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Variable Star Section Circular

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CONTENTS

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TELEPHONE ALERT NUMBERS

NOVA AND SUPERNOVA DISCOVERIES: First phone Nova/Supernova Secretary. If only answering machine response leave a message and then try the following: Denis Buczynski 01524-68530, Glyn Marsh 01772-690502, or Martin Mobberley 01245-475297 (wkdays) 01284-828431 (wkends)

VARIABLE STAR ALERTS: Phone Gary Poyner (see above for number)

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Observation Totals for 1994

For 1994, a grand total of 33,395 observations of stars on the Telescopic, Binocular and Recurrent Object Programmes were received from 41 observers and two observing groups. This total excludes observations of eclipsing binaries, which are dealt with separately. In all 391 stars were observed. The names of the leading observers and their approximate totals are as follows:

G.Poyner	7000+
I.Nartowicz, J.Toone	3000+
M.Gainsford, T.Markham, W.Worraker	2000+
S.Albrighton, L.Brundle, R.Dryden, R.A.H.Paterson, M.D.Taylor	1000+
N.Bone, B.R.M.Munden	500+

Observations were also received from the following, each of whom contributed fewer than 500 observations: J.Andujar, R.Billington, N.Britton, G.Coady, P.Craven, B.Crawford, C.Curtis, J.Day, S.Evans, R.B.I.Fraser, D.Gavine, M.Gill, I.Gray, J.Greaves, F.Hamilton, G.Hawkins, G.M.Hurst, R.Kelly, D.Lloyd, A.Mark, J.Meacham, R.Middleton, R.Minty, G.Pointer, J.Shanklin, J.Thorpe, S.Wanstall, C.Washington, K.West.

In addition, over 1000 observations of stars on our programmes were received from the Variable Star Sections of the Royal Astronomical Society of New Zealand (RASNZ-VSS) and the Society for Popular Astronomy (SPA-VSS).

The Telescopic and Binocular Programmes

The complete updated Telescopic & Binocular programmes are reproduced here (see VSSC 85 for 'New' Variable Star Programme). Several changes have been made to the Recurrent Objects Programme since the last list was issued, with three stars being dropped and four added. The following notes are taken from the Recurrent Objects Newsletter No.4, November 1995...

"The three stars which have been dropped are...

FN And, V542 Cyg & V1113 Cyg

Frequent outbursts in all three of these stars have made it necessary to drop them from the programme, as one of the criteria for a star to be considered recurrent is that it should have a period of about one year or longer. A more detailed description of the programmes activities in 1995 is currently being compiled for the BAAJ. The four stars that have been added are...

DV Dra, V1316 Cyg, V589 Her & GD552 (Cep-1)

All but GD552 are included on a recent list of suspected TOADs released by Steve Howell. DV Dra has recently undergone a faint outburst (17.2, M. Iida) which was the first recorded since 1984. Guy Hurst has agreed to prepare charts for DV Dra, V1316 Cyg & V589 Her, which will hopefully become available very soon

GD552 remains a mystery. It has no variable star designation yet, probably because it has been underobserved. In VSNET-OBS 1251, Taichi Kato writes...." A thorough spectroscopic study can be found in Hessman & Hopp 1990, Astron. Astrophys. 228, 387, which gives an orbital period of 0.07134 day. The spectrum does not differ significantly from those of quiescent SU UMa-type dwarf novae, despite extremely strong Balmer emission lines in GD 552. Therefore we have good reason that GD552 is a very good candidate for monitoring outbursts (probably first ever!). GD 552 is at mv=16.5-17 in quiescence. Outbursts may reach well within reach of small telescopes". A V-band finder chart for GD552, taken from VSNET and produced by software written by Dave McAdam is available upon request.

TELESCOPIC PROGRAMME

Star	RA (1950)	Dec	Type	Range	Period (days)	Chart	Prog	Alert
HP And	00 16.5	+41 11	UG?	10.5-[14.5p		115.01	R	*
T Cas	00 20.5	+55 31	M	6.9-13.0	445	067.01		
R And	00 21.4	+38 18	M	5.6-14.9	409	053.01		
LS And	00 29.5	+41 42	?	11.7-20.5p		116.01	R	*
LL And	00 39.2	+26 21	UGSU	13.0-[17.0		117.01	R	*
RW And	00 44.6	+32 25	M	7.9-15.7	430	022.01		
V452 Cas	00 49.5	+53 36	UG?	14.0-17.5		118.01	R	*
Gamma Cas	00 53.7	+60 27	GCAS	1.6-3.0		064.01	T/B	
RX And	01 01.8	+41 02	UGZ	10.3-14.0	14	001.02		
HT Cas	01 07.0	+59 48	UGSS/EA	12.6-19.3		119.01	R	*
XY Psc	01 07.6	+03 17	UG?	13.0-[20p		120.01	R	*
WX Cet	01 14.6	-18 12	UG?	9.5-18.5		122.01	R	*
V635 Cas	01 15.2	+63 29	XNGP	13.5-16.3		123.01	R	*
S Cas	01 16.0	+72 21	M	7.9-16.1	612	054.01		
AX Per	01 33.1	+54 00	ZAND+E	8.0-13.0	682	073.01		
TT Ari	02 04.2	+15 03	?	10.2-14.5p		204.01		
UV Per	02 06.7	+56 57	UGSU	11.0-17.5		016.03	R	*
UW Per	02 08.9	+56 52	UG?	13.5-18.8p?		124.01	R	*
TZ Per	02 10.3	+58 09	UGZ	12.0-15.6	17	015.02		
W And	02 14.4	+44 04	M	6.7-14.6	396	035.01		
BU Per	02 15.4	+57 12	SRC	9.0-10.0	367	063.01		
Omicron Cet	02 16.8	-03 12	M	2.0-10.1	332	039.01	T/B	
RS Per	02 18.8	+56 53	SRC	7.8-10.0	244	BU Per		
S Per	02 19.2	+58 22	SRC	7.9-12.0	822	050.01		
3C66A	02 19.5	+42 49	BLLAC	14.0-[15.0P		201.01		*
PQ And	02 26.4	+39 49	UGSU?	10.1-19.0		125.01	R	*
DY Per	02 31.7	+55 56	RCB?	10.4-15.4		195.01		**
NSV 00895	02 39.0	+43 09	UGorSN	11.7-[20p		126.01	R	*
UW Tri	02 42.2	+33 19	UGSU/NR?	14.7-[21p		127.01	R	*
QY Per	03 12.3	+42 17	UGSU?	14.0-20.0		128.01	R	*
SV Ari	03 22.2	+19 39	N?	12.0-22.0p		129.01	R	*
GK Per	03 27.8	+43 44	NA	0.2-14.0		130.01	R	*
XX Cam	04 04.8	+53 14	RCB?	7.3-9.7		068.01	T/B	**
V518 Per	04 18.6	+32 47	?	12.0-[20B		131.01	R	*
X Cam	04 39.2	+75 01	M	7.4-14.2	144	038.01		
RV Tau	04 44.0	+26 05	RVB	8.8-11.0	77	056.01		
HW Tau	05 00.6	+26 19	UGSS	11.5-[17p		132.01	R	*
UV Aur	05 18.5	+32 28	M	7.4-10.6	394	074.01		

U Ori	05 28.8	+20 10	M	4.8-13.0	368	059.01			
SU Tau	05 46.1	+19 03	RCB	9.1-16.9		017.02			**
CN Ori	05 49.7	-05 26	UGZ	11.0-16.2	16	012.02			
V Cam	05 56.0	+74 30	M	7.7-16.0	522	027.01			
SS Aur	06 09.6	+47 45	UGSS	10.3-15.8	56	003.02			
CZ Ori	06 13.9	+15 25	UGSS	11.2-15.6	26	013.02			
V616 Mon	06 20.2	-00 19	XND	11.2-20.2B		134.01	R	*	
CI Gem	06 27.0	+22 21	UGSU?	14.7-18.5p		VVS	R	*	
IR Gem	06 44.5	+28 08	UGSU	10.7-[14.5	75	042.01			
CG CMa	07 02.0	-23 41	N?	13.7-[15.7p		135.01	R	*	
V651 Mon	07 06.8	-00 43	I+E	11.2-[13.5		205.01			
AQ CMi	07 11.0	+08 53	UG?	14.5-16.5p		VVS	R	*	
AW Gem	07 19.6	+28 36	UGSS	12.9-[17.5p	330?	192.01			
BX Mon	07 22.9	-03 30	Unique	9.5-13.4p		076.01			
V686 Mon	07 23.2	-03 00	M	8.8-18.0p	337.5	206.01			
U Mon	07 28.4	-09 40	RVB	5.9-7.8	91	029.02	T/B		
U Gem	07 52.1	+22 08	UGSS+E	8.2-14.9	105	008.02			
YZ Cnc	08 07.9	+28 17	UGSU	10.2-14.6p	10?	189.01			
SU UMa	08 08.1	+62 45	UGSU	10.8-15.0	19	018.02			
SU Cnc	08 10.7	+13 57	M	12.0-[16.0p	187	1973 Mar			
W Lyn	08 13.4	+40 17	M	7.5-14.0	295	1971 Jul			
X Lyn	08 22.3	+35 34	M	9.5-16.0	321	1982 Feb			
SW UMa	08 33.0	+53 39	UGSU	9.7-16.5		019.02	R	*	
EG Cnc	08 40.1	+28 02	UGSU?	11.9-17:		136.01	R	*	
BZ UMa	08 49.9	+58 00	UG	10.5-15.3B		137.01	R	*	
OJ287	08 52.0	+20 18	BLLAC	12.7-16.0		208.01		*	
AK Cnc	08 52.6	+11 30	UGSU	13.0-[17p		138.01	R	*	
SY Cnc	08 58.2	+18 06	UGZ	10.6-14.0p		190.01			
T Pyx	09 02.6	-32 11	NR	7.0-15.7?B		139.01	R	*	
Z Cam	09 19.7	+73 16	UGZ	10.0-14.5	22	004.02			
RS Leo	09 40.6	+20 05	M	10.7-16.0p	208	1971 Mar			
DV UMa	09 43.4	+45 01	UGSU+E	14.0-19.8B		141.01	R	*	
ER UMa	09 43.7	+52 08	UGSU	12.5-15.5	4?	187.01			
X Leo	09 48.4	+12 07	UGSS	11.1-15.7	17	010.01			
U LMi	09 51.6	+36 20	SRA	10.0-13.3	272	1942			
RY Leo	10 01.6	+14 14	SRB	9.0-11.8	115	1942 Feb 17			
CH UMa	10 03.2	+67 47	UG	10.6-16.0B	204	020.02			
U Leo	10 21.0	+14 15	N?	10.5-15.0		VVS	R	*	
SS LMi	10 31.0	+31 23	UGorN	15.0-[21p		142.01	R	*	
W LMi	10 41.9	+26 18	SRD	10.5-13.5	117	1976 Apr			
Mark 421	11 01.7	+38 39	BLLAC	11.0-13.8		1984 Sep 9		*	
TT Crt	11 32.2	-11 29	UG	12.5-15.3		191.01			
RZ Leo	11 34.8	+02 06	UGSU?	10.5-17.5p		144.01	R	*	
DO Dra	11 40.8	+71 58	UG	10.0-15.8		145.01	R	*	
BC UMa	11 49.7	+49 31	UGSU	10.9-18.3B		146.01	R	*	
R Com	12 01.7	+19 04	M	7.1-14.6	363	212.01			
NGC 4151	12 08.0	+39 41	SEY	10.8-12.7		1984 Jly 15			
TV Crv	12 17.8	-18 10	UG	12.0-19.0B		147.01	R	*	
W Com	12 18.6	+28 29	QSO	14.5-16.5		148.01	R	*	
3C273	12 26.6	+02 20	QSO	12.4-13.2		1984 Jly 15			
AL Com	12 29.9	+14 37	UGSU	13.0-20.0p		149.01	R	*	
T UMa	12 34.1	+59 46	M	6.6-13.5	257	066.01			
TX CVn	12 42.3	+37 02	ZAND	9.2-11.8p		078.01			
U CVn	12 44.9	+38 39	M	7.0-[13.0	346	1983 Mar			
EX Hya	12 49.7	-28 59	UGSU	9.6-13.99		150.01	R	*	
3C 279	12 53.6	-05 31	QSO	11.0-18.0p		151.01	R	*	
GO Com	12 54.2	+26 53	UGSU?	13.1-20.0p		152.01	R	*	
HV Vir	13 18.5	+02 09	UGSU	11.0-20.5B		153.01	R	*	
R Hya	13 27.0	-23 01	M	3.5-10.9	389	049.01	T/B		

