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THE RADIAL VELOCITIES  
OF 681 STARS

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## THE RADIAL VELOCITIES OF 681 STARS

THE radial velocities of the 681 stars contained in this publication are of stars selected from Schlesinger's catalogue of bright stars and include all stars of types A0-M, north of the equator and of photographic magnitude brighter than 8.0, whose velocities have not been published. The observations were nearly all made with a one-prism spectrograph and a 25-inch camera, giving a dispersion at  $H\gamma$  of about 33 Å per mm. The velocities show a very marked gain in accuracy over those contained in Publications 3 and 13, which were made with a 12½-inch camera and the same prism. Owing to the fact that we have been able to aluminize the surface of both mirrors and have had all optical surfaces coated with a low-reflecting film, the speed of the present arrangement is somewhat greater than with the 12½-inch camera; this represents a remarkable gain in speed.

For none of the stars have we been able to find observations at other observatories and an investigation of the systematic errors cannot be made at the present time. Scattered observations of a few standard velocity stars indicate that the errors are small. While the same wave-lengths for the reduction tables have been used as in the former publications, namely, those recommended in the I.A.U. Transactions 1932, it is by no means likely that the systematic errors for the present list will be the same as for the former two lists. In the first place, we have introduced a change in the slit mechanism, bringing the comparison spectra closer to the star spectrum and reducing the curvature corrections to less than one km. per second and, in the second place, errors of measurement with the larger dispersion will probably be systematically a little different.

As in the previous lists of velocities many observers have helped in securing the spectrograms. The observers with the number of exposures are—Hogg, 760; Young, 674; Norris, 435; Longworth, 428; Miss Northcott, 237; others, 338. In all, 2872 measurable plates were secured, 192 of which were taken with the 12½-inch camera. An average of between four and five plates was obtained for each star with a minimum of four for each star. The measurement of the plates was also carried out as a joint programme. Those who have contributed to the measurement of the spectrograms are—Young, 1055; Miss Northcott, 608; Miss Fuller, 585; Norris, 474; others, 263.

The main results of all the stars are included in Table I, in which the headings of the various columns have the following meanings.

1. The serial number in the Henry Draper Catalogue.
- 2-3. The right ascension and declination for the epoch 1900.0.
4. The visual magnitude from the Henry Draper Catalogue.
5. The Harvard type.
6. The type as estimated from our spectra. The criteria for estimating the type have been the same as used at the Dominion Astrophysical Observatory, Victoria, and as given in the I.A.U. Transactions.
7. The velocity of the star. This is the mean of all the plates taken if the velocity seemed constant or if the velocity variation was not certainly established. Those stars showing a definite variation are indicated by "Var." in this column.
8. The probable error as indicated from the agreement of the various plates and computed from the formula

$$\text{P.E.} = 0.845 \frac{\sum v}{n\sqrt{n}}$$

9. The number of measurable plates taken.
10. The minimum and maximum number of lines measured on the plates. In the case of late type stars, if the minimum number is less than 17, it means that at least one plate was somewhat weak. In the case of the early types, the number of lines measured gives some idea of the spectrum. The letter n placed after the type in column 6 indicates that the lines are nebulous.
11. The average probable error of each plate as judged from the agreement of the lines measured. When some of the plates were taken with the 12½-inch camera the  $\bar{e}$  refers to the mean from the 25-inch camera plates only.
12. In this column \* means that the velocity is more uncertain than for the general run of stars, due to the character and number of the lines. A number following the \* indicates the total range. We judge in these cases that the variation is somewhat greater than would be expected from the character of the lines. R means that there is a remark on this star in the notes at the end of Table I. II means that the individual velocities will be found in Table II. S means that for this star all the plates were taken with the 12½-inch camera.

Those stars for which the velocity seems to be definitely variable are given in Table II. This table gives the individual velocities for 36 stars—a very small number to be found variable in the observation of 681 stars. It is probably due to the fact that nearly all the stars of late type have orbital velocities which are often below detection with a small number of plates of one-prism dispersion. Many of those stars listed with an \* (when followed by a number) in the last column of Table I are probably binary.

In Table II the various columns have the following meanings.

1. Identification of the star in Table I.
2. The Julian day of the observation. Most of the plates were taken after the epoch J.D. 2430000 but a few were taken between the epochs J.D. 2420000 and 2430000, hence the double heading.
3. The measured velocity. In some cases there is a repeat measure.
4. The probable error as judged from the agreement of the lines.
5. The number of lines.
6. The initial of the measurer of the plate—N, Miss Northcott; Y, Young; F, Miss Fuller; No, Norris; Ma, Matthews; B, Bunker; K, Mrs. Krotkov; T, Tidy.
7. Explanations which refer either to the character of the spectrum or to the nature of the variation.

TABLE I

Star H.D.	$\alpha$ (1900)	$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km. sec.	P.E.	Plates	Lines	$\bar{e}$	Ref.
	h m	° ′									
1075	00 09.9	+ 30 59	6.61	K5	K4	+ 03.3	0.5	4	18-21	0.9	
1419	13.2	+ 10 39	6.20	K0	G8	+ 09.6	0.2	5	16-23	0.7	
1527	14.4	+ 40 10	6.41	K0	K0	- 36.5	0.6	4	20-24	0.6	
2904	27.3	+ 70 26	6.36	A0	A0n	- 11.4	4.1	4	3	6.3	*
2913	27.3	+ 06 25	5.66	A0	A0n	+ 17.6	2.8	5	2-5	6.7	*
2924	00 27.4	+ 27 01	6.54	A0	A2	+ 00.9	0.4	4	7-17	0.9	
2952	27.7	+ 54 21	6.14	K0	G8	- 34.5	0.5	5	20-23	0.6	
3411	31.9	+ 23 28	6.44	K0	K1	+ 00.4	0.2	4	16-23	0.7	
3856	36.1	+ 65 36	5.92	G5	G7	- 01.0	1.0	4	14-22	0.7	
4295	40.3	+ 68 47	6.42	F2	F2	- 14.5	0.5	4	18-22	0.8	
4321	00 40.6	+ 54 45	6.52	A2	A3	- 09.3	0.6	4	14-18	0.9	
4440	41.6	+ 72 08	6.04	K0	G8	+ 00.9	0.4	4	19-22	0.6	
4881	45.8	+ 51 02	6.24	A0	A0	- 14.7	0.9	4	3-5	2.0	
5273	49.4	+ 48 09	6.60	Ma	M1	- 50.4	0.3	4	17-22	1.0	
5357	50.4	+ 68 15	6.38	F0	F2	- 08.9	0.6	4	11-24	0.8	
6028	00 56.5	+ 50 30	6.62	A3	A2n	+ 05.4	1.2	4	5	1.6	
6211	58.1	+ 51 58	6.27	K2	K2	- 06.0	1.0	4	20-23	0.7	
6480	01 00.7	+ 04 22	7.64	F2	F5	- 07.8	0.4	4	17-26	0.7	R
6497	00.9	+ 56 24	6.58	K0	K1	- 94.5	0.8	4	17-23	0.7	
6540	01.2	+ 52 58	6.49	K0	K0	+ 07.8	0.2	4	15-21	0.7	
6953	01 04.9	+ 24 56	6.06	K5	K6	+ 06.4	0.6	4	9-21	1.0	
7229	07.5	+ 29 33	6.40	K0	G6	+ 36.6	0.4	4	21-24	0.6	
7351	08.6	+ 28 01	6.63	Ma	M1	+ 05.8	1.4	4	18-20	1.3	*11
7389	09.0	+ 71 13	6.38	K0	K4	- 16.0	0.3	4	15-20	1.0	
7578	10.7	+ 32 36	6.31	K0	K0	+ 06.8	0.8	4	19-21	0.6	
7647	01 11.3	+ 44 23	6.48	K5	K5	- 50.0	0.1	4	17-20	1.0	
7724	11.9	+ 31 14	6.86	K0	K0	- 32.7	0.6	4	20-24	0.6	
7732	12.0	+ 77 02	6.38	G5	G3	- 75.6	0.4	4	16-23	0.7	
7758	12.2	+ 46 53	6.41	K0	K0	- 00.3	0.8	5	14-22	0.9	
7925	13.8	+ 75 43	6.45	A3	A3n	- 16.5	1.7	5	3-5	6.5	*
8375	01 17.9	+ 33 43	6.34	G5	G5	+ 03.8	0.6	4	17-22	0.6	
8388	18.0	+ 19 57	6.30	K5	K7	- 09.8	0.4	4	14-23	1.1	
8424	18.4	+ 70 27	6.52	A0	A0n	+ 09.9	1.1	5	3	6.0	
8949	23.1	+ 07 27	6.44	K0	K0	+ 02.6	0.4	4	15-23	0.6	R
9712	30.0	+ 40 34	6.39	K0	G8	+ 66.2	0.4	4	18-22	0.7	

TABLE I—Continued

Star H. D.	$\alpha$ (1900)		$\delta$ (1900)	Vis. Mag.	Type H. D.	Type D. D. O.	Velocity Km./sec.	P. E.	Plates	Lines	$\bar{v}_e$	Ref.
	h	m	°	'								
10110	01	33.8	+ 53 22	6.64	K2	K5	− 60.4	1.0	4	20-22	0.8	R
11037		43.3	+ 03 11	6.00	G5	G8	+ 04.0	1.2	5	19-24	0.8	
11613		48.9	+ 40 12	6.50	K2	K2	+ 32.6	1.0	4	18-21	0.6	
11624		49.0	+ 36 37	6.39	K0	K0	− 00.6	0.3	4	19-24	0.7	
11928		52.0	+ 27 18	6.02	Mb	M2	+ 00.5	0.6	4	12-22	1.2	
12005	01	52.8	+ 77 26	6.35	K0	G2	− 02.6	0.4	4	15-22	0.9	
12479		57.2	+ 13 00	6.28	Mb	M2	− 04.7	0.4	4	20-24	0.9	
12872	02	01.0	+ 07 46	6.66	Mb	M2	− 24.0	0.6	4	17-22	0.8	
13013		02.3	+ 43 58	6.50	G5	G5	+ 25.4	0.8	4	7-23	1.2	
13522		06.9	+ 23 43	6.19	K0	K2	+ 00.2	1.1	4	16-23	0.8	
13818	02	09.5	+ 47 21	6.44	K0	G8	+ 16.7	0.5	4	17-22	0.6	
14067		11.5	+ 23 19	6.50	G5	G5	− 12.0	0.4	4	13-22	1.0	
14221		12.9	+ 48 29	6.40	F0	F2	− 19.2	0.7	4	13-24	0.9	
14373		14.2	+ 29 45	6.60	K0	K0	− 00.1	0.2	4	16-24	0.8	
15138		21.2	+ 50 07	6.27	F0	F2	Var.		4	5-17		
15152	02	21.3	+ 26 33	6.18	K5	K6	− 46.6	0.4	4	13-22	1.1	R
15253		22.3	+ 55 05	6.56	A2	A0	+ 00.5	1.1	5	4-6	1.5	
15328		22.9	+ 01 31	6.49	K0	G8	+ 18.7	1.1	4	11-21	1.0	
15453		24.2	+ 09 07	6.30	K0	K0	− 10.2	0.5	4	18-21	0.6	
15464		24.3	+ 33 23	6.25	K0	K0	+ 08.4	0.4	4	16-25	0.6	
16024	02	29.4	+ 65 19	6.07	K0	K3	+ 41.6	0.4	4	17-24	0.8	R
16458		33.4	+ 81 01	5.92	K0	K0p	+ 23.5	1.5	4	15-20	1.1	
16467		33.4	+ 03 01	6.37	G5	G8	+ 03.4	0.4	4	14-20	0.7	
17228		40.8	+ 35 35	6.38	G5	G5	+ 21.7	0.3	4	18-21	0.6	
17378		42.2	+ 56 40	6.53	F5p	A8p	− 37.0	0.6	4	14-19	0.9	
17958	02	48.1	+ 63 55	6.57	K5	K3	− 20.8	0.3	4	15-21	0.9	
18153		49.8	+ 50 51	6.52	K5	K5	+ 06.1	0.5	4	20-24	0.8	
18339		51.7	+ 38 13	6.08	K0	K2	− 41.6	0.3	4	16-21	0.7	
18345		51.8	+ 04 05	6.31	Ma	M2	+ 53.5	0.6	4	18-20	1.0	
18482		53.2	+ 40 38	6.07	K2	K2	+ 32.9	0.5	4	17-21	0.7	
18700	02	55.3	+ 10 29	6.20	K5	K6	+ 19.8	0.3	5	15-21	1.0	
18832		56.7	+ 04 57	6.38	K0	G8	− 58.4	0.4	4	13-21	0.8	
18991		58.2	+ 55 41	6.50	K0	G8	− 09.9	0.3	4	17-21	0.6	
19066		58.9	+ 40 12	6.18	K0	K0	− 33.1	0.4	4	17-22	0.6	
19080		59.1	+ 15 29	6.59	K0	K2	− 30.6	0.7	4	16-23	0.9	



