

COMMISSION 27 OF THE I. A. U.
 INFORMATION BULLETIN ON VARIABLE STARS
 Number 921

Konkoly Observatory
 Budapest
 1974 September 5

Veröffentlichungen der Remeis-Sternwarte Bamberg
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 Band X, Nr. 111
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 Contribution No. 46

NEW SOUTHERN VARIABLE STARS

On sky patrol plates taken at the Southern Station of the University of Florida, Gainesville and the Remeis-Sternwarte, Bamberg, located at the Mount John Observatory, New Zealand, the 13 stars of the following list were found to be variable (10 new stars and 3 confirmations of stars in the Catalogue of Suspected Variables).

For the first time in 1973, simultaneous plates were taken in two colors on Kodak 103a-O (blue sensitive) and Kodak 103a-E (red sensitive). Thus estimates of color or spectral type can now be made, which aids in variable type identification.

The brightnesses of these stars were estimated by comparison with standard stars in the Harvard-Groningen Atlas, Selected Areas (1965, A. Brun and H. Vehrenberg). Red photographic magnitudes are marked with an asterisk (*).

Finding charts, 1° in declination, with south up, are also given.

BV-Nr.	RA	Dec.	Maximum Brightness	Ampl. pg	Remarks
	1900.0		pg		
BV 1609 Lep =	5 ^h 14 ^m 50 ^s	-13°56'7"	12.0*	4 ^m 0 ^x	1
	= CSV 544 =	Ross 351			
BV 1610 Lep =	5 ^h 18 ^m 06 ^s	-13°53'6"	12.2*	0.6	2
BV 1611 Lep =	5 19 40	-14 11.5	11.6*	0.5	3
BV 1612 Ori =	5 19 45	-10 44.8	11.7	0.5	4
BV 1613 Lep =	5 21 09	-14 28.9	11.6*	2.9	5
BV 1614 Ori =	5 22 04	-09 18.7	11.5*	2.1	6
BV 1615 Lep =	5 56 27	-12 12.1	13.4*	0.2	7
BV 1616 Lep =	6 05 10	-13 05.9	11.6*	4.5 ^x	8
	= CSV 717 =	Ross 354			
BV 1617 Mon =	6 ^h 18 ^m 26 ^s	-10°02'3"	12.4	1.2	9
BV 1618 Mon =	6 22 10	-10 11.7	13.6	1.1	10
BV 1619 CMa =	6 43 12	-13 33.0	12.1	1.3	11
	= CSV 873 =	S 3773			
BV 1620 CMa =	6 ^h 44 ^m 18 ^s	-16°28'3"	13.4	0.1	12
BV 1621 CMa =	BD-16°1860(8 ^m 0)	=	HD 56429 (AO)	0.6	13

*Amplitude until plate limit (15^m5)

Remarks:

1) BV 1609 is a long period variable with the following maxima:

JD	RA	JD	RA	JD	RA
243 9054.521		243 9083.476		244 0539.336	
9059.510		9768.578		0590.336	
9060.506		9769.588		0591.335	
9082.466		244 0585.343		1980.134	

2) BV 1610 is an Algol-type eclipsing binary with a small color difference - probably an early F star. The following minima were found.

JD 243 9054.521 JD 244 2035.969
 9060.507 2038.960

3) Much structure is evident in the light curve of BV 1611, with many more minima than maxima. Although much past information exists for this star, efforts failed to yield a period.

4) BV 1612 had small amplitude variation in 1973 ($O^m_{2-0.5}$). It was at least 3^m fainter in 1965 (below the plate limit). It reappeared faintly in October 1966 with more small amplitude variation.

5) BV 1613 is probably a Mira type variable, whose minima are below the plate limit on blue plates. Efforts failed to yield a period.

6) BV 1614 shows many more minima than maxima.

7) BV 1615 is a late type eclipsing binary which is below the plate limit in the blue at minimum.

8) BV 1616 is an eclipsing binary with a long period probable.

9) BV 1617 is prominent on the red plates, but just above the plate limit on the blue plates.

10) BV 1618 is a late type eclipsing binary.

11) BV 1619 is an RR-Lyrae type variable, whose preliminary ephemeris can be given by $\text{Max} = \text{JD } 243 \text{ } 8739.506 + O^d_{452239} \pm 0.000007$

The following maxima were found:

Maximum	E	O-C	Maximum	E	O-C
JD 243 8739.506	0	O^d_{000}	JD 243 9118.455	838	$-O^d_{028}$
8759.432	44	0.027	9139.378	884	0.093
8768.403	64	-0.046	9167.324	946	-0.001
8797.329	128	-0.064	9181.285	977	-0.059
8798.322	130	0.026	9444.539	1559	-0.009
8812.271	161	-0.046	9450.515	1572	0.089
8813.271	163	0.050	244 0566.508	4040	-0.047
8817.269	172	-0.023	0685.015	4302	-0.027
8818.268	174	0.072	0709.951	4357	0.037
8822.266	183	0.000	2039.047	7296	0.000

No other periods between O^d_3 and 53^d_6 were found.

12) BV 1620 is just east of a star of similar brightness which makes a good comparison star. The variable was much fainter in 1965 until regaining the 1973 level in November 1966. Small amplitude variations are superimposed on this long term variation.

13) BV 1621 is probably an eclipsing system with only two minima observed, JD 243 8814.270; JD 244 2038.045.

Bamberg, August, 1974

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