VARIABLE STAR SECTION CIRCULAR

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Office: Burlington House, Piccadilly, London, W1J 0DU
ECLIPSING BINARY LIGHT CURVES
TONY MARKHAM AND MICHAEL CLARKE

The variables were observed on a regular basis, rather than only at the times of predicted primary eclipses, and all observations were plotted, in order to see how much scatter/tidy a light curve might result.

**X Trianguli** light curve is based on observations by Michael Clarke.

**WW Draconis** lies near TX Draconis and is labelled on chart 106.01, although it is not identified as an EB. The light curve is based on observations by Tony Markham.
FROM THE DIRECTOR

ROGER PICKARD

After more than 10 years as our Editor, Karen Holland has asked to step down with immediate effect. I am extremely grateful to Janet Simpson for taking on this onerous task and trust she will serve for at least as long as Karen!

Karen, through much badgering of likely contributors has managed to issue four Circulars every year since she took over as well as instigate a number of innovations within the Section such as the CCD Programme and the Mentoring Scheme. She will be missed as the Director’s ‘ideas’ person.

However, Karen will not be lost to astronomy as she intends to continue visual observing with her Daughter, Rosie, something she has been enjoying very much over the last year or two. She will also be supporting Janet in her new role for the foreseeable future. Karen also needs more time to concentrate on her business activities and we wish her well in this connection as well as thanking her for her invaluable contribution to the Section for so long.

Please send all future contributions as well as subscriptions to Janet whose details can be found on the back cover.

VSS Meeting Saturday 5th May 2007

I’m pleased to advise that the next Section Meeting will be on Saturday 5th May 2007, and will take place at the Royal Observatory, Blackford Hill, Edinburgh; this will be our first meeting in Scotland. The meeting will start at 10.00 am for 10.30 am, and finish at 5.30pm.

Speakers will include Dr Martin Hendry on “Gravitational Microlensing - Nature’s Telescope”; Dr Michael Hawkins on “Dark Matter”; and Andrew Collier Cameron on “Sizing -Up Extrasolar Planets with Small Telescopes”.

There will be an optional tour of the ROE following the lunch break.

The cost will be £10 per head to include all refreshments and a buffet-style lunch.

In addition the Astronomical Society of Edinburgh are holding their monthly meeting on Friday 4th May at 8 pm at the Calton Hill Observatory in the middle of Edinburgh. Members are welcome to attend this meeting who have arrived in Edinburgh on Friday evening.

Des Loughney is kindly organising the meeting for me, and so any queries on travel and accommodation etc. should be addressed to him. Some details can be obtained from the ROE’s web site <http://www.roe.ac.uk/>.
I would be grateful if those attending can register with Des so that we can make the necessary catering arrangements, and organise the tour of the ROE (we may need to do it in two parties). Car parking is available just outside the ROE. Those people who have special needs should contact Des as car-parking can be arranged inside. The lecture room is accessible.

Further details will appear on the web site as they become available, or may be obtained from either Des or myself.

If you want to display a poster paper please let Des or myself know.

I’m sorry for the late announcement of this meeting but it only came about following the Director’s visit to Edinburgh, in December last year.

Old Charts

John Toone, our Chart Secretary, has made an appeal for any observers who may still possess old VS Charts to contact him; the older the chart the better, but he is particularly interested in those that are at least 20 years old. Please let either John or myself know if you have any that you’d be happy to get rid of.

More Old Data Unearthed during BAA Office Move

During the recent move of the BAA Office to allow the refurbishment of the whole of Burlington House, a number of old VS records came to light. Some of these are in a slightly different format to those we’ve handled so far, but if any member fancies having a go at transcribing them to machine readable form please let me know. Otherwise they will have to wait for another member of the existing team to finish their present task.

Reversed Charts

Thanks are now also due to new member Kim Burton for reversing several charts that now appear on our Web Site.

On the Usefulness of Visual Observing

I’ve spoken to some observers over the last few months about the usefulness of visual observing in this modern day and age with so many professional CCD surveys of one type or another, and with more and more amateurs turning to CCD photometry. It usually runs along the lines that visual observing is pointless and has been replaced. How wrong can they be?!!

