BRITISH ASTRONOMICAL ASSOCIATION

VARIABLE STAR SECTION

CIRCULAR No. 38

1978 NOVEMBER

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BINOCULAR GROUP

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ECLIPSING BINARY PROGRAMME

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NOVA SEARCH PROGRAMME

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PRIORITY LISTS

Main Programme

W	And	Т	CrB	SU	Lac	WZ	Sge
RW	And	V	CrB	Х	Leo	R	Sct
DZ	And	v	Cyg	AY	Lyr	Т	Tau
UU	Aql	BC	Cyg	U	Mon	SU	Tau
RW	Aur	Chi	Cyg	RS	Oph	SU	UMa
CII	7	IID	Del	ON	Ori	CILI	TIME
30	AUL	HR	Der	CIV	ULT	21	UPIC
V	Cam	Т	Dra	CZ	Ori	CH	UMa
S	Cas	AB	Dra	ΤZ	Per	v	Vu]
Т	Cas	RU	Her	UV	Per		
UV	Cas	R	Hya	GK	Per	14 M.	

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Binocular Programme

V	Aql	WZ	Cas	V460	Cyg	AG	Peg
UU	Aur	V377	Cas	U	Del	X	Per
CO	Aur	V465	Cas	EU	Del	S	Sct
RX	Boo	Wr162	Cas	RY	Dra	Y	Tau
UV	Boo	W	Cep	X	Her	BU	Tau
	1. 1. 1. 1.		in the			1. A. M. 1.	
Х	Cnc	RW	Cep	IQ	Her	Z	UMa
RS	Cnc	SS	Cep	OP	Her	RY	UMa
V	CVn	AR	Cep	g	Her		1. 1. 1.
Y	CVn	AF	Cyg	Y	Lyn		
TU	CVn	CH	Cyg	BQ	Ori		

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Underobserved binocular stars

		14 - 14 A	1342	1.1	Constant in the		
RS	And	FZ	Сер	S	K Lac	TV	UMa
SU	And	33	Cet	(R	K Lep	V	UMi
V	Ari	RU	Cyg	R	V Mon	RW	Vir
RĀ	Boo	V1351	Cyg	S	K Mon	RX	Vir
RW	Boo	MQ	Gem	G) Peg	SW	Vir
W	СМа	U	Hya	A	D Per	BK	Vir

BRITISH ASTRONOMICAL ASSOCIATION: CIRCULAR No.38

Temporary Absence of Director

The Director is attending a meeting on UV observations of X-ray binaries during late November, and will then be observing at Herstmonceux in early December. Urgent correspondence may be dealt with by the Secretary.

END OF YEAR JOB

Observers should now be contemplating writing up their 1978 results (which must be submitted to the Secretary before the end of February 1970). Incorrect entries on the forms cause very considerable inconvenience at almost every stage of checking and analysis, so please glance through the 'observing Methods' notes, or those in VSS Circular 33, to ensure complete familiarity with the required format. This applies particularly to members who believe themselves already familiar with it! 1978 Julian Date Table and one and two decimal time/day conversion tables are given at the end of this Circular. and the second

This year, to 'test the temperature of the water', we are asking observers to write up (ONLY) their results for Nova Cygni 1978 on the preliminary version of a revised report form, a copy of which accompanies this Circular. As is apparent, the inten-tion is for the data to be in a machine readable, and hence easily manipulable, form; but more of this at a later date.

BINOCULAR GROUP NEWS

Chart and Sequence Notes The chart and sequence notes, first issued in 1974, are intended to encourage binocular observers to check the charts are their sequences. The aim is to improve our 170-odd BG charts so that when analyses are to be done we have a reliable sequence. The CSNs are issued occasionally to observers who have sent queries or comments about BG charts to the Co-ordinator. (A stamped, addressed envelope is requested.)

