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VARIABLE NATURE OF Be STARS

In an earlier communication, we (Kilambi et al., 1986) had reported the photoelectric variable nature of six B-emission line stars, HR 1508, HR 1789, HR 2538, HR 2996, HR 5193 and HD 45677 observed through Red and near Infra-red passbands of the Johnson's system. In continuation of it, we are reporting the variable/non-variable nature of the remaining B-emission line objects observed during 1982-83 observing season.

The observational procedure, the extinction correction and the standardization procedure followed are already published in the previous communication by Kilambi et al. (1986). Table I gives the observations of these stars and the columns are self explanatory. The mean internal probable error of a single measurement in 'R' and (R-I) is ± 0.02 and ± 0.03 , respectively.

A few of the programme stars were observed earlier by Johnson (1965, 1966), Mendoza (1958) and Feinstein and Marraco (1979) on the standard RI system. These observations are also incorporated in the determination of variable/ non-variable nature of the stars.

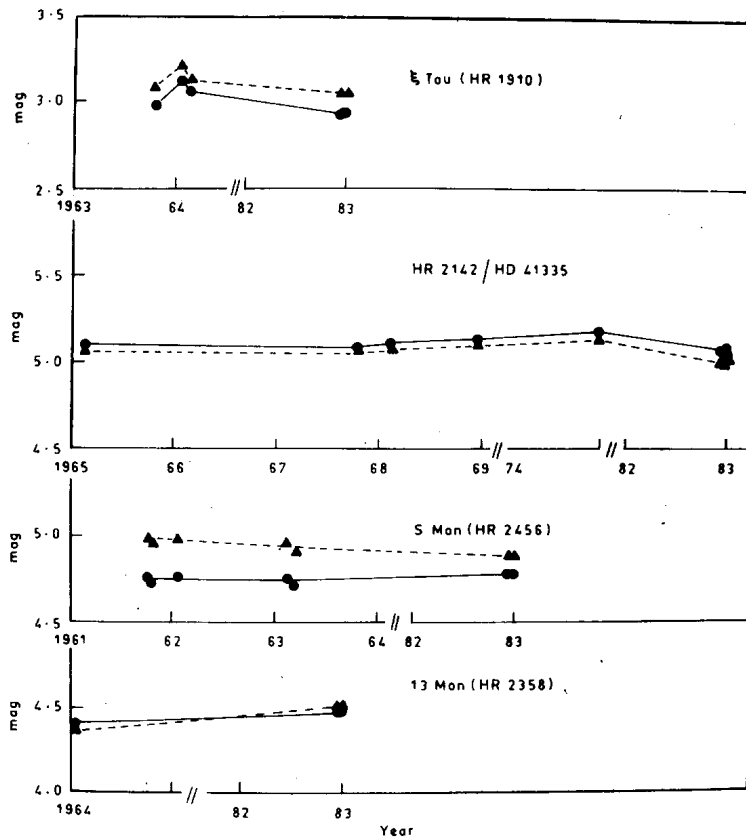
TABLE I

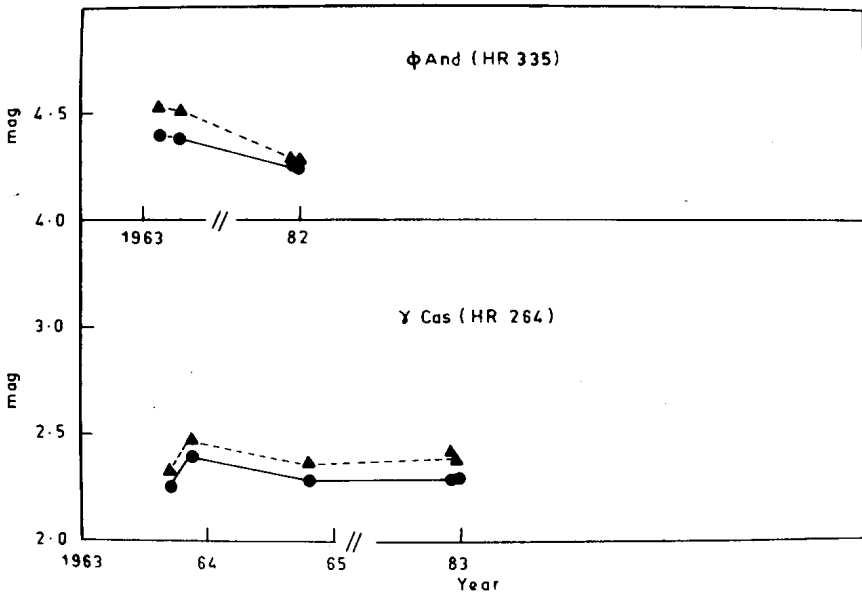
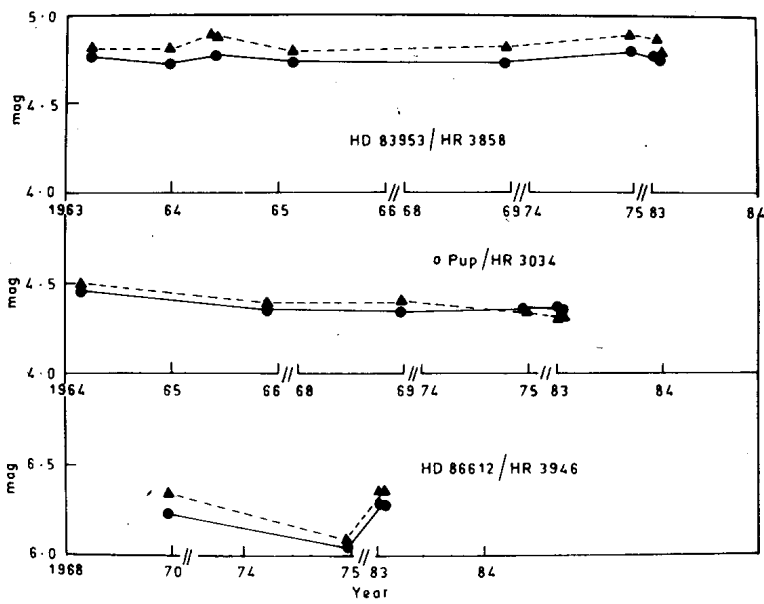
<u>Star</u>	<u>Spectral</u> <u>type</u>	<u>Heliocentric</u> <u>Date of observation</u> (J.D. 2440000 +)	<u>R</u>	<u>(R-I)</u>
Phi And	B7 Ve	5315.1150	+ 4.26	-0.00
HR 335		5315.1160	4.25	0.00
HD 6811				
Y Cas	B0 1Ve	5315.1027	2.30	-0.11
HR 264		5315.1036	2.30	-0.08
HD 5394				
Phi Per	B2 Ve	5315.1232	3.92	0.01
HR 496		5315.1238	3.91	0.03
HD 10516				
HR 985	B2.5 Ven	5315.1684	5.11	-0.05
HD 20336		5315.1689	5.10	-0.03