Visual observations go back around 120 years, and in some cases a few hundred years. Electronic scans of the sky have lasted for only a small percentage of this time but will they continue? Sure, one may be replaced by another, but we will need to tie those two
ECLIPSING BINARY NEWS

DES LOUGNEY

W Serpentis

While trawling through an astronomical publication, I was surprised to read that there may be a ‘trinary’ system. I had not thought that such a system could have a stable orbit, but it seems I was wrong. Apparently there is a stable ‘figure of eight’ orbit, which three stars can trace out. A binary system has two eclipses. A hallmark of a trinary system would be six eclipses.

If a trinary system is possible, then I would suppose, several examples should have been detected. However it seems that there is only one candidate at present. This is the system W Serpentis, which varies within the range 8.4 to 10.2.

W Serpentis has an accepted period of 14.15 days. Within that period it has three minima.

Those who speculate that it is a trinary system, consider that the real period is double the accepted period, therefore 28.3 days. On the basis of that period there are six minima. Apparently, according to a computer model, the light curve over 28.2 days is consistent with a trinary system.

W Serpentis is not on the Eclipsing Binary observing list, but perhaps such an interesting
object ought to be?

The more conventional explanation, of the three minima within a 14.15 day period, does not make the system any less interesting. This explanation suggests that we are observing a close binary system with an unusually high rate of mass transfer from the secondary to the primary. The transferred mass forms a thick accretion disc, more like an accretion sphere, around the primary which largely obscures it. Near a pole the accretion disc is thinner and allows the underlying star to shine through. This bright spot, jet, or conventional hot spot, is brighter than the rest of the apparent disc of the primary. The third minimum represents the regular eclipse of the ‘hot spot’.

Observing W Serpentis is well within the means of amateur astronomers, though it is a bit low down for those of us who live in Scotland. Timings of the three minima may well be useful in illuminating the true nature of the system.

For further reading:


SW Cygni

This is a system that is on the Eclipsing Binary list. It will soon be in a favourable position for observing before midnight. It is quite easy to find as it is near the well known Omicron Cygni double. It is an Algol-type eclipsing binary (EA/SD), which varies between 9.3 and 11.8 during the primary eclipse. The period is 4.573 days.

The eclipse is total. On published light curves, the period of totality does not look very long in comparison with the phase diagram. However, bearing in mind the period of the system, totality actually lasts three hours. At the time of writing the next eclipse will be at 5.00 UT on 1/2/07; totality will start at 3.30. To get enough observations to make a reasonable estimate of the mid-eclipse, I reckon that you would have to start at around 2am, and then resume after totality finishes at 6.30 am.

This system is still of professional interest, because of continuing active mass-transfer from the secondary to the primary. The transfer is revealed through period changes, emission lines at totality, an accretion hotspot and a stable accretion disc, and a perturbed light curve. It would be interesting to see whether visual observations would pick up any of the features that may constitute a perturbed light curve.

Eclipsing Binary Secretary
desloughney@blueyonder.co.uk
AW Sagittae

A rare outburst of this ROP star was detected independently by Jeremy Shears and Gary Poyner on Nov 16.764 at 14.1C and Nov 16.846 at 14.4 visual respectively. This was the first outburst detected since May 2004. Unfortunately the location in the evening sky limited the period in which time-series photometry could be undertaken. Despite this however, Jeremy Shears reported 0.3 magnitude superhumps detected on November 16th (see his image in Figure 1 below), and Tom Krajci obtained a 3.2 hour time series run on November 18th revealing a superhump amplitude of 0.25 magnitude, and approximate period of 0.076d [baavss-alert 962]. Taichi Kato comments in vsnet-alert 9130, that the Supercycle for AW Sge could be quite long at ~2yrs.

