

i	2 ^h 48 ^m 45 ^s .42	+	9 ^h 57' 29''2	Weisse 822 Lam. 5403.
k	2.43.46.58	+	10. 7. 9.5	Rüm. II. 1448 B.D. + 10.374.
l	4. 6.40.26	+	22.23.30.7	Weisse 88.
m	4. 0.59.22	+	21.41.26.7	Weisse 1278/1280.
n	3.55. 0.25	+	22. 4.42.0	Weisse 1159.
o	3.48 42 08	+	21.24.22.0	Rüm. I. 1030 Rüm. II. 2015.
p	3.52.36.73	+	20.57.24.9	Weisse 1114/1115 Rüm. I. 1053 Astr. N. 84, 241; 86, 313.

Die Beobachtungen von Comet Winnecke 1877 u. Comet Tempel 1877 sowie die Planeten (116), Athor u. (178) Belisana werde ich mittheilen, sobald alle gemachten Meridianbeobachtungen der Vergleichsterne reducirt sein werden.

Den Cometen Borrelly habe ich am 18. Febr. sehr gut mit freiem Auge gesehen und ihn 5--6 Grösse geschätzt.

Pola, März 1878.

J. Palisa.

Companions of Sirius.

The communication of Mr. Tempel (A. N. Nr. 2166) has led me to attempt some observations on the small stars near Sirius, with the 12¹/₄ⁱⁿ. Refractor of the Morrison Observatory. This work was purposely delayed, until Sirius should have its culmination at an early hour of the night. The months of February and March afforded some nights unusually favorable — indeed some very rare. On such nights, and at a small hour angle, I found little difficulty in measuring the Clark star, with ordinary field illumination. The Lassell star was also easily measured, but the image of the Primary was first brought just outside the field, and the wires themselves illuminated by a mild light. The Marth star

could only be seen with the Primary entirely out of the field, and the illumination very mild and gradual. This was best effected by having an assistant holding a tempered light, so as to increase or diminish illumination at the dictation of the observer. Very decided differences in the brightness of the Clark star were noticed on different nights. These differences occurred so often, as to suggest the thought, that they might be due to causes beyond our own atmosphere and the conditions of the observer. For convenience I will refer to Sirius by the letter A., to the Clark star by B, to the Marth star by C and to the Lassell star by D.

A and B compared.

Date	Pos. Ang.	Nr. Comparis.	Wt.	Date	Dist.	Nr. Comparis.	Wt.	Mean Results by Weight
1878.172	55°55	6	3	1878.159	11'140	6	5	1878.201 p=54°45 1878 187 d=11'243
" 175	54.84	7	4	" 172	11.341	2	2	
" 192	53.87	13	5	" 175	11.344	6	3	
" 230	54.10	6	4	" 192	11.353	6	3	
" 235	54.32	8	4	" 235	11.180	8	5	

A and C compared.

Date	Pos. Ang.	Nr. Comparis.	Wt.	Date	Dist.	Nr. Comparis.	Wt.	Mean results by wights
1878.194	115°06	4	3	1878.197	67''13	3	1	1878.204 p=114°36 1878.222 d= 69.25
" 197	114.95	2	2					
" 203	113.90	3	2					
" 223	113.58	3	3	223	68.01	2	4	
				246	70.69	4	6	

A and D compared.

Date	Pos. Ang.	Nr. Comparis.	Wt.	Date	Dist.	Nr. Comparis.	Wt.	Mean results by weights
1878.192	158°16	3	3					
" 200	159.30	4	4	1878.200	102.93	4	4	1878.210 p=158°39
" 203	157.95	5	4	" 203	103.47	4	4	1858.213 d=103°11
" 219	158 95	2	3					
" 236	157.69	6	4	" 236	102 96	5	5	

Morrison Observatory, Glasgow, Missouri, May 1878

C. W. Pritchett.

Observations of the transit of Mercury, 1878, May. 5—6 made at Washington.

By D. P. Todd.

(Communicated by Rear Admiral John Rodgers, U. S. Navy, the Superintendent of the Naval Observatory.)

The conditions for observing the transit of Mercury at Washington were exceptionally favorable. The reduced Washington mean times of my observations of the contacts are as follow:

The first (external) contact, Mai 5 22^h 4^m55^s.4 $\pm 5^s$ Wt. 2

The second (internal) contact, 22. 7.39.3 ± 1 Wt. 4

The third (internal) contact, Mai 6 5.33 49.7 ± 3 Wt. 3

The fourth (external) contact, 5.36.44.7 ± 4 Wt. 2

A magnifying power of 180 diameters was employed. Weight 5 would indicate a perfect observation. The observed phases correspond to the diagrams represented at „external contact“ and „internal contact“ in figure 2 of Professor Newcomb's Instructions for observing the transit of Mercury, issued by the Naval Observatory. The appearance of these disks at a distance of half a mile had been carefully studied before the transit. It is, therefore, believed that the times above given are those of geometric contact, with as great a degree of accuracy as the weights and probable errors assigned indicate. No hesitation, distortion, nor black drop was observed at any of the contacts.

No light spot was observed on the disk of Mercury — either white or any other color. The disk appeared of a uniform jet blackness throughout. No indication of an atmosphere surrounding the planet was remarked. the limb of the planet was very sharply defined all around.

A systematic search for a possible satellite of Mercury was maintained at suitable intervals during the time of the transit. Moments of favorable definition were chosen for the employment of a magnifying power so high that a satellite having a diameter so large as forty miles could not have escaped detection. Assuming

Encke's mass of Mercury, $\frac{1}{4866000}$ th that of the sun,

a satellite having a period of twenty-four hours would have had a maximum elongation of 43" from the centre of the planet — the logarithm of the true distance of Mercury from the earth being 9.747; while a satellite with a period of thirty days would have had a maximum elongation of 412". As the transit of Mercury was so nearly central, a satellite having a period which it would seem reasonable to assume must have been projected on the disk of the sun. If, however, any such object exists, it would be much more readily detected by the solar light which it would reflect.

The observations were all made with a Clark Equatorial refractor of five inches aperture. The number of the instrument is 860. The aperture was not reduced. The instrument is furnished with a double-image micrometer, of the Airy pattern as modified by Valz. This was employed in a series of measures of diameters of the planet. The results of the measures are as follow:

Position angle of diameter measured	Diameter
357°—177°	11'88
357.—177	11.80
7.—187	11.88
17.—197	11.81
27.—207	11.80
37.—217	11.87
47.—227	11.81
57.—237	11.86
67.—247	11.85
77.—257	11.88
87.—267	11.80
Mean,	11.84