

## THE SPECTROSCOPIC ABSOLUTE MAGNITUDES AND PARALLAXES OF 4179 STARS\*

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### ABSTRACT

The methods described in previous publications have been used for determining stellar absolute magnitudes by the spectroscopic method. A larger number of lines has been used (Table I) and the reduction-curves have been revised. The catalogue gives the spectral type, absolute magnitude, and parallax determined for 4179 stars mostly of types later than A<sub>5</sub> and north of declination  $-26^{\circ}$ .

The determination of the absolute magnitudes of stars from their spectra has been continued as a major program of research since the method was first developed here and reduced to a practical basis in 1916. For the stars of types later than A<sub>5</sub> at least, the method has proved eminently satisfactory. It is equally applicable to dwarfs and giants, as far as the absolute magnitudes are concerned. In the parallaxes derived from the absolute magnitudes, the uncertainties depend upon the size of the parallax.

As originally conceived, the relationship of spectral line intensity to absolute magnitude was essentially an empirical one. While later researches of Saha and others have furnished a definite physical basis for the method, which fully establishes its theoretical soundness, it has seemed wiser for practical purposes to continue the work along the simple lines already described in *Mount Wilson Contributions* Nos. 142 (1917), 199 (1921), and 319 (1926). The process is, in brief: From a group of spectrograms of stars of the same spectral type and differing absolute magnitudes (determined from other sources), spectral lines are chosen which change in intensity with the absolute magnitude; the intensity of each variable line relative to a neighboring line of nearly fixed intensity is estimated in steps; then, empirical calibrating curves are drawn connecting the intensity differences with absolute magnitude. The process is repeated in turn for each spectral type. For convenience, tables prepared from

\* *Contributions from the Mount Wilson Observatory, Carnegie Institution of Washington*, No. 511.

the curves are used in practice to convert line-intensity differences into absolute magnitudes. The total intensity of the line is estimated, rather than the width or the depth. Since the appearance of the lines varies somewhat on different spectrograms and in different stars, the observer, at times, in dealing with a particular line, must base his judgment upon his experience. Because some of the lines used are blends, the reduction-curves are applicable only to spectrograms within a moderate range of dispersion and resolving power.

LINES USED FOR REDUCTION-CURVES

Several pairs of lines have been introduced into our recent estimates of absolute magnitudes in addition to those of earlier lists. The same group of lines was used by each of the observers, but separate reduction tables were prepared. The lines and the spectral types for which they have proved satisfactory for absolute-magnitude estimates are given in Table I. The lines of the ionized atoms

TABLE I  
LINES USED FOR ABSOLUTE MAGNITUDE

Line	Comparison Line	Origin	A	F	dG	dK	dM	ggG	ggK	gG	gK	gM
$\lambda$ 4077....	$\lambda$ 4071	<i>Sr</i> II	*	*	*	*		*	*	*	*	*
4161....	4167	<i>Ti</i> II	*	*	*			*	*	*		
4196....	4199	<i>Fe</i> I			*	*				*	*	
4207....	4202	<i>Fe</i> I										*
4215....	4250	<i>Sr</i> II	*	*	*	*				*	*	
4233....	4236	<i>Fe</i> II	*	*				*	*	*	*	
4246....	4250	<i>Sc</i> II	*	*	*			*	*	*		
4258....	4260	<i>Fe</i> I, <i>Fe</i> II			*	*						*
4290....	4271	<i>Cr</i> I, <i>Ti</i> II	*	*				*	*	*		
4318....	4321	<i>Ca</i> I			*	*	*					
4324....	4321	<i>Cr</i> I et al.		*	*			*	*	*	*	
4340....	4325	<i>H<math>\gamma</math></i>									*	*
4375....	4404	<i>Sc</i> II, <i>Y</i> II	*	*				*	*	*		
4379....	4376	<i>V</i> I				*	*					
4399....	4404	<i>Ti</i> II	*	*	*			*	*	*		
4408....	4415	<i>Fe</i> I, <i>Ti</i> II			*	*				*	*	
4435....	4415	<i>Ca</i> I				*	*					
4454....	4461	<i>Ca</i> I		*	*	*	*					
4489....	4494	<i>Fe</i> I, <i>Fe</i> II				*	*				*	*
4535....	4415	<i>Ti</i> I				*	*					
4586....	4572	<i>Ca</i> I					*					
4607....	4603	<i>Sr</i> I					*					
4861....	4871	<i>H<math>\beta</math></i>									*	*

become stronger as the absolute magnitude increases, while the lines of neutral atoms usually diminish in intensity. The comparison lines, in general, are the iron-arc lines of intermediate temperature class which vary little with absolute magnitude. In giant stars of late K and M types certain low-temperature lines of iron are notably affected by absolute magnitude and form valuable criteria for such stars.

#### BASIS OF ABSOLUTE-MAGNITUDE VALUES

The absolute-magnitude values given herewith are based upon the reduction tables which were used in our previous lists; but, in view of the considerable increase in the number of trigonometric parallaxes in recent years, it has seemed advisable, especially for the dwarfs, to try to bring the spectroscopic system into general agreement with the existing trigonometric system. This has been accomplished by applying minor corrections to the values given by the reduction tables so that the mean results correspond to the mean trigonometric values now available. For the giant stars the principal basis has been mean absolute magnitudes derived from proper and peculiar motions, with some slight modifications suggested by the trigonometric results. When Dr. Schlesinger's revised catalogue of parallaxes is published, it will be possible to make a more complete comparison with all the trigonometric parallaxes reduced to a uniform system. The outstanding differences will doubtless be small.

Most of the stars in our previous lists are included in the present catalogue. Their absolute magnitudes have been entirely redetermined with the aid of the revised reduction tables and a larger number of lines than was used previously. The Cepheid variables have been reserved for special study. The values previously given for Boss 4211, C 935, and Lalande 34958 were apparently based on plates wrongly identified. Comparison of the new absolute magnitudes with those of the "1646" and "410" lists<sup>1</sup> is given in Tables II and III, where the differences are taken algebraically, new *minus* old. A positive value thus indicates that the new magnitudes are fainter than the old. The greatest differences are among the giants,

<sup>1</sup> *Mt. W. Contr.*, No. 199; *Ap. J.*, 53, 13, 1921; *Mt. W. Contr.*, No. 319; *Ap. J.*, 64, 225, 1926.

which are considerably brighter in the later types according to the revised estimates. For 63 supergiants the new values are 0.49 mag. brighter than in the 1646 list, and for 31 faint giants the mean difference is +0.17 mag.

TABLE II  
COMPARISON WITH 1646 LIST

TYPE	MAIN SEQUENCE		GIANTS	
	No.	Diff.	No.	Diff.
		mag.		mag.
A2-3.....	2	-0.6	.....	.....
A4-5.....	8	+ .1	.....	.....
A6-7.....	15	.0	.....	.....
A8-9.....	15	+ .3	.....	.....
F0-1.....	39	+ .8	.....	.....
F2-3.....	72	+ .3	.....	.....
F4-5.....	94	+ .1	.....	.....
F6-7.....	64	- .1	.....	.....
F8-9.....	55	- .1	1	+1.7
G0-1.....	52	- .3	11	+0.6
G2-3.....	49	- .4	12	+ .9
G4-5.....	37	- .3	54	+ .4
G6-7.....	42	- .2	92	.0
G8-9.....	26	- .3	74	- .6
K0-1.....	50	- .1	104	- .7
K2-3.....	20	- .1	110	- .6
K4-5.....	43	- .1	131	- .6
K6.....	26	- .2	.....	.....
M0-1.....	31	- .1	62	- .6
M2-3.....	12	.0	71	- .6
M4-5.....	2	+0.3	29	-0.5
Total.....	754	-0.04	751	-0.36

#### SPECIAL GROUPS

As heretofore, the extremely luminous stars, which have been called "supergiants" or "pseudo-Cepheids," have been reduced by special tables computed with the aid of their parallactic motions.

The existence of a group of stars of types G and K somewhat fainter than normal giants has been indicated by the statistical studies of Strömberg.<sup>2</sup> Although these stars may not be entirely

<sup>2</sup> *Mt. W. Contr.*, No. 442; *Ap. J.*, **75**, 120, 1932.

separated from the giants in absolute magnitude, there is some spectroscopic evidence in support of the suggestion. About 90 such stars were selected on the basis of the intensities of the lines  $\lambda\lambda$  4077, 4215, 4324, and 4454. Special reduction-curves, based on trigonometric parallaxes, were used to determine the spectroscopic absolute magnitudes of these stars.

Reference<sup>3</sup> has previously been made to 3 stars of large proper motion, which, in absolute magnitude, seem to form a group midway

TABLE III  
COMPARISON WITH 410 LIST OF M STARS

TYPE	DWARFS		GIANTS	
	No.	Diff.	No.	Diff.
		mag.		mag.
Mo.....	34	0.0	72	-0.1
M1.....	26	+ .1	50	.2
M2.....	15	.0	68	.2
M3.....	12	+ .2	53	.2
M4.....	4	+ .1	36	.2
M5.....	6	-0.1	20	.1
M6.....	.....	.....	10	.1
M7.....	.....	.....	1	-0.2
Total.....	97	+0.05	310	-0.16

between the faint "white dwarfs," such as the companion to Sirius, and the stars of early type belonging to the main sequence. Three other stars have been added to the group, and the absolute magnitudes have been estimated by using the lines  $\lambda\lambda$  4215, 4290, 4375, 4454, and 4481. All 6 have trigonometric parallaxes. There can be no doubt but that the absolute magnitudes are of the right order. Data for the individual stars are given in Table IV. Their spectra, in many respects, resemble those of Sirius B and  $\sigma$  Eridani B. The hydrogen lines are narrow and sharp, the metallic lines faint, and  $\lambda$  4233 and  $\lambda$  4481 are hardly visible.

#### PROBABLE ERRORS

From a comparison with trigonometric parallaxes, the probable error of the absolute magnitudes in the list of 1646 stars was com-

<sup>3</sup> Adams and Joy, *Mt. W. Contr.*, No. 244; *Ap. J.*, 56, 262, 1922.

puted to be about 0.4 mag., or 20 per cent of the parallaxes themselves. The errors of the present list should be somewhat less because more lines have been used in the estimates for spectroscopic absolute magnitude. Quantitative estimates will be made later when Schlesinger's revised system of trigonometric parallaxes is available.

In the meantime, a convenient check on the internal probable errors of the absolute-magnitude determinations and the systematic agreement of the reduction-curves of different spectral types may be obtained by comparing the absolute magnitudes of the components of double stars and the members of moving clusters. The

TABLE IV  
INTERMEDIATE "WHITE DWARFS"

Star	$m$	Sp.	$\mu$	$M$
HD 19445.....	8.0	A4	0".86	5.0
HD 84937.....	8.3	A4	0.83	4.9
20C 825.....	10.2	A4	0.54	5.0
HD 132475.....	8.5	A9	0.78	4.7
HD 140283.....	7.3	A5	1.18	4.9
HD 219617.....	9.0	A8	1.30	5.0

catalogue includes 157 double stars which seem to be physical systems, 74 Hyades, 31 Praesepe, and 9 Perseus cluster stars. Since the components of physical pairs and of moving clusters are equally distant from the earth, their moduli ( $m - M$ ) should be equal in each physical system. If the apparent magnitudes were accurately known, the deviations from the mean of the moduli would indicate the accidental errors of the absolute magnitudes. Disregarding the errors in the apparent magnitudes, the probable error of a single determination of absolute magnitude for 429 stars is 0.27 mag.

The mean systematic differences, taken in the same way, by spectral types (main sequence) are:

A	91 stars.....	+0.02 mag.
F	142 .....	- .01
G	101 .....	- .01
K	69 .....	- .03
M	26 .....	+0.06

These differences indicate that the internal systematic errors between the different reduction-curves for different spectral types of the main sequence are negligible.

#### SELECTION OF STARS

The catalogue comprises, for the most part, stars of spectral classes F, G, K, and M, but a few A-type stars have been included as well. It is essentially complete for the stars later than A and north of declination  $-26^\circ$  in Boss's *Preliminary General Catalogue*. The catalogue also contains about 250 stars from the Selected Areas, mostly brighter than the eighth magnitude, and a number of well-known visual double stars. For these three groups there has been no intentional selection with regard to absolute magnitude, distance, or proper motion. For the purpose of comparison many stars have been selected from those which have trigonometric parallaxes. Most of the remaining stars have been selected on account of large proper motion or because they are members of certain groups.

#### DISTRIBUTION OF ABSOLUTE MAGNITUDES

A Russell diagram (Fig. 1) has been prepared to show the distribution of the absolute magnitudes of the catalogue with respect to spectral type. The diagram is of the usual form, with one dot plotted for each star. The main sequence and the giant series are well defined. The scattering supergiants, the group of faint giants, and the intermediate white dwarfs are suggestive of other sequences. The well-known gap between the giants and dwarfs of types K and M and the lack of F-type stars in the giant series are prominent features of the diagram.

Attention should be called to a slight modification of our system of classification in the region of K5. Among the giants Mo follows K5, but in the dwarfs an intermediate step called K6 is recognized. The giant series, then, runs K5, Mo, M1, etc., while for the dwarfs we have K5, K6, Mo, M1, etc. This procedure seems to be consistent with the view that the temperatures of giants are lower than those of dwarfs of the same spectral class and with the Harvard classification,<sup>4</sup> which recognizes titanium bands as early as K5.

<sup>4</sup> *Harvard Ann.*, 91, 9, 1918.



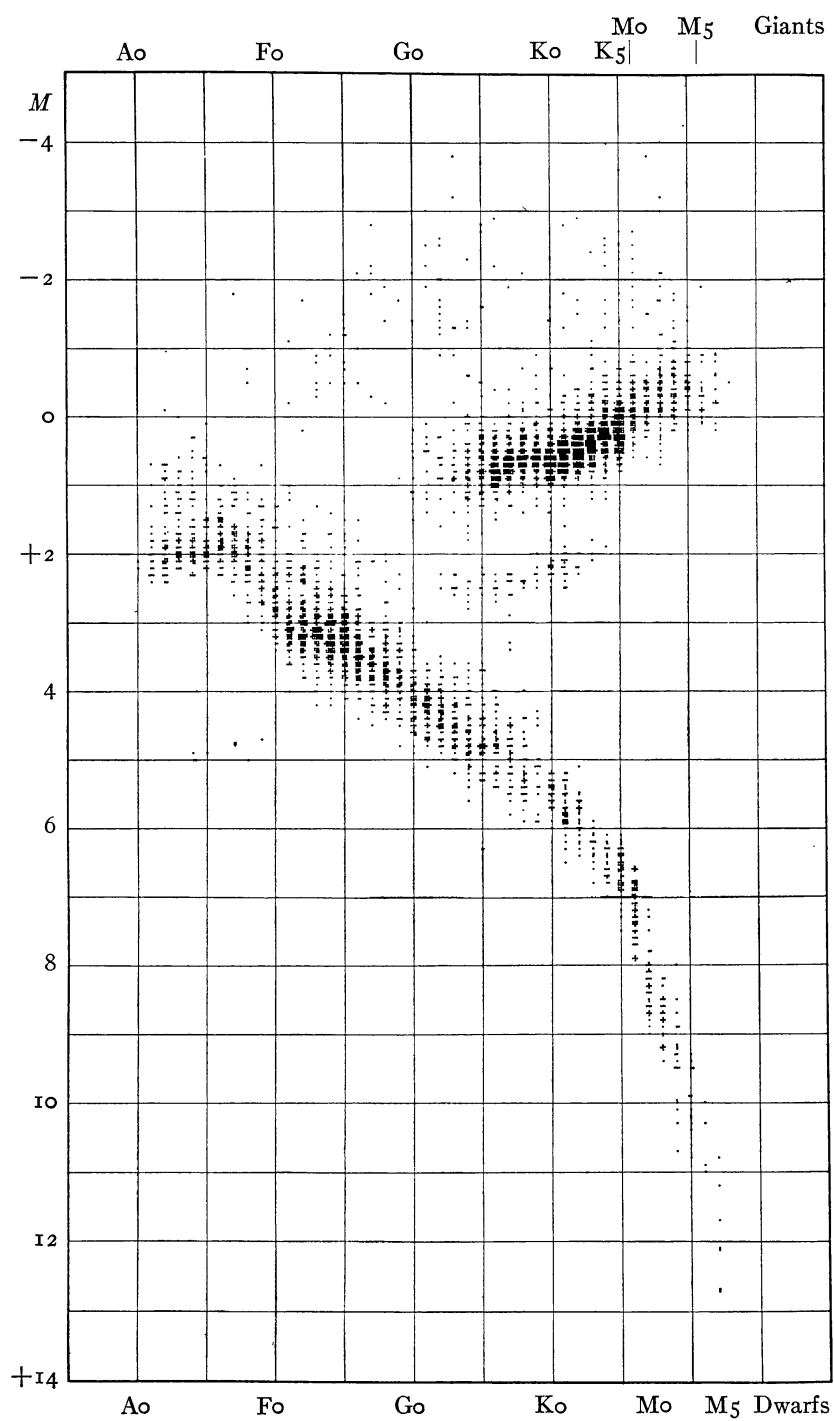


FIG. 1.—Distribution of spectral type and absolute magnitude



The curves of Figure 2 give in condensed form the material of Figure 1. The numbers of stars of certain spectral types are plotted as ordinates with spectral type as abscissae.