TABLE I—Continued

Star H.D.	$\alpha$ (1900)	$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{c}$ e	Ref.
	h m	o /									
19121	02 59.5	+ 01 30	6.05	K0	K0	+ 00.3	0.4	4	15-21	0.6	
19525	03 03.3	+ 08 05	6.44	G5	G8	+ 39.2	0.8	4	17-23	0.7	
20063	08.4	+ 42 08	6.16	G5	K0	+ 22.8	0.5	4	17-25	0.7	
20104	08.8	+ 65 17	6.35	A2	A2n	- 07.5	0.9	4	4	3.5	
20162	09.3	+ 44 58	6.42	Ma	M0	- 00.9	0.9	4	20-21	0.8	
21004	03 18.3	+ 53 35	6.39	F0	F0n	- 04.6	0.7	4	6-12	3.7	
21018	18.4	+ 04 31	6.47	G0	F8	Var.		5	17-23	0.8	II
21179	20.0	+ 71 31	6.83	Ma	M1	- 21.8	0.9	4	14-22	0.9	
21335	21.4	+ 18 25	6.45	A2	A2n	+ 30.3	1.8	4	2-5	4.9	
21794	25.7	+ 57 32	6.41	F5	F6	- 71.6	0.2	4	15-20	0.8	
22211	03 29.5	+ 06 05	6.52	G0	F5n	- 10.6	1.3	4	8-16	1.6	
23526	40.8	+ 06 30	6.12	K0	K0	- 24.5	0.6	4	18-22	0.7	
23626	41.5	+ 31 54	6.23	G0	F6	Var.		4	17-21	0.8	II
23887	43.5	- 00 04	6.10	K0	K1	+ 68.5	0.7	4	17-22	0.8	
24141	45.6	+ 57 40	5.79	A0	A2	- 05.9	0.8	4	17-20	1.2	
24154	03 45.7	+ 21 44	6.82	G5	G8	+ 63.9	0.9	4	11-22	0.7	
24164	45.8	+ 71 31	6.39	F0	F0	- 02.4	1.0	4	14-22	1.1	
24802	51.5	+ 24 12	6.38	K0	K0	- 12.4	0.6	4	21-24	0.6	
25274	55.9	+ 68 24	6.14	K2	K5	- 45.5	0.7	4	19-23	0.9	
25602	58.8	+ 53 45	6.42	K0	G6	- 07.0	0.6	4	18-22	0.6	
25877	04 00.9	+ 59 40	6.46	K0	G5	- 13.3	0.4	4	19-21	0.7	
25948	01.5	+ 54 34	6.28	F5	F2	- 05.5	0.3	4	13-19	1.0	
26076	02.6	+ 71 52	6.15	G5	G8	- 03.1	0.3	4	16-24	0.8	
26101	02.8	+ 68 16	6.41	K0	K0	- 22.5	1.8	4	18-23	0.6	*12
26311	04.6	+ 33 19	5.91	K0	K1	+ 19.9	0.5	4	18-24	0.8	
26605	04 07.4	+ 37 43	6.55	G5	G5	+ 30.2	0.4	4	18-21	0.7	
26913	10.1	+ 05 57	7.16	G0	G3	- 07.6	0.2	4	18-21	0.6	
26923	10.2	+ 05 57	6.54	G0	G0	- 08.1	0.4	4	19-22	0.6	R
27386	14.2	+ 09 53	6.62	K0	K2	- 26.2	0.3	4	15-23	0.9	
28191	21.8	+ 01 52	6.37	K0	K0	+ 22.4	0.4	4	20-23	0.6	
28322	04 22.9	+ 01 38	6.12	K0	G8	+ 31.1	0.5	4	20-22	0.6	
28505	24.6	+ 10 01	6.55	G5	G8	- 62.0	0.3	4	12-18	1.0	
28736	26.7	+ 05 11	6.43	F2	F2	+ 38.9	1.2	4	12-22	1.4	R
28930	28.4	+ 09 12	6.20	K0	G8	- 25.4	0.4	4	21-22	0.6	
29104	29.8	+ 19 41	6.56	F8	F8	Var.					II



TABLE I—Continued

Star H.D.	$\alpha$ (1900)	$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km. sec.	P.E.	Plates	Lines	$\bar{v}_e$	Ref.
	$h \quad m$	$^{\circ} \quad ' \quad ''$									
29606	04 34.7	+ 59 20	6.53	A3	A5n	+ 09.7	1.4	4	4-14	2.4	
30138	39.8	+ 40 08	6.12	G5	G5	+ 35.9	0.5	4	20-24	0.6	
30144	39.9	+ 55 26	6.34	F0	F0	+ 21.4	0.8	4	13-19	1.1	
30545	43.5	+ 03 25	6.20	K0	K0	- 18.4	0.3	4	20-24	0.7	
31411	50.6	+ 05 15	6.59	A0	A0n	+ 20.6	1.8	4	3-5	6.4	
31563	04 51.8	+ 73 37	6.76	K0	K2	+ 23.2	0.7	4	14-24	1.0	
32039	55.3	+ 03 28	6.95	A0	A0n	+ 29.7	3.3	4	3	2.9	
32040	55.3	+ 03 28	6.63	A0	A0n	+ 41.4	6.1	4	2-4	3.4	
32263	56.7	+ 00 34	6.18	K0	K1	+ 21.9	0.3	4	20-25	0.8	
32406	57.9	+ 30 22	6.39	K0	G7	+ 18.9	0.6	4	19-22	0.7	
32482	04 58.4	+ 21 09	6.34	K0	K2	+ 48.8	0.4	4	15-21	1.0	
32518	58.7	+ 69 30	6.58	K0	K0	- 06.1	0.2	4	19-22	0.6	
32655	59.7	+ 43 02	6.21	F2	F2	- 12.7	0.2	4	13-20	0.8	
33541	05 05.9	+ 73 09	5.76	A0	A0	Var.		4	4-7	2.8	
33946	08.7	+ 00 26	6.54	K2	K3	- 10.4	1.2	5	9-22	1.3	
34053	05 09.5	+ 22 10	6.16	A0	A2	Var.		4	4-6	3.2	
34332	11.6	+ 40 21	6.32	K0	K2	- 16.2	0.3	4	13-22	0.9	
34498	12.8	+ 44 19	6.72	K0	K2	+ 14.4	1.2	4	13-23	0.9	
34499	12.8	+ 33 53	6.52	A5	A5n	+ 06.8	0.6	4	4-21	3.6	
34533	13.1	+ 46 52	6.48	F0-A	F2-A	+ 16.5	0.9	4	18-20	1.1	
34653	05 14.0	+ 77 53	6.54	A5	A5n	- 19.0	1.2	4	14-17	1.4	
34810	15.0	+ 19 43	6.44	K0	K0	+ 01.1	0.7	4	20-21	0.6	
34904	15.7	+ 40 56	5.57	A3	A2n	- 14.7	3.0	4	4-5	5.5	
35295	18.6	+ 34 45	6.48	K0	K0	- 14.4	0.4	4	18-22	0.7	
35519	20.2	+ 35 23	6.30	K2	K3	- 20.0	0.4	4	8-23	1.3	
35521	05 20.2	+ 33 11	6.30	K0	K0	- 07.7	1.0	4	20-22	0.8	
36040	23.8	+ 41 23	6.09	K0	K0	+ 14.5	0.7	4	20-23	0.6	
36041	23.8	+ 39 46	6.52	K0	G8	+ 12.5	0.0	4	19-25	0.4	
36160	24.7	+ 22 23	6.49	K0	K1	+ 02.7	0.1	4	19-21	0.7	
36891	29.8	+ 40 07	6.18	K0	G5g	- 17.2	0.5	4	17-23	0.7	
37138	05 31.2	+ 33 30	6.43	K0	K2	+ 30.1	0.2	4	18-22	0.7	
37329	32.7	+ 26 31	6.47	K0	G8	+ 15.7	0.4	4	20-23	0.7	
37536	34.2	+ 31 52	6.72	Ma	M0	+ 06.3	1.0	4	15-24	1.4	
37784	36.0	+ 22 37	6.47	K2	K2	- 20.2	0.4	4	18-25	0.7	
38527	41.4	+ 09 29	5.89	G5	G5	- 25.4	0.5	4	17-23	0.7	

TABLE 1—Continued

Star H.D.	$\alpha$ (1900)		$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{e}$	Ref.
	h	m	°	'								
38529	05	41.4	+ 01 09	6.14	G5	G2	+ 30.1	0.2	4	19-22	0.7	
38545		41.5	+ 14 28	5.67	A2	A0n	+ 21.7	1.9	4	3-4	4.0	
38618		42.0	+ 56 53	6.38	A2	A2n	+ 02.9	1.6	4	6-13	1.9	
38645		42.2	+ 68 26	6.40	K0	G7	- 00.1	1.1	4	16-23	0.7	
38765		43.0	+ 51 29	6.40	G5	K0	+ 26.9	0.6	4	16-24	0.7	
39045	05	44.9	+ 32 06	6.41	Ma	M2	+ 104.7	1.1	4	13-23	1.0	
39051		44.9	+ 04 24	6.12	K0	K2	+ 29.6	0.2	4	9-22	1.3	
39225		46.0	+ 33 53	6.38	Ma	M0	+ 101.4	0.8	4	16-22	0.8	
39429		47.5	+ 66 05	6.59	K0	K2	- 21.2	0.3	4	21-23	0.6	
39632		48.7	+ 10 34	6.50	K0	K0	+ 14.3	0.4	4	19-22	0.6	
39685	05	49.0	+ 03 13	6.55	K0	K1	- 03.2	0.5	4	15-23	0.6	
39743		49.4	+ 49 01	6.44	G5	G3	- 01.6	1.6	4	18-23	0.7	*11
39775		49.6	+ 00 57	6.23	K0	K1	+ 22.7	0.6	4	12-24	0.9	
40055		51.4	+ 75 35	6.52	K5	K5	+ 05.2	0.1	4	20-25	0.6	
40083		51.6	+ 54 33	6.26	K0	K1	- 04.6	0.5	4	19-25	0.6	
40084	05	51.6	+ 49 55	6.07	G5	G5	Var.		4	13-21	0.9	II
40282		52.7	+ 01 13	6.49	K2	K5	+ 38.2	0.7	4	7-20	1.0	
40372		53.2	+ 01 49	6.06	A5	A5	Var.		4	16-24	1.3	II
40394		53.4	+ 47 54	5.68	A0	A0	+ 15.4	0.8	4	6-9	1.8	
40486		54.0	+ 48 58	6.24	K0	K0	+ 11.7	0.3	4	21-24	0.6	
40626	05	55.0	+ 49 55	5.98	A0	A0	+ 21.2	0.7	4	3-5	2.6	
40722		55.6	+ 43 22	6.52	K0	K1	- 18.2	0.9	4	20-26	0.6	
40827		56.3	+ 59 24	7.07	K0	G8	+ 32.4	0.4	4	18-25	0.6	
40956		57.1	+ 63 27	6.49	K0	K0	- 14.0	0.6	4	19-25	0.5	
41429	06	00.0	+ 29 31	6.32	Ma	M4	- 34.0	0.7	4	10-20	1.4	
41467	06	00.3	+ 41 52	6.32	K0	K0	+ 06.5	0.5	4	19-23	0.7	
41636		01.3	+ 41 04	6.42	K0	K0	- 86.1	0.2	4	20-23	0.5	
42049		03.5	+ 22 13	6.04	K2	K6	+ 10.3	1.6	4	9-20	1.4	*11
42111		03.8	+ 02 31	5.58	A0	A0	+ 33.2	1.1	4	2-3	1.6	
42351		05.1	+ 18 09	6.44	K0	K1	- 01.9	0.4	4	15-26	0.7	
42466	06	05.8	+ 51 12	6.28	K0	G8	+ 11.8	0.3	4	21-23	0.7	
42471		05.8	+ 32 43	5.96	K2	K5	- 51.4	0.5	4	15-22	1.0	
42807		07.7	+ 10 40	6.46	G5	G4	+ 06.7	0.4	4	20-23	0.7	
43358		10.7	+ 01 12	6.34	F5	F5	+ 02.6	0.9	4	9-14	1.5	
45357		21.8	+ 00 54	6.51	A0	A0n	+ 08.5	2.3	5	3-4	8.2	*

