

KG  
11366  
v. 650

Chronograph  
Record  
A. 1877

Charles W. Sever, University Bookstore, Cambridge.









Found that putting in or taking out the eye  
 piece of the ~~North~~<sup>South</sup> Collimator produced a  
 disturbance in the setting of one collimator  
 wire upon the other. Upon examination  
 found that ~~the~~ one end of the South Collima-  
 tor did not press firmly upon its bearing.  
 Put on a heavy weight. After this there  
 was no trouble of this kind. This  
 may account for some of the discordant  
 values of the flexures.  
 Got careful measures of the flexures.

Set the South clock ahead 2 minutes.  
 Adjusted the rate.

Examined the ~~verticality~~<sup>verticality</sup> of the wires of  
 the telescope and found a deviation of about  
 .1 of the distance between the wires from center to center  
 for the whole vertical distance (1 in.)

Jan 10 1877 Morning  
W.A.R. obs.

No 1 = 1407

See A<sub>2</sub> 1076



Jan 11 1877 Morning

W. R. S.

No. 1 = ~~1606~~ 1708

or  
see A<sub>2</sub> 1876

Jan: 13 1877

N.R. Johnson.

No 1 = 1609 1709

2 = 1610 1710

3 = ~~1611~~

Jan 14 1877

W. R. obs zone

No 1 = 1611 1711

2 = 1612 1712

3 = 1613 1713



Jan 14 1877 Morning  
2 Boobies 25° 4' 29.6 32.3 38.6 34.9

Jan 15 1877

Found that Microscope E  
had been set - 5' wrong ~~after~~ after  
reversal. ~~This will~~ There were  
Found & will be used in the determina-  
tion of flexure already made  
Sent the microscopes to Clark and  
sons ~~for~~ to be cleaned and oiled.

Jan 16

Adjusted micrometer screws



Jan 20 1877

WTR attempts some  
clouded up.

W01 = 1615 1715

2 = ~~1616~~ 1716

Jan. 21 1877

W. R. attempts some  
Clouds.

W. R. vs. P. S. Fundamental Laws.

Nov = 1617 1717  
2 = 1618 1718



Jan 23 1876

W. R. Dr. non

~~Amil, 20~~

20 4 54.8 58.4 6.4 2.2

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~~W. R.~~

201 = 1617 1717

2 = 1618 1718

3 = 1619 1719

Jan 26 Monday (17)

x Bures.

25-3 283 29.042.0 33.8

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x Dorn

10 @ 4.3 4.3 16.4 11.3

---

x Beupht. 25-4 488 514 6.0 56.2

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Hy Jan 24 morning

$\alpha$  Corvina lost.  $R_{+2}$  123  
1529

10 0 44.3 43.3 57.6 52.3

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$\alpha$  Serp. lost - most of the wire after it

25 4 46.5 49.1 2.3 52.9

Nov - ~~1620~~ 1720

83  
33

Jan 25 1877 Morning  
 2 Bores.

25-3 11.8 14.6 27.0 19.8

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2 Cor.

10 0 20.7 26.0 34.7 29.3

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2 Serpents

25-3 23.3 30.7 38.9 30.6

---

101 = 1621 1721

Jan 27

I found that Microscope No was  
 set with the count up instead of  
down. Renewed and adjusted it:



1877 - 1878

Jan 29

Adjusted the micrometer of  
the west circle

This circle will be read after this  
date for Mockelyne stars in addition  
to the reading of the east-circle.

I ~~was~~ first thought best to read  
this circle for all the fundamental  
stars, but it was found by time that  
only one reading of <sup>the east-</sup> circle could  
be made if this was done. Two settings  
~~within~~ the same circle are better than  
one setting within two circles. Hence  
except for Mockelyne stars, which will  
have an additional reading with  
the west-circle, the same order will  
be followed as heretofore



Jan 30

H. A. R. des. none.

No 1 = <del>H 222</del>	1722
2 = <del>H 223</del>	1723
3 = <del>H 224</del>	1724
4 = <del>H 225</del>	1725

Adjusted Microscope B  
for perpendicularity - before  
beginning <sup>the</sup> observations.

