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KG 11365.766

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Monday April 3, 1911

Experiments with Pyrheliometer S. I No 8.
Cambridge Mass U.S.A.

Instrument set on pier of small transit building.

C's watch = ~~10~~ 22 51 51.8 at ~~10~~ 22: 52: 00 E. Stand Time.

L. Campbell Observer

| | | | | | |
|---|---|---|---|---|---|
| Reading | ~~1~~ | ~~2~~ | ~~3~~ | ~~4~~ | ~~5~~ |
| Time | ~~11~~ 23 33 20 | ~~11~~ 23 35 00 | ~~11~~ 23 35 20 | ~~11~~ 23 37 00 | ~~11~~ 23 37 20 |
| Reading | ~~1° 18.74~~ | ~~11°.59~~ | ~~11°.58~~ | ~~11°.48~~ | ~~11°.42~~ |
| Condition | → ~~Shaded~~ | | ~~exposed~~ | | ~~shaded~~ |
| Reading | ~~6~~ | ~~7~~ | 8 | 9 | 10 |
| Time | ~~11~~ 23 39 00 | ~~11~~ 23 39 20 | ~~~~11~~ 23 41 00~~ | ~~~~11~~ 23 41~~ | ~~~~11~~ 23~~ |
| Reading | ~~11°.32~~ | 11.29 | | | |
| Condition | ~~shaded~~ | exposed | | shaded | |

Cover not removed in above readings
Retaken below cover off.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 23 41 20 | 23 43 00 | 23 43 20 | 23 45 00 | 23 45 20 |
| 11°.20 | 11.11 | 11.44 | 12.90 | 12.94 |
| 0.09<br>shaded | | 1.46<br>exposed | | shaded |
| 6 | 7 | 8 | 9 | 10 |
| 23 47 00 | 23 47 20 | 23 49 00 | 23 49 20 | 23 51 00 |
| 12.48 | 12.64 | 13.61 | 13.53 | 12.78 |
| 0.46<br>shaded | 0.97<br>exposed | | 0.75<br>shaded | |

April 3, 911

| 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|
| 23 51 20 | 23 53 00 | 23 53 20 | 23 55 00 | 23 55 20 |
| 12.98 | 13.64 | 13.55 | 12.86 | 12.92 |

1.66 .69

exposed shaded exposed

| 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|
| 23 57 00 | 23 57 20 | 23 59 00 | 23 59 20 | 0 01 00 |
| 13.34 | 13.29 | 12.62 | 12.64 | 12.84 |

0.42 0.67 0.20

exposed shaded exposed

| 21 | 22 |
|---|---|
| 0 01 20 | 0 03 00 |
| 12.72 | 12.11 |

0.61

shaded

Sky grew gradually more hazy as obs. progressed. Fairly clear at beginning of obs.

Air temperature = 39°.2 F = +4.00 C

Watch = 0 13 50.8 at 0 14 00

Wed. April 5, 1911.
Exper with Pyrheliometer S.I. No. 8.
Ob. L. Campbell.

Watch = 0m 0.2s fast at 22:57:00 E.S.T.
" = 0 0.1 " " 22:58:00 "

Air Temp = 63.0 F. at 23:00
Sky clear near Sun at beginning

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 23 ~~4~~ 5 20 | 23 ~~6~~ 7 00 | 23 7 20 | 23 9 00 | 23 9 20 |
| ~~16.44~~<br>16.43 | 16.44 | 17.10 | 20.32 | 20.71 |
| -.01 | | | 3.22 | |
| shaded | | exposed | | shaded |
| 6 | 7 | 8 | 9 | 10 |
| 23 11 00 | 23 11 20 | 23 13 00 | 23 13 20 | 23 15 00 |
| 20.04 | 20.60 | 23.31 | 23.42 | 22.28 |
| 0.67 | | 2.71 | | 1.14 |
| shaded | exposed | | shaded | |
| 11<br>~~23 15 20~~ | 12 | 13 | 14 | 15 |
| 23 15 20 | 23 17 00 | 23 17 20 | 23 19 00 | 23 19 20 |
| 22.60 | 25.82 | 24.92 | 23.58 | 23.98 |
| 2.42 | | 1.34 | | |
| exposed | | shaded | | exposed |
| 16 | 17 | 18 | 19 | 20 |
| 23 21 00 | 23 21 20 | 23 23 00 | 23 23 20 | 23 25 00 |
| 26.14 | 26.00 | 24.45 | 24.80 | 26.~~88~~ |
| 2.16 | 1.55 | | 2.08 | |
| exposed | shaded | | exposed | |

April 5, 1911

| 21 | 22 |
|---|---|
| 23 25 20 | 23 27 00 |
| 26.80 | 25.19 |

1.61

shaded

Sun remained unclouded throughout observations.

From setting 8 & 0 on special care used to keep Sun on point.

Air temp = 61.4 F. at 23:28

Watch = Correct at 23:31:00 EST

(Friday) April 7, 1911

L.C. Ob. S.I. No. 8.

T = 57.8 F at 23:16

sky somewhat hazy at times -
passing clouds (cirrus)

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 23 17 20 | 23 19 00 | 23 19 20 | 23 21 00 | 23 21 20 |
| 14.72 | 14.78 | 15.20 | 18.02 | 18.04 |
| | -.06 | 2.82 | | 0.52 |
| shaded | | exposed | | shaded |
| 6 | 7 | 8 | 9 | 10 |
| 23 23 00 | 23 23 20 | 23 25 00 | 23 25 20 | 23 27 00 |
| 17.52 | 17.83 | 19.78 | 19.72 | 18.90 |
| | | ~~2~~ 1.95 | 0.82 | |
| shaded | exposed | | shaded | |
| 11 | 12 | 13 | 14 | 15 |
| ~~19 21~~<br>23 27 20 | 23 29 00 | 23 ~~29~~ 30 20 | 23 32 00 | 23 32 20 |
| 19.21 | 21.19 | 20.49 | 19.50 | 19.87 |
| | 1.98 | 0.99 | | 1.87 |
| exposed | | shaded | | exposed |
| 16 | 17 | 18 | 19 | 20 |
| 23 34 00 | 23 34 20 | 23 36 00 | 23 36 20 | 23 38 00 |
| 21.74 | 21.67 | 20.98 | 20.80 | 23.02 |
| | 1.29 | | 2.22 | |
| exposed | shaded | | exposed | |

April 7, 1911

| 21 | 22 |
|---|---|
| 23 $3\overset{8}{\cancel{7}}$ 20 | 23 $\overset{40}{\cancel{39}}$ 00 |
| 22.83 | 21.32 |

1.51

Shaded

Watch = 23:44:38.5 at 23:45:00

∴ 21.5 sec. slow.

T = 55.8 F at 23:46

April 9, 1911 Monday

H.C.O. Cambridge. L.C. Obs.

Watch 12 sec slow at 23:18 E.M.T.

$T = 52.4$ F at 23:19 = 11.3 C

| | Times | Reading | Diff. | Reduction. |
|---|---|---|---|---|
| | | ~~11 52~~ | | |
| | Shaded | | clds nearby & passing | |
| | 23 20 20 | 11.52 | −.07 | |
| | 22 00 | 11.59 | | Scale corr = $R_1(0.000) = 0.000$ |
| | Expos | | | |
| $R'_1 =$ | 22 20 | 12.16 | | $3.56 + 0.285 = 3.845 = R_1$ |
| 3.782 | 24 00 | 15.72 | | $T_1 = 13.9^\circ$ $KR_1(T-30^\circ) = -0.068$ |
| | Shaded | | | clearer now |
| | | | | air corr $= +R_1(+.0013) = +0.005$ |
| | 24 20 | 16.03 | | |
| | 26 00 | 15.39 | 0.64 | Scale Corr $= R_2(+0.001) = +0.004$ |
| | Exposed | | | No clouds near Sun |
| $R'_2 =$ | 26 20 | 15.89 | | $3.01 + 0.855 = 3.865 = R_2$ |
| 3.819 | 28 00 | 18.90 | | $T_2 = 17.4^\circ$ $KR_2(T-30^\circ) = -0.054$ |
| | Shaded | | | Air Corr $= +R_2(+.0013) = +0.004$ |
| | 28 20 | 18.89 | 1.07 | |
| | 30 00 | 17.82 | | |
| | exposed | | | Scale corr $= R_3(+0.002) = +0.008$ |
| $R'_3 =$ | 30 20 | 18.20 | | $2.6\overset{3}{\cancel{4}} + 1.220 = 3.850 = R_3$ |
| 3.804 | 32 00 | 20.83 | | $T_3 = 19.5$ $KR_3(T-30) = -0.044$ |
| | shaded | | | Air Corr. $R_3(+.0013) = +0.005$ |
| | 32 20 | 20.72 | 1.37 | |
| | 34 00 | 19.35 | | |

April 9, 1911 cont.

|  | Time | Reading | Diff. |
|---|---|---|---|
|  | Exposed |  | Scale corr = $R_4(+0.002) = +0.008$ |
| $R'_4 =$ | 23 34 20 | 19.64 | $2.42 + 1.500 = 3.920 = R_4$ |
| 3.893 | 36 00 | 22.06 | $T_4 = 20.8$ $KR_4(T-30) = -.0040$ |
|  | Shaded |  | Air Corr. $= R_4(+0.0013) = +0.005$ |
|  | 36 20 | 21.91 | 1.63 |
|  | 38 00 | 20.28 |  |
|  | Exposed |  | Scale corr $= R_5(+0.003) = +0.012$ |
| $R'_5 =$ | 38 20 | 20.49 | $2.31 + 1.625 = 3.935 = R_5$ |
| 3.917 | 40 00 | 22.80 | $T_5 = 21.6$ $KR_5(T-30) = -0.035$ |
|  | Shaded |  | Air Corr. $= R_5(+0.0013) = +0.005$ |
|  | 40 20 | 22.65 | 1.62 |
|  | 42 00 | 21.03 |  |

sky clear now

T = 51.1 F. at 23:42 = 10.6 C

Watch = $12^s$ slow at 23 45 00 EMT

April 10, 1911. (Monday)

L.C. Ob. S.I. No. 8.

Watch 1 sec slow at 23.10 GMT

T = 61.0 F. at 23.12 = 16.1 C
Sky clear at beginning of observations.

| | Time | Reading. | Reductions |
|---|---|---|---|
| Shaded | 23 13 20 | 13.16 | -0.08 |
| | 23 15 00 | 13 24 | |
| | | | Scale Corr = (+0.001)$R_1$ = +0.004 |
| Exposed | 23 15 20 | 13.89 | +3.69 +0.32 = 4.010 = $R_1$ |
| | 23 17 00 | 17.58 | $T_1$ = 15.7 $KR_1(T-30)$ = -0.063 |
| | Shaded | | Air-Corr = $R_1$(+0.0007) = +0.003 |
| | 17 20 | 17.91 | +0.72 $R'_1$ = 3.954 |
| | 19 00 | 17.19 | |
| | Exposed | | Scale corr = (+0.002)$R_2$ = +0.008 |
| | 19 20 | 17.53 | +3.15 +0.96 = 4.110 = $R_2$ |
| | 21 00 | 20.68 | $T_2$ = 19.1 $KR_2(T-30)$ = -0.054 |
| | Shaded | | Air Corr = $R_2$ (+0.0007) = +0.003 |
| | 21 20 | 20.59 | +1.20 $R'_2$ = 4.067 |
| | 23 00 | 19.39 | |

April 10, 1911

| | | | |
|---|---|---|---|
| | 2nd group | | |
| | Shaded | | |
| | 23 20 | 19.30 | +0.93 |
| | 25 00 | 18.37 | Scale corr = $R_3(+0.002) = +0.008$ |
| | Exposed | | |
| | 25 20 | 18.78 | $+2.94 + 1.145 = 4.085 = R_3$ |
| $R'_3 = 4.052$ | 27 00 | 21.72 | $\overline{T_3} = 20.2$ $KR_3(T-30) = -0.044$ |
| | shaded | | air corr = $R_3(+0.0007) = +0.003$ |
| | 27 20 | 21.59 | +1.36 |
| | 29 00 | 20.23 | |
| | Exposed | | Scale = $R_4(+0.003) = +0.012$ |
| | 29 20 | 20.66 | $+2.65 + 1.495 = 4.145 = R_4$ |
| | 31 00 | 23.31 | $T_4 = 22.0$ $KR_4(T-30) = -0.036$ |
| $R'_4 = 4.124$ | shaded | | air corr = $R_4(+0.0007) = +0.003$ |
| | 31 20 | 23.22 | +1.63 |
| | 33 00 | 21.59 | |

sky clear throughout obs.

T = 52°0 F at 11.1 23.33

Mean C Temp = 13.6

Tues. Apr. 11, 1911

L.C. obs. S.I. No. 8. Cambridge.

Watch $6^{s}$ fast at 23:04 E.S.T

T = 56.0 F at 23:08 = 13.3 C

Sun somewhat hazy.

| | Times | Readings | |
|---|---|---|---|
| | ~~23 09 20~~ | | |
| | Shaded | | |
| | 23 9 20 | 12.19 | −.07 |
| | 11 00 | 12.26 | Scale corr = (0.000)$R_1$ = 0.000 |
| | Exposed | | |
| | 11 20 | 12.83 | +3.13 + 0.25 = 3.380 = $R_1$ |
| $R'_1$ = 3.326 | 13 00 | 15.96 | $T_1$ = 14.4 $KR_1$(−156) = −0.058 |
| | Shaded | | Air Corr = $R_1$(+.0011) = +0.004 |
| | 13 20 | 16.00 | +0.57 |
| | 15 00 | 15.43 | |
| | Exposed | | Scale Corr(+0.001)$R_2$ = +0.003 |
| | 15 20 | 15.91 | +2.66 + 0.835 = 3.495 = $R_2$ |
| $R'_2$ = 3.453 | 17.00 | 18.57 | $T_2$ = 17.2 $KR_2$(−128) = −0.049 |
| | Shaded | | Air Corr = $R_2$(+.0011) = +0.004 |
| | 17 20 | 18.89 | +1.10 |
| | 19 00 | 17.79 | |
| | | T = 50.4 | F at 23:19 = 10.2 C |
| | Shaded | | |
| | 19 20 | 17.60 | +0.86 |
| | 21 00 | 16.74 | Air Corr = $R_3$(+0.0014) = +0.005 |
| | Exposed | | Scale Corr = +0.001 $R_3$ = +0.004 |
| $R'_3$ = 3.499 | 21 20 | 17.12 | +2.48 + 1.055 = 3.535 = $R_3$ |
| | 23 00 | 19.60 | $T_3$ = 18.4 $KR_3$(−11.6) = −0.045 |

April 11. 1911.

| | Time<br>Shaded | Reading | |
|---|---|---|---|
| | 23 23 20 | 19.45 | +1.25 |
| | 25 00 | 18.20 | |
| | Exposed | | Scale Corr = +0.002 $R_4$ = +0.007 |
| $R'_4$ = 3.447 | 25 20 | 18.43 | +2.14 +1.333 = 3.475 = $R_4$ |
| | 27 00 | 20.57 | $T_4$ = 19.5 $KR_4$(-10.5) = -0.040 |
| | Shaded | | air Corr = $R_4$(+.0014) = +0.005 |
| | 27 20 | 20.39 | +1.42 |
| | 29 00 | 18.97 | |

T = 50.0 F at 23:29 = +10.0 C

A slight amount of haze noted near Sun. otherwise sky quite clear.

Wed-Thurs April 12-13 1911

R.C. Obs S.I. No. 8 Cambridge

T = 66.6 F. at 23:49 = +19.2 C

Sky near Sun quite clear & whole sky gen. so

| | Times | Readings | |
|---|---|---|---|
| Shaded | 23 49 20 | 16.42 | −0.10 |
| | 51 00 | 16.52 | Scale Corr = +0.002 $R_1$ = +0.007 |
| | | | $T_1 = 18.9$ |
| $R'_1$ = | Exposed | | $KR_1(-11.1)$ = ~~=0.05~~ −0.046 |
| 3.702 | 51 20 | 17.1 ✓ | +3.50 +0.24 = 3.740 = $R_1$ |
| | 53 00 | 20.6 ✓ | air Corr = $R_1(.0003)$ = +0.001 |
| | Shaded | | |
| | 53 20 | 20.62 | $+0.5\overset{8}{6}$ |
| | 55 00 | 20.04 | Scale Corr = +0.003 $R_2$ = +0.011 |
| | Exposed | | $T_2 = 22.0$ |
| $R'_2$ = | 55 20 | 20.61 | +2.87 + 0.80 = +3.670 = $R_2$ |
| 3.650 | 57 00 | 23.48 | $KR_2(-8.0)$ = −0.032 |
| | Shaded | | air Corr = $R_2(+0.0003)$ = +0.001 |
| | 57 20 | 23.41 | +1.02 |
| | 23 59 00 | 22.39 | |

T = 62.4 F. at 0:00 = +16.9 C

| | | | |
|---|---|---|---|
| | Shaded | | |
| $R'_3$ = | 0 1 20 | 21.32 | +0.56 Scale Corr = +0.003 $R_3$ = +0.011 |
| | 3 00 | 20.76 | $T_3 = 22.8$ |
| 3.722 | Exposed | | air Corr = $R_3(+0.0004)$ = +0.001 |
| | 3 20 | 21.36 | +2.95 +0.79 = +3.740 = $R_3$ |
| | 5 00 | 24.31 | $KR_3(-7.2)$ = −0.030 |

April 13, 1911 cont

| | Shaded | Reading | |
|---|---|---|---|
| | 0 5 20 | 2424 | +1.02 |
| | 7 00 | 23.22 | Scale Corr = +0.002 $R_x$ = +0.007 |
| | Exposed | | $T_4$ = 24.8 |
| $R'_4$ = 3.692 | 7 20 | 23.57 | +2.54 + 1.165 = +3.705 = $R_4$ |
| | 9 00 | 26.11 | $KR_4(-5.2) = -0.021$ |
| | Shaded | | Air Corr = $-R_4(0.0004)$ = 0.001 |
| | 9 20 | 26.00 | +1.31 |
| | 11 00 | 2469 | |

T = 62.1 F at 0:12.~~00~~ = +16.7 C
Clear throughout obs.

Watch 21.2 fast at 0:14 00 E.S.T.

Mon-Tues Aug. 12-13, 1912

S.I.J. No. 17. LC Obs Ang Obs

C's Watch = ~~Correct~~

T. = dir. = 63.0 F

= 17.2 C

| | | | |
|---|---|---|---|
| 21h 37 20 | Shaded | 15.33 | −0.25 |
| 39 00 | | 15.58 | |
| | Opened | | |
| 39 20 | | ~~26~~ 16.02 | +3.78 +0.09 = 3.87 |
| 41 00 | | 19.80 | |
| | Shaded | | |
| 41 20 | | 19.93 | +0.43 |
| 43 00 | | 19.50 | |
| | Opened | | |
| 43 20 | | 19.82 | +3.20 +0.625 = 3.825 |
| 45 00 | | 23.02 | |
| | Shaded | | |
| 45 20 | | 23.01 | +0.82 |
| 47 00 | | 22.19 | |

Sky somewhat hazy near Sun.

| | | |
|---|---|---|
| +0.09 | +0.62 | +1.00 |
| +3.78 | +3.20 | 2.86 |
| +3.87 = $R_1$ | +3.82 $R_2$ | +3.86 $R_3$ |
| $T_1$ = 17.9 | $T_2$ = 21.4 | $T_3$ = 24.0 |
| −.0013 | −.0002 | −.0030 |
| +3.82 | +3.78 | +3.84 |

Aug 12 - 13, 1912 (cont)

| | | | | |
|---|---|---|---|---|
| | ~~Shaded~~ | Opened | | |
| 21 47 20 | | 22.61 | + 2.86 + 1.00 = | 3.860 |
| 49 00 | | 25.47 | | |
| | ~~Opened~~ | Shaded | | |
| 49 20 | | 25.36 | + 1.18 | |
| 51.00 | | 24.18 | | |
| | ~~Shaded~~ | Opened | | |
| 51 20 | | 24.52 | + 2.52 + 1.28 = | 3.800 |
| 53 00 | | 27.04 | | |
| | ~~Opened~~ | Shaded | | |
| 53 20 | | 26.90 | + 1.38 | |
| 55 00 | | 25.52 | | |
| | ~~Shaded~~ | Opened | | |
| 55 20 | | 25.88 | + 2.36 + 1.41 = | 3.770 |
| 57 00 | | 28.24 | | |
| | | Shaded | | |
| 57 20 | | 28.02 | + 1.44 | |
| 59 00 | | 26.58 | | |

Above observations only approximate

| | |
|---|---|
| + 1.28 | + 1.41 |
| + 2.52 | + 2.36 |
| + 3.80 $R_4$ | + 3.77 $R_5$ |
| $T_4 = 25.8$ | $T_5 = 27.1$ |
| -.0030 | -.0019 |
| + 3.78 | + 3.76 |

Aug 12-13, 1912.

C's ~~Watch~~ = $30^s$ slow at 22 26 EMT

T = 66.0 F.

| | | | | |
|---|---|---|---|---|
| | Shaded | | | |
| 22 44 20 | | 18.60 | −0.01 | |
| 46 00 | | 18.61 | | |
| | Expos | | | |
| 46 20 | | 19.38 | + 3.46 | $R_1$ = 3.80 |
| 48 00 | | 22.84 | | |
| | Shad | | | |
| 48 20 | | 22.91 | +0.69 | |
| 50 00 | | 22.22 | | |
| | Expos | | | |
| 50 20 | | 22.69 | +3.09 | $R_2$ + 3.98 |
| 52 00 | | 25.78 | | |
| | Shad. | | | |
| 52 20 | | $2\overset{5}{8}.67$ | | |
| 54 00 | | 24.58 | + 1.09 | |
| | Expos. | | | |
| 54 20 | | 24.95 | + 2.55 | $R_3$ + 3.7[illegible] |
| 56 00 | | 27.50 | | |

Readjusted axis of mounting

Aug 12–13, 1912,

| | | | | |
|---|---|---|---|---|
| | Shaded | 7<br>26.44 | 1<br>0.30 | |
| 22 57 20 | | | | |
| 59 00 | | 26..14 | | |
| | Expos | | | |
| 59 20 | | 26.40 | 2.44 | $R_4 + 3.88$ |
| 23 01 0 | | 28.84 | | |
| | Shad | | | |
| 23 01 20 | | ~~28.80~~ | | |
| 03 00 | | 27.22 | 1.58 | |
| | Expos | | | |
| 03 20 | | 27.48 | | |
| 05 00 | | 29.80 | 2.32 | $R_5 = +4.00$ |
| | Shad | | | |
| 05 20 | | 29.72 | | |
| 23 07 00 | | 27.94 | 1.78 | |

T = 65.5 F

Sky hazy near Sun Cld on horizon

Aug 12-13, 1912

| | | | |
|---|---|---|---|
| | | Air T = 64.5 F | |
| | Shaded | | |
| 23 25 20 | 23.34 | | |
| 27 00 | 22.67 | 0.67 | |
| | Expos | | |
| 27 20 | 23.22 | 3.01 | 3.99 |
| 29 00 | 26.23 | | |
| | Shad | | |
| 29 20 | 26.32 | 1.28 | |
| 31 00 | 25.04 | | |
| | Expos | | |
| 31 20 | 25.52 | | |
| | Sh | 2.63 | 4.01 |
| 33 00 | 28.15 | | |
| | Shad | | |
| 33 20 | 27.98 | 1.68 | |
| 35 00 | 26.30 | | |
| | Expos | | |
| 35 20 | 26.94 | 2.36 | 3.94 |
| 37 00 | 29.30 | | |
| | Shad | | |
| 37 20 | 29.06 | 1.68 | |
| 39 00 | 27.38 | | |
| | Expos | | |
| 39 20 | 27.64 | 2.34 | 4.05 |
| 41 00 | 29.98 | | |

Aug 12–13, 1912.

| | | | |
|---|---|---|---|
| | Shad | | |
| 23 41 20 | 29.70 | | |
| 43 00 | 27.96 | 1.74 | |
| | Expos | | |
| 43 20 | 28.14 | | 3.92 |
| 45 00 | 30.32 | 2.18 | |
| | Shad. | | |
| 45 20 | 30.21 | | |
| 47 00 | 28.46 | 1.75 | |

Air T = 66.5 F.

Sun much clouded during the observation

Aug 12-13, 1912

Air T = 69.0 F.

| | | | |
|---|---|---|---|
| | Shaded | | |
| 23 53 20 | 23 94 | | |
| 55 00 | 23.24 | 0.70 | |
| | Exposed | | |
| 55 20 | 23 74 | 2.96 | ~~40~~ 3,90 |
| 57 00 | 26 70 | | |
| | Shaded | | |
| 57 20 | 26.72 | 1.19 | |
| 59 00 | 25.53 | | |
| | Exposed | | |
| ~~0~~23 59 20 | 25.98 | 2.62 | 3.94 |
| 0 1 00 | 28.60 | | |
| | Shaded | | |
| 1 20 | 28.48 | 1.46 | |
| 3 0 | 27.02 | | |
| | Exposed | | |
| 3 20 | 27.44 | 2.44 | 3.97 |
| 5 00 | 29.88 | | |
| | Shaded | | |
| 5 20 | 29.56 | 1.60 | |
| 7 0 | 27.96 | | 3.8~~7~~6 |
| | Exposed | | ~~388~~ |
| 7 40 | 28.84 | 2.18 | |
| 9 20 | 31.02 | | |
| | Shaded | | |
| 9 40 | 30.74 | 1.77 | |
| 11 20 | 28.97 | | |

Aug 12-13, 1912

| | | | |
|---|---|---|---|
| | Exposed | | |
| 0 11 40 | 29.25 | 2.12 | 3.88 |
| 13 20 | 31.37 | | |
| | Shaded | | |
| 13 40 | 31.05 | 1.76 | |
| 15 20 | 29.29 | | |

Air T = 65.5 F.

Bulb
T = 69.5 F

~~23.22~~

| | | | |
|---|---|---|---|
| | Shaded | | |
| 1 20 20 | 23.37 | 0.01 | |
| 22 0 | 23.36 | | |
| | Exposed | | 3.88 |
| 22 20 | 23.88 | 3.56 | |
| 24 0 | 27.44 | | |
| | Shaded | | |
| 24 20 | 27.65 | 0.64 | |
| 26 0 | 27.01 | | |
| | Exposed | | |
| 26 20 | 27.38 | 2.96 | 3.87 |
| 28 0 | 30.34 | | |
| | Shaded | | |
| 28 20 | 30.42 | 1.18 | |
| 1 30 00 | 29.24 | | |

Aug 12-13, 1912 Cont

|  |  |  |  |  |  |
|---|---|---|---|---|---|
|  |  |  | 118 |  |  |
|  |  | Exposed |  |  |  |
| 1 | 30 20 | 29.42 |  |  |  |
| 1 | 32 00 | 31.95 | 2.53 | $3.\overset{8}{\cancel{9}}1$ | — H.O. Clk |
|  |  | Shaded |  |  |  |
| 1 | 32 20 | 31.88 |  |  |  |
| 1 | 34 00 | 30.49 | 1.39 |  |  |
|  |  | Exposed |  |  |  |
|  | 34 20 | 30.30 | 2 48 | cloud near sun | 3.97 |
|  | 36 00 | 32.78 |  |  |  |
|  |  | Shaded |  |  |  |
|  | 36 20 | 32.84 |  | sun clouded |  |
|  | 38 00 | 31.25 | 1.59 | " " |  |
|  |  | Exposed |  |  |  |
|  | 38 20 | 31.18 |  |  |  |
|  | 40 00 | $3\overset{2}{1}.70$ | 1.52 |  | 3.16<br>3.24 |
|  |  | Shaded |  | sun clouded |  |
|  | 40 20 | 32.58 |  | " " |  |
|  | 42 00 | 30.88 | 1.70 |  |  |
|  |  | Exposed |  |  |  |

T at finish 66.47

Wed-Thurs Aug 14-15, 1912

S.D.Q. No 17. P.C. Obs

Sky clear. 1 cu low. T = 64.0 F.

| Corr. E.M.T. | Shaded | | | |
|---|---|---|---|---|
| ~~21~~ 2 09 07 | 21 08 20 | ~~8~~ 14.82 | -0.20 | |
| 10 47 | 10 00 | 15.02 | | |
| | Exposed | | | |
| 11 07 | 10 20 | 15.72 | 3.72 | 3.810 |
| 12 47 | 12 00 | 19.44 | | |
| | Shaded | | | |
| 13 07 | 12 20 | 19.50 | + 0.38 | |
| 14 47 | 14 00 | 19.12 | | |
| | Exposed | | | |
| 15 07 | 14 20 | 19.63 | 3.25 | 3.8~~4~~ 3 0 |
| 16 47 | 16 00 | 22.88 | | |
| | Shaded | | | |
| ~~16~~ 17 07 | 16 20 | 22.86 | + 0.78 | |
| ~~21~~ 2 18 47 | 21 18 00 | 22.08 | | |

T = 67.5 F

C's W = 47.$\overset{2}{0}$ slow of E.M.T. at 21. 22.00

Aug 14-15, 1912

T = 680 H

| | | |
|---|---|---|
| | Shaded | |
| 21 56 20 | 20.84 | -0.12 |
| 58 00 | 20.96 | |
| | Exposed | |
| 58 20 | 21.64 | |
| 22 00 00 | | |
| | Shaded | |
| 00 20 | | |
| 02 00 | | |
| | Exposed | |
| 02 20 | | |
| 04 00 | | |
| | Shaded | |
| 04 20 | | |
| 06 00 | | |

Doubt about times,
Rejected

Aug 14–15, 1912

H C Obs.

Sky Clear (0-1 Cu hor) T = 68.0 F

| | | | | |
|---|---|---|---|---|
| | Shaded | | | Corr E.M.T. |
| 22 00 20 | 23.42 | 0.27 | | 3 01 07 |
| 02 00 | 23.15 | | | 02 47 |
| | Exposed | | | |
| 02 20 | 23.78 | 3.40 | 3.915 | 03 07 |
| 04 00 | 27.18 | | | 04 47 |
| | Shaded | | | |
| 04 20 | 27.12 | 0.76 | | 05 07 |
| 06 00 | 26.36 | | | 06 47 |
| | Exposed | | | |
| 06 20 | 26.84 | 2.92 | 3.855 | 07 07 |
| 08 00 | 29.76 | | | 08 47 |
| | Shaded | | | |
| 08 20 | 29.60 | 1.11 | | 09 07 |
| 22 10 00 | 28.49 | | | 10 07 |

T = 72.0 F

Aug 14–15, 1912

F C Obs

Sky Clear, 1 Cu hor

T = 68.2 F

| | | | | |
|---|---|---|---|---|
| | | | Shaded | |
| 3 | 51 08 | 22 50 20 | 23.47 | 0.12 |
| | 52 48 | 52 00 | 23.35 | |
| | | | Exposed | |
| | 53 08 | 52 20 | 23.95 | # |
| | 54 48 | 54 00 | 27.52 | 3.57+.415 = 3.985 |
| | | | Shaded | |
| | 55 08 | 54 20 | 27.48 | 0.71 |
| | 56 48 | 56 00 | 26.77 | |
| | | | Exposed | |
| | 57 08 | 56 20 | 27.22 | |
| | 58 48 | 58 00 | 30.25 | 3.03+1.06 = 4.090 |
| | | | Shaded | |
| | 59 08 | 58 20 | 30.17 | 1.41 |
| 4 | 00 48 | 23 00 00 | 28.96 | |

T = 70.2 F

Aug 14-15, 1912

P C Ob

Sky 1 Cu hor. windy

T = 71.0 FF

| | | | | | |
|---|---|---|---|---|---|
| | Shaded | | | | Current |
| 23 41 20 | 22.42 | + 0.04 | | | 4 42 08 |
| 43 00 | 22.38 | | | | 43 48 |
| | Exposed | | | | |
| 43 20 | 23.06 | 3.66 + | 0.36 = | 4.0$\overset{6}{\cancel{20}}$ | 44 08 |
| 45 00 | 26.72 | | | | 45 48 |
| | Shaded | | | | |
| 45 20 | 26.80 | + 0.76 | | | 46 08 |
| 47 00 | 26.04 | | | | 47 48 |
| | Exposed | | | | |
| 47 20 | 26.63 | 2.99 + $\overset{093}{\cancel{1.18}}$ | = | $\overset{3.920}{\cancel{4.170}}$ | 48 08 |
| 49 00 | 29.62 | | | | 49 48 |
| | Shaded | | | | |
| 49 20 | 29.$\overset{4}{8}$0 | + 1.80 | | | 50 08 |
| 51 00 | 28.30 | | | | 51 48 |
| | Exposed | | | | |
| 51 $\overset{3}{2}$0 | 28.64 | – | | | 52 18 |
| 53 $\overset{1}{0}$0 | 31.23 | + 2.59 | + $\overset{+1.325}{\cancel{1.575}}$ = | $\overset{3.915}{\cancel{4.165}}$ | 53 58 |
| | Shaded | | | | |
| 53 20 | 31.17 | + 1.55 | | | 54 08 |
| 55 00 | 29.62 | | | | 55 48 |
| | Exposed | | | | |
| 55 20 | 30.01 | + 2.35 + | 1.645 = | 3.995 | 56 08 |
| 57 00 | 32.36 | | | | 57 48 |
| | Shaded | | | | |
| 57 20 | 32.21 | + 1.74 | | | 58 08 |
| 23 59 00 | 30.47 | | | | 59 48 |

T = 71.0 FF

Aug. 14-15, 1912.

Sky 1 Cu hor. windy

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Shaded | | T = 71.5 F | |
| 5 | 30 08 | 0 | 29 20 | ~~22.06~~ Reject | | |
| | 31 48 | | 31 00 | | | |
| | | | ~~Exposed~~ | Shaded | | |
| | 32 08 | | 31 20 | 22.72 | 0.26 | |
| | 33 48 | | 33 00 | 22.46 | | |
| | | | ~~Shaded~~ | Exposed | | |
| | 35 08 | | 34 20 | 25.12 | 3.26 + 0.695 = 3.955 | |
| | 36 48 | | 36 00 | 28.8 | | |
| | | | ~~Exposed~~ | Shaded | | |
| | 37 08 | | 36 20 | 28.30 | 1.13 | |
| | 38 48 | | 38 00 | 27.17 | | |
| | | | ~~Shaded~~ | Exposed | | |
| | 39 08 | | 38 20 | 27.64 | 2.68 + 1.30 = | 3.980 |
| | 40 48 | | 40 00 | 36.32 | | |
| | | | ~~Exposed~~ | Shaded | | |
| | 41 08 | | 40 20 | 30.11 | 1.47 | |
| | 42 48 | | 42 00 | 28.64 | | |
| | | | | Exposed | | |
| | 43 08 | | 42 20 | 29.10 | 2.42 + 1.56 = 3.980 | |
| | 44 48 | | 44 00 | 31.52 | | |
| | | | | Shaded | | |
| | 45 08 | | 44 20 | 31.37 | 1.65 | |
| | 46 48 | | 46 00 | 29.72 | | |
| | | | | Exposed | | |
| | 47 08 | | 46 20 | 30.12 | 2.24 + 1.725 | 3.965 |
| | 48 48 | | 48 00 | 32.36 | | |
| | | | | Shaded | | |
| | 49 08 | | 48 20 | 32.32 | 1.80 | |
| | 50 48 | 0 | 50 00 | 30.52 | T = 68.5 | |

Aug 14–15, 1912

Sky 1 Cu Hor H P Obs

Shaded T = 68.5 Rec

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| ~~0~~ | ~~50 20~~ | ~~30.23~~ |  |  | Corr Sid T |
|  | ~~52 00~~ |  |  |  |  |
| 0 | 51 20 | 29.54 | 1.34 |  | 5 52 08 |
|  | 53 00 | 28 20 |  |  | 53 48 |
|  |  | Exposed |  |  |  |
|  | 53 20 | 28.40 | 2.52 + 144 | = 3.96.0 | 54 08 |
|  | 55 00 | 30.92 |  |  | 55 48 |
|  |  | Shaded |  |  |  |
|  | 55 20 | 30.75 | 1.54 |  | 56 08 |
|  | 57 00 | 29 21 |  |  | 57 48 |
|  |  | Exposed |  |  |  |
|  | 57 20 | 29.40 | 2.40 + 1.62 | = 4.020 | 58 08 |
|  | 59 00 | 31.80 |  |  | 59 48 |
|  |  | Shaded |  |  |  |
|  | 59 20 | 31.69 | 1.70 |  | 6 00 08 |
| 1 | 01 00 | 29.99 |  |  | 01 48 |
|  |  | Exposed |  | ~~T = 68.5 H~~ |  |
|  | 01 20 | 30.05 | 2.23 + 1.79 | = 4.020 | 02 08 |
|  | 03 00 | 32 28 |  |  | 03 48 |
|  |  | Shaded |  |  |  |
|  | 03 20 | 32.20 | 1.88 |  | 04 08 |
|  | 05 00 | 30.32 |  |  | 05 48 |
|  |  | Exposed |  |  |  |
|  | 05 20 | 30.42 | 2.18 + 1.87 | = 4.050 | 06 08 |
|  | 07 00 | 32.60 |  |  | 07 48 |
|  |  | Shaded |  |  |  |
|  | 07 20 | 32.44 |  |  | 08 08 |
| 1 | 09 00 | 31.58 | 1.86 |  | 6 09 48 |

T = 67.5 H

Aug 14-15, 1912

Sky clear 1 cu horz. fCAlt
Windy H.P. Rec

| | | | |
|---|---|---|---|
| | Shaded | ~~30 32~~ | |
| 1 09 20 | 30 32 | | |
| 11 00 | 28 88 | 1,44 | |
| | Effosed | | |
| 11 20 | 29 18 | | |
| 13 00 | 31 51 | 2 33 | + 1,570 = 3,900 |
| | Shaded | | |
| 13 20 | 31.42<br>~~29.18~~ | 1,70 | |
| 15 00 | 29.72<br>~~31.51~~ | ~~2.33~~ | |
| | Effosed | | |
| 15 20 | 30.07<br>~~31.42~~ | | |
| 17 00 | 32,26 | 2,19 | + 1,82 4,010 |
| | Shaded | | |
| 17 20 | 32.16 | | |
| 19 00 | 30.22 | 1.94 | |
| ~~1 92~~ | Effosed | | |
| 19 20 | 30 54 | | |
| 21 00 | 32 66 | 2.12 | - 1.93 4.050 |
| | Shaded | | |
| 21 20 | 32 44 | | |
| 23 00 | 30 52 | 1.92 | |
| | Efosed | | |
| 23 20 | 30 86 | | |
| 25 00 | 32.88 | 2.02 | + 1.92 = 3.940 |
| | Shaded | | |
| 25 20 | 32 58 | | |
| 27 00 | 30 66 | 1.92 | |

768.57

Aug. 14-15, 1912

Sky clear
, Cu

R.C. Obs & Rec

T = 67.0 F

Shaded

2 57 20  21.02  − 0.01

59 00  21.03

Exposed

59 20  21.62  3.32 + 0.325 = 3.645

3 01 00  24.94

Shaded

01 20  24.98  + 0.66

03 00  24.32

Exposed

6

03 20  24.72  2.78 + 0.88 =  3.6~~3~~0

05 00  27.50

Shaded

05 20  27.52  1.10

07 00  26.42

T = 66.5 F.

---

Shaded  Sky clear  T = 66.0 F

R.C. Obs & Rec

3 24 20  21.32

26 00  21.13  + 0.19

Exposed

4

26 20  21.69  2.95 + .235 = 3.~~2~~25

28 00  24.64

Shaded

28 20  24.72  + 0.76

30 00  23.96

Exposed

30 20  24.28  2.43 + 0.965 = 3.395

32 00  26.71

over 1.19

— Aug 14-15, 1912 —

Shaded

3 32 20 26.69 1.17
34 00 25.52

T = 650 F

Sky Clear L.C. Obs

Shaded T = 63.5 F

3 53 20 19.90 + 0.19
55 00 19.71

Exposed

55 20 20.11 2.83 ~~+0.275~~ 0.465 = 3.~~10~~295
57 00 22.94

Shaded

57 20 23.12 0.74
59 00 22.38

Exposed

59 20 22.80 2.31 + .885 = 3.195
4 01 00 25.11

Shaded

01 20 25.09 1.03
03 00 24.06

T = 63.3 F

C W = 50s slow at 5 21 EMT.

Watch ~~O~~ M 1m 2s fast at 23:~~20~~ 15 EMT Aug 15-16, 1912 Thur-Fri

J = 737 HP Clk

Shaded

22 ~~44~~ 45 20 19.38

47 00 19.30 .08

Exposed

47 20 19.72

49 00 23.48 3.76 + ~~.295~~ 375 ~~4.055~~ 4.135

Shad

49 20 24.05

51 00 23.38 .67

Exp

51 20 23.65

53 00 26.82 3.17 + 87 ~~3.47~~ 4.04

Shad

53 20 27.05

55 00 25.98 1.07

Exp

55 20 26.00

57 00 28.92 2.92 + .96 3.88

Shad

57 20 29.05 .85

59 00 28.20

J = 727

Watch M used on above see under sheet.

L.C. Obs

Recorded on wrong page. See page No.

| Sky 1 | Cu bar | windy | T=71.8 F |
|---|---|---|---|
| Shaded | | | |
| 23 58 20 | 21.43 | | |
| 0 0 0 | 21.33 | ~~0.0~~ 0.10 | |
| Exposed | | | |
| 0 0 20 | 21.99 | 3.60 +0.410 = | 4.010 |
| 2 0 | 25.59 | | |
| Shaded | | | |
| 2 20 | 25.60 | 0.72 | |
| 4 00 | 24.88 | | |
| Expos. | | | |
| 4 20 | 25.52 | 3.01 +0.990 = | 4.000 |
| 6 00 | 28.53 | | |
| Shad | | | |
| 6 20 | 28.49 | 1.26 | |
| ~~8~~ 8 00 | 27.23 | | |
| Expos | | | |
| 8 20 | 27.67 | 2.53 +1.380 = | 3.910 |
| 10 00 | 30.20 | | |
| Shad | | | |
| 10 20 | 30.22 | 1.50 | |
| 12 00 | 28.72 | | |
| Expos | | | |
| 12 20. | 29.14 | 2.36 +1.60 | = 3.960 |
| 14 00 | 31.50 | | |
| Shad. | | | |
| 14 20 | 31.32 | 1.70 | |
| 0 16 00 | 29.62 | | |

T = 70.4 F.

Aug 15-16, 1912

C.W. used. T = 72.0 F.