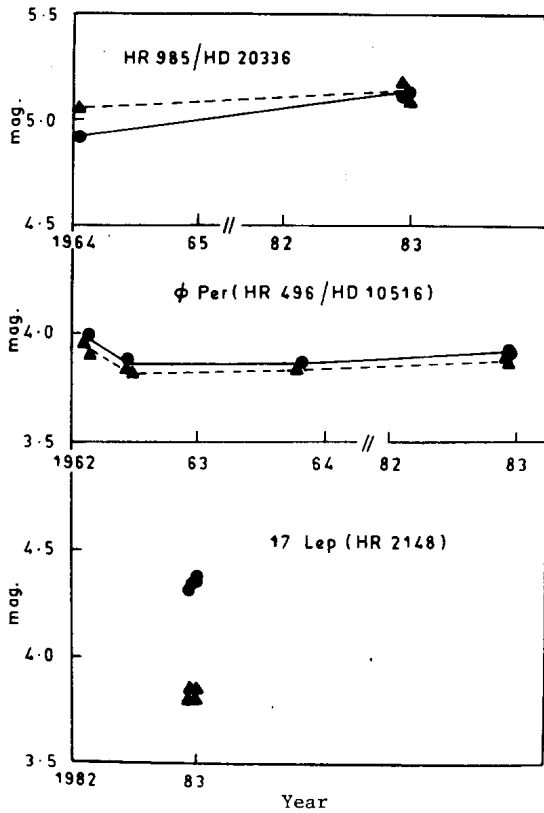
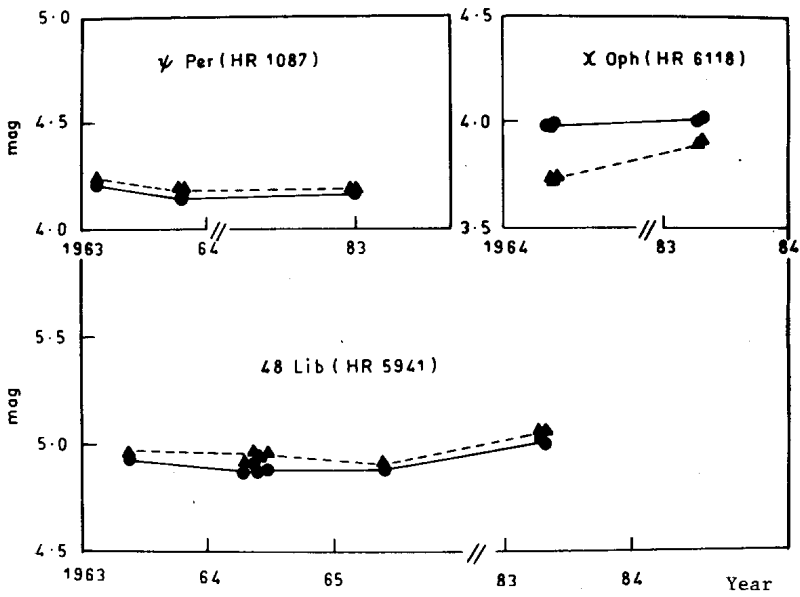
<u>Star</u>	<u>Spectral type</u>	<u>Heliocentric Date of observation (J.D. 2440000 +)</u>	<u>R</u>	<u>(R-I)</u>
Psi Per	B5 Ve	5315.1756	4.18	-0.01
HR 1087		5315.1764	4.18	-0.01
HD 22192				
AB Aur	B9q	5356.2660	6.95	+0.03
HD 31293		5356.2667	6.95	+0.03
HD 31648	A2q	5356.2778	7.56	+0.06
		5356.2789	7.55	+0.07
Zeta Tau	B2IIIe	5315.3055	2.94	-0.11
HR 1910		5315.3062	2.94	-0.11
HD 37202				
HD 37806	AOe	5356.3151	7.82	-0.01
		5356.3158	7.84	-0.04
HR 2142	B2Ve	5315.3359	5.06	+0.05
		5315.3366	5.05	+0.06
		5324.3636	5.08	+0.04
		5324.3643	5.08	+0.04
17 Lep	AO + M1	5315.3422	4.34	+0.54
		5315.3428	4.34	+0.54
		5324.3925	4.36	+0.50
		5324.3931	4.35	+0.50
13 Mon	AO	5324.4027	4.50	-0.02
HR 2385		5324.4033	4.50	-0.02
HD 46 300				
S Mon	O7f	5324.4104	4.78	-0.11
HR 2456		5324.4114	4.78	-0.11
HD 47839				
HD 50138	B6 IIIe	5356.3702	6.72	+0.06
		5356.3707	6.72	+0.05
Omicron Pup	B0V pe:	5356.3882	4.37	+0.06
HR 3034		5356.3887	4.37	+0.07
HD 63462				
HR 3858	B5e	5356.3980	4.78	-0.09
HD 83953		5356.3986	4.74	-0.04
HR 3946	B5e	5356.4048	6.30	-0.07
HD 86612		5356.4053	6.29	-0.08
HR 4123	B9Ven:	5356.4111	5.62	-0.06
HD 91120		5356.4124	5.63	-0.02
Zeta Crv	B8e	5437.3371	5.26	-0.14
HR 4696		5437.3378	5.25	-0.12
HD 107348				
Theta CrB	B6Vnne	5437.3543	4.12	-0.16
HR 5778		5437.3549	4.12	-0.16
HD 138749				
4Her	B7e	5437.3959	5.77	-0.17
HR 5938		5437.3970	5.78	-0.18
HD 142926				

