Observer	Epoch	θ_c	ϱ_c	$\theta_o-\theta_c$	$\varrho_o-\varrho_c$
See	1895.30	331°.4	5".70	−0°.3	+0".10
Hough	95.34	»	»	+0.2	+0.22
Glasenapp	95.36	»	»	−0.1	−0.09
Tebbutt	95.36	»	»	−1.5	+0.23
Comstock	95.43	331.3	5.71	+0.7	−0.06
Collins	95.44	»	»	−0.2	+0.10
Doberck	96.07	331.2	5.72	+1.8	−0.07
Gledhill	96.27	331.1	5.73	+1.2	−0.03
Comstock	96.37	331.0	»	+0.7	−0.18
Lewis	96.37	»	»	+2.2	+0.23
Hussey	96.49	»	5.74	−1.1	+0.18
Bowyer	97.32	330.7	5.76	−0.7	+0.23
Gledhill	97.36	»	»	+0.7	−0.06
Doolittle	97.43	»	»	+0.3	−0.03
See	97.46	»	»	+0.7	+0.07
Cogshall	97.46	»	»	+0.3	−0.10
Comstock	97.47	»	»	−1.7	−0.13
Aitken	97.97	330.5	5.78	−0.8	−0.22
Doolittle	98.27	330.4	5.79	+0.2	+0.17
Bowyer	98.31	»	»	+0.3	−0.20
Maw	98.35	»	»	−0.2	−0.12
Bryant	98.36	»	»	−1.4	+0.20
Comstock	98.36	»	»	+0.7	+0.13
Glasenapp	98.38	»	»	+0.9	−0.18
Greenw. Phot.	99.32	330.0	5.82	−0.4	−0.09
Bowyer	99.36	»	»	−2.3	−0.24
Doolittle	99.38	»	»	+0.1	+0.04
Bryant	99.39	»	»	+1.7	+0.16
Comstock	99.50	»	»	−1.4	0.00
Gledhill	1900.27	329°.7	5".84	+1°.4	−0".24
Tebbutt	00.41	»	»	+0.7	+0.16
Bryant	00.45	»	»	−0.6	−0.06
Doolittle	01.19	329.4	5.87	−0.6	+0.12
Bowyer	01.37	»	»	−4.9	−0.01
Comstock	01.37	»	»	+0.9	0.00
Doberck	02.20	329.1	5.89	+0.2	0.00
Copenhag. Phot.	02.30	»	»	−0.3	+0.24
Thiele	02.30	»	»	−0.8	+0.45
Sternberg »	02.36	329.0	»	−0.6	−0.07
Bowyer	02.40	»	»	−0.9	−0.14
Comstock	02.45	»	»	−0.2	−0.07
Doberck	03.22	328.8	5.91	−0.5	−0.02
Sternberg »	03.28	»	»	−0.5	−0.09
Doolittle	03.29	»	»	−0.8	+0.14
Biesbroeck	03.34	»	»	−0.4	+0.01
Comstock	03.36	»	»	+0.6	−0.04
Greenwich »	03.37	»	»	−1.8	−0.11
Scott	03.40	328.7	5.90	+1.3	−0.02
Biesbroeck	04.28	328.4	5.93	−0.3	+0.05
Sternberg »	04.30	»	»	−0.5	−0.07
Comstock	04.48	328.3	5.94	+1.8	−0.23
Farman	05.21	328.1	5.95	−0.9	−0.60
Doberck	05.46	328.0	5.96	+0.5	−0.01
Lau	06.22	327.8	5.97	−1.5	−0.06
Olivier	06.40	»	»	−0.7	−0.10
Comstock	06.49	»	»	+0.3	−0.13
Janssen	07.14	327.6	5.99	−0.7	+0.18
Lau	07.16	»	»	−1.1	+0.14

Sutton, Surrey, 1908 Febr. 10. *W. Doberck.*

On certain spectroscopic binaries.

By *Edwin B. Frost.*

Dr. Ludendorff's remarks (A. N. 4225) on the radial velocity of the fainter component of ζ Ursae majoris (Mizar) are of especial interest to the observers with the Bruce spectrograph, as we have been closely following the star during the present season, and I had entered it upon our list of established spectroscopic binaries only a short time before A. N. 4225 arrived here. Our observations, based upon 18 spectrograms, fully confirm the variation in velocity suggested by Dr. Ludendorff's measures, but give a larger range, from −17 km to +10 km. The spectrum which we obtain with a dispersion of one prism may be regarded as quite well measurable, and fifteen lines have generally been used. The first two plates obtained here, both in 1907, indicating a range of at least 10 km, led me to suspect the constancy of the star's velocity. The measures on this star have so far been made by Mr. *O. J. Lee.* The period of the star's variation cannot yet be stated. Our exposure time is generally between 20 and 30 minutes. The full particulars of our observations will be published in the Astrophysical Journal.

