

1962 NOVA DISCOVERED IN SAGITTARIUS

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While searching for new variable stars with the Rodman blink microscope, I discovered a probable nova at approximately R.A. $18^{\text{h}}24^{\text{m}}36^{\text{s}}$, Dec. $-24^{\circ} 04.8$ (1900). The plates were taken on June 2, 1962 (JD 37,818) and September 21, 1962 (JD 37,929) by Dr. Dorrit Hoffleit, Director of the Maria Mitchell Observatory. I noticed a bright object on the earlier plate which was not at all visible on the later one, marked it down as a suspected variable, and then confirmed it by observing it on other plates.

Fortunately, there were a number of Nantucket plates taken between June 2 and September 21, so I was able to derive a photographic light curve for the star (Figure 1). The star was first visible on June 2 and decreased steadily in magnitude thereafter until it was fainter than the limit of the Nantucket plates, about 15th magnitude. The star's magnitude was estimated by comparison with a nearby Harvard sequence. The brightest star in the sequence was $11^{\text{m}}.8$, so I extended the sequence using the Smithsonian Astrophysical Observatory Star Catalog magnitudes for nearby stars, corrected from visual to photographic.

Since there were no previous plates closer in time to June 2 than May 10 (JD 37,795) the moment of rise or outburst could not be pinpointed. This, and the fact that at minimum the star was fainter than the plate limit and thus invisible, meant that the amplitude of light variation could not be determined, only a lower limit of $\Delta m_{\text{pg}} = 6^{\text{m}}.8$.

I searched for other maxima on the Nantucket plates, covering the years 1957-1973 (JD 36,000 to the present), and on the RH-RB series of the Harvard patrol plates (JD 26,000 - 33,000). I examined about 700 plates in all, without success. The average limiting magnitude of the Harvard plates is 14.5.

On plates of the Harvard A Series, with a scale of 60"/mm as opposed to 248"/mm for the Nantucket plates, a faint star in the position of the nova was found by Dr. Hoffleit. This star varied erratically from $15^{\text{m}}.5$ to $17^{\text{m}}.0$, and was also faintly visible on a few plates of the Harvard B and MF series, but a period could not be determined. The most definitive run of observations is shown in Figure 2, with an enlarged finder diagram. (The star marked A is CoD $-24^{\circ}14410$).

The position of the nova was interpolated from the Smithsonian Catalog positions of four nearby stars. The faint variable found in the same position may be either the same star or a close optical companion. If it is the same star, it will give valuable information about the behavior of a star before it becomes a nova.

This work was done in the summer of 1973, while I was an undergraduate assistant to Dr. Dorrit Hoffleit at the Maria Mitchell Observatory, Nantucket, Massachusetts.

REFERENCES

- Cordoba Durchmusterung Catalogue and Atlas, National Argentine Observatory, Buenos Aires 1892.
Smithsonian Astrophysical Observatory Star Catalog, Smithsonian Institution, Washington, D. C. 1966.

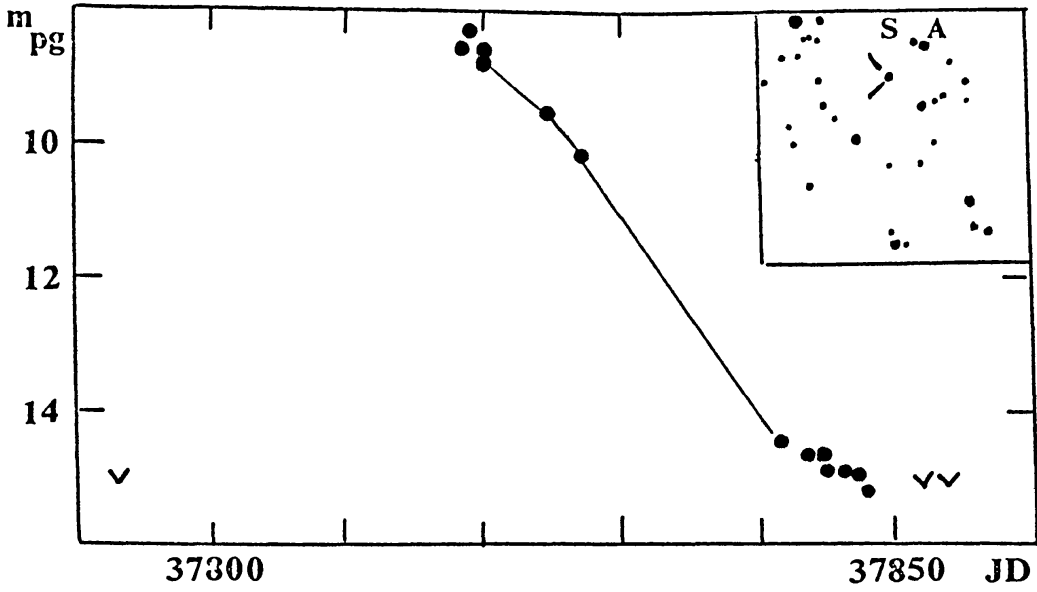


Figure 1. Photographic light curve and finder chart for Nova in Sagittarius, 1962.

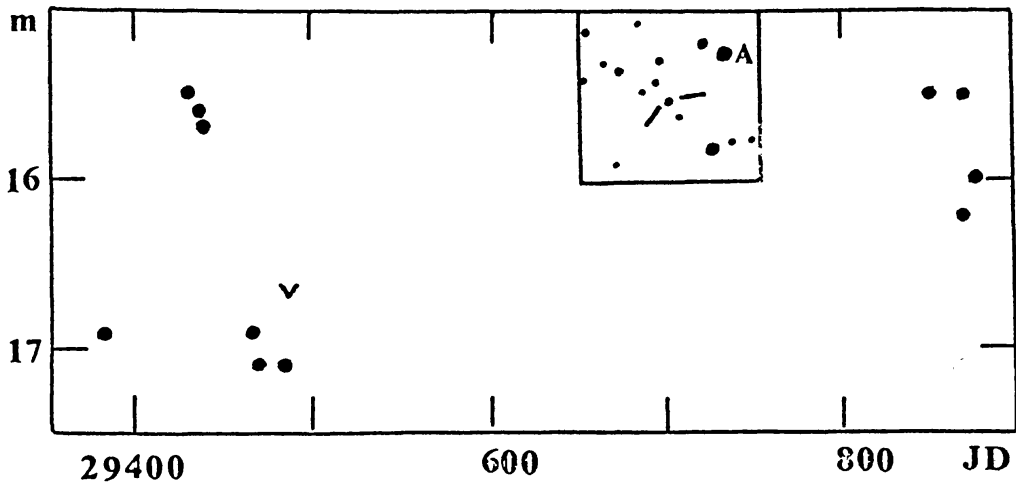


Figure 2. Photographic observations and finder chart for faint variable star near position of Nova in Sagittarius, 1962.