TABLE I—Continued

Star H.D.	$\alpha$ (1900)		$\delta$ (1900)		Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km. sec.	P.E.	Plates	Lines	$\bar{v}$	Ref.
	h	m	°	'									
45394	06	22.0	+ 20	34	6.11	A0	A0	+ 38.3	0.6	4	10-14	1.8	
45512		22.8	+ 10	23	6.19	K0	K1	- 19.3	0.5	4	17-23	0.7	
45560		23.1	+ 79	40	6.52	A0	A0n	- 07.9	1.4	4	4-5	4.4	
45638		23.5	+ 11	05	6.43	F0	F0	+ 40.6	0.9	4	9-21	1.3	
45724		24.0	+ 02	43	6.39	Ma	M0	+ 10.7	0.6	4	4-19	1.6	
45947	06	25.4	+ 73	46	6.22	F2	F2	+ 05.0	0.7	4	13-21	0.8	
46101		26.3	+ 55	26	6.53	K0	K4	- 18.5	1.8	4	20-24	0.9	*10
46178		26.8	+ 11	45	6.15	K0	K0	- 19.9	0.7	4	18-25	0.8	
46509		28.8	+ 71	50	6.07	G5	K0	- 23.6	0.5	4	17-25	0.7	
46642		29.4	+ 07	39	6.42	A0	A0	+ 36.5	0.6	4	2-9	4.0	
46709	06	29.8	+ 10	04	6.06	K5	K5	+ 38.7	0.4	4	8-20	1.5	
47156		32.1	+ 10	56	6.60	K0	K2	+ 02.5	0.6	4	12-21	0.9	
47220		32.4	+ 02	48	6.42	K0	K0	- 06.6	0.1	4	18-24	0.6	
47358		33.1	+ 22	07	6.28	K0	G8	- 09.7	0.3	4	20-25	0.5	
47415		33.4	+ 24	41	6.48	F5	F8	Var.		4	2-24	1.7	II
47886	06	35.7	+ 11	06	6.43	Ma	M0	+ 17.4	1.1	4	13-22	1.2	
47979		36.1	+ 53	24	6.38	K0	K0	+ 19.8	0.3	4	7-23	1.1	
48073		36.5	+ 37	15	6.24	K0	G6	- 40.2	0.5	4	21-22	0.5	
48348		37.9	+ 03	08	6.44	K0	K2	+ 31.9	0.5	4	17-22	0.9	
48843		40.3	+ 12	49	6.43	F0	A8	+ 08.2	1.2	4	20-25	0.9	
50204	06	47.1	+ 38	38	6.23	A0	A0	+ 25.6	0.6	4	6-8	2.2	
50277		47.4	+ 08	30	5.76	A5	A5n	+ 26.3	1.0	4	4	2.6	
50371		47.8	+ 11	07	6.30	G5	G8	- 33.3	0.2	4	18-24	0.7	
50885		50.0	+ 70	57	5.83	K0	K2	- 15.8	0.6	4	20-21	0.8	
51000		50.5	+ 33	50	6.01	G0	G0	- 10.1	0.7	4	18-22	0.7	
51814	06	53.7	+ 03	45	6.02	K0	K0	+ 17.4	0.2	4	17-23	0.6	
52030		54.6	+ 70	54	6.61	K0	K5	+ 21.1	0.5	4	20-24	0.8	
52100		54.8	+ 32	32	6.46	F0	F0n	- 28.1	0.7	4	4-16	2.5	
52554		56.6	+ 17	53	6.20	Ma	M3	+ 24.2	1.9	4	11-20	1.2	
52556		56.6	+ 15	28	5.89	K0	K0	- 13.1	0.3	5	20-23	0.6	
52609	06	56.8	+ 16	49	6.01	K5	K5	+ 36.9	0.6	4	19-21	1.1	
52913		57.9	+ 09	17	5.93	A2	A2n	Var.		4	6-11	2.8	II
52976		58.2	+ 12	44	6.17	K5	K6	- 14.2	0.5	4	8-23	1.4	
53257		59.3	+ 22	47	5.91	A0	A0n	- 09.1	3.6	4	3-4	5.2	*
53510	07	00.2	+ 09	18	6.02	K0	K5	+ 48.7	0.5	4	15-17	0.9	

TABLE I—Continued

Star H.D.	$\alpha$ (1900)		$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{c}$	Ref.
	h	m	°	'								
53899	07	01.7	+ 33 58	6.47	K0	K1	− 01.9	0.4	4	21-23	0.7	*
53925		01.8	+ 37 36	6.32	K0	K0	+ 10.6	0.9	4	13-23	0.6	
54070		02.4	+ 71 59	6.45	K0	K0	− 66.5	0.5	4	19-23	0.5	
54801		05.2	+ 27 02	5.60	A2	A2n	+ 38.2	2.8	5	2-6	4.3	
55184		06.8	+ 05 39	6.22	G5	K0	+ 20.6	0.1	4	20-21	0.6	
56031	07	10.3	+ 08 10	5.97	Mb	M4	− 06.6	0.4	4	17-19	0.8	
56941		14.0	+ 42 50	6.57	K0	K0	+ 46.8	0.4	4	15-22	0.7	
56989		14.2	+ 02 54	6.06	G5	G6	+ 23.9	0.5	4	15-22	0.9	
57263		15.4	+ 39 11	6.48	K0	K1	+ 03.9	0.8	4	21-24	0.6	
57646		17.1	+ 52 05	5.91	K2	K5	+ 18.0	0.4	4	18-24	0.8	
57744	07	17.5	+ 23 09	6.02	A0	A0n	+ 17.0	2.4	4	3-5	4.5	*SR
59878		26.9	+ 23 07	6.44	G5	G7	+ 30.8	1.0	4	20-23	0.7	
60111		27.9	+ 03 30	5.66	A5	F0n	+ 00.3	0.6	4	6-13	2.8	
60357		29.0	+ 03 35	5.82	A0	A0n	+ 32.0	1.7	5	3	5.7	
60654		30.5	+ 40 14	6.57	Ma	K8	+ 32.1	1.2	4	19-26	0.9	
61035	07	32.2	+ 24 36	6.32	F0	F0n	+ 06.8	0.8	4	7-18	2.0	
61294		33.5	+ 38 34	5.89	K5	K5	+ 47.1	0.6	4	8-21	1.5	
61603		35.0	+ 23 16	6.18	K5	K5	+ 40.9	0.9	4	13-22	1.2	
61630		35.1	+ 13 59	6.50	K0	K2	+ 06.2	0.7	4	10-24	1.0	
61885		36.3	+ 13 44	6.10	Ma	M1	+ 08.3	0.4	4	16-22	0.9	
62140	07	37.4	+ 63 04	6.35	A5	F0g	+ 01.4	1.5	4	9-15	1.9	
62141		37.4	+ 22 39	6.34	K0	G5	− 02.2	0.7	4	15-24	0.6	
62264		38.0	+ 00 26	6.36	G5	G6	+ 08.7	0.2	4	17-22	0.9	
62407		38.7	+ 13 07	6.50	K0	K3	+ 26.6	0.8	4	18-22	0.9	
62437		38.9	+ 02 39	6.34	F0	F0	+ 14.2	0.8	4	17-24	1.0	
63352	07	43.4	+ 13 38	6.25	K0	K1	− 56.3	0.5	4	13-22	0.9	
63435		43.8	+ 04 34	6.51	G0	G0	− 05.5	0.5	4	19-24	0.6	
63799		45.6	+ 03 32	6.30	G5	K0	− 46.9	0.9	4	10-22	1.0	
63889		46.1	+ 19 35	6.13	K0	K0	+ 40.7	0.3	4	12-23	0.7	
64052		46.9	+ 03 32	6.59	Ma	M4	− 60.0	0.9	4	10-20	1.6	
64938	07	51.2	+ 04 44	6.32	K0	G5	+ 17.5	0.8	4	19-21	0.7	II
65066		51.8	+ 08 54	6.12	G5	G6	− 35.1	0.3	4	14-22	0.6	
65299		53.0	+ 84 21	6.39	A0	A0	Var.		4	8-15	1.5	
65448		53.7	+ 63 21	6.04	F8	F8	+ 18.2	1.9	4	13-16	1.2	
65522		54.0	+ 13 30	6.20	K5	K2	+ 27.8	0.3	4	12-20	1.1	*13R

TABLE I—Continued

Star H.D.	$\alpha$ (1900)		$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{c}$	Ref.
	h	m	°									
65735	07	55.0	+ 20 05	6.28	K0	K0	+ 28.7	0.4	4	22-24	0.7	
65757		55.1	+ 23 53	6.42	K0	K0	+ 26.0	0.8	4	19-24	0.8	
65801		55.4	+ 35 41	6.27	K0	K5	- 14.5	0.8	4	20-22	0.9	
65900		55.9	+ 05 09	5.66	A0	A0	+ 45.1	0.4	4	9-16	1.5	
67224	08	01.9	+ 58 33	6.05	K0	K2	+ 36.2	0.6	4	20-23	0.7	
67827	08	04.7	+ 39 02	6.47	G0	F8	+ 25.7	0.9	4	16-22	0.8	
67934		05.2	+ 82 44	6.17	A0	A0n	- 16.5	5.3	4	3-4	7.2	*
68077		05.8	+ 56 46	5.90	K0	G8	+ 08.3	0.3	4	21-25	0.7	
69149		10.6	+ 54 26	6.40	K5	K5	+ 26.5	0.4	4	20-22	0.8	
69478		12.1	+ 09 11	6.31	K0	G6	+ 29.9	1.4	4	11-27	0.7	
69682	08	12.9	+ 53 53	6.36	F0	F0	+ 10.0	0.7	4	21-27	0.9	
70013		14.6	+ 04 15	6.29	G5	G5	- 45.6	0.6	4	14-22	0.7	
70771		18.7	+ 35 22	6.21	K0	K0	+ 34.1	0.8	4	20-22	0.7	
71095		20.4	+ 02 27	5.91	K0	K5	+ 13.1	0.9	4	12-19	1.1	
71553		23.0	+ 09 39	6.44	K0	K2	- 29.3	0.3	4	20-23	0.8	
72208	08	26.5	+ 10 09	6.58	A0	A0	Var.		5	3-7	5.2	II
72359		27.3	+ 10 26	6.30	A0	A0	Var.		4	8-13	1.9	II
72505		28.2	+ 13 36	6.40	K0	K0	+ 28.8	0.8	4	16-22	0.8	
72561		28.5	+ 05 06	6.13	K0	G5	+ 01.6	0.5	4	12-22	1.0	
72908		30.3	+ 03 05	6.48	K0	K0	- 05.0	0.8	4	13-22	0.6	
73131	08	31.6	+ 53 16	6.54	K0	K1	+ 40.0	0.4	4	22-23	0.8	
73143		31.7	+ 10 00	5.98	A0	A2	+ 15.5	1.6	4	10-22	1.5	
73599		34.1	+ 08 22	6.49	K0	K0	+ 17.7	0.6	4	18-22	0.8	
74591		39.7	+ 06 03	6.00	A2	A3n	- 14.6	0.6	4	5-10	3.7	
74873		41.5	+ 12 28	5.71	A0	A0	+ 21.0	2.0	4	3-4	3.2	
75959	08	48.1	+ 30 57	5.60	K0	G8	- 59.1	0.4	4	20-22	0.5	
76292		50.1	+ 40 35	5.88	F2	F2	+ 25.4	1.0	4	10-26	1.6	
76494		51.4	+ 04 37	6.36	G5	G8	- 11.2	0.4	4	20-23	0.7	
76508		51.5	+ 17 32	6.29	K0	K0	+ 19.9	0.3	4	16-20	0.7	
76629		52.3	+ 09 46	6.32	K0	G8	- 12.6	0.4	4	9-22	0.8	
76944	08	54.2	+ 38 00	6.54	K5	K5	- 15.5	0.3	4	9-22	0.9	
77250		56.3	+ 06 02	6.31	K0	K0	+ 34.3	0.4	4	19-23	0.7	
77309		56.7	+ 54 41	5.68	A2	A2n	- 08.9	2.1	4	4	5.0	*
77445		57.4	+ 07 41	6.07	K0	K0	+ 28.0	0.3	4	17-23	0.7	
78196	09	01.8	+ 01 52	6.41	Ma	M2	+ 04.4	1.2	4	14-20	1.1	



