



The Variable Star

OBSERVER

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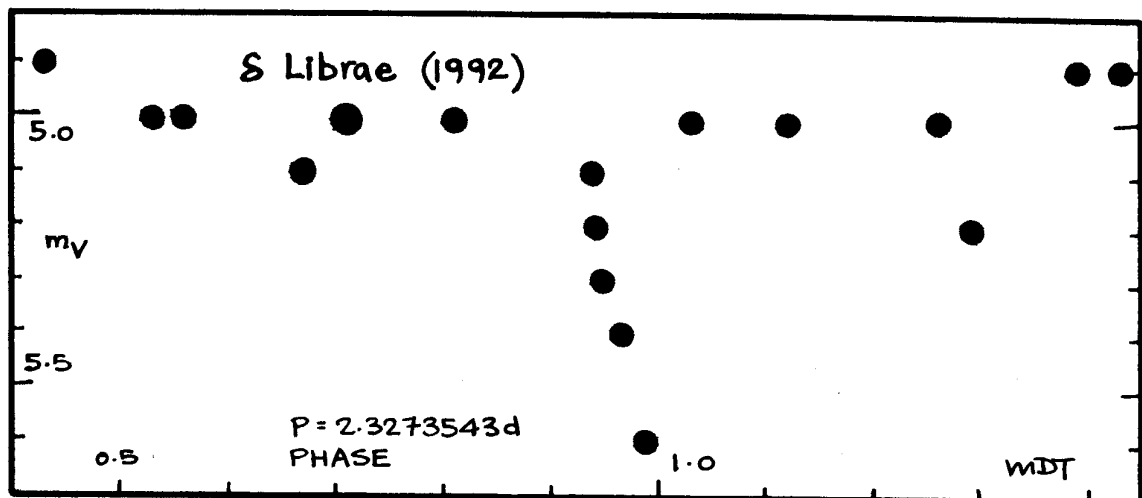
Monthly

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Important Announcement

I have decided to stop producing the Variable Star Observer in order to concentrate my efforts on the Variable Star Section Circulars which I am going to produce myself, from January onwards. This means that this will be the last VSO. All outstanding SAE's will be converted into an approximately equivalent value of subscriptions to the VSSC. A slip enclosed with this issue should explain what this means to each of you, individually. If you have any objections to this, then please write to me.

The VSO was originally only intended as a stop-gap to fill in while the VSSC's were going through a bad patch. I was quite surprised that it lasted more than just a few months. I would like to thank all of you who provided me with material, both those who did so intentionally and those who did so unwittingly, in the letters they sent me. I hope you will continue to do so for the VSSC's.



Visual Observations of Delta Librae by Melvyn Taylor

Melvyn Taylor sent in the accompanying phase light-curve of the eclipsing binary Delta Librae. Although bright (about 5th mag), this star is rather awkward to observe from Britain because it is 8 degrees south of the equator. Melvyn's light-curve rather nicely illustrates an effect which I have also found in my own observations of this star, made a couple of years ago - occasional faint observations at times when the star should have been at maximum. The point at phase 1.3 is the best example of this. I suspect

