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Telephone Alert Numbers

The following may be called up to 23:00 UT (BST when in operation) to report variable-star activity, or at any time during the night for possible novae only:

Guy Hurst 0256 471074
Alan Young 0435 882102
Graham Keitch 0934 862924
Denis Buczynski 0524 68530

For subscription rates and charges for charts and publications see inside back cover.
Binocular and Telescopic Programmes 1988

The accompanying list gives details of all objects currently on the binocular and telescopic programme, and the charts available for them. It does not include objects on the separate programme of recurrent objects (see VSSC 66), eclipsing binaries (see the Eclipsing Binary Handbook), or Supernova search charts (listed elsewhere in this issue).

In addition to the objects mentioned in VSSC 66, two stars are dropped from the binocular programme as their ranges are too small for effective observation. They are NO Aur (6.10-6.30) and RR UMi (4.53-4.73).

The positions, types, ranges and periods are mostly from the GCVS, but account has also been taken of some data appearing since the catalogue was compiled. For many red variables, visual ranges have been taken from other sources. A key to the abbreviations under “Type” is given at the end of the list.

The column “Pr” indicates whether each star is on the binocular (B) or telescopic (T) programme. The separation into two programmes is a matter of administrative convenience and affects observers only in that the charges for binocular and telescopic charts differ (see inside back cover). Several objects on the telescopic programme are normally bright enough for observation with binoculars or the naked eye; these are marked “T*”. Conversely, several objects on the binocular programme are often too faint for binoculars, and may be suitable for small telescopes; these are marked “B*”.

The final column usually gives: the serial number appearing at the foot of the chart; the date of the latest revision or the name of the variable on whose chart the star in question appears. Observers are urged to check their charts to make sure they are using the latest versions, and were necessary to obtain replacements from the Chart Secretary.

Alert reports

Unusual activity in any star on the binocular or telescopic programme should be reported to any member of the alert team of “The Astronomer”, whose telephone numbers are listed below (and inside the front cover). The following should be watched for in particular:

- major outbursts or subsidiary rises in the recurrent novae, old novae (especially GK Per), long-period dwarf novae (VY Aqr, WZ Sge, UV Per, SW UMa), and Z And stars
- supermaxima of UGSU stars
- fades of RCB stars to 0.5m or more below normal maximum brightness
- fading of PU Vul below its current brightness of 9m.

The following numbers are available up to 11 pm, and all night for possible novae: Guy Hurst 0256 471074; Alan Young 0435 882102; Graham Keitch 0934 862924; Denis Buczynski 0524 68530. Early detection and reporting will enable important observations to be made by amateurs and professionals world-wide.
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Key to Abbreviations for Types of Variable

- **BLLAC**: BL Lac: variable starlike galaxy nucleus with flat radio spectrum and no strong emission lines.
- **E**: Eclipsing binary star.
- **EA**: Algol-type eclipsing binary, with contact times identifiable from light curve. The suffix /G signifies giant component(s).
- **GAL**: Optically variable galactic nucleus.
- **GCAS**: Gamma Cas: shell star with temporary fades.
- **INA**: Orion variable of early spectral type: young object in diffuse nebula with irregular variations and occasional abrupt Algol-like fades.
- **LB**: Slow irregular variable of late spectral type.
- **LC**: Slow irregular supergiant variable of late spectral type.
- **M**: Mira: long-period variable giant.
- **N**: Nova: thermonuclear runaway on white dwarf component of close binary.
- **NA**: Fast nova, fading 3m in 100d or less.
- **NC**: Very slow nova, at max. more than 10 years; often classed with ZAND.
- **NR**: Recurrent nova.
- **QSO**: Optically variable quasar.
- **RCB**: R CrB: cyclic pulsations and irregular deep fades.
- **RVA**: RV Tau star (pulsating supergiant with alternating primary and secondary minimum) with constant mean magnitude.
- **RVB**: RV Tau star with varying mean magnitude.
- **SDOR**: S Dor: high luminosity star, usually in diffuse nebula and with expanding shell.
- **SR**: Semiregular.
- **SRA**: Semiregular red giant with persistent periodicity.
- **SRB**: Semiregular red giant with poorly expressed periodicity.
- **SRC**: Semiregular red supergiant.
- **SRD**: Semiregular giant or supergiant of intermediate spectral type.
- **UG**: U Gem: dwarf nova, with pulsed release of gravitational energy from accretion disc around white dwarf component of close binary.
- **UGSS**: SS Cyg: dwarf nova with outbursts lasting several days.
- **UGSU**: SU UMa: dwarf nova with short outbursts like UGSS, and occasional supermaxima 2m brighter and five times longer.
- **UGZ**: Z Cam: dwarf nova with cyclic outbursts interrupted by standstills.
- **UV**: UV Cet: flare star.
- **X**: X-ray binary containing compact object (white dwarf, neutron star or black hole).
- **XP**: X-ray pulsar, with period 1 sec. to 100 min., and slower light change due to rotation of ellipsoidal component.
- **ZAND**: Z And: symbiotic star, a close binary comprising a cool star and a hot one exciting an extended envelope.
- **ZZ**: ZZ Cet: non-radially pulsating white dwarf.
MINIMA OF ECLIPSING BINARIES, 1986 - (2) Cyg to Ori

