A Possible New Double Star from Lunar Occultation: SAO 163677

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Abstract: A lunar occultation observation by the author in May 2012 detected a possible new double star: SAO 163677.

SAO 163677

On 2012 May 11, a lunar occultation reappearance of SAO 163677 was video-recorded at 25 frames/sec using a 25cm telescope. The waning moon was 62% illuminated. The recorded light curve is shown in Figure 1 (next page).

The intermediate step lasted for 0.14 secs, with the fainter star reappearing from behind the moon first. The position angle of the event at the moon's limb was 220.5° and the radial velocity of the moon at the location of the occultation was 0.3681"/second. The consequent separation of the components of this star is at least 0.052". The magnitudes of SAO 163677 are Mv 9.43 and Mb 10.03. From the heights of the three portions of the light curve, the V magnitudes of the components are derived as 9.8 and 10.7.

The archive of Lunar Occultation Observations shows there were 2 earlier lunar occultations observations of this star in 1974 and 1996. Both were disappearances, at position angles 77.8° and 104.4° respectively. Neither observation revealed any double nature of the star, which is not surprising as a disappearance of the fainter star before the brighter star would not have been seen by a visual observer. A video observation of the May 2012 occultation by D. Gault in Australia was made at position angle 278.5° through a variable thin cloud. As a result of the cloud, the observation is inconclusive regarding the presence of a double star.

Star	SAO 163677 = TYC 5767-519-1 = HD 195733 = PPM 237591
Coord. (J2000)	20h 33m 29.30s, -13º 33' 12.1"
Spectral type	G0
Derived double data:	
Mag A	9.8 ± 0.1 (V)
Mag B	10.7 ± 0.1 (V)
Epoch	2012.36
Separation	> 0.052"
PA at epoch	between 130 and 310 deg

References

Lunar Occultation Archive: VizieR Catalogue number VI/132A

D. Gault, private communication.

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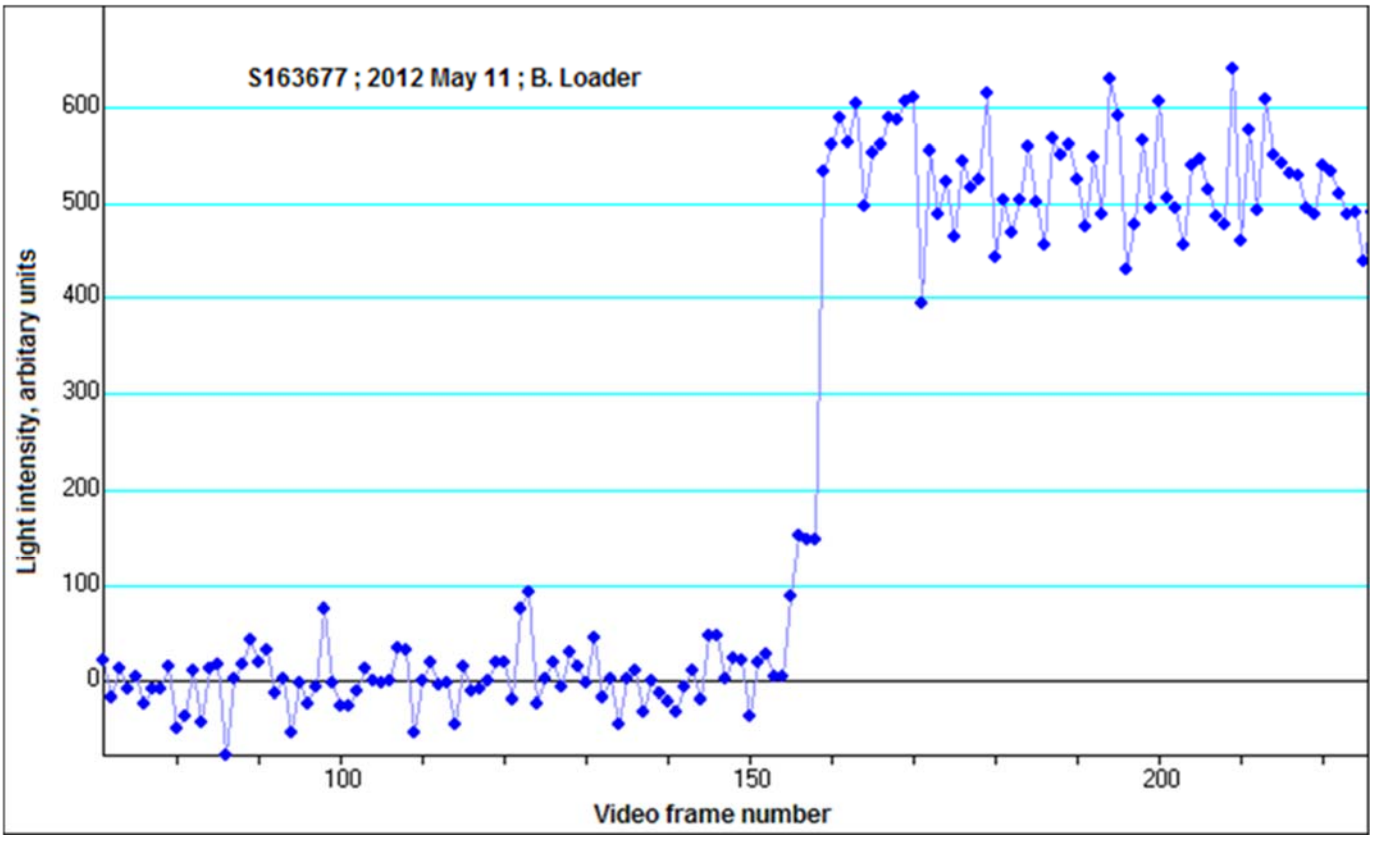

Figure 1. Light curve of lunar occultation.