59

22

	RW Hya	13 31.5	-25 07	ZAND	8.0-9.0	370	079.01	T/B	*
✓	RT CVn	13 46.5	+33 56	M	10.0-14.0	254	1971 May		
✓	V Boo	14 27.7	+39 05	SRA	7.0-12.0	258	037.01		
	UZ Boo	14 41.7	+22 13	UGSU	11.5-[16.1		154.01	R	*
✓	U Boo	14 52.0	+17 54	SRB	9.8-13.0	201	036.01		
	Z UMi	15 05.5	+83 15	RCB?	10.8-16.7		194.01		**
✓	S CrB	15 19.4	+31 33	M	5.8-14.1	360	043.01		
✓	R CrB	15 46.5	+28 18	RCB	5.7-14.8		041.01	T/B	**
✓	V CrB	15 47.7	+39 43	M	6.9-12.6	358	057.01		
✓	R Ser	15 48.4	+15 17	M	5.2-14.4	256	033.01		
✓	T CrB	15 57.4	+26 04	NR	2.0-10.8	29000	025.01	R	*
✓	AG Dra	16 01.4	+66 56	ZAND	8.9-11.8P	554	080.01		*
✓	RU Her	16 08.2	+25 12	M	6.8-14.3	485	060.01		
✓	W CrB	16 13.6	+37 55	M	7.8-14.3	238	044.01		
	U Sco	16 19.6	-17 46	NR	8.8-19.0p		155.01	R	*
	V589 Her	16 19.9	+19 29	UG	14.1-[17.5p			R	*
✓	V592 Her	16 28.8	+21 23	UG?	12.3-[22p		156.01	R	*
✓	SS Her	16 30.5	+06 58	M	8.5-13.5	107	047.01		
✓	AH Her	16 42.1	+25 21	UGZ	10.9-14.7p	20	009.03		
	Hen 1341 Oph	17 05.7	-17 23	ZAND?	12.9-		081.01		
	V2110 Oph	17 40.5	-22 44	NC	12.0-22.0		157.01	R	*
✓	V1172 Sgr	17 47.4	-20 40	N?	9.0-18.0p		158.01	R	*
✓	RS Oph	17 47.5	-06 42	NR	4.3-12.5		024.01	R	*
	N Sco 1989	17 48.6	-32 31	N	9.4-????		N/014.01		*
	AS 245 Sgr	17 49.0	-22 19	ZAND?	11.0-12.0		082.01		
	V745 Sco	17 52.1	-33 14	NR	9.9-21.0?		159.01	R	*
✓	T Dra	17 55.6	+58 13	M	7.2-13.5	422	046.01		
	AS 289 Ser	18 09.6	-11 41	ZAND?	12.8-????		083.01		
	YY Her	18 12.4	+20 58	ZAND	11.1-[14.0B		084.01		*
✓	AC Her	18 12.4	+21 50	RVA	6.8-9.0	75	048.02	T/B	
	FG Ser	18 12.6	-00 20	ZAND	9.0-13.0		085.01		*
	DV Dra	18 16.2	+50 47	UGSU	15.0-21.0B			R	*
	V443 Her	18 20.1	+23 25	ZAND	11.4-11.7		086.01		*
	FR Sct	18 20.6	-12 42	Z And	10 0-12.0		087.01		*
	V2204 Oph	18 23.7	+11 53	NL?	13.7-16.8B		160.01	R	*
	V1017 Sgr	18 28.9	-29 26	Z And?	6.2-14.73B		161.01	R	*
	V3645 Sgr	18 32.9	-18 44	NR?	12.6-18.0p		162.01	R	*
✓	AY Lyr	18 42.7	+35 57	UGSU	12.5-18.4B	24	011.01		
	Nova Sct81	18 44.2	-05 00	N??	8.0-????		163.01	R	*
	R Sct	18 44.8	-05 46	RVA	4.2-8.6	146	026.01	T/B	
✓	V603 Aql	18 46.4	+00 32	NA/E+X	-1.1-12.0		1986 Oct 24		*
	V443 Sct	18 47.0	-06 15	N	8.5-[21.0		N/013.01		*
	CI Aql	18 49.0	-01 32	NorUG	11.0-15.6p		VVS	R	*
	HR Lyr	18 51.5	+29 10	N	6.5-15.8p		164.01	R	*
✓	EU Sct	18 53.6	-04 16	NR?	8.4-18.0p		165.01	R	*
✓	UW Aql	18 55.0	+00 23	LC	8.9-9.5		028.01		
	FS Sct	18 55.6	-05 28	NA?	10.1-18.0p		166.01	R	*
	DM Lyr	18 56.8	+30 12	UG	13.6-18p		167.01	R	*
	V493 Lyr	19 00.0	+42 50	UG	13.2-18.0		168.01	R	*
	V1413 Aql	19 01.5	+16 22	ZAND?	10.6-15.1		198.01		*
	QV Vul	19 02.5	+21 42	NA	7.0-19.0		N007.02		*
✓	R Aql	19 04.0	+08 09	M	5.5-12.0	284	030.01		
	MV Lyr	19 05.7	+43 56	NL	12.2-18.0B		200.01		**
	SV Sge	19 06.0	+17 33	RCB	10.0-15.0		071.01		**
✓	BF Cyg	19 22.0	+29 34	ZAND	9.3-13.4		088.02		
✓	PW Vul	19 24.1	+24 16	N	6.4-17.0		N008.01		*
✓	V795 Cyg	19 32.6	+31 26	UGSS	13.4-[17.9p		170.01	R	*
✓	R CyG	19 35.5	+50 05	M	6.1-14.4	426	031.01		

HM Sge	19 39.7	+16 38	NC+M	10.0-17.0		090.01		*
QW Sge	19 43.6	+18 29	ZAND	11.0-12.0		091.01		*
RZ Vul	19 45.0	+19 22	NL?	12.8-15.8P		202.01		
CI Cyg	19 48.4	+35 33	EA/G+ZAND	9.1-11.5	855	060.01		*
Chi Cyg	19 48.6	+32 47	M	3.3-14.2	408	045.01		
AB Dra	19 51.1	+77 37	UGZ	11.0-15.3	13	007.03		
V1454 Cyg	19 51.8	+35 11	UGSS	13.9-[17.0p		172.01	R	*
EY Cyg	19 52.7	+32 14	UGSS	11.4-15.7p		173.01	R	*
V1819 Cyg	19 52.8	+35 34	N	8.7-19.0		1987 Oct 3		*
V725 Aql	19 53.8	+10 42	UG	13.7-????		TA950529	R	*
UU Aql	19 54.6	-09 27	UGSS	11.0-16.8p	50	002.02		
V1016 Cyg	19 55.3	+39 42	NC+M	10.1-17.5B		092.01		*
AW Sge	19 56.3	+16 33	UG	13.8-[17.5p		174.01	R	*
V482 Cyg	19 57.8	+33 50	RCB	11.0-[15.0		JBAA 88 Apr		**
V337 Cyg	19 58.4	+39 05	UG?	14.4-16.5p		VVS	R	*
V1028 Cyg	19 59.8	+56 48	UGSU	13.0-18p		175.01	R	*
RZ Sge	20 01.0	+16 54	UGSU	12.2-17.4B	260?	188.01		
V1363 Cyg	20 04.3	+33 34	UGZ	13.0-[17.6p		176.01	R	*
S Cyg	20 04.4	+57 50	M	9.3-16.0	323	032.01		
WZ Sge	20 05.3	+17 34	UGSU+E+ZZ	7.0-15.0p		023.01	R	*
FG Sge	20 09.7	+20 11	Unique	9.5-13.6B		203.01		**
V1316 Cyg	20 10.5	+42 36	UGSU?	14.5-17.5p			R	*
V Sge	20 18.0	+20 56	NL+E	8.6-13.9		197.01		
PU Vul	20 19.0	+21 25	NC	8.7-16.6P		052.01		*
BI Cyg	20 19.5	+36 46	LC	8.4 - 9.9		065.01		
BC Cyg	20 19.8	+37 22	SRC	9.6-10.5	700?	BI Cyg		
V404 Cyg	20 22.1	+33 42	N	11.0:-20.5B		177.01	R	*
QU Vul	20 24.7	+27 41	NA	5.6-19.0		1987 Oct 3		*
V Vul	20 34.4	+26 26	RVA	8.1-9.5	76	058.01		
TY Vul	20 39.6	+25 25	UG	14.0-19.0:p		178.01	R	*
V Cyg	20 39.7	+47 58	M	7.7-13.9	421	034.01		
HR Del	20 40.1	+18 59	NB	3.5-12.0		1972 Nov		*
Mark 509	20 41.3	-10 54	SEY	?		207.01		
V1329 Cyg	20 49.0	+35 24	E+NC	12.1-18.0B	950	093.01		*
VY Aqr	21 09.5	-09 02	UGSU	8.4-17.2p		179.01	R	*
EF Peg	21 12.7	+13 52	UG	10.7-[17p		180.01	R	*
V632 Cyg	21 33.9	+40 12	UGSS	12.6-17.5p		181.01	R	*
W Cyg	21 34.1	+45 09	SRB	5.0-7.6	131	062.01	T/B	
V1251 Cyg	21 39.0	+48 26	UGSU	12.5-[15p		182.01	R	*
SS Cyg	21 40.7	+43 21	UGSS	7.7-12.4	50	005.02		
Scovil Cyg	21 40.8	+31 20	UG?	12.8-????		183.01	R	*
U Aqr	22 00.6	-16 52	RCB	10.5-[14.4P		193.01		**
RU Peg	22 11.6	+12 27	UGSS+ZZ?	9.0-13.2	74	014.02		
SU Lac	22 21.0	+55 16	M	11.0-15.0	302	069.01		
GD552 (Cep-1)	22 48.2	+63 13	CV?	????			R	*
UV Cas	23 00.2	+59 20	RCB	10.5-15.2		061.01		**
IP Peg	23 20.7	+18 08	UG+E	12.0-18.6B	95	186.01		*
DX And	23 27.3	+43 28	UGSS	10.9-16.4p		184.01	R	*
Z And	23 31.3	+48 33	ZAND	8.0-12.4P		095.01		*
R Aqr	23 41.2	+40 24	M	5.8-12.4	387	096.01		
V630 Cas	23 46.5	+51 11	UG?	12.3-17.1p		185.01	R	*
Rho Cas	23 51.9	+57 13	SRD	4.1-6.2	320	Gam Cas		

