

leitung der genauen Elemente noch erheblich dichtere Beobachtungen vorhanden sein, sodaß nur provisorisch folgende Elemente angesetzt werden mögen:

$$M = 2419491.3 + 3^d 498 \cdot E$$

$$m = M + 0^d 94.$$

In genügend dichten photometrischen Messungen würde eine Probe auf diese Elemente liegen. Die aus den nach der Phase geordneten Beobachtungen abgeleitete mittlere Lichtkurve ergibt 13st als Maximal-, 5st als Minimalhelligkeit.

Gnadenfrei, 1914 Dez. 16.

G. Hornig.

Ephemeride der Polarissima für 1915. Von L. Courvoisier.

Die hier mitgeteilte Ephemeride des Sterns BD +89°37 bildet eine Fortsetzung der in A. N. 4702 enthaltenen; hinsichtlich näherer Erläuterung sei deshalb auf die dortigen Bemerkungen verwiesen. Die Ephemeride ist von mir mit Hilfe der *Besselschen* Konstanten des Berliner Jahrbuchs berechnet worden und zwar auf Grund der nach A. N. 4650 für das Äquinoktium 1915.0 sich ergebenden Werte der rechtwinkligen Koordinaten:

$$x_0 = -562^s 081 \quad y_0 = -341^s 005.$$

Die Logarithmen der Faktoren a_x usw. nehmen für 1915.0 die folgenden Beträge an:

$$\begin{aligned} \log a_x &= 1.3004n & \log a_y &= 9.0990n - 10 \\ \log c_x &= 7.0721 - 10 & \log b_y &= 0.0000 \\ \log d_x &= 0.0000n & \log c_y &= 0.0003. \end{aligned}$$

Ephemeride für 18^h 16^m 5 Sternzeit Berlin.

Datum in m. Z. 1915	x	y	Datum in m. Z. 1915	x	y	Datum in m. Z. 1915	x	y	Datum in m. Z. 1915	x	y
Jan. 0.984	585.87	351.53	Febr. 4.888	582.46	362.21	März 11.792	573.39	367.62	April 15.697	562.73	365.82
1.981	.92	.88	5.885	.25	.42	12.790	.09	.71	16.694	.46	.62
2.978	.93	352.25	6.883	.04	.62	13.787	572.77	.79	17.691	.22	.43
3.975	.92	.62	7.880	581.85	.82	14.784	.44	.86	18.689	561.98	.24
4.973	.91	.99	8.877	.67	363.02	15.781	.09	.92	19.686	.76	.07
5.970	585.87	353.34	9.874	581.49	363.24	16.779	571.74	367.94	20.683	561.54	364.91
6.967	.81	.67	10.872	.31	.47	17.776	.39	.94	21.680	.31	.75
