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**ELEMENTS FOR 10 RR LYRAE STARS**

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These stars were discovered and reported to be of RR Lyrae type by Boyce & Huru hata (1942), Hoffmeister (1966, 1967) and Nielsen (1932). Except some remarks concerning the type of variability (see details below), no further observations or ephemeris have been published until today. Photographic plates of a field centered at  $\alpha$  Oph, taken with the Sonneberg Observatory 40-cm Astrographs during three intervals spread over the years from 1964 to 1994, were used to investigate the behaviour of these objects (see Table 1).

The given elements were obtained by means of least-squares solutions. Photographic amplitudes were derived with respect to magnitudes of the comparison stars given in Table 2. An extensive list holding the times of maxima derived can be retrieved as 5888-t3.txt, using the link in the HTML version of this paper. Individual data are available upon request.

*Remarks:*

*NSV 9097*

Type of variability (eclipsing) described by Boyce and Huru hata (1942) is erroneous.

*NSV 9320*

Right ascension coordinate given in the paper of Boyce & Huru hata (1942) is erroneous. The object is placed approximately 2 minutes westwards.

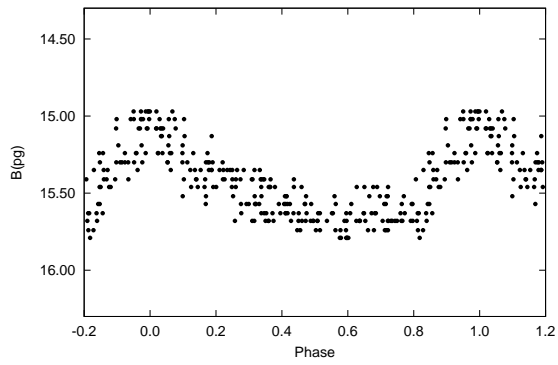
*NSV 9539*

Nielsen (1932) reported the star to be short periodic.

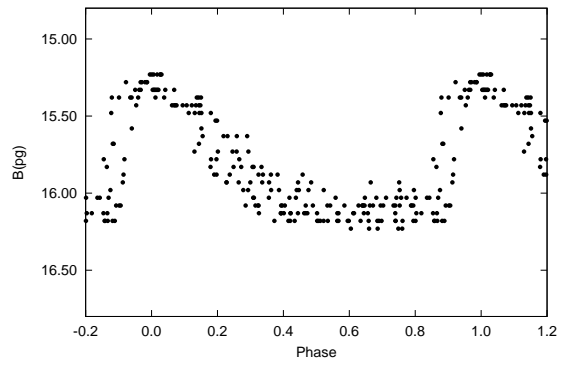
This research made use of the SIMBAD data base, operated by the CDS at Strasbourg, France.

References:

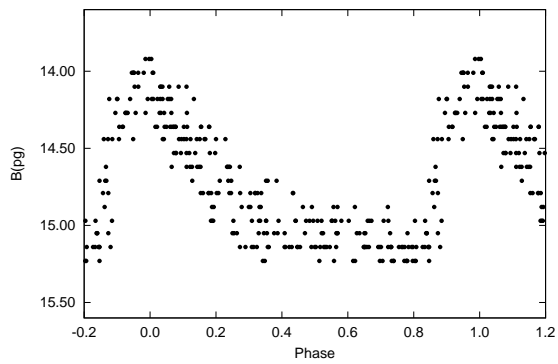
- Boyce, E.H., Huru hata, M., 1942, *Harvard Annals*, **109**, 19  
Hoffmeister, C., 1966, *Astron. Nachr.*, **289**, 1  
Hoffmeister, C., 1967, *Astron. Nachr.*, **290**, 43  
Nielsen, A.V., 1932, *Astron. Nachr.*, **244**, 255