52

R = Recurrent Object
* = Alert if in outburst
** = Alert if fading
T/B = Telescopic/Binocular programme star

38 19
59 21
58 22
52 18
207 80

Binocular Program

Star	RA (1950) h m	Dec ° ′	RA (2000) h m	Dec ° ′	Type	Max m	Min m	Period d	Chart
RS And	23 52.8	+48 22	23 55.4	+48 38	SRa	7.0	9.1	136	TZAnd
SU And	00 02.0	+43 16	00 04.6	+43 33	Lc	8.0	8.5		TZAnd
TZ And	23 48.4	+47 14	23 50.9	+47 31	SRb	7.6	9.0		1977Sep10
AQ And	00 24.9	+35 19	00 27.5	+35 35	SR	8.0	8.9		1982Aug16
BZ And	00 34.9	+45 20	00 37.6	+45 36	Lb	7.5	8.4		1982Aug16
EG And	00 41.9	+40 24	00 44.6	+40 41	ZAnd	7.1	7.8		072.01
V Aql	19 01.7	-05 46	19 04.4	-05 41	SRb	6.6	8.4	353	R Sct
V450 Aql	19 31.3	+05 21	19 33.8	+05 28	SRb	6.3	6.7	64	070.01
V1293 Aql	19 30.6	+04 55	19 33.1	+05 02	SRb	6.7	7.4		V450Aql
V1294 Aql	19 31.1	+03 39	19 33.6	+03 46	GCas	6.8	7.2		V450Aql
V Ari	02 12.3	+12 00	02 15.0	+12 14	SRb	7.8	8.8	77?	1984Oct26
Psi1 Aur	06 21.1	+49 19	06 24.9	+49 17	Lc	4.8	5.7		1973Jul14
UU Aur	06 33.1	+38 29	06 36.5	+38 27	SRb	5.1	6.8	234	1984Apr09
AB Aur	04 52.6	+30 28	04 55.8	+30 33	Ina	6.9	8.4p		TTTau
W Boo	14 41.2	+26 44	14 43.4	+26 32	SRb?	4.7	5.4	450?	Undated
RV Boo	14 37.1	+32 45	14 39.3	+32 32	SRb	6.3	8.0	137	104.01
RW Boo	14 39.1	+31 47	14 41.2	+31 34	SRb	6.4	7.9	209	RVBoo
RX Boo	14 21.9	+25 56	14 24.2	+25 42	SRb	6.9	9.1	160	1972Aug12
U Cam	03 37.5	+62 29	03 41.8	+62 39	SRb	7.7	8.7		100.01
RY Cam	04 26.1	+64 20	04 30.8	+64 26	SRb	7.3	9.4	136	UVCam
ST Cam	04 46.0	+68 05	04 51.2	+68 10	SRb	6	8	300?	111.01
UV Cam	04 01.5	+61 40	04 05.9	+61 48	SRb	7.5	8.1	294?	1972Jul29
ZZ Cam	04 13.3	+62 13	04 17.7	+62 21	Lb	7.1	7.9		UVCam
X Cnc	08 52.6	+17 25	08 55.4	+17 14	SRb	5.6	7.5	195	1984Apr08
RS Cnc	09 07.6	+31 10	09 10.6	+30 58	SRc	5.1	7.0	120?	1984Apr12
RT Cnc	08 55.6	+11 02	08 58.3	+10 51	SRb	7.1	8.6	60?	1972Jul29
V CVn	13 17.3	+45 47	13 19.5	+45 32	SRa	6.5	8.6	192	214.01
Y CVn	12 42.8	+45 43	12 45.1	+45 26	SRb	5.2	6.6	157	215.01
TU CVn	12 52.7	+47 28	12 54.9	+47 12	SRb	5.6	6.6	50	YCVn
W CMa	07 05.7	-11 51	07 08.1	-11 55	Lb	6.4	7.9		213.01
WZ Cas	23 58.7	+60 05	00 01.3	+60 21	SRb	6.9	8.5	186	1982Aug16
V391 Cas	01 52.5	+69 58	01 56.5	+70 12	Lb	7.6	8.4		1978May15
V393 Cas	01 58.5	+71 03	02 02.6	+71 18	SRa	7.0	8.0	393	V391Cas
V465 Cas	01 15.1	+57 32	01 18.2	+57 48	SRb	6.2	7.2	60	1983Oct01
Mu Cep	21 42.0	+58 33	21 43.5	+58 47	SRc	3.4	5.1	730	112.01
W Cep	22 34.6	+58 10	22 36.5	+58 26	SRc	7.0	9.2		RWCep
RU Cep	01 14.4	+84 52	01 20.9	+85 08	SRd	8.2	9.8	109	ARCep
RW Cep	22 21.2	+55 43	22 23.1	+55 58	SRd	6.2	7.6	346?	1983Oct01
SS Cep	03 41.6	+80 10	03 49.5	+80 19	SRb	6.7	7.8	90	1972Nov04
AR Cep	22 52.6	+84 47	22 51.6	+85 03	SRb	7.0	7.9		1985May06
DM Cep	22 07.4	+72 31	22 08.3	+72 46	Lb	6.9	8.6		Undated
FZ Cep	21 18.2	+55 14	21 19.7	+55 27	SR	7.0	7.6		1983Oct01
RR CrB	15 39.6	+38 43	15 41.4	+38 33	SRb	7.1	8.6	61	SWCrB
SW CrB	15 38.9	+38 53	15 40.8	+38 43	SRb	7.8	8.5	100?	1984Jan04
P Cyg	20 16.0	+37 53	20 17.8	+38 02	SDor	3	6		1972Jul29
RU Cyg	21 39.0	+54 06	21 40.6	+54 19	SRa	8.0	9.4	233	FZCep
RV Cyg	21 41.2	+37 47	21 43.3	+38 01	SRb	7.1	9.3	263	V460Cyg
TT Cyg	19 39.0	+32 30	19 40.9	+32 37	SRb	7.4	8.7	118	1972Sep06
AF Cyg	19 28.7	+46 02	19 30.2	+46 09	SRb	6.4	8.4	92	1983Oct02
CH Cyg	19 23.2	+50 08	19 24.6	+50 15	ZAnd+SR	5.6	9.5		089.01
V460 Cyg	21 39.9	+35 17	21 42.0	+35 31	SRb	5.6	7.0	180?	1983Sep18
V973 Cyg	19 43.1	+40 36	19 44.8	+40 43	SRb	6.2	7.0	40?	AFCyg
U Del	20 43.2	+17 54	20 45.5	+18 06	SRb	5.6	7.5	110?	EUDel
EU Del	20 35.6	+18 06	20 37.9	+18 16	SRb	5.8	6.9	60	1983Oct01
RY Dra	12 54.5	+66 16	12 56.4	+66 00	SRb?	6.0	8.0	200?	VYUMa
TX Dra	16 34.3	+60 34	16 35.0	+60 28	SRb	6.8	8.3	78?	AT Dra

56

UW	Dra	17	56.5	+54	40	17	57.5	+54	40	Lb	7.0	8.2	1974Jul27
UX	Dra	19	23.4	+76	28	19	21.6	+76	34	SRa?	5.9	7.1	168 1982Nov07
VW	Dra	17	15.9	+60	43	17	16.5	+60	40	SRd?	6.0	7.0	170? 1972Jan25
AH	Dra	16	47.4	+57	54	16	48.3	+57	49	SRb	7.1	7.9	158 ATDra
AT	Dra	16	16.4	+59	52	16	17.3	+59	45	Lb	5.3	6.0	106.01
TU	Gem	06	07.8	+26	02	06	10.9	+26	01	SRb	7.4	8.3	230 1972Nov11
TV	Gem	06	08.8	+21	53	06	11.9	+21	52	SRc	6.6	8.0	TUGem
WY	Gem	06	08.9	+23	13	06	11.9	+23	12	Lc+E?	7.2	7.9	TUGem
BN	Gem	07	34.2	+17	01	07	37.1	+16	54	GCas	6.8	6.9	1972Jul29
BQ	Gem	07	10.5	+16	15	07	13.4	+16	10	SRb	5.1	5.5	50? 1972Sep16
BU	Gem	06	09.3	+22	55	06	12.3	+22	55	Lc	5.7	8.1	TUGem
DW	Gem	06	27.8	+27	29	06	31.0	+27	27	Lb	8	10	1985Mar18
IS	Gem	06	46.4	+32	40	06	49.7	+32	36	SRc	5.3	6.0	47? 1972Jun10
NQ	Gem	07	28.9	+24	37	07	31.9	+24	30	SR+ZAnd	7.4	8.0	70? 077.01
g	Her	16	27.0	+41	59	16	28.6	+41	53	SRb	4.3	6.3	89 XHer
X	Her	16	01.2	+47	23	16	02.7	+47	14	SRb	6.3	7.4	95 1982Feb07
ST	Her	15	49.3	+48	38	15	50.8	+48	29	SRb	7.0	8.7	148 1971May01
SX	Her	16	05.3	+25	02	16	07.5	+24	55	SRd	8.0	9.2	103 113.01
UW	Her	17	12.6	+36	25	17	14.4	+36	22	SRb	7.8	8.7	104 107.01
IQ	Her	18	15.7	+17	58	18	17.9	+17	59	SRb	7.0	7.5	75 ACHer
OP	Her	17	55.4	+45	21	17	56.8	+45	21	SRb	5.9	6.7	120 1984Apr12
V566	Her	18	06.3	+41	43	18	07.9	+41	43	SRb	7.1	7.8	137 OPHer
U	Hya	10	35.1	-13	07	10	37.6	-13	23	SRb	4.3	6.5	450? 109.01
SX	Lac	22	53.6	+34	56	22	56.0	35	12	SRd	7.7	8.7	190 1974Jul28
RX	Lep	05	09.0	-11	55	05	11.4	-11	51	SRb	5.0	7.4	60? 110.01
SS	Lep	06	02.8	-16	29	06	05.0	-16	29	ZAnd	4.8	5.1	075.01
Y	Lyn	07	24.6	+46	06	07	28.2	+45	59	SRc	6.9	8.0	110 1978Jul14
SV	Lyn	08	00.4	+36	29	08	03.7	+36	21	SRb	6.6	7.5	70? 108.01
R	Lyr	18	53.8	+43	53	18	55.3	+43	57	SRb	3.9	5.0	46? 1972Nov11
XY	Lyr	18	36.4	+39	37	18	38.1	+39	40	Lc	5.8	6.4	1972Sep16
RV	Mon	06	55.7	+06	14	06	58.4	+06	10	SRb	6.8	8.3	132 SXMon
SX	Mon	06	49.3	+04	50	06	52.0	+04	46	SR	7.3	8.5	100 1987Dec30
X	Oph	18	36.0	+08	47	18	38.3	+08	50	M	5.9	9.2	328 099.01
V2048	Oph	17	57.8	+04	22	18	00.3	+04	22	GCas+UV?	4.6	4.9	1978Jul14
W	Ori	05	02.8	+01	07	05	05.4	+01	11	SRb	5.9	7.7	212 105.01
BL	Ori	06	22.6	+14	45	06	25.5	+14	43	Lb	6.3	6.9	211.01
BQ	Ori	05	54.1	+22	50	05	57.1	+22	50	SR	6.9	8.9	110 YTau
CK	Ori	05	27.7	+04	10	05	30.3	+04	12	SR?	5.9	7.1	120? 1972Aug12
AG	Peg	21	48.6	+12	24	21	51.0	+12	38	Nc	6.0	9.4	094.01
GO	Peg	22	52.6	+19	18	22	55.0	+19	34	Lb	7.1	7.8	103.01
X	Per	03	52.2	+30	54	03	55.4	+31	03	GCas+Xp	6.0	7.0	1984Apr08
SU	Per	02	18.6	+56	23	02	22.1	+56	36	SRc	7.0	8.5	533 ADPer
AD	Per	02	17.0	+56	46	02	20.5	+57	00	SRc	7.7	8.4	362 1974Jan13
KK	Per	02	06.8	+56	19	02	10.3	+56	34	Lc	6.6	7.9	ADPer
PR	Per	02	18.1	+57	38	02	21.7	+57	52	Lc	7.6	8.3	ADPer
Z	Psc	01	13.4	+25	30	01	16.1	+25	46	SRb	7.0	7.9	144 1969Nov10
TV	Psc	00	25.4	+17	37	00	28.0	+17	54	SR	4.7	5.4	49 1972Sep09
TX	Psc	23	43.8	+03	13	23	46.4	+03	29	Lb	4.8	5.2	1972May27
S	Sct	18	47.6	-07	58	18	50.3	-07	54	SRb	7.0	8.0	148 R Sct
t^4	Ser	15	34.9	+15	15	15	36.3	+15	05	SRb	5.9	7.1	100 209.01
Y	Tau	05	42.7	+20	41	05	45.7	+20	42	SRb	6.5	9.2	242 1984Apr12
TT	Tau	04	44.8	+28	27	04	51.5	+28	32	SRb	8.1	8.8	166 1983Oct01
BU	Tau	03	46.2	+23	59	03	49.2	+24	08	GCas	4.8	5.5	1983Oct03
CE	Tau	05	29.3	+18	34	05	32.2	+18	36	SRc	4.2	4.5	165 1972May27
W	Tri	02	38.4	+34	18	02	41.5	+34	31	SRc	7.5	8.8	108 114.01
Z	UMa	11	53.9	+58	09	11	56.5	+57	52	SRb	6.2	9.4	196 1984Apr12
RY	UMa	12	18.1	+61	35	12	20.5	+61	19	SRb	6.7	8.3	310? ZUMa
ST	UMa	11	25.1	+45	28	11	27.8	+45	11	SRb	6.0	7.6	110? 102.01
TV	UMa	11	43.0	+36	10	11	45.6	+35	54	SRb	6.8	7.3	42 1982Aug16
VW	UMa	10	55.6	+70	15	10	59.0	+69	59	SR	6.9	7.7	610 VYUMa

