

KG  
11366  
v.680

*Chronograph Record.*

*From May 31, 1883 to Dec, 24, 1883*



May 31, 1883

Mr. L. H. G. to 12:20

12:20 to 12:30

12:30 to 12:40

12:40 to 12:50

12:50 to 1:00

1:00 to 1:10

1:10 to 1:20

1:20 to 1:30

1:30 to 1:40

1:40 to 1:50

1:50 to 2:00

2:00 to 2:10

2:10 to 2:20

2:20 to 2:30

2:30 to 2:40

2:40 to 2:50

2:50 to 3:00

3:00 to 3:10

3:10 to 3:20

3:20 to 3:30



May 31. 1883

No. 1 = 266      12 25 to 13 36

Today began preliminary observations for the longitudinal campaign between Montreal & Cambridge.

Each sheet will be numbered consecutively beginning with today.

They will also be numbered right along with all the other sheets of our regular work this spring, & in the same way.

June 1, 1883

No. 1 = 267

W.V.B. observed on the Longitude  
determination with the Russian Tran-  
sit.

June 2, 1883

No. 1 = 268

" 2 = 269

" 3 = 270

" 4 = 271

Longitude sheet

Today the tail-piece of the Meridian Circ. came back from Clark's. It had been taken out in order to have <sup>an</sup> ~~the~~ arrangement made for Clark field illumination. W.V.B.

adjusted for parallelism of wires verticality of wires, focussed, Collimated, & leveled.

W.V.B. observed at 11<sup>h</sup> 0<sup>m</sup> with Merid. Circ.

W.A.R. " later with R.T.

At 13<sup>h</sup> & 14<sup>h</sup> observations with both instruments were taken simultaneously. R.T. strokes were made short. Merid. Circ. strokes long.

For details of Longitude work see page 200 of book containing Longitude observations, — so labelled.

June 3, 1883

No. 12

June 4, 1883

No. 1 = 272 .

" 2 = 273 .

" 3 = 274 .

" 4 = 275 .

" 5 = 276 .

" 6 = 277 .

Longitude sheets

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June 5, 1883

No. 1 = 278

" 2 = 279

" 3 = 280

" 4 = 281

" 5 = 282

Longitude sheets

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June 6

Today the tail-piece of the instrument was taken out, & down to Mr. Clark's, to have an arrangement made for getting a dark field illumination.

Mr. Rogers also made a new glass diaphragm

June 7

Mr. Rogers left for Montreal  
for second half of Montreal - Cambridge  
longitude determination.

Tail piece of Meridian Circle came  
back.

June 8

W. V. B. took time with Russian Transit.

Tail piece of Meridian Circle was put in position, the <sup>new</sup> glass diaphragm also being put in; but diaphragm was found to be upside-down.

Mr. Clark spent morning in experimenting for the illumination of lines.

Found that glass plate was put on with wax & probability that heat of  $\odot$  would melt it off.

June 9

Time with Russian Transit.

June 10

Mr. Clark again experimented with  
the illumination.

June 11, 1883

W.V.B. again took out tail-piece  
& reversed <sup>the</sup> glass plate. Then put  
in the tail-piece, & adjusted for  
the verticality of lines & colli-  
mated.

Then took time stars (2) with  
Meridian Circ.

June 12, 1883

No. 1 = 283      1 15 to 2 10

Adjusted the illumination of the microscopes; got the light as equally diffused over the field of the microscope as was possible; & also so that both edges of the line on the circle should be equally lighted & without a trace of shadow.

