

British Astronomical Association

# Variable Star Section Circular

No 84, June 1995

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Variable Star Alerts Gary Poyner (see above)

### Charges for Section Publications

The following charges are made for the Circulars. These cover one year (4 issues). Make cheques out to the BAA. Send to the Circulars Editor.

	UK	Europe	Rest of World
BAA Members	£3-00	£4-00	£6-50
Non-Members	£5-00	£6-00	£8-50

The charges for other publications are as follows. Make cheques out to the BAA and please enclose a large SAE with your order.

	Order from	Charge
Telescopic Charts	Chart Secretary	30p each
Binocular Charts	Chart Secretary	10p each
Eclipsing Binary Charts	Eclipsing Binary Secretary	10p each
Leaflets	Section Secretary	20p each
Observation Report Forms	Section Secretary	No Charge

### Increase in Circulars Subscriptions

The subscriptions for the circulars have been raised by 50p per year (four issues). See inside the front cover for the current rates.

### THE REPORTING OF OBSERVATIONS ON NOVAE & SUPERNOVAE

A recent meeting between VSS officers has produced several new ideas regarding the direction which the section will take in the future. Among them was the reporting of novae & supernovae observations. It was felt that the reporting of observations of these objects would be better served if they were sent directly to our nova/supernova secretary Guy Hurst for quick, preliminary analysis and data storage. These observations would then be transferred directly to Dave McAdam's database every six months, thus saving the need for him or his team of helpers to key them in. This will also be beneficial in the event of professional astronomers requiring our data on a particular nova/supernova (which happens frequently), as the information can be supplied almost immediately.

Taking effect immediately then, observations of **ALL NEW** novae & supernovae should now be reported to Guy Hurst **WEEKLY**, or if you have access to e-mail, nightly. Standard BAAVSS report forms can be used, but this is not essential providing all of the relevant information is provided. These reports should also include observations of V1974 Cyg (nova Cyg 1992), and V705 Cas (nova Cas 1993), for which updates are still regularly requested by professionals. Please **DO NOT** report them to Melvyn and Dave as well, as this could create problems with duplication.

This change in procedure for reporting observations of novae & supernovae will greatly enhance our ability to analyse the data received quickly (all-important with these types of objects), and will enable the VSS to distribute **YOUR** observations to professional astronomers more effectively.

### CHARTS & SEQUENCES

In an ideal world, all variable star organisations would be using the same charts and sequences. However this is not so, and the many different sequences in use by amateurs today poses massive problems when it comes to data reduction. The problem has not been helped recently by the introduction of charts on the Japanese Bulletin 'exploder' VSNET. The sequences for these charts have been calibrated against selected stars from the Guide Star Catalogue which is a positional catalogue rather than a photometric one. Some of these charts cover variables where alternative sequences have long been in use by the BAAVSS, TA and AAVSO. As you can imagine, this has not helped these organisations in their pursuit of sequence standardisation.

Janet Mattei, Director of the AAVSO, has compared some of these charts with AAVSO ones. She has discovered that not only do the comparison stars have different values (in some cases by as much as 0.8 mag), but field stars suspected of variability have been given comparison status.

VSS observers should always use either BAA or TA charts first and foremost. In the event of a BAA or TA sequence not being available, AAVSO charts should be employed. VSNET charts for objects already in use by the above organisations should not, under any circumstances be used by VSS observers!

#### Photoelectric Minima of Eclipsing Binaries, 1994 Tristram Brelstaff

The numbers of photoelectric observations received for known and suspected eclipsing binaries in 1994, including measures reserved for separate discussion, are given below.

	No Obsns	No Timings
J Ells APT (EJ)	603	5
K West (WEK)	99	3
Total	702	8

The code EJ indicates timings made with the Jack Ells Automatic Photoelectric Telescope operated by M Gough and R D Pickard.

A colon (':') following a timing indicates that it is uncertain either because the observations show large scatter or else because the rising or fading limb was poorly covered.

The O-C values in the table below are relative to the linear elements given in the 4th Edition of the GCVS.

#### Observed Minima:

Star	Epoch	JD Hel (244...)	O-C (d)	No	Observer
AR Aur	2734	9706.3649	-0.0741	52	WEK(pe)
ZZ Boo	2175.5	9425.5000:	+0.0417:	47	EJ(pe)
VW Cep	19643	9624.3890:	+0.0422:	24	EJ(pe)
CW Cep	5192.5	9544.5324	+0.0234	67	EJ(pe)
68u Her	21330.5	9579.4536	-0.0104	73	EJ(pe)
RX Her	9190	9515.4788	+0.0004	60	EJ(pe)
VV Ori	5723	9391.323:	-0.013:	8	WEK(pe)
HU Tau	3962	9422.3920	+0.0107	26	WEK(pe)

## Pro-Am with Astro 2

I announced in the last circular (No 83, March 95), that VSS observers would be asked to participate in a second Pro-Am observing run, this time with ASTRO-2, which flew on Endeavour in March. This followed a request made through VSNET by Joni Johnson for observers to (again) monitor dwarf novae for outbursts. Joni Johnson is a member of the Wisconsin Ultraviolet Photo-Polarimeter Experiment (WUPPE) team which flew aboard the ASTRO-2 mission. This experiment was hoping to prove that ultraviolet polarization of dwarf novae is high during outburst.

The section's services were offered to the WUPPE team, and were readily accepted. The target stars included U Gem, Z Cam, SS Cyg, RX And, EM Cyg, AR And, YZ Cnc, SW UMa & HL CMA. As before, observers who had contributed observations to these stars in 1994 were contacted and their assistance sought.

On this occasion we were fortunate to detect several outbursts, which were quickly relayed by e-mail to the WUPPE team. Those stars which were detected in outburst, and the observers who reported observations to the director by telephone are listed here...

Star	Date	Observers
Z Cam:	March 1st	M. Gainsford, M. Gill, J. Greaves, G. Poyner
RX And:	March 5th	L. Brundle, M. Gill, G. Poyner, J. Toone
HL CMA:	March 5th	G. Poyner, W. Worraker
YZ Cnc:	March 10th	G. Poyner, W. Worraker

Apart from alerting the WUPPE team to outbursts, nightly updates were also sent by e-mail on the state of the other objects on the list whilst in quiescence. These included reports on U Gem - which seemed to be active at minima - with observers reporting fluctuations between magnitudes 13.8 & 14.2 on the same night! All observations reported to the director were also posted on VSNET. Following this, Janet Mattei made contact, and asked whether BAAVSS observations could be included in their regular updates to the HUT (Hopkins Ultraviolet Telescope) team, which also flew with ASTRO-2 and with whom the AAVSO were collaborating. This was agreed, with full recognition to the VSS observations as being independent from AAVSO.

Data reduction is still going on, as much information was gathered by the WUPPE team not only on the target stars but Novae Aquila, Circinus & Centaurus and several symbiotic stars. Joni Johnson has promised a full update following analysis, which will hopefully appear in these pages as soon as it is received.

The director would like to thank those observers who contributed to this Pro-Am project, and found the time to telephone in their estimates as soon as they were made. Also to Janet Mattei, Director of the AAVSO, for including VSS data in HUT updates.

Photoelectric Photometry of Bright Semiregular Variables  
Kevin West

Over the last year or so I have been very busy observing, amongst other things, a number of high-declination bright semiregular variables. My aim is to gain complete photometric light-curves to check the listed data and view any fine-scale structure. Recent favorable weather, with the exception of a very poor first two months of 1995, has enabled me to move towards this goal. The four main stars on my programme are Mu Cephei, UX Draconis, VY Ursae Majoris and RR Ursae Minoris.