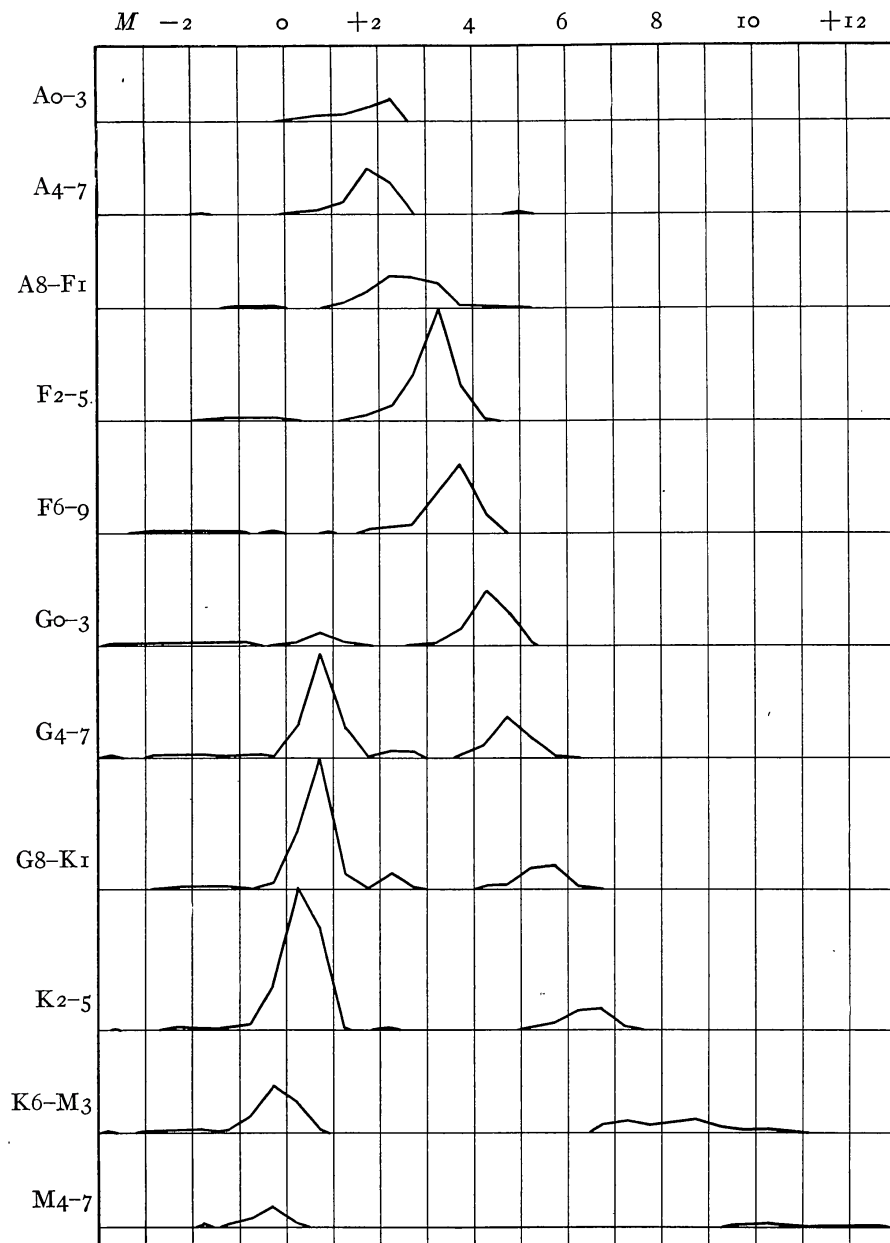


FIG. 2.—Frequencies of absolute magnitudes for different spectrum intervals

## THE CATALOGUE

The catalogue gives the spectral type, absolute magnitude, and other relevant data for each of 4179 stars.

## Column

1. The number is that of Boss's *Preliminary General Catalogue*, unless otherwise indicated. The abbreviations are: C, *Cincinnati Publications*, No. 18; 20C, *Cincinnati Publications*, No. 20; ADS, Aitken's *Catalogue of Double Stars*;  $\beta$ GC, Burnham's *General Catalogue of Double Stars*; BD, *Bonner Durchmusterung*; CD, *Cordoba Durchmusterung*. The letters A, B, C, etc., following the number refer to the component of a double star as given in ADS or  $\beta$ GC. Letters in parentheses indicate that the components have separate Boss numbers.
  2. Number in the *Henry Draper Catalogue* or in the *Extension*.
  - 3 and 4. Right ascension and declination for 1900.
  5. Visual magnitude from the *Henry Draper Catalogue*, if found there; otherwise, from the BD with the corrections given in *Harvard Ann.*, 72, 214. The magnitudes of several faint dwarf stars have been kindly furnished by H. C. Willis from Mount Wilson plates. These values have been reduced from photographic to visual magnitudes by color indices corresponding to the spectral types. We are also greatly indebted to Dr. G. Kuiper of the Lick Observatory for his kindness in allowing us to use in advance of publication a number of his determinations of the visual magnitudes of double stars and faint dwarfs. His results were obtained mostly in Leiden with the aid of an objective grating and a wedge photometer.
- The combined magnitudes of close double stars and spectroscopic binaries have been reduced to that of the brighter component. Magnitudes so corrected are marked †. The difference in magnitude given in ADS or  $\beta$ GC has been preserved by adjusting the value for the fainter component.
6. The Mount Wilson spectral type, determined by direct comparison with the spectra of standard stars chosen to accord with the Harvard system and the criteria adopted by the International Astronomical Union.
  7. The total proper motion, usually taken from Boss's *P.G.C.*, *Cincinnati Publications*, or Schorr's lists. Other values have been collected from various sources.
  8. The spectroscopic visual absolute magnitude from the estimates of Adams, Joy, and Humason.
  9. The absolute parallax resulting from the apparent and absolute magnitudes given in the catalogue.

The significance of the symbols occurring in the catalogue is as follows:

\* See note at end of the table.

† Magnitude corrected to the brighter component of the double star or spectroscopic binary.

‡ Composite. The spectrum is veiled by that of its companion.

|| The spectrum has double lines.

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

197

## CATALOGUE OF SPECTROSCOPIC PARALLAXES

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
ADS	1..... 28	0 <sup>h</sup> 0 <sup>m</sup> 2	- 6° 16'	5.0†	Ko	0".09	2.1	0".026
	48B.....	0 0.4	+45 16	9.0†	Mo	.86	8.5	.079
	2..... 87	0 0.6	+12 50	6.0†	G4	.04	0.8	.009
	3A..... 123	0 1.0	+57 53	6.4†	G3	.27	4.5	.042
	3B.....	0 1.0	+57 53	7.5	G8	.27	5.3	.036
CD	-33° 16843..... 151	0 1.2	-33 22	8.5	M4e*	.02	-0.5	.002
	6..... 166	0 1.4	+28 28	6.2	G8	.42	5.5	.072
BD	+72° 1140..... 219	0 1.9	+72 39	8.0	A5n	.03	1.8	.006
	7..... 315	0 2.6	- 3 6	6.3	Aon	.03	2.2	.015
	9..... 352	0 3.1	- 3 0	6.6†	K2	.01	0.2	.005
	12A.... 432	0 3.8	+58 36	2.7†	F2	.56	2.2	.079
	13..... 448	0 3.9	+17 39	5.7	G9	.14	0.5	.009
C	9..... 443	0 4.0	+64 31	7.0	G9	.30	5.0	.040
BD	+61° 8.....	0 4.4	+62 6	9.5	M2ep*	.....	-1.7	.001
	17..... 545	0 4.8	- 3 7	7.2	M2	.01	-0.2	.003
	19..... 571	0 5.1	+45 31	5.1	cF2	.00	0.2	.010
	20..... 587	0 5.2	- 5 48	6.0	G9	.03	0.8	.009
ADS	128A.....	0 5.4	+66 35	9.7†	Ko	.14	5.3	.013
BD	+32° 11..... 613	0 5.4	+32 34	7.2	K4	.05	0.3	.004
	22..... 693	0 6.2	-16 1	5.0	F5	.28	3.6	.052
	24..... 739	0 6.7	-35 42	5.2	F4	.20	3.7	.050
	25..... 787	0 7.1	-18 30	5.5	K5	.04	0.4	.010
	26..... 877	0 8.0	-23 2	6.7	G5	.03	2.2	.013
$\beta$ GC	71A..... 919	0 8.5	+75 28	7.6	M4	.03	-0.2	.003
$\beta$ GC	71B..... 947	0 8.8	+75 28	7.9	G4	.01	0.6	.003
	30A.... 1014	0 9.3	- 8 20	5.4	M4	.06	-0.4	.007
	31..... 1013	0 9.4	+19 39	4.9	M2	.09	0.2	.011
BD	-15° 32..... 1037	0 9.6	-15 22	6.9	G8	.....	2.4	.013
	33..... 1038	0 9.6	-19 29	4.7	M1	.07	-0.4	.010
	35A.... 1061	0 9.8	+ 8 16	5.9	A9s	.10	1.7	.014
	35B.....	0 9.8	+ 8 16	7.8	A9s	.10	2.7	.010
BD	-15° 38..... 1195	0 11.2	-15 2	8.6	F5	.....	3.4	.009
ADS	218A.... 1210	0 11.4	+54 6	8.1†	A6n	.16	1.8	.005
ADS	218B.....	0 11.4	+54 6	8.8	A9n	.16	2.7	.006
	39..... 1227	0 11.4	+ 7 41	6.2	G6	.04	0.8	.008
ADS	221A.... 1224	0 11.5	+35 56	8.2†	F7	.08	3.4	.011
	40..... 1228	0 11.5	+ 1 18	7.3	M5	.02	-0.3	.003
	41A.... 1239	0 11.6	+60 59	5.8	G4	.00	0.0	.007
20C	16.....	0 11.8	+40 23	8.7	Mo	.55	8.0	.072
ADS	237A.... 1309	0 12.2	+15 57	8.4	G4	.05	5.0	.021
	45AB.. 1317	0 12.3	+ 8 19	7.6†	G1	.12	4.1	.020
	45C.....	0 12.3	+ 8 19	8.0	A9s	.12	2.7	.009
	48..... 1352	0 12.6	+15 47	7.4	F5	0.22	3.7	.018
ADS	246A.... 1326	0 12.7	+43 27	8.1	M3	2.89	10.2	.263
ADS	246B.....	0 12.7	+43 27	10.9	M5	2.89	12.1	0.174

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
49.....	1367	$0^h12^m7$	$+1^\circ 8'$	6.4	G6	0".08	0.9	0".008
53A....	1522	0 14.3	$-9^\circ 23'$	3.8	K <sub>3</sub>	.04	0.2	.019
54.....	1563	0 14.8	$+15^\circ 42'$	6.8	G8	.02	0.4	.005
56.....	1635	0 15.5	$+7^\circ 38'$	5.6	K <sub>3</sub>	.02	0.2	.008
57.....	1671	0 15.9	$+37^\circ 25'$	5.2	F2	.08	2.9	.035
T Ceti.....	1760	0 16.7	$-20^\circ 37'$	5.6	M6e*	.08	-0.6	.006
C 35.....	1779	0 17.0	$-27^\circ 16'$	9.0	G2	.44	4.5	.013
62A....	1796	0 17.2	$+12^\circ 56'$	6.4	K <sub>2</sub>	.06	0.4	.006
63.....	1835	0 17.7	$-12^\circ 46'$	6.4	G2	.40	4.2	.036
64.....	1879	0 18.0	$-16^\circ 30'$	6.6	M <sub>3</sub>	.04	-0.4	.004
BD +44°76.....	1918	0 18.4	$+44^\circ 32'$	7.7	G7	.05	0.9	.004
66.....	1952	0 18.8	$+43^\circ 43'$	6.6	A7n	.02	1.2	.008
C 41.....	2025	0 19.3	$-27^\circ 35'$	7.8	K6	.67	7.2	.076
69.....	2023	0 19.4	$-2^\circ 46'$	6.3	K1	.06	0.3	.006
70.....	2035	0 19.5	$+13^\circ 46'$	6.8	K0	.02	0.8	.006
73A....	2114	0 20.3	$+1^\circ 23'$	6.0	G5	.03	0.4	.008
BD +33°39.....	2126	0 20.4	$+33^\circ 34'$	8.3	K0	.02	1.1	.004
75.....	2140	0 20.5	$+7^\circ 8'$	7.2	K <sub>3</sub>	.07	0.6	.005
79.....	2273	0 21.5	$-0^\circ 36'$	6.4	G4	.07	1.2	.009
BD +30°59.....	2313	0 21.9	$+30^\circ 37'$	7.6	M1	.03	-0.1	.003
BD +33°47.....	2357	0 22.3	$+33^\circ 29'$	8.0	G8	.08	1.1	.004
80.....	2410	0 22.8	$+18^\circ 58'$	6.7	G7	.02	0.8	.007
81.....	2411	0 22.8	$+17^\circ 20'$	5.3	M <sub>3</sub>	.12	-0.6	.007
84.....	2436	0 23.0	$+15^\circ 54'$	6.5	K <sub>5</sub>	.02	0.1	.005
C 49.....	2454	0 23.2	$+9^\circ 39'$	6.0	F0	.21	2.9	.024
86.....	2589	0 24.5	$+76^\circ 28'$	6.4	G9	.34	2.5	.017
88.....	2629	0 24.8	$-1^\circ 40'$	7.5	F1	.17	3.1	.013
89A....	2628	0 24.8	$+29^\circ 12'$	5.3	F <sub>3</sub>	.07	2.6	.029
90A....	2637	0 24.9	$-4^\circ 31'$	6.0	M0	.01	0.1	.007
96.....	2774	0 26.2	$+52^\circ 17'$	5.7	K <sub>2</sub>	0.06	0.3	.008
ADS 433-440A.....	2806	0 26.3	$+66^\circ 42'$	10.3†	M <sub>3</sub>	1.74	9.5	.069
98.....	2806	0 26.4	$+15^\circ 28'$	7.1	K <sub>2</sub>	0.05	-0.2	.003
104A....	2910	0 27.3	$+19^\circ 45'$	5.5	K0	.14	0.8	.011
106A....	2942	0 27.5	$+27^\circ 44'$	6.4	G6	.02	1.0	.008
BD +61°115.....	2973	0 27.9	$+62^\circ 14'$	8.0	G4	.....	0.0	.003
110A....	3074	0 28.8	$-35^\circ 32'$	6.6	F8	.52	3.4	.023
112A....	3125	0 29.4	$-5^\circ 6'$	7.4†	G0	.08	3.7	.018
116A....	3196	0 30.1	$-4^\circ 9'$	5.9†	F7	.41	4.2	.046
117.....	3229	0 30.4	$-1^\circ 3'$	5.9	F <sub>2</sub>	.14	3.3	.030
ADS 497A....	3266	0 30.7	$+29^\circ 27'$	8.6	G4	.45	5.1	.020
ADS 497B.....	3283	0 30.7	$+29^\circ 27'$	9.4	G6	.45	5.4	.016
119.....	3283	0 30.8	$+59^\circ 47'$	5.8	A2n	.00	1.9	.017
121.....	3346	0 31.3	$+43^\circ 56'$	5.4	K <sub>5</sub>	.04	-0.2	.008
125.....	3421	0 32.0	$+34^\circ 51'$	5.6	G0	.02	0.6	.010
126.....	3440	0 32.2	$+81^\circ 56'$	6.4	F6	0.14	3.6	0.027

