COMMISSION 27 OF THE I.A.U.

INFORMATION BULLETIN ON VARIABLE STARS

Nos. 0201-0300

1967 May – 1968 October

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Konkoly Observatory
Budapest
22 May 1967

PHOTOELECTRIC HELIOCENTRIC MINIMA OF ECLIPSING VARIABLES

	Minimum	m.e.	Col.	Epoch	O - C
DO Cas = BD +59°529					
	2437960.5047	±0.0003	y	+ 5892.0	-0.0044
	7960.5045	3	b	5892.0	46
VW Cep = BD +75°752					
	2439348.4145	±0.0002	y	+19575.0	-0.0302
	.4144	3	b	"	- .0303
	348.5543	12	y	19575.5	- .0295
	.5548	5	b	"	- .0290
	350.3623	1	y	19582.0	- .0306
	.3626	1	b	"	- .0303
	350.5031	2	y	19582.5	- .0290
	.5033	1	b	"	- .0288
	351.3385	6	y	19585.5	- .0285
	.3383	11	b	"	- .0287
	364.5574	3	y	19633.0	- .0297
	.5575	3	b	"	- .0296
	370.4027	3	y	19654.0	- .0290
	.4035	2	b	"	- .0282
	372.3512	2	y	19661.0	- .0287
	.3514	4	b	"	- .0285
	372.4898	3	y	19661.5	- .0293
	.4910	7	b	"	- .0281
	373.3242	4	u	19664.5	- .0298
	375.4124	1	y	19672.0	- .0290
	.4125	2	b	"	- .0289
	.4128	5	u	"	- .0286
	375.5512	2	y	19672.5	- .0294
	.5506	4	b	"	- .0300
	.5504	6	u	"	- .0302

Minimum	m.e.	Col.	Epoch	O - C
AR Lac = BD +45°3813				
2439376.4924	±0.0003	y	+ 911.0	-0.0087
.4928	3	b	"	- .0083
383.4384	7	y	914.5	- .0039
.4389	8	b	"	- .0034
W UMa = BD +56°1400				
2438849.4311	±0.0005	b	+6707.0	+0.0021
.4311	5	y	"	+ .0021
851.4331	4	b	6713.0	+ .0022
.4322	8	y	"	+ .0013
853.4351	9	b	6719.0	+ .0024
.4348	3	y	"	+ .0021
9187.4068	3	y	7720.0	+ .0021
187.5735	2	y	7720.5	+ .0019
205.42297	08	b	7774.0	+ .0018
205.5906	4	b	7774.5	+ .0026
206.42408	07	u	7777.0	+ .0020
531.38784	07	y	8751.0	+ .0019

The O - C's refer to the Ephemerides of the International Supplement to the Rocznik Astronomiczny - Obs. Krakowskiego - No 37, 86, 1965.

Trieste Observatory
May, 1967

B. CESTER

COMMISSION 27 OF THE I. A. U
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Konkoly Observatory
Budapest
23 May 1967

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Band VI, Nr. 50

ELEMENTS FOR FOUR BAMBERG VARIABLES

BV 495 = CoD $-31^{\circ}6443(9^{m}.5)$ = HD 74 352 (A3)

Min = JD 242 7844.475 + $1^{d}.123\ 745$. E

Minima	E	O - C
242 7844.541(S)	0	+0.066
8807.600(S)	857	+0.076
8813.605(S)	862.5	-0.100
8849.579(S)	894.5	-0.086
8875.462(S)	917.5	-0.049
8880.535(S)	922	-0.033
8893.443(S)	933.5	-0.048
.498(S)	933.5	+0.007
8912.595(S)	950.5	0.000
243 4544.251(S)	5962	+0.008
8406.502	9399	-0.052
8467.250	9453	+0.014
.295(1/2)	9453	+0.059
8472.288(3/4)	9457.5	-0.005
8499.221(1/2)	9481.5	-0.042
8503.217	9485	+0.021
8796.422(1/2)	9746	-0.072
8813.360	9761	+0.010
8822.356	9769	+0.016
8844.293(1/2)	9788.5	+0.040
9181.375(1/2)	10088.5	-0.001

Ampl. $0^{m}.45$, with a deep (3/4) secondary minimum, EB or EA

BV 505 = CoD -32°8937($9^m.3$) = CAP -32°3303($9^m.8$) ; b = +29°

Max = JD 242 7892.550 + $5^d.210\,35$. E

Maxima	E	O - C
242 7892.457(S)	0	-0.093
7923.339(S)	6	-0.473
8330.249(S)	84	+0.030
.322(S)	84	+0.103
8336.316(S)	85	+0.886
8357.271(S)	89	+1.000
243 8204.230	1979	+0.397
8443.531	2025	+0.022
8474.463	2031	-0.308
8490.405	2034	+0.003
8500.396	2036	-0.427
8521.340	2040	-0.324
8547.287	2045	-0.429
8818.537	2097	-0.117
8855.414	2104	+0.288
8880.372	2109	-0.806
8902.303	2113	+0.283
8933.214	2119	-0.068
9230.410	2176	+0.138
9235.365	2177	-0.117
9240.367	2178	-0.325
9261.309	2182	-0.225
9287.216	2187	-0.369

Ampl. $0^m.90$, minimum by phase 0.5, therefore also EB possible

BV 574 = CoD -44°10742(9.6) = HD 146 241 (Ao)

Min = JD 243 8236.315 + $0^d.635\,79$. E

Minima	E	O - C
243 8223.308(1/2)	-20.5	+0.027
8230.265(3/4)	-9.5	-0.010
8236.273(3/4)	0	-0.042
8471.582(3/4)	370	+0.025
8499.533	414	+0.001
8521.474(3/4)	448.5	+0.007
8528.424(1/2)	459.5	-0.036
8529.424	461	+0.010
8551.376(1/2)	495.5	+0.027
8557.374(3/4)	505	-0.015

Minima	E	O - C
243 8580.290	541	+0.013
8586.293(1/2)	550.5	-0.024
8587.296	552	+0.025
8608.208(1/2)	585	-0.044
8615.211(3/4)	596	-0.035
8616.212(3/4)	597,5	+0.012
8855.555	974	-0.019
8877.491(1/2)	1008.5	-0.018
8884.454(1/4)	1019.5	-0.051
8885.452	1021	-0.004
8906.391(1/4)	1054	-0.047
8914.392(3/4)	1066.5	+0.007
8915.394(1/2)	1068	+0.055
8935.314(1/4)	1099.5	-0.052
8943.288	1112	-0.025
8964.265(3/4)	1145	-0.029
8965.246(3/4)	1146.5	-0.002
8966.260(1/2)	1148	+0.058
9265.404(1/4)	1618.5	+0.063
9270.398(1/2)	1626.5	+0.029
9271.392	1628	+0.011
9293.343(1/2)	1662.5	+0.027
9299.347	1672	-0.009
9300.322(1/2)	1673.5	+0.012
9314.303(1/2)	1695.5	+0.006
9315.301(1/4)	1697	+0.050
9342.219(1/4)	1739.5	-0.053
9343.219	1741	-0.006

Ampl. $0^{m}.55$, with a very deep (3/4) secondary minimum, EB or EW

BV 574 : extreme high maxima

about the phase 0.25	about the phase 0.75
243 8205.333	243 8204.327
8233.262	8248.215
8254.226	8502.526
8505.485	8562.334
8605.254	8604.253
8917.361	8606.225
8933.354	8613.209
8940.312	8911.384
9319.263	8932.350
	9318.271

BV 805 = CoD -37°3645($8^m.8$) = HD 60 099(B9)

Min = JD 242 8789.650 + $1^d.468565$. E

Minima	E	O - C
242 8778.653(S,1/4)	-7.5	+0.017
8789.640(S)	0	-0.010
8806.599(S,1/4)	11.5	+0.061
8814.579(S,3/4)	17	-0.037
.607(S)	17	-0.009
8845.513(S)	38	+0.058
.541(S,3/4)	38	+0.096
8892.420(S)	70	-0.030
8895.362(S)	72	-0.025
2434255.624(S)	3722	-0.025
4323.383(S)	3768	+0.180
4336.422(S)	3777	+0.002
4361.350(S)	3794	-0.036
4399.533(S)	3820	-0.035
4483.268(S)	3877	-0.008
.311(S)	3877	+0.035
8354.527(1/4)	6513	+0.113
8379.453(1/2)	6530	+0.074
8443.310(1/4)	6573.5	+0.048
8816.291(1/4)	6827.5	+0.013
8819.268(1/4)	6829.5	+0.053
9125.422	7038	+0.012
9139.378(1/4)	7047.5	+0.016
9150.378	7055	+0.002
9175.288(1/2)	7072	-0.054
9420.544(3/4)	7239	-0.048
9442.542(1/2)	7254	-0.078
9445.540	7256	-0.018
9451.513(1/2)	7260	+0.081

Ampl. $0^m.95$, with a weak (1/4) secondary minimum, EA or EB

(S) = Sonneberg (Miss H. GESSNER)

Remeis Observatory Bamberg, 1967 May 20

W. STROHMEIER

COMMISSION 27 OF THE I. A. U
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NUMBER 203

Konkoly Observatory
Budapest
24 May 1967

NEW FLARE STAR S 10113 AND WITH PROPER MOTION

1855.0	$23^h\,18^m.9$	$+52^\circ\,20'$
1900.0	23 20.9	+52 35

Only one flare is observed so far, 1944 Sep. 12. The observed range is $14^m.5$ - $15^m.5$, but may be considerably more than 1 magnitude with regard to the long exposure time. Several plates show an increase of about $0^m.5$. The comparison of plates from 1945 and 1930 revealed a considerable proper motion of 1" per year in the position angle 64°. A chart will be given in Astronomische Nachrichten Vol. 290 p. 43 ff. The object is recommended for a determination of the parallax.

Sonneberg Observatory

C. HOFFMEISTER

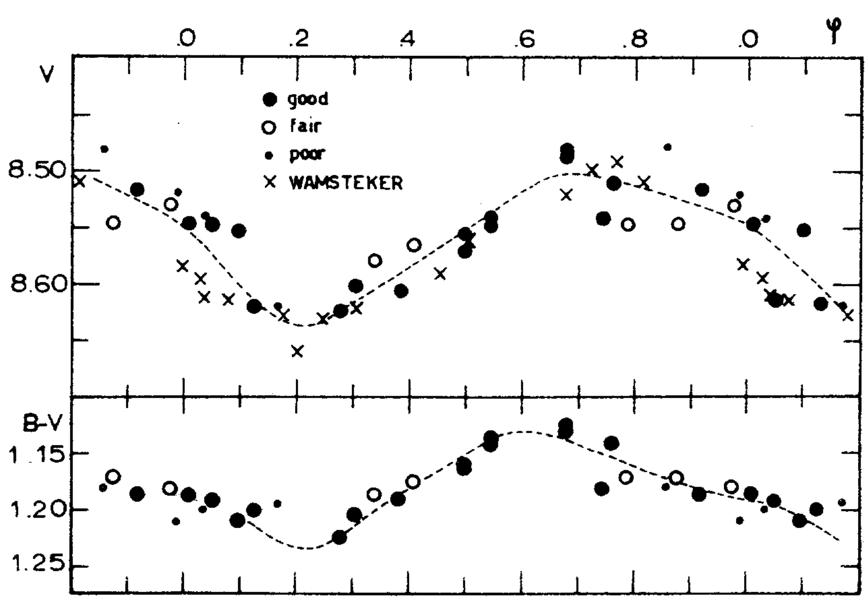
COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS

NUMBER 204

Konkoly Observatory
Budapest
22 May 1967

PRELIMINARY RESULTS OF PHOTOELECTRIC OBSERVATIONS OF RU CAM

The observations were made with a 30 cm-reflector, from Dec. 1966 until April 1967. They fit well Wamsteker's ones of Sept. 1965 - Febr. 1966 (IBVS 128, 1966) both in phase and in range of the variation, adopting V = 9.08 for his comparison star. The mean error in magnitude and in colour, obtained from separate reduction of the data of the comparison stars, are of the order of 0.01 magnitudes. In the Table, Phase = (J.D. -2439000). P^{-1} with P = $22^{d}134$; n = number of individual observations of the variable star.



J. D. 2439000+	Phase	V	B-V	n
481.604	.759	8.509	+1.142	10
494.431	.338	8.578:	1.187:	3
495.375	.381	8.606	1.190	9
503.376	.742	8.541	1.180	7
504.330	.785	8.547:	1.172:	3
506.348	.876	8.546:	1.172:	6
508.500	.974	8.529	1.180:	3
529.385	.917	8.517	1.186	7
531.400	.008	8.547	1.187	9
532.325	.050	8.547	1.194	8
533.333	.096	8.552	1.209	12
537.330	.276	8.623	1.224	11
562.375	.408	8.565:	1.175:	1
564.375	.498	8.570	1.161	8
564.375	.498	8.556	1.162	8
565.356	.542	8.549	1.137	9
565.356	.542	8.542	1.141	9
568.385	.679	8.482	1.128	5
568.385	.679	8.483	1.129	5
572.330	.858	8.48	1.18	6
597.346	.988	8.52	1.21	3
598.355	.033	8.542:	1.20	7
600.375	.125	8.618	1.200	11
601.362	.169	8.62	1.195:	2
604.344	.304	8.601	1.203	10

Compar. star	V	B-V
$+70^{\circ}448$	9.09	+1.09
$+69^{\circ}442$	8.04	+0.80
$+70^{\circ}447$	9.08	+0.31
$+69^{\circ}420$	8.92	+0.51

Trieste Observatory
May, 1967.

B. CESTER

NOTE ON RU CAMELOPARDALIS

We began the observation of RU Cam in the summer of 1966 with the aid of the UBV photometer on the 24" reflector. Since August 10 the variable star was observed for a total of 149 nights, together with the comparison star BD +70°448.

The time interval between two successive light minima fluctuated in the 13 cycles observed by us between $20^d.5$ and $24^d.2$ around a mean cycle length of $21^d.8$. At the beginning the amplitude in V was about $0^m.10$, later it decreased to $0^m.07$, reaching its minimum value in November 1966. Since then the amplitude was increasing slowly, and after some fluctuations it reached the value $0^m.20$. Simultaneously the amplitude in B - V increased from $0^m.04$ to $0^m.11$. Also the median brightness of the different cycles was liable to fluctuations amounting to $0^m.06$.

Chester's observations published above are in accord with ours. Supplementary observational material is needed for the following time intervals: J.D. 2439427 - 438, 440 - 454, 472 - 476, 494 - 501, 548 - 553, 625 - 635.

The observed amplitude-increase seems to be in agreement with our prediction in IBVS 152, p. 4, still we intend to continue the observation of the star.

Konkoly Observatory, Budapest

L. DETRE
B. SZEIDL

NEW VARIABLE STARS IN HERCULES

On plates taken with the 24-inch Schmidt telescope three new variable stars with large amplitude were found.

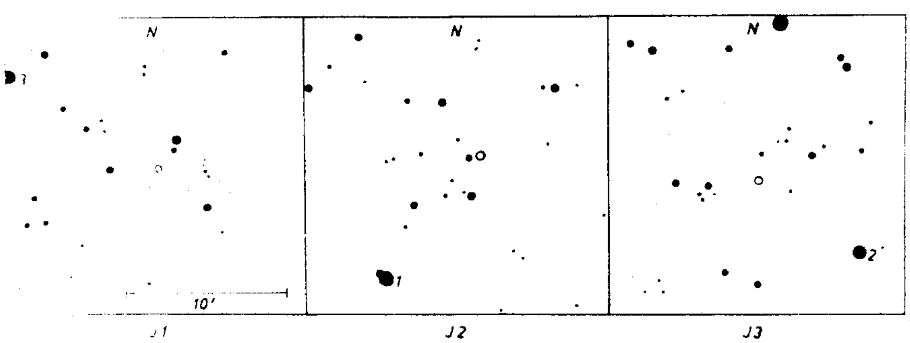
	RA (1950)	D	Max	Min	type
J1	$18^h16^m55^s$	$+22°06'.1$	$15^m.0$	$>19^m$	Mira
J2	18 17 36	+22 32.9	13.4	>19	Mira?
J3	18 21 57	+23 36.0	16.1	>19	?

In the column "Max" the brightest observed magnitudes in B-colour are given. In minimum, the stars are fainter than our plate limit.

On the copies of the Palomar Sky Survey J1 is red, spectral type K.

At the following dates, the stars appeared bright:

J1:	J.D.	243 4896 (Palomar Sky Survey)		J2:	243 9266
		8642		J3:	243 8583
		9299			8642
		9557			9299



1. BD +22°3336 2. BD +23°3325 3. BD +22°3335

University Observatory, Jena

S. HANFT

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 205

Konkoly Observatory
Budapest
8 June 1967

ON THE PERIOD OF THE BLAZHKO-EFFECT IN RZ LYRAE

The amplitude of the RRab variable RZ Lyrae changes periodically between 0.7 and 1.2 magnitudes in visual light. The following moments for the maxima and minima of the amplitude have been compiled from all available data from 1909 to 1966. The majority of the moments were determined on the basis of the original observations. Those taken from literature sources are asterisked.

Max. J.D.	O-C	Min. J.D.	O-C	N	Observer
2418430	$+3^d$	2418486::	0^d	-108	A. Nijland
8541	0	8600:	0	-107	"
8658:	+2	8714:	0	-106	"
8772	-2			-105	"
2426150:	+11			- 41	G. Lange
		2426195::	-3	- 41	V. Tsessevich
6246::	-9			- 40	"
		6552:	+6	- 38	"
6600:	-3	6677+	+15	- 37	"
6939::	-11	7005::	-4	- 34	"
		8400::	-2	- 22	A. Saloviev
		2430605+	-9	- 3	V. Tsessevich
2430911!	+6	0960!	-4	0	"
1027:	+5			+ 1	"
		1203!	+6	+ 2	"
1257!	+2	1320:	+6	+ 3	"
		2473+	-9	+ 13	"
3480:	+4	3524!	-6	+ 22	A. Batyrev, L. Klepicova
3835:	+7			+ 25	L. Klepicova, V. Tsessevich
		3890!	+4	+ 25	A. Batyrev, L. Klepicova
4647:	-1			+ 32	L. Klepicova
		6110::	-6	+ 44	V. Tsessevich
		7174!	-1	+ 53	Yu. Migach, Yu. Romanov, V. Tsessevich
7230:	-4			+ 54	Yu. Migach, Yu. Romanov
		9306	+8	+ 71	G. Lange
9360!	+2	9404:	-12	+ 72	"

The O-C's are residuals from the following elements fitting most exactly the moments listed:

$$\text{Max. J.D.} = 2430904.3 + 116.654N + 0.01034N^2$$

$$\text{Min. J.D.} = 2430963.6 + 116.654N + 0.01034N^2$$

These elements indicate a lengthening of the secondary period of RZ Lyrae.

Odessa Astronomical Observatory
March, 1967

Yu. ROMANOV

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COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 206

Konkoly Observatory
Budapest
12 June 1967

SUPERNOVA IN NGC 3389

Photographic magnitudes of the supernova discovered by A. D. Chuadze and independently by M.Lovas were determined on plates taken with the 24" Schmidt-telescope. A photographic scale in the vicinity of the galaxy was produced by transferring the open cluster M 67 to the field. All the observations were made on ORWO-plates ZU 2 through a Schott-filter GG 13 (2 mm). For normal main-sequence stars our magnitudes (b) transform according to the formula

$$B = b + 0.14 (B-V).$$

to the international B system.

The mean error of the magnitudes in about $\pm 0^m.15$, mainly caused by background differences between supernova and undisturbed field.

	U. T. 1967	b		U. T. 1967	b
March	8.1	$13^m,65$	April	10.8	$15^m,90$
	9.0	13, 70		11.8	15, 65
	12,0	14, 10		30.9	16, 20
	12.9	13, 95:	May	7.9	16, 20
	29.8	14, 90		10.9	16, 20
April	7.8	15, 60:		11.9	16, 30

University Observatory, Jena

S. MARX
W. PFAU

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

NUMBER 207

Konkoly Observatory
Budapest
14 June 1967

DR CEPHEI

According to Hoffmeister, Götz (AN. 281, 182, 1935) and Wenzel (MVS 228, 1956) DR Cep is an RW Aurigae type variable. The last author published parts of the light curve showing irregular variations followed by quasi- periodic light changes exhibiting cycles of about 61 days.

About 130 photographic observations with the Lippert Astrograph showed this star to be a 19^d cepheid. 17 maxima have been used to derive the following elements:

$$\text{Max} = 243\ 0704.82 \underset{\pm 13}{} + 19^{d}.06588 \underset{\pm 12}{} E$$

The mean light curve turns out to be very regular without humps. The amplitude amounts to $1^m.7$ and M-m/P = 0.28. As far as the graphical representation of the Sonneberg observations is concerned, given in MVS 228, it looks like there are no contradictions to the above quoted elements.

Hamburg, Bergedorf
1967 June 7.

A. A WACHMANN

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 208

Konkoly Observatory
Budapest
27 June 1967

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Band VII, Nr. 52

ELEMENTS FOR 4 BAMBERG VARIABLES

BV 448 = CoD $-40^{\circ}9496(6^{m}.2)$ = HD 135 876(B8)

Min = JD 243 4532.325 + $2^{d}164\ 175$. E

Minima	E	O - C
243 4532.290(S)	0	-0.035
8196.330	1693	+0.057
8199.312(1/4)	1964.5	-0.208
8475.553(1/2)	1822	+0.101
8499.488(1/4)	1833	+0.230
8501.482	1834	+0.060
8504.482(1/4)	1835.5	-0.186
8528.380(1/2)	1846.5	-0.094
8530.380(1/4)	1847.5	-0.258
8553.329	1858	-0.033
8555.376(1/2)	1859	+0.150
8580.245(1/2)	1870.5	-0.169
8590.249(1/2)	1875	+0.096
8603.212	1881	+0.074
8884.407(3/4)	2011	-0.074
8911.340(1/2)	2023.5	-0.193
8934.302	2034	+0.045
9291.299	2199	-0.047
9315.258(1/2)	2210	+0.106
9318.226(1/4)	2211.5	-0.172

Ampl. $0^{m}.55$, with a deep (2/3) secondary minimum, EB

(S) = Sonneberg, Miss H. GESSNER: For BV 448 only one certain minimum could be found because estimation of bright stars is difficult.

Extreme High Maxima

about phase 0.25	about phase 0.75
243 8471.538	243 8202.290
8521.429	8494.492
8584.246	8520.431
8915.349	8877.446
9259.406	8916.345
9322.215	9232.482
	9321.215

BV 744 = CAP $-57^{\circ}6757(9^{m}.4)$ = HD 129 091(Ao)
(in IBVS 115, 1965 erroneously published as CAP $-57^{\circ}6758(8^{m}.2)$)

Min = JD 243 8195.225 + $3^{d}0872$. E

Minima	E	O - C
243 8195.312(1/2)	0	+0.087
8229.216	11	+0.032
8519.387	105	+0.006
8553.285	116	-0.055
.329	116	-0.011
8556.285(1/4)	117	-0.142
.329(1/2)	117	-0.098
8581.201(3/4)	125	+0.076
8584.202	126	-0.010
.246	126	+0.034
8587.206(1/2)	127	-0.093
8877.402(3/4)	221	-0.094
.446	221	-0.050
8905.310	230	+0.029
.358(3/4)	230	+0.077
8911.340(1/4)	232	-0.115
8939.258	241	+0.018
8942.215(1/4)	242	-0.112
.261(3/4)	242	-0.066
9232.417(1/4)	336	-0.107
.462(3/4)	336	-0.062
9291.255(3/4)	355	+0.074
.299(1/4)	355	+0.118
9294.253	356	-0.015
.297	356	+0.029

Ampl. $0^{m}.75$. without secondary minimum (A)

BV 745 = CAP -56°6410($10^m.0$) = CoD -56°5577($10^m1/4$)

Min = JD 243 8499.300 + $4^d.4095$. E

Minima	E	O - C
243 8197.361(1/2)	-68.5	+0.112
8499.443(1/2)	0	+0.143
.488(1/4)	0	+0.188
8501.438(1/2)	0.5	-0.067
.482(1/2)	0.5	-0.023
8521.384	5	+0.036
.429(3/4)	5	+0.081
8583.201(1/2)	19	+0.121
8605.208	24	+0.080
8878.405(3/4)	86	-0.112
8887.358	88	+0.022
.403	88	-0.067
8940.219	100	-0.031
.265	100	+0.015
9178.452(1/2)	154	+0.089
.494(1/4)	154	+0.131
9180.446(1/2)	154.5	-0.122
.488(1/2)	154.5	-0.080
9200.387	159	-0.023
.428	159	+0.018
9209.360(1/2)	161	+0.130
9235.410(1/4)	167	-0.276
.456(1/4)	167	-0.230
9319.219(1/4)	186	-0.248

Ampl. $0^m.45$, with a remarkable (1/2) secondary minimum, EB

BV 889 = CAP $-53^{\circ}9500(9\overset{m}{.}2)$ = HD 179 364(A2)

Min = JD 243 8233.575 + $3\overset{d}{.}9445$. E

Minima	E	O - C
243 8233.358(1/2)	0	-0.227
8235.373(1/2)	0.5	-0.174
8253.312	5	+0.014
8257.312	6	+0.070
8261.315	7	+0.129
8265.267	8	+0.136
8267.265(1/2)	8.5	+0.162
8608.343	95	+0.041
8614.237(1/2)	96.5	+0.018
.282(1/2)	96.5	+0.063
.328(1/2)	96.5	+0.109
.346(1/2)	96.5	+0.127
8620.316	98	+0.180
8622.315(1/2)	98.5	+0.207
8971.360	187	+0.164
9318.404	275	+0.092
9320.408(1/2)	275.5	+0.123
9326.373	277	+0.171
9373.238(3/4)	289	-0.298
9377.241(3/4)	290	-0.239

Ampl. $0\overset{m}{.}35$, with a remarkable (1/2) secondary minimum, EB

Remeis-Observatory
Bamberg, June 22, 1967

W. STROHMEIER

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 209

Konkoly Observatory
Budapest
12 July 1967

THE PERIOD OF i BOO IN THE LAST THREE YEARS

As a part of the photoelectric photometry of eclipsing binaries at the Nürnberg Observatory we obtained in the years 1964 to 1967 15 minima of the W UMa variable i Bootis. From these observations I derived 4 normal-minima given in the Table below. The O - C's against the elements in SAC 38 (I) are positive and increasing slowly. Using the method of least squares I derived the new elements (II). The period is in good agreement with that given by H Schneller in AN 288, 183 for the time after 1960 ($0^d_.26781417$). The period of i Boo seems to have been constant for the last eight years.

Min.: J.D. 243 7365. 5641 + $0^d_.267813$. E (I)

Min.: J.D. 243 8513. 4166 + $0^d_.2678143$. E (II)

Minima	O - C (I)	O - C (II)
243 8513.4165	+ $0^d_.0059$	- $0^d_.0001$
882.4663	+ 0.0094	+ 0.0016
9261.4198	+ 0.0075	- 0.0021
671.4470	+ 0.0130	+ 0.0014

Nürnberg Observatory,

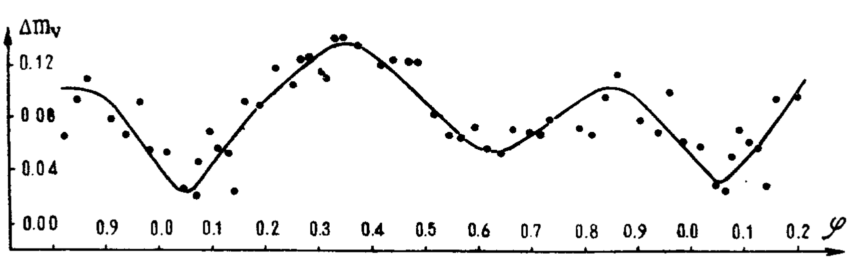
E. POHL
85 Nürnberg, Lützowstr. 10
Western Germany

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 210

Konkoly Observatory
Budapest
15 July 1967

PERIODICITY OF THE LIGHT VARIATION OF P CYGNI

P Cyg has been regularly observed at Abastumani from 1951 photoelectrically, in B and V up to 1960 and in UBV from 1963 onwards. A periodic variation has been revealed, the period being $0^{d}.500656$. The light variation seems to be of the W U Ma type, with amplitudes $0^{m}.10$ and $0^{m}.08$ for the primary and secondary minima, respectively. The secondary minimum is shifted relative to the median point between two successive main minima. The heights of maxima are not equal, the differences reach to about $0^{m}.03$. The light curve suffers variations from one cycle to the other, the periodic variations of eclipse character being disturbed by irregular variations. Probably this unstability of the light curve is responsible for the significant dispersion in the U magnitudes. The mean light curve in V, related to the period for 1951-1960, is shown in the Figure



The phases are calculated according to the following elements:

$$\text{Min.} = \text{J.D. } 243\ 6048.321 + 0^{d}.500656\ E.$$

Abastumani Astrophysical Observatory

N. L. MAGALASHVILI
E. K. KHARADZE

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 211

Konkoly Observatory
Budapest
27 July 1967

NOVA SCUTI 1961

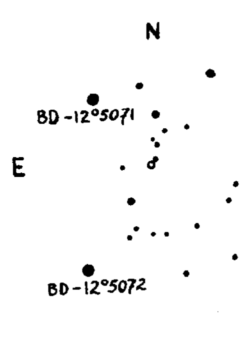
In the course of a survey of red objective prism plates (103aE + RG2), taken with the Lembang Schmidt telescope, for H-alpha emission objects, a star with very strong H-alpha emission and almost invisible continuum, was noticed on a plate taken on May 22, 1961. This very strong H-alpha emission is confirmed on 4 other red spectral plates taken on May 24, 27 and June 9, 15, 1961. However, on a red spectral plate taken on August 22, 1962, no H-alpha emission is visible at all.

This star has the coordinates:

$$\text{R.A.} = 18^h\ 21^m\ 36^s;\ \text{Dec.} = -12^\circ\ 24'.1;\ (1855).$$

In the finding chart given below, the star is indicated by a circle.

Unfortunately, no direct plates were taken in the period of May-June, 1961. The first direct plate taken of this region is on July 13, 1961, exposure 10 min, which shows that the star has a visual magnitude V = 15.4 magn., as compared with an existing magnitude sequence in the galactic cluster NGC 6649. Another visual direct plate taken on September 10, 1961, shows that the star is about one magnitude fainter. On direct plates with limiting V magnitude about 17, taken in 1962, this star is not visible at all. The same is the case on Palomar Sky chart No. E-296, taken on July 30, 1951.



From these facts the conclusion is drawn, that this star is a nova. It is hoped that at other observatories Sky Patrol plates exist of the region of the possible nova, in order to check the above conclusion.

PIKSIN THE,

Bosscha Observatory,
Lembang, Java,
Indonesia.

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 212

Konkoly Observatory
Budapest
29 July 1967

PRE-MAXIMUM OBSERVATIONS OF NOVA DELPHINI 1967

A plate of Nova Delphini 1967 was obtained with the 48-inch Schmidt on Palomar Mountain on July 10 U. T. Comparison of this plate with the prints of the Palomar Sky Survey shows a very blue star of magnitude $12 < V < 13$ at the position of the nova. This star appears slightly brighter on Sky Survey plate 276 obtained in 1951 than it does on plate 831 obtained in 1953 indicating that the pre-nova may have been variable in brightness.

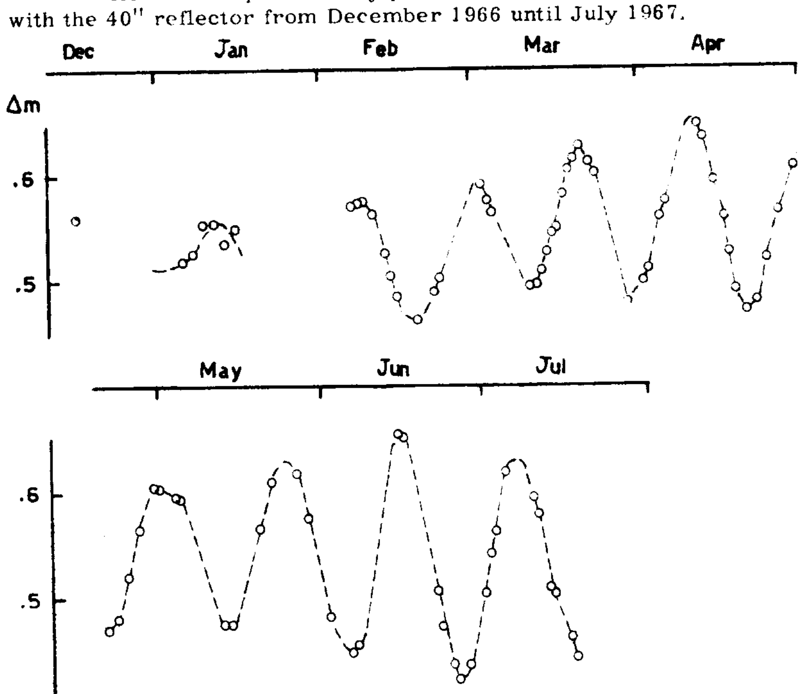
SIDNEY VAN DEN BERGH
RENÉ RACINE

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 213

Konkoly Observatory
Budapest
3 August 1967

ON THE SMALL LIGHT FLUCTUATIONS OF RU CAM

Here is the preliminary photoelectric V light curve obtained with the 40" reflector from December 1966 until July 1967.



The amplitude increases progressively from about $0^{m}.05$ in January to $0^{m}.18$ in April. Thenceforward it decreases to $0^{m}.14$ and again in the two successive cycles it attains $0^{m}.21$. In July the amplitude is $0^{m}.03$ smaller. Also the period and the mean brightness of RU Cam in the different cycles show small fluctuations during the interval of these observations.

Merate Observatory
July 24, 1967

P. BROGLIA

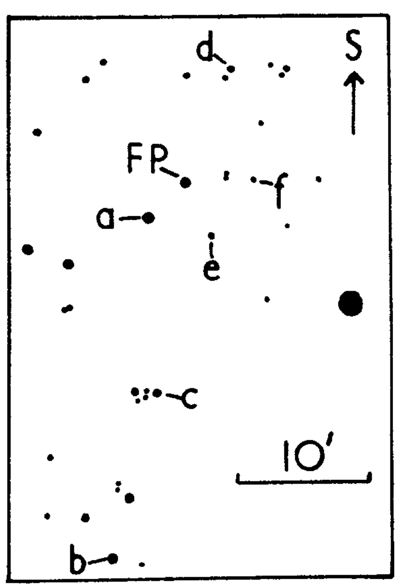
COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 214

Konkoly Observatory
Budapest
10 August 1957

FP CARINAE

The long-period eclipsing binary, FP Carinae, discovered by E. Hertzsprung during a lunar eclipse (1), has a period very nearly six times the moon's synodic period and a minimum of short duration (~ 0.035 P). A series of 103a-0 plates (without filter) was taken with the 10-inch Metcalf refractor of the Boyden Observatory to cover the January 1967 minimum, about 20 years since the last published observations. Blue magnitudes (approximately B on the standard UBV system) were transferred to six comparison stars from Koelbloed's photoelectric sequence in NGC 3532 (2). The bright star in the chart is CPD $-61^{\circ}2067$.

a = $9^{m}.75$
b = 10.10
c = 10.55
d = 11.05
e = 11.30
f = 11.80



The rising branch of the minimum was observed as follows:

J.D. -2439500	B
$5^{d}.0243$	$11^{m}.10$
5.0368	11.15
5.8052	10.95
5.8184	10.85
6.8604	10.10
6.8743	10.25
7.8194	10.15
7.8306	10.25

Using the mean light curves of E. Hertzsprung (3) and S. Gaposchkin (4), the minimum was estimated at:

J.D. 2439503.7

. confirming Gaposchkin's revised elements (5) :

$$\text{Min.} = \text{J.D. } 2421725.048 + 176.^{d}027\ E$$

with $O - C = -0.^{d}1$ at $E = +101$.

Armagh Observatory,
August 1, 1967.

A.D. ANDREWS

References:

1) E. Hertzsprung, B.A.N. Vol. 3, No. 95, 108 (1926).

2) D. Koelbloed, B.A.N. Vol. 14, No. 489, 265 (1959).

3) E. Hertzsprung, B.A.N. Vol. 3, No. 109, 203 (1926).

4) S. Gaposchkin, H.A. Vol. 113, No. 2, 88 (1953).

5) S. Gaposchkin, H.A. Vol. 115, No. 5, 86 (1946).

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 215

Konkoly Observatory
Budapest
11 August 1967

AHOTHER NOVA SCUTI 1961

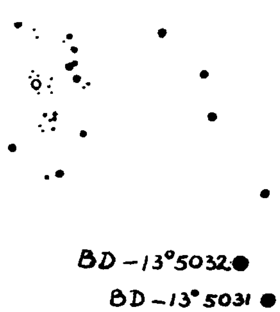
In Information Bulletin on Variable Stars No 211 it was reported that during a survey of H-alpha emission objects on red spectral plates (RG1 + 103aE) a nova had been found. A further examination of newly detected H-alpha emission objects of which the H-alpha emission is very strong with respect to its continuum reveals another nova in the constellation Scutum.

The coordinates of this nova are:

$$R.A. = 18^{h}26^{m}42^{s}; \quad Dec. = 13^{\circ}01'.8 \ (1855).$$

In the finding chart below it is indicated by a circle.

The above conclusion is based on the following observations. On red spectral plates taken on May 24, 27 and June 10, 15, 1961 the H-alpha emission appears very strong. No continuum is visible. On a blue spectral plate (IIaO without filter) which I took about one year later, September 18, 1962, broad emission lines of [OIII] λ 5007, 4959 and 4363 are just visible. My first impression was that this object is a new planetary nebula not detected before. But, subsequently, an inspection of the available direct plates shows that this object varies in light. On a yellow direct plate, GG11 + 103aD, exposed for 10 minutes, taken on July 13, 1961 the nova was of magnitude about 13.2, while on a similar plate taken on July 27, 1962, the visual magnitude was V = 15.1. These visual magnitudes were determined using a photoelectric sequence in NGC 6649. Furthermore, on a similar yellow plate which I took recently on July 26, 1967, the nova is fainter than V = 17 magn., and, finally, on red Palomar Sky chart No. E-296, taken on July 30, 1951, the nova is just visible above the plate limit of 20.0 magn.



It is again hoped that at other observatories Sky Patrol plates exist of the region of the nova in order to study its light variation further.

PIKSIN THÉ
Bosscha Observatory,
Lembang, Java,
Indonesia.

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 216

Konkoly Observatory
Budapest
12 August 1967

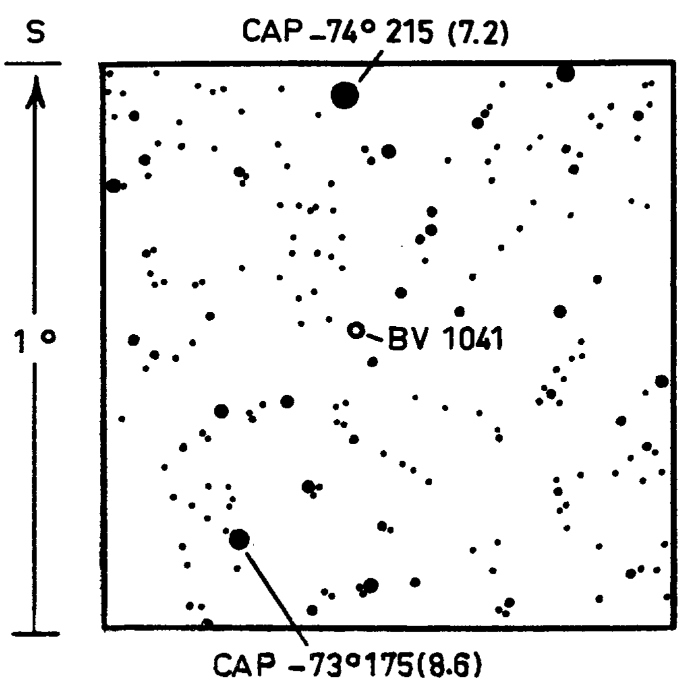
Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Vol. VII, Nr. 54

BRIGHT SOUTHERN BV-STARS

On sky patrol plates of the Bamberg Southern Station 9 further stars were found whose variability seems to be real according to the material available till now.

BV 1008 - BV 1040: vide Veröffentlichungen der Remeis-Sternwarte, Vol. VII, Nr. 51

BV 1041 = CAP -74° 214 ($10^{m}.9$) vide Ident. Chart $A_{pg} = 0^{m}.35$



BV 1042 =	CoD -25° 1359 ($9^{m}.2$) =	CAP -25°416($9^{m}.2$)		$A_{pg} = 0^{m}.30$
BV 1043 =	CoD -38° 1628 ($7^{m}.5$) =	HD 29 087	(A_2)	$A_{pg} = 0^{m}.30$
BV 1044 =	CoD -32° 2754 ($8^{m}.0$) =	HD 41 684	(A_2)	$A_{pg} = 0^{m}.35$
BV 1045 =	BD -9° 1729 ($7^{m}.8$) =	HD 50 982	(B_8)	$A_{pg} = 0^{m}.25$
BV 1046 =	BD -10° 2409 ($9^{m}.1$) =	HD 68 178	(A_2)	$A_{pg} = 0^{m}.45$
BV 1047 =	CAP -73° 616 ($9^{m}.9$)			$A_{pg} = 2^{m}.20$
BV 1048 =	CAP -53° 5703 ($9^{m}.2$) =	HD118 547	(B_9)	$A_{pg} = 0^{m}.35$
BV 1049 =	CoD -50° 10855 ($8^{m}.6$) =	HD151 742	(B_9)	$A_{pg} = 0^{m}.35$

Bamberg, Remeis-Observatory,
July 28, 1967

W. STROHMEIER

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 217

Konkoly Observatory
Budapest
12 August 1967

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Vol. VII, Nr. 55

ELEMENTS FOR BAMBERG VARIABLES

BV 442 = BD -19°3231(9^m.0) = HD 98 412 (F8)

Min = JD 242 5681.425 + 1^d.170 492 . E

Minima	E	O - C
242 5681.395(S)	0	-0.030
5984.617(S)	259	+0.035
6038.450(S)	305	+0.025
6065.379	328	+0.033
6382.484(S)	599	-0.066
6396.551(S)	611	-0.045
6416.446(S)	628	-0.048
6439.369(1/2)	647.5	+0.051
6793.410(S)	950	+0.018
7157.405(S)	1261	-0.010
.440	1261	+0.025
7160.369(S, 1/2)	1263.5	+0.027
7188.351(1/2)	1287.5	-0.082
7483.484(S, 1/2)	1539.5	+0.087
8248.392(S)	2193	+0.078
8626.377(S)	2516	-0.006
8963.456(S)	2804	-0.028
9010.358(S)	2844	+0.054
243 0735.658(S)	4318	+0.048
5903.408(S)	8733	+0.076
6274.431(S)	9050	+0.053
6288.414(S)	9062	-0.010
6584.585(S)	9315	+0.027
610(S)	9315	+0.052

Minima	E	O - C
243 8410.567(S)	10875	+0.041
8464.456(S, 1/2)	10921	+0.088
8471.404	10927	+0.013
.426(S)	10927	+0.035
8505.306	10956	-0.029
8518.258	10967	+0.047
8525.250	10973	+0.016
8801.566(S, 1/2)	11209	+0.096
8822.444(1/4)	11227	-0.095
8828.408	11232	+0.017
8902.213(1/2)	11295	+0.080
9145.574(S)	11503	-0.020
9199.399	11549	-0.038
9259.222(1/2)	11600	+0.090

Ampl. $0^m.50$, with a remarkable (1/2) secondary minimum, EA or EB

BV 696 = CoD $-43^\circ 5607(10^m)$ = CAP $-43^\circ 4026(10^m.2)$

Min = JD 242 8893.475 + $3^d 042\,280$. E

Minima	E	O - C
242 8893.498(S)	0	+0.023
8896.504(S)	1	-0.013
243 4357.485(S)	1796	+0.075
8461.385	3145	-0.061
8516.211	3163	+0.004
8519.209	3164	-0.040
8788.472(1/2)	3252.5	-0.019
8814.402	3261	+0.052
8817.404	3262	+0.012
8820.401	3263	-0.034
8823.392(1/2)	3264	-0.085
9179.412	3381	-0.012

Ampl. $0^m.45$, with a weak secondary minimum, EA

BV 811 = CoD -27°6141($7^m.2$) = HD 77 137 (Go)

Min = JD 242 7154.325 + $1^d.599$ 292 . E

Minima	E	O - C
242 7154.338(S)	0	+0.013
243 8384.556(S)	7022	+0.003
8408.460(1/4)	7037	-0.083
8416.522(S)	7042	-0.017
8461.340	7070	+0.021
8505.217(1/4)	7097.5	-0.083
8739.575(S)	7244	-0.021
8759.516(1/4)	7256.5	-0.071
8772.503(1/4)	7264.5	+0.121
8788.426(1/4)	7274.5	+0.051
8816.380	7292	+0.018
8824.356	7297	-0.003
8841.292(1/4)	7307.5	+0.141
8844.293(1/2)	7309.5	-0.057
8856.257(1/2)	7317	-0.087
.304(3/4)	7317	-0.040
8869.233(1/2)	7325	+0.094
9118.543(1/2)	7481	-0.085
9179.365	7519	-0.037
.401(S)	7519	-0.001
9200.309(1/4)	7532	+0.117
9232.237(1/2)	7552	+0.059

Ampl. $0^m.55$, with a remarkable (1/2) secondary minimum, EB

BV 884 = CoD $-43^{\circ}12674(8^{m}.1)$ = HD 171 577(Ao)

Min = JD 242 8748.350 + $2^{d}.163\,925$. E

Minima	E	O - C
242 8748.335(S)	0	-0.015
8815.351(S)	31	-0.081
243 4240.400(S)	2538	+0.008
4519.511(S)	2667	-0.027
4567.343(S)	2689	+0.199
4569.345(S)	2690	+0.037
4571.479(S)	2691	+0.007
8252.269	4392	-0.040
.315	4392	+0.006
8265.223(1/2)	4398	-0.069
.267	4398	-0.025
8278.226(3/4)	4404	-0.050
8557.462	4533	+0.040
8583.381	4545	-0.008
.426	4545	+0.037
8607.299(1/2)	4556	+0.107
8620.271(1/2)	4562	+0.095
8622.270(1/2)	4563	-0.070
.315(3/4)	4563	-0.025
8633.262(1/2)	4568	+0.103
8940.404	4710	-0.033
9373.238	4910	+0.016

Ampl. $0^{m}.50$, with a very weak secondary minimum, EA

(S) = Sonneberg, H. GESSNER

Remeis Observatory
Bamberg, 1967 August 5

W. STROHMEIER

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 218

Konkoly Observatory
Budapest
14 August 1967

BS 8298 = HD 206632

Photoelectric observations of this bright suspected variable (Chadov, Perem. Zvezdy 15, 600, 1965) show rather irregular variability with a V amplitude of 0.4 and a period about 35^d. Brown (J.B.A.A. 77, 102, 1967) has suspected a period of 422^d, but correlation analysis of his data in fact shows weak evidence of a period of 34^d during 1961-66.

4 CVn

Correlation analysis of photoelectric observations made at Edinburgh and elsewhere gives a period of $0^d.1655$ for this suspected Delta Scuti variable. Light-curves received from a number of observers are being prepared for computer analysis.

Royal Observatory,
Edinburgh
1967 August 7

M.J. SMYTH

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

NUMBER 219

Konkoly Observatory
Budapest
15 August 1967

THE SPECTRUM OF CH CYGNI IN JULY

A spectrogram of CH Cygni has been taken July 15, 1967 at the grating spectrograph of the 77 inch coudè of the Haute Provence Observatory. The dispersion is 9.7 A/mm and the spectral range 3600-5050 A. CH Cygni shows a violet continuum (Lambda < 4000 A) stronger than that of the comparison star 30 Her (M6). About 50 emission lines have been measured: the Balmer series from H Beta to H 14 and the H and K of CaII show P Cygni contours. The He series corresponding to the transition from terms n^3D to 2^3P^o state is present except Lambda 4026; also the HeI metastable lines 5015 and 3888 are present. All these lines show broad emissions. FeII and [FeII] are present with sharp emission lines as pointed out by A. J. Deutsch (Mt. Wilson and Palomar Annual Report page 11, 1963). Emission of MgI 4571, TiII 4468 and 4501, and the nebular line 4068 identified by A. D. Thackeray (M.N. 113, 211; 1953) and by L. H. Aller, T. Dunham Jr. (Ap. J. 146, 126, 1966) in Eta Car as [SII] are present.

ROSANNA FARAGGIANA

BRIGHTNESS VARIATIONS OF CH CYGNI

Photoelectric observations in U, B, V still in progress confirm the communication by Fehrenbach and Marsden about the variations in U brightness. Moreover, same irregular variations are shown in B-light, reaching sometimes about one tenth of magnitude in one or two minutes. Provisional data not yet fully reduced show for the period 30 June-2 August a little decrement of about 0.2 mag. both in V and in B-V.