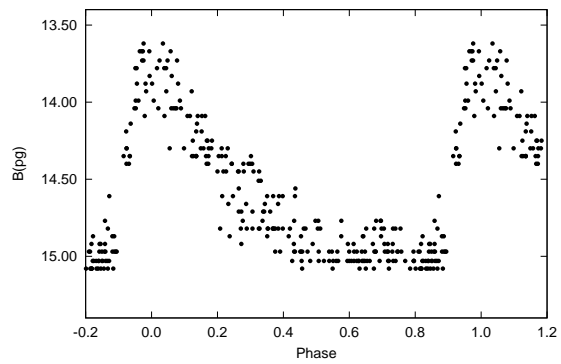
**Figure 1.** Light curve of NSV 8671



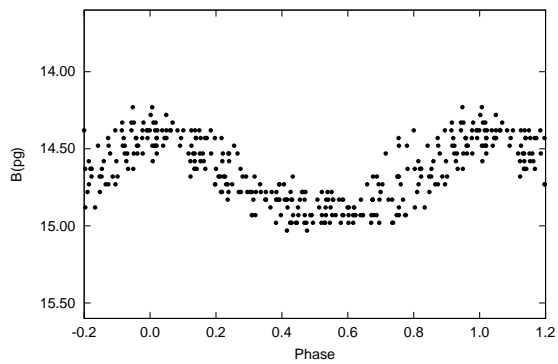
**Figure 2.** Light curve of NSV 8744



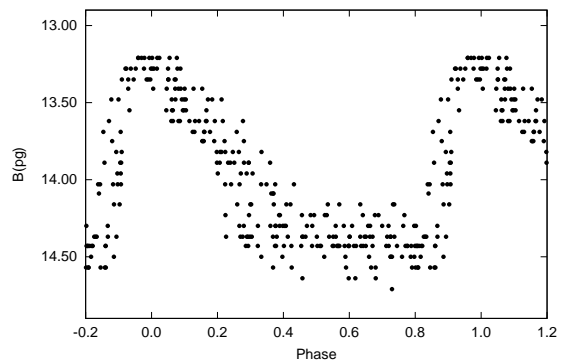
**Figure 3.** Light curve of NSV 8887



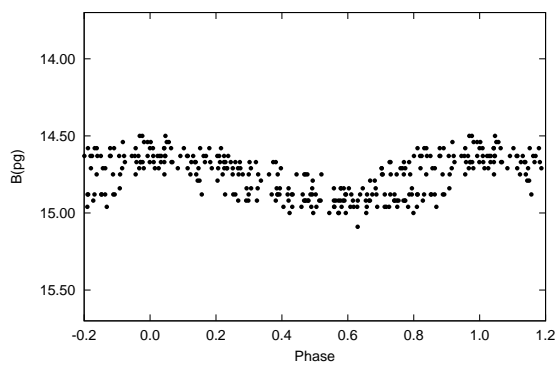
**Figure 4.** Light curve of NSV 9027



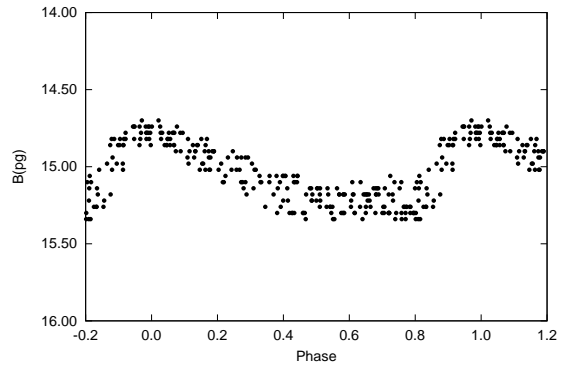
**Figure 5.** Light curve of NSV 9097



**Figure 6.** Light curve of NSV 9298



**Figure 7.** Light curve of NSV 9320



**Figure 8.** Light curve of NSV 9480

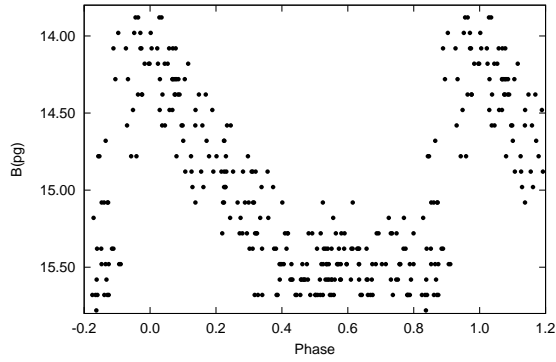


Figure 9. Light curve of NSV 9539

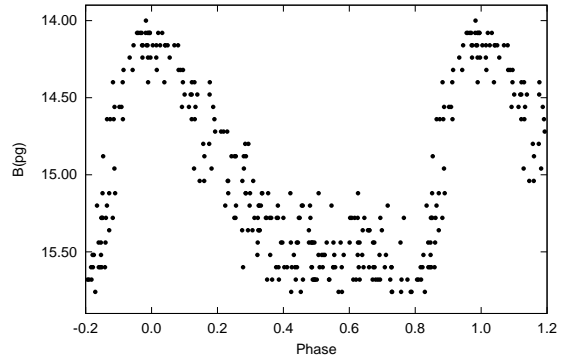


Figure 10. Light curve of NSV 9545

Table 1. Summary of this paper

Star	Type	Epoch 2400000+	Period (day)	Max.	Min.	$M - m$	No. of Plates
NSV 8671	RRab	49484.497 $\pm 8$	0.5440685 $\pm 7$	15 <sup>m</sup> 0	15 <sup>m</sup> 7	0 <sup>p</sup> 21	262
NSV 8744	RRab	48804.460 $\pm 7$	0.5780904 $\pm 7$	15 <sup>m</sup> 3	16 <sup>m</sup> 1	0 <sup>p</sup> 19	214
NSV 8887	RRab	49486.504 $\pm 8$	0.5155322 $\pm 7$	14 <sup>m</sup> 0	15 <sup>m</sup> 0	0 <sup>p</sup> 20	271
NSV 9027	RRab	49193.454 $\pm 10$	0.5373109 $\pm 8$	13 <sup>m</sup> 7	15 <sup>m</sup> 1	0 <sup>p</sup> 18	275
NSV 9097	RRc	49219.347 $\pm 15$	0.4688085 $\pm 11$	14 <sup>m</sup> 4	14 <sup>m</sup> 9		264
NSV 9298	RRab	49213.325 $\pm 8$	0.4780908 $\pm 6$	13 <sup>m</sup> 3	14 <sup>m</sup> 5	0 <sup>p</sup> 18	286
NSV 9320	RRc	49133.467 $\pm 10$	0.3888318 $\pm 5$	14 <sup>m</sup> 6	14 <sup>m</sup> 9		255
NSV 9480	RRab	49133.456 $\pm 10$	0.5901416 $\pm 10$	14 <sup>m</sup> 8	15 <sup>m</sup> 3	0 <sup>p</sup> 25	254
NSV 9539	RRab	49482.464 $\pm 6$	0.4783094 $\pm 5$	13 <sup>m</sup> 9	15 <sup>m</sup> 6	0 <sup>p</sup> 22	266
NSV 9545	RRab	49482.408 $\pm 6$	0.4767289 $\pm 4$	14 <sup>m</sup> 1	15 <sup>m</sup> 6	0 <sup>p</sup> 22	264