Found, however, that <sup>m</sup>microscopes E, F, & G the focus of the microscopes was not at the micrometer lines; when they were in field the lines on the circle were not

June 13, 1883

|             |   |    |    |   |    |
|-------------|---|----|----|---|----|
| No. 1 = 284 | 5 | 20 | to | 5 | 37 |
| " 2 = 285   | 0 | 0  |    | 2 | 3  |

June 14. 1883

|             |    |    |    |    |    |
|-------------|----|----|----|----|----|
| No. 1 = 286 | 5  | 22 | to | 5  | 36 |
| " 2 = 287   | 12 | 7  |    | 14 | 13 |
| " 3 = 288   | 14 | 17 |    | 16 | 25 |
| " 4 = 289   | 0  | 8  |    | 1  | 31 |

June 15, 1883

|         |     |      |         |
|---------|-----|------|---------|
| No. 1 = | 290 | 5 28 | to 5 43 |
| " 2 =   | 291 | 13 3 | 14 50   |
| " 3 =   | 292 | 0 4  | 2 2     |

June 16. 1883

No. 1 = 293

5 29

to

5 46

" 2 = 294

12 27

13 34

~~No. 3 = 295~~

" 3 = 295

Prof McLeod's

June 17, 1883

No. 1 - 2956 23.59 to 119

June 20, 1883

No. 1 = 2967      0 26 to 1 33  
" 2 = 298  
" 3 = 299  
" 4 = 300

} Prof McLeod's

June 21, 1883

No. 1 = 301      5 52 to 6 12  
" 2 = 302  
" 3 = 303 } Prof McLeod's  
" 4 = 304      10 25 to 2 10

June 22, 1883

|         |     |       |    |       |
|---------|-----|-------|----|-------|
| No. 1 = | 305 | 5 58  | to | 6 15  |
| " 2 =   | 306 | 13 15 |    | 13 51 |
| " 3 =   | 307 | 0 48  |    | 2 4   |

June 23, 1883

|         |       |                |        |
|---------|-------|----------------|--------|
| No. 1 = | 3078  | 6 0            | * 6 16 |
| " 2 =   | 3089  | 12 41          | 14. 8  |
| " 3 =   | 30910 | Prof. McLeod's |        |
| " 4 =   | 3101  | "              | "      |
| " 5 =   | 3112  | "              | "      |
| " 6 =   | 3123  | "              | "      |

June 24, 1883

No. 1 = 3174      0   34   to   2   3  
" 2 = 3145      2   47      3   11

June 25, 1883

|         |      |    |    |   |    |    |
|---------|------|----|----|---|----|----|
| No. 1 = | 3156 | 6  | 6  | * | 6  | 24 |
| " 2 =   | 3167 | 11 | 17 |   | 12 | 26 |
| " 3 =   | 3178 | 13 | 20 |   | 15 | 16 |
| " 4 =   | 3189 | 15 | 17 |   | 15 | 53 |

June 27, 1883

Yesterday Mr. Rogers returned from Montreal! This A.M., took out the glass diaphragm & because the inclined declination lines were too far apart & it took stars too long to transit over them. A new plate is to be ruled.

At 8<sup>5</sup> P.M. new plate was put in by Mr. Rogers & adjusted for verticality of lines. The brass framework which carries the plate was oiled up. Also oiled the collimating screw, & the rods which guide the <sup>brass</sup> frame.

June 28, 1883

|               |                |
|---------------|----------------|
| No. 1 = 37720 | 6 22 to 6 35   |
| " 2 = 3201    | 12 0      14 0 |
| " 3 = 3212    | Longitude      |
| " 4 = 3223    | "              |

June <sup>29</sup>~~28~~, 1883

No. 1 = 3234

6 30 to 6 41

" 2 = 3245

15 20 15 43

" 3 = 3256

Longitude

" 4 = 3267

"

June 30, 1883

|              |       |               |       |
|--------------|-------|---------------|-------|
| No. 1 = 3278 | 6 31  | <del>to</del> | 6 44  |
| " 2 = 329    | 12 46 |               | 14 29 |
| " 3 = 330    | 1 11  |               | 2 3   |

The night of this date was the last in the Montreal - Cambridge Longitude determination. Mr. Rogers got observations and exchanged signals on three nights in Cambridge, & three in Montreal. And observations for personal equation, Rogers - McLeod, were taken on two nights in Cambridge, & two in Montreal.