Trieste Astronomical Observatory
August 1967

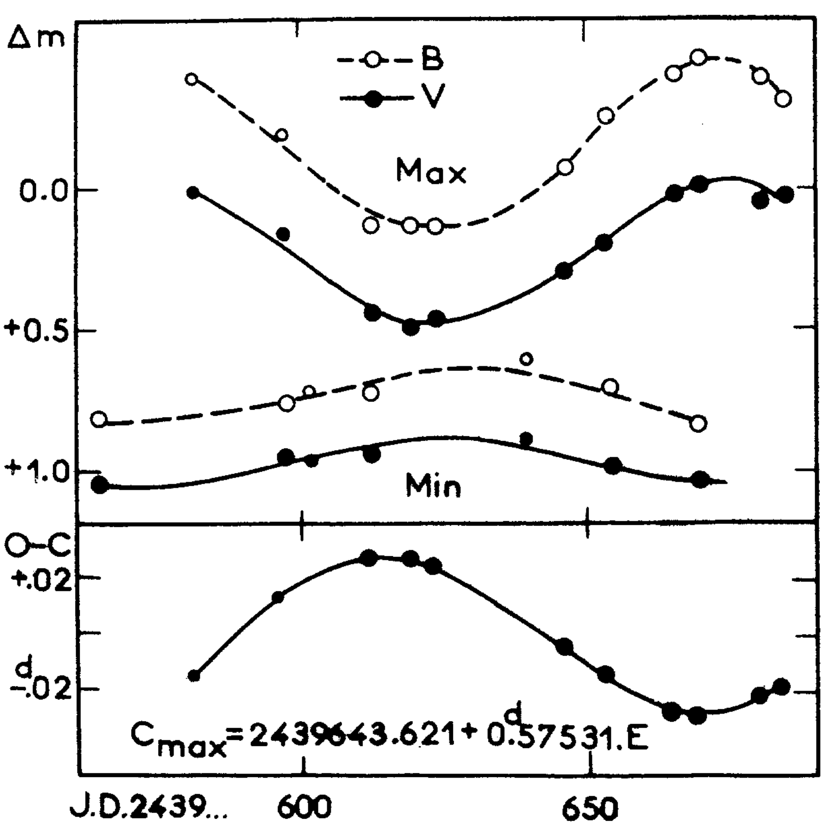
BRUNO CESTER

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 220

Konkoly Observatory
Budapest
16 August 1967

SECONDARY PERIOD OF THE RRab STAR
AR SERPENTIS

This variable star of RR Lyrae type discovered by C. Hoffmeister was investigated by Tsessevitch, who gave the new elements (Astr. Circ. 353. 3):



$$\text{Max. hel.} = 2430472.469 + 0^{d}.575\ 14215 \ . \ E$$

and found strong fluctuations in the period suggesting the presence of Blashko-effect.

This year 960 photoelectric observations have been obtained in blue and yellow with the 24" telescope of the Konkoly Observatory. 11 light maxima were observed, which showed large variations in height and phase.

In the upper part of the Figure the variations in the brightness of the light maxima and light minima are plotted against Julian date. The extreme values of the amplitude are 1.32 and 0.49 mag. in blue, 1.09 and 0.41 mag. in yellow, respectively.

In the lower part of the Figure the phase oscillation of the light maxima (in blue) is shown. Both the amplitude and phase oscillations suggest a secondary period of about 105 days, with the same phase-relation as in the RRab star RV UMa ($P_o = 0^{d}.468$, $P_b = 90^{d}.8$; Budapest Mitt. 34, 1957).

Next year the observations will be continued in order to determine a more exact value for the secondary period.

Konkoly Observatory, Budapest

B. SZEIDL

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 221

Konkoly Observatory
Budapest
18 August 1967

MINIMA OF ECLIPSING VARIABLES - 7

This report continues the one in IBVS No. 180, and contains 85 observed minima of 30 eclipsing variable stars. All are visual timings reduced by the tracing-paper method, except where noted. Linear elements in the 1958 General Catalogue of Variable Stars were used to compute the O - C's, unless otherwise specified. The number of estimates used for each minimum is given under n.

J.D. (2400000)	E	O - C	n	Observer
RT Anromedae				
39445.668	+24,369	-0.024	8	M. Baldwin
39464.551	+24,399	-0.009	14	F. Sanner
39474.597	+24,415	-0.026	16	M. Baldwin
39520.514	+24,488	-0.021	12	R. Monske
WZ Andromedae				
39355.753	+19,316	+0.009	17	L. Hazel
XZ Andromedae				
39421.636	+4,817	+0.058	13	L. Hazel
39474.570	+4,856	+0.058	16	M. Baldwin
39482.714	+4,862	+0.059	31	R. Swanberg
39497.642	+4,873	+0.057	26	R. Swanberg
39501.716	+4,876	+0.059	27	R. Swanberg
39554.650	+4,915	+0.059	24	R. Swanberg
WW Aurigae				
39477.768	+2,461	+0.005	12	M. Baldwin
Y Camelopardalis				
39477.815	+4,551	-0.011	15	M. Baldwin

J.D. (2400000)	E	O - C	n	Observer
SV Camelopardalis				
39440.663	+12,061	-0.023	12	M. Baldwin
39443.637	+12,066	-0.015	14	M. Baldwin
39463.811:	+12,100	-0.005	14	D. Loring
39468.544	+12,108	-0.017	16	F. Sanner
39548.605	+12,243	-0.021	24	F. Chapman
39562.836	+12,267	-0.023	12	D. Loring
39565.801	+12,272	-0.024	13	D. Loring
39568.769	+12,277	-0.021	16	F. Sanner
39580.629	+12,297	-0.023	13	F. Sanner
39612.651	+12,351	-0.027	15	F. Chapman
WW Cancri				
39443.879	+10,721	-0.036	19	L. Hazel
AK Canis Minoris				
39520.713	+25,037	+0.043	22	L. Hazel
RZ Cassiopeiae				
39443.643	+18,480	-0.035	19	M. Baldwin
39449.618	+18,485	-0.037	14	M. Baldwin
39461.578	+18,495	-0.029	20	L. Hazel
39468.745	+18,501	-0.034	23	L. Hazel
39468.738:	+18,501	-0.041	13	R. Swanberg
39474.720	+18,506	-0.035	14	R. Swanberg
39492.647	+18,521	-0.037	22	M. Baldwin
39511.7690	+18,537	-0.0388	69pe	A. Stokes
39559.574	+18,577	-0.044	14	R. Monske
39559.578	+18,577	-0.040	22	D. Lucas
TV Cassiopeiae				
39445.592	+10,663	-0.011	15	R. Monske
AB Cassiopeiae				
39440.792	+10,209	+0.062	26	M. Baldwin
39473.599	+10,233	+0.064	16	M. Baldwin
39477.703	+10,236	+0.068	27	M. Baldwin
39492.732	+10,247	+0.061	29	M. Baldwin

J.D. (2400000)	E	O - C	n	Observer
U Cephei				
39440.789	+12,656	+0.778	28	M. Baldwin
39495.633	+12,678	+0.779	22	M. Baldwin
39500.624	+12,680	+0.784	25	M. Baldwin
39505.605	+12,682	+0.779	19	M. Baldwin
Z Draconis				
39606.596:	+4,669	+0.012	16	D. Livingston
39610.665:	+4,672	+0.009	32	D. Livingston
SZ Herculis[1]				
39361.745:	+2,732	+0.014	18	R. Swanberg
39608.805	+3,034	+0.009	24	L. Hazel
39613.717	+3,040	+0.012	10	T. Cragg
UX Herculis				
39591.844	+12,729	-0.026	19	L. Hazel
SW Lacertae				
39451.565	+50,134	+0.050	13	R. Monske
39468.716	+50,187.5	+0.043	15	R. Swanberg
39469.678	+50,190.5	+0.043	18	F. Chapman
T Leonis Minoris				
39529.709	+5,190	-0.069	24	L. Hazel
Y Leonis				
39531.727	+3,465	+0.036	24	L. Hazel
39536.789	+3,468	+0.040	24	L. Hazel
39548.590	+3,475	+0.038	18	R. Monske
39558.704	+3,481	+0.036	27	M. Baldwin
39558.705	+3,481	+0.037	20	L. Hazel
39580.621	+3,494	+0.034	17	R. Monske
39580.624	+3,494	+0.037	20	L. Hazel
39585.683	+3,497	+0.038	20	F. Chapman
39590.745	+3,500	+0.041	17	T. Cragg

J.D. (2400000)	E	O - C	n	Observer
FL Orionis				
39442.909	+4,870	+0.062	9	M. Baldwin
39495.640	+4,904	+0.060	21	M. Baldwin
RT Persei				
39440.776	+7,361	-0.018	18	M. Baldwin
39526.568	+7,462	-0.016	11	M. Baldwin
XZ Persei				
39445.662	+12,413	+0.003	20	M. Baldwin
Beta Persei[2]				
39459.565	+521	-0.012	8	J. Olivarez
39525.523	+544	-0.002	15	L. Hazel
BV 312 Tauri[3]				
39492.501	+6,736	-0.001	23	A. Howell
Insert RW Tau from p. 5				
X Trianguli				
39468.635:	+4,913	+0.026	23	L. Hazel
39471.555	+4,916	+0.031	12	C. Ricker
W Ursae Majoris				
39549.736	+15,167	+0.009	8	T. Cragg
39553.742	+15,179	+0.011	9	T. Cragg
49556.743	+15,188	+0.009	6	T. Cragg
39557.748	+15,191	+0.013	13	T. Cragg
39590.771	+15,290	+0.006	9	T. Cragg
39597.791	+15,311	+0.020	10	T. Cragg
TX Ursae Majoris				
39603.798	+7,566	-0.045	13	S. Cook
XZ Ursae Majoris				
39521.609	+10,747	+0.056	19	L. Hazel

J.D. (2400000)	E	O - C	n	Observer
AW Vulpeculae				
39443.533	+16,037	-0.013	12	R. Monske
BU Vulpeculae				
39445.515	+10,277	+0.042	17	R. Monske
39449.503	+10,284	+0.047	16	R. Monske
RW Tauri				
39473.703	+1,824	+0.007	22	M. Baldwin

This work is sponsored by the American Association of Variable Star Observers, with David B. Williams as program coordinator. The reductions were made by the writer with Joseph Ashbrook, except in some cases which were checked.

L. J. ROBINSON
"Sky and Telescope"
49 Bay State Rd.
Cambridge, Mass. USA

1). O - C's computed from elements in Sky and Tele., 25, 5, 277.

2). O - C's computed from elements in Sky and Tele., 27, 5, 316.

3). O - C's computed from elements in Sky and Tele., 26, 5, 264.

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 222

Konkoly Observatory
Budapest
1 September 1967

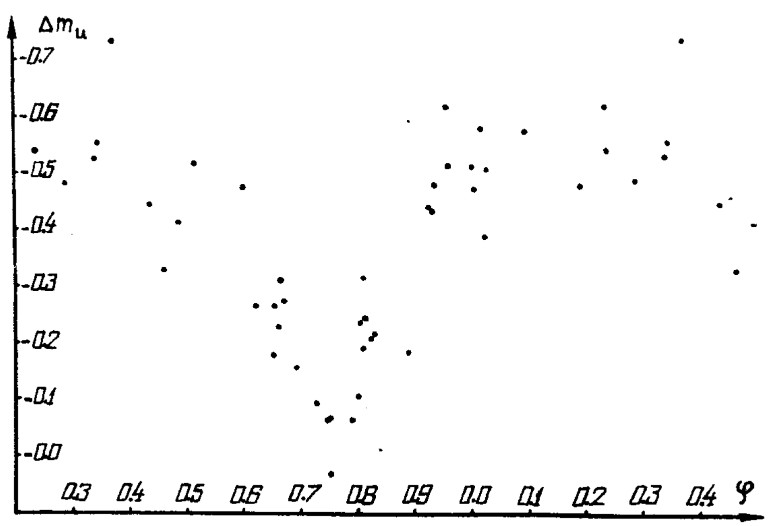
AX MONOCEROTIS

AX Mon is classified as I? (The Gen.Cat. of Var. Stars, 1958). Cowley (1), (2) has obtained in 1963 the corrected orbital period ($232\overset{d}{.}5$) of this binary system and the spectroscopic orbit. The system consists of a B star and a fainter one - the K giant.

The electrophotometry carried on in Abastumani from October 1962 till March 1967 in a quasi UBV system revealed the variations of AX Mon in ultraviolet light with the amplitude $0\overset{m}{.}4$ and the orbital period $232\overset{d}{.}5$.

The Figure shows the light curve in U. The phases are calculated using the elements:

$$\text{Min} = \text{JD } 2438444 + 232\overset{d}{.}5\ E,$$



were JD 2438444 is the moment of spectroscopic conjunction (1). As it is seen, the minimum of light is reached at $0^{p}.75$, preceding the conjunction moment; hence it cannot be explained as a result of atmospheric eclipse. The spectroscopic data show that close to this phase of the orbital cycle the absorption lines of the ionized metals and hydrogen, characteristic to the gaseous streams, appear.

Thus we come to the conclusion, that the brightness decrease in ultraviolet is apparently connected with the eclipse of the bright star by gaseous streams or a cloud.

The large amplitude in U - light may be considered as an indication that the gaseous stream influences the light of the hotter B-type component, which is radiating mainly in the ultraviolet.

Abastumani Astrophysical Observatory
July 17, 1967

N. L. MAGALASHVILI
I. I. KUMSISHVILI

(1). Cowley, A. P., A. J. 1963, 68, 276

(2). " Aph. J. 1964, 139, 817

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 223

Konkoly Observatory
Budapest
2 September 1967

NOVA SCUTI 1960

La Nova Scuti signalée par Piksin Thé dans le Bulletin No 215 (11 août 1967) est la Nova Scuti 1960 découverte par M. V. Saveljeva (Astr. Cirk. No 217, 30 décembre 1960) et quelques mois plus tard indépendamment par J. J. Nassau et C. B. Stephenson (Harv. Ann. Card. No 1525, 24 Mars 1961), sur des plaques prises au prismeobjectif. En juin-juillet 1960 elle était de magnitude 12.5 environ. Elle avait alors atteint le stade nébulaire.

Elle est visible sur un film panchromatique pris le 11 août 1961 avec le Schmidt de l'Observatoire de Meudon et plus brillante que la magnitude 14. Elle est encore visible sur un film Kodak IIaO obtenu le 27 juin 1962, donnant la magnitude 14,7 environ. Des films pris en août 1964 et en juin 1965 avec le même instrument ne la montrent plus.

CH. BERTAUD
Observatoire de Meudon

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 224

Konkoly Observatory
Budapest
2 September 1967

OBSERVATIONS OF NOVA DELPHINI (1967)

The following two sets of photoelectric observations were made with 1P21 phototubes and a yellow filter. The comparison star was G. C. 28766 ($5^m_.9$ AO).

Observed by Arthur J. Stokes at Hudson, Ohio, U. S. A. :

J. D. 2 439 684. 7	$5^m_.70$	J. D. 2 439 695. 6	$5^m_.52$
686. 7	5. 64	698. 7	5. 47
688. 6	5. 63	711. 6	5. 44
693. 7	5. 53	714. 6	5. 40

Observed by Larry Lovell at Chagrin Falls, Ohio, U. S. A. :

J. D. 2 439 683. 8	$5^m_.64$	J. D. 2 439 702. 7	$5^m_.53$
685. 7	5. 69	703. 7	5. 47
693. 8	5. 53	704. 7	5. 45
694. 7	5. 50	708. 7	5. 55
695. 7	5. 59	709. 6	5. 55
696. 7	5. 55	710. 7	5. 53
697. 7	5. 44	711. 7	5. 45
698. 7	5. 41	712. 8	5. 48
700. 7	5. 44	713. 8	5. 49
701. 7	5. 50	714. 6	5. 47

These are independent observations at two observatories about twenty miles apart.

ARTHUR J. STOKES

Hudson, Ohio
U. S. A.

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 225

Konkoly Observatory
Budapest
20 September 1967

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Bd. VII, Nr. 56

ELEMENTS FOR BAMBERG VARIABLES

BV 789 = CoD $-24^{\circ}15680$ ($9^{m}.3$) = HD 188 297 (Ao)

Min = JD 242 5501.350 + $0^{d}.558\ 139$. E

Minima	E	O - C
242 5501.376(S)	0	$+0^{d}.026$
6899.478(S)	2505	-0.010
7666.370(S)	3879	-0.001
7685.337(S)	3913	-0.011
7984.509(S)	4449	-0.001
8045.343(S)	4558	-0.005
8078.286(S)	4617	+0.008
8391.424(S)	5178	+0.030
8396.426(S)	5187	+0.009
243 1651.498(S)	11019	+0.014
8236.411	22817	+0.003
8264.315	22867	+0.001
8278.272	22892	+0.004
8283.269	22901	-0.022
8297.228	22926	-0.017
8580.478(1/3)	23433.5	-0.022
8582.471	23437	+0.017
8587.431(1/2)	23446	-0.046
8615.391	23496	+0.007

Minima	E	O - C
243 8634.310(1/3)	23530	$-0^d.051$
8643.311	23546	+0.020
8662.240	23580	-0.028
8994.321	24175	-0.039
9300.501(1/2)	24723.5	+0.001
9321.464(1/2)	24761	+0.034
9373.282(1/2)	24854	-0.055
9377.285(1/2)	24861	+0.041

Ampl. $0^m.55$, with a remarkable (1/2) secondary minimum, EW.

BV 795 = BD $-18^\circ 349$ ($9^m.2$)

Min = JD 242 7333.500 + $1^d.117\,455$. E

Minima	E	O - C
242 7333.534(S)	0	$+0^d.034$
7343.506(S)	9	-0.051
7398.308(S)	58	-0.004
7417.310(S)	75	+0.001
.354(S)	75	+0.045
7421.263(S, 1/2)	78.5	+0.043
243 6485.483(S)	8190	+0.027
.519(S, 1/2)	8190	+0.063
8002.413(1/2)	9547.5	+0.011
8522.496(1/2)	10013	-0.081
8711.351(1/2)	10182	-0.073
8729.311	10198	+0.005
8738.279	10206	+0.033
9054.431(3/4)	10489	-0.054
9378.551	10779	+0.004
9443.360	10837	0.000

Ampl. $0^m.45$, with a remarkable (1/2) secondary minimum, EA or EB

BV 823 = CoD -31°6412 ($9^m.5$) = CAP -31°2519 ($9^m.7$)

Min = JD 242 8847.550 + $0^d.697$ 3125 . E

Minima	E	O - C
242 8847.539(S)	0	-0.011
8876.486(S)	41.5	-0.002
8904.438(S)	81.5	+0.057
8933.344(S)	123	+0.025
243 4479.360(S)	8076.5	-0.034
4500.250(S)	8106.5	-0.064
4508.305(S)	8118	-0.028
4529.279(S)	8148	+0.027
4544.251(S)	8169.5	+0.007
8381.539	13672.5	-0.016
8467.295	13795.5	-0.029
.339	13795.5	+0.015
8474.288	13805.5	-0.010
8489.275	13827	-0.015
8503.217	13847	-0.019
8759.516(1/2)	14214.5	+0.018
8788.426	14256	-0.011
8817.358(1/2)	14297.5	-0.017
8824.356	14307.5	+0.008
9123.515(1/2)	14736.5	+0.019
9173.372	14808	+0.018
9180.374(1/2)	14818	+0.047
9181.375(1/2)	14819.5	+0.003
9202.299	14849.5	+0.007
9230.240(1/2)	14889.5	+0.056

Ampl. $0^m.40$, secondary minimum nearly as deep as primary minimum, EW

<u>BV 831</u> = CoD -31°8125 ($9^{m}.4$) = HD 89 298 (A)

Min = JD 242 8873.425 + $2^{d}.152\,375$. E

Minima	E	O - C
242 8873.572(S, :)	0	+0.147
8875.550(S)	1	-0.027
243 4398.524(S)	2567	-0.048
4480.362(S)	2605	0.000
4508.308(S)	2618	-0.035
8503.261(1/4)	4474	+0.110
8505.262(3/4)	4475	-0.041
8516.211(1/4)	4480	+0.146
8518.213	4481	-0.004
8817.404	4620	+0.006
8884.219(1/4)	4651	+0.098
8886.218(3/4)	4652	-0.056
9198.351	4797	-0.017
9200.353(1/4)	4798	-0.167

Ampl. $0^{m}.55$, no secondary minimum, EA

(S) = Sonneberg, H. GESSNER

Remeis Observatory
Bamberg, September 12, 1967

W. STROHMEIER

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

NUMBER 226

Konkoly Observatory
Budapest
25 September 1967

PHOTOELECTRIC MINIMA AND NEW ELEMENTS FOR V 477 CYG

From 1963 to 1967 we obtained at the Nürnberg Observatory 5 photoelectric minima of the eclipsing variable V 477 Cyg, which show large, increasing O-C's against the elements in GCVS (I) and SAC 38 (II). The period, given in GCVS (1958) and SAC 38 (1967), was derived by Wallenquist immediately after the discovery of the variability of V 477 Cyg in 1957. The new elements (III), calculated from the Nürnberg observations with the method of least squares, give a considerable shorter period.

Min: J.D. 243 2846.2445 + $2^{d}.347016$. E (I)

Min: J.D. 243 8650.370 + 2.347016 . E (II)

Min: J.D. 243 7317.2764 + 2.3469876 . E (III)

Minima J.D. 243...		Observer	O-C (I)	O-C (II)	O-C (III)
7317.277	vis	Pohl	$-0^{d}.033$	$+0^{d}.012$	$+0^{d}.001$
8258.417	pe	Görz, Gerhart	-0.046	-0.001	-0.001
8664.448	pe	Fleischer, Renz	-0.049	-0.004	+0.001
8941.392:	pe	Held, Pohl	-0.053:	-0.008:	0.000:
9692.4283	pe	Bickel, Pohl	-0.062	-0.017	0.000[1)]

1) combined with observations on J.D. 243 9685.

Nürnberg Observatory

E. POHL

85 Nürnberg, Lützowstr. 10
Western Germany

PHOTOELECTRIC OBSERVATIONS OF NOVA DELPHINI (II)

Stokes Observatory, 1P21 phototube, yellow filter. Hudson, Ohio

Date 1967	J.D. 2439...	Magn.	Date 1967	J.D. 2439...	Magn.
Aug. 13	716.7	5.34	Sept. 1	735.6	4.96
Aug. 31	734.6	4.94	Sept. 5	739.6	4.99

Lovell Observatory, 1P21 Phototube. Chagrin Falls, Ohio

Date 1967	J.D. 2439...	Magn.	Date 1967	J.D. 2439...	Magn.
Aug. 13	716.7	5.36	Aug. 26	729,6	5.11
Aug. 14	717,7	5.49	Aug. 28	731.6	4.98
Aug. 22	725.6	5.23	Aug. 29	732.6	4.91
Aug. 23	726.6	5.24	Aug. 31	734.6	4.97

The comparison star for both sets of observations was G.C. 28 766 ($5^{m}.9$ AO).

ARTHUR J. STOKES

Hudson, Ohio
U.S.A.

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 227

Konkoly Observatory
Budapest
30 September 1967

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Bd. VII, Nr. 57

ELEMENTS FOR BAMBERG VARIABLES

BV 508 = BD $-14^{o}3885(9^{m}.2)$ = HD 123 660(F5)

Min = JD 242 6092.325 + $2^{d}.962$ 095 . E

Minima	E	O - C
242 6092.461(S)	0	+0.136
6095.406(S)	1	+0.119
6767.605(S)	228	-0.078
7155.556(S)	359	-0.161
7463.707(S)	463	-0.068
7570.386(S)	499	-0.024
.428(S)	499	+0.018
7860.588(S)	597	-0.107
8666.402(S)	869	+0.016
8953.627(S)	966	-0.082
9747.452(S) *	1234	-0.098
.481(S)	1234	-0.069
243 0443.559(S)	1469	-0.083
6317.429(S)	3452	-0.048
.465(S)	3452	-0.012
6613.673(S)	3552	-0.013
8222.216	4095	+0.112
8494.447(1/2)	4187	-0.170
8500.440	4189	-0.101
8521.384	4196	+0.108
8524.388(1/2)	4197	+0.150
8530.335(1/2)	4199	+0.173
8549.286(1/3)	4205.5	-0.129
8555.285(1/3)	4207.5	-0.055
8561.288(1/3)	4209.5	+0.024

Minima	E	O - C
243 8589.206(1/2)	4219	-0.198
8906.308	4326	-0.040
8915.302	4329	+0.068
8943.241(1/3)	4338.5	-0.133
9291.255(1/2)	4456	-0.165
9294.253(1/2)	4457	-0.129
9312.212	4463	+0.067
9315.212(1/2)	4464	+0.095

Ampl. $0^{m}.75$, with a remarkable (1/3) secondary minimum, EB

BV 587 = CoD -31°15582($9^{m}.5$) = CAP -31°5567($9^{m}.6$)

$$\text{Min} = \text{JD } 242\ 8784.350 + 1^{d}.578\ 840 \cdot E$$

Minima	E	O - C
242 8784.391(S)	0	+0.041
8799.264(S)	9.5	-0.085
8814.317(S)	19	-0.031
243 4242.404(S)	3457	+0.004
4246.282(S)	3459.5	-0.065
4561.311(S)	3659	-0.016
4572.391(S)	3666	+0.014
8261.269(3/4)	6002.5	-0.068
8553.462(3/4)	6187.5	+0.040
8557.335	6190	-0.035
.358	6190	-0.012
.379	6190	+0.009
.401	6190	+0.031
.462(3/4)	6190	+0.092
8587.386	6209	+0.018
8640.219(3/4)	6242.5	-0.040
8992.267(3/4)	6465.5	-0.073
9318.358	6672	-0.012

Ampl. $0^{m}.45$, with a deep (3/4) secondary minimum, EB

BV 1046 = BD -10°2409($9^m.1$) = HD 68 178(A2)

Min = JD 242 7120.550 + $2^d.516\,440$. E

Minima	E	O - C
242 7120.444(1/2)	0	-0.106
7533.333(3/4)	164	+0.087
7860.375(S)	294	-0.008
8245.309(S, 3/4)	447	-0.090
8879.568(S)	699	+0.026
243 0346.609(S)	1282	-0.017
1914.329(S)	1905	-0.039
3630.528(S, 3/4)	2587	-0.052
.569(S)	2587	-0.011
3947.622(S)	2713	-0.030
4808.338(S)	3055	+0.064
5520.433(S)	3338	+0.006
7669.528	4192	+0.062
8472.244	4511	+0.033
8492.225(1/2)	4519	-0.117
9169.371(1/2)	4788	+0.106
9174.343	4790	+0.045
9179.319	4792	-0.011

Ampl. $0^m.45$, no secondary minimum, EA

BV 783 = BS Sco   Erroneously this star got a BV-No, though it is already named as BS Sco. Our minima permit a control of the elements published in the GCVS (Moscow 1958):

$$\text{Min} = \text{JD } 242\ 8508.160 + 7\overset{d}{.}622\ 216\ .\ E$$

EA, $11\overset{m}{.}5 - 13\overset{m}{.}2$, F8

Minima	E	O - C
242 8660.560(S)	20	-0.044
8744.338(S)	31	-0.111
8759.480(S)	33	-0.213
8805.307(S)	39	-0.119
243 4240.312(S)	752	+0.246
4278.332(S)	757	+0.154
4514.482(S)	788	+0.016
.566(S)	788	+0.100
4537.462(S)	791	+0.129
8234.360	1276	+0.252
8257.267	1279	+0.293
8592.338	1323	-0.014
8615.301	1326	+0.083
8638.219	1329	+0.134
8943.379	1369	+0.406
8966.309	1372	+0.469
9301.419	1416	+0.201

(S) = Sonneberg, Miss H. GESSNER

Remeis Observatory
Bamberg, September 26, 1967

W. STROHMEIER

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

NUMBER 228

Konkoly Observatory
Budapest
3 October 1967

SPECTRAL TYPES OF LONG-PERIOD VARIABLES IN SAGITTARIUS

137 previously discovered long-period variable stars have been classified spectroscopically using plates obtained with the Warner and Swasey Observatory Schmidt telescope and a four-degree objective prism producing a dispersion of 1700 A/mm. The Kodak IN plates plus RG8 filter used cover the wavelength range 6800-8800 A. All the stars are in Harvard Variable Star Field 193 in Sagittarius centered at 18^h23^m, -23^o. The variables were classified on the Case system as described by Nassau and Velghe (1), and the resulting Case spectral subtypes were adjusted to the Mt. Wilson system using the relation derived by Blanco (2). Approximately half of the types listed are based on only one spectral classification. The number of plates on which the star was classified is given in column 5 of the tables. When subtypes obtained from two or more plates differ significantly, both are given, separated by a dash. The approximate standard error of a single spectral classification is .8 subtypes for classes earlier than M6 and .4 subtypes for classes M6 and later (3).

It has been shown (3) that larger-amplitude, long-period variables undergo spectral variations with phase amounting to several subtypes. The spectral type at maximum light would be most valuable for statistical studies, but in the case of these stars the data available were insufficient for this to be achieved. Therefore it should be kept in mind that all the spectral types listed below were obtained at unknown phases.

Table 1 contains data for variables which already have a variable star designation in the General Catalogue of Variable Stars (4). Stars listed in Table 2 do not yet have a variable star designation, and each is designated by the number it was assigned in the paper listed in the reference column.

TABLE 1

Var. Star Designation	Coordinates (1900) R.A. 18^h	Dec.	Spectral Type	No. of Plates	Reference No.
V1837 Sgr	10^m 02^s	-27° 24'.9	M5	1	10
V1845 Sgr	12 05	-24 51.2	M7	2	9
V1649 Sgr	12 09	-24 00.4	M8	1	8
V506 Sgr	12 09	-25 43.7	M7	1	6
V507 Sgr	12 18	-25 54.8	M5-6	2	6
V1852 Sgr	13 11	-24 08.5	M6-8	2	10
V510 Sgr	14 14	-26 03.7	M7	1	6
V1650 Sgr	15 16	-23 17.6	M3-8	2	8
V511 Sgr	15 39	-25 04.1	M1-5	3	6
V1862 Sgr	15 42	-27 28.1	M4	1	10
V1652 Sgr	15 53	-26 41.7	M3-5	2	8
V512 Sgr	15 54	-26 06.9	M3-6	2	6
V1653 Sgr	15 56	-26 33.0	M7	1	8
GO Sgr	16 03	-25 57.8	M7-8	2	12
GQ Sgr	16 33	-24 56.3	M4	2	13
V1868 Sgr	17 06	-24 40.2	M5:-7	2	10
V513 Sgr	17 42	-25 34.5	M3	1	6
V514 Sgr	18 08	-25 56.3	M4	2	6
V1655 Sgr	18 26	-25 04.2	M6-7	2	8
V1657 Sgr	18 59	-23 09.2	M2	2	8
V515 Sgr	19 06	-25 28.9	M7	2	8
GY Sgr	19 23	-27 28.1	M4	1	10
GZ Sgr	19 29	-23 48.1	M7	1	13
V1659 Sgr	20 06	-22 30.7	M5-6	2	8
HK Sgr	20 06	-24 42.2	M7-8	3	12

table 1 continued

Var. Star Designation	Coordinates (1900) R.A. 18^h		Dec.	Spectral Type	No. of Plates	Reference No.
V1877 Sgr	20^m	14^s	$-23^\circ 56'.9$	M7	1	9
HO Sgr	20	45	-25 44.2	M10	2	13
V1661 Sgr	20	59	-21 11.7	M8	2	8
V517 Sgr	21	34	-26 00.0	M7	1	6
V518 Sgr	21	48	-26 21.2	M6	1	6
V519 Sgr	21	49	-26 00.1	M8	1	6
HT Sgr	22	12	-25 44.7	M4-8	2	13
V520 Sgr	22	18	-25 51.4	M5-8	2	6
V1664 Sgr	22	20	-24 55.8	M3:	1	8
V1890 Sgr	22	52	-27 06.1	M4	1	10
HU Sgr	22	54	-25 08.3	M7	2	12
V1666 Sgr	23	03	-25 04.7	M4-6:	2	8
V1667 Sgr	23	18	-24 58.8	M6-8	2	8
HV Sgr	23	28	-26 30.5	M2	1	10
V1891 Sgr	24	01	-24 19.5	M7-8	3	9
V1669 Sgr	24	13	-25 09.5	M3	1	8
V1672 Sgr	24	37	-21 14.8	M4	2	8
V1673 Sgr	25	06	-25 20.1	M7	1	8
V1674 Sgr	25	11	-25 09.4	M8	1	8
IK Sgr	25	24	-24 51.9	M7	1	9
V1676 Sgr	25	36	-23 48.9	M7	2	8
V1677 Sgr	25	38	-22 47.9	M7	3	8
IL Sgr	25	39	-25 43.7	M2	1	12
V1678 Sgr	25	52	-22 26.2	M7	2	8
IM Sgr	25	53	-25 17.6	M9	1	4
V1900 Sgr	26	01	-24 50.9	M3	2	9

table 1 continued

Var. Star Designation	Coordinates (1900) R. A. 18^h	Dec.	Spectral Type	No. of Plates	Reference No.
V1902 Sgr	26^m16	$-24^o53!8$	M7	1	10
V1680 Sgr	26 22	-23 20.5	M4	1	8
LS Sgr	26 25	-25 34.9	M7	2	10
V1681 Sgr	26 38	-23 41.8	M5-8	2	8
LT Sgr	26 40	-25 22.3	M3	1	10
V1682 Sgr	26 44	-23 55.6	M5-7	3	8
IP Sgr	26 51	-26 39.5	M3	1	13
V1683 Sgr	27 05	-20 59.0	M7	1	8
V1684 Sgr	27 05	-25 10.4	M7	1	8
IQ Sgr	27 16	-25 10.8	M7-8	3	8
V1904 Sgr	27 17	-24 09.8	M5	3	9
V1685 Sgr	27 23	-20 43.9	M5:	1	8
IS Sgr	27 39	-25 13.6	M8-9	2	10
V1907 Sgr	27 49	-20 17.4	M7	1	10
LU Sgr	27 51	-25 37.9	M9	2	10
V1687 Sgr	27 55	-20 53.8	M4	1	8
V1908 Sgr	27 59	-24 57.6	M7	2	9
V1688 Sgr	28 30	-23 32.4	M8	2	8
V1910 Sgr	28 42	-27 06.0	M6:	1	10
V1690 Sgr	28 50	-21 20.2	M7	2	8
V1691 Sgr	28 51	-22 09.8	M8	2	8
V1913 Sgr	28 56	-26 45.4	M7	1	10
V1692 Sgr	29 08	-19 21.2	M9	1	8
V1914 Sgr	29 12	-22 20.5	M4	2	9
V1693 Sgr	29 14	-19 12.7	M4	2	8

table 1 concluded

Var. Star Designation	Coordinates (1900) R. A. 18^h		Dec.	Spectral Type	No. of Plates	Reference No.
V1694 Sgr	29^m	15^s	$-21^\circ 41'.4$	M5-7	2	8
IV Sgr	29	29	-24 13.9	non-M	2	12
V1696 Sgr	29	42	-25 20.3	M5-7	2	8
V1697 Sgr	30	01	-22 12.1	M6	2	8
IZ Sgr	30	33	-21 04.0	M6	2	13
V1699 Sgr	30	50	-22 37.1	M3	1	8
V1700 Sgr	31	15	-21 23.8	M4	2	8
V1917 Sgr	31	31	-20 16.8	M5	1	10
V1918 Sgr	31	37	-20 58.3	M7:	1	11
BT Sgr	31	37	-24 35.5	M6	2	5
V1701 Sgr	31	43	-24 32.6	M6-7	2	8
KL Sgr	31	57	-23 59.2	M5	1	10
V1920 Sgr	32	20	-20 35.4	M2	1	9
KM Sgr	32	43	-23 58.1	M7	1	12
V1702 Sgr	33	05	-20 48.8	M6	1	8
V1922 Sgr	33	05	-25 22.3	M8	2	10
V1923 Sgr	33	30	-25 07.7	M3	1	10
KN Sgr	33	32	-25 00.4	M4-8	2	15
V1703 Sgr	34	25	-18 48.8	M6	1	8
V1704 Sgr	34	27	-20 54.3	M7	1	8
V1926 Sgr	35	18	-24 04.0	M8	1	10
V1705 Sgr	35	19	-19 26.8	M5	1	8
V1706 Sgr	35	24	-19 48.7	M7:	1	8
V1707 Sgr	35	58	-20 15.5	M2	1	8
V1927 Sgr	36	08	-22 35.8	M7	1	9
V1929 Sgr	36	22	-25 22.2	M5	1	10

TABLE 2

Variable Star No.	Coordinates (1900) R. A. 18^h	Dec.	Spectral Type	No. of Plates	Reference No.
2	$07^m 44^s$	$-27^\circ 32'.0$	M4	1	13
5	14 07	-23 32.3	M7	2	13
3	18 18	-22 54.0	M7	1	18
4	18 25	-23 50.0	M4	1	17
4	18 37	-23 22.9	M7	2	18
8	20 03	-19 44.8	M6	1	15
9	20 15	-21 53.6	M6	4	13
6	20 45	-22 49.5	M8	1	17
7	20 48	-21 10.9	M6	2	17
6	22 27	-23 16.6	M4-7	2	18
8	22 45	-25 51.6	M6	1	17
5	23 11	-21 40.1	M4-7	3	14
7	23 12	-22 06.3	M7	1	18
9	23 20	-24 27.9	M5	1	17
16	23 48	-19 07.8	M7	1	13
11	24 26	-22 27.6	M3	1	17
12	24 38	-23 42.5	M5-6	2	17
4	24 43	-22 01.8	M7	3	16
4	24 45	-23 09.7	M7	1	19
10	25 27	-22 39.5	M2	1	15
14	26 31	-23 18.6	M7	2	17
22	26 35	-22 17.8	M7	1	13
6	27 14	-22 56.5	M7	1	16
15	28 02	-24 29.9	M7	3	17
16	28 45	-23 57.6	M7	3	17
26	29 33	-21 07.8	M4	2	13

table 2 concluded

Variable Star No.	Coordinates (1900) R.A. 18^h	Dec.	Spectral Type	No. of Plates	Reference No.
30	30^m59^s	$-26^\circ15'.6$	M7	1	13
HV9486+	31 56	-27 03.7	M7	1	12
20	32 14	-25 38.2	M6	3	17
21	32 41	-23 10.7	M5	2	17
32	34 27	-24 07.6	M7	1	13
16	35 01	-25 34.9	M6	1	15
9	35 07	-24 07.8	M7	1	14
23	35 16	-25 49.2	M5	1	17
10	36 26	-26 20.2	M3	1	14

+ HV9486 = 4249 in the Catalogue of Stars Suspected of Variability (7)

Some of the classifications were made during work on a doctoral thesis at Case Institute of Technology. The others were made while I was at the Maria Mitchell Observatory in August, 1967. In all cases, identification charts were provided by Dr. Hoffleit.

September 27, 1967

NANCY HOUK

Maria Mitchell Observatory
Nantucket, Mass.

(now at the Warner and Swasey Observatory
East Cleveland, Ohio)

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16. " " 1964, Astr. J., 69, 301.
17. " " 1965, Astr. J., 70, 307.
18. " " 1966, Astr. J., 71, 130.
19. " " 1967, Astr. J., 72, 711

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 229

Konkoly Observatory
Budapest
5 October 1967

NEW VARIABLE STARS IN FIELD CENTERED ON GAMMA CYGNI

On the plates of the Schmidt telescope 40/50/100 of Asiago Astrophysical Observatory I have found the following 20 new variable stars in field around gamma Cygni.

var.	RA 1900 20^h	D	Max	min	type	elements 243...
GR 131	1^m15^s	+39°24'	14.9	16.0	I	
GR 132	4 36	+41 16	15.3	15.9	RR	
GR 133	4 38	+41 17	15.9	<17.0	RR	
GR 134	5 39	+40 41	15.6	<17.5	M	6169 + 276^dE
GR 135	5 57	+40 43	15.9	<19.0	UG	29^d
GR 136	6 05	+40 38	16.3	17.0	E	
GR 137	7 17	+40 44	15.9	17.0	E	
GR 138	7 49	+40 27	15.8	17.1	SR	
GR 139	8 45	+40 34	16.1	16.8	E	
GR 140	8 46	+41 12	14.9	16.2	E	
GR 141	8 50	+42 26	14.5	<17.5	LP	
GR 142	10 06	+40 48	14.1	<19.0	M	6396 + 540^dE
GR 143	16 54	+40 59	14.0	16.1	RW	
GR 144	17 14	+38 39	12.2	14.6	SR	
GR 145	17 51	+38 59	15.9	17.0	E	
GR 146	18 56	+38 26	15.3	16.1	?	
GR 147	20 03	+41 12	12.7	13.6	E	
GR 148	20 06	+37 45	15.1	16.0	RR	
GR 149	23 12	+39 40	14.7	16.5	RW	
GR 150	25 02	+39 24	16.0	<17.0	RW	

G. ROMANO

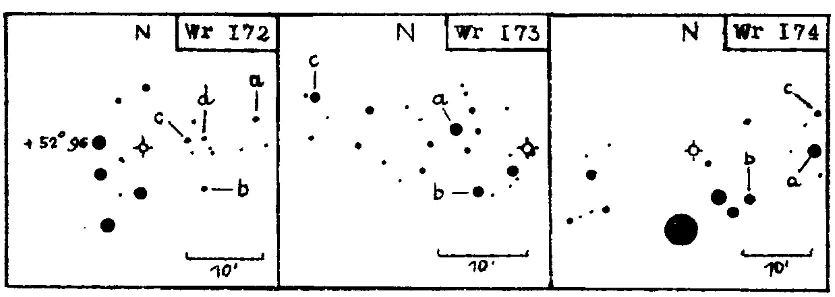
Asiago Astrophysical Observatory

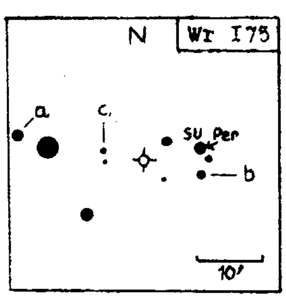
COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 230

Konkoly Observatory
Budapest
6 October 1967

NOUVELLES ETOILES VARIABLES

Dés.	RA (1900,0)	D	mp max	mp min	type	nombre d'obs.
WR 172	$0^h26^m06^s$	$+52^o40'$	10,7	11,4	C	95
WR 173	0 46 30	59 11	9,3	10,0	I	132
WR 174	0 57 21	60 41	10,6	11,2	I	132
WR 175	2 16 18	56 07	9,8	10,4	C	117





Etoiles de comparaison

	WR 172	173	174	175
a	10,7	9,28	10,49	9,7
b	11,0	9,77	11,09	10,2
c	11,2	10,13	11,25	10,4
d	11,6	-	-	-
Réf.	(1)	(2)	(3)	(4)

Remarques

WR 172. Variations fréquentes et rapides
WR 173. = BD +58°127. m^v 8, 8. Sp Mb Bergedorf.
WR 174. = BD +60°156. m^v 9, 1. Sp Mb Bergedorf.
WR 175. = BD +55°605. m^v 9, 3. Etoile non colorée.

Les observations seront publiées dans le "Bulletin de la Station Astrophotographique de Mainterne".

R. WEBER

Station Astrophotographique
de Mainterne
France

Références:

(1) d'apres H. A. 85. 0^h +46°30'

(2) magn. S. A. 8 Bergedorf

(3) magn. S. A. 8 Bergedorf

(4) d'apres H. A. 85. 3^h +54°30'

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 231

Konkoly Observatory
Budapest
26 October 1967

ON THE NONVARIABILITY OF BD + 74°877

Eclipsing Binary 1098 in the Finding List = +74°877 was reported by Archer to be an eclipsing binary of the W UMa type with a period of 4^h27^m and with primary and secondary eclipses $0^m\!.30$ and $0^m\!.18$ deep respectively.

This star was observed photoelectrically on the night of October 3-4, 1967 for 3 hours in three colors and was found constant to within $0^m\!.01$.

According to the Eclipsing Binary Card Catalogue, other observers finding no variation of this star are Koch, van Agt and van Genderen, and Cochran. It was suggested that attention be drawn to the fact that the variability of +47°877 seems very questionable.

October 18, 1967

Dyer Observatory
Vanderbilt University
Nashville, Tennessee
U.S.A. 37203

DOUGLAS S. HALL

Corrections to IBVS No 228: In a letter of October 11 Dr. Nancy Houk writes that there are the following changes to be made in her Table 1:

1./ The reference (last column) for star IM Sgr should be 12, not 4.

2./ On the final page of Table 1, the spectral type of star IV Sgr should be M6 rather than non-M.

3./ On the same page the star BT Sgr should be omitted. Dr. Hoffleit has just informed her, that she had found that the coordinates of BT Sgr as listed in the GCVS are wrong, and that BT Sgr is the same variable as that designated as V1701 Sgr.

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 232

Konkoly Observatory
Budapest
1967 November 4

IMPROVED PERIOD FOR V986 OPHIUCHI

HD 165174 was found by C. R. Lynds (1) to be a variable star of the Beta CMa-type, and was afterwards named V986 Oph. From his rather scanty material the discoverer derived a possible period of $0^d.2890$, by far the longest known for variables of this type at that time. Both this exceptional period-length and the large scatter of the individual observations around the mean lightcurve computed with it, called for a check of the proposed value. The star was therefore put on his Boyden program by the present writer. The exceptionally bad weather over South Africa this year and the limited telescope time available cut the intended seven hours runs down to four runs of only 1/2 to 3 hours. They were all made by J. Eksteen, member of the staff. The reductions were made by the author; the results are shown in Figure 1, where the abscissae give local sidereal time, (geographical longitude of Bloemfontein = 1^h45^mE), and the ordinates the differences m_y(var) - m_y(comp. star = HD 164577).

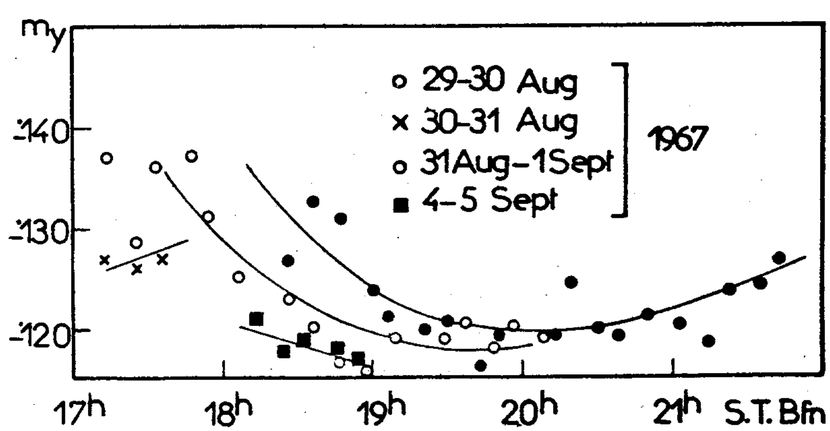


Fig. 1

If these fragments of light curves do show anything, it is that a period near seven hours is almost certain but that $7xP < 2^{d}.0$ instead of reaching the $2^{d}.023$ -mark set by Lynds' period.

With this information in mind Lynds' observations were examined again and it was found that

$$P = 0^{d}.28465$$

was the period that best fitted the fragmentary lightcurves, allowance being made for night to night changes in the mean brightness of the variable. This is what Figure 2 shows.

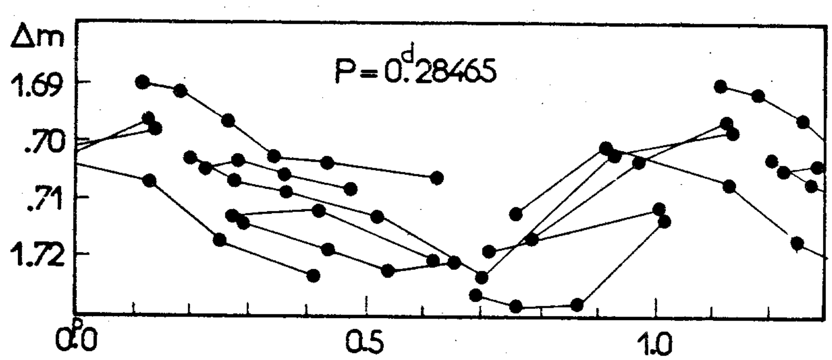


Fig. 2

It may be added that the slightly adjusted value

$$P = 0^{d}.284653$$

has the further advantage of bridging correctly the 9-years gap between Lynds' observations and ours. The precision of this determination however should not be overestimated; the uncertainty on the value we propose rests on the fifth decimal.

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

NUMBER 233

Konkoly Observatory
Budapest
1967 November 4

TWO PULSATING VARIABLES WITH PERIODS CLOSE TO ONE DAY

The stars were found and estimated on plates taken mainly by the writer with the 10"Metcalf telescope of the Boyden Observatory. They both provide classical examples of spurious periods brought in by making the observations near the meridian.

1.- The first variable is a new one, discovered with the Zeiss-blinkmicroscope of the Astronomical Institute of the University of Louvain. Its position is

$$R.A.\ (1875) = 12^h59^m29^s.4 \qquad D.\ (1875) = -68^{\circ}13'.3$$

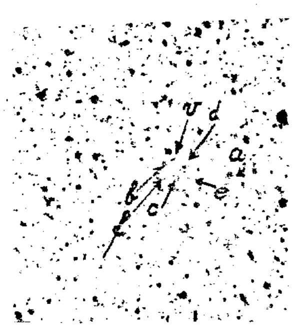

Fig. 1

Var. No. 1
The square measures about $1/2^{\circ}\mathrm{x}1/2^{\circ}$

Further identification is made easy by the environment chart Figure 1.

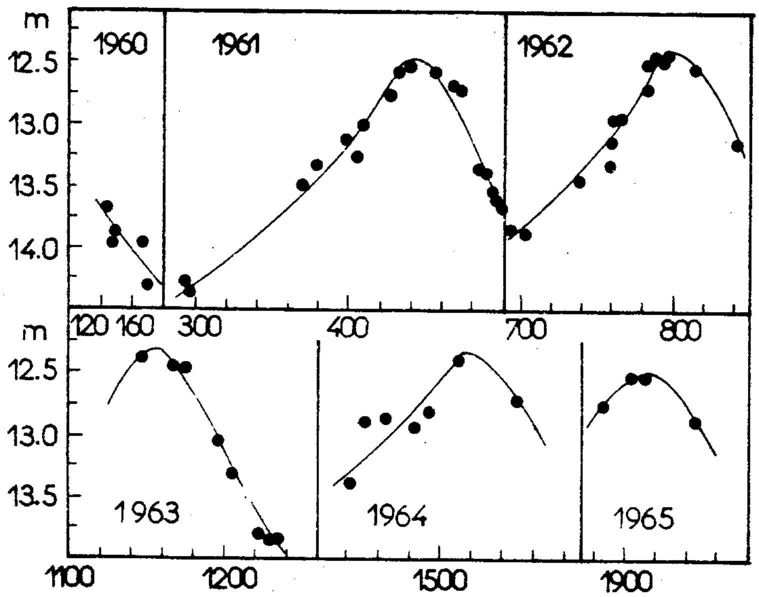

Fig. 2

Abscissae = J.D. -2437000

Figure 2 shows the "observed" changes in brightness, which would suggest a long period variation of $P \sim 355^d$ were it not that the difference in slope between the ascending and descending branches had the wrong sign. This is indicative of a period slightly longer than one day and of a lightcurve with the normal skewness, which has been scanned backward by observations made at one day intervals. The apparent period is then the "beat" period P_b between the real period P of the variation and the one day period of the observations. The three are related by the formula

$$\left| \frac{1}{P} - \frac{1}{1} \right| = \frac{1}{P_b} \qquad (1)$$

In this way the correct period was found to be $P = 1^d.00282 \pm 0^d.00003$.

