

BRITISH ASTRONOMICAL ASSOCIATION

L I G H T C U R V E

VARIABLE STAR SECTION CIRCULAR No. 48 1981 DECEMBER

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CONTENTS include: Example of filling in a 'Computer' estimate form  
List of stars on 1982 Main and Binocular programmes  
Eclipsing Binary news

\*\* IMPORTANT OBSERVATIONS OF MAIN PROGRAMME STARS SHOULD BE SENT  
TO THE ACTING SECRETARY: C.R. MUNFORD, 5 PENSURST ROAD,  
IPSWICH, SUFFOLK IP3 8QZ  
(NOT to G.A.V. Coady, who will be in the U.S.A. until April)

NEW MEMBERS AND CHANGES OF ADDRESS

S.C.M. Blake, 30 Buck St., St. Johns, Worcester WR1 5LW  
C.M. Briden, 39 West Moor Lane, Heslington, York.  
M. Cross, 40 Holburn Rd., Aberdeen. AB1 6ET  
C.E. Cruz, 2 Heathfield House, Withams Rd., Gibraltar, S.W. EUROPE  
J.I.M. Forsyth, 11 Chapel Lane, Farnborough, Hants. GU14 9BD  
R.B.I. Fraser, "Corserine", 22 Delgaty Terrace, Turriff, Aberdeenshire AB5 7GA  
A. Horton, 1 Abbots Rd., Hucknall, Notts. NG15 6PB  
S. Hoste, Polderstraat 99, 9220 Merelbeke, BELGIUM  
P. Jolly, 6 Alderway, Streetly, Sutton Coldfield, W. Midlands B74 3SY  
H. Joy, Chiltern Mead, Whitehall Lane, Checkendon, Reading RG8 0TN  
T. Laban, 112 Avalon Rd., Orpington, Kent BR6 9BA  
J. Lancaster, Ling Heath, Common Hill, West Chiltington, Pulborough, W. Sussex RH20 2NR  
R. Livori, 126 Sanctuary St., Zabbar, MALTA C.C.  
K.P. Marchall, Calle 61 No. 47-45, Medellin, Colombia, S. AMERICA  
M.J. Nicholls, 5 Plough Rd., Capel St. Mary, Ipswich IP9 2EX  
G.S. Pace, 36 Virginia Avenue, Lydiate, Merseyside L31 2NW  
A. Pearce, 252 Hale Rd., Woodlands, Perth, W.A. 6018, AUSTRALIA  
R.W. Pitaluga, 5 Electra Flats, Scud Hill, Gibraltar, S.W. EUROPE  
A.A. Roberts, 52 Gonville Rd., Thornton Heath, Surrey CR4 6DB  
G. Robertson, 99 Peregrine Rd., Offerton, Stockport, Cheshire SK2 5UR  
P. Robinson, 7 Parker Ave., Calow, nr. Chesterfield, Derbys. S44 5AX  
T. Saville, 2A Temple Rd., Epsom, Surrey KT19 8HA  
A. Savioli, via S. Maria No.15, Desenzano d.G. (BRESCIA), ITALY

Welcome to all NWAWSO and new overseas members. Would any members whose names have not appeared in the above lists recently please write to the Director and give details of telescope or binoculars.

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\*\* IMPORTANT NOTICE TO OBSERVERS OF MAIN PROGRAMME STARS.

GREG COADY EXPECTS TO BE WORKING IN THE U.S.A. UNTIL APRIL 1982.

DO NOT SEND YOUR 1981 OBSERVATIONS TO HIM, BUT TO:

C.R. MUNFORD,  
5 PENSHURST ROAD,  
IPSWICH,  
SUFFOLK IP3 8QZ

WHO HAS KINDLY AGREED TO BE ACTING SECRETARY.

However, Colin Munford does not have a supply of report forms.

These can be obtained (state number needed) from the Director,

Doug Saw.

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Late information received after the opposite page was prepared.

SUBSCRIPTIONS Do not send any postage or envelopes for Circulars. The new charge of £1 for U.K. members or £1.50 for overseas members will cover both postage and envelopes. Present SAE's will be used for members who have already supplied them. Those members who have sent £1 will receive Circulars until their Subscription needs to be renewed, when they will receive a reminder with the Circular. Those members who have sent SAE's but no money MUST send 50p. before the end of February 1982.

Those members who have sent no money MUST send £1 before the end of February. THIS ISSUE IS THE LAST FREE CIRCULAR, except for former NWAWSO members. Their Subscription of £1 MUST be renewed before the September 1982 issue of the Circulars.

Payment to be made to the 'BAA' and NOT individual officers.

In all cases, the annual set of light curves will be £1 EXTRA.

We regret that, owing to illness, Storm (Dunlop) is unable to produce this Circular; we all wish him a speedy recovery. In the meantime any correspondence should be addressed to the Director, who would like to thank all those Officers and their helpers who have made this issue possible. Of necessity, this Circular is an 'Emergency issue' and we apologise for the deficiencies both in quality of production and content.

Please note that the Chart Secretary is J. Parkinson (NOT J.R. Parkinson).