Mu Cephei

Mu Cephei was named The Garnet Star by William Herschel and it is eminently suitable for my current system and the UK skies, being bright and with a very long period. My light-curve is quite complete and, with a period of 730 days, quite large gaps can be tolerated. However, since many of these stars seem to display structure superimposed upon the normal period, I don't like to leave too long a gap between observations. In fact, at present I am having to use a colleague's telescope to observe Mu Cep because it is too low in the northern sky from my suburban site.

UX Draconis

This variable is showing some structure within the listed period of 168 days. Although more observations are needed, there is a suggestion of a period of around half this value. Some formal analysis of the data would be necessary to verify these suspected periods. Like VY UMa (see below), UX Dra has also brightened significantly over the past few weeks but it is starting to level out.

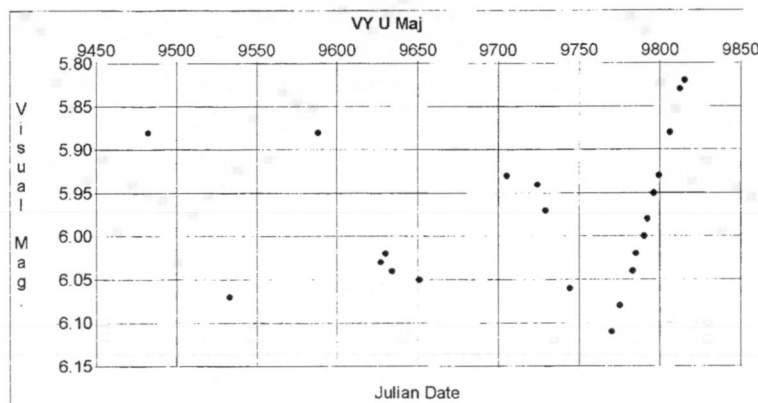
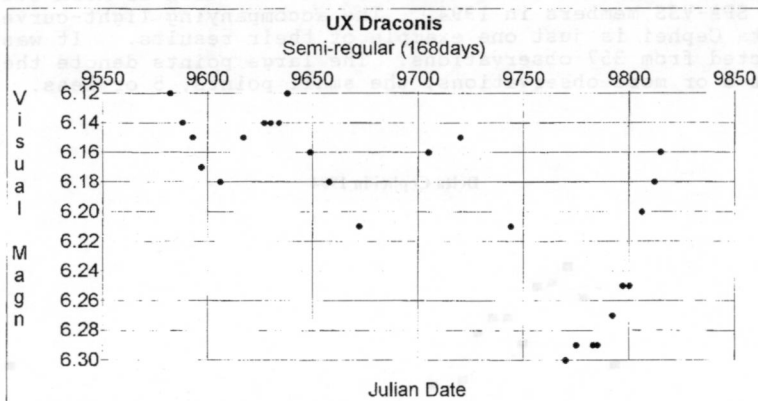
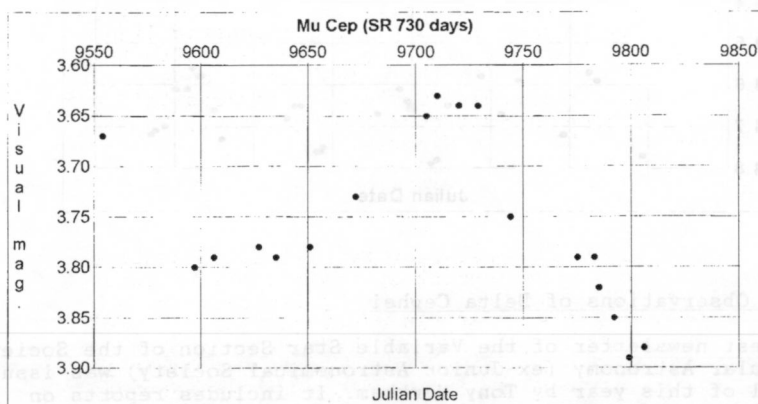
VY Ursae Majoris

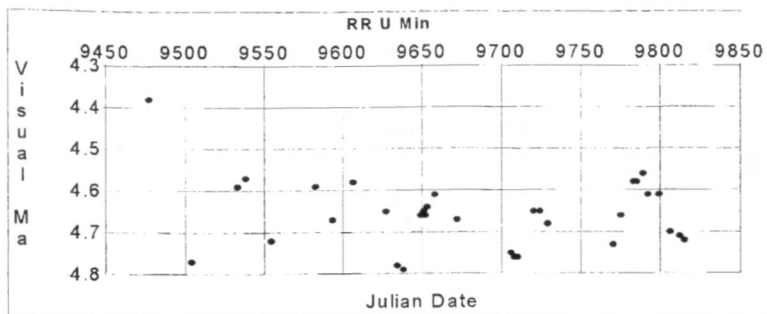
This is actually listed as an Lb variable (ie: a red irregular) although the Israeli astronomers Ofek, Shemmer and Gabzo recently reported in the April 1995 BAA Journal that they have found evidence from visual observations that VY UMa is a semiregular star with a period of around 120 days. My observations support these findings and I have contacted Eran Ofek who is keen to collaborate in order to determine a more detailed light-curve and to see if the periodicity persists. Perhaps the most striking feature of the VY UMa light-curve is the recent (April 1995) brightening to around 5.80V, making it the brightest it has been since my observations began.

RR Ursae Minoris

Although the current observed amplitude is much lower than the listed extreme range of 4.5 - 5.3, there is a suggestion of periodicity in the light-curve. However, the data is too patchy for this rather short-period semiregular. To me, the period appears to be somewhat longer than the listed 45 days. Another candidate for some analysis.

Many thanks to Chris Lloyd and Roger Pickard for help, advice and encouragement.

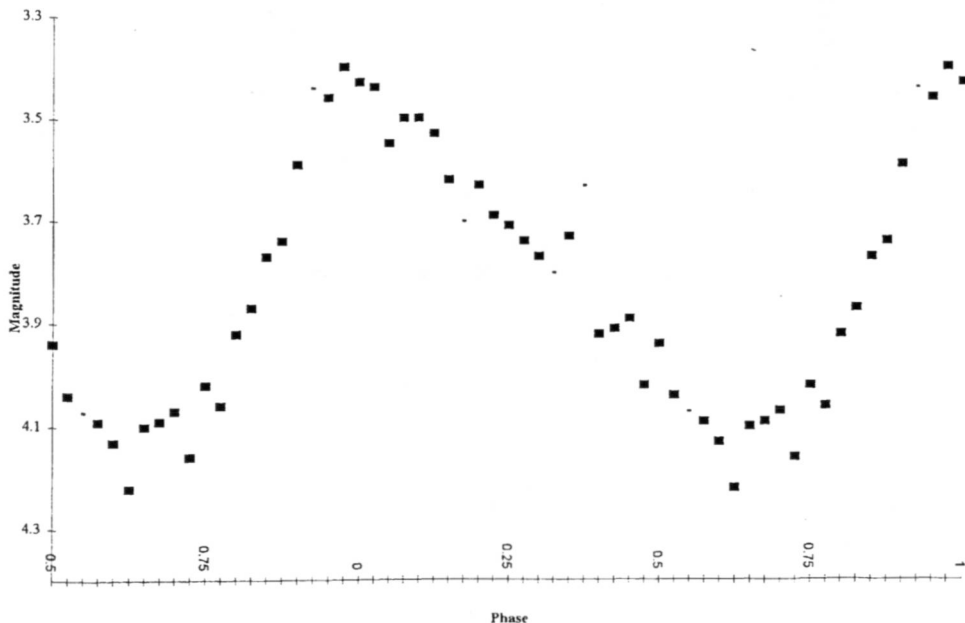




### SPA VSS Observations of Delta Cephei

The latest newsletter of the Variable Star Section of the Society for Popular Astronomy (ex-Junior Astronomical Society) was issued in April of this year by Tony Markham. It includes reports on observations of naked-eye variables and a selection of Mira stars made by SPA-VSS members in 1994. The accompanying light-curve for Delta Cephei is just one example of their results. It was constructed from 357 observations. The large points denote the means of 6 or more observations, the small points, 5 or less.