Control plates taken afterwards over a seven hours run have shown a variation in agreement with a period of this order.

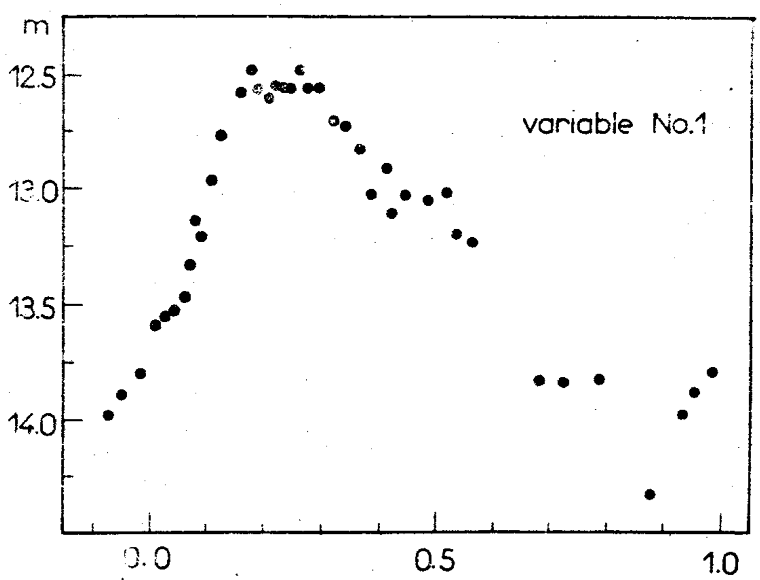

Fig. 3

The corresponding lightcurve is given in numerical form in Table 1 and shown graphically in Figure 3. Phases were reckoned from JD 2436000^{d}000 and magnitudes have been derived from star counts and their comparison with the Tables in Groningen Publication N^o 43.

Using our mean epoch the times of maximum brightness can be predicted from the ephemeris

$$t\ (\text{max. light})\ \text{hel} = \text{JD}\ 2438156^d.063 + 1^d.002282\ E$$

Table 1

n	phase	$\bar{m}$	n	phase	$\bar{m}$	n	phase	$\bar{m}$
10	$0^P.011$	13.58	10	$0^P.218$	12.56	10	$0^P.447$	13.02
10	.026	13.56	10	.231	12.56	10	.483	13.05
10	.040	13.54	10	.241	12.56	5	.514	13.01
10	.055	13.48	10	.255	12.49	4	.535	13.20
10	.071	13.32	10	.271	12.56	3	.558	13.24
10	.081	13.13	10	.293	12.56	1	.682	13.83
10	.093	13.21	10	.318	12.70	3	.725	13.83
10	.104	12.98	10	.341	12.73	3	.790	13.83
10	.126	12.77	10	.361	12.83	2	.876	14.33
10	.154	12.59	10	.376	12.85	3	.931	13.98
10	.174	12.49	10	.390	13.02	10	.950	13.88
10	.191	12.58	10	.406	12.93	10	.980	13.79
10	.206	12.61	10	.423	13.11	6	-	-

2. - The other star proved to be the already named variable CE Oph, with coordinates R.A. (1900) = $16^h47^m28^s$, D. (1900) = = $-26^\circ07'.4$ according to Kukarkin and Paranago's GCVS, but of unknown type and period.

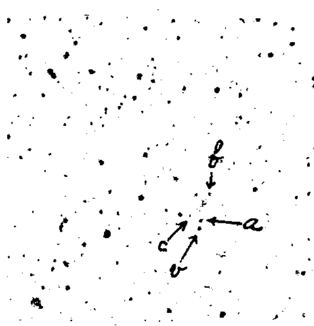

Fig. 4

Var. No. 2

The square is about $1/2^\circ$ - $1/2^\circ$

Here a treatment by least squares of the 12 best observed minima led to a period $P = 15^d.3873$ with no more than normal scatter of the observations around the resulting mean lightcurve. But that lightcurve very similar to the one represented in Figure 5, is of a quite uncommon shape for the period in question. For periods around 16^d one expects indeed to find, not a fairly symmetric lightcurve of rather small amplitude, but a lightcurve with a hump on its ascending branch, followed by a very steep rise to a sharp maximum and then a slow descent. For this reason the period found was again believed to represent but the "beat" period between the real period of the star and the one day period of the observations.

By applying again formula (1) and by treating by least squares the 19 minima listed in Table 2, we found the final period $P = 1^d.067159 \pm 0^d.000032$ (m. e.).

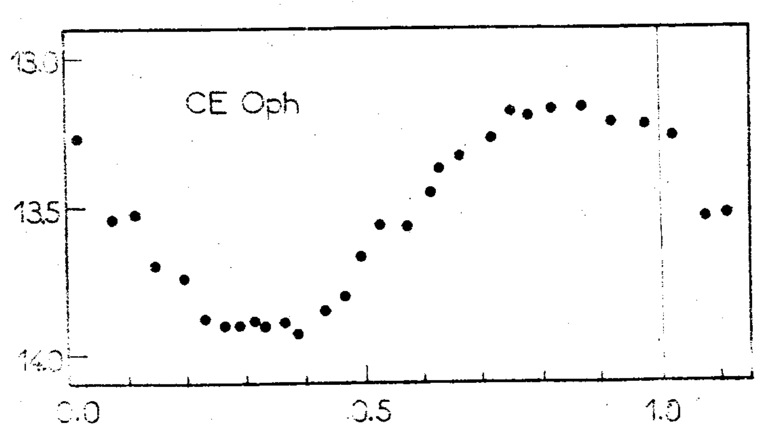

Fig. 5

Table 2

JD_{min}	E	O - C	JD_{min}	E	O - C
2437144.333	0	$+0^d.093$	$2437526^d.219$	358	$-0^d.063$
145.312	1	+ .005	527.247	359	- .103
146.297	2	- .077	8178.416	969	+ .099
162.284	17	- .098	195.401	985	+ .010
462.321	298	+ .068	257.263	1043	- .023
464.374	300	- .014	529.486	1298	+ .074
493.355	327	+ .155	941.406	1684	+ .071
494.342	328	+ .075	989.275	1729	- .082
495.303	329	- .032	9020.220	1758	- .085
496.331	330	- .071			

Table 3

n	Phase	$\bar{m}$	n	Phase	$\bar{m}$	n	Phase	$\bar{m}$
10	$0^P.022$	13.26	10	$0^P.359$	13.90	10	$0^P.708$	13.27
10	.074	13.54	10	.387	13.93	10	.750	13.17
10	.109	13.53	10	.430	13.84	10	.779	13.19
10	.157	13.70	10	.467	13.80	10	.813	13.17
10	.203	13.73	10	.495	13.67	10	.861	13.17
10	.231	13.87	10	.530	13.56	10	.920	13.20
10	.258	13.90	10	.569	13.56	11	.977	13.21
10	.288	13.90	10	.602	13.45			
10	.313	13.89	10	.626	13.36			
10	.338	13.90	10	.661	13.32			

Table 3 and Figure 5 give the corresponding lightcurve resp. in numerical and in graphical form. Just as in the case of the first variable phases were reckoned from JD $2436000^d.000$ and magnitudes derived from star counts.

The final ephemeris proposed is

$$t\ (\text{max. light})\ \text{hel.} = \text{JD}\ 2437794.802 + 1^d.067159\ E$$

The pronounced difference in shape between the lightcurves of stars having so nearly the same period deserves a mention.

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

NUMBER 234

Konkoly Observatory
Budapest
4 November 1967

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Bd. VII, Nr. 58

ELEMENTS FOR BAMBERG VARIABLES

BV 477 = CAP -77°905($9^m.2$) = CoD -77°608($10^m.0$)

Min = JD 242 8664.400 + $2^d.116\ 255$. E

Minima	E	O - C
242 8664.408(S)	0	+0.008
8717.285(S)	25	-0.021
243 4325.329(S, :)	2675	-0.053
4401.564(S)	2711	-0.003
8494.338(1/2)	4645	-0.046
.403	4645	-0.001
.447(1/2)	4645	+0.043
8528.247	4661	-0.017
.291	4661	+0.027
.355(1/2)	4661	+0.071
8547.287	4670	-0.024
8549.374	4671	-0.053
8581.201	4686	+0.030
8583.246	4687	-0.041
.292	4687	+0.005
8822.489(1/2)	4800	+0.065
8824.489(1/2)	4801	-0.061
8877.402	4826	-0.045
.446	4826	-0.001
.491	4826	+0.044
8911.208(1/2)	4842	-0.099
.292	4842	-0.015
.340	4842	+0.033
.384(1/2)	4842	+0.077
8964.219	4867	+0.006
.265(1/2)	4867	+0.052
9292.210	5022	-0.023
.256	5022	+0.023
9294.297(3/4)	5023	-0.052
.342	5023	-0.007

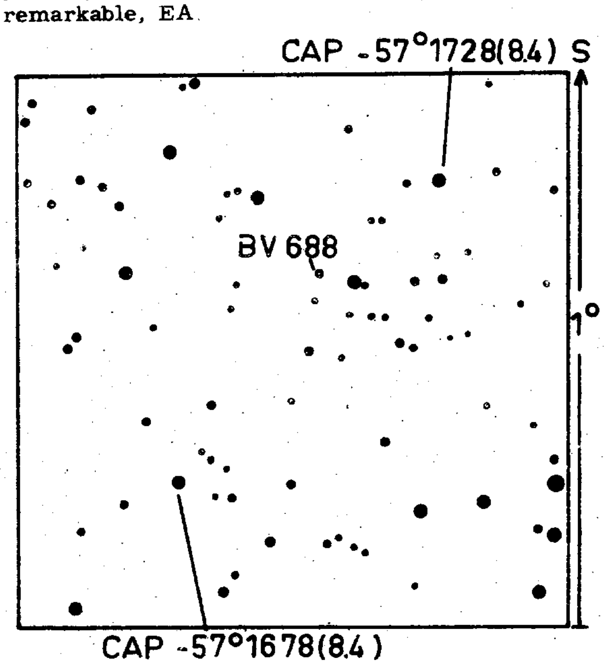
Ampl. $0^m.75$, no secondary minimum, EA

<u>BV 688</u> = CAP -57°1705($10^m.5$)

Min = JD 242 8663.325 + $11^d.01985$. E

Minima	E	O - C
242 8663.278(S)	0	-0.047
8817.624(S)	14	+0.021
243 8582.500	882	-0.333
8471.315	890	+0.323
8504.215	893	+0.164
8812.315	921	-0.292
8823.302	922	-0.325
.347	922	-0.280
9176.319	954	+0.057
9198.265	956	-0.037
.312	956	+0.010
9451.558	979	-0.200

Ampl. ?, primary minimum is under the plate limit and the secondary remarkable, EA.

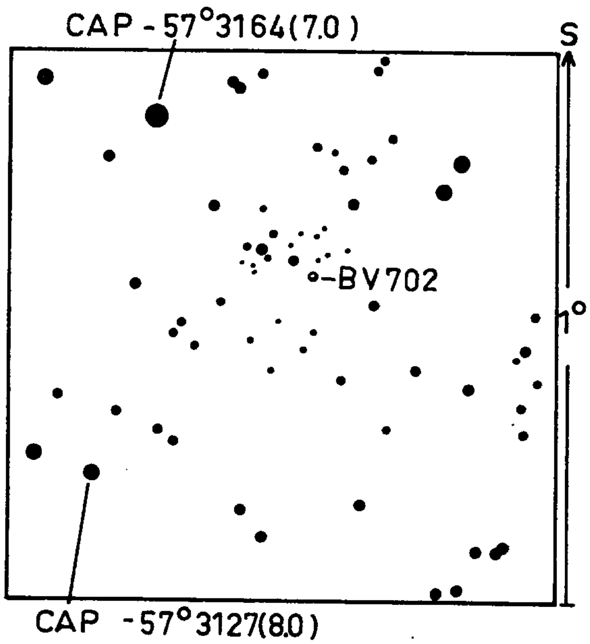


BV 702 = CAP $-57^{\circ}3240(10^{m}5)$ = CoD $-57^{\circ}3226(10^{m}3/4)$

Min = JD 242 8694.450 + $8^{d}.166$. E

Minima	E	O - C
242 8694.240(S; 1/2)	0	-0.210
8849.608(S)	19	+0.004
243 4312.585(S)	688	-0.073
4541.294(S)	716	-0.012
8493.319(1/2)	1200	-0.331
8518.213	1203	+0.065
.276	1203	+0.128
8820.314	1240	+0.024
.337	1240	+0.047
.360	1240	+0.070
.383	1240	+0.093
.401(3/4)	1240	+0.111
.446(3/4)	1240	+0.156
.452(3/4)	1240	+0.162
.474(1/2)	1240	+0.184
8828.360	1241	-0.096
.408	1241	-0.048
8877.223(3/4)	1247	-0.229
.269	1247	-0.183
8885.217(1/2)	1248	-0.401
.266(1/2)	1248	-0.352
9179.293(1/2)	1284	-0.301
.317(1/2)	1284	-0.277
.412(3/4)	1284	-0.182
.458	1284	-0.136
9261.230	1294	-0.024

Ampl $0^{m}60$, no secondary minimum, EA



BV 719 = CAP -70°1138($9^m_.0$) = HD 91 908(G)

Min = JD 242 8656.315 + $9^d_.3208$. E

Minima	E	O - C
242 8656.315(S)	0	0.000
8684.278(S)	3	+0.001
8842.603(S, :)	20	-0.128
243 4570.254(S)	634.5	-0.109
8494.227(1/4)	1055.5	-0.192
.251(1/2)	1055.5	-0.168
.298(1/2)	1055.5	-0.121
.314(3/4)	1055.5	-0.105
.321	1055.5	-0.098
.342	1055.5	-0.077
.363	1055.5	-0.056

Minima	E	O - C
243 8820.360(1/2)	1090.5	-0.287
.474(3/4)	1090.5	-0.173
8825.404(3/4)	1091	+0.096
8881.269	1097	+0.036
9179.412	1129	-0.086
.458	1129	-0.040
9207.319(1/2)	1132	-0.142
.365	1132	-0.096
9235.275(3/4)	1135	-0.148

Ampl. $0^{m}.35$, with very deep secondary minimum, EA

(S) = Sonneberg, Miss H. GESSNER

Remeis Observatory
Bamberg, October 28, 1967

W. STROHMEIER

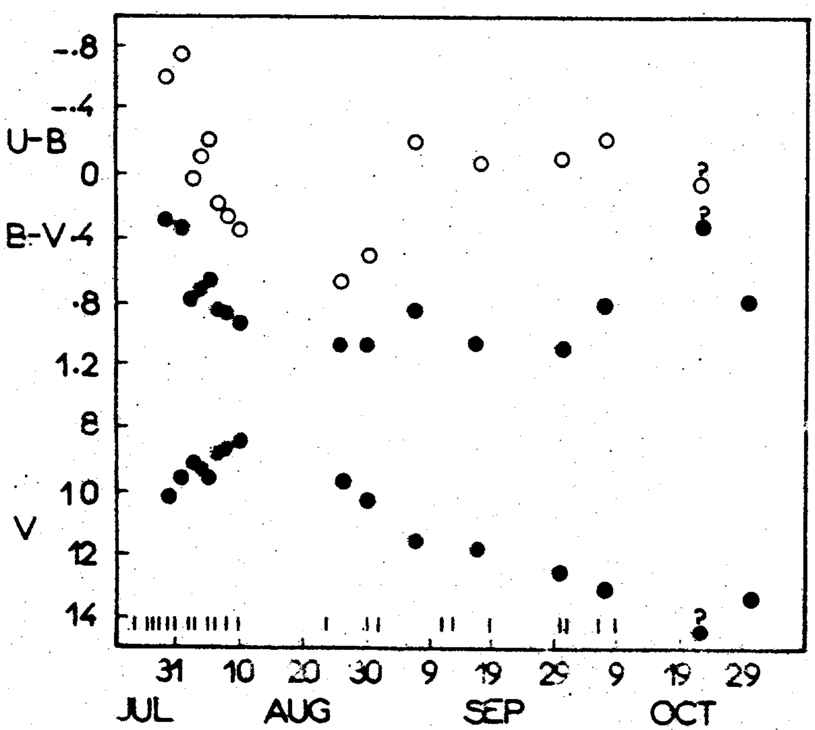
COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS

NUMBER 235

Konkoly Observatory
Budapest
1967 November 10

RY SAGITTARII

Spectroscopic and photometric observations of the RCrB type variable RY Sgr were begun at the Cassegrain focus of the 74 - inch Radcliffe reflector following the receipt of a letter dated 22 July, from R. P de Kock (Royal Observatory, Cape) indicating that the star was several magnitudes fainter than usual. The Figure shows the photoelectric observations made in the UBV system; nights on which spectra were taken are also shown. The first spectrum (July 25)



Light curve of RY Sgr. Filled circles, V and (B-V). Open circles (U-B) Vertical lines indicate dates on which spectra were obtained.

showed a rich emission spectrum. Ca II, H and K, were the strongest absorption lines in the underlying continuum which appeared to be quite blue. Subsequently the continuum became somewhat redder. After August 3 the emission lines weakened until on August 6 they had almost disappeared. At this stage the absorption spectrum differed markedly from that at maximum light. A further emission spectrum appeared around August 30 and thereafter strengthened. The emission line λ 3888 identified as He I in RCrB by Herbig was first seen on September 11 and subsequently increased in strength until on October 9 it was equal to Ca II, H and K, in emission. A spectrum extending to the red, taken on October 6 showed the sodium D lines to be very strong in emission. Amongst other emission lines so far identified are lines of Ti II, Sc II, Fe II and Sr II.

RY Sgr was found to have a faint companion ($V = 15.7$, $(B-V) = +0.7$, $(U-B) = +0.2$) of which we have found no earlier record. It would be important to know whether the companion is physical or not.

It is hoped to undertake a detailed analysis of these and subsequent observations.

Radcliffe Observatory,
Pretoria
1967 October 31

P. J. ANDREWS
R. M. CATCHPOLE
M. W. FEAST
D. H. P. JONES
T. LLOYD EVANS
E. N. WALKER

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 236

Konkoly Observatory
Budapest
1967 November 16

ON THE WORK OF THE VARIABLE STAR SECTION, ROYAL ASTRONOMICAL SOCIETY OF NEW ZEALAND

This Section comprises observers in New Zealand and Australia. Observations are mainly visual although a few members employ photometers. It is hoped to add photo-electric equipment later My own 16-inch Cassegrain I have lent to the Mount John University Observatory and this is used exclusively on photoelectric observing. Instruments available range up to professionally built reflectors in the 16 inch to 20 inch size.

Stars under observation are given on the attached list. Particular attention is paid to objects south of declination S. 30° with the main emphasis on variables of the classes: -

RV Tauri; Recurrent Novae; Novalike; RW Aur;
U Gem; Z Cam; and Unique.

Observations of other classes are made regularly.

Observations are published in hte Circulars of the Section for which the annual subscription is $US 5.00. Apart from observations papers on certain stars are issued from time to time, either in the Circulars or as reprints.

Flare stars of UV Ceti class are observed in conjunction with the CSIRO, Radiophysics Division, Sydney when the latter required optical observations. Bateson is currently making a survey of potential flare stars to determine which ones are active.

Stranson has photographed all variable star fields south of Declination S. 30°. These photographs form the basis of the charts produced by Bateson, A. F. Jones and Stranson, of which three sets have already been published. These are available at $US 8.50 per set. The next issue goes to the printers shortly. Ultimately the complete series, totalling ten, will cover all variables, other than those of short period classes, south of declination S. 30° and brighter than visual magnitude 13 at maximum.

Several members observe photographically. The Section is always willing to co-operate on special programmes and has carried out a number of these in the past.

LIST OF VARIABLES UNDER OBSERVATION

ANTLIA	U; X; RR.
APUS	S; T; V; X; Z; RR; RT; UZ; VV.
ARA	U; V; W; AT.
CAELUM	R; T.
CANIS MAJOR	Z; UY; UZ.
CAPRICORNUS	RR
CARINA	R; S; Z; RR; RS; RT; RU; RV; RW; RY; RZ; SU; TW; AC; AG; AN; AF; CL; DI; EP; HR; BO; IW; Eta.
CENTAURUS	R; T; U; W; X; RS; RT; RV; RW; RX; SX; TT; UU; UW; WW; AD; CD; DF; DY; BV; MU; NN. V396; V436; V442; V398; V407; V504; V661; V665.
CHAMAELEON	R; T; V; W; Z.
CIRCINUS	R; AE.
COLUMBA	R; S; T.
CORONA AUST.	R; S; T; U; V; W; X; Y; Z; RR; RT; RU; TY; WX; YY; YZ; AM; GG; GR; GY.
CRUX	S; U; V; X.
DELPHINUS	Nova 1967
DORADO	R; U; RZ; ST; SV; Beta.
ERIDANUS	T; U; W; X; Y; RS; RT; RW.
FORNAX	R; U.
GEMINI	U.
GRUS	R; S; T.
HOROLOGIUM	R; S; T; U; RT; SW; SX.

HYDRA	W; RS; RU; EX; FP.
HYDRUS	RS; RY; TU; VW.
INDUS	R; S; T; RZ; SS.
LUPUS	R; S; T; U; X; Y; W; RU; RY; EX.
MICROSCOPIUM	R; S; T; U; V; W; RS; RX; RY.
MONOCEROS	CW.
MUSCA	Y; SY.
NORMA	R; T; V; W; X; RT; RZ; HP.
OCTANS	R; S; T; U.
OPHIUCHUS	W; RS; TV; V517.
ORION	CN; CZ; Alpha.
PAVO	R; S; T; U; V; W; X; SU; BR; Kappa.
PHOENIX	R; S; T; U; V; W; RT; SY; SZ.
PICTOR	R; S; T; RR.
PISCIS AUST.	R; S; U; RY; ST.
PUPPIS	W; Z; RT; RV; RW; SU; TU; AR; AS; AT; CD; CH; FK; L2.
PYXIS	T
RETICULUM	R; T; RV; RX; SU.
SAGITTARIUS	RR; RU; RV; RT; RY; RZ; SW; TY; VZ; WW; AZ; AR; FN; GU; MV; OS; V348; V618; V742; V915; V1016; V1017; HV7864.
SCORPIUS	R; S; U; Z; RS; RR; RT; RU; RW; SV; SW; SX; TV; WW; AC; AD; AE; AG; AH; AI; AK; BH; BI; CL; FQ; LO; LR; MM; V380; V450; Alpha.
SCULPTOR	R; S; T; U; V; X; Y; SW; SY.
SCUTUM	R.
SERPENS	UZ.
TELESCOPIUM	R; T; U; V; W; X; Y; RS; RR; VZ.
TRIANGULUM AUST.	EK.

TUCANA	**R; S; T; U; TZ; UU; UY; AA.**
VELA	**W; X; Y; Z; RS; RU; RW; SS; SU; SY; TV; WY; CE; CU.**
VIRGO	**TW**
VOLANS	**R; S; T.**

SUSPECTED VARIABLES

SVS Nos. 1668; 1995; 2011; 2144; 2638; 3543; 4467; 4517; 5112;

S 6302; 6322; 6732.

HD Nos. 84046; 124448; 168476.

CPD -71° 2486.

CoD -30° 13622; -30° 13634.

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Director

P. O. Box 33, Lake Tekapo
New Zealand

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

NUMBER 237

Konkoly Observatory
Budapest

1967 November 30

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Band VII, Nr. 62

ELEMENTS FOR THREE BAMBERG VARIABLES

DW Aps = BV 418 = CAP -67°3312(8.^{m}0) = HD 156 545(Ao)

Min = JD 242 8662.450 + 2.^{d}312 950 . E

Minima	E	O - C
242 8662.448(S)	0	-0.002
8692.487(S)	13	-0.031
8713.337(S)	22	+0.002
8720.290(S)	25	+0.016
8750.335(S)	38	-0.007
243 4479.535(S)	2515	+0.016
6038.438(L)	3189	-0.010
6052.314(L)	3195	-0.011
6066.228(L)	3201	+0.025
6110.225(L)	3220	+0.076
6813.292(L)	3524	+0.006
6894.259(L)	3559	-0.020
7132.442(L)	3662	-0.031
7146.277(L)	3668	-0.074
7190.256(L)	3687	-0.041
7486.345(L)	3815	-0.009
8196.392(L)	4122	-0.038
.448	4122	+0.018
8254.276	4147	+0.022
8261.209(L)	4150	+0.017
8529.472	4266	-0.023
.517	4266	+0.022
8580.340	4288	-0.040
.386	4288	+0.006
8587.344	4291	+0.026
8638.219	4313	+0.016
9209.504	4560	+0.002

Ampl. $0^m.90$ without secondary minimum, EA

Published periods: IBVS 47 (1964), W. STROHMEIER, $P = 2^d.316$
IBVS 77 (1965), E. SCHÖFFEL and U. KÖHLER, $P = 2^d.3129$
IBVS 136 (1966), R. DEURINCK and R. BRIERS (L=Leuven) $P = 2^d.312\,923 \pm 0^d.000\,033$

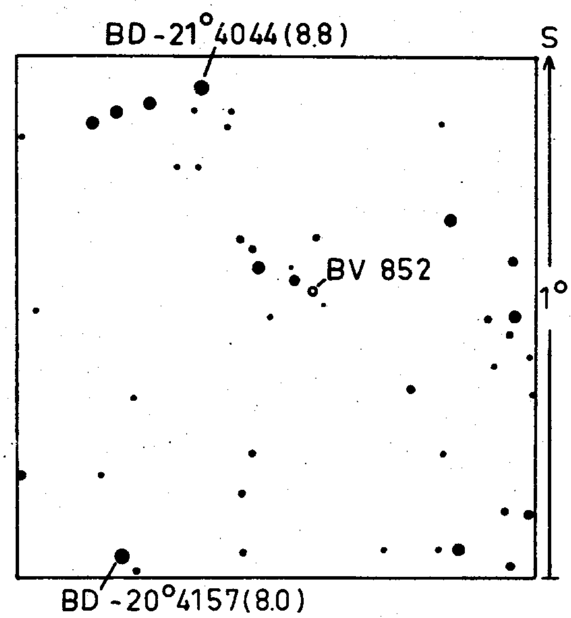
BV 852 = CAP $-20^o 6091 (9^m.8)$ = BV 875

Min = JD 242 7156.575 + $1^d.495\,095$. E

Minima	E	O - C
242 7156.592(S)	0	+0.017
7183.485(S)	18	-0.002
7210.396(S)	36	-0.002
8246.607(S)	729	+0.108
9022.442(S)	1248	-0.012
9365.556(S, :)	1477.5	-0.022
9374.517(S)	1483.5	-0.031
243 0103.508(S)	1971	+0.101
3718.592(S)	4389	+0.045
3736.532(S)	4401	+0.044
4133.522(S)	4666.5	+0.086
4485.535(S)	4902	+0.004
8091.626(S)	7314	-0.074
8199.312	7386	-0.035
8205.281(1/2)	7390	-0.046
8474.533(1/2)	7570	+0.089
8524.433(1/2)	7603.5	-0.097
8551.332(1/2)	7621.5	-0.110
.446(S)	7621.5	+0.004
8560.331(1/2)	7627.5	-0.081
8587.251(1/2)	7645.5	-0.073
8590.249(1/2)	7647.5	-0.065
8605.208(1/2)	7657.5	-0.057
8883.409	7843.5	+0.056
9232.462	8077	+0.005
9235.410	8079	-0.038
9298.278	8121	+0.037
9313.256(1/2)	8131	+0.064
9319.219(1/2)	8135	+0.046

Ampl. ? , the primary minimum is under plate limit, the secondary minimum is deep, EA or EB.

erroneously BV 875 got a separate BV-No, but it is identical with BV 852.



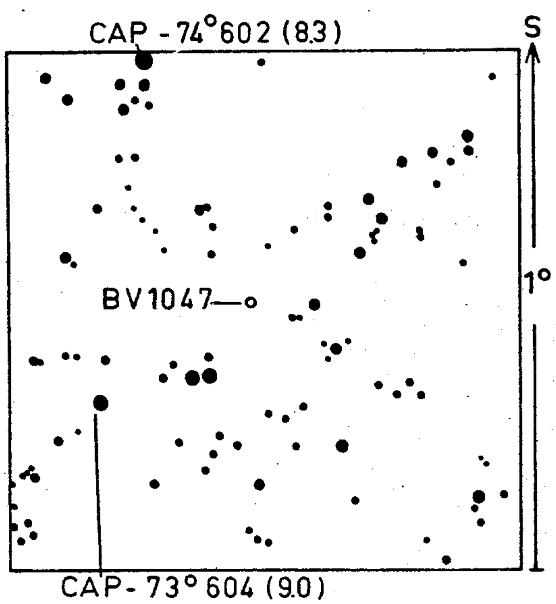
BV 1047 = CAP -73°616(9^m.9)

Min = JD 242 8904.505 + 2^d.853 175 . E

Minima	E	O - C
242 8904.504(S)	0	-0.001
243 4275.609(S)	1882.5	+0.002
4365.452(S)	1914	-0.030
4422.601(S)	1934	+0.056
4485.397(S)	1956	+0.082
8408.460	3331	+0.029
8468.294	3352	-0.054
.338	3352	-0.010
.382	3352	+0.034
8796.422	3467	-0.041
.467	3467	+0.004
.515(1/2)	3467	+0.052

Minima	E	O - C
243 8816.380	3474	-0.055
.424	3474	-0.011
8856.257(1/2)	3488	-0.122
.304(3/4)	3488	-0.075
8879.219	3496	+0.014
.265(1/2)	3496	+0.060
8899.213	3503	+0.036
9207.319	3611	-0.001
.365	3611	+0.045

Ampl. $2^{m}.2$, with a secondary minimum? EA



(S) = Sonneberg, H. GESSNER

Bamberg, 1967 November 22
Remeis-Observatory

W. STROHMEIER

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 238

Konkoly Observatory
Budapest
1967 December 7

THREE-COLOR OBSERVATIONS OF NOVA DELPHINI 1967

Observations of Nova Delphini 1967 were made with the 28-in. reflector of the Flower and Cook Observatory using the elbow photometer at the Cassegrain focus with the recommended U, B, V filters.

The comparison star was BD +19°4484 (V = 6.29, B-V = +0.63, U-V = +0.72) and standard stars were observed on three nights.

OBSERVATION DATA

JD (2439700+)	V	B - V	U - V
66.6638	+4.60	+0.41	
66.6791	+4.60	+0.40	
76.6257	+5.05	+0.42	+0.17
83.6263	+4.91	+0.34	
90.5513	+4.74	+0.29	+0.15
94.5725	+4.50	+0.38	+0.20

IL-SEONG NHA
Flower and Cook Observatory
University of Pennsylvania
Philadelphia, Pa.
U.S.A.

PHOTOELECTRIC OBSERVATIONS OF NOVA DELPHINI (III)

Stokes Observatory, Hudson, Ohio

Date 1967	J.D. 2439	Magn.	Date 1967	J.D. 2439	Magn.
Sept. 10	744.6	4.92	Oct. 1	765.7	4,87
Sept. 11	745.7	4.87	Oct. 2	766.6	4.90
Sept. 13	747.6	4.92	Oct. 3	767.7	4.89
Sept. 15	749.6	4.85	Oct. 4	768.6	5.01
Sept. 18	752.6	4.66	Oct. 5	769.6	5.05
Sept. 24	758.6	4.81	Oct. 6	770.7	5.11
Sept. 25	759.6	4.89	Oct. 12	776.6	5.15
Sept. 26	760.6	4.87	Oct. 14	778.6	5.17
			Oct. 23	787.7	4.98
			Oct. 30	794.5	4.78

Lovell Observatory, Chagrin Falls, Ohio

Date 1967	J.D. 2439	Magn.	Date 1967	J.D. 2439	Magn.
Sept. 1	735.6	4.94	Sept. 25	759.6	4.96
Sept. 2	736.7	4.99	Sept. 26	760.6	4.89
Sept. 3	737.6	4.96	Oct. 1	765.5	4.84
Sept. 4	738.6	4.95	Oct. 2	766.5	4.93
Sept. 6	740.6	5.05	Oct. 3	767.5	5.03
Sept. 10	744.6	4.86	Oct. 6	770.5	4.98
Sept. 11	745.6	4.88	Oct. 23	787.6	4.87
Sept. 24	758.5	4.62			

The comparison star for both sets of observations was G.C. 28 766 ($5^{m}.9$ AO).

ARTHUR J. STOKES
Hudson, Ohio
U.S.A.

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 239

Konkoly Observatory
Budapest
1967 December 9

FOUR VARIABLE STARS IN THE FIELD OF M 2

In the course of the study of the variables in the cluster M 2, four additional variables have been found. The co-ordinates and B, V, magnitudes are given below:

x"	y"	B max	B min	V max	V min
-189	-707	15.7	16.7	15.8	16.5
+235	-502	15.8	16.9	15.8	16.8
+400	+ 74	15.9	16.8	15.8	16.5
+315	+208	15.8	17.0	15.6	16.5

Asiago Astrophysical Observatory
November 1967

R. MARGONI
R. STAGNI

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

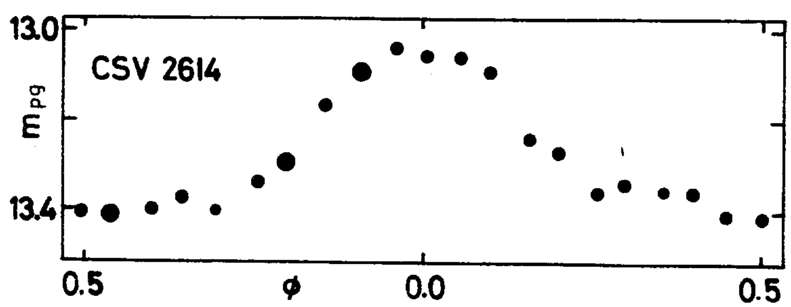
NUMBER 240

Konkoly Observatory
Budapest
1967 December 27

A LIKELY RRs VARIABLE IN SCORPIUS

The 13th-magnitude suspected variable CSV 2614 = HV 10535 was estimated on about 200 plates in the Harvard Observatory collection. They were taken mostly between JD 2427900-30133 with the 10-inch Metcalf triplet at Boyden, South Africa. Exposures were 45 minutes, and the plate quality was usually good.

Variability was first noted by Emily Hughes Boyce (HA, 109, 2), who described the star as of W UMa type, but gave no elements. Night runs revealed cycles of about 0.1 day, and the mean light curve (Fig. 1) indicated an RR Lyrae-type star.

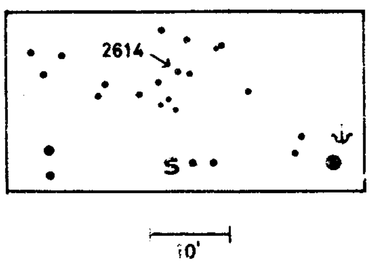


Fifteen normal maxima were obtained by fitting the mean light curve to the individual observations. A weighted least squares solution gave these elements:

$$JD_{max\odot} = 2429382.2570 + 0^d.10240124E, \quad \pm 12 \quad \pm 14 \quad (m.e.)$$

with an average residual of 0.003 day.

The mean light curve range is m_{pg} = 13.05 - 13.41, and M - m = $0^P.38$. However, since the exposures spanned about 30 percent of the period, the true amplitude must be considerably larger. Averages of the seven brightest and eight faintest observations gave the range 12.87 - 13.51. At minimum, the standard deviation of one estimate was 0.06 magnitude, but at maximum 0.13; perhaps there is a Blazko effect.



Photoelectric observations are needed to improve these results, and the writer would enjoy receiving such data. A finder chart is given in Fig. 2. The approximate 1950 position of CSV 2614 is 16^h $10^m.2$, -9° 46', about 21' northeast of Psi Scorpii.

It is planned to publish a more complete discussion in Variable Stars.

L. J. ROBINSON

"Sky and Telescope"
49 Bay State Road
Cambridge, Mass. 02138
U. S. A.

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

NUMBER 241

Konkoly Observatory
Budapest
1968 January 3

Z ANDROMEDAE

Sur une plaque exposée le 20 Décembre 1967 à 18^h05^m (T.U.) à la Station Astrophotographique de Mainterne, la novoïde Z Andromedae est très brillante. La magnitude photographique est estimée 8, 9. Sur une précédente plaque exposée le 22 Novembre 1967, Z Andromedae était à la magnitude 10, 8.

Étoiles de comparaison de Romano (SAI, t. XXXI, I, 1960).

R. WEBER
Station Astrophotographique
de Mainterne

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

NUMBER 242

Konkoly Observatory
Budapest
1968 January 8

NEW SPECTROSCOPIC ELEMENTS OF BETA AURIGAE

From 17 grating spectra, dispersion 34 A/mm secured at Merate during the last two years, we have redetermined the spectroscopic elements of the eclipsing binary Beta Aurigae = HD 40183. The "Finding List for Observers of Eclipsing Binaries"[1] has recommanded a new radial velocity study for this star. Spectra of both components are visible. The last radial velocity curve is of 1948.[2] The following elements have been obtained by us:

$\gamma = -22.45 \pm 1.42$	$e = 0.00$
$P = 3.$[illegible]$0042\,1$[1]	$T_0 = 2439162.197$
$a_1 \sin i = 5.$[illegible]	$a_2 \sin i = 5.$[illegible]
$K_1 = 10$[illegible]$ \pm 2.61$	$K_2 = 102.30 \pm 2.62$

A more detailed paper will soon be printed in the "Memorie della Società Astronomica Italiana".

P. GALEOTTI G. GUERRERO

Osservatorio Astronomico di Merate

1) Koch, Sobieski, Wood; "Finding List for Observers of Eclipsing Binaries", University of Pennsylvania, Vol. IX, 1963

2) Burke Smith, Ap. J., 108, 504, 1948.

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 243

ANNOUNCEMENT

An IAU Colloquium on Variable Stars, the fourth in the Bamberg-Budapest series, will be held in Budapest on 5-9 September 1968, with the theme "Non-Periodic Phenomena in Variable Stars". The meetings will be held at the Hungarian Academy of Sciences, which will also act as hosts for the Colloquium.

This announcement is being sent to members of IAU Commissions 27 and 42, and to a number of other individuals and institutions. However, the facilities are limited in size, and so invitations can be extended only to those who can contribute effectively to the scientific program. Those wishing to receive invitations should write as soon as possible to Prof. L. Detre, Chairman of the Local Organizing Committee, Konkoly Observatory, P. O. 114, Box 67, Budapest XII, Hungary, giving information on their proposed contribution. Prompt response is important, since the final list of those invited participants who will require visas must be in the hands of the Hungarian authorities by 15 April.

The purpose of the Colloquium is to focus attention, not primarily on the irregular variable stars themselves, but on phenomena (in any kind of variable) that do not repeat in a simple cyclic fashion. Contributions may present either observational results, or theoretical studies. A provisional plan of organization is as follows.

I. Theory

1. Statistical and astrophysical interpretation of irregularities.
2. Modern techniques of observation or analysis.

II. Intrinsic Irregular Variables

1. Very young stars: T Tauri, etc.
2. Be and shell stars.
3. Flare stars.
4. Irregular magnetic variables.
5. R CrB variables.
6. Irregular activity in novae or supernovae (at the outburst).

III. Irregular Activity in Periodic Variables

1. Beta CMa, Delta Sct variables.
2. RR Lyr, Delta Cep variables.
3. Late-type giants: long-period variables, Miras, irregulars.

IV. Non-Periodic Phenomena in Binary Systems.

1. Hot, very short-period eruptive binaries: old novae, U Gem stars, Sco XR-1, etc.
2. Symbiotic stars.
3. Contact binaries and W UMa stars.
4. Conventional binaries:
   (a) The observed period variations - interpretation in terms of gas streams, mass exchange, etc.
   (b) Phenomena of atmospheric eclipses.

Certain of these topics will be introduced by invited speakers. The papers presented at the Colloquium will be published in a Budapest Mitteilung. Further details will be sent to participants later.

The Scientific Organizing Committee:

G.H. HERBIG (Chairman),
A. BOYARCHUK,
M.W. FEAST,
D. McNAMARA,
W. WENZEL (for Commission 27),
J.E. MERRILL,
D.J.K. O'CONNELL,
V. TSESEVITCH (for Commission 42)

December 26, 1967

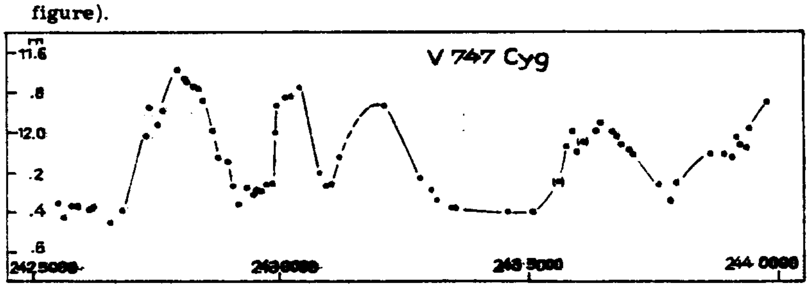
COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS

NUMBER 244

Konkoly Observatory
Budapest
1968 January 8

V 747 CYGNI

In AN 281, p. 179 WENZEL previously reported on the irregular variations of this star. In the meantime I observed it on further plates. These observations have shown that the object probably belongs to the group of "nova-like" variables in a wider sense. During the time of observation the brightness of the star underwent 5 maxima, separation 2000 to 4000 days, heighth roughly $0^m.7$ (see figure).



The colour of the star is not remarkable. On an objectiv prism plate of the Sonneberg Schmidt camera the spectrum is much disturbed by a neightbouring one. It does not show emission lines and seems to be of medium or early spectral type; no further conclusions can be drawn. Spectroscopic observations of the variable are therefore of special interest.

The magnitude scale of the figure has been taken from WENZEL (l. c.).

Sonneberg Observatory

L. MEINUNGER

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

NUMBER 245

Konkoly Observatory
Budapest
1968 January 10

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Band VII, Nr. 63

THE PERIOD OF RV OCT (1906-1966)

RV Oct is an RR-star (minimum at phase 0.68) with remarkable hump (at phase 0.19) in the decreasing branch (see IBVS 38, 1963 and IBVS 71, 1964). The Harvard plate material makes an investigation of period-constancy possible. All maxima before JD 243 8196 estimated by Mr. Bauernfeind (Bamberg) originate from this material. Very good maxima are indicated by crosses.

RV Oct: Max = JD 241 5116.665 + $0^d.571\ 1625$. E

Maxima	E	O - C
241 5116.675++	0	+0.014
5561.585	779	-0.015
5847.802	1280	+0.049
5915.714++	1399	-0.007
5926.634	1418	+0.061
6605.715	2607	+0.029
6859.870	3052	+0.017
7375.583	3955	-0.030
7804.530	4706	-0.026
8117.567+	5254	+0.014
8398.529	5746	-0.036
8824.634++	6492	-0.018
9566.573	7791	-0.019
9943.564++	8451	+0.005
242 0248.587	8985	+0.027
0336.579	9139	+0.060
0610.650	9619	-0.027
0709.499	9792	+0.011
0959.665	10230	+0.008
0995.630	10293	-0.011
1007.625++	10314	-0.010

Maxima	E	O - C
242 1026.535	10347	+0.052
1332.666	10883	+0.040
1340.666	10897	+0.043
2483.519	12898	0.000
2523.501++	12968	+0.001
3222.552	14192	-0.051
3234.561	14213	-0.037
3531.627	14733	+0.025
4674.563	16734	+0.065
4682.562	16748	+0.068
5776.278	18663	+0.007
5804.221	18712	-0.037
6035.532	19117	-0.046
6118.411++	19262	+0.014
6562.222	20039	+0.032
6805.509++	20465	+0.003
7186.443	21132	-0.028
8400.225	23257	+0.034
8639.496+	23676	-0.012
8743.395	23858	-0.065
9000.434	24308	-0.049
9072.387	24434	-0.063
9076.455	24441	+0.007
9156.366+	24581	-0.044
9318.543	24865	-0.077
9321.467+	24870	-0.009
9381.417++	24975	-0.031
9393.413+	24996	-0.030
9405.432	25017	-0.005
9440.253++	25078	-0.025
9480.259	25148	-0.001
9484.289	25155	+0.031
9489.353	25164	-0.045
9493.355++	25171	-0.041
9520.303	25218	+0.062
9650.439++	25446	-0.027
9738.443	25600	+0.018
9746.450	25614	+0.029
9806.352	25719	-0.041
9822.415	25747	+0.029
9849.233	25794	+0.003
9878.300	25845	-0.060

Maxima	E	O - C
243 0044.509	26136	-0.059
0116.480	26262	-0.054
0203.288	26414	-0.063
0548.416	27018	+0.083
0556.322	27032	-0.008
0826.493	27505	+0.003
0901.286+	27636	-0.026
1215.401	28186	-0.050
1270.212	28282	-0.071
1291.352	28319	-0.064
1330.222	28387	-0.033
1699.244	29033	+0.018
1712.303+	29056	-0.060
1874.522	29340	-0.051
1921.384	29422	-0.024
1993.402	29548	+0.028
2041.374	29632	+0.022
2319.479	30119	-0.029
2528.554	30485	0.000
2731.317	30840	+0.001
2969.468	31257	-0.023
3453.233	32104	-0.033
8196.190++	40408	-0.009
8294.441++	40580	+0.002
8314.410	40615	-0.020
8374.400++	40720	-0.002
8439.492+	40834	-0.022
8443.487+	40841	-0.026
.531++	40841	+0.018
8879.295	41604	-0.015
.317++	41604	+0.007
.340	41604	+0.030
8883.276	41611	-0.032
.319++	41611	+0.011
.384	41611	+0.076
8884.422	41613	-0.028
.443++	41613	-0.007
8887.292	41618	-0.014
.314++	41618	+0.008
.357	41618	+0.051

Maxima	E	O - C
243 8902.220	41644	+0.064
8904.419	41648	-0.022
8911.274	41660	-0.021
.292++	41660	-0.003
.317++	41660	+0.022
.338+	41660	+0.043
8915.292	41667	-0.001
.302++	41667	+0.009
.327+	41667	+0.034
.349	41667	+0.056
8916.391	41669	-0.044
.412	41669	-0.023
8935.267+	41702	-0.017
8939.258	41709	-0.024
9173.489	42119	+0.031
.510	42119	+0.053
9181.406	42133	-0.049
.488	42133	+0.033
9201.407	42168	-0.038
9209.474++	42182	+0.032
9229.453	42217	+0.021
9232.326++	42222	+0.038
9240.323++	42236	+0.039
9268.261	42285	-0.010
.284	42285	+0.013
.303++	42285	+0.032
9292.256+	42327	-0.004
9296.278	42334	+0.020
.299+	42334	+0.041
9300.219	42341	-0.037
.240	42341	-0.016
.283++	42341	+0.027
.326	42341	+0.070
9312.241+	42362	-0.010

GCVS: type ? , spectral class ? , $11^{m}.7$ - $12^{m}.2$ pg

Real looks the deviation (5 %) from the average period between E = 24000 and E = 30000.