John Isles

In the accompanying list of observed minima, photoelectric determinations are underlined. For further explanations, see VSSC 58.

The total numbers of observations received for known and suspected eclipsing variables in constellations Cyg-Ori, including estimates reserved for separate discussion, are summarised below.

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In addition to the above timings, we include some unpublished timings in earlier years for Beta Lyr, V505 Mon and FO Ori; and we repeat earlier results by observer EJ, which as previously published were affected by an error in the light-time corrections. An asterisk draws attention to further information in the following notes.
V367 Cyg. Observations 6578-6784 folded onto a single cycle in order to derive the timings.

68u Her. Observations 6492-6763 by DH and 6615-6790 by QM folded onto single cycles in order to derive the timings.

Beta Lyr, V505 Mon. Observations in each calendar year folded onto single cycles in order to derive the timings.

V1010 Oph. Observations 6559-6678 folded onto a single cycle in order to derive the timings.

The numbers of estimates given against certain minima include estimates made on other nights which were also used in deriving the time of minimum. These were as follows.

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Observed minima

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**Forthcoming VSS Reports**

(The full text of these reports will be published in the BAA Journal)

**Mira Stars - III: R Dra, R Gem, S Her, T Her, U Her and R Leo**
(J.E. Isles and D.R.B. Saw)

Some 54,000 visual observations of six Mira stars, observed for between 54 and 70 years, are analysed, and the results are compared with catalogue data. A number of interesting correlations are found among features in the light curves. The periods of S Her, U Her and R Leo may vary, though for none of these is the evidence conclusive. The period of T Her appears to show short-term, non-random oscillations about the mean value.

**Eclipsing Binaries, Lacerta to Orion, in 1969-1986 [revised version]**
(J.E. Isles)

Photoelectric and visual observations of 37 known and suspected eclipsing binaries are discussed. Revised light elements are derived for HP Lyr, V389 Oph and V530 Ori. WZ Leo is probably constant. Both of the alternative periods given in the literature for UW Ori appear to be incorrect. The period of V643 Ori is confirmed to be 52.42d, and not 26.21d.

**Hoffmeister's Variable Stars - Last chance of a discount**

As a few persons have not taken up their orders of for this book at a special discount price, just a few copies are still available from the bulk orders that were placed. The price is £25.00 - exactly half of the nominal UK price - plus £1.60 for inland postage. This offer cannot be repeated - even at a higher price - so anyone wanting a copy is urged to contact Storm Dunlop as soon as possible. Please do not send payment, until availability is confirmed. First come, first served.
**Eta Geminorum - A correction**

An error was inadvertently made in discussing Eta Geminorum in *Circular 66*. This star is on the programme of the JAS Variable Star Section, but there are no plans for it to be incorporated in any of the BAA VSS programmes. Any members who have made observations are urged to send them, not to Melvyn Taylor, as stated, but direct to John Isles in his capacity as Director of the JAS Variable Star Section.