Windy 1 Cu hor. [illegible]

Shaded.
23 15 20 22.42 0.15
17 00 22.27
Exposed
17.20 22.89 3.55 + .475 = 4.025
19 00 26.44
Shaded
19 20 26.43 0.80
21 00 25.63
Exposed
21 20 26.13 ~~2.99~~
23 00 29.12 2.99 + 0.91 = 3.900
Shaded < shade blew off.
25 20 ~~29.00~~ 27.60
27 00 26.58 1.02

Exposed T = 72.2 F
28 20 28.04
~~C.W.~~ 2.64 + 1.255 = 3.895
30 00 30.68
Shaded
30 20 30.47
32 00 28.98 1.49

C.W. 1s fast at 23:36 GMT

see previous page

Aug 15–16, 1912

LCOh

| | | | |
|---|---|---|---|
| Sky 1 Cr East+Scatt. | | | T = 68.4 F. |
| | Shaded | | |
| 0 | 55 20 | 20.72 | 0.03 |
| | 57 00 | 20.69 | |
| | Exposed | | |
| | 57 20 | 21.32 | 3.68 +0.370 = 4.050 |
| | 59 00 | 25.60 | |
| | Shaded | | |
| | 59 20 | 250.3 | 0.71 |
| 1 | 01 0 | 26.32 | |
| | Exposed | | |
| 1 | 01 20 | 24.88 | 3.02 +0.945 = 3.965 |
| | 03 0 | 27.90 | |
| | Shaded | | |
| | 03 20 | 27.90 | 1.18 |
| | 05 00 | 26.72 | |
| | Exposed | | |
| | 05 20 | 27.13 | 2.69 + 1.305 = 3.995 |
| | 07 00 | 29.82 | |
| | Shaded | | |
| | 07 20 | 29.64 | 1.43 |
| | 09 00 | 28.21 | |
| | Exposed | | |
| | 09 20 | 28.66 | 2.40 + 1.535 = 3.935 |
| | 11 00 | 31.06 | |
| | Shaded | | |
| | 11 20 | 30.82 | 1.64 |
| 1 | 13 00 | 29.18 | |

T = 69.0 F

Aug 15-16 1912
Thurs & Fri

Watch ~~M~~ C 0 3s fast at 2 50 pm

H.P. Ab.

Very Windy
Shaded

T = 68.0 14

2 07 20 21 00
07 00 21 08 -.08
Exposed
09 20 21.50 ~~[illegible]~~
11 00 25.62 ~~[illegible]~~ 4.12 + .5~~4~~0 = 4.~~70~~ 62
Shaded
11 20 25 75 ~~[illegible]~~
13 00 24 67 1.08
Exposed
13 20 25 06
15 00 24 0~~8~~ ~~3 04~~ 2.96 + 1.105 = ~~4.145~~ 4.065
Shaded
15 20 28 06
17 00 26 93 1.13
Exposed
17 20 27 15
19 00 29 83 2.58 + 1.285 = 3.865
Shaded
19 20 29 98
21 00 28 54 1.44
Exposed
21 20 28 73
23 00 31 02 2.29 + 1.475 = 3.765
Shaded
23 20 31.00
✓ 25 00 29.49 1.51

T = 68.4

Aug 15-16, 1912

Windy Sky / Cu. Scatt. LCAb

| | | | |
|---|---|---|---|
| | | T = 67.2 | F |
| Shaded | | | |
| 3 15 20 | 20.52 | 0.01 | |
| 17 00 | 20.57 | | |
| Exposed | | | |
| 17 20 | 21.13 | 3 | |
| 19 00 | 24.14 | 3.01 | +0.285 = 3.295 |
| Shaded | | | |
| 19 20 | 24.16 | 0.56 | |
| 21 00 | 23.60 | | |
| Exposed | | | |
| 21 20 | 24.06 | 2.55 + 0.780 = | 3.330 |
| 23 00 | 26.61 | | |
| Shaded | | | |
| 23 20 | 26.60 | 1.00 | |
| 25 00 | 25.60 | | |
| Exposed | | | |
| 25 20 | 25.94 | | |
| 27 00 | 28.10 | 2.16 | + 1.105 = 3.265 |
| Shaded | | | |
| 27 20 | 27.70 | 1.21 | |
| 29 00 | 26.49 | | |
| Exposed | | | |
| 29 20 | 26.80 | 2.00 + 1.305 | = 3.305 |
| 31 00 | 28.80 | | |
| Shaded | | | |
| 31 20 | 28.72 | 1.40 | |
| 3 33 00 | 27.32 | | |
| | | T = 66.5 | F |

Aug 16-17 1912

Fri T Sat

Watch M used correction = 0 0 at 11 04

| | | | | |
|---|---|---|---|---|
| | Sky ○ | | | HP Obs |
| | Shaded | | 7 = 69.57 | |
| 11 08 20 | 18 70 | | | |
| 10 00 | 18 75 | -.05 | | |
| | Exposed | | | |
| 10 20 | 19 22 | | | |
| 12 00 | 22 92 | 3.70 | +.24 | = 3.94 |
| | Shaded | | | |
| 12 20 | 23 20<br>~~22 92~~ | | | |
| 14 00 | 22 67 | 0.53 | | |
| | Exposed | | | |
| 14 20 | 22 75 | | | |
| 16 00 | 25 92 | 3.17 | + 77 | = 3.94 |
| | Shaded | | | |
| 16 20 | 26 04 | | | |
| 18 00 | 25 02 | 1.02 | | |
| | Exposed | | | |
| 18 20 | 25 30 | | | |
| 20 00 | 28 08 | 2.78 | + 1.18 | = 3.96 |
| | Shaded | | | |
| 20 20 | 28 10 | | | |
| 22 00 | 26 76 | 1.34 | | |
| | Exposed | | | |
| 22 20 | 26 88 | | | |
| 24 00 | 29 42 | 2.54 | + 1.405 | = 3.945 |
| | Shaded | | | |
| 24 20 | 29 45 | | | |
| 26 00 | 27 98 | 1.47 | | |
| | | | 7 = 69.8 | T |

Aug 16-17 1912
Fri + Sat.

Watch M

HP Obs

| | | | | | |
|---|---|---|---|---|---|
| | Shaded | | | J = 70.57 | |
| 11 58 20 | 20 ~~28~~ 76 | | | | |
| 12 00 00 | 20 78 | -.02 | | | |
| | Exposed | | | | |
| 12 00 20 | 21 26 | | | | |
| 02 00 | 24 40 | 3.~~76~~ 64 | +.315 | = ~~4.095~~ 3.955 | |
| | Shaded | | | | |
| 02 20 | 25 05 | | | | |
| 04 00 | 24 40 | .65 | | | |
| | Exposed | | | | |
| 04 20 | 24 82 | | | | |
| 06 00 | 2~~8~~7 90 | 3.12 | +.91 | = 4.03 | |
| | Shaded | | | | |
| 06 20 | 28 15 | | | | |
| 08 00 | ~~Exposed~~ 26 98 | 1.17 | | | |
| | Exposed | | | | |
| 08 20 | 27 26 | | | | |
| 10 00 | ~~Sh~~29 89 | 2.63 | | | |
| | Shaded | | | | |
| 10 20 | 29 94 | | | | |
| 12 00 | 29 05 | .89 ← | Wind blew cover off reading H.G. | | |
| | Shaded | | | | |
| 13 20 | 28 46 | | | | |
| 15 00 | | | | | |
| | Exposed | | | | |
| 15 20 | | | | | |
| 17 00 | | | | J = 70.57 | |
| | Shaded | | | | |
| 17 20 | | | | | |
| 19 00 | | | | | |

Aug 16-17. 1912

Watch M = Correct                L C Obs

Sky 0 at ~~start~~

T = 68.5 F

| | | | |
|---|---|---|---|
| 0 49 20 | Shaded | 20.59 | 0.07 |
| 51 00 | — | 20.52 | |
| 51.20 | Exposed | 21.27 | 3.55 + 0.385 = 3.935 |
| 53 00 | — | 24.82 | |
| 53 20 | Shaded | 24.81 | 0.70 |
| 55 00 | — | 24.11 | |
| 55 20 | Exposed | 24.62 | 3.00 + 0.915 = 3.915 |
| 57 00 | — | 27.62 | |
| 57 20 | Shaded | 27.56 | 1.13 |
| 59 00 | — | 26.43 | |
| 59 20 | Exposed | 26.93 | 2.60 + 1.290 = 3.890 |
| 1 1 0 | — | 29.53 | |
| 1 20 | Shaded | 29.40 | 1.45 |
| 3 00 | — | 27.95 | |
| 3 20 | Exposed | 28.38 | 2.33 + 1.540 = 3.870 |
| 5 00 | — | 30.71 | |
| 5 20 | Shaded | 30.55 | 1.63 |
| 7 00 | — | 28.92 | |
| 7 20 | Exposed | 29.26 | 2.16 + 1.675 = 3.835 |
| 9 00 | — | 31.42 | |
| 9 20 | Shaded | 31.22 | 1.72 |
| 11 00 | — | 29.50 | |

T = 69.5 F

Sky 0 at close

Aug 16-17, 1912

Watch M Sky 1 Ci Cu low [illegible]

T = 690 F

| | | | | |
|---|---|---|---|---|
| 2 22 20 | Shaded | 21.70 | -0.01 | |
| 24 00 | — | 21.71 | | |
| 24 20 | Exposed | 22.40 | 3.32 + 0.31 | = 3.630 |
| 26 00 | — | 25.72 | | |
| 26 20 | Shaded | 25.90 | 0.63 | |
| 28 00 | — | 25.27 | | |
| 28 20 | Exposed | 25.72 | 2.82 + 0.855 | = 3.675 |
| 30 00 | — | 28.54 | | |
| 30 20 | Shaded | 28.50 | 1.08 | |
| 32 00 | — | 27.42 | | |
| 32 20 | Exposed | 27.82 | 2.48 + 1.235 | = 3.715 |
| 34 00 | ~~Shaded~~ — | 30.30 | | |
| 34 20 | Shaded | 30.22 | 1.39 | |
| 36 00 | — | 28.83 | | |
| 36 20 | Exposed | 29.22 | 2.18 + 1.485 | = 3.665 |
| 38 00 | — | 31.40 | | |
| 38 20 | Shaded | 31.20 | 1.58 | |
| 2 40 00 | — | 29.62 | | |
| ~~40 20~~ | ~~Exposed~~ | | | |
| ~~42 00~~ | ~~—~~ | | | |
| ~~42 20~~ | ~~Shaded~~ | | | |
| ~~44 00~~ | ~~—~~ | | | |

T = 696 F

Sky 1 CiCu Cu Scatt horizon.

Sun. Mon. Aug. 18-19, 1912

| | | | | |
|---|---|---|---|---|
| Ci W. used = | | T = 75.5° F. | | [illegible] |
| Sky 2 Ci Cu. Sun well above cloud. | | | | |
| Shaded | 20 55 20 | 13.50 | -0.29 | Prob. better to reject these 4 readings. |
| — | 57 00 | 13.79 | | |
| Exposed | 5~~7~~8 20 | 17.00 | 3.69 + 0.18 = 3.87 | |
| — | 21 ~~59~~ 00 00 | 20.69 | | see new start |
| Shaded | ~~59~~ 00 20 | 20.65 | 0.65 | |
| — | 02 00 | 20.00 | | |
| Exposed | 02 20 | 20.60 | 3.29 + 0.815 4.105 | |
| — | 04 00 | 23.89 | | |
| Shaded | 04 20 | 23.44 | 0.98 | |
| — | 06 00 | 22.86 | | |
| Exposed | 06 20 | 23.36 | 3.04 + 1.09~~5~~ = 4.135 | |
| | 08 00 | 26.40 | | |
| Shaded. | 08 20 | 26.22 | 1.21 | |
| | 20 10 00 | 25.01 | | |

T = 74.0 F.

Clouds lower & further from Sun at close

Sun Mon. Aug 18. 19 1912

Watch m at 11 16 correction = 30 sec. fast. Obs H P

Sky 0

| | | | | |
|---|---|---|---|---|
| | Shaded | | | |
| 22 ~~10~~ 59 20 | 27 25 | | | T = 75.57 |
| ~~11~~ 23 01 00 | 27 29 | -.04 | | |
| | Exposed | | | |
| 01 20 | 27 98 | | | |
| 03 00. | 31 78 | 3.80 | +.355 | = 4.155 |
| | Shaded | | | |
| 03 20 | 32 69 | | | |
| 05 00 | 31 34 | .75 | | |
| | Exposed | | | |
| 05 20 | 31 65 | | | |
| 07 00 | 34 85 | 3.20 | + 1.055 | = 4.255 |
| | Shaded | | | |
| 07 20 | 34 76 | | | |
| 09 00 | 33 41 | 1.35 | | |
| | Exposed | | | |
| 10 20 | 32 95 | | | |
| 12 00 | 35 81 | 2.86 | + 1.465 = 4.325 | |
| | Shaded | | | |
| 23 12 -20 | 35 78 | | | |
| ~~11~~ 14 00 | 34 20 | 1.58 | | |

T = 75.57

Sun Mon Aug 18-19 1912

| Watch m |  |  |  |  | HP Obs |
|---|---|---|---|---|---|
|  |  |  |  |  | Sky ~~0~~ 1ª h horz. |
| ~~11 48 20~~ | Shaded |  |  |  |  |
| 11<br>23 48 20<br>~~50 00~~ | 24 20 |  |  | J = 72.87 |  |
| 50 00 | 24 29 | -.09 |  |  |  |
|  | Exposed |  |  |  |  |
| 50 20 | 24 68 |  |  |  |  |
| 52 00 | 28 52 | 3.84 | + 365<br>~~.455~~ | 4.205<br>= ~~4.295~~ |  |
|  | Shaded |  |  |  |  |
| 52 20 | 28 60 |  |  |  |  |
| 54 00 | 27 78 | .82 |  |  |  |
|  | Exposed |  |  |  |  |
| 54 20 | 28 04 |  |  |  |  |
| 56 00 | 31 38 | 3.34 | + 1.03 | = 4.37 |  |
|  | Shaded |  |  |  |  |
| 56 20 | 31 38 |  |  |  |  |
| 58 00 | 30 14 | 1.24 |  |  |  |
|  | Exposed |  |  |  |  |
| 58 20 | 30 35 |  |  |  |  |
| 0 00 00 | 33 20 | 2.85 | + 142 | = 4.27 |  |
|  | Shaded |  |  |  |  |
| 00 20 | 33 28 |  |  |  |  |
| 02 00 | 31 68 | 1.60 |  |  |  |
|  |  |  |  | J = 74.07 |  |

Aug 19, 1912

~~C's Watch~~ = L.C. Ob.

Sky thinly hazy. T = 71.0 F
Clearer near Sun. Windy

| | | | | |
|---|---|---|---|---|
| Shaded | 1 15 20 | 22.50 | 0.00 | |
| — | 17 00 | 22.50 | | |
| Exposed | 17 20 | 23.22 | 3.72 | + 0.40 = 4.120 |
| | 19 00 | 26.94 | | |
| Shaded | 19 20 | 27.12 | 0.80 | |
| — | 21 00 | 26.32 | | |
| Exposed | 21 20 | 26.92 | 3.07 | |
| — | 23 00 | 29.99 | | +1.04 = 4.110 |
| Shaded | 23 20 | 29.87 | 1.28 | |
| — | 25 00 | 28.59 | | |
| Exposed | 25 20 | 29.03 | 2.65 | +1.44 = 4.090 |
| — | 27 00 | 31.68 | | |
| Shaded | 27 20 | 31.58 | 1.60 | |
| — | 1 29 00 | 29.98 | | |

T = 70.6 F

C's Watch used on above is 8.0 slow of EMT at 1:32

Tues. Aug 20, 1912

Cs watch used = 6s slow at 10 22. P.C. Ob

Thin haze low in E & NE. T = 73.5 A

| | | | | |
|---|---|---|---|---|
| Shaded | 9 59 20 am | 14.86 | -0.14 | |
| — | 10 01 00 | 15.00 | | |
| Exposed | 01 20 | 15.78 | ~~3.83~~ | |
| — | 03 00 | 19.61 | 3.83 | +0155 = 3.985 |
| Shaded | 03 20 | 19.67 | | |
| — | 05 00 | 19.22 | 0.45 | |
| Exposed | 05 20 | 19.81 | | |
| — | 07 00 | 23.19 | 3.38 | +0.670 = ~~4~~.050 |
| Shaded | 07 20 | 23.12 | 0.89 | |
| — | 10 09 00 am | 22.23 | | |

T = 68.5 A.

Sky 1 Cu hor P.C. Ob

| | | | | |
|---|---|---|---|---|
| Shaded | 10 53 20 am | 20.32 | | T = 68.5 A |
| — | 55 00 | 20.40 | -0.08 | |
| Exposed | 55 20 | 21.11 | 3.80 +028 = 4.080 | |
| — | 57 00 | 24.91 | | |
| Shaded | 57 20 | 24.90 | 0.64 | |
| — | 59 00 | 24.26 | | |
| Exposed | 10 59 20 | 24.77 | ~~3.~~ | |
| — | 11 01 00 | 27.97 | 3.20 +087 = 4.070 | |
| Shaded | 01 20 | 27.85 | | |
| — | 11 03 00 am | 26.75 | 1.10 | |

T = 68.5 A

Aug 20, 1912

LC obs

T = 69.5 H

| Sby 2 Cu | East hor | | |
|---|---|---|---|
| ~~Shaded~~ | ~~11 56 20 am~~ | ~~21.03~~ | ~~0.02~~ |
| ~~Exposed~~ Shaded | ~~58 00~~ | ~~21.01~~ | |
| | ~~58 20~~ | | |
| | ~~12 00 00~~ | | |
| ~~Shaded~~ | ~~00 20~~ | | |
| | ~~02 00~~ | | |
| ~~Exposed~~ | ~~02 20~~ | | |
| | ~~04 00~~ | | |
| ~~Shaded~~ | ~~04 20~~ | | |
| | ~~06 00~~ | | |

New start

| | | | | |
|---|---|---|---|---|
| Shaded | 11 59 20 am | 23.36 | | |
| — | 12 01 00 pm | 22.99 | 0.37 | |
| Exposed | 01 20 | 23.64 | | |
| — | 03 00 | 27.11 | 3.47 | +0.65 = 4.120 |
| Shaded | 03 20 | 27.07 | | |
| — | 05 00 | 26.14 | 0.93 | |
| Exposed | 05 20 | 26.64 | | |
| | 07 00 | 29.62 | 2.98 + 1.145 = 4.125 | |
| Shaded | 07 20 | 29.54 | | |
| — | 09 00 | 28.18 | 1.36 | |

T = 68.5

Aug 20, 1912.

LC Obs.

| | | | |
|---|---|---|---|
| Sky ~~1~~ 2 Cu Scatt. | | | T = 67.0 F |
| Shaded | 1:02:20 p | 21.08 | 0.10 |
| | 04:00 | 20.98 | |
| Exposed | 04 20 | 21.68 | |
| | 06 00 | 25.40 | 3.72 + 0.415 = 4.135 |
| Shaded | 06 20 | 25.52 | |
| | 08 00 | 24.79 | 0.73 |
| Exposed | 08 20 | 25.34 | |
| | 10 00 | 27.93 | 2.59 + 0.96 = 3.550 |
| Shaded | 10 20 | 28.06 | |
| | 1 12 00 p | 26.87 | 1.19 |

Clear near Sun at beginning

Clouds dangerously near Sun at times

| | | | |
|---|---|---|---|
| Shaded | 1 13 20 | 26.03 | < Sun in cloud. |
| | 15 00 | 25.16 | 0.87 |
| Exposed | 15 20 | 25.68 | |
| | 17 00 | 28.48 | 2.80 + 1.055 = 3.855 |
| Shaded | 17 20 | 28.42 | |
| | 19 00 | 27.18 | 1.24 |

Above observations not considered as very good due to clouds.

LC

Aug ~~19~~-20 1912
~~Mon & Tues~~

Watch M = 20s fast at 1 55 pm

| | | | Sky 4 1-8 Scatt | HP. Obs |
|---|---|---|---|---|
| Shaded | 1 59 20pm | 20 18 | | |
| | 2 01 00 | 20 16 | .02 | J=68.07 |
| Exposed | 01 20 | 20 28 | | |
| | 03 00 | 23 88 | 3.60 + .30 | = 3.90 |
| Shaded | 03 20 | 24 26 | | |
| | 05 00 | 23 68 | .58 | |
| Exposed | 05 20 | 24 00 | | |
| | 07 00 | 27 06 | 3.06 + .825 | = 3.885 |
| Shaded | 07.20 | 27 12 | | |
| | 09 00 | 26 05 | 1.07 | |
| Exposed | 2 09 ~~20~~ | 29 ~~09~~ | clds near sun | |
| | 11 ~~00~~ | ~~28~~ 95 | | |
| Shaded | 11 ~~20~~ | | | |
| | 13 00 | | | |

copied to here.

Aug 21st 1912
Wed.

Watch m

KP Clb

Sky

| | | | |
|---|---|---|---|
| Shaded | ~~19~~ 48 20 | 19 38 | |
| | 50 00 | 19 50 ÷ .12 | |
| Exposed | 50 20 | 19 95 | |
| | 52 00 | 24 02 | 4.07 +023 = 4.30 |
| Shaded | 52 20 | 24 10 | |
| | 54 00 | 23 52 + .58 | |
| Exposed | 54 20 | Clouds passing by sun | |
| | ~~56 00~~ | | |
| ~~Shaded~~ | ~~56 20~~ | | |
| | ~~58 00~~ | | |
| ~~Exposed~~ | ~~58 20~~ | | |
| | 11 60 00 | | |
| Shaded | 00 20 | | |
| | 0 200 | | |

~~Thurs~~ Aug. 22, 1912.

L.C. Obs.

Sky 2 CiCu Scatt Clear near Sun

| | | | | |
|---|---|---|---|---|
| Shaded | 9 | 36 20 a | 14.68 | T = 71.0 H. |
| — | | 38 00 | 14.83 − 0.15 | |
| Exposed | | 38 20 | 15.53 + 3.94 + 0.16 = 4.10 | |
| — | | 40 00 | 19.47 | |
| Shaded | | 40 20 | 19.49 + 0.47 | |
| — | | 42 00 | 19.02 | |
| Exposed | | 42 20 | 19.65 + 3.42 + 0.665 = 4.085 | |
| — | | 44 00 | 23.07 | |
| Shaded | | 44 20 | 22.97 + 0.86 | |
| — | | 46 00 | 22.11 | |
| Exposed | | 46 20 | 22.62 + 3.06 + 0.995 = 4.055 | |
| — | | 48 00 | 25.68 | |
| Shaded | | 48 20 | 25.56 + 1.13 | |
| — | | 50 00 | 24.43 | |
| Exposed | | 50 20 | 24.92 + 2.77 + 1.265 = 4.035 | |
| — | | 52 00 | 27.69 | |
| Shaded | | 52 20 | 27.50 + 1.40 | |
| — | 9 | 54 00 a | 26.20 | |

T = 71.0 H.

~~Cs Watch used on above = at~~

Sky 2 CiCu Scatt at close. Sun Clear

Aug 22, 1912.

Sky 3 Cir Scatt Sun clear

Cs Water used T = 71.0 F

| | | | |
|---|---|---|---|
| Shaded | 11 03 20 a | 24.17 | -0.02 |
| — | 05 00 | 24.19 | |
| Exposed | 05 20 | 24.91 | 3.94 +0.33 = 4.230 |
| — | 07 00 | 28.85 | |
| Shaded | 07 20 | 28.82 | 0.68 |
| — | 09 00 | 28.14 | |
| Exposed | 09 20 | 28.70 | 3.18 + 0.965 = 4.145 |
| — | 11 00 | 31.88 | |
| Shaded | 11 20 | 31.75 | 1.25 |
| | 11 13 00 a | 30.50 | |

Sky 3 Cir Scatt Sun clear T = 71.0 F

Aug. 22, 1912

LCOb

Sky 1 CiCu Scatt Sun clear T = 70.8 F

| | | | | |
|---|---|---|---|---|
| Shaded | 11 59 20 a | 22.41 | 0.01 | |
| | 12 01 00 p | 22.40 | | |
| Exposed | 01 20 | 22.92 | 3.92 | +0.36 = 4.280 |
| | 03 00 | 26.84 | | |
| Shaded | 03 20 | 26.82 | 0.71 | |
| | 05 00 | 26.11 | | |
| Exposed | 05 20 | 26.60 | 3.25 | +0.95$^5$ = 4.20$^5$ |
| | 07 00 | 29.85 | | |
| Shaded | 07 20 | 29.78 | 1.20 | |
| | 12 09 00 p | 28.58 | | |

T = 71.8 F.

Sky 1 CiCu low S. South. Sun clear

Aug 22 1912

| Watch c Correction at 1 15 pm = 27s slow | | Sky 2 horz. | | A.P. Obs |
|---|---|---|---|---|
| Shaded | 1 03 20 pm | 21 83 | | J = 71.87 |
| | 05 00 | 21 81 | .02 | |
| Exposed | 05 20 | 22 35 | | |
| | 07 00 | 26 15 | 3,80 +.315 = 4.115 | |
| Shaded | 07 20 | 26 28 | | |
| | 09 00 | 25 67 | .61 | |
| Exposed | 09 20 | 26 02 | | |
| | 11 00 | 29 21 | 3,19 +.93 = 4.12 | |
| Shaded | 11 20 | 29 20 | | |
| | 13 00 | 27 95 | 1 25 | |
| Reject Shaded | 2 08 20 | 26 80 | | |
| ? | 08 00 | 2~~6~~7 02 | - ~~22~~ 78 | J = 72.47 |
| Exposed | 08 20 | 27 20 | Exp n. G [illegible] | |
| | 10 00 | 30 16 | 2,96 | |
| Shaded | 10 20 | 30 08 | | |
| | 12 00 | 29 8? 84 | 1,24 if we assume 29 = 28 | |
| Exposed | 12 20 | 28 98 | | |
| | 14 00 | 34 60 | 2.~~78~~ 62 ~~+.882 3.660~~ 1.385 4.~~16~~5 00 | |
| Shaded | 14 20 | 31 82 | | |
| | 16 00 | 30 29 | 1.53 | |
| Exposed | 16 20 | 30 30 | | |
| | 18 00 | 32 70 | 2.40 = 4,035 | |
| Shaded | 18 20 | 32 80 | | |
| | 20 00 | 31 06 | 1.74 | |

J = 69.27

# Aug 22, 1912

Watch N used = 50^s slow at 3:09 L.C. Obs

Sky 1 Ci Cu hor Sun clear Air T = 68.4 F

| | | | | |
|---|---|---|---|---|
| Shaded | 2 56 20 p | 21.28 | 0.10 | |
| | 58 00 | 21.18 | | |
| Exposed | 58 20 | 21.80 | 3.42 | +0.465 = 3.885 |
| | 3 00 00 | 25.22 | | |
| Shaded | 00 20 | 25.31 | 0.83 | |
| | 02 00 | 24.48 | | |
| Exposed | 02 20 | 25.61 | 2.81 | +1.01 = 3.820 |
| | 04 00 | 27.92 | | |
| Shaded | 04 20 | 27.93 | 1.19 | |
| | 3 06 00 p | 26.74 | | |

Air T = 67.8 F

Sky 1 Ci Cu hor Sun clear

Sky 1 Ci Cu hor Sun clear T = 66.0 F

G watch used.

| | | | | |
|---|---|---|---|---|
| Shaded | 3 55 20 p | 19.89 | 0.05 | |
| | 57 00 | 19.84 | | |
| Exposed | 57 20 | 20.30 | 3.16 | +0.355 = 3.515 |
| | 59 00 | 23.46 | | |
| Shaded | 59 20 | 23.68 | 0.66 | |
| | 4 01 00 | 23.02 | | |
| Exposed | 01 20 | 23.38 | 2.60 | +0.85 = 3.450 |
| | 03 00 | 25.98 | | |
| Shaded | 03 20 | 25.88 | 1.04 | |
| | 4 05 00 p | 24.84 | | |

Sky 1 Ci Cu N.E. hor. Clouds W. Air T = 65.0 F.
Sun clear

Fri. Aug 23, 1912

SDQ 17 ZCCB

Sky clear. Air T = 77.0 F

Ci Watch used = 39 slow at 9 52 am.

| | | | |
|---|---|---|---|
| Shaded | 9 33 20 am | 15.82 | −0.16 |
| | 35 00 | 15.98 | |
| Exposed | 35 20 | 16.40 | +3.82 +0.105 = 3.925 |
| | 37 00 | 20.22 | |
| Shaded | 37 20 | 20.29 | 0.37 |
| | 39 00 | ~~1~~19.92 | |
| Exposed | 39 20 | 20.52 | 3.40 + 0.57 = 3.970 |
| | 41 00 | 23.92 | |
| Shaded | 41 20 | 23.87 | 0.77 |
| | 43 00 | 23.10 | |
| Exposed | 43 20 | 23.64 | 3.07 + 0.925 = 3.995 |
| | 45 00 | 26.71 | |
| Shaded | 45 20 | 26.59 | 1.08 |
| | 9 47 00 a | 25.[illegible] | |

Sky clear Air T = 75.0 F

Aug. 23, 1912

L.C. Obs.

Sky 2 Cu East NE Hor Air T = 71.0 F.
C's watch used

| | | | | |
|---|---|---|---|---|
| Shaded | 10 59 20 a | 23.78 | 0.00 | |
| — | 11 01 00 | 23.78 | | |
| Exposed | 01 20 | 24.50 | 3.72 | +0.345 = 4.065 |
| — | 03 00 | 28.22 | | |
| Shaded | 03 20 | 28.16 | 0.69 | |
| — | 05 00 | 27.47 | | |
| Exposed | 05 20 | 28.02 | 3.14 | +0.97 = 4.110 |
| | 07 00 | 31.16 | | |
| Shaded | 07 20 | 30.99 | 1.25 | |
| — | 09 00 | 29.74 | | |
| Sky | | | | Air T = 71.0 F. |

| | | | | | |
|---|---|---|---|---|---|
| Watch C | Shaded | 11 ~~22~~ 58 20 | 22 90 | | T = 72.07 |
| | | [illegible] 00 00 | 22 90 | .00 | H.P. Obs. |
| | Exposed | 00 20 | 23 42 | | |
| | | 02 00 | 27 25 | 3.83 + .34 = 4.17 | |
| | Shaded | 02 20 | 27 35 | | |
| | | 04 00 | 26 67 | .68 | |
| | Exposed | 04 20 | 26 96 | | |
| | | 06 00 | 30 21 | 3.25 + .92 = 4.17 | |
| | Shaded | 06 20 | 30 30 | | |
| | | 08 00 | 29 14 | 1.16 | |

Sky 3 horz, Very windy T = 71.87

Aug 23 1912

Watch M = 57ˢ slow at 1.10 H P Ob

| | | Windy | Sky 2 hor. | |
|---|---|---|---|---|
| Shaded | 12 55 20 | 22 93 | | T = 72.2 |
| | 57 00 | 22 88 | +.05 | |
| Exposed | 57 20 | 23 20 | | |
| | 59 00 | 27 07 | 3.87 +.365 = 4.235 | |
| Shaded | 59 20 | 27 28 | | |
| | 0 1 00 | 26 60 | .68 | |
| Exposed | 0 1 20 | 26 80 | | |
| | 0 3 00 | 30 08 | 3.28 + .995 = 4.275 | |
| Shaded | 0 3 20 | 30 20 | | |
| | 0 5 00 | 28 89 | 1.31 | |

T = 73.07

Sky 1 Cu hor T = 72.5 F L.C. Ob.

| | | | |
|---|---|---|---|
| Shaded | 1 10 20 | 26.32 | |
| — | 12 00 | 25.82 | 0.50 |
| Exposed | 12 20 | 26.40 | 3.32 + .075 = 4.070 |
| — | 14 00 | 29.72 | |
| Shaded | 14 20 | 29.62 | 1.00 |
| — | 16 00 | 28.62 | |
| Exposed | 16 20 | 29.08 | 2.76 + 1.205 = 3.965 |
| — | 18 00 | 31.86 | |
| Shaded | 18 20 | 31.73 | 1.41 |
| | 20 00 | 30.32 | |

Sky 1 Cu hor. T = 72.8 A

Cs Watch used on above set

# Sat. Aug 24, 1912

| Watch m | correction at 10 | 16 = 44ˢ fast | Sky 2 horz | Very windy SP Obs |
|---|---|---|---|---|
| Shaded | 10 03 20 | 17 27 | | J = 73.87 |
| | 05 00 | 17 49 | -.22 | |
| Exposed | 05 20 | 17 82 | | |
| | 07 00 | 21 81 | 3.99 + .10 = 4.09 | |
| Shaded | 07 20 | 22 05 | | |
| | 09 00 | 21 63 | .42 | |
| Exposed | 09 20 | 22 02 | | |
| | 11 00 | 25 48 | 3.46 +.75 = 4.21 | |
| Shaded | 11 20 | 25 58 | | |
| | 13 00 | 24 50 | 1.08 | |

| | | | | |
|---|---|---|---|---|
| Shaded | 10 21 20a | 21.79 | 0.22 | LC Obs |
| | 23 00 | 21.57 | | air T = 68.8 |
| Exposed | 23 20 | 22.22 | | Sky, Cu hor |
| | 25 00 | 25.88 | 3.66+0.50 = 4.160 | Windy. |
| Shaded | 25 20 | 25.78 | | E's watch used |
| | 27 00 | 25.00 | 0.78 | on this set |
| Exposed | 27 20 | 25.53 | 3.11 +1.02 = 4.130 | |
| | 29 00 | 28.64 | | |
| Shaded | 29 20 | 28.48 | 1.26 | |
| | 10 31 00a | 27.22 | | |

air T = 69.0 F.

Aug. 24, 1912

Sby 2 Cu hor | Air T = 70.5 F LC Obs

| | | | |
|---|---|---|---|
| Shaded | 11 09 20a | 21.40 | -0.02 |
| | 11 00 | 21.42 | |
| Exposed | 11 20 | 22.20 | 3.77 + 032 = 4.090 |
| | 13 00 | 25.97 | |
| Shaded | 13 20 | 25.91 | 0.66 |
| | 15 00 | 25.25 | |
| Exposed | 15 20 | 25.92 | 3.16 + 0885 = 4.045 |
| | 17 00 | 29.08 | |
| Shaded | 17 20 | 28.98 | 1.11 |
| | 19 00 | 27.87 | |

Air T = 70.5 F

---

LC Obs

Sby 2 Cu east

| | | | |
|---|---|---|---|
| Shaded | 12 54 20p | 23.68 | -004 |
| | 56 00 | 23.72 | |
| Exposed | 56 20 | 24.38 | + 3.75 Air T = 75.5 F<br>+0.34 = 4.090 |
| | 58 00 | 28.13 | |
| Shaded | 58 20 | 28.11 | + 0.72 |
| | 1 0 0 | 27.39 | |
| Exposed | 0 20 | 27.92 | 3.09 + 0.975 = 4.065 |
| | 2 00 | 31.01 | |
| Shaded | 2 20 | 30.94 | 1.23 |
| | 1 4 00 p | 29.71 | |

Air T = 74.5 F

Wed. Aug. 28, 1912

C's watch used = 1m 2s fast at 10:10 H.C. Obs.

Sky 0 Air T = 70.5 F

| | | | |
|---|---|---|---|
| Shaded | 9 50 20 a | 15.36 | −0.12 |
| — | 52 00 | 15.48 | |
| Exposed | 52 20 | 16.27 | + 3.71 + 0.16 = 3.870 |
| — | 54 00 | 19.98 | |
| Shaded | 54 20 | 19.87 | 0.44 |
| — | 56 00 | 19.43 | |
| Exposed | 56 20 | 20.02 | 3.60 + 069 = 4.290 |
| — | 58 00 | 23.62 | |
| Shaded | 58 20 | 23.56 | 0.94 |
| — | 10 00 00 a | 22.62 | |

Sky Clear Air T = 70.5 F

| | | | |
|---|---|---|---|
| Exposed | 10 00 20 | 23.14 | |
| — | 02 00 | 26.28 | 3.14 + 108 = 4.220 |
| Shaded | 02 20 | 26.14 | 1.22 |
| — | 10 04 00 | 24.92 | |

First set not conserved as good as others

C's watch set back 1m & now = ~~2 fast~~ 14s slow at 10:14

Aug. 28, 1912.

Cz watch = 14$^s$ slow P.C. Obs

Sky 0 Air T = 72.0

| | | | |
|---|---|---|---|
| Shaded | 11 58 20a | 26.44 | |
| —— | 12 00 00p | 26.38 | .06 |
| Exposed | 00 20 | 27.11 | 3.81 + 0.48 = 4.290 |
| —— | 02 00 | 30.92 | |
| Shaded | 02 20 | 30.87 | 0.90 |
| —— | 04 00 | 29.97 | |
| Exposed | 04 20 | 30.53 | 3.11 + 1.14 = 4.2$^5$50 |
| —— | 06 00 | 33.64 | |
| Shaded | 06 20 | 33.52 | 1.38 |
| —— | 12 08 00p | 32.14 | |

Air T = 73.0

Watch M = 32$^s$ fast Very windy Sky 0 H.P. Obs T = 72.57

| | | | |
|---|---|---|---|
| Shaded | 1 09 20 pm | 22 63 | |
| —— | 11 00 | 22 59 | .04 |
| Exposed | 11 20 | 23 22 | |
| —— | 13 00 | 27 08 | 3.46 + .42 = ~~3.88~~ = 3.88 |
| Shaded | 13 20 | 27 58 | |
| —— | 15 00 | 26 78 | .80 |
| Exposed | 15 20 | 26 88 | |
| —— | 17 00 | 30 20 | 3.3~~9~~4 + 1.03 = 4.35 |
| Shaded | 17 20 | 30 56 | |
| —— | 19 00 | 29 30 | 1.26 |

Wed Aug 28 1912

| Watch M | Sky ☉ Windy | | HP Obs |
|---|---|---|---|
| Shaded | 1 24 20 | 26:34 | |
| —— | 1 26 00 | 25:59 | .75 |
| Exposed | 26 20 | 25:87 | |
| —— | ~~30~~ 28 00 | 29:19 | 3.42 + .955 = 4.375 |
| Shaded | ~~30~~ 28 20 | 29:30 | |
| —— | ~~32~~ 30 00 | 28:14 | 1.16 |
| Exposed | 30 20 | 28:48 | |
| —— | 32 00 | 31:33 | 2.85 + 1.345 = 4.195 |
| Shaded | 32 20 | 31:51 | |
| —— | 34 00 | 29:98 | 1.53 |

J = 73.07

Thurs. Aug 29, 912

Sky 0 L.C.

Ci Watch wind and | Air T = 75.0 F
= .04s fast at 10.07 at

| | | | |
|---|---|---|---|
| Shaded | 9 43 20 a | 16.28 | − 0.19 |
| — | 45 00 | 16.47 | |
| Exposed | 45 20 | 17.22 | +4.18+0155 = 4.335 |
| — | 47 00 | 21.40 | |
| Shaded | 47 20 | 21.40 | + 0.50 |
| — | 49 00 | 20.90<br>~~21.00~~ | |
| Exposed | 49 20 | ~~20~~ 21.98 | + 3.53 + 073 = 4260 |
| — | 51 00 | 25.51 | |
| Shaded | 51 20 | 25.47 | + 0.96 |
| — | 9 53 00 a | 24.51 | |

Watch m correction at 10 18 = ~~28~~ 1.4s fast H.P. [illegible]

J = 71.5

| | | | |
|---|---|---|---|
| Sky 0 | ~~10 05 20~~ | | |
| Shaded | 10 05 20 | 22 25 | Reject |
| ~~Exposed~~ | 07 00 | 22 29 | − .04 40 |
| Exposed | 07 20 | 22 60 | |
| | 08 00 | 25 72 | 3.12+.215 = 3.335 |
| Shaded | 08 20 | 25 85 | |
| — | 10 00 | 25 38 | .47 |
| Exposed | 10 20 | 25 90 | |
| — | 12 00 | 29 34 | 3.48+.735 = 4.215 |
| Shaded | 12 20 | 29 40 | |
| — | 14 00 | 28 40 | 1.00 |

J = 71.5

Thurs Aug 29 1912

Sky 0 ~~H~~ P. Obs

Watch m correction at 10.20 = 28s slow T = 72.57

| | | | | |
|---|---|---|---|---|
| Shaded | 10 45 20 | 23 70 | | |
| ——— | 47 00 | 23 70 | .00 | |
| Exposed | 47 20 | 24 08 | | |
| ——— | 49 00 | 28 01 | 3.93 + .31 = 4.24 | |
| Shaded | 49 20 | 28 12 | | |
| ——— | 51 00 | 27 50 | .62 | |
| Exposed | 51 20 | 27 81 | | |
| ——— | 53 00 | 31 20 | 3.41 +.87 = 4.28 | |
| Shaded | 53 20 | 31 12 | | |
| ——— | 55 00 | 30 00 | 1.12 | |

T = 72.07

Sky 0 L. C. Obs

| | | | | |
|---|---|---|---|---|
| Shaded | 11 45 20 | 23.61 | | Air T = 74.0 F |
| ——— | 47 00 | 23.71 | −0.10 | |
| Exposed | 47 20 | 24.42 | | |
| ——— | 49 00 | 28.38 | 3.96 +0.485 = 4.445 | |
| Shaded | 49 20 | 28.31 | | |
| ——— | 51 00 | 27.24 | +1.07 | |
| Exposed | missed<br>52 20 | 29.42 | 3.16 +1.245 = 4.405 | |
| ——— | 54 00 | 32.58 | | |
| Shaded | 54 20 | 32.44 | 1.32 | |
| ——— | 56 00 | 31.12 | | |

C's Watch used on above.

| | | | | |
|---|---|---|---|---|
| Exposed | 56 20 | 31.58 | | Air T = 73.0 |
| ——— | 58 00 | 34.34 | 2.76 + 1.49 = 4.250 | |
| Shaded | 58 20 | 34.14 | | |
| | 12 00 | 32.48 | +1.66 | |

Thurs Aug 29 1912

| Watch m | Sky 0 | | HP Obs |
|---|---|---|---|
| | | | J = 7.357 |
| Shaded | 1 48 20 | 24 57 | |
| | 50 00 | 24 57 .00 | |
| Exposed | 50 20 | 25 21 | |
| | 52 00 | 29 00 3,79 +.39 = 4.18 | |
| Shaded | 52 20 | 29 10 | |
| | 54 00 | 28 32 .78 | |
| Exposed | 54 20 | 28 .78 | |
| | 56 00 | 31 94 3.16 + 1.045 4.205 | |
| Shaded | 56 20 | 31 91 | |
| | 58 00 | 30 60 1.31 | |
| | | | J = 73.57 |

Fri. Aug. 30, 1912

Air T = 73.0 °F. L.C.

