BI CRUCIS

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BI Crucis is a 12 mag star whose optical spectrum is characterized by a red continuum and variable emission line spectrum (Allen 1974, Henize and Carlson 1980, Whitelock et al. 1983). In order to investigate its symbiotic character on 18 February 1983 we have obtained at the 1.5m ESO telescope a 59 Å/mm spectrogram of the 5700-6900 Å region. BI Cru displayed a very rich emission line spectrum with very strong Hα and prominent HeI (5876 and 6678Å) lines. Several FeII lines are also present which appear optically thick (Figure 1). A few absorption features (NaI, 6269-84) of interstellar origin are present. However, we find no trace of TiO bands (or of neutral atoms) in spite of Allen's (1974) finding, but in agreement with Whitelock et al. (1983). Allen (priv. comm.) remarks that in his spectrum there are slight 'waves' in the continuum that looked like TiO absorptions. Thus the symbiotic nature of BI Cru is mostly based on its long term IR variability ($T \simeq 280$ d, Whitelock et al. 1983). They also found the first overtone vibration rotation band of CO at 2.3 μm in emission. The CO emission band was recently resolved by McGregor et al. (1987). This is the first observation of CO in emission in a symbiotic object. The red continuum is more probably a highly reddened hot continuum. We note that a weak continuum is present in the LWR IUE image taken in March 1981 (Fig.2). This spectrum also shows a few emission lines of MgII and FeII. BI Cru is also a strong IRAS source. Following the model of Kenyon et al. (1986) for D-type symbiotics, the cool component of BI Cru could be reddened by circumstellar dust. A high resolution ESO CAT/CES red spectrum shows Hα doubled by a central absorption extending from -38 to -290 km/s with respect to the center of the emission line which suggests the presence of intermediate velocity winds like in other symbiotic stars.

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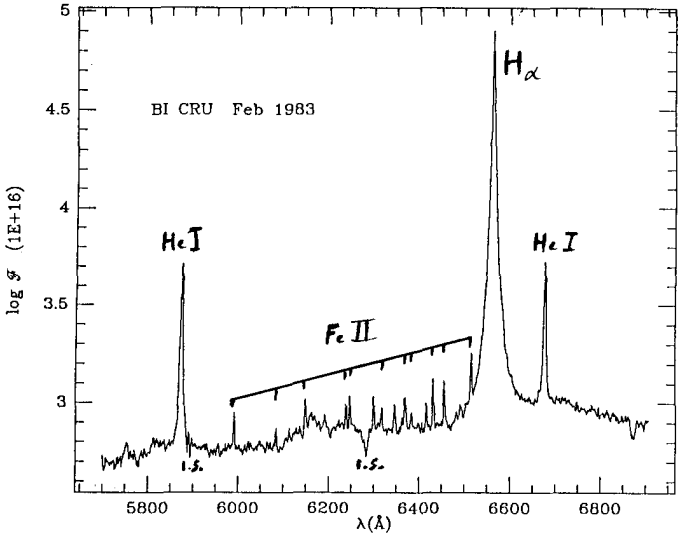

Figure 1. The low resolution spectrum of BI Cru in Feb 1983.

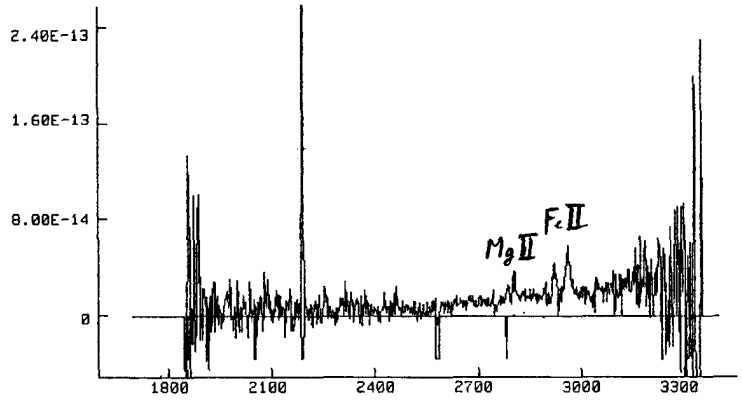

Figure 2. The low resolution UV spectrum in March 1981.

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