**SUBSCRIPTION RATES AND PAYMENTS**

U.K. members - £1.00 ) per annum for LIGHT CURVE/Circulars. DO NOT  
Other subscribers - £1.50 ) send SAE's but SUBS must be paid by February.  
All subscribers - £1.00 per annum for an annual set of light curves.  
Charts: Main programme - SAE + 20p. per star (set of four sheets),  
Binoc. & E.B. programme - SAE + 5p. per star (one sheet).

NOTE: All payments to be made payable to the 'BAA' (NOT individuals).

**OBSERVATIONS** These should be sent as soon as possible after December 31 (latest acceptance date Feb. 28) to the appropriate Secretary.(see cover).

**REPORT FORMS** At the moment we are unable to issue the 'observer' form; also Column 57 of the new 'Computer' estimate form should be left blank. Some observers may not have received the Instructions for filling in the 'Computer' form. In order to help, we have issued in this Circular an Example form on which are added notes. If there are still difficulties, add a note accompanying your estimates to the Secretary.(see Cover)

**PROGRAMME** This issue includes a list of all the stars on the Main and Binocular programmes for 1982. There are some omissions and additions compared with previous lists. Only observations of stars on this new list will be accepted for 1982, although this will be reviewed under EFVSO agreements. Observers should make sure that they are not using out of date charts and sequences; these make extra work for the Secretaries. Sequences and charts are being re-drawn as time allows, though in some cases only the Epoch has been changed. Details of new Chart issues will be published in the Circulars annually.

A European Federation of Variable Star Observers (EFVSO) has been started by forming an informal 'Council', consisting of one representative (normally the national official group leader) from each participating country. Aarre Kellomäki of the Scandinavian Union of Amateur Astronomers (SUAA) has been appointed Secretary. Although many details have yet to be decided, this should lead to a fuller analysis and a single official report for each star on the eventual agreed programme. Within the BAA, a report on U Geminorum 1970-79' should appear in next February's BAA Journal. A report on 'X Leonis 1970-79' has been delayed temporarily. A third report, on RU Peg. 1970-79 is almost written. The Director will deal next with those LPV stars which were dropped from the programme a few years ago; if any member would like to help with the logging of these observations, please write to Doug Saw.

**Gamma Cas** A request has been received from the Univ. of Leicester for observations of this star made between Dec. 1 and Dec. 15, to see if visual estimates correlate with those made at X-ray wavelengths by the Ariel 6 satellite. Observers are asked to send their estimates made during this period to G.A.V. Coady as soon as possible.

**CI Cyg** Recent observations of this star suggest that it has resumed activity and may have undergone an eclipse. Estimates covering the period from October 1 to the present should be reported in full, together with a note of the chart and sequence used, to G.M. Hurst as soon as possible.

HAPPY XMAS AND NEW YEAR

## BRITISH ASTRONOMICAL ASSOCIATION

## Binocular Programme 1982

Star	Desig.	Range	Type	Period	Sp.	Chart No./Date
RS And	235048	7.9-9.1	SRb	130	M8	1 1977 Sep 10
SU And	235942	8.0-8.5	Lb	-	Nb	1 " " "
TZ And	234546	7.6-9.0	SRb	-	M6	1 " " "
*AQ And	002235	8.0-8.9	SR	346	Nb	1972 Nov 11
BZ And	003245	7.5-8.4	Lb	-	M5	1970 Oct 22
* V Aql	185905	6.7-8.2	SRb	353	N6	2 1973 Jul 14
*V450 Aql	182605	6.3-6.9	SRa	64	M8	3 1978 Mar 10
V1293 Aql	192804	6.7-7.4	SRb	-	M5	3 " " "
CSV 101849 Aql	192502	6.1 var?	-	-	K5	3 " " "
* V Ari	020911	7.8-8.8	SRb	77	R4	1978 Jul 15
*UU Aur	062938	5.1-6.8	SRb	235	N3	1972 Nov 11
AB Aur	044930	7.3-8.5	Ina	-	B9	4 1971 May 01
AE Aur	050934	5.4-6.1	Ina	-	O9	1972 May 27
*CO Aur	055335	7.3-8.1	RV?	40	F5	1973 May 17
NO Aur	053431	6.1-6.7	Lb	-	M0	5 1973 Jul 08
Psi <sup>1</sup> Aur	061749	4.8-5.4	Lc?	-	M0	1973 Jul 14
BD+31°1048 Aur	053431	? -6.0	flares?	-	B8	5 1973 Jul 08
W Boo	143927	5.0-5.4	-	-	M3	
RV Boo	143532	6.3-8.0	SRb	137	M5	6 1974 Jan 20
RW Boo	143632	6.4-7.9	SRb	209	M5	6 " " "
RX Boo	141926	6.9-9.1	SRb	210	M7	7 1972 Aug 12
*UV Boo	141826	8.0-8.7	Ia	-	F5	7 " " "
U Cam	033362	7.7-8.7	SRb	400	N5	1972 Nov 04
RY Cam	042164	7.3-9.4	SRb	136	M3	8 1972 Jul 29
ST Cam	044067	6 - 8	SRb	-	N5	9 1976 Jun 02
UV Cam	035761	7.6-8.4	SR?	294?	R8	8 1972 Jul 29
VZ Cam	071082	4.7-5.2	SR	24	M4	10 1972 Aug 12
ZZ Cam	040862	7.1-7.9	Lb	-	M5	8 1972 Jul 29
BD+61°0668 Cam	035761	7.7 var?	-	-	A0	8 " " "
* X Cnc	084917	5.9-7.3	SRb	170	N3	1972 Sep 09
*RS Cnc	090431	5.5-7.0	SRc?	120	M6	1971 May 09
RT Cnc	085211	6.9-8.0	SRb	90	M5	1972 Jul 29
* V CVn	131546	6.8-8.8	SRa	192	M5	11 1977 Sep 10
* Y CVn	124045	5.2-6.6	SRb	153	N3	11 " " "
*TU CVn	125047	5.8-6.3	SRb?	50	M6	11 " " "
W CMa	070211	6.9-7.5	Lb	-	M	1973 Jul 08
*WZ Cas	235659	6.9-8.5	SRa	186	N1	38 1972 Nov 11
*V377 Cas	001359	7.8-8.3	L	-	F0	38 " " "
V391 Cas	014869	7.6-8.4	Lb	-	M4	12 1978 May 15
V393 Cas	015470	6.8-7.9	SR	-	M0	12 " " "
*V465 Cas	011157	6.2-7.2	Lb	-	Mb	13 1974 Jul 27
CSV 171 Cas	014667	7.3-7.7?	N1	-	AO	12 1978 May 15
BD+49°4329 Cas	235949	7.0-8.0	var?	-	K0	1973 Jul 08
*Wr 162 Cas	010757	7.2-7.9	L	-	K5	13 1974 Jul 27
* W Cep	223257	6.9-8.6	SRc	-	K0	14 1978 Jul 14
RU Cep	010884	8.2-9.4	SRd	109	G9	15 1978 Jul 15
*RW Cep	221955	6.2-7.6	Lc	-	M0	14 1978 Jul 14
RK Cep	004181	7.3-7.8	L	-	G5	15 1978 Jul 15
*SS Cep	033380	6.7-7.8	SRb	90	M5	1972 Nov 04
*AR Cep	225384	7.1-7.8	SRb	-	M4	15 1978 Jul 15