V452 Cassiopeiae

It has been decided to drop V452 Cas from the ROP. Thirteen outbursts have been detected since 1993, with nine of those observed since 2005. Recent intense CCD coverage has established that V452 Cas is a short period UGSU star, which in some aspects resembles the short brief outburst nature of V1316 Cyg. The UGSU classification was confirmed during the November 1999 outburst, when Tonny Vanmunster and Bob Fried determined a Psh of 0.0891d +/- 0.0004 [CBA News]. This value was however established from relatively short time-series runs, so it is important that V452 Cas is kept under observation so that any future superoutburst can be monitored more intensely. The Supercycle has also to be established.

http://www.garypoyner.pwp.blueyonder.co.uk/rop.html
MY FAVOURITE VARIABLE STAR
Jeremy Shears

When I first heard Janet’s suggestion that VSS members should write about their favourite variable, I thought “what a great idea, let’s get writing”. However it has taken me some months to get around to putting pen to paper. This is not just because it has been a difficult decision, but also because I am not sure if I am actually allowed to have a favourite variable star. Let me explain with an example. When I moved to the Far East, I was immediately impressed by the variety and quality of the Asian cuisine, especially during my travels in China. There were simply so many dishes to try, so many different methods of preparation. In spite of that, pretty early on I announced that my two favourite dishes were crispy fried squid (the baby variety) and roast pigeon. Immediately, a wise Chinese friend commented that I was not allowed to have a favourite dish yet, as there were literally thousands of different foods to try and until I had spent a lifetime savouring them I should reserve judgement. This was wise advice indeed, and my journey thorough Chinese cuisine continues. Now, I began variable star observing a mere two years ago, so surely it would be too early, and too presumptuous of me, to have a favourite? One way around this is to simply claim a variable as my favourite so far encountered in my variable star journey.

With these caveats understood, let’s move on to describe how I choose the favourite. I am almost exclusively a CCD observer; the sole exception being a series of naked eye observations of χ Cygni made during the summer of 2006 whilst on holiday in Spain without a telescope and without a CCD. I know that many people think that CCD observing is a purely mechanical process, devoid of any emotional contact with the stars such that a visual observer gets when admiring a beautiful star field. Well, just like a visual observer, I do get pleasure from imaging certain VS fields, especially ones that are very rich in stars near the milky way, like V1454 and V1363 Cygni, both of which have many attractive asterisms in their fields.

I also enjoy variables that are accompanied by other interesting deep-sky objects. Examples of the latter are CP Draconis and AL Comae Berenices, both of which are close to spiral galaxies (NGC 3147 and M88 respectively). Hence any favourite variable, so far as I am concerned, must be located in an interesting field to which I look forward to return time and again.

A second prerequisite of a favourite variable is that it should show some interesting behaviour. It has to be said that many of the targets on my programme, which are mainly Cataclysmic Variables, are invisible most of the time; in fact many of these I have never seen, since their outbursts occur on timescales of years, and several have never been seen in outburst.

One of the excitements of CVs is being able to spot a rare outburst of one of these stars, and following up with time-series photometry in an attempt to uncover its underlying astrophysics: heady stuff indeed! But to keep my interest going, it’s important to have some stars on my programme that do show regular activity. So based on these criteria - interesting field and intriguing activity - my favourite star at the moment is V452 Cassiopeiae.
V452 Cas is a dwarf nova belonging to the UGSU family. Recent monitoring has shown that the star shows rather frequent outbursts, typically every month or two, but these tend to be short-lived and rather faint, often below 16.0. In addition, there’s the occasional superoutburst, during which superhumps have been detected. More details of these outbursts can be found in Gary Poyner’s notes about the Recurrent Objects Programme, elsewhere in this Circular.

Most of the time when I image the field the star is not detectable, although I can usually detect the magnitude 17.2 star to the north on the AAVSO chart, which sets the limiting magnitude. Hence I record the result as <17.2. But occasionally when I turn the telescope to this field, to my amazement, V452 Cas appears as a neighbour to the magnitude 15.8 field star as shown in the accompanying CCD image. Because these stars are so close, when V52 Cas is in full outburst they look like a beautiful double star: a truly beautiful sight!

