Was HV 8005 (NSV 213) a Nova?

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Abstract Near the position published by W. J. Luyten for his variable HV 8005, there is an image marked by Luyten on a Harvard plate. The object is present on this plate only and could have been a nova.

1. Introduction

The variable star HV 8005 = AN 702.1935 (NSV 213) was discovered by Luyten (1935) who had published its coordinates rounded to one minute of arc. The photographic range of variations was indicated as magnitude 14.0^m to 15.2^m. The star has not been observed since.

2. The Possible Nova

In our attempt to present accurate coordinates for all stars of the *New Catalogue of Suspected Variable Stars* (NSV; Kholopov *et al.* 1982), we tried to find the star in the plate stacks of Harvard Observatory. Generally, Luyten's stars are easy to find thanks to his ink marks left on the plates. However, in the published position of NSV 213, the only ink mark found looked like those used by Luyten in his other program, that of high-proper-motion stars. The star marked is seen only on one plate, taken with the Bruce 60-cm telescope on September 26/27, 1929. The image on this plate (Figure 1) is coma-distorted and quite similar to those of surrounding stars.

Thus, the image is not a plate defect and was formed by light that had passed the telescope optics. The position of this image, measured with respect to nine stars of the *USNO A2.0* catalog (Monet *et al. 1998)*, is $00^h 34^m 39.1^s$, $-67° 56' 27''$ (2000.0, epoch 1929.74), with uncertainties within 3" in both coordinates. The modern deep sky surveys do not show any obvious stars down to magnitude 20–21 in this position. Neither could we find any identifications with known minor planets.

We cannot be absolutely sure that the object found is the originally intended HV 8005 (especially because the variability range given by Luyten would normally mean that the star was seen on two plates), but we can claim that an object discovered by Luyten and unusual by its behavior is present near the discoverer's position. This object is most probably a nova, though other explanations (an unknown minor planet near its stationary point, afterglow of a gamma-ray burst, head-on meteor, etc.) are not completely ruled out.

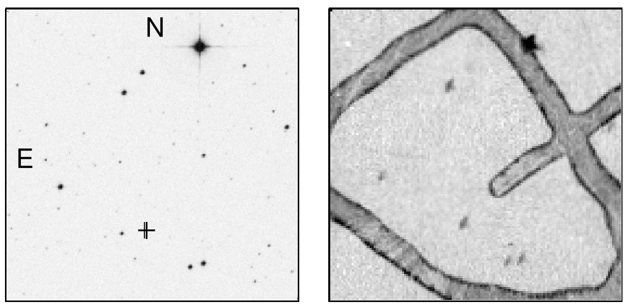

Figure 1. The field of NSV 213. Left: the POSS II red 15'×15' image. Right: the Bruce plate of September 26/27, 1929, with Luyten's ink mark. The plus sign in the left panel marks the position of the possible nova from the Bruce plate.

3. Acknowledgements

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