## Binocular Programme (continued)

Star	Desig.	Range	Type	Period	Sp	Chart No./Date
DM Cep	220672	8.4-9.6	Lb	-	M4	
FZ Cep	211655	7.0-7.6	SR	-	M7	1972 May 13
Mu Cep	214058	3.6-5.1	SRc	-	M2	1973 Jul 14
CSV 927 Cep	065387	5.4- ?	?	-	M0	10 1972 Aug 12
BD+59°2383 Cep	212459	5.1-6.5	slow	-	M0	16 1973 Jul 08
BD+60°2217 Cep	211660	6.5-7.3	Lb	-	M5	16 1973 Jul 08
BD+84°0536 Cep	233984	8.0 var?	-	-	G5	15 1978 Jul 15
Fl 33 Cet	010501	5.1-7.0	slow	-	K5	1970 Jan 09
RR CrB	153738	7.1-8.6	SRb	61	M5	17 1969 Jan 31
SW CrB	153739	7.6-8.3	Lb?	-	M0	17 " " "
T Cyg	204334	5.0-5.5	Lb?	-	K3	18 1972 Jul 29
RJ Cyg	213753	8.0-9.4	SRa	234	M6	1972 Nov 04
RV Cyg	213937	7.1-9.3	SRb	300:	N5	19 1972 Sep 09
TT Cyg	193732	7.4-8.7	SRb	118	M3	20 1972 Sep 16
*AF Cyg	192745	6.4-8.4	SRb	94	M5	21 1973 Jul 14
*CH Cyg	192150	6.6-8.5	Z And	-	M7	1975 Sep 07
*V460 Cyg	213735	6.1-7.0	Lb	-	N1	1974 Jul 28
*V973 Cyg	194140	6.2-7.0	Lb	-	K3	1978 Oct 30
V1351 Cyg	193554	7.5- ?	?	-	M4	1978 Jul 14
P Cyg	201437	3.0-6.0	N1	-	B1	18 1972 Jul 29
Fl 128 Cyg	200536	4.8 var?	-	-	B2	18 1972 Jul 29
CSV 8232 Cyg	193554	7.5- ?	Lb?	-	M4	1978 Jul 14
CSV 8307 Cyg	194532	7.5-8.2?	SR?	-	K5	20 1972 Sep 16
CSV 8683 Cyg	213940	4.7-5.5	Lb?	-	M2	19 1972 Sep 09
BD+47°2801 Cyg	191447	7.4 var?	-	-	G5	21 1973 Jul 14
* U Del	204017	5.6-7.5	Lb	-	M5	22 1971 Jan 23
*EU Del	203317	6.0-6.9	SRb	60	M6	22 " " "
BD+19°4450 Del	202919	7.3-7.8	slow	-	Mb	22 " " "
*RY Dra	125266	6.5-8.0	SRb	173	N4	1972 Nov 11
TX Dra	163360	6.8-8.3	SRb	78	M4	23 1972 Jan 25
UW Dra	175554	7.0-8.0	Lb?	-	K5	1974 Jul 27
UX Dra	192576	5.9-6.5	SRa	168	N0	24 1972 Apr 08
VW Dra	171560	6.0-6.5	SRd	170:	G9	23 1972 Jan 25
AH Dra	164657	7.1-7.9	SRb	158	M7	23 " " "
AT Dra	161559	5.3-6.0	Lb	-	M4	23 " " "
Fl 69 Dra	200276	6.4 var?	-	-	M3	24 1974 Apr 08
TU Gem	060426	7.4-8.3	SRb	230	N3	25 1972 Nov 11
TV Gem	060521	6.6-8.0	SRc	182	M1	25 " " "
WY Gem	060523	7.2-7.9	Lc	-	M2	25 " " "
BN Gem	073117	6.0-6.6	Ia?	-	08	1972 Jul 29
BQ Gem	070716	5.1-5.5	SRb	50:	M4	1972 Sep 16
BU Gem	060622	6.1-7.5	Lc?	-	M1	25 1972 Nov 11
DW Gem	062427	8? -10.4	Lb	-	M4	1972 Sep 09
IS Gem	064332	5.3-6.0	SRd	47:	K4	1972 Jun 10
NQ Gem	072524	7.4-7.8?	SR?	-	R8	1978 Jul 29
* X Her	155947	6.3-7.4	SRb	95	M6	26 1973 Jul 14
ST Her	154748	7.0-8.7	SRb	148	M6	1971 May 01
SX Her	160325	8.0-9.2	SRd	103	G6	1972 Jul 29
UW Her	171036	7.8-8.7	SRb	100	M5	1973 Aug 30
*IQ Her	181317	7.3-8.2	SRb	75	M4	27 1974 Jul 27
*OP Her	175345	6.0-6.6	Lb	-	M5	1977 Sep 14
*V566 Her	180441	7.1-7.8	SR?	400:	M4	" " "
* g Her	162542	4.6-6.0	SRb	70:	M6	26 1973 Jul 14

