

string can be bought in any music store for less than \$1.00. The batteries are ordinary "D" cells from the supermarket and will last for many months. The regulated 5 volt power supply can also be bought from Radio Shack in kit form for under \$10.00. It is necessary to use a regulated supply because otherwise line voltage fluctuations would show up on the chart recording. The lamp draws too much current to be economically powered by batteries.

The magnetometer will work best if it is placed in the basement on a cement floor as far as possible from iron or steel objects such as furnaces, hot-water heaters or washing machines. Some means of excluding extraneous light from the photocells is necessary. It is also a good idea to protect the needle from drafts although the damper consisting of a piece of wire dipping in a cup of oil is very effective in damping out unwanted excursions of the needle.

The Solar Division would like to establish a small group of observers to record the occurrence of aurora using magnetometers to predict when they are apt to occur. Magnetic recordings also correlate with certain interesting phenomena seen on AAVSO Solar Division ionospheric disturbance recordings.

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VARIABLE AND POTENTIALLY VARIABLE STARS IN THE  
BRIGHT STAR CATALOGUE

DORRIT HOFFLEIT  
Yale University Observatory  
New Haven, CT 06520

Abstract

The fourth edition of the Bright Star Catalogue, now being compiled jointly at the Yale and Strasbourg Observatories, will contain 610 confirmed and 1261 suspected variable stars. This amounts to 20% of the Bright Stars and is up 12% over the numbers in the 1964 edition. Among the stars with late M-type or peculiar A-type spectra high percentages have been found to be variable. In these categories it is noted that relatively few variables confirmed by 1969 have amplitudes under 0.5 visual magnitude, whereas the vast majority of those discovered and verified subsequently do have amplitudes well under 0.5 mag. Most of these are either slowly varying irregular variables of class Lb, or  $\alpha$ CVn stars with periods less than 2 days. Lists have been prepared of the potentially variable stars with these spectral characteristics. They should be monitored photoelectrically, the Ap types frequently, the M stars occasionally. AAVSO members who have photoelectric equipment might well enjoy the thrills of discovery by observing these stars.

The following tables give peculiar A stars and M-type stars (1st line) that are potential candidates for small amplitude variability. Comparison stars (2nd and 3rd lines) are also listed. Asterisks next to the GC number indicate notes at the end of the table.

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Table I. Northern Peculiar A-Stars

HR	GC	RA (1950)	DEC	m	sp.	peculiarity
128	634	0 <sup>h</sup> 29 <sup>m</sup> 44 <sup>s</sup>	+43 <sup>o</sup> 13.1	6.43	A0	Si
	606	0 28 20	+43 5.9	8.1	F8	
	608	0 28 30	+43 40.2	6.64	B8	
682	2813	2 17 38	+49 55.4	5.56	A0p	Si
	2795	2 16 48	+50 43.8	6.72	F5	
	2864	2 20 27	+49 06.7	8.5	B8	
1643	6288	5 06 02	+73 53.1	5.38	A0p	Si
	6196	5 01 50	+73 31.5	8.0	A0	
	6405	5 12 02	+73 12.9	5.76	A0	
2362	8430	6 27 21	+ 9 3.8	6.48	A0p	Si
	8379	6 25 33	+10 20.2	6.19	K0	
	8455	6 28 24	+ 9 58.6	7.65	B8	
4041	14132	10 15 21	+27 39.9	6.46	B9	Si
	14091	10 13 38	+28 56.0	6.51	G0	
	14130	10 15 16	+27 46.5	7.9	F2	
4751	17007	12 26 14	+26 10.5	6.69	A3	m*
	17005	12 26 08	+26 30.2	6.48	A3	
	17012*	12 26 24	+26 11.4	5.38	A0p	
5422	19553	14 27 41	+32 0.7	5.96	B9	Si
	19505	14 25 38	+33 10.4	8.4	A3	
	19650	14 32 04	+32 45.2	6.28	F2	
5982	21580	16 01 14	+46 10.5	4.64	B9	Mn
	21547	16 00 01	+47 16.8	7.40	K0	
	21684	16 05 30	+47 38.2	6.58	A0	
6958	25308	18 29 37	+ 3 37.3	6.34	B9	Si, Cr
	25256	18 27 36	+ 4 1.8	6.50	B5	
	25271	18 28 13	+ 4 28.5	6.80	A2	
7147	25997	18 53 51	+17 55.7	6.41	B9	Si
	26052*	18 56 01	+17 17.5	5.37	F5	
	25999	18 53 53	+18 2.5	5.72	K2	