Delta Cephei in 1994



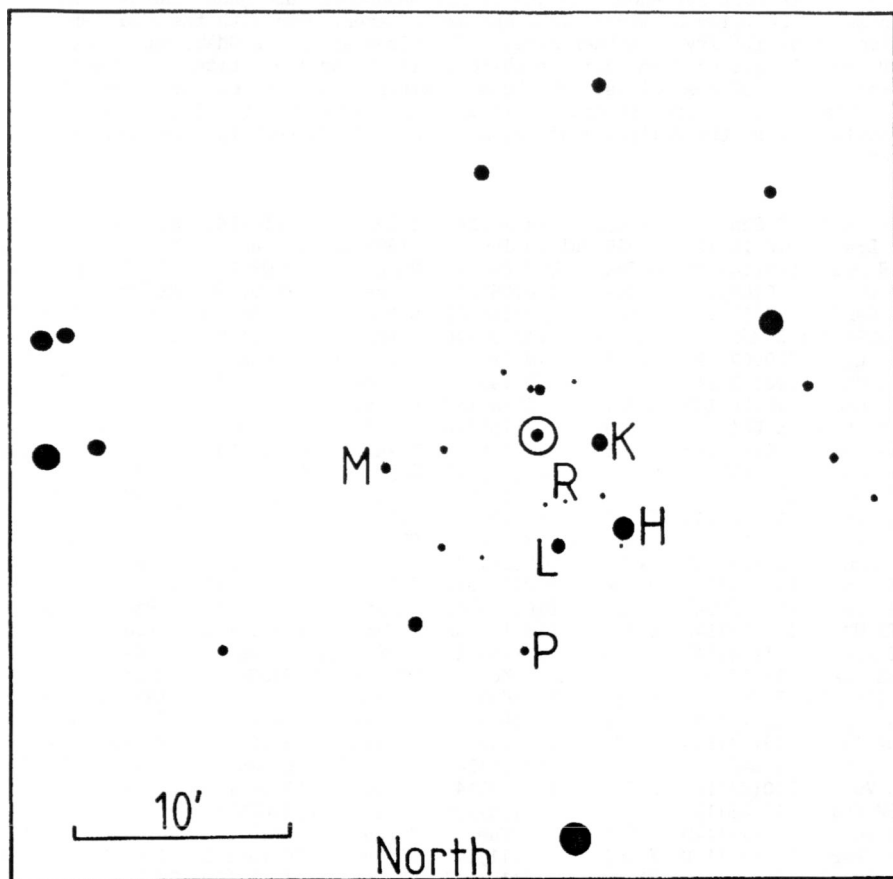


# Eclipsing Binary Predictions

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 GMT, 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 80 for a list) are available from the Eclipsing Binary Secretary at 10p each (please enclose a large SAE).

1995 Jul 2 Sun	SW Cyg	14(20)14D	U Cep	11(16)14D	RZ Cas	10(13)15D
Z Dra D10(10)12	1995 Jul 13 Thu		1995 Jul 23 Sun		Y Psc	12(17)15D
TW Dra D10(14)14D	S Equ D10(06)11		RZ Cas D09(09)12		1995 Aug 6 Sun	
Z Per L10(09)13	U Sge D10(06)12		U Sge D09(10)15D		TX UMa D09(05)09	
U Cep 12(17)14D	X Tri 12(14)14D		S Equ D09(13)15D		S Equ D09(07)13	
1995 Jul 3 Mon	TW Dra 14(19)14D		Z Per 13(18)15D		U Cep 10(15)15D	
Z Vul D10(07)12	1995 Jul 14 Fri		1995 Jul 24 Mon		Z Vul 10(16)15D	
TX UMa D10(12)14D	Z Per D10(14)14D		ST Per L10(10)14		ST Per 12(16)15D	
SW Cyg 10(16)14D	X Tri 11(14)14D		RZ Cas 12(14)15D		Z Dra 14(17)15D	
1995 Jul 5 Wed	Z Dra 13(15)14D		1995 Jul 25 Tue		1995 Aug 7 Mon	
TW Dra D10(09)14D	1995 Jul 15 Sat		Z Vul D09(09)14		RW Gem L14(18)15D	
RZ Cas D10(11)13	Z Vul D10(13)14D		Z Dra D09(12)14		1995 Aug 9 Wed	
Z Per L10(10)14D	X Tri L11(13)14D		Y Psc L10(09)14		TX UMa D09(06)11	
Z Vul 12(18)14D	TX UMa 13(18)14L		1995 Jul 26 Wed		SW Cyg D09(06)12	
1995 Jul 6 Thu	1995 Jul 16 Sun		SW Cyg D09(13)15D		U Sge D09(07)13	
S Equ D10(09)14D	TW Dra D10(14)14D		U Sge 13(19)15D		ST Per D09(08)12	
Z Dra D10(11)14	U Sge D10(15)14D		Z Per 15(19)15D		Z Dra D09(10)12	
U Sge D10(12)14D	ST Per L10(11)14D		1995 Jul 27 Thu		Y Psc D09(11)15D	
TX UMa D10(13)14D	X Tri L11(12)14D		U Cep 11(15)15D		S Equ 12(18)15D	
Y Psc L11(14)14D	S Equ 11(16)14D		1995 Jul 29 Sat		SS Cet 15(19)15D	
RZ Cas 13(16)14D	1995 Jul 17 Mon		RZ Cas D09(09)11		RW Tau 15(20)15D	
1995 Jul 7 Fri	Z Dra D10(08)11		Z Dra 11(13)15D		1995 Aug 10 Thu	
U Cep 12(17)14D	SW Cyg D10(09)14D		ST Per 13(17)15D		RZ Cas D09(08)10	
RW Tau L13(14)14D	RZ Cas D10(10)12		RW Tau 13(18)15D		RW Gem L14(15)15D	
1995 Jul 8 Sat	Z Per 11(15)14D		1995 Jul 30 Sun		1995 Aug 11 Fri	
Z Vul D10(05)10	X Tri L11(12)14		U Sge D09(04)10		Z Vul D09(14)15D	
SW Cyg D10(06)12	U Cep 11(16)14D		Z Vul D09(07)12		U Cep 10(14)15D	
Z Per D10(11)14D	1995 Jul 18 Tue		S Equ D09(10)15D		RZ Cas 10(12)15	
ST Per L11(13)14D	X Tri L11(11)14		TW Dra 10(15)15D		1995 Aug 12 Sat	
1995 Jul 9 Sun	RZ Cas 12(15)14D		RZ Cas 11(13)15D		TX UMa D09(08)12L	
TX UMa 10(15)14D	RW Tau L13(16)14D		1995 Aug 1 Tue		U Sge 11(16)15D	
S Equ 14(19)14D	Z Dra 14(17)14D		ST Per L09(09)13		RW Tau L11(14)15D	
1995 Jul 10 Mon	1995 Jul 19 Wed		U Cep 10(15)15D		SS Cet 14(19)15D	
Z Vul 10(16)14D	TW Dra D10(10)14D		RW Tau L12(12)15D		RZ Cas 15(17)15D	
Y Psc L11(08)12	X Tri L11(10)13		Z Vul 13(18)15D		X Tri 15(17)15D	
Z Dra 11(13)14D	1995 Jul 20 Thu		1995 Aug 2 Wed		1995 Aug 13 Sun	
RW Tau L13(09)14	Z Vul D10(11)14D		TW Dra D09(11)15D		S Equ D09(04)09	
X Tri 14(17)14D	X Tri L11(10)12		U Sge D09(13)15D		Y Psc D09(05)10	
1995 Jul 11 Tue	Z Per 12(17)14D		Z Dra 13(15)15D		Z Dra 09(12)14	
RZ Cas D10(10)13	1995 Jul 21 Fri		1995 Aug 4 Fri		TW Dra 11(16)15D	
Z Per D10(13)14D	Z Dra D10(10)12		Z Vul D09(05)10		RW Gem L13(11)15D	
X Tri 13(16)14D	X Tri L10(09)11		RZ Cas D09(08)11		SW Cyg 14(20)15D	
1995 Jul 12 Wed	Y Psc 11(15)14D		SW Cyg 10(16)15D		X Tri 14(17)15D	
U Cep 12(16)14D	RW Tau L13(11)14D		RW Tau L12(07)12		1995 Aug 14 Mon	
TX UMa 12(16)14L	1995 Jul 22 Sat		1995 Aug 5 Sat		ST Per 11(15)15D	
X Tri 13(15)14D	TW Dra D10(05)10		TW Dra D09(06)11		X Tri 13(16)15D	
RZ Cas 13(15)14D	X Tri L10(08)11		Z Dra D09(08)11		1995 Aug 15 Tue	

