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KG
11366
.814

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1078	100	
	100	
	96	98.7
1081	112	
	115-	
	110	112.3
1023	85.1	
	87.1	
	91.2	
	89.1	88.1
1088	107	
	115-	
	117	
	115-	113.5-
1129	102	
	105-	
	102	
	105-	103.5

5 | 5.161

1.032

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Actinometric Measures of D and other plates.

Feb. 10, 1890.

D 724 Time Correction Lead 26

Above	Below	Below	Above	temp
3	5.0 -.1	3	5.7	
4	6.2	4	7.0	.78

As the short tube of the actinometer (10 cm) was used on the squares 1–4 they are rather irregular & they were compared thus:–

Squares 1–4 days

" 5–8 dd.

Remeasured

Above (1)	Below (2)	Below (3)	Above (4)	Above (5)	Above (6)	Mean (7)	Day (8)	Dd (9)	Log days (10)	Log dd (11)
3	4.8	5.0	3	7.0	4.8	5.4	1.12	8.3	0.050	0.919
4	7.0	7.2	4	7.0	7.6	7.2	1.26	10.2	0.100	1.009

Diff Logs (12)	Ratio (13)	Diff Gps
0.869	7.40	9.131
0.909	8.11	9.091

On account of the necessity of using the short tube of the actinometer for days, in this special series of heavy exposures, it will be best to use the decidays as the standard on each plate, & then reduce by computation to days. The mean of the 12th column is .889. 1.000 - .889 = 0.111 When centidays mds. or dmd. are compared in terms of ~~noodles~~ dd. in future, reduce results to the day standard by ~~subtracting~~ 0.889 ~~from~~ the figures in the 12th column.

D 726 Irregular.

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Feb. 13, 1890.

D 728 ~~Index of R. Series.~~ Time Correction

~~No. Size. Date. hour. Lens. Focus. Apert. Expo~~

Above		Below	Below		Above	Mean.
~~1~~ 1	4.6	6.0	1	5.2	6.4	5.6
2	6.6	7.2	2	7.6	7.0	7.1
3	7.2	8.0	3	9.0	7.4	7.9

Add to Diff. logs the mean of col. 12 for 1 on 1889 ms

D 730.

Correction made for long exposure insufficient.

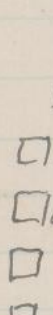
7.1 days equals ~~exactly~~ about 15-80 mod.

Long days.	Long mod.	Diff logs.	~~Co. diff logs~~	Cor. ratio	Ratio
0.850	3.200	2.350	~~3.239~~	3.239	1.730 (1580 mods.

Feb. 20. This is erroneous 7.1 day is much darker than

Explanation.

In the squares are not quite uniform



they are compared as shown in the figure, the standard plate being on first one side of the comparison plate & then on the other. Its squares are taken as the standard and it is first placed above the other and then below. On account of the irregularity of the squares it is found more convenient to compare them as shown in cut than to place one set between the others. Also with the shorter tubes, there is more likelihood of the sides of the squares as compared being correct than there is of the other

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Feb. 13, 1890.

~~B. P. Subject. Station. Remarks. Measures.~~

Dds	Eds	Log. ds.	Log. Eds.	Diff. logs	Log cor.	Ratio
7.1	96.	0.850	1.982	1.132	2.021	1.05
8.0	114.	0.900	2.057	1.157	2.046	1.11
8.9	124.	0.950	2.093	1.143	2.032	1.08

have 2.021, 2.046, & 2032

sides. The compared sides should be side by side, not one above the other as there is less chance of optical illusion in the comparison. The mean of the four values of the comparison squares is placed in the 7th column. The 12th column contains the log. ratio of the derived exposure. ~~The Where a 10 sec. exposure is used as a standard instead of a 1 sec.~~ number corresponding to this is put in the Ratio column. A decimal point is then inserted to correct for the aperture and distance of the second series of squares. This gives the Ratio by which such corrections must be multiplied in future.

Where a 10 sec. exposure is used as a standard instead of a 1 sec., the "Diff. logs" column must receive ~~the~~ a corrections derived from plate 726 to reduce it to the 1 sec. standard. Add to the "Diff. logs" column 0.889, & then take the ratio from this corrected figure.

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Feb. 14, 1890

Q 733

Above	Below		Below		Above	Mean
1	5.6	6.0	1	7.4	7.2	6.6
2	7.6	7.8	2	8.0	8.4	8.0

Q 734

4	5.8	6.0	4	6.2	6.2	6.0

Q 735

4	5.0	6.0	4	7.0	6.0	6.0

Q 744

4	5.0	5.0	4	6.0	7.0	5.8

Q 746 The long exposures are too heavy. Square 4 is about one interval less than 5

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Diam Correction Lead 26.

G 733

Dol	Col	Log dol	Log col	Diff Logs	Ratio
.71 +	10.7	9.850	1.029	1.179	1.51
.80	12.6	9.900	1.100	1.200	1.58

~~G 734~~

Dol	Col	Log dol	Log col		
1.12	14.1	0.050	1.150	1.100	1.26

Dol	Mol	Log dol	Log mol		
1.12	225	0.050	2.352	2.302	2.00

Col	Mol	Log col	Log mol		
1.26	13.8	0.100	1.140	1.040	1.10

Col	Dmol	Log col	Log dmol		
1.26	141.?	0.100	2.150	2.050	1.12

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Feb. 15, 1890.

9747

Above	Below		Below		Above	Mean
1	5.4	5.0	1	5.6	5.8	5.4
2	6.0	6.0	2	6.2	6.2	6.1
3	8.2	8.0	3	8.4?	8.8?	8.4?
4	8.0	8.2	4	8.6?	8.6?	8.4?

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Time Correction Seed 26.

.316 ddd	.316 cd	Log ddd	Log cd	Diff logs.	Ratio
.89	10.5	9.900	1.021	1.121	1.32
.89	11.4	9.950	1.057	1.107	1.28
1.00	14.8?	0.000	1.170?	1.170	1.48
1.12	14.8?	0.050	1.170?	1.120	1.32

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Mon. Feb. 17, 1890.

Q 748

Above	Below	Below	Above	Mean
4	6.8	6.3	4	6.8	7.0	6.8

Square no. 3 was too faint

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1890phae.proj.1818.

Time correction Seed 26.

.316 Log	.316 dd	Log dy	Log dd	Diff. logs	Ratio
1.12	10.8	0.050	1.033	0.983	.962

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Tues. Feb. 18, 1890.

q 7.51

Above	Below		Below		Above	Mean
3	5.4	5.0	3	5.2	5.6	5.3
4	6.0	6.0	4	6.2	6.2	6.1

q 7.52

3	5.6	6.0	3	6.2	5.8	5.9
4	6.2	6.6	4	6.8	6.4	6.5

q 7.53

1	7.	7.	1	8.	8.	7.5
2	8.	8.				

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Time correction Used 26.

.316 dds	.316 mds	Log. dds	Log. mds	Diff log.	Ratio
1.00	146.	0.000	2.164	2.164	1.46
1.12	160.	0.050	2.204	2.154	1.43

.316 dags	.316 cds.	Log dag	Log cds		
1.00	111.	0.000	2.045	2.045	1.11
1.12	118.	0.050	2.072	2.022	1.05

Cds	Dmds	Log cds	Log dmds		
.79	120.	9.900	2.079	2.179	1.51

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Olmsted. Feb. 20, 1890

@ 75-6

Above	Below	Below	Above	Mean
5	10.8	9.8	5	12.0	13.0	11.4

4 is less than any of the other set and 6 is more than any of them. In other words the four log expanses are nearly of equal density, but ~~the~~ each is a trifle darker than its predecessor.

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Time Correction Lead 26.

Dol	Dmd	Log dol	Log dmd	Diff Logs	Ratio
1.12	2630.	0.050	3.420	3.370	2.34

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Friday, Feb. 21, 1890

9 7.5-9

Above	Below	Below		Above	Mean
3	9.0	8.8	3	9.4	10.0	9.3
4	10.8	10.5	4	11.0	11.5	11.0
5	9.8	10.2	5	11.0	10.2	10.3
6	10.5	11.4	6	12.0?	11.0	11.2
7	10.6	11.0	7	12.0?	11.4?	11.2
8	9.2	9.0	8	10.6	9.4	9.5

I put more confidence in the first row of squares (1, 2, 3, 4) than I do in the second judging merely from the looks.

On plotting them nos. 4 & 8 seem to be radically wrong, & the others agree fairly well.

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Time Correction Lead 26

.316 days	.316 mod.	Log days	Log mod	Diff log	Ratio
.89	1700	9.95-0	3.230	3.280	1.91
1.00	2510	0.000	3.400	3.400	2.51
1.12	2140	0.05-0	3.330	3.280	1.91
1.26	2630	0.100	3.420	3.320	2.09
1.41	2630	0.15-0	3.420	3.270	1.86
1.58	1780	0.200	3.25-0	3.05-0	1.12

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Thurs Feb. 27. 1890

X 2794.

Above	Below		Below	Above		Means
1	6.0	6.0	1	6.1	6.2	6.13
2	7.2	7.0	2	7.2	7.2	7.15
3	8.2	8.1	3	8.2	8.1	8.15
4			4			

1	~~5.7~~ 9.1	~~5.8~~	9.3	1	9.3	9.2	9.23
2	~~7.0~~ 10.3	6.9	10.5	2	10.4	10.2	10.35
3	~~7.8~~ 11.3	~~8.1~~	11.4	3	11.4	11.3	11.35
4	~~8.9~~ 12.3	~~8.9~~	12.5	4	12.3	12.4	12.38

X 2795.

1	6.2	6.2	1	6.1	6.1	6.15
2	7.2	7.2	2	7.1	6.9	7.10
3	8.1	8.3	3	8.1	8.1	8.15
4			4			

1	9.2	9.5	1	9.4	9.6	9.43
2	10.2	10.4	2	10.3	10.4	10.33
3	11.3	11.3	3	11.2	11.5	11.33
4	12.2	12.3	4	12.1	12.4	12.25

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Absorption 13 in Carbutt A

Corresponding sec.	Log exp. of less	Log exp. of abs	Diff. log	Ratio exp's.	Log trans. col.	Ratio of	Ratio
41.	1.613	1.218	0.395	2.48	~~0.395~~ 0.129	0.266	1.84
52.	1.716	1.322	0.394	2.48	~~0.394~~ 0.129	0.265	1.84
65.	1.813	1.415	0.398	2.50	~~0.398~~ 0.129	0.269	1.86
				~~log 2.49 = 0.396.~~			1.85

Coresp. sec.	Exp. of Standard	Mean exp. abs
17.	16	16.5
22.	20	21.0
27.	25	26.0
34.	31.5	33.0

Recip. of 1.85 gives 54.1% transmitted.

The 5th col. gives number whose log is stated in the 4th. Numbers in 6th col. are taken from curve (factor + const) Book 24 p 133 where the numbers given above in 4th col. are abscissae. Numbers in 7th col = numbers in 4th − numbers in 6th.

Carbutt A

65	1.813	1.423	0.390	2.45	0.128	0.262	1.83
81	1.908	1.518	0.390	2.45	0.128	0.262	1.83
104	2.017	1.618	0.399	2.51	0.129	0.270	1.86
							1.84

Recip of 1.84 gives 54.3% trans.

28	25	26.5
34	31.5	33.0
43	40.	41.5
53	50.	51.5

* This corresponds to Bk 24 p 133 column 6. It is not used in the ~~Bk 24 p 133~~ calculation, & is only inserted to aid in explanation.

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Thurs Feb 27 1890

X 2802

	Above	Below		above	Below		Means
1		7.0	7.0	1.	7.1	7.1	7.05
2		7.9	8.1	2	8.0	8.1	8.02
3		~~8.9~~	~~8.9~~	3	~~8.9~~	~~8.9~~	
4				4			
1		10.1	10.1	1	10.9 3	10.5	10.25
2		11.1	11.0	2	11.3	11.4	11.20
3		12.0	12.0	3	12.1	12.2	12.08
4		~~12.9~~	~~12.9~~	4	~~12.9~~	~~12.9~~ 12.7	

X 2803

1	5.9	5.9		1	6.1	6.2	6.02
2	7.0	7.1		2	7.2	7.6	7.22
3	8.1	7.8		3	8.2	8.2	8.08
4				4			
1				1			
2				2	9.2	9.1	
3	9.3	9.6		3	9.5	9.7 ~~10.0~~	9.52
4	10.5	10.7		4	11.2	11.3	10.92

For X 2803. Plates held the long way horizontal & the eyes compared side to side.

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Absorption 13 inch. Lead 26.

Corresponding secs.	Log secs.	3rd time cor.	Log time cor.	Log cor time	Diff. log cor. time.		Transmission
51	1.708	1.30	0.114	1.594	0.391	9.609	.406
63	1.800	1.28	0.114	1.689	0.380	9.620	.417

Corresponding secs.	Stand. cor.	Mean.	Log secs.	Time cor. 9th	Log time cor	Log cor. time
21	16	18.5	1.267	1.16	0.064	1.203
26	20	23.0	1.362	1.13	0.053	1.309

The 3d column above is obtained by comparison with the three Scale plates 9 783, 784, & 785. The darkness of the standard squares (1 & 2) are interpolated between the squares on these plates having the same exposures (51 & 63), and the time correction is then deduced from the time correction curves.

Corresponding secs.	Log. secs.	Time cor. 32nd	Log. time cor.	Log. cor. time.	Diff. log cor time	Trans.
64	1.806	1.28	0.107	1.699	9.569	.371

Corresponding secs.	Stand cor	Mean	Log secs	Time cor. 8th	Log time cor.	Log cor. time.
18	25	21.5	1.332	1.16	0.064	1.268

The above computation assumes that the Scale plates & the absorption plates all had the same development (5 min. 68°), so that equal light gives equal darkening.

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Obs. 13 inch Sept 26

Corresponding	area of Equiv Aperture	Time cor.	Log area	Log time cor.	Corrected time	Ratio
	.316 cd				0.399	
51	1.41 dd	1.52 +60	1.708	0.182 0.204	1.526 +504	0.343 0.349	2.51 2.20
63	" 1.78 "	1.39 +56	1.800	0.143 0.193	1.657 +607	0.343 0.347	2.52 2.25
						0.402	
		2.515	39.7				2.515

Reciprocal of 2.52 gives 45.0 % transmitted.

The 3rd col above gives seconds corresponding to the 1st column on preceding page. 4th col gives required exp. to standard

Corrected Mean area	exp.	Time cor.	Log area	Log time cor.	Corrected time
21 16 18.5	1.41 dd	1.34 +43	1.267 +322	0.140 0.167	1.127 +161
26 20 23.0	1.78 "	1.24 +43	1.362 1.415	0.107 0.161	1.255 +254

light to produce equal darkening. Obtained by comparison with same other plate. 3rd col. obtained by interpolation on Time correction curve. 4th col is log of 1st. 5th col is log of 3rd. 6th col is diff of 4th & 5th. 7th col obtained by subtracting in 6th col 3rd number from 1st & 4th from 2nd. 8th col gives the corresponding ratio of corrected apertures with 1ace exp. to give equal darkening with & without lens.

40							
53						0.442	
64	1.41	1.56 +65	1.806	0.193 0.218	1.613 +588	0.494	3.16

Reciprocal of 3.16 gives 2.78 3.30 36.0 % transmitted.

18	25 25	1.41	1.45 +47	1.332 +255	0.161 0.167	1.171 +088	

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Fri Feb. 28 1890

X 2804.

	Above	Below			Below	Above		Means
1		6.7	6.8.		1	7.0	7.2	6.98
2		7.5	7.8		2	7.9	8.0	7.80
3		8.2	8.4		3			
4					4			
1		8.8	8.9		1	9.0	9.2	8.98
2		9.8	9.7		2	9.9	10.1	9.84
3		10.4	10.3		3	10.7	10.9	
4		11.5	11.4		4	11.7	11.8	

X 2805

1	5.3	5.3	1	5.4	5.7		
2	6.7	7.1	2	7.5	7.5	7.20	
3	7.4	7.5	3	7.8	8.0	7.68	
4	8.5	8.5	4	8.5			
1			1				
2	9.2	9.1	2	9.3	9.5	9.23	
3	9.3	9.5	3	9.4	9.6	9.50	
4	10.4	10.4	4	10.5	11.3		

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Transmission of 13-inch Scale 26.

Cor. Sec	Log Sec	~~Red~~ T. Cor.	Log Time Cor	Log Cor Time.	Diff log Cor time	Transmission
49.	1.690	1.29	0.111	1.579	9.557	.361
~~57.5~~ 60	~~1.760~~ 1.782	1.30	0.114	1.646	9.594	.393

Cor. Sec.	Star Rev	Mean	log Sec.	T. Cor.	Log Time cor	Log Cor time
18	16	16.	1.204	1.17	0.068	1.136
19.5	20	20.	1.301	1.15	0.061	1.240

52.5	1.720.	1.29	0.111	1.609	9.609	.406
59.	1.771	1.28	0.107	1.664	9.619	.416

Mean.

17.0 ~~16.5~~	21,	19.	1.279	1.15	0.061	1.218
18.	25.	21.5	1.332	1.12	0.049	1.283

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1890phae.proj.1818.

Fri Feb 28 1890

X 2783

	Above	Below		Below	Above		Means
1		5.8	5.8	1	5.8	6.1	5.88
2		7.2	7.6	2	7.2	7.6	7.40
3		8.3	8.5	3	8.2	8.5	8.38
4				4			

1	9.0	8.7	1	8.8	8.8	8.83
2	10.4	9.7	2	10.3	9.9	10.08
3	11.3	10.9	3	10.9	11.0	11.03
4	12.4	11.8	4	11.6	11.7	

X 2783 was stained so that measures may not be of equal weight with others.

X 2785 (Stained)

1	6.5	6.6	1	6.8	6.8	6.68
2	7.5	7.5	2	7.6	8.1	7.68
3	8.6	8.7	3	8.6	8.7	8.65
4			4			

1	8.6	8.3	1	8.5	8.3	8.48
2	9.5	9.8	2	9.4	9.4	9.53
3	10.4	10.7	3	10.2	10.5	10.45
4			4	11.2	11.6	

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1890phae.proj.1818.

Transmission 13 inch Sept 26

Co. sec.	Log sec.	I. Cor.	Log I. Cor.	Log Cr. I.	diff. log I.	Transmission
24.5	1.389	1.08	0.033	1.356	9.648	0.445
34.5	1.538	0.91	9.959	1.579	9.557 ~~9.577~~	0.361
43.5	1.639	0.95	9.978	1661	9.584	0.384

Co. Sec.	Sta. Pos	Mean				
9.5	10	10.	1.000	~~0.99~~ 0.99	9.996	1.004
13.	12.5	13.	1.114	~~0.99~~ 0.95	9.978	1.136
16	16.	16.	1.204	~~0.99~~ 0.91	9.959	1.245

		29.	1.462	1.02	0.009	1.453	9.529	0.338
		37.	1.568	0.89	9.949	1.619	9.464	0.291
		46.5	1.663.	0.95	9.978	1.685	9.495	0.313

		Mean.				
9.0	10	9.5	0.978	0.99	9.996	0.982
11.0	12.5	12.	1.079	0.99	9.996	1.083
14.	16	15.	1.176	0.99	9.996	1.180

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1

Cr. Sec.	Equiv. Inf.	Time Cor.	Log. [illegible] C.	Log T. C.	Log Cr. T.	Log Ratio	Ratio
~~24.5~~	24.5						
~~3 47~~	35.						
~~49.4~~							
~~7.54~~	44						

10		10
~~4.6~~	10	~~9.8~~
~~12.8~~ 12.5		
~~10.2~~	12.5	12.5
16.0		
~~15.9~~	16.0	16.0

29.