C's Watch used. 3s fast at 10:35 Sky 0

|  |  |  |  |  |
|---|---|---|---|---|
| Shaded | 10 22 20 a | 19.02 |  |  |
|  | 24 00 | 19.09 | −0.07 |  |
| Exposed | 24 20 | 19.72 | 4.02 | +0.245 = 4.265 |
|  | 26 00 | 23.74 |  |  |
| Shaded | 26 20 | 23.72 | 0.56 |  |
|  | 28 00 | 23.16 |  |  |
| Exposed | 28 20 | 23.73 |  |  |
|  | 30 00 | 27.32 | 3.59 | +0.76 = 4.350 |
| Shaded | 30 20 | 27.24 |  |  |
|  | 10 32 00 | 26.28 | 0.96 |  |

Sky 0 L.C. Obs

Air T = 75.0 °F

|  |  |  |  |  |
|---|---|---|---|---|
| Shaded | 11 28 20 | 25.32 |  |  |
|  | 30 00 | 25.28 | +0.04 |  |
| Exposed | 30 20 | 25.97 |  |  |
|  | 32 00 | 29.80 | +3.83 | +0.38 = 4.210 |
| Shaded | 32 20 | 29.74 |  |  |
|  | 34 00 | 29.02 | +0.72 |  |
| Exposed | 34 20 | 29.63 |  |  |
|  | 36 00 | 32.84 | +3.~~1~~2 | +0.99 = 4.200 |
| Shaded | 36 20 | 32.74 | 1.26 |  |
|  | 11 38 00 | 31.48 |  |  |
| ~~Exposed~~ | ~~38 20~~ | ~~31.52~~ |  |  |
|  | ~~40 00~~ |  |  |  |
| ~~Shaded~~ | ~~38 20~~<br>~~40 20~~ |  |  |  |
|  | ~~40 00~~<br>~~42 00~~ |  |  |  |

Aug 30, 1912

| Sky 0 | Windy | | RC Ob | |
|---|---|---|---|---|
| Shaded | 12 32 20 p | 23.54 | 0.00 | |
| | 34 00 | 23.54 | | |
| Exposed | 34 20 | 24.22 | 3.89 + 0.40 | 4.290 |
| | 36 00 | 28.11 | | |
| Shaded | 36 20 | 28.18 | 0.80 | |
| | 38 00 | 27.38 | | |
| Exposed | 38 20 | 27.98 | 3.20 | Air T = 73.5 F |
| | 40 00 | 31.18 | | +1.03 = 4.23 |
| Shaded | 40 20 | 31.08 | 1.26 | |
| | 42 00 | 39.82 | | |

| Windy Sky 0 | RC Obs | | Air T = 72.0 F. |
|---|---|---|---|
| Shaded | X02 07 20 p | 23.80 | −0.02 |
| | 09 00 | 23.82 | |
| Exposed | 09 20 | 24.49 | 3.73 + 0345 = 4.075 |
| | 11 00 | 28.22 | |
| Shaded | 11 20 | 28.25 | 0.71 |
| | 13 00 | 27.54 | |
| Exposed | 13 20 | 28.11 | 3.09 + 095 = 4.040 |
| | 15 00 | 31.20 | |
| Shaded | 15 20 | 31.08 | 1.19 |
| | 02 17 00 | 29.89 | |

# Sat Aug 31, 1912

Sky 0 Air T = 69.0 F L.C. Obs

| | | | |
|---|---|---|---|
| Shaded | 10 19 20 | 1849 | |
| | 21 00 | 1861 | −0.12 |
| Exposed | 21 20 | 19 34 | 4.00 + 019 = 419 |
| | 23 00 | 23 34 | |
| Shaded | 23 20 | 23.32 | 0.50 |
| | 25 00 | 22 82 | |
| Exposed | 25 20 | 23 44 | 3.38 + 0.77 = 4.15 |
| | 27 00 | 26.82 | |
| Shaded | 27 20 | 26.72 | 1.04 |
| | 29 00 | 25.68 | |

C. Watch used on above = $3^m$ fast at 11, 31

Watch m 49° fast at 11 09 Am Sky 0 T = 70.5 A. P. Obs

| | | | |
|---|---|---|---|
| Shaded | 11 09 20 Am. | 21 80 | |
| E | 11 00 | 21 87 | −.07 |
| Exposed | 11 20 | 22 50 | |
| | 13 00 | 26 45 | 3.95 + .30 = 4.25 |
| Shaded | 13 20 | 26 71 | |
| | 15 00 | 26 04 | .67 |
| Exposed | 15 20 | 26 59 | |
| | 17 00 | 29 98 | 3.39 + .96 = 4.35 |
| Shade | 17 20 | 30 05 | |
| | 19 00 | 28 80 | 1.25 |

Saturday August 31 1912

| Watch M | Sky 0 |  | H.P. Obs |  |
|---|---|---|---|---|
|  |  |  |  | J = 71.87 |
| Shaded | 12 02 20 | 22 20 |  |  |
|  | 04 00 | 22 20 | 00 |  |
| Exposed | 04 20 | 22 94 |  |  |
|  | 06 00 | 26 90 | 3.96 + 345 = 4.305 |  |
| Shaded | 06 20 | 26 98 |  |  |
|  | 08 00 | 26 29 | .69 |  |
| Exposed | 08 20 | 26 44 |  |  |
|  | 10 00 | 29 85 | 3.41 + .91 = 4.32 |  |
| Shaded | 10 20 | 29 80 |  |  |
|  | 12 00 | 28 67 | 1.13 |  |

| Watch M | Sky 0 Windy |  | H.P. Obs | J = 71.07 |
|---|---|---|---|---|
| Shaded | 1 00 20 | 22 66 |  |  |
|  | 02 00 | 22 58 | -.08 |  |
| Exposed | 02 20 | 23 15 |  |  |
|  | 04 00 | 26 96 | 3.81 + .39 = 4.20 |  |
| Shaded | 04 20 | 26 45 |  |  |
|  | 06 00 | 25 ~~80~~ 75 | 1.70 |  |
| Exposed | 06 20 | 26 69 | ~~26~~ |  |
|  | 08 00 | 29 95 | 3.26 + .91 = 4.17 |  |
| Shaded | 08 20 | 29 88 |  |  |
|  | 10 00 | 28 66 | 1.22 |  |

Saturday August 31 1912

| Watch m | Sky 0 | Windy | H.P. | Obs | J=71.07 |
|---|---|---|---|---|---|
| Shaded | 1 56 20 pm | 22 | 33 | | |
| | 58 00 | 22 | 33 | .00 | |
| Exposed | 1 58 20 | 22 | 88 | | |
| | 2 00 00 | 26 | 61 | 3.73 | +.355 =4.085 |
| Shaded | 2 00 20 | 26 | 89 | | |
| | 02 00 | 26 | 18 | .71 | |
| Exposed | 02 20 | 26 | 68 | | |
| | 04 00 | 29 | 82 | 3.14 | +.961 = 4.10 |
| Shaded | 04 20 | 29 | 85 | | |
| | 06 00 | 28 | 64 | 1.21 | |

Sun Sept. 1, 1912

P.C. Obs.

| Sky clear & windy | | Air T = 69.0 F | |
|---|---|---|---|
| Shaded | 1 18 20 | 21.40 | -0.04 |
| | 20 00 | 21.44 | |
| Exposed | 20 20 | 22.20 | 3.84 +0295=4.135 |
| | 22 00 | 26.04 | |
| Shaded | 22 20 | 26.12 | 0.63 |
| | 24 00 | 25.49 | |
| Exposed | 24 20 | 26.09 | +3.25 +0.885 = 4.135 |
| | 26 00 | 29.34 | |
| Shaded | 26 20 | 29.26 | 1.14 |
| | 28 00 | 28.12 | |

Cs Watch used & = $2^s$ fast at 1:30

Mon Sept 2, 1912

FCAbs

Sky clear 0 Air T = 68.8 F

Cs Watch used = $10^{s}$ slow at 10 30 am

| | | | | | |
|---|---|---|---|---|---|
| 9 | 25 20a | Shaded | 16.08 | -0.14 | |
| | 27 00 | — | 16.22 | | |
| | 27 20 | Exposed | 16.98 | 3.90 +0.175 = 4.075 | |
| | 29 00 | — | 20.88 | | |
| | 29 20 | Shaded | 20.87 | +0.49 | |
| | 31 00 | — | 20.38 | | |
| | 31 20 | Exposed | 20.98 | 3.40 +0.70 | = 4.100 |
| | 33 00 | — | 24.38 | | |
| | 33 20 | Shaded | 24.24 | 0.91 | |
| 9 | 35 00a | — | 23.33 | | |

F.C.Abs

| | | | | | |
|---|---|---|---|---|---|
| 10 | 10 20 | Shaded | 21.28 | -0.13 | Sky 0 |
| | 12 00 | — | 21.41 | | |
| | 12 20 | Exposed | 22.12 | 3.97 | +0.22 = 4.190 |
| | 14 00 | — | 26.09 | | |
| | 14 20 | Shaded | 26.07 | +0.57 | |
| | 16 00 | — | 25.50 | | |
| | 16 20 | Exposed | 26.15 | 3.29 | +0.855 = 4.145 |
| | 18 00 | — | 29.44 | | |
| | 18 20 | Shaded | 29.33 | 1.14 | |
| 10 | 20 00 | — | 28.19 | | |

Air T = 71.0 F

# Sept 2, 1912

Sky 0 L C Obs

Air T = 71.5 F

| | | | | |
|---|---|---|---|---|
| 10 54 20a | Shaded | 22.77 | 0.03 | |
| 56 00 | — | 22.74 | | |
| 56 20 | Exposed | 23.34 | 3.88 | +0385=4.265 |
| 58 00 | — | 27.22 | | |
| 58 20 | Shaded | 27.26 | 0.74 | |
| 11 00 00 | — | 26.52 | | |
| 00 20 | Exposed | 27.13 | 3.31+095=4.260 | |
| 02 00 | — | 30.44 | | |
| 02 20 | Shaded | 30.22 | 1.16 | |
| 04 00a | — | 29.06 | | |

---

Sky 0 Air T = 71.5 F L C Obs

| | | | | |
|---|---|---|---|---|
| 11 50 20 | Shaded | 22.72 | -0.03 | |
| 52 00 | — | 22.75 | | |
| 52 20 | Exposed | 23.42 | 3.85 +032=4.170 | |
| 54 00 | — | 27.27 | | |
| 54 20 | Shaded | 27.25 | 0.67 | |
| 56 00 | — | 26.58 | | |
| 56 20 | Exposed | 27.18 | 3.30 +0905=4.205 | |
| 58 00 | | 30.48 | | |
| 58 20 | Shaded | 30.32 | 1.14 | |
| 12 00 00 | — | 29.18 | | |

# Tues. Sept. 3, 1912

Sky 0 P.C. Obs

Air T = 71.0 F

Cs Watch used = 14s slow at 10 58

| | | | | |
|---|---|---|---|---|
| 10 41 20 | Shaded | 20.06 | -0.06 | |
| 43 00 | —— | 20.12 | | |
| 43 20 | Exposed | 20.92 | 3.96 | +0.285 = 4.245 |
| 45 00 | —— | 24.88 | | |
| 45 20 | Shaded | 24.86 | 0.63 | |
| 47 00 | —— | 24.23 | | |
| 47 20 | Exposed | 24.90 | 3.42 | +0.835 = 4.255 |
| 49 00 | —— | 28.32 | | |
| 49 20 | Shaded | 28.16 | 1.04 | |
| 10 51 00 | —— | 27.12 | | |
| 51 20 | Exposed | 26.88 | 3.04 | +1.15 = 4.190 |
| 53 00 | —— | 29.92 | | |
| 53 20 | Shaded | 29.77 | 1.26 | |
| 10 55 00 | —— | 28.51 | | |

Sky 0 P.C. Obs

| | | | | |
|---|---|---|---|---|
| 11 55 20 | Shaded | 23.08 | | air T = 71.0 |
| 57 00 | —— | 23.12 | -0.04 | Windy. |
| 57 20 | Exposed | 23.92 | | |
| 59 00 | | 27.77 | 3.85 | +0.33 = 4.180 |
| 59 20 | Shaded | 27.67 | 0.70 | |
| 12 01 00 | —— | 26.97 | | |
| 01 20 | Exposed | 27.68 | 3.16 | +097 = 4.130 |
| 03 00 | —— | 30.84 | | |
| 03 20 | Shaded | 30.64 | 1.24 | |
| 05 00 | —— | 29.40 | | |

Sept. 3, 1912

Sky 0 Windy Air T = 70.5 F

| | | | |
|---|---|---|---|
| 12 54 20 | Shaded | 22.40 | -0.04 |
| 56 00 | —— | 22.44 | |
| 56 20 | Exposed | 23.14 | 3.90 + 0.32 = 4.220 |
| 58 00 | —— | 27.04 | |
| 58 20 | Shaded | 27.08 | 0.68 |
| 1 00 00 | —— | 26.40 | |
| 00 20 | Exposed | 26.88 | 3.25 + 0.945 = 4.195 |
| 02 00 | —— | 30.13 | |
| 02 20 | Shaded | 30.04 | 1.21 |
| 1 04 00 | —— | 28.83 | |

Wed Sept. 4, 1912

C.G.Ab

Sky 0-1 Cu Lo.  Air T = 72.0 F

| | | | | |
|---|---|---|---|---|
| 11 02 20 | Shaded | 20.49 | -0.05 | |
| 04 00 | — | 20.54 | | |
| 04 20 | Exposed | 21.12 | 3.90+0.255 = 4.155 | |
| 06 00 | — | 25.02 | | |
| 06 20 | Shaded | 25.07 | 0.56 | |
| 08 00 | — | 24.51 | | |
| 08 20 | Exposed | 25.12 | 3.42+0.85 = 4.270 | |
| 10 00 | — | 28.54 | | |
| 10 20 | Shaded | 28.47 | 1.14 | |
| 11 12 00 | — | 27.33 | | |

---

| | | | | |
|---|---|---|---|---|
| 11 13 20 | Shaded | 26.74 | 0.76 | |
| 15 00 | — | 25.98 | | |
| 15 20 | Exposed | 26.52 | 3.20 | +1.005 = 4.205 |
| 17 00 | — | 29.72 | | |
| 17 20 | Shaded | 29.64 | 1.25 | |
| 11 19 00 | — | 28.39 | | |

Sept 4, 1912

L.C.

Sky 1 Cu Z hor. Air T = 73.0 F

|  |  |  |  |
|---|---|---|---|
| ~~12 11 20~~ |  |  |  |
| 12 06 20 | Shaded | 23.38 | -0.04 |
| 08 00 | — | 23.42 |  |
| 08 20 | Exposed | 23.52 | 3.95 + 027 = 4.220 |
| 10 00 | — | 27.47 |  |
| 10 20 | Shaded | 27.46 | 0.58 |
| 12 00 | — | 26.88 |  |
| 12 20 | Exposed | 27.42 | 3.26 + 0.8~~4~~3 = 4.090 |
| 14 00 | — | 30.68 |  |
| 14 20 | Shaded | 30.50 | 1.08 |
| 12 16 00 | — | 29.42 |  |

Sky 1 Cu hor. Air T = 69.0 F

L.C.Ab

|  |  |  |  |
|---|---|---|---|
| 1 23 20 | Shaded | 2~~8~~3.60 |  |
| 25 00 | — | 23.68 | -0.08 |
| 25 20 | Exposed | 24.32 | 3.80 + 0.28 = 4.080 |
| 27 00 | — | 28.12 |  |
| 27 20 | Shaded | 28.22 | 0.64 |
| 29 00 | — | 27.58 |  |
| 29 20 | Exposed | 28.09 | 3.19 + 0965 = 4.155 |
| 31 00 | — | 31.28 |  |
| 31 20 | Shaded | 31.19 | 1.19 |
| 1 33 00 | — | 30.00 |  |

C's Water used = 27.0 slow at 5 pm

Thur Sept 5, 1912.

F.C.Abe

Cs W = 27s slow at 10:33
Sky 1 Ci Cu hor
Air T = 67.0 F

10 44 20 a Shaded 18.52 −0.16
46 00 — 18.68
46 20 Exposed 19.50 3.84 + 0.18 = 4.020
48 00 — 23.34
48 20 Shaded 23.36 0.52
~~49~~ 50 00 — 22.84
~~49~~ 50 20 Exposed 23.51 3.35 + 0.745 = 4.095
52 00 — 26.86
52 20 Shaded 26.77 0.97
10 54 00 a — 25.80

---

~~A~~ P Obs

Watch m = 22s fast at 10 40 Sky 2 horz T = 69 7

12 03 20 Shaded 23 54
05 00 — 23 67 −13
05.20 Exposed 24 20
07.00 — 28 08 3.88 + 285 = 4.165
07 20 Shaded 28 40
09 00 — 27 70 .70
09 20 Exposed 27 88
11 00 — 30 60 2.~~88~~72 + .71 = 3~~4~~9 ?
11 20 Shaded 30 76
13 00 — 30 04 .72

Sept 5, 1912

fCOb

| Sky/Cu | bor | | Air T = | |
|---|---|---|---|---|
| 12 57 20 | Shaded | 23.11 | 0.07 | |
| 59 00 | —— | 23.04 | | |
| 7 59 20 | Exposed | 23.42 | 3.76 | +0.395 = 4.155 |
| 1 01 00 | —— | 27.18 | | |
| 01 20 | Shaded | 27.20 | 0.72 | |
| 03 00 | | 26.48 | | |
| 03 20 | Exposed | 27.01 | 3.07 | +0.955 = 4.025 |
| 05 00 | —— | 30.08 | | |
| 05 20 | Shaded | 30.00 | 1.19 | |
| 07 00 | —— | 28.81 | | |
| 07 20 | Exposed | 28.78 | | |
| 09 00 | —— | 31.58 | 2.80 | +1.275 = 4.075 |
| 09 20 | Shaded | 31.38 | | |
| 11 00 | —— | 30.02 | 1.36 | |

# Fri Sept 6, 1912

F.C.Alb.

Sky 1 Cu hor air T = 66.0 F.
ci ~~watet~~ = 24 slow at 10 am.

| | | | | |
|---|---|---|---|---|
| 10 10 20a | Shaded | 18.52 | -0.06 | |
| 12 00 | ——— | 18.58 | | |
| 12 20 | Exposed | 19.34 | 3.90 | +0.26 = 4.160 |
| 14 00 | ——— | 23.24 | | |
| 14 20 | Shaded | 23.28 | 0.58 | |
| 16 00 | ——— | 22.70 | | |
| 16 20 | Exposed | 23.30 | 3.39 | +0.79 = 4.180 |
| 18 00 | ——— | 26.69 | | |
| 18 20 | Shaded | 26.58 | 1.00 | |
| 10 20 00a | ——— | 25.58 | | |

| | | | | |
|---|---|---|---|---|
| 12 02 20p | Shaded | 25.03 | -0.04 | |
| 04 00 | ——— | 25.07 | | |
| 04 20 | Exposed | 25.78 | 3.84 | +0.325 = 4.165 |
| 06 00 | ——— | 29.62 | | |
| 06 20 | Shaded | 29.57 | 0.69 | |
| 08 00 | | 28.88 | | |
| 08 20 | Exposed | 29.42 | 3.12 | +0.975 = 4.095 |
| 10 00 | ——— | 32.54 | | |
| 10 20 | Shaded | 32.38 | 1.26 | |
| 12 12 00p | | 31.12 | | |

Sky 1 Cu hor NE air T = 69.0 F

Sept 6, 1912

P.C. Abb

Air T = 67.0°F

Sky 1 Cir. hor.

| | | | |
|---|---|---|---|
| 1 05 20 p | Shaded | 22.50 | 0.02 |
| 07 00 | — | 22.48 | |
| 07 21 | Exposed. | 23.19 | 3.83 +0.36 = 4.190 |
| 09 00 | — | 27.02 | |
| 09 20 | Shaded | 27.08 | 0.70 |
| 11 00 | | 26.38 | |
| 11 20 | Exposed | 26.90 | 3.17 +0.88 = 4.050 |
| 13 00 | | 30.07 | |
| 13 20 | Shaded | 29.95 | 1.26 |
| 1 15 00 p | | 28.69 | |

# Sat Sept 7th 1912

Watch m = 9s fast at 9.20 Sky 4 CiCu hor. J = 66.57
W P Obs

| | | | | |
|---|---|---|---|---|
| 11 01 20 | Shaded | 21 73 | | |
| 03 00 | — | 21 87 | -.14 | |
| 03 20 | Exposed | 22 22 | | |
| 05 00 | — | 25 40 | 3.18 | +.125 = 3.305 |
| 05 20 | Shaded | 25 49 | | |
| 07 00 | — | 25 88 | 39 | |
| 07 20 | Exposed | 26 50 | | |
| 09 00 | — | 29 72 | 3.22 | + .745 = 3.965 |
| 09 20 | Shaded | 29 90 | | |
| 11 00 | — | 28 80 | 1.10 | |

Watch m Sky 3 CiCu hor J : 66.57
W P Obs

| | | | | |
|---|---|---|---|---|
| Shaded | 12 00 20 | 22 53 | | |
| — | 02 00 | 22 56 | .03 | |
| Exposed | 02 20 | 23 20 | | |
| — | 04 00 | 27 10 | 3.80 ~~4.10~~ | +.375 = 4.175 ~~4.475~~ |
| Shaded | 04 20 | 27 38 | | |
| — | 06 00 | 26 60 | .78 | |
| Exposed | 06 20 | 27 02 | | |
| — | 08 00 | 30 20 | 3.18 | + 1.035 ~~.740~~ = 4.215 |
| Shaded | 08 20 | 30 29 | | |
| — | 10 00 | 29 00 | 1.29 ~~74~~ | |

Sept 7th 1912

Watch m    Sky 2 a Ci horz    T = 68.57
HP. Obs

| | | | |
|---|---|---|---|
| 1 08 20pm | Shaded | 22 23 | |
| 10 00 | | 22 29 -.06 | |
| 10 20 | Exposed | 22 87 | |
| 12 00 | | 26 79 | 3.82 + .305 = 4.125 |
| 12 20 | Shaded | 26 82 | |
| 14 00 | | 26 15 | .67 |
| 14 20 | Exposed | 26 51 | |
| 16 00 | | 29 81 | 3.30 + .93 = 4.23 |
| 16 20 | Shaded | 29 85 | |
| 18 00 | | 28 66 | 1.19 |

Sun Sept. 8, 1912

P.C. Obs

Spy 2 Cu hor. Air T = 68.0 F
windy

| | | | |
|---|---|---|---|
| 11 12 20a | Shaded. | 17.16 | - 0.10 |
| 14 00 | —— | 17.26 | |
| 14 20 | Exposed | 18.00 | 3.84 + 0.195 = 4.035 |
| 16 00 | —— | 21.84 | |
| 16 20 | Shaded | 21.87 | 0.49 |
| 18 00 | | 21.38 | |
| 18 20 | Exposed | 21.92 | 3.40 + 0.745 = 4.145 |
| 20 00 | —— | 25.32 | |
| 20 20 | Shaded | 25.22 | 1.00 |
| 11 22 00a | —— | 24.22 | |

| | | | |
|---|---|---|---|
| 11 48 20a | Shaded | 20.68 | -0.14 |
| 50 00 | —— | 20.82 | |
| 50 20 | Exposed | 21.52 | 3.88 + 030 = 4.180 |
| 52 00 | —— | 25.40 | |
| 52 20 | Shaded | 25.40 | +0.74 |
| 54 00 | —— | 24.76 | |
| 54 20 | Exposed | 25.39 | +3.16 +096 = 4.120 |
| 56 00 | —— | 28.55 | |
| 56 20 | Shaded | 28.44 | +1.18 |
| 58 00 | —— | 27.32 | |

Air T = 70.0 F

Cs W = 35s slow.

# Sept 8, 1912

Sky 2 a [illegible] Air T = 71.0 F

| | | | |
|---|---|---|---|
| ~~1.7 12 20~~ | ~~Shaded~~ | ~~22.62~~ 12 | |
| ~~9 18 00~~ | ~~—~~ | ~~22.16~~ | |
| ~~9 14 20~~ | ~~Exposed~~ | ~~2 .~~ | |
| ~~11 16 00~~ | | ~~.~~ | |
| ~~11 18 20~~ | ~~Shaded~~ | ~~.~~ | |
| ~~13 [illegible] 00~~ | ~~—~~ | ~~.~~ | |
| ~~13 14 20~~ | ~~Exposed~~ | ~~.~~ | |
| ~~15 20 00~~ | ~~—~~ | ~~.~~ | |
| ~~15 [illegible] 20~~ | ~~Shaded~~ | ~~.~~ | |
| ~~1 17 00~~ | ~~—~~ | ~~.~~ | |
| 1 10 20 | p Shaded | 25.42 | |
| 12 00 | | 25.08 | 0.34 |
| 12 20 | Exposed | 25.74 | 3.44 + 0645 = 4085 |
| 14 00 | — | 29.18 | |
| 14 20 | Shaded | 29.07 | |
| 16 00 | — | 28.12 | 0.95 |
| 16 20 | Exposed | 28.54 | 2.80 #12 = 3.92 |
| 18 00 | — | 31.34 | |
| 18 20 | Shaded | 31.17 | 1.29 |
| 1 20 00 | — | 29.88 | |

Mon Sept. 9, 1912

P.C. Obs

| | | | | |
|---|---|---|---|---|
| Sky 1 Cu | E. Lor. | | Air T = | 69.0 F |
| Shaded | 10 22 20 a | 17.13 | - 0.04 | |
| | 24 00 | 17.17 | | |
| Exposed | 24 20 | 17.93 | 3.98 | +0255 = 4.235 |
| | 26 00 | 21.91 | | |
| Shaded | 26 20 | 21.93 | + 0.55 | |
| | 28 00 | 21.38 | | |
| Exposed | 28 20 | 22.01 | 3.40 | +0755 = 4.155 |
| | 30 00 | 25.41 | | |
| Shaded | 30 20 | 25.30 | 0.96 | |
| | 10 32 00 a | 24.34 | | |
| Cs W = | 40s slow | at | 10:47 | |
| Shaded | 11 20 20 a | 21.80 | | |
| | 22 00 | 21.94 | - 0.14 | |
| Exposed | 22 20 | 22.68 | | |
| | 24 00 | 26.60 | + 3.92 | +0.25 = 4.170 |
| Shaded | 24 20 | 26.58 | +0.64 | |
| | 26 00 | 25.94 | | |
| Exposed | 26 20 | 26.58 | 3.30 + 0.87 = 4.170 | |
| | 28 00 | 29.88 | | |
| Shaded | 28 20 | 29.72 | 1.10 | |
| | 11 30 00 a | 28.62 | | |
| | | | Air T = | 67.0 F |

Sept 9, 1912.

LCAs

| | | | | |
|---|---|---|---|---|
| | Sky 0-1 Cu hor | | | air T = 67.5 F |
| | Shaded | 11 59 20 | 22.53 | |
| | | 12 01 00 | 22.48 | 005 |
| | Exposed | 01 20 | 23.24 | 3.77+034= ~~4.0[illegible]~~ 4110 |
| | | 03 00 | 27.01 | |
| | Shaded | 03 20 | 26.95 | 0.63 |
| | | 05 00 | 26.32 | |
| | Exposed | 05 20 | 26.88 | 3.04 ~~1.015~~ +0.995 4.035 |
| | | 07 00 | 29.92 | |
| | Shaded | 07 20 | 29.86 | 1.26 |
| | | 09 00 | 28.60 | |
| Sky 1 horz | Watch M: 16ª fast | | 12 52 01 | 7: 69.07 |
| | Shaded | 12 56 20 | 21.96 | HP Ols |
| | | 58 00 | 21 99 | -.03 |
| | Exposed | 58 20 | 22 60 | |
| | | 1 00 00 | 26 48 | 3.88+.345=4225 |
| | Shaded | 00 20 | 26 68 | |
| | | 02 00 | 25 97 | .71 |
| | Exposed | 02 20 | 26 39 | |
| | | 04 00 | 29 61 | 3.22+.905=4125 |
| | Shaded | 04 20 | 29 50 | |
| | | 06 00 | 28 40 | 1.10 |

Tues Sept 10, 1912

P. C. Obs

Sky 0 Air T = 66.0 F.

Cs W = 42s slow at 11:00

| | | | | |
|---|---|---|---|---|
| 11 06 20 | Shaded | 18.49 | -0.10 | |
| 08 00 | | 18.59 | | |
| 08 20 | Exposed | 19.38 | 4.06 | +027 = 4.330 |
| 10 00 | | 23.44 | | |
| 10 20 | Shaded | 23.55 | 0.64 | |
| 12 00 | | 22.91 | | |
| 12 20 | Exposed | 23.50 | 3.48 | +0.865 = 4.345 |
| 14 00 | | 26.98 | | |
| 14 20 | Shaded | 26.96 | 1.09 | |
| 11 16 00 | | 25.87 | | |

Sky 0 air T = 66.5 F.

| | | | | |
|---|---|---|---|---|
| 11 46 20 | Shaded | 21.79 | | |
| 48 00 | | 21.80 | -0.01 | |
| 48 20 | Exposed | 22.50 | | |
| 50 00 | | 26.39 | 3.89 | +0.405 = 4.295 |
| 50 20 | Shaded | 26.40 | | |
| 52 00 | | 25.58 | 0.82 | |
| 52 20 | Exposed | 26.19 | 3.23 | +1.02 = 4.250 |
| 54 00 | | 29.42 | | |
| 54 20 | Shaded | 29.32 | 1.22 | |
| 11 56 00 | | 28.10 | | |

Sept 10. 1912

CGAb

| | | | |
|---|---|---|---|
| Sky 0 | | Air T = 69° F. | |
| Shaded | 12 59 20 | 22.23 | -0.03 |
| | 1 01 00 | 22.25 | |
| Exposed | 01 20 | 22.98 | 3.92+0.355=4.275 |
| | 03 00 | 26.90 | |
| Shaded | 03 20 | 26.87 | 0.74 |
| | 05 00 | 26.13 | |
| Exposed | 05 20 | 26.74 | 3.24+1.03 =4.270 |
| | 07 00 | 29.98 | |
| Shaded | 07 20 | 29.87 | 1.32 |
| | 09 00 | 28.55 | |

Wed Sept 11, 1912

Watch M = 8s fast at 10 40 am  Sky 2  JP Obs

| | | | | |
|---|---|---|---|---|
| Shaded | 10 51 20 | 17 69 | | T = 67.5°F |
| | 10 53 00 | 17 79 | -0.10 | |
| Exposed | 53 20 | 18 47 | | |
| | 55 00 | 22 40 | 3.93 | +.19 = 4.12 |
| Shaded | 55 20 | 22 48 | | |
| | 57 00 | 22 00 | 0.48 | |
| Exposed | 57 20 | 22 57 | | |
| | 59 00 | 26 02 | 3.45 | +725 = 4.175 |
| Shaded | 59 20 | 26.05 | | |
| | 01 00 | 25 08 | 0.97 | |

C. W = 12s ~~fast at~~ 11:43  L C Obs

Sky 1 Cu low  Air T = 68.5 F°

| | | | | |
|---|---|---|---|---|
| Shaded | 11 31 20 | 22.08 | -0.12 | |
| | 33 00 | 22.20 | | |
| Exposed | 33 20 | 23.00 | 3.88 | +0285 = 4.165 |
| | 35 00 | 26.88 | | |
| Shaded | 35 20 | 26.87 | | |
| | 37 00 | 26.18 | +0.69 | |
| Exposed | 39 20 | 26.80 | | |
| | 39 00 | 29.99 | +3.19 | +095 = 4.140 |
| Shaded | 39 20 | 29.89 | 1.21 | |
| | 41 00 | 28.68 | | |

Sept. 11, 1912

Sky 0-1 Cu [illegible] [illegible]

Ci Watch used Amt = 700 ft

|  |  |  |  |  |
|---|---|---|---|---|
| Shaded | 1 14 20 | 24.98 | -0.02 |  |
|  | 16 00 | 25.00 |  |  |
| Exposed | 16 20 | 25.96 | + 3.56 + 0.33 = 3.89 |  |
|  | 18 00 | 29.52 |  |  |
| Shaded | 18 20 | 29.52 | 0.68 |  |
|  | 20 00 | 28.84 |  |  |
| Exposed | 20 20 | 29.46 | 3.03 + 0.96 = 3.99 |  |
|  | 22 00 | 32.49 |  |  |
| Shaded | 22 20 | 32.38 | 1.24 |  |
|  | 1 24 00 | 31.14 |  |  |

(Thurs) Sept 12, 1912

Sky 0 Air T = 69.5 F

C's W used = Correct ~~fast~~ at 1:11

| | | | |
|---|---|---|---|
| Shaded | 12 43 20 | 20.20 | -0.06 |
| | 45 00 | 20.26 | |
| Exposed | 45 20 | 21.00 | 3.96 +0.235 = 4.195 |
| | 47 00 | 24.96 | |
| Shaded | 47.20 | 24.97 | 0.53 |
| | 49.00 | 24.44 | |
| Exposed | 49 20 | 24.96 | 3.35 +0.775 = 4.125 |
| | 51 00 | 28.31 | |
| Shaded | 51 20 | 28.21 | 1.02 |
| | 53 00 | 27.19 | |
| Exposed | 53 20 | 27.72 | 2.99 + 1.17 = 4.160 |
| | 55 00 | 30.71 | |
| Shaded | 55 20 | 30.50 | 1.32 |
| | 57 00 | 29.18 | |
| Exposed | 57 20 | 29.64 | 2.68 + 1.45 = 4.130 |
| | 59 00 | 32.32 | |
| Shaded | 12 59 20 | 32.11 | 1.58 |
| | 1 01 00 | 30.53 | |
| Exposed | 01 20 | 30.99 | 2.49 + 1.65 = 4.140 |
| | 03 00 | 33.48 | |
| Shaded | 03 20 | 33.22 | 1.72 |
| | 05 00 | 31.50 | |
| Exposed | 05 20 | 31.92 | 2.40 + 1.77 = 4.170 |
| | 07 00 | 34.32 | |
| Shaded | 07 20 | 34.01 | 1.82 |
| | 1 09 00 | 32.19 | |

# Fri Sept 13, 1912

## Black Friday

Sky hazy hor. P.C. Obs                air T = 67.0 F

| | | | | |
|---|---|---|---|---|
| 10 | 40 20 | Shaded | 18.70 | −0.084 |
| | 42 00 | | 18.78 | |
| | 42 20 | Exposed | 19.49 | 3.99 +0.255 = 4.245 |
| | 44 00 | | 23.48 | |
| | 44 20 | Shaded | 23.49 | 0.59 |
| | 46 00 | | 22.90 | |
| | 46 20 | Exposed | 23.49 | 3.33 + 0.835 = 4.165 |
| | 48 00 | | 26.82 | |
| | 48 20 | Shaded | 26.78 | 1.08 |
| | 50 00 | | 25.70 | |
| | 50 20 | Exposed | 26.18 | 3.07 + 1.225 = 4.295 |
| | 52 00 | | 29.25 | |
| | 52 20 | Shaded | 29.06 | 1.37 |
| | 54 00 | | 27.69 | |
| | 54 20 | Exposed | 28.14 | 2.72 + 1.455 = 4.175 |
| | 56 00 | | 30.86 | |
| | 56 20 | Shaded | 30.62 | 1.54 |
| | 58 00 | | 29.08 | |
| | 58 20 | Exposed | 29.40 | 2.52 + 1.670 = 4.190 |
| 11 ~~10~~ | 00 00 | | 31.92 | |
| | 00 20 | Shaded | 31.70 | 1.80 |
| | 02 00 | | 29.90 | |
| | 02 20 | Exposed | 30.30 | 2.49 + 1.79 = 4.280 |
| | 04 00 | | 32.79 | |
| | 04 20 | Shaded | 32.48 | 1.78 |
| 11 | 06 00 | | 30.70 | |

Copied

C's Watch used = $20^{s}$ slow at 11, 08

Sat Sept. 14, 1912

P.C. Obr.

Shy 0 air T = 69.5 F

Cs W used = 37² slow at 11.00

| | | | | |
|---|---|---|---|---|
| Shaded | 11 35 20 | 20.09 | -0.03 | |
| | 37 00 | 20.12 | | |
| Exposed | 37 20 | 20.92 | 3.98 | +0275 = 4.255 |
| | 39 00 | 24.90 | | |
| Shaded | 39 20 | 24.90 | 0.58 | |
| | 41 00 | 24.32 | | |
| Exposed | 41 20 | 24.96 | 3.47 | +0815 = 4.285 |
| | 43 00 | 28.43 | | |
| Shaded | 43 20 | 28.34 | 1.05 | |
| | 45 00 | 27.29 | | |
| Exposed | 45 20 | 27.81 | 3.03 | +1.195 = 4225 |
| | 47 00 | 30.84 | | |
| Shaded | 47 20 | 30.70 | 1.34 | |
| | 49 00 | 29.36 | | |
| Exposed | 49 20 | 29.84 | 2.77 | +1.44 = 4.210 |
| | 51 00 | 32.61 | | |
| Shaded | 51 20 | 32.37 | 1.54 | |
| | 53 00 | 30.83 | | |
| Exposed | 53 20 | 31.33 | 2.57 | +1.605 = 4.175 |
| | 55 00 | 33.90 | | |
| Shaded | 55 20 | 33.60 | 1.67 | |
| | 11 57 00 | 31.93 | | |

# Sun Sept 15, 1912

Air T = 67.0 F LC Abz

Sky = 0

Cir W. used = 35s slow at 10.50

| | | | |
|---|---|---|---|
| 10 59 20a | Shaded | 19.58 | − 0.11 |
| 11 01 00 | —— | 19.69 | |
| 01 20 | Exposed | 20.52 | 4.10 + 0195 = 4.295 |
| 03 00 | —— | 24.62 | |
| 03 20 | Shaded | 24.69 | 0.50 |
| 05 00 | —— | 24.19 | |
| 05 20 | Exposed | 24.84 | 3.54 + 075 = 4.29 |
| 07 00 | —— | 28.38 | |
| 07 20 | Shaded | 28.34 | 1.00 |
| 09 00 | —— | 27.34 | |
| 09 20 | Exposed | 27.82 | 3.10 + 1.155 = 4.255 |
| 11 00 | —— | 30.92 | |
| 11 20 | Shaded | 30.88 | 1.31 |
| 13 00 | —— | 29.57 | |
| 13 20 | Exposed | 30.10 | 2.82 + 1.385 = 4.205 |
| 15 00 | —— | 32.92 | |
| 15 20 | Shaded | 32.70 | 1.46 |
| 17 00 | —— | 31.24 | |
| 17 20 | Exposed | 31.70 | 2.52 + 1.57 = 4.090 |
| 19 00 | —— | 34.22 | |
| 19 20 | Shaded | 34.10 | 1.68 |
| 11 21 00a | —— | 32.42 | 2.50 + 1.795 = 4.295 |
| 21 20 | Exposed | 32.92 | |
| 23.00 | | 35.42 | |
| 23 20 | Shaded | 35.14 | 1.91 |
| 25 00 | | 33.43 | |

## Mon Sept. 16, 1912

LC Obs

|  |  |  |  |
|---|---|---|---|
| Sky 0 |  |  | Air T = 65.0 F |
|  | Cs watch = | $10^s$ slow at 11:00 |  |
| Shaded | 11 07 20a | 19.40 | −0.10 |
|  | 09 00 | 19.50 |  |
| Exposed | 09 20 | 20.28 | +3.92 + 0.255 = 4.175 |
|  | 11 00 | 24.20 |  |
| Shaded | 11 20 | 24.20 | + 0.61 ≠ |
|  | 13 00 | 23.59 |  |
| Exposed | 13 20 | 24.23 | + 3.36 + 0.85 = 4.210 |
|  | 15 00 | 27.59 |  |
| Shaded | 15 20 | 27.49 | + 1.09 = |
|  | 17 00 | 26.40 |  |
| Exposed | 17 20 | 26.98 | + 2.92 + 1.275 = 4.195 |
|  | 19 00 | 29.90 |  |
| Shaded | 19 20 | 29.88 | + 1.48 |
|  | 21 00 | 28.40 |  |
| Exposed | 21 20 | 28.70 | + 2.72 + 1.590 = 4.310 |
|  | 23 00 | 31.42 |  |
| Shaded | 23 20 | 31.30 | + 1.70 |
|  | 25 00 | 29.60 |  |
| Exposed | 25 20 | 30.08 | + 2.41 + 1.735 = 4.145 |
|  | 27 00 | 32.49 |  |
| Shaded | 27 20 | 32.56 | + 1.87 |
|  | 29 00 | 30.69 ≠ |  |
| Exposed | 29 20 | 31.08 | + 2.32 + 1.91 = 4.230 |
|  | 31 00 | 33.40 ≠ |  |
| Shaded | 31 20 | 33.20 | + 1.95 |
|  | 11 33 00a | 31.25 |  |

Tues Sept 17, 1912

L C Ab

Sky Clear Air T = 67.0 F

| | | | |
|---|---|---|---|
| 10 44 20a | Shaded | 1898 - 0 10 | |
| 46 00 | — | 1908 | |
| 46 20 | Exposed | 19.80 | 3.98 + 025 = 4.230 |
| 48 00 | — | 2378 | |
| 48 20 | Shaded | 23.80 | 0 60 |
| 50 00 | — | 23 20 | |
| 50 20 | Exposed | 2368 | 3.32 + 0.81 = 4.130 |
| 52 00 | — | 27.00 | |
| 52 20 | Shaded | 26.90 | 1.02 |
| 54 00 | — | 25.88 | |
| 54 20 | Exposed | 26.37 | 3.05 + 118 = 4230 |
| 56 00 | — | 29.42 | |
| 56 20 | Shaded | 29.22 | 1.34 |
| 58 00 | — | 27.88 | |
| 58 20 | Exposed | 28.28 | 2.72 + 1.42 = 4.140 |
| 11 00 00 | — | 31.00 | |
| 00 20 | Shaded | 30.84 | 1.50 |
| 02 00 | — | 29.34 | |
| 02 20 | Exposed | 29.78 | 2.44 + 1.555 = 3.995 |
| 04 00 | | 32.22 | |
| 04 20 | Shaded | 32.18 | 1.61 |
| 06 00 | — | 30.57 | |
| 06 20 | Exposed | 30.98 | 2.35 + 1.685 = 4.035 |
| 08 00 | — | 33.33 | |
| 08 20 | Shaded | 33.09 | 1.76 |
| 11 10 00a | — | 31.33 | |

Cr W used above = 10$^s$ slow at 11$^h$ 12

Wed. Sept. 18, 1912

LC Ob

| | | | | |
|---|---|---|---|---|
| Sky 0 | Windy | | Air T = | 66.5 F |
| 10 54 20a | Shaded | 18.82 | -0.08 | |
| 56 00 | —— | 18.90 | | |
| 56 20 | Exposed | 19.58 | 3.92+0.26 | = 4.180 |
| 58 00 | —— | 23.50 | | |
| 58 20 | Shaded | 23.58 | 0.60 | |
| 11 00 00 | —— | 22.98 | | |
| 00 20 | Exposed | 23.69 | 3.31 +0.835 | = 4.145 |
| 02 00 | —— | 27.00 | | |
| 02 20 | Shaded | 26.91 | 1.07 | |
| 04 00 | —— | 25.84 | | |
| 04 20 | Exposed | 26.40 | 280 +125 | = 4.050 |
| 06 00 | —— | 29.20 | | |
| 06 20 | Shaded | 29.18 | 1.43 | |
| 08 00 | —— | 27.75 | | |
| 08 20 | Exposed | 28.20 | 2.62 +1575 | = 4.135 |
| 10 00 | | 30.82 | | |
| 10 20 | Shaded | 30.61 | 1.60 | |
| 12 00 | —— | 29.01 | | |
| 12 ~~20~~ 4 | Exposed | 28.80 | 2.42 +1605 | = 4.025 |
| 14 ~~50~~ 2 | —— | 31.22 | | |
| 14 ~~40~~ 30 | Shaded | 31.12 | 1.61 | |
| 16 ~~00~~ 10 | —— | 29.51 | | |
| ~~16 20~~ | ~~Exposed~~ | ~~29.59~~ | | |
| ~~18 00~~ | | | | |
| ~~18 20~~ | ~~Shaded~~ | | | |
| 11 ~~20 00a~~ | | | | |

C's watch used = 15 sec ~~slow~~ fast 11 22

Copied

Thurs Sept 19, 1912

L.C. Obs.

| | | | |
|---|---|---|---|
| Sky 2 Cu hor | | Air T = 70.0 F | |
| 10 27 20 | Shaded | 19.88 | −0.12 |
| 29 00 | | 2000 | |
| 29 20 | Exposed | 20.68 | 3.97 ~~+0.185~~ +0.185 = 4.155 |
| 31 00 | | 2463 | |
| 31 20 | Shaded | 2469 | 0.49 |
| 33 00 | | 24.20 | |
| 33 20 | Exposed | 24.62 | 3.40 +0.72 = 4.120 |
| 35 00 | | 28.02 | |
| 35 20 | Shaded | 27.93 | 0.95 |
| 37 00 | | 26.98 | |
| 37 20 | Exposed | 27.48 | 2.94+1.13=4.070 |
| 39 00 | | 30.42 | |
| 39 20 | Shaded | 30.37 | 1.31 |
| 41 00 | | 29.06 | |
| 41 20 | Exposed | 29.58 | 2.60+1.435= 4.035 |
| 43 00 | | 32.18 | |
| 43 20 | Shaded | 31.97 | 1.56 |
| 45 00 | | 30.41 | |
| 45 20 | Exposed | 30.92 | 2.46+1.60 = 4.060 |
| 47 00 | | 33.38 | |
| 47 20 | Shaded | 33.19 | 1.64 |
| 49 00 | | 31.55 | |
| 49 20 | Exposed | 31.92 | 2.32+1.69=4.010 |
| 51 00 | | 34.24 | |
| 51 20 | Shaded | 34.00 | 1.74 |
| 10 53 00 | | 32.26 | |

C's watch used = 37s slow at 11:05

Fri. Sept. 20, 1912

P.C. Obs

Sky 5 Cir Scatt Clear near Sun | Air T = 720 F.

| | | | | |
|---|---|---|---|---|
| 10:44 20 | Shaded | 21.44 | −0.02 | |
| 46 00 | — | 21.46 | | |
| 46 20 | Exposed | 22.28 | 3.84 | +0295 = 4.135 |
| 48 00 | — | 26.12 | | |
| 48 20 | Shaded | 26.10 | 0.61 | |
| 50 00 | | 25.49 | | |
| ~~50 20~~ 50 20 | Exposed | 26.10 | 3.38 | +0.835 = 4.215 |
| 10 ~~00~~ 52 00 | — | 29.48 | | |
| 52 20 | Shaded | 29.32 | 1.06 | |
| ~~62~~ 54 00 | — | 28.26 | | |
| ~~62~~ 54 20 | Exposed | 28.78 | 2.92 | +1.195 = 4.115 |
| ~~04~~ 56 00 | — | 31.70 | | |
| ~~04~~ 56 20 | Shaded | 31.52 | 1.33 | |
| ~~06~~ 58 00 | — | 30.19 | | |
| ~~06~~ 58 20 | Exposed | 30.64 | 2.80 | +1.445 = 4.245 |
| 11 ~~08~~ 00 00 | — | 33.44 | | |
| ~~08~~ 00 20 | Shaded | 33.64 | 1.56 | |
| ~~10~~ 02 00 | — | 32.08 | | |
| ~~10~~ 02 20 | Exposed | 32.44 | 2.50 | +1.645 = 4.145 |
| ~~12~~ 04 00 | — | 34.94 | | |
| ~~12~~ 04 20 | Shaded | 34.61 | 1.73 | |
| ~~14~~ 06 00 | — | 32.88 | | |
| ~~14~~ 06 20 | Exposed | 33.24 | 2.32 | +1.80 = 4.120 |
| ~~16~~ 08 00 | — | 35.56 | | |
| ~~16~~ 08 20 | Shaded | 35.29 | 1.87 | |
| ~~18~~ 10 00 | — | 33.42 | | |

Q's W used = 48° low at 11:12

Copied

Sun Sept 22, 1912

P.C. Obs

Sky 4 Ci Cy Cu Scatt Clear near Sun

Ag W. used = 16.0 slow at 11:02 Air T = 69.0

| | | | |
|---|---|---|---|
| 10 34 20 | Shaded | 19.88 | -0.10 |
| 36 00 | —— | 19.98 | |
| 36 20 | Exposed | 20.76 | 3.90+0.26 = 4.160 |
| 38 00 | —— | 24.66 | |
| 38 20 | Shaded | 24.66 | 0.62 |
| 40 00 | —— | 24.04 | |
| 40 20 | Exposed | 24.66 | 3.34+0.80 = 4.140 |
| 42 00 | —— | 28.00 | |
| 42 20 | Shaded | 27.90 | 0.98 |
| 44 00 | —— | 26.92 | |
| 44 20 | Exposed | 27.38 | 2.88+1.14 = 4.020 |
| 46 00 | —— | 30.26 | |
| 46 20 | Shaded | 30.07 | 1.30 |
| 48 00 | —— | 28.77 | |
| 48 20 | Exposed | 29.16 | 2.70+1.45 = 4.150 |
| 50 00 | —— | 31.86 | |
| 50 20 | Shaded | 31.62 | 1.60 |
| 52 00 | —— | 30.02 | |
| 52 20 | Exposed | 30.49 | 2.46+1.665 = 4.105 |
| 54 00 | —— | 32.95 | |
| 54 20 | Shaded | 32.72 | 1.73 |
| 56 00 | —— | 30.99 | |
| 56 20 | Exposed | 31.42 | 2.30+1.785 = 4.085 |
| 58 00 | —— | 33.72 | |
| 58 20 | Shaded | 33.49 | 1.84 |
| 11 00 00 | —— | 31.65 | |

Tues. Sept. 24, 1912

L.C. Obs.

