into which holder
is inserted is 30.2 cm
Length of opening in all holders is 24.6 c.m
30.2 − 24.6 = 5.6 Half = 2.8 cm
Therefore. Width of frame at No. end of
holder should be 2.8 cm to bring
opening central.

Measured holders as follows

1 — 2.7
2 — 2.8
3 — 2.7
4 — 2.4
5 — 2.7
6 — 2.7
7 — 2.6
8 — 2.7
9 — 2.4
10 — 2.4
11 — 2.4
12 — 2.4
13 — 2.4
14 — 2.4
15 — 2.4
19 to 24 — 2.4

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1904phae.proj..926K

Friday, Jan. 25, 1924

	1st	2nd	3rd	Mean	1st	2nd	Backwards 2 3rd	Mean'	
Aperture "0"	57.39	57.38	57.39		57.49	57.	57.48		
	15.31	15.30	15.31	42.08	15.38	15.50		42.11	42.10
	42.08	42.08	42.08		42.11	15.40	15.36		
						42.10	42.12		
Aperture "1"	48.41	48.42	48.44		48.55	48.52	48.56		
	18.62	18.62	18.61	29.81	18.71	18.68	18.70	29.85	29.83
	29.79	29.80	29.83		29.84	29.84	29.86		0.72 (6)
Aperture "2"	34.84	34.82	34.81		34.95	34.95	34.94		
	13.69	13.65	13.68	21.15	13.79	13.74	13.72	21.20	21.18
	21.15	21.17	21.13		21.16	21.21	21.22		1.50
Aperture "3"	19.50	19.49	19.49		19.62	19.62	19.61		
	04.57	04.57	04.57	14.92	04.68	04.66	04.65	14.96	14.94
	14.93	14.92	14.92		14.94	14.96	14.96		2.26
Aperture "4"	19.44	19.47	19.45		19.59	19.58	19.59		
	08.84	08.85	08.86	10.60	08.97	08.97	08.98	10.61	10.60
	10.60	10.62	10.59		10.62	10.61	10.61		3.00

log "0" 1.6243
log "½" 1.4746
-2 | 0.1497
·0.75

"0" 1.6243
"½" 1.3259
·2 | 0.2984
1.49

"0" 1.6243
"3" 1.1744
·2 | 1.4499
2.25

"0" 1.6243
"4" 1.0253
·3 | 0.5990
2.995
3.00

1.6243
0.1500
1.7743
0.2462
2.0205

1.7743
0.0246
1.7989

= 59.47

63 mm value for diam ½ aperture ½ image beyond "0"

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1904phae.proj..926K

Saturday Feb. 16, 1924

I 43082	24	43.10?	42.95?	70.26?	25	48.22	47.98	58.20	
Poor		41.26	—	69.21?		45.75	45.97	56.71	
		1.84		1.05		2.47	2.01	1.49	
	(10.08)	9.94		10.14	(9.39)	9.36	9.38	9.44	
	25	42.68	42.26	61.00	26	53.98	53.04	cut off	
		38.38	38.78	58.36		44.53	45.43		
		4.30	3.48	2.64		9.45	7.61		
	(8.20)	8.18	8.19	8.22	(6.48)	6.48	6.49		
	26	43.13	42.61	cut off	27	—	53.42	cut off	
		37.62?	38.10			—	44.23		
		5.51	4.51				9.19		
	(7.64)	7.64	7.63		(6.08)		6.04		
	27	40.95?	—	43.86	28	51.75	51.53	29.31	
		39.09?	—	42.80		49.24	49.45	27.81	
		1.86		1.06		2.51	2.08	1.50	
	(10.05)	9.96		10.14	(9.33)	9.32	9.31	9.42	
I 43083	22	49.06	48.82	89.98	29	52.75	52.17	22.22	
		46.60	46.81	88.51		47.19	47.75	18.80	
		2.46	2.01	1.47		5.56	4.42	3.42	
	(9.40)	9.36	9.36	9.47	(7.65)	7.62	7.67	7.66	
	23	47.72	47.47	78.08	30	52.18	51.48	cut off	
		45.23	45.46	76.59		45.19	45.87		
		2.49	2.01	1.49		6.99	5.61		
	(4.39)	9.34	9.36	9.44	(7.14)	7.13	7.15		
	24	48.30	47.98	67.82	31	—	—	off	
		45.10	45.35	65.88	Poor	51.23	51.72		
		3.20	2.63	1.94					
	(8.83)	8.81	8.80 9.04	8.84					

