BRITISH ASTRONOMICAL ASSOCIATION

VARIABLE STAR SECTION

CIRCULAR No. 37 1978 SEPTEMBER

OFFICERS OF THE V.S.S.

Director: I.D. Howarth, 67 Lichfield Road, Portsmouth, Hants. PO3 6DF

Assistant to Director (inc. Circulars): S.R. Dunlop, 140 Stocks Lane, East Wittering, nr Chichester PO20 8NT Tel: Bracklesham Bay (0243) 670354

Secretary: D.R.B. Saw, 12 Taylor Road, Aylesbury, Bucks. HP21 8DR

BINOCULAR GROUP

Co-ordinator (inc. CSNs): M.D. Taylor, 17 Cross Lane, Wakefield, Yorks. WF2 8DA Tel: Wakefield (0924) 74651

Recorder: A.E.J. Forno, 92 Crockford Park Road, A Surrey. KT15 2LR Tel: Weybridge (0932) 44668

ECLIPSING BINARY PROGRAMME

Co-ordinator: P.W. Hornby, 79 Redcliffe Gardens, London SW10

Predictions: J.C. Smith, 18 St James' Close, Hanslope, Bucks.

NOVA SEARCH PROGRAMME

Co-ordinator: G.M. Hurst, 12 Clare Close, Earls Barton, Northampton. NN6 0PP Tel: Northampton (0604) 811030

BRITISH ASTRONOMICAL ASSOCIATION: VARIABLE STAR SECTION
CIRCULAR No.37 1978 SEPTEMBER

NQ Vul

Comparison star 'M' in the field of Nova Vul has been given a wrong magnitude in the sequence; the V magnitude should be 8.30, not 9.35. The error was noted by Alex Pratt on photographs taken for the Nova Patrol.

In Astron. Astrophys. Suppl. [33, 327 (1978)] Klave and Wolf describe their spectra of NQ Vul taken in Oct 1976 - Oct 1977, as well as a study of polarisation and absorption in the neighbourhood of Nova Vul 1976. They find an absolute visual magnitude at maximum of -6.8, and a distance of 1670 pc. They also suggest that a visible expanding nebula of diameter 1" may be expected in 1984.

Sequences

Since the death of Walter Pennell we have not been in a position to prepare extended sequences for faint stars at short notice (e.g. for novae). As part of a larger effort to improve sequences we have now gained the agreement of the South African Astronomical Observatory to produce photoelectric sequences for novae appearimg in the Southern hemisphere, and we hope to obtain similar assistance from a Northern hemisphere observatory shortly.

Jeremy Bailey and the Director are also engaged in a programme of photoelectric photometry of sequence stars for dwarf novae and other eruptives on the VSS programme. Already surprisingly large errors have come to light, but our work should eventually provide acceptable sequences. A first paper is in press in the Journal, and more are planned.

A related 'Letter to the Editor' has also been submitted, on the subject of limiting magnitudes. If accepted, it should appear in the December Journal, and all VSS members are urged to participate in the experiment described therein.

HM Sge

In Astronomy and Astrophysics 68, 251 (1978) Ciatti, Mammano and Vittone report on photometry and spectroscopy of V1016 Cygni and HM Sge, which they regard as protoplanetary nebulae. They find evidence for the variable ejection of matter into an envelope surrounding V1016 Cyg. HM Sge has shown variations of at least 1^m since its rise to prominence in 1975, for example a 1^m brightening in 1977, accompanied by the emergence of a Wolf Rayet type spectrum, revealing the nature of the hot source required to explain this object.

Telescopic Meteors

Many members of the VSS and Binocular Sky Society used to record casual sightings of telescopic meteors during their variable star observing. Recently this has declined despite the value of these observations to the Meteor Section. It only takes about thirty seconds to note down the data which is required for each telescopic meteor, so it will not consume much of your valuable variable star observing time. We need a further nine thousand observations from all sources before an accurate and detailed report of statistics and radiant distributions can be made. Every contribution will help.

For each meteor the following information is required:

(i) Time of appearance - i.e. date and UT to nearest minute.