July 1. 1883

No. 1 = 331 13 19 to 15 31  
 " 2 = 332 0 45 2 6

During the observation of Polaris, L.C.  
 Mr. Rogers adjusted stellar focus  
 of Meridian Circle. The inclination  
 was afterwards examined to see if  
 this adjustment had altered it,  
 but <sup>no</sup> change was found. See Polaris  
 record book.

Collimating screw was altered at about  
 4<sup>h</sup> (sidereal time) so as to make the zero  
 of the units coincide with the zero  
 of the 100 divisions. See record book  
 of constants.

July 2, 1883

No. 1 = 333

6 07 to 6 53

" 2 = 334

0 41 . 2 31

W.V.B. altered the pendulum of the chronograph, and changed the rate from a very slow one, to one nearly ~~not~~ normal.

July 3, 1883

|              |                         |                                      |
|--------------|-------------------------|--------------------------------------|
| No. 1 = 3345 | 6 43<br><del>0 41</del> | <del>to</del> 7 0<br><del>2 31</del> |
| " 2 = 3356   | 14 2                    | 15 43                                |
| " 3 = 3367   | 1 25                    | 1 40                                 |

July 4. 1883

No. 1 = 338

" 2 = 339

6 45 to 7 5

0 44 2 3

July 5, 1883

No. 1 = 340

" 2 = 341

6 52 to 7 4

0 44 2 7

July 6, 1883

|         |     |    |    |    |    |    |
|---------|-----|----|----|----|----|----|
| No. 1 = | 342 | 6  | 56 | to | 7  | 7  |
| " 2 =   | 343 | 12 | 41 |    | 14 | 32 |
| " 3 =   | 344 | 14 | 33 |    | 16 | 25 |
| " 4 =   | 345 | 0  | 47 |    | 2  | 9  |

July 7, 1883

No. 1 = 346

6 51

to 7 9

" 2 = 347

12 51

14 55

" 3 = 348

14 57

16 33

July 9, 1883

|             |    |    |       |    |
|-------------|----|----|-------|----|
| No. 1 = 349 | 47 | 9  | to 47 | 22 |
| " 2 = 350   | 12 | 46 | 14    | 32 |
| " 3 = 351   | 14 | 33 | 16    | 26 |

July 10, 1883

|                    |     |    |    |    |    |    |
|--------------------|-----|----|----|----|----|----|
| No. 1 <sup>2</sup> | 352 | 7  | 10 | to | 7  | 24 |
| " 2 <sup>2</sup>   | 353 | 12 | 45 |    | 14 | 43 |
| " 3 <sup>2</sup>   | 354 | 15 | 17 |    | 16 | 23 |
| " 4 <sup>2</sup>   | 355 | —  |    |    | 2  | 12 |

July 11, 1883

|             |    |    |               |    |    |
|-------------|----|----|---------------|----|----|
| No. 1 = 356 | 7  | 15 | <del>to</del> | 7  | 31 |
| " 2 = 357   | 12 | 46 |               | 14 | 47 |
| " 3 = 358   | 14 | 49 |               | 16 | 27 |
| " 4 = 359   | .1 | 5  |               | 2  | 6  |

July 12, 1883

|            |         |       |
|------------|---------|-------|
| W, 1 = 360 | 7 22 to | 7 41  |
| " 2 = 361  | 12 58   | 14 57 |
| " 3 = 362  | 14 53   | 16 13 |

July 14, 1883

|             |    |    |               |    |    |
|-------------|----|----|---------------|----|----|
| No. 1 = 363 | 13 | 25 | <del>18</del> | 15 | 13 |
| " 2 = 364   | 15 | 14 |               | 16 | 52 |

July 15, 1883

The tail-piece & tail-end of the Meridian Circle was taken down to Clarkis to have an arrangement made by which <sup>one of</sup> the prisms of the new dark-field illumination could be adjusted.

July 19, 1883

The Meridian Circle was again put together, by W.V.B. but no adjustments made.

