

The Variable Star

OBSERVER

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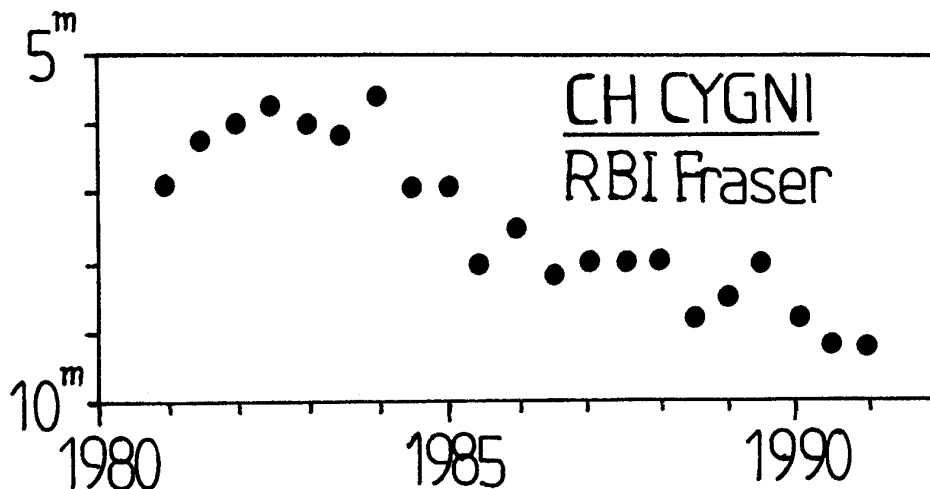
Monthly

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.

Observer Profile: Rhona Fraser

Rhona Fraser was born near Glasgow in 1954. Due to her father's work she frequently moved during her school life (Perth, Dunoon, Crewe), eventually settling down in Dumfries. From there she went to study medicine at Glasgow University between 1972 and 1977. After several more years of training to become a GP, which involved more moves, she has finally settled down in Turriff in North-East Scotland.

Rhona first became interested in astronomy in 1971. She says she used to get very bored during the summer holidays and latched onto astronomy as a subject of interest due to the close approach of the planet Mars that year. She felt drawn to variable stars when she learnt that you get useful scientific results by observing them with only simple equipment such as binoculars and the naked eye. She can still remember the surprise and delight that she felt when she drew her first light-curve from her own observations of V Aquilae, and showed that not all stars are boringly constant blobs of light.



She did receive a 150cm reflector on her 21st birthday, but she has rarely used it, preferring her 10x50 binoculars as she finds she can do about 20 binocular VS observations in the time it takes her to make one telescopic one (though maybe this would improve with practise). However, she does occasionally use the telescope for looking at planets, comets or lunar occultations.

She has mainly observed red semiregular variables and some of the brighter symbiotic stars. Her favorite stars are CH Cygni and, perhaps, V Canes Venaticorum. See the accompanying light-curve for her observations of CH Cyg over the past decade. The points are approximate annual means. She says that she is unable to observe this star in May, June and July each year because the sky is too bright that far north. One advantage of living in the North, however, is that aurorae are more frequent. Rhona does her best to observe these as often as possible but, because of light pollution, her northern horizon is rather poor.

After years of astronomical isolation she recently discovered that she has a local astronomical society - the Aberdeen and District Astronomical Society. She is now a member.

She says that astronomy is probably the perfect pastime for a GP. One of the most horrible things about her job is being called out in the middle of the night, and having to get out of your nice warm bed. Well, when she's on call overnight, and the sky is clear, she sits out in her garden in a deck chair, armed with her binoculars and her radio-phone, thus avoiding the temptation of the warm bed!

Rhona's other hobbies, as well as astronomy, are hill-walking, orienteering and cross-country skiing. Melvyn Taylor tells me that she has been on a walking holiday in the Andes!

Ideas for Articles in future VSO's

Sally Beaumont, of Windermere, writes: 'As a new member of the VSS I send 6 SAE's for your leaflet, the July copy of which was sent to me when I joined. Some hints for new observers certainly would not come amiss if you are wanting ideas of what to put in. It would also be very nice to know how many active members there are, in how many countries, and their geographical distribution. I am told I am the only one in Cumbria.' Is there any one willing to write such articles?

The VSS Centenary Meeting

Roger Pickard writes to point out that it is still not too late to register for the VSS Centenary Meeting, so long as you get your application in before the deadline of **10th October**. It should be well worth making an effort to get along to this meeting, even if you can only stay for the Saturday afternoon. Professional and amateur speakers are lined up and there will be exhibitions of equipment, trade stands and lots of poster displays. Further details are as follows:

Date: Saturday 19th and Sunday 20th October 1991.
Venue: The Manor House, Mayplace Road East, Crayford, Kent.
Fees: One day £7, two days £10, one day plus banquet on the Saturday evening £24, two days plus banquet £25, banquet only £19.
Organiser: Roger Pickard, 28 Appletons, Hadlow, Kent, TN11 0DT (Tel 0732-850663).

Incidentally, Boots are running an offer which would allow two people to travel to the meeting by rail for the price of one. If you are coming from afar this could be worth checking out. The nearest railway station to the venue is Barnehurst.