37.

46.

9.	10	9.5
11.	12.5	11.75
14	16	15.

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Fri Feb 28 1890

X 2787 (Stars in Belt)

	Above	Below		Above	Below	Mean
1	7.2	7.3	1	6.9	7.3	7.18
2	8.4	8.3	2	8.2	8.2	8.28
3			3			
4			4			
1	9.4	9.1	1	9.3	9.4	9.30
2	10.6	10.2	2	10.3	10.4	10.38
3	11.5⁻	11.3	3	11.5	11.5⁻	
4	12.6	12.3	4	12.5	12.6	

X 2790

1	5.1	5.0	1	5.2	5.3	5.15
2	6.0	5.9	2	5.9	6.2	6.00
3	7.2	7.2	3	7.2	7.3⁻	7.28
4	8.3	8.4	4	8.3	8.3⁻	8.38
1	8.7	8.7	1	8.8	8.8	8.75
2	9.7	9.8	2	9.4	9.8	9.68
3	10.7	10.6	3	10.7	10.6	10.65
4	11.5⁻	11.5	4	11.4	11.5⁻	11.48

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Transmission of 13 inch Screen 26.

Co. Sec	Log Sec	I Co.	Log I. Co.	Log Co. I.	9.466	
33.	1.519	0.92	9.964	1.555	9.466	0,292
42.5	1.628	0.91	9.959	1.669	9.486	0.306

Co Sec		Mean				
10.5	10	10.5	1.021	1.00	0.000	1.021
14	12.5	13.--	1.114	0.91	9.959	1.155

		26.	1.415	1.04	0.033	1.382
		32	1.505	0.92	9.964	1.541
		42.5	1.628	0.81	9.909	1.719
		55	1.740	0.99	9.996	1.744
		Mean.				
9.5	10	10.	1.000	0,99	9.996	1.004
11.5	12.5	12.	1.079	0.95	9.998	1.081
14.5	16.	15,5	1.190	0.91	9.959	1.231
18	20	19.	1.279	0.91	9.959	1.320

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Fri. Feb. 28. 1890

X 2791

	Above		Below		Below	Above	Mean
1	5.5⁻	5.3		1	5.2	5.6	5.40
2	6.4	6.5⁻		2	6.2	6.4	6.38
3	7.6	7.6		3	7.6	7.8	7.65
4				4			
1	8.9	8.8		1	9.0	8.8	8.88
2	10.1	10.2		2	10.0	10.2	10.13
3	10.9	11.2		3	11.1	11.3	11.13
4	11.5⁻	11.7		4	11.6	12.4	

X 2792

1	5.1	5.1	1	5.2	5.5⁻	5.23
2	5.8	6.2	2	6.1	6.3	6.10
3	6.9	7.2	3	7.3	7.3	7.18
4	7.9	8.3	4	8.3	8.3	8.20
1	8.8	8.8	1	9.1	9.2	8.98
2	9.7	9.9	2	9.8	9.8	9.80
3	10.8	10.8	3	10.6	10.6	10.80
4	11.7	11.9	4	11.6	11.7	11.73

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Transmission of 10 inch. Seed 26.

Cor. Sec	Log sec.	I. Cor.	Log I. Cor	Log Cor. I.		
27.5	1.439	1.05	0.021	1.418	9.586	0.385
34.5	1.538	0.99	9.996	1.542	9.613	0.410
46.	1.663	0.85	9.929	1.734	9.525	0.935

Cor. Sec	Stan Rad	Mean					
10.	10	10.	1.000	0.99 ~~1.11~~	9.996	1.004	
13.	12.5	13.	1.114	0.91 ~~1.08~~	9.959	1.155	
16.5	16.0	16.5	1.218	0.91 ~~1.08~~	9.959	1.259	

Cor. Sec						
26.5	1.423	1.05	0.021	1.402	9.602	0.400
32.5	1.512	.92	9.964	1.548	9.553	0.357
41.5	1.618	.87	9.940	1.678	9.553	0.357
52.5	1.720	.90	9.954	1.766	9.589	0.388

		Mean.					
10.	10	10.	1.000	0.99 ~~1.11~~	9.996	1.004	
12.	12.5	12.5	1.097	0.99 ~~1.12~~	9.996	1.101	
15	16.	15.5	1.190	0.91 ~~1.12~~	9.954	1.231	
18.5	20	19.5	1.290	0.86 ~~1.10~~	9.935	1.355	

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Fri. Feb. 28. 1890

X 2775

	Above	Below		Below	Above		Mean
1		~~5.9~~ 5.4	5.4	1	5.5	5.4	5.43
2		~~6.6~~ 6.3	6.8	2	6.9	6.6	6.63
3		~~7.8~~ 7.7	8.3	3	7.5	7.7	7.80
4				4			
1		9.3	9.1	1	9.3	9.3	9.25
2		10.6	9.8	2	10.5	10.5	10.35
3		11.8	11.2	3	11.5	11.4	11.47
4				4			

X 2776

1		5.6	5.6	1	5.7	5.8	5.68
2		6.8	6.6	2	6.9	6.8	6.78
3		7.8	7.8	3	8.2	7.7	7.88
4				4			
1		8.5	8.6	1	8.6	8.8	8.63
2		9.5	9.7	2	9.5	9.9	9.65
3		10.8	10.9	3	10.8	10.7	10.80
4		11.5	11.8	4	11.6	11.5	

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Transmission of 13 inch Seed 26.

Cor. Sec.	Log sec	T. Cor.	Log T. Cor.	Log Cor. I.		
22.	1.342	1.10	0.041	1.301	9.720	0.525
29.	1.462	0.94	9.973	1.489	9.666	0.463
38.	1.580	0.84	9.924	1.656	9.615	0.412

Cor. Sec.	Slan Rad	Mean			
10.5	10	10.5	1.021	1.00 ~~1.12~~	0.000	1.021
13.5	12.5	13.	1.114	0.91 ~~1.12~~	9.959	1.155
18	16	17.	1.230	0.91 ~~1.12~~	9.959	1.271

23.5	1.371	1.14	0.057	1.314	9.651	0.448
30	1.477	.96	9.982	1.495	9.567	0.369
39	1.591	.93	9.969	1.622	9.572	0.373

		Mean.				
9	10	9.5	0.978	1.03 ~~1.11~~	0.013	0.965
11.5	12.5	12.	1.079	1.04 ~~1.12~~	0.017	1.062
15	16.	15.5	1.190	0.99 ~~1.12~~	9.996	1.194

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~~Fri~~ Sat March 1 1890

X 2781. (Stained)

Above	Below		Below	Above		
1	6.6	6.6	1	6.4	6.7	6.58
2	8.4	8.2	2	8.5	8.5	8.40
3			3			
4			4			
1	~~8.8~~ 9.2	9.4	1	8.7	9.1	9.10
2	10.6	10.6	2	9.7	10.6	10.38
3	11.3	11.7	3	10.5	11.7	
4	12.5	12.4	4	11.5	12.3	

X2782 (Stained)

1	5.9	6.1	1	5.8	6.2	6.00
2	7.2	7.2	2	6.7	7.2	6.08
3			3	7.6	8.4	
4			4			
1	8.7	8.8	1	~~9.5~~ 9.5	~~9.8~~ 9.8	
2	9.8	9.7	2	~~10.4~~ 10.4	11.1	9.70
3	11.8	10.8	3	11.	11.1	
4	12.2	11.7	4	11.4	12.2	

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Transmission of 13 inch Seed 26.

Co. Sec	Log sec	T. Cor.	Log T. Cor.			
29.	1.462	0.96	9.982	1.480	9.559	0.362
43.5	1.639	0.86	9.935	1.704	9.467	0.293

Co Sec.	Star Row	Mean					
10.5	10	10.5	1.021	0.96 ~~1.12~~	9.982	1.039	
14	12.5	13.5	1.130	0.91 ~~1.12~~	9.959	1.171	
		32.5 ~~26~~	1.512	0.92	9.964	1.548	9.493	0.311

		Mean.				
~~14.5~~	10	11.	1.041.	1.00 ~~1.12~~	0.000	1.041

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Set March 1 1890

X 2784

	a.	B		B	a	
1	6.5	6.8	1	6.5	6.8	6.65
2	7.6	7.6	2	7.4	8.1	7.68
3			3			
4			4			
1	9.8	9.9	1	9.4	9.6	9.68
2	10.7	10.7	2	10.4	10.5	10.58
3	11.6	11.6	3	11.5	11.7	
4			4			

X 2786 (Stumpf)

1	~~9.8~~	~~9.9~~	7.1	7.6	1 ~~9.4~~ ~~9.6~~	7.2 7.3 7.30
2	~~10.7~~	~~10.7~~	8.3	8.3	2 ~~10.4~~ ~~10.5~~	7.8 7.8 8.05
3	~~11.6~~	~~11.6~~			3 ~~11.5~~ ~~11.7~~	
4					4	
1	9.8	9.8			1 9.7	10.2 9.88
2	10.5	10.4			2 10.3	10.7 10.48
3	11.6	11.0			3 10.8	11.2
4	—	11.8			4 11.4	12.0

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Transmission of 13 inch Seed 26.

Cr. Sec.	Log Sec.	Y. Cr.	Log Y. Cr.			
29.	1.462	0.96	9.982	1.480	9.621	0.418
37.	1.568	0.84	9.924	1.644	9.546	0.352

Cr. Sec.	Star Pos	Mean				
11.5	10	11.	1.041	0.87 ~~1.08~~	9.940	1.101
14.5	12.5	13.5	1.130	0.87 ~~1.08~~	9.940	1.190

34.	1.532	0.90	9.954	1.578	9.504	0.319
40,5	1.608	0,85	9.929	1.679	9.492	0,310

		Mean.				
12	10	11		0.91		
~~12~~	10	11	1.041	~~1.08~~	9.959	1.082
14	12.5	13.5	1.130	0.91 1.04	9.959	1.171

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Set March 1 1890

A	B		X 2788 (Stained) B		a
1	6.8	6.8	1	6.7	7.2	6.88
2	7.8	8.3	2	7.7	7.6	7.85
3			3			
4			4			

1	9.5	9.7	1	9.3	9.9	9.60
2	10.7	10.8	2	10.4	10.9	10.70
3	11.8 (Bad Stain)	11.7	3	11.4	11.8	
4			4			

X 2789 (Stained)

1	6.3	6.4	1	6.7	7.0	6.60
2	7.8	7.5	2	7.8	7.8	7.73
3			3			
4			4			

1	9.5	9.2	1	9.3	9.3	9.33
2	10.6	10.3	2	10.5	10.2	10.40
3	11.5	11.4	3	11.4	11.4	
4			4			

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Transmission of 13 inch Screen 26.

Cor. Sec	Log Sec.	Z. Cor.	Log Z. Cor.			
31.	1.491	0.90	9.954	1.537	9.546	0.352
38.5	1.586	0.86	9.935	1.651	9.536	0.344

Cor. Sec	Stan. Rod	Means					
11.5	10	11.5	1.061	0.95 +.12	9.978	1.083	
15.	12.5	~~13.75~~ 14.	1.146	0.91 +.12	9.959	1.187	
		29	1.462	0.99	9.996	1.466	9.555	0.359
		37.	1.568	0.93	9.969	1.599	9.553	0.357

		Means					
11	10	10.5	1.021	1.00 +.12	0.000	1.021	
14	12.5	13.~~25~~ 5	1.130	0.95 +.12	9.978	1.152	

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March 6 1890

2. 777.

Above	Below		Below	Above	Means
1			1		
2			2		
3			3		
4			4		
5			5		
6			6		
7			7		
8	9.6	9.6	8	9.7	9.6	9.63
9	11.2	11.5	9	11.5	11.3	11.38

2 772

1	Faint		1	Faint		
2	6.6	—	2	6.6	6.3	
3	7.6	6.9	3	7.7	6.9	7.3
4	8.3	8.0	4	8.3	8.1	8.2
5	8.8	8.3	5	8.7	8.5	8.6
6			6			

1	Faint 12.8	~~12.5~~	1	+		
2	12.8	12.5	2	12.9	12.8	
3	13.8	13.5	3	13.8	13.6	13.7
4	14.2	14.4	4	14.3	14.3	14.3
5	14.6	14.6	5	14.6	14.7	14.6
6	Fogged.		6			

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Time Cor. Sept 26.

ds	mds	log dś	log mds	Diff Logs	Ratio
1.41	1830	0.149	3.263	3.114 − 3.	1.30
1.6	2740	0.204	3.438	3.234 − 3.	1.71

Transmission
Obs. of 8-inch Draper Camera.

Cor. Sec.	Log sec.	Time Cor.	Log Time Cor.	Log Cr. T.	Diff. Log Cr. T.	Transmission.
48.	1.681	0.90	9.954	1.727	9.341	0.219
59.	1.771	0.93	9.969	1.802	9.355	0.226
64.5	1.810	0.93	9.969	1.841	9.380	0.240

Cor. Sec.		Mean.				
11.5	16.	13.8	1.140	1.18	9.072	1.068
13.5	20.	16.8	1.225	1.17	9.068	1.157
14.5	25.	19.8	1.297	1.19	9.076	1.221

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Eric. Mar. 14, 1890.

Q 801

Above		Below	Below	Above		Mean
2	8.7	8.7	2	9.2	9.3	9.0
3	9.8	10.1	3	10.5-	10.8	10.3
4	11.2	10.9	4	11.6	12.1	11.4

Q 802

3	9.4	9.6	3	9.6	9.4	9.5
4	10.5-	10.4	4	11.2	10.7	10.7
5-	11.5-	11.6	5	11.7	11.5-	11.6

Q 800

5	8.5-	8.3	5	8.3	8.5-	8.4
6	9.6	9.5-	6	9.5-	9.7	9.6
7	10.4	10.8	7	10.5-	10.2	10.5
8	10.2	10.9	8	10.7	10.3	10.5-

Q 806

3	8.4	8.8	3	8.9	8.4	8.6
4	9.4	9.8	4	10.2	9.8	9.8
5-	10.0	10.3	5-	10.5-	10.3	10.3
6	10.2	10.5-	6	10.8	10.4	10.5
7	12.2	12.5	7	12.6	12.4	12.4

Q 808

1	8.8	8.8	1	9.3	9.0	9.0
2	9.8	10.0	2	10.3	10.4	10.1
3	11.0	11.0	3	11.2	12.2	11.4
4	12.2	12.5	4	12.2	12.7	12.4

All the aqueous unless otherwise stated are
spots on S Mt. Douglas, and after q. 15- are

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1890phae.proj.1818.

Time Correction Lead 26.

Dol	Mol	Log cal	Log mol	Diff logs	Ratio
.79	12.6	9.898	2.100	2.202	1.59
.89	14.6	9.949	2.164	2.215	1.64
1.00	16.6	0.000	2.220	2.220	1.66
.316 dgs	.316 cal.				
.89	94.	9.949	1.973	2.024	1.06
1.00	108.	0.000	2.033	2.033	1.08
1.12	120.	0.049	2.079	2.030	1.07
Dg.	Cal				
1.12	83.	0.049	1.919	1.870	.74
1.26	96.	0.100	1.982	1.882	.76
1.41	106.	0.149	2.025	1.876	.75
1.58	106.	0.199	2.025	1.826	.67
.316 dd.	.316 cd.				
.89	10.7	9.949	1.029	1.080	1.20
1.00	12.3	0.000	1.090	1.090	1.23
1.12	13.0	0.049	1.114	1.065	1.16
1.26	13.4	0.100	1.127	1.027	1.06
1.41	16.6	0.149	1.220	1.071	1.18
Cal	Mol				
.71	8.9	9.851	0.949	1.098	1.25
.79	10.1	9.898	1.004	1.106	1.28
.89	11.7	9.949	1.068	1.119	1.32
1.00	13.2	0.000	1.121	1.121	1.32

measured by Mr. King.

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Fri. Mar. 14, 1890.

9 807

Above	Below		Below	Above		Mean
4	8.7	9.1	4	9.2	9.2	9.0
5	10.2	10.4	5	10.7	10.4	10.4
6	11.3	11.5	6	11.7	11.4	11.5
7	12.4	12.7	7	12.6	12.5	12.6

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1890phae.proj.1818.

Time Correction. Lead 26.

Dol.	Cd	Log Dd	Log cd	Diff logs.	Ratio.
1.00	11.2	0.000	1.049	1.049	1.12
1.12	13.2	0.049	1.121	1.072	1.18
1.26	15.0	0.100	1.176	1.076	1.19
1.41	17.0	0.149	1.230	1081	1.20

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1890phae.proj.1818.

Fri March 14 1890

2 774

Above		Below	Below		Above	
3	6.5	7.2	3	6.8	7.3	7.0
4	7.8	7.8	4	8.2	8.3	8.0
5	8.7	8.8	5	9.3	9.2	9.0
6	9.9	9.8	6	10.4	10.8	10.2
2	12.5	13.2	2	13.1	13.6	13.1
3	13.7	14.1	3	14.0	14.3	14.0
4	14.4	15.1	4	15.2	15.3	15.0
5	15.5	15.7	5	15.8	16.5	15.9
6	16.7	16.3	6	16.8	17.3	16.8

2 773

3	6.9	6.8	3	7.2	7.3	7.1
4	8.2	9.0	4	8.8	9.2	8.8
1	13.6	13.3	1	13.7	13.7	
2	14.2	14.3	2	14.6	14.6	
3	15.0	15.2	3	15.3	15.6	15.3
4	(16.3	16.4	4	16.7	16.8) Slight fog.	16.6

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1890phae.proj.1818.

Transmission

~~Obs.~~ of 8-inch Draper Camera

Cz. Sec.	Log Sec	Time Cor.	Log T. Cor.	Log Cor Tim.	Diff Log Cor Tim	Transmission
56.	1.748	1.39	~~9~~ 0.143	1.605	9.495	0.313
63.	1.799	1.36	~~8~~ 0.134	1.665	9.497	0.314
71.	1.851	1.37	~~8~~ 0.137	1.714	9.484	0.305
81.5	1.911	1.37	0.137	1.774	9.469	0.294

Cz. Sec	Star Rad	Mean				
13	14.	13.5	1.130	~~1.19~~		
14	16.	15.	1.176	1.19	0.076	1.100 *
16.	18	17.	1.230	1.17	0.068	1.162 x
17.5	20	18.8	1.274	1.19	0.076	1.198 x
19.5	22.5	21.0	1.322	1.20	0.079	1.243 x
		57.	1.756	1.43	0.155	1.601	9.525	0.335
		69.	1.839	1.45	0.161	1.678	9.499	0.316
		Mean				
16.5	16.	16.3	1.212	1.~~37~~ 22	0.086	1.126 x
19.0	18.	18.5	1.267	1.23	0.090	1.177 x

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Fri March 14 1890

Above	Below		Above		
2			2	7.2	6.8	
3	6.8	7.1	3	7.7	7.3	7.2
4	7.8	7.9	4	8.8	8.8	8.3
5	9.8	9.7	5	9.8	10.7	9.9
6	12.6	12.8	6	12.6	12.9	12.7
2	12.8	12.7	2	13.5	13.8	13.2
3	14.2	13.8	3	14.5	14.4	14.2
4	14.7	14.8	4	15.2	15.2	15.0
5	15.5	15.8	5	15.8	16.6	15.9
6	16.7	17.3	6	16.7	17.7	17.1

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Transmission

Obs. of 8-inch Draper Camera.