# Z PERSEI



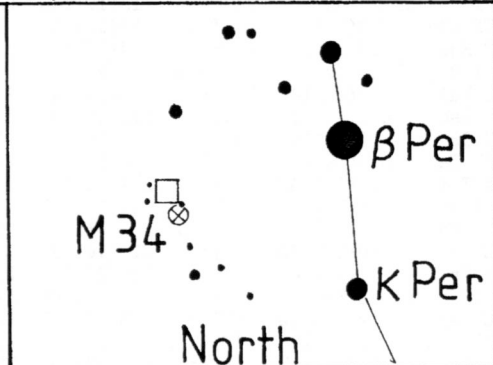
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 (2000) 02 40.0 +42 12

Preliminary Sequence:

H = 9.5 P = 11.1  
 K = 9.9 Q = 11.4  
 L = 10.2 R = 12.0  
 M = 10.6

T.Brelstaff 1994 Mar 12



TX UMa	D09(09)12L	TX UMa	L14(14)16D	ST Per	15(19)16D	ST Per	D07(09)13
RW Tau	L11(09)13	1995 Aug 25 Fri		Y Psc	15(20)16D	U Sge	D07(12)14L
X Tri	13(15)15D	ST Per	D08(05)09	1995 Sep 5 Tue		U Cep	07(12)16D
SS Cet	13(18)15D	X Tri	L08(08)11	Z Vul	D08(03)08	X Tri	15(17)16D
1995 Aug 16 Wed		Z Dra	14(17)16D	TW Dra	D08(03)08	1995 Sep 16 Sat	
RZ Cas	D08(07)09	1995 Aug 26 Sat		U Sge	D08(08)14	Y Psc	D07(03)07
Z Vul	D08(11)15D	U Sge	D08(05)11	U Cep	08(13)16D	TW Dra	D07(08)13
TW Dra	D08(11)15D	Z Vul	D08(07)12	SS Cet	L11(14)16D	RZ Cas	D07(09)11
U Cep	09(14)15D	Z Per	D08(09)14	SW Cyg	11(17)16D	S Equ	07(13)14L
S Equ	09(15)15D	X Tri	L08(08)10	Z Dra	11(14)16	Z Dra	08(10)13
X Tri	12(15)15D	U Cep	09(13)16D	RW Gem	L12(10)15	Z Per	14(18)16D
RW Gem	L13(08)13	RW Tau	L10(11)15	RZ Cas	12(15)16D	V640 Ori	L14(16)16D
1995 Aug 17 Thu		1995 Aug 27 Sun		TX UMa	15(20)16D	X Tri	14(17)16D
Z Per	D08(05)10	SW Cyg	D08(13)16D	1995 Sep 6 Wed		RW Gem	16(21)16D
ST Per	D08(06)10	X Tri	L08(07)10	S Equ	D08(05)11	1995 Sep 17 Sun	
RZ Cas	09(12)14	TX UMa	11(15)11L	RW Tau	L09(12)16D	Z Vul	D07(09)15
Z Dra	11(13)15D	SS Cet	L11(15)16D	V640 Ori	L15(14)16	RW Tau	09(14)17D
X Tri	11(14)15D	TW Dra	12(17)16D	1995 Sep 7 Thu		SS Cet	L10(11)16
1995 Aug 18 Fri		TX UMa	L14(15)16D	ST Per	D08(11)15	RZ Cas	11(14)16
SW Cyg	D08(10)16D	RW Gem	14(19)16D	Z Vul	08(14)15L	X Tri	14(16)17D
TX UMa	D08(11)12L	1995 Aug 28 Mon		Z Per	10(14)16D	Z Dra	16(19)17D
X Tri	11(13)16D	RZ Cas	D08(06)08	1995 Sep 8 Fri		1995 Sep 18 Mon	
SS Cet	13(17)16D	Y Psc	D08(07)11	Z Dra	D07(07)09	X Tri	13(15)17D
RZ Cas	14(16)16D	Z Dra	D08(10)12	Y Psc	09(14)16D	V640 Ori	L14(16)17D
TX UMa	L14(11)15	X Tri	L08(06)09	SS Cet	L10(13)16D	RZ Cas	16(18)17D
1995 Aug 19 Sat		Z Vul	13(18)16D	U Sge	12(18)15L	1995 Sep 19 Tue	
TW Dra	D08(07)12	1995 Aug 29 Tue		V640 Ori	L15(14)16D	TW Dra	D07(04)09
U Sge	D08(11)16D	X Tri	L08(06)08	1995 Sep 9 Sat		SW Cyg	D07(10)16
X Tri	10(13)15	Z Per	D08(10)15	RW Tau	L09(07)11	X Tri	12(15)17D
1995 Aug 20 Sun		RZ Cas	08(11)13	S Equ	10(16)15L	RW Gem	12(17)17D
Z Per	D08(06)11	U Sge	08(14)15L	Z Dra	13(15)16D	Z Per	15(20)17D
Z Dra	D08(07)09	1995 Aug 30 Wed		1995 Sep 10 Sun		Y Psc	17(21)17D
X Tri	09(12)14	S Equ	D08(08)14	SW Cyg	D07(06)13	1995 Sep 20 Wed	
Y Psc	14(18)16D	TW Dra	D08(12)16D	RZ Cas	D07(09)12	U Cep	D07(12)16
1995 Aug 21 Mon		ST Per	08(12)16D	U Cep	08(12)16D	RW Tau	L09(09)13
Z Vul	D08(09)14	SS Cet	L11(15)16D	Z Per	11(16)16D	Z Dra	09(12)14
TX UMa	D08(12)11L	RW Gem	L12(16)16D	TW Dra	13(18)16D	SS Cet	L10(10)15
X Tri	09(11)14	RZ Cas	13(15)16D	V640 Ori	L15(14)16D	X Tri	11(14)16
U Cep	09(14)16D	TX UMa	L13(17)16D	1995 Sep 11 Mon		ST Per	12(17)17D
SS Cet	12(17)16D	1995 Aug 31 Thu		SS Cet	L10(12)16D	V640 Ori	14(17)17D
Z Dra	13(15)16D	Z Vul	D08(05)10	RZ Cas	12(14)16D	1995 Sep 21 Thu	
TX UMa	L14(12)16D	U Cep	08(13)16D	1995 Sep 12 Tue		TX UMa	D07(03)08
1995 Aug 22 Tue		1995 Sep 1 Fri		U Sge	D07(03)08	X Tri	11(13)16
RZ Cas	D08(07)09	SW Cyg	D08(03)09	Y Psc	D07(08)13	1995 Sep 22 Fri	
X Tri	L08(10)13	Z Per	D08(12)16D	Z Dra	D07(08)11	U Sge	D07(06)12
ST Per	09(13)16D	Z Dra	09(12)14	Z Vul	D07(11)15L	Z Vul	D07(07)12
U Sge	14(20)16D	1995 Sep 2 Sat		ST Per	14(18)16D	RZ Cas	D07(08)11
1995 Aug 23 Wed		TW Dra	D08(08)13	V640 Ori	L14(15)16D	X Tri	10(13)15
Z Per	D08(08)12	Z Vul	10(16)16L	1995 Sep 13 Wed		RW Gem	L11(14)17D
S Equ	D08(11)16D	SS Cet	L11(14)16D	S Equ	D07(02)08	V640 Ori	15(17)17D
X Tri	L08(10)12	RW Gem	L12(13)16D	TW Dra	08(13)16D	Z Per	16(21)17D
RZ Cas	09(11)14	S Equ	14(19)15L	Z Per	12(17)16D	1995 Sep 23 Sat	
RW Tau	11(16)16D	TX UMa	14(18)16D	Z Dra	15(17)16D	Z Dra	D07(05)07
Z Vul	15(20)16D	V640 Ori	L15(13)15	X Tri	16(19)16D	ST Per	D07(08)12
1995 Aug 24 Thu		1995 Sep 3 Sun		1995 Sep 14 Thu		S Equ	D07(10)14L
Z Dra	D08(08)11	RZ Cas	D08(05)08	SS Cet	L10(12)16	X Tri	09(12)14
Y Psc	D08(12)16D	RW Tau	13(18)16D	SW Cyg	14(20)16D	SS Cet	L10(10)14
X Tri	L08(09)12	1995 Sep 4 Mon		V640 Ori	L14(16)16D	RZ Cas	11(13)15
TX UMa	09(14)11L	RZ Cas	D08(10)12	RW Tau	15(20)16D	Y Psc	11(15)17D
SS Cet	L11(16)16D	Z Per	08(13)16D	X Tri	16(18)16D	1995 Sep 24 Sun	
RZ Cas	13(16)16D	V640 Ori	L15(13)16	1995 Sep 15 Fri		TX UMa	D07(05)09L