Feb. 1 1877

W.A.R. Sh. name,

Vol - 1626 1726

F



Feb. 1 Morning

W. R. des.

No 2 = 46.27 1727

Feb. 3 1877

W.R. obs. zone

Nov - 1628 1728

2 - 1629 1729



Feb 4 1877

U. S. R. obs. zone.

No 1 = ~~1630~~ 1730

2 = ~~1631~~ 1731

3 = ~~1632~~ 1732

Feb 5 1877

W. R. attempts some

Mr cloudy,

$\mu_0 = 1633$  1733

$z = 1634$  1734



Feb. 5 1877  
Morning

No 3 = ~~1635~~ 1735  
4 = ~~1636~~ 1736

v v

1877 Feb. 6

W. R. S. none.

Observations of B. Perrier & company

No. 1

35<sup>1</sup> 4<sup>1</sup> 15.8<sup>11</sup> 21.9<sup>11</sup> 33.2<sup>11</sup> 28.6<sup>11</sup>

No. 3

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45 3 43.5 48.4 1.0 55.9

45	4	54.4	59.2	9.9	7.2
50	0	58.5	3.2	15.8	11.4

50 0 58.5 3.2 15.8 11.4

$\mu_1 = 1637 \quad 1737$

$2 = 1658 \quad 1738$

3 = 1609 1739

4 = 1640 1740



Feb. 7 1877 W.R.S.

(No. = 1641 1741

Feb. 8 1877

W.A.R. obs none.

Selling as bad, gone up none.

(No 1 = 1642 1742

2 = 1643 1743



1877 Feb. 10

No 3

~~45 3 339 39.2 49.1 435~~

WDR attempt more.

(No 1 = 164.4 1744  
2 = 164.5 1745

Feb. 11 1877

W. R. obs. none,

No. - 1646 <sup>1746</sup>  
 2 - 1647 <sup>1747</sup>

Found that microscope

D does not measure the 5' space  
 properly correctly. Send using  
West.  
Circle the it can be sent to  
Clark for repairs.



Feb 12 1877 Morning

V & R 50. & veds.

CO 3 = ~~1646~~ 1748

4 = ~~1649~~ 1749

Feb 13 1877:

W.A.R. this

Seeing too bad for zone

W1 = 1650 1750

~~2 = 1650 1750~~



Feb. 14 1877 . 1

W. R. Dr. Home .

Nov = 1651 1751

2 = 1652 1752

Feb. 15 1877

W.R. by ~~2~~ fundamental  
star. Attempted none failed  
on account of clouds.

W1 - 1653 1753

2 = 1654 1754

3 = 1655 1755



Feb. 19 1877

No ~~Re~~ attempt more

No 1 - 1656 1756

2 - 1657 1757

Feb. 20 1877

no R. obs. none

Wol = ~~1658~~ 1758

2 = ~~1658~~ 1759

3 = ~~1660~~ 1760

4 = 1661 1761

Per. 21 1877

Pro R. du non

not = 1662 1762

2 = 1663 1763



Feb 2<sup>d</sup> 1877  
Morning

(No 3 = 1664 1764.

Feb. 22, 1878

W. R. S.

Nov = 1661-1765

Feb. 2 1877 Morning

Received <sup>from</sup> Microscope D

Met Circle from Mr Clark. Repaired  
and adjusted it. There seems to  
be a little trouble with it still,

Not = 17.66



Feb. 27 1877

W.R. Olmsted.

No 1 = <del>1667</del>	1767
2 = <del>1668</del>	1768
3 = <del>1669</del>	1769

Feb 28 1877

Nov 16 1770

2 = 1670 1771

3 = ~~1671~~ 1772

N.A.R. as now.

Mar 1 1774

W R Ous some.

Nov = 1672 1773

2 = ~~1673~~ 1774



March 1877

W.R. Dixon

No 1 = 1674 1775

2 = 1675 1776

3

May 5 1877 Morning

Nov = 1676 1777

Mar 6 1877

W. R. Dawkins

Nov - 1677 1778



Mar 7 1877

W. J. R. der Moskalyne  
star.

Nov - ~~1678~~ 1779

Mar 11 1877

W. R. R.

no 1 = 1679 1780

Nov 15 1777

W R Riddison

Nov 1 - 1680 1781



Mar 20 1894  
W. Robinson  
Vol. = 1687 1782

~~Found that the Chromograms  
Sheets have been numbered  
too small since~~

~~From this date the true number  
will be given.~~

Mar 24 1877

W R Oles now.

