OBSERVATIONS OF COMET *c* 1903 (BORRELLY)

The following observations of the comet discovered by M. Borrelly were secured with the 12-inch equatorial telescope. $\Delta\alpha$ was measured directly with the micrometer on all nights. At the time of the first observation the comet was estimated equal to an 8th

magnitude star in brightness, with a sharp nucleus of about $9\frac{1}{2}$ to 10th magnitude. A brushy tail could be traced about $\frac{1}{2}^\circ$ in the south preceding quadrant. The comet grew brighter very rapidly and could easily be seen with the unaided eye on June 30th.

1903.	Mt. Hamilton M.T.	Star	No. of Comparisons	Comet—Star		Comet's Apparent		$\log p \Delta$	
				$\Delta\alpha$	$\Delta\delta$	α	δ	α	δ
June	22 ^d 12 ^h 52 ^m 14 ^s	1	10, 6	+22.94	—6' 58"9	21 ^h 51 ^m 39 ^s 57	—7° 0' 48"2	<i>n</i> 9.518	0.769
	23 11 35 3	4	10, 6	—10.03	+7 12.1	21 50 52.45	—6 9 51.4	<i>n</i> 9.624	0.749
	23 11 45 30	3	10, 6	—15.97	—0 57.8	21 50 52.08	—6 9 26.0	<i>n</i> 9.610	0.752
	24 12 52 44	6	10, 6	+14.81	+5 16.5	21 49 52.66	—5 8 48.3	<i>n</i> 9.496	0.760
	26 15 33 2	7	8, 6	—1.14	+4 0.9	21 47 24.48	—2 50 29.3	<i>n</i> 7.276	0.752
	30 13 20 50	8	8, 6	+15.04	+1 37.8	21 40 45.87	+2 39 59.1	<i>n</i> 9.320	0.628
July	10 9 21 52	10	8, 6	+10.17	+5 45.9	20 55 46.32	+30 22 7.8	<i>n</i> 9.695	0.494
	12 9 11 36	12	8, 6	—3.14	+7 54.1	20 33 51.14	+39 36 8.0	<i>n</i> 9.723	0.279

MEAN PLACES FOR 1903.0 OF COMPARISON STARS

Star	α	Red. to app. place	δ	Red to app. place	Authority
1	21 ^h 51 ^m 14 ^s 19	+2.44	—6° 54' 5"9	+16"6	Micrometer comparison with (2).
2	21 48 50.98	+2.42	—6 58 19.4	+16.6	Vienna A.G. Zones. 2 obs.
3	21 51 5.62	+2.43	—6 8 44.7	+16.5	Vienna A.G. Zones. 2 obs.
4	21 51 0.05	+2.43	—6 17 20.1	+16.6	Vienna A.G. Zones. 2 obs.
5	21 51 16.51	+2.46	—5 13 0.1	+16.5	$\frac{1}{2}$ (Yarnall 9870 + Munich I. 29862).
6	21 49 35.39	+2.46	—5 14 4.8	+16.5	Micrometer comparison with (5).
7	21 47 23.06	+2.56	—2 54 46.5	+16.3	Munich II. 12069.
8	21 40 28.14	+2.69	+2 32 5.9	+15.4	Micrometer comparison with (9).
9	21 39 53.50	+2.69	+2 32 48.5	+15.4	A.G. Albany 7593.
10	20 55 32.98	+3.17	+30 16 9.1	+12.8	Micrometer comparison with (11).
11	20 54 22.80	+3.17	+30 14 54.2	+12.8	$\frac{1}{2}$ (A.G. Leiden 8607 + A.G. Cambridge 11970).
12	20 33 50.97	+3.31	+39 28 1.4	+12.5	A. G. Lund 9550.

R. G. AITKEN.

July 13, 1903.

THE SPECTRUM OF COMET BORRELLY OBTAINED WITH THE CROSSLEY REFLECTOR

A spectrogram of Comet Borrelly was obtained with the small slit spectrograph on July 15th, with an exposure of four hours. The five bands are shown which were photographed by Campbell in Comet *b* 1893 (Rordame)* and in Comet *b* 1894 (Gale.)†

The relative intensities of these bands in the spectrum of Comet Borrelly appear to be the same as in the two earlier comets, after making allowance for the

differences in dispersion and absorption of the two instruments, with the exception of the band at $\lambda 420$. Although this band is one of the strongest in both of the earlier comets it is extremely weak in Comet Borrelly.

The brighter of the bands show evidence of their composite character, although they are not resolved.

Very little continuous spectrum is shown by the photograph.

C. D. PERRINE.

July 16, 1903.

* Astronomy and Astro-Physics, Vol. XII, p. 652.

† Astronomical Journal, Vol. XIV, p. 111.