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

199

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
127AB...	3443	$0^{\text{h}}32^{\text{m}}2$	$-25^{\circ}19'$	6.4†	G7	1".38	5.4	0".063
128.....	3457	0 32.4	+ 2 35	6.6	K4	0.12	0.2	.005
129A....	3512	0 33.0	- 1 3	6.9	K3	.05	0.4	.005
130.....	3546	0 33.3	+28 46	4.5	G3	.34	2.6	.042
131A....	3574	0 33.6	+48 48	5.7	K5	.01	-0.3	.006
132A....	3627	0 34.0	+30 19	3.8†	K4	.16	0.5	.022
80.....	3628	0 34.0	+ 2 35	7.4	G2	.82	4.3	.024
C BD +62°130.....	3637	0 34.1	+62 41	7.7	F4	.....	1.7	.006
133.....	3651	0 34.2	+20 43	6.1	K1	.60	5.9	.091
134A....	3690	0 34.7	+20 53	5.6	G7	.05	0.8	.011
134B.....	.....	0 34.7	+20 53	8.8	F0	.05	3.2	.008
135A....	3712	0 34.8	+55 59	2.5	G7	.06	-0.4	.026
86.....	3765	0 35.3	+39 39	7.5	K5	.80	6.5	.063
C 87.....	3795	0 35.5	-24 21	6.2	G3	.71	4.3	.042
137A....	3807	0 35.6	- 4 54	6.1	G7	.02	0.8	.009
138.....	3817	0 35.7	+38 55	5.4	G5	.01	0.9	.013
ADS 566A....	3821	0 35.7	- 7 47	7.0	G3	.10	4.8	.036
ADS 566B.....	.....	0 35.7	- 7 47	10.3	M1	.10	8.6	.046
ADS 582A....	3891	0 36.4	+70 49	7.3	A1s	.04	1.3	.006
ADS 588A....	3972	0 37.2	+ 3 37	7.7†	F6	.06	3.4	.014
BD +45°181.....	3989	0 37.4	+45 21	7.4	M0	.05	0.4	.004
BD +70° 43.....	4042	0 37.8	+70 17	6.9	G8	.04	0.7	.006
C 90.....	.....	0 38.2	+33 18	8.6	K5	.43	7.5	.060
ADS 608A....	4096	0 38.3	- 1 26	8.8	G3	.31	4.7	.015
ADS 616A....	4134	0 38.6	+45 41	8.9†	F2	.08	3.2	.007
147.....	4128	0 38.6	-18 32	2.2	G6	.23	0.5	.046
150A....	4161	0 39.0	+74 26	5.9†	A3s	.03	1.2	.011
151.....	4188	0 39.2	-11 9	4.9	G6	.11	0.5	.013
C 98.....	4256	0 39.9	+ 1 15	8.1	K5	.59	6.5	.048
BD +55°157.....	4266	0 40.0	+56 14	7.6	F1	.01	1.2	.005
156.....	4301	0 40.3	- 5 11	6.4	M0	.04	-0.5	.004
157.....	4307	0 40.5	-13 25	6.1	F8	.20	4.3	.044
BD +58°101.....	4362	0 40.9	+59 2	6.5	cF9	.02	-1.7	.002
160.....	4398	0 41.2	-23 4	5.6	G6	.19	2.4	.023
BD +45°199.....	4406	0 41.3	+45 49	7.6	G3	.05	4.0	.019
161.....	4408	0 41.3	+14 56	5.6	M4	.06	-0.3	.007
162.....	4482	0 41.8	+11 26	5.7	G9	.06	0.7	.010
164.....	4502	0 42.0	+23 43	4.6†	G8	.13	0.4	.014
165.....	4526	0 42.2	+ 6 12	6.2	G6	.02	0.5	.007
167.....	4568	0 42.6	+20 23	6.6	F6	0.16	2.5	.015
168A....	4614	0 43.0	+57 17	3.6	F9	1.24	4.8	.174
168B.....	.....	0 43.0	+57 17	7.2	M0	1.24	8.0	.145
170.....	4627	0 43.1	+ 6 45	6.1	G7	0.11	0.8	.009
171.....	4628	0 43.1	+ 4 46	5.8	K4	1.37	6.5	.138
C 105.....	4635	0 43.3	+69 54	8.0	K2	0.41	5.9	0.038

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$	
C	173.....	4656	$0^h43^m5$	$+7^\circ 2'$	4.6	K5	0".09	0.3	0".014
	174.....	4676	$0^h43.7$	$+16\ 24$	5.7†	F6	.20	3.9	.044
	177A....	4730	$0^h44.4$	$-14\ 6$	5.8	K5	.14	0.8	.010
	106.....	4747	$0^h44.4$	$-23\ 46$	7.2	G7	.52	5.6	.048
	178B....	4757	$0^h44.5$	$+27\ 10$	6.3	F2	.09	1.5	.011
BD	178A....	4758	$0^h44.5$	$+27\ 10$	6.3	F0	.09	1.6	.011
	179.....	4775	$0^h44.7$	$+63\ 42$	6.0†	F1†	.03	3.2	.027
	181.....	4813	$0^h45.1$	$-11\ 11$	5.2	F9	.32	4.1	.060
	$+61^\circ$ 178.....	4817	$0^h45.2$	$+61\ 16$	6.4	cK5	.00	-3.6	.001
	188.....	4928	$0^h46.2$	$+2\ 51$	6.5	G7	.09	0.9	.008
ADS	189A....	5015	$0^h47.1$	$+60\ 35$	4.9	F8	.19	3.9	.063
	716A....	5058	$0^h47.3$	$-23\ 9$	7.4	G0	.25	4.2	.023
	190A....	5098	$0^h47.8$	$-24\ 33$	5.9†	K2	.04	0.3	.008
C	191.....	5112	$0^h47.9$	$-1\ 41$	4.9	Mo	.02	-0.2	.010
	119.....	5133	$0^h48.1$	$-30\ 54$	7.2	K5	.63	6.8	.083
BD	$+86^\circ$ 193A....	5234	$0^h49.1$	$+58\ 26$	5.0	K2	.05	0.1	.010
	14.....	5256	$0^h49.2$	$+86\ 47$	8.9	G4	.32	4.6	.014
	194.....	5268	$0^h49.2$	$-9\ 17$	6.4	G3	.05	2.5	.017
C	197A....	5286	$0^h49.6$	$+23\ 5$	6.1†	K1	.14	2.3	.017
	122.....	5351	$0^h50.4$	$+68\ 31$	9.4	K6	.74	6.9	.032
BD	200.....	5395	$0^h50.7$	$+58\ 38$	4.8	G4	.10	2.6	.036
	202.....	5437	$0^h51.0$	$-11\ 48$	5.5	K5	.02	-0.5	.006
	206.....	5516	$0^h51.9$	$+22\ 53$	5.1†	G5	.06	0.5	.012
	$-0^\circ$ 146.....	5544	$0^h52.1$	$-0\ 12$	7.7	G9	.02	-0.2	.003
	209.....	5575	$0^h52.4$	$+28\ 27$	5.6	G6	.02	0.2	.008
BD	210.....	5612	$0^h52.7$	$+13\ 9$	6.4	G6	.02	0.4	.006
	$+70^\circ$ 65.....	5715	$0^h53.7$	$+70\ 28$	6.5	A4n	.09	2.0	.013
	211.....	5722	$0^h53.7$	$-11\ 55$	5.8	G7	.03	0.8	.010
BD	$+59^\circ$ 161.....	5747	$0^h54.0$	$+59\ 59$	7.2	G8	.04	0.3	.004
	215A....	5780	$0^h54.3$	$+0\ 15$	7.8	Mo	.13	-0.9	.002
BD	216A....	5789	$0^h54.4$	$+44\ 10$	6.5†	A1n	.04	1.6	.010
	$+13^\circ$ 143.....	5802	$0^h54.5$	$+14\ 4$	9.0	F0	.01	3.1	.007
	217.....	5820	$0^h54.6$	$+5\ 57$	6.3	M2	.02	-0.9	.004
ADS	218.....	5848	$0^h55.0$	$+85\ 43$	4.5	K2	.09	0.4	.015
	838A....	5890	$0^h55.3$	$+60\ 31$	8.9	F1	.05	2.6	.005
BD	$+44^\circ$ 215.....	5916	$0^h55.6$	$+44\ 55$	7.0	G2	.10	3.6	.021
	222.....	6077	$0^h56.9$	$+7\ 24$	7.8	G9	.04	1.0	.004
C	136.....	6101	$0^h57.2$	$+4\ 31$	8.4	K6	.44	6.9	.050
ADS	862A....	6114	$0^h57.3$	$+46\ 50$	7.2†	A3n	.10	1.7	.008
	223A....	6116	$0^h57.3$	$+40\ 48$	5.9	A5s	.02	0.7	.009
ADS	868A....	6130	$0^h57.4$	$+60\ 32$	5.9	A9s	.02	0.7	.009
	226.....	6186	$0^h57.8$	$+7\ 21$	4.4	G5	.08	1.0	.021
	228.....	6203	$0^h58.0$	$-5\ 22$	5.7	K1	.15	0.6	.010
	230A....	6288	$0^h58.7$	$+0\ 50$	6.1	F0	.12	3.4	.029
	231.....	6314	$0^h59.0$	$+39\ 27$	6.7	A2n	0.09	2.1	0.012

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

201

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
232.....	6319	0 <sup>h</sup> 59 <sup>m</sup> 1	+86°37'	6.4	K2	0".06	0.4	0".006
233.....	6386	0 59.7	+ 5 7	6.2	K5	.03	0.7	.008
234.....	6397	0 59.8	+14 24	5.9†	F2	.04	3.0	.026
BD +70° 78.....	6414	1 0.0	+70 24	6.6	A4n	.06	2.0	.012
BD +61°206.....	6416	1 0.0	+62 14	7.1†	A3n	0.10	2.1	.010
C 142.....	.....	1 0.4	+63 24	8.8	M1	1.55	9.0	.110
ADS 902A.....	.....	1 0.6	+12 48	8.6†	F9	.....	2.5	.006
237.....	6482	1 0.6	-10 31	6.4	G8	0.05	1.0	.008
238A.....	6479	1 0.6	+ 4 23	6.8	F5	.11	3.1	.018
239.....	6473	1 0.7	+79 29	6.4	G6	.05	2.5	.017
240B.....	6480	1 0.7	+ 4 23	7.6	F4	.11	3.4	.014
241A.....	6476	1 0.7	+31 39	6.6	K2	.02	0.7	.007
243.....	6557	1 1.3	+12 25	6.2	G7	0.04	0.9	.009
244.....	6582	1 1.6	+54 26	5.3	G4	3.76	5.4	.105
C 146.....	6660	1 2.2	+22 26	8.6	K6	0.52	7.1	.050
248.....	6680	1 2.5	+31 29	6.3	A7n	.20	1.6	.011
250.....	6706	1 2.7	-10 19	5.9	F3	.15	3.1	.027
251.....	6734	1 2.8	+ 1 28	6.7	G5	.45	4.1	.030
252.....	6763	1 3.2	+ 5 7	5.7	A8s	.33	1.9	.017
C 149.....	6755	1 3.3	+61 1	7.8	F5	.64	4.1	.018
255.....	6805	1 3.6	-10 43	3.6	K1	.25	0.5	.024
C 150.....	6840	1 4.1	+67 15	6.6	F6	.24	3.5	.024
259A.....	6860	1 4.1	+35 5	2.4	M0	.22	0.2	.036
261.....	6903	1 4.5	+19 7	5.6	F5	.00	1.7	.017
262.....	6920	1 4.6	+41 33	5.7	F7	.14	3.6	.038
266.....	6976	1 5.2	- 9 26	6.6	G6	.04	0.8	.007
BD +59°199.....	7010	1 5.4	+59 58	7.9	K0	.02	1.4	.005
267.....	7014	1 5.4	+ 1 55	6.2	K4	.00	0.1	.006
270.....	7087	1 6.1	+20 30	4.9	G9	.02	0.1	.011
271.....	7106	1 6.2	+29 34	5.0†	K1	.08	0.6	.013
273.....	7147	1 6.6	- 2 47	6.2	K4	.06	0.0	.006
274.....	7158	1 6.8	+44 48	6.6	M1	.04	0.0	.005
ADS 988B.....	.....	1 7.4	+31 33	7.7	A8n	.....	2.2	.008
275A.....	7218	1 7.4	+ 1 57	6.8	F4	.21	3.2	.019
276.....	7238	1 7.7	+79 23	6.4	F5	.08	2.7	.018
278.....	7268	1 7.8	- 7 19	6.9	G8	.06	0.9	.006
279.....	7311	1 8.1	-35 44	7.0	G8	.04	0.8	.006
281A.....	7318	1 8.3	+24 3	4.9†	G7	.05	0.6	.014
283(B).....	7345	1 8.5	+ 7 3	6.8†	F6	.14	3.5	.022
285A.....	7439	1 9.4	- 8 28	5.2	F2	.30	3.1	.038
285B.....	7438	1 9.4	- 8 28	7.8	G7	.30	5.8	.040
286.....	7446	1 9.5	+ 6 28	6.2	G6	.03	0.4	.007
287.....	7476	1 9.7	- 1 31	5.8	F3	.22	3.2	.030
290.....	7672	1 11.5	- 3 2	5.5	G5	.13	1.2	.014
291.....	7727	1 11.9	- 2 48	6.8	F8	0.30	3.6	0.023



## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD +292.....	7732	1 <sup>h</sup> 12 <sup>m</sup> 0	+77° 3'	6.4	G4	0".09	1.3	0".010
ADS +55°290.....	7861	1 13.2	+55 48	8.9	M6	.02	0.1	.002
1057A.....	7895	1 13.5	- 1 23	8.1	G8	.49	5.5	.030
298A.....	7927	1 13.8	+57 42	5.5†	cF7	.01	-2.8	.002
C 167.....	7983	1 14.0	- 9 27	8.9	G0	.53	4.5	.013
BD +302A.....	8036	1 14.7	- 1 2	6.0	G3	.01	0.9	.010
+14°204.....	8110	1 15.4	+15 11	7.5	G6	.04	4.0	.020
303.....	8126	1 15.6	+28 13	5.6	K5	.08	0.3	.009
BD -14°258.....	8142	1 15.7	-14 25	7.0	K2	.....	0.0	.004
C 174.....	.....	1 15.8	+30 49	8.2	K4	.50	6.2	.040
BD +304.....	8207	1 16.4	+45 0	5.0	G9	.04	0.4	.012
+15°198.....	8248	1 16.7	+15 17	7.5	F4	.07	3.0	.013
C 177.....	8262	1 16.9	+18 10	8.0	G2	.53	4.5	.020
305.....	8335	1 17.5	- 0 58	6.5	K0	.02	0.0	.005
306.....	8334	1 17.5	+ 1 12	6.5	Mo	.07	-0.4	.004
BD +76° 42.....	8364	1 17.8	+77 9	8.0	F8	.01	3.0	.010
310A.....	8491	1 18.9	+67 36	5.0	G8	.09	0.7	.014
313A.....	8512	1 19.0	- 8 42	3.8	K0	.23	2.1	.046
314.....	8538	1 19.3	+59 43	2.8	A3n	.31	1.4	.052
C 185.....	8553	1 19.5	+17 59	8.6	K4	.61	6.8	.044
ADS 1131A.....	8627	1 20.0	- 6 28	7.5†	F1	.....	2.0	.008
317.....	8705	1 20.7	-15 7	5.2	K3	.04	0.5	.011
318.....	8723	1 20.9	+18 39	5.3	F1	.04	3.3	.040
319.....	8763	1 21.3	+18 43	5.6	K1	.08	0.5	.010
320.....	8779	1 21.3	- 0 55	6.5	K0	.05	1.0	.008
BD +321A.....	8799	1 21.7	+44 53	5.0	F2	.36	2.8	.036
+29°240.....	8826	1 21.9	+30 1	8.5	F3	.08	3.1	.008
322.....	8829	1 21.9	-13 35	5.7	F1	.02	3.0	.029
324AB.....	8875	1 22.5	+ 4 50	7.9†	G0	.12	4.1	.017
325A.....	8890	1 22.6	+88 46	2.1	cF7	.04	-2.2	.014
BD +325B.....	.....	1 22.6	+88 46	8.8	F1	.04	2.8	.006
+29°243.....	8909	1 22.7	+30 2	6.9	F4	.09	3.7	.023
326.....	8941	1 23.1	+16 34	6.8	F8	.11	3.2	.019
C 196.....	8997	1 23.6	+21 13	8.2†	K4	.50	6.4	.044
327.....	9021	1 23.8	+69 45	6.3†	F6	.16	3.7	.030
328.....	9024	1 23.8	+ 6 47	6.7	F0	.06	2.8	.017
330.....	9057	1 24.1	+46 29	5.3	K0	.04	0.2	.010
332.....	9138	1 24.9	+ 5 38	5.1	K4	.29	0.2	.010
333.....	9166	1 25.2	+67 54	7.0	K2	.12	0.3	.005
334A.....	9228	1 25.7	-26 43	6.0	K4	.05	0.2	.007
BD +29°256.....	9269	1 26.1	+30 6	8.4	G9	.09	1.0	.003
335A.....	9270	1 26.1	+14 50	3.7	G3	.03	0.4	.022
BD +57°320.....	9352	1 27.0	+57 49	6.0	cK1	.01	-2.0	.003
C 204.....	9407	1 27.3	+68 26	6.7	G3	.40	4.4	.035
338.....	9408	1 27.4	+58 43	4.9	G6	0.04	0.9	0.016

