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**MORE CLARIFICATION NEEDED FOR NSV 11271
AND VY LYRAE**

VY Lyrae and NSV 11271 are two stars needing further detailed observations. The slow variability of NSV 11271 has not been confirmed but the star is also a spectroscopic binary with a period of 2905 days (Batten et al., 1989). VY Lyrae has been classified as a W UMa type eclipsing variable by some observers whereas others have reported it as not variable.

In the NSV Catalogue (Kholopov, 1982) NSV 11271 is recorded as 8.0^{pg} K5 and is identified with BD +39°3505 and HR 7041. The Bright Star Catalogue gives photometric data $V=6.45$, $B-V=1.57$ K5III, and the Washington Catalogue of Double Stars (Worley, 1986) indicates a 10.3^v companion at 60'2, P.A. 192°. The companion is optical (Griffin, 1987) and too faint to affect estimates of the variability of the primary. Variability had been discovered by Soloviev (1922) who reported that the star gradually increased in brightness from May 6 to June 4, 1922. Then poor observing conditions precluded further observations until August when Soloviev and Selivanov found the star to have begun to fade. The amplitude was reported as about one magnitude, probably only about 0.7^v (Samus, 1994). Long period variation was suspected. It would be of interest to ascertain whether or not there is a correlation between the spectroscopic and the light variations.

The variability of VY Lyr was also discovered in 1922 by Soloviev, and confirmed by J. Kazansky. It was reported to have varied from 10.8 to 11.2^v, with W UMa type curve in a period of 3^h45^m or 0^d156 (Seliwanow, 1923). Some later observers (see Prager, 1936; Schneller, 1957) failed to detect any variation: Guthnick and Prager (1928) from 10 observations, Zverev (1934 and 1937) from 41. Since 1935 it has been listed in the GCVS as cst: even though Sandig (1950) did report rapid variations among 17 observations between 1929 and 1939; and again among 10 in the fall of 1948 amounting to an amplitude of 0^m6; but only marginal variation in 32 observations in the fall of 1949.

A finder chart (reproduced here as the left diagram of Figure 1) as well as a summary of new observations, whose amplitudes do not exceed the observational errors, is given by Zverev and Makarenko (1979). The star circled is identified as VY Lyrae. But that star is BD +39°3507 at 18^h38^m45^s+39°2'3 (1855) whereas Prager (1936) clearly states that VY Lyr is not a BD star. The position given by Prager and in all GCVS catalogues since 1927, 18^h38^m57^s+39°5'8 (1855) agrees with the position given by Seliwanow in his announcement of the Soloviev discovery. This star is labelled as comparison star x. Hence it appears that x and VY may have been interchanged on the original chart. The stars marked b, c, p, and x are the comparison stars cited by Zverev and Makarenko for brightness determinations. Step values for c, x and p are 0.0, 2.1 and 6.0 respectively, while the magnitudes assigned to b and c are 11.57 and 12.09 ^{pg}. It is not clear whether the published magnitudes correspond to star x or BD +39°3507. Moreover, it does not seem a forgone conclusion that all the observers who found no variation were all examining the same star.