And there’s science to be done here too: we still need to determine the actual frequency of outbursts and superoutbursts, as well as to refine the superhump period during a future superoutburst. What more could one want from a variable star?

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Figure 1: V452 Cas in outburst on 2005 Sep. 23, Takahashi FS102, 0.1 apochromatic refractor, Starlight Xpress SXV-M7 CCD (unfiltered). 25’ x 19’; S is up.
SAO 64632 - A NEW VARIABLE STAR IN THE FIELD OF U CORONAE BOREALIS

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Abstract: A light curve of the dwarf K star SAO 64632 (BD +32 2572), in the same field as U CrB, is presented in this paper. Data was obtained using the 7.5-cm telescope at the Cáceres Astronomical Observatory (Cáceres, Spain) equipped with a Starlight Xpress MX516 CCD. The present light curve (in V band) and those obtained by HIPPARCOS (in B and V band) are all analysed: the results show that SAO 63632 is a variable star of low amplitude (almost 0.18 magnitude: 0.14 ± 0.04 mag.) with a period near to 9.24 days.

Name of the object: SAO 64632, BD +32 2572, HIP 75011
Equatorial co-ordinates: R.A.= 15h 19m 40.14s  DEC.= 31° 50' 33" (Equinox: 2000.0)
Observatory and telescope: Cáceres Astronomical Observatory, Cáceres (Spain), 7.5cm achromatic refractor.
Detector: Starlight Xpress MX 516 camera, 512 x 290 pixels, 16 bits.
Filter: V Johnson
Comparison star: SAO 64632 (HIP 75011), for U Coronae Borealis.
Check stars: TYC 2563-605-1, TYC 2563-1152-1 (BD +32 2567), TYC 2563-1060-1
Availability of the data: Upon request to fviolat@yahoo.es

Type of variability: BY (BY Dra: stars with ‘starspots’ rotating with the star), L (unstudied variable stars with slow light changes) or IB (poorly studied irregular variables of intermediate [F-G] to late [K-M] spectral type).

The variability of SAO 64632 (BD +32 2572 and HIP 75011), a high proper-motion star (LTT 14557 or PPM 78506), has been discovered during a programme to study, discover and/or classify new variables, using CCD observations of stellar fields with a small telescope. In this case the star was the eclipsing variable U CrB (Alpha: 15h 18m 11.35s, Delta: +31° 38' 49.42", magnitude: 7.82 V, period: 3.4522053 days), using SAO 64632 (V = 8.8, Sp. K0 V) as comparison star and TYC 2563-605-1 (V = 9.55), TYC 2563-1152-1 (V = 10.52, Sp. G5) and TYC 2563-1060-1 (V = 10.30) as check stars (B, C and D in our CCD chart, Figure 1).

The observations were taken on 33 nights over a period of 47 days, between 2006 August 30 and October 15 (HJD 53978 to 54024), using a CCD camera (Starlight Xpress MX516, 512 x 290 pixels, 16 bits, field of view: 36' x 24') attached to the focus of the 7.5-cm refractor (focal length = 500 mm) at Cáceres Astronomical Observatory, Cáceres (Spain), with a V Johnson filter. The exposure time was 40-45 s, depending on the
transparency; the frames were corrected for standard dark and flat fielding, and were then processed with the microcomputer-based aperture photometry software “AIP4WIN”. Because the signal-to-noise ratio for SAO 64632, a presumably non variable star, was above 50, the photometric precision was below 0.03 magnitude.

From 402 CCD frames over 395 observations of U CrB, an EA eclipsing star, the following was taken: the CCD finder chart (with labelled stars) is shown in Figure 1 and the light curve is shown in Figure 2.

The magnitudes were determined relative to SAO 64632, whose constancy during the run was confirmed using TYC 2563-605-1, TYC 2563-1152-1 and TYC 2563-1060-1. In Figure 3 we can see a strange “oscillation” between eclipses because the comparison star is really variable; curiously the same periodical “oscillation” appears in the light-curves of the 3 check stars (Figure 4 and 5).

