

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 2589

Konkoly Observatory
Budapest
18 September 1984
HU ISSN 0374 - 0676

NEW PHOTOMETRY OF THE ECLIPSING BINARY 5 CETI

Discovery of the variability of 5 Ceti (actually in the constellation Pisces, also known as HR 14), based on V-band photometry in 1979 and 1980, was reported by Lines and Hall (1981). In this note we present additional photometry obtained in 1981 and 1983/84 and make all the data available to others who may wish to solve the light curve of this interesting late-type apparently contact eclipsing binary with an orbital period of almost 100 days.

In 1981 Lines used the same telescope to observe in V of the UBV system on 46 nights between JD 2444803.95 and 2444928.68, again using 29 Psc as the comparison star. Nightly means are plotted in Figure 1, where phase has been computed with the ephemeris given by Lines and Hall (1981). Nightly means of these 1981 data and the (not previously published) 1979 and 1980 data are tabulated in Tables I and II.

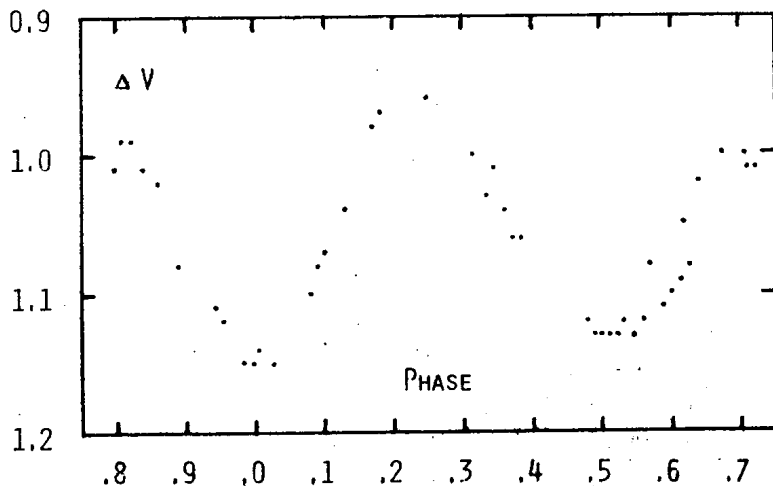


Figure 1

The 1981 light curve of Lines discussed in the text. In two instances, in secondary minimum, points overlap and cannot be distinguished.

Table I
Photometry of 5 Ceti for 1979 and 1980

JD 2,444,000	ΔV	JD 2,444,000	ΔV	JD 2,444,000	ΔV
138.78	1.07	445.92	0.96	523.74	1.09
139.78	1.06	455.91	1.07	530.74	1.01
158.78	0.99	457.89	1.12	531.75	1.02
159.75	1.00	458.90	1.11	532.74	1.00
162.75	1.03	459.90	1.13	535.73	0.97
168.72	1.12	460.92	1.15	536.72	0.97
171.70	1.15	462.91	1.17	537.72	0.99
174.69	1.16	467.92	1.18	539.69	0.98
175.67	1.19	468.89	1.16	541.71	0.98
177.68	1.18	470.87	1.14	542.71	0.98
178.67	1.17	473.86	1.10	543.69	0.99
186.65	1.06	482.86	0.98	557.68	1.16
187.68	1.04	483.85	0.98	559.66	1.16
190.66	0.99	485.86	0.96	560.64	1.16
191.69	1.00	489.88	0.95	562.64	1.18
193.75	0.98	493.85	0.99	563.65	1.17
194.64	0.97	502.78	1.06		
201.63	0.95	509.81	1.13		
202.65	0.97	510.81	1.12		
203.60	0.97	511.79	1.13		
204.62	0.99	512.77	1.12		
214.62	1.08	513.78	1.13		
215.62	1.08	514.76	1.13		
217.65	1.09	515.75	1.13		
218.59	1.12	516.74	1.13		
220.60	1.11	517.75	1.13		
221.64	1.12	518.74	1.13		
222.61	1.13	519.73	1.12		
		521.74	1.11		
		522.74	1.10		

Table II
Photometry of 5 Ceti for 1981

JD 2,444,000	ΔV	JD 2,444,000	ΔV
803.95	1.13	868.81	0.97
804.94	1.13	875.79	0.96
805.95	1.12	881.78	1.00
808.96	1.12	883.73	1.03
809.94	1.08	884.77	1.01
814.95	1.05	885.76	1.04
816.95	1.02	886.75	1.06
819.95	1.00	887.75	1.06
822.90	1.00	897.75	1.12
832.92	0.99	898.73	1.13
833.93	0.99	899.72	1.13
835.91	1.01	900.72	1.13
837.88	1.02	901.71	1.13
840.88	1.08	903.70	1.13
845.89	1.11	908.69	1.11
846.89	1.12	909.69	1.10
849.87	1.15	910.72	1.09
850.86	1.15	911.69	1.08
851.89	1.14	919.67	1.01
853.81	1.15	920.66	1.01
858.85	1.10	928.68	1.01
859.85	1.08		
860.84	1.07		
863.83	1.04		
867.82	0.98		

In the last quarter of 1983 and the first quarter of 1984 Boyd observed in the UBV system on 32 nights between JD 2445621.79 and 2445710.6, using the automatic photoelectric telescope described by Boyd, Genet, and Hall (1984a) and HD 315 as the comparison star. Although not plotted here, the data have been discussed by Boyd, Genet, and Hall (1984bc) and have been sent to the I.A.U. Commission 27 Archive for Unpublished Observations of Variable Stars (Breger 1982) where they are contained in files no. 131 and no. 136.

From this collection of data we can estimate three times of mid primary eclipse. From the combined 1979 and 1980 data we used the Pogson method to get $JD\ 2444176.5 \pm 0.2^d$; this time was taken as the initial epoch of the ephemeris given by Lines and Hall (1981). From the 1981 data we again used the Pogson method to get $JD\ 2444851.5 \pm 0.5^d$. From the 1983/84 data we have only one observation near primary minimum, $JD\ 2445621.8$, which could be uncertain by roughly one day. The most recent two times give O-C residuals which are consistent with their uncertainties, indicating that a refinement of the 96.41^d period is not necessary at this time.

RICHARD D. LINES

6030 North 17th Place
Phoenix, Arizona 85016

LOUIS J. BOYD

Fairborn Observatory West
629 North 30th Street
Phoenix, Arizona 85008

RUSSELL M. GENET

Fairborn Observatory East
1247 Folk Road
Fairborn, Ohio 45324

DOUGLAS S. HALL

Dyer Observatory
Vanderbilt University
Nashville, Tennessee 37235

References:

- Boyd, L. J., Genet, R. M., and Hall, D. S. 1984a, I.A.P.P.P. Communication No. 15, 20.
Boyd, L. J., Genet, R. M., and Hall, D. S. 1984b, I.B.V.S. No. 2511.
Boyd, L. J., Genet, R. M., and Hall, D. S. 1984c, I.B.V.S. No. 2561.
Breger, M. 1982, I.B.V.S. No. 2246.
Lines, R. D. and Hall, D. S. 1981, I.B.V.S. No. 2013.