Cor. Sec.	Log Sec	T. Cor.	Log Cor	Log Cr Trans.	Diff log Cr Trans.	Transmission
64.5	1.810	1.39	0.143	1.667	9.536	0.344
73.0	1.863	1.40	0.146	1.717	9.532	0.340
88.	1.945	1.35	0.130	1.815	9.484	0.305
121.5	2.085	1.30	0.114	1.971	9.396	0.249

Cor Sec.	Stm Rod	Mean				
16.	18.	17.	1.230	—		
18.	20.	19.	1.279	1.19	0.076	1.203 ×
20.	22.5	21.3	1.328	1.20	0.079	1.249 ×
22.	25.	23.5	1.371	1.18	0.072	1.299 ×
25.5	28.	26.8	1.428	1.15	0.061	1.367 ×

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Sat. Mar. 15, '90.

Decided to take the other series of squares as the standard so as to use interpolation instead of extrapolation.

	Above	Below		Below	Above	Mean
			Q 810			
9	3.1	3.1	9	3.2	3.3	
	3.2	3.2		3.4	3.6	3.4
10	3.3	3.4	10	3.5−	3.5−	
	3.6	3.8		4.0	4.0	3.8
11	3.8	3.9	11			
	4.6	4.8		6.1	5.5−	5.2
12	6.3	6.3	12	6.4	6.4	6.4

In the above plate the 4th square was fainter than the 3d, & was therefore omitted, the squares being interpolated between 3 & 5, and afterwards corrected – see alternate lines.

			Q 811			
9	3.0	3.0	9	3.2	3.6	3.2
10	3.7	3.9	10	4.2	4.6	4.1
11	5.5−	5.8	11	6.2	6.3	6.0
12	6.8	6.6	12	7.2	7.3	7.0

			Q 809			
9	2.8	4.2	9	4.5−	3.7	3.8
10	3.8	4.5−	10	4.6	4.3	4.3
11	4.5−	4.8	11	4.7	4.6	4.7
12	5.5− 5.4	4.8 5.2	12	4.9 5.5−	4.8 5.5−	5.0 5.4

The short exp. squares are not ~~squares, being short~~

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1890phae.proj.1818.

Time Correction Seed 26.

.316 cd	Dd	Log .316 cd	Log dd	Diff. logs	Ratio
35.5	.93	1.550	9.968 +1.5	0.082	1.21
39.8	.98	1.600	9.991 "	0.109	1.29
44.7	1.15	1.650	0.061 "	0.089	1.23
50.1	1.32	1.700	0.121 "	0.079	1.20

Md	3.16dd				
35.5	.91	1.550	9.959 +1.5	0.091	1.23
39.8	1.01	1.600	0.004	0.096	1.25
44.7	1.26	1.650	0.100	0.050	1.12
50.1	1.41	1.700	0.149	0.051	1.12

Cd.	Dg.				
71.	.98	1.851	9.991 +2.0	9.860	.72
79.5	1.04	1.900	0.017	9.883	.76
89.	1.08	1.949	0.033	9.916	.82
100.	1.12	2.000	0.049	9.951	.89
112	1.17	2.000	0.068	9.932	.86

~~than 6. 12 is between 6 and 7 which would place the~~

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Sat. Mar. 15, '90.

	Above	Below		Below	Above		Mean.
			Q 805				
9	1.2	2.0		9	1.5	2.0	1.7
10	2.0	1.7		10	2.0	2.5	2.0
11	2.2	3.5		11	3.5	3.5	3.2
12	4.0	5.0		12	4.0	4.0	4.2
			Q 812				
9	65-63	65		9	63	66	6.4
10	67-67	75		10	73	77	7.3
11	75-76	84		11	77	78	7.9
			Q 815				
9	70	70		9	72	73	7.1
10	73	75		10	79	80	7.7
			Q 816				
9	4.7	5.5		9	47	60	5.2
10	60	62		10	65	70	6.4
11	82	74		11	74	85	7.9

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Time Correction Lead 26.

Mol	Mol	Log mol	Log mol	Diff log	Ratio
8.9	.77	0.949	9.886 +1.0	0.063	1.16
10.0	.79	1.000	9.898	0.102	1.26
12.2	.91	1.049	9.959	0.090	1.23
12.6	1.02	1.100	0.009	0.099	1.26
Cal	.316 dg				
35.5	1.32	1.550	0.121 +1.5	9.929	.85
39.8	1.46	1.600	0.164	9.936	.86
44.7	1.56	1.650	0.193	9.957	.91
.316 mol	.316 dd				
126.	1.43	2.100	0.155 +2.0	9.945	.88
141.	1.53	2.149	0.185	9.964 Doubtful	.92
Dmol	Cal.				
126.	1.15	2.100	0.061 +2.0	0.039	1.09
141.	1.32	2.149	0.121	0.028 Doubtful	1.07
158.	1.56	2.199	0.193	0.006 Doubtful	1.01

The above plate was marked "doubtful" because it was afterwards discovered that the tube leaked appreciably in 15 min. (See 9825) As the exposures are so short probably the plate was not very materially affected, (See 9830 + 63, p. 61).

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Sat. March 15 1890

2. 776

Above	Below		Below	Above	
1	6.1	6.2	1	6.5. 6.6	6.4
2	7.2	7.3	2	7.6 7.8	7.5
3	8.2	8.4	3	8.9 9.3	8.7
4	10.0	9.9	4	10.2 10.2	10.1
5	10.9	10.7	5	10.8 10.7	10.8
6	11.8	11.7	6	11.8 11.7	11.8
1	12.3	12.6	1	12.7 12.8	12.6
2	13.6	13.9	2	14.0 14.2	13.9
3	14.4	15.3	3	15.1 15.3	15.0
4	15.6	16.3	4	16.2 16.4	16.1
5	16.9	17.4	5	17.3 17.5	17.3
6	17.8	18.5	6	18.6 18.5	18.4

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1890phae.proj.1818.

Transmission.

~~Obs.~~ 7 8-inch Draper Camera.

Co. Sec.	Log Sec	Tim Cor	Log Tim Co.	Log Co. Tim.	Diff. log Co Tim	Transmission
60.	1.778	1.40	0.146	1.632	9.482	0.303
67.	1.826	1.36	0.134	1.692	9.482	0.303
76.5	1.884	1.36	0.134	1.750	9.475	0.299
90.	1.954	1.33	0.124	1.830	9.450	0.282
97.5	1.989	1.37	0.137	1.852	9.479	0.301
110.	2.041	1.28	0.107	1.934	9.480	0.302

Co. Sec.	Sec.	Star Res	Mean				
15.	16.	15.5	1.190	1.19	0.076	1.114	x
17.5	18.	17.8	1.250	1.19	0.076	1.174	x
20.	20.	20.	1.301	1.19	0.076	1.225	x
22.5	22.5	22.5	1.352	1.18	0.072	1.280	x
26.0	25.	25.5	1.407	1.19	0.076	1.331	x
29.5	28.	28.8	1.459	1.11	0.045	1.414	x

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1890phae.proj.1818.

Ouss. Mar. 18, '90.

α 797

Above	Below		Below	Above		Mean
1	5.8	5.6	1	5.7	6.2	5.8
2	6.6	6.4	2	66	6.9	6.6
3	7.6	7.2	3	7.3	76	7.4
4	8.5	7.8	4	82	85	8.2

α 820, 819, & 827

In general eq. 6.5 = eq. 1. Plate is 200 seconds when screen is near lamp equals 275 when it is near plate, or the small brilliant source is more effective than the large faint one. This is probably due to some constant error, & further experiments must be made.

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1890phae.proj.1818.

Ratio Intrinsic Brilliancy to Angular Area.

Lamp Cd	Plate Cd	Log cd	Log cd	Diff Logs	Ratio
200	240	2.301	2.380	0.079	1.20
250	288	2.398	2.459	0.061	1.15
316	353	2.500	2.548	0.048	1.12
415	436	2.618	2.640	0.022	1.05

Mar. 22, '90.

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1890phae.proj.1818.

Ottawa Mar. 20, 1890.

Q 813

Above	Below	Below	Below	Above	Above	Mean
9	4.5	4.8	9	4.8	4.3	4.6
10	4.8	4.8	10	5.2	4.8	4.9
11	5.8	5.7	11	5.7	5.7	5.7
12	6.4	—	12	6.8	—	6.6

Q 818

9	0.5	—	9	0.7	—	0.6
10	1.3	1.4	10	1.8	2.2	1.7
11	3.2	3.0	11	3.4	4.0	3.4
12	4.7	4.8	12	5.2	5.1	5.0

Q 821

9	4.3	3.7	9	4.3	4.3	4.2
10	4.8	4.6	10	4.7	4.6	4.7
11	5.8	5.4	11	5.8	5.7	5.7
12	6.5	6.3	12	6.4	6.7	6.5

Q 822

9	3.7	3.6	9	4.2	3.8	3.8
10	4.2	3.9	10	4.2	4.2	4.1
11	4.8	4.8	11	5.1	5.0	4.9
12	5.6	6.0	12	6.3	6.2	6.0

Q 823

9	5.2	4.6	9	5.0	5.2	5.0
10	6.2	5.5	10	6.4	6.3	6.1
11	7.2	6.8	11	7.3	7.6	7.2
12	8.1	7.8	12	8.4	8.5	8.2

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1890phae.proj.1818.

Time Correction Seed 26

Dd.	Dy.	Log. dd.	Log. dy.	Diff. log.	Ratio
7.1	1.07	0.85-1	0.029 + 1.0	9.822	.66
7.9	1.11	0.898	0.045	9.853	.71
8.9	1.22	0.949	0.086	9.863	.73
10.0	1.35	1.000	0.130	9.870	.74
Mod	.316 dd				
35.5	.68	1.550	9.832 + 1.5	0.218	1.65
39.8	.77	1.600	9.886	0.214	1.64
44.7	.93	1.650	9.968	0.182	1.52
50.1	1.12	1.700	0.049	0.151	1.42
Mod	Dd				
141	1.02	2.149	0.009 + 2.0	0.140	1.38
158	1.08	2.199	0.033	0.166	1.47
178	1.22	2.250	0.086	0.164	1.46
200	1.34	2.300	0.127	0.174	1.49
.316 Dd	.316 dd				
11.2	.98	1.049	9.991 + 1.0	0.058	1.14
12.6	1.01	1.100	0.004	0.096	1.25
14.1	1.11	1.149	0.045	0.104	1.27
15.8	1.26	1.199	0.100	0.099	1.26
.316 dd	.316 d				
100.	1.12	2.000	0.049 + 2.0	9.951	.89
112.	1.28	2.049	0.107	9.942	.88
126.	1.45	2.100	0.161	9.939	.87
141.	1.62	2.149	0.210	9.939	.87

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Ottum. Mar. 20, '90.

9 824

Above	Below		Below	Above		Mean
9	2.3	2.2	9	26	23	2.4
10	3.2	3.1	10	32	31	3.2
11	3.8	3.7	11	37	37	3.7
12	6.6	63	12	63	65	6.4

9 828

9	4.3	3.8	9	38	4.3	4.0
10	5.1	4.3	10	43	48	4.6
11	6.2	5.6	11	61	5.8	5.9
12	7.2	6.7	12	66	6.8	6.8

9 829

9	37	34	9	36	35	3.6
10	42	42	10	42	42	4.2
11	48	48	11	52	48	4.9
12	57	65	12	65	64	6.3

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1890phae.proj.1818.

Time Correction. Lead 26.

.316 cd	Dd	Log .316 cd	Log dd	Diff logs.	Ratio.
35.3	.83	1.548	9.919 +1.5	0.129	1.35
39.8	.91	1.600	9.959	0.141	1.38
44.4	.97	1.647	9.987	0.160	1.45
50.0	1.32	1.699	0.121	0.078	1.20

Cd	Dd				
11.2	1.00	1.049	0.000 +1.0	0.049	1.12
12.6	1.07	1.100	0.029	0.071	1.18
14.1	1.24	1.149	0.093	0.056	1.14
15.8	1.38	1.199	0.140	0.059	1.15

Cd	.316 dd				
25.2	.96	1.401	9.982 +1.5	9.919	.83
28.3	1.02	1.452	0.009	9.943	.88
31.6	1.11	1.500	0.045	9.955	.90
35.4+	1.30	1.549	0.114	9.935	.86

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Olmss. Mar. 20, '90.

Q 814

Above	Below	Below	Above	Mean
9	35	32	9	38	33	3.4
10	37	34	10	42	37	3.8
11	47	48	11	45	43	4.6
12	58	64	12	62	62	6.2
13	43	42	13	48	46	4.5
14	47	52	14	58	52	5.2
15	62	62	15	67	63	6.4
16	73	75	16	76	77	7.5

Q 791

9	4.5	4.4	9	47	47	4.6
10	4.8	4.9	10	54	52	5.1
11	65	70	11	73	68	6.9
12	74	76	12	77	77	7.6

2 909

9	3.8	3.7	9	4.2	4.2	4.0
10	4.6	4.4	10	4.8	4.8	4.7
11	5.8	5.7	11	6.2	5.6	5.8
12	7.4	7.2	12	7.5	7.4	7.4

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Time Correction through Blue Glass. Seed 26.

Cd.	Dg.	Log cd	Log. dg	Diff. log.	Ratio
100.	.93	2.000	9.968+2.0	0.032	1.08
112.	.98	2.049	9.991	0.058	1.14
126.	1.07	2.100	0.029	0.071	1.18
141.	1.29	2.149	0.111	0.038	1.09
35.5	1.06	1.550	0.025+2.0	9.525	.34
39.8	1.15	1.600	0.061	9.539	.35
44.7	1.32	1.650	0.121	9.529	.34
50.1	1.50	1.700	0.176	9.524	.33

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Dd.	Dg.				
11.2	1.07	1.049	0.029 + 1.0	0.020	1.05
12.6	1.14	1.100	0.057	0.043	1.10
14.1	1.40	1.149	0.146	0.003	1.01
15.8	1.51	1.199	0.179	0.070	1.05

.316 Dd.	Dg.	Log .316 Dd.	Log Dg.		
35.5	1.00	1.550	0.000 + 1.5	0.050	1.12
39.8	1.08	1.600	0.033	0.067	1.17
44.7	1.23	1.650	0.090	0.060	1.15
50.1	1.48	1.700 ~~1.170~~	0.170	0.030	1.07

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1890phae.proj.1818.

Fri. Mar. 21, '90.

9 817

Above	Below	Below	Above	Mean
9	4.8	5.0	9	4.8	5.2	5.0
10	5.3	5.5	10	5.5	6.3	5.6
11	6.5	6.5	11	6.5	6.5	6.5
12	6.0?	7.2	12	6.5	6.7	6.6

9 830

9	6.7	6.5	9	6.7	6.7	6.6
10	7.3	7.2	10	7.3	7.2	7.2
11	7.8	7.8	11	7.8	7.8	7.8
12	8.8	8.8	12	8.8	8.8	8.8

9 831

9	2.0	2.5	9	3.7	3.0	2.8
10	3.5	4.0	10	4.5	4.5	4.1
11	4.7	4.7	11	5.5	5.0	5.0
12	5.7	5.0	12	6.0	6.0	5.7

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1890phae.proj.1818.

Time Correction. Seed 26.

Mod.	Dg.	Log mod	Log dg	Diff log.	Ratio
1260	1.12	3.100	0.049+3.0	0.051	1.12
1410	1.20	3.149	0.079	0.070	1.17
1580	1.34	3.199	0.127	0.072	1.18
1780	1.36	3.250	0.134	0.116	1.31
.316 mod	.316 dd				
126.	1.35	2.100	0.130+2.0	9.970	.93
141.	1.45	2.149	0.161	9.988	.97
158.	1.55	2.199	0.190	0.009	1.02
178.	1.74	2.250	0.240	0.010	1.02
Dmd	Cd				
126.	.87	2.100	9.920+2.0	0.160	1.45
141.	1.01	2.149	0.004	0.145	1.40
158.	1.12	2.199	0.049	0.150	1.41
178.	1.22	2.250	0.086	0.164	1.46

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Sat. Mar. 22, '90.

9 8410

Above		Below	Below		Above	Mean
9	7.5	7.6	9	7.6	7.7	7.6

9 842

9	1.8	1.0	9	10	20	1.4
10	6.2	4.5	10	46	61	5.4

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Time Correction Lead 26.

.316 md	.316 dg	Log .316 md	Log .316 dg	Diff logs	Ratio
15-80	1.51	3.199	0.179 +3.0	0.020	1.05

D md	Dd				
15-80	.74	3.199	9.869 +3.0	0.330	2.14
25-10	1.17	3.400	0.068	0.332	2.15

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Tues. March 25, 1890

9796

Above		Below	Below		Above	Mean
1	73	72	1	73	72	7.2
2	75-	75-	2	75-	75-	7.5
3	82	78	3	78	80	8.0
4	103	103	4	102	103	10.3

9799

1	72	75-	1	82	78	7.7
2	83	84	2	87	84	8.4
3	92	92	3	94	92	92
4	103	106	4	108	105-	10.6

The time corrections on the opposite page are taken from the time Correction Curves. As the Carcel shining through the red aperture is about .3 as bright as the other the .316 cd curve is employed for the time corrections. In the 3d column 3d & 4th tables 1.65, 1.0 is added to the log. to reduce cd. to red. The Carcel is intrinsically 3.28 times as bright as the Pentane.

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Comparison and Tests of the Standards.

Cd	Md	Log cd	Log md	Diff cd.	Diff md
20.0	66.1	1.301	1.820	1.14	1.27
22.4	708	1.350	1.850	1.11	1.26
25.1	79.5	1.400	1.900	1.08	1.25
28.2	106.	1.450	2.025	1.00	1.14

Cd	Md				
20.0	68.4	1.301	1.835	1.14	1.27
22.4	77.6	1.350	1.890	1.11	1.25
25.1	91.2	1.400	1.960	1.08	1.21
28.2	107.	1.450	2.029	1.00	1.12

Log time cd.	Log time md	Cor log cd	Cor log md	Diff logs	Ratio
0.057	0.104	1.244+1.0	1.716	0.528	3.37
0.045	0.100	1.305	1.750	0.555	3.59
0.033	0.097	1.367	1.803	0.564	3.66
0.000	0.057	1.450	1.968	0.482	3.03
					4 | 1.65
					3.41
0.057	0.104	1.244+1.0	1.731	0.513	3.26
0.045	0.097	1.305	1.793	0.512	3.25
0.033	0.083	1.367	1.877	0.490	3.09
0.000	0.049	1.450	1.980	0.470	2.95
					4 | .55
					3.14

Correcting for the distance of the Carcel standard we find the ratios .0341 and .0314. Mean .0328

To reduce to the present standard any quantity given in terms of the old one, multiply it by .0328 for the Total Light, and by 3.28 for the Intrinsic Brilliancy.

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Tues. Mar. 25, '90.

9 798

Above	Below		Below	Above		Mean
1	56	55	1	58	57	5.6
2	62	65	2	62	64	6.3
3	73	73	3	74	74	7.4
4	83	84	4	84	83	8.4
9	4.3	42	9	43	43	4.3
10	53	48?	10	48	48	4.9
11	52	52	11	54	53	5.3
12	72	72	12	72	73	72

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Study of the Height of the Flame.

Cd (Low)	Cd (Mid)	Log cd	Log cd	Diff logs	Ratio
20.0	21.4	1.301	1.330	0.029	1.07
22.4	23.2	1.350	1.366	0.016	1.04
25.1	26.3	1.400	1420	0.020	1.05
28.2	29.5	1.450	1.470	0.020	1.05
					1.05
(High)	(Mid)				
20.0	18.4	1.301	1.265	9.964	.92
22.4	19.8	1.350	1.297	9.947	.89
25.1	20.6	1.400	1.314	9.914	.82
28.2	25.7	1.450	1.410	0.960	.91
					.89

When the tip of the flame is at the bottom of the aperture it is giving 1.05 times the standard amount of light. When it is at the top it gives .89 the true amount.

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Wed. Mar. 26, '90.