(ii) Rough magnitude (to the nearest magnitude).

(iii) Meteor type - using the following code:

00	entered and left the field
0a	entered and finished in the field
a0	started inside and left the field
aa	started and finished inside the field

(iv) Direction of motion - position angle (measured from North via East)

(v) Approximate position of field centre in R.A. and Dec., or a named variable star field.

(vi) Meteor colour.

(vii) Any persistent train phenomena, particularly the duration before it disappears. Drawings are particularly valuable.

(viii) The approximate field limiting magnitude.

(ix) Any other comments, such as a different instrument used.

At the head of each report the usual instrument is specified, giving aperture, magnification and field of view.

Reports are submitted yearly. For more details and blank report sheets please contact:

Malcolm Currie, Postgraduate Pigeonholes, Physics Building, University of Sussex, Falmer, Brighton BN1 9QH

Notes of 1977 Light Curves

The following provisional data is supplied by the Secretary.

R And Just past max. on Jan 1 (7.9). Falling slowly; lost on Mar 28 at 9.3 (Pickard). Recovered May 14 at 11.4 (Munford). Followed through minimum, Sep 22, 14.9 by Hollis, Howarth and R. Lyon. Rose quickly from 14.0 on Nov 6 (Pickard) to 9.3 on Dec 30.

W And First observed Aug 9 at 13.4 (Hollis). Slow rise to 6.9 by end of year.

RW And First observed July 10 at 13.3 (Hollis) whilst falling. Discordant observations during Sep and Oct, but nearly all observers reported fainter than 13.9. One positive observation Sep 17, 14.8 by Howarth. Probable minimum of 14.7 about Oct 3, thereafter rising to 10.7 on Dec 30 (Pickard). This star may be missidentified when faint because its position on the chart is slightly in error.

RX And Very irregular behaviour. Irregular standstill (11.4 to 12.3) until Feb 3, rising to max.11.0 on Feb 5. Further max. on Feb 19 (11.1), Mar 6 (11.0) and Mar 19 (11.0). Lost until Jun 25, 13.9 (R. Lyon). Sporadic observations until Aug 3 when an irregular standstill was in progress. This continued (12.0 to 12.8) until Sep 11 when a slow rise to max. of 10.7 on Sep 17 occurred. Thereafter fell to deep minimum of 13.9 on Oct 4. This minimum continued (13.6 to 14.3) until the end of the year.

DZ And Five observations only, all between 10.1 and 10.5.

R Aql Thanks to early morning observations by Stott, Peel and Shanklin, the star was observed from Feb onwards. After being recovered on Feb 21 by Stott at 6.8 it fell to a minimum of 11.3 about

Jul 15, thereafter rising to about 8.7 at the end of Aug. This was followed by a slower rise to 8.1 on Sep 22, after which the rate of rise increased until maximum of 5.9 about Nov 10. It then fell to 7.7 at the end of the year.

UU Aql Badly underobserved. First observation (negative, less than 13.9) by R. Lyon on May 18. Max on Jun 29 (AAVSO) missed, but was observed at or near maximum on Aug 14 (12.0) and Oct 1 (11.4). A maximum about Nov 16 was not observed.

UW Aql Thanks to observations by Peel, it was recovered on Apr 15 at 9.0 and May 20 at 9.1. Possible fall to 9.3 (Jun 10), rise to 9.0 (Jun 30), fall to 9.4 (July 21), rise to 9.0 (Aug 9), fall to 9.4 (Aug 27). A definite slow rise then occurred reaching maximum of 8.7 about Oct 8, followed by a decline to 8.9 on Dec 2.

RW Aur No observations received.

SS Aur First observed at 15.2 on Jan 15 by J. Bryan (Texas). Well observed maxima occurred about Feb 11(10.8, short) and Apr 6 (10.8, long). Short max (11.0?) observed on decline by Withers (May 26, 11.1) and Saw (May 27, 11.6; May 28 12.3±). Caught on rise on Sep 3 (Lewis, 13.8) to maximum Sep 5 (11.1, short). One further maximum on Oct 11 (10.9, long) was observed. It is unlikely that any other maximum occurred to the end of the year.