**Price of Eclipsing Binary Handbook - A correction**

Because of an error by the price of the Eclipsing Binary Handbook was given as two different amounts in *Circular 66*. The correct price, now shown inside the back cover, is £1.00 (collected from the BAA Office), £1.25 by post (inland) and £1.50 (overseas). Copies may be ordered from Storm Dunlop.

**Does this star vary? - John Isles**

(adapted from an article in *Light Curve*, Vol.2, No.6, 1977 Nov.)

The literature abounds with premature reports of suspected variables that have not been confirmed. These will appear in catalogues of suspected variables for all time and will cause many wasted hours of amateur and professional observing time, either in investigating them, or through avoiding them as comparison stars. Observers should not publish suspicions that a star is variable without good grounds.

When one has a series of observations of a suspect, there is a simple statistical test that may be used to decide if they show evidence of variation. One must remember that visual estimates do not strictly show a ‘normal’ distribution, partly because the standard error of an observation will vary according to the conditions of observation, and partly because of *scale error*. In a case where comparison star magnitudes are, e.g., 6.0, 6.4, and 7.0, an observer is quite likely to record estimates of 6.0, 6.2, 6.4, 6.7 and 7.0 more often than other values. Accurate comparison star magnitudes may not be available anyway. A non-parametric test is required, such as *Spearman's Rank-correlation Test*. This is illustrated in the following example.

Table 1 lists 25 estimates of BD+19°4450 Del (NSV 13150) made by the writer in 1968-1972. The observations are first ranked from 1 (brightest) to 25 (faintest); where more than one observation was made at a particular magnitude, the observations are ranked in random order, or in this case in order of Julian Date read from right to left, which serves well enough here. The unsigned differences between ranks of consecutive observations are then written down. We include the difference between the last and first ranks as this simplifies the test without appreciably reducing its sensitivity. If the star varies, we expect high (or low) rank values to tend to come together, and the rank differences to be lower on average than one would expect by chance. We substitute the sum of the squared rank differences, SSRD, into the formula for the rank-correlation coefficient: 

\[ r_s = 1 - \frac{6 \times SSRD}{n(n^2 - 1)} \]

where \( n \) is the number of observations.
Table 1 - Observations of BD +19°4450 Del (NSV 13150)

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Sum of squared differences = 1464

In this case we get \( r_s = 0.44 \).

\[
\begin{align*}
    r_s &= 1 - (6 \times 1464) = 0.44 \\
    &= \frac{25(25^2 - 1)}{25^2 - 1}
\end{align*}
\]

We need to know whether this value is significantly greater than we should expect to get by chance. Table 2 shows critical values of \( r_s \) for various values of \( n \). For \( n = 25 \), we obtain, by interpolation, critical values of 0.345 for a significance level of 5% and 0.48 for 1%. Thus the a priori probability of getting a value as high as 0.44 is much less than 1 in 20.

We cannot conclude from this that BD+19°4450 Del is necessarily variable, for the observations may be subject to systematic error, e.g. bias or seasonal effects, and there is also the possibility that the result was obtained by chance; the test rather works the other way round, for if \( r_s \) were less than the critical value, we should conclude that the observations do not show acceptable evidence for variation on a time-scale longer than the median interval between estimates. (Variation on a shorter time-scale cannot be demonstrated unless it is regular.) Before publishing a claim that a star is variable I suggest that an observer should check that the results are significant at the 5% level.

When the work of two or more observers is discussed together, a correction must first be made to allow for any constant difference between the individual observers' results, due to the use of different instruments or observing techniques, otherwise, spuriously significant results may be obtained when the observations are unevenly distributed.
Table 2 - Critical values of $r_s$ for values of $n$

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For more than 40 observations, critical values are, to sufficient accuracy:

$$\frac{1.64}{\sqrt{n}}$$ at the $5\%$ level, and $$\frac{2.33}{\sqrt{n}}$$ at the $1\%$ level.

UK Nova/Supernova Patrol Catalogue of Galaxies - Guy Hurst

A new catalogue is now available for Supernova Search Galaxies. This abridged version gives the Messier/IC or NGC number for each galaxy, RA and DEC for (1950), and $m_{pr}$ of the galaxy. This is followed by three columns giving chart availability. The first covers ‘A’ charts which are finders, then ‘B’ for general telescopic use, and ‘C’ for high power use. ‘N’ indicates that the chart is not yet available. The magnitude of the faintest star on the sequence is given, followed by the latest chart revision date.