VY UMa	10 41.6	+67 40	10 45.1	+67 25	Lb	5.9	7.0			1983Jun11
V UMi	13 37.8	+74 34	13 38.7	+74 19	SRb	7.2	9.1	72		101.01
RW Vir	12 04.7	-06 29	12 07.2	-06 46	Lb	6.7	7.4			RXVir
RX Vir	12 02.2	-05 20	12 04.7	-05 46	SRd?	8.0	8.4	200?		1982Feb05
SS Vir	12 22.7	+01 03	12 25.3	+00 48	SRa	6.0	9.6	364		097.01
SW Vir	13 11.5	-02 33	12 14.1	-02 48	SRb	6.4	7.9	150?		098.01
BK Vir	12 27.8	+04 42	12 30.4	+04 25	SRb	7.3	8.8	150?		1974Jan21

7 + 56 + 60 123

Recent Papers on Variable Stars
Tristram Brelstaff

The Crab Supernova in Europe: Byzantine Coins and Macbeth (Schaefer, Q. J. Royal Astron. Soc., 36, 377-384, 1995) - Stars on Byzantine coins from around the year 1054 are probably not references to the Crab Supernova. Also, there appear to be no mentions of the Supernova in historical records of the battle in which the scottish king Macbeth was defeated by Malcolm, even though both occured in July 1054.

The Calibration of Novae as Distance Indicators (Della Valle & Livio, Astrophys. J., 452, 704-709, 1995) - Novae in the Large Magellanic Cloud (LMC) and M31 are used to test the relation between the absolute magnitude at maximum and the rate of decline. New bright novae in the LMC are used to impove the relation which is then applied to novae in Virgo Cluster galaxies to derive a distance of 18.6+/-3.3Mpc.

Why does RZ Leo Minoris, an unusual SU UMa Star, have such a short Supercycle? (Osaki, Publ. Astron. Soc. Japan, 47, L25-L29, 1995) - Recently a new group of extreme SU UMa stars has been identified. These are named after ER UMa or RZ LMi and have superoutburst cycles of about 20-45 days. The cycle for RZ LMi is only 19 days. The light-curve of RZ LMi can be modelled with the thermal-tidal instability model. The very short supercycles are produced if the tidal torques during superoutburst are much weaker than normal.

Ultraviolet Observations of SW Ursae Majoris, BC Ursae Majoris and TV Corvi (1217-18) (Howell et al., Astrophys. J., 453, 454-463, 1995) - IUE spectra of three TOADs (Tremendous Outburst Amplitude Dwarf Novae) are compared with outburst light-curves obtained visually (both Janet Mattei and Guy Hurst are listed among the co-authors). The spectra show wind velocities which are equal to or greater than those found in any normal dwarf novae.

Feedback Mass Transfer in Cataclysmic Variables: An Explanation of the Behaviour of VY Scl Stars (Wu Kinwah et al., Publ. Astron. Soc. Australia, 12, 60-65, 1995) - Investigate irradiation-driven mass transfer in cataclysmic variables in the presence of shielding by the accretion disk. This shielding can cause temporary dips of 3-5 mags in the brightness of the system if the orbital period is less than 4 hours. This could explain the light-curves of VY Scl stars.

The Long-period Symbiotic Binary CH Cygni: High-velocity Spectral Features as the result of a Propellor Action (Leedjarv & Mikolajewski, Astron. Astrophys., 300, 189-199, 1995) - UBV photometry in 1992-94 shows CH Cyg brightening, especially in the B and U bands. Spectral features are interpreted as being due

to the rapidly rotating magnetic white dwarf component expelling accreted matter to form a quasi-stable envelope close to the white dwarf.

Size Scale of the R Coronae Borealis Variables (Rosenbush, Astronomische Nachrichten, 316, 281-284, 1995) - Find the radius of R CrB to be 90-100 solar radii. The temporary dust layers that cause the deep minima are about six stellar radii deep while the permanent dust shell is about 26 stellar radii deep.

Evidence for Rapid Rotation of the Carbon Star V Hydrae (Carnbaum et al., Astrophys. J., 450, 862-875, 1995) - V Hya is known to have a bipolar circumstellar outflow and an unusual photospheric spectrum. It is suggested that these are due to rapid rotation resulting from spin-up by a companion star in the common envelope phase (two stars in one atmosphere). The 6500-day secondary period is probably due to coupling of the 529-day pulsation period with the rotation. It is not clear whether this star is a semiregular variable or a Mira star.

Sub-milliarcsecond Resolution Observations of Two Carbon Stars: TX Piscium and Y Tauri revisited (Richichi et al., Astron. Astrophys., 301, 439-446, 1995) - Infrared light-curves of lunar occultations give angular diameters of 8.38+/-0.05mas (milliarc-seconds) for TX Psc and 8.21+/-0.08mas for Y Tau.

Secular Changes in the Classical Cepheid Y Ophiuchi (Fernie et al., Astron. J., 110, 1326-1332, 1995) - Find that the amplitude of Y Oph has been decreasing over the past 50 years at a rate similar to that of Polaris. The period has also varied smoothly over that interval.

CCD Observations of NSV 5598 (Simon, Contr. Copernicus Observatory & Planetarium Brno, No 31, 77-79, 1995) - Dedoch found this suspected variable to be a possible W UMa eclipsing binary with a period of 0.1147 days and an amplitude probably of about 0.5 mag (see VSSC 75, page 7). Unfiltered CCD photometry by Simon does not confirm the periodicity but does appear to show variations of over 0.1 mag on a timescale of 10's of minutes.

Optical Monitoring of HD106225 [HU Vir] (Hudec & Stepan, Astron. Astrophys., 302 407-408, 1995) - HU Vir is an RS CVn type binary which has been suggested as the optical counterpart for a gamma-ray burster. Analysis of patrol plates shows no flares of greater that 0.3 mag in 180 hours of coverage and none greater than 0.8 mag in 420 hours.

Periodic Light Curve Changes for Beta Lyrae (van Hamme et al., Astron. J., 110, 1350-1363, 1995) - Analyse observations covering 150 years (back to Baxendell's visual observations in 1840-1870) and find a periodic wave with a period of about 9 months and an amplitude of about 0.04 mag. This is detectable with about the correct phase throughout the 150 years.

ES Ursae Majoris - New W UMa Variable Star (Mikulasek et al., Contr. Copernicus Observatory & Planetarium Brno, No 31, 43-59, 1995) - Present photoelectric and visual observations of this star which was the 10.8 mag comparison star for SN 1993J in M81. Find that the visual observations can provide useful times of minimum but do not give reliable data on the shape and amplitude of the light-curve.

VSS Computerisation Progress in 1995

Dave McAdam

The number of observations in the VSS Computer Archive was increased by about 182,500 during 1995, thanks to work by 22 contributors. By the end of 1995, the total number of observations in the Computer Archive had reached 728,906. The names of the contributors are as follows:

Herbert Joy	63363	David Lloyd	4661 *
Dave McAdam	46877	C H Pepper	2899
Dennis Gill	12684 *	Alan Chew	2518
Gary Poyner	10319 #	John Moran	2304
Crayford Manor AS	8829	Chris Makepiece	2050
Phil Barnard	7232	Mike Gainsford	1975 #
Ian Nartowicz	6196 #	John Day	1698 #
Mike Carson-Rowland	5907	Michael Gill	1227 #

Fewer than 1000 observations each were entered by Guy Hurst#, Kevin West*, David Swain#, Jonathan Shanklin#, Karen Holland#, and Nicola Britton#. '#' Indicates that the total consists solely of observations by that person. '*' Indicates that the total includes some personal observations as well as other people's observations.

The above totals are the numbers of observations 'logged' (entered into the Archive) during the year. Some of these observations were from earlier years. However, with more observers providing machine-readable reports directly to me, nearly 20,000 of the above observations were actually made in 1995. This is more than half of the expected final total for 1995 and greatly reduces the paperwork that I have to do.

As in previous years, it is a pleasure to make special mention of Herbert Joy's exceptional contribution.