SU Aur Underobserved. Probable decline from 8.5 on Jan 2 (Kirby) to 9.3 in mid-April. From early Sep to late Dec, constant at 9.0 to 9.2. Possible fall to 9.5 on Dec 27 (Rhona Fraser).

U Boo Recovered on Feb 18 at 11.8 by Godden. Rose to maximum about May 12 (10.1). Fall to minimum about Aug 11 (12.5). Rise to maximum about Nov 10 (10.2). One early morning observation of 10.3 on Dec 4, thanks to Coady.

V Boo Recovered on Feb 11 at 8.5 by Hapgood. Rise to maximum (7.7) about Apr 3. Fall to minimum (9.0) about Sep 6. Rise to max. (7.3) about Dec 18 (thanks to early morning observations by Coady and McNaught).

V Cam About 14.5 to 14.8 at beginning of year (positive observations by R. Lyon and J. Bryan). From this magnitude, rise from Mar 20 to 12.6 on May 24. Much slower rise to 12.0 about Jul 15, followed by fast rise to the brightest maximum ever recorded of about 7.7 on Sep 7. Slow fall to about 11.5 at end of year.

X Cam Well observed. Fell from 10.4 (Jan 4) to minimum of 11.9 on Jan 25, followed immediately by rise (with a slight shoulder about 9.3 early in Mar) to maximum of 8.1 on Apr 7. Fall to minimum about Jun 18 (12.5), then rise to shoulder about 10.3 late in Jul, followed by a further rise to a very faint maximum of only 9.2 about Aug 30. Decline to a faint minimum of 13.8 about Oct 29, followed by rise to 9.1 on Dec 30.

Z Cam Well observed. At standstill throughout the year, with small variations from 11.3 to 11.7 only.

XX Cam Possible rise from 7.8 (Jan 12) to 7.5 about Jan 30. Thereafter irregular variations (7.5 to 7.7) until May 22. Apart

from one observation in Jul, unobserved until Aug 22. Thereafter variations 7.5 to 7.7 until Nov 19, after which a probable rise to 7.4 occurred (about Dec 11). Decline to 7.7 at end of the year.

S Cas Recovered on rise at 14.3 on Jan 7 by R. Lyon. Faint, flat maximum of 11.1 about Apr 24. Slow decline to about 14.2 on Oct 15, after which no further positive observations.

T Cas Two observations near maximum (Apr 14, 8.8, Howarth) (Jun 10, 8.7, Kiernan). Probably max. (8.6) about May 18. Decline to minimum (12.4) about Nov 20. Rise to 11.5 at end of year.

UV Cas Underobserved. Two observations only until April (Feb 3, Hurst) (Feb 26, Matthews). Probably 10.9 until late April, then rise to 10.7 mid-May. Steady at 10.7 to 10.8 until late Oct/early Nov, after which decline to 11.0 (Dec 19, Middlemist).

Gamma Cas Slight variations 2.15 to 2.3 from beginning of year until Oct 16 (2.2). Possible quick fall to 2.4 by Nov 2, then rise to 2.2 at end of year.

Rho Cas All observations re-reduced to Nov 1977 sequence. Variations 4.8 to 5.05 from beginning of year until Sep 3 (4.95). Probable slow rise with oscillations to 4.6 at end of year.

Omicron Cet (Mira) Rise from 3.9 (Jan 2) to maximum of 3.1 (Jan 26). Fall to 5.4 until lost on Mar 20 (Reg Shinkfield, South Australia). Recovered on Aug 10 at 8.3 (Brelstaff) and Aug 25 at 8.3 also (McLeod). Minimum probably 8.4 about Aug 20. Rise to maximum of 2.7 about Dec 13; fall to 3.1 at end of year.