$\mu_1 = 1783$

$2 = 1784$

Found that the head of microscope  
 It was loose. This will account for the  
 large increase of the readings of this  
 microscope, but when the change oc-  
 curred, and whether suddenly or grad-  
 ually will have to be determined  
 from the reduction of the observations.



Nov 31 1877

W.A.R. attempts observation  
Clouds.

Nov 1 - 1885



AMB W.R. Stes.

not = 1786

2871 58  
0151 30

Apr. 9 1877

W & R des.

I. B. M records for both readings

Stars marked ~~2~~ <sup>measured</sup> have been observed  
near the extreme part of the pend on  
each side, for the investigation of the  
inclination.

No 1 = 1787

2 = 1788

3 = 1789

4 = 1790

---

Apr 10 1877 Morning

No. 1 = 1781

Am 12/1877

Noting some  
Observed in inclination

Stars trans. declination was of extreme  
ends. J. P. M. records <sup>reads by setting</sup> but ~~read~~

No 1 = 1792

2 = 1793

~~3 = 1794~~

1791 - 1792

1792 - 1793

1793 - 1794



Aug 15 1877

W. R. Johnson

Observed for inclination. Gauss  
 of extreme ends of curve.  
 J. R. Meadows, both readings

No 1 = 1784

2 = 1785

3 = 1796

Apr 16 1877

Not Rds none.

Observed for well in a box

Yarns at extreme ends of  
mire. I, L. M. recd both readings

Nov = 1797



Mar. 22 1877

W. R. Dawkins name  
 Observed for inclination. Transit at  
 extreme end of wire.

I F M records both.

No 1 = 1298  
 2 = 1295

Adopted the plan of recording in the  
 General Records a statement of the time  
 occupied with the several stages of the reduc-  
 tions of the Polar Catalogue, together with a  
 statement of the several steps of the work.

Completed this day the following:

(a) Computation of constants for reduction to the  
 horizontal wire



- (b) Reduction of  $T_s$  from  $T_m$ .
- (c) Log. of  $(T_m - T_s)$
- (d) Addition of log. Const. to log.  $(T_m - T_s)$
- (e) No. corresponding to log.  $(T_m - T_s) \times \text{Const.} = \text{Red.}$
- (f) Addition of reduction to circle readings.

All the above has been checked by being done in duplicate. Corrections are made in red ink and no erasures are made.

Made up file of Chronograph sheets for 1876 and 1877 to date.

The following note is inserted here with respect thereto.

Sheets missing or (probably) numbered wrong.

Jan 6 1876 No 1523

Dec 26 " " 1656

For Dec 27 1876 the numbers of 2 sheets are

omitted. They are inserted ~~in the~~ <sup>as</sup> 1697 and  
1697"

Jan 14 1877. No. 1713 omitted.

Jan 23 1877 Nos. 1717 & 1718 repeated.

The preceding sheets are made  
up in a separate roll.

Apr 9	No.	May 25	No.
	1479	29	1512
10	1482	30	1513
11	1485	31	1514
17	1486		(1516?)
May 1	1490		(1518?)
3	1491		
3	1492		
16	1495		
16	1496		
21	1500		
23	1506		
"	1502		
"	1503		
"	1504		
24	1507		
"	1508		
"	1509		



Mar 23 1877

Work done now.

Observed for inclination of wires

The stars observed are marked =

The transits occur near  $A_1$  and  $A_{-25}$

I. B. M. <sup>good</sup> for both settings.

Examined the inclination of and found it unchanged.

Raised up the telescope from its bearings and put a wood circle on the best-end of the axis.

Not = 1800



Apr 25

On attempting to disassemble  
found that the circle clamping  
the microscopes had been moved  
10' by the ~~carpenters~~ <sup>workmen</sup> who took off  
the glass case.

Also found on examination that  
the steel nut was not clamped  
sufficiently firm.