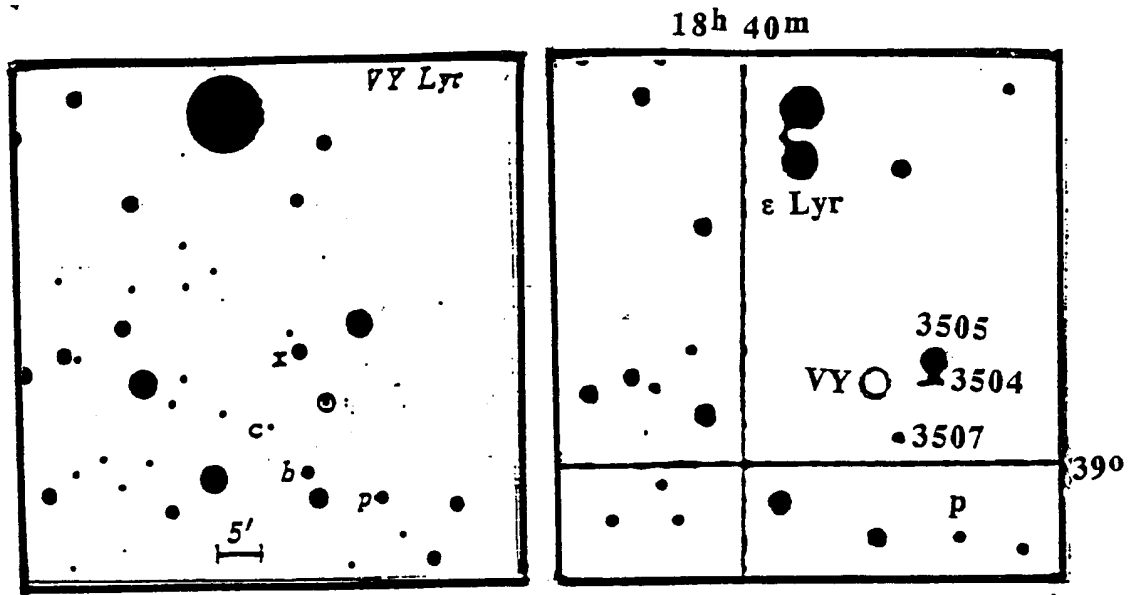


Figure 1. Left figure, from Russian Variable Stars, Supplement 3, 440, 1979, photographic magnitudes. Figure at the right from visual BD, with relevant BD numbers indicated. The open circle for VY Lyr is inserted at the position of star x in the left figure. For both charts North is at the top and East to the left.

Table 1. Positions of Critical Stars.

Star	RA (1855)	D (1855)	Mag	Remark
NSV 11271	18 ^h 38 ^m 27 ^s	+39°09'2	8.0p K5	
+39°3504	18 38 26.0	+39 08.5	9.5v	Optical companion of +39°3505
+39°3505	18 38 27.0	+39 09.5	6.5v	SB 2905d
VY Lyr	18 38 57	+39 05.8	10.5-10.9	Period 0 ^d 156, 0 ^d 31, or cst.
+39°3507	18 38 45	+39 02.3	9.5v	
JBAA 33,291	18 37*57	+39 05.8	10.5-10.9	Period 3 ^h 45 ^m

*Probably 38^mintended

VY Lyræ is in close proximity to NSV 11271 (BD +39°3505). The right hand diagram of Figure 1 is a copy of a portion of the BD chart including the area of the variables. Several BD stars in the +39° zone are identified. The stars marked x, b, and c in the left figure are not BD stars, while p is BD +38°3270, mag. 9.4v. The approximate position of star x is circled in the right figure. It is about 4' north following BD +39°3507. An examination of the Carte du Ciel chart for plate center 18^h45^m+39°, reaching 14pg does show a faint star in the approximate position of star x. It may well be VY Lyræ. Indeed Chikinz and Kasitzyne (1923) of the Russian Society of Amateurs of the Universe's Knowledge, who either confirmed or quoted the 3^h45^m period, indicated the position of the variable as 18^h37^m57^s+39°05'49" (1855). If for 37^m we read 38^m, then this position does agree with the location of star x (see Table 1).

The positions given for VY Lyrae in all the general catalogues of variable stars from 1926 through 1985 are consistent with the position of star x, not the one circled as VY on the Zverev-Makarenko chart. Aside from the questioned chart identification, no reference to VY Lyr indicates any relation to BD +39°3507. The question remains whether Zverev and Makarenko merely interchanged the labels of x and VY Lyr on their chart; or do their observations of non-variability correspond to BD +39°3507, a star not listed as variable in either the GCVS or the NSV catalogue?

As the amplitudes of both NSV 11271 and VY Lyrae are small, extensive photoelectric observations are needed to ascertain dependable light curves.

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