SEVENTEEN LONG PERIOD VARIABLES IN SAGITTARIUS

Recent results obtained at the Maria Mitchell Observatory of long period variables in Sagittarius are summarized in Table I. Most of them are slightly revised periods of some previously published. The observations in general span the years 1924 to 1974. Diagrams (South at top) are given in Figure 1 for those of the stars for which such charts had not previously been available.

The first star, discovered in 1973 by Barbara Capron, proves to be an unusual type (Figure 2). Semi-regular cycles reminiscent of RV Tauri light curves are found, but with a double period on the order of 4000 days. Variables 8 and 15, discovered by Harriet Dinerstein in 1973, are both typical Mira type stars. Observations of V519 and V520 Sgr, updated by Josefa Manella, could not be adequately represented by a constant period, but are adequately represented by parabolic corrections:

V519   Max=JD $35085+178\overset{d}{.}25n+0.0046n^2$

V520   Max= $34910+260n+0.051n^2$

The initial Julian Dates given in the formulae are interpolated values. The dates given in the Table correspond to recent well observed maxima.

The Semi-regular variable V1666 shows fairly well defined cycles from about JD 23600 to 33800 (Harvard plates). The later Nantucket plates, however, do not yield well defined cycles, partly perhaps because of larger observational errors on plates of smaller scale in a crowded star field.
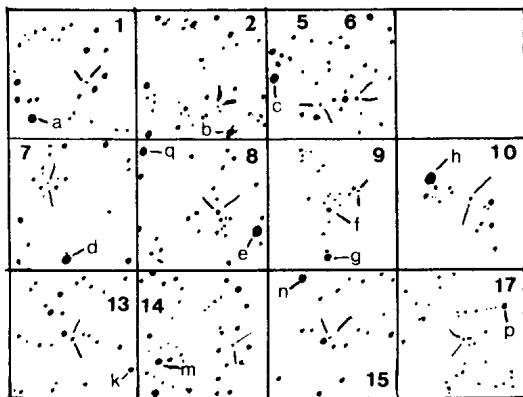
The students who ascertained the periods shown in the final columns of the table are O.L., Olivia Lovelace; J.M., Josefa Manella and P.O., Pamela Owensby.

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Table I. Long Period Variables in Sagittarius.

No.	Desig. Sgr.	R.A. (1900) h m s	Dec. ° ′	Max.	Min.	Type	J.D.	Period Old ^{d}	New ^{d}	Ep.	Comp.
1	–	18 11 39	-29 30.4	12.	15.			–	~4000		D.H.
2	V508	13 00	25 53.3	13.5	16.5	M	41920	294	293.8	62	O.L.
3	V1289	14 36	31 11.7	13.0	15.5	M	36760	–	220	25	P.O.
4	V1599	14 52	30 28.2	11.4	14.5	SR	36090	138.8	138.5	131	P.O.
5	V517	21 34	26 0.0	13.0	17:	M	41120	280	281.5	65	J.M.
6	V519	21 49	26 0.1	13.2	17.0	SR	40080	177	178.25+Δ	154	J.M.
7	V518	21 50	26 21.2	14.0	16.3	SR	37845	160	159.5	114	J.M.
8	–	22 05	16 50.2	10.8	15.	M	37520	–	410	35	P.O.
9	V520	22 19	25 51.4	13.3	17.0	M	41135	263	260+Δ	70	J.M.
10	V1666	23 03	25 4.7	13.8	15.9	SR	36728	102:	102.4:		D.H.,J.M.
11	V933	24 30	31 12.5	11.5	16.1	M	36760	280.9	282	50	P.O.
12	V935	25 32	31 16.0	11.1	15.3	M	36060	239.0	240	59	P.O.
13	V1683	27 05	20 59,6	12.0	16.2	M	40080	216	216.5	84	P.O.,D.H.
14	IU	28 58	31 22.4	13.5	17.	M	41100	382:	268.9	84	J.M.
15	–	32 33	20 40.1	15:	16.5	M	39030	–	307	60	D.H.
16	V1702	33 05	20 48.5	13.3	15.2	SR	42250	95	101.5	180	J.M.
17	S4277	34 06	29 54.0	14.0	16.0	SR	41890	–	144.5	42	J.M.
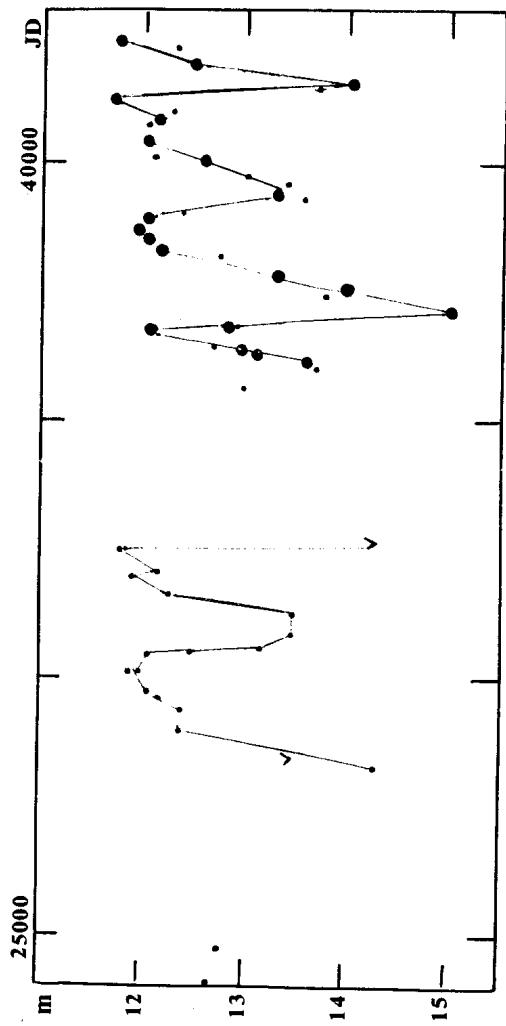
Figure 1

Finder charts for variables for which charts have not previously been published. The letters indicate Durchmusterung stars near the variables:

Var.	DM		Var.	DM		Var.	BD	
1	a	CoD-29°14764	8	q	BD-17°5199	13	k	BD-20°5178
2	b	-25 13005	8	e	-16 4888	14	m	CoD-31 15696
5,6	c	-26 13175	9	f	CoD-25 13150	15	n	BD-20 5213
7	d	-26 13194	9	g	-25 13149	17	p	CoD-30 15966
			10	h	-25 13163			

Figure 2

Light curve of Var. No.1. Means over 100 days: small dots average of less than 10 individual observations, large from 10 to 70. Deep minima occur at semi-regular intervals of about 4000 days, with more shallow secondary minima unevenly spaced between the primary.