We need the help of photographers where no chart yet exists. Please contact me if you feel you can help.

Orders for the charts should note the name of the galaxy, RA/DEC and chart type. Price is 10p per chart. Post and Packing: up to 20 charts 50p per order; over 20, £1.00. Overseas rates on request. Additionally the full 7-page copy of the Catalogue can be sent for £2.00 post paid. All remittances should be made payable to G.M. Hurst.
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IU Orionis - I.A. Middlemist

This star was listed in the 1969 GCVS as a possible eclipsing binary. In the new (1985) edition it is classified as a nebular variable showing rapid light changes.

During 1986, I made observations of this star as a possible eclipsing binary, and minima were timed on seven nights. The chart used was the chart of Orion Nebula variables issued by the Binocular Sky Society. A period search was carried out by the rather cumbersome use of a 48k Spectrum, and an adaptation of M.B. Houchen's program in VSSC 57, p.9 (1983). I found that the instructions for folding the observations onto the trial period had to be modified as follows:

```
0590 IF D(I)>P*1 AND D(I)<P*2 THEN LET D(I)=D(I)-P
0600 IF D(I)<P*2 THEN LET D(I)=(D(I)-(Px2)): GO TO 590
```

The best fit was obtained with a period of about 0.4945 days, which produced a Beta-Lyrae-like curve with two minima. A decrease in scatter was noted at P/2 and P/4, but the scatter at P/2 was greater than at P, implying that minima are asymmetric. The table sets out observed times of minimum, and predicted times according to the elements:

\[ \text{Min} = \text{JD} 244 \, 6437.360 + 0.49451/2.E \]

which assumes symmetrical primary and secondary minima.

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<td>7 488.400</td>
<td>488.355</td>
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(The assignment of Mins I and II is arbitrary, treating the base-line as Min I.) Allowing for the likelihood of errors in observation, and in the derivation of times of minima, the accordance of the predicted and observed times is reasonable. The jump in the O-C diagram associated with the change from secondary to primary minima suggests again that I-II is less than 0.5P. The results seem to be consistent with IU Ori being an EB variable with a period just under 12 hours. However the possibility remains that the star was in an episode of quasi-periodic pulsation-related fluctuations with a time-scale of the order of 6 hours. Also if it is established that the minima are due to eclipses, this does not preclude the occurrence of 'Nebular'-type variability. T Tau, for example, is a multiple system. Further observation is called for to see if there are other modes of variation, or to test and improve the elements.
The Bruno-H.-Bürgel Observatory, Hartha, GDR
Helmut Busch, Director

The Bruno-H.-Bürgel Observatory was founded in 1956. It is a school and public observatory in Hartha, which is a small industrial town of just about 10,000 inhabitants, between the larger cities of Liepzig and Dresden. The observatory is sited to the north-west of the town, on the 324-metre high Gallberg, which is the highest point for some considerable distance. The location is very suitable for astronomical observation and was one reason for the observatory being built in Hartha.

However, the main reason was the proximity of a very famous observatory, which has supported us throughout our existence. This is Sonneberg Observatory, run by the Institute for Astrophysics of the GDR’s Academy of Sciences. The close cooperation between the two observatories dates back to 1949, when I had the opportunity of visiting Sonneberg and seeing the scientific work that was being carried out there. Under the guidance of its founder, and Director for many years, Professor Hoffmeister, Sonneberg gained an international reputation for its work in various fields including observations of meteors, comets and meteor streams, but in particular for the study of variable stars. Cuno Hoffmeister and his colleagues have discovered more than 10,000 of them. It was not surprising that I became interested in the subject, and I started visual observation of variables in 1949, later observing photographically. Although an amateur, I had access to the second largest plate collection in the world, namely that of the Sonneberg Sky Patrol (SSP), with more than 200,000 photographs.

