SUSPECTED VARIABLE CSV 3775 FOUND AND CONFIRMED

ELINOR VELASQUEZ
Maria Mitchell Observatory
Nantucket, MA 02554

Abstract

CSV 3775 Sgr is confirmed as a variable. The light curve shows very long variability, and suggests short term fluctuations.

* * * * *

CSV 3775 (Kukarkin et al. 1951), discovered by H. Leavitt in 1904 (Pickering 1904), was observed on approximately 600 photographic plates taken on Nantucket between 1957 and 1980. There appears to be no periodicity associated with this star. However, the irregular light curve (Fig. 1) is similar to light curves of symbiotic stars. CSV 3775 is observed to be fainter than 15th photographic magnitude for about 3200 days (J.D. 2438500 to J.D. 2441700). Z Andromedae (Boyarchuk 1975) is observed faint for 3100 days (J.D. 2416900 to J.D. 2420000). Also, V3804 Sagittarii (Brewster 1975) whose spectrum is symbiotic (Herbig 1969) appears faint for 3400 days (J.D. 2437000 to J.D. 2440400). CSV 3775 does not show the rapid rise and fall which are characteristic of symbiotic stars (Boyarchuk 1975), but neither does V3804 Sagittarii. Both stars show gradual rising and falling light.

Another light curve similar to CSV 3775 is that of SV Sagittarii (Swope 1940), classified as Inb in the General Catalogue of Variable Stars. SV Sagittarii has several maxima lasting for about 1500 days, with short-term fluctuations. Minima of 2000 to 3000 days' duration precede these maxima. CSV 3775 has a maximum, which seems to extend for about 2000 days, with short term fluctuations.

CSV 3775 is located in a region of apparently faint nebulosity, $1^{\circ}.4$ degree east of M20. Subsequent study of this star photoelectrically or spectroscopically should help in classification.

Figure 2 shows the finder chart for CSV 3775 and lists the sequence stars.

This work has been done under the guidance of Dr. E. Belserene, and was supported by the Dorrit Hoffleit Assistantship Fund of the Maria Mitchell Association.

REFERENCES

Boyarchuk, A. A. 1975, Symbiotic Stars" in Variable Stars and Stellar Evolution, IAU Sym. No. 67, ed. V. E. Sherwood and L. Plaut, D. Reidel Publishing Co. (Dordrecht, Holland) p. 378, Fig. 1.

Brewster, Mary 1975-1976, Journ. A.A.V.S.O., 4, 98.

Herbig, G. H. 1969, Contributions of the Lick Observatory, No. 299.

Kukarkin, B. V. et al. 1951, Catalogue of Suspected Variable Stars, Moscow.

Pickering, E. C. 1904, Circulars of the Observatory of Harvard College, No. 91.

Swope, H. L. 1940, Ann. Harv. Col. Obs., 109, 1, fig. 3.

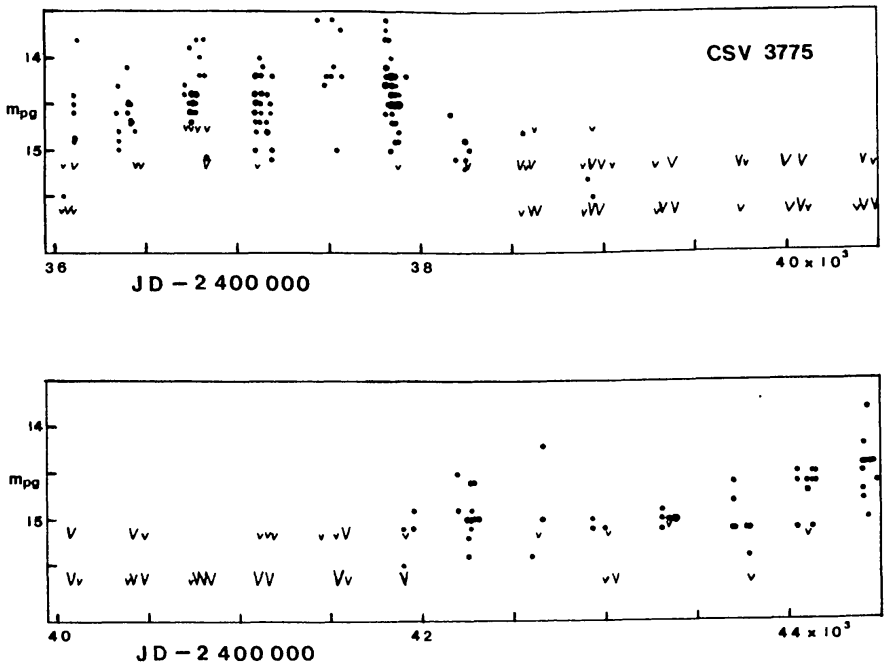

Figure 1. Light curve of CSV 3775. The symbol "v" indicates a brighter limit. The larger size indicates two or more such observations too close in time to show separately.

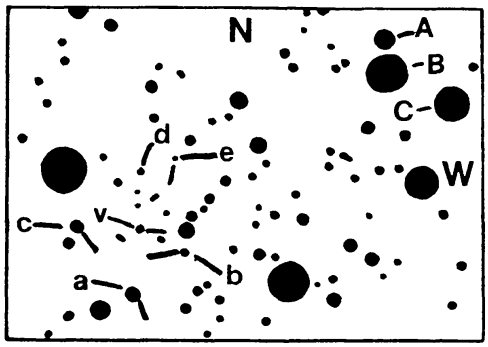

Figure 2. Finder chart (approx 10' x 7') for CSV 3775, position (1900) $\alpha = 18^h02^m20^s$, $\delta = -22° 57!3$. S.A.O. stars: A, S.A.O. 186326; B, S.A.O. 186325; C, S.A.O. 186320. Sequence stars: a, 13.1; b, 14.0; c, 14.8; d, 15.2; e, 15.7.