

THE STRUCTURE OF THE BINARY STAR NEBULA NGC 2346

J.R. Walsh

Department of Astronomy, Manchester University, Manchester,
England

NGC 2346 is a high excitation nebula which has a bipolar appearance and whose obvious central star is of too late a spectral type (A5) to account for the photo-ionization of the nebula. Spectral observations at high and low resolution in the visible, and low dispersion IUE observations in the UV are combined to explain the structure of the object. The radial velocity structure indicates a cylindrical geometry, or possibly two cavities, with the ionized material in the form of thin sheets. The variation of extinction has been investigated at many positions over the nebula; the obscuration is irregular although a ring of low extinction around the central star is apparent. The central star has previously been found to be a single-lined spectroscopic binary, and its zero velocity lies midway between the positive and negative radial velocity components of the ionized material. Visible spectrophotometry of the central star is combined with long and short wavelength IUE spectra in order to determine the parameters of the cool central star and the hot binary companion. The evolutionary status of this peculiar nebula is briefly discussed.

IUE OBSERVATIONS OF THE BIPOLAR PLANETARY NEBULA NGC 2346

W.A. Feibelman

Laboratory for Astronomy and Solar Physics, NASA-GSFC

L.H. Aller

Astronomy Department, University of California, Los Angeles,
USA

The nucleus of NGC 2346 (=PK 215 + 3^o1; $\alpha = 7^{\text{h}}06^{\text{m}}49.^{\text{s}}7$, $\delta = -0^{\circ}43'29''$, 1950) was recently discovered by Kohoutek (1982a,b) to be an eclipsing binary with a deep ($\sim 2.^{\text{m}}2$) minimum in the visible and an orbital period of 17.2 ± 0.4 days. We observed NGC 2346 with the IUE on 4 occasions between 1982, Feb. 24 and May 13 and obtained 6 SWP and 4 LWR low dispersion spectrograms. These were taken at different phases, using the large entrance aperture centered on the nucleus.