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Any discrepancies on existing BG charts should be either communicated in these notes or a letter sent to the Co-ordinator or the Director at the end of every year, outlining the queries. Intercomparison with nearby variable star fields may reveal the cause of any discrepancy and as a guide it is best to use Pogson's step method when doing this. If a serious error is suspected it is a good practice to estimate the entire sequence at the same time as an observation is made of the variable. Examination by the Co-ordinator of a few observers' estimates sometimes shows the cause of the problem, such as spectral difference, identification error, close double, etc. 计通道分析 建合金 医磷酸盐

BG Chart	Notes		•••			
star	desig.	range	type	period	spectrum	notes
RS And	235048	7.0 - 9.1	SRb	130 ^d	M7 - M10	1
SU And	235942	8.0 - 8.5	Lb	-	Nb (C6.4)	1
TZ And	234546	7.6 - 9.0	SRb	-	M6	1
ST Cam	044067	6 - 8	SRb		N5	2
V CVn	131546	6.7 - 8.8	SRa	192 ^d	M4 - M6	3
Y CVn	124045	5.2 - 6.6	SRb	158 ^d	N3	3
TU CVn	125047	5.8 - 6.3	SRb?	50 ^{±d}	M6	3

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Chart	Notes (cont.)				
star	desig. range	type	period	spectrum	notes
W Ce	ep 223257 7.0 - 8.	9 SRc		KO	4
RW C€	ep 221955 6.2 - 7.	6 LC		G8	4
NN Ce	ep 225861 7.8 - 8.	3 RR ?	0 ^d .5	-	4
W Cj	rg 213244 5.0 - 7.	6 SRb	126 ^d	gM4e - M6	5
CSV É	3232		÷		$(1,1,2,\dots,2^{n-1})$
	Cyg 193554 7.5 -	· ?		M4	6
OP He	er 175345 6.0 -6.6) L	-	M5	7
V566	Her 180441 7.1 - 7.	8 SR ?	400±°	gM4	7
CSV 8	3775 Jac 222956 5.8 - 6.	8 var.?	_	_	4
CSV	102195	0 14277	1		
]	Lac 223456 5.5 var	? –	-	-	4
VW UN	ia 105270 6.9 - 7	7 SR	125 ^d	M2	8
VY UN	4a 103867 5.9 - 6	5 Lb	-	C6	8
Notes	S 1				
1)	RS, SU & TZ And SU	And: Comp	arison 5	is dropped:	3 is amen-
	ded to 8.5. Detail	around RS	is redra	wn. GG an	d GL And
	(SR and Lb) are noted	1.			
2)	ST Cam IIX Cam is du	annod as			Comparisons
••••••••••••••••••••••••••••••••••••••	B H 1 2 and 3 are	doloted		and d to 7	
	$T_{1} = 7.8$ $T_{2} = 8.0$	uereteu.	r 15 all	ended to /.	2 μ Κ LU / J μ
3)	V Y & TH CVn		• • •		
		nparison E	3 (= 8.6)	is shown fo	or V CVn.
4)	W, RW & NN Cep and C	<u>SV 8775 &</u>	<u>CSV 10219</u>	<u>5 Lac</u> W C	ep is now
	classified as SRc and	d its comp	ari s ons a	re now: 2,	6.5; 🍾
i ît y _i	(small letter), 7.1;	🗙 , 7.5	5 ; E , 8	.1; ξ , 8.	2 and η ,
	8.8; other are dropped	ed. RW C	Cep compar	isons are:	A, 6.6;
	B, 6.7; D, 7.3; F, 7	.6; H, 7.7	7; K, 7.9;	L (7mm to	right and
5	2mm up from charted	RW positio	on), 8.1.	CSV 8815	Cep on pre-
11110	vious chart is now c	Lassified	as NN Cep	, a possibl	le RR Lyrae
	variable; its compar	isons are	reduced t	o three, i.	e. 1, 7.5;
	4, 8.0; 8, 8.5. Th	is chart l	nas been t	otally redr	awn and
	shows the positions	of ST, CW	& KY Cep	and V & V50)9 Cas.
5)	W Cyg BAA VSS 198	Chart is r	now amende	d and this	new chart is
	specifically for W C	g. Comp	parison B	of the old	chart is omit-
	ted as it is a close	double.	A star 1	•2 south of	E W Cyg is a
	new comparison, 1 at	6.6; also	o a new co	mparison 5	at 7.2 is lo-
	cated $\frac{1}{4}^{O}$ p compariso	n K. The	e chart lo	cates V1339	9 Cyg (5.9 - 7.1
	_				

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SRb?. 35^d?) and CSV 103049 Cyg (6.35 var?) and SS Cyg.