Sky 1 Cu hor    air T = 71.0 F
Ci W = 59s slow at 10.00 am

| | | | |
|---|---|---|---|
| 9 25 20a | Shaded | 18.90 | -0.19 |
| 27 00 | ——— | 19.09 | |
| 27 20 | Exposed | 19.80 | 3.89 + 008 = 3.970 |
| 29 00 | ——— | 23.69 | |
| 29 20 | Shaded | 23.73 | 0.35 |
| 31 00 | ——— | 23.38 | |
| ~~31 20~~ | ~~Exposed~~ | ~~2~~ | |
| ~~33 00~~ | | ~~2~~ | |
| 37 20 | Shaded | 22.90 | -0.02 |
| 39 00 | ——— | 22.92 | |
| 39 20 | Exposed | 23.78 | 3.64 + 0225 = 3.865 |
| ~~37~~ 41 00 | ——— | 27.42 | |
| ~~37~~ 41 20 | Shaded | 27.41 | 0.47 |
| 9 ~~39~~ 43 00a | ——— | 26.94 | |
| 43 20 | Exposed | 27.50 | 3.32 + 0675 = 3.995 |
| 45 00 | ——— | 30.82 | |
| 45 20 | Shaded | 30.74 | 0.88 |
| 47 00 | ——— | 29.86 | |
| 47 20 | Exposed | 30.39 | 2.95 + 1.005 = 3.955 |
| 49 00 | ——— | 33.34 | |
| 49 20 | Shaded | 33.22 | 1.13 |
| 9 51 00a | ——— | 32.09 | |

Above Obs. taken inside of old Mer Plot House.

~~Oc~~ Sept 24. 1912.

R.C. Obs

Sky 2 Cu hor .. Air T= 75.5 F.

| | | | |
|---|---|---|---|
| Shaded | 10 33 20a | 28.08 | −0.20 |
| | 35 00 | 28.28 | |
| Exposed | 35 20 | 28.84 | 3.80 + 0.155 = 3.955 |
| | 37 00 | 32.64 | |
| Shaded | 37 20 | 32.69 | 0.51 |
| | 39 00 | 32.18 | |
| Exposed | 39 20 | 32.78 | 3.26 + 0.0755 = ~~4.66~~ 4.015 |
| | 41 00 | 36.04 | |
| Shaded | 41 20 | 35.92 | 1.00 |
| | 43 00 | 34.92 | |
| Exposed | 43 20 | 35.42 | 2.86 + 1.14 = 4.000 |
| | 45 00 | 38.28 | |
| Shaded | 45 20 | 38.18 | 1.28 |
| | 10 47 00a | 36.90 | |
| Exposed | 47 20 | 37.16 | 2.64 + 1.36 = 4.000 |
| | 49 00 | 39.80 | |
| Shaded | 49 20 | 39.60 | 1.44 |
| | 10 51 00a | 38.16 | |

Ob. Taken Inside of M. P. Shelter.

Wed Sept 25 1912

A.C. Obs.

Sky 2 Cu hor  Air T = 75.0 F

C's watch used = 10s slow at 11.00

| | | | | |
|---|---|---|---|---|
| 10 15 20a | Shaded | 24.68 | -0.07 | |
| 17 00 | —— | 24.75 | | |
| 17 20 | Exposed | 25.46 | 3.73 | +0.225 = 3.955 |
| 19 00 | —— | 29.19 | | |
| 19 20 | Shaded | 29.20 | 0.52 | |
| 21 00 | —— | 28.68 | | |
| 21 20 | Exposed | 29.23 | 3.16 | +075 = 3.910 |
| 23 00 | —— | 32.39 | | |
| 23 20 | Shaded | 32.37 | 0.98 | |
| 25 00 | —— | 31.39 | | |
| 25 20 | Exposed | 31.89 | 2.79 | +1.10 = 3.890 |
| 27 00 | —— | 34.68 | | |
| 27 20 | Shaded | 34.49 | 1.22 | |
| 29 00 | —— | 33.27 | | |
| 29 20 | Exposed | 33.72 | 2.64 | +1.34 = 3.98 |
| 31 00 | —— | 36.36 | | |
| 31 20 | Shaded | 36.12 | 1.46 | |
| 10 33 00 | —— | 34.66 | | |
| ~~33 20~~ | ~~Exposed~~ | ~~3.~~ | Roof blew closed | |
| ~~35 00~~ | | | | |
| 10 35 20 | Shaded | 33.44 | 0.92 | |
| 37 00 | —— | 32.52 | | |
| 37 20 | Exposed | 33.02 | 2.92 | +1.055 = 3.975 |
| 39 00 | —— | 35.94 | | |
| 39 20 | Shaded | 35.83 | 1.19 | |
| 10 41 00a | —— | 34.64 | | |

~~Air T = F.~~

(over)

Sept 25, 1912 (cont)
LC Obs.

| | | | | | |
|---|---|---|---|---|---|
| 10 | 41 20a | Exposed | 35.02 | 2.66 | +1.295 = 3.955 |
| | 43 00 | ——— | 37.68 | | |
| | 43 20 | Shaded | 37.52 | 1.40 | |
| | 45 00 | ——— | 36.12 | | |
| | 45 20 | Exposed | 36.40 | 2.50 | +1.49 = 3.990 |
| | 47 00 | ——— | 38.90 | | |
| | 47 20 | Shaded | 38.77 | 1.58 | |
| 10 | 49 00a | ——— | 37.89 | | |

Air T = 79.0 F.

Sept 27, 1912 (Fri.)

F.C. Obs.

Sky 3 Cu Ci Scatt. Clear Near Sun.
air T = 77.5 F

| | | | |
|---|---|---|---|
| Shaded | 10 09 20 | 24.30 | −0.10 |
| | 11 00 | 24.40 | |
| Exposed | 11 20 | 25.10 | 3.81 + 0.235 = 4.045 |
| | 13 00 | 28.91 | |
| Shaded | 13 20 | 28.93 | 0.57 |
| | 15 00 | 28.36 | |
| Exposed | 15 20 | 28.93 | < clouds near ☉ |
| | 17 00 | 32.16 | 3.23 + 0.82 4.050 |
| Shaded | 17 20 | 32.11 | 1.07 |
| | 19 00 | 31.04 | < clearer |
| Exposed | 19 20 | 31.60 | 2.80 + 1.21 = 4.010 |
| | 21 00 | 34.40 | |
| Shaded | 21 20 | 34.28 | 1.35 |
| | 23 00 | 32.93 | |
| Exposed | 23 20 | 33.42 | 2.62 + 1.41 = 4.030 |
| | 25 00 | 36.04 | |
| Shaded | 25 20 | 35.87 | 1.47 |
| | 27 00 | 34.40 | |

Sky variable after 10.15.

C's watch used = 30$^s$ slow at 10 29

Mon Sept 30, 1912

LC Obs

Sky 2 Cu few clear near ⊙   Air T=82.0 F

Cs watch used = $2^s$ slow at 11:00

| | | | |
|---|---|---|---|
| 11 15 20 | Shaded | 26.42 | -0.10 |
| 17 00 | | 26.52 | |
| 17 20 | Exposed | 27.30 | 4.04+0.25 = 4.290 |
| 19 00 | | 31.34 | |
| 19 20 | Shaded | 31.38 | 0.60 |
| 21 00 | | 30.78 | |
| 21 20 | Exposed | 31.48 | 3.40+0.805 = 4.205 |
| 23 00 | | 34.88 | |
| 23 20 | Shaded | 34.78 | 1.01 |
| 25 00 | | 33.77 | |
| 25 20 | Exposed | 34.22 | 3.17+1.20 = 4.370 |
| 27 00 | | 37.39 | |
| 27 20 | Shaded | 37.33 | 1.39 |
| 29 00 | | 35.94 | |
| 29 20 | Exposed | 36.39 | 2.73+1.45 = 4.180 |
| 31 00 | | 39.12 | |
| 31 20 | Shaded | 38.99 | 1.51 |
| 33 00 | | 37.48 | |
| 33 20 | Exposed | 37.93 | 2.59+1.60 = 4.190 |
| 35 00 | | 40.52 | |
| 35 20 | Shaded | 40.28 | 1.69 |
| 37 00 | | 38.59 | |
| 37 20 | Exposed | 39.06 | 2.42+1.75 = 4.170 |
| 39 00 | | 41.48 | |
| 39 20 | Shaded | 41.19 | 1.81 |
| 41 00 | | 39.38 | |

Copied

Tues. Oct. 1, 1912

L.C. Ab

Sky 0

Cs' W used = 8s slow at 11 a T = 80.0 F

| | | | | |
|---|---|---|---|---|
| Shaded | 10 56 20a | 26.10 | ~0.06 | |
| | 58 00 | 26.16 | | |
| Exposed | 58 20 | 27.00 | 4.00 + 0.32 = 4.320 | |
| | 11 00 00 | 31.00 | | |
| Shaded | 00 20 | 31.00 | 0.68 | |
| | 02 00 | 30.32 | | |
| Exposed | 02 20<br>~~04 00~~ | 30.90 | 3.48 + 0.88 = 4.360 | |
| | ~~04 20~~<br>04 00 | 34.38 | | |
| Shaded | 04 20<br>~~06 00~~ | 34.24 | 1.08 | |
| | 06 00<br>~~06 20~~ | 33.16 | | |
| Exposed | 06 20<br>~~08 00~~ | 33.70<br>~~34.20~~ | 3.08<br>~~2.58~~ | + 1.24 = 4.320 |
| | ~~08 20~~<br>08 00 | 36.78 | | |
| Shaded | 08 20<br>~~10 00~~ | 36.59 | 1.40 | |
| | 10 00<br>~~10 20~~ | 35.19 | | |
| Exposed | 10 20<br>~~12 00~~ | 35.90 | 2.63 + 1.515 = 4.145 | |
| | 12 00 ~~20~~ | 38.53 | | |
| Shaded | 12 20<br>~~14 00~~ | 38.35 | 1.63 | |
| | 14 00 ~~20~~ | 36.72 | | |
| Exposed | 14 20<br>~~16 00~~ | 37.10 | 2.64 | + 1.67 = 4.310 |
| | 16 00 ~~20~~ | 39.74 | | |
| Shaded | 16 20<br>~~18 00~~ | 39.49 | 1.71<br>~~2.31~~ | |
| | 18 00 ~~20~~ | 37.78 | | |
| Exposed | 18 20 ~~20 00~~ | 38.20 | 2.52 | + 1.635 = 4.155 |
| | 20 00 ~~20 20~~ | 40.72 | | |
| Shaded | 20 20 | 40.42 | 1.56 | |
| | 11 22 00a | 38.66 | | |

Above obs not considered excellent as Ob. was a trifle excited.

Oct 1, 1912

| Sky 0 | | Air T = 84.0 F | |
|---|---|---|---|
| 12 59 20p | Shaded | 27.97 | −0.01 |
| 1 01 00 | —— | 27.98 | |
| 01 20 | Exposed | 28.72 | 3.86+0.31 = 4.170 |
| 03 00 | —— | 32.58 | |
| 03 20 | Shaded | 32.50 | 0.63 |
| 05 00 | —— | 31.87 | |
| 05 20 | Exposed | 32.44 | 3.28+0.88 = 4.160 |
| 07 00 | —— | 35.72 | |
| 07 20 | Shaded | 35.66 | 1.13 |
| 09 00 | —— | 34.53 | |
| 09 20 | Exposed | 34.99 | 2.93+1.28 = 4.210 |
| 11 00 | —— | 37.92 | |
| 1 11 20p | Shaded | 37.77 | ~~1.13~~ |
| 1 13 00 p | —— | 36.34 | 1.43 |
| 13 20 | Exposed | 36.87 | 2.61+1.52 = 4.130 |
| 15 00 | —— | 39.48 | |
| 15 20 | Shaded | 39.28 | 1.61 |
| 17 00 | —— | 37.61 | |

Above obs considered much better than the earlier sets.

## Wed Oct. 2, 1912

L.C. Obs

Sky 1 Cirrus hor   Air T = 77.0 F

Cs W = $16^s$ slow at 10:20.

| | | | |
|---|---|---|---|
| Shaded | 10 25 20 | 24.84 | -0.09 |
| | 27 00 | 24.93 | |
| Exposed | 27 20 | 25.70 | 3.98 +0225 = 4.205 |
| | 29 00 | 29.68 | |
| Shaded | 29 20 | 29.67 | 0.54 |
| | 31 00 | 29.13 | |
| Exposed | 31 20 | 29.77 | 3.43+0785 = 4.215 |
| | 33 00 | 33.20 | |
| Shaded | 33 20 | 33.07 | 1.03 |
| | 35 00 | 32.04 | |
| Exposed | 35 20 | 32.57 | 3.05+118 = 4230 |
| | 37 00 | 35.62 | |
| Shaded | 37 20 | 35.47 | 1.33 |
| | 39 00 | 34.14 | |
| Exposed | 39 20 | 34.57 | 2.86+1.44 = 4.300 |
| | 41 00 | 37.43 | |
| Shaded | 41 20 | 37.24 | 1.55 |
| | 43 00 | 35.69 | |
| Exposed | 43 20 | 36.11 | 2.73 +1.60 = 4.330 |
| | 45 00 | 38.84 | |
| Shaded | 45 20 | 38.59 | 1.65 |
| | 10 47 00 a | 36.94 | |

# Thur Oct 3, 1912

LC Abt.

Sky 5 CiCu Scatd but thin  Air T = 82.0 F
Clear near ☉

| | | | | |
|---|---|---|---|---|
| 11 18 20a | Shaded | 27.02 | -0.06 | |
| 20 00 | — | 27.08 | | |
| 20 20 | Exposed | 27.84 | 4.05 + 0.305 = 4.355 | |
| 22 00 | — | 31.89 | | |
| 22 20 | Shaded | 31.96 | 0.67 | |
| 24 00 | — | 31.29 | | |
| 24 20 | Exposed | 31.89 | 3.40 + 0.925 = 4.325 | |
| 26 00 | — | 35.29 | | |
| 26 20 | Shaded | 35.19 | 1.18 | |
| 28 00 | — | 34.01 | | |
| 28 20 | Exposed | 34.60 | 3.10 + 1.30 = 4.400 | |
| 30 00 | — | 37.70 | | |
| 30 20 | Shaded | 37.54 | 1.42 | |
| 11 32 00a | — | 36.12 | | |
| 32 20 | Exposed | 36.54 | 2.80 + 1.53 = 4.330 | |
| 34 00 | — | 39.34 | | |
| 34 20 | Shaded | 39.16 | 1.64 | |
| 11 36 00a | — | 37.52 | | |

C's Watch used on above, = $5^m 48^s$ slow at 11.44

Sun. Oct 6, 1912

L.C. Obs.

Sky at S Cu Show Clear near ⊙ Air T = 79.0 F

| | | | | |
|---|---|---|---|---|
| 11 29 20a | Shaded | 25.72 | - 0.05 | |
| 31 00 | ——— | 25.77 | | |
| 31 20 | Exposed | 26.44 | 3.~~4~~94 | +0285 = 4.225 |
| 33 00 | ——— | 30.38<br>~~29.88~~ | | |
| 33 20 | Shaded | 30.39 | 0.62 | |
| 35 00 | ——— | 29.77 | | |
| 35 20 | Exposed | 30.31 | 3.32 | +085 = 4.170 |
| 37 00 | ——— | 33.63 | | |
| 37 20 | Shaded | 33.59 | 1.08 | |
| 39 00 | ——— | 32.51 | | |
| 39 20 | Exposed | 32.99 | 2.98 | +121 = 4.190 |
| 41 00 | ——— | 35.97 | | |
| 41 20 | Shaded | 35.82 | 1.34 | |
| 43 00 | ——— | 34.48 | | |
| 43 20 | Exposed | 34.89 | 2.71 | +1425 = 4.135 |
| 45 00 | ——— | 37.60 | | |
| 45 20 | Shaded | 37.44 | 1.51 | |
| 47 00 | ——— | 35.93 | | |
| 47 20 | Exposed | 36.39 | 2.56 | +1.55 = 4.110 |
| 49 00 | ——— | 38.95 | | |
| 49 20 | Shaded | 38.69 | 1.59 | |
| 11 51 00a | ——— | 37.10 | | |

C's Watch = 25s slow at 11:55

Tues. Oct 8, 1912

C's Watch = 13s slow at 10:16
Sky 2 Cirr hor. Clear near ⊙  Air T=77.5 F

| | | | |
|---|---|---|---|
| 10 25 20a | Shaded | 24.96 | -0,06 |
| 27 00 | — | 25.02 | |
| 27 20 | Exposed | 25.79 | 4.09 +0.265= 4.355 |
| 29 00 | — | 29.88 | |
| 29 20 | Shaded | 29.84 | 0.59 |
| 31 00 | — | 29.25 | |
| 31 20 | Exposed | 29.91 | 3.47+0.825= 4.295 |
| 33 00 | — | 33.38 | |
| 33 20 | Shaded | 33.26 | 1.06 |
| 35 00 | — | 32.20 | |
| 35 20 | Exposed | 32.78 | 3.03+1.24 = 4.270 |
| 37 00 | — | 35.81 | |
| 37 20 | Shaded | 35.63 | 1.42 ~~1.8~~ |
| 39 00 | — | 34.21 | |
| 39 20 | Exposed | 34.78 | 2.74 +1.495 = 4.235 |
| 41 00 | — | 37.52 | |
| 41 20 | Shaded | 37.29 | 1.57 |
| 43 00 | — | 35.72 | |
| 43 20 | Exposed | 36.07 | 2.62 +1.64 = 4.260 |
| 45 00 | — | 38.69 | |
| 45 20 | Shaded | 38.47 | 1.71 |
| 47 00 | — | 36.76 | |
| 47 20 | Exposed | 37.24 | 2.54 +1.745 = 4.285 |
| 49 00 | | 39.78 | |
| 49 20 | Shaded | 39.48 | |
| 10 51 00a | — | 37.70 | 1.78 |
| ~~51 20~~ | | | |

Oct 8, 1912

L.C.db.

Sky 1 Lor.

Air T = 78.0 F.

| | | | |
|---|---|---|---|
| 10 51 20a | Exposed | 38.14 | 2.43+1.80 = 4.230 |
| 53 00 | — | 40.57 | |
| 53 20 | Shaded | 40.30 | 1.82 |
| 55 00 | — | 38.48 | |
| 55 20 | Exposed | 38.92 | 2.36+1.845 = 4.205 |
| 57 00 | — | 41.28 | |
| 57 20 | Shaded | 41.04 | 1.87 |
| 59 00 | — | 39.17 | |
| 59 20 | Exposed | 39.60 | 2.37+1.86 = 4.230 |
| 11 01 00 | — | 41.97 | |
| 01 20 | Shaded | 41.64 | 1.85 |
| 03 00 | — | 39.79 | |
| 03 20 | Exposed | 40.11 | 2.37 + 1.865 = 4.235 |
| 05 00 | — | 42.48 | |
| 05 20 | Shaded | 42.12 | 1.88 |
| 07 00 | — | 40.24 | |

---

| | | | |
|---|---|---|---|
| 11 44 20a | Shaded | 33.91 | −0.07 |
| 46 00 | — | 33.98 | |
| 46 20 | Exposed | 34.70 | 4.02 + 0.305 = 4.325 |
| 48 00 | — | 38.72 | |
| 48 20 | Shaded | 38.72 | 0.68 |
| 50 00 | — | 38.64 | |
| 50 20 | Exposed | 38.59 | 3.34+0.955 = 4.295 |
| 52 00 | — | 41.93 | |
| 11 52 20 | Shaded | 41.87 | 1.23 |
| 11 54 00a | — | 40.64 | |

Oct 8, 1912

Sky 1 Cor.    Air T = 83 F

| | | | |
|---|---|---|---|
| 11 54 20 | Exposed | 41.18 | 2.90 + 1.425 = 4.325 |
| 56 00 | —— | 44.08 | |
| 56 20 | Shaded | 43.84 | 1.62 |
| 58 00 | —— | 42.22 | |
| 58 20 | Exposed | 42.72 | 2.59 + 1.71 = 4.300 |
| 12 00 00 p | —— | 45.31 | |
| 00 20 | Shaded | 45.02 | 1.80 |
| 02 00 | —— | 43.22 | |
| 02 20 | Exposed | 43.70 | 2.40 + 1.87 = 4.270 |
| 04 00 | —— | 46.10 | |
| 04 20 | Shaded | 45.83 | 1.94 |
| 06 00 p | —— | 43.89 | |
| 06 20 | Exposed | 44.31 | 2.31 + 1.945 = 4.255 |
| 08 00 | ~~Shaded~~ | 46.62 | |
| 08 20 | Shaded | 45.80 | ~~45~~ |
| 10 00 | —— | 43.85 | 1.95 |
| 10 20 | Exposed | 44.80 | 2.19 + 1.98 = 4.170 |
| 12 00 | —— | 46.99 | |
| 12 20 | Shaded | 46.68 | 2.01 |
| 14 00 | —— | 44.67 | |

Oct 8, 1912

LC obs

Sky / Air hor

Air T = 82.0 F

| | | | | |
|---|---|---|---|---|
| 1:02 20 p | Shaded | 30.94 | | |
| 04 00 | | 30.79 | 0.15 | |
| 04 20 | Exposed | 31.44 | 3.78 + 0.505 = | 4.28 5 |
| 06 00 | | 35.22 | | |
| 06 20 | Shaded | 35.18 | 0.86 | |
| 08 00 | | 34.32 | | |
| 08 20 | Exposed | 34.88 | 3.10 + 1.075 = | 4.175 |
| 10 00 | | 37.98 | | |
| 10 20 | Shaded | 37.90 | 1.29 | |
| 12 00 | | 36.61 | | |
| 12 20 | Exposed | 37.13 | 2.74 + 1.445 = | 4.185 |
| 14 00 | | 39.87 | | |
| 14 20 | Shaded | 39.68 | 1.60 | |
| 16 00 | | 38.08 | | |
| 16 20 | Exposed | 38.48 | 2.50 + 1.70 = | 4.200 |
| 18 00 | | 40.98 | | |
| 18 20 | Shaded | 40.78 | 1.80 | |
| 20 00 | | 38.98 | | |
| 20 20 | Exposed | 39.36 | 2.37 + 1.83 = | 4.200 |
| 22 00 | | 41.73 | | |
| 22 20 | Shaded | 41.47 | 1.86 | |
| 1 24 00 p | | 39.61 | | |
| ~~1 24 20 p~~ | | | | |

Copied

Wed Oct 9, 1912

L.C. Obs.

Circ. watch used ″
24s slow at 6:15

Sky 0 — 6.17 Air T = 53.0 F.

Windy — Obs. made from Tennis Court

|  |  |  |  |
|---|---|---|---|
| 6 17 20a | Shaded | 8.88 | − 0.17 |
| 19 00 | — | 9.05 |  |
| 19 20 | Exposed | 9.53 | +2.99 + 0.05 = 3.040 |
| 21 00 | — | 12.52 | < Sun not exactly on marks, until now. |
| 21 20 | Shaded | 12.54 | 0.27 |
| 23 00 | — | 12.27 |  |
| 23 20 | Exposed | 12.70 | 2.88 + 0.475 = 3.355 |
| 25 00 | — | 15.58 |  |
| 25 20 | Shaded | 15.52 | 0.68 |
| 27 00 | — | 14.84 |  |
| 27 20 | Exposed | 15.24 | 2.57 + 0825 = 3.395 |
| 29 00 | — | 17.81 |  |
| 29 20 | Shaded | 17.76 | 0.97 |
| 31 00 | — | 16.79 |  |
| 31 20 | Exposed | 17.16 | 2.36 + 1.065 = 3.425 |
| 33 00 | — | 19.52 |  |
| 33 20 | Shaded | 19.39 | 1.16 |
| 35 00 | — | 18.23 |  |
| 35 20 | Exposed | 18.46 | 2.26 + 1.205 = 3.465 |
| 37 00 | — | 20.72 |  |
| 37 20 | Shaded | 20.55 | 1.25 |
| 6 39 00a | — | 19.30 |  |

# Oct 9, 1912

Stay 0 | Air T = 56.0 F

| | | | | | |
|---|---|---|---|---|---|
| | 6 39 20a | Exposed | 19.60 | 2.28 + 1.32 | = 3.600 |
| | 41 00 | — | 21.88 | | |
| | 41 20 | Shaded | 21.72 | 1.39 | |
| | 43 00 | — | 20.33 | | |
| | 43 20 | Exposed | 20.66 | 2.20 + 1.41 | = 3.610 |
| | 45 00 | — | 22.86 | | |
| | 45 20 | Shaded | 22.65 | 1.43 | |
| | 47 00 | — | 21.22 | | |
| | 47 20 | Exposed | 21.55 | 2.16 + 1.465 | = 3.625 |
| | 49 00 | — | 23.71 | | |
| | 49 20 | Shaded | 23.51 | 1.50 | |
| | 51 00 | — | 22.01 | | |
| | 51 20 | Exposed | 22.34 | 2.16 + 1.52 | = 3.680 |
| | 53 00 | — | 24.50 | | |
| Thin cld. below Sun. ⊙ Clear | 53 20 | Shaded | 24.28 | 1.54 | |
| | 55 00 | — | 22.74 | | |
| | 55 20 | Exposed | 23.02 | 2.18 + 1.59 | = 3.770 |
| | 57 00 | — | 25.20 | | |
| | 57 20 | Shaded | 24.98 | 1.64 | |
| | 59 00 | — | 23.34 | | |
| | 59 20 | Exposed | 23.69 | 2.21 + 1.65 | = 3.860 |
| | 7 01 00 | — | 25.90 | | |
| | 01 20 | Shaded | 25.67 | 1.66 | |
| | 03 00 | — | 24.01 | | |
| | 03 20 | Exposed | 24.32 | 2.18 + 1.665 | = 3.845 |
| | 05 00 | — | 26.50 | | |
| | 05 20 | Shaded | 26.20 | 1.67 | |
| | 07 00 | — | 24.53 | | |

Oct 9, 1912

L.C.Obs.

Sky 1 Ci Cis East hor ⊙ Clear

| | | | | |
|---|---|---|---|---|
| | 7 07 20 a | Exposed | 24.90 | 2.16 +1.685 = 3.845 |
| | 09 00 | | 27.06 | |
| | 09 20 | Shaded | 26.80 | 1.70 |
| | 11 00 | | 25.10 | |
| | 11 20 | Exposed | 25.45 | 2.15 +1.70 = 3.850 |
| | 13 00 | | 27.60 | |
| | 13 20 | Shaded | 27.28 | 1.70 |
| Cld near ⊙ | 7 15 00 | | 25.58 | |
| | 15 20 | Exposed | 25.91 | 2.15 +1.745 = 3.895 |
| | 17 00 | | 28.06 | |
| | 17 20 | Shaded | 27.80 | 1.79 |
| | 7 19 00 a | | 26.01 | |

Sky 2 Ci Cis East hor L.C.Obs.

Thin Cld near Sun.

Air T = 62.5 F.

| | | | |
|---|---|---|---|
| 7 38 20 a | Shaded | 19.22 | 0.07 |
| 40 00 | | 19.15 | |
| 40 20 | Exposed | 19.75 | 3.55 +0.37 = 3.920 |
| 42 00 | | 23.30 | |
| 42 20 | Shaded | 23.29 | 0.67 |
| 44 00 | | 22.62 | |
| 44 20 | Exposed | 23.18 | 3.12 +0.875 = 3.995 |
| 46 00 | | 26.30 | |
| 46 20 | Shaded | 26.19 | 1.08 |
| 48 00 | | 25.11 | |
| 48 20 | Exposed | 25.59 | 2.80 +1.215 = 4.015 |
| 50 00 | | 28.39 | |
| 50 20 | Shaded | 28.20 | 1.35 |
| 7 52 00 a | | 26.85 | Clearer at ⊙ at close. |

Oct 9, 1912.

L.C. Obs.

Sky hazy & 1 Ci Cu S low Air T = 66.0 F

Clearer near ⊙

| | | | |
|---|---|---|---|
| Shaded | 8:44:20 | 21.82 | -0.02 |
| | 16 00 | 21.80 | |
| Exposed | 16 20 | 22.46 | 3.81 +0.325 = 4.135 |
| | 18 00 | 26.27 | |
| Shaded | 18 20 | 26.27 | 0.67 |
| | 20 00 | 25.60 | |
| Exposed | 20 20 | 26.16 | 3.26 +0.88 = 4.140 |
| | 22 00 | 29.42 | |
| Shaded | 22 20 | 29.29 | 1.09 |
| | 24 00 | 28.20 | |
| Exposed | 24 20 | 28.68 | 2.85 +1.245 = 4.095 |
| | 26 00 | 31.53 | |
| Shaded | 26 20 | 31.32 | 1.40 |
| | 28 00 | 29.92 | |
| Exposed | 28 20 | 30.38 | 2.58 +1.49 = 4.070 |
| | 30 00 | 32.96 | |
| Shaded | 30 20 | 32.75 | 1.58 |
| | 32 00 | 31.17 | |
| Exposed | 32 20 | 31.57 | 2.43 +1.66 = 4.090 |
| | 34 00 | 34.00 | |
| Shaded | 34 20 | 33.75 | 1.74 |
| | 36 00 | 32.01 | |

Oct 9, 1912

A.C. Ob.

Sky hazy Clearer near ☉ Air T = 71.0 F

| | | | | |
|---|---|---|---|---|
| 9:04 20a | Shaded | 24.60 | −0.04 | |
| 06 00 | —— | 24.64 | | |
| 06 20 | Exposed | 25.33 | 3.92 | +.32 = 4.240 |
| 08 00 | —— | 29.25 | | |
| 08 20 | Shaded | 29.24 | 0.68 | |
| 10 00 | | 28.56 | | |
| 10 20 | Exposed | 29.11 | 3.31 + 0.935 = 4.245 | |
| 12 00 | —— | 32.42 | | |
| 12 20 | Shaded | 32.36 | 1.19 | |
| 14 00 | —— | 31.17 | | |
| 14 20 | Exposed | 31.68 | 2.88 + 1.355 = 4.235 | |
| 16 00 | —— | 34.56 | | |
| 16 20 | Shaded | 34.49 | 1.52 | |
| 9 18 00a | —— | 32.97 | | |
| ~~18 20~~ | ~~Exposed~~ | ~~33.50~~ | Reject last two | |
| ~~20 00~~ | ~~——~~ | ~~37.40~~ | sets. Obs. bothered | |
| ~~20 20~~ | ~~Shaded~~ | | by telephone man. | |
| ~~22 00~~ | ~~——~~ | | | |

A.C. Ob.

Obs. taken inside shelter

Sky slightly hazy, but gen. clearer Air T = 74.5 F

| | | | | |
|---|---|---|---|---|
| 9 42 20a | Shaded | 27.78 | ~~0.20~~ +0.40 | |
| 44 00 | —— | 27.38 | | |
| 44 20 | Exposed | 28.38 | 3.67 | +0.58 = 4.250 |
| 46 00 | —— | 32.05 | | |
| 46 20 | Shaded | 32.00 | 0.76 | |
| 9 48 00a | —— | 31.24 | | |

Oct 9, 1912

L.B.Al.

| | | | | |
|---|---|---|---|---|
| | | | +0.76 | |
| 9 48 20 | Exposed | 31.87 | | |
| 50 00 | —— | 35.07 | 3.20 | +0995 = 4.195 |
| 50 20 | Shaded | 34.97 | 1.23 | |
| 52 00 | —— | 33.74 | | |
| 52 20 | Exposed | 34.25 | 2.91 | +1.365 = 4.275 |
| 54 00 | —— | 37.16 | | |
| 54 20 | Shaded | 36.88 | 1.50 | |
| 9 56 00 a | —— | 35.38 | | |
| 56 20 | Exposed | 35.88 | 2.62 | +1645 = ~~4~~ 4.265 |
| 58 00 | —— | 38.50 | | |
| 58 20 | Shaded | 38.32 | 1.79 | |
| 10 00 00 a | —— | 36.53 | | |

L.B.Al.

| | | | | |
|---|---|---|---|---|
| | | ~~37~~ | | |
| Sky hazy; no clds. | | | | Air T = 77°F |
| 10 40 20 | Shaded | 32.45 | −0.13 | |
| 42 00 | —— | 32.58 | | |
| 42 20 | Exposed | 33.40 | 406 | +0.235 = 4295 |
| 44 00 | | 37.46 | | |
| 44 20 | Shaded | 37.43 | 0.60 | |
| 46 00 | —— | 36.83 | | |
| 46 20 | Exposed | 37.47 | 3.40 | +0915 = 4.315 |
| 48 00 | —— | 40.87 | | |
| 48 20 | Shaded | 40.72 | 1.23 | |
| 50 00 | —— | 39.49 | | |
| 50 20 | Exposed | 40.00 | 2.94 | +140 = 4.340 |
| 52 00 | —— | 42.94 | | |
| 52 20 | Shaded | 42.69 | 154 | |
| 10 54 00 | —— | 41.12 | | |

Oct 9, 1912

Sky 0-1 Cu hor ⊙ Clear H.C.Obs.

Air T = 830F

|  |  |  |  |
|---|---|---|---|
| 11 38 20a | Shaded | 35.24 | −0.08 |
| 40 00 | —— | 35.32 |  |
| 40 20 | Exposed | 36.03 | 3.99 +0.29 = 4280 |
| 42 00 | —— | 40.02 |  |
| 42 20 | Shaded | 40.08 | 0.66 |
| 44 00 | —— | 39.42 |  |
| 44 20 | Exposed | 40.08 | 3.28 +095 = 4230 |
| 46 00 | —— | 43.36 |  |
| 46 20 | Shaded | 43.22 | 1.24 |
| 48 00 | —— | 41.98 |  |
| 48 20 | Exposed | 42.56 | 2.82 +1.39 = 4210 |
| 50 00 | —— | 45.38 |  |
| 50 20 | Shaded | 45.10 | 1.54 |
| 11 52 00a | —— | 43.56 |  |

Sky Clear Air T=83.0F H.C.Obs.

|  |  |  |  |
|---|---|---|---|
| 12 49 20p | Shaded | 34.58 | +0.22 |
| 51 00 | —— | 34.34 |  |
| 51 20 | Exposed | 35.00 | 3.58 ~~[illegible]~~ 0.62 = 4200 |
| 53 00 | —— | 38.58 |  |
| 53 20 | Shaded | 38.58 | 1.02 |
| 55 00 | —— | 37.56 |  |
| 55 20 | Exposed | 38.14 | 2.95 +120 = 4150 |
| 57 00 | —— | 41.09 |  |
| 57 20 | Shaded | 40.92 | 1.38 |
| 59 00 | —— | 39.54 |  |
| 59 20 | Exposed | 39.98 | 2.60 +152 = 4170 |
| 1 01 00 |  | 42.58 |  |

Oct 9, 1912

L.C. Obs.

| | | | | |
|---|---|---|---|---|
| 1 01 20 | Shaded | 42.43 | 1.66 | |
| 03 00 | — | 40.77 | | |
| 03 20 | Exposed | 41.12 | 2.38 + 1.77 | = 4.150 |
| 05 00 | — | 43.50 | | |
| 05 20. | Shaded | 43.26 | 1.88 | |
| 1 07 00 p | — | 41.38 | | |

L.C. Obs.

Sky, Cu hor ⊙ clear Air T = 77.5 F

Obs. now taken from tennis court.

| | | | | |
|---|---|---|---|---|
| 1 44 20 | Shaded | 30.78 | 0.36 | |
| 46 00 | — | 30.42 | | |
| 46 20 | Exposed | 31.07 | 3.31 + 0.715 | = 4.025 |
| 48 00 | — | 34.38 | | |
| 48 20 | Shaded | 34.36 | 1.07 | |
| 50 00 | — | 33.29 | | |
| 50 20 | Exposed | 33.78 | 2.70 + 1.28 | = 3.980 |
| 52 00 | — | 36.48 | | |
| 52 20 | Shaded | 36.29 | 1.49 | |
| 54 00 | — | 34.80 | | |
| 54 20 | Exposed | 35.16 | 2.30 + 1.645 | = 3.945 |
| 56 00 | — | 37.46 | | |
| 56 20 | Shaded | 37.17 | 1.80 | |
| 1 58 0 p | — | 35.37 | | |

Oct 9, 1912

LC Obs.

Sky 1 Cirrus hor NE. Air T = 74.5 F

Clear near ☉

| | | | |
|---|---|---|---|
| 2 30 20p | Shaded | 25.58? | −0.20 |
| 32 00 | —— | 25.78 | |
| 32 20 | Exposed | 26.42 | 3.30 + 0.35 = 3.650 ? |
| 34 00 | —— | 29.72 | |
| 34 20 | Shaded | 29.62 | 0.90 |
| 36 00 | —— | 28.72 | |
| 36 20 | Exposed | 29.22 | 2.71 + 1.10 = 3.810 |
| 38 00 | —— | 31.93 | |
| 38 20 | Shaded | 31.81 | 1.30 |
| 40 00 | —— | 30.51 | |
| 40 20 | Exposed | 30.94 | 2.46 + 1.435 = 3.895 |
| 42 00 | —— | 33.40 | |
| 42 20 | Shaded | 33.19 | 1.57 |
| 2 44 00p | —— | 31.62 | |
| 44 20 | Exposed | 31.97 | 2.22 + 1.67 = 3.89 |
| 46 00 | —— | 34.19 | |
| 46 20 | Shaded | 33.96 | 1.77 |
| 2 48 00p | —— | 32.19 | |

# Oct 9, 1912

L.C.Ob.

Sky 0 (hazy) Air T = 71.0 A

| | | | |
|---|---|---|---|
| Shaded | 3:39:20 p | 22.64 | +0.06 |
| — | 41 00 | 22.58 | |
| Exposed | 41 20 | 23.20 | ~~3.18~~ |
| | 43 00 | 26.38 | 3.18 +0.355 = 3.535 |
| Shaded | 43 20 | 26.39 | 0.65 |
| — | 45 00 | 25.74 | |
| Exposed | 45 20 | 26.20 | 2.64 + 0.875 = 3.515 |
| | 47 00 | 28.84 | |
| Shaded | 47 20 | 28.72 | 1.10 |
| — | 49 00 | 27.62 | |
| Exposed | ~~4~~9 20 | 27.99 | 2.29 +1225 = 3.515 |
| — | 51 00 | 30.28 | |
| Shaded | 51 20 | 30.05 | 1.35 |
| — | 3 53 00 p | 28.70 | |

Copied.

L.C.Ob.

Slight haze. Sky 1 Ci Cu hor. ⊙ clear Air T = 66.5

| | | | |
|---|---|---|---|
| Shaded | 4 35 20 | 20.12 | +0.04 |
| — | 37 00 | 20.08 | |
| Exposed | 37 20 | 20.54 | 2.60 +0.295 = 2.895 |
| — | 39 00 | 23.14 | |
| Shaded | 39 20 | 23.18 | +0.55 |
| — | 41 00 | 22.63 | |
| Exposed | 41 20 | 23.63 | 2.08 +0.725 = 2.805 |
| — | 43 00 | 25.11 | |
| Shaded | 43 20 | 25.02 | 0.90 |
| — | 45 00 | 24.12 | |

Oct 9, 1912.

