

similar error exists in the normal places for 1887 and 1888. In the reduction to 1878.0 I find I omitted the sign of  $\text{tg } \delta$ .

The conversion of the values which I took of for 1873 into  $\lambda$  and  $\beta$  is correctly performed but the discrepancy between the reviewer's values and my own is explained above.

With the fourth case of discrepancy, which, however, is not great, I disagree.

The values of  $\lambda - \alpha$  and  $\delta - \beta$  were all checked by Tietjen's method given in the Berliner Jahrbuch for 1879. The average difference between the value of  $\lambda - \alpha$  computed by Tietjen's formula and the value obtained by the ordinary method of converting  $\alpha$  and  $\delta$  into  $\lambda$  and  $\beta$  was less than 0.0098. For the quantity  $\delta - \beta$  it was less than 0.0088. The maximum discrepancy was 0.04.

There is, however, one point to which attention has not yet been drawn and which when attended to may modify the results. It is the great inequalities of weight assigned to the various normal places. If two normal places be formed from the observations at one opposition the resulting equations of condition are practically the same and this amounts to doubling the weight of one of the

normal places. Two such normals were formed from the observations in 1868 and 1882. When the normal place for this year is obtained, I shall omit one of the normal places for 1868 and for 1882, introduce the normal place for the present year and alter the very unequal weights.

The ephemeris published in Dr. Gill's Sappho programme for this year is one which I communicated to Dr. Gill eighteen months ago and to which I lately applied certain corrections. The original ephemeris was obtained from Dr. Leman's elements for 1872 to which the perturbations by Jupiter and Saturn had been applied.

From about August 1888, however, only the first powers of the masses were considered. I shall, I hope, shortly finish the complete perturbations by Venus, the Earth, Mars, Jupiter and Saturn up to 1890 Jan. 16 and prepare a more accurate ephemeris to be used in the reduction of the heliometer observations.

It must be distinctly understood that this ephemeris is not rigorous, it having been calculated from approximate elements and interpolated from 6 day intervals, whereas the ephemeris that will be required for the final reduction for the solar parallax work will require the reduction of this interval to at least two days.

London 1889 Sept. 14.

Robert Bryant.

### Seguito dell'effemeride della cometa 1889 II (Barnard Marzo 31).

12<sup>h</sup> t. m. Berlino.

1889	$\alpha$ 1889.0	$\delta$ 1889.0	$\log r$	$\log A$	H	1889	$\alpha$ 1889.0	$\delta$ 1889.0	$\log r$	$\log A$	H
Nov. 6	1 <sup>h</sup> 8 <sup>m</sup> 54 <sup>s</sup>	—16° 30.2	0.4484	0.2976	0.98	Nov. 22	0 <sup>h</sup> 28 <sup>m</sup> 2 <sup>s</sup>	—17° 25.4	0.4644	0.3679	0.83
7	5 49	16 37.2				23	26 3	17 25.7			
8	1 2 49	16 43.6				24	24 8	17 25.6			
9	0 59 53	16 49.5				25	22 17	17 25.2			
10	57 1	16 54.9	0.4523	0.3142	0.96	26	20 29	17 24.7	0.4684	0.3862	0.74
11	54 13	16 59.8				27	18 45	17 23.9			
12	51 29	17 4.1				28	17 5	17 22.8			
13	48 50	17 8.1				29	15 28	17 21.5			
14	46 15	17 11.6	0.4563	0.3316	0.94	Dic. 30	13 55	17 20.0	0.4725	0.4043	0.67
15	43 44	17 14.8				1	12 25	17 18.3			
16	41 17	17 17.4				2	10 58	17 16.3			
17	38 55	17 19.7				3	9 34	17 14.3			
18	36 36	17 21.5	0.4604	0.3496	0.91	4	8 13	17 12.0	0.4765	0.4221	0.61
19	34 21	17 22.9				5	6 56	17 9.7			
20	32 11	17 24.0				6	5 41	17 7.1			
21	30 5	17 24.9				7	4 29	17 4.4			
22	0 28 2	—17 25.4	0.4644	0.3679	0.83	8	0 3 20	—17 1.5	0.4806	0.4395	0.55

Roma 1889 Ottobre 22.

E. Millosevich.

### Inhalt:

Zu Nr. 2931. *G. D. E. Weyer*. Ueber die magnetische Declination in Christiania und ihre säculare Aenderung. 33. — *F. Bidschof*. Elemente des Planeten (276) Adelheid. 39. — Ephemeride des Planeten (12) Victoria für die Opposition 1889. 41. — *R. Bryant*. Schreiben betr. die Bestimmung der Bahn des Planeten (80) Sappho. 45. — *E. Millosevich*. Seguito dell'effemeride della cometa 1889 II (Barnard Marzo 31). 47.

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