Remeis-Observatory
Bamberg, 1967 Dez. 30

W. STROHMEIER

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

NUMBER 246

Konkoly Observatory
Budapest
1968 January 10

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Band VII, Nr. 64

A NEW CEPHEID IN THE LMC

BV 906 (in the LMC) is detected as variable by H. MEIER (Veröff. Remeis-Sternwarte Bamberg, Bd. VI, Nr. 48, 1967, there position and identification card). First the Harvard plate material (all maxima before JD 243 9100, estimated by H. BAUERNFEIND makes possible the derivation of elements:

$$\text{Max} = \text{JD } 241\ 3847.250 + 5\overset{d}{.}072\ 575 \ .\ E$$

Maxima	E	O - C
241 3847.841	0	+0.591
3922.617	15	-0.722
3948.574	20	-0.128
3954.583	21	+0.809
7590.587++	738	-0.223
7965.607	812	-0.574
242 3465.597+	1896	+0.745
3490.574	1901	+0.359
3667.868	1936	+0.113
3682.875	1939	-0.098
3738.785	1950	+0.014
4408.850	2082	+0.499
4418.800++	2084	+0.304
4824.683	2164	+0.381
6011.336	2398	+0.051
6245.582	2444	+0.959
6264.557	2448	-0.357
6341.332	2463	+0.330
6412.253+	2477	+0.235
6427.255	2480	+0.019
6452.220	2485	-0.379
6453.220	2485	+0.621

Maxima	E	O - C
242 6594.599+	2513	-0.032
6635.562+	2521	+0.350
6960.608	2585	+0.752
7310.577	2654	+0.713
7421.312++	2676	-0.149
.344++	2676	-0.117
7422.272	2676	+0.811
7426.296	2677	-0.237
.329	2677	-0.204
.363	2677	-0.170
.396	2677	-0.137
.448	2677	-0.085
.555	2677	+0.022
7457.277	2683	+0.308
.311	2683	+0.362
.349	2683	+0.380
.382	2683	+0.413
.436	2683	+0.467
.469	2683	+0.500
.502	2683	+0.533
.535	2683	+0.566
7670.574	2723	+0.702
7700.556++	2731	+0.104
7730.521	2737	-0.367
7746.482+	2740	+0.376
7747.424+	2740	+1,318
7756.336	2742	+0.085
7776.524	2746	-0.027
7786.315	2748	-0.371
7802.499+	2751	+0.596
.552+	2751	+0.648
7807.283+	2752	+0.307
.317+	2752	+0.341
.365+	2752	+0.389
.399+	2752	+0.423
.443+	2752	+0.467
.476+	2752	+0.500
.517+	2752	+0.541
.549	2752	+0.573
7808.282	2752	+1.306
.317	2752	+1,341
.377	2752	+1.401
.402	2752	+1.426

Maxima	E	O - C
242 8035.597	2797	+0.355
8157.460	2821	+0.476
8405.640	2870	+0.100
8776.584	2943	+0.746
8780.585	2944	-0.326
9202.383	3027	+0.448
9217.448++	3030	+0.296
9222.409++	3031	+0.184
9223.406	3031	+1.181
9228.404	3032	+1.107
9349.242+	3056	+0.203
9517.624	3089	+1.190
9526.598++	3091	+0.019
9577.384+	3101	+0.079
9587.337+	3103	-0.113
9674.309	3120	+0.625
9881.575	3161	-0.085
9927.447+	3170	+0.134
9938.541	3172	+0.919
243 0023.355	3189	-0.337
0318.394	3247	+0.493
.554	3247	+0.653
0373.270	3258	-0.429
.325	3258	-0.374
.392	3258	-0.307
0647.582+	3304	-0.036
0749.276	3332	+0.206
0977.564++	3377	+0.228
.612++	3377	+0.276
1109.457+	3403	+0.234
1297.632	3440	+0.724
1317.599	3444	+0.401
1327.634+	3446	+0.291
1328.570	3446	+1.227
.617	3446	+1.274
1332.587+	3447	+0.171
.626+	3447	+0.210
1657.649	3511	+0.588
1677.644++	3515	+0.293
1682.637+	3516	+0.213
1697.559+	3519	-0.082

Maxima	E	O - C
243 1702.562++	3520	-0.152
1703.629	3520	+0.915
1708.613	3521	+0.826
1712.517	3522	-0.342
1713.545	3522	+0.686
1734.511	3526	+1.362
2012.641	3581	+0.500
2027.647+	3584	+0.288
2037.641	3586	+0.137
2042.647	3587	+0.071
2053.628	3589	+0.906
2058.600	3590	+0.806
2067.621	3592	-0.318
2129.569	3604	+0.759
2509.307++	3679	+0.054
2838.602	3744	-0.369
2884.277+	3753	-0.347
.322+	3753	-0.302
.365+	3753	-0.259
.418+	3753	-0.206
2915.336+	3759	+0.277
2940.363+	3764	-0.059
.413+	3764	-0.009
.457	3764	+0.035
2941.291	3764	+0.869
.343	3764	+0.921
.385	3764	+0.963
.433	3764	+1.011
3153.625+	3806	+0.155
9139.377+	4986	+0.268
9150.338	4988	+1.084
9164.273+	4991	-0.199
9169.281	4992	-0.263
9174.274	4993	-0.343
9175.282	4993	+0.665
9180.280	4994	+0.590
9184.283	4995	-0.479
9195.258+	4997	+0.351
9200.256++	4998	+0.276
9205.244+	4999	+0.192
9210.243++	5000	+0.118

Maxima	E	O - C
243 9215.444	5001	+0.246
9225.256	5003	-0.087
9230.226	5004	-0.189
9236.235	5005	+0.747
9443.562+	5046	+0.099

Propable a hump near phase 0.25. Light variation approximately $14^m.9$ - $16^m.0$ with the minimum about phase 0.75. The brightness is too large or the period is too short for the usual periodluminosity relation. Very good maxima are signified by crosses.

Remeis-Observatory
Bamberg, 1967 Dez. 31

W. STROHMEIER

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

NUMBER 247

Konkoly Observatory
Budapest
1968 January 8

MINIMA OF ECLIPSING VARIABLES (VIII)

This report continues IBVS No. 180, and contains 140 observed heliocentric minima of 35 eclipsing variable stars. All are visual timings reduced by the tracing-paper method, except where noted. Linear elements in the 1958 General Catalogue of Variable Stars were used to compute the O - C's, unless otherwise specified. The number of estimates used for each minima is given under n.

J.D. hel. (2400000+)	E	O - C	n	Observer
RT Andromedae				
39665.811:	+24,719	-0.007:	16	Carl Anderson
39672.712	+24,730	-0.024	10	M. Baldwin
39677.745	+24,738	-0.023	12	M. Baldwin
39694.725	+24,765	-0.024	11	M. Baldwin
39701.640	+24,776	-0.027	11	M. Baldwin
39740.643	+24,838	-0.018	14	W. Lowder
39772.710:	+24,889	-0.026:	15	R. Swanberg
XZ Andromedae				
39744.668	+ 5,055	+0.060	16	W. Lowder
39744.673	+ 5,055	+0.065	20	L. Hazel
39748.742	+ 5,058	+0.062	16	R. Swanberg
39759.598	+ 5,066	+0.060	14	L. Hazel
AB Andromedae				
39672.771	+13,852	+0.058	9	M. Baldwin
39674.764	+13,858	+0.060	11	M. Baldwin
39675.762	+13,861	+0.062	13	M. Baldwin
39677.750	+13,867	+0.059	12	M. Baldwin
39679.737	+13,873	+0.055	11	M. Baldwin
39686.711	+13,894	+0.060	11	M. Baldwin
39694.679	+13,918	+0.062	12	M. Baldwin
39700.649	+13,936	+0.058	10	M. Baldwin
39701.648	+13,939	+0.060	10	M. Baldwin
39757.745	+14,108	+0.070	13	M. Baldwin
39761.724	+14,120	+0.066	11	M. Baldwin

J.D. hel. (2400000+)	E	O - C	n	Observer
CX Aquarii				
39707.737	+24,059	+0.021	14	R. Monske
39716.636	+24,075	+0.024	12	R. Monske
39737.760	+24,113	+0.021	14	R. Monske
39737.764	+24,113	+0.025	20	M. Baldwin
39756.668	+24,147	+0.025	13	M. Baldwin
39757.780	+24,149	+0.026	11	M. Baldwin
39761.672	+24,156	+0.026	15	M. Baldwin
OO Aquilae				
39671.650	+10,744.5	-0.031	10	M. Baldwin
39672.667	+10,746.5	-0.027	11	M. Baldwin
39674.690	+10,750.5	-0.031	13	M. Baldwin
39675.707	+10,752.5	-0.028	10	M. Baldwin
39677.730	+10,756.5	-0.032	9	M. Baldwin
39679.760	+10,760.5	-0.029	7	M. Baldwin
39695.724	+10,792	-0.029	10	S. Cook
39696.736	+10,794	-0.031	12	S. Cook
39714.736	+10,829.5	-0.022	10	R. Monske
39716.751	+10,833.5	-0.034	12	R. Monske
39735.756	+10,871	-0.034	11	R. Monske
39744.631	+10,888.5	-0.028	16	W. Lowder
V346 Aquilae				
39664.720	+ 7,534	-0.021	14	M. Baldwin
39674.680	+ 7,543	-0.018	17	M. Baldwin
39675.781	+ 7,544	-0.024	17	M. Baldwin
39715.617	+ 7,580	-0.016	14	R. Monske
39716.720	+ 7,581	-0.020	13	R. Monske
39736.635	+ 7,599	-0.019	14	R. Monske
39737.739	+ 7,600	-0.022	15	R. Monske
WW Aurigae				
39184.8586	+ 2,345	-0.0021	24pe	L. Kalish
SV Camelopardalis				
39686.792	+12,476	-0.020	12	M. Baldwin
39737.801	+12,562	-0.015	13	M. Baldwin
39762.703	+12,604	-0.022	15	M. Baldwin
39765.668	+12,609	-0.022	15	F. Chapman
39771.604:	+12,619	-0.017:	17	D. Livingston
R Canis Majoris				
39528.636	+ 3,533	+0.007	21	M. Baldwin

J.D. hel. (2400000+)	E	O - C	n	Observer
RZ Cassiopeiae				
39701.813	+18,696	-0.039	12	S. Cook
39737.6737	+18,726	-0.0367	pe	A. Stokes
39749.6255	+18,736	-0.0374	pe	A. Stokes
39761.572 [1]	+18,746	-0.043	6	J. Ashbrook
39767.560 [1]	+18,751	-0.031	5	J. Ashbrook
39785.481 [1]	+18,765	-0.039	3	J. Ashbrook
39786.680 [1]	+18,766	-0.035	15	J. Ashbrook
39805.808 [1]	+18,783	-0.032	12	J. Ashbrook
39822.524 [1]	+18,797	-0.049	6	J. Ashbrook
39823.728 [1]	+18,798	-0.041	7	J. Ashbrook
39841.659 [1]	+18,813	-0.038	4	J. Ashbrook
TV Cassiopeiae				
39704.802	+10,806	-0.004	11	F. Sanner
AB Cassiopeiae				
39745.606	+10,432	+0.066	22	L. Hazel
ZZ Cygni				
39759.594	+29,624	-0.001	16	L. Hazel
V477 Cygni				
39748.765	+ 2,941	-0.054	14	F. Sanner
39767.544	+ 2,949	-0.050	12	F. Sanner
Z Draconis				
39530.577	+ 4,613	+0.010	11	M. Baldwin
39534.648	+ 4,616	+0.008	14	M. Baldwin
TY Delphini				
39707.667	+ 9,812	-0.011	14	R. Monske
39738.630	+ 9,838	-0.017	16	R. Monske
YY Delphini				
39735.590	+17,577	+0.036	14	L. Hazel
SZ Herculis [2]				
39654.624	+ 3,090	+0.014	16	D. Livingston
39667.706:	+ 3,106	+0.007:	21	L. Hazel
39735.615	+ 3,189	+0.014	21	F. Chapman
39744.612	+ 3,200	+0.012	7	H. Blake
39744.614:	+ 3,200	+0.014:	23	D. Livingston
39748.707	+ 3,205	+0.017	21	R. Swanberg
39757.704	+ 3,216	+0.015	17	M. Baldwin

J.D. hel. (2400000+)	E	O - C	n	Observer
UX Herculis				
39650.673	+12,767	-0.053	17	L. Hazel
39667.716	+12,778	-0.048	18	L. Hazel
CT Herculis				
39664.723	+ 4,904	+0.095	18	M. Baldwin
SW Lacertae				
39674.780	+50,830	+0.048	8	M. Baldwin
39675.744	+50,833	+0.050	16	M. Baldwin
39679.760	+50,845.5	+0.057	13	M. Baldwin
39686.811	+50,867.5	+0.051	15	M. Baldwin
39694.670	+50,892	+0.054	12	M. Baldwin
39701.726	+50,914	+0.054	16	M. Baldwin
39707.661	+50,932.5	+0.056	13	M. Baldwin
39737.804	+51,026.5	+0.051	19	M. Baldwin
39751.596	+51,069.5	+0.053	12	H. Blake
39752.561:	+51,072.5	+0.055:	10	H. Blake
39756.732	+51,085.5	+0.057	20	R. Swanberg
39757.695	+51,088.5	+0.058	10	M. Baldwin
39761.706	+51,101	+0.060	20	M. Baldwin
39762.668	+51,104	+0.060	12	M. Baldwin
39764.578	+51,110	+0.046	15	F. Chapman
39766.664	+51,116.5	+0.047	11	F. Chapman
39770.676	+51,129	+0.051	20	R. Swanberg
VX Lacertae				
39736.648	+ 5,130	-0.022	14	L. Hazel
UV Leonis				
39558.683	+10,937	-0.007	12	M. Baldwin
39567.673	+10,952	-0.019	12	M. Baldwin
FL Lyrae				
39678.747	+ 2,673	+0.007	11	S. Cook
RT Persei				
39537.610	+ 7,475	-0.016	12	M. Baldwin
ST Persei				
39528.693	+ 3,776	-0.062	23	M. Baldwin
UX Pegasi				
39739.665	+ 7,323	-0.054	18	L. Hazel

J.D. hel. (2400000+)	E	O - C	n	Observer
Beta Persei				
39714.775	+610	+0.006	20	R. Monske
39717.639 [1]	+611	+0.003	13	J. Ashbrook
39734.836	+617	-0.004	66pe	D. Henning and G. Gliba
39737.710 [1]	+618	+0.002	4	J. Ashbrook
39737.711	+618	+0.003	19	F. Sanner
39740.568 [1]	+619	-0.007	11	J. Ashbrook
39760.647	+626	+0.001	17	F. Sanner
39823.728 [1]	+648	+0.001	9	J. Ashbrook
39826.594 [1]	+649	-0.001	10	J. Ashbrook
39829.459 [1]	+650	-0.003	8	J. Ashbrook
U Sagittae				
39736.643	+ 6,687	+0.033	18	R. Monske
V505 Sagittarii				
39675.703	+ 5,208	-0.021	13	M. Baldwin
39694.633	+ 5,224	-0.017	7	M. Baldwin
39701.728	+ 5,230	-0.019	14	M. Baldwin
39707.654	+ 5,235	-0.007	7	M. Baldwin
39759.691	+ 5,279	-0.017	16	M. Baldwin
RW Tauri				
39534.618	+ 1,846	+0,007	24	M. Baldwin
X Trianguli				
39739.695	+ 5,192	+0.033	19	F. Chapman
39740.672	+ 5,193	+0.035	12	W. Lowder
39741.640	+ 5,194	+0.032	12	W. Lowder
39772.729	+ 5,226	+0.029	17	R. Swanberg
39777.586	+ 5,231	+0.031	19	F. Chapman
W Ursae Minoris				
36082.644 [1]	+ 1,543	+0.003	12	J. Ashbrook
37113.554 [1]	+ 2,149	+0.005	6	J. Ashbrook
37118.669 [1]	+ 2,152	+0.017	10	J. Ashbrook
37147.570 [1]	+ 2,169	-0.002	8	J. Ashbrook
39350.586 [1]	+ 3,464	+0.015	14	J. Ashbrook
39760.563 [1]	+ 3,705	+0.013	13	J. Ashbrook
AW Vulpeculae				
39734.660	+16,398	-0.015	13	R. Monske

J. D. hel. (2400000+)	E	O - C	n	Observer
BU Vulpeculae				
39735.705	+10,787	+0.048	19	R. Monske

This work is sponsored by the American Association of Variable Star Observers, with David B. Williams as program co-ordinator. The reductions were made by the writers, except in some cases which were checked.

L. J. ROBINSON and JOSEPH ASHBROOK

"Sky and Telescope"
49 Bay State Rd.
Cambridge, Mass. 02138, USA

1). Reduced with observer's mean light curve.
2). O - C's computed from elements in Sky and Tele. 25, 5, 277.
3). O - C's computed from elements in Sky and Tele. 27, 5, 316.

COMMISSION 27 OF THE I. A. U

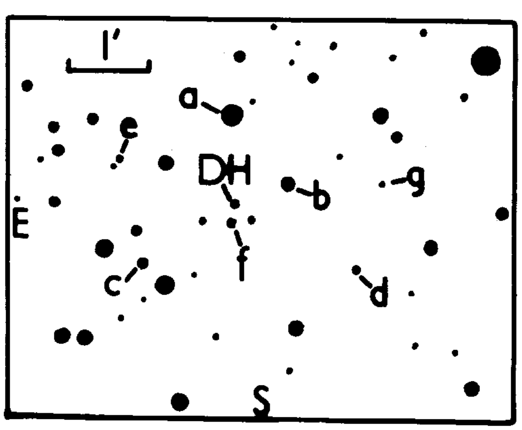
INFORMATION BULLETIN ON VARIABLE STARS

NUMBER 248

Konkoly Observatory
Budapest
1968 January 15

DH CARINAE

The first known flare star, DH Carinae, was discovered by E. Hertzsprung in 1924 (1), when a flare of $1^m.8$ was observed. Further flares of this star have not been observed. The spectral type of the star is undetermined. At the suggestion of A.H. Joy, a direct red plate of the star was taken by M. Bester at the ADH telescope of the Boyden Observatory using 103a-E emulsion and W25A filter, in order to estimate its colour. Identification from Hertzsprung's chart is difficult owing to the presence of a nearby companion which is not indicated by him and which is photographically brighter. The Boysen red plate shows, however, that the more northerly star of the pair is much redder, and undoubtedly this is Hertzsprung's star since all confirmed flare stars are red dwarfs earlier than about KO. Blue and ultraviolet plates were also taken at Boyden and an approximate B and U sequence was transferred to the region of DH Carinae from H. Schmidt and G. Diaz Santanilla's sequences in NGC 3590 and Tr 18 (2). See Fig. 1.



	B	U
a	$13^m.15$	$14^m.85$
b	14.95	15.55
c	15.05	15.25
d	15.30	15.55
e	15.50	15.60
f	15.55	15.55
g	16.20	16.15
DH	16.00	16.10

The observed redness is in accordance with the colour index ($2^{m}.7$) from Joy's visual magnitude for the star of 12.2 (3) and the photographic magnitude of 14.9 in the Kukarkin-Parenago Catalogue of Variable Stars. Judging from all the plates the southerly companion (star f) is approximately of type A ($U-B \sim 0^{m}.0$), whilst DH Carinae itself appears to show a large ultraviolet excess for such a red star ($U-B \sim 0^{m}.1$). This conforms,however,with observations of several flare stars by E. Mendoza in the Orion I Association (4), and not with those in the solar neightbourhood. It will be noticed that DH Carinae appears one magnitude fainter in the standard B system than the photographic magnitude, and this is probably partly accounted for by the strong ultraviolet excess of the star and the ultraviolet cut-off of the B filter. Accurate multicolour photometry and proper motion studies would be interesting for this star.

Armagh Observatory,
January 4, 1963

A.D. ANDREWS

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1) E. Hertzsprung, B.A.N. Vol. 2, 87 (1924).
2) H. Schmidt and G. Diaz Santanilla, Veröff. Ast. Inst. Univ. Bonn Nr. 71 (1964).
3) A. H. Joy, Stars and Stellar Systems Vol. 6, 667 (Univ.Chicago Press, 1960).
4) E. Mendoza, Astroph. Journ. Vol. 143, 1010 (1966).

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

NUMBER 249

Konkoly Observatory
Budapest
1968 January 16

ON THE VARIABILITY OF THE STAR BD $+56^{\circ}2855$

The star BD $+56^{\circ}2855$ (9, 0) = HD 240 055 (9, 4) (B5) = P 5699= = KЗГ 5612, RA 1900 = $22^{h}42^{m}15^{s}$, D 1900 = $+56^{\circ}19'.5$ has hitherto often been used as comparison star for CO Lac. Uitterdijk (1934), on inspecting photographic plates found that on 12 September 1915 the star was by about 0. 24 mag fainter than its mean brightness. Consequently, the star BD $56^{\circ}2855$ has been included in the catalogue of stars suspected of variability.

In the period 25 August 1967 to 1 October 1967, 221 observations of the star were made at the Crimean Astrophysical Observatory (USSR) using a 64-cm telescope equipped with a photoelectric photometer. The observations were made in a system similar to the system B, V Johnson - Morgan. The star BD $+56^{\circ}2856$ was used as comparison star.

The star BD $+56^{\circ}2855$ turned out to be an eclipsing variable with elements:

J.D. 2439749,3973 + $6^{d}_{,}3549$. E

The depth of primary minimum A_1 = 0,30 mag

The depth of secondary minimum A_2 = 0,13 mag

The duration of the eclipse D = $6^{h}20^{m}$

in yellow. The secondary minima are lying symmetrically relative to the primary ones. The elements in the blue colour are similar to those in yellow.

Further photoelectric observations of times of minima are desirable for a more accurate determination of elements.

Cracow, 5 January 1968

J. M. KREINER

Astronomical Observatory
of the Jagellonian University

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Wright, F. W. HA 89, 177, 1937
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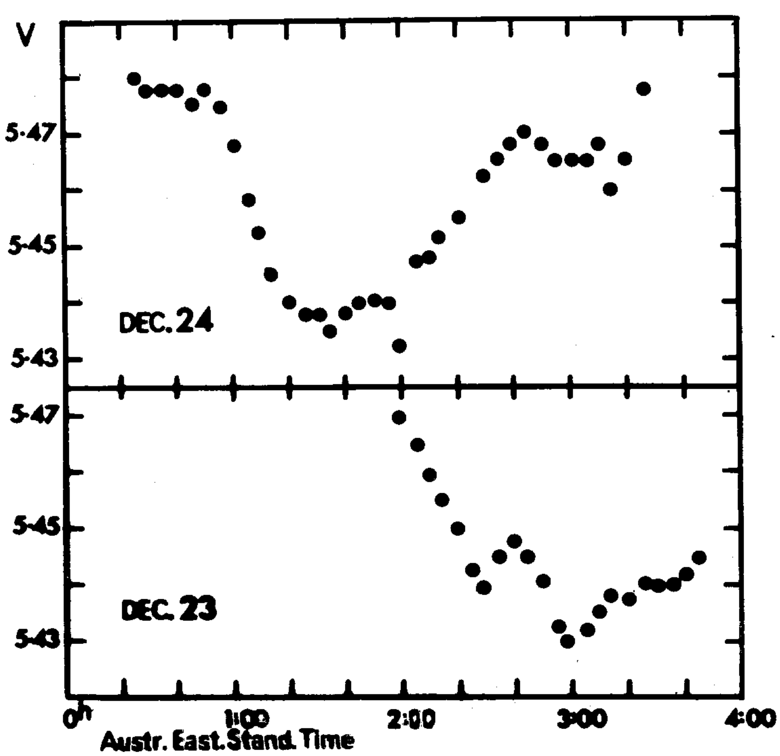
COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 250

Konkoly Observatory
Budapest
1968 January 16

HR 2707: A DELTA SCUTI VARIABLE

The bright star HR 2707, (V_E, B-V, U-B) = (5.4, +0.29, +0.18) has been found to be a small amplitude variable. Observations on December 23 and 24, 1967 are shown in Figure 1; the comparison



star was HR 2714 ($4\overset{m}{.}1$, AO). The period is uncertain but probably near $0\overset{d}{.}11$. The amplitude may be variable as observations under poorer conditions on December 25 and 26 failed to show a variation greater than $0\overset{m}{.}02$. The radial velocity is variable with a mean value of +30 km/s, giving (U,V,W) = (+27, -15, -16) if $M_V = +0\overset{m}{.}5$ and using the well determined proper motion of $(\mu_\alpha \cos\delta, \mu_\delta) = (-0\overset{''}{.}033, -0\overset{''}{.}016)$.

O. J. EGGEN

Mount Stromlo and Siding Spring Observatories
Research School of Physical Sciences
The Australian National University

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 251

Konkoly Observatory
Budapest
1968 January 20

S 10171 ORI

The Variable S 10171 Ori was discovered in comparing two plates of the field φ_2 Ori. Instrument: Astrograph 400/1600 mm; type: UV Ceti; colour: red.

The following decline was observed:

243 8371.441 ($15^{m}.3$); .485 ($15^{m}.8$); .529 ($17^{m}.2$). Two days earlier and one day later the star was invisible. The brightness on the Palomar blue chart is about 19^{m}, on the red one about 18^{m} (pair 1493).

C. HOFFMEISTER
Sonneberg Observatory

THE MASS OF MIRA CETI, DELTA CEPHEI AND ETA AQUILAE

One of the most interesting aspects of the modern methods proposed to assign the mass to variable stars consists in finding the curve $\sigma = \sigma(M)_{Te,R}$ which not only allows to determine the mass but also to give a value for the expression $\left(\frac{1}{\sigma}\frac{d\sigma}{dM}\right)_{Te,R}$

Therefore we present now these curves for the above mentioned stars; we obtained these curves applying the method we exposed in (1), after we operated some changes and some improvements which we shall refer in a following paper.

The curves related to Delta Cep and Eta Aql have been constructed applying the method (1) to masses indicated by points in fig. 1/A and 1/B; they show that if such stars oscillate on the second eigen-value, as proposed by Cristy (2), the masses derived by our method are very close to those this author deduced, in fact we find 1.8 and 3.2 $M_{\odot}$. But if the stars oscillate on the first eigen-value the masses we derive are respectively: 3.5 and 6 $M_{\odot}$.

Our computations do not consent to choose between the two solutions.

Fig. 1/A

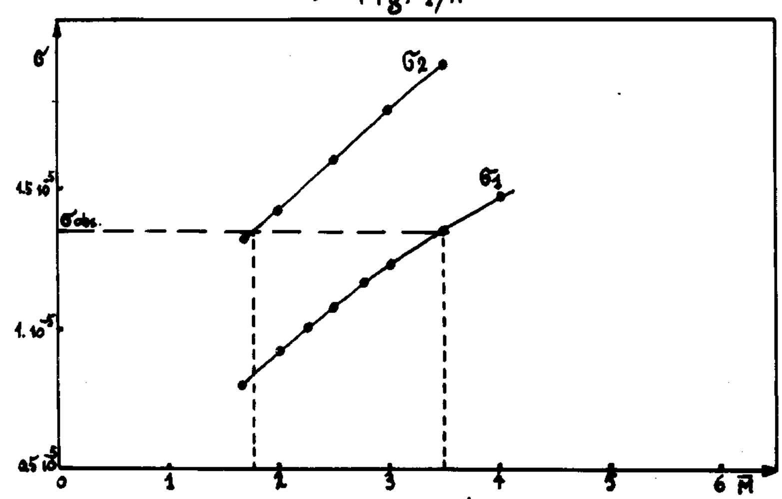
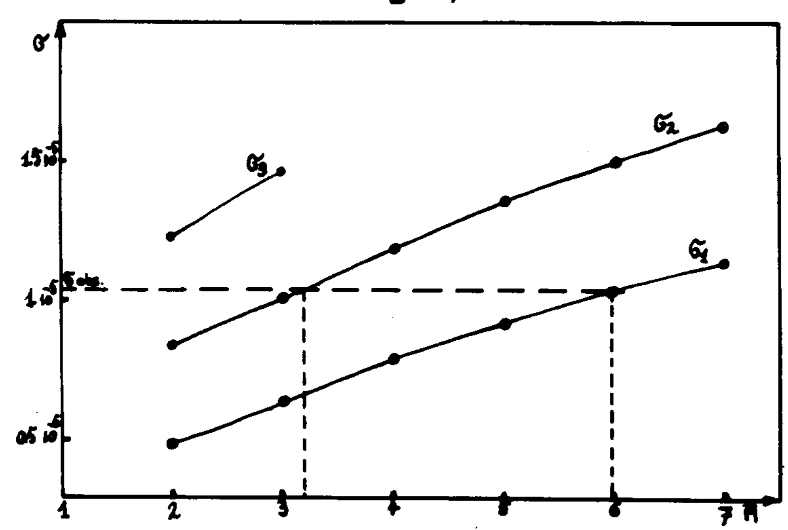
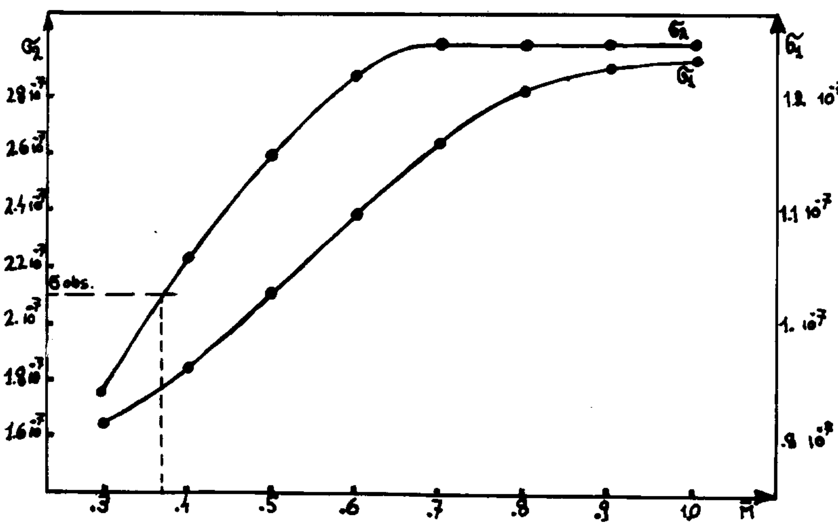


Fig. 1/B



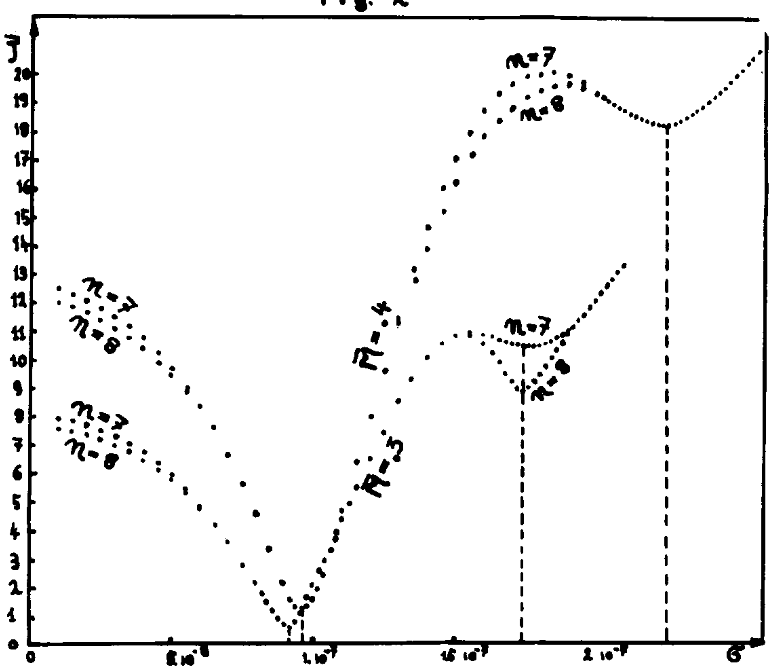
For Mira Ceti we have a different situation. It does not seem possible that Mira Ceti oscillates on the fundamental eigen-value since the mass corresponding to it should be far too high for the possibility of constructing a model; as a matter of fact the models we constructed starting from the surface with masses > 1 exhaust all the mass before arriving to the center. Our results, shown in fig. 1/C, seem to the conclusion that Mira Ceti oscillates on the second eigen-value with a mass 0.4 $M_\odot$.

Fig. 1/c



This result obtained in a completely different way is in a good agreement with those by J. D. Fernie (3) and by J. D. Fernie and A. A. Brooken and it strengthens the hypothesis that some M variable stars have very small masses ($\sim 1\ M_\odot$) instead of what is generally admitted (that all have $\sim 15\ M_\odot$) on the basis of the unjustified application of the mass - luminosity relation to these stars. Mira Ceti, Khi Oph. (3) and analogous variables seem to be for this reason old stars. It is not to be rejected the hypothesis that such stars are the results of an intense process of mass loss (in consequence of strong stellar winds or ejection of shell owing to shock waves propagation) in stars that initially had a mass $< 4\ M_\odot$ with evolution that, according to R. Stothers, is not affected by neutrino emission.

Fig. 2



Graph 2, which represents the relation $\bar{J} = \bar{J}(\sigma)$, ($\bar{J} = 10^7 \sqrt{J}$; $J = J(y)$ of (1) (pag. 274) we obtained for Mira Ceti with models which have 0.3 and 0.4 $M_\odot$ and by approximating polynomials of 7th and 8th degrees, shows as an example, how the 1st and 2nd eigen-values are determined according to the method we propose (the curves are different from star to star).

A. MASANI A. MARTINI

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E. ALBINO

C. N. R. - Centro di calcolo University of Genoa

(1) The position of variable stars in the H-R Diagram. Bamberg, 255 (1965)
(2) Bamberg, 77 (1965)
(3) Ap. J. 130, 611 (1959)
(4) Ap. J. 133, 1088 (1961)
(5) Ap. J. 138, 1085 (1963)

COMMISSION 27 OF THE I. A. U

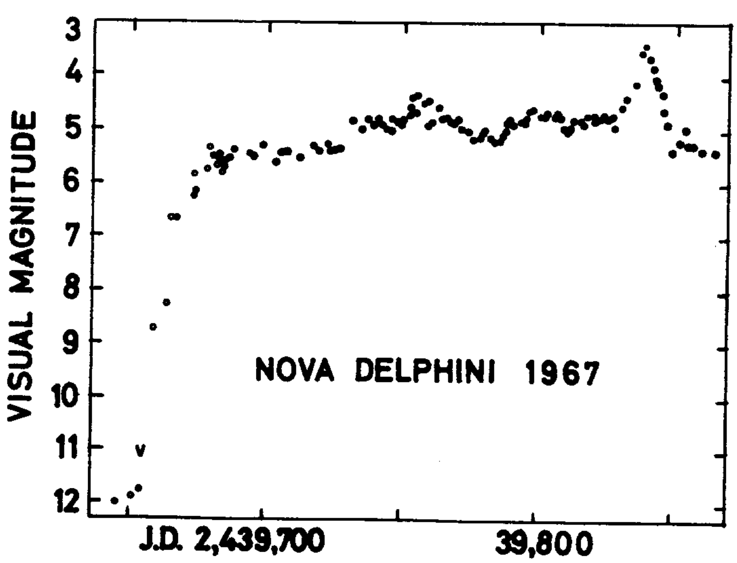
INFORMATION BULLETIN ON VARIABLE STARS

NUMBER 252

Konkoly Observatory
Budapest
1968 January 24

NOVA DELPHINI (1967)

Since July 12-13, 1967, visual estimates of Nova Delphini have been made by the writers: 1945 estimates on 97 nights by Robinson in Cambridge, Massachusetts, and 522 estimates on 59 nights by Ashbrook in Weston, 10 miles away. The light curve was plotted from the nightly means, provisionally reduced with comparison star magnitudes from the Arizona Tonantzintla Catalogue (Sky and Tele., 30, 1, 24) or the Bright Star Catalogue (3rd edition). Open circles are visual or photovisual observations before the commencement of our series; these were taken from IAUC 2022, 2024, 2025, 2030, and 2036; also, The Astronomer (Ealing, England), 4, 40, 67.



Our means agree adequately with photoelectric measures on the same nights by A. J. Stokes and L. Lovell (IBVS 224, 226, and 238), the average deviation being $\pm 0^m.048$ (comparison with 15 nights of Stokes' observations) and $\pm 0^m.065$ (15 nights of Lovell's). A similar comparison between Stokes and Lovell gives $\pm 0^m.065$ (17 nights).

These observations are being continued. A definitive reduction of both our series will be submitted to Peremennie Zvezdi.

L. J. ROBINSON and J. ASHBROOK

"Sky and Telescope"
49 Bay State Rd.
Cambridge, Mass. 02138

FLARES OBSERVED AT THE CATANIA ASTROPHYSICAL OBSERVATORY

From 22th July 1967 we began photoelectric observations in V light of the flare stars BD +51°2402, EV Lac and PZ Mon collecting, until today, 131 hours of observations.

The preliminary results obtained are summarized in the enclosed table.

OBSERVED FLARES

Star	obs. time	Date (JD hel) 2439...	Δ m	rise time	total dur.	Remarks	Comp. star BD+
BD +51°2402	$76^h.4$	696.5845	$^m.07$	$^d.0035$	$^d.0085$	unc.	51°2410
EV Lac	$39^h.2$	761.4270	.14	.0004	.0038	double	42°4527
		761.4278	.16				
		763.5230	.32	.0004	.0052		
		854.3048	.92	.0009	.0468		
PZ Mon	$15^h.5$	754.6521	.11	.0005	.0012		1°1495

Catania, January 24, 1968

S. CRISTALDI M. RODONO

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 253

Konkoly Observarory
Budapest
1968 February 8

ON THE VARIABLE STAR IN FIELD OF M 2

The brightness of the variable star (x = +315", y = +208") discovered by R.Margoni and R.Stagni in field of the globular cluster M 2 = NGC 7089 (IBVS 239, 1967 December 9) was estimated on 61 Moscow plates (J.D. 2437 087-277). The star belongs to the RRab-type with the following elements:

$$\text{Max} = \text{J.D. hel. } 2437138.233 + 0^{d}.7121 \cdot E$$

The photographic magnitudes in system of V.I. Kulikov (VS 13, 400, 1961) are $15^{m}_{p}.7$ at max. and $16^{m}_{p}.2$ at min., respectively; $M - m = 0^{p}.22$.

Moscow,
Sternberg Astronomical Institute
January 31, 1968

B. KUKARKIN

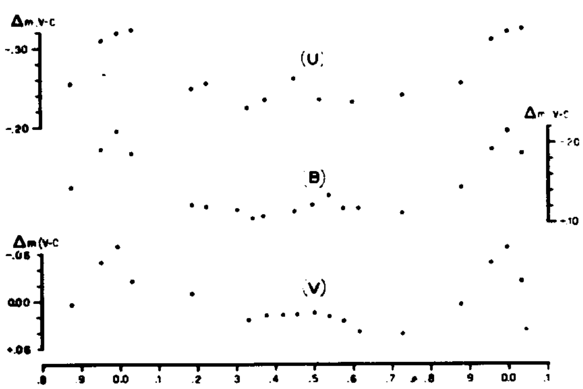
NEW VARIABLE STAR IN LACERTA

During photoelectric observations of AR Lac, the variability of the star BD + 46^{o}3572 (=HD 209813, $7^{m}.52$ pg., KO) was detected. This star was not reported in "Catalogue of Stars Suspected of Variability" (Moscow 1951), neither in more recent catalogues of variable stars.

Systematic observations in three colours (U, B, V), using BD 45°3741 (=HD 208728, $8^{m}.02$ pg., KO) as comparison star, gave the following preliminary elements:

$$\text{Max hel.} = \text{JD } 2439766.5 + 25^{d}.98 \cdot E$$

Amplitude of variation about $0^{m}.1$ for all colours.



According to spectral type, period, amplitude of variations and light curve (s. Figure), the variable is probably a Cepheid.

Osservatorio Astrofisico
di Catania
January 30, 1968

C. BLANCO
S. CATALANO

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 254

Konkoly Observatory
Budapest
1968 February 16

ON THE VARIABLE STARS IN FIELD OF M2

The three variable stars discovered by R.Margoni and R.Stagni in the field of the globular cluster M2 = NGC 7089 (IBVS 239, 1967 Dec.9) were estimated on 64 Moscow plates (J.D. 2437078 - 277). All three variables belong to the RRc-type with the following elements:

x"	y"	Max.J.D. hel. 2437...	Period	Max.	Min.	A	M - m
- 189	- 707	138.210	$0^d.3619$	$15^m.6$	$16^m.2$	$0^m.6$	$0^p.40$
+ 235	- 502	138.512	0.3193	15.8	16.2	0.4	0.50
+ 400	+ 74	138.276	0.2863	15.8	16.2	0.4	0.42

All the magnitudes are given in the photographic system of V.I. Kulikov (VS 13, 400, 1961).

Sternberg State Astronomical
Institute Moscow,
8th February 1968

B. V. KUKARKIN

NEW VARIABLE WITH SYMBIOTIC SPECTRUM

One of the variable stars discovered in VSF 193 in Sagittarius is the symbiotic-spectrum star, MH_α 208-51, or No. 313 in the Merrill-Burwell (Astrophys. J., 112, 72, 1950) list of stars whose spectra show H_α in emission:

Position (1900)		Max	Min	
$18^h\ 31^m\ 59^s$	-22^o 46!7	14.0	15.3	Sp. M6e

Primary Min. = 2429850 + 850^d n

The light curve and period closely resemble those of CI Cygni, with long duration of maximum and comparatively short minima (cf, Aller,L.H. Pub.Dom.Astrophys.Obs., 9, 321, 1953). In CI Cyg two almost nova-like outbursts have been observed, one by N. Greenstein (Bull. Harvard Coll. Obs. No. 906, 1937) on Harvard plates of 1911, and another in May, 1937, on plates of the Maria Mitchell Observatory (AAVSO Abstracts, October 1966). No such outbursts have been found for MH_α 208-51. Both stars merit extensive observation.

Maria Mitchell Observatory
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DORRIT HOFFLEIT

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

NUMBER 255

Konkoly Observatory
Budapest
1968 February 19

BW Tau = 3C 120

The purpose of this communication is to note that the irregular $13^m.7$ to $14^m.6$ variable BW Tau = HV 10387 ($\alpha = 04^h 30^m.5$, $\delta = +05^\circ 15'.0$, 1950.0) discovered by Hanley and Shapley (1940) is, in fact, the Zwicky compact galaxy II Zw 0430 + 05 (from a list kindly circulated by Dr. Zwicky) which is identified with the radio-variable radio source 3C 120. This source has aroused much interest recently (Kellermann and Pauliny-Toth, 1968; Oke, Sargent, Neugebauer and Becklin, 1968). It is also listed as a peculiar galaxy by Vorontsov-Velyaminov and Arhipova 1964 and as a radio source in the Parkes (Day, Shimmins, Ekers and Cole, 1966) and 4C (Gower, Scott and Wills, 1967) surveys. Thus any observations made of this object by variable star observers, particularly in the past, would be of great interest. However, care should be taken in interpreting the observations in view of the extended nature of the galaxy.

Royal Greenwich Observatory
Hailsham, Sussex,
ENGLAND

M.V. PENSTON

References

Day, G. A., Shimmins, A. J., Ekers, R. D. and Cole, D. J. (1966) - Aust. J. of Phys. 19, 35

Gower, J. F. R., Scott, P. F. and Wills, D. (1967) - Mem. R.A.S. 71, 49

Hanley, C. M. and Shapley, H. (1940) - HB No. 913

Kellermann, K. I. and Pauliny-Toth, I. I. K. (1968) - Ap.J. (in press)

Oke, J. B., Sargent, W. L. W., Neugebauer, G. and Becklin, E. E. (1968) - Ap.J. (in press)

Vorontsov-Velyaminov, B. A. and Arhipova, V. P. (1964) - Morphological Catalogue of Galaxies, Vol 3 (Moscow)

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

NUMBER 256

Konkoly Observatory
Budapest
1968 February 20

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Band VII, Nr.65

ELEMENTS FOR SONNEBERG VARIABLES (VI)

S 4847 = CSV 545 = CoD $-45^{\circ}1909$ ($9^{m}_{.}6$) = HD 273 665 (Ao) = BV 455

Min = JD 242 8815.475 + $1^{d}_{.}838$ 115 . E

Minima	E	O − C
242 8815.498 (S)	0	+0.023
8837.515 (S)	12	−0.017
8861.328 (S)	25	−0.046
243 4324.379 (S)	2997	+0.073
4335.341 (S)	3003	+0.007
8317.552	5170	+0.022
8377.379	5202	+0.030
8377.367 (1/3)	5207	−0.173
8739.416 (3/4)	5399	−0.042
8753.376 (1/2)	5406.5	+0.132
9031.625 (1/2)	5558	−0.092
9150.286 (1/2)	5622.5	+0.010
9443.450	5782	−0.006

Ampl.$0^{m}_{.}35$, with a remarkable (1/2) secondary minimum, EA
C.HOFFMEISTER, Erg AN 12, Nr.1, 1949

S 4973 = CSV 2049 = CoD $-44^{\circ}8789$ ($9^{m}_{.}7$) = HD 118 695 (A5) = BV 845

Min = JD 242 7987.345 + $0^{d}_{.}537$ 1675 . E

Minima	E	O − C
242 7987.299 (S)	0	+0.046
8257.530 (S)	503	−0.010
8334.311 (S)	646	−0.044

Minima		E	O - C
	8361.252 (S)	696	+0.038
	8369.248 (S)	711	-0.023
	8687.289 (S)	1303	+0.015
243	4240.216 (S)	11640.5	+0.018
	4535.418 (S)	12190	+0.001
	8190.260 (3/4)	18994	-0.044
	8197.306	19007	+0.018
	8225.213	19059	-0.007
	8474.463	19523	-0.003
	8475.501	19525	-0.039
	8520.386 (3/4)	19608.5	-0.008
	8524.388	19616	-0.035
	8530.335	19627	+0.003
	8583.201 (1/2)	19725.5	-0.041
	8586.204	19731	+0.007
	8822.533	20171	-0.018
	8877.358	20273	+0.016
	8878.405	20275	-0.011
	8885.359	20288	-0.040
	8906.308	20327	-0.041
	8916.254 (1/2)	20345.5	-0.032
	.299 (1/2)	20345.5	+0.013
	8933.214	20377	+0.007
	8934.255	20379	-0.026
	9182.440	20841	-0.013
	9202.341	20878	+0.013
	9209.318	20891	+0.007
	9230.262	20930	+0.001
	9232.417	20934	+0.008
	9614.316	21645	-0.020
	.362	21645	+0.026

Ampl. $0^m_.35$, with a deep 3/4 secondary minimum, EB

C.HOFFMEISTER, Erg AN 12, Nr.1, 1949

S 6276 = CSV 6752 = CAP $-66^{o}1108$ ($9^{m}_{.}0$) = BV 697, Cape: A3

Min = JD 243 6742.200 + $1^{d}_{.}197\ 375$. E

M i n i m a	E	O - C
243 6691.256 (S)	-42.5	-0.056
6742.213 (S)	0	+0.013
6748.215 (S)	5	+0.028
8439.402 (1/2)	1417.5	-0.077
.446	1417.5	-0.033
8442.442	1420	-0.030
.485	1420	+0.013
8472.376	1445	-0.031
8475.375	1447.5	-0.025
8797.465 (1/2)	1716.5	-0.029
.510 (3/4)	1716.5	+0.016
8818.402 (1/2)	1734	-0.046
.449	1734	+0.001
8824.400 (1/2)	1739	-0.035
.444	1739	+0.009
9179.458 (3/4)	2035.5	+0.001
9200.396	2053	-0.015
9209.378 (3/4)	2060.5	-0.013
9525.476 (3/4)	2324.5	-0.022

Ampl. $0^{m}_{.}50$, with a very deep (3/4) secondary minimum, EW or EB

C.HOFFMEISTER, VSS 6, Nr.1, 1963: 10^{m} – $10^{m}_{.}5$, E

S 7672 = HI Tel = CAP $-52^{o}11289$ ($10^{m}_{\cdot}2$) = CoD $-52^{o}8886$ (10^{m}) =
= BV 887, b = $-22^{\circ}_{\cdot}5$

Max = JD 242 8335.5 + $30^{d}_{\cdot}43$. E

Maxima	E	O - C
242 8334.5 (S)	0	-1.0
8336.5 (S)	0	+1.0
8364.4 (S)	1	-1.5
8366.4 (S)	1	+0.5
8394.4 (S)	2	-2.0
8670.6 (S)	11	+0.4
8673.6 (S)	11	+3.4
8697.5 (S)	12	-3.2
8699.5 (S)	12	-1.2
243 4237.4 (S)	194	-1.5
4303.3 (S)	196	+3.5
4483.5 (S)	202	+1.1
4540.5 (S)	204	-2.7
4571.5 (S)	205	-2.2
8253.3	326	-2.4
8257.3	326	+1.6
8258.3	326	+2.6
8589.4	337	-1.0
8590.4	337	0.0
8992.3	350	+6.3
9019.2	351	-2.8
9318.4	361	-2.3
9347.3	362	-3.9
9380.2	363	-1.4
9383.2	363	+1.6

Ampl. $1^{m}_{\cdot}7$, minimum at phase 0.65, Cepheid;
discovered by C.HOFFMEISTER, AN 287, 59, 1963: medium period, perhaps E-type

(S) = Sonneberg, H.GESSNER

W.STROHMEIER

Remeis Observatory
Bamberg, 1968 Febr. 10

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 257

Konkoly Observatory
Budapest
1968 February 26

THE TRIPLE SYSTEM LAMBDA TAURI

During 1966-1967 we have observed, at the Observatory of Merate, the eclipsing triple system Lambda Tauri, securing 16 grating spectra, dispersion 34 Å/mm, well distributed along the period, for redetermining the orbital elements of the system. The usefulness of this study has been pointed out by Koch, Sobieski and Wood[1] in 1963. We have obtained the following results:

$\gamma = 15.23 \pm 0.53$ $K = 55.44 \pm 0.81$

$e = 0.12 \pm 0.11$ $P = 3.9540 \pm 0.0066$

$\omega = 141^{\circ}.95 \pm 0.25$ $T_0 = 2439137.623 \pm 0.190$

$$a \sin i = 2.990.732 \text{ km.}$$

The residuals computed to study the third body are all very small i.e. slightly more than the probable error of each plate (about 2.5 Km/s). We are interested in going on further with the analysis of the behaviour of the third body, for wich Ebbighausen, Struve have found a 33 days period in 1956[2].

C. CASINI
Merate, February 19, 1968   P. GALEOTTI
G. GUERRERO

1) Koch, Sobieski, Wood; A Finding list for Observers of Eclipsing Binaries, University of Pennsylvania, Vol.IX, 1963

2) Ebbighausen, Struve; ApJ 124,507,1956

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 258

Konkoly Observatory
Budapest
1968 February 29

THE MASSES OF BM CAS, X CYG, RT AUR, RR LYR

Prosecuting the program of study on giant variables stars (1), we present the curves $\sigma = \sigma(M)_{T_e,R}$ (T_e,R of the static model) obtained applying our computational method to the following stars: BM Cas (Fig. 1), X Cyg (Fig. 2), RT Aur (Fig. 3) and RR Lyr (Fig. 4).

