

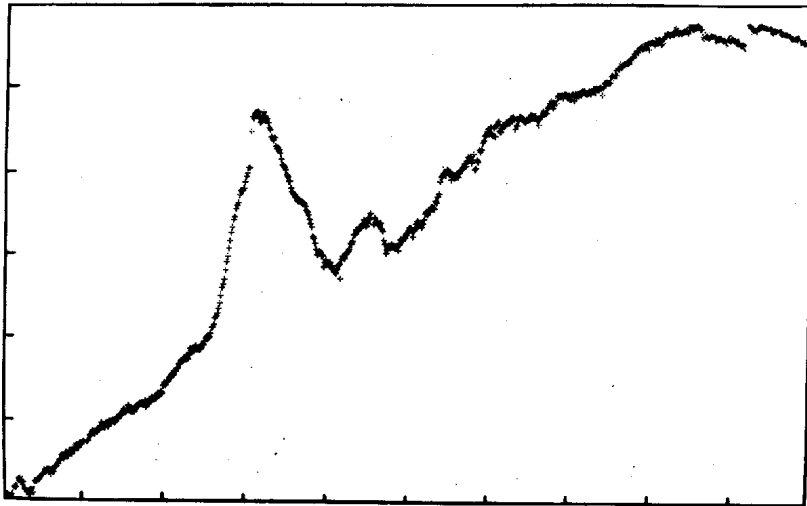
COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 1707

Konkoly Observatory
Budapest
1979 November 23

HIGH SPEED PHOTOMETRY OF U Sco

The recent outburst (I.A.U. telegram received June 27, 1979) of the recurrent nova U Sco provided the first opportunity for photoelectric photometry of this species with the benefit of superior time resolution (we here relegate the 1978 eruption of WZ Sge to an outburst of a dwarf nova (Warner 1976; Robinson *et al.* 1978)).

Announcement of this event coincided with an observing run by the writer on the 40-inch (1016 mm) telescope at the South African Astronomical Observatory. The first occasion on which the nova could be observed was 29 June, and it was consequently honoured with five second integrations, in white light (i.e. no filter: photomultiplier with S11 response) starting at 18:40:47 U.T. and lasting for nearly 5 hours. It emerged that this amount of attention was superfluous: there was no activity on a timescale of seconds. We can therefore exclude U Sco from the class of ultra-short orbital period, hyper-long outburst dwarf novae personified by WZ Sge. There was, however, activity on a timescale of 10 minutes, as is shown by the light curve (in which we have added contiguous integrations to furnish a record with 25 seconds resolution). In this light curve, abscissa carets mark time intervals of 0.02 days and ordinate carets are in steps of 3000 counts per second, commencing at 42,000 c.p.s. (these are rates obtained after removal of extinction). The mean visual magnitude during the observation was about 11.5 (c.f. Bortle, I.A.U. Circ. 3378).



As can be seen from the Figure, there was a general increase in brightness during the observation, reaching maximum shortly before termination, on which there were significant variations of order 10-20 minute duration.

The spectroscopic observations reported by Hill and by Pringle and Whelan (I.A.U. Circ. 3378) are stated to indicate that U Sco was "not unlike TCrB", which, if interpreted as meaning that U Sco resembled TCrB, agree in excluding this object from the WZ Sge class. The timescales of the variations reported here have considerable relevance to the processes occurring in the star a few days after its outburst.

BRIAN WARNER
 Department of Astronomy
 University of Cape Town

References:

- B. Warner, 1976. In *I.A.U. Colloquium No. 73*, Cambridge, p. 85.
 Robinson, E.L., Nather, R.E. and Patterson, J., 1978. *Astrophys. J.*, 219, 168.