

COMMISSION 27 OF THE I. A. U.
 INFORMATION BULLETIN ON VARIABLE STARS
 Number 1759

Konkoly Observatory
 Budapest
 1980 March 20

SPECTROSCOPIC OBSERVATIONS OF CI CYGNI IN 1978 AND 1979

Two low-dispersion spectra (80 \AA mm^{-1}) were taken at the Haute-Provence Observatory on July 21, 1978 and September 17, 1979. The spectrograph was equipped with a RCA tube and the spectrum was recorded on IIaO plates. The exposure times were 40 and 60 minutes, respectively.

In the optical range investigated (from λ 3750 to 5000) the following emission lines appear on both spectra (Fig. 1):

- HI, (up to H₁₀)
- HeI, triplet transitions
- HeII, (λ 4686)
- NIII, (λ 4097, 4640)
- MgII, (λ 4481)
- FeII, (λ 4178, 4233, 4386, 4415, 4582, 4630)
- {FeII} (λ 4244, 4287)
- {FeIII} (λ 4655, 4672, 4755)
- {SII} (λ 4068)
- CIII, (λ 4267, 4650)
- {OIII} (λ 4363, 4959, 5007)

and {NeIII} (λ 3868) which characterize the nebular surrounding shell. Let us note that the lines of {OIII} are particularly prominent, thus proving a high electron temperature (1).



On the other hand {FeVII} (λ 3760), already observed on 1977 spectra, seems absent, owing to possible stratification effects (2). HeI singlets transitions are not present in 1979. Emission lines are observed at λ 4036 and 4059 which remained unidentified.

It is difficult to assign a pure M-type to the cool giant star from the presence of the TiO absorption bands alone since the absorption line of CaI (λ 4227) and emission line of CaII (λ 3933) are absent.

Our present observations indicate that this star is characterized by the mean excitation lines (I.P.=35-55 eV). The spectra taken on 1978 and 1979 closely resemble one another and correspond to the previous near-minimum light (3).

R. GRAVINA
Observatoire de Lyon
69230 Saint-Genis-Laval

References:

- (1) Gurzadyan, G.A. 1970, Planetary Nebulae, Reidel Publ. Co., Holland
- (2) Colloque vol. 54, p. 101, Liège 1968
- (3) Contributi Asiago No. 330
A. Mammano, L. Rosino and S. Yildizdogdu