In fact, Herbert's and some of the other contributors totals would have been greater but for a gradual failure of my computer monitor and problems with my photocopier. These delayed all aspects of work on the Archive from October onwards. The final demise of the monitor, and its replacement, after a week of inactivity, showed the effect a major computer failure might have on work on the Archive: quite simply, all operations - input, output, e-mail, and so on - came to an abrupt halt. Disks containing observations to be logged start to build up and, when normal working was resumed, it took a considerable time to work off the backlog.

Because of this, I have argued the case for a second Section computer on which to run a full working copy of the database. This was supported by Gary Poyner and brought to discussion at BAA Council by Guy Hurst and Martin Mobberley. However, it did not gain the support of the Council as a whole.

Thanks to Anthony Kinder, copies of the published VSS memoirs for 1920-24 and 1925-29 have been supplied from the BAA library. This means that I now have paperwork covering the period 1905 to 1934. Roger Pickard and his colleagues at Crayford are making a special project of keying some of this data for the archive since it forms an important record of the activity of the Section in the first third of the century. Then mostly only Mira stars were observed,

but several of these have been consistently observed right up to the present, accruing over 90 years of observations. The decision to key the observations from the printed pages by hand was taken only after several unsuccessful attempts by Roger Pickard, Mike Carson-Rowland and others to use scanners and optical character reader (OCR) software.

More requests for data from the Archive were dealt with during 1995 than in any previous year. Except for some of the largest data sets, electronic mail was used to supply the data. Large sets of observations were supplied to: Chris Lloyd (Rutherford Appleton Lab), Eric Broens and Paul Van Cauteren (Belgium), Dr Brian Espey (Johns Hopkins University, Baltimore), Dr F Ringwald and Dr Tim Naylor (Keele University), P J Wheatley (Netherlands), Dr Paul Roche (Sussex University), E O Offek (Israel), A Yu Pogosyants (Euro-Asian AS, Moscow), and F M Bateson (Royal Astronomical Society of New Zealand).

Chart News
John Toone

The following new charts are now available from the Chart Secretary. Observers who already follow these stars are urged to start using them immediately as they (in some cases) eliminate recently uncovered small-amplitude variables from their comparison star sequences.

209.01 Tau4 Ser
Chart now available for this new addition to the program. The sequence should be considered as preliminary and observers are requested to check for and report any anomalies to the Chart Secretary.

211.01 BL Ori
Formerly MDT 1983 Oct 3. The sequence remains the same except that F (mag 6.95) has been eliminated as its actual magnitude is 6.6 and it is included in the NSV (see VSS Circulars 82 and 84).

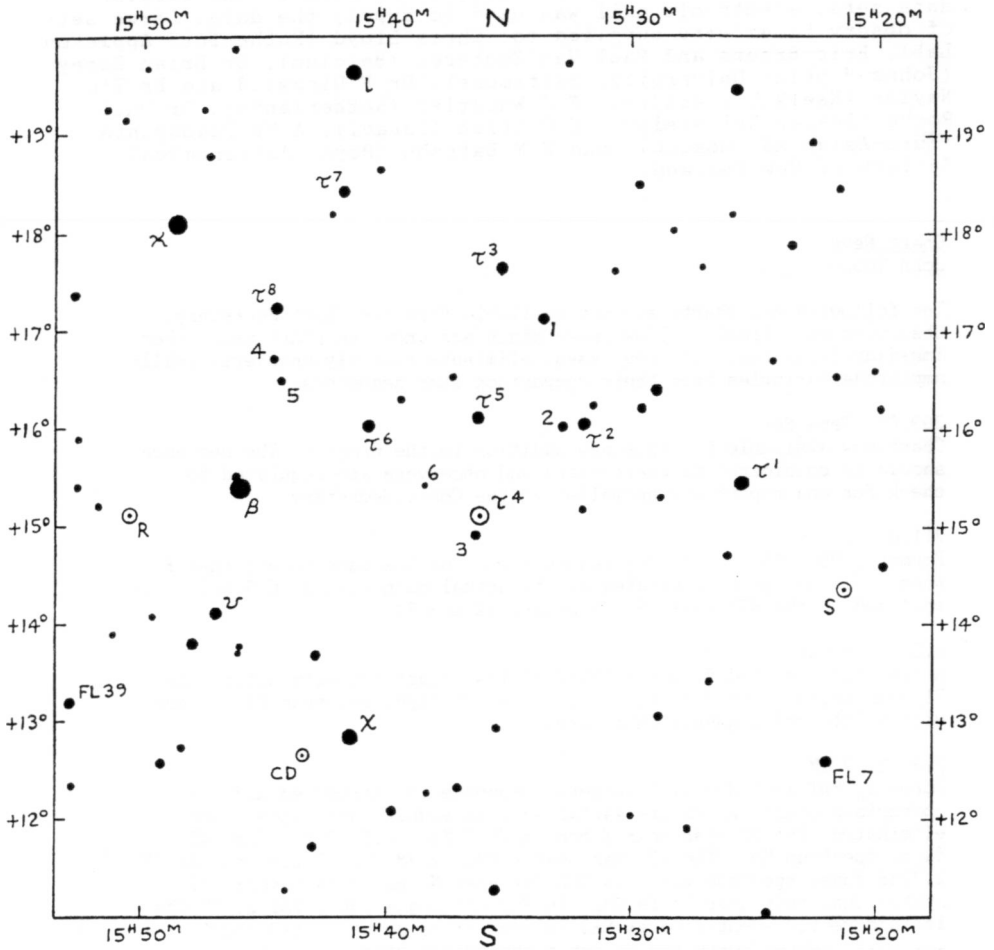
212.01 R Com
A new chart adapted from the AAVSO(b) 1946 chart but eliminating the 71 star which is GK Com (6.84-7.13, SRb, 50 days, spectrum M4III) and with a lettered sequence introduced.

213.01 W CMa
Formerly MDT 1982 Nov 7. A lettered sequence is introduced and two comparison stars, which are variables with significant ranges, are eliminated. The 73 star near X Mon is V523 Mon (6.96-7.45, SRb, 45 days, spectrum Mb). The 72 star near W CMa is FM CMa (7.28-7.50, EB/DM, 2.7888 days, spectrum B1V). In VSS Circular No 82 it is incorrectly stated that this star is FW CMa. In Sky Catalogue 2000, Vol 2, FM CMa is incorrectly identified as SAO 152349 (it is actually SAO 152360) which is further north and is not a comparison star.

214.01 V CVn
Formerly MDT 1984 Apr 12. A lettered sequence is introduced. SAO 44590, which has recently been confirmed as a variable (VSS Circular No 85), has been eliminated. SAO 116127 has been added as star E at mag 6.5.

215.01 Y and TU CVn
Formerly MDT 1984 Apr 12. A lettered sequence is introduced and Fl 3 CVn, which is spectral class gM1 and has a wide range of catalogued magnitudes, is eliminated.

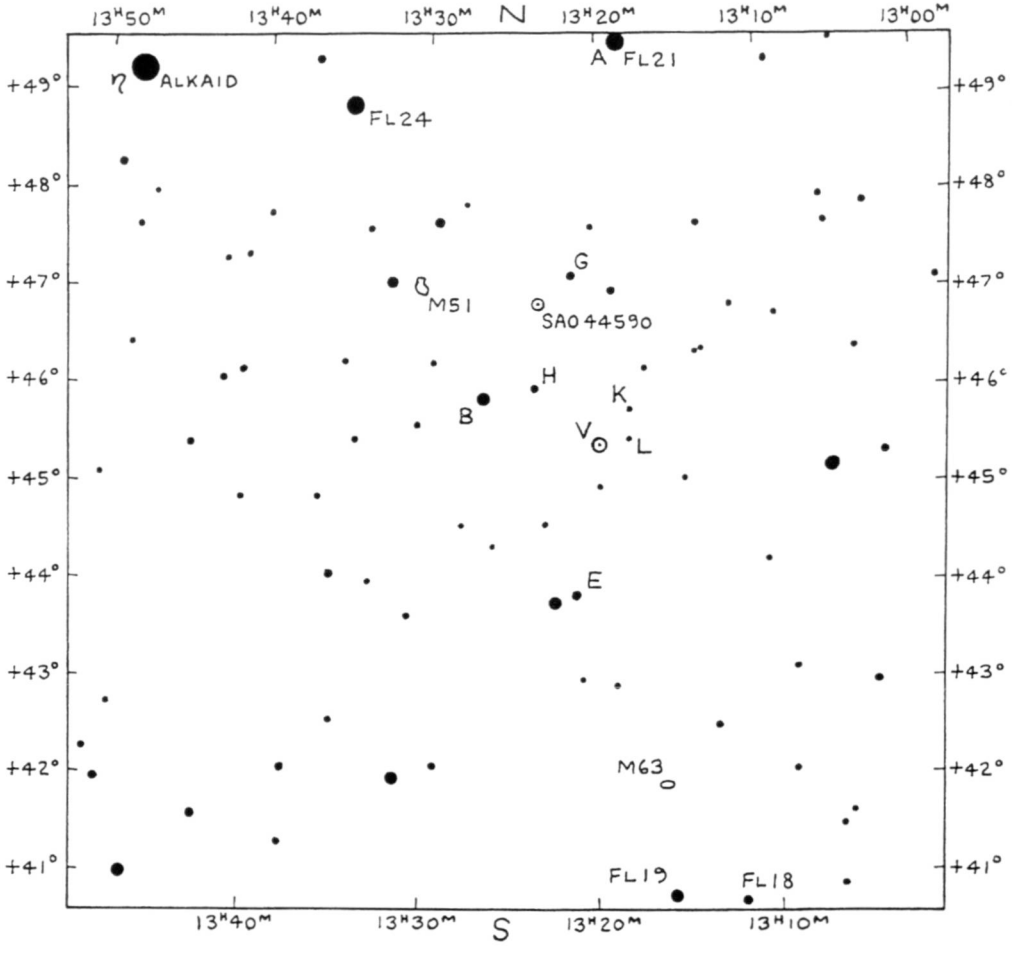
τ^4 SERPENTIS $15^H 36.5^M$ $+15°06'$ (2000)



SEQUENCE: τ^5 AAVSO,	τ^5 5·9	4 7·3	BAA VSS
OTHERS SKY CATALOGUE	1 6·5	5 7·6	EPOCH 2000
2000.	2 6·6	6 8·0	DRAWN JT 26-8-95
CHART: ECLIPTICALIS.	3 6·9		APPROVED G. PAYNER

214·01 9° FIELD DIRECT

V CANUM VENATICORUM 13ᴴ 19·5ᴹ +45°32′ (2000)