Before Prof. Hoffmeister died in 1968, we were given the opportunity of taking part in the work of the ‘Sonneberg Field Survey’. This involves searching for, and studying variables in selected fields in the northern Milky Way. The photographs were obtained by very fast astrographs (OG diameters of 40 cm) that were put at our disposal. The plates contained variables down to 18th magnitude. Most of the variables were new discoveries and we determined the elements of their variation. Known variables in the fields were also checked and their elements improved. The results are published in the Veröffentlichungen der Sternwarte Sonneberg [VSS - Publications of Sonneberg Observatory]. The fields that we have examined are:

psi UMa  Beta Her  Rho Per  2 Lac (in press)

In January 1958, our own equipment for the Hartha Sky Patrol (HSP) was finished and started work. Selected fields were photographed with a total of 6 Zeiss-Tessar cameras (f = 250 mm). These fields coincide with those in the Sonneberg Survey. We were therefore able to supplement the Sonneberg archives with our photographs. Annual visits to Sonneberg (since 1949) have been mainly concerned with examining these photographs. Countless variables have been monitored or newly studied by myself and my colleagues. Our visual observations are also passed to the professional observatory and we have specialized in the study of eclipsing stars.
variables. We are interested in period-changes, eclipsing stars with secondary minima and apsidal motion, and in producing photometric elements. In order to increase the observational accuracy, since 1986 we have been using a photoelectric photometer by Schnitzer. Using this, we are able to cover many stars in the Russian NSV catalogue (*New Catalogue of Suspected Variable Stars*), which have not been studied previously. An advantage that is not, perhaps, generally appreciated, is that we are able to use the Sonneberg Observatory's card index. This includes information about all the literature relating to individual variable stars. This information is now also available from the Centre des Donnés Stellaaires (Stellar Data Centre) at Strasbourg. We have also built up our own card index, which has been of great assistance. This was prepared from works in our own library at the observatory. This includes the major astronomical publications. We exchange publications with about 100 observatories in the GDR and around the world. These exchanges enable us to keep up-to-date with other observatories' results and changes in our knowledge of variable stars.

Our results are made available to professional astronomers. Since 1968, our observatory has had its own publication *Contributions of the Bruno-H.-Bürgel Observatory, Hartha*. Normally one issue is published each year. In addition, we send out at irregular intervals *Hartha Observation Circulars*. Both publications are available on an exchange basis. Our most interesting results are published in the IBVS (*Information Bulletin on Variable Stars*) issued by IAU Commission 27 from Budapest. The results of the Sonneberg Field Survey are published in the VSS, and those regarding amateur astronomers in the GDR in the *Mitteilungen über Veränderliche Sterne* (MVS = Contributions about Variable Stars), published by Sonneberg. Some of the amateur observations are sent to our colleagues in the AFOEV at Strasbourg, where they appear in the AFOEV Bulletin.

In order to obtain observations of scientific value, the observatory has been equipped in an adequate manner. Our main instruments are installed in 5-m and 4-m domes. In the 5-m dome there is a 360-mm Cassegrain telescope (f = 5250 mm) with a photoelectric photometer for observations in UBV. In the 4-m dome there is a 162-mm refractor, with which visual observations are made. A smaller, 2-m dome and another building contain the 2 mountings with the 6 Zeiss-Tessar cameras used in the sky patrol. Four of these cameras have an electronic guiding system. For special photographs, an 80-mm (f = 500 mm) telephoto lens may be used. The photographic plates are measured with photoelectric and visual photometers. Our library and card index have already been mentioned.

Many amateur astronomers in our country are interested in variable stars, so professional astronomers are interested in collecting and interpreting their observations. In 1972, I succeeded in bringing these amateur astronomers together in the 'Arbeitsgruppe Veränderliche Sterne' (Variable-Star Working Group) under the GDR's Kulturbund (Cultural Association), and this has now been functioning successfully for 15 years. The aim of the Working Group is to teach interested amateurs to obtain and analyze observations of variable stars. In return we hope to
receive good observations. One can only be a member of the Working Group by sending in observational results. About 70 people in the GDR belong to the Group, with two foreign observers (in the Soviet Union and Czechoslovakia). Most of the members are young, with some older observers and the group includes both students and retired professors. An internal bulletin keeps members informed of news and gives them information about observing, and it is also used for discussing some results.

