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OBSERVATIONS OF AX MONOCEROTIS

Plavec and Harmanec (1972, IBVS No.613) have called attention to the shell phase of AX Monocerotis and the importance of multicolor photoelectric observations. Earlier observations by Magalasvili and Kunsisvili (1969, Bull. Abastumani No.37; 1967, IBVS No.222) had shown a decrease of about 0.4 mag in the ultraviolet with minimum occurring at about phase 0.75 based on their elements,  $\text{Min} = \text{JD } 243\ 8444 + 232^{\text{d}}.5\text{E}$ . Although they did not discuss it, there is a suggestion of a minimum of about 0.1 mag. in the blue at the same phase shown in their published observations.

The following observations were made on three nights with the 76 cm reflector and associated photoelectric equipment at the Rosemary Hill Observatory at phases 0.58, 0.59, and 0.70 according to the above elements. The most striking feature is the change in brightness, especially in the ultraviolet in as short an interval as three days. Similar changes are shown in the observations of Magalasvili and Kunsisvili. The comparison star used was BD + 6<sup>o</sup>1309; although previously listed as a suspected variable (Zinner No.542) its variability has not been confirmed to our knowledge. Check star observations in the visual region gave a difference of magnitude between comparison and check of 0.639 mag. and 0.641 mag. on JD 244 1367 and of 0.634 mag. on JD 244 1395; the variable-comparison differences ( $\Delta M$ ) these nights averaged 0.823 mag. and 0.777 mag. respectively, indicating the changes are in the variable. (No check star observations were taken in JD 244 1370 because of the urgency of observations of another system).

It is impossible to generalize on the basis of so few observations - for example should the "normal" brightness of the system be that of JD 244 1367, 1370, or the average of the two? - but it does seem that the variable had lost light in the UV between phases 0.58 and 0.70 without comparable loss in the other colors in accord with the suggestion of Magalasvili and Kunsisvili. However, the only firm conclusion is that further observations are needed.

Because of the phase of light minimum Magalasvili and Kunsisvili (1969, Bull. Abastumani No. 37; 1967, IBVS No. 222) have suggested that we are witnessing the eclipse of the hotter star by a gaseous stream. An alternative possibility is that we are witnessing the eclipse of a hot spot in the ring similar to those postulated by Smak (1971, Acta Astr. 21, 15) for U Gemorum. AX Monocerotis is of course an entirely different type of system, but the same dynamical picture of mass transfer from the cooler to the hotter system (Plavec and Harmaker) may apply. In this case, we would expect the spot to have much larger dimensions and not to show the rapid flickerings reported for WZ Sge and similar systems (Warner B., Nather R.D., 1972, MN 156, 297, 305.). The observations on JD 244 1367 show that on at least some nights over the time scale of an hour no detectable fluctuation of brightness occurs.

The only certain conclusion is that the system merits intensive systematic observation preceding, during, and following the next predicted light minimum when be better placed for observations. According to the earlier elements, this should be about November 20, 1972.

Table I

hel JD 244	$\Delta^M_V$	$\Delta^M_B$	$\Delta^M_{UV}$
1367 <sup>d</sup> .6499	-0.820	1367 <sup>d</sup> .6504	-1.397
.6523	-.826	.6531	-1.399
.6550	-.823	.6543	-1.397
.6652	-.824	.6556	-1.395
.6872	-.823	.6670	-1.395
.6894	-.823	.6890	-1.394
			-1.404
			-1.402

1370 <sup>d</sup> .6170	-0 <sup>m</sup> .771	1370 <sup>d</sup> .6177	-1 <sup>m</sup> .012	1370 <sup>d</sup> .6184	-1 <sup>m</sup> .255
.6263	- .780	.6270	-1.015	.6277	-1.258
1395.5377	- .769	1395.5374	-1.057	1395.5371	-1.433
.5384	- .770	.5387	-1.057	.5391	-1.427
.5447	- .781	.5440	-1.066	.5452	-1.450
.5464	- .782	.5451	-1.065	.5457	-1.449
.5510	- .780	.5504	-1.061	.5520	-1.454
.5534	- .782	.5523	-1.063	.5527	-1.449

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