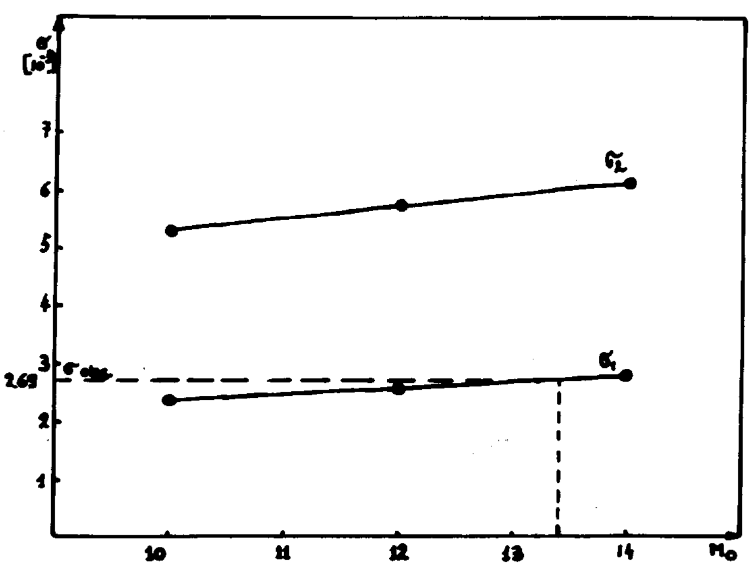

Fig. 1

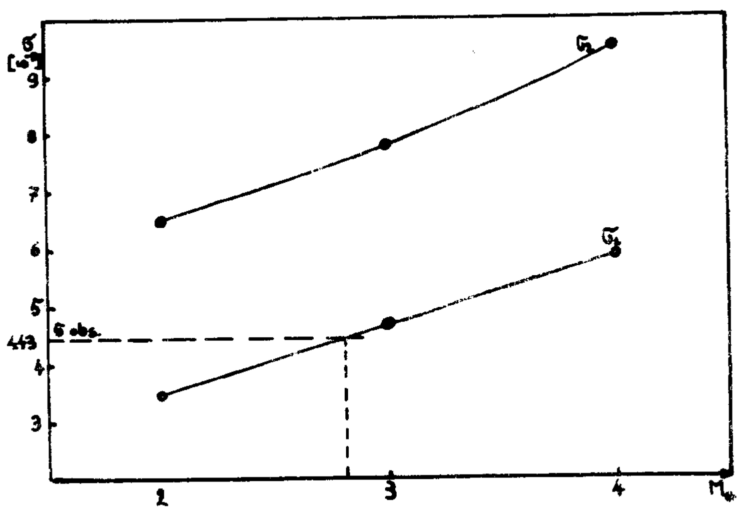

Fig. 2

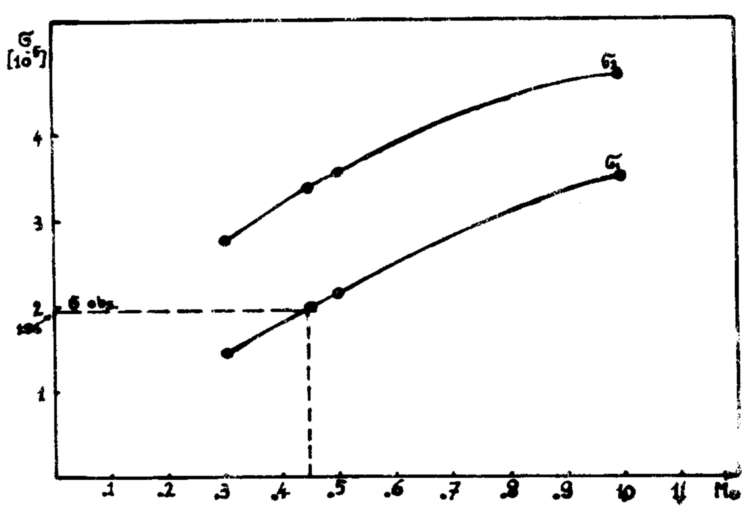

Fig. 3

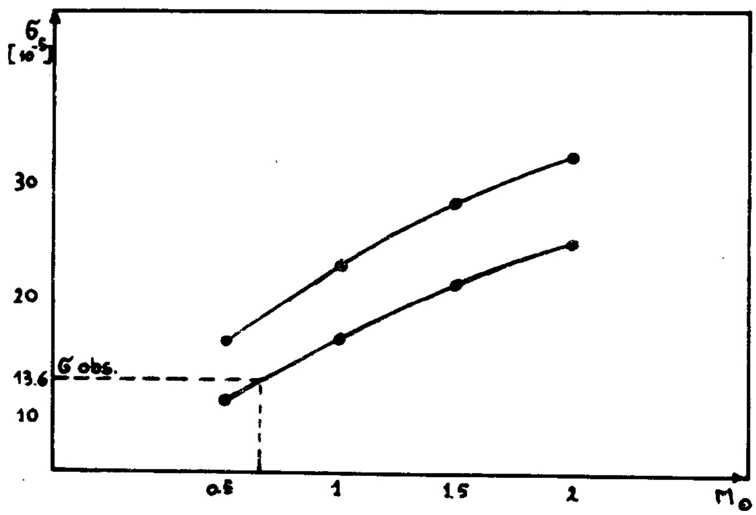

Fig. 4

From the curves it follows that if the stars oscillate on the fundamental mode the deduced masses are:

	T_e	R	$M/M_☉$
BM Cas	4400	1.56×10^{13}	13.5
X Cyg	5000	4.77×10^{12}	2.8
RT Aur	6000	9.6×10^{11}	0.45
RR Lyr	8000	3.75×10^{11}	0.65

The masses of BM Cas and RR Lyr are very close to those deduced by Thiessen (2) and R.F. Christy (3).

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C.N.R. Centro di calcolo

(1) Inf. Bull. on Variable Stars N° 251
(2) Zeit. f. Astr. 39, 65, 1956
(3) Bamberg 77 (1965)

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 259

Konkoly Observatory
Budapest
1968 March 7

RT LACERTAE – A PHOTOMETRIC PUZZLE

In 1965 at Kitt Peak National Observatory, UBV photoelectric observations were made of the eclipsing binary RT Lacertae. The 36-in. telescope was used in August and the No.4 16-in. in October. The data are given below. Column 1 is the date. Column 2 is the phase calculated using the elements 2421913.499 + 5^{d}074052 E. Column 3 is the differential V magnitude in the sense RT Lac minus BD+42°4270. Columns 4 and 5 are the B-V and U-B indices; these were measured directly with respect to several UBV standards, not differentially with respect to the comparison star.

Date	P	ΔV	B-V	U-B
Aug 19-20	.9817	2.174		
	.9821	2.134		
	.9935	1.954		
	.9939	1.944		
	.9945	1.944		
	.9994	1.924		
	.9998	1.864		
	.0004	1.884		
	.0014	1.864		
Oct 1 - 2	.4532	1.865		
	.4538	1.879		
	.4557	1.879		
	.4620	1.919		
	.4661	1.958		
	.4667	1.953		
Oct 1 - 2	.4688	1.969		
	.4712	1.964	1.152	1.028
	.4720	1.975		
	.4724	1.989		
	.4734	1.975		
	.4736	1.971	1.157	1.043
	.4744	1.965		
	.4768	1.947	1.161	1.005
	.4797	1.919		
	.4811	1.912		
	.4815	1.900		
	.4834	1.895		
	.4872	1.855		
	.4892	1.867		

Date	P	Δ V	B-V	U-B
Oct 24-25	.9704	2.247	1.038	0.735
	.9714	2.272	1.003	.751
	.9720	2.257	1.027	.738
	.9736	2.257		
	.9738	2.267	1.005	.806
	.9746	2.252	1.029	.759
	.9752	2.247		
	.9756	2.252		
	.9760	2.267	1.006	.772
	.9766	2.237		
	.9780	2.237		
	.9785	2.217		
	.9811	2.212		
	.9921	1.997		
	.9923	1.982		
	.9927	1.982		
	.9957	1.922		
	.9963	1.912		
	.9967	1.917		
	.9978	1.892		
	.9980	1.887		
	.0027	1.822		
	.0030	1.822		

Date	P	Δ V	B-V	U-B
Oct 28-29	.7806	1.208	1.076	.837
Oct 29-30	.9622	2.167		
	.9626	2.172		
	.9630	2.182		
	.9636	2.187		
	.9653	2.207		
	.9665	2.222	1.066	.692
	.9675	2.232	1.044	.702
	.9685	2.252		
	.9700	2.282	1.031	.711
	.9706	2.252		
	.9782	2.207		
	.9787	2.202		
Oct 31 - 1	.3544	-	1.225	.828
	.3579	-	1.107	.920

An intriguing paradox is apparent from the data. Both the B-V and U-B indices suggest that the cooler star is visible at secondary minimum and the hotter star is visible at primary minimum.

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Dyer Observatory
Nashville, Tennessee)

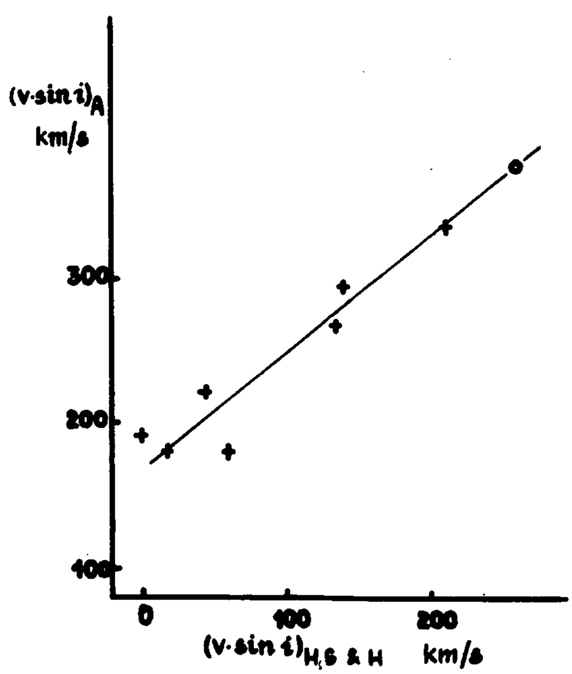
COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS

NUMBER 260

Konkoly Observatory
Budapest
1968 March 18

ROTATIONAL VELOCITY OF RS (23) SEXTANTIS

This star was tentatively identified as a Beta Cephei variable (1) or "related to the Beta Canis Majoris stars" (2) because of the observed light and radial velocity changes. I have determined the projected velocity of rotation of RS Sex by using the two-prism spectrograph of



the 48" reflector of the Astrophysical Observatory at Asiago, Italy. The line-widths of neutral helium at Lambda 4471 and Lambda 4026 at half central depth have been measured on direct intensity tracings of 5 spectra (dispersion at H Gamma 42 A/mm) for RS Sex, and on 45 spectra (dispersion at H Gamma 42 and 13 A/mm) of 7 standard B2-3 stars (Iota Her, Eta Lyr, Theta Oph, Gamma Ori, 42 Cam, Eta Hya, Eta UMa). The reduced rotational velocities of the comparison stars have been plotted against known v.sin i values given by Huang (3), Slettebak and Howard (4) (Fig.1). Using a linear correlation we obtained v.sin i = 260 km/s for RS Sex, which is an exceptionally high rotational velocity if the star is considered a Beta Cephei variable. Recently, however, Hill (5) observed Beta Cephei-type light variations in several broad-lined B stars in associations and galactic clusters; RS Sex probably belongs to this new kind of variables.

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

NUMBER 261

Konkoly Observatory
Budapest
1968 March 18

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Band VII, Nr.66

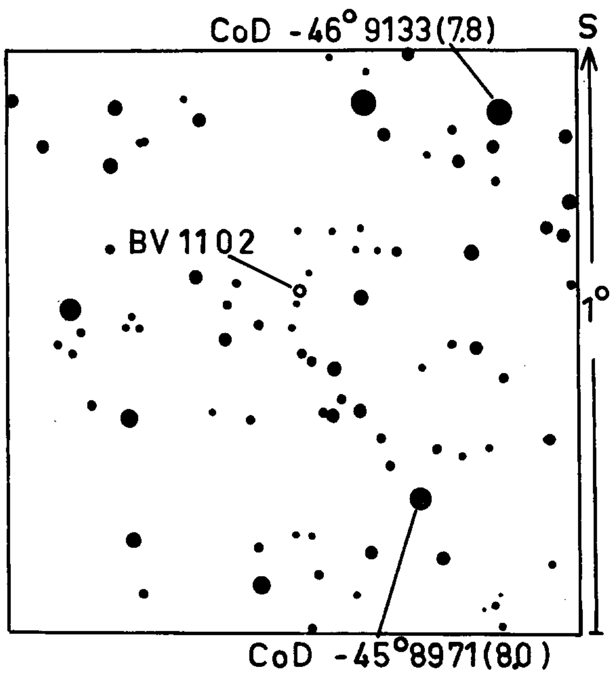
NEW BRIGHT SOUTHERN BV-STARS

On sky patrol plates of the Bamberg Southern Station 13 further stars were found whose variability seems to be real as can be seen from the material available now.

BV 1050 - BV 1089 : vid. Veröffentlichungen der Remeis-Sternwarte Bamberg, vol. VII, Nr.59

(These stars are faint, no catalogue stars)

			A_{pg}
BV 1090	= BD $-09^{\circ}1609$ ($8^{m}.5$)	= HD 48 419 (B_9)	$0^{m}.45$
BV 1091	= BD $-05^{\circ}1892$ ($9^{m}.0$)	= HD 51 569 (B_8)	$0^{m}.30$
BV 1092	= BD $-15^{\circ}1695$ ($8^{m}.2$)	= HD 55 538 (B_2)	$0^{m}.35$
	= CSV 102 550		
BV 1093	= CoD $-31^{\circ}4663$ ($9^{m}.3$)	= CAP $-31^{\circ}1624$ ($8^{m}.7$)	$0^{m}.40$
BV 1094	= CAP $-56^{\circ}1418$ ($7^{m}.6$)	= HD 63 203 (A_0)	$0^{m}.30$
BV 1095	= CoD $-44^{\circ}3871$ ($9^{m}.3$)	= HD 65 293 (A_0)	$0^{m}.40$
BV 1096	= CAP $-68^{\circ}0761$ ($9^{m}.5$)	= CoD $-68^{\circ}0540$ ($9^{m}.0$)	$0^{m}.30$
	= CSV 1276 = S 4898		
BV 1097	= CoD $-37^{\circ}4833$ ($9^{m}.6$)	= CAP $-37^{\circ}2534$ ($9^{m}.2$)	$1^{m}.20$
BV 1098	= CAP $-54^{\circ}2265$ ($9^{m}.2$)	= CoD $-54^{\circ}2793$ ($9^{m}.7$)	$0^{m}.30$
BV 1099	= CoD $-44^{\circ}6252$ ($7^{m}.3$(	= HD 88 303 (K_2)	$0^{m}.30$
BV 1100	= CAP $-67^{\circ}1907$ ($8^{m}.8$)	= HD 105 355 (B_9)	$0^{m}.30$
BV 1101	= CAP $-54^{\circ}5772$ ($8^{m}.8$)	= HD 120 738 (B_9)	$0^{m}.40$
BV 1102	= CoD $-46^{\circ}9108$ (10^{m})	= HD 123 460 (A_3)	$0^{m}.30$



BV 1095 = CoD $-44^{\circ}3871$ ($9^{m}.3$) = HD 65 293 (Ao)

Min = JD 243 4336.450 + $2^{d}.398$ 735 . E

Minima	E	O - C
242 8820.593 (S,-)	-2299.5	+0.034
8897.548 (S,=)	-2267.5	+0.230
8904.438 (S)	-2264.5	-0.076
343 4336.465 (S)	0	+0.015
4485.353 (S,-)	62	+0.181
4533.246 (S,-)	82	+0.100
8492.225	1732.5	-0.033
8817.314	1868	+0.027
8823.302	1870.5	+0.018

Minima	E	O - C
243 9118.499(1/2)	1993.5	+0.171
9178.332	2018.5	+0.036
9196.276	2026	-0.011
9202.254	2028.5	-0.030
9563.265	2179	-0.029

Ampl. $0^m\!.45$, secondary minimum as deep as primary minimum, EA

BV 1097 = CoD $-37^\circ4833$ ($9^m\!.6$) = CAP $-37^\circ2534$ ($9^m\!.2$)

Min = JD 243 4302.525 + $1^d\!.052\,565$. E

Minima	E	O - C
243 4302.590(S,-)	0	+0.065
4311.498(S)	8.5	+0.026
4418.349(S)	110	+0.042
4422.504(S,+)	114	-0.013
4488.328(S)	176.5	+0.025
8739.551(1/3)	4215.5	-0.062
8786.409(3/4)	4260	-0.043
9525.386	4962	+0.034
9126.364	4963	-0.041
9535.355	4971.5	+0.003
9562.256(3/4)	4997	+0.064
9563.265	4998	+0.020

Ampl. $1^m\!.2$, with very deep secondary minimum, EW or EB

BV 1101 = CAP $-54^{o}5772$ ($8^{m}.8$) = HD 120 738 (B9)

Min = JD 242 8257.475 + $0^{d}.580$ 7835 . E

M i n i m a		E	O - C
242	8257.506 (S)	0	+0.031
	8275.444 (S)	31	-0.035
	8661.433 (S)	695.5	+0.023
	8743.250 (S)	836.5	-0.050
	8777.248 (S)	895	-0.028
243	4516.296 (S)	10776.5	+0.008
	4532.246 (S)	10804	-0.014
	4537.503 (S)	10813	+0.016
	4540.384 (S)	10818	-0.007
	8475.501	17593.5	+0.011
	8498.451	17633	+0.021
	8528.335	17684.5	-0.006
	8551.244	17724	-0.038
	.288	17724	+0.006
	8590.204++	17791	+0.010
	8879.403	18289	-0.021
	8914.300	18349	+0.029
	8932.258 +	18380	-0.018
	9202.383	18845	+0.043
	9204.378	18848.5	+0.005
	9210.488	18859	+0.017
	9235.410	18902	-0.035
	9265.358	18953.5	+0.003
	9270.308 ++	18962	+0.016
	9566.528 +	19472	+0.037

(S) = Sonneberg (H.GESSNER)

Ampl. $0^{m}.40$, with a very deep (3/4) secondary minimum, EW

Bamberg, Remeis-Observatory
February 28, 1968

W.STROHMEIER
H.OTT E.SCHÖFFEL

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

NUMBER 262

Konkoly Observatory
Budapest
1968 March 18

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Band VII, Nr.67

ELEMENTS FOR BAMBERG VARIABLES

BV 453 = CoD $-33^\circ 1755 (9^m\!.0)$ = CAP $-33^\circ 506 (9^m\!.0)$; Cape: Fo

Min = JD 242 $8782^d\!.590 + 0^d\!.634\ 196 \cdot E$

	Minima	E	O - C
	242 8782.595(S)	0	+0.005
	8789.566(S)	11	0.000
	8817.464(S)	55	-0.007
	8844.421(S)	97.5	-0.003
	8918.293(S)	214	-0.015
	243 4272.534(S)	8656.5	+0.026
	4478.266(S)	8981	-0.036
	8314.549	15030	-0.007
	8349.433	15085	-0.004
	8377.335	15129	-0.006
	8384.321	15140	+0.004
	8398.280	15162	+0.010
	8708.439 (1/2)	15651	+0.047
	8760.331 (1/2)	15733	-0.065
	9436.444	16799	-0.005
Harvard minima	243 0367.451	2499	+0.005
	0240.624	2299	+0.017
	242 6277.517	- 3950	+0.001
	5561.489	- 5079	-0.019
	5500.611	- 5175	-0.015

		E	O - C
Harvard minima	242 4498.632	- 6755	+0.036
	1160.834	-12018	+0.012
	241 6316.877	-19656	+0.044
	6006.817	-20145	+0.105

The Harvard minima are very accurate.

Ampl. $0\overset{m}{.}45$, with deep secondary minimum, EW

<u>BV 556</u> = BD $-16^{o}4888$ ($8\overset{m}{.}3$) = HD 170 097 (Bo)

Min = JD 242 6916.650 + $5\overset{d}{.}025$ 65 . E

Minima	E	O - C
242 6843.560 (S)	-14.5	-0.218
6916.406 (S)	0	-0.244
.522	0	-0.128
7625.429 (S)	141	+0.162
7959.502 (S)	207.5	+0.034
8007.412 (S)	217	+0.196
8341.444 (S)	283.5	+0.022
9022.565 (S)	419	+0.168
9080.442 (S)	430.5	+0.250
9786.473 (S)	571	+0.177
9839.431 (S)	581.5	+0.366
243 0178.477 (S)	649	+0.180
1238.519 (S)	661	-0.085
8505.574	2306	-0.225
8561.421 (1/2)	2317	+0.340
8639.219 (1/2)	2332.5	+0.240
8943.379 (3/4)	2393	+0.349
9269.496 (3/4)	2458	-0.202

Ampl. $0\overset{m}{.}50$, secondary minimum nearly as deep as primary minimum, EB

BV 584 = CoD – 35°12429 ($7^m.5$) = HD 167 231 (Ao)

Min = JD 243 8233.325 + $1^d.086$ 970 . E

Minima	E	O – C
242 8667.527 (S)	–8800.5	+0.081
243 4517.502 (S)	–3418.5	–0.016
4566.434 (S)	–3373.5	+0.002
8233.310	0	–0.015
8234.360 (3/4)	1	–0.052
8252.269 (1/2)	17.5	–0.078
8257.267	22	+0.029
8258.267	23	–0.058
8264.225 (3/4)	28.5	–0.079
8504.572	249.	+0.048
8505.574	250.	–0.037
8528.513	271.	+0.076
8529.515	272.	–0.009
8530.508 (1/2)	273.5	–0.103
8560.419 (1/2)	301	–0.084
8578.377 (3/4)	317.5	–0.061
8583.381	322	+0.052
8584.381	323	–0.035
8607.299	344	+0.056
8608.298	345	–0.032
8620.271	356	–0.015
8621.292 (3/4)	357	–0.081
8633.262	368	–0.068
8638.219 (3/4)	372.5	–0.002
8971.316	679	–0.062
8994.229	700	+0.025
9320.362 (1/2)	1000	+0.067
9357.254 (3/4)	1034	+0.002
9707.275	1356	+0.019

Ampl. $0^m.40$, with a very deep (3/4) secondary minimum, EW or EB

BV 610 = CoD $-30^{o}4030$ ($7^{m}.3$) = HD 55 173 (B3)

Min = JD 242 8847.465 + $1^{d}.213$ 375 . E

Minima	E	O - C
242 8847.482 (S)	0	+0.017
243 4298.524 (S)	4492.5	-0.028
4476.309 (S)	4639	-0.003
4510.267 (S)	4667	-0.019
8358.507 (1/2)	7838.5	+0.002
8386.456 (1/2)	7861.5	+0.044
8400.416	7873	+0.050
8406.417	7878	-0.006
8428.327	7896	+0.053
8462.253	7924	+0.005
8708.575	8127	+0.011
8739.509	8152.5	+0.004
8798.326	8201	-0.027
8812.274 (1/2)	8212.5	-0.033
8815.273 (1/2)	8215	-0.068
8820.267 (1/2)	8219	+0.073
9125.422	8470.5	+0.064
9139.378	8482	+0.066
9167.324 (1/2)	8505	+0.105
9168.330 (1/2)	8506	-0.103
9176.282	8512.5	-0.038
9450.519	8738.5	-0.023

Ampl. $0^{m}.35$, with very deep(3/4) secondary minimum, EW or EB

(S) = Sonneberg, H.GESSNER

Remeis Observatory
Bamberg, March 10, 1968

W.STROHMEIER

COMMISSION 27 OF THE I. A. U
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NUMBER 263

Konkoly Observatory
Budapest
1968 March 27

REMARKS CONCERNING HD 209813

In number 253 of this Bulletin, Blanco and Catalano report the discovery that HD 209813 shows a light variability of about 0.1 mag. They estimate that the period is about 25.98 days, and, quoting an HD spectral type of KO, they suggest that the star is a Cepheid.

Evidently overlooked by these authors, however, is the fact that HD 209813 is a well-studied spectroscopic binary (Northcott 1947). The period is 24.431 days, and the amplitude of the velocity curve is 66.3 km/sec. The star has also had a quantitatively-determined spectral type of KO II-III assigned to it by Halliday (1955). Observations on a single night at rather large air mass lead to the following UBV parameters for the star:

V = 6.77 B-V = 1.11 U-B = 0.80

An examination of stars near the line of sight to HD 209813 indicate that the colour excess of the star is $E_{B-V} = 0.09$.

These data prompt the following remarks:

a The similarity of the two periods quoted above, and the fact that the period of Blanco and Catalano is only a preliminary one, suggest the probability that there is really only one period of 24.431 days. It would be most interesting to see the light-curves of Blanco and Catalano replotted with this period.

b A spectral type of KO II-III is unusual for a pulsating variable, and is definitely incompatible with the spectral types of Cepheids.

c Blanco and Catalano report that the amplitude of light variation is the same in all three of U, B, and V, which is also unusual among pulsating variables.

d If the velocity variation of 66 km/sec is taken as due to pulsation, then that amplitude is quite incompatible with the light amplitude of only 0.1 mag., as is the sinusoidal shape of the velocity curve with the period.

e The colours of the star, especially U-B , are too blue for the spectral type.

f A preliminary investigation reveals that the hydrogen lines in HD 209813 are too strong for the spectral type. Also, the H and K lines show emission cores.

These considerations lead us to suggest that HD 209813 is probably not a pulsating variable, but is an eclipsing system composed of a K-giant and an F-subgiant. If this is so, then the system is one of considerable importance, since its space velocity is about 80 km/sec. It may, therefore, be the only high velocity star known for which both radii and masses are obtainable, and we urge that the discovery of Blanco and Catalano be followed up by further detailed photometry.

David Dunlap Observatory
Richmond Hill, Ontario, Canada.
March 19, 1968.

J.D. FERNIE
JOAN O. HUBE
JOHN L. SCHMITT

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Halliday, I., Ap. J. 122, 222, 1955.
Northcott, R. J., Pub. David Dunlap Obs. 1, 369, 1947.

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INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 264

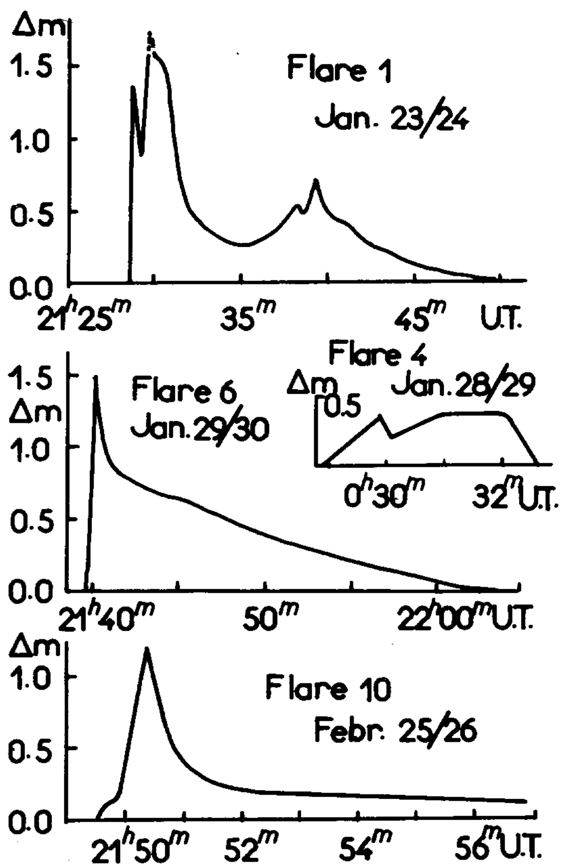
Konkoly Observatory
Budapest
1968 March 28

FLARE ACTIVITY OF YZ CMi

The flare star YZ CMi ($M_v = 11^m.6$, RA = $7^h\ 42^m.9$, D = $3^o\ 39'$ (1968)) has been monitored at the Boyden Observatory during the dark moon-periods between 1968, Jan. 23/Febr. 5 and 1968, Febr. 21/March 7. The star was observed in Johnson's spectral region B with the 16" Harvard Nasa Cassegrain reflector; the star-intensity was measured against the sky-back-ground only, without observing comparison stars. A total period of $67^h\ 15^m$ was covered. The table contains information about the time intervals of coverage and all 10 flares occured. The figure shows the three most prominent flares and one minor, but complex event with more detail.

Date (1968)	Observing time (U.T.)	Cover-age	Time of flare (max.) (U.T.)	Flare Nr.	Δm	Duration of flare: before max.	after max.	Total
1. 23/24	19^h50–22^h42		$21^h29^m.6$	1	$>1^m.65$	$0^m.8$	$\approx 21^m$	$\approx 22^m$
	23 00– 0 24	4^h16^m	22 09.0	2	0.39	0.4	3.3	3.7
			23 23.6	3	0.43	0.2	0.4	0.6
24/25	19 32–20 58	1 26						
25/26	18 37–20 26							
	23 31– 1 02	3 20						
28/29	18 20– 1 03	6 27	0 29.7	4	0.36:	0.8	2.5	3.7
29/30	20 20–23 24	3 04	20 29.7	5	0.50	1.0:	1.5	2.5
			21 39.7	6	1.50	0.4	≈24	≈24
30/31	18 55–20 14	1 19						
1.31/2.1	21 41– 0 20	2 39						
2. 1/ 2	18 25– 0 41	6 06						
2/ 3	18 24–23 08	4 36	19 14.3	7	0.35:	0.3	0.5	0.8
5/ 6	18 25–19 58							
	21 33–22 30	2 30						
	TOTAL:	35^h43^m						
2. 21/22	18 25– 0 05	4 40	20 40.8	8	0.70	0.8	1.7	2.5
22/23	17 56–18 39							
	21 37–23 45	2 51						
25/26	18 12– 0 05	5 53	18 41.3	9	0.40	0.2	0.9	1.1
			21 50.4	10	1.20	0.8	≈11	≈12
27/28	18 00–23 58	5 58						
28/29	18 00–23 50	5 50						
2.29/3.1	18 05–22 00	3 55						
3. 7/ 8	21 35– 0 00	2 25						
	TOTAL:	31^h32^m	: uncertain values					

The other 6 flares show the normal simple appearance: a steep increase before and an exponential decrease of intensity after reaching the maximum. The measurements of flare Nr. 7 and - to a smaller degree - also of Nr. 4 are not very reliable; these flares are to be checked with other observations.



Boyden Observatory,
Bloemfontein,
Rep. of SOUTH AFRICA

J.P. EKSTEEN

Th. SCHMIDT

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 265

Konkoly Observatory
Budapest
1968 March 31

FLARES AND MEAN PHOTOMETRY OF YZ CANIS MINORIS

Six flares of YZ Canis Minoris have been observed photoelectrically in the blue and ultraviolet at the 60-inch reflector of the Boyden Observatory during a short monitoring run of 9 hours accumulated over 6 nights. These runs have the distinction that they were preceded each night by an independent programme of multicolour photometry which supplied reliable determinations of zero points in the magnitude and colour equations. Mean magnitude and colours of YZ CMi in the standard Johnson UBVR system have been derived. The largest source of error in the results lies in the inexact knowledge of the form of the transformations from instrumental to standard system for peculiar red stars with emission line spectra, and the colour dependence at short wavelength of the atmospheric extinction.

The 60-inch was equipped with the Dunsink photometer with a magnetically-shielded E.M.I.9558 QA photomultiplier, cooled to 0^{o}C by melting ice, having a sensitivity extending from the ultraviolet to the infrared. The following filters were used which remove the red leak and reproduce the standard system of Johnson et al.(Ref.1):

U 1mm UG 2 + 2.5mm 80% Saturated $CuSO_4$ soln. at 15^{o}C.

B 1mm BG 12 + 2 mm GG 13 + 1 mm BG 18.

V 2mm GG 14 + 2mm BG 18.

R 2mm RG 5.

The effective wavelength of the red filter-tube combination at about 7150 A is 150 A longward of Johnson's value, but it cuts off the H-alpha line.

Table 1 gives the Universal Time of the coverage of YZ CMi and the observed flares, together with the flares' approximate duration and magnitude range in blue. Light curves for the larger flares in blue and ultraviolet are presented in Fig.1, where the flare intensity (ΔJ) is expressed in units of the normal intensity of the star (J_o). Because of the very peculiar flare continuum and line emission and the strange veiling of the underlying late-type spectrum (Ref.2), conversion to the standard UBV

FIG. 1.

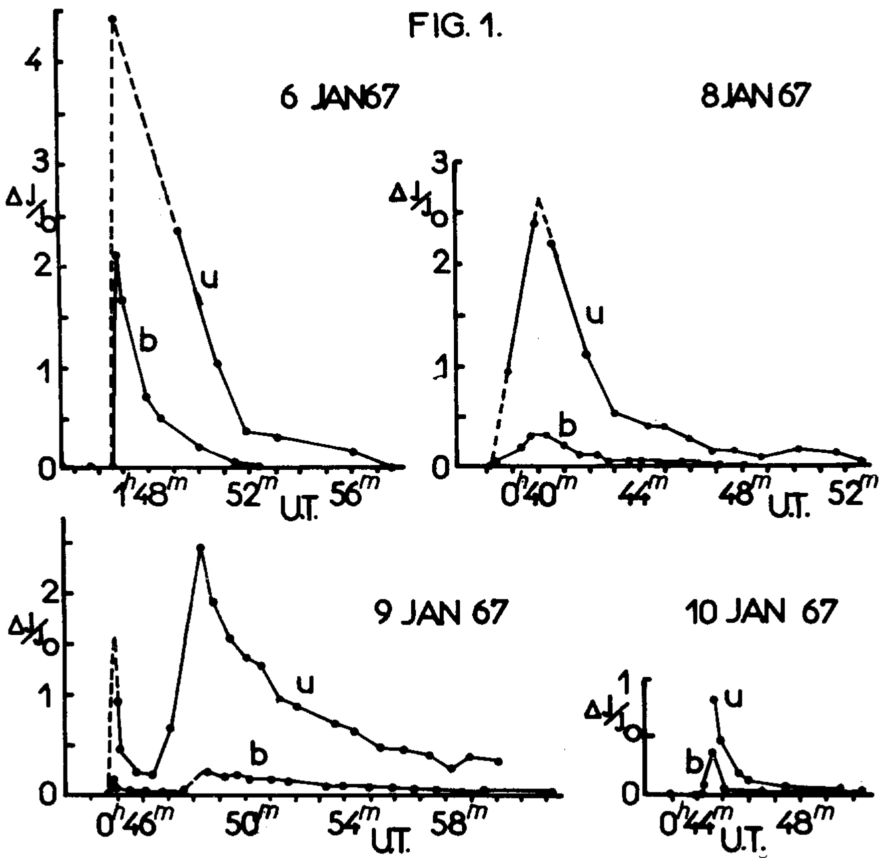


Table 1

1967	U.T.	Flares	Duration (mins)	Range (blue)
Jan 6	0^h52^m - 2^h06^m	$1^h46^m.8$	6	$1^m.23$
7	1 22 - 2 11			
8	0 07 - 1 08	0 40.1	7	0.30
	1,15 - 2 01			
9	0 30 - 1 06	0 44.8	2	0.15
	1 15 - 2 09	0 48.3	11	0.23
	23 54 -24 00			
10	0 00 - 2 01	0 44.6	2	0.38
16	0 21 - 2 07	0 43.3	4	0.07

system has not been attempted for the flares to avoid introducing false colour effects. In Fig.2, the uncorrected instrumental colour, u-b, of the flares alone are shown with a shift of the time-axis so that the moments of maximum blue light coincide. The effects of normal differential extinction during these flares are negligible. There is no evidence for a general trend in the u-b colour changes of the present flares during their development, such as reported by P. Chugainov in the colour index, B-V, where a reddening was observed immediately following flare maxime (Ref.3). The mean standard U-B of the total light from star-plus-flare during decline is estimated at $0^{m}.12$.

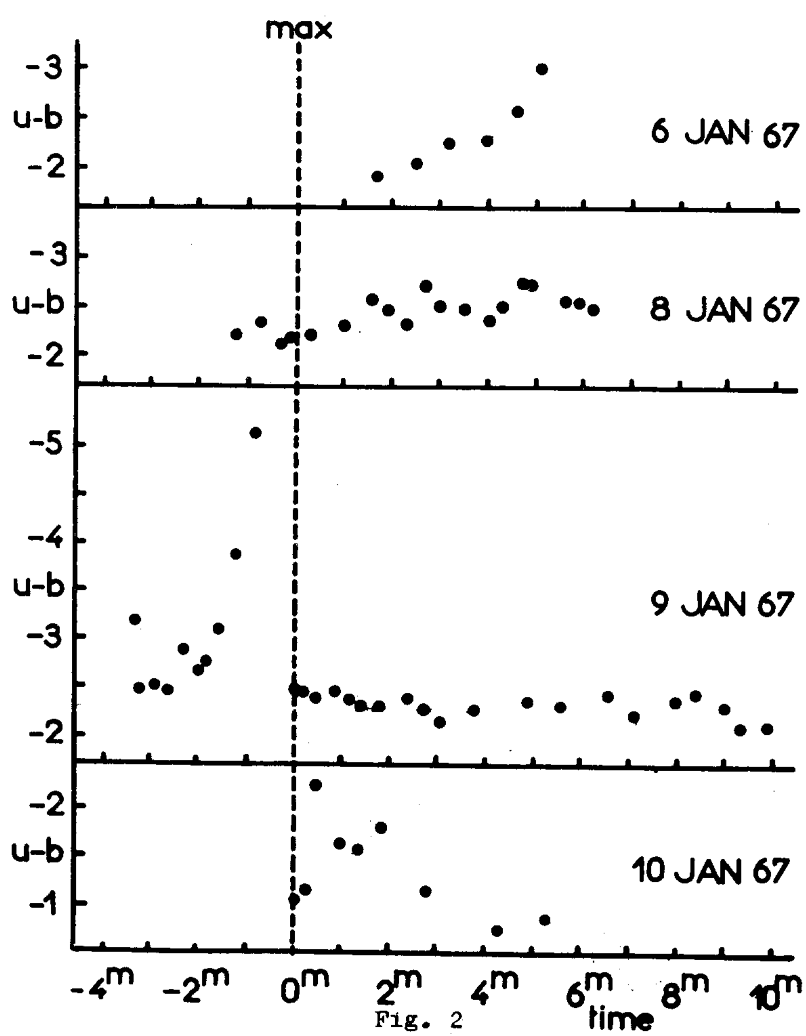


Fig. 2

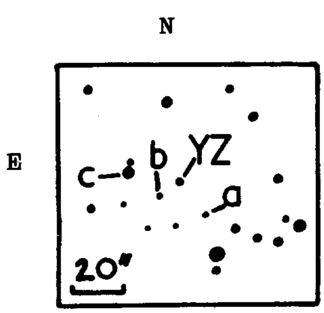
Observations of YZ CMi in four colours, before and after flares, were obtained. These, together with similar observations of a nearby comparison star, were reduced with the main photometric programme. Nightly-determined colour equations and mean extinction coefficients, with second--order extinction terms in V and B-V only, were used.

Table 2

	YZ CMi	Star a	Star b	Star c
V	$11^{m}.28 \pm .^{m}003$ (5)	$12^{m}.46 \pm .^{m}003$ (3)	$12^{m}.47$	$10^{m}.72$
V-R	$1.90 \pm .025$ (10)	$0.77 \pm .015$ (4)	0.80	0.21
B-V	$1.60 \pm .025$ (11)	$0.95 \pm .026$ (5)	1.13	0.51
U-B	$0.91 \pm .106$ (10)	$0.67 \pm .054$ (5)	0.88	0.10

In Table 2, mean standard magnitudes and colours, standard deviations from the mean and the number of observations are given. No significant variations of YZ CMi in its quiet phase were detected, except possibly in U-B which shows a markedly higher standard deviation than that of the comparison star, and which is three times higher than the standard error of the photometric programme. Two further comparison stars were measured once, star c being useful for photographic and visual estimates of flare amplitudes (See Fig.3).

Fig.3



A.D. ANDREWS
Armagh Observatory

REFERENCES

(1) H.L. Johnson et al., Comm. of Lunar and Plan. Lab. No.63. (1966).
(2) A.H. Joy, Stars and Stellar Systems Vol.6, p.668 (Univ.Chicago 1960).
(3) P.F. Chugainov, Publ.Crimean Astroph.Obs. Vol.33, p.215 (1964).

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

NUMBER 266

Konkoly Observatory
Budapest
1968 April 6

PHOTOELECTRIC OBSERVATIONS OF THE FLARE STAR YZ CMi

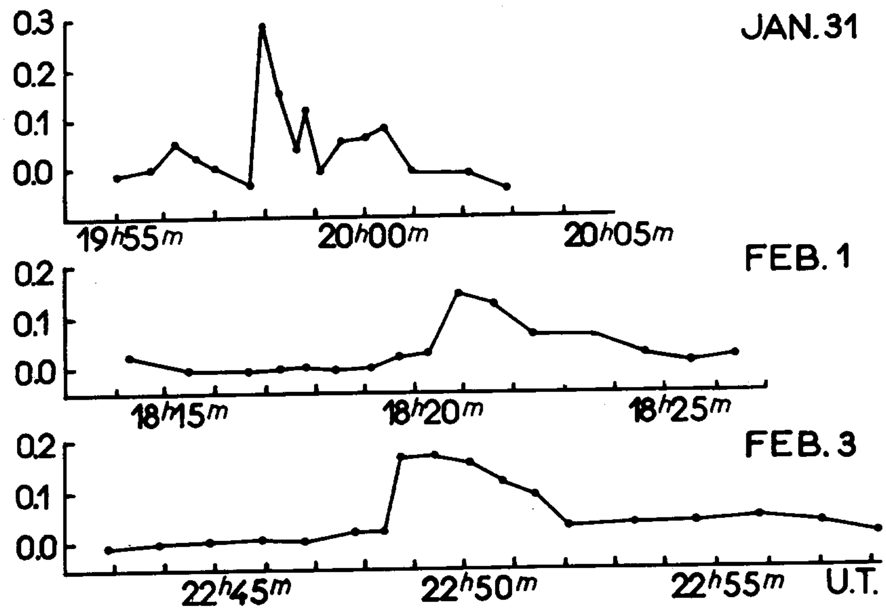
The working group on UV Ceti type stars (I.A.U. Commission 27) has organized co-operative observations of the flare star YZ CMi during two observing periods: January 22- - February 6 and February 21 - March 7, 1968. This paper contains the results of photoelectric observations obtained at the Crimean Astrophysical Observatory.

During the first period observations were made with the 64 cm telescope in the V-band and during the second one with the 70 cm reflector in the B-band. Three flares of the star were observed. Table 1 contains the times of the beginning and end of observations, times of maxima of the flares, their amplitudes and durations. Light curves of the flares are shown in Fig.1. The quantity i is the ratio of excess radiation to the normal radiation of the star, i.e.

$$i = \frac{I}{I_{normal}}$$

Table 1

Date	Beginning and end.time U.T.	Time of max. of flare, U.T.	Δ m	Duration of flare, minutes	Notes
Jan.24	19^h08^m-23^h05^m				
Jan.31	18 09 -20 24	19^h58^m	0.28	4	
Feb. 1	16 27 -19 24	18 21	0.15	5	
Feb. 3	16 31 - 0 00	22 49	0.16	9	
Feb.23	19 07 -20 02				
Feb.24	20 13 -22 19				Clouds sometimes
Feb.27	19 59 -23 00				- " -
Feb.28	20 48 -22 37				- " -
Mar. 3	17 02 -20 02				



Crimean Astrophysical Observatory

P.F. CHUGAINOV

March 26, 1968

COMMISSION 27 OF THE I. A. U
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 267

Konkoly Observatory
Budapest
1968 April 12

YZ CMi

A continual photoelectric monitoring of the flare star YZ CMi was done with the 91-cm reflector of the Okayama Station from January 22 to February 6, 1968, by the request of the Working Group of UV Ceti type Stars. - During the 48 hours of monitoring in total, 11 flares were observed as shown in the following Table. - Some more details including the photographs of the recorder charts are published in the Tokyo Astronomical Bulletin, Second Series No. 180.

Table 1. Flares of YZ CMi observed at Okayama
Jan. 22 to Feb. 6, 1968

Date	Time of Monitoring	Flares		
		Time of Max.	Δ m (B)	Duration
Jan. 22	10^h50^m - 12^h41^m			
	13 06 - 14 18			
24	16 09 - 16 13			
	16 17 - 16 25			
	17 03 - 19 00	17^h 22.5^m	0.22^{mag}	4 minutes
		17 34.2	0.17	3
		17 56.7	1.56	12
25	10 11 - 11 08			
	11 12 - 11 17			
	12 00 - 15 26	12 53.2	0.38	5
		13 42.7	0.23	3
	18 07 - 18 29			
26	10 17 - 17 48			
	18 11 - 18 58			
27	10 03 - 11 39			
	14 20 - 15 03			
28	11 07 - 14 41			

Table 1. Cont.

Date	Time of Monitoring	Flares		
		Time of Max.	m B	Duration
Jan. 30	15^h13^m - 18^h26^m			
	18 36 - 19 17			
31	9 43 - 10 10			
	10 10 - 15 20	12^h 23.4^m	= 0.35	?
		12 45.5	> 0.35	?
	15 32 - 16 10			
Feb. 1	14 05 - 14 34			
2	10 26 - 17 30	15 58.9	0.29	2
5	10 01 - 12 59	10 45,0	1.39	14
		11 20.0	1.32	10
		12 14.9	0.30	3
	13 07 - 14 07			
	16 08 - 16 54			
6	13 57 - 14 42			
	17 36 - 18 10			

Tokyo Astronomical Observatory
March 22, 1968.

K. OSAWA
K. ICHIMURA
T. NOGUCHI
E. WATANABE

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 268

Konkoly Observatory
Budapest
1968 April 19

FLARE ACTIVITY OF YZ CMi

According to the proposal of the "Working group on flare stars" of the IAU Commission No 27 two series of continual observations of the star YZ CMi have been realized at the Burakan observatory. The Observations were done in the B colour during the periods 1968 Jan.22/Feb.6 and 1968 Feb.21/March 7 with the 20" Cassegrain telescope. The results of these observations are given in the table.

Date 1968	Observing time UT	Coverage	Δ m	Time of max. UT	Duration of flares after max.	Remarks
22.I	19^h15^m–20^h02^m					
	20 07 –20 48	1^h 28^m				
25.I	20 33 –23 33	3 00	0,12 ?	21^h55^m	1 min	
			0,16 ?	22 04	1 min	1)
26.I	18 10 –21 22	3 12	0,36	19 17	9,5 min	
4.II	18 43 –22 17	3 34	0,46	20 36.2	38,5 min	
			1,12	21 13.4	47,3 min	
5.II	20 33––23 08	2 35				
6.II	19 53 –22 40	2 47				
22.II	16 39 –20 40	4 01	0,16	17 45.5	6,5 min	
23.II	16 45 –22 00	5 15	0,33	16 51.3	1 min	2)
24.II	16 30 –21 00	4 30	3,21	16 51.5	cca 4 hours	
	Total	30 22				

1) The measurements are not very reliable and must be checked with other observations.

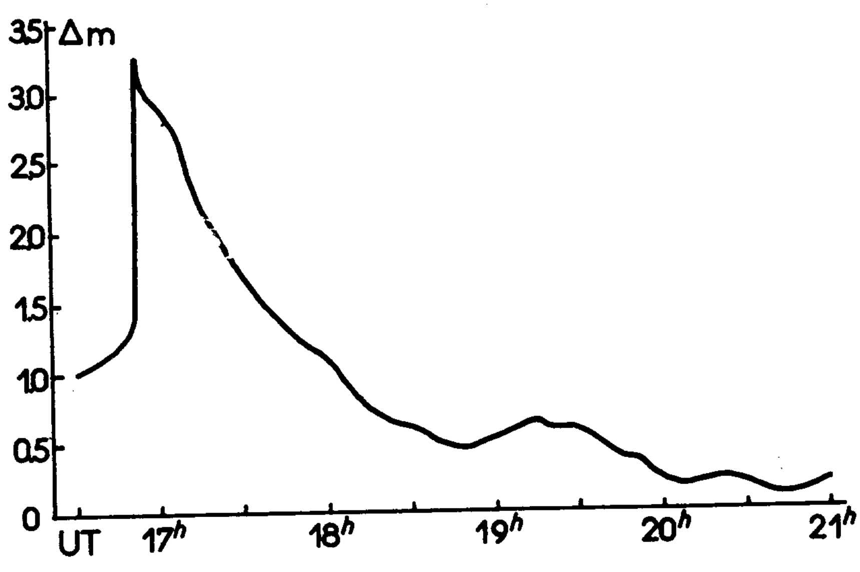
2) Until 17^h20^m UT the star was about 0,1 magnitude brighter than before the flare.

Six reliable and two suspected flares were observed during a total coverage of 30^h22^m. The mean frequency of flare appearance calculated from these data is:

a) one event per $5^h\ 04^m$ if considering the reliable flares only, or

b) one event per $3^h\ 48^m$ if taking into account the suspected flares as well.

The figure shows the smoothed light-curve of the strongest flare observed during these two series (24-II-1968). It should be noted, that on this evening the brightness of the star was already for about one magnitude above the normal one, as we started with our observations.



V.S. OSKANIAN
Burakan Astrophysical Observatory
Armenian SSR, USSR

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 269

Konkoly Observatory
Budapest
1968 April 20

ECLIPSING VARIABLE WITH LARGE AMPLITUDE

The Algol-type eclipsing binary S 9484 Cassiopeiae, discovered by HOFFMEISTER (AN 289, p. 139), is remarkable because of its extraordinarily large amplitude.

From observations on Sonneberg plates of the field $23^h09^m + 52.^{\circ}5$ the following elements have been found:

$$\text{Min.} = 243\ 0262.430 + 3.^d59225 \cdot E$$

A rough estimate yields $12.^m5 - 17.^m0$ for the limits of light variation. As the minimum is very narrow ($D \approx 0.^P09$), the range is possibly still larger than quoted above because of the flattening effect of the 60 minutes exposure time. Thus S 9484 might well be the eclipsing binary with the largest amplitude known.

1968 April 8

L. MEINUNGER
Sternwarte Sonneberg

ON THE VARIABILITY OF IQ PERSEI

BD $47^{\circ}920$ = HD 24 909

This star was identified by Hoffmeister and listed in the GEVS as an Algol type eclipsing binary with primary minimum of 0.5 magnitudes. Additional information could not be found.