X Tri	09(11)14	1995 Sep 26 Tue	1995 Sep 28 Thu	SS Cet	L09(09)13
Z Dra	11(14)16	X Tri	07(10)12	RZ Cas	10(12)15
Z Vul	13(18)14L	SS Cet	L09(09)14	X Tri	D07(08)11
TW Dra	13(19)17D	V640 Ori	16(18)17D	SW Cyg	07(13)17D
RZ Cas	15(18)17D	1995 Sep 27 Wed	RW Gem	L10(08)13	1995 Sep 30 Sat
V640 Ori	15(18)17D	Z Vul	D07(05)10	ST Per	11(15)17D
1995 Sep 25 Mon	TX UMa	D07(06)09L	RW Tau	11(16)17D	TX UMa
U Cep	D07(11)16	Z Dra	D07(07)09	Z Dra	13(15)17D
X Tri	08(11)13	X Tri	D07(09)12	V640 Ori	16(19)17D
U Sge	10(15)14L	Y Psc	D07(10)14	1995 Sep 29 Fri	TX UMa
RW Gem	L11(11)16	TW Dra	09(14)17D	X Tri	D07(08)10
				RZ Cas	15(17)17D
				V640 Ori	17(19)17D

#### Summaries of Information Bulletins on Variable Stars Nos 4093 to 4156

Photocopies of any of these can be ordered through your local branch library by filling out a requisition form as if you were requesting a book for loan. This service should cost only a few tens of pence.

- 4093 *Optical Variability in SAO 20517 and its Possible Identification as an X-Ray Source* (Martin et al, 1994) - Microvariable, poss RS CVn type binary
- 4094 *Multiperiodic Photometric Variations of HD 210111 and Suspected Variability of HD 210049* (Paunzen et al, 1994) - Microvariability of Lambda Boo star
- 4095 *A New Be Phase of Pleione* (Ballereau et al, 1994) - Spectroscopy
- 4096 *Revised Ephemeris for the Symbiotic Binary AG Dra* (Skopal, 1994)  
- Derives the following ephemeris for eclipses recorded in the ultra-violet:  
Min = JD 2442514.4(+/-11.3) + 552.4(+/-2.2)xE, large deviations present
- 4097 *Photoelectric Minima of Eclipsing Binaries* (Hanzl, 1994)
- 4098 *New Photoelectric Observations for HL Aurigae* (Rong-Xian Zhang et al, 1994)  
- Mag 11 short-period Beta Lyr star on Eclipsing Binary Program
- 4099 *Photoelectric Observations of EP Aurigae* (Rong-Xian Zhang et al, 1994)  
- Another mag 11 short-period Beta Lyr star
- 4100 *Circular Polarimetry Observations of the Magnetic CV 1H1752+081* (Ramsay & Cropper, 1994) - Eclipsing cataclysmic variable (P=113mins) observed with AAT, is probably an 'intermediate polar' rather than AM Her star
- 4101 *A New Apsidal Motion Determination for DI Herculis* (Guinan et al, 1994)
- 4102 *A Photometric Campaign on OW Geminorum* (Terrell et al, 1994)
- 4103 *Photoelectric Photometry of OO Aql* (Gurol, 1994)
- 4104 *New Photoelectric Light Curves of BL Eridani* (Lui Qingyao et al, 1994)
- 4105 *Eclipsing Binary V530 Cyg = S4539, Former Ins(a)-Type Variable* (Melnikov et al, 1994) - Range 11.8-12.3V, period 50.83141 days.
- 4106 *Is Praesepe KW284 Actually a Delta Scuti Star?* (Belmonte et al, 1994)
- 4107 *Water Masers in L1251* (Toth & Walmesley, 1994)
- 4108 *Times of Minimum for Four Eclipses of Four Binary Systems* (Hawkins & Downey, 1994) - CCD photometry of XZ And, XX Cas, V456 Cyg and AP Tau.
- 4109 *Photoelectric Photometry of the Short-Period Eclipsing Binary HW Virginis* (Gurol & Selan, 1994) - Blue sub-dwarf binary (=BD -7.3477) with amp of 1 mag and period of 0.1167 days. Period has recently decreased.
- 4110 *The Spotted Young Sun HD 129333 (= EK Dra)* (Scheible & Guinan, 1994)
- 4111 *Photoelectric Observations of AB Doradus* (Bos, 1994)
- 4112 *A New V/R Cyclic Change of Halpha in Zeta Tau* (Yulian Guo, 1994)
- 4113 *A Detection of Moving Bumps in the Emission Profiles of the Be Star FX Lib* (Yulian Guo, 1994)
- 4114 *APT Observations of Small-Amplitude Red Variables* (Percy & Au, 1994)  
- Small-amp (below 0.2m) variations in 7 brightish (5-6m) stars.
- 4115 *V and UV Photometry of HD 159176* (Thomas & Pachoulakis, 1994)
- 4116 *CF Cas = NSV 14787* (Manek, 1994) - Mag 11 cepheid in NGC 7790.
- 4117 *Photoelectric Observations of the Close Eclipsing Binary VW Cephei* (Aluigi et al, 1994)