Q 85-2

Above		Below	Below		Above	Mean
9	6.7	6.5	9	6.7	6.6	6.6

Q 854

9	1.8	1.6	9	18	18	1.8

Q 85-3

9	2.2	2.2	9	2.6	26	2.4

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Time Correction Lead 26

D.md	.316 dg	Log dmd	Log .316 dg	Diff log.	Ratio
5010	1.35	3.700	0.130+3.5	0.070	1.17
Cmd	.316 dd				
5010	.78	3.700	9.892+3.5	0.308	2.03
.316 dmd	Dd				
5620	.83	3.750	9.919+3.5	0.331	2.14

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1890phae.proj.1818.

Lab. Mar. 29, '90.

Q 85-5⁻

Above	Below	Below	Above		Mean
10	60	58	10	58	58

Q 867

9	48	50	9	53	52	51
10	58	62	10	62	61	6.1
11	65⁻	68	11	70	68	6.8
12	76	78	12	80	78	7.8

Q 868

9	38	55	9	57	50	5.0
10	53	62	10	65⁻	58	6.0
11	68	72	11	72	68	7.0
12	75⁻	78	12	82	78	7.8

Q 869

9	32	32	9	33	32	3.2
10	35	35⁻	10	37	33	3.5⁻
11	38	38	11	38	35⁻	3.7
12	50 ?	65⁻?	12	72	64	6.3

Q 873

9	3.2	32	9	32	34	3.2
10	35⁻	35⁻	10	34	38	3.6
11	47	47	11	47	49	4.8
12	58	57	12	58	62	5.9

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Time Correction Lead 26.

.316 md	Dg	~~Log~~ .316 md	Log dg.	Diff. log.	Ratio
3.50	1.23	0.500	0.090 + 3.5	9.960	.91
.316 dd	Dd				
~~3.2~~ 3.14	~~Dd~~	0.500	0.057 + 0.5	9.943	.88
3.5	1.28	0.550	0.107	9.943	.88
4.0	1.38	0.600	0.140	9.960	.91
4.5	1.55	0.650	0.190	9.960	.91
.316 dd	.316 dg				
7.9	1.12	0.900	0.049 + 1.0	9.851	.71
8.9	1.26	0.950	0.100	9.850	.71
10.0	1.41	1.000	0.149	9.851	.71
11.2	1.55	1.049	0.190	9.859	.72
.316 dd	Dg				
20.0	.91	1.301	9.959 + 1.5	9.842	.70
22.4	.94	1.350	9.973	9.877	.75
25.1	.97	1.400	9.987	9.913	.82
28.2	1.30	1.450	0.114	9.836	.69
.316 dd	Dd				
2.82	.91	0.450	9.959 + 0.5	9.991	.98
3.16	.96	0.500	9.982	0.018	1.04
3.55	1.10	0.550	0.041	0.009	1.02
3.98	1.24	0.600	0.093	0.007	1.02

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Mon. Mar. 31, '90.

9 874.

Above	Below		Below	Above		Mean
9	1.5-	1.7	9	16	18	1.6
10	2.7	2.8	10	3.5-	35-	3.1
11	5.5-	5.6	11	5.4	5.6	5.5-
12	5.8	5.9	12	5.8	5.8	5.8

9 875-

9	4.3	3.5-	9	38	38	3.8
10	4.6	4.2	10	45-	45-	4.4
11	5.5-	5.2	11	52	52	5.3
12	6.0	5.5-	12	58	55-	5.7

9 877

9	41	37	9	40	44	4.0

9 878

9	5.4	5.1	9	5.4	5.6	5.4

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Time Correction. Lead 26.

·316 dd.	·316 dg.	Log ·316 dd	Log ·316 dg	Diff. log.	Ratio
7·1	·76	0.85-1	9.881+1·0	9.970	·93
7·9	·90	0·898	9.95-4	9.944	·88
8·9	1·18	0·949	0.072	9·877	·75-
10·0	1·23	1.000	0.090	9.910	·81
·316 dd.	Dg.				
22·4	·98	1.35-0	9.991 +1.5-	9·859	·72
25·1	1·05	1.400	0.021	9·879	·76
28·2	1·16	1.45-0	0.064	9·886	·77
31·6	1.22	1.5-00	0.086	9.914	·82
Dmd	·316 dg				
3980	1·00	3.600	0.000 + 3.5-	0.100	1·26
·316 dmd	Dd				
6310	1·17	3·800	0.068 +3.5-	0.232	1·71

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Tues. Apr. 1, '90.

			Q 884			
Above		Below	Below		Above	Mean
9	4.2	43	9	47	47	4.5
			Q 883			
9	5.2	5.0	9	6.2	5.0	5.35
		Measured against window				
9	5.5	5.0	9	5.5	5.8	5.45
		Measured on Retouching frame				Mean 5.4

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Time Correction. Lead 26.

Cmd	.316 dd.	Log cmd	Log .316 dd	Diff. logs.	Ratio
6310	1.06	3.800	0.025+3.5	0.275	1.88

.316 md	D_g				
2820	1.17	3.45-0	0.068+3.5	9.882	.76

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1890phae.proj.1818:

Wed. Apr. 2, 90.

9889

Above	Below		Below	Above		Mean
9	5.8	5.8	9	6.5	5.8	6.0
10	68	72	10	70	68	7.0

9892

9	4.9	5.3	9	5.6	5.6	5.4
10	6.5	70?	10	72	72	7.0

9893

9	4.1	3.7	9	4.2	4.2	4.0

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Time Correction Lead 26.

Dmd	Dd	Log dmd	Log dd	Diff log.	Ratio
1780	1.26	3.250	0.100 + 3.0	0.150	1.41
2000	1.41	3.301	0.149	0.152	1.42

.316md	.316dg				
1120	1.17	3.049	0.068 + 3.0	9.981	.96
1260	1.41	3.100	0.149	9.951	.89

~~3~~ .316dmd	Dd				
5620	1.00	3.750	0.000 + 3.5	0.250	1.78

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1890phae.proj.1818:

Lat. Apr. 5, '90.

Q 894

Above	Below	Below	Above		Mean
9	4.5	4.5	9	4.5	4.6	4.5
10	5.7	5.7	10	6.1	6.2	5.9

Q 895

9	7.0	7.0	9	7.1	7.3	7.1
10	7.3	7.4	10	7.7	7.5	7.5

Q 903

9	7.0	9	7.8		7.4
10	8.0	10	8.3		8.2

Q 904

9	6.3	6.1	9	6.3	6.2	6.2
10	6.8	6.8	10	7.2	7.1	7.0

Q 905

9	2.7	2.7	9	3.2	2.8	2.8
10	4.3	4.2	10	4.5	4.3	4.3

Q 906

9	8.+

Q 907

9	8.+

Q 908

9	5.7	5.6	9	6.2	5.8	5.8
10	8.5	7.8	10	8.7	8.5	8.4
11	7.5	7.3	11	8.0	7.7	7.6

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1890phae.proj.1818.

Time Correction. Seed 26.

.316dmd	.316dd	Log .316dmd	Log .316dd	Diff log	Ratio
1580	1.06	3.199	0.025 +3.0	0.174	1.49
1780	1.24	3.250	0.093	0.157	1.44
Cmd	Cd				
1780	1.43	3.250	0.155 +3.0	0.095	1.24
2000	1.50	3.301	0.176	0.125	1.33
Cmd	Cd				
1780	1.48	3.250	0.170 +3.0	0.080	1.20
2000	1.62	3.301	0.210	0.091	1.23
.316dmd	.316dd				
1580	1.29	3.199	0.111 +3.0	0.088	1.22
1780	1.41	3.250	0.149	0.101	1.26
Dmd	Dd				
1410	.87	3.149	9.940 +3.0	0.209	1.62
1580	1.04	3.199	0.017	0.182	1.52
Md (magnitude)	Dg				
1120	1.78+	3.049	0.250 +3.0+	9.799−	.63−
Md	.316dg				
398	1.78+	2.600	0.250 +2.5+	9.850−	.71−
Md	Dd				
126	1.23	2.100	0.090 +2.0	0.010	1.02
141	1.66	2.149	0.220	9.929	.85−
158	1.51	2.199	0.179	0.020	1.05

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Sol. April 12 1890

2 911

Above.	Below.	Below.	Above.
9	5,3	9	
10		10	
11		11	
12		12	

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Wed. April 23, 1890

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Wed. April 23. 1890

Note. In the plates now to be taken in the Lensitometer, a new form will be used. Double ground glass at 112 m.m. from plate, with various apertures, illuminated always by Dd = {R = 1, m.m. / D = 31.6 cent. for full description see (Gifford's) Douglass' Journal Pg. 49

Q 983.

Above	Below		Below	Above		Mean
5	0	—	5	—		
6	1.	0.9	6	0.8	1.	0.9
7	2.	2.	7	2.0	2.3	2.1
8	2.9	3.1	8	3.	3.2	3.05

Note. This plate was taken when the Dist. between E.F. + plate was 100 m.m. It was then increased to 112 m.m. See Douglass' Journal for exact figs.

Q 1004

Above	Below —		Below	Above —		Mean
5	—	—	5	—		—
6	+0.2?	0.1?	6	+0.4?	0.3?	0.25?
7	1.5	1.2	7	1.7	1.5	1.5
8	2.7	2.5	8	2.9	2.7	2.7

Q 1007

Above	Below		Below	Above		Mean
5						
6						
7						
8						

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1890phae.proj.1818.

Comparison of two forms of sensitometer.

Plate Q1006 (Exp 1 to 4), may have had 20 black screens behind flame of standard lamp. As square 8 is the only one of 5 to 8 which matches in the first four, something was very likely the matter with it.

The above is wrong as no squares match in 1007

Old. .3 cd	New dd/10mm	Log .3 cd	Log dd/10mm	Dif. Logs.	Ratio
126	97.7	2.10	1.99	.11	1.29 ~~1.24~~
160	129	2.205	2.11	.095	1.24
200	162	2.30	2.21	.09	1.23

cd	dd/17.8mm	Log. cd.	Log dd/17.8mm	Dif logs	Ratio
20	~~211~~				
25	~~282~~ 211	1.40	1.325	.075	1.19?
31.6	~~373~~ 281.2	1.50	1.45	.05	1.12
40	373	1.602	1.57	.032	1.07

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Mon. April 28. 1890

The following plates were taken to compare a new form of sensitometer with the standard. The new form has double ground glass at a distance of 1M from plate and 3¼cent from lamp flame. These plates will show the reduction necessary in one of these distances.

Q 1030

Above	Below		Below	Above		Means
5	0.6	0.5	5	0.5	0.6	0.55
6	1.7	1.6	6	1.7	1.7	1.7
7	2.4	2.3	7	2.6	2.5	2.45
8	3.3	3.3	8	3.5	3.5	3.4

Q 1031 (154 put on day before 5 & 8)

Above	Below		Below	Above		Means
5	0.8	1.	5	1.	1.	0.95
6	2.2	2.1	6	2.2	2.1	2.15
7	3.	3.	7	3.1	3.	3.
8	4.3	4.3	8	4.3	4.2	4.3

Q 911. Comp. Eng. & Am. Pentane

(for original measurements of this and two following - See Mr King's present book Pgs. 15 & 16)

Above	Below		Below	Above		Mean
1	5.3	5.3	1	5.6	5.7	5.5
2	6.7	6.5	2	6.7	6.8	6.7
3	7.9	7.9	3	8.1	8.2	8.
4	8.6	8.5	4	8.7	8.8	8.6

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P 1032 & 1033 – were not measured as their form of sensitometer was not a permanent one.

(old) $\frac{1}{3}$ cds	$\frac{f}{10}$ mm	Log $\frac{1}{3}$ cd	Log $\frac{f}{10}$ mm	Dif. Logs.	Ratio.
31.6	35.9	1.50	1.555	9.945	.881
40.	46.8	1.60	1.67	9.93	.851
50.	55.6	1.70	1.745	9.955	.901
63.	69.2	1.80	1.84	9.96	.912

(old) Cd.	new $\frac{f}{17.8}$ mm	Log cd	log $\frac{f}{17.8}$	Dif. Log.	Ratios
16.	19.8	1.2	1.295	9.905	.804
20.	26.	1.3	1.415	9.885	.768
25.	31.6	1.4	1.5	9.9	.794
31.6	42.7	1.5	1.63	9.87	.741

cd Ann.	cd Eng	Log Ann.	Log. Eng.		
20.	21.4	1.3	1.33	9.97	.933
22.4	24.2	1.35	1.39	9.96	.912
25.1	28.2	1.4	1.45	9.95	.891
28.2	30.2	1.45	1.48	9.97	.933
					Av. .917

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1890phae.proj.1818.

Mon. April 28, 1890

Q 912

Above	Below		Below	Above		Mean
1	5.4	5.3	1	6.2	5.6	5.6
2	6.3	6.3	2	7.1	6.2	6.5
3	7.2	7.3	3	7.8	7.2	7.4
4	8.2	8.3	4	8.3	8.2	8.3

Q 913

1	6.6	6.6	1	6.8	6.7	6.7
2	7.2	7.2	2	7.2	7.2	7.2
3	7.7	7.7	3	7.7	7.7	7.7
4	8.7	8.8	4	8.7	8.5	8.7

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Comparison of American & English Pentane.

Am.	Eng	Log. Am.	Log. Eng.	Dif. Logs.	
20	~~2x1.4~~	1.30	1.33	9.97	.933
22.4	~~2x3.7~~	1.35	1.37	9.98	.955
25.1	26.3	1.40	1.42	9.98	.955
28.2	~~30.5~~ 29.2	1.45	1.47	9.98	.955
					Av. .939
20.	24.2	1.30	1.39	9.91	.813
22.4	25.7	1.35	1.41	9.94	.871
25.1	27.2	1.40	1.43	9.97	.933
28.2	30.5	1.45	1.49	9.96	.912
					Av. .882

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Wed. April 30, 1890

These three all show irregularity in film.

Q 1049

Above	Below		Below	above		Means
5	0.5	0.8	5	0.9	1.1	0.8
6	1.9	2.2	6	2.3	2.8	2.3
7	3.1	3.3	7	3.4	3.7	3.4
8	4.	4.2	8	4.1	4.5	4.2

Q 1050

5	0.0	-0.2	5	0.2	-0.1	0.0
6	1.3	1.6	6	~~2.0~~ 1.9 ~~1.7~~	1.9	1.7
7	2.1	2.3	7	~~2.6~~ 2.5 ~~2.4~~	2.8	2.4
8	2.9	3.0	8	~~3.2~~ 3.2 ~~3.2~~ (Smear)	3.3	3.1

Q 1051

5		0.0	5	-0.4	-0.2	-0.1
6	0.5	1.0	6	0.9	1.1	+0.9
7	1.8	2.1	7	2.1	2.3	2.1
8	2.8	3.0	8	3.0	3.3	3.0

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Brilliancy of double ground glass with lens — form of sensitometer.
Comparison of this with the standard.

Stan. Cd.	New Dd/17.8 cm	Log Cd.	log Dd/17.8	Dif. Logs	— Ratios —
10.	9.55	1.00	0.98	.02	1.05
12.6	13.50	1.10	1.13	$\bar{1}$.97	.933
15.8	17.40	1.20	1.24	$\bar{1}$.96	.912
20.	20.90	1.30	1.32	$\bar{1}$.98	.955
					.9625

$\frac{1}{3}$ cd	Dd/10 cm				
20	15.8	1.30	1.20	0.10	1.26
25	23.4	1.40	1.37	0.03	1.07
31.6	27.5	1.50	1.44	0.06	1.15
40	32.4	1.60	1.51	0.09	1.23
					1.1775

md	Dd/5.6 cm				
40	30.9	1.60	1.49	0.11	1.29
50	38.9	1.70	1.59	0.11	1.29
63	51.3	1.80	1.71	0.09	1.23
80	63.1	1.90	1.80	0.10	1.26
					1.2675

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Stars. May 1. 1890

Q953

Above	Below		Below	above		Means
5	0.6	0.6	5	1.	1.	0.8
6	1.8	1.9	6	2.1	2.1	2.0
7	2.3	2.3	7	2.5	2.7	2.5
8	3.	3.1	8	3.2	3.2	3.1

Q1054 See Pg. 92.

Above	Below		Below	above		
6	1.7	2.2.	6	2.2	2.3	2.1
	Estimated from 6		5			3.1
			4			4.0
			3			4.8

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Preservative Power of Seed 26 –

Sqs 1 to 4 put on Apr. 14. Sqs 5 to 8 put on Apr. 24

Apr. 28. Sqs.	Equiv. in Apr. 14	Log. Apr. 28	Log Apr. 14	Dif. Logs	Ratios.
20	19.45	1.30	1.289	.01	1.02
22.4	22.4	1.35	1.35	0	1.00
25.1	23.7	1.40	1.38	.02	1.05
28.2	25.7	1.45	1.41	.04	1.10
				increase in 2 wks –	1.044

– Regularity of E.G. in new form of sensitometer.

	center		by center		
1000	1020	3.00	3.01	$\bar{1}$.99	.977
1000	1280	3.00	3.11	$\bar{1}$.89	.776
1000	1580	3.00	3.20	$\bar{1}$.80	.631
1000	1910	3.00	3.28	$\bar{1}$.72	.525

See pg. 92.

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Thurs. May. 1, 1890

Q 1054.

abov	Below		Below	abov		Means
6	1.7	2.2	6	2.2	2.3	2.1
Estimated from 6 by			5			3.1
means of the intervals			4			4.0
1 to 2.		next to center	3			4.8

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Regularity of Ground glass in D.F.P. & Lens-form of sensitometer. Brilliancy in terms of center of points at increasing distances from it

position	Log. 6.	center	Log. 6.	Log Center	dif. logs	Bril. in terms of center
Edge	1000	1020	- 3.00	+ 3.01	.01	1.02
4th m/m in.	1000	1290	- 3.00	+ 3.11	.11	1.29
8th m/m in.	1000	1580	- 3.00	+ 3.20	.20	1.58
Next to Center	1000	1910	- 3.00	+ 3.28	.28	1.91

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1890phae.proj.1018.

Fri. May 2. 1890

Q 1059

Above	Below		Below	above		Means
3	0.8	0.9	3	0.8	1.0	0.9
4	0.7	0.7	4	0.6	1.0	0.8

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Regularity of S.S. after getting plate in exact focus

Position	Exp on edge ☆	Equiv. central exp	Log Edge ☆	Log Equiv.	dif. Logs.	Brit. in terms of Center
Midway	1000	776	-3.00	+2.89	$\bar{1}.89$	.776
Edge	1000	759	-3.00	+2.88	$\bar{1}.88$	.759

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Friday May 2, 1890

Q 1060

Above	Below		Below	above		Means
5	2.6	2.6	5	2.8	2.7	2.7
6	3.0	3.0	6	3.1	3.1	3.1
7	2.9	2.9	7	3.0	3.0	3.0
8	4.5	4.2	8	4.5	4.4	4.4

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Effect of increasing interval between ground glasses.

Dist. Bet. GGs.	Eqv. $\frac{S}{Bol/10}$ =	Equiv. GG. together.	Log 50	Log Equiv.		Dif. Logs.	Brilliancy of Dif. Dists in terms of 0 dist (i.s. together) Ratios.
1 in	50.	46.8	−1.70	+1.67	=	9,97	,933
2 in	50.	51.3	−1.70	+1.71	=	0,01	1.02
4 in	50.	50.0	−1.70	+1.70	=	0.00	1.00
8 in	50.	69.2	−1.70	+1.84	=	0,14	1.38

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Mon. May 5. 1890

11.30 A.M. Clear sky

Seed 26. Q 1063

Above	Below	*	Below	Above	*	Means
1	7.4	8.0	1	7.9	8.2	7.7
2	8.2	9.0	2	8.8	9.	8.6
3	9.7	11.	3	10.0	10.5?	10.
4	11.?		4			

* Edge flashed Sq. 11. ug.

