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Note on a new eclipsing binary with very high orbital eccentricity

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TABLE 6 (continued)

J. D. Hel.	$m_v - m_c$	$O - C$	J. D. Hel.	$m_v - m_c$	$O - C$	J. D. Hel.	$m_v - m_c$	$O - C$	J. D. Hel.	$m_v - m_c$	$O - C$
d	m	m	d	m	m	d	m	m	d	m	m
.44882	-.689	-.001	.49907	-.447	+.009	.54476	-.184	.000	.58887	-.598	-.003
.45038	-.689	-.001	.50053	-.437	.000	.54627	-.210	+.001	.59046	-.599	+.002
.45176	-.692	-.005	.50237	-.405	+.008	.54778	-.237	-.001	.59184	-.606	+.001
.45299	-.688	-.002	.50424	-.382	+.003	.54930	-.250	+.012	.59326	-.610	+.003
.45435	-.684	.000	.50592	-.365	-.004	.55081	-.278	+.005	.59456	-.610	+.007
.45601	-.688	-.005	.50747	-.334	+.003	.55215	-.308	-.003	.59638	-.626	-.003
.45734	-.684	-.003	.50922	-.308	.000	.55364	-.344	-.017	.59776	-.630	-.003
.45903	-.681	-.004	.51082	-.288	-.009	.55493	-.361	-.015	.59944	-.634	-.002
.46039	-.670	+.004	.51257	-.250	-.002	.55621	-.372	-.010	.60127	-.642	-.006
.46182	-.674	-.003	.51430	-.219	-.002	.55753	-.378	+.001	.60299	-.638	+.001
.46351	-.670	-.003	.51602	-.182	+.002	.55904	-.407	-.011	.60460	-.631	+.011
.46491	-.666	-.003	.51762	-.152	.000	.56073	-.427	-.011	.60624	-.639	+.006
.46663	-.657	.000	.51882	-.126	+.003	.56257	-.442	-.006	.60808	-.646	+.001
.46832	-.640	+.013	.52025	-.102	.000	.56470	-.461	-.004	.60962	-.642	+.006
.47398	-.628	.000	.52179	-.072	.000	.56610	-.457	+.013	.61122	-.646	+.004
.47570	-.624	-.003	.52323	-.039	+.007	.56769	-.479	+.003	.61289	-.654	-.003
.47760	-.623	-.010	.52470	-.032	-.002	.56926	-.512	-.018	.61463	-.650	.000
.47948	-.607	-.003	.52691	-.022	-.008	.57077	-.511	-.007	.61678	-.638	+.012
.48090	-.591	+.006	.52900	-.018	-.012	.57227	-.508	+.002	.61882	-.634	+.013
.48266	-.591	-.003	.53058	-.018	-.013	.57384	-.502	+.018	.62048	-.641	+.004
.48423	-.586	-.007	.53187	+.002	+.008	.57531	-.526	+.004	.62193	-.648	-.003
.48573	-.577	-.007	.53340	-.012	+.001	.57686	-.548	-.009	.62378	-.632	+.009
.48740	-.569	-.008	.53469	-.008	+.013	.57845	-.548	-.002	.62542	-.625	+.012
.48889	-.546	+.006	.53606	-.046	-.011	.57998	-.566	-.012	.62699	-.614	+.019
.49054	-.541	-.002	.53746	-.052	+.005	.58160	-.574	-.012	.62863	-.625	+.003
.49197	-.537	-.008	.53874	-.072	+.007	.58304	-.574	-.005	.63018	-.633	-.008
.49379	-.515	-.003	.53995	-.094	+.011	.58456	-.582	-.007	.63186	-.610	+.009
.49549	-.481	+.014	.54137	-.120	+.011	.58607	-.590	-.006	.63371	-.610	+.003
.49711	-.456	+.013	.54262	-.136	+.011	.58748	-.582	+.007	.63557	-.594	+.013
									.63735	-.600	-.001

NOTE ON A NEW ECLIPSING BINARY WITH VERY HIGH ORBITAL ECCENTRICITY

BY J. PONSEN

During a survey for variable stars with the Leiden blink microscope the southern star HD 163708, with an apparent photometric brightness of 6^m.80, was found to be an eclipsing variable. This star is a double star, h 5000, with a separation of about 8" and an apparent magnitude of 9^m.5 for the fainter component¹⁾. The scale of the Franklin Adams plates used for this investigation did not allow a separation, nor could a peculiar shape of the star image be observed. The observed range of about half a magnitude however proves that the brighter component is the eclipsing system.