The new arrangements of the prism was tried -

July 23, 1883

W.V.B. begins his vacation

July 25-

The tail-end of the Meridian Circle had been again taken to Clark's.

Yesterday W.V.B. brought it back

Today W.V.B. put the Meridian Circle in adjustment for verticality of wires, & collimated. Also put on an arrangement Mr. Clark had made for regulating the new dark-field illumination

Aug, 1883

Mr. Brown terminates his connection with the Observatory, having accepted a position as instructor in the High School at Indianapolis Ind.

Aug 20

W. R. R. returns from  
his vacation and begins obs-  
ervations for autumnal equinox.

Aug 25

No 1 = 365

2 = 366

Aug 26 1883

$$w_1 = 367$$

$$2 = 368$$

$$3 = 369$$

$$4 = 370$$

Aug 27

$$w_1 = 371$$

$$2 = 372$$

$$3 = 373$$

$$4 = 374$$

Aug 28 1113

$$m_1 = 375$$

$$2 = 376$$

$$3 = 377$$

Aug 29

$$m_1 = 378$$

$$2 = 379$$

Aug 30, 1883

$$No 1 = 380$$

$$2 = 381$$

$$3 = 382$$

$$4 = 383$$

Aug 31

$$No 1 = 384$$

$$2 = 385$$

Sept 1 1883

No 1 = 386

2 = 387

3 = 388

D. B. Pratt, began work as my  
assistant in the M.C. this day.

Sept 2 = 390

No 1 = 390

2 = 391

D. B. P. began to record his reading  
(times) of the circles.

Sept 3. 1883.

No. 1 = 391

2 = 392

3 = 393

4 = 394

5 = 395

6 = 396

7 = 397

Sept. 3

Began observations of certain stars near the zenith with Reichenow's Transit. Observed the same stars with the Meridian Circle. The reading of the is about as follows.

R.T. (at  $B_{123}$ )

M.C. (at)

R.T. ( $D_{34} - 2$ )

The object of these observations is to compare the levels of the two instruments. The level of the R.T. will be set as near zero as possible.

Sept 4. 1883

No 1 = 398

2 = 399

Sept. 5, 1883,

No. 1 = 400

No. 2 = 401

No. 3 = 402

No. 4 = 403

No. 5 = 404

Sept 6. 1883

$$NO1 = 405$$

$$2 = 406$$

$$3 = 407$$

$$4 = 408$$

Sept 7 1883

Clock thermometer = 62.4

$$NO7 = 409$$

$$2 = 410$$

$$3 = 411$$

Sept 9, 1883

No 1 = 412

2 = 413

3 = 414

4 = 415

Sept 10, 1883

Clock Thermometer = 63.00

No. 1 = 416

No 2 = 417

Sept. 11 1883

No 1 = 418,

No 2 = 419

Sept. 12 1883

No 1 = 420,

9<sup>h</sup> 00<sup>m</sup> Clock Therm. 62°.00

Sept 15 1883

No 1. = 421

Sept 16  
9<sup>h</sup> 00<sup>m</sup> clock therm = 64.00

No 1 = 422

2 = 423

Sept 17. 1883

No 1 = 424. D.B.P.

Prof. Rogers being away, D.B.P. is responsible for the mistakes in this and <sup>in</sup> the following observations.

Sept. 18. 1883.

No. 1. = 425  
 2 = 426  
 3 = 427

} D.B.P.

Sept 19, 1883

No 1 = 42.8  
 2 = 42.9  
 3 = 43.0 } D. B. P.

Clock Thermometer at 9<sup>00</sup> = 63.8

Sept. 20. 1883.

No 1 = 43.1  
 No 2 = 43.2 } D. B. P.

Sept. 21. 1883

No. 1. = 433. P. 1

Sept. 22, 1883

No. 1. = 434. P. 1

No. 2 = 435

Sept. 2<sup>3</sup>~~4~~. 1883.

Clock Therm = 62.3

Sept. 25, 1883

No! = 436 P

Sept 26 1883

No 1 = 437

No 2 = 438.