C.G.A.

Sky : Clear but hazy near ⊙ ? Air T = 63.0 F

| | | | | | |
|---|---|---|---|---|---|
| Shaded | 4 59 20 | 20.80 | 0.20 | | |
| | 5 01 00 | 20.60 | | | |
| Exposed | 01 20 | 20.96 | 1.94 | +0.39 | = 2.330 |
| | 03 00 | 22.90 | | | |
| Shaded | 03 20 | 22.86 | 0.58 | | |
| | 05 00 | 22.28 | | | |
| Exposed | 05 20 | 22.54 | 1.46 | +0.71 | = 2.170 |
| | 07 00 | 24.00 | | | |
| Shaded | 07 20 | 23.92 | 0.84 | | |
| | 5 09 00 | 23.08 | | | |

Not possible to continue later.

Thurs Oct 10, 1912.

Partial eclipse of Sun. L.C.

Sky clear air T = 49.5 F.

| | | | | | |
|---|---|---|---|---|---|
| | ~~6 13 20~~ | ~~Shaded~~ | ~~16.7~~3 | | |
| | ~~15 00~~ | | Cap not opened | | |
| | ~~15 20~~ | ~~Exposed~~ | | | |
| | ~~17 00~~ | | | | |
| | 6 17 20 a | Shaded | 16.52 | 0.06 | |
| | 19 00 | — | 16.46 | | |
| | 19 20 | Exposed | 16.93 | 2.69 | +034 = 3.030 |
| | 21 00 | — | 19.62 | | |
| | 21 20 | Shaded | 19.61 | 0.62 | |
| | 23 00 | — | 18.99 | | |
| | 23 20 | Exposed | 19.40 | 2.31 | +0825 = 3.135 |
| | 25 00 | — | 21.71 | | |
| | 25 20 | Shaded | 21.60 | 1.03 | |
| | 27 00 | — | 20.57 | | |
| Eclipse begins. | 27 20 | Exposed | 20.94 | 2.08 | +1.17 = 3.250 |
| | 29 00 | — | 23.02 | | |
| | 29 20 | Shaded | 22.87 | 1.31 | |
| | 31 00 | — | 21.56 | | |
| | 33 20 | Shaded | 20.12 | 0.90 | |
| | 35 00 | — | 19.22 | | |
| | 35 20 | Exposed | 19.48 | 2.32 | + 1.02 = 3.340 |
| | 37 00 | — | 21.80 | | |
| | 37 20 | Shaded | 21.66 | 1.14 | |
| | 39 00 | — | 20.52 | | |
| | 39 20 | Exposed | 20.86 | 2.04 | + 1.185 = 3.225 |
| | 41 00 | — | 22.90 | | |
| | | | | 1.23 | |

Oct 10, 1912

| | | | a | |
|---|---|---|---|---|
| 6 | 41 20 | Shaded | 22.69 | 1.23 |
| | 43 00 | ——— | 21.46 | |
| | 43 20 | Exposed | 21.75 | 1.83 + 1.255 = 3.085 |
| | 45 00 | ——— | 23.58 | |
| | 45 20 | Shaded | 23.31 | 1.28 |
| | 47 00 | ——— | 2203 | |
| | ~~47 20~~ | ~~Exposed~~ | | |
| | ~~49 00~~ | ~~———~~ | | |
| | Sky | 0 | | air T = 55.0 |
| 6 | 48 20 | Shaded | 2268 | 1.24 |
| | 50 00 | ——— | 21.44 | |
| | 50 20 | Exposed | 21.69 | 1.60 + 1.29 = 2.89 |
| | 52 00 | ——— | 23.29 | |
| | 52 20 | Shaded | 23.14 | 1.34 |
| | 54 00 | ——— | 21.80 | |
| | 54 20 | Exposed | 21.96 | 1.45 + 1.06 = 2.510 |
| | 56 00 | ——— | 23.41 | |
| | 56 20 | Shaded | 23.22 | 0.78 |
| | 58 00 | ——— | 22.44 | |
| | 58 20 | Exposed | 22.78 ? | 0.31 + 1.02 = 1.330 |
| 7 | 00 00 | ——— | 23.09 | Sun off point. Reject? |
| | 00 20 | Shaded | 22.90 | 1.26 |
| | 02 00 | ——— | 21.64 | |
| | 02 20 | Exposed | 21.82 | 1.09 + 1.26 = 2.350 |
| | 04 00 | ——— | 22.91 | |
| | 04 20 | Shaded | 22.72 | 1.26 |
| | 06 00 | ——— | 21.46 | |

# Oct 10, 1912

| | | | | | |
|---|---|---|---|---|---|
| | > 06 20 | Exposed | 21.58 | 0.96 | +1.215 = 2.175 |
| | 08 00 | —— | 22.54 | | |
| | 08 20 | Shaded | 22.40 | 1.17 | |
| | 10 00 | —— | 21.23 | | |
| | 10 20 | Exposed | 21.37 | 0.83 | +1.155 = 1.985 |
| | 12 00 | —— | 22.20 | | |
| | 12 20 | Shaded | 22.04 | 1.14 | Air T = 53.5 F |
| | 14 00 | —— | 20.90 | | |
| | 14 20 | Exposed | 20.92 | 0.70 | +1.10 = 1.800 |
| | 16 00 | —— | 21.62 | | |
| | 16 20 | Shaded | 21.48 | 1.06 | |
| | 18 00 | —— | 20.42 | | |
| | 18 20 | Exposed | 20.50 | 0.69 | +1.02 = 1.710 |
| Obs. notes cutt off of image on plate > | 20 00 | —— | 21.19 | | |
| | 20 20 | Shaded | 21.04 | 0.98 | |
| | 22 00 | —— | 20.06 | | |
| | 22 20 | Exposed | 20.11 | 0.64 | +095 = 1.590 |
| | 24 00 | —— | 20.75 | | |
| | 24 20 | Shaded | 20.60 | 0.92 | |
| | 26 00 | —— | 19.68 | | |
| | 26 20 | Exposed | 19.70 | 0.62 | +0895 = 1.515 |
| | 28 00 | —— | 20.32 | | |
| | 28 20 | Shaded | 20.18 | 0.87 | |
| | 30 00 | —— | 19.31 | | |
| | 30 20 | Exposed | 19.40 | 0.64 | + 0.86 = 1.500 |
| | 32 00 | —— | 20.04 | | |

Oct 10, 1912

| | | | | |
|---|---|---|---|---|
| 7 | 32 20 | Shaded | 19.92 | 0.85 |
| | 34 00 | — | 19.07 | |
| | 34 20 | Exposed | 19.14 | 0.68 + 0.835 = 1.515 |
| | 36 00 | — | 19.82 | |
| | 36 20 | Shaded | 19.68 | 0.82 |
| | 38 00 | — | 18.86 | |
| | 38 20 | Exposed | 18.94 | 0.77 + 0.79 = 1.560 |
| | 40 00 | — | 19.71 | |
| | 40 20 | Shaded | 19.52 | 0.76 |
| | 42 00 | — | 18.76 | |
| | ~~42 20~~ | ~~Exposed~~ | ~~18.90~~ | |
| | ~~44 00~~ | ~~—~~ | | |
| | 46 20 | Shaded | 20.06 | 0.89 |
| | 48 00 | — | 19.17 | |
| | 48 20 | Exposed | 19.32 | 1.05 + 0.915 = 1.965 |
| | 50 00 | — | 20.37 | |
| | 50 20 | Shaded | 20.23 | 0.94 |
| | 52 00 | — | 19.29 | |
| | 52 20 | Exposed | 19.48 | 1.30 + 0.925 = 2.225 |
| | 54 00 | — | 20.78 | |
| | 54 20 | Shaded | 20.82 | 0.91 |
| | 56 00 | — | 19.91 | |
| | 56 20 | Exposed | 20.09 | 1.35 air T = 560/4 |
| | 58 00 | — | 21.44 | + 0.955 = 2.305 |
| | 58 20 | Shaded | 21.30 | 1.00 |
| 8 | 00 00 | — | 20.30 | |

Oct 10, 1912

| | | | |
|---|---|---|---|
| 8 00 20 | Exposed | 20.52 | 1.50 + 1055 = 2.555 |
| 02 00 | — | 22.02 | |
| 02 20 | Shaded | 21.87 | 1.11 |
| 04 00 | — | 20.76 | |
| 04 20 | Exposed | 21.04 | 1.63 + 1125 = 2.755 |
| 06 00 | — | 22.67 | |
| 06 20 | Shaded | 22.46 | 1.14 |
| 08 00 | — | 21.32 | |
| 08 20 | Exposed | 21.57 | 1.81 + 1.275 = 3.085 |
| 10 ~~04~~ 00 | — | 23.38 | |
| 10 20 | Shaded. | 23.19 | 1.41 |
| 12 00 | — | 21.78 | |
| 12 20 | Exposed | 21.90 | 1.98 + 1315 = 3.295 |
| 14 00 | — | 23.88 | |
| 14 20 | Shaded | 23.66 | 1.22 |
| 16 00 | — | 22.44 | |
| 16 20 | Exposed | 22.79 | 2.10 + 1.145 = ~~2~~ 3.245 |
| 18 00 | — | 24.89 | |
| 18 20 | Shaded | 24.68 | 1.07 |
| 20 00 | — | 23.61 | |
| 20 20 | Exposed | 24.44 | 3.05 + 1.405 = 3.455 |
| 22 00 | — | 27.49 | |
| 22 20 | Shaded | 27.21 | 1.74 |
| 24 00 | — | 25.47 | |
| 24 20 | Exposed | 25.82 | 2.06 + 172 = 3.780 |
| 26 00 | — | 27.88 | |
| 26 20 | Shaded | 27.62 | 1.70 |
| 28 00 | — | 25.92 | |

# Oct 10, 1912

Air T = 63.0 F

|  |  |  |  |  |  |
|---|---|---|---|---|---|
|  | ~~8 24 20~~ | ~~Exposed~~ | ~~26.28~~ |  |  |
| Reject | ~~30 00~~ |  |  |  | Reject |
|  | 31 20 | Shaded | 28.33 | 1.65 |  |
|  | 33 00 | ——— | 26.68 |  |  |
|  | 33 20 | Exposed | 27.10 |  |  |
|  | 35 00 | ——— | ——— |  |  |
|  | 8 36 ~~35~~ 20 | Shaded | 29.38 | 1.80 |  |
|  | 38 ~~37~~ 00 | ——— | 27.58 |  |  |
|  | 38 ~~37~~ 20 | Exposed | 27.92 | 2.27+1.855 = 4.125 |  |
|  | 40 ~~39~~ 00 | ——— | 30.19 |  |  |
| Eclipse over at 7.40.53 | 40 ~~39~~ 20 | Shaded | 29.91 | 1.91 |  |
|  | 42 ~~41~~ 00 | ——— | 28.00 |  |  |
|  | 42 ~~41~~ 20 | Exposed | 28.32 | 2.29+1.815 = 4.095 |  |
|  | 44 ~~43~~ 00 |  | 30.61 |  |  |
|  | 44 ~~43~~ 20 | Shaded | 30.20 | 1.72 |  |
|  | 46 ~~45~~ 00 | ——— | 28.48 |  |  |
|  | 46 ~~45~~ 20 | Exposed | 28.82 | 2.36 +1.805 = 4.165 |  |
|  | 48 ~~47~~ 00 | ——— | 31.18 |  |  |
|  | 48 ~~47~~ 20 | Shaded | 30.90 | 1.89 |  |
|  | 50 ~~49~~ 00 | ——— | 29.01 |  |  |
|  | 50 20 | Exposed | 29.38 | 2.27 +1.91 = ~~4~~ 4.18 |  |
|  | 52 00 | ——— | 31.65 |  |  |
|  | 52 20 | Shaded | 31.40 | 1.93 |  |
|  | 8 54 00 | ——— | 29.47 |  |  |

Air T = 65.5 F.

Oct 10, 1912

Sky 1 Ci Cs Earth hor. Air T = 68.5

| | | | | |
|---|---|---|---|---|
| Shaded | 9 44 20 a | 21.41 | −0.06 | |
| — | 46 00 | 21.47 | | |
| Exposed | 46 20 | 22.24 | 4.06 | +0345 = 4.405 |
| — | 48 00 | 26.30 | | |
| Shaded | 48 20 | 26.28 | 0.75 | |
| — | 50 00 | 25.53 | | |
| Exposed | 50 20 | 26.19 | 3.34 + 0.985 = 4.325 | |
| — | 52 00 | 29.53 | | |
| Shaded | 52 20 | 29.41 | 1.22 | |
| — | 9 54 00 a | 28.19 | | |
| Exposed | 54 20 | 28.74 | 2.88 + 141 = 4.290 | |
| — | 56 00 | 31.62 | | |
| Shaded | 56 20 | 31.44 | 1.60 | |
| — | 9 58 00 a | 29.84 | | |

Cs W = $24^s$ fast at 10:00

Sky 1 Ci Cs hor Air T = 75.0

| | | | | |
|---|---|---|---|---|
| 10 50 20 | Shaded | 23.05 | −0.11 | |
| 52 00 | — | 23.16 | | |
| 52 20 | Exposed | 23.98 | 4.02 | +0275 = 4295 |
| 54 00 | — | 28.00 | | |
| 54 20 | Shaded | 28.02 | 0.66 | |
| 56 00 | — | 27.36 | | |
| 56 20 | Exposed | 27.97 | 3.41 + 0.955 = 4.365 | |
| 58 00 | — | 31.38 | | |
| 58 20 | Shaded | 31.24 | 1.25 | |
| 11 00 00 | — | 29.99 | | |

Fri. Oct. 11, 1912

PCOb

Sky 0

air T = 81.0 F

Cs watch = $10^s$ fast at 11.55

These obs. made inside of shelter

| | | | | |
|---|---|---|---|---|
| 10 15 20a | Shaded | 26.03 | -0.16 | |
| 17 00 | — | 16.19 | | |
| 17 20 | Exposed | 17.00 | 4.30 +0165 | = 4.465 |
| 19 00 | — | 21.30 | | |
| 19 20 | Shaded | 21.30 | +0.49 | |
| 21 00 | — | 20.81 | | |
| 21 20 | Exposed | 21.50 | 3.75+0695 | = 4.445 |
| 23 00 | — | 25.25 | | |
| 23 20 | Shaded | 25.18 | 0.90 | |
| 25 00 | — | 24.28 | | |
| 25 20 | Exposed | 24.92 | 3.44 +1.045 | = 4.485 |
| 27 00 | — | 28.36 | | |
| 27 20 | Shaded | 28.16 | 1.19 | |
| 29 00 | — | 26.97 | | |
| 29 20 | Exposed | 27.52 | 3.20 +1.28 | = 4480 |
| 31 00 | — | 30.72 | | |
| 31 20 | Shaded | 30.53 | 1.37 | |
| 33 00 | — | 29.16 | | |
| 33 20 | Exposed | 29.74 | 2.92 +1.455 | = 4.375 |
| 35 00 | — | 32.66 | | |
| 35 20 | Shaded | 32.44 | 1.54 | |
| 37 00 | — | 30.90 | | |
| 37 20 | Exposed | 31.32 | 2.85 +1.57 | = 4.420 |
| 39 00 | — | 34.17 | | |
| 39 20 | Shaded | 33.92 | 1.60 | |
| 10 41 00a | — | 32.32 | | |

Oct. 11, 1912

C. Ab

Sky 0

Air T = 81.5 F

| | | | |
|---|---|---|---|
| 11 30 20 a | Shaded | ~~31~~ 26.27 | 0.00 |
| 32 00 | ——— | 26.27 | |
| 32 20 | Exposed | 27.00 | 4.11 + 0.33 = 4.440 |
| 34 00 | ——— | 31.11 | ~~+ =~~ |
| 34 20 | Shaded | 31.07 | 0.66 |
| 36 00 | ——— | 30.41 | |
| 36 20 | Exposed | 31.11 | 3,50 + 0$\overset{8}{\cancel{7}}$7 = 4.$\overset{3}{\cancel{4}}$70 |
| 38 00 | ——— | 34.61 | |
| 38 20 | Shaded | 34.48 | 1.08 |
| 40 00 | ——— | 33.40 | |
| 40 20 | Exposed | 33.98 | 3.14 + 1.23 = 4.370 |
| 42 00 | ——— | 37.12 | |
| 42 20 | Shaded | 36.97 | 1.38 |
| 11 44 00 a | ——— | 35.59 | |

Sky exceptionally clear today.

# Sat. Oct. 12, 1912

A.C. Obs

Sky ~~exc~~ ~~t~~ well clear Air T = 76.0 F

Cs Watch used = 3s fast at 9.50

| | | | |
|---|---|---|---|
| 9 52 20a | Shaded | 21.84 | −0.11 |
| 54 00 | ——— | 21.95 | |
| 54 20 | Exposed | 22.74 | 4.26 +0225 = 4485 |
| 56 00 | ——— | 27.00 | |
| 56 20 | Shaded | 26.98 | +0.56 |
| 58 00 | ——— | 26.42 | |
| 58 20 | Exposed | 27.02 | 3.65 +0815 = 4.465 |
| 10 00 00 | ——— | ~~2~~30.67 | |
| 00 20 | Shaded | ~~2~~30.54 | 1.07 |
| 02 00 | ——— | 29.47 | |
| 02 20 | Exposed | ~~2~~30.03 | 3.25 + 1.225 = 4.475 |
| 04 00 | ——— | 33.28 | |
| 04 20 | Shaded | 33.18 | 1.38 |
| 06 00 | ——— | 31.80 | |
| 06 20 | Exposed | 32.30 | 2.94 + 1.46 = 4.400 |
| 08 00 | ——— | 35.24 | |
| 08 20 | Shaded | 35.01 | 1.54 |
| 10 00 | ——— | 33.47 | |
| 10 20 | Exposed | 33.89 | 2.73 + 1.66 = 4.390 |
| 12 00 | ——— | 36.62 | |
| 12 20 | Shaded | 36.42 | 1.78 |
| 14 00 | ——— | 34.64 | |
| 14 20 | Exposed | 35.01 | 2.69 + 1.80 = 4.490 |
| 16 00 | ——— | 37.70 | |
| 16 20 | Shaded | 37.46 | 1.82 |
| 10 18 00a | ——— | 35.64 | |

Sun. Oct 13, 1912,

L C Obs.

Sky. 1 Cu hor & scatt. Air T = 76.0 F.

Clear near ☉

| | | | | |
|---|---|---|---|---|
| 11 11 20 a | Shaded | 25.17 | -0.04 | |
| 13 00 | | 25.21 | | |
| 13 20 | Exposed | 25.97 | 4.11 +0.305 = 4.415 | |
| 15 00 | | 30.08 | | |
| 15 20 | Shaded | 30.31 | +0.65 | |
| 17 00 | | 29.66 | | |
| 17 20 | Exposed | 30.32 | 3.50 + 0.895 = 4.395 | |
| 19 00 | | 33.82 | | |
| 19 20 | Shaded | 33.73 | +1.14 | |
| 21 00 | | 32.59 | | |
| 21 20 | Exposed | 33.14 | 3.14 + 1.275 = 4.415 | |
| 23 00 | | 36.28 | | |
| 23 20 | Shaded | 36.13 | 1.41 | |
| 25 00 | | 34.72 | | |
| 25 20 | Exposed | 35.30 | 2.80 + 1.515 = 4.315 | |
| 27 00 | | 38.10 | | |
| 27 20 | Shaded | 37.94 | 1.62 | |
| 29 00 | | 36.32 | | |
| 29 20 | Exposed | 36.82 | 2.63 + 1.695 = 4.325 | |
| 31 00 | | 39.45 | | |
| 31 20 | Shaded | 39.19 | 1.77 | |
| 33 00 | | 37.42 | | |
| 33 20 | Exposed | 37.86 | 2.54 + 1.795 = 4.335 | |
| 35 00 | | 40.40 | | |
| 35 20 | Shaded | 40.08 | 1.82 | |
| 11 37 00 a | | 38.26 | | |

C's Watch used = $2^s$ fast at 11:40

# Mon. Oct. 14, 1912

P.C. Obs

Sky 0 very clear    Air T = 76.0 F

| | | | |
|---|---|---|---|
| 10 24 20 a | Shaded | 24.74 | -0.08 |
| 26 00 | — | 24.82 | |
| 26 20 | Exposed | 25.$\overset{8}{\cancel{6}}$0 ? | +4.00 +0.295 = 4.295 ? |
| 28 00 | — | 29.80 Better try at above. | |
| 28 20 | Shaded | 29.77 | +0.67 |
| 30 00 | — | 29.10 | |
| 30 20 | Exposed | 29.80 | 3.58 +0.90 = 4.480 |
| 32 00 | — | 33.38 | |
| 32 20 | Shaded | 33.27 | +1.13 |
| 34 00 | — | 32.14 | |
| 34 20 | Exposed | 32.74 | 3.18 +1.275 = 4.455 |
| 36 00 | — | 35.92 | |
| 36 20 | Shaded | 35.70 | 1.42 |
| 38 00 | — | 34.28 | |
| 38 20 | Exposed | 34.75 | 2.93 +1.48 = 4.410 |
| 40 00 | — | 3$\overset{7}{\cancel{6}}$.68 | |
| 40 20 | Shaded | 37.40 | 1.54 |
| 42 00 | — | 35.86 | |
| 42 20 | Exposed | 36.30 | 2.77 + 1.65 = 4.420 |
| 44 00 | — | 39.07 | |
| 44 20 | Shaded | 38.82 | 1.76 |
| 46 00 | — | 37.06 | |
| 46 20 | Exposed | 37.54 | 2.67 + 1.77 = 4.430 |
| 48 00 | — | 40.21 | |
| 48 20 | Shaded | 40.00 | 1.78 |
| 10 50 00 a | — | 38.22 | |

Cs watch used = 14s slow 10:56

# Tues. Oct ~~4~~ 15, 1912

P C Obs

C's watch = 28s slow at 10:20
Sky 0 very clear Air T = 79.0° F.

| | | | |
|---|---|---|---|
| 10 32 20 | Shaded | 25.51 − 0.10 | |
| 34 00 | | 25.61 | |
| 34 20 | Exposed | 26.46 | 4.14 + 0290 = 4.430 |
| 36 00 | | 30.60 | |
| 36 20 | Shaded | 30.58 | 0.68 |
| 38 00 | | 29.90 | |
| 38 20 | Exposed | 30.62 | 3.60 + 0905 = 4.505 |
| 40 00 | | 34.22 | |
| 40 20 | Shaded | 34.06 | 1.13 |
| 42 00 | | 32.93 | |
| 42 20 | Exposed | 33.40 | 3.18 + 1.295 = 4.475 |
| 44 00 | | 36.58 | |
| 44 20 | Shaded | 36.39 | 1.46 |
| 46 00 | | 34.93 | |
| 46 20 | Exposed | 35.43 | 2.97 + 1.55 = 4.520 |
| 48 00 | | 38.40 | |
| 48 20 | Shaded | 38.16 | 1.64 |
| 50 00 | | 36.52 | |
| 50 20 | Exposed | 36.98 | 2.84 +1.68 = 4.520 |
| 52 00 | | 39.82 | |
| 52 20 | Shaded | 39.52 | 1.72 |
| 54 00 | | 37.80 | |
| 54 20 | Exposed | 38.20 | 2.68 +1.73 = 4.410 |
| 56 00 | | 40.88 | |
| 56 20 | Shaded | 40.52 | 1.74 |
| 58 00 | | 38.78 | |

See next page

Oct 15, 1912 cont

| | | | |
|---|---|---|---|
| 10 58.20 | Exposed | 39.08 | 2.59 +178 = 4.370 |
| 11 00 00 | — | 41.67 | |
| 00 20 | Shaded | 41.30 | 1.82 |
| 02 00 | | 39.48 | |
| 03 20 | Shaded | 38.28 | 1.21 |
| 05 00 | — | 37.07 | |
| 05 20 | Exposed | 37.59 | 3.07 +1.355 = 4.425 |
| 07 00 | — | 40.66 | |
| 07 20 | Shaded | 40.47 | 1.50 |
| 09 00 | — | 38.97 | |
| ~~09 20~~ | ~~Exposed~~ | ~~39.47~~ | |
| ~~11 00~~ | | | |
| ~~11 20~~ | ~~Shaded~~ | | |
| 13 00 | — | | |

Wed Oct. 16. 1912

L. C

| | | | |
|---|---|---|---|
| Sky 0 | | | Air T = 79.5 4T |
| Shaded | 11 32 20 | 26.97 | -002 |
| | 34 00 | 26.99 | |
| Exposed | 34 20 | 27 21 | 409 +0345 = 4.435 |
| | 36 00 | 31.30 | |
| Shaded | 36 20 | 31 28 | +0.71 |
| | 38 00 | 3057 | |
| Exposed | 38 20 | 31 28 | 3.40 +0935 = 4. 335 |
| | 40 00 | 34.68 | |
| Shaded | 40 20 | 34.58 | 1.16 |
| | 42 00 | 33.42 | |
| Exposed | 42 20 | 33.93 | 3.05 +1.295 = 4.345 |
| | 44 00 | 36.98 | |
| Shaded | 44 20 | 36.77 | 1.43 |
| | 46 00 | 35.34 | |
| Exposed | 46 20 | 35.84 | 284 +1515 = 4.355 |
| | 48 00 | 38.68 | |
| Shaded | 48 20 | 38.42 | 1.60 |
| | 50 00 | 36.82 | |
| Exposed | 50 20 | 37.28 | 2.66 +1.665 = 4.325 |
| | 52 00 | 39.94 | |
| Shaded | 52 20 | 39.68 | 1.73 |
| | 54 00 | 37.95 | |

C's Watch used = 54 fast at 11 59

# Thurs. Oct 17th 1912

Sky 0 Temp 75.8 Watch m 38s fast at 10.55 am HP Obs

| | | | | |
|---|---|---|---|---|
| 11 05 20 | Shaded | 24 30 | 0 0 | |
| 07 00 | ~~Exposed~~ | 24 30 | | |
| 07 20 | Exposed | 25 45 | | |
| 09 00 | — | 29 63 | 4.18 + .33 | 5 = 4.515 ✓ |
| 09 20 | Shaded | 29 81 | | |
| 11 00 | — | 29 14 | .67 | |
| 11 20 | Exposed | 29 48 | | |
| 13 00 | — | 33 10 | 3.~~5~~2 6 | +.885 = 4.505 ~~+.8[illegible] = 4.5[illegible]~~ |
| 13 20 | Shaded | 33 10 | | |
| 15 00 | — | 32 00 | 1.10 ✓ | |
| 15 20 | Exposed | 32 51 | | |
| 17 00 | — | 35 67 | 3.16 ✓ | +1.~~20~~ 25 = 4.41 ✓ |
| 17 20 | Shaded | 35 70 | | |
| 19 00 | — | 34 30 | 1.40 ✓ | |
| 19 20 | Exposed | 34 58 | | |
| 21 00 | — | 37 55 | 2.87 ✓ | + 1.5~~7~~5 3 = ~~4.55~~ 4.505 |
| 21 20 | Shaded | 37 48 | | |
| 23 00 | — | 35 81 | 1.67 ✓ | |
| 23 20 | Exposed | 35 92 | | |
| 25 00 | — | 38.73 | 2.81 ✓ | +1.7~~8~~ 1 = ~~4.57~~ 4.520 |
| 25 20 | Shaded | 38.70 | | |
| 27 00 | — | 3~~8~~.95 | ~~1.85~~ 1.75 | |
| ~~27 20~~ | ~~Exposed~~ | ~~38.03~~ | | |
| ~~29 00~~ | ~~—~~ | | | |
| ~~29 20~~ | ~~Shaded~~ | | | |
| ~~31 00~~ | ~~—~~ | | | |

Oct 17, 1912

L. C. Ab

Sky 1 Cu hor

Air T = 79.5 H

Cs watch used = 14s slow at 11:55

| | | | | |
|---|---|---|---|---|
| Shaded | 11 42 20a | 31.46 | 0.42 | |
| | 44 00 | 31.04 | | |
| Exposed | 44.20 | 31.76 | 3.72 | +0.70 = 4.420 |
| | 46 00 | 35.48 | | |
| Shaded | 46 20 | 35.46 | 0.98 | |
| | 48 00 | 34.48 | | |
| Exposed | 48 20 | 35.04 | 3.22 | +1.26 = 4.480 |
| | 50 00 | 38.26 | | |
| Shaded | 50 20 | 38.12 | 1.54 | |
| | 11 52 00 | 36.68 | | |

Fri Oct 18, 1912

L C Obs

Sky 1 Cu hor    Air T = 77.5 F

Ci watch = 36$^s$ slow at 10.18

| | | | | |
|---|---|---|---|---|
| 10 | 37 20a | Shaded | 24.92 | −0.04 |
| | 39 00 | — | 24.96 | |
| | 39 20 | Exp. | 25.72 | 4.06+0.29 = 4.350 |
| | 41 00 | — | 29.78 | |
| | 41 20 | Shd | 29.73 | 0.62 |
| | 43 00 | — | 29.11 | |
| | 43 20 | Exp | 29.77 | 3.41 +0.86 = 4.270 |
| | 45 00 | — | 33.18 | |
| | 45 20 | Shd | 33.07 | 1.10 |
| | 47 00 | — | 31.97 | |
| | 47 20 | Exp | 32.49 | 3.03 +1.24 = 4.270 |
| | 49 00 | — | 35.52 | |
| | 49 20 | Shd | 35.35 | 1.38 |
| | 51 00 | — | 33.97 | |
| | 51 20 | Exp. | 34.47 | 2.77 +1.48 = 4.250 |
| | 53 00 | — | 37.24 | |
| | 53 20 | Shd | 37.06 | 1.58 |
| | 55 00 | — | 35.48 | |
| | 55 20 | Exp | 35.98 | 2.56+1.67 = 4.230 |
| | 57 00 | — | 38.54 | |
| | 57 20 | Shd | 38.33 | 1.76 |
| | 59 00 | — | 36.57 | |
| | 59 20 | Exp | 37.03 | 2.52+1.77 = 4.290 |
| 11 | 01 00 | — | 39.55 | |
| | 01 20 | Shd. | 39.26 | 1.78 |
| | 03 00a | — | 37.48 | |

# Sat Oct 19 1912

Sky 2 clu horiz Watch M = 7s fast at 10 28 AM. XP. Obs T = 76.5

| | | | | | |
|---|---|---|---|---|---|
| Hold | 10 | 55 20 | Shaded | 25.32 | |
| | | 57 00 | — | 25.29 | +.03 |
| | | 57 20 | Exposed | 25.35 | |
| | | 59 00 | — | 29.90 | 4.55 +0.28 = 4.830 |
| | | 59 20 | Shaded | 29.85 | |
| | 11 | 01 00 | — | 29.32 | +.53 |
| | | 01 20 | Exposed | 29.83 | |
| | | 03 00 | — | 33.31 | 3.48 ~~52~~ +0.82 = 4.300 |
| | | 03 20 | Shaded | 33.31 | 1.11 |
| | | 05 00 | — | 32.20 | |
| Reject. | | 05 20 | Exposed | 32.47 | |
| | | 07 00 | — | 34.29 (40—) | |
| | 11 | 08 20 | Shaded | 33.40<br>~~34.42~~ | |
| | | 10 ~~09~~ 00 | — | 32.41 | .99 |
| | | 10 20 | Exposed | 32.40 | |
| | | 12 00 | | 36.00 | 3,60 + 1.16 = 4.76 |
| | | 12.20 | Shaded | 35.95 | |
| | | 14 00 | — | 34.62 | 1.33 |
| | | 14 20 | Exposed | 34.58 | |
| | | 16.00 | — | 37.58 | 3.00 + 1.38 = 4.38 |
| | | 16 20 | Shaded | 38.00 | |
| | | 18 00 | — | 36.57 | 1.43 |
| | | 18 20 | Exposed | 36.90 | |
| | | 20 00 | — | 39.55 | 2.65 + 2.08 = 4.73 |
| | | 20 20 | Shaded | 39.43 | |
| | | 22 00 | — | 37.70 | 1.73 |

Sat Oct 19 1912

| | | | |
|---|---|---|---|
| H 22 20 | Exposed | 37.98 | |
| 24 00 | — | 40.47 | 2.49 |
| 24 20 | Shaded | 40.25 | |
| 26 00 | — | 38.50 | 1.75+2.515=4.265 |
| 26 20 | Exposed | 38.90 | |
| 28 00 | — | 41.44 | 2.54 |
| 28 20 | Shaded | 41.21 | |
| 30 00 | — | 39.39 | 1.82 +2.575=4.395 |
| 30 20 | Exposed | 39.57 | |
| 32 00 | — | 42.18 | 2.61 |
| 32 20 | Shaded | 41.87 | |
| 34.00 | — | 40.02 | 1.85 |

Sky/center L.C.Ob

| | | | |
|---|---|---|---|
| 12 02 20p | Shaded | 31.92 | air T=85.0F |
| 04 00 | — | 31.78 | +0.14 |
| 04 20 | Expos | 32.42 | |
| 06 00 | — | 36.26 | 3.84+0.50=4.340 |
| 06 20 | Sh'd | 36.28 | |
| 08 00 | — | 35.42 | 0.86 |
| 08 20 | Expn | 35.98 | |
| 10 00 | — | 39.19 | 3.21+1.10 =4.310 |
| 10 20 | Sh'd | 39.06 | |
| 12 12 00 | — | 37.72 | 1.34 |

Cs Watch ⊖ correct 11.40.

Cop'd

S'cui Oct. 20, 1912

L.C. Obs

Sky 0-1 Cu horz. Air T = 75.0 F

C's watch used = $22^s$ slow at 11:25

| | | | | |
|---|---|---|---|---|
| 10 59 20a | Sh'd | 24.18 | -0.03 | |
| 11 01 00 | — | 24.21 | | |
| 01 20 | Exposed | 24.93 | 4.07 | +0.30 = 4.37 |
| 03 00 | — | 29.00 | | |
| 03 20 | Shaded | 28.98 | 0.63 | |
| 05 00 | — | 28.35 | | |
| 05 20 | Exp. | 28.97 | 3.47 | +0.87 = 4.34 |
| 07 00 | — | 32.44 | | |
| 07 20 | Sh'd | 32.37 | 1.11 | |
| 09 00 | — | 31.26 | | |
| 09 20 | Exp. | 31.82 | 3.02 | +1.255 = 4.275 |
| 11 00 | — | 34.84 | | |
| 11 20 | Sh'd | 34.68 | 1.49 | |
| 13 00 | — | 33.28 | | |
| 13 20 | Exp. | 33.79 | 2.76 | +1.465 = 4.225 |
| 15 00 | — | 36.55 | | |
| 15 20 | Sh'd | 36.33 | 1.53 | |
| 17 00 | — | 34.80 | | |
| 17 20 | Exp | 35.32 | 2.68 | +1.595 = 4.275 |
| 19 00 | — | 38.00 | | |
| 19 20 | Shd | 37.84 | 1.66 | |
| 11 21 00 | — | 36.18 | | |

Mon Oct 21, 1912

CGAb.

Sky 0 Air T = 54.7 F

C's watch used = 27s slow at 6:38

| | | | |
|---|---|---|---|
| 6 14 20 | Shd | 7.38 | -0.14 |
| 16 00 | — | 7.52 | |
| 16 20 | Exp | 8.12 | 3.40+009 = 3.490 |
| 18 00 | — | 11.52 | |
| 18 20 | Shd | 11.52 | 0.32 |
| 20 00 | — | 11.20 | |
| 20 20 | Exp | 11.80 | 2.82+0495 = 3.315 |
| 22 00 | — | 14.62 | |
| 22 20 | Shd | 14.59 | 067 |
| 24 00 | — | 13.92 | |
| 24 20 | Exp | 14.32 | 2.66+0815 = 3.475 |
| 26 00 | — | 16.98 | |
| 26 20 | Shd | 16.89 | 0.96 |
| 28 00 | — | 15.93 | |
| 28 20 | Exp | 16.34 | 2.53+1.075 = 3.605 |
| 30 00 | — | 18.87 | |
| 30 20 | Shd | 18.78 | +0119 |
| 32 00 | — | 17.59 | |
| 32 20 | Exp | 17.93 | 2.36+1.20 = 3.560 |
| 34 00 | — | 20.29 | |
| 34 20 | Shd | 20.12 | 1.21 |
| 6 36 00 | — | 18.91 | |

Oct. 21, 1912.

L.C.Ab

| | | | | |
|---|---|---|---|---|
| Sky 0 | | | Air T = | 56.0 F |
| 6 48 20 | Shd | 14.80 | +0.18 | |
| 50 00 | — | 14.62 | | |
| 50 20 | Exp. | 15.22 | 3.40 | +0.435 = 3.835 |
| 52 00 | — | 18.62 | | |
| 52 20 | Shd | 18.62 | 0.69 | |
| 54 00 | — | 17.93 | | |
| 54 20 | Exp | 18.42 | 2.94 | +0.90 = 3.840 |
| 56 00 | — | 21.36 | | |
| 56 20 | Shd | 21.30 | 1.11 | |
| 58 00 | — | 20.19 | | |
| 58 20 | Exp. | 20.60 | 2.~~34~~ 66 | +1.215 = 3.875 |
| 7 00 00 | — | 23.26 | | |
| 00 20 | Shd | 23.10 | 1.32 | |
| 02 00 | — | 21.78 | | |

| | | | | |
|---|---|---|---|---|
| Sky 0 | | L.C. Ab. | Air T = | 59.5 F |
| 7 27 20 | Shd | 16.48 | -0.01 | |
| 29 00 | — | 16.49 | | |
| 29 20 | Expos | 17.17 | 3.72 | +0.295 = ~~3.960~~ 4.015 |
| 31 00 | — | 20.89 | | |
| 31 20 | Shd | 20.92 | 0.60 | |
| 33 00 | — | 20.32 | | |
| 33 20 | Exp. | 20.90 | 3.19 | +0835 = 4.025 |
| 35 00 | — | 24.09 | | |
| 35 20 | Shd. | 24.01 | 1.07 | |
| 37 00 | — | 22.94 | | |

Oct 21, 1912

|  |  |  |  |
|---|---|---|---|
|  |  |  | ~~+1.07~~ |
| 7 37 20a | Exp. | 23.42 | 2.86 + 1.195 = 4.055 |
| 39 00 | — | 26.28 |  |
| 39 20 | Shd | 26.04 | 1.32 * |
| 41 00 | — | 24.72 |  |

LC Ob

Sky 0 Air T = 64.5 F

|  |  |  |  |
|---|---|---|---|
| 8 00 20a | Shd | 19.60 | 0.06 |
| 02 00 | — | 19.54 |  |
| 02 20 | Expos | 20.22 | 384 +0.36 = 4.200 |
| 04 00 | — | 24.06 |  |
| 04 20 | Shd | 24.06 | 0.66 |
| 06 00 | — | 23.40 |  |
| 06 20 | Exp. | 23.94 | 3.25 +0.905 = 4.155 |
| 08 00 | — | 27.19 |  |
| 08 20 | Shd | 27.07 | 1.15 |
| 10 00 | — | 25.92 |  |
| 10 20 | Exp | 26.42 | 2.77 +1.28 = 4.050 |
| 12 00 | — | 29.19 |  |
| 12 20 | Shd | 29.00 | 1.41 |
| 14 00 | — | 27.59 |  |
| 14 20 | Exp. | 28.00 | 2.68 +1.505 = 4.185 |
| 16 00 | — | 30.68 |  |
| 16 20 | Shd | 30.48 | 1.60 |
| 8 18 00a | — | 28.88 |  |

Oct. 21, 1912

L.C. Obs.

| Sky 0 | | | Air T = 69.0 F. | |
|---|---|---|---|---|
| 8 43 20 a | Sh'd | 22.48 | −0.01 | |
| 45 00 | —— | 22.49 | | |
| 45 20 | Exposed | 23.18 | 3.92 +033 | = 4.250 |
| 47 00 | —— | 27.10 | | |
| 47 20 | Shaded | 27.10 | 0.67 | |
| 49 00 | —— | 26.43 | | |
| 49 20 | Exposed | 26.98 | 3.34 +0.90 | = 4.240 |
| 51 00 | —— | 30.32 | | |
| 51 20 | Shaded | 30.22 | 1.13 | |
| 53 00 | —— | 29.09 | | |
| 53 20 | Exposed | 29.60 | 2.93 +1.305 | = 4.235 |
| 55 00 | —— | 32.53 | | |
| 55 20 | Shaded | 32.42 | 1.48 | |
| 8 57 00 a | —— | 30.94 | These few obs. taken from Tennis court. | |

---

| Sky 0 | | Air T = 75.0 | | L.C. Obs. |
|---|---|---|---|---|
| 9 29 20 a | Shaded | 24.52 | −0.06 Obs. now taken from inside of M.P. House. | |
| 31 00 | —— | 24.58 | | |
| 31 20 | Exp. | 25.24 | 4.09 +027 | = 4.360 |
| 33 00 | —— | 29.33 | | |
| 33 20 | Shaded | 29.32 | 0.60 | |
| 35 00 | —— | 28.72 | | |
| 35 20 | Exp. | 29.32 | 3.38 +0.90 | = 4.280 |
| 37 00 | —— | 32.70 | | |
| 37 20 | Shaded | 32.68 | 1.20 | |
| 9 39 00 a | —— | 31.48 | | |

Oct 21, 1912

L.C. Obs

Sky 0 air T = 76.0 F.

| | | |
|---|---|---|
| 10 20 20a | Sh'd | 29 57 - 0.19 |
| 22 00 | — | 29 76 |
| 22 20 | Exp. | 30.50 4 22 +0.18=4.400 |
| 24 00 | — | 34.72 |
| 24 20 | Sh'd | 34.72 - 0.55 |
| 26 00 | — | 34.17 |
| 26 20 | Exp. | 34.84 0.51 +0.82=4.330 |
| 28 00 | — | 38.35 |
| 28 20 | Sh'd | 38.22 1.09 |
| 30 00 | — | 37.13 |
| 30 20 | Exp. | 37.70 3.04 +1.265=4.305 |
| 32 00 | — | 40.74 |
| 32 20 | Sh'd | 40.52 1.44 |
| 10 34 00a | — | 39.08 |

Sky 0 air T = 79.0 F. L.C. Obs

| | | |
|---|---|---|
| 11 34 20a | Sh'd | 33.66 - 0.11 |
| 36 00 | — | 33.77 |
| 36 20 | Exp. | 34.48 4 11+0.265=4.375 |
| 38 00 | — | 38.59 |
| 38 20 | Sh'd | 38.58 0.64 |
| 40 00 | — | 37.94 |
| 40 20 | Exp. | 38.49 3.42 +0.93 =4.350 |
| 42 00 | — | 41.91 |
| 42 20 | Sh'd | 41.82 1.22 |
| 11 44 00a | — | 40.60 |

Oct 21, 1912  F.C.Ab.

