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1981 UBVR PHOTOMETRY OF CG Cyg

UBVR photometric observations of the eclipsing binary CG Cyg (BD +34°4217) were made during 1981 as part of our long-term photometry program of RS CVn systems. CG Cyg is a short period (0.63 day) system that has shown evidence of period variability (Milone and Ziebarth, 1974) and a migrating distortion wave in the light curve (Milone, et al., 1979). The observations were made with the University of New Mexico's 61-cm telescope at Capilla Peak Observatory and a single-channel, photon-counting system using an EMR 641A phototube cooled to -20°C. The star +34°4216 (SAO 70728) was used as the comparison star for all observations. The nights in which observations of CG Cyg were made are listed in Table I. Phases were calculated using $HJD=2439425.1221+0.631141E$ (Milone and Ziebarth, 1974).

Table I - Phase Log of CG Cyg

<u>Date (UT)</u>	<u>Phase</u>	<u>Date (UT)</u>	<u>Phase</u>
6/10	0.03±0.20	8/20	0.25±0.52
6/22	0.89±0.09	8/24	0.76±0.96
7/5	0.49±0.78	10/10	0.16±0.28

Figures 1-4 summarize our results which are given in the instrumental UBVR system. The data has been folded in order to show the primary and secondary eclipses more clearly. Statistical errors for the data points are typically ±0.02 magnitude.

2

CG CYG (U)

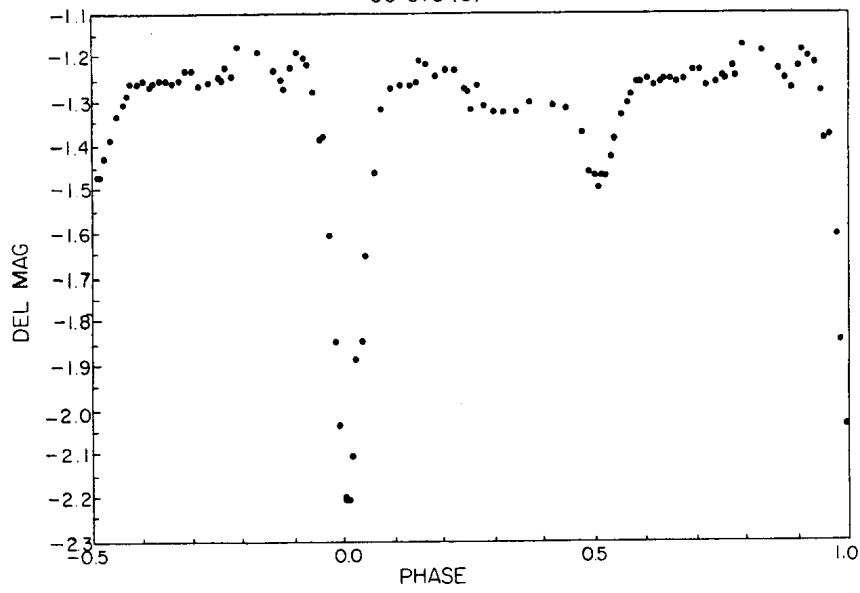


Figure 1

CG CYG (B)

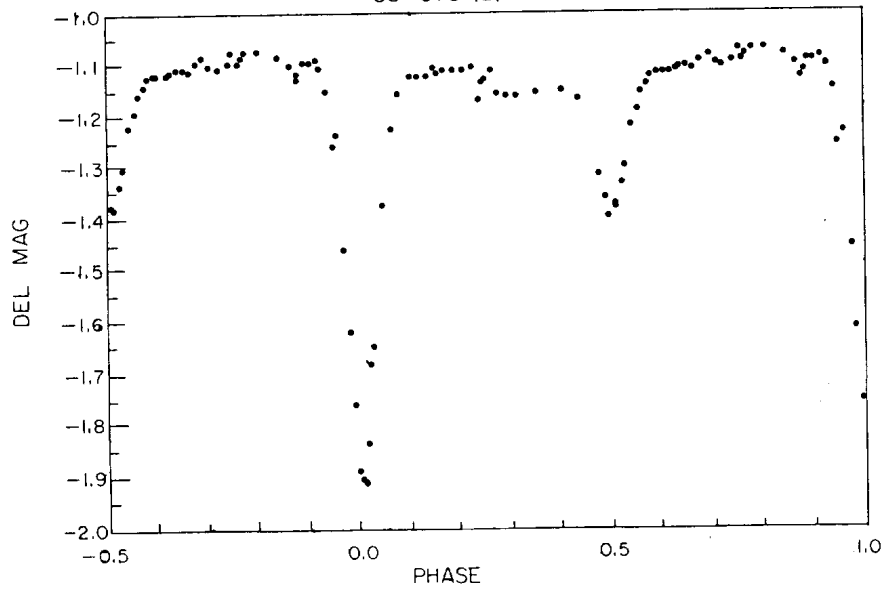


Figure 2

3

CG CYG (V)