<u>CSV 8232 Cyg</u> Detail around this suspect now includes: V1143 Cyg (5.92 - 6.44, 7.6^{d} , EA) and V1351 Cyg (6.3 - 6.55, Lb).

<u>OP & V566 Her</u> A combined chart with location of variables from Vega has now been produced. V566's comparisons are now numbered with former C being omitted. Comparison B for OP Her is omitted; A is now 5.8, E is omitted and two new comparisons, X and Y, both at 6.2 are added. X is 68mm left, 7mm down from OP Her; Y is 17mm left, 44mm down from the variable. The location of V533 Her (Nova Herculis 1963) is given.

8) <u>VW & VY UMa</u> 65 is now 63 (6.3). Star detail around VW and its comparisons has been refined.

<u>Chart Acquisition</u> does not keep stocks of charts, and if a specific chart order is made it should go to Rodney Lyon, otherwise a delay may ensue. Rodney has updated copies of all the charts mentioned here.

<u>BG Programme and Chart Catalogue</u> taimed the priority list of 37 variables which observers are asked to concentrate on so that we will have a good distribution of data for analysis. (This list is repeated on the inside of the front cover of this Circular.) Of the remaining 140 (approx.) variable stars which are generally brighter than magnitude 9, the following are seriously underobserved.

RS	And	W CMa	NQ Gem	SX Mon RW Vir
SU	And	FZ Cep	U Hya	GO Peg RX Vir
V	Ari	33 Cet	SX Lac	AD Per SW Vir
RV	Boo	RU Cyg	RX Lep	TV UMa BK Vir
RW	Boo	V1351 Cyg	RV Mon	V UMi
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Two estimates per observer per month would boost our data by about 100% even if only $\frac{1}{3}$ of our observers attempted these neglected stars. Observers who may be thinking about expanding their programme would be well advised to go for some of these variables. Some embarrassingly bright stars are included in this list: 33 Cet (CSV 5895 Cet), 5.1 - 7.0; U Hya, 4.8 - 5.8, SRb; and RX Lep, 5.0 - 7.0, Lb.

Copies of the BG Chart Catalogue (dated 1976) are available from the Co-ordinator.

Nova Cygni 1978

6)

7)

Nova Cydni 1978 Nova Cyg peaked at 6.1 (visual) on about Sep 11/12, and since that time has undergone a smooth decline to just below 10^m by early November. It therefore seems to be a fairly typical fast nova. Ron Livesey reports observing the

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visual spectrum (see Circular 35) on Sep 11 (continuous spectrum), 13 and 22, by which time the spectrum was strongly banded, though too faint for comfortable observation.

The pre-discovery photographic observations reported to date are: $B \sim 20^{m}$ on the Palomar Observatory Sky Survey prints (hence the amplitude is $\sim 14^{m}$); Sep 7.8 (GMAT) < 12; 8.5, 8.7; 9.5, 8.0(?). Numerous spectral observations have been reported in IAU Circulars; P Cygni line profiles, characteristic of strong mass loss, have been seen, the emission component strengthenigh and the absorption weakening in the week or two after maximum, until the spectrum was essentially a pure emission one.

Interstellar reddening has been estimated from the strength of the interstellar D, H & K lines $[E(B-V) \sim 0.6]$; from the diffuse interstellar 6614 band $[E(B-V) \sim 0.3]$; and the polarisation, which appeared, in the early stages at least; to be purely interstellar, [E(B-V) > 0.18]. The nova therefore appears to be moderately reddened.

Numerous photoelectric results, both broad- and narrow-band, have revealed low amplitude (0.1) cyclic variations, but as yet no strictly repeatable photometric features from which on may identify an orbital period for this (presumably) binary system. Infra-red results suggest that a dust formation phase may have begun. In NQ Vul (Nova 1976) this event was accompanied by a substantial drop in the visible, and a similar fade may be expected now for Nova Cyg.

