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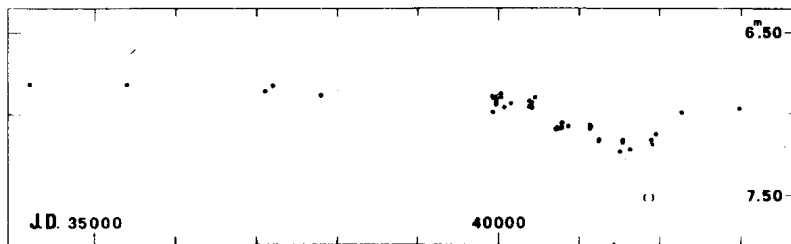
LIGHT VARIATIONS OF THE JOHNSON'S STANDARD STAR BD +3°4065

The Be star BD +3°4065 has been observed repeatedly from 1968 to 1976 with the 40 cm refractor of the Teramo Observatory in the course of a routine program of observation of standard stars as a part of a general photometric program. The star, which is listed in the Johnson's catalogue (Johnson and Harris, 1954) with the V magnitude 6.82, appeared during the last 8 years to fade slowly from 6.9 to 7.2 and then to recover its primary brightness (the result of an observation yielding the magnitude 7.51 is to be considered doubtful being based on a single measure).

The magnitude given in the Johnson's catalogue may be roughly located at the epoch 1952 ± 1 year; other magnitude determinations have been picked out from the literature (Mendoza, 1958; Cousins and Stoy, 1963; Johnson and Borgman, 1963; Nekrasova et al., 1965). All these magnitudes are listed in the Table together with the determinations performed at Teramo; the mean accuracy of the Teramo magnitudes is ± 0.03 . The light curve shows slow fluctuations between 6.8 and 7.2. The spectrum of the star is recorded in the catalogue of B stars with bright hydrogen lines (Merrill and Burwell, 1933) as B2se; Cousins and Stoy classified it as B0.5 IV. According to Rosino (1976) on a plate obtained at the Asiago Observatory in May 1976 with a dispersion of 60 Å/mm the spectrum belongs to the class B0 Ib with H α in emission; all the other lines appear as sharp absorptions and no evidence of P Cygni effect has been found.

The presence of light fluctuations in some Be stars is since long known: the cases of P Cygni, θ CrB, and γ Cas which undergo brightness fluctuations of a few tenths show how difficult and deceiving is the attempt of analysing the light curve (see f.i. De Groot, 1968).

The discordance between the luminosity classification stated by Cousins and that observed by Rosino is rather puzzling. Nevertheless the g character of the spectral lines was already reported by Merrill and Burwell, moreover Mendoza states that with some certainty



Light curve of BD +3°4065 from 1952 to 1976.

Table
Photoelectric Observations of BD +3°4065

J.D. 24	V	B-V	Source	J.D. 24	V	B-V	Source
34200:	6.82	+02	Johnson & Harris	40710	7.10	+07	Present
35400:	6.82	.02	Mendoza	40735	7.09	.07	Comm.
37100:	6.86	.03	Cousins & Stoy	40769	7.09	.08	"
37200:	6.83	.02	Nekrasova et al.	40774	7.06	.06	"
37800:	6.89	.03	Johnson & Morgan	40782	7.06	.05	"
39928	6.89	.01	Present Comm.	40794	7.09	.05	"
39940	6.90	.03	"	40866	7.08	.07	"
39941	7.00	.10	"	41134	7.09	.09	"
39968	6.91	.07	"	41144	7.07	.08	"
39970	6.93	.04	"	41151	7.08	-	"
39972	6.95	.05	"	41244	7.17	.07	"
39973	6.91	.02	"	41250	7.17	.05	"
39985	6.90	.02	"	41502	7.23	.10	"
40029	6.88	.02	"	41536	7.17	.04	"
40035	6.90	.04	"	41544	7.16	.06	"
40066	6.96	.03	"	41628	7.22	.10	"
40151	6.94	.03	"	41863	7.51	.06	"
40388	6.96	.07	"	41893	7.16	.06	"
40389	6.92	.07	"	41902	7.19	.06	"
40416	6.97	.06	"	41955	7.13	.04	"
40418	6.96	.06	"	42276	6.99	.06	"
40420	6.93	.06	"	42988	6.97	-	"
40454	6.90	.04	"				

The dates marked with a colon are uncertain within a few hundreds of days.

the luminosity classes of the stars of a list including BD+3°4065 lie between III and V on the MK system even though accurate luminosity classification had not been attempted.

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