The assumed primary minimum was observed photoelectrically by us at J D 2,439,859.9366. The depth of the primary was observed to be 0.51 magnitude in yellow light. Subsequent primary minima give a period of 6.974 days, but this may be a multiple of the period. Specifically we have not been able to eliminate 3.487 days or 1.743 days as possible periods.

April 11, 1968

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EDWARD W. BURKE, Jr.

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 270

Konkoly Observatory
Budapest
1968 April 24

ANALYSIS OF CEPHEID LIGHT CURVES

The observed light variation of a cepheid variable star in, e.g., V photometric system can be regarded as a sum of two components:

$$\Delta V = \Delta m_V + \Delta m_R \qquad (1)$$

where $\Delta m_V = -2{,}5 \text{ Log } \frac{F_{v1}}{F_{v2}}$ is due to the variation of radiative flux F_V, and $\Delta m_R = -5 \text{ Log } \frac{R_1}{R_2}$ represents the photometric effect of changes of the radius R. We present here a method to separate these two components.

Let us assume that for each star during the whole period the changes of fluxes: F_V in the V system and F_B in the B system, expressed in terms of Δm_V and Δm_B are in proportion to each other:

$$\Delta m_V = a \, \Delta m_B \qquad (2)$$

From this we have also the proportionality of Δm_V to $\Delta(B - V)$

$$\Delta m_V = k \, \Delta (m_B - m_V) = k \, \Delta (B-V) \qquad (3)$$

with $k = \frac{a}{1-a}$.

This relation can be considered as a generalization of Wesselink's method, which is usually used in the form: for two phases with $\Delta (B-V) = 0$, there is also $\Delta m_V = 0$ and $\Delta V = \Delta m_R$.

According to the formulae (1) and (3) we assume for every two phases the relation:

$$\Delta V = k \, \Delta (B-V) + \Delta m_R \qquad (4)$$

The photometric observations yield the values (B-V) measured simultaneously with V magnitudes. So the calculation of Δm_V and Δm_R requires only a value of k, which can be obtained from the following considerations.

In most cases the variations of V magnitudes are mainly resulting from the variations of Δm_V, with component Δm_R being less important. So we try to determine the coefficient k, or its mean value over the period, from the condition that for a sufficiently large number of $\Delta m_R = \Delta V - k \; \Delta(B-V)$ we expect to have

$$\sum (\Delta m_R)^2 = \min. \qquad (5)$$

This condition if fulfilled when

$$k = \frac{\sum [\Delta V . \; \Delta (B-V)]}{\sum [\Delta (B-V)]^2} \qquad (6)$$

We have applied this method to 29 cepheid variables: 19 Cδ and 10 CW stars. The phases were calculated always from minimum of (B-V), which especially for CW stars may differ from the phase of minimum V (maximum brightness). As an initial phase, the phase of mean value of (B-V) on the descending branch was chosen. In most cases it turned out to be about 0,25. The values of V_o and $(B-V)_o$ for this phase are used to calculate the differences occurring in the formula (6)

$$\Delta V = V - V_o \; , \quad \Delta (B-V) = (B-V) - (B-V)_o .$$

As a rule 10 to 20 values for uniformly spaced phases, read from the V and (B-V) curves, were sufficient to get the coefficient k. Than the values of $\Delta m_V = k \; \Delta (B - V)$ and $\Delta m_R = \Delta V - \Delta m_V$ were calculated.

The Δm_R curves have the shapes similar to the ΔR curves obtained by integrating the radial velocities: flat maximum near 0,3 and sharper minimum near 0,8 phase. The amplitude of Δm_R denoted by A_{mR} is only partly dependent on k value. From the ΔR curves one can get the amplitudes of $\Delta R = R_{max} - R_{min}$. By combining them with A_{mR} one can calculate the mean value of radius R:

$$A_{mR} = 5 \; \mathrm{Log} \; \frac{R_{max}}{R_{min}} = 5 \; \log \; \frac{R + 0{,}5 \; \Delta R}{R - 0{,}5 \; \Delta R} \qquad (7)$$

The numerical results are presented in the Table. From these values we can draw the following conclusions:

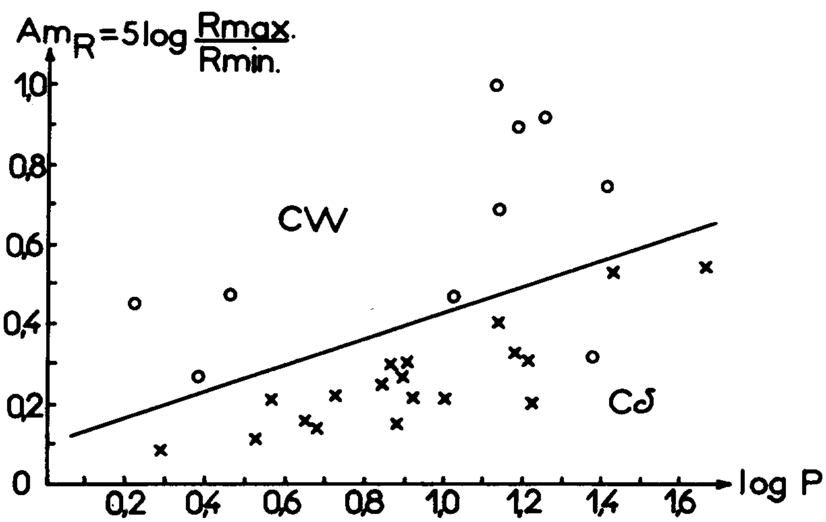
T a b l e

No	Star		log P	Type	k	Am_R	ΔR km	R km
1	SU	Cas	0,290	Cδ	2,13	$0^m,08$	$7,3.10^5$	20.10^6
2	RT	Aur	0,571	Cδ	1,74	0,21	20,8	22
3	T	Vul	0,647	Cδ	1,78	0,16	27,0	37
4	FF	Aql	0,673	Cδ	1,93	0,15	14,7	21
5	δ	Cep	0,730	Cδ	1,62	0,22	40	40
6	U	Aql	0,846	Cδ	1,71	0,25	48	42
7	η	Aql	0,856	Cδ	1,76	0,30	46	33
8	W	Sgr	0,880	Cδ	1,55	0,15	48	70
9	W	Gem	0,898	Cδ	1,38	0,30	48	35
10	S	Sge	0,923	Cδ	1,53	0,22	52	51
11	ζ	Gem	1,006	Cδ	1,21	0,22	48	48
12	TT	Aql	1,138	Cδ	1,37	0,40	116	63
13	X	Cyg	1,216	Cδ	1,48	0,31	173	121
14	Y	Oph	1,233	Cδ	1,64	0,20	51	55
15	T	Mon	1,431	Cδ	1,29	0,53	263	108
16	SV	Vul	1,655	Cδ	0,77	0,54	430	174
17	W	Vir	1,236	CW	2,14	0,92	194	46
18	VZ	Aql	0,222	CW	1,64	0,45		
19	AU	Peg	0,380	CW	1,14	0,27		
20	V465	Oph	0,454	CW	2,41	0,47		
21	V532	Cyg	0,516	Cδ	1,97	0,11		
22	VY	Cyg	0,895	Cδ	1,86	0,27		
23	AP	Her	1,018	CW	1,46	0,47		
24	V1077	Sgr	1,128	CW	0,98	1,00		
25	V410	Sgr	1,139	CW	1,22	0,69		
26	SZ	Cyg	1,179	Cδ	1,35	0,32		
27	AL	Sct	1,192	CW	1,38	0,90		
28	CC	Lyr	1,380	CW	1,53	0,31		
29	TW	Cap	1,407	CW	2,29	0,75		

Photometric data: No 1-16 Mitchell et al.Bol.Obs. Tonantzintla Tacubaya 3, 153, 1964.

No 17-29 Kwee K.Braun L. B.A.N. Sup. Ser. 2,3, 1967.

Radial velocities from different sources.



1. For given P the amplitudes A_{mR} for Cδ stars are systematically smaller than those for CW stars. On the diagramm we can fix the position of line

$$A_{mR} = \frac{1}{3} \text{Log } P + 0,10$$

separating the region of A_{mR} for Cδ from such a region for CW stars. This fact may be used as a purely <u>photometric criterion</u> for classification of Cδ and CW stars. E.g. CC Lyr classified as a CW star, according to our criterion belongs to the Cδ stars.

2. The values of R obtained by means of the foregoing procedure are consistent with the values obtained by other authors using Wesselink's method.

The results for a greater number of stars and a more detailed discussion will be published in the Acta Astronomica.

Wrocław, April 17, 1968.

A. OPOLSKI

Astronomical Observatory
Wrocław

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 271

Konkoly Observatory
Budapest
1968 April 25

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nurnberg
Band VII, Nr.68

ELEMENTS OF SONNEBERG VARIABLES (VII)

FR Lup = S 7618 = CAP -53^{o} 6056 ($9^{m}_{,}6$) = BV 743

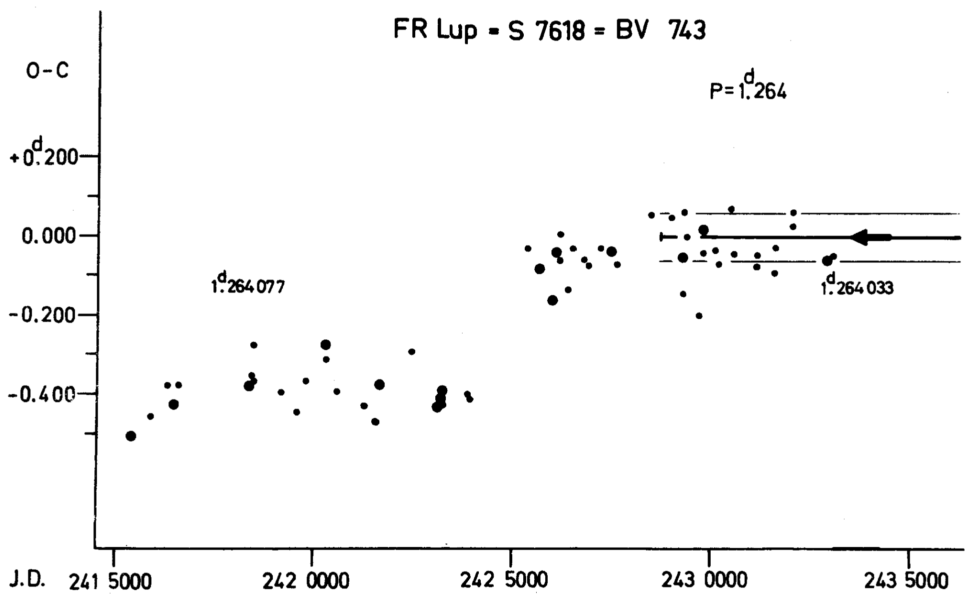
Min ≐ JD 242 8744,350 + $1^{d}.264$ 033 . E

M i n i m a	E	O - C
242 8722,245 (S)	- 17,5	+ 0,016
8744,295 (S)	0	- 0,055
243 4480,622 (S)	+ 4538	+ 0,090
4485,576 (S)	4542	- 0,012
4509,570 (S)	4561	- 0,034
8475,501	7698,5	- 0,007
,553	7698,5	+ 0,045
8501,438	7719	+ 0,017
,482	7719	+ 0,061
8553,285 (1/2)	7760	+ 0,039
,329 (1/2)	7760	+ 0,083
8584,246	7784,5	+ 0,031
8884,407 ++	8022	- 0,016
8915,300 (1/2)	8046,5	- 0,092
,349	8046,5	- 0,043
9210,488	8280	- 0,055
9236,458 +	8300,5	+ 0,002
9293,253 (1/2)	8345,5	- 0,084
,297 +	8345,5	- 0,040
9314,216	8362	+ 0,022
,260	8362	+ 0,066
9614,362	8599,5	- 0,040
,408 +	8599,5	+ 0,006

Ampl. $0^{m}.65$, with deep secondary minimum similar to primary minimum, EW or EB

C. HOFFMEISTER, AN 287, 59, 1963: $11^{m}_{,}5$ - $12^{m}.$, EA

(S) = Sonneberg, H. GESSNER



FR Lup = S 7618 = BV 743
O-C
P = 1.264
+0.200
0.000
-0.200
-0.400
1.264077
1.264033
J.D. 241 5000
242 0000
242 5000
243 0000
243 5000

By the help of the Harvard plate material, which was in a friendly manner at our disposal, we were able to control the period back to 1901. Calculations were made with period, which was derived from the very close lying minima up to 1966. The last figures (5th and 6th place after comma) in the period were obtained using the Sonneberg minima from the years 1937 and 1953. This is about half of the available photographic material. In the graphical representation you find the span of inaccuracy by an estimate of the minima, indicated with ±5 % of the period by two thin lines, parallel to the zero direction. Minima found in Bamberg and Sonneberg are not entered, but only the Harvard minima (H.Bauernfeind).

M i n i m a		E	O - C
243 3055,284		+ 3410,5	- 0,050
2977,534	++	3349	- 0,063
2713,231	(1/2)	3140	- 0,183
2035,319		2603,5	+ 0,059
,287		2603,5	+ 0,027
1921,422	(1/2)	2513,5	- 0,075
1636,432		2288	- 0,026
,366		2288	- 0,092
1608,464	(1/2)	2266	- 0,185
1134,559		1891	- 0,077
,591		1891	- 0,045
0575,235		1448,5	- 0,067
0518,490		1403,5	+ 0,070
0197,289		1149,5	- 0,067
0088,616		1063,5	- 0,033
242 9871,255	++	+ 891,5	+ 0,020
9783,344		822	- 0,041
9731,362		781	- 0,198
9679,506	(1/2)	740	- 0,228
9436,409		547,5	+ 0,001
9348,618		478	+ 0,060
9322,594	++	457,5	- 0,051
,497		457,5	- 0,148
9079,367		+ 265	+ 0,048
8565,544		- 141,5	+ 0,055
8276,553	(1/2)	370	- 0,105
7650,260		865,5	- 0,069
7593,411	++	910,5	- 0,037
7267,295		1168,5	- 0,032
6915,223		1447	- 0,071
6806,529		1533	- 0,058
6563,233		1725,5	- 0,028
6454,423		1811,5	- 0,131

Minima		E	O - C
242 6211,233	++	2004	+ 0,005
6159,338		2045	- 0,064
6102,483	+	2090	- 0,038
6097,306	++	2094	- 0,159
5745,348	++	2372,5	- 0,084
5419,280	++	2630,5	- 0,031
3964,634		3781,5	- 0,407
3959,490		3785	- 0,395
3255,531	++	4342	- 0,388
3234,650		4358,5	- 0,412
3229,597	++	4362,5	- 0,409
3172,693	++	4407,5	- 0,431
2546,502		4903	- 0,294
1790,536	+	5501	- 0,368
1751,574	(1/2)	5532	- 0,145
1686,789		5583	- 0,465
1360,708		5841	- 0,425
0651,621	++	6402	- 0,390
0594,846	(1/2)	6447	- 0,283
0392,528	(1/2)	6607	- 0,356
0349,601		6641	- 0,306
0325,624	++	6660	- 0,266
0304,600	(1/2)	6676,5	- 0,433
241 9895,755		7000	- 0,364
9605,580		7229,5	- 0,443
9212,507		7540,5	- 0,392
8508,572		8097,5	- 0,271
8456,663		8138,5	- 0,354
8431,373		8158,5	- 0,364
8404,823	+	8179,5	- 0,369
8394,707	(1/2)	8187,5	- 0,373
7405,647	++	8970	- 0,327
7371,699	(1/2)	8997	- 0,146
7069,577	(1/2)	9236	- 0,164
6608,627		9600,5	- 0,374
6587,725	++	9617	- 0,420
6323,588		9826	- 0,374
5945,591	(1/2)	10125	- 0,425
5940,506		10129	- 0,454
5847,715	(1/2)	10202,5	- 0,338
5600,579	(1/2)	10397,5	- 0,356
5474,664	+	-10497,5	- 0,500

Remeis-Observatory
Bamberg, 1968 April 18

W.STROHMEIER - H.BAUERNFEIND

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 272

Konkoly Observatory
Budapest
1968 April 30

NOVA VUL 1968

At the position of Nova Vul 1968 before the outburst was a faint double star of separation 6", p.a.115^0, and m_{pg} approximately 16.5 and 18. Differential measurement of a new direct photograph of the field against a Crossley negative taken in 1935 indicates that the pre-nova was the brighter (northwestern) star of this pair. Two Crossley slitless spectrograms of the area exposed in 1953 show the continuous spectra of both components, and demonstrate that neither had Hα in emission at that time. The 1968 Nova is none of the stars that have been suspected in the past of being the remnant of Nova Vul (CK Vul) 1670 on the basis of variability or color (for example by Humason, Ap.J. 88, 228, 1938; most recent work is by Wachmann, Kl. Veröff. Bamberg Nr.34, 119, 1962 and Astr. Abh. Hamburger Sternw. 6, Nr.4 319, 1966.)

23 April 1968

G.H. HERBIG

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PHOTOGRAPHIC OBSERVATIONS OF PRAENOVA VULPECULAE 1968

A star which probably should be considered as praenova Vulpeculae 1968 has been estimated on plates of the Sonneberg field Phi Cygni. The following table gives the observed values of the brightness, partly as mean values of several (n) exposures.

J.D.		n
242 9087 ... 9193	$16^m.4$	7
9365	16.9	1
243 0847	16.6	1
6541 ... 6698	16.2	15
8322 ... 8667	16.0	3
9685 ... 9731	15.4	3

The praenova seems to have been only slightly variable, a noticeable ascend in the time before the outburst being not observed.

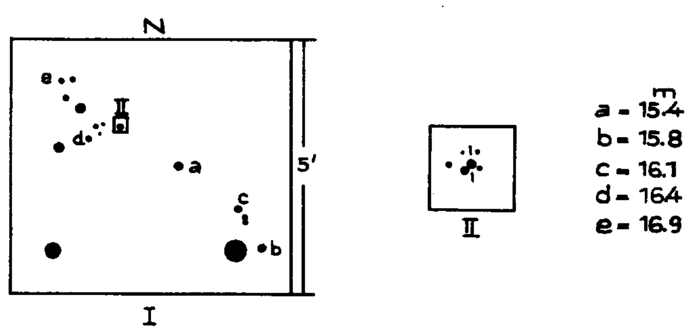


Figure I, drawn according to plate O-771 of Palomar Sky Survey, shows the surrounding of the nova and the comparison stars used. The determination of the magnitudes was made by comparison with Mt.-Wilson-SA64. In figure II the near surrounding of the probable praenova is given according to plate E-771.

1968, April 26

L. MEINUNGER

Sternwarte Sonneberg

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 273

Konkoly Observatory
Budapest
1968 May 17

SECONDARY VARIATIONS
OF THE FLARE STAR V 1216 SAGITTARII

Observations of the flare star, V 1216 Sagittarii, made at the Boyden Observatory in 1966 revealed ten flares in 114 hours monitoring (Ref.1). During the same session secondary variations of the star's brightness and colour were sought which are known to occur with amplitudes of a few tenths of a magnitude in other UV Ceti stars (Ref.2). The relation between these secondary variations and the occurrence of flares is unclear. In fact, no significant evidence of these changes was found in the Boyden 1967 session on the flare star YZ Canis Minoris, although six flares occurred (Ref.5).

Differential measures of magnitude and colour of V 1216 Sgr and a nearby comparison star were made at the 16-inch Nishimura reflector on the night of a large flare and on five subsequent nights. The results, together with the observed flares, are shown in Fig.1. These observations were carried out at an average air mass of 1.4 at the beginning of a night's monitoring, and mean extinction coefficients were used when forming mean magnitude and colour differences for a given night. A check against a second comparison star was made on four nights.

The general conslusions that may be drawn regarding night-to-night secondary variations of V 1216 Sgr during this run are (a) that the small fluctuations in the

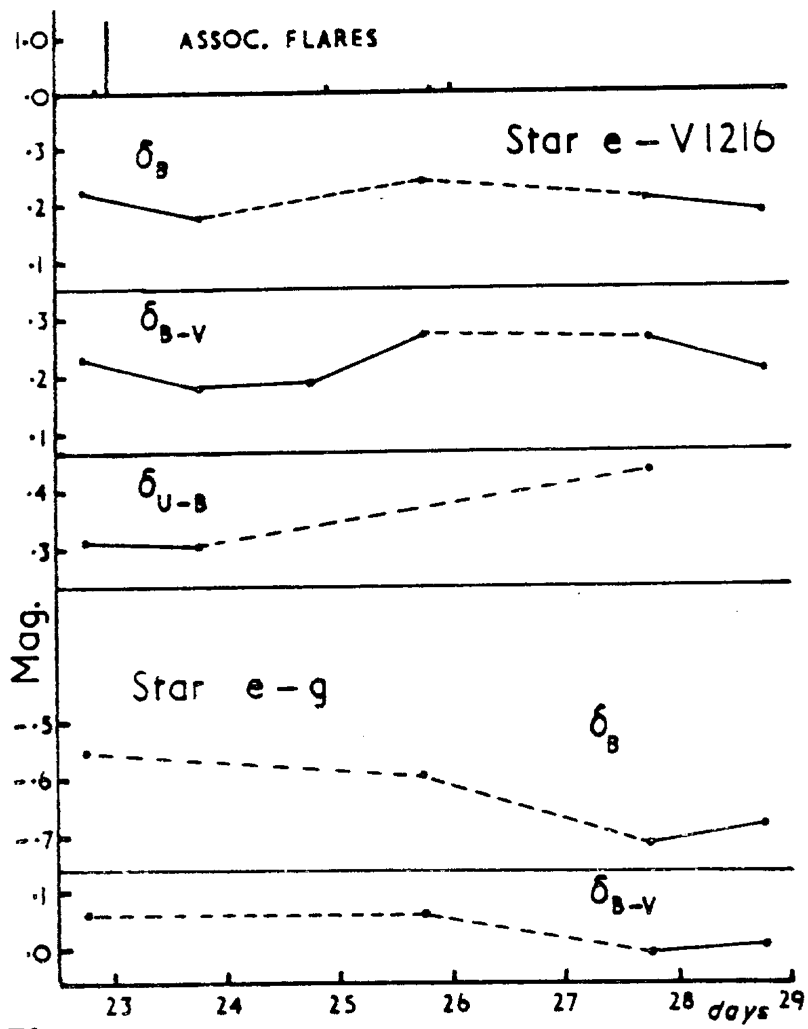


Fig.1

B magnitude did not exceed $\pm 0\overset{m}{.}03$, and (b) that changes of colour associated with the large flare in B-V and U-B may have occurred, in the sense of a slight reddening ($\sim 0\overset{m}{.}1$) as compared with the star in its less-active phase. Further work on the constancy of the comparison stars is particularly desirable.

An approximate UBV sequence, useful for photographic estimates of flare amplitudes of V 1216 Sgr, was measured on a single night, 15 July 1966. See Fig.2 and the Table. The zero points in magnitude and colour were not determined on the same night, but this will not affect differential measures. The tabulated values should not be in error by greater than $\pm 0\overset{m}{.}1$.

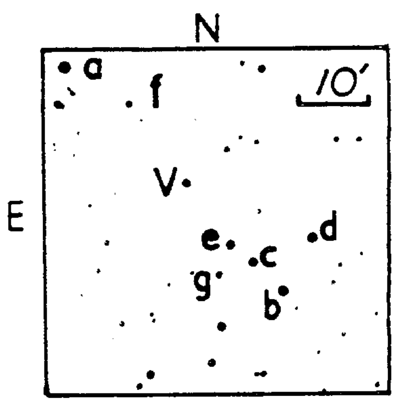


Fig.2

Table 1

Star	B	B-V	U-B
a	$9\overset{m}{.}60$	$0\overset{m}{.}60$	$-0\overset{m}{.}30$
b	10.65	0.35	-0.15
c	10.70	0.40	-0.25
d	11.80	1.70	1.30
e	12.25	2.00	1.25
f	12.35	1.85	1.55
g	12.75	1.90	1.60
V 1216 Sgr	12.00	1.70	0.95

REFERENCES

(1) A.D.Andrews, Publ.Astr.Soc.Pacific Vol.78, p.542 (1966).
(2) M.Petit, Journal des Observateurs Vol.38, P.354 (1955).
(3) A.D.Andrews, I.B.V.S. No.265 (1968).

Armagh Observatory,
May 7, 1968.

A.D. ANDREWS

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 274

Konkoly Observatory
Budapest
1968 May 21

PHOTOELECTRIC OBSERVATIONS OF YZ CANIS MINORIS

During the second part of the YZ CMi international patrol, planned for 1968 by the working group on flare stars, we carried out observations of this star with a 91 cm Cassegrain-telescope at our stellar station in Serra La Nave (Catania). Our photometer was equipped with an EMI 6256 A unrefrigerated photomultiplier and BG 12(1mm) + GG13(2mm) filters (λ equ = 4300 Å).

From February 21 to March 7 we collected about 17 hours of observations in three nights. The photoelectric coverage is summarized in Tab.I and the characteristics of the four observed flares in Tab.II. The flare light curves are drawn in the figures. The coverage times include the sky light measurements, which lasted about 30 seconds and were made every 15-20 minutes.

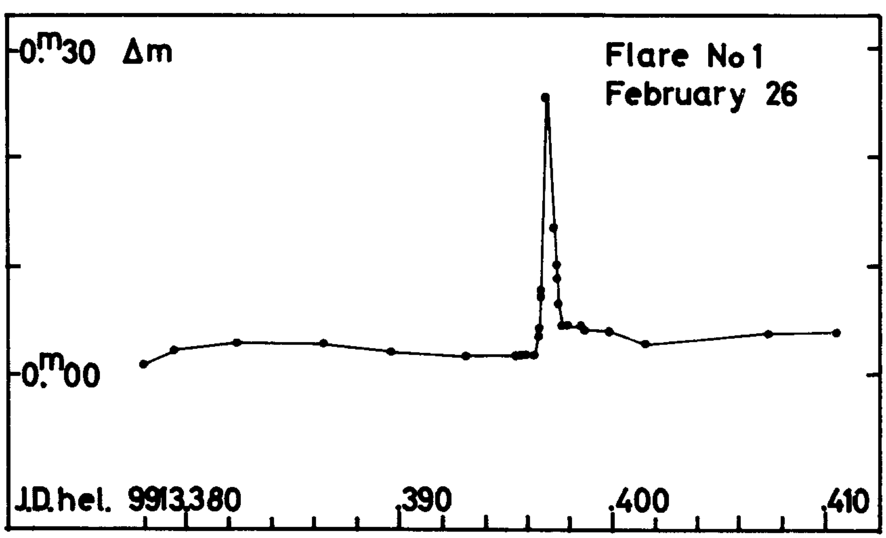
TAB.I - Photoelectric coverage.

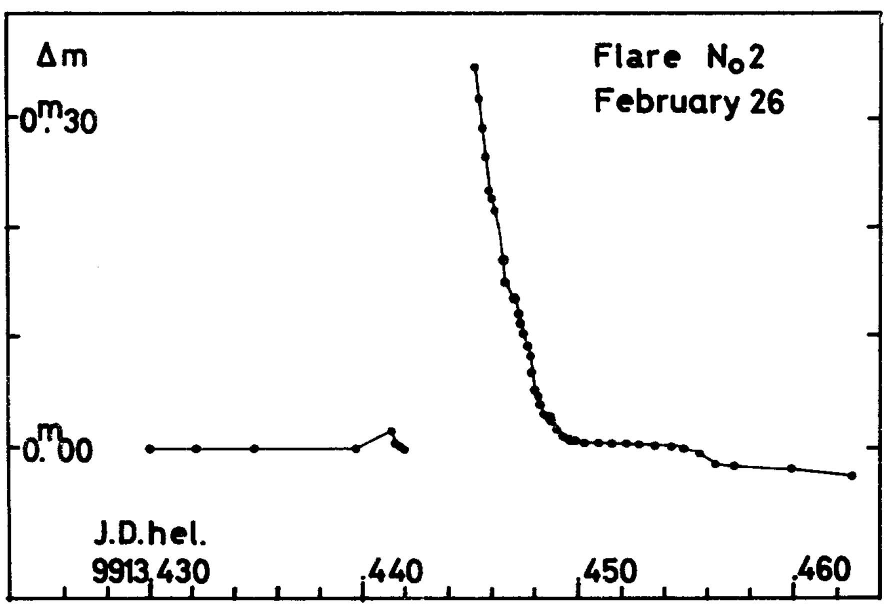
Day	U T	Total
February 26/27	20^h01^m - 21^h47^m	
	21 52 - 22 31	
	22 35 - 01 21	4^h11^m
March 1/2	18 28 - 00 56	6 28
" 3/4	18 25 - 00 51	6 26

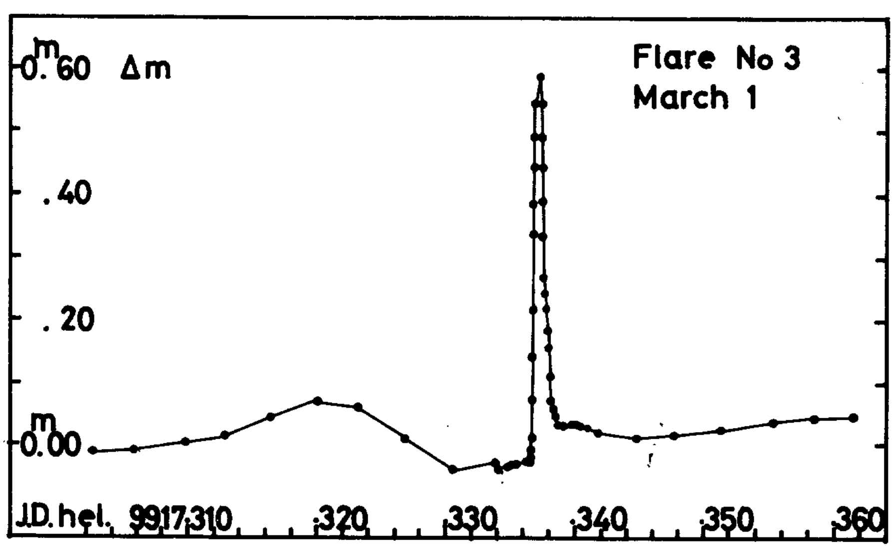
We notice that during the first night of our observations we made two measurements of a comparison star because we were interested also in long period variations at minimum. During the second of these measurements, made from 22^h31^m to 22^h35^m (TU), a second flare happened and we could observe only part of the decay branch. The time of maximum given for this flare has been deduced by a rough extrapolation.

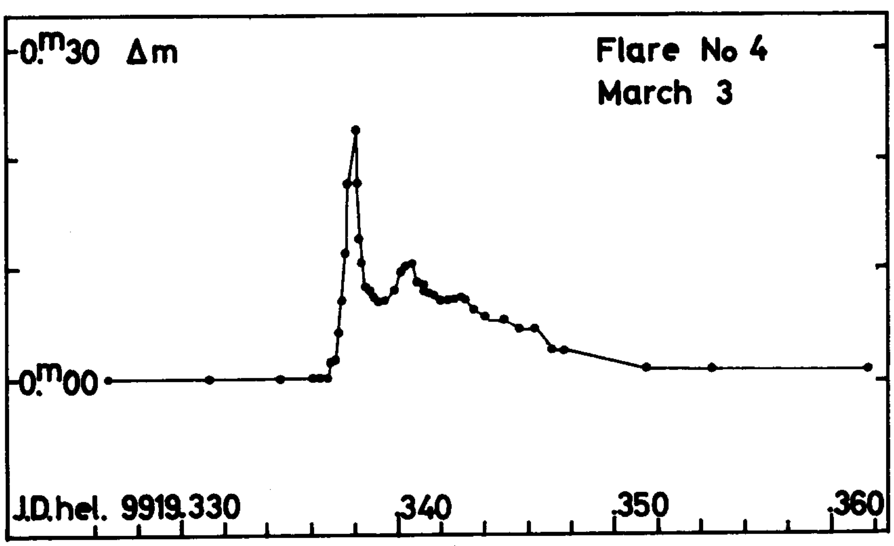
TAB.II - Observed flares.

No	Date of the maximum			Δm (max)	Rise time (minutes)		Total dur. (minutes)	
		UT	JD_{hel}		d	d'	D	D'
1	Feb.26	$21^h26^m.1$	913.3972	$0^m.24$	$0^m.9$	$0^m.3$	$7^m.2$	$0^m.8$
2	"	22 33.4	913.4440	-	-	-	-	-
3	Mar. 1	19 59.9	917.3371	$0^m.62$	1.4	0.6	?	1.7
4	Mar. 3	20 01.3	919.3380	$0^m.23$	1.4	0.9	23.3	11.4




Δm
Flare No 2
February 26
0.m30
0.m00
J.D.hel.
9913.430
.440
.450
.460


0.m60
Δm
Flare No 3
March 1
.40
.20
0.m00
J.D.hel.
9917.310
.320
.330
.340
.350
.360



As far as it concerns the total duration (D) of the flare No.3, the uncertainty is due to its very slow decay after a first relatively rapid decrease. In order to avoid this difficulty we have introduced (1) the parameters d'(time rise) and D'(total duration) both referred to that part of the flare, for which we have

$$\Delta m \gtrsim 20\ \%\ (\Delta m)_{max}.$$

Some more details will be published in the "Memorie della Societa Astronomica Italiana".

Catania Astrophysical Observatory
May 10, 1968.

S.CRISTALDI M.RODONÒ

Reference:

(1) S.Cristaldi, M.Narbone, M.Rodonò, Mem.Soc.Astr.Ital., 1968 (in press).

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 275

Konkoly Observatory
Budapest
1968 May 21

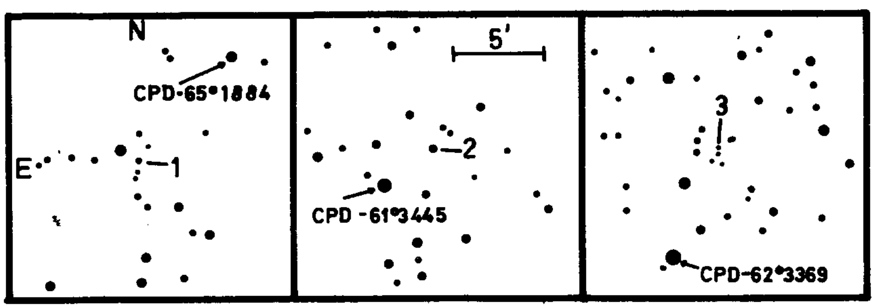
THREE FLARE STARS FOUND SPECTROSCOPICALLY

Inspection of a series of Kodak IIaO objective-prism plates taken with the Warner and Swasey Observatory uv prism (580 Å/mm at H gamma) attached to the Curtis Schmidt telescope on Cerro Tololo in Chile has revealed three flare stars in the region of the Coal Sack which appear to be previously unknown. Each star is identified as a flare star on the basis of the emergence of the Balmer series and the K-line (Ca II) in emission at a single epoch and the complete absence of any emission on a plate of similar depth taken at one other epoch.

In the case of star 1, the 0.2 mm trailed with of the spectrum during a 60 minute exposure permitted actual time resolution of the flare which had a duration of about 20 minutes. A very strong enhancement of the continuum is also obvious in this spectrum. For stars 2 and 3 the duration of the flares must have exceeded the respective exposure times of 30 and 11 minutes, since the emission lines are of nearly uniform strength across the widened spectra. Star 3 was found by Dr. C.B.Stephenson on a plate which is part of a collection being used in an OB star survey of the southern Milky Way.

The coordinates are given in the table. The fourth

Star	(1900)		t (J.D.)	m_{pg}
1	$12^h25^m.2$	$-65°17'$	2,439,914.780	14.7
2	12 59.4	-61 40	921.763	12.7
3	13 27.5	-62 43	912.781	15.5



column gives the starting time of the exposure during which the flare was detected. The last column contains estimates of the quiescent magnitudes of the stars obtained by measuring image diameters on a chart of the southern (Mt.John Observatory) extension of the Lick Sky Atlas which Dr.C.D. Shane kindly furnished to us in advance of publication. The SA 194 sequence of [illegible] (1) was used for calibration. The probable errors of these values are about ±0.5 mag.

The continuum in the quiescent spectrum of star 2 appears to be that of a late-type star although a spectral plate covering the red region (103aF) shows that it is not of M-type.

N. SANDULEAK
Warner and Swasey Observatory

(1) Atlas of Selected Areas (Harvard-Groningen), Southern Part, 1966.

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 276

Konkoly Observatory
Budapest
1968 May 25

OBSERVATIONS OF PULSATING RADIO SOURCE CP 1919+22.

The observations were made with the 2,6-meter Crimean Astrophysical Observatory telescope. On March 29, 1968 prime focus plates of a star identified with the "pulsar" were obtained with an image tube and filters of effective wavelengths $\lambda\lambda$4600,5060, 6565 and 7400. On April 22, 23 and 24, 1968 spectra with dispersion 250 A/mm were obtained with an image tube spectrograph (exposure was 1,5-2 hours). The spectral resolution was about 10 A. With this resolution no details were found in the spectra. A continuous energy distribution of the "pulsar" derived from the spectrograms and filter plates was similar to that of a M-type star. The observed energy distribution apparently is strongly modified by interstellar absorption.

Shternberg Astronomical Institute, Moscow.
Crimean Astrophysical Observatory,
Academy of Sciences of the USSR.

V.F.ESIPOV
V.I.PRONIK
K.K.CHUVAEV

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 277

Konkoly Observatory
Budapest
1968 May 31

TEN MORE VARIABLE STARS IN SAGITTARIUS

Students employed at the Maria Mitchell Observatory in 1967 under a grant from the U.S. National Science Foundation, determined approximate periods for ten of my new Sagittarius variable stars having late-type spectra:

No.	R.A.(1900)	Dec.	Max	Min	Type	Sp	J.D.	Per.
1*	$18^h12^m52^s$	-27°34!8	14.5	16.2	M	M5	30116	154.5
2	13 46	-23 56.9	14.5	16.0	SR	M8:	32385	165
3	20 27	-22 5.7	14.5	16.4	M	M3	23950	159
4	22 21	-22 10.2	14.2	16.1	M	M8	32370	202:
5	22 23	-22 17.0	14.0	15.5	SR	M3-6		175:
6*	22 57	-22 51.4	14.0	16.0	M	M8	28690	248
7*	23 11	-24 36.4	13.5	15.5	M	M:		300:
8	27 32	-23 21.9	14.3	16.0	M	M5	26160	276
9	31 19	-21 34.2	14.3	15.6	SR	M3		150:
10	34 45	-26 10.8	11.9	13.1	SRa	M3		200:

Computers were Mary Ashman (Nos 1,4,5), Judith Guthrow (Nos 2,3), Wendy Levins (No. 7), Sandra Servaas (Nos 8,10), Diana Welch (Nos 6,9).

24 May 1968

DORRIT HOFFLEIT

Maria Mitchell Observatory
Nantucket, Mass., U.S.A.

*1. Has companion
6. Var. is N of close pair. Companion 16 mag.
7. Variable closely follows 12.5 mag.star;seldom resolved.

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 278

Konkoly Observatory
Budapest
1968 Juni 5

THE SECONDARY PERIOD OF THE RRab STAR TT CANCRI

This variable star of RR Lyrae type was recently investigated by W.S.FITCH, W.Z.WISNIEWSKI and H.L.JOHNSON (Comm.Lunar and Planetary Laboratory No 71, Vol.5, Part 2). Their photoelectric observations suggest the presence of Blashko-effect.

In order to investigate the nature of the light curve variation and determine the secondary period 1080 photoelectric observations have been obtained in yellow, blue and ultraviolet with the 24 inch telescope at the Konkoly Observatory. From December, 1967 to April, 1968 thirteen light maxima were observed, wich showed large variations in height and phase.

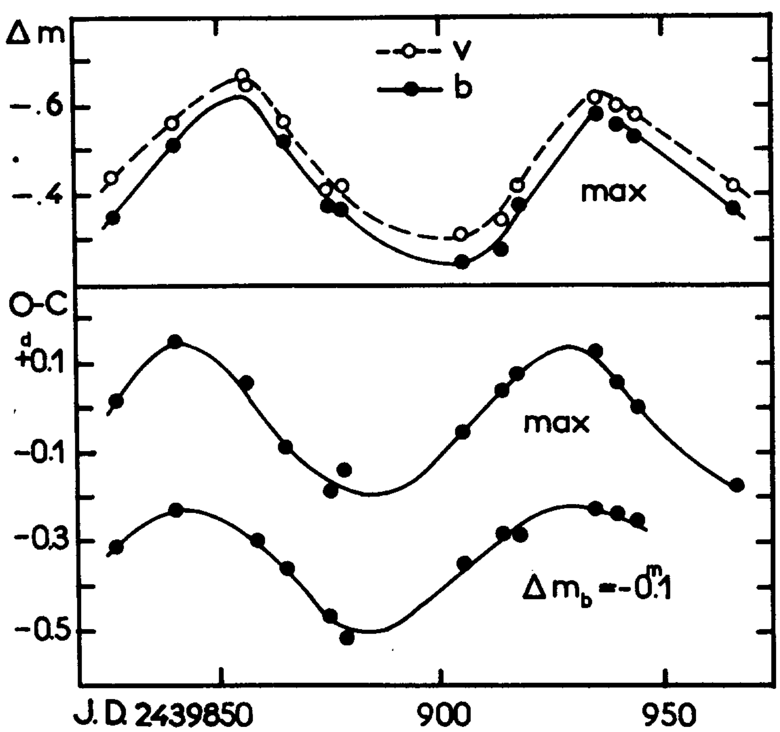
The first column of the Table contains the times of the observed maxima, the second column the O-C values computed by the following elements:

$$\text{Max.hel.} = \text{J.D.}2439944.3670 + 0\overset{d}{.}5634494.E$$

In the third and fourth columns the heights of the maxima relative to the comparison star are listed in yellow (ΔM_y) and blue (ΔM_b) in the instrumental system.

J.D.max.hel.	O-C	ΔM_y	ΔM_b
2439826.6074	+0.0013	-0.44	-0.35
840.707:	+0.0147	-0.56	-0.51
856.4738	+0.0049	-0.67	-0.66
865.4749	-0.0092	-0.55	-0.52
875.6060	-0.0202	-0.41	-0.38
878.4300	-0.0134	-0.42	-0.37
905.4841	-0.0049	-0.31	-0.25
914.5085	+0.0043	-0.35	-0.28
917.3289	+0.0075	-0.42	-0.38
935.3642	+0.0124	-0.62:	-0.58
940.4285	+0.0056	-0.60	-0.57
944.3670	0.0000	-0.58	-0.53
966.324:	-0.0175	-0.42	-0.37

In the upper part of the Figure the brightness variations of the light maxima are plotted against Julian Date. In the lower part the phase oscillations of the light maxima and the point at $\Delta m_b = -0^m1$ on the rising branch (in blue) are shown. The maximum retardation in phase is reached when the amplitude nearly has its mean value and is increasing.



The oscillations both in the height of maxima and in their phase suggest a secondary period of about 89 days:

$$\text{Min.ampl.} = \text{J.D.}2439903 + 89^d.n$$

This formula is in good agreement with the observations obtained by FITCH, etc, as well.

Next year further observations will be carried out in order to determine a more exact value for the secondary period.

Konkoly Observatory, Budapest

B.SZEIDL

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 279

Konkoly Observatory
Budapest
1968 Juni 6

NEW VARIABLE STAR IN AQUARIUS

The reductions of photoelectric observations of BR Aqr showed that one of the two comparison stars is variable. The observations were done by Mr.J.V.Pel and Mr.F.Velthuyse in 1967 with the lightcollector of the Leiden station in South Africa. Dr.P.N.Kholopov confirmed that it is a new variable star.

The coordinates of the star are:

RA: $23^h 36^m 39^s$
D : $-09° 26'.1$ 1950.0

The star has been observed in the colours V, B, L and U of the Walraven system, using a comparison star with the following coordinates:

RA: $23^h 36^m 12^s$
D : $-09° 31'.8$ 1950.0

In the figure the brightness is given in log intensity. The phase was calculated according to the formula:

phase = 1.6313 x (J.D. Hel - 2430.000)

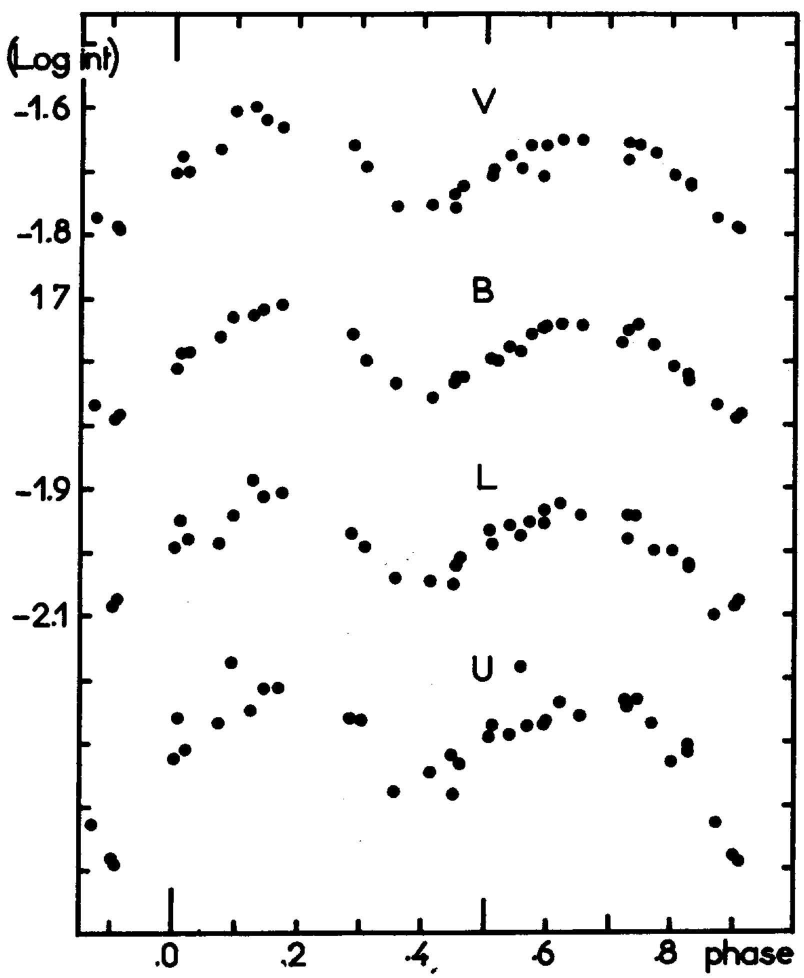
The preliminary elements are:

Max = J.D. Hel 2439 757.35 + $0^d.6130$ E

The light variation of the star is between

$V_J = 10^m.87$ and $V_J = 11^m.34$.

According to period, amplitude and lightcurve, the star is probably an eclipsing binary of the W UMa-type.



Sterrewacht te Leiden, May 30, 1968

A.A. SCHOENMAKER

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 280

Konkoly Observatory
Budapest
1968 June 6

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Bd. VII Nr. 69

CONTROL OF ELEMENTS OF SONNEBERG VARIABLES (VIII)

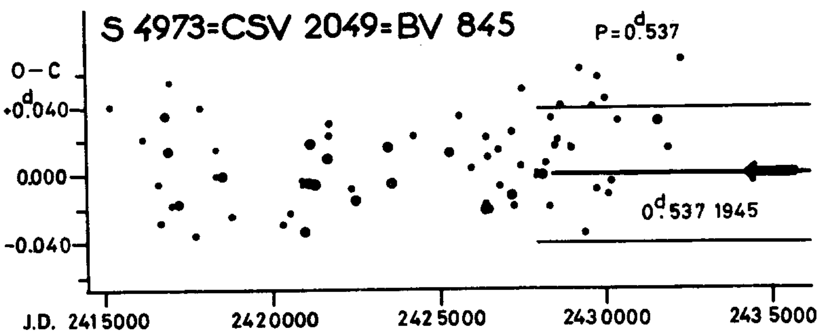
The Harvard plate material (sky patrol) enables a control of the constancy of the elements from the early years of the century on. In the graphical representation only Harvard minima are used. Minima from SONNEBERG and BAMBERG are indicated by the middle line to O - C = $0\overset{d}{.}000$. The accuracy of the observations is shown by the parallel lines.