Among the most interesting results obtained to date for this nova are a series of low-dispertion (6 Å resolution) spectra in the vacuum ultraviolet with the IUE satellite. These data are still in the early stages of reduction, but it seems likely that the spectrum around the time of maximum was dominated by emission lines of relatively low ionization species, but it later developed to show lines due to much more highly ionized species (i.e. arising presumably in a much hotter plasma). A still more exciting result is that the ultraviolet flux has been monotonically increasing while the nova has faded in the visible. UV photometry revealed similar behaviour in FH Ser, while V1500 Cyg faded in both the UV and visible regions.

Some high-dispersion (0.2 Å resolution) UV spectra have also been obtained, which are undoubtedly the best yet obtained for any nova. VSS results are already being used as an aid to the interpretation of these results, so please keep a close watch on this star and drop the Director a postcard occasionally, giving a note of your results, please.

UZ Boo - (from G.M. Hurst)

bright outburst of the above U Gem star. Preliminary mags. are: Sep 23, 11.5; 26, 12.2; 27, 12.2, 28, 12.4.

This is significantly brighter than the GCVS maximum magnitude. Brian Manning obtained a prime focus exposure (26.5 cm reflector) on Oct 1.3 from which Peter Birtwhistle obtained:

 $14^{h} 41^{m} 45.28$, + 22^o 13' 35"7 m 12.0

slightly amending GCVS data. A preliminary chart may be obtained from Peter Hornby.

Notes on 1977 Light Curves (cont. from Circular 37)

<u>AH Her</u> Observed from mid-April to late November only. Maxima about Apr 19 (11.4), probably May 10 (11.8), May 31 (11.5?), June 26 (11.6?), July 15 (11.2), short max Aug 8 (11.5), Aug 21 (11.4), Sep 9 (11.1), about Oct 1 (11.5), Oct 14 (11.9), probably Nov 1 (rising Oct 31), about Nov 22 (11.2 thanks to Gough and Hollis).

<u>R Hya</u> Thanks to MacLeod, Brelstaff, and Spalding for early morning observations. Rising (about 6.6) on Jan 1 to max (5.2) about Mar 14. Falling at 7.3, Jun 2, after which no further observations were received.

SU Lac Two observations only (Hollis) received.

X Leo Underobserved; thanks to Munford for December observations. Max Jan 31 (12.3, AAVSO), long max Feb 15 (12.2), Mar 7 (12.7, AAVSO), Mar 19 (12.4), Apr 3? (12.5)?, Apr 17 (12.2, bng), May 8 (12.2, AAVSO), May 20 (12.4), not observed until December, then max Dec 12(12.2).

R LMi Probably 9.4 at start of Feb, rising to max of 7.9 about Mar 19. Falling to 9.7 on Jun 12. Dropped from programme after September.

AY Lyr AY LYF One observation only until April. Maxima missed (AAVSO) about Jan 14, Mar 17, Apr 8. However the following max were observed (all about 13.3 \pm 0.1 unless stated): May 17, July 3, Aug 1-12 (long max 12.7, well observed), Aug 26, Sep 5, Oct 13, Dec 3 (thanks to Gough).

U Mon

Falling from 6.5 on Jan 1 to primary minimum (7.2) Jan 14, max 6.0 (Jan 31), secondary max (6.8) Feb 23 accurately observed by Swain, max 5.9 (Mar 16), primary min (7.3) Apr 16, last obs. 6.1 Apr 27 by Hollis. Recovered in Dec. by Chesterfield, Hollis, Shanklin, J.C. Smith and Swain. All observations from Dec 3 to Dec 31 within range 7.2 to 7.4. Star near primary minimum but date only poorly defined. Observations well down on 1976.

RS Oph Observed from May 14 to Oct 12 only. Falling from 11.6 mid-May to 12.2 mid-June. Rise to about 11.0 before end of June. Fluctuations between 10.8 and 11.7 first half of July, (not all due to observational scatter). Gap until Aug 5, from when until Oct 12 scatter between 11.3 and 11.7. Underobserved.