Although the plate material was not very suitable for the treatment of a bright star like this, a period of d.820682 seemed to be present. This value was not

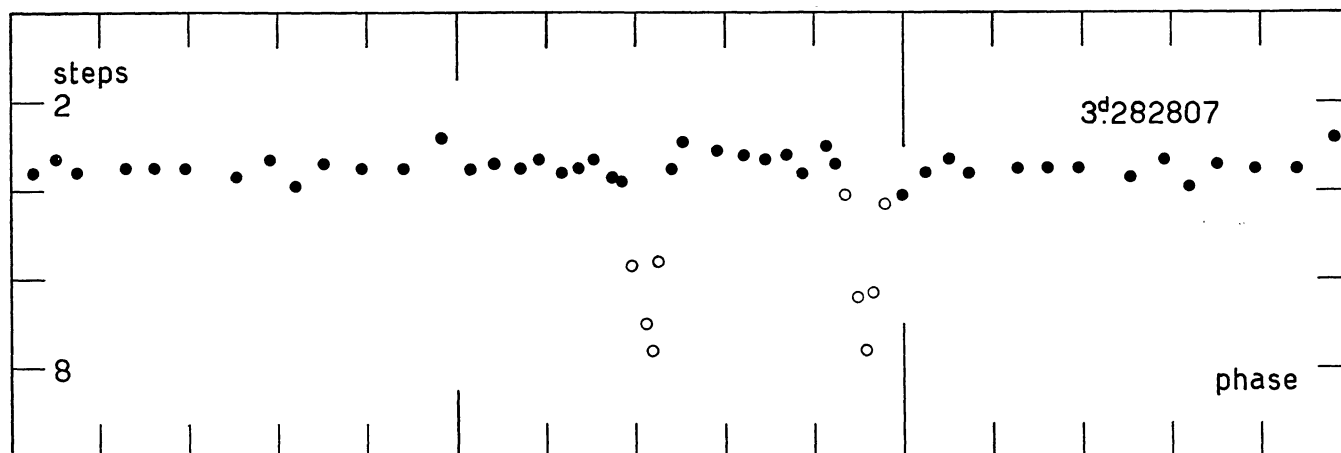
confirmed by the light-curve and as the number of minima was only small, the period remained uncertain.

Dr DE KORT from Vatican Observatory, during a stay at Leiden, showed great interest and, after his return to Rome, examined a great number of plates made by Dr O'CONNELL at the Riverview Observatory. The results have recently been published²⁾ and I should like to refer to that article. Dr DE KORT found that the above-mentioned period should be multiplied by a factor 4, which means that the difference in phase between the minima is .75, giving a minimum value of about .4 for the eccentricity of the orbit.

His conclusion is confirmed by the Leiden material; the results are given below: about 300 plates,

¹⁾ INNES, *Southern Double Star Catalogue*.

²⁾ *Ricerche Astronomiche* 3, 277, 1955.



spread over the time-interval J.D. 2429729–2431678, yielded 6 minima. The mean light-curve has been constructed with the period of DE KORT by means of the formula:

$$\text{phase} = .3046174 \text{ (J.D. Hel.-2420000)}$$

Open circles in the sketch refer to points of lower weight.

It may be expected that an apsidal motion will be measurable after not too long a time and for this purpose the star will probably be put on a photoelectric programme of Tonantzintla Observatory, Mexico. The data concerning this star are given below.

It is perhaps of interest to refer to a rather similar

case, namely that of RU Mon¹⁾. Spectral type, period, range and phase difference between the minima are approximately the same and in both cases no appreciable difference in depth between the minima exists.

Finally I wish to acknowledge the pleasant and valuable contact I had with Dr DE KORT and I should like to thank Dr P. AHNERT from Sternwarte Sonneberg, who has kindly examined a number of Windhoek plates of this region on my request, as well as Mr VAN WOERDEN from the Leiden Observatory, who performed some photoelectric measurements at the Leiden Southern Station.

¹⁾ *Astronomische Nachrichten* **235**, 225, 1929.

HD 163708 = h 5000, Sp. Ao, Phot.metr. magn. 6^m.80

Co-ordinates 1950: $\alpha = 17^{\text{h}}55^{\text{m}}48^{\text{s}}$, $\delta = -36^{\circ}56'.6$

Estimated (photographic) range: ^m.5

Period: 3^d.282807, Epoch of first min: J.D. 2431344.^d442

„ „ second „ 45.263

Average phase of first min: .715, of second min: .960

Comparison star a: HD 163900, Sp. B8, Phot.m.magn. 6.98^m

„ „ b: HD 164321, „ B8, „ „ 7.32

Julian dates of the observed:

first minima second minima

^d ^d
2430553.303 2430557.369

30576.279 31322.261

31285.328 31345.263