TABLE I—Continued

Star H.D.	$\alpha$ (1900)	$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{e}$	Ref.
	h m	° ′									
78234	09 02.0	+ 32 57	6.33	F2	F2	+ 40.9	1.5	4	14-18	2.3	
78633	04.3	+ 72 04	6.46	K0	G8	+ 06.7	0.8	4	20-23	0.8	
78712	04.6	+ 31 23	Var.	Mc	M7	+ 16.3	0.1	4	18-22	1.0	
79248	07.9	+ 21 42	6.09	A0	A0	+ 07.8	0.4	4	7-13	2.0	
79517	09.5	+ 74 26	6.54	G5	K0	+ 56.7	0.7	4	18-24	0.7	
80953	09 17.7	+ 64 23	6.46	K2	K3	+ 08.1	1.5	4	17-24	1.0	*10
81025	18.1	+ 52 01	6.37	G0	G0	Var.		4	21-24	0.8	II
81790	22.7	+ 56 11	6.46	F2	F2	+ 09.6	0.8	4	11-20	0.8	
82189	25.4	+ 72 39	5.82	F5	F5	- 38.9	0.2	4	18-24	0.7	
82670	28.3	+ 23 53	6.43	K5	K5	- 04.7	0.9	4	11-21	1.3	
82685	09 28.4	+ 73 32	6.43	F0	F0n	- 00.5	1.1	4	8-10	3.2	R
82780	29.1	+ 40 24	6.56	F2	F2	Var.		4	8-20	2.4	II R
83126	31.2	+ 67 43	6.28	K5	K6	+ 20.5	0.3	4	17-22	1.0	
83550	34.2	+ 78 36	6.41	G5	K1	- 26.3	0.6	4	8-22	1.4	
83951	36.7	+ 35 32	6.03	F2	F2	- 08.4	0.9	4	16-22	1.0	
84252	09 38.9	+ 19 20	6.64	K0	K0	+ 00.4	0.6	4	14-22	0.6	
84812	42.6	+ 66 04	6.29	F0	F0n	- 07.2	2.1	4	4-6	4.4	
85505	47.1	+ 00 33	6.29	K0	G5	+ 20.1	1.0	4	15-24	0.5	*9
85583	47.7	+ 61 36	6.42	K0	K0	- 09.7	1.0	4	17-22	0.7	
85709	48.5	+ 06 26	6.27	Ma	M1	- 00.3	0.9	4	10-19	1.0	
86321	09 52.6	+ 84 24	6.48	K0	K6	- 10.5	1.0	4	12-22	1.6	
87500	10 00.3	+ 16 14	6.28	F0	F0n	+ 11.6	4.3	4	8-12	5.0	*
88231	05.3	+ 37 53	6.14	K0	K2	+ 09.7	0.5	5	13-25	0.9	
88651	08.3	+ 60 31	Var.	Ma	M0	- 19.6	0.4	4	16-21	1.2	
89268	12.8	+ 47 17	6.48	K0	K0	- 20.0	0.8	4	18-21	0.8	
89319	10 13.2	+ 48 55	6.15	K0	K0	- 05.2	0.4	4	17-20	1.0	
89344	13.4	+ 25 14	6.60	K0	K2	+ 01.0	0.4	4	8-21	1.5	
89389	13.8	+ 54 18	6.44	F8	F8	- 20.6	0.4	4	14-22	0.9	
90125	19.1	+ 02 52	6.43	K0	K0	- 13.0	0.4	4	11-17	1.5	
90472	21.6	+ 19 52	6.29	K0	K0	+ 32.9	0.5	4	16-21	0.7	
94237	10 47.5	+ 00 21	6.59	K5	K4	+ 09.5	0.6	4	10-21	0.7	
94720	50.9	+ 22 54	6.24	K2	K5	+ 26.7	1.6	4	11-20	0.9	
94747	51.2	+ 26 02	6.40	K0	K0	+ 31.0	0.6	4	19-22	0.8	
95057	53.4	+ 52 26	6.34	K0	K2	- 05.6	0.6	4	16-23	1.0	
95233	54.6	+ 52 02	6.52	G5	G8	+ 01.0	0.9	4	19-22	1.1	

TABLE I—Continued

Star H.D.	$\alpha$ (1900)	$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{e}$	Ref.
	h m	° ′									
97501	11 08.1	+ 41 38	6.49	K0	K0	+ 12.7	1.0	4	18-24	0.9	II
98499	14.8	+ 67 38	6.31	K0	G8	- 55.2	0.7	4	18-24	0.8	
98960	18.2	+ 00 41	6.26	K0	K3	+ 22.6	0.4	4	17	1.2	
99967	25.0	+ 47 12	6.49	K0	K0	Var.		4	20-22	0.7	
100030	25.5	+ 48 29	6.38	G5	G5	+ 39.4	1.8	5	18-21	0.5	
100055	11 25.7	+ 49 20	6.42	G5	G6	+ 07.3	0.5	4	18-30	0.9	II
100655	29.9	+ 20 59	6.44	K0	K0	- 05.5	1.0	4	16-22	1.1	
101112	33.0	+ 09 26	6.55	K0	K0	+ 12.1	0.4	4	20-22	0.7	
101151	33.3	+ 34 12	6.36	K2	K2	- 04.7	0.5	4	19-22	1.0	
101604	36.4	+ 55 43	6.40	K5	K4	- 05.6	0.4	4	16-23	0.9	
101980	11 39.1	+ 25 47	6.19	K5	K5	- 01.7	1.2	5	11-20	1.5	II
103500	50.0	+ 37 20	6.54	Mb	M2	+ 20.7	1.2	4	15-24	1.8	
103736	51.7	+ 62 06	6.28	G5	G5	+ 18.1	0.4	4	12-21	0.4	
103799	52.1	+ 40 55	6.54	F5	F5	+ 26.2	0.6	4	12-23	0.7	
103953	53.2	+ 62 02	6.66	G5	G8	- 24.9	0.5	4	15-22	0.6	
107274	12 14.9	+ 49 32	5.56	K2	K5	+ 11.0	1.0	5	9-20	0.8	II
107904	18.9	+ 43 05	5.98	F0	F2n	Var.		4	10-23	2.9	
108471	22.6	+ 09 10	6.42	K0	G8	- 05.3	0.4	4	16-23	0.9	
108651	23.8	+ 26 27	6.69	A3	A2	Var.		4	17-22	1.0	
108861	25.4	+ 59 19	6.22	K0	G8	- 15.5	0.9	4	17-24	0.6	
108985	12 26.3	+ 08 10	6.16	K5	K5	- 15.7	0.3	4	13-20	1.2	*
109345	28.9	+ 33 57	6.37	K0	K0	- 42.7	0.4	4	18-23	0.6	
109980	33.9	+ 41 25	6.29	A3	A5n	- 16.5	4.1	4	3-5	6.2	
109996	34.0	+ 23 12	6.47	K0	K0	- 26.2	0.5	4	21-26	0.7	
110462	37.2	+ 63 16	5.92	A0	A0	- 04.6	0.9	4	7-19	1.5	
110678	12 38.7	+ 61 42	6.46	K0	K2	- 04.8	0.9	4	19-22	0.7	II
111164	42.2	+ 12 30	6.05	A3	A3n	- 03.5	2.5	4	3-6	6.0	
111591	45.3	+ 23 24	6.46	K0	K0	+ 07.0	0.7	4	16-23	0.9	
112486	51.9	+ 54 39	5.84	A2	A2	Var.		4	4-23	2.0	
114357	13 05.0	+ 37 57	6.14	K2	K2	- 18.7	0.4	4	20-25	0.6	
114724	13 07.3	+ 24 48	6.46	K0	G8	- 23.0	1.0	4	17-26	0.7	II
114793	07.7	+ 19 17	6.58	G5	G0	- 20.4	0.4	4	18-26	0.8	
114889	08.4	+ 19 15	6.48	K0	K1	- 22.5	0.5	4	19-26	0.5	
115271	11.0	+ 41 23	5.68	A5	A5n	- 18.8	1.2	4	10-17	3.0	
115709	13.8	+ 04 13	6.56	A0	A0	Var.		4	9-14	2.2	



TABLE I—Continued

Star H.D.	$\alpha$ (1900)	$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{c}$	Ref.
	h m	° /									
115723	13 13.9	+ 34 37	5.98	K0	K2	— 19.6	1.0	6	13-26	1.9	S
117200	23.7	+ 65 15	6.66	F0	F2	— 13.9	1.5	4	11-24	1.3	
117201	23.7	+ 65 13	7.01	F0	F5	— 15.1	1.2	4	14-24	0.8	
117261	24.1	+ 41 15	6.54	K0	G3	— 58.3	0.3	4	17-24	0.6	
117281	24.2	+ 51 06	6.77	A3	A5	— 16.3	1.6	4	17-20	1.6	
117404	13 25.0	+ 07 42	6.29	K5	K5	— 01.9	0.4	4	10-21	0.8	
117405	25.0	+ 06 32	6.41	K0	G6	— 18.3	1.0	4	17-19	0.8	
117710	27.0	+ 42 36	6.15	K0	K1	— 19.7	0.2	4	17-21	1.1	
118266	30.6	+ 10 43	6.46	K0	K1	+ 33.7	0.5	4	18-26	0.7	
118295	30.9	+ 44 43	6.63	A5	F0n	— 26.1	1.4	4	7-14	3.3	
118508	13 32.3	+ 25 07	5.90	Ma	M2	— 26.1	1.0	5	9-16	2.1	S
118536	32.5	+ 50 00	6.60	K0	K2	— 08.9	0.2	4	17-26	0.8	
118686	33.4	+ 77 04	6.70	K5	K6	— 13.0	0.3	4	13-22	1.3	
118741	33.7	+ 51 13	6.59	K5	K2	— 46.6	0.2	4	15-23	1.1	R
119081	36.0	+ 28 35	6.36	K0	K2	— 61.8	0.4	4	17-21	1.0	
119445	13 38.2	+ 42 10	6.34	K0	G5	— 31.8	0.4	4	13-21	0.4	
120602	45.4	+ 05 59	6.25	K0	G5	— 23.2	0.7	4	16-21	1.1	
120787	46.5	+ 61 59	6.05	K0	G6	— 11.7	0.4	4	17-23	0.8	
120874	47.1	+ 59 02	6.36	A0	A0	Var.		6	3-16	3.2	II
121146	48.6	+ 68 49	6.44	K0	K0	— 43.5	1.0	4	21-26	0.7	
121607	13 51.4	+ 01 32	5.94	A3	A3n	— 27.9	3.0	5	6-10	5.7	*
122064	54.4	+ 61 59	6.40	K5	K2	— 24.3	0.2	4	19-23	0.9	
122675	58.2	+ 46 15	6.46	K5	K2	— 47.6	0.6	4	16-21	0.9	
122742	58.6	+ 11 16	6.43	G5	G5	— 13.4	1.4	4	17-25	0.7	*11
122744	58.6	+ 08 01	6.35	K0	G5	— 19.1	0.6	4	21-23	0.7	
122866	13 59.3	+ 51 27	6.05	A0	A0	— 08.7	2.3	5	5-6	4.3	*
122909	59.6	+ 69 10	6.42	K5	K3	— 20.5	0.4	4	21-23	0.8	
122910	59.6	+ 02 47	6.35	K0	K0	— 27.5	1.3	4	10-20	1.3	
124186	14 06.9	+ 32 45	6.24	K2	K2	— 20.7	1.5	5	14-23	1.6	S
124681	09.9	+ 03 47	6.62	Ma	M2	— 47.8	1.3	4	8-20	1.4	
125538	14 14.9	+ 39 12	6.48	G5	G8	— 09.0	0.9	6	7-24	2.1	
125632	15.6	+ 55 20	6.55	A3	A2	— 04.2	2.0	4	4-10	4.5	
126271	19.4	+ 08 33	6.22	K2	K1	— 29.0	0.5	4	16-25	1.1	
127043	24.1	+ 28 44	7.45	A0	A0n	— 08.4	4.0	4	2-5	5.3	R
127065	24.2	+ 36 39	6.19	K0	K1	— 16.5	0.3	4	17-26	1.1	