7.964	.76	.99	11.869	.12	.72	18.773	.06	.92	22.678	.07	.61
8.962	.70	354.28	12.866	580.90	.96	19.771	570.73	.88	23.675	560.82	.45
9.959	.65	.57	13.863	.67	364.21	20.768	.43	.85	24.672	.56	.29
10.956	585.61	354.85	14.861	580.41	364.45	21.765	570.14	367.82	25.670	560.29	364.10
11.954	.59	355.14	15.858	.14	.67	22.762	569.86	.79	26.667	.03	363.89
12.951	.57	.44	16.855	579.84	.88	23.760	.58	.79	27.664	559.78	.67
13.948	.54	.75	17.852	.55	365.06	24.757	.29	.79	28.661	.54	.42
14.945	.50	356.08	18.850	.26	.21	25.754	.00	.79	29.659	.32	.16
15.943	585.45	356.42	19.847	578.98	365.35	26.751	568.69	367.80	30.656	559.13	362.90
16.940	.38	.78	20.844	.72	.48	27.749	.37	.79	Mai 1.653	558.95	.64
17.937	.28	357.12	21.842	.46	.61	28.746	.04	.76	2.650	.78	.39
18.934	.16	.46	22.839	.22	.75	29.743	567.70	.72	3.648	.62	.16
19.932	.02	.79	23.836	577.98	.90	30.741	.36	.65	4.645	.46	361.94
20.929	584.87	358.09	24.833	577.74	366.07	31.738	567.04	367.56	5.642	558.30	361.74
21.926	.72	.37	25.831	.48	.24	April 1.735	566.72	.45	6.640	.12	.53
22.923	.57	.63	26.828	.21	.41	2.732	.43	.34	7.637	557.93	.31
23.921	.42	.89	27.825	576.92	.58	3.730	.15	.22	8.634	.72	.08
24.918	.29	359.14	28.822	.61	.74	4.727	565.89	.10	9.631	.51	360.84
25.915	584.18	359.40	März 1.820	576.29	366.88	5.724	565.64	367.00	10.629	557.31	360.57
26.913	.06	.66	2.817	575.97	.99	6.721	.39	366.91	11.626	.11	.29
27.910	583.94	.95	3.814	.65	367.08	7.719	.12	.83	12.623	556.93	359.99
28.907	.81	360.25	4.812	.33	.16	8.716	564.85	.75	13.620	.77	.67
29.904	.67	.56	5.809	.03	.22	9.713	.56	.68	14.618	.65	.36
30.902	583.50	360.86	6.806	574.74	367.26	10.711	564.26	366.58	15.615	556.53	359.06
31.899	.32	361.16	7.803	.47	.31	11.708	563.95	.48	16.612	.42	358.77
Febr. 1.896	.12	.46	8.801	.21	.37	12.705	.63	.35	17.609	.32	.50
2.893	582.90	.73	9.798	573.94	.44	13.702	.32	.18	18.607	.23	.24
3.891	.68	.98	10.795	.67	.53	14.700	.02	.00	19.604	.12	357.99