Star	Desig.	Range	Type	Period	Sp	Chart No./Date
U Hya	103212	4.8-5.8	SRb	450:	M2	1969 Aug 14
*SX Lac	225134	7.7-8.7	SRb	190	M0	1974 Jul 28
CSV 8775 Lac	222956	5.8-6.8	slow	365:	K0	14 1978 Jul 14
CSV 102195 Lac	223456	5.5 var?	-	-	Mb	14 " "
RX Lep	050611	5.7-7.0	Lb	-	M6	1972 Sep 16
* Y Lyn	072046	6.9-8.0	SRc	110	M5	28 1978 Jul 14
SV Lyn	075736	6.6-7.5	SRb	70:	M5	1981 Jun 18
CSV 100869 Lyn	072148	7.1 var?	-	-	Mb	28 1978 Jul 14
R Lyr	185243	3.9-5.0	SRb	46	M6	29 1972 Nov 11
XY Lyr	183439	6.1-6.6	Lc	-	M4	1976 Sep 16
Del <sup>2</sup> Lyr	185136	4.5-4.9	?	-	M4	29 1972 Nov 11
S Mon	063509	4.5-4.9	Ia	-	O7	1972 Sep 16
RV Mon	065306	6.3-7.9	SRb	131	N6	30 1972 Mar 14
* SX Mon	064604	7.8-8.9	SR	100	M6	30 " "
X Oph	183308	5.9-9.2	M	334	M6	1974 Nov 04
V 2048 Oph	175504	4.0-4.8	flares	-	B4	1978 Jul 14
W Ori	050001	5.9-7.7	SRb	212	N5	1972 Nov 04
BL Ori	061914	6.3-6.9	Lb	-	Mb	31 1972 Sep 16
*BQ Ori	055122	6.9-8.9	SRa	110	M5	32 1974 Nov 09
CK Ori	052504	6.2-6.6	SR?	120?	K2	1972 Aug 12
BD+14°1247 Ori	061414	5.5-6.1	Lb?	-	M0	31 1972 Sep 16
*AG Peg	214612	6.0-9.4	Z And	-	M1	1973 Jul 14
*GO Peg	225019	7.1-7.8	Lb	-	M4	1971 Jul 28
* X Per	034930	6.0-6.6	Ia	-	O9	1972 May 27
SU Per	021556	7.0-8.5	SRc	470	M3	33 1972 Feb 04
AD Per	021356	7.7-8.4	SRc	320	M2	33 1972 Feb 04
KK Per	020356	6.6-7.8	Lc	-	M1	33 " "
PR Per	021457	7.6-8.3	Lc	-	K5	33 " "
* Z Psc	011025	7.0-7.9	SRb	144	N0	1969 Nov 10
TV Psc	002217	4.8-5.7	SR	49	M3	1972 Sep 09
TX Psc	234102	4.9-5.8	Lb	-	N0	1973 May 27
* S Sct	184408	7.0-8.0	SR	148	N3	2 1973 Jul 14
* Y Tau	053920	6.8-9.2	SRa	241	N2	32 1974 Nov 09
TT Tau	044528	8.1-8.8	SRb	166	N3	4 1971 May 01
*BU Tau	034323	5.0-5.5	Ia	-	B8	34 1972 May 27
CE Tau	052618	4.5-4.9	SRc	165	M2	1972 May 27
CSV 6048 Tau	033922	7.1-7.9	Ia?	-	A0	34 " "
BD+22°0743 Tau	043722	6.5-7.0	var?	-	B9	1972 Nov 04
W Tri	023534	7.5-8.8	SRc	108	M5	1973 Jul 08
* Z UMa	115158	6.6-9.1	SRb	196	M5	35 1972 May 20
*RY UMa	121561	7.0-8.0	SRa	311	M3	35 1972 May 20
ST UMa	112245	6.4-7.5	SRb	81	M4	1972 Jun 10
TV UMa	114036	6.7-7.6	SRb	50	M5	1974 Jan 20
VW UMa	105270	7.2-7.8	SR	125	M2	36 1977 Sep 10
VY UMa	103867	5.9-6.5	Lb	-	N0	36 " "
V UMi	133674	7.4-8.8	SRb	72	M5	1981 May 10
RR UMi	145666	6.2-6.5	SR?	40?	M5	" "
RW Vir	120206	7.0-8.2	Lb	-	M5	37 1969 Apr 18
RX Vir	115905	8.0-8.4	SR?	200:	K0	37 " "
SS Vir	122001	6.0-9.6	M	355	N	1972 Aug 12
SW Vir	130802	6.5-7.7	SRb	150:	M7	1974 Jan 21
BK Vir	122504	7.3-8.7	SRb	-	M7	" "