TABLE I—Continued

Star H.D.	$\alpha$ (1900)		$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{v}$ e	Ref.
	h	m	°									
127067	14	24.2	+ 28 44	6.95	A0	A0n	- 10.5	2.8	5	3-4	6.2	
127334		25.7	+ 42 15	6.45	G0	G5	00.0	1.5	4	19-25	0.5	R
127929		29.0	+ 60 40	6.18	F0	F0	- 19.5	0.6	4	13-26	0.9	
128000		29.4	+ 55 50	5.99	K5	K5	+ 04.8	1.6	6	7-23	2.7	S
128402		31.6	+ 23 41	6.48	K0	K0	+ 08.2	0.5	4	19-25	0.9	
129153	14	35.9	+ 13 57	5.98	A5	A8	- 08.4	0.9	5	6-16	2.8	S
129430		37.4	+ 21 33	6.43	G5	G5	- 10.0	0.6	4	8-26	1.7	
130025		40.8	+ 19 18	6.39	K0	G2	- 04.1	0.6		18-22	0.6	
130084		41.1	+ 33 13	6.47	Ma	M0	+ 33.3	1.0	4	10-16	1.4	
130970		45.9	+ 00 09	6.24	K2	K5	- 18.9	1.1	4	10-22	1.5	
131951	14	51.5	+ 14 51	5.77	A0	A0n	- 12.4	3.3	5	3-5	8.0	S
132772		55.8	+ 39 40	5.58	F2	F2	+ 12.6	1.1	6	9-21	2.7	S
132879		56.4	+ 22 27	6.45	K0	K1	- 24.9	0.5	4	13-24	1.1	
133485		59.6	+ 34 56	6.43	K0	K0	- 24.1	0.8	4	14-22	0.8	
134493	15	05.1	+ 50 27	6.27	K0	K0	- 27.7	1.1	4	15-28	0.7	
135530	15	10.5	+ 42 33	6.37	Ma	M1	- 04.8	0.8	4	17-22	1.7	
136643		16.7	+ 25 20	6.44	K0	K2	- 01.2	0.4	4	13-21	0.7	
137390		20.7	+ 45 37	6.24	K2	K2	- 09.1	0.8	4	20-24	0.8	
138383		26.7	+ 37 09	6.52	K0	K0	+ 02.8	0.3	4	20-24	0.8	
138524		27.6	+ 62 27	6.49	K5	K4	- 39.4	0.8	4	19-22	1.0	
138803	15	29.3	+ 17 29	6.45	F0	F0n	- 21.2	1.0	4	15-18	1.8	
138936		30.1	+ 02 00	6.58	A3	A0	- 19.5	2.0	5	7-18	2.0	
139284		32.2	+ 38 42	6.50	K2	K2	+ 03.7	1.2	4	20-27	0.9	
139493		33.4	+ 54 57	5.74	A0	A0n	- 20.3	1.5	5	4-6	8.2	S
139862		35.4	+ 12 23	6.31	G5	G5	- 20.5	0.3	4	18-23	0.6	
140227	15	37.4	+ 69 36	5.86	K0	K0	- 25.2	1.8	4	14-24	1.7	*11S
140232		37.4	+ 18 47	5.80	A3	A0	- 30.5	0.4	4	13-20	1.8	S
140438		38.5	+ 13 59	6.44	G5	G3	- 09.9	1.4	4	18-28	1.0	
141456		44.1	+ 32 02	6.56	K5	K5	- 18.0	0.3	4	13-24	1.1	
141472		44.2	+ 55 47	5.90	K2	K2	- 04.4	1.0	5	13-21	2.5	S
142244	15	48.4	+ 17 43	6.44	K0	K0	- 10.7	0.7	4	13-29	1.2	
142531		50.0	+ 56 07	5.92	K0	K0	- 28.6	1.2	5	16-24	1.7	S
143209		54.0	+ 39 58	6.44	K0	K2	- 13.1	1.0	4	15-26	1.1	
144046		58.8	+ 05 16	6.18	K0	G8	- 42.7	1.1	4	10-21	1.4	
145694	16	07.2	+ 56 06	6.59	K0	K0	- 13.6	0.3	4	19-24	0.6	

TABLE I—Continued

Star H.D.	$\alpha$ (1900)	$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{e}$	Ref.
	h m	° ′									
145931	16 08.5	+ 42 38	6.01	K5	K6	− 21.2	0.3	4	19-24	1.5	
146537	11.7	+ 27 41	6.30	K2	K3	− 09.9	0.4	4	14-31	1.1	
146603	12.0	+ 67 24	6.28	K0	G8	− 08.5	0.4	4	19-23	0.7	
147662	18.1	+ 68 48	6.47	K0	K2	− 09.6	0.6	4	18-23	0.8	
148228	21.5	+ 11 40	6.21	K0	K0	− 20.3	0.7	4	16-22	0.8	
149009	16 26.9	+ 22 25	5.96	K5	K5	− 22.9	0.8	5	7-27	2.2	S *10
149084	27.4	+ 35 27	6.47	K5	K8	+ 25.6	1.2	4	9-21	1.3	
150429	35.9	+ 63 17	6.44	K5	K5	− 40.6	0.2	4	19-24	0.9	
150580	36.9	+ 25 03	6.22	K2	K3	− 66.6	0.7	4	14-23	1.2	
151623	43.5	+ 79 06	6.38	K0	K0	− 19.8	1.2	4	20-24	0.8	
153226	16 53.0	+ 14 03	6.51	G5	K0	− 29.7	0.5	4	10-22	1.0	
153299	53.5	+ 50 13	6.70	Ma	M0	− 29.6	0.2	4	12-20	0.9	
153312	53.6	+ 24 33	6.36	K0	K0	− 20.8	0.6	4	14-22	1.0	
153697	55.9	+ 65 11	6.44	F0	F0n	− 25.0	0.4	4	8-15	2.1	
154126	58.5	+ 32 02	6.60	K0	K0	− 12.1	0.7	4	18-23	0.8	
154301	16 59.6	+ 19 50	6.57	K5	K5	− 37.8	0.6	4	7-24	1.7	
154319	59.7	+ 69 20	6.52	K0	G0	− 26.8	0.3	4	18-23	0.8	
154391	17 00.1	+ 60 47	6.24	K0	K0	− 15.6	1.0	4	17-23	0.8	
154610	01.4	+ 09 53	6.56	K5	K5	− 04.0	0.3	4	20-23	0.9	
154619	01.5	+ 10 35	6.47	K0	G6	− 22.9	0.4	4	20-24	0.6	
155500	17 06.9	+ 08 01	6.39	K0	K0	− 04.7	1.2	4	11-22	1.2	
155646	07.8	+ 00 29	6.52	F5	F5	+ 58.4	0.7	4	15-21	1.0	
156284	11.6	+ 23 52	6.10	K2	K2	− 39.0	0.8	4	12-23	1.2	
156593	13.4	+ 23 13	6.53	K2	K5	− 13.9	0.6	4	15-21	1.3	
156697	14.0	+ 06 11	6.44	F0	Fon	− 25.2	5.4	4	4-14	8.0	
156891	17 15.0	+ 38 55	5.98	K0	G8	− 36.4	1.2	4	17-28	1.4	S S S
157257	17.1	+ 16 50	6.59	Ma	M1	+ 40.4	0.6	4	14-21	1.0	
157617	19.2	+ 08 56	5.92	K2	K2	+ 17.9	1.1	5	12-24	2.2	
157681	19.6	+ 53 31	5.95	K5	K5	− 08.2	0.8	4	9-24	1.7	
157967	21.4	+ 17 00	6.29	Mb	M4	− 06.5	0.6	4	13-21	1.0	
157978-9	17 21.5	+ 07 41	5.98	A0-G	A0-G	Var.		6	6-20	1.4	IIR
158996	27.2	+ 80 13	5.91	K2	K5	− 05.9	1.3	4	9-21	0.7	
159026	27.3	+ 38 58	6.45	F2	F2n	− 27.7	1.3	4	8-12	6.5	
159222	28.4	+ 34 21	6.54	G5	G2	− 52.1	0.4	4	20-24	0.8	
159354	29.2	+ 14 55	6.66	Mb	M4	+ 31.2	0.7	4	13-21	1.1	

TABLE 1—Continued

Star H.D.	$\alpha$ (1900)		$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km. sec.	P.E.	Plates	Lines	$\bar{v}$ e	Ref.
	h	m	o									
159925	17	32.2	+ 37 22	6.15	K0	G8	+ 04.5	0.3	4	18-24	0.8	
159926		32.2	+ 28 14	6.48	K5	K5	- 32.6	1.0	4	8-20	1.9	
160677		36.2	+ 31 15	6.30	Ma	M0	- 08.9	0.6	4	16-23	1.0	
160781		36.7	+ 06 22	5.98	K0	K2	- 31.2	1.5	6	7-21	1.0	
160822		36.9	+ 31 22	6.43	K0	K0	- 05.1	1.0	4	17-22	0.8	
160933	17	37.6	+ 69 38	6.48	F8	F8	- 53.3	0.2	4	20-24	0.8	
160950		37.7	+ 43 31	6.67	K0	K2	- 28.2	0.6	4	18-22	0.8	
161162		38.9	+ 57 22	6.84	K0	G5	- 12.8	0.8	4	18-21	0.8	
161178		39.0	+ 72 31	5.96	K0	K0	+ 09.0	0.6	4	18-24	0.6	
161193		39.1	+ 51 52	6.12	K0	K0	- 07.0	0.6	4	17-24	0.7	
161369	17	40.1	+ 44 08	6.57	K2	K4	- 59.3	0.6	4	13-21	0.9	
161815		42.6	+ 38 56	6.51	K0	K0	- 10.5	0.7	4	20-22	1.0	
161832		42.7	+ 39 22	6.56	K0	K3	Var.		4	16-21	1.1	II
162113		44.3	+ 02 00	6.46	K0	K2	- 57.0	0.4	4	14-19	0.9	
162468		46.1	+ 11 59	6.35	K2	K1	- 48.2	0.6	4	19-23	0.8	
162734	17	47.4	+ 15 22	6.54	K0	K0	- 42.0	0.7	5	14-22	0.8	
162774		47.6	+ 01 20	6.15	K5	K5	- 63.6	0.3	4	12-20	1.1	
162826		47.9	+ 40 05	6.52	G0	F8	+ 01.5	0.4	4	21-25	0.7	
163840		53.2	+ 24 01	6.36	G0	G0	Var.		6	16-24	0.7	II
164280		55.3	+ 36 17	5.98	K0	K0	+ 10.5	1.3	5	17-22	1.9	S
164428	17	56.0	+ 78 20	6.38	K5	K5	- 05.3	0.5	4	19-20	0.9	
164780		57.7	+ 75 10	6.44	K0	K0	- 16.8	0.3	4	19-21	0.7	
164824		57.9	+ 33 20	6.27	K5	K5	- 08.9	0.4	4	15-23	1.3	
166207	18	04.5	+ 50 49	6.35	K0	K0	- 56.1	1.7	4	20-22	0.9	*12
166411		05.4	+ 30 26	6.64	K2	K1	- 78.6	0.3	4	21-24	0.8	
167304	18	09.5	+ 41 08	6.36	K0	K0	- 47.2	0.6	4	22-24	0.8	
167654		11.1	+ 02 22	6.31	Mb	M3	+ 23.0	0.8	4	13-22	1.1	
168009		12.7	+ 45 10	6.30	G0	G0	- 64.4	0.4	4	16-24	0.7	
168323		14.0	+ 23 15	6.72	K5	K6	+ 04.8	0.4	4	15-19	1.2	
168694		16.0	+ 29 37	6.14	K0	K2	- 34.8	0.9	4	21-24	0.9	
169221	18	18.6	+ 49 40	6.51	K0	K0	- 16.0	0.8	4	15-22	0.7	
169646		20.6	+ 38 42	6.45	K2	K2	- 39.2	1.2	4	18-24	1.0	
170137		22.8	+ 03 41	6.14	K2	K2	- 17.7	1.1	5	9-18	2.2	
170829		26.4	+ 20 46	6.59	G5	G8	Var.		4	16-27	0.8	II
171994		32.6	+ 16 07	6.38	K0	K0	- 45.0	1.1	4	15-20	0.8	

TABLE 1—*Continued*

Star H.D.	$\alpha$ (1900)	$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{e}$	Ref.
	h m	° ′									
172424	18 35.0	+ 07 16	6.36	K0	G8	— 40.0	0.4	4	13-22	0.7	II
172569	35.9	+ 65 24	6.00	A3	A3	Var.		4	9-18	2.1	
172631	36.2	+ 30 46	6.48	K0	G5	— 48.9	0.2	4	19-23	0.6	
172958	37.9	+ 31 31	6.47	A0	B9n	— 17.3	1.0	4	3-5	5.7	
173383	39.9	+ 39 13	6.55	K5	K5	Var.		4	16-24	1.4	II
173398	18 40.0	+ 62 39	6.01	K0	K0	— 25.7	0.4	4	16-25	0.6	
173416	40.1	+ 36 28	6.25	K0	G8	— 59.9	0.4	4	11-23	0.8	
173833	42.3	+ 18 36	6.27	K5	K6	— 11.4	0.7	4	7-18	1.6	
173920	42.9	+ 54 47	6.26	G5	G0	+ 07.1	0.1	4	20-26	0.7	
174205	44.3	+ 70 41	6.56	K2	K2	— 04.4	0.6	4	22-25	0.7	
174369	18 45.1	+ 24 56	6.56	A0	A2n	Var.		5	5-9	4.0	II
174481	45.6	+ 48 39	6.02	A3	A5n	— 32.0	2.1	4	8-10	4.4	R
174569	46.0	+ 10 52	6.63	K2	K5	— 22.2	0.5	5	12-21	1.2	
175679	51.4	+ 02 21	6.28	K0	G8	— 14.4	0.5	4	17-22	0.7	II
175743	51.7	+ 17 59	5.72	K2	K2	Var.		5	9-23	1.6	
176541	18 55.7	+ 22 40	6.41	Ma	M3	— 52.5	0.6	4	16-17	1.2	
176707	56.5	+ 50 41	6.37	G5	G8	— 19.6	0.5	4	16-26	0.8	
176776	56.8	+ 19 10	6.51	K0	K0	— 27.9	0.4	4	19-22	0.9	
176844	57.1	+ 40 32	6.77	Ma	M2	— 03.0	0.7	4	20-23	1.1	
176939	57.5	+ 24 53	6.92	K2	K3	— 20.2	0.6	4	17-25	1.0	*11
176981	18 57.6	+ 08 14	6.62	K2	K2	— 07.7	1.4	4	19-25	0.9	
177199	58.6	+ 19 31	6.25	K0	K2	— 06.0	0.4	4	19-26	0.9	
179094	19 06.1	+ 52 16	5.93	K0	G8	Var.		4	21-24	0.6	
179933	09.4	+ 65 49	6.19	A2	A2n	— 23.0	1.9	4	3-5	2.6	II
181122	14.1	+ 09 27	6.38	K0	K0	— 10.7	0.5	4	16-26	0.8	
181597	19 16.0	+ 49 23	6.26	K0	K0	— 13.0	0.4	4	17-24	0.9	
181655	16.2	+ 37 09	6.36	G5	G5	+ 02.5	0.5	4	8-24	0.9	
182272	18.8	+ 33 19	6.30	K0	K0	— 14.8	0.4	4	19-25	0.5	
182488	19.8	+ 33 01	6.50	K0	K1	— 19.5	0.9	4	20-22	0.7	
182635	20.5	+ 36 15	6.45	K0	K0	— 31.9	0.3	4	15-23	0.7	
183387	19 24.2	+ 00 02	6.52	K2	K2	— 58.9	0.9	4	19-21	1.0	
183589	25.2	+ 02 41	6.38	K5	K5	— 05.7	1.3	4	13-21	1.1	
183611	25.3	+ 62 21	6.46	K5	K4	— 38.9	0.9	4	19-21	0.8	
184102	27.8	+ 79 24	6.00	A2	A2n	— 04.1	1.8	4	4-6	5.3	
184786	31.0	+ 49 02	6.19	Mb	M4	— 07.8	0.8	5	12-24	1.1	