Sky 0. Air T = 81.5 F

| | | | | |
|---|---|---|---|---|
| 12 25 20p | Shd | 34.00 | 0.10 | |
| 27 00 | — | 33.90 | | 4 |
| 27 20 | Eff | 34.60 | 3.80 ~~4~~ | ~~+0.47 = 4.~~ |
| 29 00 | | 38.40 | | +0.49 = 4.290 |
| 29 20 | Shd | 38.44 | 0.88 | |
| 31 00 | — | 37.56 | | 2 |
| 31 20 | Eff | 38.11 | 3.13 | +1.17 = 4.250 |
| 33 00 | — | 41.24 | | |
| 33 20 | Shd | 41.09 | 1.36 | |
| 12 35 00 | — | 39.73 | | |

Sky 0 On T[illegible] Count air T = 80.0 F

| | | | | |
|---|---|---|---|---|
| 12 44 20p | Shd | 35.19 | 0.62 | |
| 46 00 | — | 34.57 | | |
| 46 20 | Eff | 35.19 | 3.27 | +0.985 = 4.255 |
| 48 00 | — | 38.46 | | |
| 48 20 | Shd | 38.30 | 1.35 | |
| 50 00 | — | 36.95 | | |
| 50 20 | Eff | 37.40 | 2.68 | +1.605 = 4.285 |
| 52 00 | — | 40.08 | | |
| 52 20 | Shd | 39.88 | 1.86 | |
| 12 54 00 | — | 38.02 | | |

Oct 21, 1912

L.C. Obs

Sky 0-1 Clear horiz. Air T = 72.5 F

| | | | |
|---|---|---|---|
| 2 52 20 | Sh'd | 25.33 | +0.02 |
| 54 00 | — | 25.31 | |
| 54 20 | Expos | 25.92 | 3.40 +0.37 = $\overset{3}{4}$.77 |
| 56 00 | — | 29.32 | |
| 56 20 | Sh'd | 29.30 | 0.72 |
| 58 00 | — | 28.58 | |
| 58 20 | Expos | 29.09 | 2.74 +0.97 = 3.74 |
| 3 00 00 | — | 31.83 | |
| 00 20 | Sh'd | 31.72 | 1.22 |
| 02 00 | — | 30.50 | |

Quite windy & considerable dust in air
Probably best not to continue

Tues. Oct 22, 1912

L.C. Obs.

Sky 1 Ci Cis NE hor  Air T = 80.0 F.
Cs Watch used = 38s slow at 11.00

| | | | | |
|---|---|---|---|---|
| 11 05 20a | Shd. | 25.77 | -0.01 | |
| 07 00 | | 25.78 | | |
| 07 20 | Exp. | 26.50 | 4.00 | +0335 = 4.335 |
| 09 00 | | 30.50 | | |
| 09 20 | Shd | 30.47 | 0.68 | |
| 11 00 | | 29.79 | | |
| 11 20 | Exp | 30.43 | 3.46 | +0.915 = 4.375 |
| 13 00 | | 33.89 | | |
| 13 20 | Shd | 33.77 | 1.15 | |
| 15 00 | | 32.62 | | |
| 15 20 | Exp. | 33.38 | 2.90 | +1.33 = 4.230 |
| 17 00 | | 36.28 | | |
| 17 20 | Shd | 35.98 | 1.51 | |
| 19 00 | | 34.47 | | |
| 19 20 | Exp. | 36.98 | 2.80 | +1.555 = 4.355 |
| 21 00 | | 37.78 | | |
| 21 20 | Shd | 37.48 | 1.60 | |
| 11 23 00a | | 35.88 | | |
| 23 20 | Exp | 36.32 | 2.60 | +1.685 = 4.285 |
| 25 00 | | 38.92 | | |
| 25 20 | Shd | 38.62 | 1.77 | |
| 11 27 00a | | 36.85 | | |

~~#~~ Wed. Oct. 23, 1912

L.C.A.

Sky 0 | hazy near ~~o~~ horizon | Air T = 805 F

C's Watch 45s slow at 11 00

| | | | |
|---|---|---|---|
| 11 02 20 | Shd | 26.71 | − 0.05 |
| 04 00 | — | 26.76 | |
| 04 20 | Exp. | 27.51 | 4.05 + 028 = 4.330 |
| 06 00 | — | 31.56 | |
| 06 20 | Shd | 31.52 | 0.61 |
| 08 00 | — | 30.91 | |
| 08 20 | Exp. | 31.51 | 3.47 + 0805 = 4.275 |
| 10 00 | — | 34.98 | |
| 10 20 | Shd | 34.82 | 1.00 |
| 12 00 | — | 3382 | |
| 12 20 | Exp. | 3436 | 3.06 + 1.185 = 4.245 |
| 14 00 | — | 37.42 | |
| 14 20 | Shd | 37.19 | 1.37 |
| 16 00 | — | 35.82 | |
| 16 20 | Exp. | 36.33 | 2.85 + 152 = 4.370 |
| 18 00 | — | 39.18 | |
| 18 20 | Shd | 38.97 | 1.67 |
| 20 00 | — | 37.30 | |
| 20 20 | Exp. | 37.62 | 2.62 + 1.665 = 4.285 |
| 22 00 | — | 40.24 | |
| 22 20 | Shd | 40.02 | 1.66 |
| 11 24 00a | — | 38.36 | |

Thurs Oct 24 1912

A.P. Obs.

Sky + sea a horiz Watch m = 13° fast at 10.45 J = 74.57

| | | | | |
|---|---|---|---|---|
| 11 01 20 | Shaded | 23.55 | | |
| 03 00 | | 23.58 | -.03 | |
| 03· 20 | Exposed | 24.21 | | |
| 05 00 | | 28.28 | 4.07 | +.305 = 4.375 |
| 05 20 | Shaded | 28.35 | | |
| 07 00 | | 27.71 | 0.64 | |
| 07 20 | Exposed | 28.38 | | |
| 09 00 | | 31.78 | 3.40 | +.86 = 4.260 |
| 09 20 | Shaded | 31.78 | | |
| 11 00 | | 30.70 | 1.08 | |
| 11 20 | Exposed | 31.20 | | |
| 13 00 | | 34.26 | ~~2.94~~ 3.06 | + 1.25 = 4.310 |
| 13 20 | Shaded | 34.25 | | |
| 15 00 | | 32.83 | 1.42 | |
| 15 20 | Exposed | 33.12 | | |
| 17 00 | | 35.98 | 2.86 | + 1.465 = 4.325 |
| 17 20 | Shaded | 35.79 | | |
| 19 00 | | 34.28 | 1.51 | |
| 19 20 | Exposed | 34.57 | | |
| 21 00 | | 37.30 | ~~2.87~~ 2.73 | + 1.635 = 4.365 |
| 21 20 | Shaded | 37.21 | | |
| 23 00 | | 35.45 | 1.76 | |

Copied

Sat Oct 26, 19

LGAb

Sky 3 Ci Cs horiz Sun clear. Air T = 75.0 F
C's watch = 40s fast at 11.28

| | | | |
|---|---|---|---|
| 10 55 20a | Shd | 25.00 | 0.50 |
| 57 00 | — | 25 00 | |
| 57 20 | Exp. | 25.76 | 3.86 + 0.29 = 4.150 |
| 59 00 | — | 29.62 | |
| 59 20 | Shd | 29.56 | 0.58 |
| 11 01 00 | — | 28.98 | |
| 01 20 | Exp. | 29.59 | 3.27 + 1.855 = 4.125 |
| 03 00 | — | 32.86 | |
| 03 20 | Shd | 32.82 | 1.13 |
| 05 00 | — | 31.69 | |
| 05 20 | Exp. | 31.98 | 2.97 + 1.25 = 4.220 |
| 07 00 | — | 34.95 | |
| 07 20 | Shd | 34.78 | 1.37 |
| 09 00 | — | 33.41 | |
| 09 20 | Exp. | 33.88 | 2.08 + 1.465 = 4.145 |
| 11 00 | — | 36.56 | |
| 11 20 | Shd | 36.38 | 1.56 |
| 13 00 | — | 34.82 | |
| 13 20 | Exp. | 35.24 | 2.54 + 1.62 = 4.160 |
| 15 00 | — | 37.78 | |
| 15 20 | Shd | 37.60 | 1.68 |
| 11 17 00a | — | 35.92 | |

Mon. Nov. 4, 1912

JCObs.

Sky / Cir. haze / Sun clear / air T = 76.5 F

C's watch used = 36s slow at 1:03

| | | | | |
|---|---|---|---|---|
| 12 38 20 p | Shaded | 24.48 | 0.04 | |
| 40 00 | — | 24.44 | | |
| 40 20 | Exp. | 25.18 | 3.91 | +0.435 = 4.345 |
| 42 00 | — | 29.09 | | |
| 42 20 | Shaded | 29.12 | 0.83 | |
| 44 00 | — | 28.29 | | |
| 44 20 | Exposed | 28.90 | $3.\overset{2}{\cancel{8}}2$ | $+ \cancel{0}1.075 = 4.\overset{2}{\cancel{8}}95$ |
| 46 00 | — | 32.12 | | |
| 46 20 | Shaded | 32.04 | 1.32 | |
| 48 00 | — | 30.72 | | |
| 48 20 | Exposed | 31.22 | 2.78 | + 1.48 = 4.260 |
| 50 00 | — | 34.00 | | |
| 50 20 | Shaded | 33.78 | 1.64 | |
| 52 00 | — | 32.14 | | |
| 52 20 | Exposed | 32.53 | 2.51 | + 1.745 = 4.255 |
| 54 00 | — | 35.04 | | |
| 54 20 | Shaded | 34.77 | 1.85 | |
| 56 00 | — | $3\overset{2}{\cancel{3}}.92$ | | |
| 56 20 | Exposed | 33.32 | 2.35 | + 1.905 = 4.255 |
| 58 00 | — | 35.67 | | |
| 58 20 | Shaded | 35.40 | 1.96 | |
| 1 00 00 p | — | 33.44 | | |

Obs. made from Tennis Court.

Sat Nov. 9, 1912

L. C. A.

| | | | | |
|---|---|---|---|---|
| | Sky 2 Ci Cis Cu hor | | air T = 74.0 F | |
| Sun clear | Cs watch used = Correct. | | | |
| | 10: 21 20a | Shd | 23.40 | −0.06 |
| | 23 00 | — | 23.46 | |
| | 23 20 | Exp | 24 30 | 3.92 +024 = 4.16 |
| | 25 00 | — | 28.22 | |
| | 25 20 | Shd | 28.20 | 0.54 |
| | 27 00 | — | 27.66 | |
| | 27 20 | Exp | 28.22 | 3.36+081 = 4.17 |
| | 29 00 | — | 31.58 | |
| | 29 20 | Shd | 31.46 | 1.08 |
| | 31 00 | — | 30.38 | |
| | 31 20 | Exp | 30.90 | 2.98+1.26 = 4.24 |
| | 33 00 | — | 33.88 | |
| | 33 20 | Shd | 33.68 | 1.44 |
| | 35 00 | — | 32.24 | |
| | 35 20 | Exp | 32.72 | 2.68+1.525 = 4.205 |
| | 37 00 | — | 35.40 | |
| | 37 20 | Shd | 35.19 | 1.61 |
| | 39 00 | — | 33.58 | |
| | 39 20 | Exp | 33.88 | 2.56+1.675 = 4.235 |
| | 41 00 | — | 36.44 | |
| | 41 20 | Shd | 36.20 | 1.74 |
| | 10 43 00a | — | 34.46 | |

Obs. made on Tennis Court ✓

Mon. Nov 18 1912

Top Obs

Sky 2 S Livrz Air T = 77.07

D watch used = 21s fast at 10.57

| | | | |
|---|---|---|---|
| 11 09 20 | Shad. | 24.30 | − 0.09 |
| 11 00 | — | 24.39 | |
| 11 20 | Exp | 25.02 | 4.07 + 0.24 = 4.31 |
| 13 00 | — | 29.09 | |
| 13 20 | Shad | 29.15 | 0.57 |
| 15 00 | — | 28.58 | |
| 15 20 | Exp | 29.02 | 3.47 + 0.81 = 4.28 |
| 17 00 | — | 32.49 | |
| 17 20 | Shad | 32.47 | 1.05 |
| 19 00 | — | 31.42 | |
| 19 20 | Exp | 31.96 | 3.02 + 1.195 = 4.215 |
| 21 00 | — | 34.98 | |
| 21 20 | Shad. | 34.84 | 1.34 |
| 23 00 | — | 33.50 | |
| 23 20 | Exp | 33.90 | 2.79 + 1.445 = 4.235 |
| 25 00 | — | 36.69 | |
| 25 20 | Shad. | 36.52 | 1.55 |
| 27 00 | — | 34.97 | |
| 27 20 | Exp | 35.31 | 2.61 + 1.625 = 4.235 |
| 29 00 | — | 37.92 | |
| 29 20 | Shad | 37.75 | 1.70 |
| 31 00 | — | 36.05 | |
| | ~~Exp~~ | | |
| | ~~Shad.~~ | | |

Tues Nov 19 1912

Top Ob

| | | | |
|---|---|---|---|
| Sky 1 C 4 | 1-2 hors. | J = 74.87 | |
| Watch ~~fa~~ ued = $12^m$ slow at 10.58 AM. | | | |
| 11 03 20 | Shad. | 24.26 - 0,06 | |
| 05 00 | — | 24.32 | |
| 05 20 | Exp. | 25.08 | |
| 07 00 | — | 29.20 | 4.12 + .28 = 4.40 |
| 07 20 | Shad. | 29.30 | |
| 09 00 | — | 28.68 | 0.62 |
| 09 20 | Exp. | 29.17 | |
| 11 00 | — | 32.75 | 3.58 + .865 = 4.445 |
| 11 20 | Shad. | 32.78 | |
| 13 00 | — | 31.69 | 1.11 |
| 13 20 | Exp. | 32.15 | |
| 15 00 | — | 35.26 | 3.11 + 1.245 = 4.355 |
| 15 20 | Shad. | 35.10 | |
| 17 00 | — | 33.72 | 1.38 |
| 17 20 | Exp. | 34.08 | |
| 19 00 | | 36.95 | 2.87 + 1.53 = 4.40 |
| 19 20<br>~~21 00~~ | Shad. | 36.78 | |
| 21 00<br>~~21 20~~ | — | 35.10 | 1.68 |
| 21 20<br>~~23 00~~ | Exp. | 35.28 | |
| 23 00<br>~~23 20~~ | — | 38.01 | 2.73 + 1.68 = 4.41 |
| 23 20<br>~~25 00~~ | Shad | 37.87 | |
| 25 00<br>~~25 20~~ | — | 36.19 | 1.68 |

Wed. Nov. 20, 1912

LC Obs.

| | | | |
|---|---|---|---|
| Sky 0 - Slight haze | | — | Au T = 790 ft |
| 10 32 20 a | Shad | 25.24 | -0.10 |
| 34 00 | — | 25.34 | |
| 34 20 | Eiff. | 26.14 | 398 + 0.255 = 4.235 |
| 36 00 | — | 30.12 | |
| 36 20 | Shad | 30.08 | 0.61 |
| 38 00 | — | 29.47 | |
| 38 20 | Eiff | 30.10 | 3.52 + 0.855 = 4.375 |
| 40 00 | — | 33.62 | |
| 40 20 | Shad. | 33.54 | 1.10 |
| 42 00 | — | 32.44 | |
| ~~42 20~~ | ~~Eiff~~ | ~~32.98~~ | ~~2.96 + 1.095 = 35~~ |
| ~~44 00~~ | ~~—~~ | ~~35.94~~ | Reject disturbed by folks |
| 44 20 | Shd | 35.49 | 1.05 |
| 46 00 | — | 34.44 | |
| 46 20 | Eif | 34.98 | 2.79 + 1.445 = 4.235 |
| 48 00 | — | 37.77 | |
| 48 20 | Shd | 37.58 | 1.84 |
| 50 00 | — | 35.74 | |
| 50 20 | Eif | 36.22 | 2.68 + 1.765 = 4.445 |
| 52 00 | — | 38.90 | |
| 52 20 | Shd | 38.59 | 1.69 |
| 10 54 00 a | — | 36.90 | |
| 54 20 | Eif. | 37.34 | 2.62 + 1.775 = 4.395 |
| 56 00 | — | 39.96 | |
| 56 20 | Shd | 39.68 | 1.86 |
| 10 58 00 a | — | 37.82 | |

Thurs. Nov. 21, 1912

Sky 0

L.C. Obs.

Air T = 76.0 F

| | | | |
|---|---|---|---|
| 10 45 20 a | Sh'd | 24.74 | -0.08 |
| 47 00 | — | 24.82 | |
| 47 20 | Exp | 25.52 | 4.01 + 0.265 = 4.275 |
| 49 00 | — | 29.53 | |
| 49 20 | Shd | 29.49 | 0.61 |
| 51 00 | — | 28.88 | |
| 51 20 | Exp | 29.49 | 3.43 + 0.87 = 4.300 |
| 53 00 | — | 32.92 | |
| 53 20 | Sh'd | 32.82 | 1.13 |
| 55 00 | — | 31.69 | |
| 55 20 | Exp | 32.09 | 3.11 + 1.225 = 4.335 |
| 57 00 | — | 35.20 | |
| 57 20 | Sh'd | 35.10 | 1.32 |
| 59 00 | — | 33.78 | |
| 59 20 | Exp. | 34.22 | 2.75 + 1.42 = 4.170 |
| 11 01 00 | — | 36.97 | |
| 01 20 | Shd | 36.70 | 1.52 |
| 03 00 | — | 35.18 | |
| 03 20 | Exp | 35.62 | 2.68 + 1.59 = 4.270 |
| 05 00 | — | 38.30 | |
| 05 20 | Shd | 38.08 | 1.66 |
| 07 00 a | — | 36.42 | |

# Mon Nov 25, 1912

Sky 1 Cu hor ☉ Clear L. G. Obs

Air Temp Ob house 77.5 F

| | | | | |
|---|---|---|---|---|
| 10 14 20a | Shd | 25.68 | -0.04 | |
| 16 00 | — | 25.72 | | |
| 16 20 | Exp. | 26.50 | +4.00 | +0.32 = 4.32 |
| 18 00 | — | 30.50 | | |
| 18 20 | Shd | 30.47 | 0.68 | |
| 20 00 | — | 29.79 | | |
| 20 20 | Exp. | 30.44 | 3.44 +0.92 | = 4.36 |
| 22 00 | — | 33.88 | | |
| 22 20 | Shd | 33.78 | 1.16 | |
| 10 24 00a | — | 32.62 | | |

Hygrograph at 10:27a = 36.0 Dry B = 67.4 wet B = ~~4~~ 48.8

| | | | | |
|---|---|---|---|---|
| 10 33 20 | Sh'd | 29.44 | 0.19 | |
| 35 00 | — | 29.25 | | |
| 35 20 | Exp. | 29.87 | 3.78 +0.49 | = 4.270 |
| 37 00 | — | 33.65 | Air Tin Ob House 76.5 F | |
| 37 20 | Sh'd | 33.62 | 0.79 | |
| 39 00 | — | 32.83 | | |
| 39 20 | Exp | 33.43 | 3.23 +0.995 | = 4.225 |
| 41 00 | — | 36.66 | | |
| 41 20 | Sh'd | 36.53 | 1.20 | |
| 43 00 | — | 35.33 | | |

Hygrograph 10.45 = 36.3

Nov. 25, 1912 P.C.Obs

Sky 1 Cu hor

Air T of Ob. house 78.5 F

Hygro @ 10:57 = ~~2~~36.3

| | | | | |
|---|---|---|---|---|
| 11 02 20a | ~~11 00 20a~~ | Shd | ~~31.16~~ 31.13 | -0.01 |
| 04 00 | ~~02 00~~ | | 31.14 | |
| 04 20 | 11 02 20 | Exp | 31.76 | 4.06+0.35=4.41 |
| 06 00 | ~~04 00~~ | | 35.82 | |
| 06 20 | ~~04 20~~ | Shd | 35.81 | 0.71 |
| 08 00 | ~~06 00~~ | | 35.10 | |
| 08 20 | ~~06 20~~ | Exp | 35.90 | 3.35+0.955=4.305 |
| 10 00 | ~~08 00~~ | | 39.25 | |
| 10 20 | ~~08 20~~ | Shd | 39.18 | 1.20 |
| 12 00 | ~~11 10 20a~~ | | 37.98 | |
| | ~~10 20~~ | | | |
| | ~~12 00~~ | | | |

Hygro. @ 11:14 = 36.0

Copied. C

Wed Dec 4, 1912

Sky 2 Ctn hor ⊙clear LC Obs.

air T = 75.0 F.

| | | | | | |
|---|---|---|---|---|---|
| 9 15 | Hygro | 33.0 | | | |
| | 9 18 20a | Shd | 23.60 | -0.02 | |
| | 20 00 | | 23.62 | | |
| | 20 20 | Exp | 24.20 | 3.98 +0.30 = 4.28 | |
| | 22 00 | | 28.18 | | |
| | 22 20 | Shd | 28.08 | 0.62 | |
| | 24 00 | | 27.46 | | |
| | 24 20 | Exp. | 28.60 | 3.28 +0.81 = 4.09 | |
| | 26 00 | | 31.38 | | |
| | 26 20 | Shd | 30.98 | 1.00 | |
| | 28 00 | | 29.98 | | |
| 9 30 | Hygro. | 32.6 | | | |
| | | | | air T = 76.0 F | |
| | 9 32 20 | Shd | 27.64 | 0.54 | |
| | 34 00 | | 27.10 | | |
| | 34 20 | Exp. | 27.70 | 3.26 +0.83 = 4.09 | |
| | 36 00 | | 30.96 | | |
| | 36 20 | Shd | 30.80 | 1.12 | |
| | 38 00 | | 29.68 | | |
| | 38 20 | Exp. | 30.12 | 2.90 +1.355 = 4.255 | |
| | 40 00 | | 33.02 | | |
| | 40 20 | Shd | 32.85 | 1.59 | |
| | 9 42 00 | | 31.26 | | |
| 9 45 | Hygro | 32.5 | | | |
| 9 50 | Hygro | 32.5 | Wet Bulb 47.8 | Dry Bulb 67.8 | |

Dec. 4, 1912

L.C.Ck.

| | | | | | |
|---|---|---|---|---|---|
| | Sky 2 Clear | hor | Air T = 75.0 F. | | |
| 10 05 | Hygro = 33.0 | | | | |
| | 10 06 20 | Shd | 23.00 | 0.14 | |
| | 08 00 | — | 22.86 | | |
| | 08 20 | Exp | 23.52 | 3.91+0.47 | = 4.38 |
| | 10 00 | — | 27.43 | | |
| | 10 20 | Shd | 27.38 | 0.80 | |
| | 12 00 | — | 26.58 | | |
| | 12 20 | Exp. | 27.10 | 3.34 + 0.90 | = 4.24 |
| | 14 00 | — | 30.44 | | |
| | 14 20 | Shd | 30.40 | 1.00 | |
| | 16 00 | — | 29.40 | | |
| 10:18 | Hygro = 33.5 | | | | |

Fri. Dec. 6, 1912

L.C.A.

Sky 3 A'Ci S hor ☉ Clear air T = 70.0 F

10:06 Hygrograph 44.4 Wet B = 5.00 Dry B = 66.4

| | | | | |
|---|---|---|---|---|
| 10 20 20 | Shd | 17.00 | −0.10 | |
| 22 00 | — | 17.10 | | |
| 22 20 | Exp. | 17.76 | 4.24 | +0.23 = 4.47 |
| 24 00 | — | 22.00 | | |
| 24 20 | Shd | 22.00 | 0.56 | |
| 26 00 | — | 21.44 | | |
| 26 20 | Exp. | 22.07 | 3.55 + 0.81 = 4.36 | |
| 28 00 | — | 25.62 | | |
| 28 20 | Shd | 25.52 | 1.06 | |
| 10 30 00 | — | 24.46 | | |

Hygrograph = 43.6 at 10:31

air T = 68.0 F

| | | | | |
|---|---|---|---|---|
| 10 33 20 | Shd | 22.96 | 0.52 | |
| 35 00 | — | 22.44 | | |
| 35 20 | Exp. | 23.06 | 3.56 + 0.78 = 4.34 | |
| 37 00 | — | 26.62 | | |
| 37 20 | Shd | 26.54 | 1.04 | |
| 39 00 | — | 25.50 | | |
| 39 20 | Exp. | 25.98 | 3.12 + 1.22 = 4.34 | |
| 41 00 | — | 29.10 | | |
| 41 20 | Shd | 28.92 | 1.40 | |
| 10 43 00 | — | 27.52 | | |

Hygrograph = 43.8 at 10:46

Wed. Dec. 11, 1912

L.C.Obs

| | | | | |
|---|---|---|---|---|
| | ⊙ Clear<br>Sky 2 Cu hor. | | | Air T = 65.0 F |
| 8 11 | Hygro = 44.5 | | | |
| | 8 14 20 | Shd | 13.22 | −0.14 |
| | 16 00 | — | 13.36 | |
| | 16 20 | Exp | 14.02 | 3.80 + 0.16 = 3.96 |
| | 18 00 | — | 17.82 | |
| | 18 20 | Shd | 17.94 | 0.46 |
| | 20 00 | | 17.48 | |
| | 20 20 | Exp | 18.00 | 3.32 + 0.63 = 3.95 |
| | 22 00 | — | 21.32 | |
| | 22 20 | Shd | 21.26 | 0.80 |
| | 24 00 | — | 20.46 | |
| 8 25 | Hygro = 44.8 | | | |
| 8 42 | Hygro = 43.8 | | | Air T = 69.0 F |
| | 8 43 20 | Shd. | 18.54 | −0.09 |
| | 45 00 | — | 18.63 | |
| | 45 20 | Exp | 19.34 | 3.74 + 0.275 = 3.965 |
| | 47 00 | — | 23.08 | |
| | 47 20 | Shd | 23.10 | 0.54 |
| | 49 00 | — | 22.56 | |
| | 49 20 | Exp | 23.14 | 3.26 + 0.775 = 4.035 |
| | 51 00 | — | 26.40 | |
| | 51 20 | Shd | 26.31 | 1.01 |
| | 53 00 | — | 25.30 | |
| 8 ~~53~~ 54 | Hygro 43.0 | | | |

Dec. 11, 1912

LBA

Sky 2 Cu Ci hor ⊙ clear Air T = 71.0 F

| | | | | | |
|---|---|---|---|---|---|
| | 8 55 20 | Shd. | 24.19 | | |
| | 57 00 | | 23.58 | 0.61 | |
| | 57 20 | Exp | 24.12 | 3.16 | +085 = 4.010 |
| | 59 00 | | 27.28 | | |
| | 59 20 | Shd | 27.19 | 1.09 | |
| | 9 01 00 | | 26.10 | | |
| | 01 20 | Exp. | 26.58 | 2.83 | +1.24 = 4.070 |
| | 03 00 | | 29.41 | | |
| | 03 20 | Shd | 29.21 | 1.39 | |
| | 05 00 | | 27.82 | | |

9 06 Hygro = 44.0 Wet B = 52.8; Dry B = 67.5

| | | | | | |
|---|---|---|---|---|---|
| | 9 10 20 | Shd | 24.90 | 0.61 | |
| | ~~10~~ 12 00 | | 24.29 | | Air T = 71.2 F |
| | 12 20 | Exp | 24.87 | 3.17 | +0.845 = 4.015 |
| | 14 00 | | 28.04 | | |
| | 14 20 | Shd | 27.93 | 1.08 | |
| | 16 00 | | 26.85 | | |
| | 16 20 | Exp. | 27.31 | 2.81 | +1.24 = 4.05 |
| | 18 00 | | 30.12 | | |
| | 18 20 | Shd | 29.94 | 1.40 | |
| | 20 00 | | 28.54 | | |

9 22 Hygro = 43.5

Dec 11, 1912

ACAbe

Sky 2 Cu Ci hor ⊙ clear

9 38 Hygro = 43.0 Air T = 71.5 F

9 40 20 Shd 22.38 0.10
42 00 — 22.28
42 20 Exp 22.80 3.70 +0.425 = 4.125
44 00 — 26.50
44 20 Shd 26.45 0.75
46 00 — 25.70
46 20 Exp. 26.22 3.18 +0.975 = 4.155
48 00 — 29.40
48 20 Shd 29.28 1.20
50 00 — 28.08

9 54 Hygro = 43.5 Wet B = 53.2 Dry B = 67.7

9 57 20 Shd 24.72 0.42
59 00 — 24.30 Air T = 71.0 F
59 20 Exp. 24.84 3.49 + 0.73 = 4.22
10 01 00 — 28.33
01 20 Shd 28.30 1.04
03 00 — 27.26
03 20 Exp. 27.76 3.02 + 1.24 = 4.26
05 00 — 30.78
05 20 Shd 30.82 1.44
10 07 00 — 29.38

10 09 Hygro = 45.0 Wet B = 54.2 Dry B = 67.2

C Sky 2 Cu Ci hor ⊙ clear windy

Thur Dec 12, 1912

Sky 0 hazy near hor. LCClb

Air T = 63.0 F

Hygro 43.5 at 8:09 ~~wet B = 55.2 Dry B = 62.8~~

| | | | | |
|---|---|---|---|---|
| 8 12 20 | Shd | 12.68 | -0.16 | |
| 14 00 | — | 12.84 | | |
| 14 20 | Exp | 13.50 | 4.12 +0.16 = 4.280 | |
| 16 00 | — | 17.62 | | |
| 16 20 | Shd | 17.68 | 0.32 | |
| 18 00 | — | 17.36 | | |
| 18 20 | Exp | 17.97 | 3.58 +0.585 = 4.165 | |
| 20 00 | — | 21.52 | | |
| 20 20 | Shd | 21.44 | 0.85 | |
| 8 22 00 | — | 20.59 | | |

Hygro = 44.5 at 8:23 Air T = 66.0 F

| | | | | |
|---|---|---|---|---|
| 8 23 20 | Shd | 20 09 | 0.56 | |
| 25 00 | — | 19.53 | | |
| 25 20 | Exp | 20.16 | 3.36 +0.78 = 4.140 | |
| 27 00 | — | 23.52 | | |
| 27 20 | Shd | 23.41 | 1.00 | |
| 8 29 00 | — | 22.41 | | |
| 29 20 | Exp | 22.84 | 304 +1.17 = 4.210 | |
| 31 00 | — | 25.88 | | |
| 31 20 | Shd | 25.74 | 1.34 | |
| 8 33 00 | — | 2440 | | |

Hygro = 44.0 at 8:35

Dec. 12, 1912

P.C.Ob

Sky 1 Cu hor ⊙clear Air T = 69.0 F
Hygro = 43.0 at 8:48

| | | | | | |
|---|---|---|---|---|---|
| 8:49:20 | Shd | 19.52 | 0.12 | | |
| 51 00 | — | 19.40 | | | |
| 51 20 | Exp | 20.09 | 3.83 | + ~~4.~~ 0.44 | = 4.27 |
| 53 00 | — | 23.92 | | | |
| 53 20 | Shd | 23.94 | 0.76 | | |
| 55 00 | — | 23.18 | | | |
| 55 20 | Exp | 23.65 | 3.28 ~~.72~~ | ~~+4.~~ 0.967 | = 4.25 |
| 57 00 | — | 26.93 | | | |
| 57 20 | Shd | 26.80 | 1.18 | | |
| 8: 59 00 | — | 25.62 | | | |

Hygro = 41.5 at 9:00

Air T = 71.0 F.

| | | | | | |
|---|---|---|---|---|---|
| 9 07 20 | Shd | 2216 | 0.36 | | |
| 09 00 | — | 21.80 | | | |
| 09 20 | Exp. | 22.38 | 3.64 + 0.67 | | = 4.31 |
| 11 00 | — | 26.02 | | | |
| 11 20 | Shd | 25.98 | 0.98 | | |
| 13 00 | — | 2500 | | | |
| 13 20 | Exp | 25.51 | 3.15 + 1.165 | | = 4.315 |
| 15 00 | — | 2866 | | | |
| 15 20 | Shd | 28.54 | 1.35 | | |
| 9 17 00 | — | 27.19 | | | |

Hygro = 41.0 at 9-18

Dec, 12, 1912

Sky / Cu hor F. C. C. Obs.

Hygro = 39.0 at 9:28 wet B. 5~~4~~3.3 Dry B 66.6 F.

air T = 74.0 F.

| | | | | |
|---|---|---|---|---|
| 9 30 20 | Shd | 22.19 | 0.25 | |
| 32 00 | — | 21.94 | | |
| 32 20 | Cxp | 22.60 | 3.80 | +0.545 = 4.345 |
| 34 00 | | 26.40 | | |
| 34 20 | Shd | 26.34 | 084 | |
| 36 00 | — | 25.50 | | |
| 36 20 | Exp. | 26.08 | 3.22 | +1.08 = 4.300 |
| 38 00 | — | 29.30 | | |
| 38 20 | Shd | 29.16 | 1.32 | |
| 9 40 00 | — | 27.84 | | |

Hygro = 39.0 at 9:41

| | | | | |
|---|---|---|---|---|
| 9 42 20 | Shd | 26.42 | 0.80 | air T = 73.5 F. |
| 44 00 | — | 25.62 | | |
| 44 20 | Exp | 26.16 | 3.29 | +1.04 = 4.330 |
| 46 00 | — | 29.45 | | |
| 46 20 | Shd | 29.32 | 1.28 | |
| 48 00 | — | 28.04 | | |
| 48 20 | Exp | 28.54 | 2.90 | + 1.425 = 4.325 |
| 50 00 | — | 31.40 | | |
| 50 20 | Shd | 31.15 | 1.57 | |
| 9 52 00 | — | 29.58 | | |

Hygro = 39.0 at 9:54 air T = 71.5 F

Thursday Dec 12 1912

Watch D  Sky Cu Ci S 4 1-5 horiz  D.P. Obs

| | | | | |
|---|---|---|---|---|
| Hyg. read at | 3.30 45.0 | | Air Temp. = | 66.5 F |
| | ~~3 32 20~~ | | | |
| | 3 32 20 | Shad. | 22.98 | |
| | 34 00 | | 22.93 +.05 | |
| | 34 20 | Exp | 23.47 | |
| | 36 00 | | 26.85 3.38 + ~~.36~~ .40 = | 3.78 |
| | 36 20 | Shad. | 26.97 | |
| | 38 00 | | 26.22 .75 | |
| | 38 20 | Exp. | 26.68 | |
| | 40 00 | ~~Shad.~~ | 29.48 2.80 + .965 = | 3.765 |
| | 40 20 | Shad | 29.43 | |
| | 42 00 | | 28.25 1.18 | |
| | | | | |
| Hyg. read | 45.0 at 3.43 | | Wet Bulb read 53.1 at 3.43 | |
| | 3 44 20 | Shad. | 26.95 | |
| | 46 00 | | 26.05 .90 | |
| | 46 20 | Exp | 26.55 | |
| | 48 00 | | 29.15 2.60 + 1.08 = | 3.68 |
| | 48 20 | Shad | 29.08 | |
| | 50 00 | | 27.82 1.26 | |
| | 50 20 | Exp | 28.12 | |
| | 52 00 | | 30.42 2.30 + 1.39 = | 3.69 |
| | 52 20 | Shad | 30.47 | |
| | 54.00 | | 28.95 1.52 | |
| | | | | |
| Hyg. read | 45.0 at 3.55 | | Air T. = | 65.8 F |

Sunday Dec 15 1912

HP Obs

Sky 3 SC. Low Watch ~~D~~ — Air Temp 64.0 A

| | | | | | | |
|---|---|---|---|---|---|---|
| | 8 10 | 20 | Shad | 12 : 20 | | |
| | 12 | 00 | | 12 | 50 | -.30 |
| | 12 | 20 | Exp | 13 | 08 | |
| | 14 | 00 | | 17 | 20 | 4.12 -.005 = 4.115 |
| | 14 | 20 | Shad | 17 | 37 | |
| | 16 | 00 | | 17 | 08 | .29 |
| | 16 | 20 | Exp | 17 | 51 | |
| | 18 | 00 | | 21 | 06 | 3.55 +.43 = 3.98 |
| | 18 | 20 | Shad. | 21 | 05 | |
| Hyg. read at 8.21 - 42.0 | 20 | 00 | | 20 | 58 | 1.07 |
| Stand Th. read at 8.21 - 63.0 | ~~24~~ 34 | 20 | Shad ~~Exp~~ | ~~21~~ 19 | ~~75~~ 95 | |
| MB read at 8.21 - 49.7 | ~~26~~ 28 | 00 | | 19 | .69 | .26 |
| | ~~24~~ 26 | 20 | Exp ~~Shad~~ | 19 | 91 | |
| | ~~28~~ 27 | 00 | | 23 | 15 | 3.24 + .595 = 3.815 |
| | ~~28~~ 29 | 20 | Shad ~~Exp~~ | 23 | 28 | |
| H | 30 | 00 | | 22 | 35 | .93 |
| | 30 | 20 | Exp ~~Shad~~ | 22 | 68 | |
| | 32 | 00 | | 25 | 76 | 3.08 + 1.03 = 4.110 |
| | 32 | 20 | Shad ~~Exp~~ | 25 | 05 | |
| | ~~37~~ 34 | 00 | | 23 | 92 | 1.13 |
| | 34 | 20 | ~~Shad~~ | | | |
| | 37 | 00 | | | | |

Sunday Dec 15 1912

Stny 4 S.a. hours Watch D Air Temp = 63.07

| | | | | |
|---|---|---|---|---|
| 8 56 20 | Shad | 19 50 | | |
| 58 00 | | 19 43 | .07 | |
| 58 20 | Exp | 20 02 | | |
| 9 00 00 | | 23 88 | 3,86 + .42 = 4.28 | |
| 00 20 | Shad | 24 00 | | |
| 02 00 | | 23 23 | .77 | |
| 02 20 | Exp | 23 77 | | |
| 04 00 | | 26 96 | 3,19 | +.995 = 4.285 |
| 04 20 | Shad | 26 90 | | |
| 06 00 | | 25 68 | 1.22 | |

Hygread at 9. 09-40,0 W.B.= 50.5 Stand. T. = 65.3

| | | | | |
|---|---|---|---|---|
| 9 09 20 | Shad | 22 90 | | |
| 11 00 | | 23 19 | .29 | |
| 11 20 | Exp | 23 70 | | |
| 13 00 | | 27 00 | 3.30 | +.74 = 4.04 |
| 13 20 | Shad | 26 89 | | |
| 15 00 | | 25 70 | 1.19 | |
| 15 20 | Exp | Cannot continue too cldy | | |
| ~~17 00~~ | | | | |
| ~~17 20~~ | Shad | | | |
| ~~19 00~~ | | | | |

Air Temp = 63,07

Sunday Dec 15 1912

Shad

Exp

Shad

Exp

Shad

Shad

Exp

Shad

Exp

Shad

Sun Dec 22, 1912

Sky 4 Cu Cir Scatt ⊙ clear F.C.Ob

Hygro 42.0 Air T = 66.0 F

| | | | |
|---|---|---|---|
| 9 32 20 | Shaded | 15 00 | -0.16 |
| 34 00 | | 15.16 | |
| 34 20 | Exp. | 15.88 | |
| 36 00 | | 19.62 | |
| 36 20 | Shd | 19.60 | |
| 38 00 | | 19.19 | |
| 38 20 | Exp. | 19.68 | |
| 40 00 | | 21:02 | |
| 40 20 | Shd | 21.00 | |
| 9 42 00 | | 20.33 | |

Hygro 41.0 Vert B = 10.9 C Dry B 18.8 C

Too hazy to continue to obs.

C.W. 5 min fast.

Copied.

2d. Copy

SMITHSONIAN MISCELLANEOUS COLLECTIONS
VOLUME 65, NUMBER 9

## Hodgkins Fund

# AREQUIPA PYRHELIOMETRY

BY
C. G. ABBOT

(PUBLICATION 2367)

CITY OF WASHINGTON
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## AREQUIPA PYRHELIOMETRY

By C. G. ABBOT[1]

In 1910 the Committee on Solar Radiation of the International Union for Cooperation in Solar Research recommended that regular observations of the intensity of solar radiation should be undertaken at additional stations in relatively cloudless regions far removed from existing stations. Prof. E. C. Pickering thereupon offered to undertake such observations at the Arequipa, Peru, station of the Harvard College Observatory if suitable apparatus should be furnished. In conversation between Messrs. Pickering and Abbot it appeared inexpedient to undertake a complete spectrobolometric program for the determination of the solar constant of radiation, but pyrheliometric observations were proposed whenever weather should permit.

By authority of the Secretary of the Smithsonian Institution, a silver disk pyrheliometer was lent for the purpose. This unfortunately was broken in transportation, and much time was lost owing to the delays of communication, so that it was not until the summer of 1912 that silver disk pyrheliometer S. I. 17 arrived at Arequipa. This instrument also was damaged in transportation, by loss of mercury from the cavity in the silver disk. But this defect was skillfully repaired by Señor J. E. Muniz.

It is probable that this alteration involved some slight change in the constant of the instrument, but probably not more than 1 per cent. Until we obtain further knowledge we may therefore retain the value of the constant as stated in "Smithsonian Pyrheliometry Revised," namely, 0.3635.

Individual measurements were made at Arequipa in the manner described in the publication just cited. The general plan of the work, as proposed by Mr. Abbot, was to secure measurements of the pyrheliometer and psychrometer at highest sun, and also at a solar zenith distance of about 70°, corresponding to three times the path in air which obtains at zenith sun. Some delay occurred in making these requirements fully understood at Arequipa, and it is to be

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[1] Published by the Smithsonian Institution by request of Director E. C. Pickering of the Harvard College Observatory.

SMITHSONIAN MISCELLANEOUS COLLECTIONS, VOL. 65, NO. 9.

regretted that it has not generally proved practicable in connection with other duties for the observers to secure measurements with the air mass as great as 3.

At Prof. Pickering's desire the observations are reduced and published by the Smithsonian Institution. They were made at Arequipa mainly by Dr. Leon Campbell, and in part by H. Perrine. Computations are mainly by L. B. Aldrich. The position of Arequipa is: Long. $4^h\ 46^m\ 11.73^s$ W., Lat. 16° 22′ 28″ S. Alt., 2,451 meters.

Nothing would be gained by making a series of pyrheliometer measurements at a station no higher than Arequipa if such a series did not throw light on the variability of the sun or on the variability of the transparency of the earth's atmosphere. Two kinds of solar variability are thought to exist. One is associated with that general solar activity which is indicated by faculæ, sun spots, and other visible solar features. This type of variability may be expected to march in rough correlation with the eleven year sun spot cycle. Another type of solar variability appears to be of short irregular intervals in its fluctuations, which are to be measured by days or months rather than by years.

As for the variations of atmospheric transparency, we need not consider those caused by ordinary cloudiness. Pyrheliometer measurements are made only when the sky around the sun is cloudless. Water vapor and dust are the two variable elements which principally affect the atmospheric transmission of solar radiation. Water vapor is effective in two ways: it absorbs radiation of certain wave-lengths, particularly in the infra-red spectrum; and it associates itself with dust to produce haze which scatters the solar radiation of all wave-lengths, thus increasing sky light at the expense of direct sun light.

At so high a station as Arequipa, dust, except as associated with water vapor to form haze, is generally not very effective to diminish solar radiation. But after forest fires or great volcanic eruptions it may be of very great influence.

The hindrance of solar rays by the atmosphere is of course dependent on the length of path of the solar beam therein. For zenith distances ($Z$) less than 70° the length of atmospheric path is closely proportional to secant $Z$. Suppose one could observe the solar radiation outside the atmosphere, and also at the earth's surface at zenith distances whose secants were 1, 2, and 3. Let the four values of the intensity of radiation be $c_0$, $c_1$, $c_2$, $c_3$, respectively. Let the fractions $\frac{c_1}{c_0}$, $\frac{c_2}{c_1}$, $\frac{c_3}{c_2}$, be denoted by $a_1$, $a_2$, $a_3$, respectively. These values may be called the atmospheric transmission coefficients at the given station for the first, second, and third air masses. As shown by Forbes and many subsequent writers, $a_1 < a_2 < a_3$, when, as with the pyrheliometer, a complex beam including many wave-lengths is observed.