2nd 5th of above columns are written at least 4 times 3d & 6th. Hain used this weight in the means.

Seed 26. Q 1064

Above	Below		Below	Above		Means
1.	7.5	8.0	1	8.0	8.1	7.9
2.	8.6	8.8	2	9.0	8.9	8.8
3.	9.6	9.6	3	9.9	9.8	9.7
4.	10.5	10.6	4	10.9	10.9	10.7
5	11.5	11.5	5	11.8	11.7	11.6

Cramer 80. Q 1065

Abov	Below		Below	Abov		Means.
1.	7.0	7.2	1	7.3	7.6	7.3
2.	7.9	8.1	2	8.2	8.5	8.2
3.	8.8	8.9	3	8.9	9.1	8.9
4.	9.1	9.8	4	9.5	9.9	9.6
5.	9.9	10.4	5	10.0	10.6	10.2

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Comparison of different makes of plates by Sky photometry. or Brilliancy of sky in cds as measured on different makes of plates.

Day. L.	Equiv. Stand.	Log Dayl.	Log St.	Dif. Logs	Daylight in cds.
4	8.32	-0.60	+0.92	0,32	2.09
5	10.2	-0.70	+1.01	,31	2.04
6.3	14.1	-0.80	+1.15	.35	2.24
8.	17.8?	-0.90	+1.25?	.35	2.24?
					2.15 ?

4	8.71	-0.60	+0.94	0.34	2.19
5	10.7	-0,70	+1.03	.33	2.14
6.3	13.2	-0,80	+1.12	.32	2.09
8.	16.6	-0.90	+1,22	.32	2,09
10	20.4	-1.00	+1,31	.31	2.04
					2.11

2.5	7.59	0.40	0,88	0,48	3.02
3.	9.33	0.50	0.97	0.47	2.95
4,	11.00	0.60	1,04	0,44	2.75
5.	12.9	0.70	1,11	0,41	2.57
6.3	14.8	0.80	1,17	0,37	2.34
					2.73

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1890phae.proj.1016.

Mon. May 5. 1890.

Carbutt Eclipse Q 1066

Above	Below		Below	Above		Means
1	7.9	7.6	1	8.1	7.9	7.9
2	8.8	8.8	2	9.0	8.9	8.9
3	9.9	9.9	3	10.0	9.9	9.9
4	11.0	10.9	4	11.0	10.8	10.9
5	12.2	11.7	5	12.1	11.7	11.9

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Sensitiveness to daylight.

Stby Photometry applied to different makes —

Day. L.	Equiv. Stand.	Log Day L.	Log Stand.	Dif. Logs	
5	8.71	0.70	0.94	0.24	1.74
6.3	11.0	0.80	0.04	0.24	1.74
8.	13.8	0.90	0.14	0.24	1.74
10.	17.4	1.00	0.24	0.24	1.74
12.6	21.9	1.10	0.34	0.24	1.74
					1.74

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1890phae.proj.1818:

Tues. May 6. 1890

Seed 26, Q1067

	Above	Below		Below	Above		Means
1	(5.1)	(5.4)	1	(5.4)	(5.5)		5.3
2	7.0	6.9	2	7.4	6.8		7.0
3	7.5	7.4	3	8.0	7.7		7.7
4	8.1	8.2	4	8.5	8.4		8.3
5	9.0	9.1	5	9.3	9.0		9.1

Monk Q1068

2	—	11	2	—	11		11

Daylight spaces too dark & irregular.

Wratten & Wainwright, Q1069

1	(4.8)	~~4~~	1	(5.5)	~~6~~		5.2
2	5.9 ~~6.0~~	6.0	2	6.5	6.0		6.1
3	7.0	7.1	3	7.7	7.7		7.4
4	N.G. ~~7.5~~	~~7.6~~	4	~~7.1 8.0~~			—
5	8.0	8.1	5	8.0	8.9		8.2

Seed 26. Q1070

1	(5.6)	1	(5.0)		5.3
2	7.0	2	7.4		7.2
3	8.0	3	8.0		8.0
4	8.5	4	8.8		8.7
5	9.0	5	9.0		9.0

These ~~four~~ last three plates had adjacent rows exposed and were badly broken in cutting, hence the measurements ought not to be included in final averages,

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1890phae.proj.1818.

Comparison of plates by Sky Photometry.

Series of four exposed by Mr Hazeltine.

Day L.	Equiv. Stand.	Log Day L.	Log Equiv.	Dif. Log.	Sky in cds	
4.	5.37	−0.60	+0.73	0.13	1.35	
5.	7.94	−0.70	+0.90	.20	1.58	
6.3	9.33	−0.80	+0.97	.17	1.48	
8.	10.7	−0.90	+1.03	.13	1.35	
10.	12.9	−1.00	+1.11	.11	1.29	
						1.41
		— very uncertain. —				
40	160	−1.60	+2.20	0.60	3.98	
4	5.25	−0.60	+0.72	.12	1.32	
5	6.46	−0.70	+0.81	.11	1.29	
6.3	8.71	−0.80	+0.94	.14	1.38	
8		−0.90				
10	10.5	−1.00	+1.02	.02	1.05 (3)	
						1.21
4.	5.37	−0.60	+0.73	.13	1.35	
5.	8.32	−0.70	+0.92	.22	1.66	
6.3	10.0	−0.80	+1.00	.20	1.58	
8.	11.7	−0.90	+1.07	.17	1.48	
10.	12.6	−1.00	+1.10	.10	1.26	
						1.47

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1890phae.proj.18181

Wed. May 7. 1890

Q 1075

Above	Below		Below	above	(Rev. 50)	Means
1	2,2	2,0	1	2,7	3,0	2.~~8~~5
2	2,9	2,3	2	2,9	3,3	2.9
3	3,1	2,6	3	3,6	4,0	3,3

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1890phae.proj.1818.

Regularity of Ground Glass - (See Q Book Q 1075.)

3 Squares in terms of an arbitrary unit.

Position	Test Sqs.	Equiv. Arbitrary Squares	Log. Test.	Log Equiv.	Dif Logs	3 Sqs in terms of arbitrary unit.	
— Center. —	250	298	-2.40	+2.48	.08	1.20	20 of Center
— Half to edge —	250	313	-2.40	+2.50	.10	1.26	1.05
— Edge —	250 DD/5,62	327 (1/3 cd scale)	-2.40	+2.52	.12	1.32	1.10

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1890phae.proj.1818

Wed. May 7. 1890

Q1078

Above	Below		Below	Above		Means
5	0.4	1.0	5	1.0	1.5	1.0
6	1.4	1.9	6	2.0	2.6	2.0
7 N.Co.	4.0	4.2	7	4.3	4.5	4.31
8	4.0	4.1	8	4.3	4.4	4.2

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1890phae.proj.1818.

Brilliancy of new form of Sensitometer in terms of Stand[d]
Lic Q1075

nuds Rods	Del/10[mm] Equiv.	log [m] Rds	by Equiv.	Dif. logs	Light in terms of standard
100	100	2.00	2.00	0	1.00
126	126	2.10	2.10	0	1.00
158					
200	209	2.30	2.32	9.98	.96
					.99

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1890phae.proj.1818.

Thurs. May 8, 1890

Q 1080

Above	Below		Below	Above		Means
1	5.9	5.9	1	6.2	6.1	6.0
2	6.2	6.0	2	6.4	6.2	6.2
3	6.4	6.2	3	6.7	6.4	6.4
4	6.5	6.2	4	6.6	6.3	6.4

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1000phae.proj.1818.

Regularity of Ground Glass. Brilliancy of other points in terms of center.

Position	Exp. 30/5.62	Equiv. in Center	Log Exp	Log Equiv.	Dif. Logs.	Ratios
Edge A	250	250	-2.40	+2.40	0.00	1.00
Half to Center	250	263	-2.40	+2.42	.02	1.05
Other "	" 250	275	-2.40	+2.44	.04	1.10
" Edge B	250	275	-2.40	+2.44	.04	1.10

Note. This last edge is same as one in 1075

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1890phae.proj.1818.

Ykaro. May 8, 1890

Q 1081

	Above	Below		Below	above		Means
10.30	5			5			
	6	0.8	0.9	6	1.0	1.4	1.0
	7	1.0 ~~0.8~~	1.5	7	2.0	2.2	1.7
	8	2.6	3.0	8	3.0	3.7	3.1

Q 1083

2.30	5	0.9	1.0	5	~~1.0~~ 1.9	1.9	1.4
	6	1.9	1.9	6	2.~~3~~	2.2	2.1
	7	2.~~8~~	2.5	7	2.9	3.1	2.8
	8	3.9	3.9	8	4.0	4.1	4.0

Q 1085

5	1.0	2.0	5	2.2	3.0	2.1
6	1.9	2.2	6	2.7	3.0	2.~~8~~5
7	3.0	3.1	7	3.2	3.2	3.1
8	4.0	4.1	8	4.0	4.3	4.1

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1890phae.proj.1818.

Brilliancy of new form of Semicolumn, in terms of standard.

mds Stand	Def/10.2 mm Equiv.	log Stan	log Equiv.	Def. Logs.	Ratios
141		2.15			
158	141	2.20	.15	.05	1.12
128	153	2.25	.19	.06	1.15
200	180	2.30	.26	.04	1.10
				(.05) ------	1.12

mds	Def/10.2 mm				
126	148	2.10	2.17	9.93	.851
141	162	2.15	2.21	9.94	.871
158	174	2.20	2.24	9.96	.912
178	200	2.25	2.30	9.95	.891
				(9.945) -----	.881

1/3 cds	Def/17.8				
35.5	35.9	1.55	1.56	9.99	.977
39.8	37.6	1.60	1.58	0.02	1.05
44.7	40.3	1.65	1.61	0.04	1.10
50.1	45.2	1.70	1.66	0.04	1.10
				(0.023) ----	1.057

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Fri. May 9. 1890

Q1086

Abov	Below		Below	Abov		Means
5	0.9	2.0	5	1.5	2.2	1.6
6	1.9	2.5	6	2.2	3.0	2.4
7	2.9	3.3	7	3.1	3.6	3.2
8	4.4	4.5	8	4.8	4.7	4.6

Q1087

5	1.3	2.0	5	2.0	2.6	2.0
6	2.1	2.8	6	2.4	3.2	2.6
7	3.3	4.1	7	3.5	4.1	3.8
8	4.5	5.2	8	4.85	4.9	4.8

Q1088

5	0.0	0.5	5	0.2	0.6	0.3
6	0.4	0.89	6	0.4	1.1	0.7
7	1.4	1.89	7	1.3	2.0	1.7
8	2.7	3.01	8	2.7	3.1	2.9

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Brilliancy of J. J. form of sensitometer in terms of standard.

Stand. ⅓ cd	Equiv. Dd/17.8	– Log ⅓ cd	– Log Equiv.	– Dif Logs.	– Ratios
31.6	33.9	1.50	1.53	9.97	.933
35.5	37.2	1.55	1.57	9.98	.955
39.8	40.7	1.60	1.61	9.99	.977
44.7	47.9	1.65	1.68	9.97	.933
				(9.98)	.95

⅓ cd	Equiv. Dd/17.8	–	–		
31.6	35.5	1.50	1.55	9.95	.891
35.5	38.0	1.55	1.58	9.97	.933
39.8	43.6	1.60	1.64	9.96	.912
44.7	49.0	1.65	1.69	9.96	.912
				(9.97)	.937

med.	Equiv. Dd/10.	– Log med.	–	–	–
100	92.2	2.00	1.97	.03	1.07
112	96.6	2.05	1.99	.06	1.15
126	108.	2.10	2.03	.07	1.17
141	124.	2.15	2.09	.06	1.15
				(.055)	1.135

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1890phae.proj.1818.

Fri. May 9. 1890

Q1089

Above	Below		Below	Above		
4	3.0	2.2	4	3.~~0~~3	3.2	2.9 +
5	3.1	2.2	5	3.~~5~~1	3.1	2.9 −
6	2.0	1.2	6	2.7	2.0	2.0
7	1.9	1.2	7	2.7	2.4	2.1

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Regularity of Ground Glass. Brilliancy of others points in terms of center. (Form of 2105)

Position	other flares Dd/5.62	Equiv. in Cm. - Log	other flares Dd/5.62 - Log Equiv. -	Dif. Logs -	Ratio.
Edge B	158	178	−2.20	+2.25	.05	1.12
Half to Center B	158	174	−2.20	+2.24	.04	1.10
" " A	158	158	−2.20	+2.20	.00	1.00
Edge A	158	162	−2.20	+2.21	.01	1.02

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Sat. May 10. 1890

Q 1091

		Above	Below		Below	above		Means
Standard	N.B. 1	4.9	4.9		1	4.9	5.0	4.925
	2	4.8	4.8		2	4.8	4.9	4.825

Q1092

With Ground Glass.	5	2.05	2.05	5	2.10	2.10	2.06

Q1093

Do	5	3.2	3.4	5	3.7	3.6	3.5
	6	1.5	1.7	6	2.0	1.9	1.8
	7	4.2	4.6	7	4.5	~~4.0~~ 4.7	4.5
	8	3.1	3.6	8	4.0	3.9	3.7

Q1094

5	~~4.5~~ 4.7	4.7	5	4.9	4.9	4.8
6	3.9	4.0	6	4.1	4.1	4.0
7	3.4	3.5	7	3.9	3.9	3.7

Q1095

5	2.8	3.2	5	3.1	3.3	3.1
6	2.7	3.0	6	2.9	3.1	2.9
7	2.8	3.1	7	3.0	3.2	3.0
8	2.4	2.7	8	2.6	2.9	2.7
~~8~~ 9	3.0	3.4	9	3.2	3.6	3.3
10	2.1	2.5	10	2.2	2.7	2.375
~~11~~ 11	2.1	2.3	11	2.2	2.8	2.35
12	2.0	2.4	12	2.2	2.9	2.375

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1890phae.proj.1818.

First tests in the use of the magnesium light for sensitometer purposes.

Q1091 – 1 mgr Mg. Wire at 10M from plate.

Mg Wire	Equiv. CD	Log	Log Equiv.	Equiv.
1 mgr at 10M	37.9	1.58		38. Cd
"	35.3	1.58		35. "

Note. Both Sys. 1 & 2 were exposed to same piece of wire.

Q1092 – about 30 mgr at 1M from DDR 1 m m. Later 32c from plate. no lens.

30 mgr + DDR	10.5 cds	1.02		10.5 Cd
	14.1	1.15		14.1 Cd
Do wire in same pos[n]	9.55	0.98		9.6
	17.8	1.25		17.8
	14.8	1.17		14.8
			(1.147)	14.08
	19.1	1.28		19.1 Cd
Do wire burned in 3 diff ways	15.8	1.20		15.8
	14.8	1.17		14.8
			(1.22)	16.57

Bunsen Burner used to light Mg.

	12.9	1.11		12.9 Cd
	12.3	1.09		12.3
	12.6	1.10		12.6
	11.7	1.07		11.7
			(1.095)	12.38
P.E. Cw 0.17, Stand 10[5] Exp[s] Cds	13.5	1.13		13.5 Cd
	10.9	1.038		10.9
	10.8	1.035		10.8
	10.9	1.038		10.9
				11.53

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Monday May 12. 1890.

Q 1096

Above	Below		Below	Above		Means
5	0.4	0.6	5	1.1	1.3	0.9
6	2.8	3.1	6	3.7	3.9	3.4
7	1.7	1.9	7	2.6	3.1	2.3
8	1.0	1.2	8	1.8	2.2	1.6

Average value in cds of 30 meg Neg wire on D.P.E. from plates 1093, 3, 4 & 5. ——— 13.8 cds

Average residual 2.2

Do from best plate 1095 12.4

Average residual .4

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Brilliancy of Magnesium light - (wire).

60 mm

Testspaces -	Equiv. Stan Cd -	- Log Cdo -	- Equiv -
60 mm ~~9.8~~	9.77	0.99	9.8
	13.2	1.12	13.2
	11.6	1.07	11.6
	10.7	1.03	10.7
		(1.05) - - —	11.33

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Sat. May 17. 1890

Q 1129

Abov	Below		Below	Abov		Means.
1	5.0	(4.2)	1	5.2	(4.5)	4.7+
2	6.0	5.0	2	6.1	5.2	5.6
3	7.1	6.2	3	7.2	6.3	6.7
4	8.0	7.2	4	8.1	7.3	7.7

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Brilliancy of E.E. form of Sensitometer in terms of Standard.

Standard Md	Equiv. Dd/10 mm	log Stand Mds.	Log Dd/10	Dif. Logs	Ratios
112	110	2.05	2.04	.01	1.02
126	120	2.10	2.08	.02	1.05
141	138	2.15	2.14	.01	1.02
158	151	2.20	2.18	.02	1.05

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Thurs. May 29, 1890

Approx time

1h 4 = 1st Eyp } that date
5h 8 = 2nd Eyp }

Q 1152 — 1/3 M+Num form

	Abov	Below		Below	Abov		Means.
	1	6.5	6.6	1	7.0	7.0	6.8
	2	7.3	7.2	2	7.8	7.7	7.5
	3	8.1	8.1	3	8.6	8.5	8.3

Q 1165 — 1M+Num form

After 45m	1	7.0	6.7	1	7.2	7.2	7.0
Not very regu-	2	7.1	7.0	2	7.5	7.4	7.25
lar	3	7.6	7.5	3	8.1	7.9	7.5
5h 8 exposed direct after 1h 4	4	8.6	8.4	4	8.8	8.7	8.6 ?

Q 1167 — 1/3 M+Num form

	1	6.5	6.3	1	7.1	6.6	6.6
	2	7.9	7.9	2	8.2	8.1	8.0
Shows .74 of	3	8.9	8.2	3	8.9	8.8	8.7
average.	4		9.4 ?	4			

1M+Num form

After about	1	9.8	9.5	1	10.2	10.1	9.9
Shows decrease	2	11.2	11.1	2	11.5	11.5	11.3
of 20% in 1/2 h	3	11.8	11.6	3	11.9	11.9	11.8
	4	12.6	12.8	4	13.3	13.0	12.9 ?

Q 1168 — 1/10 M+Num form.

	1	6.0	6.0	1	7.4	7.2	6.7
	2	7.8	7.5	2	8.1	7.7	7.8
	3	8.0	8.0	3	8.2	8.0	8.0
	4	9.0	9.0	4	9.0	9.2	9.1 ?

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Comparison of different forms of Cds. in terms of the D=M, R=½mm form.