TABLE I—Continued

Star H.D.	$\alpha$ (1900)		$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{e}$	Ref.	
	h	m	°	'									
184884	19	31.4	+ 10	55	6.53	A2	A2n	− 06.1	3.1	4	3-5	5.7	*
184936		31.6	+ 59	57	6.43	K5	K5	− 17.7	0.4	4	20-23	1.0	
184944		31.7	+ 14	10	6.47	K0	K0	− 41.0	0.5	4	18-22	0.7	
184958		31.8	+ 70	47	6.25	K2	K4	− 41.9	0.4	4	12-22	0.9	
184977		31.9	+ 47	57	6.70	A5	A5	− 01.0	0.7	4	13-23	1.4	
185264	19	33.2	+ 50	01	6.63	G5	G8	+ 09.3	0.4	5	16-23	0.8	
185436		34.0	+ 20	34	6.50	K0	K0	+ 06.0	0.6	4	13-26	1.1	
185622		34.9	+ 16	21	6.58	K5	K6	− 00.4	1.4	5	9-25	1.6	
186021		36.9	+ 22	13	6.44	K2	K1	− 22.0	0.4	4	17-21	1.0	
186121		37.5	+ 42	50	6.39	Ma	M2	− 04.2	1.1	4	17-22	1.0	
186532	19	39.9	+ 55	13	6.52	Mb	M6	− 25.7	0.9	4	19-21	1.0	
186702		40.9	+ 34	10	6.77	Ma	M2	+ 10.1	0.4	4	19-21	1.0	
186776		41.4	+ 40	28	6.44	Ma	M2	− 98.1	0.3	4	16-21	1.0	
186815		41.6	+ 56	47	6.39	G5	G5	− 24.6	0.7	4	14-19	1.1	
186998		42.5	+ 24	53	6.60	F0	F0n	+ 15.1	2.9	4	4-5	5.1	
187038	19	42.7	+ 32	38	6.18	K2	K2	− 45.4	0.3	5	18-28	0.9	*
187764		46.6	+ 68	11	6.35	F0	F0n	− 12.6	2.9	4	10-16	2.6	
187880		47.2	+ 37	35	6.31	Ma	M2	− 14.2	0.8	4	15-22	1.0	
188149		48.7	+ 36	11	6.33	K0	K3	− 19.8	0.3	4	14-24	1.0	
188350		49.6	+ 00	01	5.57	A0	A0n	− 42.6	2.9	4	4-8	3.9	
189127	19	53.4	+ 57	59	6.19	K0	G8	− 15.5	0.2	4	18-24	0.7	*10
189322		54.3	+ 01	07	6.35	G5	G6	+ 07.0	1.1	4	13-22	1.0	
189695		56.2	+ 08	17	6.08	K2	K5	− 36.8	0.6	4	9-25	1.3	
189942		57.5	+ 36	49	6.39	K0	K0	− 15.0	0.9	4	18-23	0.7	
190252		59.0	+ 70	05	6.46	G5	G3	− 10.3	0.7	4	20-26	0.6	
190658	20	00.9	+ 15	13	6.56	Ma	M1	Var.		4	16-20	1.0	II
190771		01.5	+ 38	12	6.56	G5	G0	− 24.2	0.2	4	18-27	0.7	
190964		02.4	+ 51	33	6.28	Ma	M0	− 54.2	0.5	4	12-24	1.1	
191096		03.1	+ 56	03	6.18	F0	F2	− 12.2	0.6	4	13-24	0.9	
191178		03.5	+ 16	24	6.67	Ma	M3	+ 13.4	0.6	4	13-20	1.2	
191329	20	04.3	+ 49	57	6.52	A2	A2n	+ 02.2	2.6	4	3-4	5.0	*
191372		04.5	+ 67	45	6.56	Ma	M1	− 40.6	0.7	4	15-23	0.8	
191814		06.7	+ 20	51	6.26	K0	G5	− 06.0	0.8	4	16-21	0.6	
192535		10.3	+ 43	04	6.25	K2	K5	− 22.1	0.1	4	15-23	1.0	
193094		13.4	+ 28	50	6.38	K0	G8	− 19.0	0.3	6	15-21	0.6	

TABLE 1—Continued

Star H.D.	$\alpha$ (1900)	$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{c}$	Ref.
	h m	° ′									
193217	20 14.0	+ 42 24	6.45	K2	K3	− 16.4	0.4	4	12-21	1.0	
193373	14.8	+ 12 56	6.50	Ma	M0	+ 25.9	0.6	4	19-20	0.9	
193944	17.9	+ 53 16	6.38	K5	K5	− 02.1	0.3	4	15-21	1.4	
194220	19.4	+ 42 40	6.33	K0	K0	− 19.1	0.4	5	20-24	0.7	
194244	19.5	+ 00 45	6.11	A0	A0n	+ 02.7	3.3	4	3-4	10.	*
194298	20 19.8	+ 63 41	5.92	K5	K6	+ 31.9	0.8	4	19-23	1.0	
194526	21.0	+ 09 45	6.46	K5	K5	− 75.3	0.6	4	11-21	1.3	
194616	21.5	+ 19 31	6.44	K0	K0	− 29.1	0.4	4	17-21	0.9	
194937	23.2	+ 08 07	6.26	K0	K0	− 10.0	0.4	6	11-24	1.1	
194953	23.3	+ 02 36	6.35	K0	G5	− 20.5	0.3	4	18-25	0.8	
195820	20 28.5	+ 51 58	6.27	K0	K0	− 08.9	0.6	4	22-25	0.7	
196134	30.3	+ 41 25	6.43	K0	K0	+ 02.0	0.6	4	19-23	0.8	
196379	31.9	+ 51 31	6.26	F0	F0	− 13.2	1.0	4	20-25	1.0	
196610	33.4	+ 17 55	6.27	M <sub>c</sub>	M7	− 63.3	0.2	4	17-23	1.3	
196642	33.6	+ 37 58	6.32	K0	K0	− 35.5	0.9	4	18-22	0.8	
196787	20 34.5	+ 81 05	5.62	K0	G8	− 03.9	0.2	4	19-24	0.6	
197101	36.4	+ 55 39	6.50	F0	F0n	− 01.0	1.5	4	4-8	4.8	
197249	37.4	+ 17 11	6.27	K0	G6	− 01.4	1.0	4	10-23	1.1	
197508	39.1	+ 83 17	6.16	A2	A2	Var.		4	16-22	0.7	II
197812	40.9	+ 17 44	Var.	Mb	M6	− 19.6	1.2	4	15-19	1.1	R
197939	20 41.8	+ 56 08	6.24	Ma	M2	− 27.3	0.4	5	13-24	1.2	
198181	43.5	+ 52 38	6.43	K0	K0	− 27.6	0.5	4	19-22	0.7	
198236	43.9	+ 69 23	6.52	K0	G8	− 07.5	0.4	5	18-24	0.7	
198404	45.0	+ 05 11	6.30	K0	K0	− 20.7	0.3	4	17-22	0.8	
199095	49.8	+ 82 10	5.69	A0	A0	Var.		4	4-7	1.6	II
199442	20 52.1	+ 00 05	6.26	K2	K2	− 24.6	0.6	5	20-22	0.9	
199611	53.3	+ 50 20	5.80	F0	F0n	− 19.6	2.0	5	8-11	3.7	*
199941	55.2	+ 16 26	6.53	F2	F2	+ 01.7	0.7	4	15-22	1.3	
200430	58.3	+ 14 20	6.38	Ma	M1	− 37.0	0.8	5	12-22	1.2	
200527	58.9	+ 44 25	6.38	Mb	M3	+ 02.1	0.5	4	17-24	1.0	
200661	20 59.7	+ 02 33	6.55	K0	K0	− 09.4	0.6	6	6-20	1.1	
200663	59.7	+ 01 54	6.42	G5	G5	− 10.7	1.0	4	11-20	0.9	
200740	21 00.2	+ 49 57	6.45	K0	K0	− 21.1	0.5	4	21-28	0.6	
201298	03.5	+ 06 36	6.38	K5	K6	+ 21.5	0.7	4	12-21	1.1	
202582	11.7	+ 63 59	6.41	G0	G0	+ 29.6	0.4	4	18-24	0.6	



TABLE I—Continued

Star H. D.	$\alpha$ (1900)		$\delta$ (1900)		Vis. Mag.	Type H. D.	Type D. D. O.	Velocity Km./sec.	P. E.	Plates	Lines	$\bar{e}$	Ref.
	h	m	° /										
202720	21	12.7	+ 41	50	6.53	K2	K2	+ 09.2	0.4	4	17-21	0.9	*9 R
202951		14.1	+ 10	47	6.32	K5	K6	— 35.5	1.3	4	18-25	1.0	
203358		16.6	+ 32	02	6.44	G5	G5	— 27.5	0.5	4	22-23	0.5	
203630		18.4	+ 29	53	6.28	K0	K1	— 23.9	0.4	4	20-24	0.7	
203857		19.7	+ 36	55	6.59	K5	K5	— 01.4	0.6	4	20-23	0.9	
203886	21	19.9	+ 24	06	6.42	K0	K0	— 22.8	0.3	4	18-23	0.5	
204445		23.5	+ 07	46	6.66	Ma	M2	— 04.1	0.5	4	13-20	0.9	
204560		24.3	+ 17	29	6.36	K5	K3	— 11.1	0.9	4	17-22	1.1	
204585		24.5	+ 21	45	6.18	Mb	M3	— 20.5	0.6	4	18-22	0.9	
204599		24.6	+ 59	19	6.44	Ma	M2	— 14.4	0.2	4	18-21	0.9	
205314	21	29.4	+ 49	30	5.76	A0	A0n	Var.		5	2-4	2.9	11
205349		29.6	+ 45	25	6.56	K2	K2	— 04.2	0.6	4	15-25	0.9	
205688		31.9	+ 29	37	6.47	K0	G8	— 18.7	0.7	4	20-23	0.7	
205924		33.5	+ 05	19	5.80	F0	F0n	— 21.0	2.8	5	2-7	6.5	
206040		34.3	+ 53	36	6.20	G5	G8	+ 02.5	0.7	4	15-26	0.8	
206509	21	37.4	+ 54	25	6.16	K0	K0	+ 05.1	0.3	4	19-24	0.8	*10
206632		38.3	+ 45	18	6.47	Mb	M4	+ 10.3	0.4	4	14-23	1.1	
206731		39.0	+ 49	08	6.12	K0	G5	— 03.5	1.3	4	21-23	0.7	
207088		41.5	+ 35	24	6.60	K0	G6	— 04.0	0.7	4	18-22	0.8	
207223		42.3	+ 16	44	6.24	F0	F2	— 19.7	0.8	4	16-28	1.1	
207446	21	43.9	+ 36	06	6.60	K5	K5	— 29.5	0.6	4	16-24	0.9	*
207636		45.3	+ 69	41	6.42	A0	A0n	— 03.2	2.3	4	3-4	5.5	
208110		48.9	+ 06	23	6.58	G0	G0	— 09.8	0.1	4	16-21	0.8	
208527		51.7	+ 20	48	6.62	K5	K5	+ 03.5	1.7	5	7-22	2.0	
208606		52.3	+ 61	04	6.22	K5	K0g	Var.		5	19-26	0.7	
209112	21	55.9	+ 62	13	6.16	Mb	M2	— 14.5	0.6	4	16-23	0.9	*10 S
209258		56.9	+ 74	31	6.64	K5	K5	— 15.1	1.5	4	20-24	0.9	
210502	22	05.7	+ 11	08	5.92	K5	K5	+ 21.7	1.3	5	11-21	2.1	
210905		08.5	+ 58	34	6.52	K0	K0	— 27.3	0.8	4	19-26	0.6	
211029		09.3	+ 62	48	6.06	Ma	M3	— 12.3	1.1	4	12-23	1.0	
212047	22	16.4	+ 26	26	6.50	Ma	M3	— 04.8	1.4	4	13-20	1.2	*
212150		17.1	+ 76	00	6.56	A0	A0n	— 18.7	2.1	4	3-4	2.5	
212988		23.2	+ 31	20	6.26	K2	K3	+ 01.9	1.0	5	9-22	1.1	
213242		25.0	+ 63	34	6.38	K0	K1	— 25.9	0.4	4	22-24	0.7	
213272		25.2	+ 35	13	6.53	A0	A0n	— 03.1	2.8	4	4-5	3.3	