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

203

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
ADS 1226AB ..	9454	1 <sup>h</sup> 27 <sup>m</sup> 7	+71°56'	8.5†	G2	0".04	0.7	0".003
BD +29°260.....	9483	1 28.0	+29 54	8.1	A5n	.02	1.5	.005
342.....	9640	1 29.4	+17 57	6.0	M2	.09	0.1	.007
344.....	9670	1 29.7	+ 0 26	7.0	F8	.32	3.6	.021
346.....	9746	1 30.3	+48 13	6.2	K1	.01	0.2	.006
349A.....	9774	1 30.5	+72 32	5.5	G5	.01	0.3	.009
350.....	9826	1 30.9	+40 54	4.2	G0	.42	3.7	.079
$\beta$ GC 831A.....	9847	1 31.0	-18 2	7.1	G2	.35	4.0	.024
ADS 1257A.....	9855	1 31.1	+ 3 48	7.9	K4	.01	0.5	.003
351.....	9856	1 31.1	-15 55	5.5	K1	.03	0.4	.010
355.....	9900	1 31.6	+57 28	5.7	G9	.00	-0.9	.005
356.....	9919	1 31.8	+11 38	5.6	A5n	.08	2.1	.020
357.....	9927	1 31.9	+48 7	3.8	K2	.13	0.2	.019
C 226.....	10015	1 32.7	+29 4	8.7	G8	.42	5.0	.018
360.....	10072	1 33.3	+43 53	5.5†	G5	.02	1.1	.013
C 227.....	10086	1 33.5	+45 23	6.7	G4	.32	4.9	.044
C 229.....	10126	1 33.9	+27 36	7.9	G6	.51	4.6	.022
361A.....	10113	1 33.9	+16 7	6.9	G6	.03	0.7	.006
362.....	10135	1 33.9	+13 47	6.9	K0	.10	0.9	.006
365.....	10148	1 34.1	-21 47	6.0†	A4n	.10	1.8	.014
C 231.....	10145	1 34.2	+66 25	7.6	G7	.74	4.9	.029
367.....	10164	1 34.3	+15 54	6.1	K2	.07	0.7	.008
368.....	10204	1 34.7	+42 48	5.5	A9n	.14	1.5	.016
372.....	10307	1 35.7	+42 7	5.1	G0	.82	4.4	.072
373A.....	10308	1 35.7	+25 14	7.0†	F3	.11	3.2	.017
BD +44°352.....	10322	1 35.8	+45 5	8.8	K5	.01	0.3	.002
374A.....	10332	1 35.9	+60 3	7.4	K1	.01	-0.2	.003
375.....	10348	1 36.0	+29 32	6.0	G6	.01	0.7	.009
378.....	10380	1 36.2	+ 4 59	4.7	K4	.02	0.4	.014
C 238.....	10436	1 36.8	+63 20	8.2	M0	.70	8.2	.100
381A.....	10453	1 36.8	-11 49	6.1†	F2	.41	3.3	.027
381B.....	.....	1 36.8	-11 49	7.4	F3	.41	3.7	.018
382A.....	10476	1 37.1	+19 47	5.3	G9	.73	5.9	.132
BD +44°354.....	10486	1 37.2	+44 48	6.5	K2	.14	2.0	.013
C 240.....	10519	1 37.4	-18 24	7.4	G1	.54	4.1	.022
BD +55°394.....	.....	1 37.7	+56 1	9.2	M0	.02	-0.8	.001
387.....	10550	1 37.7	- 4 12	5.3	K3	.03	-0.4	.007
BD +45°432.....	10597	1 38.3	+45 39	6.5	K5	0.03	0.4	.006
391.....	10700	1 39.4	-16 28	3.6	G4	1.92	5.6	.251
392.....	10697	1 39.5	+19 35	6.2	G4	0.11	4.7	.050
393.....	10761	1 40.1	+ 8 39	4.5	G6	.08	0.6	.017
BD + 7°275.....	10783	1 40.4	+ 8 4	6.6	A3sp*	.....	1.0	.008
394.....	10780	1 40.5	+63 22	5.7	K0	.63	5.6	.096
396A.....	10830	1 41.0	-25 33	5.4	F1	.17	2.4	.025
397.....	10824	1 41.0	- 6 14	5.5	K4	0.04	0.3	0.009

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
398.....	10845	1 <sup>h</sup> 41 <sup>m</sup> 2	+16°55'	6.8†	A7n	0".05	2.1	0".011
402.....	10975	1 42.7	+37 27	6.0	G7	.11	0.7	.009
404.....	10995	1 42.9	+16 31	7.3	G0	.06	2.8	.013
405.....	11007	1 43.0	+32 11	5.8	F6	.35	4.1	.046
408.....	11131	1 44.5	-11 12	6.8	G1	.16	4.1	.029
409.....	11151	1 44.5	+51 26	5.9	F3	.12	3.2	.029
410A....	11154	1 44.6	+21 47	6.2†	K0	.02	0.7	.008
411.....	11171	1 44.7	-11 11	4.8	F1	.18	2.2	.030
413.....	11262	1 45.5	-38 54	6.5	F7	.27	3.8	.029
414.....	11257	1 45.6	+10 33	5.9	F2	.07	2.7	.023
416.....	11353	1 46.5	-10 50	4.2†	K0	.05	0.0	.014
420A....	11428	1 47.3	+40 14	5.6	K1	.01	0.0	.008
421.....	11443	1 47.4	+29 6	3.9†	F2	.23	2.4	.050
C 251.....	11507	1 48.0	-22 56	8.9	M0	.86	8.6	.087
426.....	11559	1 48.4	+ 2 42	5.1†	G7	.03	0.6	.013
BD +33°318.....	11635	1 49.1	+33 15	8.7	G9	.03	0.4	.002
430(B)...	11727	1 50.0	+36 47	6.1	M0	.00	-0.3	.005
432(A)...	11749	1 50.2	+36 46	5.8	G8	.18	0.7	.010
434.....	11763	1 50.3	+23 5	6.0	G8	.01	0.3	.007
435AB...	11803	1 50.7	+ 1 21	7.3†	F9	.25	4.4	.026
ADS 1552A.....	.....	1 51.7	+18 28	9.8	K5	.05	1.1	.002
436.....	11909	1 51.9	+17 20	5.5†	G7	.04	0.3	.009
437.....	11930	1 52.0	-23 1	5.2	K4	.08	0.4	.011
439.....	11949	1 52.2	+48 43	5.8	G7	.04	1.3	.013
BD +32°356.....	.....	1 52.3	+32 28	8.8	F9	.....	2.3	.005
441B.....	.....	1 52.4	+23 6	7.4	G1	.09	4.3	.024
BD +33°330.....	12050	1 53.1	+33 51	7.6	G6	.03	0.8	.004
446A.....	12111	1 53.7	+70 25	4.7†	A6s	.06	1.5	.023
X Trianguli*.....	12211	1 54.8	+27 24	9.0†	A3s	.01	1.8	.004
450.....	12235	1 54.9	+ 2 37	5.8	G1	.34	4.1	.046
451.....	12255	1 55.1	-21 19	5.7	M1	.01	-0.1	.007
452.....	12230	1 55.1	+76 48	5.4	A2n	.14	2.0	.021
453.....	12274	1 55.3	-21 34	4.2	M1	.13	0.1	.015
455A.....	12292	1 55.5	- 9 0	5.7	M5	.09	-0.4	.006
460A.....	12339	1 56.0	+75 38	5.3	G5	.02	0.8	.013
BD +70°157.....	12350	1 56.0	+70 43	7.6	F0	.04	2.9	.011
BD +53°440.....	12433	1 56.8	+54 13	7.7	F5	.03	3.1	.012
463A.....	12447	1 56.9	+ 2 17	4.8†	A2n†	.04	2.0	.027
463B.....	12446	1 56.9	+ 2 17	5.7†	A3n	.04	1.5	.014
468(A)...	12533	1 57.8	+41 51	2.3	K3	.07	-0.2	.032
470A.....	12558	1 58.0	+25 27	5.9†	F4	.11	3.0	.026
472.....	12594	1 58.2	+17 46	6.4	K4	.02	0.3	.006
473A.....	12641	1 58.7	- 0 49	6.0	G5	.09	0.8	.009
475.....	12800	2 0.5	+71 5	6.7	F8	.39	4.3	.033
20C 144.....	12873	2 1.0	-24 52	9.5	G9	0.42	5.2	0.014

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

205

## CATALOGUE—Continued

	Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
ADS	1652A....	12889	2 <sup>h</sup> 1 <sup>m</sup> 1	−24° 51'	9.2	K5	0".42	6.5	0".029
	477.....	12929	2 1.5	+22 59	2.2	K1	.24	0.4	.044
C	274.....	13043	2 2.5	− 1 5	6.9	G1	.47	4.2	.029
	481.....	13137	2 3.4	+53 22	6.4	G8	.06	0.3	.006
	483A....	13174	2 3.7	+25 28	5.1	A5n	.09	1.5	.019
	485.....	13228	2 4.1	− 2 48	7.1	F5	.11	3.3	.017
	486.....	13222	2 4.1	+73 33	6.2	G6	.07	0.8	.008
	491.....	13325	2 5.1	+19 2	5.9	M3	.09	−0.2	.006
	493.....	13363	2 5.5	+25 28	6.2	K4	.01	0.5	.007
$\beta$ GC	1131A....	13403	2 5.9	+56 45	7.0	G1	.33	3.9	.024
	495.....	13421	2 6.1	+ 8 6	5.7	F8	.17	3.1	.030
	496.....	13468	2 6.5	− 2 18	6.0	G9	.03	0.8	.009
	497A....	13480	2 6.6	+29 50	6.2†	G4	.09	0.9	.009
	497B....	.....	2 6.6	+29 50	7.2†	F2	.09	3.2	.016
	498.....	13474	2 6.6	+66 3	6.2	F2	.00	3.3	.026
	500A....	13530	2 7.0	+50 36	5.7†	G6	.39	0.4	.009
BD	+57° 521.....	13543	2 7.1	+57 27	8.9	G8	.09	0.4	.002
	501.....	13555	2 7.2	+20 44	5.4	F4	.16	3.3	.038
C	286.....	13579	2 7.5	+67 13	7.2	K4	.60	6.4	.069
ADS	1709A....	13594	2 7.6	+47 1	6.4†	F2	.10	3.3	.024
	502.....	13596	2 7.6	+14 49	6.0	M1	.10	0.0	.006
	503(B)....	.....	2 7.7	− 2 52	7.8	G4	.37	4.8	.025
	504(A)....	13612	2 7.7	− 2 52	5.7	F9	.37	4.1	.048
	505.....	13611	2 7.7	+ 8 23	4.8†	G4	.03	0.1	.011
BD	+56° 458.....	13634	2 7.9	+57 13	9.2	G9	.01	−0.2	.001
	288.....	13783	2 9.2	+64 30	8.4	G5	.50	4.9	.020
BD	+56° 466.....	13784	2 9.2	+57 9	9.5	A9s	0.01	1.7	.003
C	289.....	.....	2 9.5	− 1 40	8.4	F8	1.03	3.6	.011
C	291.....	13825	2 9.7	+23 49	6.9	G7	0.49	5.0	.042
	509.....	13872	2 10.0	+24 35	5.6	F4	.12	3.4	.036
	510.....	13871	2 10.0	+25 19	5.8	F3	.19	3.2	.030
	513.....	13982	2 10.9	+57 26	6.1	K3	0.07	0.1	.006
	514A....	13974	2 10.9	+33 46	5.4†	G0	1.18	4.1	.055
	515A....	13994	2 11.0	+57 3	6.2	G6	0.01	0.3	.007
	516A....	14044	2 11.3	−10 17	7.5†	G2	.27	3.9	.019
BD	+41° 435.....	14064	2 11.4	+42 8	7.9	F3	.02	2.5	.008
	518.....	14129	2 12.0	− 6 53	5.7	G8	.14	0.3	.008
BD	+56° 539.....	14185	2 12.6	+57 9	9.2	K3	.01	−0.3	.001
	523.....	14214	2 12.8	+ 1 17	6.1†	F8	.53	3.9	.036
BD	+22° 329.....	14262	2 13.3	+22 43	6.4	A7n	.05	1.6	.011
BD	+56° 547.....	14270	2 13.4	+56 32	8.2	M3	.01	−1.1	.001
	528.....	14305	2 13.6	+19 14	6.8	F8	.12	4.4	.033
BD	+56° 551.....	14330	2 13.9	+56 42	10.3*	M1	.00	−1.5	.000
C	298.....	.....	2 14.0	+70 43	8.6	K6	.62	6.6	.040
BD	− 3° 355.....	14411	2 14.4	− 3 26	9.1	K5	0.01	0.4	0.002

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
C 300.....	14402	2 <sup>h</sup> 14 <sup>m</sup> 5	+68°18'	7.4	K1	0".13	0.9	0".005
BD +57°550.....	14404	2 14.5	+57 24	8.6	M2	.01	-2.1	.001
532.....	14412	2 14.5	-26 25	6.4	K0	.50	5.9	.079
SU Persei.....	14469	2 15.1	+56 9	7.3*	M4	.02	-1.4	.002
RS Persei.....	14488	2 15.3	+56 39	8.7*	M6	.01	-0.4	.001
BD +55°600.....	14543	2 15.9	+56 10	8.4	G9	.01	-0.4	.002
BD +56°595.....	14580	2 16.2	+56 46	8.6	M1	.01	-2.1	.001
BD +56°597.....	14580	2 16.3	+56 46	11.0*	M0	.01	-1.7	.000
BD +22°334.....	14595	2 16.4	+22 25	6.6	G4*	.03	0.7	.007
BD +15°331.....	14610	2 16.5	+15 33	8.1	F3	.11	3.2	.010
536.....	14622	2 16.6	+40 57	5.9	F2	.13	2.8	.024
539.....	14652	2 16.8	- 0 4	5.9	M2	.01	-0.5	.005
ADS 1820A....	14662	2 16.9	+54 55	6.5	cF8	.03	-1.9	.002
541.....	14691	2 17.1	-11 14	5.6	A8n	.17	1.8	.017
BD -14°434.....	14692	2 17.1	-14 44	7.4	A8n	.....	2.1	.009
542.....	14770	2 17.8	+49 33	5.5	G5	.05	0.5	.010
BD +33°422.....	14783	2 17.9	+33 24	7.6	K3	.06	0.4	.004
543.....	14802	2 18.0	-24 16	5.4	G1	.21	4.0	.052
ADS 1832A....	14825	2 18.3	+57 44	7.9†	A5s	.04	1.4	.005
BD +56°609.....	14826	2 18.3	+57 0	8.5	M4	.01	-0.9	.001
545.....	14872	2 19.0	+49 50	4.9	K5	.03	0.0	.010
BD +14°392.....	14887	2 19.0	+15 4	7.8	F0	.03	2.5	.009
550A.....	15089	2 20.8	+66 57	4.9†	A3sp*	.02	0.0	.010
550B.....	.....	2 20.8	+66 57	7.0	F5	.01	3.2	.017
550C.....	.....	2 20.8	+66 57	8.2	G4	.01	4.7	.020
BD +55°624.....	15091	2 20.8	+55 35	9.2	A8n	.02	1.9	.003
552.....	15138	2 21.2	+50 7	6.3	F1	.10	3.0	.022
555.....	15176	2 21.5	+31 21	5.8	K1	.05	0.8	.010
556.....	15228	2 22.1	+ 9 45	6.5	F4	.36	3.2	.022
559.....	15257	2 22.3	+29 13	5.4	A7n	.09	1.7	.018
562.....	15342	2 23.0	+81 12	8.5	K5	.02	-0.2	.002
566.....	15550	2 25.0	+19 25	6.1	A4n	.08	2.3	.017
568.....	15596	2 25.4	+17 16	6.4	G5	.10	3.7	.029
569.....	15634	2 25.7	-25 38	6.5	A9n	.09	2.4	.015
570.....	15652	2 26.0	-22 59	6.4	M1	.04	0.0	.005
572.....	15694	2 26.3	+ 1 49	5.4	K3	.01	0.7	.011
BD +29°434.....	15703	2 26.5	+51 52	7.0†	A2s	.01	1.7	.009
573A....	15788	2 27.2	+29 31	7.8	G7	.03	0.3	.003
575.....	15798	2 27.3	-15 41	4.8	F3	.14	3.2	.048
576.....	15814	2 27.4	+14 36	6.4†	F7	.04	3.6	.027
C 329.....	15830	2 27.7	+42 21	7.6	G5	.45	5.3	.035
577.....	15920	2 28.5	+72 23	5.3	G6	.03	0.8	.013
BD +68°176.....	15948	2 28.8	+68 38	7.4	G9	.05	0.5	.004
581A....	16028	2 29.5	+36 52	5.9	K4	.01	-0.1	.006
BD +30°414.....	16042	2 29.5	+30 14	8.5	G4	0.03	2.4	0.006