No of Exp	In terms of	Expl. Standards	Equiv in $\frac{1}{3}\frac{m}{m}$	Log St.	Log Equiv.	Dif. Logs	
2d 3d	1st Exp	10	15.1	1.00	1.18	9.82	.661
		12.6	17.8	1.10	1.25	9.85	.708
		15.8	21.4	1.20	1.33	9.87	.741
						(9.85) ———	.703
3d 4th	4th 3d						
		10	15.8	1.00	1.20	9.80	.631
		12.6	16.8	1.10	1.23	9.87	.741
		15.8	17.8	1.20	1.25	9.95	.891
		20.	22.9	1.30	1.36	9.94	.871 ?
						(9.895) ———	.784
8th	5th						
		10	14.5	1.00	1.16	9.84	.692
		12.6	20.0	1.10	1.30	9.80	.631
		15.8	23.4	1.20	1.37	9.83	.676
						(82)	.666
9th	5th						
		10.	12.3	1.00	1.09	9.91	.813
		12.6	17.0	1.10	1.23	9.87	.741
		15.8	19.1	1.20	1.28	9.92	.832
		20.	24.5	1.30	1.39	9.91	813 ?
						(9.90) ———	.800
7th	6th						
		10	14.8	1.00	1.17	9.83	.676
		12.6	19.1	1.10	1.28	9.82	.661
		15.8	20.0	1.20	1.30	9.90	.794
		20	26.3	1.30	1.42	9.88	.759 ?
						(9.86) ———	.723

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Thurs. June 5, 1890

Q 1191

	Above	Below		Below	above		Means
1	(4).9	(4).6		1	5.5	5.1	5.0
2	6.0	5.6		2	6.3	6.0	6.0
3	7.0	6.5		3	7.2	7.0	6.9
4	7.9	7.8		4	8.0	7.9	7.9

Q 1192 1 M π form

9	(0).0	(0.4)	9	00.9	0.8	Sq 1 = Sq 2 ϑ in Mrs.
10	0.9	~~0.4~~	10	~~1.8~~ or 0.9)	2.0	" " 1.5
11	2.1	2.7	11	2.9	3.1	2.7
12	3.8	3.9	12	3.9	4.1	3.9

1/3 M π form

9	5.5	5.8	9	6.6	6.7	Sq b's irregular 6.2
10	6.5	6.9	10	7.1	7.1	6.9
11	7.4	7.5	11	7.9	7.9	7.7
12	8.3	8.3	12	8.7	~~8.8~~	8.5

Account of above plates:-

Q 1191

(1)	(5)
10	10
12.6	12.6
15.8	15.8
20.	20.
(4)	(8)
Time $10^h\ 7^m$	$10^h\ 12^m$
1 M π mm	1 M π mm

Q 1192

(1)	(5)	(9)
10	10	10
12.6	12.6	12.6
15.8	15.8	15.8
20.	20.	20.
(4)	(8)	12
$11^h 30^m$	$11^h 40^m$	$10^h 45^m$
1 M π	1/3 M π	1/3 M π

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Comparison of different forms of Cds in terms of the ($D=1^M, R=1^{mm}$) form in column put on first.

Intervals from 1st Exp. at which test exps were full	Stan'd. Column.	Equiv. Exp. at 5m	Long Stand. Since forme	Log Equiv.	Dif. logs	Ratios
5m	10	10	1.00	1.00	0	1.00
	12.6	12.6	1.10	1.10	0	1.00
	15.8	15.5	1.20	1.19	.01	1.02
	20.	19.5	1.30	1.29	.01	1.02 / 1.01

Do in terms of the form ($\frac{1}{3}M = D + \frac{1}{3}^{mm} = R$).

45m from 9-12 on this plate	10		1.00	—		
	12.6	11.2	1.10	1.05	.05	1.12
	15.8	14.8	1.20	1.17	.03	1.07
	20.	19.5	1.30	1.29	.01 / .03	1.02 — 1.07
55m from D0	10.	13.2	1.00	1.12	9.88	.759
	12.6	15.5	1.10	1.19	9.91	.813
	15.8	18.6	1.20	1.27	9.93	.851
	20.	22.4	1.30	1.35	9.95 / (9.42)	.891 — .829

Results of analysis:-

According to 1192 the brilliancy of lamp diminished 17 o/o in 55m.

Assuming that the lamp was about the same from Exps 1 to 8-2m- plate 1192. then the difference between the two forms of Cds at the same instant would be some 29 o/o in favor of the long tube form ($D = 1^M - R = 1^{mm}$)

Giving weight in prop. to shortness of intervals $\frac{1}{3}^M$ form is .804 of 1^M form.

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1890phae.proj.1818

Friday June 6. 1890

Q 1193

Above	Below		Below	above		Means.
1	7.0	6.7	1	7.2	7.1	7.0
2	7.3	7.1	2	7.6	7.5	7.4
3	8.1	7.9	3	8.3	8.0	8.1

Sep 5.58 mm irregular.

~~Q 1194~~

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Comparison of different forms of Cds.
In terms of first exposure in form (D = 1M – R = 1 2mm)

Brilliancy of 1/10 M+2mm form in terms of 1 M+2mm

1 M+2mm form	Equiv.	Log 1 M+2mm form	Log Equiv.	Dif Logs	Ratios.
10.	15.8	1.00	1.20	9.80	.631
12.6	17.4	1.10	1.24	9.86	.724
15.8	20.4	1.20	1.31	9.89	.776
				(9.851)	.710

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Friday June 6, 1890

Q 1194

Above	Below		Below	Above		Means.
1	(8,9	(8),7	1	10,0	9,3	9,2
2	10,1	10,0	2	10,6	10,2	10,2
3	10,8	10,7	3	11,0	10,9	10,8
4	11,6	11,4	4	11,9	11,8	11,7
		plates upside down			upside down figs inc. up.	
1	13,4	13,4	1	13,9	14,0	13,7
2	14,6	14,2	2	14,9	15,0	14,7
3	15,2	15,1	3	15,4	15,4	15,3
4	16,0	15,9	4	16,2	16,5	16,2
9	5,1	5,5	9	6,2	6,5	5,8
10	6,0	6,2	10	6,3	6,6	6,3
11	7,1	7,2	11	7,2	7,5	7,2
12	7,9	8,1	12	8,1	8,5	8,2

Two near 9+10

Synopsis of Plate:-

— All 1st form —

1	5	9	13
2	6	10	14
3	7	11	15
4	8	12	16

Time -- $1^h/_{31^m}$ $2/_{32}$ $3/_{33}$ $4/_{28}$

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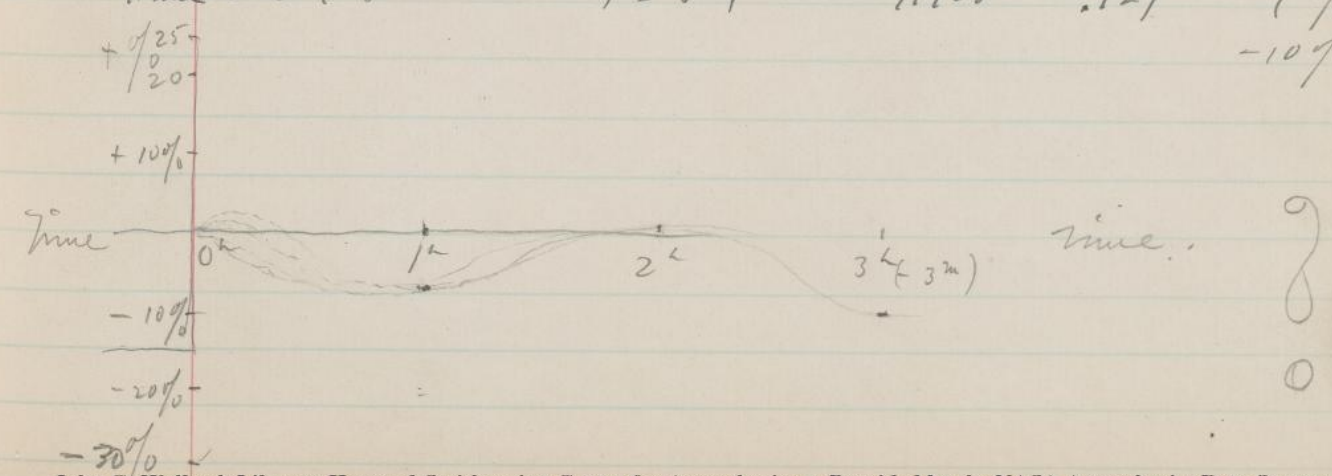
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Regularity of Standard Lamps. To get curve.

Four columns at hour intervals.

	Brilliancy at Stand. 1^{M}	Equiv. in 1^{h}	Log Stand.	Log Equiv.	Dif Logs	Ratios
2^{h}.	10.0	10.5	1.00	1.02	9.98	.955
	12.6	13.2	1.10	1.12	9.98	.955
	15.8	15.1	1.20	1.18	0.02	1.05
	20.0	18.6	1.30	1.27	0.03	1.07
					(0.005)	1.008
3^{h}	10.0	11.7	1.00	1.07	9.93	.851
	12.6	14.8	1.10	1.17	9.93	.857
	15.8	17.0	1.20	1.23	9.97	.933
	20.0	20.9	1.30	1.32	9.98	.955
	(5-8 - In terms of - 9-12)				(9.953)	.898
	10.0	12.0	1.00	1.08	9.92	.832
	12.6	13.5	1.10	1.13	9.97	.933
	15.8	16.6	1.20	1.22	9.98	.955
	20.0	20.9	1.30	1.32	9.98	.955
					(9.963)	.919

	Log	Ratio	error	Time
9-10-11-12 in terms of 1-2-3-4	0.005	1.008	+1%	2^{h}
5-6-7-8 " " " 9-10-11-12	9.963	.919	-8%	
Hence 5-6-7-8 " " " 1-2-3-4	9.968	.929	-7%	1^{h}
			-10%	3^{h}



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Saturday. June 7. 1890.

Q 1195

Abov	Below		Bilow	Abovr		Means
9	00.6	00.3	9	00.9	0.1	00.7
10	0.3	0.7	10	0.9	1.1	0.8
11	1.7	1.7	11	2.3	2.8	2.1
12	3.5	3.9	12	3.9	4.1	3.4
9	6.1	6.2	9	6.6	6.8	6.4
10	6.3	7.0	10	6.9	7.1	6.8
11	7.1	7.4	11	7.4	7.7	7.4
12	8.3	8.3	12	8.4	8.6	8.4

Stb Tn near

Note. Plates 1195-6&7 were exposed in the intervals of Q 1194 as follows:-

~~1195~~ 1st Column 1.31 1194

1st Col. 2nd Col. 3d Col. } ——— 1195

1h 48m 2.08 2.22 }

2nd Column 2.32 1194

2.45 3.02 3.15 } ——— 1196

3d Column 3.33 1194

3/42 4.00 4.10 } —— 1197

4th Column 4.28 1194.

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Comparison of different forms of Cds in terms of the form ($1^M = D + R = 1^{mm}$)

	3d Exp. 1 M†c	2nd Exp. ⅓ M†c	Log 3d Exp.	Log ⅓ M†c	Dif. Logs.	Ratios
			$1^{M\dagger c} + \frac{1}{3}^{M\dagger c}$ in terms of $1^{M\dagger c}$ form exp.s = last.			
Same, 34m before	10.0	7.41	1.00	9.87	0.13	1.35
	12.6	9.55	1.10	9.98	0.12	1.32
	15.8	12.9	1.20	1.11	0.09	1.23
	20.0	17.4	1.30	1.24	0.06	1.15
					(0.10)	1.26
⅓ Last 14m before	10.0	13.8	1.00	1.14	9.86	.720 poor square
	12.6	15.1	1.10	1.18	9.92	.832
	15.8	17.4	1.20	1.24	9.96	.912
	20.0	21.9	1.30	1.34	9.96	.912
					(9.925)	.844

Similar plates

Résumé 1195.

Change of lamp in 34m (after burning 20m) − 20%

1192-1167-1152 ⅓ M†c form of Cd vs. average of two $1^{M\dagger c}$ forms. .750

1192-1167 Change −17% in 55m after 40h

Do of 1196.

Change of lamp in 30m after burning 78m + 7%

1193-1168 $\frac{1}{10}^{M\dagger c}$ form of Cd vs. average of two $1^{M\dagger c}$ forms. .656

Do of 1197

Change of lamp in 28m after burning 2h 15m − 6.7%

$\frac{1}{10}^{M\dagger c}$ form of Cd vs. average of two ⅓ M†c forms − .730

With 2nd & 3d are probably more accurate. Assuming these so - 1st ought to be .895 instead of .750

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Monday June 9. 1890

Q1196

Above	Below		Below	Above		Means.
9	1.1	1.3	9	1.6	2.0	1.5
10	2.0	2.2	10	2.1	2.4	2.2
11	3.1	3.2	11	3.3	3.4 6	3.3
12	4.0	4.1	12	4.2	4.5	4.2
9	7.1	7.2	9	7.5	7.6	7.4
10	7.4	7.6	10	7.8	7.9	7.7
11	8.3	8.6	11	8.5	8.5	8.5

Q1197

9	0.8 2	0.2	9	0.9	1.0	0.6
10	1.0	1.4	10	1.5	2.0	1.5
11	2.2	3.0	11	2.9	3.1	2.8
12	3.6	4.0	12	4.0	4.1	3.9
9	6.1	6.4	9	6.6	7.1	6.6
10	6.8	7.2	10	7.0	7.8	7.2
11	7.7	8.1	11	7.9	8.7	8.1
12	8.6	(9.0)	12	8.9	9.6	9.0

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Comparison of different forms of Cals

Stand 1 Mtr	Equiv. 1st Exp. (Fast exp / inflated) 1 Mtr	Log stand	Log Equiv.	Dif Logs.	Ratios
10.0	11.2	1.00	1.05	9,95	.891
12.6	13,2	1.10	1.12	9,98	.955
15,8	17.0	1,20	1.23	9,97	.933
20.0	20,9	1,30	1.32	9,98	.955
	1/10 Mtr			(9,97)	.934
10.0	17.4	1,00	1.24	9,76	.575
12,6	18,6	1,10	1,27	9,83	.676
15,8	22,4	1,20	1,35	9,85	.708
				(9,802)	.640
10,0	9,12	1,00	9,96	,04	1,10
12,6	11,2	1,10	1,05	,05	1,12
15,8	15,1	1,20	1,18	,02	1,05
20,0	19,5	1,30	1,29	,01	1,02
				(,03)	1,07
10,0	14,5	1,00	1,16	9,84	.692
12,6	16,6	1,10	1,22	9,88	.759
15,8	20,4	1,20	1,31	9,89	.776
20,0	25,1	1,30	1,40	9,90	.794
				(9,878)	.755

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Wednesday June 9. 1890

Q1208

abve	Below		Below	abve		Means
9	0.9	1.1	9	2.1	2.2	1.6
10	2.1	2.2	10	2.6	2.9	2.5
11	3.0	3.1	11	3.3	3.8	3.3
12	3.9	4.0	12	4.2	4.8	4.2
9	5.1	5.4	9	5.6	6.0	5.5
10	6.0 ~~5.9~~	6.6 ~~5.9~~	10	6.8	7.1	6.6
11	7.2	7.3	11	7.~~4~~	7.5	7.4
12	7.9	8.1	12	8.1	8.3	8.1

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Test for effect of using sensitometer in light room or near windows.

3d + Stand Exp. Cds.	1st + same Equiv. Exps —	Log Stand.	Log Equiv.	Dif Logs -	Ratios.
10.0	11.5	1.00	1.06	9.94	.871
12.6	14.1	1.10	1.15	9.95	.891
15.8	17.0	1.20	1.23	9.97	.933
20.0	20.9	1.30	1.32	9.98	.955
				(9.96) ———	.913
10.0	11.2	1.00	1.05	9.95	.891
12.6	14.5	1.10	1.16	9.94	.871
15.8	17.4	1.20	1.24	9.96	.912
20.0	20.4	1.30	1.31	9.99	.977
				(9.96) ———	.913

This indicates no change in lamp & the uncovered lamp has bright by 9%.
But such dif as that wouldn't be due to the covering.
And these exposures were made right after lighting.
Hence this plate shows no appreciable effect.

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Wed. June 11. 1890

Q 1110

	Above	Below		Below	Above		Means
	9	4.5	3.8	9	5.2	4.5	4.5
Northead.	10	4.6	3.9	10	5.0	4.8	4.6
	11	4.9	4.5	11	5.0	6.0	5.1
	12	6.7	7.3	12	7.3	7.2	7.1

Q 1111

	9	3.6	omitting (2+3) 2.0	9	omit 1+3 3.6	omit 2+3 2.8	3.0
order of Sweets 3.2.1.4 | 5.7.6.8	10	3.6	1.6	10	3.2	1.4	2.5
Small, mottled	11	omitting 1+3 4.1	omitting 1+2 3.5	11	4.0	3.7 omit 1+2	3.8
	12	5.8 7.	4.0	12	5.5	4.9	5.0

Q 1112

	9	2.0	2.1	9	3.0	3.1	2.6
	10	3.6	3.0	10	4.1	3.9	3.6
better.	11	4.5	4.1	11	5.0	4.8	4.6
	12	6.87	6.1	12	7.1	7.1	6.8

Q 1116

	9	7.3	7.1	9	8.0	7.9	7.6
Mottled.	10	6.1	3.8	10	6.3	4.3 ~~6.0~~	5.1
	11	5.0	4.2	11	7.0	5.0	5.3
	12	8.2	7.5	12	8.5	8.2	8.1

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Time Corrections. Sept 26.

Test Exp.s - mds.	Equiv. Exp.s Dys	Logs mds	Logs Dys	Diff. Logs	Ratios.
1000	1.06	3.00	0.03+3.00	9.97	.933
1120	1.07	3.05	0.03	0.02	1.05
1260	1.14	3.10	0.06	0.04	1.10
1410	1.43	3.15	0.15	0.00	1.00
				(0.01) ---	1.02

Dd	Dys				
7.1	.89	0.85	9.95+1.00=9.90		.794
7.9	.84	0.90	9.92	9.98	.955
8.9	.98	0.95	9.99	9.96	.912
10.0	1.12	1.00	0.05	9.95	.891
				(9.95) -----	.888

Dd	1/3 Dys				
1.12	.85	0.05	9.93+0.50=9.62		.417
1.26	.96	0.10	9.98	9.62	.417
1.41	1.07	0.15	0.03	9.62	.417
1.58	1.38	0.20	0.14	9.56	.363
				(9.61) ---	.404

mds	1/3 Dys				
35x5.	1.51	2x.55	0.18+2.5	9.87	.741
39x8.	1.14	2x.60	0.06	0.04	1.10
44x7.	1.16	2x.65	0.07	0.08	1.20
50x1.	1.60	2x.70	0.21	9.99	.977
				(0.00) ---	1.005

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Friday. June 13. 1890.

Sq 5 to top Theory - Same as 6. 5 + 6 am considered one Sq Equivalent to 5.5

Q 1118

	Above	Below		Below	Above		Means
9	4.2	3.6		9	4.9	4.5	4.3
10	5.5	4.0		10	6.0	5.3	5.2
11	7.1	6.07		11	7.5	7.1	6.9
12	8.4	8.0		12	8.8	8.9	8.5

Q 1121

9	7.0	6.6		9	7.1	7.2	7.0
10	7.1	7.1		10	7.2	7.3	7.2
11	7.8	7.8		11	8.1	7.9	7.9
12	8.3	8.1		12	8.4	8.5	8.3

Q 1122

9	3.4	3.1		9	3.7	3.9	3.5
10	3.7	3.5		10	3.9	4.1	3.8
11	4.4	4.0		11	4.9	4.3	4.4
12	7.1	6.9		12	7.1	7.0	7.0

Q 1124

9	4.2	5.0		9	5.8	5.8	5.2
10	5.3	6.0		10	6.1	6.2	5.9
11	6.5	6.7		11	7.0	7.0	6.8
12	6.4	7.3		12	7.3	6.9	7.0

Q 1125

10

9	2.5	~~3.7~~ 2.0		9	3.5	3.5	3.0
10	3.0	3.0		10	4.2	4.0	3.6
11	3.5	3.8		11	5.1	5.0	4.4
12	5.6	5.5		12	6.1	6.0	5.7

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Time Correction - Seed 26, -

Cd	⅓ Dys	Log Cds	Log ⅓ Dys	Dif. Logs	Ratios
22.4	1.04	1.35	0.01+1.5	9.84	.692
25.1	1.15	1.40	0.06	9.84	.692
28.2	1.39	1.45	0.15	9.80	.631
31.6	1.68	1.50	0.23	9.77	.589
Cd	Dd				
11.2	1.41	1.05	0.15+1.0	9.90	.794
12.6	1.45	1.10	0.16	9.94	.871
14.1	1.58	1.15	0.20	9.95	.891
15.8	1.62	1.20	0.21	9.99	.977
Md	Dd				
#126	0.95	2.10	9.98+2.0	0.12 ~~9.88~~	1.32
141	.98	2.15	9.99	0.16 ~~9.84~~	1.45
158	1.05	2.20	0.02	0.18	1.51
178	1.41	2.25	0.15	0.10	1.26
Md	⅓ Dd				
39.8	1.15	1.60	0.06+1.5	0.04	1.10
44.7	1.26	1.65	0.10	0.05	1.12
50.1	1.38	1.70	0.14	0.06	1.15
56.2	1.41	1.75	0.15	0.10	1.26
Md	Cd				
126	0x1.9	2.10	1+9.95+1.0	0.15	1.41
141	~~1~~9.6	2.15	1+9.98 "	0.17	1.48
158	1x0.5	2.20	1+0.02 "	0.18	1.51
178	1x2.0	2.25	1+0.08 "	0.17	1.48

N.B.