U Ori Falling from 9.7 on Jan 1 to very near minimum (12.4) when lost on Apr 14. (However, three observers reported rising through March until lost Apr 14 at about 10.0!!) Recovered on Aug 25 by MacLeod. Thanks also to Albrighton, Brelstaff, Lewis, Stott and Taylor for early morning observations. Rising to max of 6.4 about Oct 2. Falling to 8.8 at end of year.

CN Ori Badly underobserved. Maxima (all about 12.0) Jan 17. Feb 11, Mar 8, Apr 5?, Dec 30 (McNaught).

CZ Ori Badly underobserved. Only one maximum seen (11.9) Mar 19, (R. Lyon).

Orion Variables

T Ori Probably 11.4 to 11.8 until Feb 10. Sharp rise to 9.9 by Feb 15. Apparent slow decline to 11.7 Mar 9. 11.4 to 11.9 Decline to 10.5 on Apr 14. until Apr 3. Fast rise to 10.1 Apr 6. One further observation only (11.2) Dec.30, by Hurst.

GW Ori Two observations only (9.7, 9.9) received. KS Ori Probably 9,9 to 10,3 until Feb 16. Rise to 9.6 Feb 26. Fall to 10.0 Mar 28. KX Óri Fluctuations 7.1 to 7.5. Possible fall to 7.9 Jan 28, Dec 14. <u>LP Ori</u> <u>LP Ori</u> Any fluctuations probably in range 8.1 to 8.6 early in year; in Nov and Dec probably 8.4 to 8.8. Large scatter between observers e.g. 8.1, 9.4 within a few minutes. This is probably not real because the following night we have 8.3, 9.2. This is not a criticism of the observers but it does demonstrate the unsuitability of this type of star for amateur observation. MX Ori Jan 1, 10.4, Jan 2, 10.1, thereafter 9.8 to 10.0 until bst Apr 6. In Dec 9.5 to 9.6. NU Ori Although observations ranged from 6.7 to 7.6, nearly all were within the range 6.9 to 7.3 and the star was probably constant at -7.1 ± 0.2. <u>NV Ori</u> Apparently constant at 9.9 ± 0.2. V359 Ori Probably fluctuations as large as 7.5 to 8.4 both on same and consecutive nights; NOT all due to observational scatter. V36<u>1 Ori</u> After correcting some large personal equations - constant at 8.4 ± 0.2 . <u>V372 Ori</u> Probably constant 7.9 \pm 0.2, with possible fall to 8.3 ~~~~ about Feb 19, Mar 4 and Nov 3. V529 Ori All observations received were nagative. V566 Ori Probably constant 9.9 \pm 0.1. Observers in good agreement. CSV 100567 Ori Possible slow fall from 7.5 early in Jan to 7.8 when In Nov and Dec 7.5 to 7.7. lost in April. Var.No.2 Ori All observations within range 8.6 \pm 0.2. RU Peg Rise to max (10.4) Jan 10, thanks to Withers and Munford. Recovered mid May, max (10.6?) Jun 1, seen on fall by Munford. Rise to about 12.1 for a few days in late July (Withers) but no further max until Oct 30 (10.4), well observed. The period between these two maxima was over 150 days. S Per Large scatter amongst observers. Very slow rise (taking 20 day means) from 9.55 at start of year, to max of 9.25 about Sep 1. Fall to 9.55 at end of year. RS Per Fall from 8.4 to 9.0 about Feb 12. Rise to 8.6 about Mar 4. Slow fall to 9.0 about Jun 5. Rise to 8.8 about Jly 26. Fall to 9.2 about Sep 8. Fluctuation between 9.0 and 9.2 until end of year. Large scatter among observers. TZ Per About 13.2 to 13.5 except as follows: Feb 11, max (12.7) Mar 22, max (12.9) Apr 9, min (14.0) Apr 16, max (12.6) Jly 12, max (12.6) Aug 16, min (14.3) Aug 22, max (12.6) Sep 3, min (14.2) Sep 8,

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max (12.8), Sep 17, min (14.0), Oct 1, max (12.6), Oct 8, min (14.2), Oct 18, max (12.9), Nov 26, max (12.8), Dec 30 (13.9). Underobserved.