S 4973 = CVS 2049 = CoD -44° 8789 ($9\overset{m}{,}7$) = HD 118 695 (A5) = = BV 845

The elements published in IBVS 256 (1968) are to be corrected due to an error in the (O-C)-values. For E = 0 read O-C = -0.046.

$$\text{Min} = \text{JD } 242\ 7987{,}305 + 0\overset{d}{,}537\ 1945 \ . \ E$$

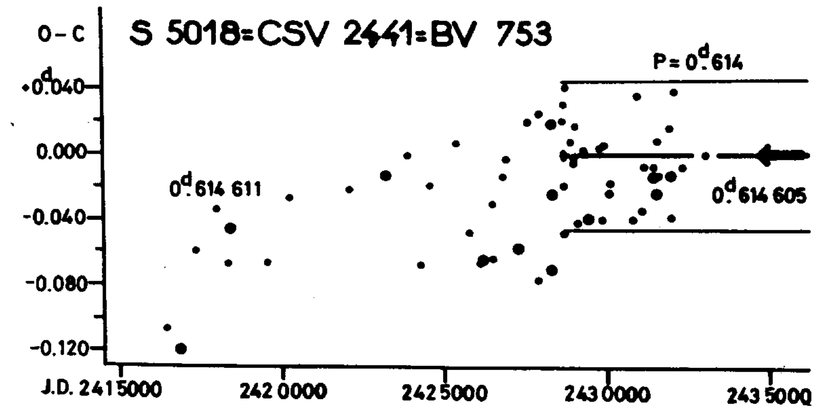
Minima	Minima	Minima	Minima
243...	242...	6834,479	0994,659
3822,319	9745,534	6489,348	0984,723
3453,287++	9727,337	6479,422	0626,662
3439,321	9651,575	6469,442	0343,535
2738,224	9443,336	6436,404++	241...
2728,284(½)	9384,342	6067,375	8855,511
2348,317	9041,297	5685,461	8497,226+
2319,260	8716,319	5386,223+	8473,589
1918,508	8668,488	4357,505++	8422,573
1676,224	8575,550	3536,642++	7977,796
1669,223++	8363,323	3516,789++	7971,835
1655,301++	8341,283	2516,500++	7730,614
1619,316	8213,471	2401,817	7256,827++
1575,213	8199,497++	1758,576	7075,521(½)
0849,492	7590,369	1751,574	7035,576
0418,412(½)	7524,517	1723,626++	6958,717++
0112,433+	7236,332	1362,617+	6936,713+
0088,536(½)	7221,247	1093,507++	6668,589
0055,514	7181,502	1023,647+	6625,636
0004,515	6868,345	1022,591++	6278,637
			5222,529



<u>S 5018</u> = CSV 2442 = BV 753   1900: $15^h\ 39^m\ 37^s$ $-66°\ 25'{,}8$

Min = JD 242 8664,350 + $0^d{,}614$ 605.E (IBVS 184. 1967)

Minima	Minima	Minima	Minima
243...	0900,319	8289,417++	3940,803
3033,577	0158,437	8276,553+	3197,733+
2359,348	0157,511	7978,494(½)	3172,693
2058,238	242...	7903,494	2100,654
2052,322(½)	9897,252	7891,417	0688,623(½)
2000,413++	9716,558	7545,481	0338,576
1992,543	9421,502+	7295,259+	241...
1680,225	9322,594	7188,418(½)	9589,639
1647,322	9130,238	6938,228(½)	8506,578
1627,337++	9104,364	6812,531	8414,812
1620,284	9048,477	6543,285	8368,440++
1614,409(½)	9016,514	6490,463	8069,754
1494,593++	8968,586	6181,283+	7992,833(½)
1251,474(½)	8771,242	6125,352	7405,647
1241,382+	8699,422	5789,276	6951,704+
1167,602	8691,412	5446,285(½)	6589,713
1143,578(½)	8640,411	4670,627	6264,669(½)
0859,373	8337,310+	4327,629	5885,629(½)



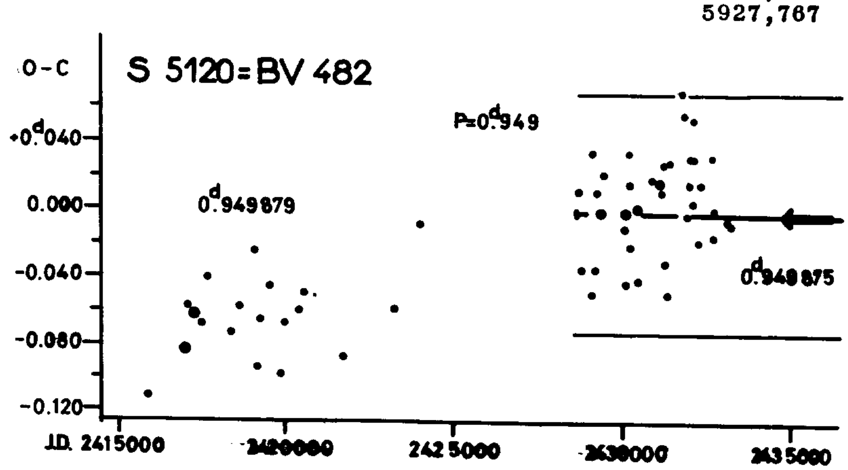
S 5120 = CSV 5295 = CAP −70° 2812 ($7^m_,4$) = HD 199 055 (F_2)
= BV 482

The true period is the half of that published in IBVS 184 (1967):

$$\text{Min} = \text{JD } 242\ 8667{,}600 + 0^d_,949\ 875\ .\ E$$

The Harvard plate material reveals the secondary minimum.

Minima	Minima	Minima	Minima
243...	1705,371	242...	1814,666(¼)
3203,248	1344,300	9756,622(½)	0664,853
3180,452	1323,481	9739,506(½)	0425,575
2765,348	1282,577	,505(½)	0043,618
2706,472	1265,537	9611,283(½)	241...
2648,560	1228,476	9466,477	9942,900
2326,536	1150,592++	9428,451++	9575,817(½)
2305,604	0994,340	9221,343	9567,753
2084,307	0526,464	9204,291	9305,598
2065,358	0448,617++	9165,370	9224,800
2006,919	0263,370	9127,291	9205,770
1978,347(½)	0234,436	8861,339	8604,566
1950,385	0128,499	9785,397	8486,767
1947,552	,466	7987,331	7727,839
1908,572	0109,545	4051,673	7562,542
1801,296	0070,565++	3341,593	7328,880++
1772,260(½)		1862,609	7067,670
			7006,852+
			5927,767



June 3, 1968

W. STROHMEIER, H. BAUERNFEIND
Bamberg, Remeis-Observatory

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 281

Konkoly Observatory
Budapest
1968 June 12

TIMES OF MINIMUM AND DURATIONS OF ECLIPSE

In the fall of 1965 several eclipsing binaries were observed photoelectrically at Kitt Peak with a 16-inch telescope. For each binary the table lists the duration of totality (when it was observed) and the estimated uncertainty. Also listed for each is the O-C time of minimum, calculated from the elements in the Finding List.

Eclipsing Binary		O - C hrs:mins ± mins	d hrs:mins ± mins
U Cep		2:28 ± :15	2:00 ± :25
X Tri		:36 ± :01	:18 ± :03
ST Per		-1:33 ± :02	:52 ± :05
RW Tau		-2:03 ± :05*	....
RW Per		:42 ± :05	2:15 ± :30
TW Dra		:19 ± :07*	....
U Sge		:07 ± :01	1:50 ± :05
SW Cyg		1:54 ± :05	....
W Del		2:20 ± :03	1:42 ± :10
RT Lac	pri	-3:20 ± :15	:45 ?
	sec	-3:35 ± :15	:45 ?
AR Lac	pri	:50 ± :03*	....
	sec	:55 ± :10*	....
TW And		1:02 ± :03	2:06 ± :10

For the four cases marked with *, only one internal contact was observed but the O-C was determined nevertheless by assuming a value of d from another source. U Cep is well known to have a variable duration of totality, so the averaging of several minima observed during October caused the relatively large uncertainty. For RT Lac it is not certain that the eclipses are complete, so both values should be considered approximate upper limits.

DOUGLAS S. HALL
Dyer Observatory
and
Kitt Peak National Observatory

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 282

Konkoly Observatory
Budapest
1968 June 14

CORRELATION OF PERIODIC VARIABILITY WITH ROTATIONAL PERIODS OF Ap STARS
(Preliminary communication)

For 31 of the 32 Ap stars with known periods (variability of magnetic field, spectrum and magnitude) (1), (2), (3), (6), the rotational velocity v·sin i was obtained from Boyarchuk's and Kopylov's catalogue (4) or from line widths in Babcock's catalogue (5), calibrated by stars of the catalogue (4).

If the variability is caused by rotation (e.g. oblique rotator model), the v·sin i for shorter periods should be larger than for longer periods. The v·sin i cannot become larger than the value corresponding to an inclination of the axis of rotation i = 90°.

The following rough estimate shows, that the distribution of inclinations of the axis of rotation points to random distribution.

Table 1

	Number of stars	From random distribution
$\sin i \geq \frac{2}{3}$	20	22.1
$\frac{2}{3} > \sin i \geq \frac{1}{3}$	7	6.6
$\frac{1}{3} > \sin i$	4	2.2

There is a good agreement qualitatively as well as quantitatively with the results expected from the above-mentioned model.

Conclusions:

1) The variability of periodic Ap variables is caused by rotation.
2) Ap stars are slower rotators than normal B and A stars.
3) The maximal radius of Ap stars is about 3 $R_{\odot}$. This is in agreement with the expected value.

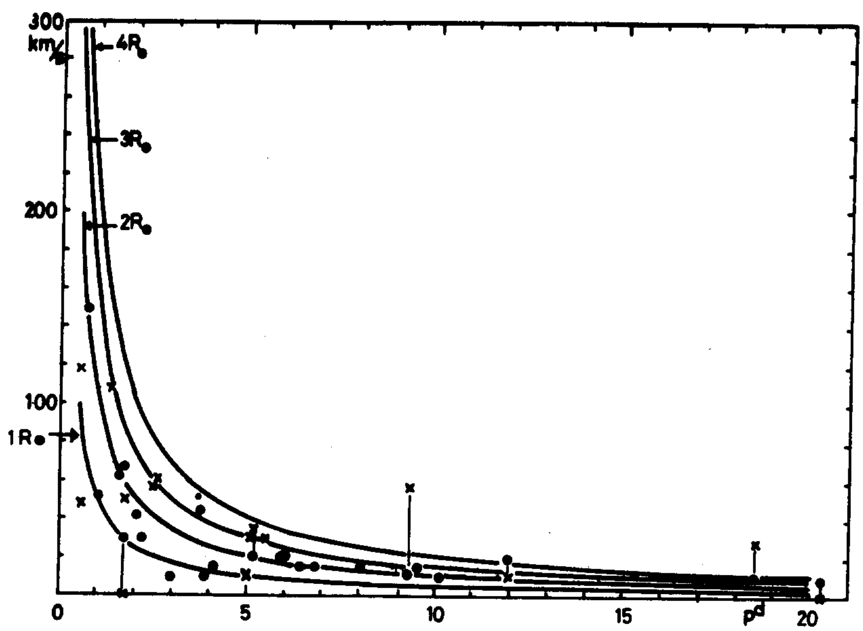


Fig.1 v.sin i versus period of variability.
x - v.sin i from /4/, • - from line widths.
The curves show the rotational velocities for rotation periods of stars with radii of 1,2,3 and 4R $_\odot$.

References:

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COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 283

Konkoly Observatory
Budapest
1968 June 14

THE PERIOD OF V 346 AQUILAE

The period of the Algol-system V 346 Aql seemed to be constant since its discovery 30 years ago, although KOCH and KOCH (AJ 67, 462 (1962)) from one photographically observed minimum found a period $2^d \cdot 10^{-6}$ shorter than the one given in the GCVS 1968. Their elements are

$$\text{Min I} = \text{JD } 24\ 27970.4525 + 1^d.106\ 365 \cdot E$$

Observations in the following years show increasing negative O - C's against these elements, and the accompanying plot of $O-C_1$ may lead one to suggest a sudden shortening of period roughly at JD 24 38500.

New elements were derived from 78 minima found in the literature (s. References). 13 normal minima (Table) were obtained by grouping the individual minima. Admitting the same weight to each of the normal minima, the following elements were obtained:

$$\text{Min I} = \text{JD } 24\ 27970.4647 + 1^d.106\ 363\ 3 \cdot E$$
$$\pm 0038 \quad \pm 000\ 000\ 5$$

$O - C_2$'s in the table are residuals against these elements.

Moreover, instantaneous elements were calculated with normal minima I to X and IX to XIII, respectively, giving

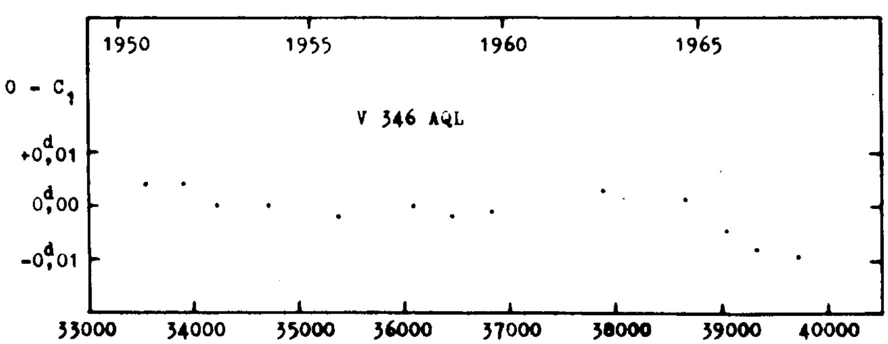
A) $$\text{Min I} = \text{JD } 24\ 27970.4558 + 1^d.106\ 364\ 6 \cdot E$$
$$\pm 0040 \quad \pm 000\ 000\ 5$$

B) $$\text{Min I} = \text{JD } 24\ 37862.4660 + 1^d.106\ 357 \cdot (E-8941)$$
$$\pm 0021 \quad \pm 000\ 002$$

In the table, $O-C_A$ and $O - C_B$ are residuals against these instantaneous elements.

Normal minima of V 346 Aquilae

Number	Min (JD 243...)	O - C_1	O - C_2	O - C_A	O - C_B
I	3539.898	$+0^d.004$	$0^d.000$	$+0^d.003$	
II	3900.573	+0.004	+0.001	+0.003	
III	4213.670	0.000	-0.003	-0.001	
IV	4698.258	0.000	-0.002	-0.001	
V	5365.394	-0.002	-0.003	-0.003	
VI	6073.470	0.000	0.000	0.000	
VII	6447.419	-0.002	-0.001	-0.002	
VIII	6821.371	-0.001	0.000	-0.002	$-0^d.013$
IX	7862.465	+0.003	+0.006	+0.003	-0.001
X	8652.408	+0.001	+0.006	+0.002	+0.003
XI	9029.672	-0.005	0.000	-0.004	-0.001
XII	9342.770	-0.008	-0.003	-0.008	-0.002
XIII	9715.614	-0.009	-0.003	-0.008	0.000



References:

DOMKE,K., POHL,E. AN 281, 113 (1952); POHL,E. AN 282, 235 (1955); ASHBROOK,J. AJ 57,259 (1952); KOCH,J.C., KOCH,R.H. loc. cit.; RUDOLPH, R. AN 285, 162 (1960); HUTH,H. MVS 3, 120 (1966); EBC 4 (1960); BRAUNE,W., QUESTER,W. AN 286,209 (1963); AHNERT,P. MVS 1, 519 (1960); DUEBALL,J., LEHMANN, P.B. AN 288,167 (1965); OBURKA,O. BAC 16,213 (1965); POHL, E. AN 289, 191 (1966); BRAUNE,W., HÜBSCHER,J. AN 290, 105 (1967); ROBINSON, L.J. IBVS 114 (1965); 119 (1965); 180 (1967); 247 (1968).

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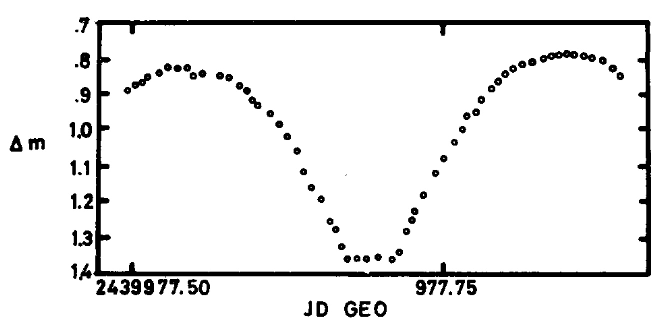
INFORMATION BULLETIN ON VARIABLE STARS

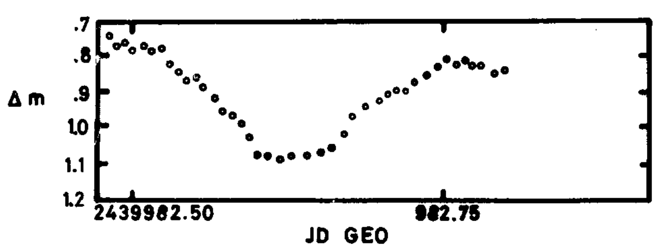
NUMBER 284

Konkoly Observatory
Budapest
1968 June 15

LIGHT CURVE OF BV 1101

The eclipsing variable BV 1101 was reported by Strohmeier, Ott, and Schöffel in IBVS no.261 (1968). It was then observed photoelectrically with the 16-inch telescopes at Cerro Tololo Inter-American Observatory. The comparison star used is SAO 241264 (B8) = Cap -54° 5776 (8^{m}.4). The





figures show the raw blue observation made on April 30 - May 1 and May 5-6, where Δm = m (var.) - m (comp.). The observed time of primary minimum is estimated to be 2439977.689, which agrees with the reported light elements, (O-C) = +0^{d}.029. Detail analysis of the <u>UBV</u> observation of this star is underway.

A REQUEST. The University of Florida would like to obtain all available observatory publications. Please add us to your mailing list.

KWAN-YU CHEN

Department of Physics and Astronomy
University of Florida
Gainesville, Florida
U.S.A.

CARD CATALOGUE FOR ECLIPSING VARIABLES

The card catalogue of reference material for eclipsing variables, initiated at Princeton and continued since 1950 at the University of Pennsylvania, has now been transferred to the University of Florida. Information concerning any system will continue to be supplied on request. Request should be addressed to:

Department of Physics and Astronomy
University of Florida
Gainesville, Florida 32001
U.S.A.

In the move to new quarters at Pennsylvania, several copies of the Fourth Edition of "A Finding List for Observers of Eclipsing Variables" (Koch, Sobieski, and Wood) were discovered. These will be supplied on request to interested observers as long as the supply lasts.

May, 1968

FRANK BRADSHAW WOOD

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 285

Konkoly Observatory
Budapest
1968 June 16

OBSERVATIONS OF RZ CAS AND SU CAS

Yellow photoelectric observations were made in 1967-1968 of the eclipsing binary, RZ Cas, and of the classical cepheid, SU Cas. Heliocentric light epochs were determined:

Primary minimum light, RZ Cas	2,439,877.514
Maximum light, SU Cas	2,439,844.740

The 174 observations of RZ Cas satisfactorily cover the cycle and will be subjected to an orbital analysis. Standardization of the 100 observations of SU Cas has been completed and will be published elsewhere.

RZ CASSIOPEIAE

J.D.hel.	v-c	Phase	J.D.hel.	v-c	Phase
24398..			.6183	-1.129	.6866
23.6030	-1.114	.1049	.6263	-1.078	.6933
.6317	-1.090	.1290	.6326	-1.066	.6985
.6571	-0.966	.1502	.6433	-1.081	.7076
.6786	-0.671	.1683	.6502	-1.079	.7133
37.5649	-1.108	.7857	.6620	-1.078	.7232
.5882	-1.124	.8052	.6718	-1.094	.7314
.6039	-1.145	.8182	.6790	-1.097	.7374
.6174	-1.134	.8295	.6872	-1.103	.7441
.6306	-1.156	.8405	.6968	-1.116	.7531
.6497	-1.123	.8525	44.7041	-1.120	.7583
.6632	-1.191	.8676	.7120	-1.120	.7650
.6778	-1.139	.8801	.7197	-1.132	.7715
42.5218	-1.080	.9327	.7367	-1.127	.7847
44.5246	-1.139	.6082	45.5179	-1.137	.4392
.5364	-1.151	.6180	.5273	-1.147	.4470
.5440	-1.139	.6245	.5339	-1.159	.4525
.5530	-1.137	.6320	.5474	-1.132	.4632
.5638	-1.155	.6410	51.5049	-1.152	.4480
.5718	-1.140	.6477	.5177	-1.150	.4597
.5833	-1.168	.6573	.5251	-1.134	.4648
.5922	-1.139	.6648	.5376	-1.145	.4753
.5999	-1.114	.6712	.5459	-1.154	.4823

J.D.hel.	v-c	Phase	J.D.hel.	v-c	Phase
51.5542	-1.162	.4893	77.5181	+0.402	.2109
.5643	-1.171	.4977	.5202	+0.399	.2126
.5713	-1.166	.5035	.5216	+0.383	.2138
.5782	-1.157	.5094	.5275	+0.291	.2188
.5862	-1.166	.5160	.5292	+0.260	.2202
.6052	-1.153	.5329	.5307	+0.216	.2214
.6136	-1.188	.5390	.5320	+0.179	.2225
.6205	-1.161	.5447	.5379	+0.044	.2276
.6303	-1.162	.5529	.5396	+0.018	.2292
.6373	-1.147	.5587	.5410	-0.021	.2301
.6497	-1.192	.5692	.5421	-0.051	.2310
.6566	-1.170	.5749	.5483	-0.229	.2362
.6747	-1.144	.5901	.5504	-0.290	.2379
.6820	-1.152	.5962	.5518	-0.318	.2391
.6893	-1.176	.6023	.5523	-0.356	.2403
.7052	-1.186	.6156	.5542	-0.374	.2411
54.5287	-1.161	.9778	.5608	-0.501	.2476
.5416	-1.141	.9886	.5622	-0.535	.2478
.5509	-1.143	.9963	.5636	-0.555	.2490
.5618	-1.171	.0054	.5650	-0.603	.2501
.5715	-1.145	.0125	.5709	-0.707	.2551
.5802	-1.130	.0208	.5723	-0.736	.2563
.5899	-1.180	.0289	.5740	-0.781	.2577
.6052	-1.142	.0417	.5754	-0.801	.2588
.6128	-1.130	.0480	.5816	-0.873	.2640
.6194	-1.157	.0536	.5830	-0.872	.2653
.6242	-1.151	.0577	.5847	-0.879	.2664
.6333	-1.151	.0652	.5858	-0.908	.2676
.6413	-1.142	.0719	.5921	-0.984	.2728
.6486	-1.142	.0780	.5934	-0.999	.2739
.6670	-1.135	.0934	.5952	-1.012	.2754
.6739	-1.117	.0992	.5966	-1.024	.2766
.6805	-1.132	.1047	.6032	-1.042	.2821
.6874	-1.126	.1105	.6039	-1.064	.2827
.6975	-1.135	.1190	.6063	-1.083	.2847
.7048	-1.118	.1251	.6077	-1.087	.2862
.7107	-1.137	.1300	.6139	-1.124	.2910
.7215	-1.039	.1400	.6150	-1.123	.2920
.7278	-1.011	.1453	.6167	-1.126	.2934
.7344	-0.940	.1508	.6323	-1.134	.3064
61.5729	-1.153	.8710	.6340	-1.127	.3076
77.4987	+0.158	.1947	.6355	-1.124	.3091
.5004	+0.180	.1961	.6428	-1.190	.3152
.5014	+0.217	.1969	24399..		
.5084	+0.388	.2027	02.5334	-1.071	.1407
.5097	+0.396	.2039	.5348	-1.047	.1419
.5115	+0.414	.2049	.5362	-1.011	.1431

J.D.hel.	v-c	Phase
02.5445	-0.951	.1500
.5459	-0.924	.1512
.5529	-0.864	.1570
.5542	-0.868	.1581
.5608	-0.753	.1636
.5636	-0.710	.1659
.5654	-0.679	.1674
.5695	-0.580	.1709
.5709	-0.537	.1721
.5772	-0.463	.1774
.5813	-0.351	.1808
.5827	-0.328	.1820
.5841	-0.289	.1831
.5897	-0.110	.1878
.5911	-0.073	.1890
.5945	+0.097	.1918
.6004	+0.091	.1967
.6018	+0.153	.1979
.6029	+0.178	.1989
.6042	+0.333	.1999
.6056	+0.390	.2011
.6067	+0.397	.2020
.6080	+0.423	.2031
.6094	+0.435	.2043
.6108	+0.456	.2055
.6121	+0.453	.2065
.6136	+0.468	.2078
.6150	+0.475	.2090
.6181	+0.509	.2116
.6202	+0.519	.2133
.6264	+0.236	.2185
.6279	+0.235	.2197
.6299	-0.003	.2214
03.5764	-1.130	.0134
.5882	-1.226	.0232
.6000	-1.159	.0331

SU CASSIOPEIAE

J.D.hel.	v-c	Phase
24398..		
23.5973	-1.495	.2285
.6268	-1.464	.2436
.6449	-1.484	.2529
.6748	-1.447	.2682
37.5591	-1.312	.3910
.5855	-1.330	.4045
.6008	-1.319	.4143
37.6143	-1.334	.4193
.6272	-1.324	.4259
.6468	-1.302	.4358
.6601	-1.304	.4428
.6751	-1.283	.4505
44.5221	-1.509	.9630
.5333	-1.520	.9687
.5415	-1.544	.9730
.5502	-1.540	.9774
.5606	-1.550	.9827
.5686	-1.568	.9869
.5801	-1.606	.9928
.5898	-1.570	.9977
.5971	-1.553	.0015
.6162	-1.579	.0114
.6235	-1.582	.0150
.6304	-1.579	.0185
.6405	-1.591	.0237
.6481	-1.593	.0276
.6594	-1.584	.0335
.6693	-1.574	.0385
.6770	-1.596	.0425
.6846	-1.585	.0465
.6947	-1.601	.0516
.7013	-1.602	.0549
.7096	-1.596	.0592
.7173	-1.600	.0635
.7346	-1.596	.0719
45.5249	-1.265	.4775
.5315	-1.268	.4808
.5454	-1.183	.4870
51.5136	-1.179	.5497
.5230	-1.138	.5545
.5407	-1.126	.5693
.5518	-1.201	.5744
.5618	-1.213	.5778
.5684	-1.192	.5815
.5757	-1.204	.5856
.6028	-1.202	.5924
.6112	-1.210	.5998
.6181	-1.196	.6033
.6287	-1.189	.6083
.6351	-1.199	.6120
.6473	-1.174	.6183
.6539	-1.186	.6217
.6727	-1.202	.6330
.6796	-1.194	.6345

J.D.hel.	v-c	Phase	J.D.hel.	v-c	Phase
51.6868	-1.199	.6385	77.5254	-1.444	.8937
.7074	-1.175	.6498	.5358	-1.427	.8991
54.5381	-1.588	.1013	.5462	-1.467	.9044
.5489	-1.581	.1068	.5587	-1.452	.9108
.5593	-1.577	.1121	.5691	-1.473	.9161
.5693	-1.627	.1173	.5796	-1.496	.9215
.5766	-1.600	.1210	.5900	-1.497	.9269
.5864	-1.585	.1260	.6011	-1.498	.9325
.6023	-1.568	.1342	.6119	-1.518	.9381
.6107	-1.573	.1385	.6209	-1.526	.9433
.6173	-1.584	.1419	.6303	-1.548	.9475
.6311	-1.580	.1490	.6405	-1.527	.9528
.6388	-1.575	.1529	24399..		
.6461	-1.569	.1567	02.5417	-1.195	.6855
.6648	-1.556	.1663	.5508	-1.193	.6902
.6718	-1.547	.1699	.5584	-1.220	.6951
.6853	-1.548	.1768	.5754	-1.214	.7038
.6954	-1.537	.1820	.5987	-1.228	.7157
.7027	-1.531	.1857	03.5813	-1.417	.2198
.7186	-1.528	.1939	.5855	-1.473	.2220
.7302	-1.536	.2004	.5924	-1.467	.2255
61.5903	-1.209	.7190	.5952	-1.470	.2269
77.5063	-1.374	.8839	.5980	-1.405	.2284
.5160	-1.414	.8889			

Flower and Cook Observatories

GEORGE F.REED

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 286

Konkoly Observatory
Budapest
1968 June 22

DH DARINAE

Andrews (1) has reported photographic photometry of DH Car in two colors (blue and ultraviolet). As he pointed out from Hertzsprung's (2) identification chart it was not quite clear which star did flare. Thus, before knowing the work of Andrews, we undertook the task of observing in the UBV-system some stars in the vicinity of DH Car as identified by Hertzsprung (2). Our first attempt was made in 1967 at the Cerro Tololo Inter-American Observatory with the 16-inch telescope. The results of these observations indicated that DH Car should be earlier than M0 and fainter than V=13 mag. Our second attempt was made at the same observatory with the 36-inch telescope. The results are listed in Table I. The first column gives the designation in Fig.1. The a, b, and f stars are those given by Andrews (1) (also DH Car). From second to last column is our photometry with the mean errors and the number of independent observations.

Table I. - Photometric Results

	V	m.e.	(B-V)	m.e.	(U-B)	m.e.	n
DH Car	$15^m.46$	$\pm0^m.03$	$0^m.90$	$\pm0^m.03$	$0^m.32$	$\pm0^m.09$	27
a	12.83	±0.04	0.91	±0.01	0.05	±0.05	2
b	14.3	±0.1	0.9	±0.1	0.8	±0.1	2
f	15.2	±0.2	0.82	±0.09	0.3	±0.2	6
h	12.76	±0.01	0.92	±0.01	0.35	±0.04	2
i	13.07	±0.01	0.93	±0.01	0.29	±0.04	2
j	13.25	±0.03	0.96	±0.01	-0.03	±0.01	2
k	16.3	±0.2	0.87	±0.01	0.16	±0.06	5

We should mention that our technique consisted of eight seconds integration time to be able to detect rapid light variations,if any.During our observing run (March 25, 26, 27; 1968; U.T.) we had a set of much higger deflexions, possibly caused by a flare. The results of this "flare" are listed in Table II. The columns give first, the Julian Day, and from second to last, the increase in brightness in V, B, and U respectively.Notice that these figures are several times the mean errors listed in Table I.

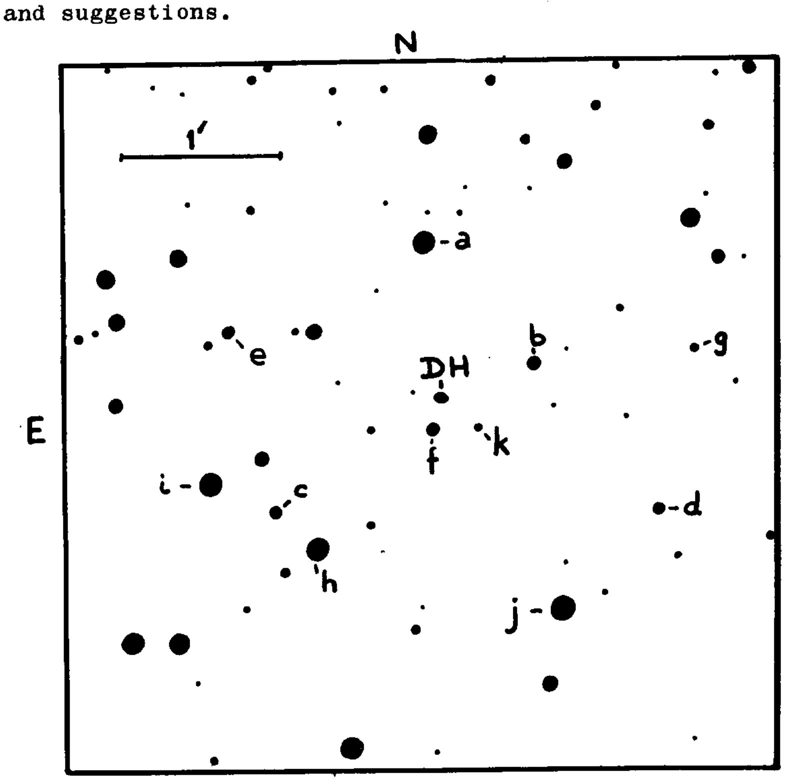
Table II.- A Possible Flare of DH Car

J.D. 2439942.0 +	ΔV	ΔB	ΔU
$0^d.529 - 0^d.536$	$0^m.17$	$0^m.63$	$1^m.00$

If DH Car is not strongly affected by interstellar extinction its spectral type is around K2.

We also took two 103a-O plates centered on DH Car of high quality with the 36-inch telescope. They show clearly a faint companion, less than two seconds of arc apart from DH Car (mostly to the West). The probability that they form a physical system is high because flare stars very often belong to double systems (3).

The author thanks to Dr.E.E.Mendoza for his advise and suggestions.



Astronomy Department, University of Chile and
Cerro Tololo Inter-American Observatory.
June 13, 1968.

S.TAPIA

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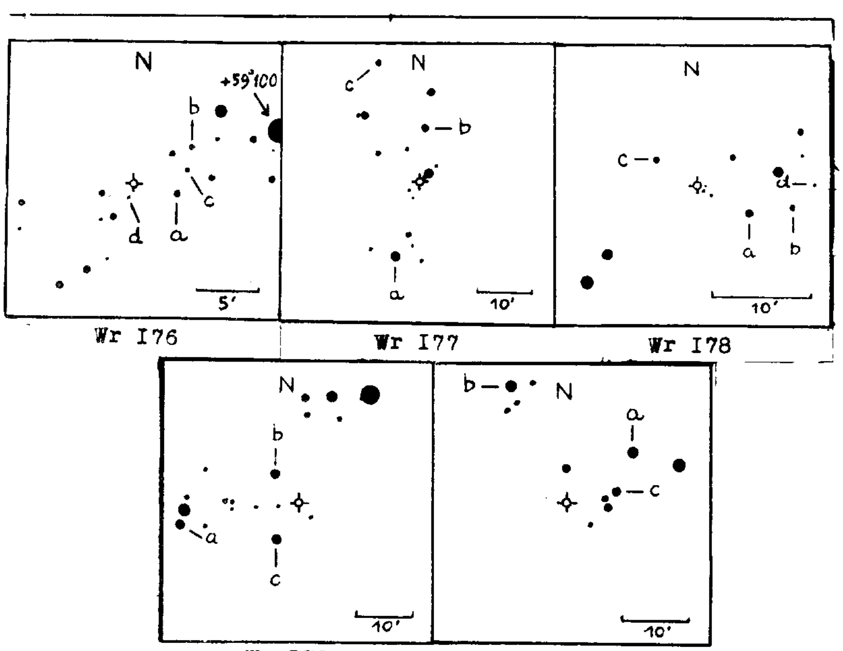
COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 287

Konkoly Observatory
Budapest
1968 June 27

NOUVELLES ETOILES VARIABLES

Des.	α (1900,0)	δ	mp max	mp min	type	nombre d'observ.
Wr 176	$00^h38^m20^s$	+59° 17'	12,5	14,0	I	103
Wr 177	01 04 41	+59 00	9,9	10,4	I	154
Wr 178	01 06 16	+58 43	10,8	11,7	I	154
Wr 179	23 25 47	+45 36	9,4	10,1	I	168
Wr 180	23 40 10	+46 22	9,4	10,0	I	168



Wr 176 Wr 177 Wr 178

Wr 179 Wr 180

Etoiles de comparaison

	a	b	c	d	
Wr 176	12,6	13,2	13,6	14,1	(D'après S.A.8 Mt.Wilson
Wr 177	9,71	10,20	10,48	-	(Magnitudes S.A.8 Bergedorf)
Wr 178	10,42	10,94	11,49	12,02	(Magnitudes S.A.8 Bergedorf)
Wr 179	9,3	9,7	10,0	-	(d'après S.A.43 Brigedorf)
Wr 180	9,6	9,8	10,3	-	(d'après S.A.43 Brigedorf)

REMARQUES

Wr 176 Etoile rouge.

Wr 177 = BD +58°185 = n°636 de la S.A.8 Bergedorf.Sp g: K8.

Wr 178 = Bd +58°193 = n°196 de la S.A.8 Bergedorf.Sp d G8.

Wr 179 = Bd +45°4246. Etoile rougeâtre. Variabilite confirmée par Perissinotto (Comm. privée de Romano).

Wr 180 = BD +46°4154. Etoile rougeâtre. Variabilité confirmée par Perissinotto (Comm. privée de Romano).

Des détails seront publiés dans le BULLETIN DE LA STATION ASTROPHOTOGRAPHIQUE DE MAINTERNE.

ROBER WEBER

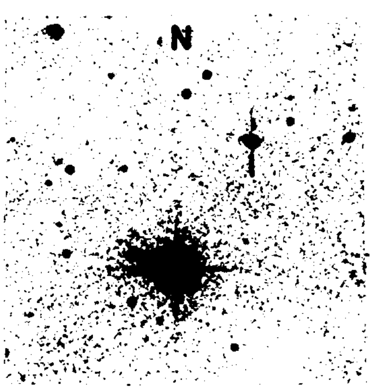
COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 288

Konkoly Observatory
Budapest
1968 July 13

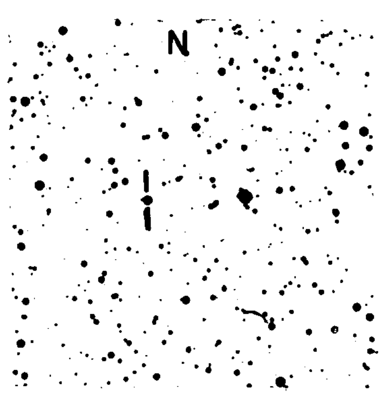
TWO FAINT RED VARIABLE STARS

During a blink survey of glass copies of the Palomar Sky Survey two faint red variable stars of large amplitude were found. The 1900 positions of these stars are: Variable 1 RA = $02^h\ 38^m\ 46^s$, D=$+07°\ 00'.9$; Variable 2 RA = $07^h\ 01^m\ 58^s$, D = $+02°\ 02'.2$. The brightness observations of these variables are listed below:

Variable No.	Date (U.T.)	R	B
1	1954 Dec.22	11.0	13.0
	1955 Jan.15	18.5	20.5
2	1955 Mar.19	12.5	15.5
	1955 Nov.23	17.5	20



V1



V2

The identification charts for each star are 5' square. The brightest stars on the finding charts for variables No.1 and No. 2 are BD +6°413 and BD +2°1553 respectively.

David Dunlap Observatory
University of Toronto
Richmond Hill, Ontario
Canada

CHECK-SEN CHAI
GRETCHEN L.HAGEN

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 289

Konkoly Observatory
Budapest
1968 July 15

Veröffentlichungen der Remeis-Sternwarte Bamberg
Astronomisches Institut der Universität Erlangen-Nürnberg
Vol.VII, Nr.71

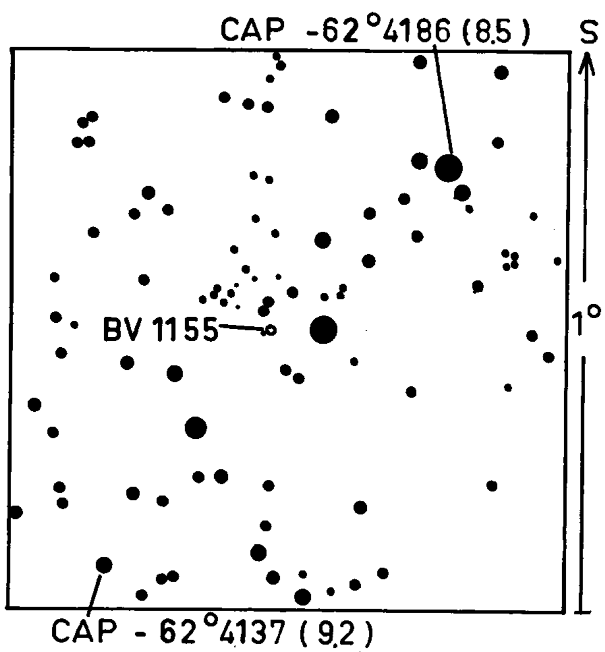
NEW BRIGHT SOUTHERN VARIABLE STARS

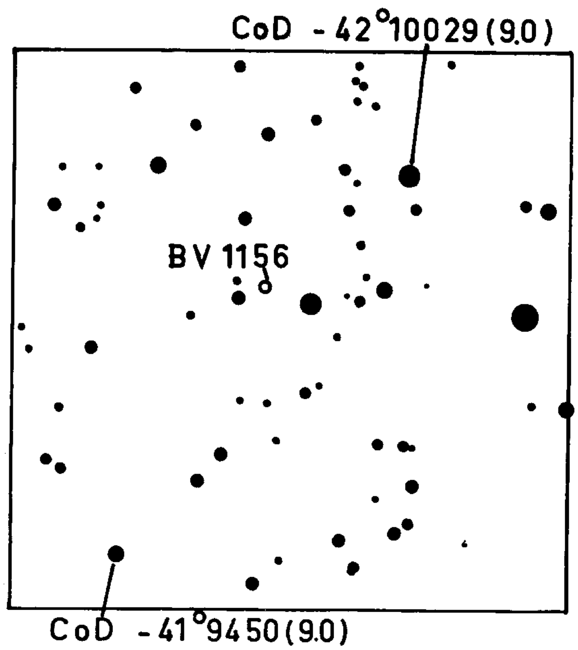
The plates, which have been taken in New Zealand at the Mt.John Observatory University, were exposed with the same cameras, lenses and treatment as formerly in South-Africa at the Boyden-Observatory. Through the efforts of Prof.WOOD, Flower and Cook Observatory (Philadelphia) a mounting and the funds for the payment of an observer from the National Science Foundation (USA) were obtained. I have to thank also to Mr.BATESON, Astronomer in Charge, and the observers Mr. PATTERSON (Mt.John) and Dipl.Phys.U.KÖHLER (Bamberg). The first shipment of plates (400) from the declination zones -77°, -64°, -51° and -38° at RA 12^h-24^h led to the following discoveries.

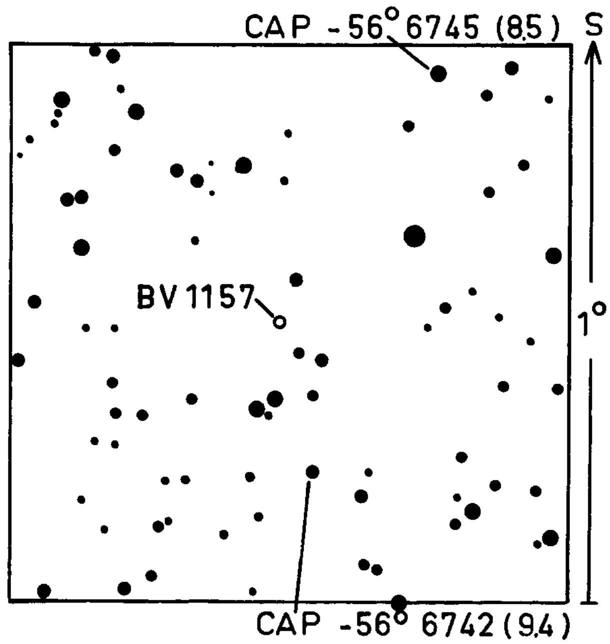
The brighter* stars are listed with standard catalogue numbers; stars fainter than $9^m.5$ are given with the surrounding star fields.

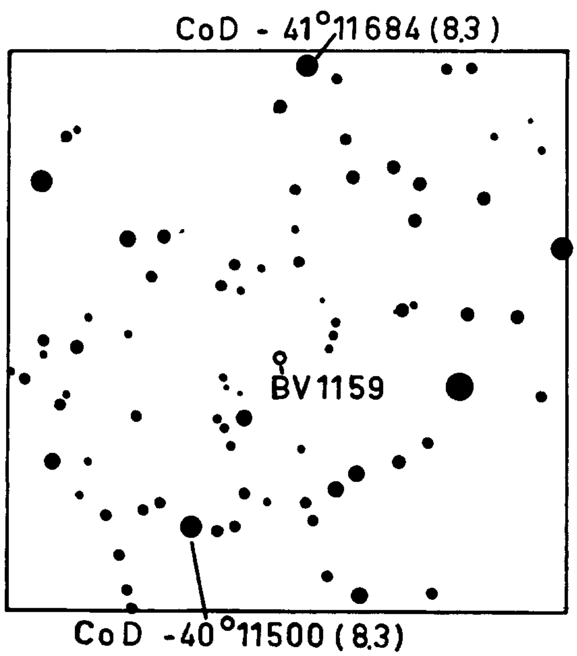
BV1153 Mus	= CAP-69° 1725($8^m.0$)	= HD 111 953(K_0)	A_{pg} = $0^m.80$
BV1154 Cen	= CAP-63° 2662(8.7)	= HD 115 034(B_2)	A_{pg} = 0.25
BV1155 Cen	= CAP-62° 4165(10.3)		A_{pg} = 0.35
BV1156 Cen	= CoD-42° 9994(9.6)	= HD 133 473(F_8)	A_{pg} = 0.30
BV1157 Cir	= CAP-56° 6733(9.6)	= HD 136 591(G_0)	A_{pg} = 0.40
BV1158 Ara	= CAP-58° 6972(8.4)	= HD 153 387(B_9)	A_{pg} = 0.25
BV1159 Sco	= CoD-40°11518(9.5)	= CSV 7657 = S 7642	A_{pg} = 0.35
BV1160 Sco	= CoD-37°11762(10^m)	= CAP -37°7357 ($9^m.6$)	A_{pg} = 0.35
BV1161 Ara	= CAP-56° 8436(9.0)	= HD 161 160(A_0)	A_{pg} = 0.60
BV1162 Pav	= CAP-64° 3890(10.0)		A_{pg} = 0.40
BV1163 Pav	= CAP-70° 2644(9.8)	= HD 182 468(Mb)	A_{pg} = 0.50
BV1164 Ind	= CoD-48°13724(9.9)	= HD 199 063(A_0)	A_{pg} = 0.45
BV1165 Gru	= CoD-44°14487(10^m)	= CAP -44°10028 (10^m)	A_{pg} = 0.20

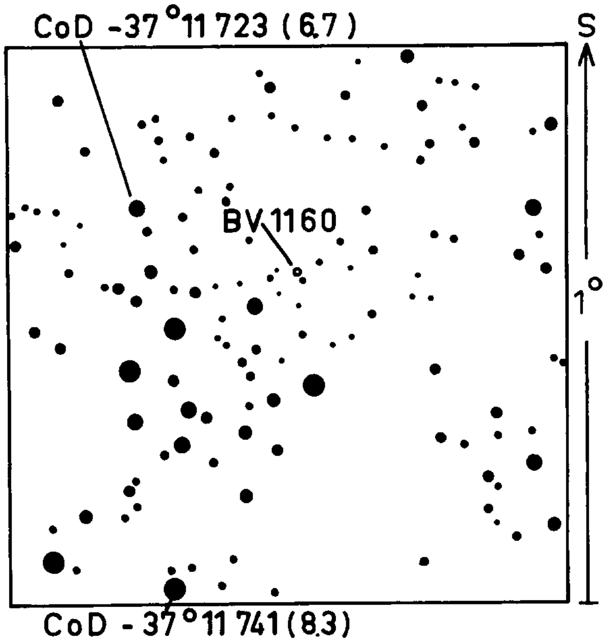
The elements for the following three eclipsing binaries have already been derived with the help of the Sonneberg plate material (Miss Gessner).