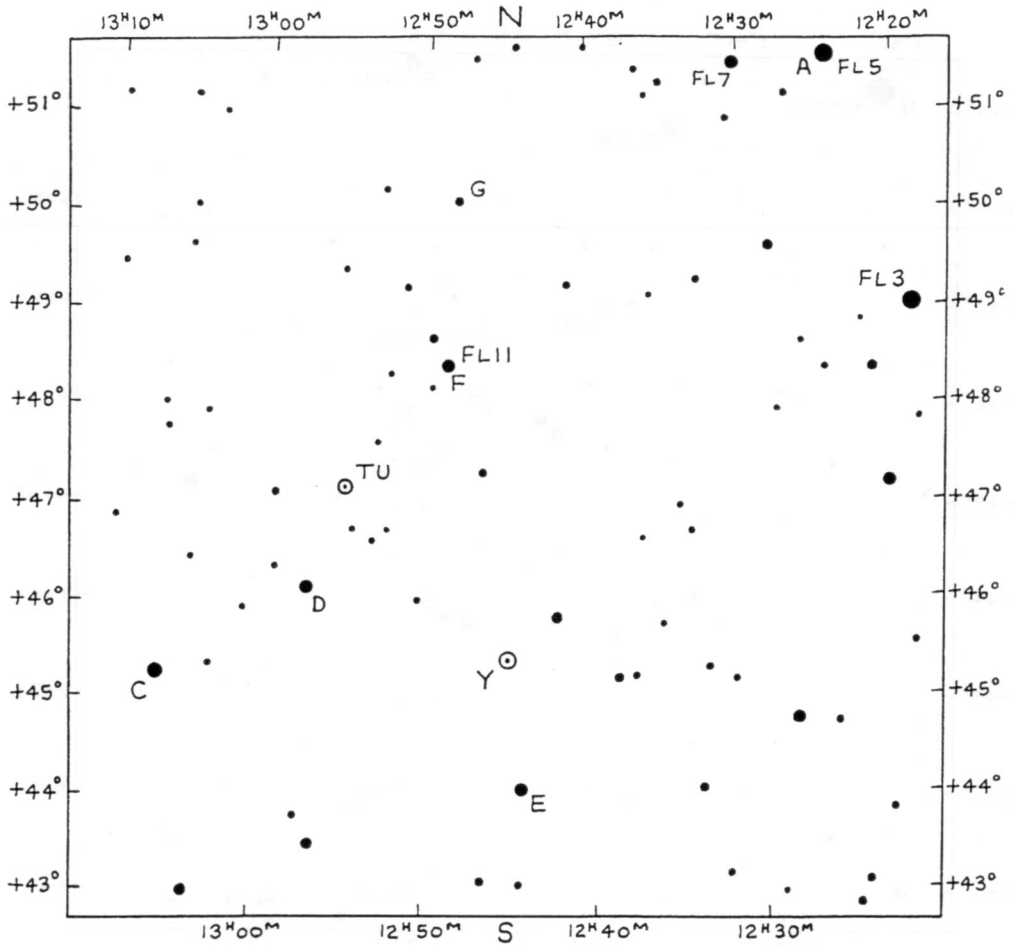
SEQUENCE: E AAVSO, K RWP, L MDT, OTHERS HARVARD.
CHART : BOREALIS

A	5·1	H	7·8
B	5·9	K	8·4
E	6·5	L	8·6
G	7·1		

BAA VSS
EPOCH: 2000
DRAWN: JT 28-12-95
APPROVED: G. POYNER

215·01 9° FIELD DIRECT

TU CANUM VENATICORUM	$12^{H}\ 54.9^{M}$	$+47°\ 12'$ (2000)
Y CANUM VENATICORUM	$12^{H}\ 45.1^{M}$	$+45°\ 26'$ (2000)



SEQUENCE: G MDT, OTHERS HARVARD.
CHART: FROM BOREALIS.

A	5·0	E	6·3
C	5·7	F	6·2
D	6·2	G	6·8

BAA VSS
EPOCH: 2000
DRAWN: JT 29-12-95
APPROVED: G. POYNER

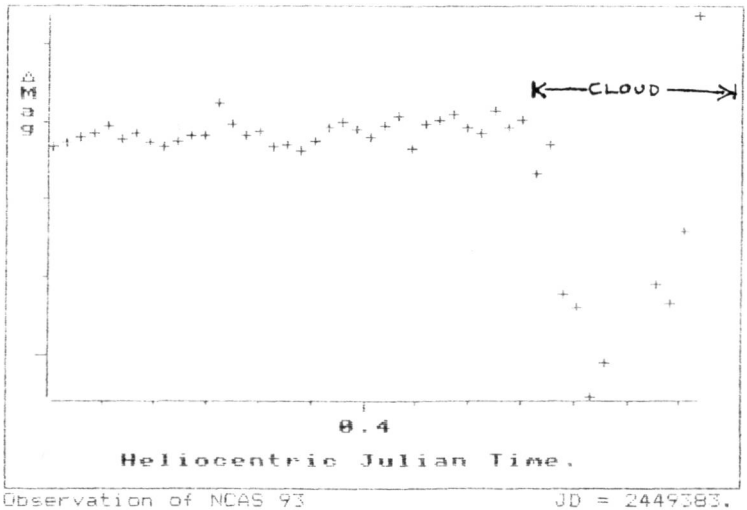
Observations with the Jack Ells APT in 1994
Roger Pickard

The Jack Ells Automatic Photoelectric Telescope continued to produce some satisfying results throughout 1994, although not without the occasional problem. These could usually be traced to a broken wire on a connector, which often meant the loss of at least one clear night before the problem could be traced and rectified.

The table that follows lists the observing runs carried out during 1994. X Per was observed at the request of Paul Roche (Sussex University), to whom the results have been passed.

The accompanying light-curves illustrate some of the results obtained. The tick marks on the vertical axis represent 0.1 mags. and on the horizontal axis 0.01 days. The O-C values quoted are not necessarily those accepted by the Section as the APT ephemeris is only updated when a sufficient number have been shown to be in need of revision.

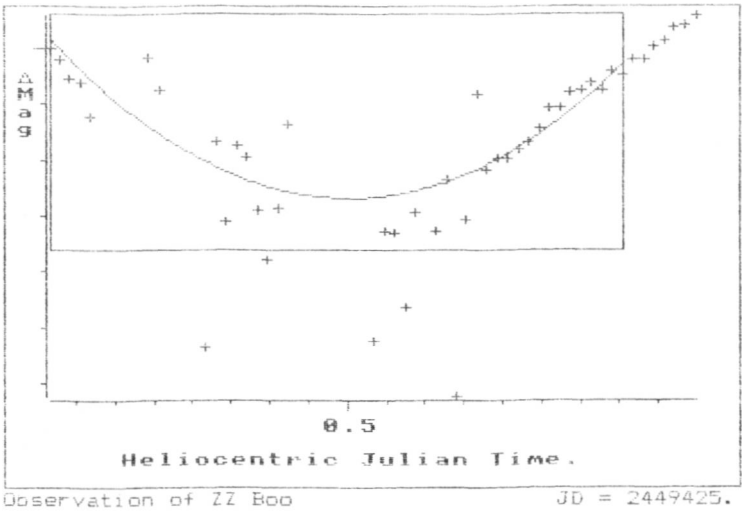
All the results presented have been submitted to the appropriate Section Officer and/or professional astronomer. It is hoped to present the 1995 results a little more quickly!



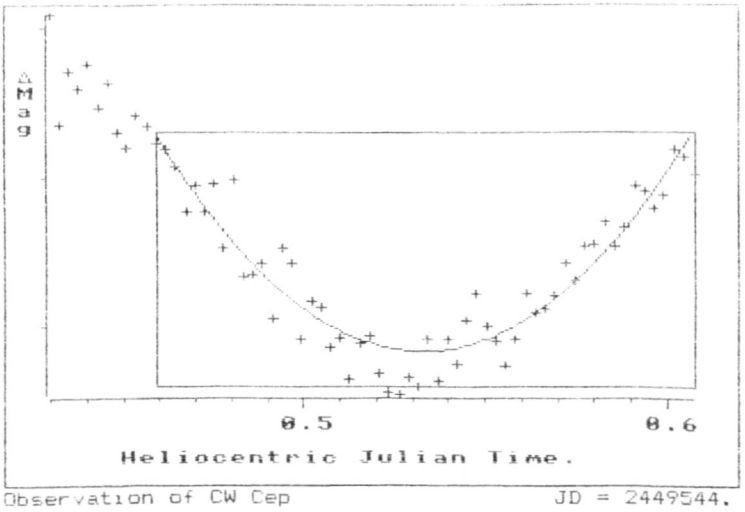
Nova Cas 1993 - This object showed some very interesting, seemingly periodic, variations on a time scale of around a few hours. The results were passed to Chris Lloyd at RAL for further analysis, but unfortunately he could not find any meaningful variation. However, it is strange that this type of behaviour has only been seen once before with the APT, in the symbiotic variable CH Cyg.

No	Double Date 1994	JD 244	Star Name	Star Type	No of Obs	Filter	Comments
1	Jan 2/3	9355	NCas 1993	Nova	12	B	
2	Jan 2/3	9355	"	"	47	V	
3	Jan 5/6	9358	"	"	9	B	
4	Jan 7/8	9360	"	"	40	V	
5	Jan 13/14	9366	"	"	21	V	
6	Jan 14/15	9367	"	"	6	V	
7	Jan 17/18	9370	"	"	28	V	
8	Jan 23/24	9376	"	"	38	B	
9	Jan 26/27	9379	"	"	50	V	
10	Jan 30/31	9383	"	"	26	B	
11	Jan 30/31	9383	"	"	45	V	
12	Feb 2/3	9386	"	"	47	V	
13	Feb 7/8	9391	"	"	17	B	
14	Feb 9/10	9393	"	"	49	V	

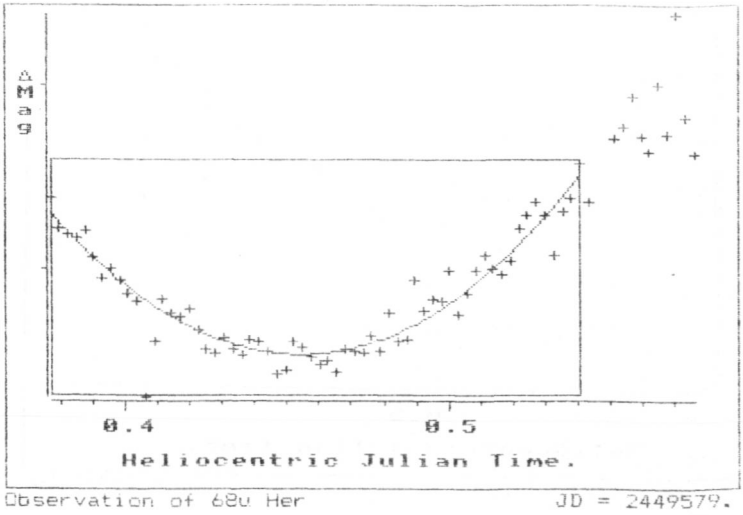
No	Double Date 1994	JD 244	Star Name	Star Type	No of Obs	Filter	Comments
15	Mar 10/11	9422	X Per	Be	31	B	For Paul Roche
16	Mar 10/11	9422	X Per	Be	11	V	"
17	Mar 13/14	9425	ZZ Boo	EA	47	V	Min II
18	Jun 11/12	9515	RX Her	EA	60	V	Min I
19	Jun 13/14	9517	AR Lac	EA	47	V	No result
20	Jul 10/11	9544	CW Cep	EA	67	V	Min II
21	Jul 11/12	9545	V1898 Cyg	"	78	V	No result
22	Aug 14/15	9579	68u Her	EB	73	V	Min II
23	Sep 12/13	9608	WW Dra	EA	73	V	Min I
24	Sep 28/29	9624	VW Cep	EW	76	V	Min I
25	Oct 8/9	9634	RZ Cas	EA	37	V	Min I
26	Oct 27/28	9653	RZ Cas	EA	76	V	Min I
27	Nov 1/2	9658	VW Cep	EW	64	V	No result
28	Dec 19/20	9706	AN And	EB	47	V	No result