Confining ourselves altogether in treating of atmospheric transparency to the consideration of the quantity $a_2$ for the station Arequipa, as we shall do in this paper, we propose to investigate its dependence on the amount of atmospheric humidity, and on the season of the year. We hope that the observations may be continued long enough to give good correlation factors in these respects, so that in future years abnormal changes like those caused by volcanoes will reveal themselves, and their climatic influences may be studied. Remarks on the influence of the dust from the Katmai eruption of 1912 will appear below.

A second object of the work is to connect by empirical formulæ the values of intensity of solar radiation, atmospheric transmission, and humidity as observed at Arequipa with the values of the solar constant of radiation outside the atmosphere determined by the spectro-bolometer at Mount Wilson. Thus it is hoped to employ Arequipa observations to indicate variations of solar emission of radiation.

No sufficient object to justify printing all Arequipa pyrheliometer values seems to exist. We therefore abridge the results as shown in the following table. Generally observations were secured with secant *Z* values as small as 1.3, and often as small as 1.05. To give the best possible comparable values of pyrheliometer measurements, we have interpolated the values for air mass 1.2.[1] In addition we give the values for 1.0 and 2.0 air masses whenever this can be done with fair certainty. From these latter values come the transmission coefficients $a_2$. The humidity was determined sometimes by swinging wet and dry thermometers, sometimes by the hydrograph. We have compared results by the two methods, and have expressed all in terms of pressure of aqueous vapor in millimeters of mercury. The values given in the table are the mean values for the interval of time covered by the pyrheliometer measurements of each day. The letters *A*, *M*, and *P* signify morning, noon, and afternoon, respectively. In the two final columns, after the date and the initials of observers and remarks, are given empirical determinations of the solar constant of radiation, of which more will be stated hereafter.

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[1] We shall use the term "air mass" in this paper as the equivalent of secant *Z*, taking no acount of barometric pressure.

TABLE I—*Arequipa Pyrheliometry*

| Date | No. of values read | Calories at air masses | | | Mean humidity mm. | Trans-mission coefficient $a_2$ | Remarks | Observer | Solar constant | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.2 | 1 | 2 | | | | | Formula I | Formula II |
| 1912 | | | | | | | | | | |
| Aug. 13 A. ... | 15 | 1.410 | ..... | ..... | ..... | ..... | Sky variable. | L. C. | ..... | ..... |
| P. ... | 10 | 1.422 | ..... | ..... | ..... | ..... | Sky variable. | L. C., H. P. | ..... | ..... |
| 15 A. ... | 8 | 1.434 | 1.474 | 1.273 | ..... | .864 | Sky clear. | L. C. | ..... | ..... |
| P. ... | 20 | 1.452 | 1.493 | 1.290 | ..... | .865 | Sky clear. | L. C., H. P. | ..... | ..... |
| 16 A. ... | 6 | 1.440 | ..... | ..... | ..... | ..... | Windy. | L. C., H. P. | ..... | ..... |
| P. ... | 15 | 1.456 | 1.518 | 1.210 | ..... | .797 | Sky clear. | L. C., H. P. | ..... | ..... |
| 17 P. ... | 15 | 1.417 | 1.470 | 1.200 | ..... | .817 | Sky 0-1. | L. C., H. P. | ..... | ..... |
| 19 A. ... | 6 | 1.533 | ..... | ..... | ..... | ..... | Sky 2-1. | L. C., H. P. | ..... | ..... |
| P. ... | 6 | 1.570 | ..... | ..... | ..... | ..... | Windy, slight haze. | L. C., H. P. | ..... | ..... |
| 20 A. ... | 4 | 1.465 | ..... | ..... | ..... | ..... | Haze, sky 1-2. | L. C., H. P. | ..... | ..... |
| P. ... | 7 | 1.440 | ..... | ..... | ..... | ..... | Clouds very near. | L. C., H. P. | ..... | ..... |
| 22 A. ... | 6 | 1.503 | ..... | ..... | ..... | ..... | Sky 2-3, sun clear. | L. C., H. P. | ..... | ..... |
| P. ... | 10 | 1.500 | 1.532 | 1.368 | ..... | .894 | Sky 2-3, sun clear. | L. C., H. P. | ..... | ..... |
| 23 A. ... | 5 | 1.463 | ..... | ..... | ..... | ..... | Sky clear, 1-2. | L. C., H. P. | ..... | ..... |
| P. ... | 6 | 1.483 | ..... | ..... | ..... | ..... | Sky clear, 1-2. | L. C., H. P. | ..... | ..... |
| 24 A. ... | 6 | 1.484 | ..... | ..... | ..... | ..... | Windy, sky 2. | L. C., H. P. | ..... | ..... |
| P. ... | 2 | 1.467 | ..... | ..... | ..... | ..... | Sky 2. | L. C., H. P. | ..... | ..... |
| 28 A. ... | 3 | 1.540 | ..... | ..... | ..... | ..... | Sky 0. | L. C. | ..... | ..... |
| P. ... | 6 | 1.540 | ..... | ..... | ..... | ..... | Windy, sky 0. | H. P. | ..... | ..... |
| 29 A. ... | 5 | 1.540 | ..... | ..... | ..... | ..... | Sky 0. | L. C., H. P. | ..... | ..... |
| P. ... | 5 | 1.540 | ..... | ..... | ..... | ..... | Sky 0. | L. C., H. P. | ..... | ..... |
| 30 A. ... | 4 | 1.535 | ..... | ..... | ..... | ..... | Sky 0. | L. C. | ..... | ..... |
| P. ... | 4 | 1.518 | ..... | ..... | ..... | ..... | Sky 0, windy. | L. C. | ..... | ..... |
| 31 A. ... | 4 | 1.497 | ..... | ..... | ..... | ..... | Sky 0. | L. C., H. P. | ..... | ..... |
| P. ... | 6 | 1.517 | ..... | ..... | ..... | ..... | Sky 0, windy. | H. P. | ..... | ..... |
| Sept. 1 A. ... | 2 | 1.493 | ..... | ..... | ..... | ..... | Sky 0, windy. | L. C. | ..... | ..... |
| 2 A. ... | 6 | 1.504 | 1.557 | 1.300 | ..... | .835 | Sky 0. | L. C. | ..... | ..... |
| P. ... | 2 | 1.497 | ..... | ..... | ..... | ..... | Sky 0. | L. C. | ..... | ..... |
| 3 A. ... | 3 | 1.512 | ..... | ..... | ..... | ..... | Sky 0. | L. C. | ..... | ..... |
| P. ... | 4 | 1.512 | ..... | ..... | ..... | ..... | Sky 0, windy. | L. C. | ..... | ..... |

TABLE I—*Arequipa Pyrheliometry* (Continued)

| Date | | No. of values read. | Calories at air masses | | | Mean humidity mm. | Trans-mission coefficient $a_2$ | Remarks | Observer | Solar constant | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.2 | 1 | 2 | | | | | Formula I | Formula II |
| Sept. 4 | A. ... | 3 | 1.488 | ..... | ..... | ..... | ..... | Sky 0-1. | L. C. | ..... | ..... |
| | P. ... | 4 | 1.488 | ..... | ..... | ..... | ..... | Sky 1. | L. C. | ..... | ..... |
| 5 | A. ... | 2 | 1.450 | ..... | ..... | ..... | ..... | ........ | L. C. | ..... | ..... |
| | P. ... | 5 | 1.450 | ..... | ..... | ..... | ..... | Sky 2. | H. P., L. C. | ..... | ..... |
| 6 | A. ... | 2 | 1.498 | ..... | ..... | ..... | ..... | Sky 1. | L. C. | ..... | ..... |
| | P. ... | 4 | 1.498 | ..... | ..... | ..... | ..... | Sky 1. | L. C. | ..... | ..... |
| 7 | A. ... | 2 | ..... | ..... | ..... | ..... | ..... | Sky 4. | H. P. | ..... | ..... |
| | P. ... | 4 | 1.520 | ..... | ..... | ..... | ..... | Sky 3. | H. P. | ..... | ..... |
| 8 | A. ... | 2 | 1.462 | ..... | ..... | ..... | ..... | Windy, sky 2. | L. C. | ..... | ..... |
| | P. ... | 4 | 1.462 | ..... | ..... | ..... | ..... | Windy, sky 2. | L. C. | ..... | ..... |
| 9 | A. ... | 4 | 1.490 | ..... | ..... | ..... | ..... | Sky 1. | L. C. | ..... | ..... |
| | P. ... | 4 | 1.490 | ..... | ..... | ..... | ..... | Sky 1. | L. C., H. P. | ..... | ..... |
| 10 | P. ... | 6 | 1.537 | ..... | ..... | ..... | ..... | Sky 0. | L. C. | ..... | ..... |
| 11 | P. ... | 6 | 1.448 | ..... | ..... | ..... | ..... | Sky 1-2. | H. P., L. C. | ..... | ..... |
| 12 | P. ... | 6 | 1.495 | ..... | ..... | ..... | ..... | Sky 0. | L. C. | ..... | ..... |
| 13 | A. ... | 6 | 1.512 | ..... | ..... | ..... | ..... | Sky 1, hazy. | L. C. | ..... | ..... |
| 14 | P. ... | 5 | 1.522 | ..... | ..... | ..... | ..... | Sky 0. | L. C. | ..... | ..... |
| 15 | A. ... | 6 | 1.522 | ..... | ..... | ..... | ..... | Sky 0. | L. C. | ..... | ..... |
| 16 | A. ... | 6 | 1.495 | ..... | ..... | ..... | ..... | Sky 0. | L. C. | ..... | ..... |
| 17 | A. ... | 6 | 1.480 | ..... | ..... | ..... | ..... | Sky clear. | L. C. | ..... | ..... |
| 18 | A. ... | 5 | 1.486 | ..... | ..... | ..... | ..... | Sky 0, windy. | L. C. | ..... | ..... |
| 19 | A. ... | 6 | 1.468 | ..... | ..... | ..... | ..... | Sky 2. | L. C. | ..... | ..... |
| 20 | A. ... | 6 | 1.494 | ..... | ..... | ..... | ..... | Sky 5, clear near sun. | L. C. | ..... | ..... |
| 22 | A. ... | 6 | 1.480 | ..... | ..... | ..... | ..... | Sky 4, clear near sun. | L. C. | ..... | ..... |
| 24 | A. ... | 8 | 1.423 | 1.483 | 1.194 | ..... | .806 | Sky 1-2. | L. C. | ..... | ..... |
| 25 | A. ... | 7 | 1.412 | ..... | ..... | ..... | ..... | Sky 2. | L. C. | ..... | ..... |
| 27 | A. ... | 4 | 1.457 | ..... | ..... | ..... | ..... | Sky 3, sky variable. | L. C. | ..... | ..... |
| 30 | A. ... | 6 | 1.522 | ..... | ..... | ..... | ..... | Sky 2. | L. C. | ..... | ..... |
| Oct. 1 | A. & P. | 10 | 1.513 | ..... | ..... | ..... | ..... | Sky 0, P. M. better. | L. C. | ..... | ..... |
| 2 | A. ... | 5 | 1.513 | ..... | ..... | ..... | ..... | Sky 1. | L. C. | ..... | ..... |
| 3 | M. . | 4 | 1.571 | ..... | ..... | ..... | ..... | Sky scattered cirri, but thin. | L. C. | ..... | ..... |

TABLE I—*Arequipa Pyrheliometry* (Continued)

| Date | | No. of values read | Calories at air masses | | | Mean humidity mm. | Trans-mission coefficient $a_2$ | Remarks | Observer | Solar constant | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1.2 | 1 | 2 | | | | | Formula I | Formula II |
| Oct. | 6 M. | 5 | 1.503 | ..... | ..... | ..... | ..... | Sky 4. | L. C. | ..... | ..... |
| | 8 A. | 10 | 1.540 | ..... | ..... | ..... | ..... | Sky 1-2. | L. C. | ..... | ..... |
| | P. | 12 | 1.540 | ..... | ..... | ..... | ..... | Sky 1, hazy. | L. C. | ..... | ..... |
| | 9 A. | 33 | 1.536 | 1.561 | 1.436 | ..... | .920 | Sky 0-1-2, hazy. | L. C. | ..... | ..... |
| | P. | 20 | 1.497 | 1.541 | 1.316 | ..... | .854 | Sky 0-1, slight haze. | L. C. | ..... | ..... |
| | 10 A. | 11 | 1.552 | 1.581 | 1.438 | ..... | .910 | Sky 0. | L. C. | ..... | ..... |
| | 11 A. | 9 | 1.583 | ..... | ..... | ..... | ..... | Sky 0, exceptionally clear. | L. C. | ..... | ..... |
| | 12 A. | 6 | 1.609 | ..... | ..... | ..... | ..... | Exceptionally clear. | L. C. | ..... | ..... |
| | 13 M. | 6 | 1.586 | ..... | ..... | ..... | ..... | Sky 1. | L. C. | ..... | ..... |
| | 14 A. | 5 | 1.614 | ..... | ..... | ..... | ..... | Sky very clear. | L. C. | ..... | ..... |
| | 15 A. | 8 | 1.600 | ..... | ..... | ..... | ..... | Sky very clear. | L. C. | ..... | ..... |
| | 16 M. | 5 | 1.577 | ..... | ..... | ..... | ..... | Sky 0. | L. C. | ..... | ..... |
| | 17 M. | 7 | 1.624 | ..... | ..... | ..... | ..... | Sky 0. | H. P., L. C. | ..... | ..... |
| | 18 A. | 5 | 1.560 | ..... | ..... | ..... | ..... | Sky 1. | L. C. | ..... | ..... |
| | 19 A. | 10 | 1.578 | ..... | ..... | ..... | ..... | Sky 2-1. | H. P., L. C. | ..... | ..... |
| | 20 M. | 5 | 1.549 | ..... | ..... | ..... | ..... | Sky 0-1. | L. C. | ..... | ..... |
| | 21 A. | 22 | 1.561 | 1.590 | 1.440 | ..... | .906 | Sky 0. | L. C. | ..... | ..... |
| | P. | 8 | 1.516 | 1.595? | 1.200? | ..... | .755? | Sky 0, then windy and dust in air. | L. C. | ..... | ..... |
| | 22 M. | 5 | 1.564 | ..... | ..... | ..... | ..... | Sky 1. | L. C. | ..... | ..... |
| | 23 M. | 5 | 1.550 | ..... | ..... | ..... | ..... | Sky 0, hazy near horizon. | L. C. | ..... | ..... |
| | 24 M. | 5 | 1.562 | ..... | ..... | ..... | ..... | Sky 4. | H. P. | ..... | ..... |
| Nov. | 4 P. | 5 | 1.540 | ..... | ..... | ..... | ..... | Sky 1, sun clear. | L. C. | ..... | ..... |
| | 9 A. | 5 | 1.521 | ..... | ..... | ..... | ..... | Sky 2. | L. C. | ..... | ..... |
| | 18 M. | 5 | 1.529 | ..... | ..... | ..... | ..... | Sky 2. | H. P. | ..... | ..... |
| | 19 M. | 5 | 1.585 | ..... | ..... | ..... | ..... | Sky 4. | H. P. | ..... | ..... |
| | 20 M. | 5 | 1.570 | ..... | ..... | ..... | ..... | Sky 0, slight haze. | L. C. | ..... | ..... |
| | 21 M. | 5 | 1.527 | ..... | ..... | ..... | ..... | Sky 0. | L. C. | ..... | ..... |
| | 25 A. | 6 | 1.554 | ..... | ..... | 3.00 | ..... | Sky 1. | L. C. | 1.87 | ..... |

TABLE I—*Arequipa Pyrheliometry* (Continued)

| Date | No. of values read | Calories at air masses | | | Mean humidity mm. | Trans-mission coefficient $a_2$ | Remarks | Observer | Solar constant | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.2 | 1 | 2 | | | | | Formula I | Formula II |
| Dec. 4 A. ... | 6 | 1.528 | ..... | ..... | 6.76 | ..... | Sky 2. | L. C. | 1.94 | ..... |
| 6 A. ... | 4 | 1.534 | ..... | ..... | 8.19 | ..... | Sky 3. | L. C. | 1.98 | ..... |
| 11 A. ... | 12 | 1.490 | 1.546 | 1.270 | 6.88 | .821 | Sky 2. | L. C. | 1.90 | 1.92 |
| 12 A. ... | 10 | 1.555 | 1.583 | 1.443 | 8.04 | .912 | Sky 0-1. | L. C. | 2.00 | 1.96 |
| P. ... | 4 | 1.542 | 1.603 | 1.300 | (8.00) | .811 | Sky 4. | H. P. | 1.99 | 2.03 |
| 15 A. ... | 8 | 1.470 | ..... | ..... | 5.79 | ..... | Sky 3-4, then clouds. | H. P. | 1.85 | ..... |
| 1913 | | | | | | | | | | |
| Jan. 3 A. ... | 6 | 1.443 | 1.470 | 1.334 | 8.26 | .907 | Sky 3-5, then clouds. | L. C. | 1.86 | 1.82 |
| 4 A. ... | 10 | 1.390 | 1.450 | 1.143 | 10.20 | .788 | Sky 4, sun clear. | L. C. | 1.82 | 1.91 |
| 6 A. ... | 12 | 1.526 | 1.571 | 1.349 | 8.64 | .859 | Sky 3-2-1. | L. C. | 1.98 | 1.99 |
| 8 A. ... | 4 | 1.500 | ..... | ..... | 8.33 | ..... | Sky 3. | H. P. | 1.94 | ..... |
| 10 A. ... | 6 | 1.486 | ..... | ..... | 9.32 | ..... | Sky 2. | L. C. | 1.93 | ..... |
| Feb. 4 P. ... | 4 | 1.464 | ..... | ..... | 9.65 | ..... | Sky 1, windy. | L. C. | 1.92 | ..... |
| Mar. 24 A. ... | 16 | 1.321 | 1.362 | 1.150 | 8.00 | .845 | Sky 2-2-3, hazy. | L. C. | 1.75 | ..... |
| Apr. 1 A. ... | 10 | 1.387 | 1.427 | 1.230 | 7.90 | .862 | Sky 2, then 5. | L. C. | 1.84 | 1.84 |
| 2 A. ... | 10 | 1.393 | 1.450 | 1.172 | 7.25 | .808 | Sky 3. | L. C. | 1.84 | 1.88 |
| 7 A. ... | 12 | 1.430 | 1.478 | 1.237 | 8.90 | .836 | Sky 0. | L. C. | 1.92 | 1.96 |
| 9 A. ... | 10 | 1.394 | 1.431 | 1.243 | 8.75 | .869 | Sky 4-5, then cloudy. | L. C. | 1.87 | 1.87 |
| 25 P. ... | 10 | 1.439 | 1.474 | 1.298 | 5.07 | .881 | Sky 1. | L. C. | 1.88 | 1.90 |
| 30 P. ... | 2 | 1.430 | ..... | ..... | (3.5)? | ..... | Sky 2, then clouds. | L. C. | 1.80? | ..... |
| May 1 A. ... | 6 | 1.330 | 1.371 | 1.160 | (3.7)? | .846 | Sky 1, then clouds. | L. C. | 1.70? | ..... |
| 4 A. ... | 12 | 1.518 | 1.568 | 1.320 | 3.90 | .842 | Sky 0. | L. C. | 1.94 | 1.96 |
| 5 A. ... | 12 | 1.508 | 1.530 | 1.419 | 3.80 | .927 | Sky 0. | L. C. | 1.92 | 1.88 |
| 6 P. ... | 12 | 1.525 | 1.571 | 1.342 | 4.72 | .854 | Sky 0. | L. C. | 1.98 | 1.98 |
| 7 P. ... | 8 | 1.473 | 1.510 | 1.321 | 5.99 | .875 | Sky 2. | L. C. | 1.95 | 1.92 |
| 8 P. ... | 12 | 1.480 | 1.515 | 1.346 | 4.61 | .889 | Sky 2. | L. C. | 1.92 | 1.89 |
| 10 A. ... | 12 | 1.494 | ..... | ..... | 3.78 | ..... | Sky 2. | L. C. | 1.90 | ..... |
| 11 A. ... | 12 | 1.506 | 1.543 | 1.353 | 4.47 | .877 | Sky 2. | L. C. | 1.95 | 1.94 |
| 13 A. ... | 12 | 1.465 | 1.510 | 1.283 | 5.48 | .850 | Sky 2-1. | L. C. | 1.94 | 1.93 |
| 21 A. ... | 8 | 1.473 | ..... | ..... | 5.27 | ..... | Sky gen. clear. | L. C. | 1.94 | ..... |

TABLE I—*Arequipa Pyrheliometry* (Continued)

| Date | No. of values read | Calories at air masses | | | Mean humidity mm. | Trans-mission coefficient $a_2$ | Remarks | Observer | Solar constant | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.2 | 1 | 2 | | | | | Formula I | Formula II |
| May 23 A. | 5 | 1.463 | ..... | ..... | (3.00) | ..... | Sky 2. | L. C. | 1.84? | ..... |
| 24 A. | 8 | 1.490 | 1.510 | 1.417 | 2.74 | .939 | Sky clear. | L. C. | 1.86 | 1.83 |
| June 2 A. | 8 | 1.497 | ..... | ..... | 3.12 | ..... | Sky 1. | L. C. | 1.90 | ..... |
| 3 P. | 6 | 1.560 | 1.598 | 1.408 | 2.74 | .881 | Sky clear. | L. C. | 1.95 | 1.97 |
| 4 P. | 10 | 1.583 | 1.630 | 1.393 | 4.00 | .855 | Sky 1. | L. C. | 2.04 | 2.05 |
| 13 P. | 4 | 1.468 | ..... | ..... | 4.79 | ..... | Sky 1, then clouds. | L. C. | 1.93 | ..... |
| 14 A. | 6 | 1.403 | 1.453 | 1.203 | 4.22 | .829 | Sky 3, windy. | L. C. | 1.84 | 1.86 |
| 15 A. | 4 | 1.416 | 1.454 | 1.260 | 3.81 | .868 | Sky ? | L. C., H. P. | 1.84 | 1.84 |
| 16 P. | 6 | 1.434 | 1.469 | 1.297 | 5.72 | .883 | Sky 2, hazy. | L. C. | 1.92 | 1.89 |
| 17 P. | 6 | 1.489 | 1.527 | 1.338 | 4.56 | .875 | Sky 4, then clear. | L. C. | 1.95 | 1.94 |
| 18 P. | 4 | 1.497 | 1.530 | 1.367 | 3.76 | .894 | Sky 0. | L. C. | 1.94 | 1.92 |
| 19 P. | 4 | 1.483 | 1.513 | 1.356 | 4.42 | .896 | Sky 0. | L. C. | 1.94 | 1.91 |
| 24 P. | 4 | 1.597 | 1.635 | 1.440 | 3.30 | .882 | Sky 0, some haze. | L. C. | 2.04 | 2.03 |
| 25 P. | 4 | 1.567 | 1.613 | 1.380 | 2.23 | .856 | Sky 0. | L. C. | 1.94 | 2.00 |
| 26 P. | 4 | 1.540 | 1.578 | 1.398 | 3.04 | .886 | Sky 0. | L. C. | 1.96 | 1.98 |
| 27 A. | 6 | 1.522 | 1.550 | 1.410 | 2.85 | .910 | Sky 1, windy and dusty. | L. C. | 1.92 | 1.91 |
| 28 A. | 4 | 1.460 | 1.485 | 1.357 | 3.07 | .915 | Sky 2, hazy from near volcano. | L. C. | 1.86 | 1.84 |
| July 1 A. | 4 | 1.460 | 1.498 | 1.312 | 4.20 | .875 | Hazy. | L. C. | 1.91 | 1.90 |
| 2 P. | 4 | 1.505 | 1.550 | 1.326 | 3.00 | .856 | Sky 1. | L. C. | 1.91 | 1.94 |
| 3 M. | 2 | 1.397 | ..... | ..... | 5.38 | ..... | Sky 1, windy. | L. C. | 1.86 | ..... |
| 7 P. | 4 | 1.480 | 1.512 | 1.352 | 2.70 | .895 | Sky clear. | L. C. | 1.86 | 1.87 |
| 8 P. | 4 | 1.491 | 1.520 | 1.371 | 2.25 | .902 | Sky clear. | L. C. | 1.85 | 1.87 |
| 13 P. | 2 | 1.463 | ..... | ..... | 2.20 | ..... | Sky 0. | L. C. | 1.82 | ..... |
| 14 P. | 4 | 1.476 | 1.510 | 1.339 | 2.55 | .887 | Sky 0. | L. C. | 1.85 | 1.87 |
| 15 P. | 4 | 1.486 | 1.560 | 1.192 | 2.05 | .764 | Sky 1, hazy. | H. P., L. C. | 1.83 | 1.97 |
| 17 A. & P. | 6 | ..... | ..... | ..... | 2.50 | ..... | Sky 1-0. | L. C. | ..... | ..... |
| 18 P. | 4 | 1.504 | 1.530 | 1.400 | 3.00 | .915 | Sky 0. | L. C. | 1.91 | 1.87 |
| 19 A. | 6 | 1.451 | 1.479 | 1.345 | 3.00 | .909 | Sky 1, windy. | L. C. | 1.85 | 1.83 |
| 20 A. | 2 | ..... | ..... | ..... | 2.68 | ..... | Sky 2, then clouds. | L. C. | ..... | 1.89 |

TABLE 1—*Arequipa Pyrheliometry* (Continued)

| Date | No. of values read | Calories at air masses | | | Mean humidity mm. | Trans-mission coefficient $a_2$ | Remarks | Observer | Solar constant | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.2 | 1 | 2 | | | | | Formula I | Formula II |
| July 22 P. | 4 | 1.450 | 1.491 | 1.282 | 4.01 | .860 | Sky 1, clear. | L. C. | 1.89 | 1.83 |
| 25 P. | 4 | 1.436 | 1.470 | 1.298 | 2.91 | .883 | Sky 1. | L. C. | 1.82 | ..... |
| 26 P. | 4 | 1.452 | 1.490 | 1.300 | 2.95 | .873 | Sky 1. | L. C. | 1.85 | 1.86 |
| 27 P. | 2 | 1.474 | ..... | ..... | 3.53 | ..... | Sky 1, then clouds. | L. C. | 1.90 | ..... |
| 29 P. | 6 | 1.511 | 1.550 | 1.357 | 3.44 | .876 | Sky 0. | L. C. | 1.94 | 1.94 |
| 30 P. | 4 | 1.520 | 1.563 | 1.347 | 3.08 | .862 | Sky clear. | L. C. | 1.93 | 1.95 |
| 31 P. | 4 | 1.432 | 1.463 | 1.310 | 2.95 | .897 | Sky 1. | L. C. | 1.82 | 1.82 |
| Aug. 4 P. | 4 | 1.540 | 1.586 | 1.340 | 3.55 | .845 | Sky clear. | L. C. | 1.98 | 2.01 |
| 5 P. | 4 | 1.550 | 1.590 | 1.408 | 2.94 | .886 | Sky 2-1. | L. C. | 1.95 | ..... |
| 6 P. | 4 | 1.481 | 1.524 | 1.309 | 3.14 | .859 | Sky clear. | L. C., H. P. | 1.88 | 1.90 |
| 7 P. | 4 | 1.518 | 1.565 | 1.333 | 2.65 | .852 | Sky clear. | L. C. | 1.90 | ..... |
| 8 P. | 4 | 1.334 | 1.380 | 1.155 | 3.30 | .837 | Very hazy and dusty | L. C. | 1.70 | ..... |
| 12 P. | 4 | 1.457 | 1.496 | 1.297 | 4.25 | .867 | Sky 1, sun clear. | L. C | 1.89 | 1.89 |
| 13 P. | 2 | 1.403 | ..... | ..... | 3.79 | ..... | Sky 3, then clouds. | L. C. | 1.81 | ..... |
| 14 P. | 4 | 1.428 | 1.467 | 1.254 | 3.60 | .854 | Sky 2, clouds near. | L. C. | 1.83 | 1.85 |
| 15 P. | 4 | 1.439 | 1.477 | 1.279 | 3.96 | .866 | Sky 1. | L. C. | 1.85 | 1.85 |
| 16 A. | 4 | 1.390? | ..... | ..... | 5.78 | ..... | Sky 2. | C. W. | 1.84? | ..... |
| 17 A. | 4 | 1.348 | 1.392 | 1.168 | 4.57 | .839 | Sky 6. | C. W. | 1.76 | 1.77 |
| 18 P. | 4 | 1.500 | 1.530 | 1.361 | 6.05 | .890 | Sky 0. | H. P. | 1.99 | 1.96 |
| 21 P. | 2 | 1.568 | ..... | ..... | 1.60(?) | ..... | Sky 3, then clouds. | L. C. | 1.86 | ..... |
| 22 P. | 2 | 1.503 | ..... | ..... | 3.11 | ..... | Sky 8. | ? | 1.88 | ..... |
| 25 P. | 2 | 1.452 | ..... | ..... | 5.20 | ..... | Sky 1. | L. C. | 1.90 | ..... |
| 26 P. | 4 | 1.442 | 1.493 | 1.227 | 4.16 | .822 | Sky 1. | L. C. | 1.85 | 1.88 |
| 27 P. | 4 | 1.427 | 1.469 | 1.262 | 5.14 | .859 | Sky 1. | L. C. | 1.86 | 1.86 |
| 28 P. | 2 | 1.423 | ..... | ..... | 5.58 | ..... | Sky 3. | L. C. | 1.87 | ..... |
| 30 P. | 2 | 1.483 | ..... | ..... | 6.25 | ..... | Sky 3. | L. C. | 1.96 | ..... |
| Sept. 1 A. | 4 | 1.438 | 1.495 | 1.206 | 4.46 | .808 | Sky 1. | L. C. | 1.85 | 1.89 |
| 2 P. | 4 | 1.452 | 1.510 | 1.247 | 4.05 | .826 | Sky 1. | L. C. | 1.85 | 1.88 |
| 3 P. | 4 | 1.525 | 1.579 | 1.306 | 4.56 | .827 | Sky clear. | L. C., H. P. | 1.96 | 2.00 |
| 4 P. | 4 | 1.495 | 1.523 | 1.373 | 4.30 | .902 | Sky 0-1. | L. C. | 1.91 | 1.89 |
| 8 P. | 4 | 1.528 | 1.570 | 1.363 | 3.91 | .869 | Sky 0. | L. C. | 1.94 | 1.95 |

TABLE 1—*Arequipa Pyrheliometry* (Continued)

| Date | No. of values read. | Calories at air masses | | | Mean humidity mm. | Trans-mission coefficient $a_2$ | Remarks | Observer | Solar constant | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.2 | 1 | 2 | | | | | Formula I | Formula II |
| Sept. 9 P. ... | 4 | 1.500 | 1.567 | 1.224 | 4.31 | .781 | Sky 0, then hazy and very dusty. | L. C. | 1.92 | 1.99 |
| 10 P. ... | 4 | 1.452 | 1.498 | 1.278 | 3.87 | .853 | Sky 2. | L. C. | 1.84 | 1.84 |
| 12 P. ... | 2 | 1.474 | ..... | ..... | 3.81 | ..... | Sky 1. | L. C. | 1.86 | ..... |
| 17 P. ... | 4 | 1.514 | 1.547 | 1.384 | 3.75 | .894 | Sky 0. | L. C. | 1.91 | 1.89 |
| 18 P. ... | 4 | 1.483 | 1.537 | 1.270 | 3.91 | .827 | Sky 0. | L. C. | 1.88 | 1.91 |
| 21 P. ... | 2 | 1.402 | ..... | ..... | 3.79 | ..... | Sky 1. | L. C. | 1.77 | ..... |
| 22 P. ... | 4 | 1.499 | 1.535 | 1.357 | 4.74 | .884 | Sky 1-0. | L. C. | 1.92 | 1.90 |
| 23 P. ... | 4 | 1.543 | 1.588 | 1.357 | 4.64 | .854 | Sky 0. | L. C. | 1.98 | 1.98 |
| 26 P. ... | 4 | 1.406 | 1.447 | 1.249 | 6.41 | .864 | Sky 1, clear. | L. C. | 1.84 | 1.83 |
| 27 P. ... | 4 | 1.440 | 1.485 | 1.261 | 6.93 | .849 | Sky 1. | L. C. | 1.89 | 1.90 |
| 28 P. ... | 4 | 1.515 | 1.563 | 1.324 | 7.12 | .847 | Sky 1, clear. | L. C. | 2.00 | 2.00 |
| 29 P. ... | 4 | 1.500 | 1.535 | 1.356 | 6.67 | .883 | Sky 0-1. | H. P. | 1.97 | 1.93 |
| 30 P. ... | 4 | 1.447 | 1.498 | 1.238 | 6.41 | .826 | Sky 1, very windy. | H. P., L. C. | 1.89 | 1.91 |
| Oct. 1 P. ... | 4 | 1.435 | 1.500 | 1.178 | 5.25 | .785 | Sky 2. | L. C. | 1.84 | 1.90 |
| 2 P. ... | 6 | 1.471 | 1.510 | 1.305 | 4.70 | .864 | Sky (?). | H. P., C. W. | 1.88 | 1.87 |
| 3 P. ... | 4 | 1.443 | 1.485 | 1.273 | 5.08 | .857 | Sky 1. | L. C. | 1.85 | 1.85 |
| 4 P. ... | 4 | 1.438 | 1.488 | 1.245 | 5.43 | .836 | Sky 1, clear, windy. | L. C. | 1.86 | 1.86 |
| 6 P. ... | 4 | 1.480 | 1.530 | 1.280 | 4.97 | .836 | Sky 1. | L. C. | 1.89 | 1.90 |
| 18 P. ... | 4 | 1.440 | ..... | ..... | 6.64 | ..... | Sky 5-4. | H. P., L. C. | 1.87 | ..... |
| 20 P. ... | 2 | 1.418 | ..... | ..... | 6.68 | ..... | Sky (?). | H. P. | 1.84 | ..... |
| 21 A. ... | 2 | 1.302 | ..... | ..... | 5.54 | ..... | Sky 4, variable. | L. C. | 1.66 | ..... |
| 22 A. ... | 2 | 1.408 | ..... | ..... | 5.91 | ..... | Sky 5. | L. C. | 1.81 | ..... |
| 23 P. ... | 2 | 1.330 | ..... | ..... | 7.31 | ..... | Sky 3. | L. C. | 1.73 | ..... |
| 25 A. ... | 4 | 1.458 | ..... | ..... | 7.71 | ..... | Sky 1-2. | L. C. | 1.90 | ..... |
| 29 A. ... | 4 | 1.403 | ..... | ..... | 6.55 | ..... | Sky 2. | L. C. | 1.81 | ..... |
| 31 A. ... | 4 | 1.496 | 1.563 | 1.225 | 6.18 | .780 | Sky 2. | L. C. | 1.92 | 1.98 |
| Nov. 1 P. ... | 2 | 1.535 | ..... | ..... | 5.07 | ..... | Sky 2. | L. C. | 1.94 | ..... |
| 8 A. ... | 2 | 1.495 | ..... | ..... | 5.44 | ..... | Sky 2. | L. C. | 1.89 | ..... |
| 14 P. ... | 2 | 1.470 | ..... | ..... | 5.80 | ..... | Sky 5, windy. | H. P. | 1.87 | ..... |
| 16 A. ... | 2 | 1.468 | ..... | ..... | 6.86 | ..... | Sky 4. | L. C. | 1.88 | ..... |

TABLE I—*Arequipa Pyrheliometry* (Continued)

| Date | No. of values read | Calories at air masses |  |  | Mean humidity mm. | Transmission coefficient $a_2$ | Remarks | Observer | Solar constant |  |
|---|---|---|---|---|---|---|---|---|---|---|
|  |  | 1.2 | 1 | 2 |  |  |  |  | Formula I | Formula II |
| Nov. 17 A. ... | 4 | 1.429 | ..... | ..... | 8.50 | ..... | Sky 4-6. | L. C. | 1.86 | ..... |
| 18 A. ... | 4 | 1.479 | ..... | ..... | 6.54 | ..... | Sky 4-3. | L. C. | 1.89 | ..... |
| 25 A. ... | 2 | 1.560 | ..... | ..... | 7.61 | ..... | Sky 2. | L. C. | 2.01 | ..... |
| 26 A. ... | 4 | 1.525 | ..... | ..... | 7.82 | ..... | Sky 1-3, windy. | L. C., H. P. | 1.97 | ..... |
| 27 A. ... | 6 | 1.507 | 1.563 | 1.277 | 6.55 | .817 | Sky 1-2. | L. C. | 1.92 | 1.95 |
| 28 P. ... | 4 | 1.502 | 1.551 | 1.300 | 6.50 | .838 | Sky 3. | L. C. | 1.92 | 1.93 |
| 29 A. ... | 4 | 1.530 | ..... | ..... | 6.48 | ..... | Sky clear 3, windy. | L. C., H. P. | 1.95 | ..... |
| 30 P. ... | 4 | 1.538 | 1.577 | 1.380 | 7.27 | .875 | Sky 4-3. | L. C. | 1.98 | 1.96 |
| Dec. 1 A. & P. | 6 | 1.570 | 1.613 | 1.389 | 5.78 | .861 | Sky 0-1. | L. C. | 1.98 | 1.96 |
| 2 A. & P. | 6 | 1.565 | 1.607 | 1.397 | 5.00 | .869 | Sky 0. | L. C., H. P. | 1.95 | 1.93 |
| 3 P. ... | 4 | 1.515 | 1.569 | 1.303 | 6.02 | .830 | Sky 2-3, very windy. | L. C. | 1.91 | 1.93 |
| 11 A. & P. | 6 | 1.550 | 1.609 | 1.307 | 5.70 | .812 | Sky clear, 2. | L. C. | 1.95 | 1.98 |
| 12 A. & P. | 6 | 1.521 | 1.597 | 1.228 | 5.00 | .768 | Sky 2, clear. | L. C. | 1.89 | 1.96 |
| 13 P. ... | 2 | 1.487 | ..... | ..... | 7.56 | ..... | Sky 4. | L. C. | 1.91 | ..... |
| 14 A. & P. | 4 | 1.515 | ..... | ..... | 6.78 | ..... | Sky 1-2. | L. C. | 1.93 | ..... |
| 17 A. ... | 4 | 1.471 | ..... | ..... | 7.88 | ..... | Sky 3, windy. | L. C. | 1.89 | ..... |
| 19 P. ... | 2 | 1.507 | ..... | ..... | 6.58 | ..... | Sky 5, windy. | H. P. | 1.92 | ..... |
| 20 A. & P. | 4 | 1.520 | ..... | ..... | 11.18 | ..... | Sky 1, windy. | H. P. | 2.01 | ..... |
| 21 A. & P. | 4 | 1.540? | ..... | ..... | 12.70 | ..... | Sky 1-3, windy. | L. C., H. P. | 2.05? | ..... |
| 23 A. ... | 2 | 1.465 | ..... | ..... | 8.20 | ..... | Sun clear. | H. P. | 1.89 | ..... |
| 28 A. & P. | 8 | 1.490 | 1.547 | 1.262 | 7.77 | .816 | Sky 2-4-3, windy. | H. P., L. C. | 1.92 | 1.95 |
| 29 A. & P. | 4 | 1.532 | ..... | ..... | 5.98 | ..... | Sky 0-1. | H. P. | 1.92 | ..... |
| 30 A. & P. | 6 | 1.521 | 1.570 | 1.323 | 6.42 | .843 | Sky 2-3, windy. | C. W., H. P. | 1.93 | 1.93 |
| 1914 |  |  |  |  |  |  |  |  |  |  |
| Jan. 2 A. & P. | 6 | 1.506 | ..... | ..... | 8.01 | ..... | Sky 1-0-2. | H. P., C. W. | 1.94 | ..... |
| 3 A. & P. | 6 | 1.560? | 1.627? | 1.300? | 5.96 | .799 | Sky 1-4, very windy. | C. W., H. P. | 1.97? | 2.01 |
| 6 A. ... | 6 | 1.473 | 1.518 | 1.297 | 6.00 | .854 | Sky 6-5-5. | L. C., C. W., H. P. | 1.86 | 1.85 |
| 10 A. ... | 2 | 1.496 | ..... | ..... | 9.57 | ..... | Sky 6. | H. P. | 1.95 | ..... |
| 11 A. ... | 4 | 1.520 | ..... | ..... | 8.29 | ..... | Sky 4-3. | H. P., L. C. | 1.96 | ..... |

TABLE I—*Arequipa Pyrheliometry* (Continued)

| Date | No. of values read | Calories at air masses | | | Mean humidity mm. | Trans-mission coefficient $a_2$ | Remarks | Observer | Solar constant | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.2 | 1 | 2 | | | | | Formula I | Formula II |
| Jan. 12 A.&P. | 6 | 1.465 | 1.515 | 1.260 | 5.31(?) | .832 | Sky 0-2-4, windy. | H. P. | 1.83? | 1.84 |
| 15 A. ... | 8 | 1.574 | 1.615 | 1.410 | 6.36 | .873 | Sky clear, windy. | L. C. | 2.00 | 1.97 |
| 20 A. ... | 2 | 1.427 | ..... | ..... | 8.30 | ..... | Sky 6. | L. C. | 1.84 | ..... |
| 21 A. ... | 4 | 1.461 | 1.512 | 1.259 | 9.23 | .833 | Sky 1-2. | L. C. | 1.90 | 1.94 |
| 29 A. ... | 4 | 1.503 | 1.537 | 1.376 | 5.95 | ..... | Sky 3. | L. C. | 1.89 | ..... |
| 30 A. ... | 2 | 1.460 | ..... | ..... | 7.90 | ..... | Sky 4. | L. C. | 1.88 | ..... |
| Feb. 2 A. ... | 3 | 1.420 | 1.450 | 1.303 | 9.42 | .889 | Sky 4-5. | L. C. | 1.86 | 1.85 |
| 9 A. ... | 2 | 1.455 | ..... | ..... | 9.99 | ..... | Sky 4. | L. C. | 1.91 | ..... |
| 12 A. ... | 4 | 1.455 | ..... | ..... | 10.27 | ..... | Sky 5-4. | H. P., L. C. | 1.92 | ..... |
| 13 A. ... | 6 | 1.484 | ..... | ..... | 10.27 | ..... | Sky 5, then clearer. | L. C. | 1.96 | ..... |
| 14 A. ... | 4 | 1.470 | ..... | ..... | 9.74 | ..... | Sky 4-3. | L. C. | 1.93 | ..... |
| 15 A. ... | 4 | 1.468 | ..... | ..... | 9.19 | ..... | Sky 2-4. | H. P. | 1.92 | ..... |
| 16 A. ... | 4 | 1.440 | 1.500 | 1.260 | 9.72 | .840 | Sky 3-2. | L. C. | 1.90 | 1.94 |
| 18 A. ... | 4 | 1.456 | 1.500 | 1.282 | 10.95 | .855 | Sky 4-6. | L. C. | 1.94 | 1.98 |
| 19 A. ... | 2 | ..... | ..... | ..... | 10.11 | ..... | Sky 3. | L. C. | ..... | ..... |
| 23 A. ... | 4 | 1.520? | ..... | ..... | 7.71 | ..... | Sky 1. | L. C. | 1.98? | ..... |
| 24 A. ... | 4 | 1.480 | ..... | ..... | 8.87 | ..... | Sky 1. | L. C. | 1.94 | ..... |
| 27 A. ... | 2 | 1.450 | ..... | ..... | 9.09 | ..... | Sky 5. | L. C. | 1.92 | ..... |
| Mar. 3 A. ... | 4 | 1.511 | ..... | ..... | 7.64 | ..... | Sky 5-3. | L. C. | 1.97 | ..... |
| 5 A. ... | 4 | 1.560 | ..... | ..... | 13.08 | ..... | Sky 5. | L. C. | 2.11 | ..... |
| 6 A. ... | 6 | 1.500 | 1.537 | 1.344 | 7.39 | .874 | Sky 4-3-2. | L. C. | 1.96 | 1.94 |
| 7 A. ... | 4 | 1.539 | 1.578 | 1.383 | .816 | .876 | Sky 2. | L. C. | 2.03 | 2.01 |
| 10 A. ... | 4 | 1.440 | 1.470 | 1.320 | 8.16 | .898 | Sky 2. | L. C. | 1.84 | 1.87 |
| 15 A. ... | 4 | 1.454 | 1.473 | 1.377 | 8.57 | .935 | Sky clear, 1. | L. C. | 1.92 | 1.86 |
| 16 A. ... | 4 | 1.482 | 1.532 | 1.288 | 8.07 | .841 | Sky clear. | L. C. | 1.96 | 1.98 |
| 18 A. ... | 6 | 1.440 | 1.460 | 1.360 | 8.25 | .931 | Sky 2. | L. C. | 1.91 | 1.85 |
| 19 A. ... | 2 | ..... | ..... | ..... | 8.74 | ..... | Sky 2. | L. C. | ..... | ..... |
| 22 P. ... | 2 | 1.428 | ..... | ..... | 9.05 | ..... | Sky 3. | L. C. | 1.91 | ..... |
| 25 A. ... | 4 | 1.438 | ..... | ..... | 9.27 | ..... | Sky 2. | L. C. | 1.92 | ..... |
| 26 A. ... | 4 | 1.427 | 1.468 | 1.270 | 8.93 | .865 | Sky 4-6. | H. P. | 1.91 | 1.90 |
| 27 A. ... | 4 | 1.459 | 1.502 | 1.285 | 4.87 | .855 | Sky 2. | L. C. | 1.87 | 1.86 |