The measured amplitude was in the range 0.21 to 0.40 magnitude, including the random errors: the scatter increases and widens for the low bright stars TYC 2563-1152-1 and TYC 2563-1060-1 (V 10.52 and 10.30 magnitudes respectively).

Figure 1: CCD finding chart made by the authors, of the variable U Coronae Borealis (U), the comparison star (A), and the check stars (B, C and D). Field of view: 36’ x 24’; North down, East to the right. Limiting magnitude: ~13.
Figure 2.: Light curve, in V band, of U CrB from our 395 CCD: a strange “oscillation” (seen as abnormal scatter between eclipses), can be observed.

Figure 3: Light curve, in V band, of U CrB from our 395 CCD measurements, folded with the official period; amplitude measured: 0.842 magnitude. One can see the periodical, and sinusoidal, oscillations in the time.
Figure 4: Light curves of check stars TYC 2563-605-1 (B), TYC 2563-1152-1 (C), and TYC 2563-1060-1 (D), with the same and identical, periodical, quasi-sinusoidal "oscillations".
Figure 5: Light curves of check stars folded with the period found (9.218 days).
The analysis of the photometric data was performed by means of the program “Análisis de Variabilidad Estelar” AVE (written by Rafael Barberá, Grupo de Estudios Astronómicos, G.E.A., ) using the Scargle algorithm (Scargle, 1982); the analysis yields a period of 9.200 days for TYC 2563-605-1, 9.211 days for TYC 2563-1152-1 and 9.243 for TYC 2563-1060-1.

Photometric variability of SAO 64632 was detected by the Tycho instrument during the Hipparcos project (Fig. 6), but no studies on variability have been published to date.

Finally, Figure 7 shows graphs of the Hipparcos data (191 measurements) folded to the period derived for SAO 64632 from this data (9.323 days). The paucity of Hipparcos data (the four-year lifetime of the satellite ended in August 1993), the bad temporal coverage (the Tycho observations of any particular star are very unevenly distributed in time) and the high noise of the $V_T$ and $B_T$ data account for the unsolved variable status of SAO 64632 in the Hipparcos catalogue.

Some physical data about SAO 64632 taken from SIMBAD or Strassmeier et al. (2000) are: spectrum = K0 V; parallax: 0.02227” ± 0.00123”; distance: 145 y.l.; radial velocity: -26.6 ± 0.4 km s$^{-1}$; colour index $B$-$V$: 0.83; $T_{\text{eff}}$: 5210 K and $M_V$: 5.9. This dwarf K star with a large...
annual proper motion (LTT 14557 or PPM 78506), is a member of the “Hyades supercluster”. The projected rotational velocity, $V \sin i$, measured by Strassmeier et al. on the same night was 6.2 km s$^{-1}$ and 10.1 km s$^{-1}$.

DISCUSSION

Fekel (1997) measured 133 bright stars with spectral types of F, G or K from The Bright Star Catalogue: the projected rotational velocities of 24 stars of spectral types K0 V to K7 V are in the range 0.6 km s$^{-1}$ to 3.9 km s$^{-1}$, showing moderately slowly rotating stars (periods > 14 days). The work of Radick et al. (1987), high-precision differential $b, y$ photometric observations, shows that the rotation periods of lower main-sequence Hyades stars (like SAO 64632, sp. K0 V) increase from about 5 days at $B-V = 0.55$ (~F8 V) to about 13 days at $B-V = 1.25$ (~K5 V), and the rotational velocities decline smoothly from about 11 km s$^{-1}$ to 4 km s$^{-1}$ over this colour range.

From the Strassmeier et al. velocities the rotation period for SAO 64632 are in the range of 6 to 10 days. If the photometric periods (Hipparcos and ours) agrees with this range, then the low-level variability measured (~0.11 mag. Hipparcos, but 0.21 mag. from our best measurements) can be attributable to starspots in a moderately fast rotating star. A periodic (rotational) signal has been detected in the intra-seasonal H+K variability of HD 1835 and HD 25998 (Baliunas et al., 1983), both members of the Hyades “moving group”: HD 1835, a normal solar-type dwarf star (G2 V), shows low-level photometric variability (3%-4%).

