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PHOTOMETRY OF THE ECLIPSING BINARY U OPHIUCHI AND OF NOVA CYGNI 1975

During May and June of 1972 and April and May of 1973 photoelectric observations of the eclipsing binary U Ophiuchi were made with the 46-cm Cassegrain reflector of the Kutztown State College Observatory. The photomultiplier used was an unrefrigerated EMI 6256 SA(S-13 surface). The comparison star was HR 6412 (spectral type A0).

Four times of minimum light were obtained. Corrected for light time, these are as follows:

JD 2441450.8271	I
461.7332	II
466.7653	II
476.8293	II

The depth of the primary minimum was found to be $0^m.67$ in visual light and $0^m.71$ in blue light. For the secondary minimum the depths were $0^m.62$ in V and $0^m.58$ in B. The phase angle of external tangency was found to be $30^\circ.2$ for both eclipses.

At maximum light U Ophiuchi is $0^m.32$ brighter than HR 6412 in V and $0^m.47$ brighter in B. Using the values of V = 6.16 and B-V = +0.22 obtained by Cousins for HR 6412 one obtains V = 5.84 and B-V = +0.07 for U Ophiuchi at maximum light. As the spectral types of the components of U Ophiuchi are estimated as B4 and B5, it appears that the system is substantially reddened.

All observations of U Ophiuchi included the 12th magnitude visual companion, which is about 20" distant from the eclipsing pair.The contribution of this star to the light of the system, however, is negligible.

During the autumn of 1975 photographs were taken of Nova Cygni and the surrounding field in Cygnus. A 135 mm lens at f/2.8 was used. The exposures ranged from 2 min. to 30 min., and the film used was Plus-X Pan. The times and estimated photographic magnitudes are as follows:

UT		UT	
1975 Sep. 10.2	6.4	1975 Oct. 4.1	8.0
14.2	6.7	15.1	8.4
29.1	7.5	23.0	8.6

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