Datum in m. Z. 1915	x	y	Datum in m. Z. 1915	x	y	Datum in m. Z. 1915	x	y	Datum in m. Z. 1915	x	y
Mai 20.601	555.99	357.74	Juli 9.465	557.45	342.12	Aug. 28.328	571.25	331.24	Okt. 17.192	590.48	330.58
21.599	.86	.49	10.462	.66	341.82	29.326	.58	.08	18.189	.84	.73
22.596	.74	.21	11.459	.87	.54	30.323	.93	330.92	19.186	591.19	.87
23.593	.61	356.93	12.457	558.07	.29	31.320	572.30	.77	20.184	.53	331.01
24.590	.48	.62	13.454	.26	.04	Sept. 1.317	.67	.62	21.181	.86	.14
25.588	555.38	356.29	14.451	558.44	340.79	2.315	573.06	330.49	22.178	592.18	331.25
26.585	.29	355.95	15.448	.62	.54	3.312	.47	.39	23.175	.52	.36
27.582	.22	.60	16.446	.79	.28	4.309	.86	.31	24.173	.87	.45
28.580	.19	.27	17.443	.97	.01	5.306	574.26	.25	25.170	593.23	.55
29.577	.16	354.94	18.440	559.15	339.72	6.304	.64	.19	26.167	.60	.68
30.574	555.14	354.63	19.437	559.34	339.41	7.301	575.00	330.15	27.164	593.98	331.81
31.571	.13	.33	20.435	.55	.11	8.298	.36	.10	28.162	594.36	.97
Juni 1.569	.12	.05	21.432	.79	338.80	9.295	.70	.04	29.159	.73	332.16
2.566	.09	353.78	22.429	560.05	.50	10.293	576.05	329.96	30.156	595.09	.36
3.563	.05	.50	23.427	.33	.23	11.290	.41	.88	31.153	.43	.56
4.560	554.99	353.22	24.424	560.61	337.97	12.287	576.77	329.78	Nov. 1.151	595.75	332.78
5.558	.94	352.92	25.421	.89	.73	13.285	577.15	.68	2.148	596.06	.99
6.555	.88	.61	26.418	561.16	.52	14.282	.55	.60	3.145	.37	333.19
7.552	.84	.27	27.416	.42	.30	15.279	.96	.52	4.143	.66	.37
8.549	.80	351.92	28.413	.67	.09	16.276	578.39	.46	5.140	.94	.54
9.547	554.78	351.56	29.410	561.90	336.88	17.274	578.82	329.43	6.137	597.26	333.70
10.544	.79	.21	30.407	562.13	.65	18.271	579.25	.42	7.134	.58	.85
11.541	.82	350.86	31.405	.36	.41	19.268	.66	.42	8.132	.91	334.03
12.538	.88	.53	Aug. 1.402	.60	.15	20.265	580.06	.43	9.129	598.25	.21
13.536	.93	.21	2.399	.85	335.89	21.263	.43	.45	10.126	.61	.42
14.533	554.98	349.91	3.397	563.12	335.62	22.260	580.80	329.46	11.123	598.95	334.64
15.530	555.04	.62	4.394	.41	.36	23.257	581.16	.47	12.121	599.27	.89
16.528	.08	.34	5.391	.71	.11	24.255	.51	.45	13.118	.60	335.15
17.525	.11	.06	6.388	564.04	334.88	25.252	.86	.43	14.115	.89	.42
18.522	.13	348.77	7.386	.36	.67	26.249	582.23	.39	15.113	600.16	.69
19.519	555.17	348.47	8.383	564.69	334.49	27.246	582.61	329.36	16.110	600.42	335.95
20.517	.20	.14	9.380	565.01	.32	28.244	583.02	.34	17.107	.66	336.20
21.514	.24	347.80	10.377	.31	.15	29.241	.43	.33	18.104	.90	.43
22.511	.30	.45	11.375	.61	333.99	30.238	.85	.35	19.102	601.14	.65
23.508	.38	.10	12.372	.89	.83	Okt. 1.235	584.27	.39	20.099	.39	.87
24.506	555.48	346.74	13.369	566.18	333.64	2.233	584.68	329.45	21.096	601.64	337.08
25.503	.60	.40	14.366	.46	.45	3.230	585.08	.53	22.093	.91	.31
26.500	.75	.08	15.364	.75	.23	4.227	.47	.61	23.091	602.19	.55
27.498	.89	345.77	16.361	567.06	.02	5.224	.84	.70	24.088	.45	.81
28.495	556.03	.48	17.358	.40	332.81	6.222	586.20	.76	25.085	.72	338.10
29.492	556.16	345.21	18.356	567.76	332.60	7.219	586.55	329.82	26.083	602.98	338.40
30.489	.28	344.94	19.353	568.13	.41	8.216	.89	.88	27.080	603.22	.71
Juli 1.487	.39	.67	20.350	.50	.24	9.214	587.26	.92	28.077	.44	339.03
2.484	.49	.39	21.347	.88	.09	10.211	.63	.95	29.074	.63	.34
3.481	.59	.09	22.345	569.26	331.96	11.208	588.03	.98	30.072	.82	.65
4.478	556.69	343.78	23.342	569.62	331.85	12.205	588.44	330.03	Dez. 1.069	604.00	339.94
5.476	.81	.45	24.339	.97	.74	13.203	.85	.10	2.066	.16	340.21
6.473	.94	.11	25.336	570.30	.63	14.200	589.27	.19	3.063	.34	.47
7.470	557.09	342.77	26.334	.62	.52	15.197	.69	.30	4.061	.53	.73
8.468	.27	.44	27.331	.93	.39	16.194	590.09	.43	5.058	.73	.99

