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RECENT Hα SPECTROSCOPY OF CH CYGNI

Recently the symbiotic star CH Cygni has been reported to be declining in brightness. Leedjarv (1990) reports that on JD 2448025 (13 May 1990) and on JD 2447941 (18 February 1990) the V magnitude of CH Cyg was near 9.2, the faintest it has been in this century. Between September 1989 and May 1990 CH Cyg dimmed by 1.5 mag in V. This fading may have been a portent that a new episode of activity in CH Cyg was about to begin, as Hack and Ferluga (1990) note that strong permitted and forbidden emission lines have recently (July 1990) become visible.

CH Cyg has been observed spectroscopically on several occasions at Ritter Observatory during the last few years. Our Reticon and CCD scans at Hα have recorded the (usually) small and gradual emission profile variations that have been by, e.g., Oliversen and Anderson (1982). During 1986, for example, our data showed the Hα line in CH Cyg to be a strong emission feature with intensity 5-6 times that of the local continuum; there was a deep central reversal in the profile, and slow changes were seen in the relative intensity of the red and blue emission peaks. During 1987 the Hα emission was still double-peaked but only twice the intensity of the continuum. In 1988 the emission was still weaker but had only a single peak. Our recent (1989-1990) spectroscopic observations indicate that very significant changes have taken place in the profile and intensity of the Hα feature; these changes

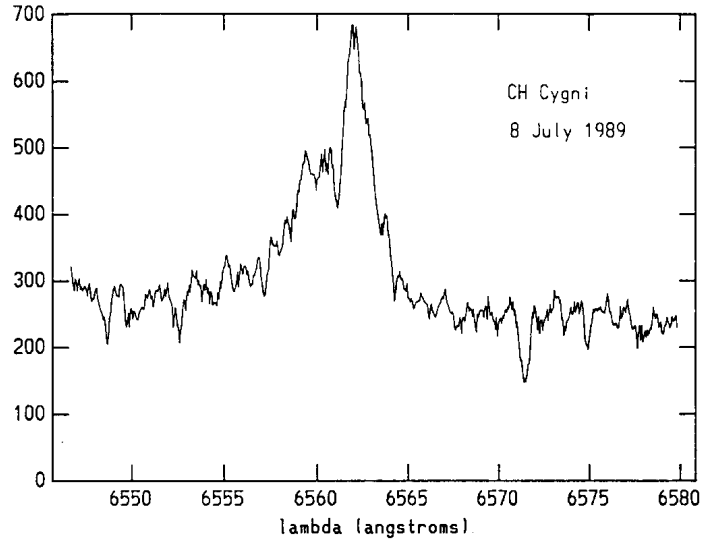

Figure 1: The Hα region in CH Cyg in July 1989 recorded with 0.3 Å resolution.

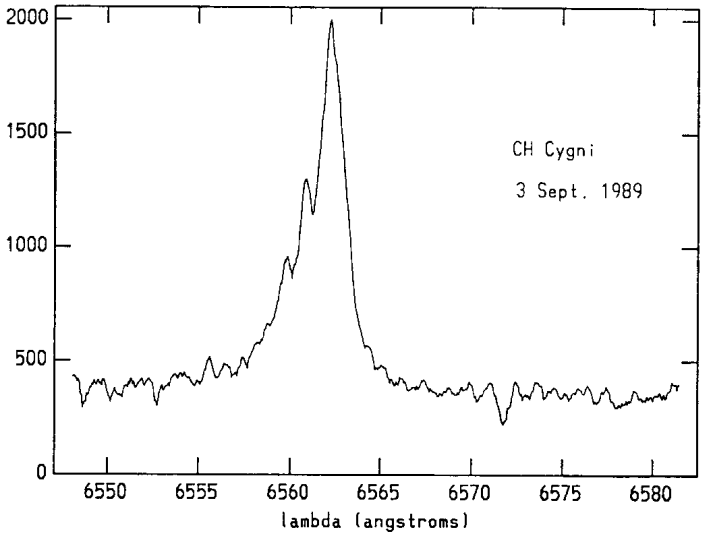

Figure 2: Hα in CH Cyg in September 1989.

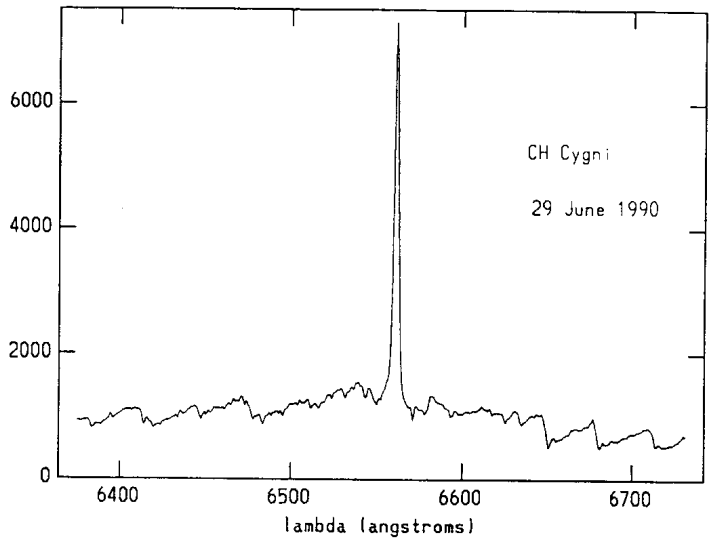

Figure 3: The Hα region in CH Cyg on 29 June 1990, recorded at 1.2 Å resolution.

may well be related to the fading of the star noted by Leedjarv (1990).

In July and September 1989 CCD observations of the red region of CH Cyg were obtained at Ritter Observatory with 0.3 Å resolution. The July 1989 profile (Figure 1) shows a broad, complex emission profile, quite different from what is illustrated by Oliversen and Anderson (1982) or what we observed during 1986-1988. There appear to be three peaks in the Hα line at radial velocities of -152, -104 and -32 km s^{-1}; the strong central absorption reversal is absent. By September 1989 (Figure 2) the Hα line had become stronger, about four times the continuum intensity. The Doppler shifts of the three Hα components had not changed appreciably.

The most recent Hα observation of CH Cyg at Ritter Observatory was obtained with a new fiber-fed spectrograph, mounted on an optical table. CCD scans with this spectrograph had a resolution of 1.2 Å, with about 350 Å wavelength coverage. Figure 3 shows that the Hα line continued to increase in strength, and in late June 1990 had reached an intensity nearly six times the local continuum. The profile appears to be symmetric, with a single peak (V_r = -75 km s^{-1}), at this resolution. No other emission features are detected, suggesting that this observation took place before the start of the outburst reported by Hack and Ferluga (1990).

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