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IMPROVED RESULTS FOR SEVEN SAGITTARIUS VARIABLES

The extensive collections of plates at Harvard and at the Maria Mitchell Observatory cover a sufficient time span for the detection of changes in period. We are therefore examining numerous periodic variables for which prior published results depended on observations made prior to 1960. In the Table, the first six of the seven listed had last been observed on Harvard plates taken through 1931, the seventh through 1953. Plates taken subsequently, mainly at the Maria Mitchell Observatory since 1956, have confirmed or slightly improved the constant periods previously found. The time interval represented ranges from 50 to 77 years. Only in two cases are changing periods necessary to account for the observed times of maximum: for V511 by an abrupt change at about JD 23950; for V515 by a secular change in period.

In the Table the initials in columns 3 and 6 indicate the people who made the new observations of brightness, or who determined the periods: MR, Dr. Marguerite Risley; PR, Pamela Robinson; CP, Constance Philips; and DH, myself. In all cases the revised periods depended upon the combination of the new with the older observations. Although the final determinations of period, as well as the older ones, are mainly mine, Miss Robinson and Miss Philips carried out the preliminary computations on the stars they had measured which led to the final values. Some of the early estimates date back as far as 1899 on the Harvard plates.

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Verified or improved periods for seven Sagittarius Variables

Var	Period in GCVS	New Obs. by	Revised Ephemeris $JD_O+nP+kn^2$	No. Epochs	Period by	Notes
GP Sgr	265.5	PR	40080 + 257.5n	122	DH	1
V509	0.53436	PR	41121.770+0.5343587n	36225	DH+PR	
V510	168	PR	42680 + 167.9n	187	DH+PR	
V511	158.5	MR+DH	23950-158.8n beforeJD_O	80	DH	
			+158.2n after JD_O	120		
V512	196	MR+DH	26500 + 196n	97	DH	2
V515	245.7	CP	31635+246.5n+0.015n^2	114	DH	
V1655	245	CP+DH	42980 + 245n	78	DH	

1. Considerable magnitude scatter in recent observations. Attempts by PR to fit the observations to a changing period yielded no improvement. The average period given holds fairly well from JD 14850 to the present.

2. V512 is too faint at maximum for meaningful observations from the Nantucket plates. The previously published JD_O should have been 26500, not 26400 as given in GCVS and the original reference (Harvard Annals, 90, 187, 1934).

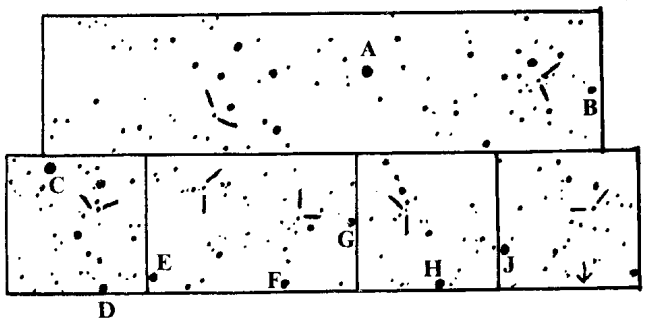

Figure: Finder charts for the variables tabulated. Width of all fields 10', South at top. Markers indicate the variable stars, letters, CoD stars to aid in identification of field. Left to right, top strip: V 510 and V512 Sgr; A = CoD -26°13068, B = -26°13086.
Lower strip : V509, V511, GP, V515 and V 1655 Sqr; C = -25°13014, D = -25°13021, E = -24°14219, F=-24°14244, G = -25°13063, H = -25°13012, and J = -25°13082.

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