<u>UV Per</u> At minimum throughout the year; no positive observations.

<u>BU Per</u> Possibly 9.6 at start of the year, falling to 9.9 by end of Jan. Thereafter steady at 9.9 ± 0.1 . Good agreement amongst observers.

<u>GK Per</u> Five positive observations only, Sep to Dec from 13.1 to 13.5.

 \underline{WZ} Sge Two positive observations 15.0, 15.1 by Porter. Badly underobserved.

<u>Nova Sge (1977)</u> John Hosty's discovery. Nearly all observations due to Hurst who lost the nova on Jan 16 but recovered it with early morning observations untill end of Jan. Taylor made a negative observation on Mar 18. Hurst picked the nova up again on Apr 1 and followed it to the end of the year. Of magnitude 7.2 on Jan 7 the nova fell almost linearly to 10.9 on Jan 29. Slow decline with oscillations from 11.8 on Apr 1 to 12.5 on Dec 24.

<u>Nova Sqr (1977)</u> Slow fall from 9.3 Apr 1 to 9.6 about Apr 26. More rapid fall to 11.1 about Jun 1. Slower decline to last observation on Oct 1.

<u>R Sct</u> Thanks to Kirby and Taylor for early morning observations in Mar and Apr. Fall to secondary min 5.9 (Apr 23), rise to max 5.3? (May 10), fall to primary min 7.4 (Jun 22), rise to bright max 4.7 (Aug 4), fall to secondary min 5.9 (Sep 9), rise to flat max 5.1 (Oct 2), fall to primary minimum 7.6 (Nov 10), rise to approx. 5.5 when last observed Dec 4.

<u>R Ser</u> Thanks to Godden, Munford and Spalding for early morning observations in Feb, Mar and Apr, and to Coady in Dec. Feb 18 (13.2) near minimum. Rose from 12.4 (May 14) to 8.5 (Jly 17), then steep rise to max 6.0, Aug 12. Decline to 9.2 on Dec 4.

<u>T-Tau</u> Underobserved. Probably 10.2 \pm 0.2, but possible rise from 10.4 Apr 3 to 9.9 Apr 9.

<u>RV Tau</u> Thanks to Coady, Cosgrove and Stott for early morning observations. Falling from 9.4 on Jan 1 to min 10.6 (Jan 18), max 9.2 (Feb 4), min 10.1 (Feb 25), max 9.3 (Mar 14), min 10.3 (Apr 7), max 9.3 (Apr 21), Recorded falling at 9.9 on Sep 2 to min 10.2 (Sep 9), max 9.3 (Sep 28), min 10.1 (Oct 19), max 9.1 (Nov 1), min 10.3 (Dec 3), max 9.2 (Dec 17), falling to 9.7 on Dec 31. Mean double period 80 days.

RY Tau One observation only received (10.9, Jan 7).

SU Tau Thanks to Moore, Munford and Dunlop for Sep/Oct observations. Rose from 15.1 Jan 15 to 12.0 Mar 7 to 10.0 Apr 17. Lost on Apr 26 at max. Recovered Sep 12 at 9.7 and remaining at 9.7/9.8 until the end of the year.

T UMa Falling from 12.3 at start of year to min of 13.3 about Mar 5. Fairly rapid rise to max of 7.4 about Jun 5. Slow

decline to poorly observed min of 13.1 about Oct 31. Rise to 10.0 at end of year.

<u>SU UMa</u> Although fairly well observed, undoubtedly many short maxima were missed. Those observed were Mar 21 (12.0), Jun 5 - 12, supermax (11.5), Aug 11 (12.6), Sep 9 (12.0), Oct 1 (12.2), Oct 11 (12.2), Nov 30 (12.0), Dec 13 (12.5).

<u>SW UMa</u> Badly underobserved, but four of the five observers saw the star during its maximum, from 10.2 on Nov 29 to 11.5 on Dec 12.

<u>CH UMa</u> Max of about 11.3 on Feb 7, just missed, but seen on decline by Lyon and Munford. Some positive observations about 15.0 at minimum, but badly underobserved.