## (Northern Peculiar A-Stars, continued)

HR	GC	RA (1950)	DEC	m	sp.	peculiarity
7395	26846	19 <sup>h</sup> 24 <sup>m</sup> 20 <sup>s</sup>	+36°13'0	5.15	A0p	Si
	26792	19 22 18	+36 21.1	6.45	K0	
	26927	19 27 42	+36 10.9	6.62	F0	
7870	28642	20 32 16	+46 31.3	5.59	B9	Si
	28595	20 30 51	+48 2.7	6.82	B2	
	28631	20 31 58	+45 0.2	6.62	A0	
8933	32719	23 29 14	+28 7.7	6.23	A0	Si
	32710	23 29 00	+28 23.4	6.68	K0	
	32817	23 33 49	+28 37.3	8.8	F2	

Note: 4751 = 17 Com B, a metallic-line star suspected of magnetic-field variability. 17 Com A = HR 4752, a silicon star and  $\alpha$  CV $\eta$  type variable, AI Com.

Table II. Southern Peculiar A-Stars

HR	GC	RA (1950)	DEC	m	sp.
11	114	0 <sup>h</sup> 05 <sup>m</sup> 10 <sup>s</sup>	- 2°49'6	6.33	B8
	124	0 05 38	- 2 43.6	6.32	K0
	132	0 06 09	- 2 30.1	7.31	G5
1100	4305	3 34 00	-17 37.9	5.32	A0p
	4216	3 29 08	-16 56.9	7.56	F5
	4368	3 37 20	-17 31.6	7.06	K0
1240	4801	3 57 47	-24 9.4	4.69	A0p
	4755	3 54 22	-25 19.3	6.93	G0
	4829	3 59 02	-22 24.9	7.19	F0
1300	5055	4 09 24	-20 29.1	5.80	A0
	5006	4 06 58	-20 50.1	8.7	K0
	5015	4 07 39	-19 25.0	7.09	K0

## (Southern Peculiar A-Stars, continued)

HR	GC	RA (1950)	DEC	m	sp.
2195 **	7875	6 <sup>h</sup> 08 <sup>m</sup> 35 <sup>s</sup>	- 6°44.5	5.97	A0
	7876	6 08 36	- 7 16.3	7.55	B8
	7899	6 09 25	- 6 32.2	5.09	B3
2320	8274	6 22 02	-56 20.5	5.72	A0
	8148	6 17 38	-56 58.7	8.00	A0
	8408	6 26 17	-57 58.2	5.73	K0
2414	8577	6 32 57	-22 55.4	4.54	A0
	8592	6 33 24	-22 4.0	6.53	K0
	8626	6 34 35	-22 34.3	6.23	B8
2424	8597	6 33 39	-36 44.3	5.60	B9
	8559	6 32 04	-36 11.6	5.45	K2
	8602	6 33 48	-36 13.0	7.10	A0
2683	9368	7 03 22	-56 40.4	5.30	A0
	9314	7 01 09	-57 14.5	7.08	F2
	9426	7 05 38	-57 42.0	7.67	A3
2727	9554	7 10 36	-40 24.8	5.40	A2
	9510	7 09 01	-41 10.9	7.40	A2
	9634	7 13 12	-41 4.8	7.37	B8
2761	9637	7 13 19	-46 45.7	5.82	A0p
	9569	7 11 08	-46 40.5	4.47	F0
	9621	7 12 43	-46 14.3	7.25	K0
2768	{ 9694	7 15 01	-30 48.3	6.23	A5
	{ 9693	7 15 01	-30 48.9	8.05	--
	9665	7 14 10	-30 20.7	7.06	B5
	9735	7 16 37	-30 42.4	6.88	B3
2839	9916	7 23 11	-21 52.9	5.93	A5
	9890	7 22 10	-22 48.8	6.10	B9
	9910	7 22 58	-21 4.5	6.73	B2

