The *Variable Star* OBSERVER

Number 1 July 1991 Monthly

To subscribe to the VSO simply send six SAE's to T. Brelstaff, 4 Leiston Close, Lower Earley, Reading, RG6 3UE. Contributions and letters should also be sent to the same address.

Editorial

The VSO is intended to be a monthly circular carrying **short** articles, letters and snippets of news on subjects of **general** interest to variable star observers. It is not meant to be a vehicle for the final publication of observational results and serious papers, nor is it intended to rival the news distribution system of The Astronomer. If the VSO makes observers, no matter where they live or what equipment they use, feel more a part of the variable star community and encourages them to make more observations then it will be doing its job.

The VSO welcomes and, indeed, needs contributions from its readers, so if you have a short article for us, or a question, or a complaint, or if you've just got a good light-curve which you are particularly proud of, then send it to the above address. Do try to keep the articles short though; no more than one side of A4 typed or two sides handwritten.

Notes from a Fledgling Photometrist
By Malcolm Porter

How accurate are your variable star estimates? Mine are generally around +-0.02 mags! Interested, then read on!
There's no trick to it I simply use a photometer, and I'd recommend it to anyone. Whether you buy one of the commercially available models or build your own instrument, moving up to photoelectric photometry may not be as difficult or expensive as you might have thought.

Last summer I was lucky enough to attend the AAVSO meeting held in Brussels, Belgium. This was a marvellous opportunity to find out what variable star observers from around the World are doing. In particular, my imagination was caught by a talk given by the American professional, Dr. Douglas Hall, on PEP for amateurs. Apart from saying how easy it is to do PEP, Dr. Hall suggsted some commercially available photometers produced in the US - in particular the Optec SSP-3 (if you read 'Sky + Telescope' magazine you may have seen advertisements for this device). As I am not a person who finds making things very easy the idea of a 'ready-to-go' instrument sounded great. Also, the Optec SSP-3 is priced quite reasonably (as these things go!), and can also be obtained on the second-hand market.

Whilst I was at the AAVSO meeting I spent time discussing PEP with a number of active amateurs. Many of the Americans are using Optec equipment to make a real contribution to the science of astronomy. Before I had left Brussels I had made up my mind to buy a photometer!

Having diligently saved my pennies (and quite a few pounds) I placed my order with Optec, and my photometer was duly delivered to me three weeks later.

Unlike most photometers used in astronomy which employ a photomultiplier tube, the Optec SSP-3 uses a silicon PIN-photodiode detector which allows detection from the UV to the near infrared with a single device. The SSP-3 is not as accurate or as sensitive as an instrument based upon a PM tube: however, I can work with stars down to mag. 8 with my 8-inch Celestron, and, with care, can measure with an accuracy of +- 0.002 mags. There are some people who will say that you're wasting your time in PEP unless you are working with millimags!! However, I believe that the solid-state device fills a niche between naked-eye observation and conventional, PM tube-based photometry. There are plenty of stars up there that will benefit from a closer investigation - one doesn't have to be working on La Palma to do useful work as an amateur.

As far as I'm concerned, the main advantages of the SSP-3 are that it is battery-operated which means that there are no nasty high-tension supplies to worry about, and freedom from damage when accidentally exposed to bright lights or rough handling (as I am wont to do!). Additionally, the Optec device is particularly suited to work with red stars where measurements in the red and infrared are made.

"Ahh", I hear you saying, "but what about all that data-reduction stuff?". No problem. The SSP-3 is supplied with full instructions to get you up and running quickly.
The data-reduction is straightforward and can be done on any scientific calculator. The important thing is that you speak to other photometrists, and read a book or two, so that you have a good appreciation of what you are doing and why, and the potential pitfalls and how to avoid them.

Still interested? GOOD! If you have any questions, just ring or write (details below). Also, I have listed a few books below which you may wish to investigate.