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Monday June 16, 1890

Q 1131

Above	Below		Below	above		Means
9	4.6	4.2	9	7.0	7.0	5.7
10	4.4	4.1	10	7.0	6.8	5.6 −
11	4.3	4.1	11	7.1	7.0	5.6 +
12	5.4 ~~7.7~~	5.3	12	7.8	7.6	6.5

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Time Correction - Seed 26.

Dd	Dgs	Log Dd	Log Dgs	Dif Logs	Ratios.
7.1	12.2	0.85	0.09+1.0	9.76	.575
7.9	11.9	0.90	0.08	9.82	.661
8.9	12.7	0.95	0.08	9.87	.741
10.0	13.3	1.00	0.13	9.87	.741
				(9.83)	---.68

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1890phae.proj.1818.

Thurs. June 19, 1890

Q 1127

Above	Below		Below	Above		Means
7	00.6	00.4	7	0.0	0.4	00.9
8	1.0	1.1	8	2.0	1.9	1.5

(Q Book Pg 54)

Q 951 See Q 946 to 953. Also this book →

1	7.7	7.6	1	7.7	7.6	7.7
2	8.2	7.8	2	7.9	7.8	7.9
3	8.8	8.3	3	8.3	8.3	8.4
1	(8)6	(8).9	1	9.1	9.0	(8).9
2	9.4	9.2	2	11.1 ~~9.4~~	9.8	9.9
3	10.1	10.0	3	11.2	11.2	10.6
4	11.8	11.9	4	11.8	11.8	11.8

Sq 11 omit. Sq 10 omit

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Comparison different forms of Cols -

$\frac{1}{3}$ Mt+Mm form in terms of 1 Mt+Mm form

1 Mt+Mm form	Equiv Eqp. $\frac{1}{3}$ Mt+L	Log 1 Mt+Mm	Log Equiv.	Dif Logs	Ratios
12.6	8.7	1.10	0.94	0.16	1.45
14.1	10.6	1.15	1.05	0.10	1.26

Result at variance with more recent plates.

→ — Pg

20.	27.1	1.30	1.43+	9.87	.74
22.4	27.9	1.35	1.45-	9.90	.29
25.1	29.5	1.40	1.47	9.93	.85
20.	19.8	1.30	1.29+	.01	1.02
22.4	22.2	1.35	1.35-	.00	1.00
25.1	24.0	1.40	1.38	.02	1.05
28.2	27.5	1.45	1.44	.01	1.02

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Sat June 28. 1890

Q 1145

Abov	Below		Below	Abov		Means.
9	3.2	3.2	9	3.7	3.6	
10	3.9	3.5	10	4.4	4.0	
11	5.0	4.1	11	6.9	5.0	
12	7.1	6.5	12	7.9	7.4	

Q 1170

9	4.1	3.9	9	4.3	4.1	
	5.1	4.9		5.1	5.1	
	6.5	6.7		7.0	7.1	
	7.2			7.5		

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1890phae.proj.1818.

Time Correction. Seed 26.

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1890phae.proj.18181

Wed. July 2, 1890

Q 1309

	abov	Below			Below	abov		Means.
	9	3.1	2.8		9	3.9	3.9	3.4
	10	3.2	2.9		10	4.0	4.1	3.6
	11	3.0	3.0		11	3.9	4.0	3.5

Q 1310

9	3.4	3.4		9	4.0	4.1	3.7
10	4.1	4.1		10	4.7	4.6	4.4
11	3.4	3.1 3.5		11	3.9	3.9	3.6
12	estimated to be same as 9+11				(4.9)	4.1	4.8

Q 1311

9	2.1	2.7		9	3.8	3.4	3.3
10	2.3	2.0		10	3.0	2.8	2.5
11	3.6	3.3		11	4.4	4.3	3.9
12	(3.5)	(3.8)		12	(4.0)	(4.0)	3.8

Q 1312

9	3.9	3.9		9	4.6	5.1	4.4
10	3.8	3.5		10	4.2	4.4	4.0
11	4.1	4.1		11	4.7	4.3	4.3
12	(2.0)	(1.5)			(2.7)	(2.3)	2.1

Q 1313

9	6.4	6.4		9	7.2	7.4	6.9
10	5.7	5.8		10	6.2	6.6	6.1
11	4.9	4.8		11	5.8	5.8	5.3
12	(7.0)	(7.0)			(8.0)	8.0	7.5

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Regularity of Mg. light & its equiv. in Cals.

Q 1309-11 had equal wts of Mg + $KClO_3$ mixed & 20 mgrs of the mixture set off. Plate 1312 had 10 mgr of one mixed with 10 mgr of the other. Plate 1313 had sgs 9-10 like 1312 & sgs 11 & 12 like 1309.K

	Equiv. Cals.	Log Equiv.
10/10 20 mgr.	13.8	1.140
"	14.3	1.155
	14.1	1.150
Average	14.1	1.148
	14.8	1.170
"	17.4	1.240
	14.5	1.160
Average	15.6	1.19
	13.84	1.1
"	11.2	1.050
	15.5	1.190
Average	13.4	1.122
10 mgr	17.4	1.24
10 mgr.	15.8	1.20
	17.0	1.23
Average	16.7	1.22
"	19.3	1.285
	16.2	1.210
10/10 20 mgr	13.5	1.130
Average	16.3	1.208

From 4 squares last written 2 discarded as ill exposed.

Average of 3 plates — (13 Cals — Log = 1.183) — Log 1.174 — (N° = 14.9)

Average deviations — N° = 15.2 — log 1.0 — % = 10.

10/10 20 mgr means 20 mgr. of mixture of equal parts Mg. + $KClO_3$

10/10 mgr means 10 mgr of each weighed out & then mixed.

N.B. The distance from flash to plate in these plates was 63.7

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Monday, July 28, 1890

Q1317

quantity	Above	Below		Below	Above		Means
2d	9	5.8	5.4	9	6.1	6.1	5.9+

Q1318

1st	9	3.9	3.9	9	4.2	4.2	4.0+

Q1319

1st	9	6.1	5.9	9	6.4	6.3-	6.2

Q1320

1st vr 2nd n 3d	9	6.8	7.2	9	7.3	7.5	7.2
3d n 2nd	10	4.1	4.8	10	4.5	4.9	4.6

Q1321

9	3.9	3.8	9	4.0	4.0	3.9	(4.8)
10	1.8	2.0	10	2.0	2.2	2.0	
11	3.1	3.2	11	3.2	3.6	3.3	(3.6)
12	1.5	1.7	12	1.9	2.0	1.8	

N.B. Sq 4+5.

Q1322

9	2.2	2.7	9	2.8	3.0	2.7
10	3.0	3.1	10	3.1	3.2	3.1
11	0.?	0.5	11	0.0	0.5-	nonetheless - 0.8?
12	0.8	0.8	12	1.1	1.2	1.0

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1890phae.proj.1818.

Regularity of Mg Light and its Equivalent in Cds.
Distance Flash & Plate 100 Meters.

Quantity Mg.	Equiv. Cds	Log Equiv.	averages	Log	cds
2S = 40 mgr Mg. + 68 mgr $KClO_3$	15.5	1.19	Av. 2S ------	1.19	15.5
20/34	10.2	1.01			
20/34	10.5	1.02			
?	13.2	1.12			
	7.2	0.86			
	average	.99 = log 9.8 cds			
	9.6	0.98			
20/34	5.0	0.70			
	7.2	0.86			
	4.8	0.68			
	average	0.805 = log 6.4 cds			
	5.9	0.77			
20/34	6.5	0.81			
	~~3.0~~	~~.48~~			
	~~4.0~~	~~0.6~~			
	4.0	0.60			
	average	.73 = log 5.4 cds			
			Av. 20/34 54 ------	0.825	6.7
			Av. probable error	0.13	

These 20/34 have ratio of 20 lbs Mg to 34 lbs $KClO_3$. Of this mixed in bulk, a spoonful weighing 54 mgr. is measured out.

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1890phae.proj.1018.

Monday, July 28. 1890.

Q1323

	Above	Below		Below	Above	Means.
9	5.~~74~~	5.2	9	5.6	5.8	5.5
10	~~48.0~~	3.9	10	4.0	4.2	4.0
11	3.7	3.8	11	3.9	4.0	3.9
12	5.2	5.1	12	~~5.5~~	5.8	5.4

(Sys 4 & 5 in this are reversed)

Q1324

9	5.0	5.2	9	5.2	5.7	5.3
10	5.8	5.9	10	6.0	6.2	6.0

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1890phae.proj.1818.

Regularity of Mg light and its Equivalent in C.D.s.

Dist = 100 M. 20/20|40 means 40 mgs of mixture of equal parts.

Quantity Mg.	Equiv. in C.ds.	Log Equiv.
	11.2	1.05
20/20|40	8.0	0.90
	7.8	0.89
	11.0 / log 9.3 cds	1.04 = 0.97 = average
20/20|40	10.7	1.03
	12.6 / log 11.8 10.3	1.10 = 1.07 = Average

Average of 8 Exp. ----- log 1.00 cds 10

Average of residuals = 0.07 = log

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1890phae.proj.1818.

Wed. July 30, 1890

Q1325

Above	Below		Below	Above		Means.
10	3.1	2.9	10	3.5	3.5	3.3⁻
11	4.7	4.6	11	5.2	5.2	4.9
12	3.9	3.8	12	4.1	4.1	4.0

Q1326

9	2.5	2.4	9	3.0⁻	3.2	2.8
10	3.2	3.0	10	3.4	3.8	3.4⁻
11	1.1	1.0	11	1.4	1.7	1.3
12	3.7	3.6	12	4.0	4.0	3.8

Q1327

9	2.9	2.9	9	3.1	3.1	3.0
10	2.8	2.8	10	3.0	3.0	2.9
11	3.4	3.2	11	3.7	3.6	3.5
12	3.3	3.1	12	3.6	3.6	3.4

Columns reversed.

Q1328

9	4.0	4.0	9	4.4	5.0	4.4⁻
10	4.1	4.0	10	4.2	5.1	4.4⁻
11	6.1	6.1	11	6.5	7.0	6.4
12	3.8	3.5	12	3.9	4.4	3.9

Q1329

9	5.5	5.8	9	6.0⁻	6.0	5.8
10	6.3	6.3	10	6.9	6.8	6.6
12	5.9	5.9	12	6.2	6.2	6.1⁻

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1890phae.proj.1818.

Regularity of Mg. Light and its equivalent in Cds.

Distance = 100 Meters Quantity in first 3 plates $\frac{20}{20}\}40$

Quantity in last 2 plates $\frac{20}{10}\}30$.

	Equiv. Cds.	Log Equiv.	
	8.51	0.93	
$\frac{20}{20}\}40$	12.3	1.09	
	10.0	1.00	
	7. average	1.01 = log 10.2 cds	Logic Resid .08
	7.59	0.88	
	8.71	.94	
$\frac{20}{20}\}40$	5.37	.73	
	9.55	.98	
	average	.88 = log 7.6 cds	Logic Resid = .08
	~~7.94~~	0.90	
	7.76	.89	Logic resid = .03
$\frac{20}{20}\}40$	9.00		
	~~8.11~~ 88	.95½	Average $\frac{20}{20}\}40$ = 8.5 cds log = 0.93
	8.77	.94½	
	average	.92 = log 8.3 cds	Average Logic Residual 0.06
	11.0	1.04	
$\frac{20}{10}\}30$	11.0	1.04	
	17.4	1.24	
	9.77	.99	
	average	1.08 = log 12.0	
$\frac{20}{10}\}30$	15.1	1.18	
	18.2	1.26	average $\frac{20}{10}\}30$ = 13.8 cds log = 1.14
	16.2	1.21	Logic Average Resid. = 0.10
	average	1.22 = log 16.6	

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1890phae.proj.1818.

Wed. Aug 6, 1890

Q 1334

	Abov	Below		Below	Abov		Means.
	9	4.1	4.0	9	4.6	4.5	4.3
?	10	0.2	0.6	10	0.9	1.2	0.7 ~~Discard~~
	11	1.9	1.8	11	2.1	2.2	2.0

Q 1335

	9	1.2	1.1	9	1.8	1.9	1.5
	10	4.0	4.1	10	4.5	4.6	4.3
	11	2.9	2.8	11	3.3	3.2	3.1
	12	1.0	0.9	12	1.2	1.3	1.1

Q 1336

	9	3.0	3.0	9	3.8	3.9	3.4
	10	1.9	2.0	10	2.6	2.6	2.3
	11	3.3	3.2	11	4.0	4.0	3.6
	12	3.0	2.9	12	3.3	3.7	3.2

Q 1337

	10	2.9	2.9	10	3.2	3.1	3.0
	11	0.8	0.9	11	1.1	1.1	1.0
	12	3.4	3.2	12	3.8	3.6	3.5

Q 1338

	9	3.7	3.4	9	3.9	4.0	3.8
?	10	0.0?	00.7	10	0.0	0.3	0.2 ~~Discard~~
	11	3.1	2.9	11	3.3	3.2	3.1
	12	1.3	1.1	12	1.8	1.4	1.4

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Regularity of Mg light and its equivalent in Cds. Distance = 100 Meters. Quantity $\frac{20}{20}\}40$

Equiv. in cds	log Equiv.
10.7	1.03
~~4.7~~	~~0.67~~
6.3	0.80
/ 8.3 cds	log = 0.92 = average

With all 3 sys 6.3 cds log = 0.83 = "

5.6	0.75
10.7	1.03
8.1	0.91
5.1	0.71
/ 7.1 cds	log = 0.85 = average

8.7	0.94
6.8	0.83
9.1	0.96
8.3	0.92
~~8.0~~	~~0.90~~
/ 8.1 cds	log = 0.91 = average

av. resid = .04+

8.0	0.90
5.0	0.70
8.9	0.95
/ 7.1 cds	log = 0.85 = average

9.6	0.98
~~4.0~~	~~0.60~~
8.1	0.91
5.5	0.74
/ 7.6	log = 0.88 = average

or with all 4 sys 6.5 cds log = 0.81.

Average for page = 7.59 cds log = 0.879. Av. log in Resid = 0.09

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1890phae.proj.1418.

Thurs. Aug. 7. 1890

Q 1339

	Above	Below		Below	Above		Means.
9	1.9	1.8		9	2.4	2.4	2.1
10	2.9	2.9		10	3.4	3.2	3.1
11	2.5	2.5		11	2.8	2.9	2.7
12	1.9	1.8		12	2.1	2.1	2.0

Q 1340

9	4.2	4.2		9	4.7	4.8	4.5
10	3.6	3.4		10	3.9	3.8	3.7
11	~~0.6~~ Assume 0.7	~~2.2~~?		11	1.1	1.1	0.9 ? Mislaid
12	2.1	2.2		12	2.7	2.4	2.4

Q 1341

	9	2.1	1.7	9	2.2	2.2	2.1
	10	4.8	4.8	10	4.9	5.0	4.9
Sgs 3 & 4 are just alike.	11	4.6	4.5	11	4.7	4.8	4.7
	12	2.9	2.9	12	3.2	~~3.2~~ 3.1	3.1

This one was read 4.2 but as 3 & 4 are alike, and the ratio between the two positions of plates, will be held good by calling it 3.2 - It is thought best to do so.

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Regularity of Mg light and it equivalent in Cds. Dist 100 Metres. Quantity $\frac{20}{20}\}40$

Equiv. in Cds	Log Equiv.
6.5	0.81
8.1	0.91
7.4	0.87
6.3	0.80
7.1 cds	log = 0.85

11.2	1.05
9.3	0.97
	0.69
6.9	0.84
8.9 cds	log = 0.953

6.5	0.81
12.3	1.09
11.7	1.07
8.1	0.91
9.3 cds	log = 0.97

Average log. = 0.896 = log 7.87 cds

Average logarithmic residual 0.088

Average, including 3 extrapolations ---- 0.872 = log 7.44 cds

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Fri. Aug. 8. 1890

Q1330

Above	Below		Below	Above		Means
9	3.7	3.8	9	4.1	4.2	4.0 −
10	3.7	3.2	10	4.0	4.1 −	3.8 −
11	3.5	3.4	11	4.1	4.1	3.9 −
12	3.4	3.1	12	3.9	4.0	3.6

Q1331

9	3.3	3.2	9	4.0	3.9	3.6
10	3.2	3.1	10	4.0	3.9	3.6 −
11	3.4	3.0	11	4.0	3.9	3.6
12	3.0	2.8	12	3.8	3.1	3.2

Q1332

9	3.5	3.3	9	3.9	4.1	3.7
10	3.4	3.2	10	3.8	4.0	3.6
11	3.4	3.2	11	3.9	4.0	3.6
12	3.0	2.9	12	3.4	3.6	3.2

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Regularity of Standard Pentane light. Exposures of 10 cds.

Equiv. in cds	Log Equiv.
*9.89	1.00-.005
9.44	.975
9.66	.985
9.12	.96

9.6 cds log = 0.98 = average.

9.1	.96
9.0	.955
9.1	.96
8.3	.92

8.9 cds log = 0.95 = average

9.3	.97
9.1	.96
9.1	.96
8.3	.92

8.9 cds log = 0.95 = average

Average three plates 8.9 cds log = 0.95

Average Logarithmic Residual 0.02.

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Sat. Aug 16, 1890

Abov	Below		Below	Q1347	Abov	Means.
9	7.9	7.8	9	8.2	8.1	8.0
10	7.1	7.1	10	7.4	7.7	7.3
11	7.2	7.2	11	7.8	7.9	7.5
12	7.7	7.8	12	8.0+	8.2	7.9

Q1348.

9	6.0	6.0	9	6.1	6.4	6.1
11	5.8	5.8	11	6.0	6.2	6.0 ~~5.9~~
12	6.9	6.8	12	7.0	7.1	7.0

measured on scale of Q1338

7	4.1	4.1	7	4.8	4.6	4.4
8	5.1	5.1	8	5.7	5.5	5.4

8 of Q 1348

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Regularity of Mg ribbon burned at 100 meters and equivalent in cds. 50 mgr. (= 61 m m)

Equiv. in cds	Log.
63	1.80
53.7	1.73
56.2	1.75
61.7	1.79

	Log equiv.	Equiv. in cds. (This equiv is of little value)
1.61 − .04 =	1.57	37.2
1.60 − .04 =	1.56	36.3
1.70 − .04	1.66	45.7

Q 1348.	Equiv. Q 1338.	Log 1348.	Log 1338.	Correction 38
25.	.44	1.40	1.44	−.04
31.6		1.50	1.54	−.04

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1890phae.proj.1018.