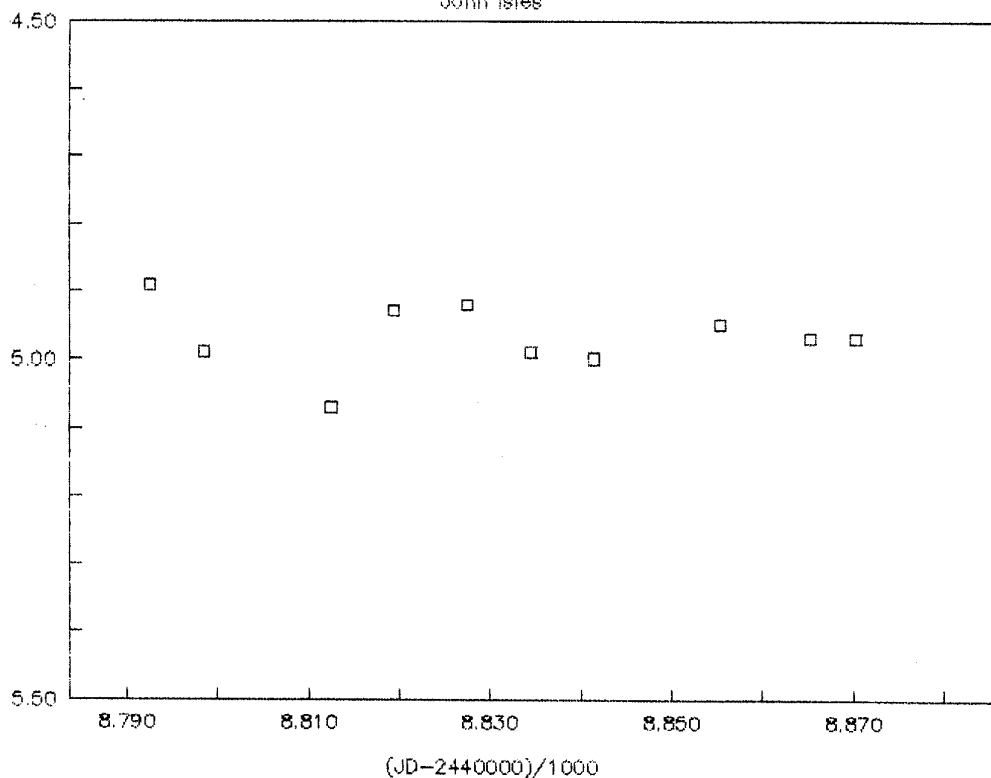
that the cause of these spurious faint observations is unseen haze or cloud. When a star is near the horizon, its light (and that of the comparison stars) has to pass through much more atmosphere and so there is more chance of it passing through cloud than when the star is high up. Also, in built-up areas the sky near the horizon is often brightened by street lighting and so small patches of cloud there can easily go undetected. You may ask why neither Melvyn nor myself have recorded Delta as being unusually bright - you would expect cloud to produce random scatter, not scatter directed only towards fainter magnitudes. However, you must take into account the fact that both Melvyn and myself know that Delta is an eclipsing binary and so does not go brighter than its maximum, which is 4.9m. So, whenever we see it as being brighter than that, we realise that something is probably wrong and scrutinise the horizon more carefully for signs of cloud. And that is one way that systematic errors can be introduced in to observations!

Back-Numbers of the VSO

Several people have asked for photocopies of back-numbers of the VSO. As this is rather fiddly and time-consuming for me to do these myself, I have donated a full set of numbers 1 - 18 to the BAA Library. Anyone who wants any photocopies to complete their collection should write to The Librarian, c/o The Assistant Secretary, British Astronomical Association, Burlington House, Piccadilly, London, W1V 9AG.

CHI AQUARI

John Isles

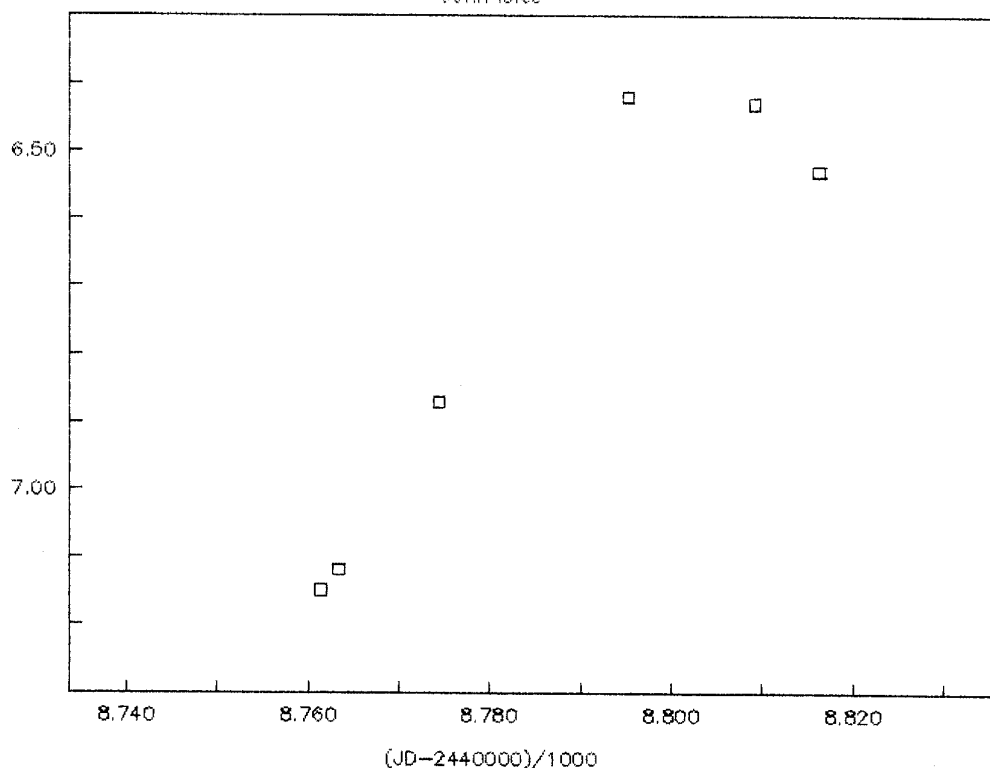


More Photoelectric Results from John Isles

These two light-curves show more of the photoelectric results obtained by John Isles from Cyprus. According to the GCVS, Chi Aqr is a red irregular variable with a range of 4.90 to 5.06V, and SW Vir, a semiregular variable with a period of about 150 days and a range of 6.40 to 7.90V. SW Vir is on the BAA VSS Program.

