

## SIX LONG-PERIOD VARIABLES IN SAGITTARIUS

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Five known and one new Mira-type variables were examined for period determination on Nantucket plates taken from 1957 through 1974. All six stars were found while intercomparing plates centered on  $\lambda$  Sagittarii with Nantucket's Rodman blink microscope. V933, V935, V1289, and V1599 Sgr were re-discovered by myself in 1974 while blinking plates for JD 41595 and 41918; V1683 Sgr and the new variable were found by Harriet Dinerstein in 1973, comparing plates for JD 37818 and 37929.

Three of the five known variables, V933, V935 and V1599 were identified on charts in Leiden Annals 20 (articles by Ponsen and Fokker). Ponsen questioned the identification of V933 and V935 because his determinations of declination differed from those given by Innes at discovery. Therefore V933 and V935 were measured on NA plates to determine periods and epochs of maxima. When the Nantucket observations of V933 were coupled with those from Leiden and Innes a revised period of 282 days was determined. Similarly Ponsen's period for V935 was verified, and the period of V1599, which had been suspected of slight irregularity, was found to be quite stable over 131 epochs with a period of 138.5 days.

Of the remaining known variables, V1289 had been discovered by Luyten (1938) and found by Mayall in 1951 to be a bright-line spectrum variable, but no period or epoch had been determined. Nantucket observations covered 25 epochs with 10 maxima observed, and a period of approximately 220 days was computed. Measurements of V1683 agreed precisely with published data and the period of 216 days was confirmed over a span of 70 epochs from the last published maximum. As no finding chart was listed in the GCVS (1969) a map is given in Figure 1.

The new variable (Figure 1) is located at the northernmost edge of most of the Sgr plates and is actually off the field of many of them. However, additional data from scattered plates in a Sagittarius-Scutum overlap region extend the observations sporadically back to JD 27600. Thus I found over 400 plates showing the field of the variable and covering a span of 34 epochs with 10 maxima observed. The determination of comparison star magnitudes was hampered by the bad location of the variable on the Sgr plates. However, a comparison with SA 134 on a few plates of the Sgr-Sct overlap region yielded the approximate magnitude range given in Table I.

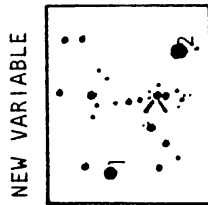
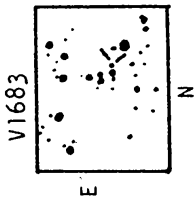
This work was accomplished as a summer undergraduate research assistant at the Maria Mitchell Observatory under the direction of Dr. Dorrit Hoffleit.

### REFERENCES

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Kukarkin, B.V., et al. 1969, General Catalog of Variable Stars, Moscow.  
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TABLE I: A Summary of Six Sagittarius Variables

STAR	POSITION 1900 RA DEC	MAGNITUDE MAX MIN	EPOCH	PERIOD	SOURCE	REMARKS
V933	18 <sup>h</sup> 24 <sup>m</sup> 30 <sup>s</sup> (Ponsen #68) (Fokker #17)	11.5 16.1	34200 34194 28611 19575 36760	280.9 280 271 285 282	Kukarkin Ponsen Fokker Innes	Revised
V935	18 <sup>h</sup> 25 <sup>m</sup> 32 <sup>s</sup> (Ponsen #71)	11.1 15.3	34135 34153 36060	239.0 240 240	Kukarkin Ponsen	Revised
V1289	18 <sup>h</sup> 14 <sup>m</sup> 36 <sup>s</sup> (Mayall #119 = HV 9392)	13.0 15.5	36760	220	Kukarkin	New, 25 epochs, 10 maxima obs.
V1599	18 <sup>h</sup> 14 <sup>m</sup> 52 <sup>s</sup> (Ponsen #22)	11.4 14.5	34188 36090	138.8 138.5	Ponsen	Revised
V1683	18 <sup>h</sup> 27 <sup>m</sup> 05 <sup>s</sup> (HV 12378)	12.0 16.2	27300 40080	216 216	Hoffleit	Nantucket plates only, 30 epochs, 12 maxima obs.
NEW VAR	18 <sup>h</sup> 21 <sup>m</sup> 05 <sup>s</sup>	10.8 <15.0	37520	412		New, 34 epochs, 10 maxima obs



Identification:  
1 = BD -16° 4879  
2 = BD -16° 4888

Figure 1. Finder charts for V1683 Sgr and new variable.