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V 358 Lyr - A WZ SAGITTAE STAR ?

Andronov (1986) kindly informed us that according to Galkina and Shugarov (1985) this object discovered by Hoffmeister is invisible on all plates of the Moscow collection (period: JD 243 4112 ... 244 5264). We therefore examined this star on all available Sonneberg plates (about 310 plates of the period JD 243 8551 ... 244 6476) and found that the star is only visible on 3 plates. The dates are given in the following table:

Plate	1965	JD	m_{pg}
Te ₄ 4601	Jun 25	243 8937	[14.5
Te ₄ 4609	Jun 29	8941	13.27
GC 1387	Aug 4	8977	16.42
GC 1388	Aug 19	8992	17.31
GC 1389	Aug 23	8996	[18.5

On the prints of the Palomar Sky Survey the object is invisible [21^m].

The magnitudes of the comparison stars were determined by fitting to the sequence of MV Lyr (Andronov and Shugarov, 1982), see Fig. 1 and the following table.

star	m_{pg}	star	m_{pg}
a	13.22	e	16.38
b	13.81	f	16.53
c	14.39	g	18.1:
d	15.21		

The light curve, tentatively interpolated between the few measured points, is given in Fig. 2. It reminds one of a fast nova. According to Duerbeck (1981) the absolute magnitude of a fast nova at maximum is about $-9^M.4$.

The galactic co-ordinates of the object are:

$$l = 72^{\circ}.6, \quad b = +16^{\circ}.5,$$

Taking the apparent magnitude of V 358 Lyr to be $13^m.0$ at the top of the maximum and assuming the interstellar extinction to be 0.4 mag (Sharov 1963), we get a distance of $r = 250$ kpc from the Sun and $z = 71$ kpc from the galactic plane.

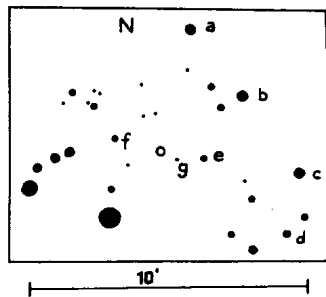


Figure 1

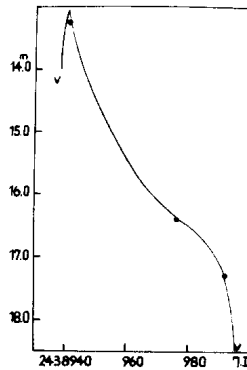


Figure 2

It is true that novae are sometimes situated far away from their parent galaxy (Wenzel and Meinunger, 1978 and Richter, 1981), but these values of r and z are rather large. They could, however, be reduced to some extent if the interstellar extinction should turn out to be larger than estimated.

But there is still a chance for V 358 Lyr to be a WZ Sagittae star whose maximum brightness is expected to be about $+2^M$. That this is by no means implausible can be shown by the fact that the few observed points in Fig. 2 can be almost exactly fitted into the light curve of WZ Sge itself (Ortolani et al. 1980).

Thus the question whether V 358 Lyr is a classical nova or a WZ Sagittae type object remains open. There are, however, some points in favour of the WZ Sagittae interpretation.

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References:

- Andronov, I.L., 1986, private communication
 Andronov, I.L., Shugarov, S.Yu., 1982, Astron. Tsirk No. 1218
 Duerbeck, H.W., 1981, Publ. Astron. Soc. Pac. 93, 165
 Galkina, M.P., Shugarov, S.Yu., 1985, Perem. Zvezdy 22, 225
 Ortolani, S., Rafanelli, P., Rosino, L., Vittone, A., 1980, Astron. Astrophys. 87, 31
 Richter, G.A., 1981, Astrophys. Letters 21, 103
 Sharov, A.S., 1963, Astron. Zh. 40, 900
 Wenzel, W., Meinunger, I., 1978, Astron. Nachr. 299, 239