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

207

## CATALOGUE—Continued

Star		HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$	
BD	+30°	582..... 583..... 585..... 417..... 586.....	16058 16060 16082 16090 16141	2 <sup>h</sup> 29 <sup>m</sup> 7 2 29.8 2 29.9 2 30.0 2 30.3	+34°15' + 7 2 +51 31 +30 44 - 3 59	5.6 6.2 7.3 7.9 6.8	M3 G6 F9 F9 G2	0".06 .11 .01 .08 0.45	-0.6 1.0 3.1 3.4 4.1	0".006 .009 .014 .013 .029
		588..... 589A.... 591..... 592(B)... 593(A)..	16160 16161 16234 16232 16246	2 30.6 2 30.6 2 31.2 2 31.2 2 31.2	+ 6 25 + 5 9 +12 1 +24 13 +24 13	5.9 5.0 5.7 7.4 6.9†	K4 G5 F5 F6 F5	2.32 0.04 .30 .15 .14	6.7 0.5 3.7 3.7 3.4	.145 .013 .040 .018 .020
	C	340.....	16397	2 32.6	+30 24	7.2	G0	.63	4.1	.024
	ADS	2004A....	16396	2 32.9	+32 59	7.5†	K2	.04	0.7	.004
		598.....	16446	2 33.2	-23 26	6.9	G9	.03	0.6	.005
	ADS	2008A....	16480	2 33.5	+14 25	7.3	K3	.04	0.1	.004
	600.....	16505	2 33.8	+67 38	7.8	K3	.01	0.4	.003	
BD	+44°	605..... 607..... 558..... 2059A.... 610.....	16620 16647 16663 16735 16739	2 34.7 2 35.0 2 35.2 2 35.9 2 35.9	-12 18 + 5 41 +45 4 +53 6 +39 46	5.0 6.2 8.4 6.1 5.5†	F5 F2 F5 K0 F9	.28 .05 .10 .07 .19	2.9 2.9 3.1 0.7 3.8	.038 .022 .009 .008 .046
	BD	612A....	16765	2 36.1	- 1 7	5.7	F6	.24	3.7	.040
	BD	+48°739.....	.....	2 36.2	+48 34	9.7	K6	.38	7.0	.029
	BD	+48°740.....	.....	2 36.2	+48 30	9.0†	K3	.....	-0.1	.002
	C	345.....	16784	2 36.3	-30 34	8.1	F9	.60	3.0	.010
	617A....	16895	2 37.4	+48 48	4.2	F5	.35	3.6	.076	
BD		617B....	.....	2 37.4	+48 48	10.0	M3	.35	9.3	.072
		619.....	16901	2 37.6	+43 52	5.6	cGo	.00	-2.1	.003
		622A....	16970	2 38.1	+ 2 49	3.6†	A2n	.21	1.6	.040
		622B....	.....	2 38.1	+ 2 49	6.8	F4	.21	4.1	.029
		624.....	17017	2 38.7	+17 20	6.5	K2	.07	0.7	.007
	BD	+43°	629..... 631..... 576..... 2122A.... 634.....	17094 17206 17245 17332 17361	2 39.5 2 40.4 2 41.0 2 41.8 2 42.0	+ 9 42 -19 0 +43 50 +18 57 +28 50	4.7† 4.6 6.7 7.4† 4.6	F4 F5 F2 F7 K1	.28 .33 .03 .18 .20	2.2 3.4 3.0 3.8 0.8
BD		+56°718.....	17378	2 42.2	+56 40	6.5	cA8	.02	-0.5	.004
		635.....	17459	2 42.9	+17 52	6.0	K1	.05	0.9	.010
		639A....	17506	2 43.4	+55 29	3.9	cK4	.03	-2.5	.005
ADS		644.....	17584	2 44.3	+37 54	4.3	A6n	.21	1.4	.026
	2173A....	17647	2 44.9	+45 33	9.4†	G3	.57	5.0	.013	
C		365.....	17660	2 45.0	+15 18	9.2	K6	.51	7.5	.046
		646.....	17709	2 45.4	+34 39	4.7	Mo	.08	0.0	.011
	ADS	2204A....	17785	2 46.1	+72 29	7.7	G1	.08	4.2	.020
		650A....	17824	2 46.5	-21 25	4.8	K0	.05	0.8	.016
		653A....	17878	2 47.2	+52 21	4.4†	G1†	0.01	1.1	0.022

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
ADS 654A....	17904	2 <sup>h</sup> 47 <sup>m</sup> .4	+37°56'	5.6†	A6s	0".10	1.2	0".013
ADS 2218A....	18143	2 49.7	+26 28	7.7	K2	.33	5.7	.040
ADS 2218B....	.....	2 49.7	+26 28	9.3	M1	.33	8.7	.076
BD — 0°450....	18145	2 49.7	— 0 28	6.7	G6	.02	0.8	.007
BD — 0°451....	18175	2 50.0	+ 0 3	7.2	K2	.14	0.6	.005
BD 660.....	18191	2 50.2	+17 56	5.9	M6	.02	—0.2	.006
BD +51°656....	.....	2 50.3	+52 5	9.5	K1	.....	0.7	.002
BD +51°657....	18200	2 50.3	+52 6	8.0	G6	.04	0.7	.003
BD +51°658....	232733	2 50.3	+52 5	9.2	K2	.49	6.0	.023
BD 661.....	18256	2 50.8	+17 37	5.6	F5	.34	3.1	.032
BD 662.....	18262	2 50.9	+ 7 59	6.1	F7	.11	3.2	.026
BD — 0°460....	18322	2 51.5	— 9 18	4.0	K2	.23	0.6	.021
BD 667.....	18369	2 52.0	+ 0 3	6.7	A5n	.02	1.5	.009
BD 669A....	18404	2 52.4	+20 16	5.8	F5	.22	3.2	.030
BD 670.....	18438	2 52.8	+79 1	5.7	M1	.04	0.0	.007
BD 672.....	18449	2 52.9	+34 47	5.0	K2	.06	0.2	.011
BD 674A....	18474	2 53.0	+46 49	5.6	G4	.04	0.2	.008
BD 674B....	18520	2 53.5	+20 56	5.9†	A4s	.02	1.1	.011
BD 676.....	18519	2 53.5	+20 56	6.2	A4s	.02	1.2	.010
BD 678B....	18535	2 53.6	—24 0	6.0	K2	.07	—0.3	.005
C 388.....	18538	2 53.7	+51 57	6.8	A1n	.04	2.2	.012
C 684.....	18702	2 55.2	+ 5 36	8.2	K1	.67	5.5	.029
C 392.....	18592	2 55.2	—25 40	5.6	A9n	.20	1.9	.018
BD +59°588....	18757	2 56.0	+61 20	6.7	G2	.98	4.6	.038
BD 686.....	18766	2 56.0	+59 55	7.2	F4	.05	3.0	.014
BD 689.....	18769	2 56.0	+26 4	5.9	A7s	.01	2.0	.017
BD 691.....	18803	2 56.5	+26 13	6.7	G6	.30	5.2	.050
BD 693.....	18884	2 57.1	+ 3 42	2.8	M2	.08	—0.1	.026
BD 694A....	18907	2 57.3	—28 28	5.9	G5	.49	4.8	.060
BD 698.....	18925	2 57.6	+53 7	3.4†	cF7†	.01	—0.3	.018
ADS 2316A....	18975	2 58.0	— 2 29	7.5	F7	.....	3.5	.016
ADS 698.....	19058	2 58.8	+38 27	3.7*	M4	.18	—0.4	.015
ADS 704.....	19270	3 0.9	+12 48	5.8	K0	.07	0.9	.010
C 404.....	19305	3 1.2	+ 1 36	8.9	M0	.95	8.5	.083
C 707.....	19349	3 1.6	— 6 29	5.6	M3	0.00	—0.1	.007
ADS 710.....	19373	3 1.8	+49 14	4.2	G1	1.27	3.9	.087
ADS 2356A....	19383	3 2.0	—13 42	8.0	F2	0.04	3.8	.014
C 407.....	19445	3 2.5	+25 58	8.0	A4sp*	.86	5.0	.025
C 408.....	19467	3 2.6	—14 8	7.2	G5	.28	4.8	.033
C 712.....	19460	3 2.7	+18 25	6.5	M0	.04	0.3	.006
BD 713A....	19476	3 2.7	+44 29	4.3†	G8	.24	0.4	.017
BD +60°636....	19536	3 3.5	+60 15	7.3	A3s	.01	1.4	.007
BD 717.....	19656	3 4.8	+39 14	4.8	G9	.02	0.3	.013
BD 718.....	19787	3 5.9	+19 21	4.5	K2	.15	0.6	.017
ADS 2409B....	19923	3 7.1	+38 46	8.2	F3	0.07	3.3	0.010



## SPECTROSCOPIC ABSOLUTE MAGNITUDES

209

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$	
C	720.....	19926	3 <sup>h</sup> 7 <sup>m</sup> 1	+ 6° 17'	6.1†	cG2‡	0".04	-0.9	0".004
	721A....	19978	3 7.6	+77 22	5.5	A4n	.08	1.8	.018
	722A....	19994	3 7.7	- 1 34	5.1	F8	.21	3.8	.055
	723A....	20010	3 7.8	-29 23	3.9	F5	.73	3.6	.087
	423.....	20039	3 8.2	+71 55	9.0	G4	.43	4.1	.010
BD	+59°616.....	20040	3 8.2	+59 44	7.8	Go	.01	1.2	.005
BD	726.....	20084	3 8.6	+84 33	6.1†	G4	.15	0.5	.008
	+15°450.....	20086	3 8.6	+15 12	7.3	A3n	.04	2.0	.009
	2416AB..	20115	3 8.9	+ 0 22	8.8†	F8	.07	3.6	.009
ADS	729.....	20123	3 9.1	+50 34	5.3	cG2	.02	-1.4	.005
C	427.....	20165	3 9.4	+ 8 37	7.7	K2	.58	5.9	.044
	736.....	20290	3 10.7	- 9 8	6.8	K2	.02	0.7	.006
C	431.....	.....	3 10.8	+30 40	9.7†	K5	.28	6.6	.024
	743.....	20395	3 11.7	- 9 31	6.2	F4	.05	3.5	.029
ADS	2451A....	20430	3 12.1	+ 7 17	7.4	Go	.19	3.4	.016
C	437.....	20439	3 12.2	+ 7 19	7.7	G2	.19	3.7	.016
	746.....	20468	3 12.5	+33 51	4.9	K4	.01	-0.6	.008
C	439.....	20512	3 12.9	+14 49	7.7	G4	.30	4.2	.020
	749A....	20559	3 13.3	- 1 18	5.6	K0	.25	0.9	.011
	750A....	20610	3 13.9	-22 53	5.0	G6	.02	0.8	.014
BD	751.....	20618	3 14.0	+26 43	5.9	G5	.08	2.5	.021
	-14°646.....	20622	3 14.0	-14 37	7.9	K2	.....	-0.1	.003
	752.....	20630	3 14.1	+ 3 0	5.0	G5	.28	4.7	.087
	753A....	20631	3 14.1	-18 55	6.1†	F2	.12	3.2	.026
	755.....	20644	3 14.3	+28 41	4.7	K4	.03	-0.3	.010
	756.....	20663	3 14.5	+25 18	6.4	K3	.10	0.4	.006
	758.....	20675	3 14.8	+48 43	6.2	F5	.21	3.1	.024
	759A....	20720	3 15.1	-22 7	4.0	M3	.06	-0.6	.012
	760.....	20709	3 15.1	+72 51	7.3	K2	.07	0.5	.004
	763.....	20791	3 15.9	+ 3 19	5.8	G8	0.06	0.6	.009
	764.....	20794	3 15.9	-43 27	4.3	G7	3.14	4.9	.132
ADS	765.....	20797	3 16.0	+64 14	5.6	K5	0.02	-1.7	.003
	768.....	20825	3 16.2	+27 15	5.6	G5	.02	0.3	.009
	769.....	20853	3 16.5	-26 58	6.4	F6	.06	2.9	.020
	2499A....	20873	3 16.8	+29 28	7.8	A5s	.04	1.5	.005
	770.....	20893	3 17.0	+20 23	5.2	K5	.05	0.1	.010
	771.....	20894	3 17.0	-24 0	5.7	G3	.03	0.7	.010
BD	772.....	20902	3 17.2	+49 30	1.9	cF4	.04	-1.2	.024
	775.....	21017	3 18.4	+24 22	5.7	K4	.06	0.2	.008
	+31°597.....	21110	3 19.3	+31 23	7.5	K4	.01	-0.1	.003
	778.....	21120	3 19.4	+ 8 41	4.1†	K1	.10	0.3	.017
	453.....	21197	3 20.1	- 5 42	8.1	K6	.82	7.3	.069
C	792A....	21467	3 22.6	+22 28	6.1	G6	.11	2.7	.021
	794.....	21530	3 23.2	-11 38	5.8	K2	.06	0.4	.008
C	456.....	21531	3 23.3	-20 9	8.2	Mo	0.60	8.4	0.110

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$	
	795.....	21552	3 <sup>h</sup> 23 <sup>m</sup> 5	+47°39'	4.6	K4	0".02	0.2	0".013
	804.....	21754	3 25.4	+12 36	4.6†	G7	.02	0.4	.014
	805.....	21770	3 25.5	+45 43	5.4	A9s	.08	3.1	.035
BD	+44°732.....	21771	3 25.5	+44 30	7.8†	cG8†	.01	-0.7	.002
BD	+29°571.....	21834	3 26.1	+29 39	8.0	A5n	.01	2.0	.006
ADS	2612A....	21903	3 26.8	+59 42	6.9†	F4	.03	3.2	.018
	814.....	22049	3 28.2	- 9 48	3.8	K2	.97	6.0	.275
C	468.....	22072	3 28.4	+17 31	6.4	G7	.33	4.5	.042
	822.....	22409	3 31.2	-11 32	5.7	G7	.08	0.7	.010
BD	+58°632.....	22427	3 31.4	+59 7	7.1	K4	.02	0.2	.004
BD	+21°489.....	22444	3 31.5	+22 1	8.9	F3	.05	3.3	.008
	823A....	22468	3 31.7	+ 0 16	6.6†	G9	.15	5.0	.048
	823B.....	.....	3 31.7	+ 0 16	8.9	K5	.15	6.6	.035
	825.....	22484	3 31.8	+ 0 5	4.4	F9	.54	3.9	.079
BD	+23°483.....	22491	3 31.9	+23 57	8.1	K3	.05	0.8	.003
	826.....	22649	3 33.5	+62 54	5.6†	M4	.02	-0.8	.005
BD	+25°584.....	22651	3 33.5	+25 49	9.0	F4	.04	2.9	.006
	829A....	22695	3 33.8	+16 13	6.3	G5	.06	0.5	.007
	830.....	22701	3 33.9	+86 20	5.8	F1	.17	2.3	.020
	831.....	22713	3 34.1	- 5 57	6.0	K1	.20	5.3	.072
	832A....	22764	3 34.5	+59 39	6.0	K5	.00	-0.7	.005
	835.....	22796	3 34.6	+ 2 44	5.8	G6	.04	0.8	.010
C	489.....	22879	3 35.3	- 3 32	6.7	F6	.73	3.4	.022
BD	+23°489.....	22887	3 35.5	+23 10	9.4	F0	.05	2.7	.005
	840.....	23005	3 36.5	+66 53	5.8	F4	.14	2.6	.023
C	494.....	23050	3 36.9	+42 18	7.4	G0	.41	4.2	.023
BD	+44°782.....	23082	3 37.2	+44 34	7.8	cK5	.03	-1.8	.001
	842.....	23089	3 37.3	+63 2	5.3†	cF5	.01	-0.5	.007
ADS	2717A....	23107	3 37.4	+38 3	7.4	K4	.03	-0.2	.003
ADS	2717B....	23108	3 37.4	+38 3	8.7	A5n	.03	2.0	.005
ADS	2714A....	23133	3 37.6	+22 26	9.4†	A5n	.07	2.2	.004
BD	+23°495.....	23156	3 37.8	+24 4	8.5	A9s	.05	3.0	.008
BD	+23°496.....	23157	3 37.8	+23 20	8.6	F1	.03	2.9	.007
BD	+23°497.....	23158	3 37.8	+23 17	10.0	F3	.06	3.4	.005
	843.....	23183	3 38.0	+19 21	6.3	G6	.14	1.0	.009
C	499.....	23189	3 38.2	+68 21	9.2	M0	.30	8.1	.060
	847A....	23230	3 38.4	+42 16	3.9	cF4	.01	-1.0	.010
BD	+23°504.....	23246	3 38.5	+24 5	8.9	A5n	.05	2.2	.005
	848.....	23249	3 38.5	-10 6	3.7	K0	.75	4.6	.151
BD	+22°537.....	23289	3 39.0	+22 58	9.2	F2	.03	3.0	.006
BD	+23°508.....	23325	3 39.2	+23 57	9.2	A6n	.05	2.1	.004
BD	+23°517.....	23409	3 39.8	+23 44	8.3	A1n	.03	2.4	.007
	859.....	23413	3 39.8	- 0 37	5.8	K5	0.05	0.3	.008
	862A....	23439	3 40.2	+41 9	8.2	G7	1.40	5.5	.029
	862B.....	.....	3 40.2	+41 9	8.8	K2	1.39	5.8	0.025