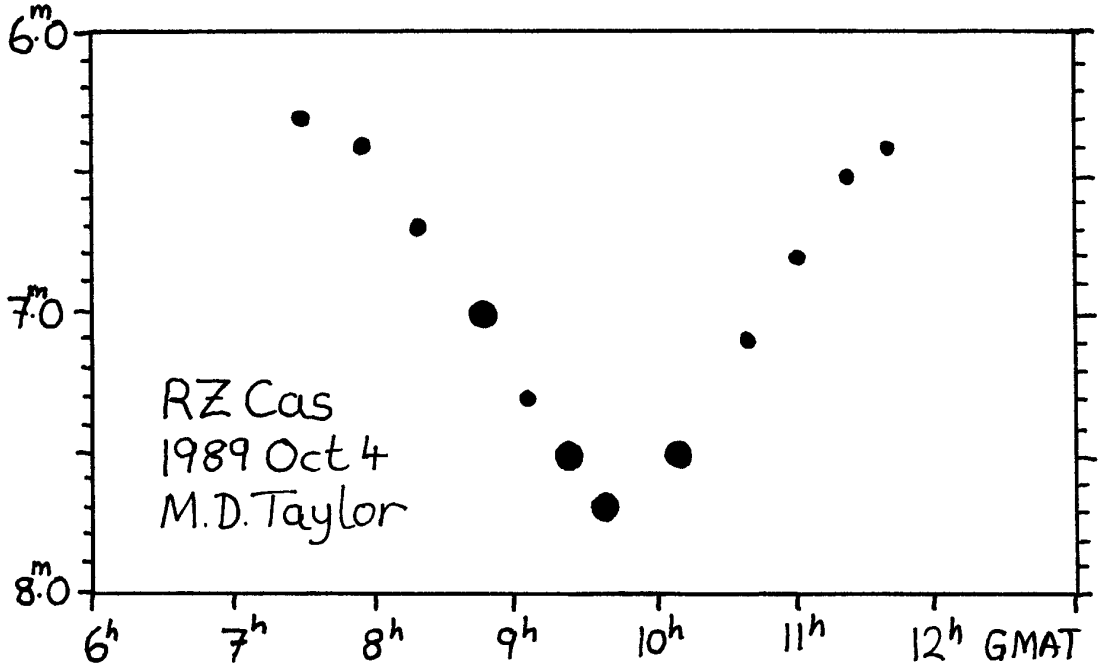
Malcolm Porter. 23, Driftway Road, Loddon Heights, Hook, Hants., RG27 9SB. (0256 766558).

'Photelectric Photometry of Variable Stars', D.S.Hall, R.M.Genet. Willmann-Bell.
'Astronomical Photometry', A.S.Henden, R.H.Kaitchuck. Willmann-Bell.
'Getting the Measure of the Stars', W.A.Cooper, E.N.Walker. Adam Hilger.

Observer Profile: Melvyn Taylor

"If Patrick Moore's definition of an astronomical dinosaur is a valid description of a certain attitude to observing," says Melvyn Taylor, "then I must be a 'variable star dinosaur'!"

The son of a fitter in the coal mining industry, Melvyn was born in 1947 and has lived in Wakefield all his life. He first became interested in astronomy in 1959, through school science classes, and this interest was increased by the astronautical exploits of Yuri Gagarin, Alan Shepard, John Glenn, et al.



In 1963 a chance sighting of what turned out to be the Echo I passive communications satellite prompted him to write to Norman Wright of the JAS. Norman encouraged him to start doing some 'proper' observational astronomy and also sent him a photograph he had just taken of Nova Herculis 1963 (=V533 Her). So, armed with a pair of 8 x 24 binoculars and a 25mm (!) telescope, Melvyn started observing meteors and lunar occultations. He also made observations of some naked-eye variable stars for the JAS but it wasn't until 1967 and George Alcock's discovery of Nova HR Delphini that he became 'hooked on' observing variable stars.

Since then he has mainly observed binocular variable stars though, in 1985 he did succumb to 'Halley-mania' and bought himself 210mm reflector. He mentions the semiregular variable RY Draconis and the symbiotic star CH Cygni as being particular favourites of his. He has also regularly contributed timings of minima of eclipsing binary stars to the VSS Eclipsing Binary Programme since it started in the early 70's. He says he still gets a kick out of observing 'beginners objects' such as Algol and RZ Cassiopeiae (see accompanying light-curve).