Datum in m. Z. 1915	x	y	Datum in m. Z. 1915	x	y	Datum in m. Z. 1915	x	y
Dez. 6.055	604".94	341".26	Dez. 16.028	606".46	344".51	Dez. 26.001	607".40	347".75
7.052	605.16	.54	17.025	.55	.79	26.998	.42	348.11
8.050	.38	.85	18.022	.65	345.07	27.995	.43	.45
9.047	.58	342.17	19.020	.76	.36	28.992	.43	.77
10.044	.76	.51	20.017	.88	.66	29.990	.44	349.07
11.042	605.92	342.87	21.014	607.00	345.97	30.987	607.44	349.36
12.039	606.06	343.22	22.012	.11	346.31	31.984	.47	.65
13.036	.18	.56	23.009	.21	.66	32.981	.51	.95
14.033	.28	.89	24.006	.30	347.02	33.979	.55	350.25
15.031	.37	344.21	25.003	.36	.39			

Berlin-Babelsberg, 1914 November.

L. Courvoisier.

Photometric measures of BD +13°4692.

In the Göttinger Aktinometrie, Teil A, p. 107, this star is mentioned as »vielleicht veränderlich«. The differences from the mean for five plates are +0^m.23, -0^m.21, +0^m.17, -0^m.20 and +0^m.01, the mean error of one plate being about ±0^m.05. BD +13°4708 is the nearest star on the plates and its differences from the mean are +0^m.07, -0^m.11, +0^m.04, -0^m.07 and +0^m.08, all of which are seen at a glance to be of the same sign as for BD +13°4692 suggesting defects in the plates. The suspected star as compared with BD +13°4708, however, still shows residual differences of +0^m.16, -0^m.10, +0^m.13, -0^m.13 and -0^m.07 which are large as compared with the mean error.

To verify a possible variability in this star 63 plates have been taken on 22 different nights by Professor *Hertzsprung* with the UV-Zeiss-Douplet ($a = 15$ cm, $f = 150$ cm) and objective grating¹⁾. The plates were taken 3 mm inside the focus. The intra-focal images are 0.3 mm in diameter and both direct and first order images are sensibly round.

At the suggestion of Professor *Hertzsprung* I have measured these plates with the Hartmann-Microphotometer using BD +13°4708 as comparison star and have determined the differences in magnitude of the two stars for each night²⁾. The mean error is found to be ±0^m.058 for a single plate as derived from the differences of each plate from the mean of the night. The comparison star is distant from the suspected variable, which is in the center of the plates, 21.7 mm or about 50' of arc, but no correction on this account has been applied in these relative measures. The differential extinction due to zenith distance for the two stars differs at most only 0^m.004 and has been neglected.

Potsdam, 1914 July 30.

Date	Numb. of plates	Exp.	Δ mag. $v-a$	Deviation from the mean	Mean error.
1910 Oct. 16	1	2	0.667	-0.160	±0.058
17	1	2	0.700	-0.127	0.058
1911 Aug. 20	1	2	0.723	-0.104	0.058
26	1	2	0.845	+0.018	0.058
Sept. 7	1	2	0.863	+0.036	0.058
10	1	2	0.968	+0.141	0.058
Nov. 2	2	2	0.781	-0.046	0.041
6	2	2	0.799	-0.028	0.041
7	2	2	0.833	+0.006	0.041
8	4	2	0.929	+0.102	0.029
24	1	2	0.831	+0.004	0.058
1912 Sept. 19	2	2	0.822	-0.005	0.041
20	4	2	0.940	+0.113	0.029
28	4	2	0.887	+0.060	0.029
Oct. 3	2	2	0.875	+0.048	0.041
1913 Aug. 23	5	1	0.804	-0.023	0.026
25	6	1	0.761	-0.066	0.024
26	6	1	0.769	-0.058	0.024
27	6	1	0.848	+0.021	0.024
28	6	1	0.815	-0.012	0.024
29	4	1	0.800	-0.027	0.029
31	1	1	0.881	+0.054	0.058

Mean 0.827.

While the deviation from the mean on several nights is seen to be large, further evidence is necessary to establish the variability of this star.

Alfred H. Foy.

¹⁾ A. N. 4452, Bd. 186.177.²⁾ A. N. 4543, Bd. 190.119.

Neuer Veränderlicher 98.1914 Capricorni. Von K. Graff.

Unter den Sternen, bei denen durch die Neureduktion der Rümkerkataloge eine Revision am Himmel sich als notwendig herausgestellt hat, befindet sich auch BD -9°5356 (7^m.5), der in beiden AG Ott-Zonen als Doppelstern beobachtet worden ist. Der Begleiter, der nach AG Ott 7073 die

Größe 9^m.5 haben und dem Hauptstern folgen soll, ist nun von mir am 26 cm-Äquatorial 1914 Juni 24 und Sept. 7 vergeblich gesucht worden und war damals bestimmt <12^m.7. Dagegen blitzte er Sept. 10 von Zeit zu Zeit schwach auf und war Sept. 21 in der Helligkeit von etwa 12^m.5 sofort