\* = Priority list

Range, type, period and Sp (spectrum) approximate only.

## BRITISH ASTRONOMICAL ASSOCIATION

## Main Programme 1982

Star	Desig.	Range	Type	Period	Sp.	Chart
X R And	001838	6.9- 14.3	M	409	M7	053.01
✓ W And	021143	7.4- 13.7	M	347	M7	035.01
X RW And	004132	8.7- 14.8	M	429	M6	022.01
X RX And	005840	(11)-(14)	UG	(14.1)	Pec.	001.02
DZ And	002725	10.3-(14)	RCB	-	R	054.01
✓ R Aql	190108	6.1- 11.5	M	293	M6	030.01
✓ UU Aql	195109	11.4- 15.9	UG	(56)	G	002.02
✓ UW Aql	185200	8.9- 9.5	SR	(120)	M2	028.01
V603 Aql	184300	-1 -(11)	Na	-	-	"TA"
✓ SS Aur	060547	10.8- 14.8	Z?	(56)	Pec.	003.02
✓ U Boo	144918	10.3- 12.4	SR	201	M4	036.01
✓ V Boo	142539	7.6- 10.4	SR	258	M6	037.01
✓ V Cam	054974	7.8- 15.4	M	522	M7	027.01
✓ X Cam	043274	8.0- 13	M	143	M3	038.01
✓ Z Cam	081473	10.2- 14.5	Z	(22)	Pec.	004.02
XX Cam	040053	7.3- 9.7	RCB	-	G1	DAP 74.11.09
X S Cas	011272	9.7- 14.8	M	611	S4	RGA 1961 APR
✓ T Cas	001755	7.9- 11.9	M	445	M7	RGA 1961 JAN
✓ UV Cas	225859	10.5- 15.2	RCB	-	-	IDH 1978 MAR
Gam Cas	005060	1.6- 3.0	Gam C	-	B0	IDH 1977 AUG
Rho Cas	234956	4.1- 6.2	SR?	-	F/K	IDH 1978 JAN
DM Cep	220672	8.4- 9.6	Lb	-	M4	
✓ Omi Cet	021403	3.2- 10.1	M	332	M6	039.01
✓ R CrB	154428	5.8- 14.4	RCB	-	(F)	041.01
✓ S CrB	151731	7.3- 12.9	M	360	M7	043.01
✓ T CrB	155526	2.0- 10.5	Nr	-	B+M	025.01
✓ V CrB	154639	8.5- 12.8	M	358	N2	IDH 1977 AUG
✓ W CrB	161138	8.0- 13.5	M	238	M3	044.01
✓ R Cyg	193449	7.5- 14.2	M	426	S5	031.01
✓ S Cyg	200357	10.3- 16	M	323	S5	032.01
✓ V Cyg	203847	9.1- 12.8	M	421	Np	034.01
✓ W Cyg	213244	5.0- 7.6	SRb	131	M5	MDT 77.09.10
✓ SS Cyg	213843a	8.2- 12.4	UG	(52)	A/G	005.02
✓ BC Cyg	201736	9.6- 10.5	SRc	-	M4	JEI 1974 MAY
✓ BI Cyg	201737	9.3- 9.8	SRc	-	M4	JEI 1974 MAY
X CI Cyg	194635	9.1- 11.5	Z And	-	Pec.	006.01
Chi Cyg	194632	4.8- 13.9	M	407	S7	045.01
✓ HR Del	203718	3.5- 12	Nb	-	Pec.	JEI 1972 NOV
✓ T Dra	175458	9.6- 12.3	M	422	C8	046.01
✓ AB Dra	195377	12.3-(14)	Z	(13)	Pec.	007.03
✓ U Gem	074922	8.2- 14.5	UG	(103)	B+K	008.02
X IR Gem	064128	11 -(13	UG	(56)	-	042.01
X RU Her	160625	8.0- 13.7	M	485	M6	IDH 1977 MAR
X SS Her	162807	9.2- 12.4	M	107	M2	047.01
✓ AC Her	182621	7.0- 8.4	RVa	75	F/K	048.01
✓ AH Her	164025	11.0- 14.3	Z	(20)	Pec.	009.03
✓ R Hya	132422	4.5- 9.5	M	388	M7	049.01
✓ SU Lac	221955	11 - 15	M	294	M5	IDH 1978 MAR
DK Lac	224552	5 - 15	Na	-	Pec.	"TA"
X Leo	094512	11.8-(15	UG	(17)	Pec.	010.01