The Possible Variability of Epsilon Pegasi
By Tristram Brelstaff

The following is an extract from a paper by the German astronomer Julius Schmidt which is mainly devoted to analyzing his visual observations of Beta Pegasi. It was first published in *Astronomische Nachrichten*, 45, 95 (1857). Many thanks to my sister, Thomasin Brelstaff, for translating it from the German:

'I will give just two points in favour of Epsilon Pegasi being variable: firstly, the fact that Epsilon compared with Alpha shows step variations almost as big as Beta compared with Eta; secondly, a strange phenomenon observed in Epsilon many years ago which I wish to report here as the original entry in my Bonn notebook:

"1847 Nov 5: Today I was especially struck by Epsilon Pegasi (the sky was very clear). Shortly after 7h I observed this star, which normally differs in brightness only a little from Alpha Pegasi, as equal to Rho [this is probably a mistake for Zeta - TB] and Theta Pegasi. I was unable to distinguish even the slightest cloud anywhere and, had there been any, it would have had to have been very small and moving very slowly because I could see even the faintest stars nearby. Half an hour later Epsilon looked even fainter and this was also so still later, and no cloud was seen. Afterwards, the star became somewhat brighter but, however, it still was unusually faint."

'The course of the light variations was as follows:

1847 Sep	6	Evening	α Peg	- 0.7	β Peg	+ 1.5	
	18	..		- 0.7			
Oct	11	..		- 1.5		+ 0.0	
	14	..		- 1.5		+ 0.0	
	29	..		- 1.0			
Nov	2	..		- 1.0			
	5	7h 5m					ζ Peg + 0.0
		7h 22m		- 5.0	- 3.0		+ 3.0
		7h 45m		- 2.5	- 1.5		
		8h 00m		- 2.5	- 1.0		+ 7.0?
		8h 27m		- 2.0	- 1.0		
		10h 4m		- 2.0	- 1.0		
		11h 00m		- 2.5	- 1.0		
	6	Evening		- 2.0	- 1.0		
	10	..		- 1.2	- 0.5		
	18	..		- 0.5	+ 0.0		
	20	..		+ 0.0	+ 0.0		

'Somewhere, many years ago, Bode expressed his suspicion that Epsilon Pegasi might be variable. I find this note, without any more precise reference, in my notebook for 1843.

J. F. Julius Schmidt, Olmütz, 1856 Dec 12

Over a century later, R.J.Wood of the Brevard Community College Observatory at Cocoa, Florida, reported an unusual brightening of Epsilon Pegasi (IAU Circular No 2450 (1972)). On 1972 Sep 26 at 23h 58m UT Epsilon was seen as bright as Altair and stayed that bright until 24h 02m when it started to fade rapidly, reaching mag 2.4 at 24h 09m. While it was bright the object was scrutinised with a 32-cm reflector and this confirmed that it was Epsilon and not an object close to it. The colour when bright was orange. In the Circular it is also stated that it was improbable that it was a flare because Epsilon Pegasi is a K-type giant, a type of star which is not known to show noticeable flares.

Neither of these reports are particularly convincing but neither are they particularly easy to explain away. It may be that there is something unusual going on in Epsilon Pegasi but the very short-lived nature of the variations would seem to make it very difficult to sort out what it is.

Magnitude Ranges of Variable Stars

By Tony Markham

Lists of variable stars often include a magnitude range for each variable. In some cases these can be misleading. A check of my VS observations for July to mid-September 1991 reveals that, of the 65 stars on the BAA VSS programme that I have observed, 14 stars (almost a quarter) have observed magnitudes outside the range given in VSS Circular 72. In most cases the divergence is only 0.1 to 0.2 mag, and so can be put down to personal equation or to the uncertainty in individual visual observations. Five variables, however, show larger discrepancies:

	<u>VSSC 72 Range</u>	<u>Observed Range</u>
V450 Aql	6.3 - 6.7	7.0
V1294 Aql	6.8 - 7.2	6.4 - 6.5
CH Cyg	5.6 - 8.5	9.0
TX Psc	4.8 - 5.2	5.9 - 6.0
CE Tau	4.1 - 4.5	5.2 - 5.3

Such discrepancies could be confusing for a new observer attempting to locate a variable for the first time. Some of these discrepancies, CH Cyg for example, can be explained by the variable having brightened or faded outside its previous range. In other cases the quoted range may be incorrect.

A different problem arises for some other variables on the BAA VSS programme: XX Cam (VSSC 72 range 7.3 - 9.7), Gamma Cas (1.6 - 3.0), Rho Cas (4.1 - 6.2), and P Cyg (3 - 6). New observers may be disillusioned to find out that the current variations in these stars are somewhat less than suggested above. Is there a case when giving lists of variable stars for including, alongside the GCVS range, an indication of the recent observed range, say over the last twenty years?

"Vermin"

By Richard Fleet

On November 1st 1987 I was checking the TT Crateris field when I noticed an extra 13.0 magnitude star a few arcminutes from TT. It was just before dawn so I couldn't check for motion, but a search next morning failed to show anything unusual within the area of the chart. I presumed it must be a minor planet - but which one?

Recently Fiona Hughes suggested trying to identify it with a routine from the (widely advertised) 'Dance of the Planets'. She ran it for that date and part of the sky and it was only a few minutes before 704 Interamnia popped up in the right place, with a predicted magnitude of 12.4. At the time it was over 4 au away and almost as far as it can get from the Earth. Continuing the plot showed a surprising number of other objects in the general area, mainly because it was close to the ecliptic, but many of them were 18th magnitude and nothing to get excited about.

With a number as high as 704 I didn't expect to learn much about Interamnia, but to my surprise it turned out to be the sixth largest minor planet with a diameter of about 350 km. Curiously it was not discovered till 1910, nearly half a century after most objects of comparable size had been found.

The query in my observing notes was neatly sorted out but it did leave me wondering, how many other visual observers actually have chanced upon what someone once referred to as 'Vermin of the Skies'?