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

211

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD 864.....	23475	3 <sup>h</sup> 40 <sup>m</sup> .4	+65°13'	4.7	M1	0".00	-1.5	0".006
BD +23°523.....	23489	3 40.5	+23 57	7.0	A1n	.04	2.0	.010
BD +23°524.....	23512	3 40.7	+23 19	8.6	A2n	.06	2.3	.005
869D....	23608	3 41.3	+23 49	8.7	F3	.05	2.9	.007
869C....	23607	3 41.4	+23 50	8.1	F2	.05	1.7	.005
BD +23°535.....	23609	3 41.4	+23 25	8.0	F6	.05	3.4	.012
868.....	23614	3 41.4	-12 25	4.6	M2	.07	-0.1	.011
ADS 2766A....	23627	3 41.5	+24 21	8.4	A2n	.03	2.2	.006
BD +24°566.....	23628	3 41.5	+24 17	7.3	A1n	.05	2.1	.009
BD +23°537.....	23632	3 41.5	+23 30	6.8	A1n	.03	2.0	.011
BD +23°539.....	23643	3 41.5	+23 22	8.1	A3n	.03	2.0	.006
BD +23°542.....	23654	3 41.7	+23 18	8.3	K0	.09	0.3	.003
873.....	23754	3 42.5	-23 33	4.3	F3	.55	3.3	.063
BD +23°553.....	23763	3 42.6	+24 2	6.6	A1n	.05	1.8	.011
ADS 2782A....	23778	3 42.6	+23 52	9.8†	F4	.05	3.2	.005
BD +21°530.....	23792	3 42.8	+21 37	8.3	A6n	.06	1.7	.005
XY Persei*.....	23838	3 43.0	+38 41	11.0†	A3s	.02	1.0	.001
876.....	23838	3 43.1	+44 40	5.8	G0	.04	1.5	.014
BD +23°560.....	23872	3 43.3	+24 5	8.1	A2n	.05	2.3	.007
BD +23°562.....	23886	3 43.5	+23 57	7.9	A2n	.04	2.1	.007
BD +22°570.....	23912	3 43.6	+23 5	8.9	A7n	.04	2.0	.004
881.....	23940	3 43.9	-30 28	5.6	G5	.24	1.3	.014
BD +23°567.....	23948	3 44.0	+24 3	7.3	A1n	.05	2.2	.010
BD +23°565.....	23949	3 44.0	+23 55	8.9	A2n	.01	2.4	.005
C 513.....	24002	3 44.4	+1 4	8.6	K3	.67	6.6	.040
BD +23°570.....	24076	3 45.0	+23 40	6.8	A1n	.03	1.9	.010
BD +24°584.....	24132	3 45.5	+24 13	9.2	A6n	.05	2.1	.004
C 518.....	24206	3 46.2	+22 23	7.8	G5	.39	4.9	.026
C 521.....	24238	3 46.4	+60 53	7.8	K1	.48	5.7	.038
889.....	24240	3 46.4	+48 21	5.9	K2	.06	0.2	.007
BD +24°589.....	24302	3 46.9	+24 23	9.2	F5	.08	3.3	.007
892.....	24357	3 47.4	+17 2	6.0	F1	.15	2.5	.020
895.....	24451	3 48.4	+75 53	8.3	K6	.65	7.3	.063
897A....	24480	3 48.6	+60 49	5.3†	K4	.02	-0.4	.007
900A....	24546	3 49.2	+50 24	6.0†	F4	.16	2.9	.024
ADS 2849A....	24550	3 49.2	+4 54	7.6	A9n	.04	1.3	.005
901A....	24555	3 49.3	-3 15	5.0	G4	.04	0.9	.015
901B....	24554	3 49.3	-3 15	6.3	A1n	.04	2.0	.014
908.....	24740	3 51.0	+22 11	5.8	F3	.13	2.8	.025
912.....	24834	3 51.8	-13 53	6.7	M3	.01	-0.8	.003
BD +38°827.....	24843	3 51.9	+38 33	6.4	K1	.06	0.3	.006
BD +1°685.....	25001	3 53.2	+1 10	7.9	K1	.01	0.4	.003
914A....	25007	3 53.3	+80 25	5.6†	F1*	.02	3.4	.036
915A....	25025	3 53.4	-13 48	3.2	M0	.13	-0.4	.019
BD +53°722.....	25056	3 53.8	+53 35	7.4	cG2	0.04	-2.0	0.001

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD + 9°524.....	25102	3 <sup>h</sup> 54 <sup>m</sup> 2	+10° 2'	6.4	F3	0".17	3.5	0".026
916.....	25165	3 54.8	-12 51	5.9	K5	.03	0.1	.007
C 540.....	25173	3 55.0	+74 54	7.3	F5	.34	3.8	.020
919.....	25202	3 55.0	+17 55	6.3†	A9n	.14	2.4	.017
921.....	25230	3 55.3	+19 55	6.8	G4	0.08	1.2	.008
927.....	25329	3 56.5	+35 2	8.6	K0	2.20	5.7	.026
ADS 2959A....	25444	3 57.4	+39 14	7.4†	G5	0.20	4.5	.026
931.....	25457	3 57.5	- 0 32	5.4	F7	.29	3.8	.048
933A....	25555	3 58.4	+23 50	6.2†	F4†	.02	2.9	.022
935.....	25570	3 58.5	+ 7 55	5.5	F2	.16	2.8	.029
936.....	25604	3 58.8	+21 49	4.5	K0	.11	0.8	.018
937.....	25621	3 58.9	+ 2 33	5.4	F5	.19	3.2	.036
C 546.....	25665	3 59.2	+69 17	8.1	K2	.31	6.3	.044
939.....	25680	3 59.4	+21 44	6.0	G1	.22	5.1	.066
942.....	25723	3 59.7	-13 4	5.7	K0	.01	0.6	.010
944.....	25867	4 0.8	+28 44	5.3	F1	.08	3.1	.036
BD +52°771.....	25878	4 0.9	+53 6	7.1	cGre*	.01	-3.0	.001
945A....	25893	4 0.9	+37 49	7.3†	K2	.29	5.5	.044
949.....	25975	4 1.6	+37 28	6.2	K1	.21	1.2	.010
950.....	25998	4 1.9	+37 47	5.6	F7	.26	3.6	.040
ADS 2999A....	26015	4 2.0	+14 54	6.0†	F5	.13	2.9	.024
C 553.....	26018	4 2.1	+76 2	8.2	K1	.25	5.9	.035
C 554.....	26038	4 2.2	-21 6	9.7	Mo	.79	8.1	.048
951A....	26038	4 2.3	+17 4	6.2†	K5	.02	0.4	.007
BD +75°167.....	26047	4 2.4	+75 34	8.6	F1	.00	2.9	.007
952.....	26162	4 3.3	+19 21	5.7	K1	.11	0.4	.009
955.....	26322	4 4.7	+26 13	5.6	F3	.05	2.9	.029
958.....	26367	4 5.1	+85 17	6.7	F8	.04	3.2	.020
960.....	26409	4 5.5	- 7 11	5.6	G6	.01	0.8	.011
961.....	26462	4 6.0	+ 5 16	6.0†	F4	.14	2.7	.022
963.....	26574	4 7.0	- 7 6	4.1	F1	.08	2.1	.040
967.....	26630	4 7.6	+48 9	4.6†	cG2	.03	-2.0	.005
968.....	26659	4 8.0	+83 6	5.7	G4	.12	1.0	.011
970.....	26673	4 8.1	+40 14	5.2†	cG3†	.03	-0.9	.006
971AB..	26690	4 8.2	+ 7 28	6.0†	F0	.00	2.6	.021
BD +27°649.....	26709	4 8.4	+27 42	8.1	A8s	.04	2.0	.006
972A....	26722	4 8.5	+ 9 1	5.1†	G5	.04	0.0	.010
C 560.....	26755	4 8.6	+22 6	8.9	A8s	.54	3.0	.007
973.....	26755	4 8.8	+57 37	5.8	K2	.05	0.6	.009
977.....	26836	4 9.6	+80 35	5.6	G6	.02	0.3	.009
ADS 3082AB..	26842	4 9.6	+31 27	8.1†	Go	*	3.9	.014
978A....	26846	4 9.6	-10 30	5.1	K2	.16	0.4	.011
980.....	26911	4 10.1	+15 9	6.4	F2	0.12	2.7	.018
984A....	26965	4 10.7	- 7 49	4.5	K0	4.08	6.0	.200
984C....	26965	4 10.8	- 7 49	11.3	M5e	4.08	12.7	0.191

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

213

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
C 988.....	27022	4 <sup>h</sup> 11 <sup>m</sup> 3	+64°54'	5.4	G3	0".02	0.9	0".013
C 570.....	27130	4 11.9	+16 42	8.6†	G5	.11	4.7	.017
991.....	27176	4 12.5	+21 20	5.6	A7n	.11	2.1	.020
BD +15°609.....	.....	4 12.7	+15 51	9.2	K4	.10	6.7	.032
993.....	27245	4 13.1	+60 30	5.7	Mo	.12	-0.4	.006
BD -14°866.....	27325	4 13.7	-14 53	6.9	G6	.....	0.3	.005
999.....	27348	4 13.9	+34 20	5.1	G9	.03	0.6	.013
BD +23°675.....	27370	4 14.1	+23 21	7.5	G5	.12	1.7	.007
1000.....	27371	4 14.1	+15 23	4.2†	K0	.12	0.6	.019
1002A....	27382	4 14.2	+27 7	5.1	K1	.09	0.5	.012
ADS 3135A....	27383	4 14.2	+16 17	7.1†	F6	.11	3.8	.022
1004.....	27397	4 14.3	+13 48	6.1†	A9n	.12	2.4	.018
BD +18°623.....	27406	4 14.4	+19 0	7.7	F8	.13	4.0	.018
BD +18°624.....	27429	4 14.6	+18 29	6.5†	F2	.12	3.0	.020
1007.....	27459	4 14.9	+14 51	5.8†	A7n	.12	1.8	.016
BD +13°665.....	27483	4 15.2	+13 38	6.8†	F2	.09	3.0	.017
1008.....	27497	4 15.4	+5 54	5.9	G6	.05	0.7	.009
1009.....	27518	4 15.5	-25 16	6.9	K5	.02	0.0	.004
BD +20°740.....	27524	4 15.6	+20 49	6.9	F2	.09	3.4	.020
C 575.....	27534	4 15.7	+18 11	6.7	F5	.12	3.1	.019
1013.....	27628	4 16.4	+13 50	6.1†	A9s	.12	2.0	.015
1014A....	27639	4 16.5	+20 35	6.8†	Mo	.01	-0.3	.004
1015A....	27638	4 16.5	+25 24	5.4	Aon	.04	2.1	.022
1015B.....	.....	4 16.5	+25 24	8.3	F8	.04	3.1	.009
ADS 3169A....	27691	4 17.1	+14 49	7.6†	F8	.11	3.7	.017
ADS 3169B.....	.....	4 17.1	+14 49	8.7	G1	.11	4.4	.014
1017.....	27697	4 17.2	+17 18	3.9	G8	.12	0.6	.022
ADS 3159AB...	27710	4 17.4	-25 58	6.6†	F2	.07	3.2	.021
1018.....	27749	4 17.7	+16 33	6.0†	A7s	.11	2.0	.016
C 580.....	27757	4 17.8	+77 24	7.8	F9	.24	4.5	.022
1021A....	27786	4 18.1	+33 44	5.9†	F5	.05	2.8	.024
1022.....	27819	4 18.3	+17 13	5.1†	A9n	.12	2.1	.025
BD +16°591.....	27848	4 18.6	+16 50	7.8	F3	.10	3.8	.016
C 582.....	27859	4 18.7	+16 39	8.0	F9	.13	4.4	.019
1025.....	27901	4 19.1	+18 49	6.0	A9n	.12	2.5	.020
1026(A)...	27934	4 19.4	+22 4	4.4	A5n	.11	2.0	.033
1027(B)...	27946	4 19.5	+21 58	5.4	A5n	.13	2.0	.021
1029A....	27962	4 19.7	+17 42	4.2	A4s	.11	1.2	.025
1030.....	27971	4 19.7	+31 13	5.3	G6	.14	0.9	.013
1031.....	27991	4 19.9	+15 43	6.4	F5	.11	3.0	.021
ADS 3210A....	27989	4 20.0	+18 38	8.2†	G5	.12	4.8	.021
C 585.....	28005	4 20.1	+46 38	6.7	G2	.32	4.1	.030
1033.....	28024	4 20.3	+22 35	4.9†	A3n	.12	2.0	.026
BD +21°644.....	28033	4 20.4	+21 14	7.5	F9	.10	3.4	.015
C 586.....	28034	4 20.4	+15 18	7.4	F7	0.12	3.8	0.019

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD + 1034A....	28052	4 <sup>h</sup> 20 <sup>m</sup> 6	+15°23'	5.1†	A3n	0".12	2.0	0".024
BD + 4°690.....	28069	4 20.7	+ 4 54	7.2	F7	.09	3.6	.019
BD +16°601.....	28099	4 20.9	+16 31	8.0	G4	.10	4.7	.022
1036.....	28100	4 21.0	+14 29	4.9	G6	.04	0.0	.010
1037A....	28139	4 21.2	+18 54	7.7	F5	.16	3.4	.014
BD +15°627.....	28205	4 21.9	+15 22	8.0	F8	.10	4.2	.017
1040.....	28226	4 22.1	+21 24	5.7	A8n	.12	2.0	.018
BD +14°699.....	.....	4 22.1	+14 12	9.6	K4	.07	6.6	.025
ADS 3243A....	28271	4 22.5	+30 9	6.3	F4	.03	3.0	.022
1042.....	28292	4 22.7	+16 8	5.3	K1	.02	0.5	.011
1043.....	28294	4 22.7	+14 31	6.3†	A9n	.11	2.4	.017
1044.....	28305	4 22.8	+18 58	3.6	G7	.12	0.7	.026
1045(B)....	28307	4 23.0	+15 44	4.3†	G8	.11	1.0	.022
1046(A)....	28319	4 23.0	+15 39	4.3†	A7s	.11	1.1	.023
BD +16°606.....	28344	4 23.1	+17 3	7.6	G1	.11	4.0	.019
1047.....	28355	4 23.2	+12 50	5.1	A6n	.11	1.7	.021
ADS 3248A....	28363	4 23.3	+15 57	7.0†	F8	.13	3.7	.022
BD +13°688.....	28424	4 23.9	+13 41	7.8	G9	.16	0.6	.004
BD +19°731.....	28483	4 24.4	+19 37	7.2	F5	.08	3.5	.018
1051A....	28485	4 24.4	+15 25	6.3†	A6n	.11	2.2	.015
1054.....	28527	4 24.8	+15 59	5.4†	A8n	.12	1.9	.020
1055.....	28546	4 24.9	+15 28	5.5	F1	.11	2.3	.023
1056.....	28556	4 25.0	+13 30	5.5	F1	.11	2.3	.023
BD +15°640.....	28568	4 25.1	+15 56	6.7	F1	.11	3.1	.019
BD +29°716.....	28592	4 25.3	+29 41	8.4	A9n	.05	1.3	.004
1057.....	28595	4 25.4	+14 53	6.6	M3	.07	—0.6	.004
BD +10°588.....	28608	4 25.5	+10 32	7.1	F7	.12	3.4	.018
1058.....	28677	4 26.1	+15 38	6.3†	A9n	.11	2.3	.016
1060.....	28693	4 26.3	+42 49	6.8	A8s	.08	1.8	.010
1061.....	28704	4 26.4	+42 51	6.1	F1	.01	2.3	.017
BD + 5°674.....	28736	4 26.7	+ 5 11	6.4	F4	.08	3.6	.027
1063.....	28749	4 26.8	— 0 16	5.0	K4	.00	—0.2	.009
BD +15°647.....	28805	4 27.3	+15 36	8.5	G6	.12	5.3	.023
20C 296.....	.....	4 27.9	+55 13	8.0	K4	.64	6.7	.055
BD +14°721.....	.....	4 28.2	+14 57	8.4	K2	.10	6.0	.033
1067.....	28910	4 28.2	+14 38	5.3†	A5n	.10	1.9	.021
BD +12°608.....	28911	4 28.2	+13 2	6.7	F5	.11	3.4	.022
BD +14°722.....	.....	4 28.6	+14 46	8.6	K5	.07	0.2	.002
C 593.....	29038	4 29.2	+16 47	7.7†	K4	.11	0.8	.004
1071.....	29064	4 29.4	— 8 26	5.4	M3	.04	—0.7	.006
1072.....	29065	4 29.4	— 9 11	5.5	K5	.12	0.1	.008
1073.....	29085	4 29.6	—29 58	4.6	G6	.29	0.8	.017
C 594.....	232979	4 29.8	+52 42	8.5	M1	.53	8.8	.115
1074.....	29094	4 29.8	+41 4	4.8†	cG2‡	.02	—1.3	.006
BD +19°740.....	29103	4 29.8	+19 46	7.2	F8	0.03	3.7	0.020