SW VIRGINIS

John Isles



V404 Cygni Update

In IBVS 3777, E A Antokhina and co-workers report photometry of V404 Cygni at minimum. This X-ray nova was mentioned in VSO 9 because spectroscopic observations had suggested that it was a very good candidate for a black hole. Well, the photometry apparently reveals ellipsoidal-type variations with an amplitude of about 0.3 mag and the same period, 6.5 days, as the spectroscopic variations. This allows the geometry of the system to be refined a little and allows the masses of the components to be re-evaluated. The mass of the invisible component comes out to between 27 and 14 solar masses, that of the visible component, between 6 and 5 solar masses. This suggests that the visible component is a red giant rather than a main-sequence star as was thought previously. Incidentally, if you think Melvyn Taylor's observations of Delta Librae, on the front page of this issue, are a bit sparse and inaccurate, then you should take a look at the light-curve given by Antokhina et al - it consists of six mean points, one of which is 0.2 mag above the theoretical curve. However, at magnitude 19, you cannot really expect milli-magnitude accuracy!

Glimpses

Dave McAdam writes that he now has about 158,000 of the VSS observations entered onto computer disks. While this is only about 8% of the 2 million total back-log, it still quite significant because effort has been concentrated on the more important and more interesting stars. The leading 'data enterer' has been Herbert Joy with over 49,000 to his credit. He is followed by Greg Coady, who entered well over 40,000 observations in the early 1980's, Dave McAdam, himself, with nearly 25,000, and M J Carson-Rowland with over 17000. Further down the list is Gary Poyner with almost 8,000. He has been submitting his own observations in computer readable form. This is a habit that Dave would like to encourage, especially amongst the more active observers such as Gary.

Melvyn Taylor reports that a couple of visual estimates he made on the evening of 16th November show SZ Piscium to have been pretty close to minimum between 6 and 7 hours earlier than predicted by the Krakow Yearbook. This agrees with John Isles' photoelectric results mentioned in VSO 17. Melvyn comments: "John should be pleased to learn that his photometer appears to be working OK!"

Access to the Variable Star Literature
By Tristram Brelstaff

The main reference books for variable star observers are the GCVS (General Catalogue of Variable Stars) and the NSV (New Catalogue of Suspected Variable Stars). These summarise all the basic data for each known or suspected variable star (ie: their coordinates, type, range, period, etc) and also give references to the papers from which this data has been taken. Quite a few amateurs have copies and some of them can be prevailed upon to look up the information on specific stars for you. (Back in the 1970's, I used to bombard Melvyn Taylor with so many request for information on eclipsing binaries that he started to call himself the Wakefield Astronomical Information Service!) However, if you are really keen, then you will probably want your own copies. To do this you should write to Dr N Samus, Institute for Astronomy of Russian Academy of Sciences, 48 Pyatnitskaya, Moscow 109017, Russia. The GCVS comes in four volumes, the NSV in one. When I obtained my copies, a few years ago, it was on an exchange basis - I sent them certain books that they asked for, in return.

Another useful reference is the GuL (Geschichte und Literatur des Lichtwechsels der Veraenderlichen Sterne). This comes in various editions and various volumes and provides a pretty full summary of the earlier work on many stars. Although it has long been out of print, you sometimes find copies in university libraries. It also happens to be in German so you may need to use a dictionary to get the best out of it! Incidentally, if you live near to a university or polytechnic, it is well worth going and having a look their library to see what astronomical material they have. Just go to the enquiries desk on entering, and explain that, though you are not a student, you would like to look at their astronomical books. I have found that they are usually very helpful. (If you feel out of place amongst students then make sure you wear old clothes and scruff up your hair before going in!)

It is unlikely that a university library will have copies of all the journals that you are interested in. There might be goods runs of one or two journals but they are very costly and a lot of libraries stopped taking them in the past few decades. Anyhow, if the paper you are interested in is in something obscure, such as the Tadjikistan Observatory Bulletin, then it will probably only be held in specialist astronomical libraries. In these cases you can order a photocopy of the paper through the inter-library loan scheme from your local branch library. You simply fill out a normal requisition card. Give the name of the author of the paper, the name of the journal (don't use abbreviations), the page number(s), the volume number (where applicable), and the year of publication. You will have to pay a requisition fee of a few tens of pence and, when the photocopies arrive a few weeks later, a photocopying fee of a few tens of pence more. This service allows amateur variable star observers to carry out 'proper' scientific research from their back gardens, albeit, in a rather slow manner.