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NOVA OR SUPERNOVA

A very interesting star was discovered recently by V. Satyvaldiev on old sky-patrol plates of the Astrophysical Institute of the Tadjik Academy of Sciences in Dushanbe.

The star's position is: RA = $16^{\text{h}}51^{\text{m}}54^{\text{s}}$, Decl. = $+77^{\circ}12'3''$ (1900.0) $l^{\text{II}} = 109^{\circ}6'$, $b^{\text{II}} = +33^{\circ}2'$. Before September 8, 1956 the star was invisible (plate limit $12^{\text{m}5}$). On September 24, 1956 the star had a magnitude about 6^{m} and in September 1957 its brightness was about $11^{\text{m}5}$. The star became later invisible again (plate limit $12^{\text{m}5}$).

The star was estimated by Y.N. Efremov on a plate of the Sternberg Institute taken on May 22, 1957; its magnitude was about 10^{m} . The star cannot be seen on the plate taken by Y.N. Efremov and myself on December 14, 1962 (plate limit 16^{m}) and it is also invisible on the Palomar Sky Atlas Chart No. 1433-0 of May 19, 1955 (limiting magnitude $21^{\text{m}2}$).

The photometric behaviour of this star is very similar to those of Type I supernovae. Considering the nature of this interesting star the following four assumptions can be made.

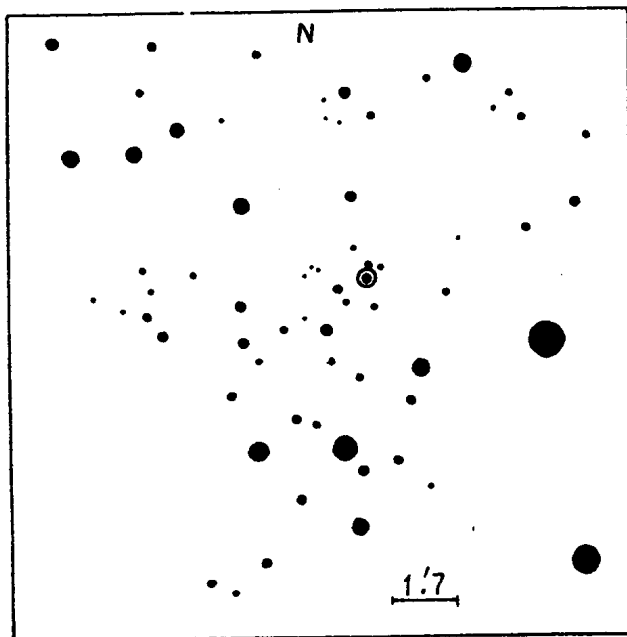
1. / The star may be a slow galactic nova with absolute magnitude $M = -6$. The very large amplitude (15^{m}) and the great distance from the galactic plane (about 1 - 2 kps) are in disaccordance with this assumption.

2. / The star may be an unusual faint galactic supernova with $M = -12$. The great distance from the galactic centre (about 35 - 45 kps) contradicts to this assumption.

3. / The star may be a normal Type I supernova with $M = -18$. In this case its distance would be about 200-300 kps. But no bright galaxies can be seen in the star's neighborhood. Hence the star may be an intergalactic supernova.

4. / The star may be a normal Type I supernova with $M = 0$ 18 in a very faint galaxy similar to the Sculptor- or Draco-systems. If the distance modulus $m - M$ is about 24^m , the brightest stars in the system would not be visible on the Palomar Charts.

The accompanying map shows the star's surroundings.



Moscow, December 18, 1962

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