R CrB Thanks for early morning observations early in the year to Hurst, Hapgood, P. Lyon, McLeod, Matthews, Munford, Spalding, Swain and Taylor, and in December to McNaught. R CrB was 6.0 to 6.1 until about Feb 5; then slow fall to 7.0 on Feb 27, followed by rapid fall to 11.7 about Mar 20. A further slow decline occurred until May 17 (13.5). Variations around minimum between 13.2 and 13.7 until Oct 4 (13.5), when the star rose irregularly to 7.7 at the end of the year.

S CrB Thanks to Brelstaff and Lewis for observations in January, and to McLeod for observations both in January and December. Fell slowly from 6.1 on Jan 1 to a minimum of 12.3 about Sep 19. Slow rise to 11.5 on Nov 13, then rapid rise to last observation of 7.4 on Dec 20.

T CrB At minimum, range 9.8 to 10.1. Observations scattered and no apparent indication of usual periodicity. Maxima about JD 2443235, ...390, ...485. Minimum ....435. Thanks to McNaught for early morning observations late in Dec.

V CrB Five observations only (Sep - Dec). Decline from 8.3 (Sep 13) to 8.8 (Nov 27).

W CrB First observation Mar 9. About 8.5, rising to maximum of 7.8 on Apr 6. Fall to minimum of 14.2 about Aug 24. Rising to last observation of 9.4 on Nov 27.

R Cyg First observed on Jan 3 at 14.2 by Stott. Rising slowly to 13.0 on Apr 1, then rapid rise to maximum of 8.2 about Jun 27. Slow fall to 12.9 at end of year.

S Cyg Falling from 10.6 at beginning of year to 14.7 on Apr 19. No positive observations until Jul 15 (14.6). Rising to 12.8 on Aug 16, then flat shoulder until Sep 15 (12.5) followed by rise to maximum of 10.2 about Nov 12. Fall to 12.5 at end of year.

V Cyg Six reliable positive observations only. Falling from 12.2 on Jun 26 to 14.0 on Oct 31.

W Cyg Well observed but large scatter between observers. Rising from 6.9 on Jan 2 to maximum of 5.9 on Mar 3, 65^d to minimum of 6.9 on May 7, 52^d to max. 6.4 on June 28, 60^d to min. 6.9 on Aug 27, 68^d to max. 6.0 on Nov 2, falling to 6.8 at end of year.

SS Cyg Once again the most observed star on the main programme. Despite this only one observer (K. Lewis) covered the 'spring gap'; thanks to him no maxima were missed. On Jan 1 the star was at 9.7, declining to minimum. Slow rise from 11.9 on Feb 1 to anomalous max. (8.5) on Feb 10. Followed by max. on Mar 27 (long, 8.3), Jun 2 (short, 8.6), Jul 4 (long, 8.3), slow rise from 11.8 (Aug 19) to anomalous max. about Aug 26 (8.5), Oct 28 (long, 8.4), Dec 27 (short, 8.5) falling to 10.2 on Dec 31.

BC Cyg Observations scattered. Possible fall from 9.7 at start of year to 10.0 by Jan 11. One observation only during Feb, Mar & Apr (Godden). Fall from 9.8 at beginning of May to 10.5 on Jul 24. Slow oscillating rise to 10.2 at end of year.

BI Cyg Observational range from 9.1 to 9.9 but probably any real variation within limits 9.4 to 9.6. Three observations only in Feb, Mar, Apr (Godden, Peel, Taylor).

CI Cyg Much better observed than in 1976, but scatter from 10.2 to 11.0. One observation only (Jan 7, Matthews) until May 18. Probable variation within range 10.3 to 10.6 until Nov 24, then definite fall to 11.0 at end of year.

V1500 Cyg Slow fall from 12.2 early in Jan to 13.1 early in Dec.

Chi Cyg Falling at beginning of year. One observation only (Shanklin) on Jan 16 (12.4). Unobserved until Apr 29, when rising (12.0 Shanklin) 10.0 on Jul 1, then rapid rise to max. of 4.9 about Aug 19. Fall to 9.8 at end of year.

HR Del 11.4 at beginning of year. Five observers only but in good agreement. Followed through Mar and Apr thanks to Moore and Stott. Possible slow decline from 11.4 in April to 11.5 at end of year.