The Hartha Observatory is the centre for the Working Group. Several colleagues have undertaken the (honorary) work of coordinating work on various classes of variables. They collect the observations, interpret them and prepare them for publication. In the last 15 years, members of the Working Group have made and reported more than 200,000 observations. Professional astronomers confirm the value of our observations. An example of this is R CrB. This erratic variable is kept under close surveillance by us. Every year, the Sonneberg Observatory publishes a light-curve in the MVS that includes our observations.

Our members are covering other interesting variables and publishing their results. For example, Dietmar Böhme, an engineer, who is a member of the Working Group, makes both photoelectric and polarimetric observations. More and more members are carrying out analyses of the observational material. It is planned to send copies of all our work over the last 15 years to the CDS in Strasbourg.

Our Working Group also cooperates with foreign groups that are also working on variable stars. In particular, with groups in Czechoslovakia, the Soviet Union, Federal Republic of Germany, France, Belgium, Hungary, and Switzerland.

In our country, the use of photoelectric photometry is relatively new. With help from professional astronomers and interested amateurs we are encouraging amateurs to use photoelectric methods, and in 1986 we organised a colloquium on
the subject. This colloquium included specific information about the construction of photometers for amateur use. The number of active observers is continually increasing.

Because our observatory is also a school observatory, we take part in teaching astronomy for 10th-form pupils at our General Polytechnic Schools. Since 1959, astronomy is an obligatory subject in school, and I feel that this is an important achievement that has been made in this country. In only four other countries in the world is astronomy part of the curriculum. In a one-year, thirty-hour course, pupils get a grounding in basic astronomy. Beyond this, any pupils who are particularly interested can take part in optional astronomy classes and courses. These pupils often remain interested in astronomy after leaving school, and this is one reason for the large number of amateur astronomers in our country. We have been pleased to find that many young amateurs who have taken part in our observatory’s programmes have moved on to become professional astronomers.

Our observatory acts as advisor on astronomy for the area around Leipzig. Every year, during the winter holidays, we hold a course for teachers and this helps to improve astronomical knowledge amongst teachers in the area.

The Bruno-H.-Bürgel Observatory has gained a reputation as a serious astronomical observatory, both in this country, and in other countries. We are pleased to be making a contribution to the science of astronomy and to spreading knowledge of it to a wider public.

[Note by Emile Schweitzer (AFOEV): Bruno-H. Bürgel, whose name has been given to a number of observatories in the GDR, the Federal Republic of Germany and Austria, was born in 1875 and died in 1948. Of very humble origins (he started out in life as a cobbler), and self-taught, he was the author of numerous, popular astronomical books, which were published in more than 2 million copies.]

BS-551 And (SAO 037607) - Ian Middlemist

This star was added only a few years ago to the Binocular Programme, as a suspected variable. I undertook observations from 1974 to 1980, making 192 estimates in that period, and made preliminary reports in *Light Curve* about ten years ago. Markham has also observed this star, and reported a possible minimum in late 1980. Suspicion was originally aroused by a reference in Lampkin’s ‘Naked Eye Stars’, where it was listed at magnitude 4.2. If at its normal brightness, it should not have been listed at all. The probability that the entry was merely a repetition of an entry in a source publication arising from a compositor’s error did not cancel curiosity, so I undertook the observations. I stopped observing in 1980, as it seemed impossible to persuade others to join me, and a single observer’s visual estimates would not be likely to be taken as conclusive evidence of variability, or constancy.
More recently, I have now reviewed my old observations, and on plotting them was surprised to find some well-marked features in the resulting light-curve. These are notably a short but well-marked minimum about JD 2442450 (early 1975), a fade from 6.2 to 6.6 in the course of about 110 days in Autumn 1975, followed by a rise to 6.2 by December, followed by a further fade to 6.5 by the end of March 1976, and another short minimum at 6.6 in early 1978. There are suggestions of minima at a few other times as well. I have attempted to fit some sort of period to the various minima, but found that whilst 360d and 260d kept recurring, no elements satisfied even some of the observed minima, without being defied by the absence of minima near other predicted dates. This apparently eliminates the hypothesis, entertained for a while, that the system might be a long-period eclipsing binary. More consistent with the observations is the possibility that SAO 037607 is a small-amplitude variable, of type L or SR, which at some times is more active than normally, and at others almost constant.

