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SOME OBSERVATIONS OF THE CENTRAL STAR OF THE BIPOLAR PLANETARY NEBULA NGC 2346

The central star of NGC 2346 has been on our observing program since Spring 1982. The low declination and unfavourable observing conditions did not permit to collect enough data sufficient for a discussion of the whole light curve. In addition, the unexpected drop in brightness made the object too faint for the available 60 cm telescope. However, since the object has recently received increased attention, we feel it justified to publish our few data.

Table I

Date UT	JD 2445000+	V'	B'	U'	Remarks
1982 Apr. 1.81	061.31	$12^m.66$			
4.81	064.31	11.63	$11^m.94$		
5.81	065.31	11.51	11.82		
10.80	070.30	12.12	12.46		
Oct. 17.13	259.63	11.75	12.08		
21.16	263.66	(14.5)			
31.15	273.65	11.77	11.97	$12^m.08$	
Nov. 1.12	274.62	11.74	11.97	12.14	
2.12	275.62	12.13	12.42	12.67	
3.12	276.62	13.12			
17.09	290.59	12.15	12.48	12.63	
19.17	292.67	(15.0)			not vis. in
21.17	294.67				60 cm telescope
22.13	295.63	(15.2)			"
23.17	296.67	(15.0)			"
Dec. 4.0	307.5				"
6.0	309.5	(>15)			"
1983 Jan. 7.0	341.5				"
12.0	346.5	(14.5)			"

The photoelectric data shown in Table I were collected with the single channel photometer attached to the 60 cm RC telescope of the L.Figl-Observatory. All magnitudes are in our instrumental system. Star "a" (outside of the finding chart in Fig. 1, Kohoutek (1982)) served as a comparison star. The contribution of the nebula within the 12" and 21" diameter aperture respectively has been

removed by using published data for the brightness of the nebula by Kohoutek (1983). The internal accuracy is of the order of $\pm$ 0^m.01 to 0^m.02 for V and B, $\pm$ 0^m.03 to 0^m.04 for U. Mainly due to the uncertainty of this correction the final accuracy is certainly worse than the values mentioned above as pointed out by Mendez et al (1982). The V magnitudes in parantheses have been obtained by visual comparison of the central star with the two stars A and B marked in Fig. 1 using the 1.5 m RC telescope of the same observatory. The V magnitudes of these stars have been determined to be V = 14^m.5 and 15^m.5 respectively using Kohoutek's (1982) scale and extrapolating with the magnitude diameter relation for the Palomar Sky Survey given by King and Raff (1977).

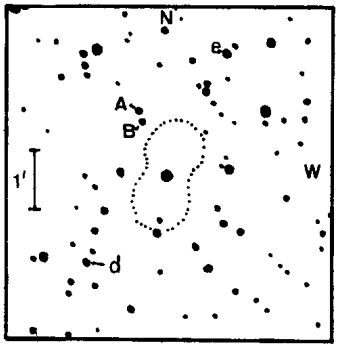

Figure 1

Finding chart for star A and B; star d and e (Kohoutek (1982)) are also marked for reference

We have compared our data with the light curves given by Kohoutek (1983) using his new light elements (Min) = HJD 2445010.60 + 15^d.957 . E. Except for the observation obtained April 10.80 (σ_V = $\pm$ 0^m.005, σ_B = $\pm$ 0^m.020) our April data agree completely with the March-April light curve (upper solid line in Fig. 2). For the rest of our observations we conclude that:

1. Within the covered time the height of the maximum did not differ much from the March-April light curve until about November 1, 1982; at the next cycle it was lower by about 0^m.4 in V.
2. The deep and wide minimum shown in the January 1983 light curve (lower line in Fig. 2) by Kohoutek (1983) was already present in November 1982, possibly

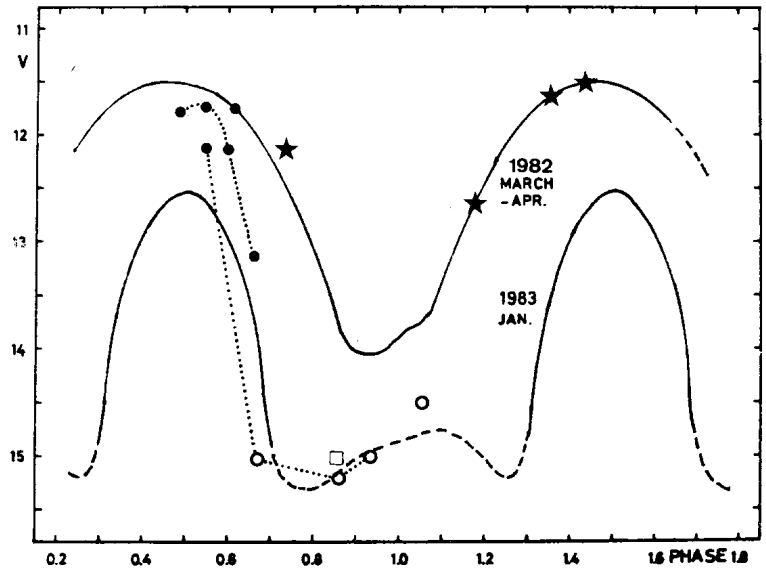

Figure 2

Photoelectric (● ★) and visual (O) magnitudes plotted into Kohoutek's (1983) light curves. □ 1982 October 21 Observation. Data points connected by a dotted line belong to the same cycle. Upper dotted line: 1982 Oct.31 - Nov.2; lower: Nov.17 - 23.

already in October as suggested by the single observation obtained October 21 (Square in Fig. 2).

A. PURGATHOFER
A. SCHNELL
Institute for Astronomy
University of Vienna
Türkenschanzstraße 17
A-1180, Vienna, Austria

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