

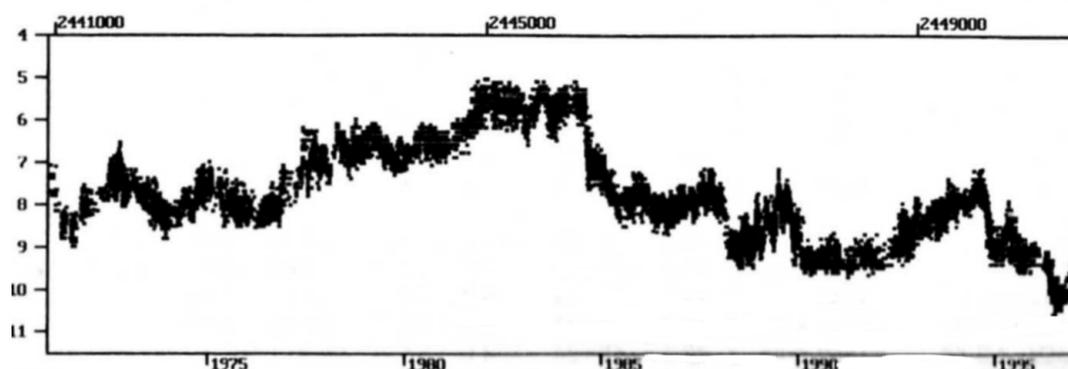
Variable Star of the Year CH Cygni

CH Cygni is a unique variable star which exhibits many kinds of variations over a wide magnitude range that can be observed visually, normally with just a pair of binoculars.

Although catalogued as one of the brightest members of the symbiotic (ZAND) class of variable stars (which are ordinarily close interacting binary systems consisting of a cool red giant and a hot white dwarf) CH Cyg is further complicated by the suspected presence of a third star, possibly a yellow dwarf which, if confirmed, would make it a triple star system.

The Red Giant component varies in a semi-regular fashion with a rough period of 97 days. Superimposed upon these variations however are ZAND type outbursts (which probably result from an increase in the mass transfer rate from the giant star to the white dwarf, which in turn contributes more light to the system), occasionally rapid fluctuations, and even eclipses, which make for the very complicated light curve illustrated below.

Light Curve 1971–1997



As can be seen with the light curve, CH Cyg was bright enough in 1982 and 1983 to be seen with the naked eye. This event necessitated the BAAVSS to revise the comparison star sequence to include additional brighter stars. Conversely, in 1996 the star faded to such level that, for the first time, binoculars were insufficient to render it visible and the sequence had to be extended at the faint end!

CH Cyg is one of the few eruptive binocular variable stars that deserve monitoring on every clear night, particularly if the star is in outburst, as it was in 1981-1984 and 1993-4. Changes of up to 0.5 magnitudes can occur within 24 hours and there were reports from BAAVSS members in 1977 of flickering of a similar range during the course of single nights. This sort of behaviour is normally associated with cataclysmic type variable stars and is quite rare.

The colour of CH Cyg also changes perceptively, as can be detected both visually and photographically. When the star is faint, the light emitted from the system is dominated by the giant component, and the overall appearance is orange/red. However, when in outburst (with the dwarf star more prominent and active) the colour can turn more towards blue/white.

CH Cyg is circumpolar from the UK and is practically at the zenith at the end of the evening twilight throughout the months of July, August and September, which is the mildest and most comfortable time of year for astronomers in this country. So in the late Summer of 1998, why not look at CH Cyg to see whether it is in outburst, displaying rapid variations, or in eclipse; and don't forget to check it's colour.