TABLE 1—Continued

Star H.D.	$\alpha$ (1900)		$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{e}$	Ref.
	h	m	°	'			Var.					
213389	22	25.9	+ 48 51	6.52	K0	K1	Var.		5	17-22	1.0	II
213644		27.9	+ 15 20	6.36	K0	K2	- 26.8	0.6	4	20-24	0.8	
213720		28.4	+ 53 31	6.47	K0	K0	- 13.4	0.7	4	12-22	0.7	
214298		32.1	+ 12 04	6.53	K5	K3	- 18.1	1.5	5	8-20	2.2	
214313		32.2	+ 35 08	6.50	K5	K3	+ 11.0	0.5	4	19-24	0.7	
214710	22	35.0	+ 74 51	6.06	K5	K5	- 05.3	0.8	4	17-25	0.9	
214714		35.0	+ 37 04	6.14	G5	G0g	- 06.5	0.8	4	15-22	0.7	
214878		36.2	+ 53 20	6.10	K0	G8	- 05.7	0.2	4	15-21	0.6	
214979		36.9	+ 30 26	6.48	K5	K5	- 33.0	0.5	4	17-22	0.8	
215030		37.2	+ 41 03	6.07	K0	K0	- 13.0	0.4	4	16-21	0.7	
215159	22	38.2	+ 53 23	6.26	K2	K3	+ 09.6	0.8	4	18-24	0.7	
215518		40.7	+ 51 59	6.66	K2	K5	+ 05.8	0.6	4	20-24	0.9	
215907		43.5	+ 57 57	6.29	A0	A0	- 00.6	1.6	4	4-5	2.5	
215943		43.7	+ 36 52	6.00	K0	G8	- 23.2	1.0	4	17-22	0.7	
216102		45.0	+ 62 24	6.16	K0	K0	- 25.6	0.6	4	19-23	0.5	
216201	22	45.8	+ 18 36	6.50	K0	K0	- 37.6	0.6	4	17-22	0.6	
216756		50.4	+ 36 33	6.00	F2	F3	- 28.0	1.0	5	10-20	0.7	
217019		52.5	+ 03 15	6.43	K2	K0	+ 11.7	0.3	4	19-21	0.7	
217314		54.8	+ 52 06	6.41	K2	K2	+ 28.5	0.4	4	8-20	1.1	
217459		55.7	+ 02 29	5.96	K0	K2	+ 21.4	0.6	4	15-21	0.9	
217673	22	57.3	+ 56 34	6.50	K2	K2	- 04.5	0.5	4	20-21	0.9	
217944		59.2	+ 58 01	6.50	G5	G5	+ 15.8	0.4	4	20-24	0.6	
218103	23	00.2	+ 00 46	6.38	K0	G8	- 11.4	0.4	4	21-23	0.6	
218261		01.5	+ 19 22	6.42	F8	G0	- 01.2	0.9	4	15-24	0.7	
218416		02.8	+ 52 17	6.26	K0	K0	+ 05.7	0.8	4	20-22	0.6	
218560	23	03.9	+ 63 41	6.41	K0	G8	- 27.0	0.8	4	17-20	0.7	S
219139		08.5	+ 10 31	5.94	K0	K0	+ 18.0	0.8	4	14-17	1.5	
219310		09.7	+ 23 34	6.49	K0	K1	- 25.8	0.1	4	19-22	0.9	
219485		11.0	+ 73 41	5.74	A0	A0	- 03.8	0.9	4	6-10	1.5	
220074		15.8	+ 61 26	6.62	K5	K6	- 33.8	0.4	4	19-23	0.8	
220130	23	16.2	+ 61 40	6.43	K5	K2	- 22.4	0.9	4	13-23	0.8	
220242		17.1	+ 26 05	6.64	F2	F2	+ 09.0	0.4	4	18-24	0.7	
221113		24.1	+ 22 31	6.45	K0	K0	+ 20.6	0.4	4	19-21	0.6	
221246		25.3	+ 48 36	6.38	K2	K4	+ 07.0	0.5	4	18-20	0.8	
221293		25.8	+ 38 06	6.21	K0	G8	- 08.8	0.6	4	16-21	0.8	

TABLE I—Continued

Star H.D.	$\alpha$ (1900)		$\delta$ (1900)	Vis. Mag.	Type H.D.	Type D.D.O.	Velocity Km./sec.	P.E.	Plates	Lines	$\bar{e}$	Ref.	
	h	m	o	°									
221491	23	27.5	+ 34	25	6.55	A0	A0n	+ 10.8	2.7	4	3-4	4.6	*
221661		28.9	+ 44	31	6.28	G5	G6	+ 08.1	0.3	4	12-22	0.7	
221662		28.9	+ 20	18	6.29	Ma	M1	+ 06.7	0.3	4	17-23	1.0	
221776		29.9	+ 37	29	6.34	K5	K5	- 10.9	0.8	4	8-20	1.4	
221861		30.6	+ 71	05	6.13	K0	K0g	- 02.4	0.5	4	19-26	0.7	
221905	23	30.9	+ 24	01	6.60	Ma	M1	- 10.6	0.8	5	14-19	1.1	
222618		37.1	+ 56	43	6.33	G5	G8	- 08.1	0.2	4	22-25	0.7	
222670		37.6	+ 63	58	6.85	Ma	M2	- 01.7	0.9	4	9-22	0.9	
222682		37.7	+ 61	07	6.54	K2	K2	- 14.5	0.4	4	21-23	0.6	
224128		50.3	+ 25	24	6.67	K5	K5	- 13.3	0.6	4	15-23	1.0	
224303	23	51.6	+ 22	05	6.30	Ma	M0	+ 01.8	0.6	4	10-22	1.2	
224309		51.7	+ 82	38	6.42	A0	A2n	- 13.9	1.0	4	4-5	5.5	
224784		55.5	+ 59	01	6.37	K0	G6	- 32.2	0.5	4	18-24	0.6	
224870		56.3	+ 49	25	6.36	K0	G5	- 19.1	0.2	4	16-23	0.7	
225136	23	58.7	+ 66	09	6.62	Ma	M3	+ 17.6	0.6	4	11-19	1.0	
225276		59.8	+ 26	06	6.52	K2	K2	- 03.6	0.8	4	19-23	0.7	

## NOTES TO TABLE I

- H.D.
- 6480 - This star with H.D. 6479 forms a wide double. The brighter companion has a velocity of  $-9$  km. The two stars have a common proper motion.
  - 8949 - There is a faint companion, separation  $70''$ , B.D.S. 770.
  - 11037 - All the plates but one are taken with the  $12\frac{1}{2}$ -inch camera.
  - 15253 - Brighter component of double star A.D.S. 1878, separation  $2''.6$ .
  - 16458 -  $\lambda 4554$ , Ba +, is very strong in this star—stronger than in an ordinary star of type M7, and almost as strong as in 19 Piscium, type N. The absolute magnitude line-ratios have not yet been determined for plates taken with our spectrograph but using the curves determined for the one-prism at Victoria, which is nearly the same dispersion, the absolute magnitude is  $-3.5 \pm$ . In all the plates obtained of K-type stars here no other star of this type has  $\lambda 4554$  nearly so strong.
  - 17378 - Harvard gives the spectrum as composite A-F. There does not seem to be any evidence of composite spectrum on our plates. The  $\alpha$  Cygni lines are very strong.
  - 26923 - Brighter star of a wide double A.D.S. 3085, separation  $65''$ .
  - 28736 - This star belongs to the Taurus cluster.
  - 32039 - This and the next star form a wide double, the components of which have a common proper motion. H.D. 32040 may be variable but the range is too small considering the character of the lines to make this definite. The mean velocity of the 8 plates for the two stars is  $+36$  km.  $\pm$ .
  - 34533 - This is the brighter component of a wide double A.D.S. 3903, separation  $23''$ . The spectrum is composite.
  - 35295 - The brighter component of a wide double A.D.S. 4000, separation  $31''$ .
  - 36041 - The brighter component of a wide double B.D.S. 2757, separation  $75''$ .
  - 59878 - Brighter component of double star A.D.S. 6160, separation  $11''$ .
  - 65448 - Brighter component of wide double B.D.S. 4359, separation  $47''$ .
  - 82685 - Brighter component of double star A.D.S. 7446, separation  $5''$ .
  - 82780 - Brightest star of three forming a wide triple A.D.S. 7438.
  - 118741 - This star is double, A.D.S. 8976, separation  $1''.9$ , magnitudes 6.4-7.9; not always resolved on the slit.
  - 127043 - This star forms with H.D. 127067 a wide double. The velocities of the two stars seem to be equal.
  - 127334 - All plates but one taken with  $12\frac{1}{2}$ -inch camera.
  - 157978-9 - The spectrum is composite, types about A0-G; two stars not seen on slit.
  - 174569 - Brighter component of A.D.S. 11750, separation  $4''$ .
  - 197812 - Variable, mag. 6.4-7.5.
  - 203358 - Double star A.D.S. 14889, separation  $1''.8$ ; not always resolved on slit.

TABLE II

Star H.D.	J.D.242 ... or 243 ...	Vel. Km./sec.	P.E.	Lines	M	Remarks
<b>15138</b>	0575.886	- 59.3	2.6	7	N	The components are about equal. Velocity of system - 4 km. $\pm$
02 <sup>h</sup> 21 <sup>m</sup> .2		+ 56.0	3.2	7		
+ 50° 07'	0672.565	- 02.0	1.8	15	N	
6.27 F2	1008.791	+ 41.1	1.2	6	Y	
		- 49.1	3.4	6		
	1093.560	- 09.2	1.5	5	Y	
<b>21018</b>	0707.661	- 03.0	0.7	21	No	
03 <sup>h</sup> 18 <sup>m</sup> .4	1004.810	- 04.9	0.7	23	Y	
+ 04° 31'	1106.563	+ 11.4	1.1	17	F	
6.47 F8		+ 12.6	0.9	21	No	
	1329.892	- 00.5	0.7	20	N	
	1357.807	+ 07.3	0.8	22	F	
<b>23626</b>	0615.857	+ 05.3	0.9	17	F	
03 <sup>h</sup> 41 <sup>m</sup> .5	0701.620	+ 00.8	0.6	18	Y	
+ 31° 54'	1076.625	- 17.5	0.7	12	Y	
6.23 F6		- 17.1	1.2	18	Ma	
	1127.517	- 06.1	0.8	21	N	
<b>29104</b>	0640.762	- 33.8	1.4	11	Y	The components are very unequal which may account for the discordant velocities obtained when the lines are single.
04 <sup>h</sup> 29 <sup>m</sup> .8		+ 75.8	2.2	7		
+ 19° 41'	1072.665	- 23.4	1.5	4	Y	
6.56 F8	1092.650	- 26.2	0.9	19	Y	
	1367.769	+ 15.2	1.0	6	N	
		- 73.6	1.4	6		
	1391.713	+ 14.5	0.7	18	N	
	1395.695	+ 01.1	0.8	15	N	
	1396.735	+ 17.7	1.5	11	N	
	1397.788	+ 07.3	1.5	13	N	
<b>33541</b>	0758.615	- 02.4	1.9	7	Y	Few sharp lines. On the last plate K and H $\delta$ are double giving velocities - 45.8 km. and + 28.8 km.
05 <sup>h</sup> 05 <sup>m</sup> .9	1006.910	+ 03.8	4.4	4	F	
+ 73° 09'	1356.876	- 00.3	3.1	6	Y	
5.76 A0	1402.744	- 04.4	1.7	5	Y	
<b>34053</b>	1076.694	- 22.8	3.4	4	Y	Fair hydrogen and calcium K. Some other faint lines.
05 <sup>h</sup> 09 <sup>m</sup> .5	1094.680	+ 01.2	5.3	6	F	
+ 22° 10'	1357.933	+ 14.4	1.9	4	Y	
6.16 A2	1418.783	- 27.1	2.3	5	F	