<u>RS Vir</u> Ten observations, from Apr 6 (11.0), rising to max ? (about 9.1, May 11?), to last observation of 9.5 Jun 8.

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<u>RT Vir</u> One observation only received.

<u>V Vul</u> Despite scatter of observations a good curve could be drawn if the star was observed more often before July. At min 9.3, Jan 1, max (8.4) Jan 14, min (8.9?) Feb 1? Lost through Mar and Apr. Probably a max of 8.5 about May 3, min (9.4) May 28, max 8.4 (Jun 14?), secondary min (8.9) J1y 1, max (8.4) J1y 12, min (9.7) Aug 12, max (8.5) Aug 25, secondary min (9.0) Sep 12, max (8.4?) Sep 26, min (9.4) Oct 27, max (8.4) Nov 10, secondary min (9.2) Nov 30, max (8.5?) Dec 12, failing to 8.8 Dec 24.

NQ Vul

No vul Fall from 10.2 Jan 2 to 11.5 Jan 29. Rise ? to 11.4 Mar 6, followed by fall, with fluctuations, to 11.6 by end of June, to 12.0 early in Sep, to about 12.4 at end of year.

Apologies

Apologies Apologies are offered for the fact that the Chart Curator's name and address, and part of Alan Forno's address were accidentally omitted from the cover of Circ. 37. Also the item on 'Telescopic Meteors' should have been ascribed to its author, Malcolm Currie. Line 5 of this paragraph is incorrect and should read '... the data which are ...', and similarly in the introduction to the Secretary's 1977 Light Curve Notes '... provisional data are ...' (We would not like to be thought completely unaware of good English!)

Circulars

the Portsmouth postal areas means that members are strongly advised to ensure that their SAEs give their full Postcodes, to cause the minimum delay in receiving Circulars.

Changes of Address

GALLON, M. now 44 Broom ridge Avenue, Fenham, Newcastle upon Tyne, NE15 6QP

SCHWEITZER, E. now "La Moineaudière" 16 rue de Plobsheim 67100 STRASBOURG-NEUDORF FRANCE

New Members

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KAY, S.J.	3 Acorn Street, Bacup, Lancs. OL13 8AU
PRICE, M.	15 The Fairway, Camberley, Surrey GU15 1EF Tel: Camberley (0276) 64185

1978 Julian Date Table

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Jan	509	May	629	Sep	752		
Feb	540	Jun	660	- Oct	782	· · ·	
Mar	568	Jly	690	Nov	813		• •
Apr	599	Aug	721	Dec	843		
Dates	are for day	ZERO; t	hus Jan 5	= 2 443 5	514; Aug	19 =	
2 443	/40 etc.	•			an a	• •	
Single	<u> Decimal Di</u>	visions d	of the Day h.	h	d		÷
03736	to $05.59 =$	0.2	13.12	to 15.35	= 0.6		
06.00	to 08.23 =	0.3	15.36	to 17.59	= 0.7	•	
08.24	to $10.47 =$	0.4	18.00	to 20.23	= 0.8		
10.48	to 13.11 =	0.5		·			Dates.
Two De	ecimal Divis	ions of	the Day	n m P	n_m'		
39 53 6 08 22 36 51 7 05 20 34 48 8 03 17 32 46 9 00 15 29 44 58 10 12 27 41	$\begin{array}{cccccccccccccccccccccccccccccccccccc$.24 .25 .26 .27 .28 .29 .30 .31 .32 .33 .34 .35 .36 .37 .38 .39 .40 .41 .42 .43 .44	13	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	50 04 19 33 47 02 16 31 45 59 14 28 43 57 11 26 40 55 09 23 38 57	.53 .54 .55 .56 .57 .58 .59 .60 .61 .62 .63 .64 .65 .66 .67 .68 .69 .70 .71 .72 .73	
56 11 10 24 39 53 12 08	$ \begin{array}{c} - 11 & 09 \\ - 23 \\ - 38 \\ - 52 \\ - 12 & 07 \\ - 21 \\ \end{array} $.46 .47 .48 .49 .50 .51	18	53 - 18 08 - 22 - 36 - 51 - 19 05 -	07 21 35 50 04 19	.75 .76 .77 .78 .79 .80	

A Reminder Observers are reminded that when completing report forms, it is not essential that month, day and time are repeated when any (or all) of these are IDENTICAL to those of previous observations. (In fact it makes life easier.) But please enter time in full if day is different. 'Remarks' on the Special Report Forms (see over) Note that the single-letter remarks abbreviations may be entered in any order. X must always be followed by a single digit.