## BRITISH ASTRONOMICAL ASSOCIATION

Main Programme 1982  
(continued)

Star	Desig.	Range	Type	Period	Sp.	Chart
✓ AY Lyr	184137	12.9- 15	UG	(24)	G?	011.01
✓ U Mon	072609	5.9- 7.8	RVb	92	M6	029.02
✓ RS Oph	174406	4.6- 12.3	Nr	-	O	024.01
✓ U Ori	054920	6.3- 12.2	M	372	M7	JEI 1974 FEB
✓ CN Ori	054705	12.0- 14.3	Z	(18)	Pec.	012.02
✓ CZ Ori	061115	12.1- 15.7	UG	(27)	-	013.02
✓ RU Peg	220912	9.8- 12.7	UG	(74)	B/G	014.02
✓ S Per	021558	8.6- 12	SRc	826	M3	050.01
✓ RS Per	021556	7.8- 8.9	SRc	152	M4	JEI 1974 FEB
✓ TZ Per	020657	12.4- 15	Z	(15)	Pec.	015.02
✓ UV Per	020356	12.8-(17	UG	(350)	-	016.03
✓ BU Per	021156	9.0- 10.0	SRc	(365)	M4	JEI 1974 FEB
✓ GK Per	032443	0.2- 14	Na	-	B/K	IDH 1977 AUG
✓ WZ Sge	200317	6.0- 15	Nr	-	Pec.	023.01
✓ R Sct	184205	5.0- 8.4	RVa	(140)	G/K	026.01
✓ R Ser	154615	6.4- 13.4	M	357	M7	033.01
✓ RV Tau	044126	8.8- 11	RVb	79	G/M	JEI 1973 DEC
✓ SU Tau	054319	9.3- 16	RCB	-	G0	017.02
✓ T UMa	123160	7.7- 13.0	M	257	M5	JEI 1974 JUN
✓ SU UMa	080362	11.6-(14	UG	(14)	Pec.	018.02
✓ SW UMa	082953	10.5- 16	UG	(460)	Pec.	019.02
✓ CH UMa	095968	11.7- 15	UG	(201)	Pec.	020.02
✓ V Vul	203226	8.1- 9.7	RVa	76	G/K	JEI 1974 JUN
✓ PU Vul	201621	8.4-(14	-	-	-	052.01
"Honda" Cyg	213831	10.0-(14	-	-	-	"TA" 1981 JAN
✓ 3C 273	122402	12 - 13	Quasar	-	-	1981 MAY
NGC 4151	120939	12	"Seyfert"	-	-	1980 MAY
Mark.421	110138?	13	BL Lac?	-	-	1981 JAN
Branchett's object	8 - ?	-	-	-	-	"TA" 1981 FEB in Scutum

Range, type, period and Sp (spectrum) approximate only.

"TA": Charts obtainable through the Editor of "The Astronomer".

Charts for novae, supernovae or objects for which observations are requested by professionals may be added as appropriate.

Observers please note that In type stars RW Aur, SU Aur and T Tau have been dropped from the programme. On both programmes, several objects have been added (see Light Curve/VSS Circular No. 47, 1981 September).

IMPORTANT OBSERVATIONS OF MAIN PROGRAMME STARS SHOULD BE SENT TO

THE ACTING SECRETARY: C.R.MUNFORD, 5 PENSURST ROAD,

IPSWICH, SUFFOLK IP3 8QZ

( and NOT to G.A.V. Coady, who will be in the U.S.A. until April)

Report forms (state number required) can be obtained from the Director.

## Eclipsing Binary Programme

Circulars 44 (page 8) and 47 (page 16) gave an outline of the revised programme which it is hoped will be fully implemented during 1982. Recent progress has been as follows.

- Information Sheet. The leaflet describing the methods of observation and reduction used in the original binocular eclipsing binary programme has long been out of print. A revised version, taking account of the changes in the programme, has been accepted for publication shortly in the BAA Journal.