TABLE II—Continued

Star H.D.	J.D.242 or 243...	Vel. Km./sec.	P.E.	Lines	M	Remarks
<b>40084</b>	1023.896	− 03.7	0.8	21	Y	On the last plate the lines are double but resolved in the violet only.
05 <sup>b</sup> 51 <sup>m</sup> .6	1160.552	− 05.4	1.0	20	N	
+ 49° 55'	1386.824	− 02.0	0.7	21	Y	
6.07 G5	1419.753	− 27.7	2.3	3	N	
		+ 47.3	3.3	3		
<b>40372</b>	0726.697	+ 18.7	1.4	24	No	
05 <sup>b</sup> 53 <sup>m</sup> .2	1113.641	− 04.8	1.0	16	Y	
+ 01° 49'	1377.861	+ 101.3	1.0	22	Y	
6.06 A5	1427.787	+ 62.5	1.6	18	N	
<b>47415</b>	0685.792	+ 20.0	1.1	24	No	The lines are double on the last three plates. In each case the first velocity refers to the stronger component. The last plate is weak.
06 <sup>b</sup> 33 <sup>m</sup> .4	1029.902	+ 65.0	1.1	7	Y	
+ 24° 41'		− 28.3	2.3	6		
6.48 F8	1385.853	− 10.3	0.6	8	Y	
		+ 86.5	2.0	5		
	1446.703	+ 54.0	3.3	3	Y	
		− 42.6	1.2	2		
<b>52913</b>	1029.942	− 19.8	2.8	6	Y	Numerous lines of fair quality only.
06 <sup>b</sup> 57 <sup>m</sup> .9	1106.715	− 02.8	3.5	8	F	
+ 09° 17'	1396.873	− 25.8	1.5	11	Y	
5.93 A2	1452.769	+ 02.5	3.2	9	N	
<b>65299</b>	1114.700	− 24.6	1.8	8	Y	Good lines.
07 <sup>b</sup> 53 <sup>m</sup> .0	1302.707	− 05.7	1.5	12	No	
+ 84° 21'	1339.591	+ 11.3	1.5	15	F	
6.39 A0	1363.532	+ 08.6	1.2	15	N	
<b>72208</b>	0731.806	− 00.2	7.2	3	Y	
08 <sup>b</sup> 26 <sup>m</sup> .5	0837.549	+ 08.4	9.8	4	F	
+ 10° 09'	1168.640	− 41.0	4.1	5	N	
6.58 A0	1427.906	+ 36.3	2.0	7	Y	
	1527.626	+ 34.7	2.9	5	N	
<b>72359</b>	0731.840	+ 20.9	2.6	8	Y	Good lines.
08 <sup>b</sup> 27 <sup>m</sup> .3		+ 24.3	3.5	8	Y	
+ 10° 26'	1087.810	− 04.8	1.9	11	N	
6.30 A0	1396.959	+ 07.2	1.3	12	Y	
	1518.659	− 09.6	1.3	13	F	



TABLE II—Continued

Star H.D.	J.D.242. . . . or 243. . . .	Vel. Km./sec.	P.E.	Lines	M	Remarks
<b>81025</b>	0463.585	— 02.0	1.2	22	F	
09 <sup>h</sup> 18 <sup>m</sup> .1	0805.662	— 15.8	0.7	24	No	
+ 52° 01'	1155.694	— 38.4	0.7	21	Y	
6.37 G0	1198.641	— 06.2	0.7	21	N	
<b>82780</b>	0474.559	— 23.0	2.2	8	Y	The second plate is weak.
09 <sup>h</sup> 29 <sup>m</sup> .1	0796.704	+ 11.5	3.8	9	F	
+ 40° 24'		+ 24.3	2.9	12	No	
6.56 F2	0849.567	— 35.7	1.4	20	No	
	1199.610	— 132.7	1.7	15	N	
<b>99967</b>	0797.752	+ 51.1	0.8	20	Y	An orbit is being computed for this star.
11 <sup>h</sup> 25 <sup>m</sup> .0	0832.691	+ 13.8	0.6	22	N	
+ 47° 12'	0849.611	+ 00.6	0.7	24	N	
6.49 K0	0859.583	+ 24.2	0.8	22	N	
<b>107904</b>	0444.733	— 24.7	4.3	10	N	
12 <sup>h</sup> 18 <sup>m</sup> .9	0473.658	— 11.4	2.9	23	No	
+ 43° 05'	0797.794	— 05.0	2.3	17	Y	
5.98 F2n	1171.744	+ 04.2	3.5	13	F	
<b>108651</b>	0461.683	— 05.2	1.1	22	N	Good lines.
12 <sup>h</sup> 23 <sup>m</sup> .8	0473.681	— 16.4	0.9	22	F	
+ 26° 27'	0478.653	— 14.6	1.3	17	Y	
6.69 A2	1191.692	+ 09.3	0.7	21	Y	
<b>112486</b>	0451.731	— 01.8	1.9	11	Y	Components about equal in intensity.
12 <sup>h</sup> 51 <sup>m</sup> .9	0753.910	— 01.7	0.9	23	No	
+ 54° 39'	0858.646	— 36.0	3.1	8	N	
5.84 A2		+ 45.1	2.5	8		
	1210.683	— 37.7	2.1	6	N	
		+ 35.2	0.7	6		
<b>115709</b>	0787.849	+ 25.1	2.3	14	N	
13 <sup>h</sup> 13 <sup>m</sup> .8	0809.787	— 06.5	2.6	9	Y	
+ 04° 13'	0846.656	+ 20.1	1.9	14	No	
6.56 A0	1200.703	— 13.2	2.2	14	Y	



TABLE II—Continued

Star H.D.	J.D.242.... or 243....	Vel. Km./sec.	P.E.	Lines	M	Remarks
<b>120874</b>	0135.682	— 58.3	2.2	11	F	The lines are poor but the last plate seems to establish the variability.
13 <sup>h</sup> 47 <sup>m</sup> .1		— 47.5	4.3	16	N	
+ 59° 02'	0141.624	— 33.9	2.1	13	No	
6.36 A0	0878.650	— 60.2	2.9	8	F	
	1235.664	— 43.8	6.2	3	Y	
	1252.583	— 03.9	2.4	6	F	
		— 09.9	2.1	8	No	
<b>157978-9</b>	9780.705	— 17.2	7.9	6	B	The spectrum is composite. The measures refer to the G type lines. Only K shows the A type definitely.
17 <sup>h</sup> 21 <sup>m</sup> .5	9790.709	+ 05.0	2.7	20	B	
+ 07° 41'		+ 04.6	2.8	15	No	
5.98 A0-G	9803.643	+ 00.7	3.2	10	Y	
	0066.944	— 15.0	4.5	8	B	
	0083.927	— 04.5	3.5	9	Y	
	1314.574	— 03.5	1.4	16	N	
<b>161832</b>	0597.546	— 39.9	1.0	20	No	
17 <sup>h</sup> 42 <sup>m</sup> .7		— 38.3	1.2	21	No	
+ 39° 22'	0873.794	— 20.5	1.2	20	N	
6.56 K3		— 21.3	1.5	17	F	
	0980.530	— 29.6	0.7	19	Y	
	1286.676	— 36.0	1.0	16	No	
<b>163840</b>	0603.568	— 26.5	0.8	23	F	
17 <sup>h</sup> 53 <sup>m</sup> .2		— 25.8	0.6	21	No	
+ 24° 01'	0885.812	— 34.1	0.8	21	F	
6.36 G0	0963.542	— 43.9	0.6	22	No	
		— 43.5	0.5	24	N	
	1282.642	— 32.4	0.4	22	No	
	1305.569	— 36.4	0.8	21	No	
	1309.778	— 33.3	1.0	16	No	
<b>170829</b>	0574.662	— 65.0	0.7	27	N	
18 <sup>h</sup> 26 <sup>m</sup> .4	0624.534	— 73.0	0.7	26	No	
+ 20° 46'	0951.593	— 48.8	0.6	20	N	
6.59 G8	0996.508	— 63.5	1.5	16	F	

TABLE II—Continued

Star H.D.	J.D.242.... or 243....	Vel. Km./sec.	P.E.	Lines	M	Remarks
<b>172569</b>	9757.811	— 06.3	2.4	16	N	
18 <sup>b</sup> 35 <sup>m</sup> .9	9828.646	— 14.5	1.8	18	B	
+ 65° 24'	0075.941	— 26.6	3.4	14	B	
6.00 A3		— 32.1	5.3	9	F	
		— 32.2	2.5	14	No	
	1264.777	— 18.8	2.1	12	No	
<b>173383</b>	0576.656	— 24.1	1.3	22	No	
18 <sup>b</sup> 39 <sup>m</sup> .9	0902.807	— 42.2	2.5	16	F	
+ 39° 13'	0955.628	— 33.1	0.8	24	N	
6.55 K5	0998.500	— 30.9	1.1	18	Y	
<b>174369</b>	0602.594	— 04.5	5.6	7	N	The lines are poor.
18 <sup>b</sup> 45 <sup>m</sup> .1	0616.748	+ 23.6	4.1	5	Y	
+ 24° 56'	0809.928	+ 10.0	5.4	9	No	
6.56 A2n	1003.986	— 45.4	3.3	7	F	
		— 54.1	3.0	5	F	
	1314.619	— 26.6	2.8	7	F	
<b>175743</b>	9408.854	+ 51.4	1.0	22	T	
18 <sup>b</sup> 51 <sup>m</sup> .7	9419.787	+ 54.3	0.9	23	T	
+ 17° 59'	9466.713	+ 26.8	3.6	9	No	
5.72 K2		+ 27.1	3.9	6	K	
	9540.497	+ 45.2	1.8	21	B	
	1314.637	+ 46.7	0.9	19	N	
<b>179094</b>	0987.585	+ 15.6	0.6	21	No	An orbit has been completed for this star. H and K show as emission lines.
19 <sup>b</sup> 06 <sup>m</sup> .1	1008.496	— 33.0	0.6	23	Y	
+ 52° 16'	1027.469	+ 15.5	0.5	24	Y	
5.93 G8	1040.451	— 17.3	0.7	24	Y	
<b>190658</b>	0607.638	— 114.8	1.1	16	Y	The velocity is very large, but shows about 17 km. range.
20 <sup>b</sup> 00 <sup>m</sup> .9	0931.759	— 106.3	1.1	20	No	
+ 15° 13'	1012.528	— 118.6	0.9	16	K	
6.56 M1	1317.674	— 101.8	1.2	18	N	
<b>197508</b>	0643.548	+ 04.4	0.5	22	Y	Very good lines.
20 <sup>b</sup> 39 <sup>m</sup> .1	0959.684	+ 15.6	0.9	22	N	
+ 83° 17'	1019.533	+ 08.1	0.5	21	F	
6.16 A2	1322.590	+ 18.0	0.8	16	Y	

TABLE II—*Continued*

Star H.D.	J.D.242.... or 243....	Vel. Km./sec.	P.E.	Lines	M	Remarks
<b>199095</b>	0564.797	— 26.6	1.7	4	Y	
20 <sup>h</sup> 49 <sup>m</sup> .8	0643.566	— 53.4	1.8	6	Y	
+ 82° 10'	1019.542	+ 01.4	1.8	4	F	
5.69 A0	1019.546	— 01.2	1.0	7	Y	
<b>205314</b>	0579.768	— 03.1	1.2	2	Y	Very poor lines, poorer than the P.E. indi- cates and the varia- bility is not well established.
21 <sup>h</sup> 29 <sup>m</sup> .4	0958.699	— 43.9	4.5	4	Y	
+ 49° 30'	0996.617	— 74.8	2.7	2	N	
5.76 A0n	1010.574	— 21.4	4.4	3	F	
	1315.769	— 21.3	1.6	3	Y	
<b>208606</b>	0608.708	— 28.2	0.4	19	No	
21 <sup>h</sup> 52. <sup>m</sup> 3	0937.830	— 37.1	0.7	23	N	
+ 61° 04'	0962.730	— 24.0	0.9	20	Y	
6.22 K0g	1040.514	— 27.9	0.9	24	F	
	1001.633	— 40.4	0.8	26	K	
<b>213389</b>	0576.784	— 34.5	0.9	17	F	
22 <sup>h</sup> 25 <sup>m</sup> .9	0914.844	— 30.8	1.0	22	A	
+ 48° 51'	0973.762	+ 19.3	1.4	17	Y	
6.52 K1	0989.655	— 05.2	1.2	18	Y	
	1010.635	+ 31.2	0.6	22	F	