The light-curve reproduces observations from JD 2442400 to 2443600, roughly mid-December 1974 to late March 1978, when most of the suspected activity took place. Earlier and later observations do not support the hypothesis of variability, only a few stray points being outside 6.2-6.4.

This star, whether proved variable or not, once again raises the problem of how stars suspected of variability by amateur observers, are to be brought to the attention of other observers, without being enshrined in the literature prematurely. This was highlighted by Dr J. Percy in his treatment of Tau Cas. On the one hand, perfectly respectable constant stars may be besmirched for ever as variables, but on the other we may pass up the chance of discovering genuine variables, and perhaps even a class of intermittent variables. Many reports of possible variability involving K-type stars begin with an amateur noting an anomalous magnitude (usually too bright) for the suspect. By the time others are persuaded to look, it is too late, and the culprit has returned to normal - if it were ever anything else! There must be a role here for alert notices such as the TA Circulars, and for amateur astrophotographers and photometrists. When a few suspects have been investigated, we may be better able to dismiss reports as being more in the eye of the observer than the real sky, or find that something really is happening.

[For a discussion of a test that observers may use to determine whether possible fluctuations in a suspect star are significant or not, see the article by John Isles on p.12 of this issue. - Ed.]

References:

1 Middlemist, I.A., Light Curve, 1 (3) May 1976, p.18
2 Middlemist, I.A., Light Curve, 1 (3) Sep. 1976, p.10
3 Markham, T., VSSC 61, p.9
4 Lampkin, R., Naked Eye Stars, 2nd edn., 1972, p.8
5 Percy, J.R., Journal of the AAVSO, 14 (2) p.52

(Photograph taken by Anna Faye Williams and kindly supplied by Janet Mattei.)

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Professional-Amateur Collaboration

On 1988 May 07, a meeting of professional and amateur astronomers was held at University College, London to discuss collaboration in the study of variable stars. The outcome of the meeting was the formation of the Professional-Amateur Co-ordinating Committee (PACC-VS) consisting of representatives from both sides. The committee members are:

Professional:  Amateur:
Constanze le Dous (University of Cambridge)  Guy Hurst
Robert Smith (University of Sussex)  Richard Miles
David Stickland (Rutherford Appleton Laboratory)  Roger Pickard

The PACC-VS has the following broad objectives:

1. To foster communications and collaboration between amateur and professional astronomers concerned with the study of variable stars.
2. To promote the use of advanced techniques by amateurs, especially photoelectric photometry and to encourage technology transfer between professionals and amateurs.

The committee will meet regularly and will produce a quarterly newsletter containing news of professional and amateur activity, appeals for observations, advice on equipment and observing techniques, announcements etc. The newsletter will be circulated with the BAA VSS Circular and to any other interested persons.

Communications to the committee should be sent to:

R.D. Pickard, 28 Appletons, Hadlow, Kent TN11 0DT U.K.
Telephone No.: (0732) 850663
International: +44 0732 850663

CH Cygni - Deep fade continues

The very deep fade of CH Cygni continues, latest reports to hand before this Circular finally closed for press (on 1988 July 12), indicate that it is at around magnitude 9.0-9.1. (Unconfirmed reports from some observers suggest that it may even be slightly lower.) It has been around this magnitude throughout June.

Some years ago CH Cygni was exceptionally bright (at around 5.5) and the BAA VSS sequence had to be extended towards brighter magnitudes. Now it appears likely that fainter comparisons will have to be added. The Secretary, Melvyn Taylor, warns observers to take additional care in estimating this object at present, as it is particularly faint for users of binoculars, so that a change to different instruments is probably necessary. Such alteration in instrument is almost certain to produce a ‘step’ in the magnitudes of estimates. Please ensure that any change of equipment is recorded fully; that unintentional bias does not creep into your estimates; and that observations with different instruments are reported exactly as they are made, and not ‘adjusted’ to fit one another.
Reporting of observations for first half of 1988

Observers are reminded that reports of estimates in the period of 1988 Jan.-Jun. for objects on the Main and Telescopic Programmes should be sent to the Secretary, Melvyn Taylor, as soon as possible.