SPECIAL NOTES CONCERNING COMPLETION OF THE EXPERIMENTAL 'COMPUTER' REPORT FORMS

These notes apply to observations of Nova Cygni 1978 <u>ONLY</u> and not (as yet) to any other stars.

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The form has been designed to be easier for observers to complete as well as suitable for machine coding. The details described here may be changed later as a result of the experience in this trial.

IF IN DOUBT, DO NOT FILL IN ANY PARTICULAR ITEM, BUT GIVE DETAILS ON A SEPARATE SHEET, OR REFER QUERIES TO STORM DUNLOP, TO WHOM FORMS SHOULD BE SENT WHEN COMPLETED (for this one star only). Further copies are obtainable from Storm, if required.

Enter one letter, number or symbol per box, beginning at the left of each block - any remaining boxes within a block should be left <u>blank</u>. If possible please remember to use \emptyset for the numeral zero when it occurs in dates, etc.

PLEASE use different sheets for different SEQUENCES, if they have been used. Please detail instruments other than that mainly used, on another sheet of paper, giving each a code number, starting with 2 (main instrument is assumed as no.1).

Enter NAME (i.e. N1978) in Cols. 1 - 5; CONSTELLATION ABBREVIA-TION (CYG) in Cols. 10 - 12.

Col. 16 - INSTRUMENT CODE LETTER: R = reflector, 0 = OG, B = binocular. Cols. 17 - 19 - APERTURE in mm.

Cols. 25 - 28 - YEAR

PLEASE DO NOT CODE Cols. 13 - 15 or 20 - 24 (on this occasion).

Cols. 29 - 31 - 3-letter MONTH ABBREVIATION (as in JD Table on p.9 of this Circular. Please note abbreviations for June (JUN), July (JLY) and September (SEP), and try to use them and not variations. Cols. 32 - 33 - DAY, entering single figures as 01, 02, etc. Cols. 34 - 37 - TIME (in GMAT).

Col. 38 - Type of ESTIMATE - a single letter abbreviation as: F = Fractional, P = Pogson. If you have made use of any other form, such as Argelander, please do not enter (at present), but send in a separate note with details.

Cols. 39 - 51 - ESTIMATE, but ONLY ONE TYPE PER LINE. The space is designed to take one Fractional estimate, or up to three Pogson estimates (with a blank space between each). E.g. A(3)V(1)B or A-3 B+1 C+2. If comparison stars with Greek letter names have been used, these may be abbreviated by taking the first 3 letters of the romanised names (e.g. EPS for Epsilon), except for PI where 2 may be accepted. Note that V=D and V<K are permissible entries in this block. Please use V (= variable) NOT N (for nova).

Cols. 52 - 57 - Ded. Mag. Note that the position of the decimal point is fixed at Col. 55. Col. 52 is for the symbol < (less than) ONLY. Only one decimal place is to be used for the magnitude - Col. 57 is for : (approximately) ONLY. Cols. 52 and 57 will there-fore be usually blank.

Col. 58 - CLASS, 1, 2 or 3 ONLY.

Cols. 59 - 68 - REMARKS. Single letter abbreviations as follows:

A = Artificial Light C = Cloud $\frac{1}{2}$ G = Glimpsed H = Haze I = Invisible L = Low M = Moon S = Hurry (Speed) T = Twilight (or Dawn) V = aVerted Vision X = non-standard instrument (followed by a single digit giving the code number assigned - para. 5 above) $\frac{1}{2}$ D = Difficult

PLEASE SEE ALSO NOTES AT BOTTOM OF PRECEDING PAGE