

JUPITER IN 1965-66: ROTATION PERIODS

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The highlights of the 1965-66 apparition were: a revival of the Circulating Current, the continued observations of an abnormally slow portion of the North Equatorial Current, the continued prominence of the three long-enduring white ovals, the prominence of the Red Spot, and most importantly--observational evidence of vorticity in the Great Red Spot.

Data pertinent to reduction of the data received:

Date of opposition: 1965, Dec. 18.

Dates of Quadrature: 1965, Sept. 23; & 1966, March 13.

Declination of Jupiter: $+23^{\circ}$ (at opposition).

Equatorial Diameter: 47.6 seconds of arc (at opposition).

Zenocentric Declination of Earth: $+2.4^{\circ}$ (at opposition).

Magnitude: -2.3 (at opposition).

This report is based on 4,645 visual central meridian transit observations submitted by five observers. Fifty-four per cent of these transits (2,446) form usable drifts for 105 Jovian spots distributed in 11 different currents. The observers who contributed data are listed below:

Budine, Phillip W. Binghamton, N.Y. 10-in. refl. 2050t.

Farrell, Joanne Binghamton, N.Y. 3-in. & 4-in. refr. 194t.

Heath, Alan W. Nottingham, England 12-in. refl. 27t.

Pollak, Charles Binghamton, N.Y. 8-in. refl. 1135t.
 Reese, Elmer J. Las Cruces, N.M. 8-in., 12-in., & 16-in. refl.
 1327t.

The distribution of transit observations by months was as follows:

1965, July	53	1965, Nov.	703	1966, March	419
Aug.	120	Dec.	896	April	62
Sept.	571	1966, Jan.	652	May	28
Oct.	609	Feb.	532	*****	

In the tables which follow column 1. gives an identifying number or letter for each spot. The second column indicates whether the spot was dark (D.) or bright (W.) and identifies the preceding end (p.), center (c.), or following end (f.) of the spot. The third column gives the first and last dates of observation. Column 4. the longitudes for these respective dates. Column 5. the longitude at opposition. Column 6. the number of transits, column 7. the number of degrees in longitude that the spot drifted over a 30 day interval, and column 8. the rotation period in hours, minutes, and seconds.

S. S. TEMPERATE BELT, System 11

1.	2.	3.	4.	5.	6.	7.	8.
I	Wc	Nov. 28-Dec. 22	288°-273°	275°	13	-15.0	9:55:20

						Mean R.P.	<u>9:55:20</u>

CIRCULATING CURRENT, SOUTH BRANCH (STBn), System II

1.	2.	3.	4.	5.	6.	7.	8.
1	Dc	Aug. 21-Sept. 26	107 ⁰ -60 ⁰	--	14	-46 ⁰	9:54:38
2	Dc	Nov. 13-Nov. 28	64 ⁰ -5 ⁰	--	13	-56 ⁰	9:54:24
* 3	Dc	Nov. 24-Jan. 25	217 ⁰ -2 ⁰	--	30	-107 ⁰	9:53:14
4	Wc	Jan. 7-Mar. 17	164 ⁰ -95 ⁰	--	16	-28.7	9:55:01

 Mean R.P., #1,#2 9:54:31
 Mean R.P., #3,#4 9:54:08

CIRCULATING CURRENT, NORTH BRANCH (SEBs, S. edge), System II

1.	2.	3.	4.	5.	6.	7.	8.
1	Dc	Oct. 28-Dec. 2	225 ⁰ -309 ⁰	--	18	+82.2	9:57:34
2	Dc	Jan. 10-May 4	283 ⁰ -50 ⁰	--	34	+36.3	9:56:30
3.	Dc	Jan. 4-Mar. 17	221 ⁰ -18 ⁰	--	19	+65.5	9:57:11
4	Dc	Feb. 18-Mar. 17	298 ⁰ -358 ⁰	--	14	+60.0	9:57:03

 Mean R.P. 9:57:15

N. Edge SEBn, EZs, System I

1.	2.	3.	4.	5.	6.	7.	8.
1	Dc	Aug. 25-Sept. 19	7 ⁰ -21 ⁰	--	13	+14.0	9:56:00
2	Wc	Dec. 28-Jan. 29	73 ⁰ -85 ⁰	--	14	+11.0	9:55:56
3	Wc	Dec. 1- Feb. 5	52 ⁰ -110 ⁰	71 ⁰	24	+41.0	9:56:37
4	Wc	Mar. 31-May 3	40 ⁰ -55 ⁰	--	16	+15.0	9:56:01
5	Wp	Nov. 25-Dec. 27	123 ⁰ -145 ⁰	136 ⁰	14	+20.8	9:56:09
6	Wc	Aug. 30-Dec. 27	57 ⁰ -147 ⁰	141 ⁰	20	+22.5	9:56:11
7	Wf	Nov. 25-Dec. 27	134 ⁰ -155 ⁰	150 ⁰	13	+20.8	9:56:09
8.	Wp	Feb. 6-May 4	153 ⁰ -193 ⁰	--	17	+13.8	9:56:00
9	Wc	Feb. 6-Apr. 11	158 ⁰ -191 ⁰	--	16	+15.0	9:56:01
10	Wf	Feb. 6-Apr. 11	165 ⁰ -199 ⁰	--	17	+15.5	9:56:02
11	Dc	Aug. 12-Sept. 20	143 ⁰ -168 ⁰	--	15	+24.0	9:56:14
12	mWc	Feb. 11-Apr. 9	238 ⁰ -255 ⁰	--	17	+8.9	9:55:53
13	Dc	Aug. 4-Oct. 7	320 ⁰ -356 ⁰	--	21	+16.4	9:56:03