As well as being active as an observer Melvyn has also been pretty busy on the organisational side of astronomy. In 1966 he was persuaded by Robin Scagell to be a local representative for the JAS and, a few years later, became JAS meteor secretary (1971-74). He has also been on the committee of the Leeds AS since 1970 and, in 1973, was one of the founding members of the West Yorks AS. He also edited the variable star page in The Astronomer from 1979 to 1985 and was VSS Binocular Programme secretary from 1978 to 1984 and, then, he also took on the duties of the Main Programme secretary as well. With all this voluntary work the wonder is that he has had any time left to make any observations!

Apart from variable stars, Melvyn also observes meteors, comets, lunar occultations, aurorae, noctilucent clouds and asteroids. He has given many talks to local astronomical societies. Outside astronomy he lists his main interests as hill-walking, fishing, photography and 'stopping buildings from falling down' (He works as a structural engineer for Wakefield District Council!).

The Alleged Variability of Kappa Ophiuchi
By Tristram Brelstaff

On the face of it, Kappa Ophiuchi appears to be an ideal comparison star for Alpha Herculis. Its magnitude of 3.19V and spectral type of K2III provide a reasonable match for the brightness and colour of Alpha Her when the latter is near the middle of its range. However, although Kappa Oph has shown no significant variations in recent years, it has been suspected of variability and it is even listed in the General Catalogue of Variable Stars as a possible red irregular variable with a range of 4.1 - 5.0 photographic.

The GCVS quotes "H. Shapley,Harvard Bulletin No 831(1926)" as being the source of this data. Now, Harlow Shapley was one of the great figures in Twentieth-Century astronomy and it would be foolish to dismiss anything published by him without first providing good reasons for doing so. With this in mind, I recently looked up Harvard Bulletin No 831 and was surprised to find that Shapley was not the author of the variability, he just happened to be the editor of the Bulletin at that time. The true author was a Maynard F. Jordan who reports a study of variability in 31 K-type stars from photographic plates covering the years 1899-1923. For Kappa Oph Jordan states that 200 observations show a range of 4.1 - 5.0 photographic and he marks the star out as being "definitely variable". If we assume that Kappa Oph is definitely not variable how, then, can we explain how Jordan came to the conclusion that he did? The reported range is too large to be just observational errors. I suggest that Jordan observed a star which really was variable, but that it wasn't Kappa Oph. Well, if it wasn't Kappa Oph then what was it? In my opinion, the best candidate for this is Chi Ophiuchi and I offer the following reasons in support of this:

1. When written by hand, the Greek letters Kappa and Chi can appear very similar and are easily confused (see Burnham's Celestial Handbook, Vol 1, P71 for a good example of this).

2. There already exists at least one case in the literature of confusion between Kappa and Chi Oph: Joseph Ashbrook in Popular Astronomy 57, 111-114 (1948) points out that Guthnick and Schneller quote some observations by Zverev as being of Chi Oph whereas, in fact, they are of Kappa Oph.

3. The photographic range found by Jordan is pretty similar to the visual range of 4.3-5.1 for Chi Oph that was found by Ashbrook. As Chi Oph is a blue star, its photographic range can be no more than a few tenths of a magnitude fainter than the visual range. Ashbrook also gives a light-curve for Chi Oph covering the years 1873-1948. If it could be shown that Chi Oph did not get as faint as 5.0 in the years 1899-1923 then the idea that Jordan observed Chi Oph by mistake would be disproven. Ashbrook's light-curve shows a range of only 4.3-4.5 in these years but there is a large gap in the observations between 1900 and 1914 so this is not conclusive.

To sum up, the idea that Jordan observed Chi Oph in mistake for Kappa Oph requires further investigation but, even so, the evidence for the variability of Kappa Oph remains pretty weak. It would appear to be safe for all you observers of Alpha Her to continue to use Kappa Oph as a comparison star, at least until somebody comes up with some good evidence for it being variable.

Acknowledgement

Many thanks to Liz Tapsfield for typing most of this issue.