No. 3 = 439.

No 4 = 440 Clock Thema = 61.8

No. 5 = 441.

Prof. Rogers cleaned the eyepiece and probably changed the magnifying power.

Sept. 27.

No. 1. = 442

2. = 443

3. = 444.

Examined the verticality of the wires & found them nearly correct.  
The glass plate was taken out and cleaned.

Sept. 30. 1883

Clock Therm. = 61.00

No 1 = 446

Sept. 29.

No. 1. = 445.

Oct. 1,

✓ No. 1. = 447

2 = 448

3 = 449.

Oct. 2, 1883.

No. 1 = 450

2 = 451

Oct. 3

No. 1 = 452

2 = 453

(3 = 454 Taken by D. B. P.

4 = 455

5 = 456

Clock Thermometer 57.0

Oct 4 1883

No. 1. = 4 5 7  
 2 = 4 5 8  
 3 = 4 5 9  
 4 = 4 6 0

Oct 5

No 1 = 4 6 1

4

Oct. 6, 1883,

No 1 = 462. D. B. P.

2 = 463 D B P

Oct. 8 1883

Clock Therm = 54.0

No 1 = 464

D. B. P.

2 = 465

D. B. P.

3 = 466

D. B. P.

Oct. 9, 1883

$$\text{No } 1 = 467$$

$$2 = 468$$

$$3 = 469$$

$$4 = 470$$

$$5 = 471$$

Began to observe scattering zone stars. Took fundamental stars with bright field on  $A$  and  $A_{-1}$ ; with dark field on  $A_{+1}$ .

Oct. 10, 1883

$$\text{No } 1 = 472$$

$$2 = 473$$

$$3 = 474$$

$$4 = 475 \text{ D.B.P.}$$

$$5 = 476$$

Oct. 11, 1883.

Clock Therm = 57.0

No. 1 = 4 77.

2 = 4 78

3 = 4 79

4 = 4 80.

Oct. 13.

No. 1 = 481.

~~No 2~~

7 8  
5 2 11

Oct. 14 1883 ,

Clock Therm = 74.0

No. 1 = 482

2 = 483

Oct. 15, 1883

No. 1 = 484

2 = 485

3 = 486

4 = 487

5 = 488

Oct. 16, 1883.

No. 1 = 489.

2 = 490

3 = 491

4 = 492

Oct. 17, 1883.

No 1 = 493

2 = 494

3 = 495

4 = 496

5 = 497

Clock Therm = 73.0

Oct 18 1 88 3

No 1 = 498  
2 = 499  
3 = 500

Oct. 21

Clock Therm = 71.8

Oct 22 1883

No. 1 = ~~4~~ 501

Began to observe C before and after taking  $\odot$

No 2 = 502

3 = 503

4 = 504

5 = 505

Oct. 23

No 1 = 506

Oct. 24. Clock Therm. = 72.0

Oct 26 1883

No 1 = 507

Oct 27

No 1 = 508  
2 = 509

Oct. 28 1883

No 1. = 510.

clock Therm. = 70.8

Oct. 29.

No. 1. = 511  $\wedge$  1  $\searrow$   
 2 = 512 = Oct. 30. No 0

Oct 30

No 0 = 512

1 = 513

2 = 514

3 = 515

4 = 516

Oct 31

No. 1 = 517

No. 2 = 518

Clock Therm. = 73.2

No 3 = 519

Nov. 1. 1883

No 1 = 520

2 = 521

3 = 522

N

Nov 2 1883

No 1 = 623

" 2 = 524 = (Nov. 1, Nov. 3.)