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

215

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
C	1077A....	29139	4 <sup>h</sup> 30 <sup>m</sup> 2	+16°18'	1.1	K5	0".20	0".060
BD	596.....	29169	4 30.5	+23 9	6.0	F2	.13	.030
BD	+15°656.....	29225	4 31.0	+15 40	6.7	F5	.08	.021
ADS	3338A....	29235	4 31.1	+41 55	7.6†	K2	.06	.005
BD	+14°728.....	29310	4 31.9	+14 57	7.8	G0	.12	.016
	1082A....	29317	4 32.0	+52 53	5.6†	G6	.02	.008
	1083A....	29316	4 32.0	+53 17	5.7†	A5n	.11	.020
ADS	3353A....	29364	4 32.3	+26 44	7.2†	F3	.06	.016
ADS	3353B....	.....	4 32.3	+26 44	7.2	F0	.06	.017
	1086.....	29375	4 32.4	+15 50	5.8	A5n	.09	.019
	1087.....	29388	4 32.6	+12 19	4.9†	A4n	.10	.024
BD	+66°343.....	29400	4 32.8	+66 32	8.5	G5	.38	.018
	1089(B)...	29479	4 33.4	+15 36	5.2	A5s	.07	.021
	1090(A)...	29488	4 33.6	+15 43	5.3†	A5n	.08	.022
	1091.....	29503	4 33.6	-14 30	4.3†	K3	.18	.022
	1092.....	29499	4 33.7	+ 7 40	5.9†	A7s	.08	.017
BD	1095.....	29573	4 34.2	-12 19	5.0	A4s	.05	.020
C	+30°704.....	29581	4 34.4	+30 7	8.1	F5	.05	.011
	602.....	29587	4 34.5	+41 56	7.3	G2	.69	.027
	1098.....	29613	4 34.7	-14 33	5.6	K1	.19	.021
	1100.....	29678	4 35.4	+75 46	6.3†	A6n	.14	.013
	1104.....	29737	4 36.0	-24 41	5.9†	G6	.07	.010
	1105.....	29755	4 36.1	-19 52	4.5	M4	.09	.012
BD	1109.....	29859	4 37.2	+23 54	6.2	F6	.03	.025
BD	+15°670.....	29884	4 37.4	+15 18	8.1	A5n	.03	.005
	1112(B)...	30020	4 38.8	- 8 59	7.0	F3	.04	.012
	1113(A)...	30021	4 38.8	- 8 59	7.0†	G6	.04	.006
	1114.....	30034	4 38.9	+10 58	5.4	A6s	.10	.020
ADS	3417A....	30101	4 39.5	+ 5 6	9.0†	G7	.16	.020
ADS	3417B....	.....	4 39.5	+ 5 6	9.0	K1	.13	.023
	1120.....	30197	4 40.4	+18 33	6.1	K4	.09	.007
BD	+ 8°759.....	30210	4 40.5	+11 31	5.7†	A7s	.07	.016
	1122.....	30311	4 41.3	+ 8 50	7.2	F8	.11	.021
	1124.....	30338	4 41.6	+81 2	5.3	K4	.03	.010
	1128.....	30442	4 42.7	+63 20	5.8	M2	.11	.007
	1129.....	30454	4 42.8	+31 16	5.8	K1	.11	.010
	1131.....	30455	4 42.8	+18 33	7.1†	G1	.44	.032
	1132.....	30495	4 43.1	-17 7	5.6	G1	.22	.057
	1133.....	30504	4 43.2	+37 19	5.1	K4	.05	.011
	1134.....	30557	4 43.6	+48 34	5.8	K0	.06	.010
BD	+15°686.....	30589	4 43.8	+15 43	7.9	F9	.10	.017
	1136.....	30605	4 44.0	+15 44	6.3	K3	.02	.005
	1137.....	30606	4 44.0	-16 30	6.0	F6	.05	.032
C	618.....	30604	4 44.1	+70 28	8.6	G1	.28	.013
C	619.....	30649	4 44.4	+45 41	7.1	F9	0.68	0.020



## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD +15° 692.....	30652	4 <sup>h</sup> 44 <sup>m</sup> .4	+ 6°47'	3.3	F5	0".47	3.5	0".110
BD - 0° 785.....	30738	4 45.1	+16 3	7.3	F8	.10	3.7	.019
BD - 0° 785.....	30780	4 45.5	+18 40	5.6†	A4n	.09	2.3	.022
ADS 3475AB...	30812	4 45.7	- 0 16	7.4	K0	.07	0.6	.004
ADS 3475AB...	30810	4 45.7	+10 54	7.7†	F7	.10	3.7	.016
ADS 3483A....	30814	4 45.7	-16 23	5.2	G9	.08	0.1	.010
ADS 3483A....	30834	4 45.9	+36 32	5.0	K3	.03	0.3	.011
ADS 3483A....	30869	4 46.2	+13 29	6.8†	F5	.13	3.3	.020
BD +41° 1002.....	30959	4 46.9	+14 5	5.2	M4	.06	-0.6	.007
BD +41° 1002.....	31085	4 47.8	+41 36	8.0	F5	.02	2.5	.008
ADS 3514A....	31109	4 48.0	- 5 37	4.4	A4n	.03	2.0	.033
ADS 3514A....	31139	4 48.2	+ 2 21	5.7	M1	.03	-0.2	.007
ADS 3514B....	31208	4 48.8	+ 7 13	7.9	K2	.30	5.7	.036
BD +19° 811.....	31236	4 48.8	+ 7 13	8.2	K1	.30	5.4	.027
BD +19° 811.....	31236	4 49.0	+19 20	6.2	F0	.12	2.8	.021
1162.....	31296	4 49.4	+ 7 37	5.5	K1	.03	0.4	.010
1164.....	31312	4 49.6	+74 7	6.2	K4	.05	-0.2	.005
1167.....	31398	4 50.5	+33 0	2.9	K3	.03	-0.5	.021
1168.....	31414	4 50.6	-16 54	5.8	G9	.00	0.9	.010
1169A....	31421	4 50.7	+13 21	4.3	K2	.10	0.3	.016
C 1170.....	31444	4 50.8	-16 35	5.8	G4	.06	1.2	.012
C 634.....	31501	4 51.3	+34 7	8.0	G8	.60	5.2	.027
C 1171.....	31517	4 51.4	-25 53	6.6	F0	.03	2.3	.014
C 1174.....	31539	4 51.6	+17 0	5.7	K1	.02	0.3	.008
C 1175A....	31553	4 51.7	+23 48	6.0	G8	.03	0.5	.008
1176.....	31579	4 51.8	+53 0	6.4	K3	.01	0.5	.007
1178B....	31675	4 52.5	+37 44	8.9	F9	.12	3.9	.010
1179.....	31675	4 52.7	+66 41	6.3	F6	.36	3.5	.027
1181.....	31767	4 53.4	+ 1 34	4.7	cK3	.01	-0.7	.008
1182A....	31761	4 53.4	+39 15	6.0	F3	.01	3.1	.026
ADS 1183.....	31780	4 53.5	+39 30	6.7	K5	.01	0.0	.005
ADS 3593A....	31796	4 53.6	+50 6	9.5†	F4	.12	3.0	.005
ADS 1184.....	31845	4 54.0	+15 46	6.7	F2	.10	3.4	.022
$\beta$ GC 2451A....	31865	4 54.2	+62 57	8.6	G4	.34	4.6	.016
$\beta$ GC 2451B....	31864	4 54.2	+62 57	8.6	G5	.34	4.9	.018
1185A....	31910	4 54.5	+60 18	4.2	cG2	.01	-2.5	.005
1186A....	31925	4 54.5	-16 32	5.7†	F2	.23	3.2	.032
1187A*....	31964	4 54.8	+43 41	3.3†	cF2	.01	-1.7	.010
1188.....	32008	4 55.1	-10 25	5.7	G4	.13	3.9	.044
1190.....	32068	4 55.5	+40 56	4.4†	cK4†	.03	-2.5	.004
C 646.....	32070	4 55.5	+24 30	8.5	G3	0.32	4.6	.017
C 648.....	32147	4 55.9	- 5 52	6.5	K5	1.25	6.8	.115
1196(B)...	32357	4 57.5	+58 53	6.4	G5	0.04	0.3	.006
1198.....	32436	4 58.1	-26 25	5.0	K0	.12	0.7	.014
1200.....	32503	4 58.5	-22 56	5.8	K1	0.07	0.5	0.009

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

217

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$	
C	1202A....	32537	4 <sup>h</sup> 58 <sup>m</sup> 8	+51°28'	5.0	F3	0".18	2.5	0".032
	654.....	32715	5 0.0	+64 48	6.4	F3	.19	3.4	.025
	1210.....	32890	5 1.2	-26 17	5.9	K2	.07	0.8	.010
	1211.....	32887	5 1.2	-22 30	3.3	K5	.07	0.3	.025
	1212AB..	32923	5 1.5	+18 31	5.7†	G1	.51	4.0	.046
BD	+42°1180.....		5 1.7	+42 27	9.2†	M6	.05	-0.2	.001
	1217.....	33021	5 2.2	+9 21	6.3	G2	.38	3.9	.033
	1219A....	33054	5 2.4	+8 22	6.7†	F2‡	.07	2.6	.015
	1220.....	33111	5 2.9	-5 13	2.9	A2n	.12	1.9	.063
	1221.....	33121	5 2.9	+19 44	6.6	G4	.02	0.7	.007
ADS	1222.....	33167	5 3.3	+46 50	5.6	F3	.17	2.8	.027
	3730A....	33204	5 3.5	+27 55	6.0	F0	.01	2.5	.020
	1224.....	33256	5 3.8	-4 35	5.2	F1	.04	3.1	.038
	1226.....	33254	5 3.8	+9 42	5.4	A9s	.07	1.8	.019
	1227.....	33276	5 4.0	+15 28	4.9	F0	.01	1.6	.022
BD	1232.....	33473	5 5.3	-41 21	6.6	G2	.30	4.0	.030
	1234.....	33554	5 5.9	+15 55	5.4	K5	.00	0.5	.010
	1235A....	33564	5 6.1	+79 7	5.2	F4	.17	3.3	.042
	+37°1091.....	33632	5 6.5	+37 14	6.5	F6	.22	4.4	.038
	1237.....	33664	5 6.7	-11 58	5.9	M6	.05	-0.8	.005
C	674.....	33725	5 7.1	-9 13	8.0	K1	.57	5.9	.038
	1240A....	33856	5 8.1	+2 45	4.9†	K3	.02	-0.3	.009
BD	+60° 870.....	33924	5 8.6	+60 3	7.2	F3	.14	3.2	.016
	1244A....	33959	5 8.9	+32 34	5.4†	A7s	.02	1.4	.016
	1244C.....		5 8.9	+32 34	8.4†	F4	.02	3.5	.010
ADS Comp.	1246A....	34029	5 9.3	+45 54	0.7†	G1	.44	0.1	.076
	1247.....	34043	5 9.4	+5 2	5.8	K4	.02	0.1	.007
	3835A....	34052	5 9.4	+29 21	9.0	G3	.05	3.6	.008
	1246.....		5 10.0	+45 44	10.5	M2	.44	9.5	.063
	1255.....	34255	5 11.0	+62 33	5.9	cK4	.03	-1.5	.003
ADS	1256.....	34269	5 11.1	+42 41	5.9	M4	.05	-0.6	.005
	3866A....	34335	5 11.5	+20 1	7.5†	F4	.08	3.5	.016
	1258A....	34334	5 11.6	+33 16	5.1†	K3	.19	0.4	.011
	1259A....	34411	5 12.1	+40 1	4.8	G0	.84	4.4	.083
BD	+41°1154.....		5 12.8	+41 8	8.6	K3	.....	0.4	.002
	1263.....	34538	5 13.1	-13 38	5.7	G9	.05	2.3	.021
	1264.....	34531	5 13.1	+78 13	6.8	F4	.08	2.5	.014
	1266.....	34559	5 13.3	+22 0	5.1	G5	.09	0.9	.014
	1267A....	34579	5 13.3	+20 2	6.2	G8	.05	0.8	.008
	1270.....	34642	5 13.9	-35 0	4.9	K0	.36	2.3	.030
ADS BD	1271.....	34658	5 14.0	+2 30	5.4	F3	.06	2.2	.023
	1272.....	34653	5 14.0	+77 53	6.5	A4n	.02	1.8	.011
	3900A....	34673	5 14.1	-3 11	7.9	K5	.72	6.8	.060
	-14°1094.....	34796	5 14.9	-14 52	8.2	F4	.....	3.4	.011
	1286.....	35067	5 16.8	+3 28	7.7	M1	0.01	0.1	0.003

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$
1290A....	35162	5 <sup>h</sup> 17 <sup>m</sup> 7	-24°52'	5.4	G2	0".03	1.2	0".014
1292A....	35186	5 17.8	+37 18	5.2	K5	.03	0.3	.010
1294A....	35296	5 18.6	+17 17	5.1	F8	.24	3.7	.052
1299.....	35369	5 19.1	- 7 54	4.2	G9	.04	0.7	.020
1300.....	35410	5 19.4	- 0 59	5.2	K0	.12	0.8	.013
BD +29°	1309.....	5 20.7	+62 59	5.8	M1	.00	-0.4	.006
	897.....	5 20.8	+29 50	8.0	M0	.02	-2.5	.001
	1311.....	5 21.0	+34 23	5.3	K5	.06	0.4	.010
	1316A....	5 21.7	-19 47	5.8	F4	.03	2.7	.024
C	693.....	5 22.2	+78 18	7.7	F3	.26	3.6	.015
ADS	1319.....	5 22.4	-11 59	6.4	F7	.06	3.4	.025
	4099A....	5 23.3	+54 35	7.6	G1	.42	4.7	.026
	4099B....	5 23.3	+54 35	9.7	K3	.41	6.1	.019
	BD +29° 909.....	5 23.4	+29 7	6.2	F2	.06	2.7	.020
C	699.....	5 23.5	- 3 34	7.8	K6	.84	7.4	.083
ADS	4086A....	5 23.8	+29 29	7.2	G6	.02	1.2	.006
	1323A....	5 24.0	-20 50	3.0	G1	.09	0.5	.032
	1324.....	5 24.0	+57 9	6.5	F7	.26	3.7	.027
	1327A....	5 24.7	- 1 10	5.0	M0	.03	-0.1	.010
BD +29°	921.....	5 25.5	+29 22	8.6	G8	.03	4.8	.017
BD +29°	923.....	5 25.9	+29 7	7.8	A7s	.06	2.6	.009
	1334.....	5 26.3	+74 59	6.4	M0	.02	0.1	.005
	1335.....	5 26.3	+18 31	4.7	M2	0.01	-3.2	.003
C	705.....	5 26.4	- 3 42	8.1	M3	2.22	10.1	.251
C	706.....	5 26.6	+ 0 2	8.4	G5	0.52	5.2	.023
BD +43°	1347A....	5 28.3	-17 54	2.7	cF3	.00	-0.9	.019
	1348.....	5 28.4	+54 22	6.0	M0	.01	-0.1	.006
	1350.....	5 28.7	+47 39	6.0	F0	.03	2.3	.018
	1360.....	5 29.9	+85 9	6.4	M0	.02	0.1	.005
	1315.....	5 30.1	+44 1	7.4	G0	.01	1.1	.005
C	709.....	5 30.4	+51 23	7.9	K2	.56	5.6	.035
ADS	4200A....	5 30.4	+21 56	7.2†	F7	.06	3.6	.019
ADS	4200B....	5 30.4	+21 56	7.7	F6	.09	3.6	.015
BD +43°	1367.....	5 30.7	+56 18	7.2†	F5	.14	2.9	.014
	1368A....	5 30.7	- 4 55	5.3	A9s	.01	1.5	.017
BD +42°	1373.....	5 31.4	+ 9 14	4.4	G6	.32	2.5	.042
	1378AB..	5 32.2	+30 26	6.1†	F0	.02	3.3	.027
	1362.....	5 32.3	+42 37	7.4	K4	.04	0.1	.003
	1380.....	5 32.4	+65 39	5.8	K5	.02	0.5	.009
	1385.....	5 33.2	+53 26	6.4	K1	.51	5.6	.069
C	714.....	5 33.3	+74 34	7.3	G2	.24	4.5	.027
	1390.....	5 33.8	-28 45	5.3	F4	.06	2.4	.026
	1393.....	5 34.5	+56 32	6.2	G9	.04	2.3	.017
BD +85°	81.....	5 34.6	+85 16	7.6	K1	.01	0.3	.003
ADS	4256A....	5 34.6	+15 18	6.7	F0	0.02	1.6	0.010