Wed. Aug 20. 1890

Q1349

Abov	Below		Below	Abov		Means.
9	0.5	0.6	9	1.0	1.1	0.8
10	1.6	1.6	10	2.1	2.1	1.85
11	1.8	1.9	11	2.2	2.3	2.05
12	1.9	1.9	12	2.1	2.3	2.05

Q1350

9	2.9	3.0	9	3.5	3.8	3.3
10	2.8	3.0	10	3.2	3.5	3.1
11	3.6	3.8	11	4.0	4.2	3.9
12	3.0	3.0	12	3.2	3.6	3.2

Q1351

9	2.5	2.1	9	3.0	2.9	2.6
10	2.3	2.0	10	2.9	2.9	2.5
11	2.3	2.0	11	3.0	2.9	2.55
12	2.3	2.0	12	29	2.9	2.5

Q 1352

9	3.0	2.8	9	3.8	3.1	3.2
10	3.1	3.0	10	3.9	3.2	3.3
11	3.1	3.0	11	3.9	3.2	3.3
12	3.3	3.1	12	4.0	3.6	3.5

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Regularity of Mg light and Equivalent in Cds.
18 mm burned at dist of 100 meters.

Equiv. in Cds.	Log. Do.
6.0	0.78
7.7	.885
8,0	.905
8,0	.905
	.869
	(.05)
6.8	0,83
6.5	.81
7.8	.89
6.6	.82
	.838
	(.03)
5.8	0.76
5.6	.75
5.7	.755
5.6	.75
	.753
	(.005)
6.6	0.82
6.8	.83
6.8	.83
7.1	.85
	.833
	(.01)

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Wed. Aug. 20. 1890.

Q1353

Abov	Below		Below	Abov	Means
9	3.0	2.9	9	3.2	3.1	3.05
10	2.1	2.1	10	2.9	2.7	2.45
11	2.9	2.9	11	3.2	3.1	3.0
12	2.8	2.5	12	3.1	3.0	2.85

Q1354

9	2.8	2.2	9	2.9	2.6	2.6
10	2.7	2.1	10	3.0	2.6	2.6
11	2.6	2.1	11	3.0	2.6	2.6
12	2.0	1.9	12	2.6	2.2	2.2

Q1355

9	2.5	2.3	9	3.0	3.0	2.7
10	2.5	2.3	10	3.0	3.0	2.7
11	2.4	2.3	11	3.1	3.0	2.7
12	2.0	1.9	12	2.5	2.5	2.2

Q1356

9	2.8	2.8	9	3.2	3.1	3.0
10	2.9	2.9	10	3.2	3.1	3.0
11	2.9	2.9	11	3.2	3.1	3.0
12	2.8	2.9	12	3.1	3.1	3.0

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Regularity of Mg. Light & Equivalent in cds.
18 mm at 100 meters distance. Last four plates.

Equiv. in cds	Log. Do.
6.4	0.805
5.6	.745
6.3	.80
6.1	.785
	~~.738~~
	.784
	(.02)
5.8	0.76
5.8	.76
5.8	.76
5.3	.72
	.750
	(.015)
5.9	0.77
5.9	.77
5.9	.77
5.3	.72
	.758
	(.02)
6.3	0.80
6.3	.80
6.3	.80
6.3	.80
	.80
	(.00)

	By Plate	By Square
	cds cds / log	cds / log
Averages	6.28 ~~6.7~~ --- .798	6.1 ---- 0.7855
Probable Deviation	.02*	.04

* is the average of { .00, .02, .015, .02, .05, .035, .035 }

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Tues Sept 23 · 1890

L 1386 Mag. Ribbon $1^{cm} = 1^{m.s}$ (bids record) at 100 M.

	Above	Below		Below	Above		Means
1		2.8	3.1	1	3.2	3.3	3.10
2		2.6	3.0	2	3.1	3.0	2.93
3		4.4	4.4	3	4.6	4.5	4.48
4		4.3	4.6	4	4.7	4.4	4.50

	Means	cds	
1	3.10	6.5	6.5
2	2.93	6.2	6.2
3	4.48	8.9	8.9
4	4.50	8.9 + .5 = 9.4	9.4

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Read Sept 24 1890

2 1787 Mag. Ribbon (with Record)

	Above	Below		Below	Above	Means	
1	2,1	2,2	1	2,2	2,1	2.15	5.2
2	2,8	2,8	2	2,7	2,5	2.70	5.9
3	2,1	2,1	3	2,0	2,0	2.05	5.1 + .3 = 5.4

2 1383

1	2,0	2,2	1	1.9	2,1	2.05	5.1
2	2,0	2,1	2	1.9	1.9	1.98	5.0
3	1.3	1,2	3	1,1	1,2	1.18	4.2
4	1.4	1,5	4	1.3	1.2	1.35	4.3

2 1384

1	0.5	0.6	1	0.7	0.6	0.60	3.6
2	1,8	2,0	2	2,1	1,8	1.95	5.0
3	1,8	2,0	3	2,0	1,8	1.90	4.9
4	0.3	0.4	4	0.5	0.4	0,40	3.5

2 1385

1	2,3	2,3	1	2.4	2,2	2.30	5,4
2	2,6	2.6	2	2,6	2,7	2.62	5.8
3	3,4	3,3	3	3,3	3,2	3.30	6.8
4	2,6	2.8	4	2.7	2.6	2.68	5.9

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Monday Sept 29 1890

	2 above 14 Below		Below above			dp
1	12.8	12,9	1	13,1	12,8	12.9 ~~12~~ 49.
2	14.5	14.5	2	15,1	13,4	14.5 71.
3	14,4	14.2	3	13,8	13,2	13.9 62.
4	15,7	15,6	4	15.7	15,2	15.55 90.
5	15,2 ~~12.9~~	14.3	5	15,2	15,2 ~~13,4~~	15.0 80
6	13.3	12,8	6	13,2	12,8 ~~13,2~~	13.0 50
7	12,2	12.5	7	12,7	12,7	12.5 45
8	15,4	14.6	8	15,2	14,2	14.85 77

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Tues Sept 30 1890

	1360 B			a		Means
1	13.2	13.2	1	12.8	13.1	13.1
2	13.8	14.2	2	13.5	13.5	13.75
3	15.3	15.3	3	15.2	15.2 14.7	15.25
4	16.2	15.8	4	15.8	15.8	15.9
5	13.8	14.2	5	13.7	13.5	13.8
6	14.6	14.5	6	14.1	14.2	14.35
7	16.4	15.8	7	15.5	15.3	15.75
8	16.9	16.7	8	16.4	16.3	16.6
9	14.7	14.5	9	14.1	14.2	14.4
10	15.2	15.1	10	14.6	15.2	15.0
11	15.8	15.9	11	15.6	15.7	15.75
12	16.7	16.8	12	16.5	16.2	16.55

2 1359 See memdest eq 15 (Means 14+ inverse pg 15

a.	B		B	a		
1	Infinit		1	Infinit		
2	" "		2	" "		
3	" "		3	" "		
4	12.5	12.7	4	12.5	12.8	12.6
5	13.7	13.6	5	13.2	13.2	13.4
6	14.1	14.1	6	13.8	13.6	13.9 2 2
7	14.4	14.2	7	14.1	14.2	14.2
8	14.8	14.7	8	14.5	14.4	14.6
9	14.1	13.8	9	13.8	13.7	13.85
10	14.2	14.1	10	14.1	14.2	14.15
11	14.6	14.7	11	14.4	14.4	14.5
12	14.8	14.8	12	14.7	14.6	14.7

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Lus Sept 90 1890

	2 1361			a		Means
a		B	B			
1	13.7	14.1	1	13.8	13.8	13.85
2	14.2	14.2	2	14.2	14.2	14.2
3	14.9	14.9	3	14.9	14.8	14.9
4	15.8	15.8	4	15.8	15.8	15.8
5	14.2	14.2	5	14.1	14.2	14.2
6	14.3	14.3	6	14.2	14.3	14.3
7	15.1	15.2	7	15.3	15.1	15.2
8	16.0	16.2	8	15.8	16.1	16.0
9	14.1	14.3	9	14.1	14.1	14.15
10	14.2	14.4	10	14.2	14.2	14.25
11	15.1	15.3	11	15.0	14.9	15.1
12	15.7	15.8	12	15.8	15.7	15.75

2 1362

a		B	B	q		Means
1	13.0	13.8	1	12.9	13.2	13.2
2	13.6	14.3	2	13.2	14.2	13.8
3	14.7	14.8	3	14.2	14.4	14.5
4	16.2	15.8	4	15.1	14.8	15.5
5	13.3	14.1	5	13.2	13.8	13.5
6	14.1	14.2	6	13.3	13.3	13.7
7	14.8	14.6	7	14.2	14.4	14.5
8	16.0	15.2	8	15.1	14.7	15.25
9	14.0	14.2	9	13.4	13.)	13.8
10	14.2	14.6	10	13.7	14.2	14.2
11	14.8	14.8	11	14.4	14.4	14.6
12	15.2	14.9	12	14.8	14.6	14.9

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Wed Oct 1st 1890

2 1363

a	B		b	a	
1	Too faint		1	Too faint	
2	" "		2	" "	
3	13,8	13.6	3	13,6	13.4
4	14,8	14,8	4	14.7	14,6
5	Too faint		5	Too faint.	
6	12.9	12,6	6	12.9	12,6
7	13.8	13.7	7	13.7	13.4
8	14,8	14,6	8	14.7	14.3
9	Too faint.		9	Too faint	
10	12,8	12.7	10	12,8	12.7
11	13.7	13.8	11	13.7	13.7
12	14.4	14.5	12	14.3	14,3

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Thurs Oct 2 1890

Σ 1364

a	B	B	a
1	Too faint	1	
2	12.6	2	
3	14.1	3	
4	14.6	4	
5	Too faint	5	
6	13.2	6	
7	14.2	7	
8	14.8	8	
9	12.5	9	
10	13.1	10	
11	14.3	11	
12	14.8	12	

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Saturday, Oct 4 1890

2 13 6 4

	a	B	B	a
1	Too faint		1	Too faint
2	12.8	12.9	2	12.7 12.5
3	14.1	14.1	3	13.9 13.7
4	14.8	14.9	4	14.7 14.6
5	~~12.7~~ ~~Too faint~~	12.7	5	12.5 12.2
6	13.2 ~~14.5~~	13.4	6	13.1 13.1
7	~~13.2~~	14.3	7	14.2 14.2
8	14.8	14.8	8	14.6 14.7
9	Too faint		9	Too faint
10	13.2	13.1	10	13.1 12.8
11	14.2	14.4	11	14.2 14.2
12	14.8	15.2	12	14.8 14.8

2 13 6 5

	a	B	B	a
1	13.1	13.2	1	13.3 13.1
2	13.6	13.8	2	13.8 13.8
3	15.2	15.2	3	15.2 14.9
4	Too dark		4	Too dark
5	13.8	13.8	5	13.7 13.6
6	13.7	13.8	6	13.5 13.5
7	14.5	14.6	7	14.2 14.2
8	15.7	15.6	8	15.3 15.2
9	13.8	14.1	9	14.0 14.0
10	14.2	14.4	10	14.2 14.3
11	15.3	15.5	11	15.1 15.2
12	15.8	16.2	12	15.8 15.8

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1890phae.proj.1818:

In Oct 9/10 1890

2 1366

a	B		D	a	
1	~~12.3~~	13.1	1	12,9	13,1
2	13.1	13.5	2	13.4	13.7
3	14,2	14.6	3	14,4	14,8
4	14,8	15.6	4	15.3	15,4
5			5		
6			6		
7			7		
8			8		
9			9		
10			10		
11			11		
12			12		

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Friday Oct 17th 1890

2 1372

a	b	b	a
9	4.3		
10	4.5		
11	4.8		
12	4.6		

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Computed Oct 25th Plate K 284 (Uebersee-cluster)
used as standard Dec. 1, 2, 3, 4. = 25.1, 28.2, 31.6, 35.5

Friday Oct 17th 1890

2 1372

a	/3	/3	a			
9	4 3 3.2	9	4.1 4.4 =	4.25	=	3.68 cda
10	3.4 3.3	10	4.2 4.5	3.85		3.49
11	2.2 1.5	11	2.2 3.5	2.35		2.95
12	3.3 3.2	12	4.2 4.2	3.70		3.44

2 1373

a	/3	/3	a			
9	3.1 3.3	9	4.1 3.1 =	3.40	=	3.31 cda
10	3.2 3.3	10	4.1 3.5	3.50		3.34
11	1.1 1.5	11	3.2 3.1	2.20		2.68
12	3.4 3.2	12	4.1 4.1	3.70		3.44

2 1374

a	/3	/3	a			
9	3.2 3.2	9	4.1 4.2 =	3.68	=	3.43 cda
10	3.1 3.3	10	4.1 4.1	3.65		3.49
11	2.3 2.3	11	3.1 3.1	2.70		3.35
12	2.1 3.1	12	4.1 4.2	3.63		3.42

2 1375

a	/3	/3	a			
9	4.3 4.2	9	4.2 4.4 =	4.3	=	3.67 cda
10	4.2 4.1	10	4.3 4.3	4.2		3.63
11	1.1 1.4	11	1.5 1.2	1.3		2.60
12	2.3 2.3	12	2.4 2.3	2.3		2.91

2 1376

a	/3	/3	a			
9	1.5 1.8	9	1.9 1.1 =	1.6	=	2.69 cda
10	2.2 2.5	10	2.6 2.1	2.3		2.91
11	1.2 1.1	11	1.3 1.2	1.2		1.3
12	1.6 1.1	12	1.5 1.2	1.3		2.61

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Friday Oct 17th 1890

L 1377

a	β	β	a
9	1.5 1.8	9	1.5 1.6
10	2.1 2.5	10	2.1 2.2
11	3.1 3.2	11	2.4 2.1
12	2.1 2.2	12	2.3 2.1

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Friday Oct 24. #90

Q 1420

A.	B	B	A
1		1	
2	8.1 81	2	8.3. 8.4 = 8.2 = 16.4 ecls
3	7.3 72	3	8.2 8.1 = 7.7 15.6
4	8.9 8.9	4	8.9 8.9 = 8.9 17.8

Q 1421

A	B	B	A
1	1.4 1.1	1	1.1 1.2 = 1.2 = 8.4
2	2.1 2.2	2	2.1 2.1 = 2.1 = 10.1
3	3.1 3.1	3	3.2 3.2 = 3.1 = 11.1
4	2.8 2.9	4	3.1 3.2 = 3. = 1.1.

Q 1422

A	B	B	A
1	1.1 1.1	1	1.1 1.1 = 1.1 = 8.2
2	1.5 1.5	2	1.4 1.2 = 1.4 = 8.8
3	4.5 4.3	3	4.2 4.3 = 4.3 = 13.2
4	1.1 1.1	4	1.1 1.1 = 1.1 = 8.2

Q 1423

A	B	B	A
1	2.1 2.1	1	2.1 2.2 = 2.1 = 10.7
2	7.5 6.9	2	7.1 6.9 = 7.1 = 18.2
3	8.9 8.9	3	8.6 8.9 = 8.8 = 21.9
4	7.2 7.3	4	7.3 7.5 = 7.3 = 18.8

Q 1424

A	B	B	A
1	3.2 3.3	1	3.9 4.1 = 3.6 = 6.7
2	4.1 4.2	2	4.2 4.4 = 4.2 7.1
3	1.1 1.1	3	1.5 1.6 = 1.4 4.4
4	2.1 3.1	4	3.1 3.2 = 2.9 6.1

Sqs. 1.2. 3 ecls 6.3. 8. 9. 10, 11, 12. 5 ecls

Sqs. 1.2.3. ecls = 10, 11, 12, 5, 14. 16. 18. 20.

1421, 22, 23 Sqs. 1.2.3. ecls

Sqs. 1.2.3. ecls = 6. 3. 7, 8, 9.

ecls, 4, 5,

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Sat. Oct. 25th 1890

Q 1425

St. lamps 4 p. cds 3, 4, 5, 6.3, 7, 8, 9, 10.

	A	B		B	A	
1	1.5	1.5	1	1.8	1.9 = 1.8 = 3.8	cds
2	3.1	3.6	2	3.9	3.3 = 3.5 = 5.6	"
3	2.3	2.)	3	3.1	2.9 = 2.8 = 4.)	"
4	2.1	2.3	4	2.)	2.5 = 2.4 = 4.4	"

Q 1426

St. lamps 4 p. cds 3, 4, 5, 6.3, 7 etc

	A	B		B	A	
1	1.2	1.1	1	1.9	1.5 = 1.4 = 3.4	cds
2	2.)	2.8	2	3.3	3.5 = 3.3 = 5.3	"
3	3.2	3.1	3	3.5	3.5 = 3.3 = 5.1	"
4	1.1	1.1	4	1.3	1.4 = 1.2 = 3.2	"

Q 1431

Stand. 2 exp. cds 25, 31.6, 40, 50, 63, etc.

Ought to be remeasured with Hard Plates.

	A	B		B	A	
1	3.5	3.3	1	4.5	4.2 = 3.8 = 69.2	cds
2	0.3	0.1	2	0.1	0.1 = 0.1 = 25	33.
3	0.3	0.2	3	0.)	0.) = 0.5	35.5
4	4.5	4.5	4	4.5	4.5 = 4.5	89.

Q 1433

St. lamps cds 40, 50, 63, 80, 100, etc

	A	B		B	A		
1	1.1	1.3	1	1.5	1.8	1.4	44 cds
2	1.9	1.3	2	1.5	2.5	1.8	48 "
3	1.8	1.1	3	1.9	1.)	1.6	46 "

Q 1434

	A	B		B	A	
1	2.9	2.9	1	3.5	3.1 = 3.1 = 10.2	cds
2	4.1	4.1	2	4.8	4.5 = 4.4 = 14.5	"
3	4.1	4.1	3	4.8	4.5 = 4.4 = 14.5	"
4	4.3	4.5	4	4.9	4.8 = 4.6 = 15.	"

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Sat. Oct 25th 1890

R 1431

Spec. 1. 2. 3. 4. = 39.4
63.1, 69.1, 76.3, 89.1
Rated 784 — used as Standard

	a	b	b	a			
1	4.5	4.6	1	4.1	4.4	= 4.4 =	~~99.3~~ ~~85.4~~
2	4.8	4.9	2	4.6	4.9	= 4.8 =	~~97.7~~ ~~87.8~~
3	3.9	4.1	3	4.3	4.2	= 4.1 =	89.7
4	4.8	4.7	4	4.9	4.8	= 4.8 =	97.7

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Logarithmic Scale for Interpolation Jan. 1890.

Log	Number	Log	Number	Log	Number	Log	Number	Log	Number
2·01	102	2·21	162	2·41	257	2·61	407	2·81	646
·02	105	·22	166	·42	263	·62	417	·82	661
·03	107	·23	170	·43	269	·63	427	·83	676
·04	110	·24	174	·44	275	·64	436	·84	692
·05	112	·25	178	·45	282	·65	447	·85	708
·06	115	·26	182	·46	288	·66	457	·86	724
·07	117	·27	186	·47	295	·67	468	·87	741
·08	120	·28	191	·48	302	·68	479	·88	759
·09	123	·29	195	·49	309	·69	490	·89	776
·10	126	·30	200	·50	316	·70	501	·90	794
·11	129	·31	204	·51	324	·71	513	·91	813
·12	132	·32	209	·52	331	·72	525	·92	832
·13	135	·33	214	·53	339	·73	537	·93	851
·14	138	·34	219	·54	347	·74	550	·94	871
·15	141	·35	224	·55	355	·75	562	·95	891
·16	145	·36	229	·56	363	·76	575	·96	912
·17	148	·37	234	·57	372	·77	589	·97	933
·18	151	·38	240	·58	380	·78	603	·98	955
·19	155	·39	245	·59	389	·79	617	·99	977
·20	158	·40	251	·60	398	·80	631	3·00	1000

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