TABLE 1—*Arequipa Pyrheliometry* (Continued)

| Date | No. of values read | Calories at air masses | | | Mean humidity mm. | Trans-mission coefficient $a_2$ | Remarks | Observer | Solar constant | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.2 | 1 | 2 | | | | | Formula I | Formula II |
| Mar. 28 A. ... | 4 | 1.473 | 1.505 | 1.340 | 8.28 | .890 | Sky 2-3. | L. C. | 1.96 | 1.94 |
| 30 A. ... | 8 | 1.465 | 1.495 | 1.343 | 8.02 | .897 | Sky 3-2. | L. C. | 1.95 | 1.92 |
| 31 A. & P. | 6 | 1.440 | ..... | ..... | 7.48 | ..... | Sky 2-2-5. | L. C. | 1.90 | ..... |
| Apr. 4 A. ... | 6 | 1.453 | 1.480 | 1.344 | 6.60 | .908 | Sky hazy, 2-2-3. | L. C., H. P. | 1.91 | 1.86 |
| 5 A. & P. | 10 | 1.489 | 1.525 | 1.344 | 6.48 | .882 | Sky 3-0-0-1-1. | L. C., H. P. | 1.95 | 1.92 |
| 6 A. ... | 4 | 1.487 | 1.510 | 1.392 | 6.29 | .922 | Sky 0. | H. P. | 1.95 | 1.89 |
| 7 P. ... | 2 | 1.480 | ..... | ..... | 7.84 | ..... | Sky 2. | L. C. | 1.97 | ..... |
| 8 A. ... | 4 | 1.488 | 1.517 | 1.386 | 6.22 | .914 | Sky 3. | H. P., L. C. | 1.95 | 1.90 |
| 10 A. ... | 4 | 1.500 | 1.548 | 1.310 | 6.48 | .846 | Sky 2. | L. C. | 1.97 | 1.97 |
| 11 A. ... | 5 | 1.442 | 1.484 | 1.280 | 7.33 | .867 | Sky 1-1-4. | L. C., H. P. | 1.91 | 1.90 |
| 12 A. ... | 4 | 1.492 | ..... | ..... | 5.70 | ..... | Sky 4-3. | H. P. | 1.94 | ..... |
| 14 P. ... | 4 | 1.479 | 1.554 | 1.177 | (6.00)? | ..... | Sky 2-1. | L. C., H. P. | (1.93)? | ..... |
| 15 A. & P. | 4 | ..... | ..... | ..... | 7.65 | ..... | Sky 2-2. | H. P., L. C. | ..... | ..... |
| 16 P. ... | 2 | 1.494? | ..... | ..... | (6.00)? | ..... | Sky 1. | ? | (1.95)? | ..... |
| 17 P. ... | 4 | 1.454 | 1.477 | 1.368 | 7.35 | .926 | Sky 1-2, windy. | L. C., H. P. | 1.93 | 1.87 |
| 22 P. ... | 4 | 1.507 | 1.547 | 1.350 | (6.00)? | .872 | Sky 0. | H. P. | (1.98)? | 1.96 |
| 25 A. ... | 4 | 1.510 | ..... | ..... | 5.33 | ..... | Sky 0. | H. P., L. C. | 1.97 | ..... |
| 26 P. ... | 4 | 1.522 | 1.573 | 1.315 | 6.03 | .836 | Sky 0. | L. C. | 2.00 | 2.01 |
| May 4 P. ... | 4 | 1.430 | 1.496 | 1.180 | 7.21 | ..... | Sky 2-5, very windy and dusty. | L. C., H. P. | 1.92 | ..... |
| 5 P. ... | 2 | 1.440? | ..... | ..... | 8.49 | ..... | Sky 3. | H. P. | 1.95? | ..... |
| 6 P. ... | 2 | 1.473? | ..... | ..... | 7.57 | ..... | Sky 2. | H. P. | 1.98? | ..... |
| 7 P. ... | 4 | 1.456 | 1.490 | 1.320 | 6.27 | .886 | Sky 3-5, windy. | L. C. | 1.93 | 1.91 |
| 11 A. ... | 4 | 1.434 | 1.470 | 1.290 | 6.48 | .878 | Sky 1. | L. C. | 1.92 | 1.89 |
| 12 P. ... | 4 | 1.474 | ..... | ..... | (6.00)? | ..... | Sky (?) | L. C. | (1.96)? | ..... |
| 13* ..... | .... | ..... | ..... | ..... | ..... | ..... | ...... | ...... | ..... | ..... |
| June 12 P. ... | 2 | 1.460? | ..... | ..... | 5.62 | ..... | Sky 3. | L. C. | 1.95? | ..... |
| 16 P. ... | 4 | 1.547 | 1.588 | 1.380 | 3.75 | .869 | Sky 0, windy. | H. P. | 2.00 | 2.00 |
| 18 P. ... | 4 | 1.421 | 1.441 | 1.352 | (4.66)? | .937 | Sky 1, hazy, windy. | L. C., H. P. | (1.87)? | 1.81 |
| 19 A. & P. | 4 | 1.472 | ..... | ..... | 4.54 | ..... | Sky 2-3. | H. P. | 1.93 | ..... |

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* Pyr. sent to be overhauled if necessary.

TABLE 1—*Arequipa Pyrheliometry* (Continued)

| Date | No. of values read | Calories at air masses | | | Mean humidity mm. | Trans-mission coefficient $a_2$ | Remarks | Observer | Solar constant | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.2 | 1 | 2 | | | | | Formula I | Formula II |
| June 20 A. ... | 4 | 1.580 | ..... | ..... | 4.92 | ..... | Sky clear. | L. C. | 2.08 | ..... |
| 21 A. ... | 4 | 1.486 | 1.514 | 1.373 | 4.40 | .907 | Sky clear. | L. C. | 1.95 | 1.91 |
| 22 A. ... | 4 | 1.497 | ..... | ..... | 3.90 | ..... | Sky 1. | L. C. | 1.94 | ..... |
| 23 A. ... | 4 | 1.504 | 1.532 | 1.397 | (3.38)? | .912 | Sky 0, very clear. | L. C., H. P. | (1.93)? | 1.90 |
| 24 A. ... | 4 | 1.502 | 1.543 | 1.343 | 4.06 | .870 | Sky clear. | L. C. | 1.96 | 1.95 |
| 28 A. ... | 4 | 1.538 | ..... | ...... | 5.76 | ..... | Sky 1. | L. C. | 2.05 | ..... |
| 29 P. ... | 4 | 1.454 | 1.472 | 1.352 | 4.54 | .918 | Sky 0, hazy near horizon. | H. P., L. C. | 1.91 | 1.87 |
| July 7 P. ... | 2 | 1.445? | ..... | ..... | 4.38 | ..... | Sky 2. | L. C. | 1.89? | ..... |
| 8 A. & P. | 6 | 1.505? | ..... | ..... | 5.05 | ..... | Sky gen. clear, some haze. | L. C. | 1.99? | ..... |
| 9 A. & P. | 6 | 1.489 | 1.543 | 1.265 | 4.22 | .820 | Sky clear. | H. P. | 1.94 | 1.98 |
| 10 A. ... | 4 | 1.446 | 1.493 | 1.255 | 6.04 | .813 | Sky 2. | H. P., L. C. | 1.94 | 1.97 |
| 11 A. ... | 6 | 1.448 | 1.485 | 1.302 | 4.97 | .877 | Sky 3. | H. P. | 1.92 | 1.90 |
| 13 A. ... | 4 | 1.500 | 1.543 | 1.323 | 4.61 | .858 | Sky clear, but hazy. | L. C. | 1.97 | 1.97 |
| 14 A. ... | 4 | 1.532 | 1.590 | 1.310 | 4.25 | .824 | Sky clear. | L. C. | 2.00 | 2.03 |
| 15 A. ... | 4 | 1.499 | 1.547 | 1.305 | 4.02 | .844 | Sky 0, hazy. | H. P. | 1.95 | 1.97 |
| 16 A .... | 4 | 1.498 | 1.580 | 1.173 | 4.15 | ..... | Sky hazy, growing clearer. | L. C. | 1.96 | ..... |
| 17 A. ... | 4 | 1.480 | 1.564 | 1.147 | 4.76 | ..... | Sky 1. | H. P. | 1.95 | ..... |
| 18 A. ... | 4 | 1.443 | 1.471 | 1.335 | 5.55 | .907 | Sky clear. | L. C. | 1.93 | 1.88 |
| 20 A. ... | 4 | 1.549 | 1.555 | 1.527 | 2.33 | .982 | Sky clear. | L. C. | 1.93 | 1.88 |
| 21 A. ... | 4 | 1.521 | 1.585 | 1.264 | 2.87 | .798 | Sky hazy. | H. P. | 1.93 | 2.00 |
| 22 A. ... | 4 | 1.544 | 1.597 | 1.340 | 3.83 | .839 | Sky clear. | L. C. | 2.00 | 2.02 |
| 23 A. ... | 4 | 1.527 | 1.580 | 1.312 | 3.59 | .830 | Sky 3, windy. | H. P. | 1.97 | 2.00 |
| 24 A. ... | 4 | 1.550 | 1.600 | 1.347 | 3.49 | .842 | Sky 0. | L. C. | 1.99 | 2.02 |
| 25 A. ... | 4 | 1.556 | 1.590 | 1.423 | 2.85 | .895 | Sky 0. | H. P., L. C. | 1.97 | 1.97 |
| 26 A. ... | 4 | 1.544 | 1.635 | 1.180 | 2.70 | ..... | Sky hazy. | H. P. | 1.94 | ..... |
| 27 A. ... | 2 | 1.543? | ..... | ..... | 3.18 | ..... | Sky clear. | L. C. | 1.97? | ..... |
| 28 A. ... | 4 | 1.563 | 1.602 | 1.410 | 2.50 | .880 | Sky clear. | H. P. | 1.96 | 1.98 |
| 29 A. ... | 4 | 1.611 | 1.674 | 1.360 | 1.84 | .812 | Sky clear. | L. C. | 1.96 | 2.08 |

TABLE I—*Arequipa Pyrheliometry* (Continued)

| Date | No. of values read | Calories at air masses | | | Mean humidity mm. | Trans-mission coefficient $a_2$ | Remarks | Observer | Solar constant | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.2 | 1 | 2 | | | | | Formula I | Formula II |
| July 31 A. ... | 4 | 1.508 | 1.648 | ..... | 3.13 | ..... | Sky 3. | H. P. | 1.92 | ..... |
| Aug. 3 P. ... | 2 | 1.488 | ..... | ..... | 3.79 | ..... | Sky 1. | H. P. | 1.93 | ..... |
| 4 A. ... | 4 | 1.528 | 1.553 | 1.437 | 3.32 | .925 | Sky 0. | H. P. | 1.95 | 1.92 |
| 5 A. ... | 4 | 1.547 | ..... | ..... | 5.99 | ..... | Sky 0. | H. P., L. C. | 2.06 | ..... |
| 6 A. ... | 4 | 1.528 | ..... | ..... | 3.48 | ..... | Sky 0, but hazy and windy. | H. P. | 1.95 | ..... |
| 7 A. ... | 6 | 1.523 | ..... | ..... | 4.71 | ..... | Sky clear, 1. | L. C. | 1.99 | ..... |
| 8 A. ... | 4 | 1.497 | ..... | ..... | 3.07 | ..... | Sky 1. | L. C. | 1.90 | ..... |
| 11 A. ... | 4 | 1.504 | ..... | ..... | 4.13 | ..... | Sky 0. | H. P. | 1.95 | ..... |
| 12 A. ... | 4 | 1.593 | ..... | ..... | 4.50 | ..... | Sky clear. | L. C. | 2.08 | ..... |
| 14 A. & P. | 8 | 1.510 | 1.552 | 1.338 | 4.61 | .862 | Sky clear, hazy and windy. | H. P. | 1.98 | 1.97 |
| 15 P. ... | 4 | 1.514 | 1.550 | 1.387 | 4.24 | .895 | Sky clear, 1. | L. C. | 1.96 | 1.93 |
| 18 P. ... | 4 | 1.567 | 1.602 | 1.426 | 5.28 | .890 | Sky exceptionally clear. | L. C. | 2.06 | 2.02 |
| 19 P. ... | 4 | 1.540 | 1.585 | 1.360 | 3.51 | .858 | Sky very clear, windy. | L. C., H. P. | 1.96 | 2.00 |
| 20 P. ... | 4 | 1.530 | 1.569 | 1.375 | 3.49 | .876 | Sky clear. | H. P., L. C. | 1.94 | 1.93 |
| 21 P. ... | 4 | 1.479 | 1.499 | 1.397 | 3.67 | .931 | Sky 2-1, windy. | H. P., L. C. | 1.88 | 1.83 |
| 22 P. ... | 4 | 1.529 | 1.569 | 1.373 | 3.12 | .875 | Sky clear, windy. | L. C. | 1.92 | 1.93 |
| 24 P. ... | 2 | 1.494 | ..... | ..... | 4.49 | ..... | Sky 2. | L. C. | 1.93 | ..... |
| 25 P. ... | 3 | 1.437 | ..... | ..... | 4.14 | ..... | Sky 2. | H. P. | 1.84 | ..... |
| 28 P. ... | 4 | 1.508 | 1.541 | 1.370 | 5.39 | .889 | Sky 1. | L. C. | 1.98 | 1.94 |
| Sept. 2 P. ... | 2 | 1.475 | ..... | ..... | 3.82 | ..... | Sky 2, windy. | H. P. | 1.87 | ..... |
| 7 P. ... | 4 | 1.446 | 1.494 | 1.260 | (4.00)? | .843 | Sky 4. | L. C., H. P. | (1.84)? | 1.86 |
| 8 P. ... | 2 | 1.438 | ..... | ..... | 6.16 | ..... | Sky 2. | H. P. | 1.90 | ..... |
| 9 P. ... | 2 | ..... | ..... | ..... | 5.66 | ..... | Sky 5. | H. P. | ..... | ..... |
| 11 P. ... | 2 | 1.587? | ..... | ..... | 4.77 | ..... | Sky 2, windy. | L. C. | 2.04? | ..... |
| 12 P. ... | 6 | 1.560 | 1.604 | 1.378 | 3.45 | .859 | Sky 0, windy. | L. C., H. P. | 1.95 | 1.96 |
| 14 P. ... | 2 | ..... | ..... | ..... | 4.89 | ..... | Sky 2. | H. P. | ..... | ..... |
| 15 P. ... | 2 | 1.560 | ..... | ..... | 4.01 | ..... | Sky 2. | L. C. | 1.97 | ..... |

TABLE 1—*Arequipa Pyrheliometry* (Continued)

| Date | No. of values read | Calories at air masses |  |  | Mean humidity mm. | Trans-mission coefficient $a_2$ | Remarks | Observer | Solar constant |  |
|---|---|---|---|---|---|---|---|---|---|---|
|  |  | 1.2 | 1 | 2 |  |  |  |  | Formula I | Formula II |
| Sept. 16 P. ... | 4 | 1.540 | 1.580 | 1.383 | 3.67 | .875 | Sky clear, windy. | H. P. | 1.94 | 1.93 |
| 17 P. ... | 4 | 1.548 | 1.594 | 1.368 | 3.98 | .858 | Sky 1. | L. C. | 1.96 | 1.96 |
| 18 P. ... | 4 | 1.488 | 1.519 | 1.366 | (4.00) | .899 | Sky 3, clear, windy. | H. P. | (1.89) | 1.86 |
| 26 P. ... | 4 | 1.531 | 1.580 | 1.337 | 4.65 | .846 | Sky 0-1. | L. C., H. P. | 1.95 | 1.96 |
| 27 P. ... | 4 | 1.544 | 1.591 | 1.360 | 5.69 | .855 | Sky clear, windy. | L. C., H. P. | 2.00 | 1.99 |
| 28 P. ... | 2 | 1.520 | ..... | ..... | 5.50 | ..... | Sky 3. | H. P. | 1.96 | ..... |
| 29 P. ... | 4 | 1.538 | 1.582 | 1.364 | 5.54 | .862 | Sky clear, 1, windy. | L. C., H. P. | 1.99 | 1.98 |
| Oct. 4 P. ... | 4 | 1.500 | 1.581 | 1.178 | 4.87 | ..... | Sky clear. | L. C., H. P. | 1.92 | ..... |
| 9 P. ... | 4 | 1.523 | 1.592 | 1.251 | 5.02 | .787 | Sky 1. | L. C. | 1.94 | 2.02 |
| 10 P. ... | 4 | 1.470 | 1.500 | 1.349 | 4.83 | .899 | Sky clear. | L. C., H. P. | 1.87 | 1.84 |
| 11 P. ... | 2 | 1.500 | ..... | ..... | 4.75 | ..... | Sky clear, 1. | L. C. | 1.91 | ..... |
| 15 P. ... | 4 | 1.573 | 1.615 | 1.400 | 5.21 | .867 | Sky clear. | L. C., H. P. | 2.00 | 1.99 |
| 16 P. ... | 4 | 1.566 | 1.609 | 1.370 | 4.61 | .851 | Sky clear. | H. P. | 1.97 | 1.98 |
| 19 P. ... | 2 | 1.557? | ..... | ..... | 4.75 | ..... | Sky clear, windy. | L. C. | 1.97? | ..... |
| 20 P. ... | 4 | 1.563 | 1.616 | 1.349 | 5.19 | .835 | Sky clear. | L. C., H. P. | 1.99 | 2.00 |
| 21 P. ... | 2 | 1.543 | ..... | ..... | 5.45 | ..... | Sky 4, windy. | H. P. | 1.97 | ..... |
| 22 P. ... | 4 | 1.511 | 1.565 | 1.302 | 5.24 | .832 | Sky clear, very windy. | L. C., H. P. | 1.92 | 1.94 |
| 23 A. ... | 6 | 1.590? | ..... | ..... | 3.63 | ..... | Sky clear. | L. C. | 1.97? | ..... |
| 24 A. ... | 4 | 1.578 | ..... | ..... | 4.18 | ..... | Sky clear. | L. C., H. P. | 1.97 | ..... |
| 25 A. ... | 4 | 1.562 | ..... | ..... | 4.18 | ..... | Sky clear. | L. C., H. P. | 1.94 | ..... |
| 26 A. ... | 4 | 1.527 | ..... | ..... | 4.50 | ..... | Somewhat hazy. | L. C. | 1.91 | ..... |
| 27 A. ... | 2 | 1.618 | ..... | ..... | (4.50) | ..... | Somewhat hazy. | L. C. | (2.03) | ..... |
| 28 P. ... | 4 | 1.560 | 1.617 | 1.335 | 3.79 | .826 | Sky clear. | L. C. | 1.93 | 1.96 |
| 29 P. ... | 2 | 1.531 | ..... | ..... | 4.50 | ..... | Sky clear, windy. | L. C. | 1.92 | ..... |
| 30 A. ... | 2 | 1.568 | ..... | ..... | 3.65 | ..... | Sky clear, windy. | L. C. | 1.93 | ..... |
| 31 A. ... | 4 | 1.555 | ..... | ..... | 4.26 | ..... | Clear but hazy, windy. | L. C. | 1.94 | ..... |
| Nov. 1 P. ... | 4 | 1.507 | 1.574 | 1.234 | 4.95 | .784 | Sky clear, windy. | L. C. | 1.90 | 1.96 |
| 3 P. ... | 4 | 1.514 | 1.559 | 1.343 | 4.37 | .861 | Sky clear, windy. | L. C. | 1.89 | 1.89 |
| 9 P. ... | 2 | 1.564 | ..... | ..... | (4.40)? | ..... | Sky clear. | L. C. | (1.94)? | ..... |

TABLE I—*Arequipa Pyrheliometry* (Continued)

| Date | No. of values read | Calories at air masses | | | Mean humidity mm. | Trans-mission coefficient $a_2$ | Remarks | Observer | Solar constant | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.2 | 1 | 2 | | | | | Formula I | Formula II |
| Nov. 10 P. ... | 4 | 1.549 | 1.596 | 1.363 | 5.31 | .854 | Sky clear. | L. C. | 1.96 | 1.95 |
| 11 P. ... | 2 | 1.550 | ..... | ..... | 4.81 | ..... | Sky 1, windy. | L. C. | 1.94 | ..... |
| 12 A. ... | 4 | 1.555 | ..... | ..... | 4.50 | ..... | Sky clear. | L. C. | 1.94 | ..... |
| 24 P. ... | 4 | 1.466 | 1.524 | 1.330 | 5.52 | .873 | Sky 1, windy. | H. P. | 1.85 | 1.83 |
| Dec. 7 P. ... | 4 | 1.481 | 1.528 | 1.296 | 6.98 | .848 | Sky 4. | H. P. | 1.89 | 1.89 |
| 12 A. & P. | 6 | 1.547 | 1.592 | 1.364 | 6.64 | .857 | Sky 3-2. | H. P. | 1.97 | 1.96 |
| 16 P. ... | 2 | 1.544 | ..... | ..... | 5.80 | ..... | Sky 3. | H. P. | 1.94 | ..... |
| 17 P. ... | 2 | 1.550 | ..... | ..... | 5.84 | ..... | Sky 3, windy. | H. P. | 1.95 | ..... |
| 19 A. ... | 4 | 1.592 | ..... | ..... | 5.18 | ..... | Sky clear. | H. P., L. C. | 1.99 | ..... |
| 20 P. ... | 2 | 1.594 | ..... | ..... | 4.50? | ..... | Sky clear. | L. C. | 1.97? | ..... |
| 24 A. ... | 2 | 1.500 | ..... | ..... | (5.50)? | ..... | Sky 2. | L. C. | (1.88)? | ..... |
| 31 A. ... | 2 | 1.543 | ..... | ..... | 6.65 | ..... | Sky clear. | L. C. | 1.96 | ..... |
| 1915 | | | | | | | | | | |
| Jan. 14 A. ... | 4 | 1.535 | ..... | ..... | 6.47 | ..... | Sky 2. | L. C., H. P. | 1.95 | ..... |
| 15 A. ... | 4 | 1.550 | ..... | ..... | 4.34 | ..... | Sky 2. | H. P. | 1.90 | ..... |
| 20 A. ... | 4 | 1.485 | ..... | ..... | 4.76 | ..... | Sky 2. | L. C., H. P. | 1.84 | ..... |
| Feb. 2 A. ... | 4 | 1.475 | ..... | ..... | 8.98 | ..... | Sky 2. | L. C., H. P. | 1.92 | ..... |
| 9 A. ... | 4 | 1.470 | 1.493 | 1.370 | 7.67 | .917 | Sky 3-5. | L. C., H. P. | 1.90 | 1.85 |
| 10 A. ... | 4 | 1.489 | ..... | ..... | 7.85 | ..... | Sky gen. clear, 3. | L. C., H. P. | 1.93 | ..... |
| 11 A. ... | 4 | 1.478 | ..... | ..... | 9.49 | ..... | Sky 3-5. | H. P. | 1.94 | ..... |
| Mar. 8 P. ... | 4 | 1.526 | 1.554 | 1.411 | (7.00)? | .908 | Sky 1. | L. C., H. P. | (1.99)? | 1.94 |
| 17 A. ... | 4 | 1.430 | 1.465 | 1.297 | 8.52 | .886 | Sky 1. | L. C. | 1.90 | 1.88 |
| 20 A. ... | 6 | 1.480 | 1.520 | 1.328 | 7.29 | .874 | Sky 2. | L. C. | 1.94 | 1.93 |
| 21 A. ... | 4 | 1.460? | ..... | ..... | 5.48 | ..... | Sky 1. | L. C. | 1.88 | ..... |
| 25 A. ... | 6 | 1.518 | 1.560 | 1.353 | (8.50)? | .867 | Sky 1-0-0. | L. C. | (2.01)? | 2.01 |
| 26 P. ... | 4 | 1.517 | ..... | ..... | 9.55 | ..... | Sky clear. | L. C. | 2.04 | ..... |
| 27 P. ... | 4 | 1.522 | 1.562 | 1.360 | 9.14 | .870 | Sky clear. | L. C. | 2.04 | 2.04 |

### TABLE 2—*Monthly Mean Values*

| | Month | | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1912 | Radiation | $e_{1\cdot2}$ | .... | .... | .... | .... | .... | .... | .... | 1.487 | 1.487 | 1.558 | 1.547 | 1.520 |
| | Transmission | $a_2$ | .... | .... | .... | .... | .... | .... | .... | .847 | (.821) | .869 | .... | (.848) |
| | Vapor pressure | $p$ | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 3.00 | 7.28 |
| * | Solar constant | $e_0$ | .... | .... | .... | .... | .... | .... | .... | (1.93) | (1.91) | (1.98) | (1.97) | 1.94 |
| | | | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1.97 |
| | Number days | $n$ | .... | .... | .... | .... | .... | .... | .... | 13 | 25 | 21 | 7 | 8 |
| 1913 | | $e_{1\cdot2}$ | 1.469 | (1.464) | (1.321) | 1.412 | 1.478 | 1.501 | 1.470 | 1.457 | 1.478 | 1.425 | 1.503 | 1.518 |
| | | $a_2$ | (.821) | .... | (.845) | .851 | .878 | .879 | .875 | .856 | .848 | .826 | (.843) | .831 |
| | | $p$ | 8.95 | (9.65) | (8.00) | 6.89 | 4.29 | 3.71 | 3.07 | 4.56 | 4.87 | 6.00 | 6.70 | 7.24 |
| | | $e_0$ | 1.91 | .... | .... | 1.86 | 1.92 | 1.94 | 1.87 | 1.88 | 1.90 | 1.86 | 1.92 | 1.93 |
| | | | 1.91 | .... | .... | 1.89 | 1.92 | 1.93 | 1.89 | 1.89 | 1.92 | 1.89 | 1.95 | 1.95 |
| | | $n$ | 5 | 1 | 1 | 6 | 12 | 15 | 17 | 19 | 18 | 13 | 12 | 15 |
| 1914 | | $e_{1\cdot2}$ | 1.495 | 1.463 | 1.470 | 1.485 | 1.451 | 1.496 | 1.514 | 1.516 | 1.521 | 1.542 | 1.529 | 1.544 |
| | | $a_2$ | .838 | (.861) | .886 | .886 | (.882) | .902 | .855 | .889 | .862 | .842 | .843 | .... |
| | | $p$ | 7.35 | 9.61 | 8.35 | 6.49 | 7.00 | 4.50 | 3.83 | 4.16 | 4.65 | 4.58 | 4.83 | 5.89 |
| | | $e_0$ | 1.91 | 1.91 | 1.93 | 1.95 | 1.94 | 1.96 | 1.95 | 1.96 | 1.94 | 1.95 | 1.92 | 1.94 |
| | | | 1.92 | 1.92 | 1.91 | 1.92 | (1.90) | 1.91 | 1.98 | 1.94 | 1.94 | 1.96 | 1.91 | 1.93 |
| | | $n$ | 11 | 11 | 15 | 14 | 6 | 11 | 22 | 18 | 13 | 19 | 7 | 8 |
| 1915 | | $e_{1\cdot2}$ | 1.523 | 1.478 | 1.493 | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| | | $a_2$ | .... | (.917) | .881 | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| | | $p$ | 5.19 | 8.50 | 7.93 | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| | | $e_0$ | (1.90) | (1.92) | 1.97 | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| | | | .... | (1.85) | 1.96 | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| | | $n$ | 3 | 4 | 7 | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| | Weighted mean values all years | $e_{1\cdot2}$ | 1.493 | 1.467 | 1.475 | 1.463 | 1.469 | 1.499 | 1.495 | 1.486 | 1.492 | 1.512 | 1.522 | 1.526 |
| | | $a_2$ | .832 | (.880) | .878 | .870 | .880 | .885 | .865 | .865 | .850 | .845 | .843 | .835 |
| | | $p$ | 7.42 | 9.58 | 8.28 | 6.60 | 5.20 | 4.05 | 3.48 | 4.36 | 4.77 | 5.15 | 6.00 | 6.80 |
| | Total days | $n$ | 19 | 16 | 23 | 20 | 18 | 26 | 39 | 50 | 56 | 53 | 26 | 28 |
| | Weighted mean value for mean solar distance | $e_{1\cdot2}$ | 1.448 | 1.434 | 1.462 | 1.474 | 1.502 | 1.547 | 1.543 | 1.521 | 1.511 | 1.500 | 1.488 | 1.480 |

* Computed by formulæ I and II as given below.

We now give in Table 2 mean monthly values of the intensity of solar radiation ($e_{1.2}$) at air mass 1.2, the transmission coefficient $a_2$, the pressure of aqueous vapor $p$, and the empirical solar constant values $e_0$, of which more is said below. The table gives also the number of days on which radiation was observed. This considerably exceeds the number of days on which the atmospheric transmission could be determined. Monthly means based on very meager data are indicated by parentheses.

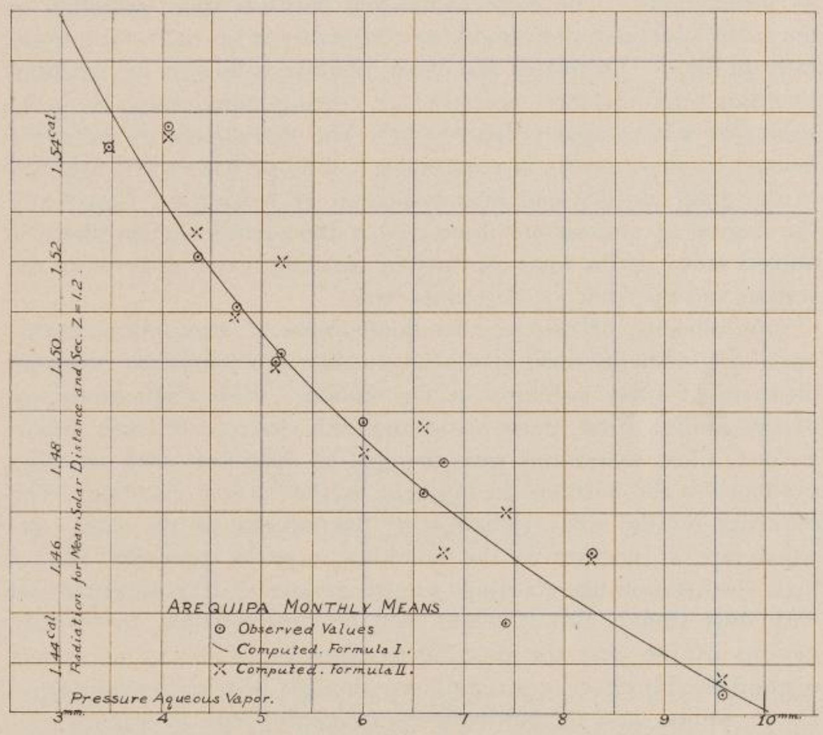


FIG. 1.

General mean: Of $e_{1.2} = 1.496$; of $a_2 = .860$; of $p = 5.97$.

Examination of the foregoing table fails to indicate any notable abnormalities covering considerable periods. In other words nothing appears to lead us to suppose that these were not normal years for Arequipa (unless as regards the *number* of clear days, on which we say nothing). This is especially interesting, for in the northern hemisphere the year 1912 was notable for the great decrease in direct solar radiation received at the earth's surface, and of atmospheric transparency, which speedily followed the volcanic eruption of Mt. Katmai in June of that year. Remnants of this volcanic dust still remained distinguishable by pyrheliometry in the United States up to near the end of the year 1913. No indication of its presence above Arequipa in either 1912 or 1913 seems to be shown. The volcanic dust from Katmai, though general in the northern hemisphere, seems not to have crossed the equator.

In the last line of the table the mean monthly radiation values for the whole period of observation have been reduced to what they would have been if the sun's distance had remained uniform at its mean value. The close connection between solar radiation at the earth's surface, and atmospheric humidity is brought out graphically in fig. 1. Ordinates are mean monthly values of $e_{1.2}$ reduced to mean solar distance, abscissæ are corresponding mean monthly values of water vapor pressure ($p$). The smoothness of the curve defined by these points is remarkable. It is perhaps to be ascribed to the great altitude and inland location of Arequipa. Apparently the degree of atmospheric humidity at the earth's surface there is a good index of the total quantity of humidity existing between the station and the limit of the atmosphere.

It is obvious, of course, that fluctuations of atmospheric transmission coefficients must also produce their effects on the observed intensity of solar radiation at the station. Such fluctuations are of two kinds: First, those associated with changes of water vapor. Second, those associated with changes of dustiness, such as those produced in the northern hemisphere by the Katmai eruption. The influence on the solar radiation of fluctuations of the first type, which are a function of the humidity, may be generally (for a high-level station like Arequipa) much greater than those associated with dust alone. But it might well be expected that for certain months of the year the dust fluctuations would be by no means negligible. However, restricting our thought to a high-level station like Arequipa, and remembering the powerful true absorption produced in the infra-red spectrum by water vapor, and the large changes in this true absorption attending changes of humidity when the humidity and air mass are both small, it is easy to see after all why the observed radiation at $M = 1.2$ at Arequipa seems to be so well represented as a function of water vapor alone. For both the true absorption and a large proportion of the variable elements of the general scattering are functions of water vapor. Compared to these, the variable scattering produced by dry dust alone is generally small.

In figure 2 the radiation, $e_{1.}$ (not reduced to mean solar distance), the vapor pressure, $p$, and the transmission, $a_2$, are all given as functions of the time of the year.

The data of figure 1 have been represented by the following two formulæ, one expressing the radiation $e_{1.2}$ (reduced to mean solar distance) as a function of vapor pressure, $p$, alone, the other as a function of vapor pressure, $p$, and transmission $a_2$:

$$\text{Formula I.}\quad e_{1.2}^{corr} = 0.981 + \frac{0.75}{p^{0.222}}$$

$$\text{Formula II.}\quad e_{1.2}^{corr} = 1.50 + (5.25 - p)0.19 + (a_2 - 0.85)0.63$$

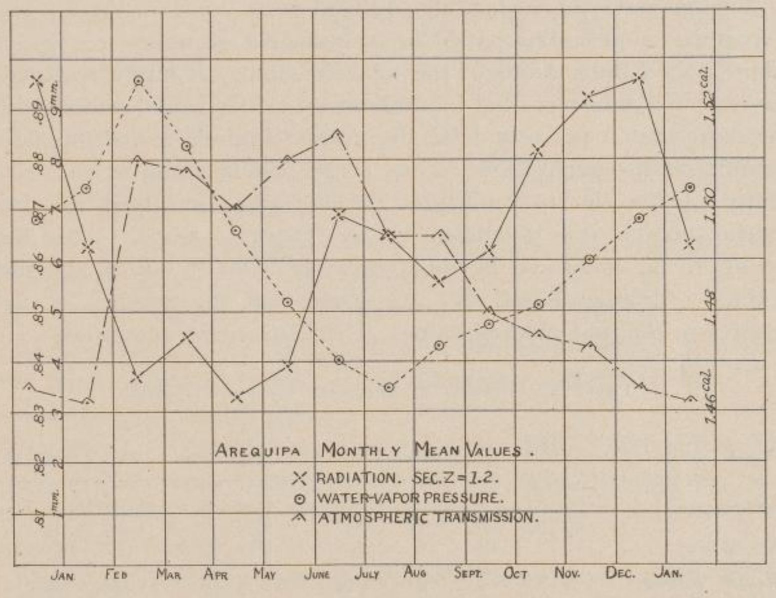


FIG. 2.

We now come to a very interesting application of these formulæ. During the period of about four years covered by the Arequipa observations, we may assign as the mean value of the solar constant of radiation outside the atmosphere 1.93 calories per sq. cm. per min. Dividing by this value we have the following empirical formulæ for obtaining from Arequipa daily observations values of the solar constant of radiation:

$$\text{Formula I.}\quad e_0 = \frac{e_{1.2}^{corr}}{0.508 + \dfrac{0.389}{p^{0.222}}}.$$

$$\text{Formula II.}\quad e_0 = \frac{e_{1.2}^{corr}}{0.777 + (5.25 - p)0.01 + (a_2 - 0.85)0.33}.$$

During the years 1913 and 1914 the solar constant was determined at Mount Wilson by spectro-bolometric observations on some of the days when these formulæ are applicable to Arequipa observations. From 34 comparisons of Arequipa and Mount Wilson solar constant values, the average deviation of individual days is about 2.5 per cent. Omitting 5 days when unusually great discrepancies occurred, owing to poor sky at one station or the other, the average deviation is only 2 per cent.

Under the circumstances it seemed unreasonable to hope that for individual days the empirically derived solar constant results from Arequipa observations would be of sufficient accuracy to show the short-period fluctuations of the solar constant. It might reasonably be expected, however, that monthly mean values would seldom differ by more than 1 per cent from the values obtained in corresponding months at Mount Wilson. Thus a new confirmation of the variability of the sun in its longer periods may be hoped for from pyrheliometry and psychrometry at Arequipa alone. This hope seems to be confirmed by the following Table 3. Both Arequipa values (formulæ I and II) are given, but the number of days relates to the first method values, which are more numerous.

TABLE 3—*Monthly Mean Solar Constant Values*

| Month | 1913 July | Aug. | Sept. | Oct. | Nov. | 1914 June | July | Aug. | Sept. | Oct. |
|---|---|---|---|---|---|---|---|---|---|---|
| Arequipa | 1.87 | 1.89 | 1.90 | 1.86 | 1.92 | 1.96 | 1.95 | 1.96 | 1.94 | .... |
| | 1.89 | 1.89 | 1.92 | 1.89 | .... | 1.91 | 1.98 | 1.94 | 1.94 | .... |
| No. days | 17 | 18 | 18 | 11 | 12 | 11 | 22 | 18 | 13 | .... |
| Mount Wilson | 1.925 | 1.931 | 1.920 | 1.874 | 1.876 | 1.952 | 1.956 | 1.964 | 1.943 | .... |
| No. days | 3 | 18 | 25 | 24 | 5 | 14 | 14 | 22 | 18 | .... |

The comparisons of July and November, 1913, have little weight because of the small number of days observed at Mount Wilson. Apart from these months only one, August, 1913, shows a difference of more than 1 per cent between Arequipa and Mount Wilson. Both stations agree in showing the interesting result that the solar constant was decidedly higher in 1914 than in 1913.

With the word of caution that individual day's values may often be in error by as much as 5 per cent, and on the average by as much as 2 per cent, we have included in Table 1 two columns giving the daily solar constant values determined from Arequipa pyrheliometry by means of formulæ I and II. Table 2 gives the mean monthly solar constant values by formulæ I and II. Months for which no values of vapor pressures are available are supplied by taking the mean monthly vapor pressures for these months for several years as given in Table 2. Such solar constant values are given in parentheses.

Finally the 29 days with solar constant values available for favorable comparison between Mount Wilson and Arequipa have been divided into two groups of high and low values respectively, as indicated by Mount Wilson work. The mean values are as follows:

| Station | | Group I | No. days | Group II | No. days. | Group I–Group II |
|---|---|---|---|---|---|---|
| Mount Wilson | | 1.954 | 15 | 1.893 | 14 | 0.061 |
| Arequipa | Formula I | 1.936 | 15 | 1.900 | 14 | 0.036 |
| | Formula II | 1.943 | 13 | 1.907 | 14 | 0.036 |

The days selected are these:

Group I.
1913. Aug. 5, 12, 18; Sept. 2, 3, 9, 17, 18, 22.
1914. June 16, 23, 24; July 17, 23, 28.

Group II.
1913. Aug. 4, 6, 15; Sept. 4, 8, 10, 26, 27, 29, 30; Oct. 1, 6, 31.
1914. June 21.

This comparison, so far as it has weight, evidently tends to confirm the existence of short-period irregular solar variations, discovered by other investigations.

SUMMARY.—Observations with the silver disk pyrheliometer and nearly simultaneous measurements of atmospheric humidity have been made since August, 1912, at Arequipa, Peru, at the station of the Harvard College Observatory.

From these observations have been determined values of the solar radiation at Arequipa corresponding with secant $Z$ equal to 1.0, 1.2, and 2.0; values of pressure of aqueous vapor, and values of the diminution of radiation attending the passage of the sun from the zenith distance whose secant is 1.0 to that whose secant is 2.0.

Owing to other occupations the observers have generally made these observations when the sun was within 60° of the zenith. On this account determinations of atmospheric transparency are not always possible, and are of less weight than other data given.

The results are collected to give monthly mean values. These show a remarkably close connection between radiation and vapor pressure. Advantage is taken of this close correlation to determine by empirical formulæ values of the solar constant of radiation. These empirical values agree quite as well as could be expected with values obtained at Mount Wilson, California, by complete spectrobolometric and pyrheliometric measurements combined. The Arequipa results confirm the variability of the sun, both from year to year and from day to day, shown by investigations at Mount Wilson and elsewhere.

It seems probable that from observations similar to those at Arequipa, if conducted at eight or ten favorable stations of high level in various parts of the world, the variations of the sun could be determined almost or quite as certainly as from two stations equipped for complete spectro-bolometric determinations of the solar constant.

The Arequipa results indicate that the volcanic dust which was general in the atmosphere in the northern hemisphere for more than a year after the volcanic eruption of Mt. Katmai, Alaska, in June, 1912, did not influence the transparency of the atmosphere in Peru.

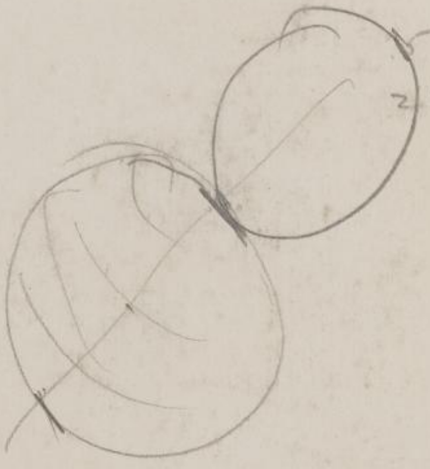
55–

27,–

193
96,–

177
88,–

183
96,–



57
23,–