It is particularly important to remember that low-level photometric variability is a ubiquitous characteristic of Hyades stars later than spectral type F8 V: twenty-four of these stars were observed at Lowell Observatory between 1982-1984 and, without exception, all were found to be variable (Radick et. al, 1987).

The sinusoidal shape of the four folded light curves (one from Hipparcos and three from ours data) suggests that SAO 64632 is a BY Dra variable star, and the surface activity is extended covering a significant fraction of the stellar surface. Stellar rotation

![Figure 7. The Hipparcos data (191 points) folded with a period equal to 9.323 days.](image)
may be periodic (9, 10 or 11 days), but the modulation signal produced by dark spots marking a stellar surface is not: the appearance and disappearance of spots at different longitudes will affect the amplitude, period and waveform of the light curves (as in SAO 64632). The Sun is regarded as a BY Dra variable, a type characterised by showing low (0.01 to 0.5 magnitude) visual amplitudes over intervals varying from a fraction of a day up to about 120 days.

In 2006 intensive photometric observations were obtained over 33 nights and 47 days (Violat & Violat, 2006); there is no doubt that we have been lucky: one (possibly three) of the field stars were found to be variable. We need more accurate photometric observations, in a future campaign (2007), to adequately classify this new variable star.

Acknowledgements:

This research made use of the SIMBAD data base, operated by the CDS at Strasbourg, France; the NASA ADS Abstract Service was used to access data and references. The translation of this paper from Spanish to English was made by Miss Ruth Kent (Agrupación Astronómica de Cádiz Hércules).

The observational data used in this work are available upon request to Francisco Violat-Bordonau: fviolat@yahoo.es

References:

HP LYRAE IS A PULSATING STAR

TRISTRAM BRELSTAFF

In his article “Minima of Long Period Eclipsing Variables”, Tony Markham includes HP Lyrae. This star is now thought to be a pulsating star. See “HP Lyr - Possibly the Hottest RV Tau Type Object”, Graczyk et al., Acta Astronomica, Vol 52 (2002), pp 293-304. The abstract of this paper reads as follows:

“We report Johnson’s UBVRI photometric and optical spectroscopic observations of a long period variable HP Lyr which up to now has been considered to be an eclipsing binary with a period of 140 days. Its spectral type changes continuously from A2-3 at maxima to A7-F2 at minima. We propose that the brightness changes are caused by pulsation of the star with two periods: P₁=69.35 days, and P₂=2 x P₁=138.7 days. These periods decreased by more than 1% between 1960 and 1980. The spectral luminosity class corresponds to an A type supergiant Lab. HP Lyr is also the optical counterpart of the infrared source IRAS 19199+3950. Relatively high galactic latitude (b=+11.7 arcdeg) and high radial velocity (-113 km/s) indicate that HP Lyr is an evolved, most likely post-AGB star. All these features suggest that this star is an RV Tau type object.”

A full copy of the paper is available online via the Smithsonian/NASA ADS Astronomy Abstract Service.

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OJ+287 UPDATE:

GARY POYNER

Following on from the news update published in the December 2006 Journal of the British Astronomical Association [1], it is now clear that Dr. Esko Valtaoja’s prediction for a January 2007 outburst has not materialised. In fact OJ287 has been undergoing deep minima of below magnitude 16, followed by short duration flares of around one magnitude amplitude. These are occurring roughly at intervals of 25-30days. Four post conjunction flares have now been observed during October, November, December and January, and as I write these words (Feb 02), OJ287 is in the mid 15’s.