T Dra No positive observation until Jul 19. Falling probably from 11.0 at beginning of May to minimum of 13.1 about Sep 12. Rising to about 10 at end of year. Underobserved.

AB Dra Underobserved except R. Lyon (53 out of 78 total). Max. about Mar 8 (12.8) Apr 12 (12.7). Deep minimum (15) Jun 8 to Jun 12, possible max. Aug 2 (12.8), max. Aug 19 (12.6), Aug 31 (12.5), Sep 11 (12.7), Nov 23 to 26 (12.3) but many maxima (AAVSO) missed.

U Gem Well observed max. Jan 27 (9.4) to Feb 3 (9.7). At minimum till lost May 22. Max. May 31 (AAVSO) just missed. Thanks

to Coady and Withers for early morning observations in Sep and Oct. Maximum (about 9.0) Oct 19, 23 observed by Coady. At minimum till end of year.

U Her One observer only (Hollis). Rising from 11.7 (Apr 27) to maximum (8.7)? about Sep 1. Falling to 9.1 on Sep 28.

RU Her Underobserved. Rising from 12.4, May 27 to 10.0 on Sep 13, then more rapidly to 8.0 on Oct 14. Last observation 8.1 (Nov 12).

SS Her Thanks to Godden for early morning observations until Apr. Maximum (8.7) about Mar 1, minimum (12.9) Apr 13, maximum (8.9) May 29, minimum (12.9) Jul 26, maximum (8.9) Sep 14, minimum (12.8)? about Nov 10 (but last reliable observation Oct 31, 12.7 by Stott).

AC Her Two observations only (Swain, Taylor) until Apr. Rather a large scatter amongst the three major observers, but nevertheless a good curve can be plotted. Primary minima = Mn; secondary minima = mn; maxima = max. mn (7.9, Jan 16?), max (7.1, Jan 26?), Mn (8.4, Feb 23?), max (7.1, Mar 12?), mn (8.0, Apr 1), max (7.1, Apr 13), Mn (8.4, May 9), max (7.1, May 23), mn (8.0, Jun 15), max (7.3, Jun 28), Mn (8.4, Jul 22), max (7.0, Aug 10), mn (8.1, Aug 30), max (7.3, Sep 10), Mn (8.5, Oct 6), max (7.3, Oct 25), mn (8.0, Nov 11), max (7.3, Nov 21), Mn (8.5, probably Dec 19), rising about 7.3 at end of year.

To be continued ...

Nova Cygni 1978 This nova discovered by Collins at m_v = 7.0 on (UT) 1978 Sep 10.33785 has been announced in BAA Circular 589 and TA Early Warning Circular 28. It is shown on the enclosed Preliminary Chart, the sequence used being that of W Cyg.

It was independently discovered by Nova Patrol member Dave Rossiter on Sep 10.82 UT immediately he began his area patrol.

Patrol member F. van Looy photographed the area at approx. Sep 7.8 UT, the nova being invisible below $10^m.0$.

Two series of observations are:

Sep 11:	6.0v & 6.5p	- Guy Hurst	Sep 11:	6.2v	- Storm Dunlop
12:	6.2	"	12:	6.2	"
13:	6.0	"		-	
14:	6.5	"	14:	6.4	"
15:	6.8	"	15:	6.5 Class 2	"
16:	6.8	"	16:	6.7	"
17:	6.8	"	17:	6.8	"
18:	7.4	"	18:	7.0 Class 2	"
				(later est. - probably	
				(biased - suggests 7.2	

Change of Address

MacLeod, R.M. 40 Alexandra Road, Reading, Berks. RG1 5PF

Correction

Gill, P. 36 Wilkins House, Churchill Gardens, London SW1V 3BY

New Members

Blackett, R.P. 29 Lorne St., Denton Holme, Carlisle CA2 5DX
MacPhee, A. 26 Glenburn Gardens, Whitburn, West Lothian EH47 8NL

NO SPACE FOR LAST SAE REMINDER - CHECK YOUR ENVELOPE! RENEW TODAY!