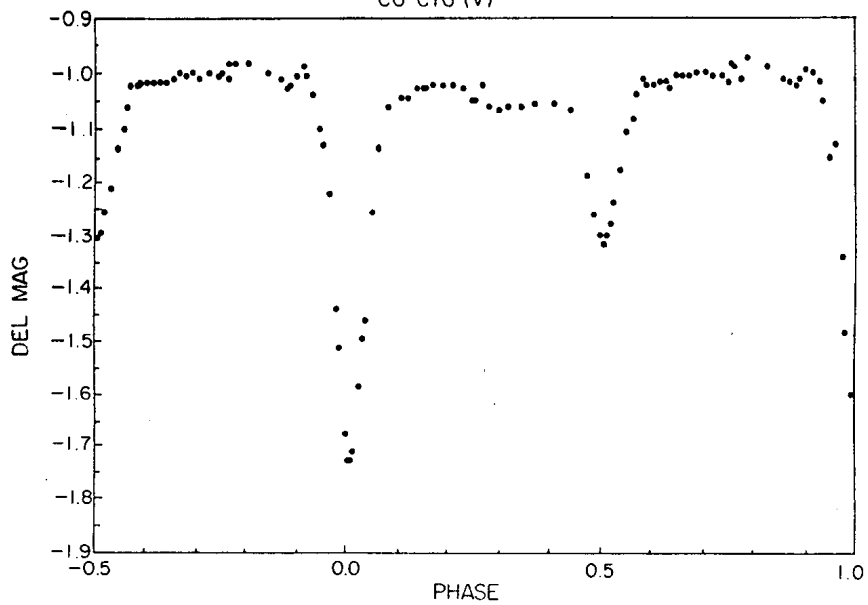


Figure 3

CG CYG (R)

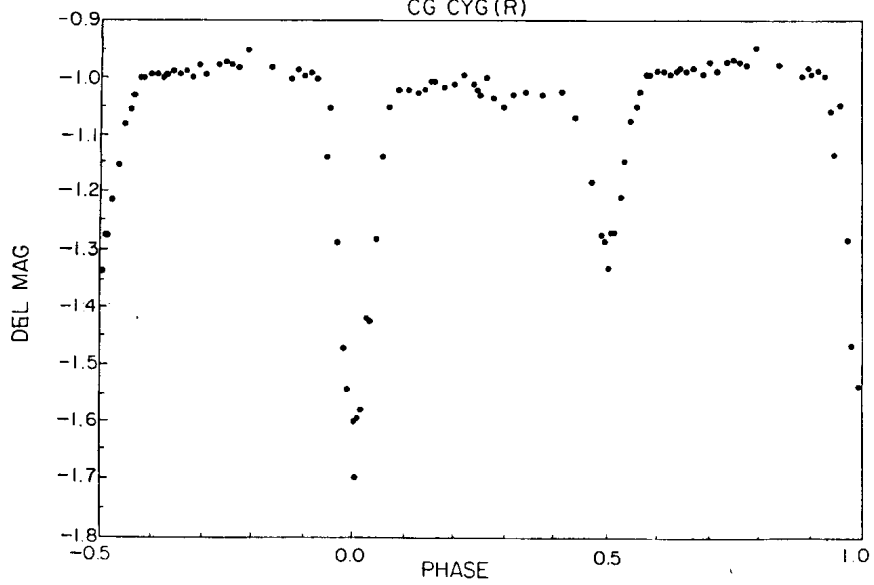


Figure 4

Milone et al. (1979) followed the behavior of CG Cyg from 1965 to 1977 and found that the distortion wave sweeps through the light curve at a rapid rate and that the mean V light level had risen 14% during this 12 year period. The V light curve presented here is similar to the Milone et al. V curve of 1967 in that the distortion wave reaches a maximum amplitude at about 0.8 phase. The same comparison star was used for both the 1967 and 1981 observations although differences between the photometric systems used (which should not be too significant) were not taken into account. We note these differences between our curve and the 1967 curve: (1) the distortion wave is not as pronounced now as in 1967 and (2) the system is markedly brighter in the 1981 curve. The secondary minimum is 0.2 magnitude brighter now than in 1967 with the portions of the curve outside of eclipse being about 0.1 magnitude brighter.

From our observations we find that the primary eclipse becomes shallower and the secondary eclipse more prominent relative to the primary as wavelength increases. The discontinuity in the light curve at 0.25 phase (best seen in Figure 2) is evidence of short-term variations (~ 2 month) in the light curve of CG Cyg.

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References:

- Jassur, D. M. Z., 1978, IBVS #1458.
 milone, E. F. and Ziebarth, K. E., 1974, Pub. Astron. Soc. Pacific 86, 684.
 Milone, E. F., Castle, K. G., Robb, R. M., Swadron, D., Burke, E. W., Hall, D. S.,
 Michlovic, J. E., and Zissell, R. E., 1979, Astron J. 84, 417.
 Naftilan, S. A. and Milone, E. F., 1979, Astron J. 84, 1218.