We must now look forward to a September 2007 outburst, as predicted by Dr. Mauri Valtonen last year. Indeed Dr. Valtonen has gone one step further, and has produced a future light curve calculation up to and including 2014. Here he charts his predicted behaviour for OJ287 for the next seven years. Quite a feat! The graph can be seen at...

http://www.garypoyner.pwp.blueyonder.co.uk/oj-future.gif

Observers should now observe OJ287 at every possible opportunity (and if possible several times per night), and as near to Solar Conjunction as possible. Hopefully we should be seeing a slow brightening trend within the next month or two. Observations should be reported to me on a daily or weekly basis (but no longer please). The campaign light curve is updated as data is received, and can be seen at...

http://www.garypoyner.pwp.blueyonder.co.uk/oj_camp.html

Observers:

1: JBAA, 116, 6 2006
IBVS 5701-
GARY POYNER

5701 Times of maxima for selected Delta Scuti stars. (Klingenberg et al, 2006)
5702 Active motion of matter in the envelope of DI Cephei. (Ismailov & Aliyeva, 2006)
5703 Elements for RR Lyrae variables in Ophiuchus. (Haussler et al, 2006)
5704 The first complete photometry of the short period Algol type binary BF Velorum. (Manimannis & Niarchos, 2006)
5705 UZ UMa: An ARab star with double periodic modulation. (Sodor et al, 2006)
5706 Newly discovered variable stars in the globular cluster NGC 6864 (M75) (Scott et al, 2006)
5707 New times of minima of some eclipsing stars. (Dogru et al, 2006)
5708 Variability of V838 Mon before it’s outburst. (Kimeswenger & Eyres, 2006)
5709 BVRcIc photometry of three RRAB stars. (Jurcsik et al, 2006)
5710 CCD photometry of DF Lyr, BY Peg, CW Peg and RW Tri. (Polsgrove et al, 2006)
5711 Calibration of a UBVRI sequence around Nova Cyg 2006. (Frigo et al, 2006)
5712 Spectroscopy of the faint Dwarf Nova DV UMa and AR Cnc. (Haefner, 2006)
5713 165. List of timings of minima eclipsing binaries by BBSAG observers. (Diethelm, 2006)
5714 Accurate light curve of the eclipsing binary V1898 Cyg. (Dallaporta & Munari, 2006)
5715 The classical Algol XZ UMa – observations and analysis. (Nelson et al, 2006)
5717 The GEOS RR Lyr survey. (Le Borgne et al, 2006)
5718 The high amplitude delta Scuti star GP Andromedae. (Szeidl et al, 2006)
5719 GSC 2038.0293 is a new short period Eclipsing RS CVn variable. (Bernhard & Frank, 2006)
5720 Found a Nova in M31: The true optical counterpart of the M31 supersoft X-ray source 191. (Smirnova & Alksnis, 2006)
5721 THE 78th NAME LIST OF VARIABLE STARS. (Kazarovets et al, 2006)
5722 RV Aps: A unique eclipsing binary for gravity darkening studies. (Khaliullin et al, 2006)
5723 Detection of a large flare in the RS CVn star WY Cnc. (Kozhevnikova et al, 2006)
5725 BVRcIc observations of the dwarf nova AH Her during 2005. (Spogli et al, 2006)
5726 Times of minima of the eclipsing binary system EG Cephei. (Diamond et al, 2006)
5727 New times of minima of some eclipsing binary stars. (Cakirli et al, 2006)
5730 GSC 02799-00902: A new delta Scuti variable. (Zhang & Zhang, 2006)
5731 Photoelectric minima of selected eclipsing binaries and maxima of pulsating stars. (Hubscher et al, 2006)
5732 Elements for 8 RR Lyrae variables. (Haussler et al, 2006)
5733 Photometry of RS Oph after the 2006 outburst. (Zamanov et al, 2006)
5734 First complete BVRI light curves of the short period Algolpe binary DFPup. (Manimannis & Niarchos, 2006)
5735 IV Cassiopeiae: A probable photometric triple star. (Wolf et al, 2006)

The Information Bulletin on Variable Stars (IBVS) can be accessed through the WWW in HTML format at the following URL… http://www.konkoly.hu/IBVS/IBVS.html
THE 2006 ECLIPSE OF V1413 AQUILAE:

GARY POYNER

V1413 Aquila is an eclipsing symbiotic star, with a period of 434.1 days, and eclipse amplitude of ~2 magnitudes. For further details see VSSC 108, June 2001.

