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THE LONG TERM PHOTOMETRIC BEHAVIOUR OF THE CATACLYSMIC BINARY HX PEGASI

The photometric history of HX Pegasi has been unclear until now. Green and Kristian (1975) believed (from three scattered observations) the star to have had "remained bright" near V=13^{m} from July 1973 to October 1974 at least. Eachus and Liller (1976) found it "irregularly varying" between B=13^{m}.2 and 16^{m}.5 with "no evidence of nova-like activity" on 162 Harvard plates of 70 years. I. Meinunger (1976) was not able to detect the star above threshold of Sonneberg Sky Patrol exposures; this was, however, because she searched at a wrong position (that has nothing to do with the misprint in the heading of her article. Greenstein et al. (1977) called the star "erratically variable". Ringwald (1993) in the course of a thorough spectroscopic investigation caught the object during a rapid ascent of its brightness in one night, followed by a decline in the next one.

Moreover, the star has been included erroneously in the listings of nearby stars of Gliese and Jahreiss (1979) and of Petit (1980), because McCook and Sion (1977) and others took the object for a white dwarf of 13th apparent magnitude.

As this binary deserves special interest because of its probable sdK secondary, I have determined its brightness on a sample of almost 500 Sonneberg Sky Patrol plates taken since 1962 mainly by H. Huth and B. Fuhrmann, and I came to the following results: the long-term light curve is characterized by numerous dwarf-nova-like eruptions up to 12^{m}.4 pg (Figure 1). The Mt. Wilson magnitude system of Selected Area 91 served as a standard. From this light curve and from statistical considerations (after Wenzel and Richter, 1986) a mean cycle length C of about 30 days can be derived. Strong secondary fluctuations (range: 0.5 mag, time scale: hours to days) are observed during several high states.

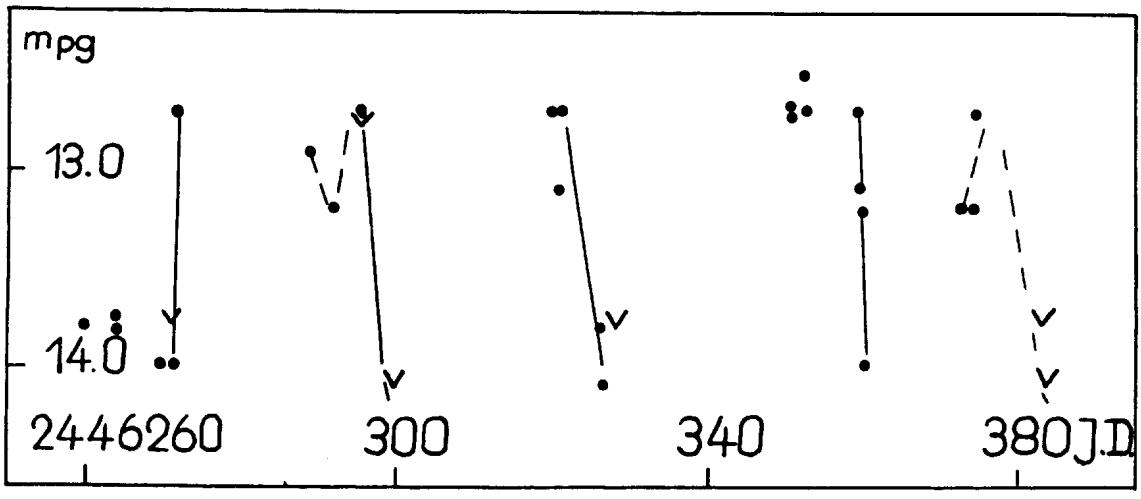

Figure 1

We did not find any short full range eruptions of a length of the order of one day. But, as this might be attributed to the rather limited length of our sample, the nature of the rapid decline observed by Ringwald (1993) is still undecided. If we take into account the faint observations of Greenstein (1986) (B=$17\overset{m}{.}2$) and the minimum data of Eachus and Liller (1976) (m_{pg}=$16\overset{m}{.}5$), an amplitude of about $4\overset{m}{.}5$ pg can be deduced. This is rather large a value as compared with an average taken from the Kukarkin–Parenago relationship for dwarf novae (e.g. Richter and Bräuer, 1989) at C=30 days. Far reaching plates are not at our disposal. We hope that CCD observations which we have been performing at one of the Sonneberg 60 cm mirrors since October 1994 will clear up the low state behaviour and whether there are eclipses.

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