The star Alcor has also long been on our program of stars of type Ia_2, but we only began to observe it in this season, on the same nights as the star just mentioned. Twenty-five plates have thus far been obtained, with exposures averaging about 22 minutes. The comparison spectrum is in fairly good focus from λ 4000 to λ 4900, but the star lines in this region are all so diffuse and ill-defined as to make measurement almost impossible. A qualitative examination of the plates soon showed, however, that the spectrum varies very perceptibly, the *Mg* line at λ 4481 and the hydrogen lines being sometimes double and sometimes single. The displacement of λ 4481 with respect to the titanium line of almost the same wave-length also varies very obviously, leaving no doubt that Alcor is also a spectroscopic binary. The changes in the spectrum succeed each other so rapidly that I have found it necessary to have spectrograms of this star made in continuous succession for several hours. The impression given at present is that the period will be found to be exceedingly short, but a greater number of plates will be necessary for the establishment of the period.

Nearly all of the spectrograms so far alluded to in this note have been obtained by Messrs. *S. B. Barrett, O. J. Lee,* and *F. R. Sullivan.*

The increase in the complexity of the stars associated with Mizar (the brighter component of which may be called historically the parent spectroscopic binary) is thus particularly interesting, and suggestive of the results perhaps to be expected when spectrographic analysis shall have been generally applied to such stars.

Yerkes Observatory, 1908 Febr. 6.

At the meeting of the American Association in Chicago on Dec. 31, 1907, the writer reported on the following spectroscopic binaries which have recently been detected here: λ Ophiuchi, α Ophiuchi, ε^1 Lyrae (brighter component), τ Cygni (found by Mr. Barrett), β Equulei (found by Dr. S. A. Mitchell). I have since found that the radial velocity of the star 36 τ^9 Eridani also varies through a large range. Particulars as to all of these stars will be given later in the Astrophysical Journal.

Edwin B. Frost.

Ephéméride de la planète (387) Aquitania.

Par M. *L. Perrot.*

Les positions sont calculées pour 12^h temps moyen de Paris, à l'aide des éléments publiés dans le Berliner Jahrbuch 1910. Les coordonnées rectangulaires équatoriales sont pour 1910.0:

$$x = [9.987065]r\cdot\sin(v + 13°\,44'\ 1''.4)$$
$$y = [9.991009]r\cdot\sin(v + 286\ 39\ 12.0)$$
$$z = [9.496459]r\cdot\sin(v + 235\ 8\ 40.8)$$

1908	α	δ	log r	log Δ
Mars 10	$12^h\,18^m35^s$	+19° 45′.8	0.4437	0.2615
11	17 51	19 56.8		
12	17 7	20 7.6	0.4429	0.2598
13	16 22	20 18.3		
14	15 36	20 28.9	0.4421	0.2584
15	14 50	20 39.3		
16	14 3	20 49.6	0.4413	0.2573
17	13 16	20 59.7		
18	12 28	21 9.6	0.4406	0.2564
19	11 39	21 19.4		
20	10 51	21 28.9	0.4398	0.2558
21	10 2	21 38.3		
22	9 13	21 47.4	0.4390	0.2554
23	8 24	21 56.4		
24	7 34	22 5.1	0.4382	0.2553
25	6 45	22 13.6		
26	5 56	22 21.8	0.4375	0.2555
27	5 6	22 29.8		
28	4 17	22 37.5	0.4367	0.2559
29	3 28	22 45.0		
30	2 40	22 52.2	0.4359	0.2566
31	1 51	22 59.1		
Avril 1	12 1 3	+23 5.8	0.4351	0.2574

1908	α	δ	log r	log Δ
Avril 1	$12^h\ 1^m\ 3^s$	+23° 5′.8	0.4351	0.2574
2	12 0 16	23 12.2		
3	11 59 29	23 18.3	0.4343	0.2586
4	58 43	23 24.2		
5	57 57	23 29.7	0.4335	0.2599
6	57 12	23 35.0		
7	56 28	23 40.0	0.4327	0.2615
8	55 45	23 44.6		
9	55 2	23 49.0	0.4319	0.2633
10	54 20	23 53.1		
11	53 40	23 56.9	0.4311	0.2652
12	53 0	24 0.4		
13	52 21	24 3.6	0.4303	0.2674
14	51 44	24 6.6		
15	51 7	24 9.2	0.4295	0.2697
16	50 32	24 11.5		
17	49 57	24 13.6	0.4286	0.2721
18	49 24	24 15.4		
19	48 53	24 16.9	0.4278	0.2748
20	48 22	24 18.1		
21	47 53	24 19.0	0.4270	0.2775
22	47 25	24 19.7		
23	11 46 59	+24 20.0	0.4262	0.2804

Observatoire de Besançon, le 15 février 1908.

Une variable nouvelle 5.1908 Ursae majoris.

Sur des plaques dues à M. S. Blažko, Mme. *L. Ceraski* a trouvé ce 6 février une variable nouvelle dont voici les coordonnées approchées:

1855.0 $\alpha = 7^h59^m22^s$ $\delta = +63°\ 2'$ 1900.0 $\alpha = 8^h\,3^m22^s$ $\delta = +62°\,54'$.

De la discussion de 13 clichés obtenus en 1906 et 1907, M. *Blažko* conclut que l'éclat de cette étoile varie de $11^1/_2$ à $<12^1/_2$ gr. Probablement, la période en est longue, et le maximum eut lieu au commencement de mars 1907.

Moscou, 1908 février 17. Prof. *W. Ceraski.*

(434) Hungaria. Correzione all'effemeride (V. R. I. 34): 1908 Febr. 22 -2^s +0′.1. Gr. $11^m.9$. *G. Zappa.*