- 4118 *35 New Bright Medium and High Amplitude Variables Discovered by the TYCHO Instrument of the HIPPARCOS Satellite* (Makarov et al, 1994) - See VSSC 83
- 4119 *Five New DHK Variables* (Kaiser, 1994) - Two mag 9 eclipsing binaries (amps about 0.5m) and three small-amp semiregulars.
- 4120 *A Flare Event on HR 2517* (Sterken & Manfroid, 1994) - Possible 0.1m flare in mag 6 blue giant being used as comparison for V505 Mon.
- 4121 *The Long Term Photometric Behaviour of the Cataclysmic Binary HX Pegasi* (Wenzel, 1994) - Find dwarf nova like outbursts to mag 13 at intervals of about 30 days.
- 4122 *Eclipse Curves of UX UMa in 1992* (Kjurkchieva & Marchev, 1994)
- 4123 *KY Arae is Misidentified* (Schaeffer & Hoffleit, 1994)
- 4124 *Geneva Photometry of the Eclipsing Binary TV Nor* (North & Burnet, 1994)
- 4125 *Ten New Variable Stars in Hercules and Corona Borealis* (Antipin, 1994)  
- Mags 12-17B.
- 4126 Photoelectric observations and minima times of four W UMa systems: LS Del, V839 Oph, AQ Psc. (Demircan et al, 1994)
- 4127 1994 BVRI Photometry of CG Cyg. (Heckert 1994)
- 4128 B and V Photoelectric observations of the contact binary XY Leo. (Markova & Zhukov 1994).
- 4129 The identification of variable stars discovered with the Hubble Space Telescope in the Globular Messier 3. (Goranski 1994). *List of 40 variables detected in the core of M3.*
- 4130 Spectroscopic Binarity of the Cepheid BY Cas (Gorynya et al, 1994). *New radial velocity measurements confirm that BY Cas is a spectroscopic binary.*
- 4131 WW Cephei: Elements rediscovered and improved (Agerer 1994)
- 4132 V406 Lyrae: New ephemeris and lightcurve. (Agerer et al, 1994). *Photographic and CCD photometry of this Beta Lyrae type variable.*
- 4133 Photometric observation of V1187 Cygni. (Agerer 1994). *Observations at minima indicate GCVS period needs revising.*
- 4134 VW Canum Venaticorum: New ephemeris and light curve. (Agerer & Berthold 1994). *Photographic & CCD photometry of this RR Lyr type star.*
- 4135 A pre-main sequence companion to AE Aur? (Johanson & Nordstrom 1994).
- 4136 AK Cancr - A new large amplitude SU UMa type dwarf nova. (T Kato 1994). *V Band CCD Photometry yield Superhumps of 0.18 mag amplitude. The faintness at quiescence and the large amplitude suggest that AK Cnc is an ideal candidate for a TOAD (Tremendous Outburst Amplitude Dwarf Novae). AK Cnc is part of the Recurrent objects programme.*
- 4137 Positions of variables in Plaut's field 3. (Antipin et al, 1994).
- 4138 Timings of selected variable stars. (Odell 1994)
- 4139 UBVR observations of AB Dor, 1993. (Budding et al, 1994)
- 4140 The 72nd name list of variable stars. (Kazarovets & Samus 1994)
- 4141 BVR observations of the double mode Cepheids AS Cas, V367 Sct and BQ Ser. (Berdnikov et al, 1995)
- 4142 UBVR photoelectric observations of the double mode Cepheids CO Aur, TU Cas & EW Sct. (Berdnikov et al, 1995)
- 4143 Photometric observation of NS Monocerotis. (Agerer & Frank 1995)
- 4144 AW Virginis: Photoelectric times of minimum and improved period. (Lapasset & Gomez 1995)

- 4145 Photoelectric UBVR observations of the peculiar Cepheid V473 Lyr. (Berdnikov & Voziakova 1995)
- 4146 Observations of SN 1993ad. (Tsvetkov & Pavlyuk 1995).
- 4147 HD 12176: An eclipsing magnetic Ap star at last? (North & Richard 1995). *A new possible candidate for a magnetic Ap star in a binary system with a period shorter than 3d.*
- 4148 A database of galactic classical Cepheids. (Ferne et al, 1995) *Details of an electronic database of 505 classical Cepheids in four files, available by anon. FTP & WWW.*
- 4149 Short time scale variation of Epsilon Aur Ha blue wing emission. (Guangwei et al, 1995)
- 4150 Is TX Delphini a population 1 (classical) Cepheid? (Balog & Vinko 1995)
- 4151 Detection of variability in HD 191850. (Paunzen et al, 1995)
- 4152 Observations of superhumps in V1251 Cyg during the 1991 superoutburst. (Kato, 1995) *V band CCD photometry during eight nights of the 1991 superoutburst reveal superhumps, thus revealing the UGSU type nature of this object. V1251 Cyg is on the recurrent objects programme list.*
- 4153 Photoelectric observations of the eclipsing variable DO Cas (Aluigi et al, 1995)
- 4154 Photoelectric UBVR observations of the peculiar Cepheid RU Cam. (Berdnikov & Voziakova, 1995)
- 4154 Discovery of the second PG 0943+521 type dwarf nova V1159 Ori. (Nogami et al, 1995) *Discovery of the second peculiar PG type star, which would seem to indicate a true subclass of the UGSU type dwarf novae exists.*
- 4156 U-filter photometry of AB Doradus. (Rucinski et al, 1995)

#### RAS Medal for Janet Mattei

The council of the Royal Astronomical Society has awarded their Jackson Gwilt Medal and Gift to Dr Janet Mattei, the director of the American Association of Variable Star Observers. This was "in recognition of her leadership of the AAVSO and her contribution to variable star research".

#### Comparison Star F for BL Orionis Chris Lloyd

After seeing the note in the December VSSC about star F on the BL Ori chart I looked up the NSV to see what else it had to say. Very little, as you might expect, but I did note that it was NSV 2967 not 2969. The observations that led to its appearance in the NSV were a string of photoelectric measures where it gave more scatter than expected, about 0.025 mag rms. The other published photoelectric measurements are 6.64, 6.64 and 6.62 so I think that it is a micro-variable and not likely to be detected by visual observers. The published magnitude of 6.64 is entirely consistent with what people see so it's probably a good comparison! I know nothing about this field around BL Ori or how vital F is, but you probably won't lose anything by keeping it.

Lampkin's 'Naked Eye Stars' as a Source of Suspected Variables  
Tristram Brelstaff

In the early 1970's Lampkin's 'Naked Eye Stars' (R.H.Lampkin, 'Naked Eye Stars - Catalogued by Constellation and in three groups by Brightness', 2nd Edition, Gall & Inglis, 1972) was a cheap, 'user-friendly' star catalogue that was fairly popular amongst amateur astronomers. It was based on the Yale 'Bright Star Catalogue' and included stars down to a limiting magnitude of 5.5. Over the years, I came across half a dozen cases of stars being listed in 'Lampkin' although their true brightness would put them well below this limit. On at least one occasion this has led to one of these stars being suspected of variability (BS 551 And - see I.A.Middlemist, VSSC 67, 26-29, 1988 and C.Lloyd, VSSC 73, 38-40, 1992). However, it is most likely that these discrepancies are just the result simple typographical errors and using them as evidence for variability is not really justified. Below I have given the details of each of these stars as listed in Lampkin, the Smithsonian Astrophysical Observatory Catalog (SAOC), Sky Catalog 2000.0 (SC2000), and the General Catalogue of Variable Stars (GCVS).

BS 551 And (01h 51m 53s +40° 27.5' [1950], 01h 54m 54s +40° 42.1' [2000]) - Also known as HD 11613, SAO 037607, BD+39°0434 and GC 2310. Lampkin has  $v=4.3$ ,  $sp=K2$ ; SAOC has  $v=6.5$ ,  $sp=K2$ ; SC2000 has  $V=6.24$ ,  $B-V=+1.25$ ,  $sp=K2III$ .