 Mean R.P. 9:56:05
 (without #2,#3, & #12)
 (#2,#12) 9:55:55

N. EQUATORIAL CURRENT (S. Edge NEB, EZn), System I

1.	2.	3.	4.	5.	6.	7.	8.
1	Dc	Aug. 27-Dec. 1	1 ⁰ - 10 ⁰	--	26	+2 ⁰ :8	9:50:34
2	Wc	Aug. 25-Dec. 3	27 ⁰ - 11 ⁰	--	18	-4 ⁰ :9	9:50:24
3	Dc	Aug. 25-Dec. 3	36 ⁰ - 14 ⁰	--	22	-6 ⁰ :7	9:50:21
4	Wc	Aug. 30-Feb. 8	44 ⁰ - 11 ⁰	11 ⁰	29	-6 ⁰ :0	9:50:22
5	Wc	Aug. 30-Nov. 28	61 ⁰ - 45 ⁰	--	20	-5 ⁰ :2	9:50:23
6	Dc	Aug. 21-Jan. 22	70 ⁰ - 43 ⁰	50 ⁰	31	-5 ⁰ :2	9:50:23
7	Wc	Aug. 21-Oct. 28	79 ⁰ - 72 ⁰	--	17	-3 ⁰ :0	9:50:26
8	Dc	Aug. 30-Oct. 28	81 ⁰ - 80 ⁰	--	6	-0 ⁰ :5	9:50:29
9	Dc	Aug. 21-Sept. 29	100 ⁰ - 98 ⁰	--	5	-1 ⁰ :5	9:50:28
10	Wc	Aug. 30-Nov. 17	104 ⁰ - 101 ⁰	--	18	-1 ⁰ :1	9:50:29
11	Wc	Nov. 15-Jan. 25	80 ⁰ - 69 ⁰	80 ⁰	25	-4 ⁰ :6	9:50:24
12	Dc	Oct. 28-Feb. 19	198 ⁰ - 110 ⁰	103 ⁰	42	+3 ⁰ :1	9:50:34
13	Wc	Aug. 11-Apr. 18	116 ⁰ - 241 ⁰	180 ⁰	47	+14 ⁰ :9	9:50:50
14	Dc	Aug. 11-May 15	132 ⁰ - 272 ⁰	192 ⁰	61	+15 ⁰ :1	9:50:50
15	Wc	Aug. 11-Sept. 13	147 ⁰ - 149 ⁰	--	5	+2 ⁰ :0	9:50:33
16	Dc	Aug. 21-Oct. 4	156 ⁰ - 198 ⁰	--	15	+20 ⁰ :8	9:50:58
17	Wc	Oct. 13-Mar. 3	176 ⁰ - 210 ⁰	198 ⁰	32	+7 ⁰ :1	9:50:40
18	Wc	Aug. 24-Apr. 30	210 ⁰ - 268 ⁰	217 ⁰	43	+6 ⁰ :9	9:50:39
19	Dc	Aug. 24-Dec. 29	217 ⁰ - 223 ⁰	222 ⁰	22	+1 ⁰ :4	9:50:32
20	Wc	Aug. 24-Dec. 29	237 ⁰ - 230 ⁰	235 ⁰	22	-1 ⁰ :6	9:50:28
21	Dc	Sept. 14-Jan. 22	250 ⁰ - 289 ⁰	260 ⁰	23	+8 ⁰ :9	9:50:42
22	Wc	Aug. 4-Dec. 2	260 ⁰ - 285 ⁰	--	30	+6 ⁰ :3	9:50:38
23	Dc	Aug. 4-Oct. 18	272 ⁰ - 281 ⁰	--	20	+3 ⁰ :6	9:50:35
24	Dc	Aug. 4-Apr. 3	289 ⁰ - 323 ⁰	303 ⁰	54	+4 ⁰ :2	9:50:36
25	Dc	Aug. 4-Apr. 9	305 ⁰ - 340 ⁰	340 ⁰	58	+4 ⁰ :2	9:50:36
26	Wc	Sept. 14-Apr. 8	305 ⁰ - 332 ⁰	327 ⁰	43	+3 ⁰ :9	9:50:35
27	Wc	Sept. 26-Nov. 13	333 ⁰ - 349 ⁰	--	16	+9 ⁰ :4	9:50:43
28	Dc	Aug. 11-Dec. 10	334 ⁰ - 355 ⁰	--	26	+5 ⁰ :3	9:50:37
29	Wc	Aug. 11-Jan. 13	344 ⁰ - 350 ⁰	347 ⁰	29	+1 ⁰ :5	9:50:32
30	Dc	Nov. 25-May 16	251 ⁰ - 281 ⁰	255 ⁰	42	+5 ⁰ :2	9:50:37
31	Dc	Oct. 4-Nov. 24	246 ⁰ - 256 ⁰	--	6	+5 ⁰ :9	9:50:38