Looking at the past seven eclipses which I had observed (I also missed two because of unfavourable position in the winter sky), the mid-eclipse time for 2006 was predicted to be October 31st. The eclipse ingress started near to October 2nd, with Ingress taking 19 days, five days shorter than 2005. V1413 Aql remained eclipsed for 23 days, with mid-eclipse very close to the predicted October 31st. Egress lasted 23 days, five days longer than 2005.

Fortunately the eclipse ended just as the field became too difficult to observe in the December sky. The whole event lasted 68 days. The amplitude of the eclipse was two magnitudes (13.3v-15.3v). This is consistent with previous eclipses, and with the star being about 0.5 magnitude intrinsically brighter, was slightly easier to observe visually.

The next two eclipses will be difficult to cover, with mid-eclipse times being January 8th 2008 and March 17th, 2009.

Figure 1: The 2006 Eclipse of V1413 Aquilae. 35cm SCT Visual G. Poyner

For details of previous eclipses, see...

http://www.garypoyner.pwp.blueyonder.co.uk/V1413aql.html
CH CYGNI

MELVYN TAYLOR

The recent activity and fade of this popular binocular Symbiotic star.

Observers are: Brundle, Fraser, Gavine, Livesey, McCalman, Markham, Meacham, Taylor and Toone.
## BINOCULAR PRIORITY LIST

**MELVYN TAYLOR**

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<th>Type</th>
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ECLIPSING BINARY PREDICTIONS

Des Loughney

The following predictions, based on the latest Krakow elements, 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 UT, with a value greater than 24 indicating a time after midnight. D indicates that the eclipse starts/ends in daylight, L indicates low altitude at the start/end of the visibility and << indicates that mid eclipse occurred on an earlier date.

Please contact the EB secretary if you require any further explanation of the format.

The variables covered by these predictions are:

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Note that predictions for RZ Cas, U Cep, Beta Per and Lambda Tau can be found in the BAA Handbook.

For information on other eclipsing binaries see the website <http://www.as.ap.krakow.pl/o-c/index.php3>. Again please contact the EB secretary if you have any queries about the information on this site and how it should be interpreted.

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2007 May 28 Mon
X Tri L02(01)02D
TX UMa D22(20)24
U CrB D22(20)26
TW Dra D22(22)26D
U Sge D22(26)26D
2007 May 29 Tue
X Tri L02(00)2D
del Lib 24(30)26D
2007 May 30 Wed
Z Dra 00(03)02D
Z Per L00(<<)01
SW Cyg D22(27)26D
RS CVn D22(28)26D
2007 May 31 Thu
TW Dra D22(17)22
TX UMa D22(21)26
Z Vul D22(23)26D
IRAS 21443+4349: Visual G. Poyner
This star has only been under observation since July 2004. It appears to be a Mira star with an amplitude of 12.0 - <16.3 visual. Very difficult to observe when faint due to the presence of a very close 12th magnitude star.
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CONTRIBUTING TO THE CIRCULAR

If you would like to prepare an article for consideration for publication in a Variable Star Section Circular, please read the Notes for Authors, published on the web pages at 
http://www.britastro.org/vss/circs.htm; reproduced in full in VSSC127 p 24, or contact the editor (details on back cover) for a pdf copy of the guidelines.

If you are unsure if the material is of a suitable level or content, then please contact the editor for advice.

The deadline for contributions to the next issue of VSSC (number 132) will be 7th May, 2007. All articles should be sent to the editor (details are given on the back of this issue).

Whilst every effort is made to ensure that information in this circular is correct, the Editor and Officers of the BAA cannot be held responsible for errors that may occur.

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TELEPHONE ALERT NUMBERS

Nova and Supernova discoveries
First telephone the 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 01284 828431.

Variable Star Alerts Telephone Gary Poyner (see above for number)