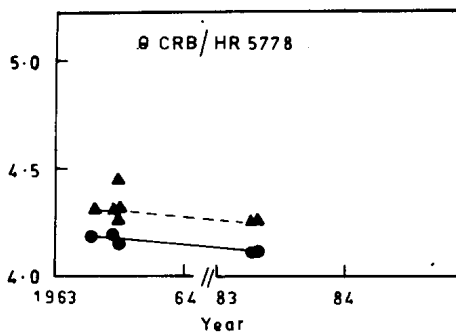
<u>Star</u>	<u>Spectral</u>	<u>Heliocentric</u> <u>Date of observation</u> (J.D. 2440000 +)	<u>R</u>	<u>(R-I)</u>
48 Lib	B5 IIIpe	5437.4063	4.93	-0.13
HR 5941		5437.4068	4.93	-0.13
HD 142983				
Chi Oph	B2 IVpe	5437.4135	4.00	+0.11
HR 6118		5437.4142	4.00	+0.09
HD 148184				
HD 259431	B5e	5356.3363	8.22	+0.21
		5356.3370	8.22	+0.21

Figure 1-16: Variable/non-variable nature of Be stars.
Red magnitudes (filled circles), infra-
red magnitudes (filled triangles).







REMARKS :

- HR 335 : Slightly brighter than 1963 observations.
- HR 264 : No change in brightness, but yet reported as a variable with $V = 1.6 - 3.0$ in the literature.
- HR 496 : No change in brightness since early 1962. Double-lined spectroscopic binary with $P = 126.7$ days.
- HR 985 : More or less constant in brightness.
- HR 1087 : No change in brightness in both R, I passbands.
- HR 1910 : The present observations are comparable with that of late 1963 measurements, eventhough, some fainter values were recorded in the early part of 1964. Single-lined spectroscopic binary with $P = 132.91$ days and reported as variable with $V = 2.9 - 3.0$.
- HR 2142 : No change in brightness.
- HR 2358 : No change in brightness.
- HR 2456 : No change in brightness.
- HR 3034 : Eventhough, it was fainter in the early part of 1964, but brightened in late 1966 and since then, maintained more or less constant brightness.
- HR 3858 : No change in brightness except for minor fluctuations.
- HR 3946 : The present R, I magnitudes agree with that of early 1970 observations, eventhough, it was brighter by almost 0.2 in 1975.
- HR 5778 : No change in brightness.
- HR 5941 : No change in brightness, but reported as variable with $V = 4.8 - 5.0$ in the literature.
- HR 6118 : No change in brightness in R passband but, slightly fainter in I passband.

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References :

- Feinstein, A and Marraco, R.G., 1979, *Astron. J.* 84 , 1713.
- Johnson, H.L., 1965, *Astrophys. J.* 141 . 923.
- Johnson, H.L., 1966, *Comm. Lunar and Planetary-Labs.*, 4 , 99.
- Kilambi, G.C., Vivekananda Rao, P. and Sarma, M.B.K., 1986, *I.B.V.S*, No. 2950.
- Mendoza, V. E.E., 1958, *Astrophys. J.* 128 , 207.