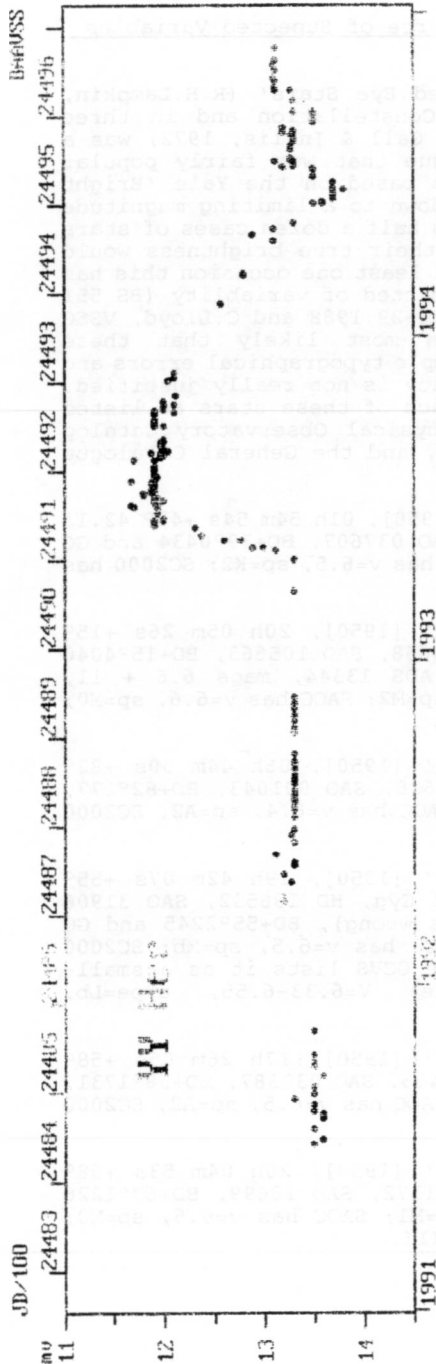
BS 7680 Aql (20h 03m 08s +15° 21.4' [1950], 20h 05m 26s +15° 30.0' [2000]) - Also known as HD 190658, SAO 105663, BD+15°4040 and GC 27872. Is the double star ADS 13344, mags 6.6 + 11, separation 2.3". Lampkin has  $v=5.4$ ,  $sp=M2$ ; SAOC has  $v=6.6$ ,  $sp=M0$ ; SC2000 has  $V=6.34$ ,  $B-V=+1.64$ ,  $sp=M2$ .

BS 2350 Cam (06h 33m 59s +82° 09.8' [1950], 06h 44m 30s +82° 06.9' [2000]) - Also known as HD 45618, SAO 001043, BD+82°177, GC 8605. Lampkin has  $v=4.1$ ,  $sp=A2$ ; SAOC has  $v=6.4$ ,  $sp=A2$ , SC2000 has  $v=6.4$ ,  $sp=A2V$ .

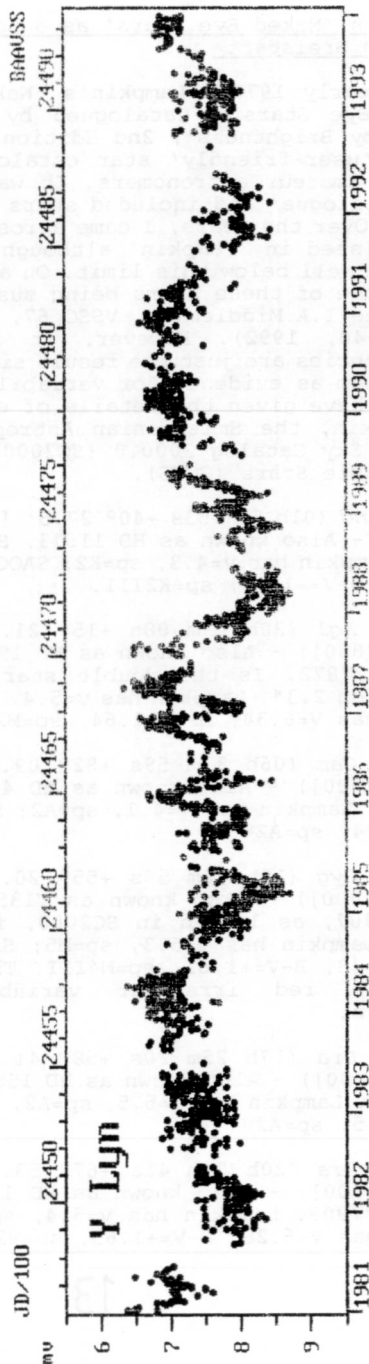
BS 7509 Cyg (19h 40m 58s +55° 20.7' [1950], 19h 42m 07s +55° 28.7' [2000]) - Also known as V1351 Cyg, HD 186532, SAO 31906 (SAO 31907, as listed in SC2000, is wrong), BD+55°2245 and GC 27294. Lampkin has  $v=5.3$ ,  $sp=M5$ ; SAOC has  $v=6.5$ ,  $sp=Mb$ ; SC2000 has  $V=6.48$ ,  $B-V=+1.61$ ,  $sp=M4III$ . The GCVS lists it as a small-amplitude red irregular variable:  $V=6.33-6.55$ ,  $type=Lb$ ,  $sp=M5IIa$ .

BS 6514 Dra (17h 25m 20s +58° 41.6' [1950], 17h 26m 05s +58° 39.1' [2000]) - Also known as HD 158485, SAO 030387, BD+58°1731, GC 23654. Lampkin has  $v=5.5$ ,  $sp=A2$ , SAOC has  $v=6.5$ ,  $sp=A2$ , SC2000 has  $v=6.5$ ,  $sp=A2V$ .

BS 7704 Dra (20h 04m 41s +67° 53.0' [1950], 20h 04m 53s +68° 01.6' [2000]) - Also known as HD 191372, SAO 18699, BD+67°1226 and GC 27909. Lampkin has  $v=5.4$ ,  $sp=M1$ ; SAOC has  $v=6.6$ ,  $sp=M0$ ; SC2000 has  $V=6.28$ ,  $B-V=+1.65$ ,  $sp=M2III$ .



14



#### Selected Light-Curves

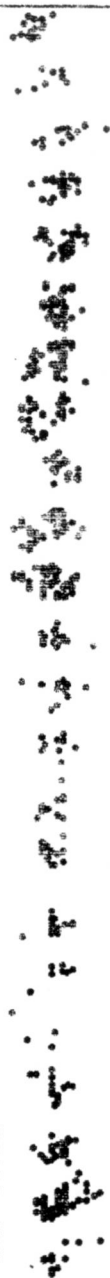
The light-curves on this and the following pages were produced from the BAA-VSS Computer Archive by Dave McAdam. This archive is supported by grants and donations from the Royal Astronomical Society and the Stargazers Trust.