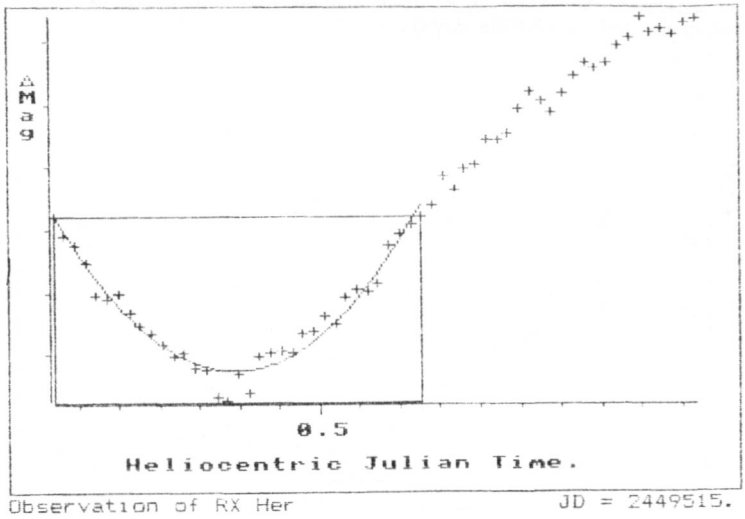
ZZ Boo - Careful study of this graph shows that very shortly after set up the sky became very poor producing a large scatter in the results of almost 0.5 mag. in some cases. However, shortly after the star passed through minimum light the night improved and a very good set of results were produced. This allowed the excellent software package, developed by Peter Ells, to determine the time of minimum and showed that it is close to the predicted time (O-C = -0.0056 days).



CW Cep - A very nice result, especially as the maximum magnitude range of the observations is just over 0.2 mag (O-C = 0.0259 days).



68u Her - Another excellent result before cloud started to ruin the end of the run. Fortunately, this didn't affect the analysis. Here, the maximum magnitude range of the observations is only 0.15 mag (O-C = -0.0108 days).



RX Her - The first impression from looking at this graph indicates that the commencement of observations was a little late, being only just in time to catch the minimum. Very often, especially in the summer the choice of object is very limited, and set up is hurriedly performed as soon as twilight allows, in the hope that a variable is not in eclipse ahead of predictions. This explains the short descending branch of the light-curve observed. Analysis shows that the variable is well behaved and that the observed time of minimum is close to the predicted one (O-C = 0.0018 days).

Eclipsing Binary Predictions

The following predictions are calculated for an observer at 53 degrees north, 1.5 degrees west but should be usable for observers throughout the British Isles. The times of mid-eclipse appear in parentheses with the start and end times of visibility on either side. The times are hours GMAT, that is UT-12h. 'D' and 'L' are used to indicate where daylight and low altitude, respectively, prevent part of the eclipse from being visible. Charts for all of the stars included in these predictions (17 in all - see VSSC 85 for a list) are available from the Eclipsing Binary Secretary at 10p each (please enclose a large SAE).

1996 Apr 1 Mon
TX UMa D08(03)08
RW Tau D08(04)09
RW Gem 09(14)12L
Z Dra 12(15)16D
RZ Cas 16(19)16D

1996 Apr 2 Tue
Z Per D08(10)11L
TW Dra 10(15)16D
S Equ L15(20)16D

1996 Apr 4 Thu
TX UMa D08(05)09
Z Dra D08(08)10
U Cep D08(11)15
RW Gem D08(11)12L

1996 Apr 5 Fri
RZ Cas D08(09)11
TW Dra D08(11)16
Z Per D08(11)11L
Z Vul 11(17)16D
U Sge L12(08)14
Z Dra 14(16)16D
Z Per L16(11)16D