- Predictions. The Section is indebted to Dr Peter Owen for developing computer programs to produce predictions in a form which should be much more convenient for observers. For List A (binocular objects whose eclipses can be timed in the course of a night) and List D (eclipses longer than 2 days), predictions will be available covering the period from 1982 Jan 1. These may be obtained from John Smith, 18 St James' Close, Hanslope, Bucks MK19 2LF. Please enclose a supply of stamped, addressed envelopes for future predictions. Details of the objects on lists A and D accompany this Circular. The ranges are only a rough guide to brightness, since some of them are photographic. Secondary minimum is only given if it is at least 0.30m deep. D/P is the duration of primary eclipse expressed as a fraction of the period.

- Observations and reports. I have now received the records of the eclipsing binary programme from my predecessor and have started reducing eclipse timings for inclusion in a report which will cover the years 1976 to 1981. Subsequent reports will be compiled annually, provided sufficient observations are reported. OBSERVERS ARE ASKED TO SUBMIT ANY OUTSTANDING RESULTS FOR 1981 OR EARLIER YEARS TO REACH ME BY THE END OF FEBRUARY 1982. The old (non-computer) forms may be used.

In the next Circular I hope to give a summary of work received from each member, so that any gaps in the records may be identified; and to give details of objects on the new list E (objects with unknown period, or very short period). List B (telescopic objects whose eclipses can be timed in the course of a night) and C (eclipses between 12 hours and 2 days, and objects south of the equator with eclipses up to 12 hours) will be presented when we are ready to produce predictions for them.

May I close with an appeal for more observers. At the moment we have just two or three regular eclipsing binary observers, and a few more occasional contributors. Many more observations will be needed to get at least a benchmark set of timings for all the objects new to the programme. The sooner this can be done, the longer will be the baseline covered by our observations and the sooner will the programme yield useful results. The eclipsing binary programme offers something for everyone. Those who are able to observe for several hours, even on only a few nights a year, can gain the satisfaction of recording 'instant' light curves for the objects with shorter eclipses. Those who prefer to observe for a short while every clear night can contribute to our knowledge of long-period systems and those with unknown periods. A handful of eclipsing binaries can be observed with the unaided eye, and the number of systems available increases greatly with every increase in aperture.

Although the programme has been organised mainly with the visual observer in mind, photographic and photoelectric observation would be particularly appropriate for many eclipsing binaries. I shall be glad to discuss with any member a possible personal programme suited to his or her equipment and opportunities for observation.

John Isles

PLANETARY AND COMETIC ECLIPSE PROGRAMME: LIST A: 1981 DECEMBER

Objects 8.0m or brighter at maximum, north of the equator, with eclipse duration up to 12 hours.

Star	R.A. (1950)	Dec.	Type	Range	Min II	Period	D/P
	h m	o		m m	m	d	
WW Aur	06 29.0	32 30	EA	5.7 - 6.4	6.3	2.53	0.10
AR Aur	05 15.0	33 43	EA	6.1 - 6.8	6.7	4.13	0.07
EO Aur	05 15.0	36 35	EA	7.5 - 8.0	-	4.07	0.23
IM Aur	05 11.8	46 21	EA	7.9 - 8.5	-	1.25	0.20
ZZ Boo	13 53.9	26 10	EA	7.2 - 7.9	7.8	4.99	0.06
RZ Cas	02 44.3	69 26	EA	6.2 - 7.7	-	1.20	0.17
TV Cas	00 16.6	58 52	EA	7.2 - 8.2	-	1.81	0.19
U Cep	00 57.6	81 36	EA	6.8 - 9.1	-	2.49	0.15
VW Cep	20 38.7	75 25	EW	7.8 - 8.2	8.1	0.28	-
CW Cep	23 02.0	63 08	EA	7.6 - 8.0	8.0	2.73	0.13
EI Cep	21 28.8	76 11	EA	7.7 - 8.2	8.1	8.44	0.06
GK Cep	21 31.4	70 36	EB	6.9 - 7.4	7.4	0.94	-
U CrB	15 16.2	31 50	EA	7.0 - 8.4	-	3.45	0.11
Y Cyg	20 50.1	34 28	EA	7.3 - 7.9	7.8	3.00	0.10
V1143 Cyg	19 37.6	54 51	EA	5.9 - 6.4	-	7.64	0.022
V1425 Cyg	21 09.5	55 06	EB	7.9 - 8.4	8.2	1.25	-
TW Dra	15 33.1	64 13	EA	7.9 - 9.1	-	2.81	0.15
AI Dra	16 55.2	52 46	EA	7.1 - 8.1	-	1.20	0.18
EH Dra	19 02.8	57 23	EA	8.0 - 8.5	-	1.82	0.10
S Equ	20 54.7	04 53	EA	8.0 - 10.1	-	3.44	0.13
Z Her	17 56.2	15 09	EA	7.3 - 8.1	-	3.99	0.11
RX Her	18 28.3	12 34	EA	7.3 - 7.9	7.8	1.78	0.14
AR Lac	22 06.6	45 30	EA	6.1 - 6.8	6.4	1.98	0.17
AM Leo	10 59.6	10 10	EW	8.0 - 8.7	8.7	0.37	-
U Oph	17 14.0	01 16	EA	5.9 - 6.6	6.5	1.68	0.17
V451 Oph	18 26.9	10 51	EA	7.9 - 8.5	8.3	2.20	0.12
V566 Oph	17 54.4	04 59	EW	7.5 - 8.0	7.9	0.41	-
EE Peg	21 37.6	08 57	EA	6.9 - 7.6	-	2.63	0.10
DM Per	02 22.4	55 54	EA	7.7 - 8.5	-	2.73	0.16
IQ Per	03 56.1	48 01	EA	7.7 - 8.3	-	1.74	0.12
IZ Per	01 28.9	53 46	EA	7.8 - 9.0	8.3	3.69	0.12
Beta Per	03 04.9	40 46	EA	2.1 - 3.4	-	2.87	0.14
SZ Psc	23 10.8	02 24	EA	8.0 - 8.7	-	3.97	0.11
U Sge	19 16.6	19 31	EA	6.6 - 9.2	-	3.38	0.14
CD Tau	05 14.6	20 05	EA	7.3 - 7.9	7.9	3.44	0.08
HU Tau	04 35.3	20 35	EA	5.9 - 6.7	-	2.06	0.16
W UMa	09 40.3	56 10	EW	7.9 - 8.6	8.5	0.33	-
TX UMa	10 42.4	45 50	EA	7.1 - 8.8	-	3.06	0.13
Z Vul	19 19.6	25 29	EA	7.4 - 9.2	-	2.45	0.18