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1904phae.proj..926K

Saturday Feb. 16, 1924 Continued

32	48.13	47.58	cut off
	42.56	43.09	
	5.57	4.49	
(7.63)	7.62	7.64	
33	49.15	48.47	cut off
	42.14	42.80	
	7.01	5.67	
(7.14)	7.13	7.14	

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1904phae.proj..926K

Monday, February 18, 1924

I 43117	23	39.69	39.34	84.42	32	50.57	49.10	—	
		36.37	36.71	82.43		35.42	36.92		
		3.32	2.63	1.99		15.15	12.18		
	(8.78)	8.73	8.80	8.82	(5.47)	5.46	5.46		
	24	40.37	39.99	77.48	33	—	52.10	—	
		36.08	36.50	74.84		—	36.83	—	
		4.29	3.49	2.64			15.27		
	(8.19)	8.14	8.16	8.22	(4.94)		4.98		
	25	42.95	42.45	65.82	I 43118 22	59.16	57.61	—	
		37.52	38.01	62.48		43.82	45.33	—	
		5.43	4.44	3.34		15.34	12.28		
	(7.69)	7.68	7.66	7.72	(5.44)	5.44	5.45		
	26	44.44	43.77	56.38	23	—	59.50	—	
		37.52	38.15	52.12		—	44.09	—	
		6.92	5.62	4.26			15.41		
	(7.17)	7.16	7.14	7.20	(4.96)		4.96		
	27	—	45.71	—	24	58.70	58.33	45.71	
		—	38.49	—		55.32	55.67	43.65	
			7.22			3.38	2.66	2.06	
	(6.60) (6.43)		6.60		(8.74)	8.70	8.78	8.73	
	30	—	48.92	—	28	60.54	60.14	36.70	
		—	41.27	—		56.20	56.62	34.01	
			7.65			4.34	3.52	2.69	
	(6.48)		6.46		(8.17)	8.16	8.16	8.18	
	31	—	51.08	—	29	62.75	62.23	26.86	
		—	41.52	—		57.20	57.71	23.45	
			9.56			5.55	4.52	3.41	
	(6.00)		6.00		(7.64)	7.63	7.62	7.67	

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1904phae.proj..926K

Monday, February 18, 1924 Continued

30	64.90	64.23	17.23			
	57.91	58.57	12.91			
	6.99	5.66	4.32			
(7.14)	7.13	7.14	7.16			

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Monday, March 17, 1924

I 43244	24	51.12?	—	74.85	28	44.62	43.99	glat 2 side	I
		49.28	—	73.78		37.74	38.35		
		1.84		1.07		6.88	5.64		
	(10.06)	9.98		10.13	(7.16)	7.17	7.14		
	25	50.90	50.39	60.72	29	out			
		45.39	45.84	57.33					
		5.51	4.55	3.39					
	(7.64)	7.65	7.60	7.64					
	26	52.47	51.80	glat 2 side	30	42.53?	42.36?	18.36	
		45.53	46.14			40.64	40.79?	17.25	
		6.94	5.66			1.89	1.57	1.11	
	(7.14)	7.14	7.13		(9.97)	9.93	9.92	10.06	
	27	52.93	—	40.33					
		51.04	—	39.20					
		1.89		1.13					
	(9.95)	9.93 9.03		10.02					
I 43246	25	38.10	36.83	67.90					
		36.23	—	66.79					
		1.87		1.11					
	+0.00	9.95		10.06					
	26	—	—	59.07					
		—	—	55.72					
				3.35					
				7.71					
	27	41.93	41.42	50.94					
		36.42	36.90	47.55					
		5.51	4.52	3.39					
	(7.65)	7.65	7.62 6.16	7.64					