Nov. 3. 1883

No 1 = 524 (= No 2 Nov. 2.)  
No 2 = 525

Nov. 4 { No 1 = 526  
Nov 5 {  
Clock Therm. = 69.0  
Nov 5 - No 2 = 527  
3 528  
4 529  
5 = 530

Nov. 6/883

No 1 = 531

2 = 532

3 = 533

4 = 534 = No 1 Nov 7

Nov 7

No 1 = 534 = No 4 Nov 6

2 = 535

3 = 536

clock therm = 71.5°

4 = 537 = No 1 Nov 8

Nov 8

No 1 = 537 = Nov 4/Nov 7  
2 = 538

Nov 11

Clock Therm = 71.9

No 1 = 539

2 = 540

Nov. 12, 1883

No 1 = 541

2 = 542

3 = 543

4 = 544 = No 1 Nov. 13

Nov. 13

No 1 = 544 = No 4 Nov 12

2 = 545

Nov 14

No 1 = 546

2 = 547

Clock therm = 67.8

3 = 548

Nov 15

No 1 = 549

Nov 16 / 883

No. 1 = 550

2 = 551

Nov 17

No 1 = 552

2 = 553

3 = 554

4 = 555

Nov 18

$$No 1 = 55.6$$

$$2 = 55.7$$

$$3 = 55.8$$

Clock Therm - 64.0

Nov 19

$$No 1 = 55.9$$

$$2 = 56.0$$

$$3 = 56.1$$

Nov 20

No 1 = 5'62

Gave up Zone observations on account of bad seeing

Nov 21

No. 1 = 5'63

2 = 5'64

Clock Therm = 68.0

Nov 22 1883

No. 1 = 565  
2 = 566

Nov 24

No 1 = 567

Nov. 25 1883

Clock Therm  $\approx 69.0$

No 1 = 56.8

2 = 56.9

Nov 26, 70

No. 1 = ~~56.9~~

Nov 27, 1883

No 1 = 571

2 = 572

3 = 573

4 = 574

Nov. 28

No 1 = 575

2 = 576

3 = 577

Clock Therm = 69.0

4 = 578

Nov 30 1883

No 1 = 579  
2 = 580

Dec 1

No 1 = 581

Dec 2

No 1 = 582

2 = 583  
Clock Theron = 68.2

Dec 3

No 1 = 584

2 = 585

3 = 586

4 = 587

5 = 588

Dec 4

No 1 = 589

2 = 590

12

Dec, 5,

Clock Therm = 65.5

Dec 6

No 1 = 591

2 = 592

3 = 593

Dec. 4

The apparent change in the volume of feeding observations by the same bird (apparently) during the more observations in which the side lamp is used, needs investigation.

In detaching the glass plate to Janit; found that the ~~two~~ brass frame was fastened to the slide

Three screws re. Took the frame w/ Mr. Zuck and had him make 4 steel clamping screws, the two of the brass ones having been broken.

For Dec 5, used the lines unfilled with graphite. In putting in the plate it was set 180° wrong. I mistake.

Before observations of Dec. 6 took out the plate and reversed position.

Dec 7

No 1 = 594

2 = 595

DEC. 9,

Clock Therm = 69.2

No 1 = 596

Dec, 10

$$\text{No } 1 = 397$$

$$2 = 59.8$$

Dec, 11

$$\text{No, } 1 = 599$$

$$2 = 600$$

$$3 = 601$$

Dec 12

$$\text{No. 1} = 602$$

$$2 = 603$$

$$3 = 604$$

$$4 = 60.5$$

$$\text{Clock Therm} = 66.5$$

Dec 13

$$\text{No 1} = 606$$

$$2 = 607$$

$$3 = 608$$

Dec 15

No 1 = 609

2 = 610

3 = 611

4 = 612

Dec. 16 / 883

No 1 = 613

Clock Therm = 63.0

Dec. 19.

Clock Therm. 67.5

Dec 20

No 1 - 614

Dec 21

No 1 = 615

2 = 616

Dec 22

UVo 1 = 617

2 = 618

3 = 619

4 = 620

5 = 621

Dec. 23 1883

Clock Therm. = 60.5

No 1 = 622

Dec 24

No 1 = 623



2000.0 150.0  
Clock to time - 10.3

2000.0 150.0

2000.0 150.0