BRUVSS

JD/100  
24410 24420 24430 24440 24450 24460 24470 24480

SU And

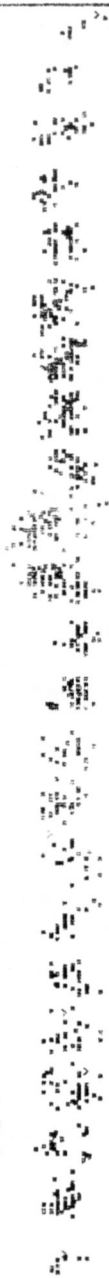


1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993

BRUVSS

JD/100  
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TZ And



1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993

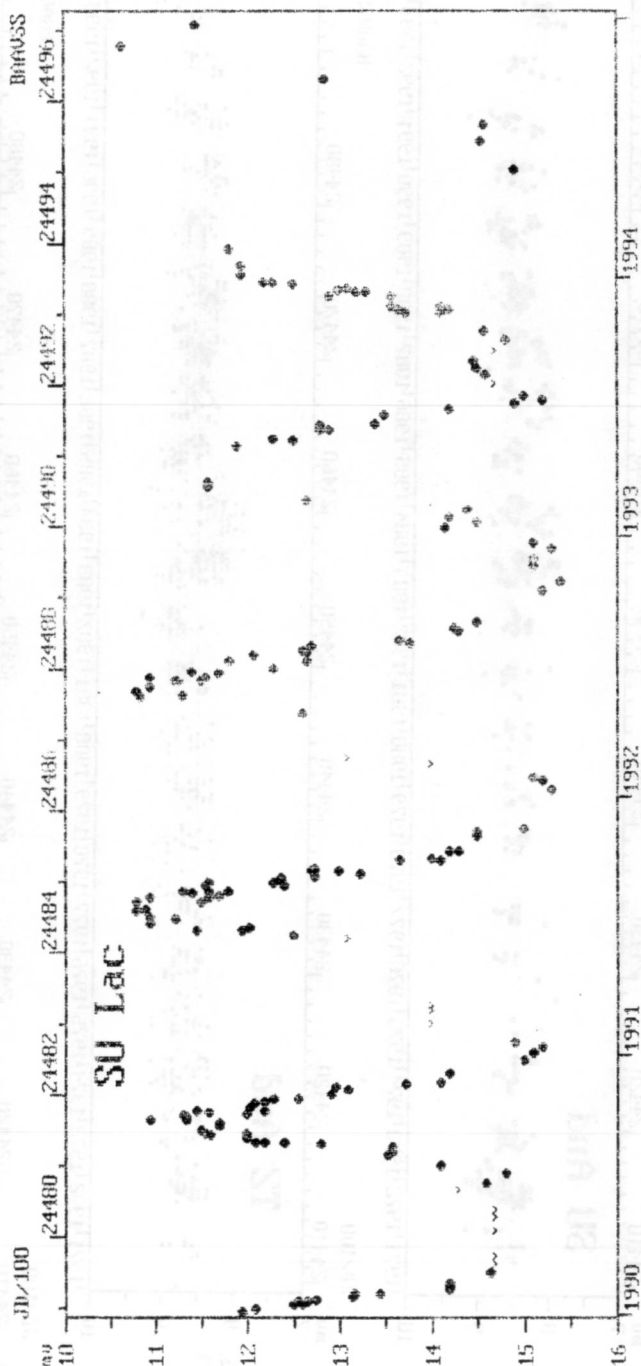
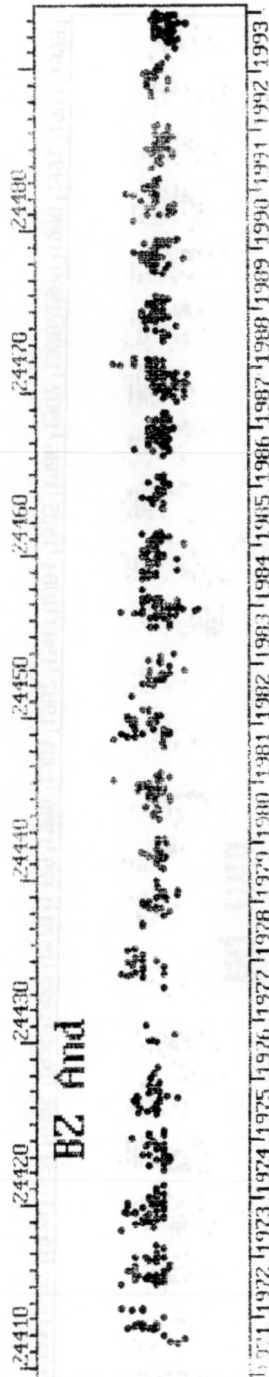
BRUVSS

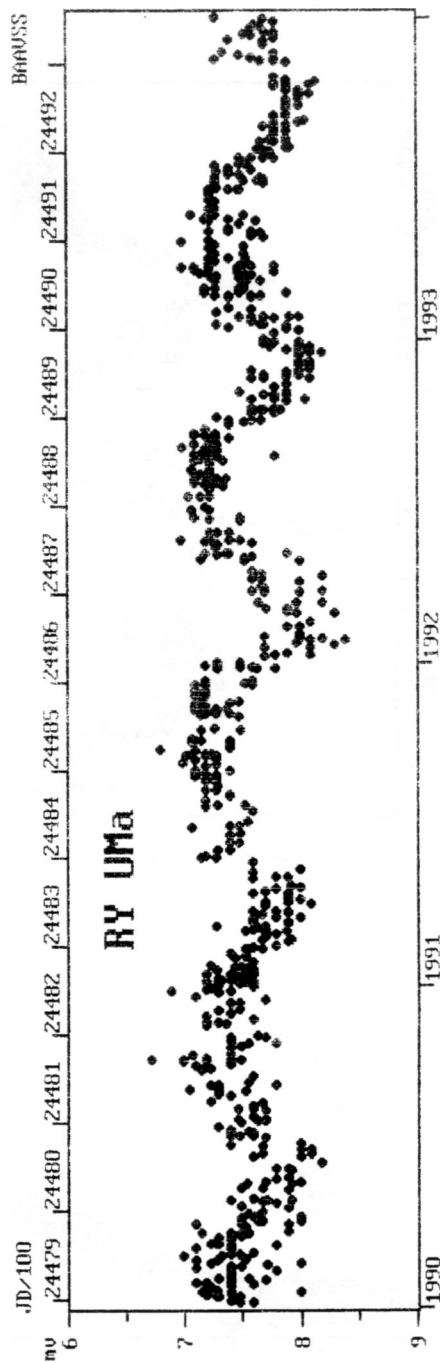
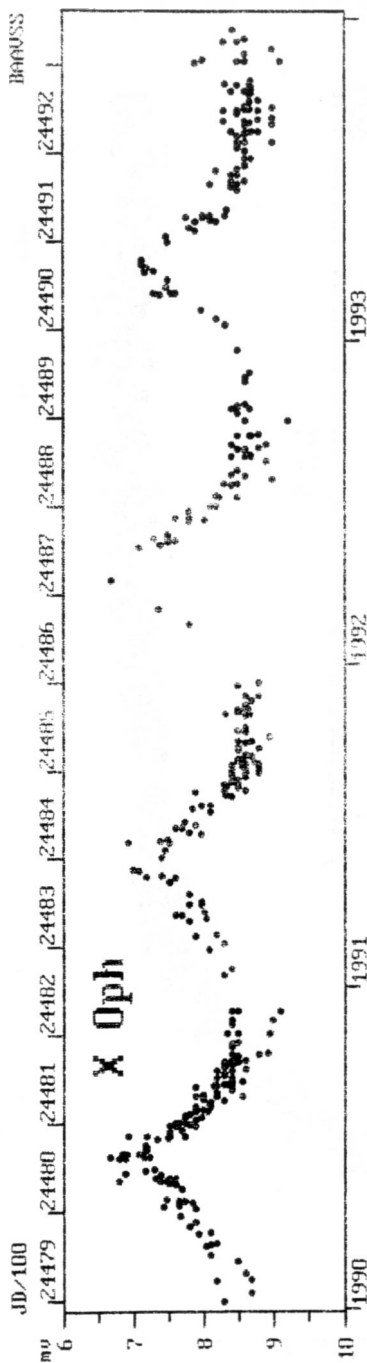
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1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993





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