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1904phat.proj..924K

Tuesday, March 25, 1924

I 43307	22	55.88	55.38	83.06	29	60.36	60.12	15.40
		50.43	50.94	79.72		57.88	58.09	13.91
		5.45	4.44	3.34		2.48	2.03	1.49
	(7.69)	7.64	7.66	7.72	(9.38)	9.35	9.36	9.44
	23	57.09	56.40	74.58	30	52.01?	51.69?	62.06
		50.02	50.63	70.23		48.82?	49.06?	60.10
		7.07	5.77	4.35		3.19	2.63	1.96
	(7.11)	7.11	7.09	7.13	(8.83)	8.82	8.80	8.84
	24	60.66	59.78	off	31	54.78	54.51	50.89
		51.72	52.55			51.61	51.87	48.94
		8.94	7.23			3.17	2.64	1.95
	(6.60)	6.60	6.60		(8.83)	8.83	8.79	8.87
	25	off	61.73	off	32	55.59	55.28	42.89
		51.56	52.60			52.39	52.67	40.95
		—	9.13			3.20	2.61	1.94
	(6.09)	—	6.09		(8.83)	8.81	8.81	8.84
	26	63.40	62.99	42.33	33	54.47	54.18	30.78
		59.16	59.54?	39.73		51.28	51.55	28.85
		4.24	3.45	2.60		3.19	2.63	1.93
	(8.22)	8.20	8.20	8.25	(8.82)	8.82	8.80	8.83
	27	—	64.47	off	34	53.61	53.30	21.21
		59.56	60.03			50.42	50.71	19.25
		—	4.44			3.19	2.59	1.96
	(7.66)	—	7.66		(8.84)	8.82	8.83	8.86
	28	55.75	55.54	26.20	I 43336 21	52.00	51.11	97.13
		53.30	53.50	24.72		43.13	43.95	91.89
		2.45	2.04	1.48		8.87	7.16	5.24
	(9.39)	9.38	9.35	9.45	(6.62)	6.62	6.62	~~6.75~~

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19eaphine-proj...926K

Continued.

Tuesday, March 25, 1924

23	53.26	52.75	81.66?	30	54.81	54.58	15.63
	47.87	48.38	78.77		52.38	52.57	14.13
	5.39	4.37	2.89		2.43	2.01	1.50
(7.70)	7.70	7.67	—	(9.40)	9.40	9.38	9.42
24	54.57	53.92	72.39?	31	48.67	48.35	64.32
	47.71	48.35	68.86		45.52	45.76	62.35
	6.86	5.57	3.53		3.15	2.59	1.97
(7.17)	7.17	7.17	—	(8.84)	8.84	8.83	8.85
25	53.38	53.15?	58.72	32	50.57	50.26	55.06
	50.92	51.12?	57.23		47.35	47.64	53.08
	2.46	2.03	1.49		3.22	2.62	1.98
(9.38)	9.37	9.34	9.41	(8.82)	8.80	8.81	8.84
26	48.35	48.14	51.67	33	50.61	50.31	44.99
	45.94	46.13	50.16		47.38	47.66	43.01
	2.41	2.01	1.51		3.23	2.65	1.98
(9.40)	9.41	9.38	9.40	(8.80)	8.79	8.78	8.84
27	51.96	51.74	42.22	34	50.08	49.82	33.50
	59.54	49.74	40.75		47.60	47.80	32.00
	2.42	2.00	1.47		2.48	2.02	1.50
(9.42)	9.40	9.40	9.46	(9.38)	9.35	9.36	9.42
28	54.50	54.09	32.94 ~~55.78~~	36	48.36	47.68	
	50.28	50.68	30.30 ~~55.28~~				
	4.22	3.41	2.64		—		
(8.22)	8.22	8.23	8.22				
29	55.78	55.23	22.95	37	57.37	56.52	
	50.37	50.84	19.65		48.52	49.34	
	5.41	4.39	3.30		8.85	7.18	
(7.71)	7.69	7.69	7.74	(6.62)	6.62	6.62	

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Table of Contact Clock loads. p. 9.

11-inch Draper

Load-	Hourly Excess.
0	+21.4^s
50	+13.4
100	+5.3
150	−2.7

$1^s = 6\frac{1}{3}$ grams per hour

1 rev of screw = 210 sec per hour.

For Cannonball contact see page 45

16-inch Tel. p 49

7.2 grams change rate by 1^s per hour.

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