## (Southern Peculiar A-Stars, continued)

HR	GC	RA (1950)	DEC	m	sp.
2863	9990	7 <sup>h</sup> 26 <sup>m</sup> 00 <sup>s</sup>	-29° 31.2	5.52	B9
	9887	7 22 09	-28 43.8	6.60	B5
	9986	7 25 49	-28 16.1	6.80	B5
2907	10123	7 31 31	-39 56.9	6.28	B8
	10107	7 30 51	-39 53.6	8.21	B5
	10148	7 32 16	-39 47.8	6.62	K0
2971	10312	7 37 47	-53 09.5	6.22	A0
	10205	7 34 24	-54 0.9	8.53	A0
	10255	7 35 49	-53 58.0	8.17	F8
3162	{ 10932	8 01 01	-41 10.1	5.55	B9
	{ 10931	8 01 00	-41 9.7	8.54	--
	10976	8 02 49	-42 36.9	7.40	B3
	11012	8 04 26	-40 12.3	8.5	B9
3226	11155	8 09 44	-42 50.2	4.87	A3
	11152	8 09 36	-43 12.7	8.05	K2
	11167	8 10 11	-41 38.3	6.52	K2
3605	12501	9 00 11	-51 59.5	5.42	B9
	12450	8 58 11	-51 18.5	7.42	A2
	12480*	8 59 03	-51 21.5	6.72	B3
3739	12984	9 22 19	-51 31.3	6.14	F0p
	12844	9 16 26	-50 50.4	5.34	B9
	13129	9 28 23	-51 17.8	5.60	B8
3981	13916	10 05 22	- 0 7.6	4.50	A0
	13804	10 00 16	- 0 49.5	7.02	K0
	13932	10 06 07	+ 1 24.3	6.56	F0
4263	15014	10 52 44	-41 59.0	6.30	A0
	15024	10 53 11	-42 45.2	6.66	A0
	15069	10 55 41	-41 46.3	7.46	A2

## (Southern Peculiar A-Stars, continued)

HR	GC	RA (1950)	DEC	m	sp.
4776	17095	12 <sup>h</sup> 30 <sup>m</sup> 01 <sup>s</sup>	-13°35!0	5.70	F0
	17036	12 27 30	-13 7.0	6.41	G0
4944	17778	13 04 18	-59 35.6	6.06	B9
	17733	13 02 07	-60 10.4	8.32	A0
	17761	13 03 42	-59 10.6	8.19	A3
4965	17839	13 07 58	-52 18.1	6.29	A0p
	17781	13 04 28	-52 29.0	7.76	A5
	17783	13 04 39	-53 11.6	5.96	B9
5049	18141	13 22 09	-70 22.0	5.84	A0p
	18058	13 18 29	-70 17.1	7.42	B9
	18113	13 21 01	-70 10.1	7.22	K0
5069	18206	13 25 42	-64 25.0	6.24	A0
	18204	13 25 41	-63 36.9	7.19	B3
	18266	13 28 29	-65 3.9	6.62	A3
5158	18555	13 41 06	-50 45.7	6.46	A0p
	18521	13 39 46	-50 32.3	6.29	K0
	18622	13 44 18	-50 0.0	6.06	A3
5269	18976	14 00 24	-41 11.0	6.44	A0p
	18991	14 01 08	-41 34.3	7.12	F5
	19017	14 02 59	-40 56.5	4.54	B3
5466	19758*	14 37 56	-35 55.3	5.75	A0
	19723	14 35 52	-35 22.9	7.33	F5
	19848	14 42 15	-35 56.2	7.32	A2
5489	19845	14 41 54	-34 58.9	5.00	A0
	19758	14 37 57	-35 55.3	5.75	A0
	19820	14 40 35	-34 57.6	4.13	K0
5514	19897	14 44 27	-25 24.9	5.67	A0p
	19865	14 43 07	-25 14.0	7.09	F9
	19908	14 45 01	-26 26.3	5.80	B9

## (Southern Peculiar A-Stars, continued)

HR	GC	RA (1950)	DEC	m	sp.
5619	20303	15 <sup>h</sup> 03 <sup>m</sup> 30 <sup>s</sup>	-30°43'5"	6.01	A0p
	20284	15 02 17	-29 47.8	7.22	K0
	20286	15 02 32	-30 21.5	6.64	F5
5623	20347	15 05 13	-63 27.1	6.38	A0p
	20247	15 00 45	-63 7.9	7.19	A2
	20322	15 04 12	-64 26.9	8.56	A2
5624	20335	15 04 57	-40 23.6	6.01	A0p
	20278	15 02 04	-40 52.4	5.28	K0
	20387	15 07 04	-41 18.3	8.70	G5
5697	{ 20630	15 18 16	-38 02.4	6.7	A0p
	{ 20631	15 18 17	-38 02.4	8.8	--
	20528	15 13 46	-38 15.9	6.96	F0
	20652	15 18 58	-37 27.4	6.85	B9
5719	20698	15 21 28	-39 32.0	5.38	A0
	20632	15 18 18	-40 34.2	6.24	A2
	20727	15 22 50	-39 42.8	7.24	A0
5724	20714	15 22 05	-38 33.5	4.68	A0
	20727	15 22 50	-39 42.8	7.24	A0
	20802	15 26 04	-38 27.7	6.61	A5
6204	22513	16 41 37	-67 11.1	5.30	A0p
	22497	16 40 49	-67 39.5	7.01	A2
	22516	16 41 45	-68 0.7	6.60	A0
8180	29950	21 21 14	-41 13.3	5.86	A0p
	29817	21 16 17	-41 15.9	7.95	F0
	29942	21 20 54	-40 14.7	7.60	F5
8305	30439	21 41 58	-33 15.3	4.35	A0
	30368	21 39 14	-32 44.1	7.18	K2
	30470	21 43 26	-32 56.7	6.84	K0