Table 2. Comparison stars and cross references

		NSV 8671		NSV 8744	
		S 8615		S 8616	
		USNO 0975-09209323		USNO 0975-09230699	
Comp. No.	USNO	$m^*$	USNO	$m^*$	
1	0975-09208744	14 <sup>m</sup> 8	0975-09236057	15 <sup>m</sup> 0	
2	0975-09204518	14 <sup>m</sup> 9	0975-09230081	15 <sup>m</sup> 7	
3	0975-09208491	15 <sup>m</sup> 5	0975-09233260	15 <sup>m</sup> 9	
4	0975-09209389	15 <sup>m</sup> 7			
		NSV 8887		NSV 9027	
		HV 10950		HV 10959	
		USNO 0975-09268884		USNO 0975-09304132	
Comp. No.	USNO	$m^*$	USNO	$m^*$	
1	0975-09269261	13 <sup>m</sup> 8	0975-09309205	13 <sup>m</sup> 7	
2	0975-09265427	14 <sup>m</sup> 6	0975-09309459	14 <sup>m</sup> 1	
3	0975-09267386	15 <sup>m</sup> 0	0975-09304972	14 <sup>m</sup> 8	
4	0975-09270705	15 <sup>m</sup> 5	0975-09307002	15 <sup>m</sup> 2	
		NSV 9097		NSV 9298	
		HV 10962		S 9815	
		USNO 0975-09326486		USNO 0975-09458804	
Comp. No.	USNO	$m^*$	USNO	$m^*$	
1	0975-09324780	14 <sup>m</sup> 2	0975-09459171	13 <sup>m</sup> 2	
2	0975-09325882	14 <sup>m</sup> 6	0975-09451418	13 <sup>m</sup> 6	
3	0975-09325117	14 <sup>m</sup> 8	0975-09457655	14 <sup>m</sup> 1	
4			0975-09453484	14 <sup>m</sup> 4	
		NSV 9320		NSV 9480	
		HV 10997		HV 11013	
		USNO 0975-09467795		USNO 0975-09528437	
Comp. No.	USNO	$m^*$	USNO	$m^*$	
1	0975-09474144	14 <sup>m</sup> 5	0975-09530343	14 <sup>m</sup> 7	
2	0975-09469966	15 <sup>m</sup> 0	0975-09530465	15 <sup>m</sup> 0	
3			0975-09530506	15 <sup>m</sup> 5	
		NSV 9539		NSV 9545	
		384.1931		S 8624	
		USNO 0975-09567576		USNO 0975-09574756	
Comp. No.	USNO	$m^*$	USNO	$m^*$	
1	0975-09567070	13 <sup>m</sup> 8	0975-09575791	14 <sup>m</sup> 4	
2	0975-09569476	14 <sup>m</sup> 5	0975-09568785	14 <sup>m</sup> 6	
3	0975-09570224	15 <sup>m</sup> 1	0975-09577141	15 <sup>m</sup> 2	
4	0975-09568033	15 <sup>m</sup> 8	0975-09578372	15 <sup>m</sup> 8	

\* Magnitudes refer to the  $B$  values of the USNO–A2.0 catalogue