

the mean length being 428.5 days. These fluctuations are embraced in a cycle of about 57 periods, or 67 years. But the changes of period are of a remarkable character. It remains during five-sixths of the cycle between its mean value and the upper limit, or between 428.5 and 431.4 days; then suddenly shortens to minimum, 415 days, and immediately rapidly lengthens. Similarly the variations of the radius of motion are singularly asymmetrical. It is at present about 0".07, and approaching its minimum dimension of 0".05. The decrease from 0".17 to 0".11 between 1890 and 1897, pointed out in *A.J.* 446, is an illustration of the action of the above law. We shall soon have a similar

test of the law in its operation on the period, which between 1850 and 1890 persisted in the neighborhood of 430 days, and is now 428 days, but ought to shorten to the minimum value, 415 days, within the next few years. Of course an accurate prediction cannot be made as to when this interesting phase will become perceptible, because the length of the harmonic cycle, which depends on the difference of the two component periods, is imperfectly defined by existing observations. For this reason the above description should be regarded merely as outlining the general nature of the fluctuations rather than as specifying sharply their numerical limits.

OBSERVATIONS OF COMET *b* 1900 (*BORELLY-BROOKS*),

By R. G. AITKEN.

1900 Mt. Hamilton M.T.	*	No. Comp.	—*		s apparent		log $p\Delta$	
			Δa	$\Delta \delta$	a	δ	for a	for δ
Sept. 3 9 ^h 23 ^m 36 ^s	1	18	—3 ^m 38.79	+6 ^s 35.9	13 ^h 5 ^m 11.82	+80 ^o 39 ['] 47.5	0.441	0.470
8 12 33 5	2	16	—2 24.43	+4 15.2	13 37 13.10	+77 25 5.6	0.007	0.859
14 10 13 42	3	16	+1 20.79	—6 5.9	13 57 15.57	+74 20 22.4	0.180	0.660
16 7 11 6	4	10, 8	— 26.84	+4 28.5	14 2 0.90	+73 29 48.0	0.199	9.672
20 7 28 6	5	10, 6	— 57.64	— 59.7	14 10 49.32	+71 52 47.8	0.171	9.544
27 7 1 17	7	10, 6	— 36.32	—5 27.5	14 23 32.27	+69 36 55.4	0.117	9.415
29 7 16 37	8	10, 6	+ 46.74	—1 23.3	14 26 50.80	+69 4 38.1	0.114	9.934
Oct. 10 7 5 0	10	8, 6	—1 31.77	+1 14.5	14 43 34.19	+66 54 4.3	0.077	0.167
12 7 10 8	12	18	— 3.21	—2 14.5	14 46 30.39	+66 37 42.8	0.073	0.253
21 7 13 54	14	8, 6	+ 48.28	+ 30.3	14 59 35.07	+65 50 0.8	0.059	0.415

Mean Places for 1900.0 of Comparison-Stars.

*	a	Red. to app. place	δ	Red. to app. place	Authority
1	13 ^h 8 ^m 57.37 ^s	—6.76 ^s	+80 ^o 33 ['] 17.5 ["]	—5.9 ["]	Hamburg Zone (+80°—+81°) No. 173
2	13 39 42.20	—4.67	+77 20 54.0	—3.6	Kasan A.G. Catal. 2418
3	13 55 58.41	—3.63	+74 26 31.4	—3.1	Dorpat A.G. Zones, +74°562
4	14 2 31.06	—3.32	+73 25 22.3	—2.8	Dorpat A.G. Zones, +73°616
5	14 11 49.92	—2.96	+71 53 50.3	—2.8	Micrometer comparison with (6)
6	14 15 51.05	—3.00	+71 58 19.1	—2.3	Dorpat A.G. Zones, +72°636
7	14 24 11.17	—2.58	+69 42 25.8	—2.9	Micrometer comparison with (9)
8	14 26 6.55	—2.49	+69 6 4.7	—3.3	Christiania A.G. Catal. 2151
9	14 26 24.52	—2.58	+69 41 56.3	—2.7	Christiania A.G. Catal. 2152
10	14 45 8.26	—2.30	+66 52 53.8	—4.0	Micrometer comparison with (11)
11	14 46 29.58	—2.34	+67 0 57.6	—3.8	Christiania A.G. Catal. 2205
12	14 46 35.92	—2.32	+66 40 1.8	—4.5	Christiania A.G. Catal. 2206
13	14 58 23.78	—2.36	+65 52 18.1	—5.1	Christiania A.G. Catal. 2235
14	14 58 49.15	—2.36	+65 49 35.6	—5.1	Micrometer comparison with (13)

The last two observations were made with the 36-inch equatorial, the others with the 12-inch. On the nights of Sept. 3, 8, 14 and Oct. 12, the position-angle and distance of the comet with reference to the comparison-star were measured. On the other nights Δa was measured directly with the micrometer.

Work on *Eros*, and later, unfavorable weather prevented me from

looking for the comet again until Dec. 22. On that date I found it very close to its predicted place; but before a measure could be made it was blotted out by rising fog. It appeared to be about as bright as a star of the 15th magnitude. There has been no opportunity for subsequent examination.

Lick Observatory, University of California, 1901 Jan. 7.

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