Table III. M-Type Stars to be Monitored

HR	GC	RA (1950)	DEC	m	sp.	Buscombe sp.
259	1096	0 <sup>h</sup> 52 <sup>m</sup> 34 <sup>s</sup>	+24 <sup>o</sup> 17'.2	6.36	Mb	M4III
	1091*	0 52 17	+23 21.5	5.60	K0	
	1093	0 52 19	+23 49.9	7.38	G5	
2146	7725	6 03 11	+29 31.1	6.32	Ma	M3II
	7673	6 00 52	+27 34.4	7.8	A0	
	7683	6 01 22	+30 14.3	8.2	A	
2802	9809	7 19 01	-25 47.8	6.10	Ma	M4III
	9790	7 18 30	-26 36.4	6.59	F0	
	9805	7 18 53	-26 52.1	5.84	B3	
3153	10873	7 58 46	-60 26.9	5.06	Ma	M1.5IIA
	10859	7 58 16	-60 26.8	7.61	F0	
	10874	7 58 47	-60 4.2	6.41	B8	
7442	27045	19 32 19	+49 9.2	6.19	Mb	M4.5III
	27007	19 30 43	+50 4.2	8.07	F8	
	27078	19 33 14	+48 3.3	6.70	A5	
7475	27195	19 37 10	+16 27.3	6.58	K5	K4Ib +M0+IIab
	27191	19 37 01	+18 34.1	7.6	B5	
	27215	19 37 52	+17 53.8	4.37	G0	
7997	29139	20 51 07	-28 6.9	6.46	Ma	M4III
	29124	20 50 20	-28 12.8	8.18	F8	
	29154	20 51 36	-28 7.3	7.62	K2	
8062	29388	21 00 37	+44 35.6	6.38	Mb	M4III
	29371	20 59 59	+43 59.4	6.72	A2	
	29398	21 00 53	+45 41.1	7.6	K2	
8164	29860	21 17 53	+58 24.7	5.79	--	M1Iabep+B
	29804*	21 15 56	+58 24.1	6.41	B3	
	29866	21 18 01	+58 6.8	7.05	K2	
8378	30746	21 55 57	-21 25.3	6.23	Mb	M4III
	30715	21 54 19	-19 25.7	7.73	G5	
	30759	21 56 29	-23 6.7	7.39	F5	



## (M-Stars, continued)

HR	GC	RA (1950)	DEC	m	sp.	Buscombe sp.
8637	31680	22 <sup>h</sup> 39 <sup>m</sup> 35 <sup>s</sup>	-29°37.4	6.44	Ma	M5III
	31639*	22 37 35	-30 55.0	5.98	K2	
	31682	22 39 38	-30 54.8	8.72	G0	
9099	24	0 01 16	+66 26.0	6.62	Ma	M4III
	39	0 02 05	+66 53.3	5.84	K0	
	33331	23 59 24	+66 9.6	7.30	B9	

\* The following comparison stars, marked with asterisks in the table, are themselves variable or suspected of variability:

<u>Comparison</u> GC	<u>HR</u>	<u>Variable</u>
17012	4752	AI Com
26052	7165	FF Aql
12480		CV Vel
19758	5466	This is also a Si Star, to be tested for variability.
1091	258	CSV 100074
29804	8153	CSV 8645
31639	8623	CSV 103097

\*\*Since the compilation of the lists of potential variable stars, HR 2195 has been found to vary (Information Bull. of Variable Stars, No. 1658, 1979).

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## THE LONG PERIOD VARIABLE, Z TAURI

RICHARD F. LYNCH  
5 School Street  
Esmond, RI 02917

Abstract

A decrease in period appears to have taken place for the long period variable, Z Tauri. The original period proposed by Campbell and Sterne of 500.09 days is no longer acceptable. A revised period of 480 days is proposed.