Mean R.P. 9:50:32
Nos. 13, 14, & 16 9:50:53

Spots #13 and #14 are two prominent spots which were observed in 1964-65 and are still being recorded during the apparition (1970) as features rotating in the abnormally slow period of the N. Equatorial Current. Spot #16 was also rotating in the slow current of the NEB, S. edge.

N. TROPICAL CURRENT (N. edge NEB, NTrZ), System II

1.	2.	3.	4.	5.	6.	7.	8.
1	Wc	Aug.21-Jan.20	65 [°] -348 [°]	5 [°]	31	-15 [°] 1	9:55:20
2	Dc	Aug.21-Jan.1	98 [°] -43 [°]	51 [°]	24	-12 [°] 2	9:55:24
3	Wc	Jan.7-Mar.15	158 [°] -123 [°]	--	16	-15 [°] 2	9:55:20
4	Wc	Aug.27-Oct.26	258 [°] -227 [°]	--	15	-15 [°] 5	9:55:19
5	Wc	Aug.25-Jan.5	296 [°] -235 [°]	247 [°]	26	-13 [°] 6	9:55:22
6	Dc	Aug.25-Dec.29	307 [°] -251 [°]	258 [°]	22	-13 [°] 0	9:55:23
7	Wc	Aug.25-Jan.10	315 [°] -254 [°]	263 [°]	29	-13 [°] 0	9:55:23
8	Dc	Sept.13-Jan.10	312 [°] -265 [°]	275 [°]	25	-11 [°] 8	9:55:24
9	Wc	Oct.24-Feb.6	314 [°] -267 [°]	292 [°]	24	-13 [°] 4	9:55:22

Mean R.P. 9:55:22

N. TEMPERATE CURRENT (NTB, NTeZ), System II

1.	2.	3.	4.	5.	6.	7.	8.
1	Dc	Dec.25-Jan.23	53 [°] -80 [°]	--	14	+27 [°] 0	9:55:04
2	Dc	Aug.25-Oct.7	328 [°] -348 [°]	--	10	+13 [°] 3	9:55:22

Mean R.P. 9:55:04

N. N. TEMPERATE CURRENT (NNTB, NNTeZ), System II

1.	2.	3.	4.	5.	6.	7.	8.
1	Dp	Aug.30-Jan.1	26 [°] -13 [°]	15 [°]	28	-3 [°] 1	9:55:36
2	Dc	Sept.14-Jan.9	31 [°] -23 [°]	25 [°]	25	-2 [°] 5	9:55:37
3	Df	Sept.14-Jan.9	45 [°] -36 [°]	36 [°]	24	-2 [°] 3	9:55:37
4	Dc	Sept.9-Oct.18	159 [°] -174 [°]	--	15	-10 [°] 7	9:55:26
5	Dp	Aug.24-Oct.31	195 [°] -193 [°]	--	16	-0 [°] 9	9:55:39
6	Dc	Sept.9-Oct.31	204 [°] -202 [°]	--	5	-1 [°] 1	9:55:39
7	Df	Sept.3-Oct.31	218 [°] -214 [°]	--	7	-2 [°] 1	9:55:38
8	Dp	Dec.2-Feb.5	284 [°] -276 [°]	285 [°]	18	-3 [°] 6	9:55:36
9	Dc	Nov.28-Feb.18	292 [°] -287 [°]	295 [°]	22	-1 [°] 8	9:55:38
10	Df	Dec.2-Jan.30	300 [°] -297 [°]	300 [°]	18	-1 [°] 5	9:55:39
11	Dc	Aug.30-Sept.23	355 [°] -359 [°]	--	5	-4 [°] 0	9:55:35

Mean R.P. 9:55:34
(without #4)

N. N. N. TEMPERATE CURRENT (NNNTB, NNNTeZ), System I

1.	2.	3.	4.	5.	6.	7.	8.
1	Dc	Aug.21-Oct.13	107 ⁰ -66 ⁰	--	15	-23 ⁰ 0	9:55:09
2	Wc	Aug.21-Oct.13	113 ⁰ -75 ⁰	--	15	-21 ⁰ 1	9:55:12
3	Dp	Aug.27-Oct.16	250 ⁰ -210 ⁰	--	17	-23 ⁰ 5	9:55:08
4	Dc	Aug.27-Oct.28	261 ⁰ -225 ⁰	--	18	-17 ⁰ 1	9:55:18
5	Df	Aug.27-Oct.4	271 ⁰ -245 ⁰	--	6	-20 ⁰ 0	9:55:13

Mean R.P. 9:55:12

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