Set the microscopes to read about  
10' greater than the previous setting.

Adjusted the microscopes to read  
alike at  $145^{\circ} 0'$

Nov = 1001

Apr 26 1877

W. R. Stenhouse.

Observed for inclination at

Transits near  $A_1$  and  $A_2$  5

E. R. Mearns.

W1 = 1882

2 = 1883



~~Ans~~

Moys 1877

W. A. Rides now.

Nov = 1874

J. R. M. <sup>for</sup> ~~Reads~~ both settings

Observations for declination.

J. R. M. <sup>will read</sup> ~~Reads~~ for both settings  
 will further notice



May 5 1877

W R Sturtevant,

No 1 = 1805

Nov 6 1877

W & R by name.

No 1 = 1806  
2 = 1807

May 7 1877

W R Mus.

W1 = 1808

2 = 1809



May 12 1877

Work attempts none.  
Circuit failed for the  
most part of the noon.

Wot = 1810

2 = 1811

May 3 1877

W R des none

No 1 = 1812

2 = 1813

May 14 1877

101 = 1814

W. D. R. des.

to Harry for zone



1877phae.proj.1654R

Nov = 1815

22 1815

May 22 1877

N. A. R. obs. Polaris

Nov = 1817

May 23 1877

~~Heard a <sup>weight</sup> ~~small~~ fall when~~  
~~found it <sup>ph</sup> like the fall~~

Heard something fall with a loud  
noise in the vicinity of the room clock  
at 8<sup>h</sup> 56<sup>m</sup> Sid Time. This may have  
been one of the weights of the clock.  
See Baryet, 1877 for record of volume of  
5' space.

May 28 1877

W. R. Dix more

Not = 1878

2 = 1879

3 = 1880



May 29 1877

W & R over home,

W 1 = 1821

2 = 1822

May 30 1877

W & R des. none,

Vol = 1823

2 = 1824

In the reduction of the observations  
of the Polar Catalogue the following  
work has been done and checked

Interpolation of declination, for every 5 days.

Computation of refraction constants  $\mu + \log \tan \mu$ .

Computation of the refractions excluding

$\mu - \gamma$

Miss Winlock has nearly completed  
the reduction of about 70 pole stars to appa-  
rent place. My time has for the past



Two or three weeks have occupied  
 my experiments, in the investigation of  
 the error of the circles, but -  
 I have completed the data for com-  
 puting the precession of the <sup>secondary</sup> pole  
 stars

Observed the level of the  
 Meridian Circle. Found  
 it to be nearly zero. A decided  
 change since the last observa-  
 tion. This is probably due to  
 taking off the circle causing  
 the microwaves when  
 was done. 1177



May 31 1877

W. R. attempts - some

Boo hany ..

W. R. Sts. fundamental  
Stars.

W. R. = 1825

June 2 1877  
W + Rols now  
Wol = 1876

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



Jan 4 1877

W.A.R. My son.

Nov-1827

Jan 14 H 7

W R St. John

No. 1122

June 17 1877

Not = 1827

2 = 1830

Find for (109)

Did not find it.

1877



June 18 1877

Wolbach's new.

Wol = 1831  
2 = 1832

No 2 containing transits  
with the great-quantities  
for minutes of 22 hrs. of my  
screen. The readings are given  
on the opposite page.  
Star =  $18^{\circ} 41' 3''$  -  $34^{\circ} 5' 2''$   
over.

Intervals for cones pending  
with revolutions of screen.

$\begin{array}{r}
 28.4 \\
 28.9 \\
 28.1 \\
 28.7 \\
 28.1 \\
 29.0 \\
 29.4 \\
 28.9 \\
 28.9 \\
 28.8 \\
 29.1 \\
 29.0 \\
 28.7 \\
 28.9 \\
 28.9 \\
 28.1 \\
 \hline
 29.01
 \end{array}$

Lr  $\log. 1.46255$

$\log N = 1.17609$

$\log 8452 = 3.9271$

$\begin{array}{r}
 11 \text{ Rev} = 3570.3 \\
 = 5950.5
 \end{array}$

$i' = \frac{11}{5950.5} = 1.8486 \text{ rev.}$