Indexing of the Circulars in progress

We are very grateful to Peter Wheeler for offering to prepare an index to the VSS Circulars, and for promptly completing the first batch. Pending the completion of this task, anyone with queries about particular items is invited to contact Storm Dunlop, who is prepared to locate the necessary information. Much material is held in machine-readable form, which may be searched (relatively) rapidly.

Chart Booklets

Many members have enquired about whether additional chart booklets are to be issued, including the second set of binocular objects that was announced some time ago. It is indeed our intention to issue further booklets, but it has been considered advisable to delay publication of until it has been possible to improve and redraw certain charts. (The process of improving many charts on both the Binocular and Telescopic programmes is now in hand, and details of availability will be announced in the Circulars in due course.)

Proceedings of IAU Colloquium 98 - The Contribution of Amateurs to Astronomy

The Proceedings of this Colloquium will be published shortly by Springer-Verlag, and will contain several items of interest to variable-star observers, including:

- Eclipsing Binary Stars - F.B. Wood
- Giovanni Battista Lacchini - Favero
- Roberts of Lovedale and Eclipsing Binary Stars - T. Williams
- Amateur Astronomers and the IAU Central Bureau for astronomical telegrams and Minor Planet Centre - B. Marsden
- Contributions of amateur astronomers to variable-star observing - J. Mattei
- Reduction of variable-star observations using BASICODE - T. Jurriens
- Elimination of errors in the estimation of variable stars - E. & P. Velasco
- The study of variable stars - E. Porreti
- The contribution of amateurs to the study of variable stars - D. Proust & E. Schweitzer
- Professional/amateur cooperation in the study of variable stars - N. Frolov
- Amateurs and the search for supernovae - S. Lucas
- The UK Nova/Supernova Search programme - G. Hurst
- GEOS - M. Dumont
- Period and light-curve of PX Cep - R. Boninsegna

Many other contributions - for example those on equipment - contain considerable information of interest to variable-star observers. A paper, which could not be included in the Proceedings in full (in English) on the Bruno-H.-Bürigel Observatory in Hartha, GDR, is published on p.23 of this Circular.
CHANGES OF ADDRESS

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K. Xlyaris Lymbia, Nicosia, Cyprus

CIRCULARS

Charges: U.K. & Eire £4 for Circulars and light-curves (4 issues)
Other countries £5
Payments (made out to the BAA) and material for inclusion should be sent to Storm Dunlop.

CHARTS: Eclipsing - Order from Mrs E. Isles; All others - John Toone

Charges: Telescopic SAE plus 30p per star
Eclipsing SAE plus 6p per star (1 sheet)
Binocular SAE plus 8p per star (1 sheet)

NB: SAEs should preferably be A4 size

BOOKLETS

Direct sale prices apply to material collected from the Office at Burlington House or purchases at BAA Meetings.

Binocular Variable Star Charts: Vol.1

£1.25 (U.K.) or £1.50 (Overseas) each, including postage (Direct sale price £1.00)

Eclipsing Binary Programme Handbook: 1988

£1.25 (U.K.) or £1.50 (Overseas) each, including postage (Direct sale price £1.00)

Available from Storm Dunlop or BAA Office at Burlington House
Binocular and Telescopic Programmes 1988  
Forthcoming VSS Reports  
Hoffmeister's Variable Stars - Last chance of a discount  
Eta Geminorum - A correction  
Price of Eclipsing Binary Handbook - A correction  
Does this star vary? - John Isles  
UK Nova/Supernova Patrol Catalogue of Galaxies - Guy Hurst  
IU Orionis - I.A. Middlemist  
The Bruno-H.-Bürgel Observatory, Hartha, GDR  
Helmut Busch  
BS-551 And (SAO 037607) - I.A. Middlemist  
Light-curves  
Chart  
Variable-Star Observers at IAU Colloquium 98, Paris (photo)  
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CH Cygni - Deep fade continues  
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