1996 Apr 6 Sat
ST Per D08(08)11L
RZ Cas 11(14)16

1996 Apr 7 Sun
TX UMa D08(06)11
RW Gem D08(07)12L
SW Cyg 09(15)16D
RZ Cas 16(18)16D

1996 Apr 8 Mon
TW Dra D08(06)11
Z Dra D08(09)12
Z Per 08(13)11L
U Sge L11(17)16D
Z Per L16(13)16D

1996 Apr 9 Tue
U Cep D08(10)15
RW Tau D08(11)10L
S Equ L14(17)16D
Z Dra 16(18)16D

1996 Apr 10 Wed
RW Gem D08(04)09
TX UMa D08(08)12
Z Vul L11(14)16D

1996 Apr 11 Thu
RZ Cas D08(08)11
Z Per 09(14)11L
ST Per 11(15)11L
Z Per L16(14)16D

1996 Apr 12 Fri
SW Cyg D08(05)11
RW Tau D08(06)10L
Z Dra 09(11)14
RZ Cas 11(13)15

1996 Apr 13 Sat
TX UMa D08(09)14
RZ Cas 15(18)16D
TW Dra 16(21)16D

1996 Apr 14 Sun
ST Per D08(06)10
U Cep D08(10)15
Z Per L15(16)16D

1996 Apr 15 Mon
Z Vul L10(12)16D
U Sge L11(11)16D

1996 Apr 16 Tue
TX UMa D08(11)15
Z Dra 11(13)15
TW Dra 11(16)16D
SW Cyg 13(19)16D
S Equ L14(14)16D

1996 Apr 17 Wed
RZ Cas D08(08)10
Z Per L15(17)16D

1996 Apr 18 Thu
RZ Cas 10(12)15
U Sge 15(20)16D

1996 Apr 19 Fri
Z Dra D08(06)08
U Cep D08(10)14
TW Dra D08(11)16D
TX UMa D08(12)16D
ST Per 09(13)10L
RZ Cas 15(17)16D

1996 Apr 20 Sat
RW Tau 09(13)10L
Z Vul L10(10)15
Z Dra 12(15)16D
Z Per L15(18)16D

1996 Apr 21 Sun
SW Cyg D08(08)14
RW Gem 10(15)11L

1996 Apr 22 Mon
ST Per D08(05)09
TW Dra D08(07)12
TX UMa 09(14)15D
U Sge L10(06)11

1996 Apr 23 Tue
RZ Cas D08(07)10
RW Tau D08(08)09L
Z Dra D08(08)10
S Equ L13(11)15D
Z Per 15(20)15D

1996 Apr 24 Wed
U Cep D08(09)14
RW Gem D08(12)11L
RZ Cas 09(12)14
Z Dra 14(16)15D

1996 Apr 25 Thu
Z Vul L10(08)13
U Sge L10(15)15D
TX UMa 11(15)15D
RZ Cas 14(16)15D

1996 Apr 27 Sat
RW Gem D08(09)10L
Z Dra D08(10)12
ST Per D08(12)09L
Z Vul 14(19)15D

1996 Apr 28 Sun
TX UMa 12(17)15D

1996 Apr 29 Mon
RZ Cas D09(07)09
U Cep D09(09)14

1996 Apr 30 Tue
RW Gem D09(06)10L
SW Cyg D09(12)15D
RZ Cas 09(11)14
Z Vul L09(06)11
TW Dra 12(17)15D
S Equ L13(08)13

1996 May 1 Wed
Z Dra 09(11)14
RZ Cas 14(16)15D
TX UMa 14(18)15D

1996 May 2 Thu
U Sge L10(09)15
Z Vul 11(17)15D

1996 May 3 Fri
TW Dra D09(12)15D
S Equ L13(18)15D

1996 May 4 Sat
U Cep D09(09)13

1996 May 5 Sun
ST Per D09(11)09L
Z Dra 11(13)15D
U Sge 12(18)15D

1996 May 6 Mon
TW Dra D09(08)13
RZ Cas D09(11)13
Y Psc L15(14)15D

1996 May 7 Tue
Z Vul 09(15)15D
RZ Cas 13(15)15D

1996 May 9 Thu
U Cep D09(08)13
SW Cyg 09(15)15D
Z Dra 12(15)15D

1996 May 10 Fri
S Equ L12(15)15D
ST Per L15(18)15D

1996 May 12 Sun
Z Dra D09(08)10
RZ Cas D09(10)13
Z Vul D09(12)15D
U Sge L09(12)15D

1996 May 13 Mon
RZ Cas 12(15)15D
Z Dra 14(16)15D

1996 May 14 Tue
SW Cyg D09(05)11
U Cep D09(08)13
RW Gem D09(14)09L
TW Dra 13(18)15D

1996 May 16 Thu
Z Dra D09(10)12

1996 May 17 Fri
Z Vul D09(10)14D
TW Dra D09(13)14D
S Equ L12(12)14D

1996 May 18 Sat
RZ Cas D09(10)12
SW Cyg 13(19)14D
ST Per L14(16)14D

1996 May 19 Sun
U Sge D09(07)12
U Cep D09(08)12
RZ Cas 12(14)14D

1996 May 20 Mon
TW Dra D09(08)14
Z Dra D09(11)14

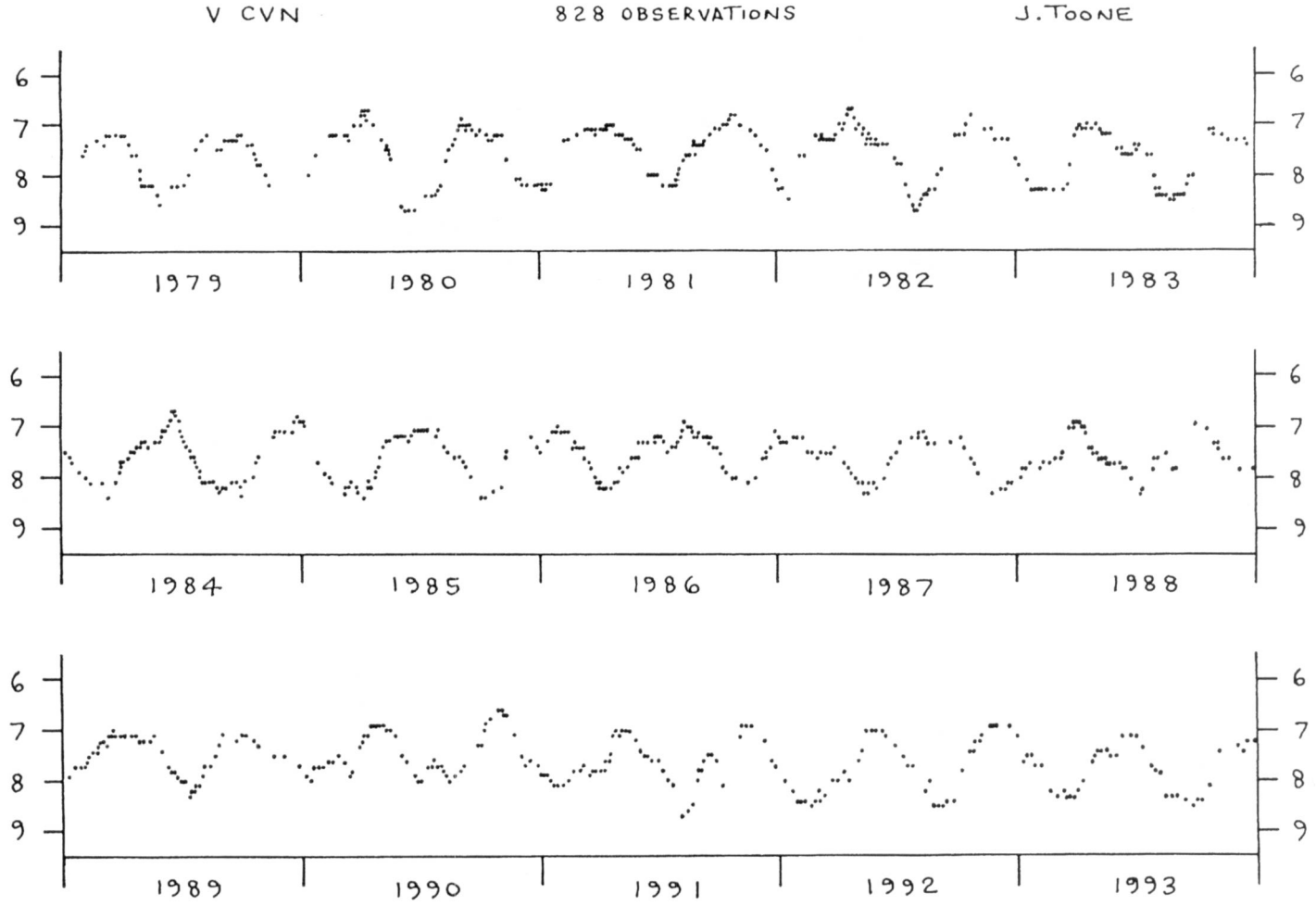
1996 May 21 Tue
Y Psc L14(16)14D
1996 May 22 Wed
Z Vul D09(08)13
U Sge 10(16)14D
1996 May 23 Thu
TX UMa D09(05)10
SW Cyg D09(09)14D
1996 May 24 Fri
U Cep D09(07)12
RZ Cas D09(09)11
Z Dra 11(13)14D
S Equ L11(09)14
Z Per L13(09)14
Z Vul 14(19)14D
1996 May 25 Sat
RZ Cas 11(14)14D
Y Psc L14(10)14D
1996 May 26 Sun
TX UMa D10(06)11
ST Per L14(15)14D
1996 May 27 Mon
Z Vul D10(06)11
Z Per L13(10)14D
S Equ 14(19)14D
1996 May 28 Tue
Z Dra 12(15)14D
TW Dra 14(19)14D
1996 May 29 Wed
U Cep D10(07)12
TX UMa D10(08)13
U Sge D10(10)14D
Z Vul 11(17)14D
1996 May 30 Thu
RZ Cas D10(08)11
Z Per L12(12)14D
1996 May 31 Fri
Z Dra D10(08)10
TW Dra D10(14)14D
RZ Cas 11(13)14D
S Equ L11(06)11
U Cep 14(19)14D
1996 Jun 1 Sat
TX UMa D10(09)14D
SW Cyg D10(12)14D
U Sge 13(19)14D
1996 Jun 2 Sun
Z Per L12(13)14D
1996 Jun 3 Mon
U Cep D10(07)11
TW Dra D10(09)14D
Z Vul D10(15)14D
S Equ 11(16)14D
ST Per L13(14)14D
1996 Jun 4 Tue
Z Dra D10(10)12
TX UMa D10(11)14D
1996 Jun 5 Wed
U Sge D10(04)10
RZ Cas D10(08)10
Z Per L12(15)14D
Y Psc L13(17)14D
U Cep 14(18)14D
1996 Jun 6 Thu
RZ Cas 10(13)14D
1996 Jun 7 Fri
TX UMa D10(13)14D
1996 Jun 8 Sat
U Cep D10(06)11
Z Dra D10(11)14D
Z Vul D10(12)14D
U Sge D10(13)14D
Z Per L12(16)14D
1996 Jun 9 Sun
Y Psc L13(11)14D
1996 Jun 10 Mon
TX UMa D10(14)14D
SW Cyg D10(16)14D
S Equ L10(13)14D
U Cep 13(18)14D
1996 Jun 11 Tue
Z Per 12(17)14D
ST Per L13(13)14D
1996 Jun 12 Wed
RZ Cas D10(12)14D
Z Dra 11(13)14D
1996 Jun 13 Thu
U Cep D10(06)11
Z Vul D10(10)14D
TX UMa 11(16)14D
1996 Jun 14 Fri
TW Dra D10(15)14D
1996 Jun 15 Sat
SW Cyg D10(05)11
U Sge D10(08)13
U Cep 13(18)14D
1996 Jun 16 Sun
TX UMa 12(17)14D
Z Dra 13(15)14D
X Tri 14(16)14D
1996 Jun 17 Mon
S Equ D10(10)14D
TW Dra D10(10)14D
X Tri 13(15)14D
1996 Jun 18 Tue
U Cep D10(06)10
Z Vul D10(08)13
RZ Cas D10(11)14D
U Sge 11(17)14D
X Tri L13(15)14D
1996 Jun 19 Wed
Z Dra D10(08)11
ST Per L12(11)14D
X Tri L13(14)14D
SW Cyg 13(19)14D
RZ Cas 14(16)14D
1996 Jun 20 Thu
TW Dra D10(05)11
X Tri L12(13)14D
U Cep 13(17)14D
1996 Jun 21 Fri
X Tri L12(13)14D
1996 Jun 22 Sat
X Tri L12(12)14D
1996 Jun 23 Sun
Z Vul D10(06)11
Z Dra D10(10)12
X Tri L12(11)14
1996 Jun 24 Mon
S Equ D10(07)12
SW Cyg D10(09)14D
RZ Cas D10(11)13
Y Psc L12(13)14D
X Tri L12(11)13
1996 Jun 25 Tue
U Sge D10(11)14D
Z Vul 12(17)14D
X Tri L12(10)12
U Cep 12(17)14D
RZ Cas 13(15)14D
1996 Jun 27 Thu
Z Dra D10(12)14D
ST Per L11(10)14D
S Equ 12(18)14D
1996 Jun 28 Fri
TW Dra 11(16)14D
Y Psc L11(07)12
1996 Jun 30 Sun
RZ Cas D10(10)13
Z Vul D10(15)14D
U Cep 12(17)14D

Change of Circulars Editor

Please note that Karen Holland is taking over as Editor of the VSS Circulars. Please send all subscriptions renewals and material for publication to her at the address listed inside the front cover.

SAO 44590 (69 in V CVn Sequence)
John Toone

This star, which was reported as a new variable star in VSS Circular No 85, has been suspected of variability by myself since the early 1980's. Patrick Maloney and Robert Fidrich (Hungary) both independently wrote to me in 1986 to say they also considered it to be a variable star and they frequently saw it fainter than the nearby 7.1 mag star. As a result of these suspicions I stopped using 69 as a comparison star. This has subsequently caused a visible effect in the maxima exhibited by V CVn. The accompanying light curve shows that after 1986 the maxima are significantly smoother than those observed beforehand. This is almost certainly due to the 69 star no longer being used as a comparison when V CVn is bright. It is pleasing to find visual suspicions being vindicated by photoelectric studies. More please!


V CVN
828 OBSERVATIONS
J. TOONE
6
7
8
9
1979
1980
1981
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1983
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1985
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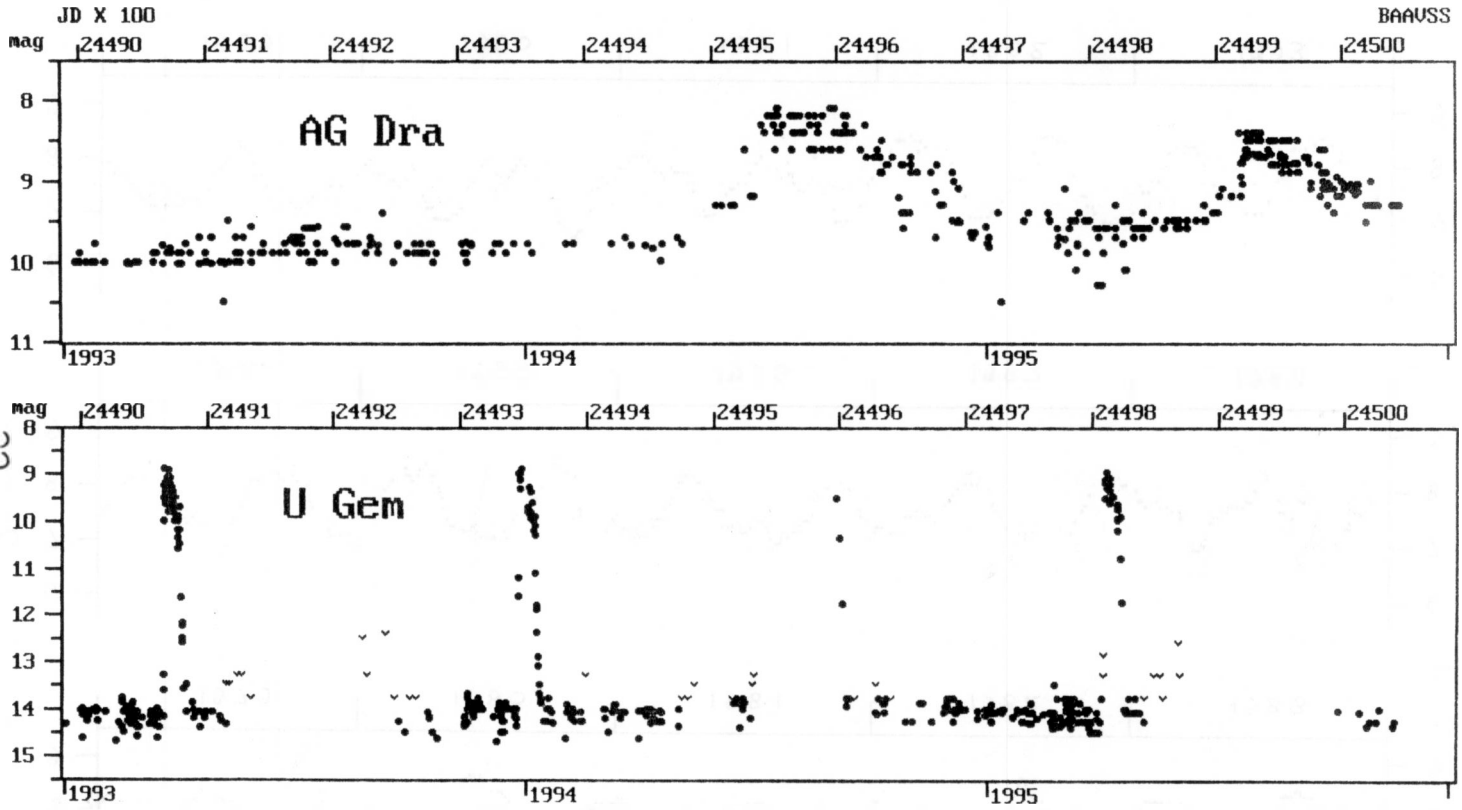
1988
1989
1990
1991
1992
1993



These light-curves were plotted from observations in the BAA-VSS Computer Archive. The second maximum of AG Dra was predicted by Skopal and Chocol in IBVS 4080 (see VSSC 82, page 16). The BAA-VSS Computer Archive is supported in part by a grant from the Royal Astronomical Society and by donations of equipment from the Stargazers Trust.