LIST D: Objects with eclipse duration longer than 48 hours.

CD And	01 23.5	44 08	EA	9.8 -10.3	-	34.44	0.12
RR Ari	01 53.0	23 20	EA	6.4 - 6.8	6.8	47.9?	0.08
Eps Aur	04 58.4	43 45	EA	2.9 - 3.8	-	9892	0.08
RZ Cnc	08 36.0	31 58	EA	8.7 -10.0	9.2	21.64	0.15
TW Cnc	08 26.9	12 38	EA	9.0 - 9.7	-	70.76	0.03
UU Cnc	07 59.5	15 19	EB	8.7 - 9.4	-	96.71	-
ZZ Cnc	07 54.4	11 08	EA	9.4 -10.9	-	25.60	0.08
RX Cas	03 03.2	67 23	EB	8.6 - 9.5	9.2	32.32	-
SX Cas	00 08.1	54 37	EA	9.0 - 9.8	9.3	36.57	0.08
BM Cas	00 51.7	63 49	EB	9.6 -10.3	-	197.28	-
VV Cep	21 55.2	63 23	EA	6.7 - 7.5	-	7430	0.066
V367 Cyg	20 46.1	39 06	EB	7.4 - 8.0	7.8	18.60	-
Beta Lyr	18 48.1	33 18	EB	3.3 - 4.2	3.8	12.91	-
RY Sct	18 21.7	-12 43	EB	9.7 -10.3	10.2	11.12	-
W Ser	18 L7.0	-15 34	E	8.4 -10.2	-	14.16	-
CV Ser	18 16.3	-11 39	EA	9.7 -10.4	-	29.72	0.27

BRITISH ASTRONOMICAL ASSOCIATION : VARIABLE STAR SECTION  
 Burlington House, Piccadilly, London W1V 0NL. ESTIMATE REPORT FORM

Please do not write  
 in boxes labelled  
 'Office Use Only'

STAR

1	2	3	4	5	6	7	8	9
R								

or (SAY) V1500, GAMMA  
 CONSTELLATION

10	11	12
S	E	T

SEQUENCE NO

13	14	15	16	17	18
C	2	6	.	0	1

OR WRITE  
 (SAY) J.F.I. 1973 DEC  
 YEAR

19	20	21	22
1	9	8	0

OBSERVER'S NAME

D.R.B.SAW

OFFICE USE ONLY

OBSERVER  
 ABBREVIATION

23	24	25

MONTH	DAY	TIME	METHOD	ESTIMATE	DED. MAG.	CLASS INSTR.	ABBREVIATIONS	OFFICE USE ONLY
26	27	28	29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75				
MAY	9	11 • 20	F = E		5 • 4	I	A ARTIFICIAL LIGHT	
JUN	7	10 • 35	P E - I		5 • 5	I	B BIAS	
	17	11 • 10	F E (2) v (1) F		6 • 0	I	C CLOUD	
JLY	14	10 • 20	F G (1) v (2) H		6 • 7	I	D DIFFICULT	
	21	09 • 50	F E (3) v (2) F		5 • 9	I	E EXTRAFOCAL	
							F FOG OR MIST	
							G GLIMPSED	
							H HAZE	
							I LOW	
JAN							VM MOON	
FEB							EN MEAN VALUE OF "P"	
MAR							OR "A" ESTIMATES	
APR							BP PHOTOGRAPHIC	
MAY							LS SPEED (= HURRY)	
JUN				FAINTER THAN <			AT TWILIGHT OR DAWN	
JLY				BRIGHTER " " >				
AUG								
SEP				APPROXIMATELY :				
OCT								
NOV								
DEC				QUALITY OF OBSRVFN.				
							1 W WIND	
							2	
							3	

See Instruction Sheet for Standard Abbreviations and Method of Completion