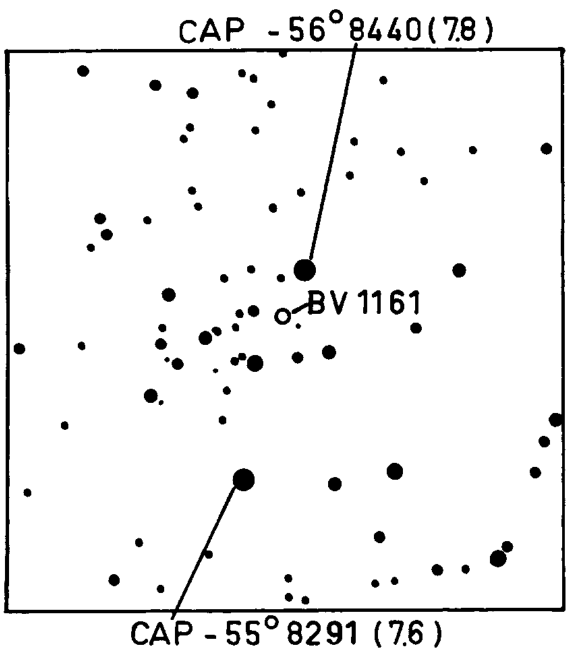

CAP -62°4186 (8.5)
S
BV 1155
1°
CAP - 62°4137 (9.2)

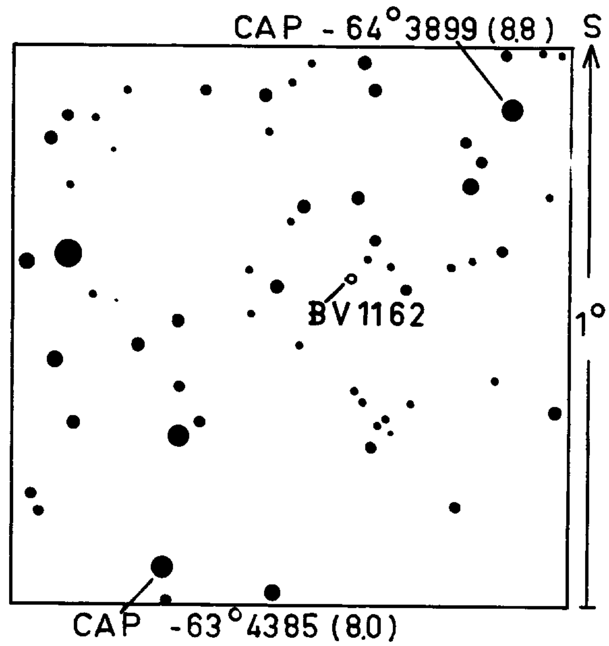

CoD -42°10029 (9.0)
BV 1156
CoD -41°9450 (9.0)

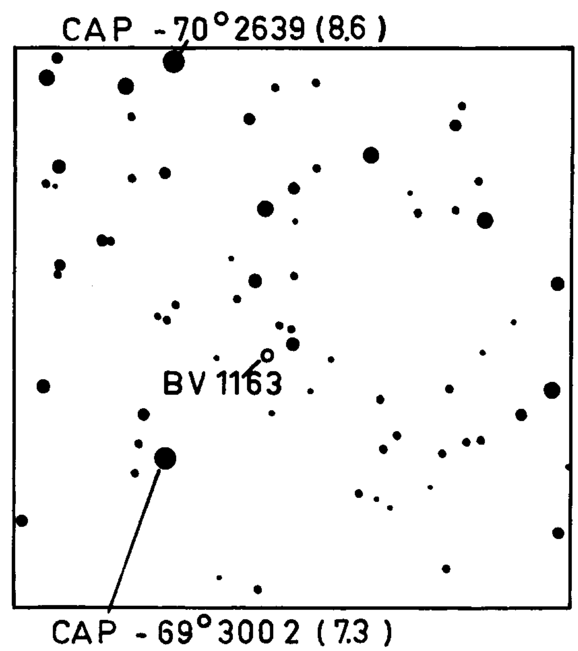

CAP -56° 6745 (8.5)
S
1°
BV 1157
CAP -56° 6742 (9.4)

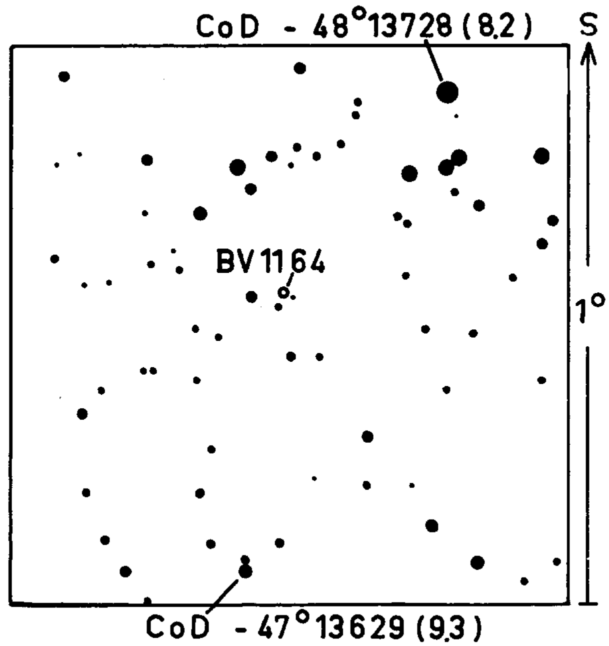

CoD - 41° 11684 (8.3)
BV 1159
CoD -40° 11500 (8.3)

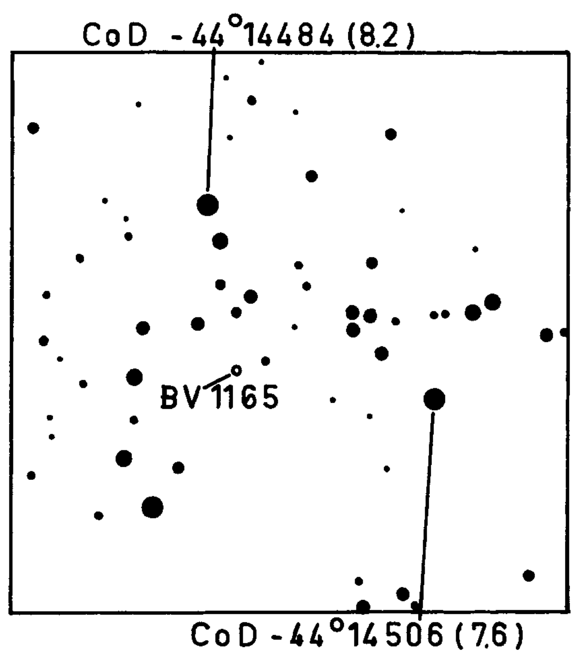

CoD -37°11 723 (6.7)
S
BV 1160
1°
CoD - 37°11 741 (8.3)


CAP -56°8440 (7.8)
BV 1161
CAP -55°8291 (7.6)


CAP -64°3899 (8.8)
S
BV 1162
1°
CAP -63°4385 (8.0)


CAP -70°2639 (8.6)
BV 1163
CAP -69°3002 (7.3)


CoD - 48°13728 (8,2)
S
BV 1164
1°
CoD - 47°13629 (9,3)


CoD - 44°14484 (8,2)
BV 1165
CoD - 44°14506 (7,6)

BV 1155 = CAP −62°4165($10^m.3$)

Min = JD 242 8664.450 + $3^d.367$ 895 . E

Minima	E	O−C	Minima	E	C
242...			243...		
8664.363(S)	0	−0.087	8933.261	3049	+0.099
8930.610(S)	79	+0.096	.308(½)	3049	+0.146
243...			8943.241	3052	−0.025
4477.392(S)	1726	−0.045	9182.419	3123	+0.033
8549.286	2935	+0.064	.461	3123	+0.075
.331(½)	2935	+0.109	9199.369(½)	3128	+0.170
8586.249	2946	−0.020	.410(1/3)	3128	+0.184
8879.403(½)	3033	+0.127	9209.339	3131	+0.010
.449(½)	3033	+0.173	.381	3131	+0.052
8906.308	3041	+0.089	9236.311(3/4)	3169	−0.039
.355(½)	3041	+0.136	9653.933(NZ)	3263	+0.042
8916.299	3044	−0.023	9680.830 "	3271	−0.004
.345	3044	+0.023			

S = Sonneberg plates, NZ = New Zealand plates

Ampl. $0^m.50$, without secondary minimum, EA

BV 1161 = CAP −56°8436($9^m.0$) = HD 161 160(A_0)

Min = JD 242 8686.375 + $3^d.109$ 915 . E

Minima	E	O−C	Minima	E	O−C
242...			8585.336(½)	3183	+0.102
8686.429(S,=)	0	+0.054	.381(1/3)	3183	+0.147
8689.459(S,+)	1	−0.026	8610.254(½)	3191	+0.140
8745.362(S)	19	−0.101	8613.254	3192	+0.030
8773.336(S,−)	28	−0.117	.299(½)	3192	+0.075
243...			8616.258(½)	3193	−0.076
4520.586(S)	1876	+0.010	8641.222	3201	−0.009
4542.337(S,+)	1883	−0.008	8877.538	3277	−0.028
4548.601(S,−)	1885	+0.036	9269.451	3403	+0.035
4570.345(S,+)	1892	+0.011	.496(½)	3403	+0.080
4573.392(S,−)	1893	−0.052	9294.388(½)	3411	+0.093
8196.388(½)	3058	−0.107	9300.410(½)	3413	−0.105
.445	3058	−0.050	9614.504(1/3)	3514	−0.112
8199.449(1/3)	3059	−0.156	.546(½)	3514	−0.070
8224.362(½)	3067	−0.122	9679.927(NZ)	3535	+0.003
8560.419(½)	3175	+0.064	9682.938(NZ,1/3)	3536	−0.096
			.990(NZ,3/4)	3536	−0.044

S = Sonneberger plates NZ = New Zealand plates

Ampl. $0^m.80$, without secondary minimum, EA

BV 1162 = CAP -64°3890($10^m.0$)

Min = JD 242 8332.225 + $5^d.730\ 675$. E

Minima	E	O-C	Minima	E	O-C
242...					
8332.460(S,=)	0	+0.235	8561.406	1785	-0.074
8366.403(S,-)	6	-0.206	8584.381	1789	-0.021
.429(S,-)	6	-0.180	.426	1789	+0.024
8372.394(S)	7	+0.054	8590.340(½)	1790	+0.207
.423(S,+)	7	+0.083	.385(1/3)	1790	+0.252
8389.321(S,-)	10	-0.211	8607.299	1793	-0.026
.352(S)	10	-0.180	.344	1793	+0.019
8395.328(S,+)	11	-0.066	8613.299(½)	1794	+0.243
.351(S,+)	11	-0.089	.344(1/3)	1794	+0.288
8418.306(S,+)	15	+0.121	8636.264(½)	1798	+0.285
8673.611(S,=)	59.5	+0.411	9289.447(3/4)	1912	+0.171
8716.378(S,+)	67	+0.198	9358.237(½)	1924	+0.193
8773.336(S,+)	77	-0.151	.281(½)	1924	+0.237
243...			9375.240	1927	+0.004
4561.402(S)	1087	-0.067	9656.044(NZ)	1976	+0.005
8266.315(½)	1733.5	-0.035	.094(NZ)	1976	+0.055
			9679.042(NZ)	1980	+0.080

S = Sonneberger plates   NZ = New Zealand plates

Ampl. $0^m.55$, with remarkable secondary minimum, EA

Bamberg, Juni 1968

W.STROHMEIER

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 290

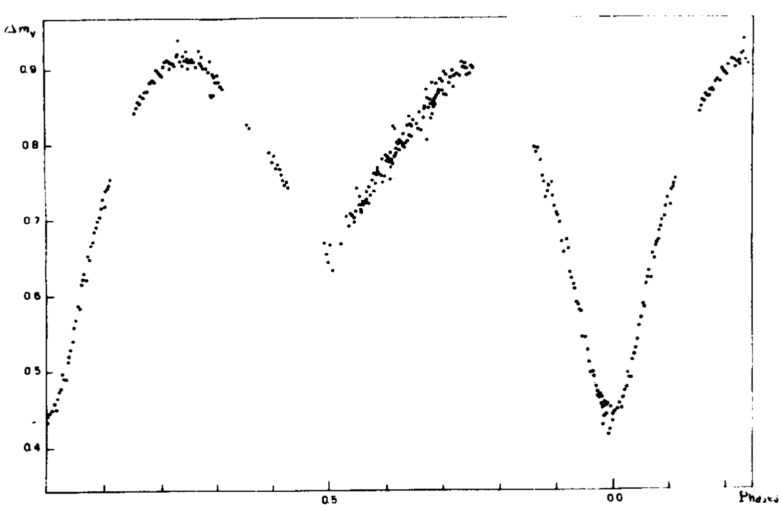
Konkoly Observatory
Budapest
1968 July 19

BV 449 = BD - 12°4227

This star was previously announced as an eclipsing binary having the period $0^d.49414$ (1) and later $0^d.612077$ (2).

Since spectroscopic observations collected at the Asiago Astrophysical Observatory didn't agree with the above mentioned periods, photoelectric observations have been made at the Observatory of the Bologna University. The light curve shown below, results from the following elements:

Min I = JD 2439967.425+$0^d.883036$ E



Asiago and Bologna
Astrophysical Observatories
July 12, 1968

C.BARTOLINI
P.BATTISTINI
R.MARGONI

(1) W.Strohmeier - IBVS,n.62, 1964
(2) W.Strohmeier, R.Knigge,H.Ott-IBVS,n. 164, 1966.

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 291

Konkoly Observatory
Budapest
1968 August 5

CH CYGNI

Preliminary reductions of recent photoelectric observations reveal a new increase in luminosity of the star, with strong oscillations, particularly in U-light, up to about three tenths of magnitude in a few minutes. For comparison sake, rounded off values are given for the following epochs:

			V	B-V	U-B
Dec.	9	1967	8.0	+1.3	0.0
Apr.	21	1968	7.1	+1.2	-0.15
"	23		6.9	+1.1	-0.3
June	27		6.7	+1.1	-0.4
July	13		6.7	+1.1	-0.4

BRUNO CESTER
Osservatorio Astronomico
Trieste

NOTE ON THE RRab STAR AN SERPENTIS

On the basis of visual and photographic observations BATYREV[1] determined a secondary period of 22.94 days for this star from the phase oscillations of maxima, his result was, however, very doubtful.

In order to investigate the suspected light curve variations of this star, in the years 1967 and 1968, more than one thousand photoelectric observations have been obtained in yellow, blue and ultraviolet with the 24 inch telescope at the Konkoly Observatory. But no significant variations in phase or height of the six observed maxima have been found.

In addition, our observations are in good agreement with the observations obtained by FITCH, et al.[2] in 1965. Moreover, the 0-C diagram of this variable is very simple which also makes absence of light curve variation probable.

The Table contains the times of the observed maxima the 0-C values computed by the following elements:

$$\text{Max.hel.} = \text{J.D.}2439538.6742 + 0^{d}.5220716 \cdot E$$

and the heights of the maxima relative to the comparison star in the instrumental system.

J.D.max.hel.	0-C	ΔM_y	ΔM_b
2439537.632	$+0^{d}.0019$	$-0^{m}.35$:	-
538.6745	+0.0003	-0.32	$-0^{m}.69$
547.5485	-0.0009	-0.30	-0.69
560.602	+0.0008	-0.29:	-0.70:
617.5050	-0.0020	-0.30	-0.66
996.5310	0.0000	-0.29	-0.69

B.SZEIDL

Konkoly Observatory
Budapest

1/ A.A. Batyrev, 1964, Peremenny Zvezdy 15. 278
2/ W.S. Fitch, W.Z. Wisniewski and H.L.Johnson, 1967, Comm. Lunar and Planetary Laboratory No 71, Vol.5, Part 2.

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 292

Konkoly Observatory
Budapest
1968 August 13

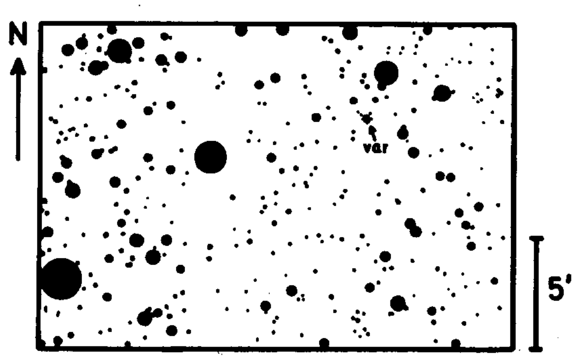
NOTE ON V381 SCORPII

The latest minimum of the long period eclipsing binary V381 Scorpii occurred in 1961/62. The photometric elements derived by Henrietta Swope (1936) are:

$$\text{Min} = \text{J.D.}2424574 + 6475\ E;\ D = 670^{d},\ d = 300^{d}.$$

In order to check the prediction for 1962, at the request of Dr. T. Herczeg, 13 exposures of the region were kindly secured by Dr. E. Geyer, using the 10-inch Metcalf Telescope of the Boyden Observatory. The plates (103a-O) represent the time interval May-June 1962 (J.D.2437795-2437845) and should correspond to the end of the egress phase, the 4th contact being predicted for J.D.2437859.

An inspection of the plates shows, however, that the earlier component must have been still completely eclipsed at that time or, at most, just passed the 3rd contact. The variable appears slightly fainter than star No.46 in M6 (Catalogue of Rohlfs at al., 1959), having B = 15.8, i.e. V 381 Scorpii was very nearly at its minimum level. In spite of the considerable scatter there is a tendency of the variable growing brighter towards June, by perhaps 0.3 magn. The 3rd contact may have taken place about J.D.2437820.



This means that the ephemeris was sensibly in error, with O-C $\sim 140^d$. A correspondingly improved value of the period amounts then to P = 6545^d which turns out, in fact, to be compatible with the earlier measurements, too. The epoch of mid-eclipse, as given by Miss Swope, is rather well defined by the best observed minimum of 1926.

A chart of the immediate vicinity of V381 Scorpii is also added here because of the very crowded star field around. The brightest star at the left (eastern) edge is CD -35°11934; the variable is indicated by an asterisk.

Hamburg, August 8, 1968.

H. TIMMERMANN
Hamburg Observatory

References:

H.H.Swope: Harvard Bull. 902, 6, 1936
K.Rohlfs, K.W.Schrick and J.Stock: Z.Astrophys. 47, 15, 1959.

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 293

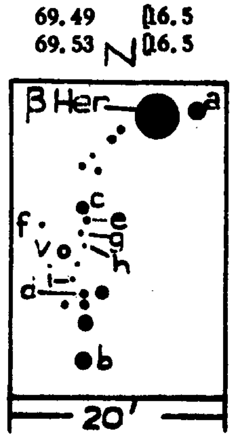
Konkoly Observatory
Budapest
1968 August 19

S 10376 = NOVA HERCULIS 1968

This fast or even very fast nova was discovered near the star β Her in comparing one pair of plates. As a sufficient amount of plates was available the very rapid increase of brightness on June 30, 1968, as well as essential parts of the decline could be observed. (At the end of July 1968 the object was again invisible.)

The following observations were obtained on plates ZU2 without filter at the astrograph 400/1600 mm:

J.D. 24400	Mag.	J.D. 24400	Mag.	J.D. 24400	Mag.
33.50	[17^m	39.50	12^m.4	67.41	15^m.0
37.45	[17	40.46	12.4	67.46	15.0
37.50	[17	59.40	14.9	67.50	14.9
38.44	13.0 x	60.42	14.9	68.42	16.0
38.45	12.5	65.39	14.7	68.49	16.0
38.50	12.5	66.41	14.8	68.53	16.0
39.45	12.3	66.46	14.8	69.49	[16.5
39.45	12.4 x	66.50	14.9	69.53	[16.5
39.45	14.0: xx	66.53	14.9		



Remarks:
x Sky Patrol plates Zu2 without filter
xx Sky Patrol plates Raman Pan + GG 14

Adopted magnitudes of the comparison stars:

a	11^m.2	f	14.9
b	12.3	g	15.0
c	12.8	h	15.4
d	14.2	i	16.0
e	14.4		

The nova is invisible on the red and blue plates of the Palomar Sky Atlas. The amplitude of the light variation is therefore 8 mag. or more.

The approximate position of the object is as follows:

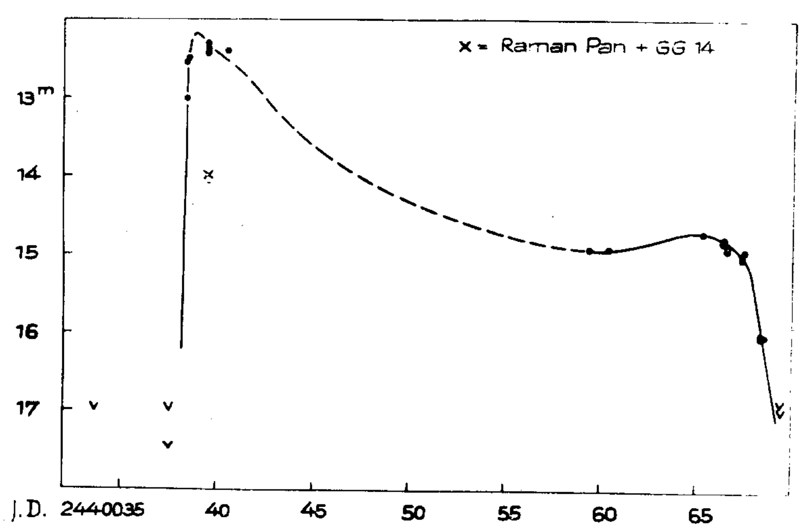
RA (1855) = $16^h\ 24^m.6$ D (1855) = $+21^\circ\ 37'$

l^{II} = 38° b^{II} = $+41^\circ$

From the high galactic latitude of the object (s. above) we may draw an important conclusion:

McLaughlin gives for the mean absolute magnitude of a fast nova -8.3, Payne-Gaposchkin assumes a mean absolute magnitude of all novae of -7.6. If we take the second value as the right one and if we suppose the apparent magnitude at maximum light to be 12^m and the interstellar extinction to be about $0^m.5$, we get for the distance modulus M-m = 19. The distance of the nova would then be 63 kpc, corresponding to z = 42 kpc, which means that the object must be in the intergalactic space. Even if the absolute magnitude at maximum light would be far below the mean value of the typical novae, it would still be at a striking distance z from the galactic plane.

There is furthermore the interesting fact of the very high negative colour index at J.D. 2440039 (s. table) which is also to be seen from the extraordinary image of the star on the plates of the astrograph 400/1600 mm. Perhaps this could be explained by strong emissions in UV.



German Academy of Sciences
Institut für Sternphysik
Sternwarte Sonneberg

GEROLD A. RICHTER

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 294

Konkoly Observatory
Budapest
1968 August 21

OBSERVATIONS OF THE FLARE STARS G3-33 AND G24-16

The stars G3-33 and G24-16 from the catalog of Giclas, Burnham, and Thomas (1963) were monitored with the sixty-inch reflector of the Cerro Tololo Inter-American Observatory in continuous U-band photoelectric photometry, with the following results.

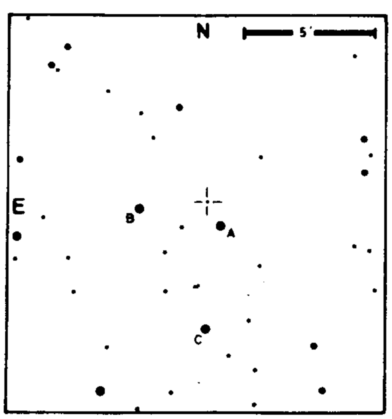
G3-33

This star, of spectral type dM5e (Eggen and Greenstein, 1965) was monitored on the night of 26 July, 1968 from $08^h29^m.4$ to $09^h26^m.3$ U.T. Against a detection threshold of U_{lim} = 16.6 (defined as a magnitude equal to three times the standard deviation of the noise during the quiescent state recorded with a one second time constant) an event was recorded at 08^h49^m5 U.T. that reached a peak light U_{peak} = 14.66 (Δ U = 1.06). The logarithms of the decay times measured at 1, 2, and 3 magnitudes below peak light are $\log t_1 = -0.11 \pm .10$, $\log t_2 = -0.81 \pm .10$, and $\log t_3 = -0.91 \pm .20$. [x]

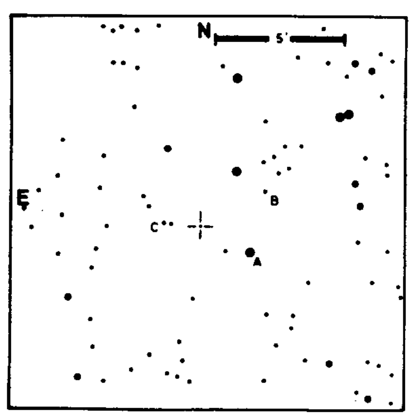
The decay parameters most nearly resemble those of the flare star AD Leo (Kunkel 1967), a star whose absolute magnitude is 11.07, or 2.83 magnitudes

[x] The measurement of a slope 3 magnitudes below peak light, i.e., at U = 17.66, is not inconsistent with a detection threshold U_{lim} = 16.6. Measurement of flare decay rates are curve fitting problems. In this instance a straight line was fit to a four minute portion of the record, involving 240 independent sample points. The detection threshold is a statistic governing a single sample point.

brighter than G3-33 (Lippincott 1967). If the relation between flare decay times and stellar luminosity proposed by Kunkel (1968) applies, then the event observed on G3-33 was one of unusually long duration for this star.



G3-33



G24-16

G24-16

During the short interval in which this star was monitored, from $05^h45^m.0$ to $06^h53^m.6$ U.T. on 27 July, 1968, four flares were recorded against a detection threshold U_{lim} = 16.7. The flare data are summarized in table 1 below.

TABLE I. Flares of G24-16

Event U.T.	U_{peak}	ΔU	$\log t_1$	$\log t_2$	$\log t_3$
$6^h36^m.72$	15.94	0.8	+0.64	+0.50	-
$6^h37^m.11$	15.60	1.0	+0.60	+0.43:	-0.54:
$6^h48^m.19$	16.41	0.6	+0.71	-	-
$6^h48^m.86$	15.11	1.2	+0.41	+0.06	-0.28

The probable error in logt is 0.1 except where a colon is used to indicate 0.2.

The decay characteristics are those of a low luminosity star. They may be compared with those of UV Ceti, for which $\log t_1 = +0.55$, $\log t_2 = +0.13$, and $\log t_3 = -0.28$. The empirical relation between the flare decay parameter $\log t_3$ and the bolometric magnitude, together with Johnson's (1965) bolometric correction lead to an absolute magnitude of 14.24 for this star, and hence a parallax of 0".17 ± .04. The example offered by the flare of G3-33 should serve as a warning that since only two flares yield the average of $\log t_3$, such a parallax should be considered as highly tentative.

Finding Charts and Comparison Stars

The finding charts were redrawn from Giclas et al (1963) to assist the identification of comparison stars. The photometry for all stars is based on a single observation, so that probable errors in V are ± .03, in B-V they are ± .02, and in U-B they are ± .04.

TABLE 2. Photoelectric Measures

Star	V	B-V	U-B
G3-33	12.19	1.76	1.23
A	11.71	.53	+.03
B	13.88	.71	.24
C	13.25	1.15	.48
G24-16	13.07	1.70	1.25
A	11.60	.36	+.18
B	12.37	.34	+.30
C	12.43	1.50	2.07:

The U-B measure for G24-16/C is uncertain by 0.15 magnitudes.

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______, 1968, Proceedings of the Colloquium on Low Luminosity Stars, March 28 - 30, 1968, Charlottesville.

Lippincott, S. L. 1967, A. J., **72**, 840.

August 3, 1968

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COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 295

Konkoly Observatory
Budapest
1968 September 2

AUTOCORRELATIVE AND SPECTRAL ANALYSIS
OF THE LIGHT VARIATION OF AE Aqr.

Autocorrelative and spectral analyses of 2390 unpublished observations of AE Aqr in U region was carried out as described in [1]. The observations were made by M.F.Walker in 1956-1957 on the Mount-Wilson Observatory 60-inch reflector with Corning 9863 filter. They are kept in the Royal Astronomical Society library in London. On request from the Main Astronomical Observatory of the Ukrainian Academy of Sciences, Dr.E.W.Maddison kindly sent a copy of the observations to Kiev.

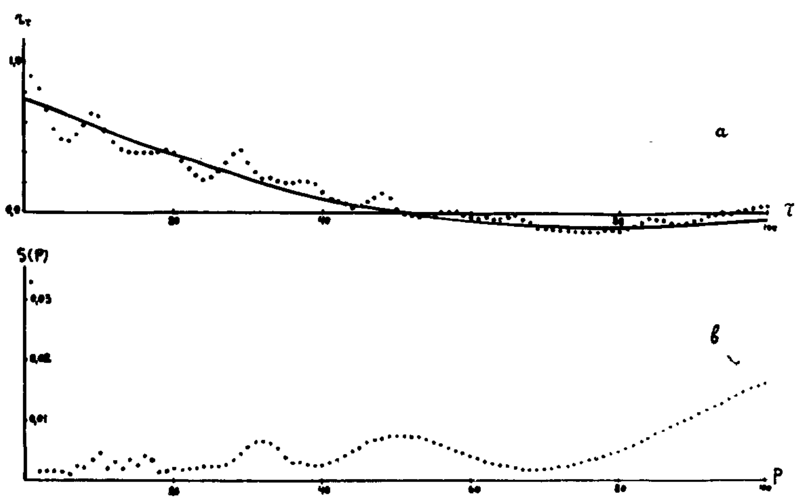

Fig. 1

A unit of correlative interval is taken equal to $0^d.001$. The maximum correlative interval (τ) is equal to 100 unit. The received autocorrelative (a) and spectral (b) functions are shown by points on the figure 1. The solid curve is calculated by the formula:

$$r_\tau = 0,75\ e^{-\frac{\tau^d}{0,042}} \ \mathrm{Cos}\ \frac{2\pi}{0,2}\ \tau^d$$

It describes the principal run of r_τ with τ and corresponds to a stochastic process:

$$\xi(t) = A\ \mathrm{Cos}\left(\frac{2\pi}{0,2}\ t^d + b\right)$$

where A and b are stochastic values. Moreover oscillations with maxima near the correlative intervals $0^d.01$, $0^d.03$ and $0^d.05$ are seen on the correlative function. The existence of oscillations of such periods is confirmed by the spectral density curve. Besides small maxima near the enumerated periods and a possible maximum near $P = 0^d.016$ there is an increase of S(P) with P related to the main component of the process with $P = 0^d.2$. As seen from the value r_τ at $\tau = 0$, the dispersion of this component is three times greater than the sum of dispersions of the rest observations. Periods near $0^d.701$ and $0^d.4$ discovered by A.H.Joy [3] and M.F.Walker [4] from radial velocities are not seen from the examined observations of AE Aqr. If such oscillations exist, their dispersions are not greater than those for the enumerate short period oscillations.

Therefore, basing on the examined row of observations, the main part of the light variation process of AE Aqr in U region may be mathematically modelled by a harmonic oscillation with $P = 0^d.2$ and stochastic amplitude and phase.

It is a pleasure to acknowledge my sincere thanks to Dr.E.W.Maddison for the copy of observations and the troubles of sending it to us and to A.Jemets for calculations on an electronic computer.

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August, 1968

LITERATURE

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COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
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Konkoly Observatory
Budapest
1968 September 30

UV CETI OBSERVATIONS AT BOYDEN OBSERVATORY

During September-October 1967 the Boyden Observatory joined in the worldwide program of monitoring the flare star UV Ceti. Observations were made with the Harvard Nishimura 16-inch telescope and photometer. The star was observed with a V filter, using a time constant ~1 sec, with the sky checked about every 30 min.

Table 1 gives the amount of time covered each night and a list of the flares definitely and unambiguously observed. Table 2 gives a list of possible small events (those with $\Delta m < 3\sigma$) together with approximate values for the normal recorder fluctuations. To be regarded as real, these observations should be independently confirmed. Figure 1 shows a chart of the times acutally covered by Boyden photometry; Figure 2 shows the light curve of one of the events described here.

Many thanks are due Drs. T. Schmidt and E.S. Schöffel and Mr. J.P. Eksteen for arranging and carrying out the observations at the Boyden Observatory.

L.H. SOLOMON
Smithsonian Astrophysical Observatory

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Table 1.

Boyden Observatory Results

Definite Flares

Date 1967	Coverage	Time of flare (UT)	Δm	Notes
Sept. 27–28	3^h39^m			No definite activity.
28–29	0			No photometry.
29–30	0			No photometry.
30– 1	0			No photometry.
Oct. 1– 2	4 46	232240(start)	$0^m.4$	Duration ~3–4 min, $\sigma \sim 0^m.1$.
2– 3	4 31			No definite activity.
3– 4	2 14			No significant activity.
4– 5	5 18	234025(start)	1.02	Rise $\sim 10^s$, 2nd max $\sim 0^m.1$ at $t+3^m$. Return to normal light at $t+5^m$ approx.
5– 6	4 06	234143(start)	0.48	1st max. 10^s rise, $\sim 1^m30^s$ decay to (normal light + 0.02). Never returns to normal.
		234808(start)	0.30	2nd max 8^s rise, $\sim 2^m10^s$ decay to near normal. Slow drop from (norm +0.07) at t+4 min to (norm +0.05) at t+9 min.
		000419(start)	0.18	3rd max, decay until next event.
		000545(max)	0.58	4th max, decay until next event.
		000812(max)	0.94	5th max, decay until next event.
		000900(max)	1.19	6th max, decay to normal light 36^m. Total duration of event 1^h04^m.
Oct. 6– 7	4^h41^m	214915(start)	$0^m.47$	Rise 15^s, decay to normal $+0^m.05$ in 3–4 min, decay to normal in 15^m
7– 8	5 34	001750(start)	0.38	Rise 8^s or less. Total duration only 20^s.
8– 9	1 45	230200(start)	0.58	1st max. Decay until
		230420(max)	0.17	2nd max. Duration entire event greater than 3^m.

Total 36^h34^m Six definite, large ($\Delta m > 3\sigma$) events in V color.

Table 2

Boyden Observatory Results
Possible Events

Date 1967	Time (UT)	m	σ of normal light	Notes
Sept. 27-28	010350	0.14	0.10	Duration 50 sec.
Oct. 1- 2	012710	0.17	0.10	Duration 20 sec.
	013630	0.18	0.10	Duration 15 sec.
	223500	0.23	0.10	Duration 20 sec. Recording resumed during decay of event (?). Max occurred during sky reading.
2- 3	220030	0.18	0.09	Duration 40 sec.
3- 4	213200	0.16	0.1+	Duration 1^m, cirrus before and after.
4- 5	205930	0.17	0.10	Duration 1^m20^s
5- 6	014910	0.15	0.09	Duration 25 sec.
7- 8	203800	0.20	0.08	Duration 60 sec.
	231240	0.20	0.10	Duration 10-15 sec.
	233050	0.25	0.10	Duration 10 sec.

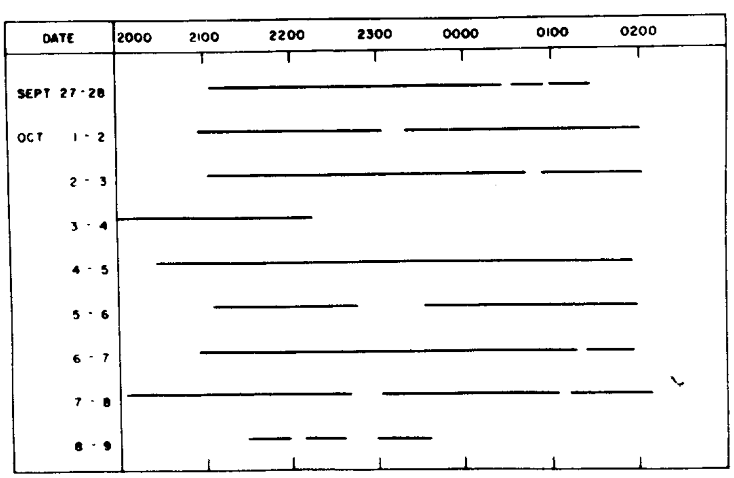
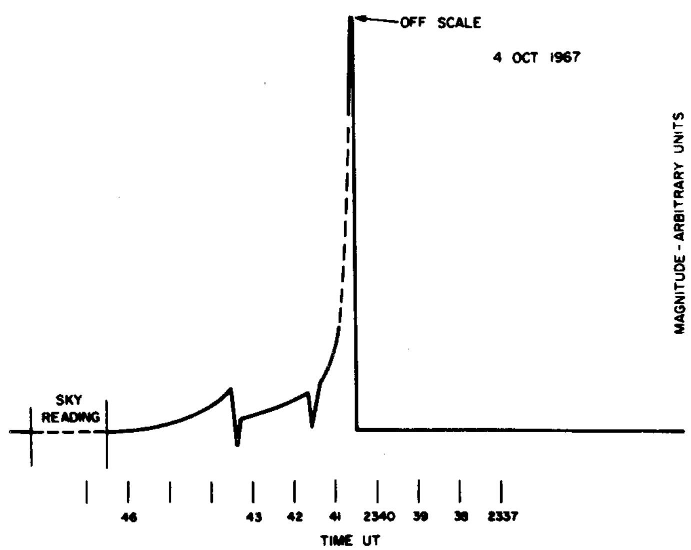


Fig. 1



OFF SCALE
4 OCT 1967
MAGNITUDE - ARBITRARY UNITS
SKY READING
46
43
42
41
2340
39
38
2337
TIME UT

Fig. 2

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Konkoly Observatory
Budapest
1968 September 3

BAKER-NUNN OBSERVATIONS OF UV CETI SEPTEMBER-OCTOBER 1967

During the interval 27 September - 10 October 1967, the working group of flare stars of IAU Commission 27 scheduled an observing program of wide scope on the star UV Ceti. To join in this program, the Smithsonian Astrophysical Observatory (SAO) expanded its normal program of observation of the star, denoted period PXXXI, pursued in conjunction with radio telescope observations, in an attempt to provide full 24-hour coverage of the star from a uniform observing system. As expected, clouds, equipment difficulties, and other demands on the cameras limited the returns somewhat. A chart showing precise coverage by the SAO cameras is given in Figure 1. Total time covered was 87^h06^m, or just over 25 % of the time we had hoped to observe.

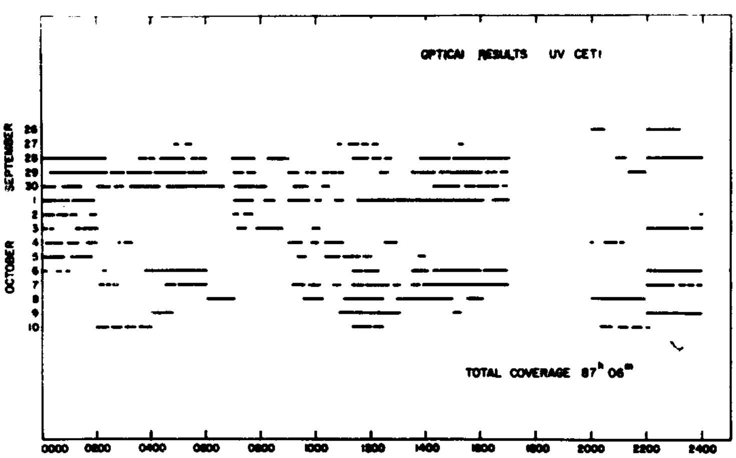

Figure 1. Coverage by SAO cameras using Baker-Nunn film from 26 September - 10 October 1967.

This research was supported in part by the Office of Naval Research, ONR Contract Authority Identification Number NR-046-82117-6-66.

During this observing period, all photographs were obtained as multiple exposures, several to each frame of film exposed in the cameras. While this procedure increased the time resolution to approximately 30 sec, the reduction method described previously by Solomon (1966) can no longer be used. We use instead a scheme of detecting the departure of a single image from "normal light" of the star, as defined by the set of images on each frame. Once an event is detected (or suspected), any variation in nearby comparison stars can be quickly checked. If the variation is shown not to be due to sky or seeing variations, an attempt is made to compare the flare stars to the comparison sequence. Our estimate of the precision of magnitude estimation by this sequence of steps is approximately 0.15 mag for an individual point, compared to just under 0.1 mag by use of the previous reduction scheme on single exposure plates. The minimum flare considered real is thus about 0.4 mag, rather than the 0.25 mag previously noted. Many flares previously detected in unambiguous fashion are now marginal, or even unnoticed. Table 1 gives a list of events, noted as definite (large events with $\Delta m \geq 0.7$ mag), probable ($0.5 \leq \Delta m < 0.7$ or confirmed by a second film), and possible (marginal cases that require other confirmation, $0.3 \leq \Delta m < 0.5$). We consider only the first two classes in our attempts to determine flare periodicity.

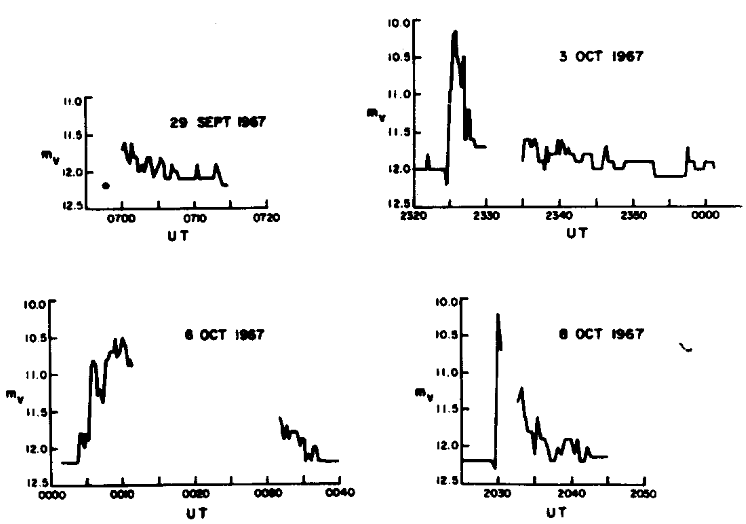

Figure 2. Light curves of four large events.

Table 1.

Date	Time (UT) of max	Δm	Time from max to normal light (min)	Notes
Sept. 26				No activity.
27	1131	0.4	1	Possible rapid event.
28				No significant activity.
29	0700	0.4	5	Propable event. Apperantly end of larger event, decline of images readily apparent.
30	0607.5	0.4	1	Possible rapid event.
Oct. 1	1605.5	0.4	1.5	Possible event; film quality poor.
	0025.0	0.6	1.5	Probable rapid event.
	0038.5	0.5	1	Probable event. There appears to be a good deal of minor activity about this time.
	0733.5	0.4	1	Possible small event.
	1012.5	0.5	?	Possible event. Last image on film shows increase in light.
	1403.5	0.4	1	Possible event.
	1502	0.4	2	Possible event.
2	0143.5	0.4	2	Possible event; film quality good.
3	0143	0.4	1	Possible event.
	2307	0.5	3.5	Probable event; preflare of following.
	2325.5	1.9	28	Definite event. Complex activity during decline.
	2357.5	0.4	1	Possible event related to previous flare.
4	0013	0.4	3	Possible activity as above.
	0059.5	0.5	1.5	Probable event.
	1023.0	0.5	1	Probable event.
5				No signifivant activity.
6	0006.0	1.4	35	Definite event showing double maximum. Breaks in film degrade light curve, but evidence of very complex activity during event.
	1612.5 to 1622.5	0.4 to 0.5	25	Possible small but complex event of long duration.
	2208	0.4	2	Possible event.
7	1435	0.4	1	Possible event.
8	2030	2.0	13	Definite flare; rapid decay.
9				No significant activity.
10				No significant activity.

There were three definite large events, five probable events unrelated to the large flares, one probable that is related to a large flare, and 14 possible events requiring futher confirmation. Figure 2 shows light curves of four of the large events. SAO has therefore detected about one flare of 0.5 mag or greater during each 11 hours of monitoring.

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SOLOMON, L.H.
1966. A study of flare stars. Smithsonian Astrophys. Obs.Spec. Rep. No.210, 58 pp.

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OBSERVATIONS OF PRIMARY MINIMUM OF UX URSAE MAJORIS

Photoelectric observations of the short-period Algol-type eclipsing variable UX UMa have been obtained on two nights in 1967 and eight nights in 1968 for the purpose of deriving accurate times of primary minimum. The observations were made using the 24-inch reflector of the Lick Observatory and a photometer employing a 1P21 photomultiplier tube refrigerated with dry ice. All observations were made through a blue filter composed of 2 mm Schott GG 13 plus 1 mm Schott BG 12.

The observed times of primary minimum are listed in Table 1, together with the residuals between the observed times and those calculated from the elements derived by Johnson, et al. (1954):

$$\text{Minimum} = \text{JD}_{\odot}\ 2427341.2221 + 0^{d}.196671379\underline{E}.$$

Table 1
Observed Minima of UX Ursae Majoris, 1967-1968

Helioc. JD	O - C (day)	Helioc. JD	O - C (day)
2439000+		2439000+	
528.94283	-0.00463	978.72946	-0.00544
529.92653	-0.00428		
966.73241	-0.00554	244000+	
972.82988	-0.00488	004.88711	-0.00508
975.77969	-0.00514	026.71741	-0.00531
977.74635	-0.00519	028.88097	-0.00513

Comparison of the present residuals with those obtained for earlier observations using the same elements (see Krzeminski and Walker 1963) shows that the period, which apparently increased from 1937 to 1953 and then decreased from 1953 to 1962,has continued to decrease since 1962, but at a slower rate. It appears just possible that the variation in the residuals might be periodic with a period of about 10^4 days.Accurate observations of the times of primary minimum of UX UMa are needed every one or two years so that we may follow and eventually interpret the changes in period.

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Johnson,H.L., Perkins,B.,and Hiltner,W.A. 1954, Ap.J.Suppl., 1, 91 (No.4).
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1968 September 12

MINIMA OF ECLIPSING VARIABLES

This report continues the one in IBVS 187, and contains 90 observed minima of 12 eclipsing variable stars. All are visual (v) and photographic (pg) estimates reduced by the tracing-paper method and by fitting the observations to the mean light curve unless otherwise specified.

Elements in the General Catalogue of Variable Stars were used to compute O-C's for YY Del, Z Dra, and RW Tau, and for the others the author's elements given below were used. The number of estimates is given under n.

J.D.hel. (2430000)		O - C	E	n
XZ Andromedae[1)]				
6609,3259	pg	$+0^d,0085$	97	8
6822,4148	"	+0,0022	254	8
6830,5590	"	+0,0027	260	14
6898,4231	"	+0,0020	310	13
7149,5247	"	+0,0041	495	14
7164,4507	"	-0,0001	506	11
7172,5959	"	+0,0014	512	13
7183,4534	"	+0,0005	520	11
7194,3133	"	+0,0021	528	7
7198,3813	"	-0,0018	531	6
7202,4560	"	+0,0010	534	12
7202,4577	v	+0,0027	534	21
7213,3260	"	+0,0126	542	5
7236,3875	pg	+0,0001	559	12
7240,4598	"	+0,0005	562	10
7270,3238	"	+0,0041	584	4
7506,4864	"	-0,0026	758	10
7506,4956	v	-0,0034	758	13
7514,6200	v	-0,0127	764	4
7548,5610	v	-0,0041	789	5
7555,3523	"	+0,0007	794	14
7571,6357	pg	-0,0034	806	7
7589,2820	v	-0,0019	819	4
8258,4297	pg	-0,0004	1312	12
8258,4260	v	-0,0041	1312	7
8296,4300	"	-0,0043	1340	7

J.D.hel. (2430000)		O - C	E	n
XZ Andromedae (Continuation)				
8638,4708	pg	-0ᵈ,0017	1592	9
8699,5491	"	-0,0016	1637	6
9033,4340	v	-0,0112	1883	9
9037,5120	"	-0,0050	1886	13
9037,5229	pg	+0,0059	1886	8
9356,4830	"	+0,0018	2121	7
9367,3425	"	+0,0029	2129	8
9675,4430	"	-0,0024	2356	10
9709,3752	"	-0,0026	2381	4
9713,4460	"	-0,0036	2384	6
9781,3140	"	-0,0004	2434	9
9785,3883	"	+0,0014	2437	16
9808,4550	"	-0,0053	2454	8
AB Cassiopeiae				
9763,378	pg	+0,007	10445	7
9778,413	"	+0,006	10456	7
9785,247	"	+0,006	10461	6
ZZ Cygni				
9666,5395	pg	-0,0061	29476	6
9668,4260	"	-0,0054	29479	6
9675,3395	"	-0,0067	29490	8
9680,3685	"	-0,0065	29498	8
TT Delphini				
4583,449	pg	+0,006	1371	10
4962,432	"	+0,003	1503	9
4985,405	"	+0,007	1511	4
4988,277	"	+0,008	1512	5
5005,492	"	-0,003	1518	5
5011,240	"	+0,002	1520	4
5700,297	"	-0,006	1760	6
7520,570	"	-0,015	2394	12
7546,431	"	+0,006	2403	17
8967,627	"	+0,004	2898	17
9682,533	"	+0,004	3147	11
9708,366	"	-0,003	3156	6
YY Delphini				
9291,470	pg	+0,044	17017	12
9341,429	"	+0,039	17080	11
9391,392	"	+0,038	17143	12
9403,289	"	+0,038	17158	15

J.D.hel. (2400000)		O - C	E	n
Z Draconis				
9571,296	pg	+0^{d},006	4643	9
9617,450	"	+0,007	4677	11
9670,387	"	+0,004	4716	6
9674,463	"	+0,008	4719	7
9708,399	"	+0,008	4744	8
RZ Draconis				
39666,443	pg	-0,005	18548	13
39667,550	"	+0,001	18550	4
TU Herculis				
39620,527	pg	-0,021	952	5
39654,525	"	-0,028	967	6
39670,400	"	-0,021	974	7
39686,268	"	-0,022	981	10
39763,345	"	-0,022	1015	8
CC Herculis				
39621,523	pg	-0,010	7786	15
39654,467	v	-0,012	7805	16
39668,342	pg	-0,009	7813	10
39680,483	"	-0,006	7820	12
39713,423	"	-0,011	7839	6
40013,4085	"	-0,0053	8012	11
40039,4175	"	-0,0061	8027	7
40046,3534	"	-0,0062	8031	15
40065,4275	"	-0,0059	8042	10
RT Persei[2]				
39781,385	pg	-0,015	7472	10
39810,262	"	-0,017	7506	15
RW Tauri				
39022,390	pg	+0,012	1661	14
39404,487	"	+0,011	1799	11
X Trianguli				
39709,5820	pg	+0,0103	17485	8
39784,3815	"	+0,0018	17562	16
39786,3315	"	+0,0087	17564	20

Notes: Elements not contained in the GCVS:

XZ And	2436477,6598	+ $1^d_{,}3572944.E$	
AB Cas	2425486,350	+ 1,3668761.E	
ZZ Cyg	2421137,4377	+ 0,62861764.E	$-2^d_{,}961.10^{-11}.E^2$
TT Del	2430647,155	+ 2,871107.E	
RZ Dra	2429448,787	+ 0,55087668.E	
TU Her	2437462,3909	+ 2,2669718.E	
CC Her	2426120,718	+ 1,733986.E	
RT Per	2433434,6624	+ 0,84940272.E	
X Tri	2422722,3107	+ 0,97153337.E	

1) Studii si Cercetari de Astronomie vol.12(1967) nr.1,p.47
2) Acta Astronimica vol.18 (1968) nr.1, p.62

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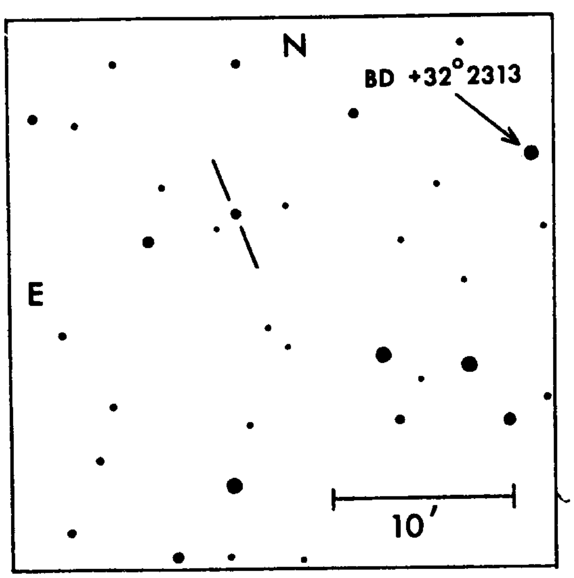
A FAINT, RED VARIABLE NEAR THE NGP

A marked variability has been detected in a faint, late M-type star located at the 1950 coordinates, R.A. = $13^h\ 00^m.3$, D.= +31° 33', l^{II} = 85°, and b^{II} = +86°.



The variability was found during a comparison of a pair of plates (Kodak 103aD + GG 11 filter, 20 min. exposure) taken with the Warner and Swasey Observatory Schmidt telescope. The plates were calibrated by use of a nearby photoelectric standard sequence of Sanduleak (1). It was estimated that the star showed V = 13.5 on May 25, 1962 but had brightened to V = 12.3 on April 27, 1963. No additional material is available to determine the nature of the variability.

On low-dispersion, infrared objective-prism plates taken with the same telescope, the star is classified as type M8 in the system described by Nassau and Velghe (2). In accord with this spectral type,the star is very red and has a V-I index of about 4.0 mag.

If the star were an intrinsically faint dwarf it would be very near (within a few parsecs) and would be expected to show a large proper motion. However, it is not listed in either the proper motion surveys of Luyten (3) or Giclas et al (4). This, together with its variability, suggests that it is probably a halo giant. If we adopt a visual absolute magnitude of -0.9, the value for late M-type giants given by Blanco (5), the star is located about 6000 parsecs above the galactic plane.

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(1) Sanduleak,N., Thesis (unpublished), 1965.
(2) Nassau,J.J., and Velghe,A.G., Ap.J. 139, 190, 1964.
(3) Luyten,W.J., private communication.
(4) Giclas,H.L., Burnham,R., and Thomas,N.G., L.O.B.No.124, 1964.
(5) Blanco,V.M., Galactic Structure, eds. A.Blauuw and M.Schmidt (Chicago: University of Chicago Press), chap.12.