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

219

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD +44° 1394.....	37638	5 <sup>h</sup> 34 <sup>m</sup> 9	+61°26'	6.4	G5	0".00	0.8	0".008
BD +44° 1270.....	37736	5 35.7	+44 48	7.7	A5n	.02	1.8	.007
BD +43° 1332.....	37937	5 36.3	+43 27	9.2	M1	.00	-0.6	.001
BD +43° 1338.....	37981	5 37.0	+43 31	7.7	K1	.03	1.0	.005
BD +43° 1406.....	37981	5 37.3	+14 8	6.9	K1	.04	2.0	.010
C 1407.....	37984	5 37.3	+ 1 26	5.2	K1	.06	0.2	.010
C 724.....	38014	5 37.5	+ 2 39	8.8	K4	.55	6.2	.030
BD +42° 1387.....	38130	5 38.4	+42 49	8.0	K4	.01	0.1	.003
C 1415A....	38182	5 38.8	+15 1	7.5†	G0	.02	0.4	.004
C 725.....	38230	5 39.2	+37 15	7.3	K1	.71	5.4	.042
1419(B)...	38392	5 40.3	-22 27	6.4	K6	.46	6.8	.120
1420(A)...	38393	5 40.3	-22 29	3.8	F6	.46	3.8	.100
1424.....	38558	5 41.6	+17 41	5.5	F4	.01	1.7	.017
1425A....	38584	5 41.8	+24 39	7.2	K4	.03	-0.1	.003
1426.....	38604	5 41.9	+39 30	6.9	G1	.02	1.4	.008
1427A....	38618	5 42.0	+56 53	6.4	A2n	.01	1.9	.013
1429A....	38656	5 42.2	+39 9	4.6	G5	.04	0.6	.016
BD +29° 1004.....	38688	5 42.5	+29 43	8.2	F4	.03	2.5	.007
1433AB...	38710	5 42.6	+ 6 25	6.0†	A5n	.02	1.6	.013
BD +29° 1009.....	38749	5 42.9	+29 41	7.8	A6s	.02	1.0	.004
1434.....	38751	5 42.9	+24 32	5.0	K3	.04	0.5	.013
1436.....	38827	5 43.4	-27 10	7.2	F7	.03	3.4	.017
1439.....	38944	5 44.2	+37 17	5.0	M1	.05	0.1	.010
BD +27° 887.....	38998	5 44.5	+27 39	7.7	M5	.05	0.1	.003
1441.....	39007	5 44.5	+ 9 50	5.9	G3	.01	0.9	.010
1442A....	39003	5 44.6	+39 7	4.2	K1	.01	0.6	.019
1444.....	39004	5 44.7	+27 56	5.6	G7	.01	0.2	.008
1445.....	39019	5 44.8	+14 17	5.7	G9	.04	0.6	.010
1447A....	39070	5 45.1	-14 31	5.6	G6	.05	0.9	.011
1450.....	39099	5 45.2	+14 1	6.8	K0	.02	0.9	.007
ADS 4442A....	39169	5 45.6	- 1 27	8.0†	K0	.03	2.1	.007
Messier 37 Br.....	39364	5 45.7	+32 31	9.7	M1	.01	-0.4	.001
1456.....	39364	5 47.0	-20 53	3.9	G7	.70	3.4	.079
1458A....	39400	5 47.2	+ 1 50	5.0	cK2	.01	-1.5	.005
1459.....	39425	5 47.4	-35 48	3.2	K1	.40	0.8	.033
1461.....	39587	5 48.5	+20 15	4.6	F9	.21	4.0	.076
1468A....	39801	5 49.8	+ 7 23	0.9	M2	.03	-4.0	.010
1470.....	39853	5 50.1	-11 48	5.8	K4	.06	-0.4	.006
BD +81° 201.....	39861	5 50.2	+81 31	8.9	G5	.38	4.0	.010
ADS 4519A....	39881	5 50.3	+13 56	6.5	G0	.63	4.6	.042
BD +26° 1011.....	40002	5 51.1	+26 51	8.0	K2	.01	0.4	.003
1472.....	40035	5 51.3	+54 17	3.9	G6	.15	0.8	.024
1476.....	40136	5 51.9	-14 11	3.8	F2	.14	2.8	.063
1478A....	40183	5 52.2	+44 56	2.8†	A2n	.05	1.8	.063
1479.....	40239	5 52.5	+45 56	4.6	M3	0.01	-1.3	0.007

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$
1482A....	40312	5 <sup>h</sup> 52 <sup>m</sup> 9	+37°12'	2.7	A1sp*	0".10	0.7	0".040
1483A....	40325	5 53.0	+44 35	6.4	K2	.05	0.5	.007
1485A....	40369	5 53.3	+12 48	6.5†	G4‡	.04	0.4	.006
1491.....	40535	5 54.3	— 9 23	6.3	F2	.01	2.4	.017
1494.....	40657	5 55.1	— 3 5	4.7	K2	.08	0.5	.014
C 748.....	40708	5 55.6	+67 39	8.8	G5	.34	5.0	.017
1498.....	40801	5 56.1	+42 55	6.1	G8	.19	1.0	.010
C 750.....	40832	5 56.4	+32 38	6.2	F5	.23	3.2	.025
ADS 4620A....	40959	5 57.2	+27 39	8.8	G5	.04	2.4	.005
ADS 4620B....	.....	5 57.2	+27 39	9.3	A7n	.....	2.4	.004
C 756.....	250792	5 57.3	+19 23	9.2	F8	.93	3.5	.007
1506.....	41074	5 57.9	+42 59	5.9	A8n	.15	2.2	.018
1508.....	41116	5 58.0	+23 16	4.6†	G5	.11	0.6	.016
1511.....	41312	5 59.2	—26 17	5.2	K3	.10	0.0	.009
C 758.....	41304	5 59.3	+14 24	6.7	F6	.21	3.3	.021
C 760.....	41330	5 59.5	+35 24	6.1	F9	.33	3.8	.035
1513.....	41361	5 59.6	+ 5 26	5.8	G7	.01	0.2	.008
C 761.....	.....	5 59.7	+26 34	9.3	K6	.43	6.6	.029
1514.....	41380	5 59.7	+ 4 10	5.7	G4	.01	0.0	.007
ADS 4771A....	41497	6 0.6	+76 31	8.0†	F5	.00	3.3	.011
1518.....	41543	6 0.7	+23 39	7.2†	K5	.02	0.3	.004
1519.....	41547	6 0.7	—10 14	5.8	F4	.02	2.6	.023
1520.....	41597	6 1.2	+58 57	5.4	G8	.04	0.7	.011
1530.....	41927	6 2.8	+65 44	5.4	K2	.03	0.3	.010
1531.....	42042	6 3.3	—19 9	5.5	M2	.06	—0.9	.005
C 769.....	42250	6 4.5	+70 49	7.6	G7	.45	5.4	.036
1540.....	42341	6 5.0	—14 34	5.7	K2	.06	0.8	.010
1541.....	42398	6 5.4	+24 27	5.9	K0	.06	0.5	.008
1542.....	42443	6 5.6	—22 45	5.7	F6	.14	3.3	.033
WY Geminorum....	42474	6 5.8	+23 14	7.4	M3ep*	.01	—0.8	.002
1549.....	42543	6 6.3	+22 56	6.3	M2	.03	—1.7	.003
C 771.....	42581	6 6.4	—21 49	8.2	M2	.71	9.2	.158
C 772.....	42618	6 6.6	+ 6 49	7.1	G4	.31	5.1	.040
1551.....	42621	6 6.6	—27 8	5.8	K1	.05	0.7	.010
1552.....	42633	6 6.7	+60 2	5.6	K4	.05	0.6	.010
1557.....	42855	6 8.0	+86 46	6.6	K2	.10	0.6	.006
1560.....	42973	6 8.7	+61 33	5.3	M3	.00	—0.7	.006
1561A....	42995	6 8.8	+22 32	3.7*	M3	.06	—0.8	.013
1562(B)....	.....	6 8.9	+36 11	7.4	F5	.03	3.1	.014
1563(A)....	43017	6 8.9	+36 11	6.4	F4	.06	3.3	.024
BD —15°1314....	43028	6 8.9	—15 21	6.9	G9	.....	0.7	.006
1564A....	43042	6 9.0	+19 11	5.2	F6	.22	2.9	.035
1565.....	43039	6 9.0	+29 32	4.5	G6	.27	1.0	.020
20C 380.....	.....	6 9.2	+47 7	9.2	G6	.53	5.4	.017
C 780.....	43147	6 9.6	+44 45	8.6	K1	0.41	5.8	0.027

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

221

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
1570A....	43232	6 <sup>h</sup> 10 <sup>m</sup> 0	— 6°15'	4.1	K2	0".02	—0.4	0".013
1571.....	43244	6 10.1	+46 27	6.5	A2n†	.05	2.4	.015
BD +28°1062.....	43246	6 10.1	+28 54	7.3	F0	.04	2.1	.009
1573.....	43261	6 10.2	+24 0	6.1	G5	.03	1.0	.010
C 783.....	.....	6 10.5	+25 15	9.0	K6	.48	7.0	.040
1574.....	43318	6 10.5	— 0 28	5.7	F6	.26	2.6	.024
1576.....	43380	6 10.8	+46 24	6.5	K2	.13	0.7	.007
1577.....	43386	6 10.8	+12 18	5.1	F5	.21	3.4	.046
1582.....	43587	6 12.0	+ 5 8	5.8	F9	.28	3.7	.038
1583.....	43624	6 12.1	+27 15	6.7	K0	.08	0.7	.006
BD —15°1328.....	43670	6 12.3	—15 6	7.9	K3	.....	0.7	.004
1584.....	43740	6 12.8	+23 39	6.6	G3	.02	0.2	.005
1585.....	43749	6 12.9	+61 48	7.2	F2	.10	3.2	.016
1591.....	43827	6 13.2	—16 47	5.3	K2	.02	0.2	.010
1593.....	43905	6 13.6	+53 30	5.7†	F4	.10	2.5	.023
1595.....	43993	6 14.1	— 9 21	5.7	G9	.04	0.6	.010
1596.....	44033	6 14.4	+14 42	6.0	M0	.02	0.0	.006
1599.....	44131	6 15.0	— 2 54	5.2	M1	.01	—0.1	.009
$\beta$ GC 3319A....	44213	6 15.5	+ 5 47	8.1	M5	.....	—0.1	.002
$\beta$ GC 3319B....	44214	6 15.5	+ 5 47	10.0	A4n	.....	2.3	.003
BD +22°1294.....	44252	6 15.7	+22 57	8.1	F4	.02	2.6	.008
1604A....	44478	6 16.9	+22 34	3.2	M3	.13	—0.6	.017
1606.....	44537	6 17.2	+49 20	5.4†	M0	.01	—2.1	.003
1608A....	44708	6 18.1	+58 28	5.5	K5	.01	0.0	.008
1611A....	44769	6 18.5	+ 4 39	4.5	A6n	.01	1.6	.026
1611B....	44770	6 18.5	+ 4 39	6.5	F4	.01	3.2	.022
1612.....	44780	6 18.6	+25 6	6.6	G9	.02	0.6	.006
1614.....	44951	6 19.5	—11 29	5.4	K3	.07	0.3	.010
1615.....	44974	6 19.7	+21 42	6.6	G6	.02	0.7	.007
1616.....	45018	6 19.9	—25 31	5.7	K5	.03	—0.4	.006
C 799.....	45289	6 21.4	—42 49	6.8	G4	.75	5.1	.046
BD +29°1231.....	45336	6 21.7	+29 19	7.6	K5	.01	0.0	.003
1623A....	45352	6 21.8	+20 51	6.6	K2	.06	0.7	.007
C 801.....	45391	6 22.0	+36 33	7.1	G0	.39	4.9	.036
1626.....	45416	6 22.1	+ 0 22	5.3	cK0	.01	—1.4	.005
1627.....	45410	6 22.1	+58 14	6.0	G8	.33	2.5	.020
1628.....	45415	6 22.1	+ 2 58	5.8	G9	.05	0.3	.008
1630.....	45433	6 22.1	— 0 13	5.8	K5	.01	0.2	.008
1632.....	45466	6 22.6	+46 45	6.0	K4	.01	0.4	.008
C 803.....	.....	6 22.9	+27 5	8.3	K4	.50	6.6	.046
BD +29°1248.....	45784	6 24.4	+29 53	8.1	F2	.05	2.2	.007
1643.....	45866	6 24.9	+78 5	5.9	K5	.02	0.1	.007
ADS 5146A....	45951	6 25.4	+17 0	6.2	K2	.07	0.4	.007
1649(B)....	.....	6 26.5	+17 51	8.1†	F6	.06	2.2	.007
1650(A)....	46136	6 26.5	+17 51	7.2	F6	0.04	2.1	0.010

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
1651.....	46184	6 <sup>h</sup> 26 <sup>m</sup> 7	-12°19'	5.3	K2	0".03	0.3	0".010
1653.....	46241	6 27.0	+ 4 56	6.0	G8	.03	0.2	.007
1654.....	46229	6 27.0	- 8 5	5.6	K2	.02	0.4	.009
1658.....	46318	6 27.6	+56 28	7.0†	Fo	.06	2.8	.014
1663.....	46374	6 27.9	+14 14	5.6	K2	.10	0.5	.010
1665.....	46480	6 28.6	+61 34	6.0	G7	.34	2.9	.024
1673.....	46588	6 29.2	+79 40	5.6	F6	.62	3.2	.033
ADS 5234A...	46780	6 30.2	+27 22	7.0	G2	.06	4.2	.027
1679.....	46781	6 30.2	+16 53	6.7	F8	.04	2.7	.016
BD +45°1330.....	47019	6 31.4	+45 8	8.8	M2	.....	0.0	.002
20C 393.....	.....	6 31.5	+17 38	9.5	M1	.84	9.4	.096
1687.....	47070	6 31.7	+39 29	5.7	K5	.12	0.3	.008
1690.....	47105	6 31.9	+16 29	2.2†	A3s	.06	0.8	.052
$\beta$ GC 3499A...	47127	6 32.0	+12 16	7.6	G5	.29	5.3	.035
BD +12°1222.....	47128	6 32.0	+12 14	8.3	Fo	.07	2.8	.008
1692(A)...	47138	6 32.0	-18 35	5.8	G4	.02	0.8	.010
1694.....	47174	6 32.2	+42 35	5.1	K2	.06	0.4	.011
1695.....	47205	6 32.3	-19 10	4.1	K1	.10	0.7	.021
BD +44°1509.....	47335	6 33.0	+44 25	6.8	G8	.04	0.8	.006
1698.....	47442	6 33.5	-18 9	4.6	K1	.02	0.4	.014
1703.....	47667	6 34.7	-14 3	5.0	K5	.01	-0.7	.007
1704.....	47731	6 35.0	+28 17	6.5	cG5	.02	-1.6	.002
821.....	47752	6 35.1	+24 3	8.0	K6	.34	7.1	.066
1707.....	47914	6 35.8	+44 37	5.2	K5	.06	0.5	.011
1712A.....	47977	6 36.0	+59 33	8.3†	F4	.02	3.0	.009
1715.....	48217	6 37.2	- 9 4	5.3	Mo	.04	0.4	.010
ADS 5379A...	48228	6 37.3	+40 44	6.9	M4	.17	-0.8	.003
1716A.....	48250	6 37.4	+59 33	5.4†	A2n	.02	1.8	.019
BD +44°1525.....	48270	6 37.5	+44 37	6.8	Ko	.02	0.3	.005
1717A.....	48329	6 37.8	+25 14	3.2	cG8	.02	-2.1	.009
827.....	48410	6 38.2	+44 20	7.8	Go	.25	4.4	.021
1720.....	48432	6 38.3	+57 16	5.5	G6	.05	0.9	.012
1721A.....	48433	6 38.3	+13 20	4.6	K2	.06	-0.4	.010
1722.....	48450	6 38.4	+29 4	5.5	K3	.03	0.4	.010
1724A.....	48682	6 39.5	+43 41	5.3	F8	.16	4.0	.055
1725.....	48737	6 39.7	+13 0	3.4	F3	.23	2.2	.057
1726(B)...	48767	6 39.9	+55 49	6.6†	F6	.13	3.6	.025
1727(A)...	48766	6 39.9	+55 49	6.3	F4	.13	3.4	.026
1728.....	48781	6 40.0	+48 54	5.3	Ko	0.01	0.1	.009
1732A.....	48915	6 40.7	-16 35	-1.6	A2s	1.32	1.2	.363
BD +83°172.....	48974	6 41.1	+83 45	8.6	G5	0.24	4.8	.017
1735.....	49095	6 41.6	-31 41	5.9	F6	.40	3.8	.038
1737.....	49161	6 41.9	+ 8 9	5.0	K5	.02	0.3	.011
1740.....	49293	6 42.6	+ 2 31	5.0†	Ko	.03	-0.1	.010
1743.....	49331	6 42.8	- 8 53	5.3	Mo	0.04	-2.7	0.003



## SPECTROSCOPIC ABSOLUTE MAGNITUDES

223

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD +18°	1745.....	49380	6 <sup>h</sup> 43 <sup>m</sup> 2	+32°43'	5.8	K4	0".07	0".008
	1748.....	49520	6 43.7	+41 54	5.0	K3	.14	.011
	1753A....	49618	6 44.3	+59 34	5.7†	Go	.05	.008
	1365.....	49635	6 44.3	+18 54	7.7	F3	.....	.013
	1756.....	49738	6 44.8	+13 32	5.9	K3	.01	.007
ADS	1758.....	49878	6 45.5	+77 6	5.1†	K5	.08	.012
	5505A....	49933	6 45.7	— 0 26	5.8	F2	.17	.030
	1760.....	49968	6 45.9	+23 43	5.8	K5	.04	.009
	1762A....	50018	6 46.1	+38 59	6.1	A7n	.01	.013
	1764.....	50037	6 46.4	+38 34	6.3	F5	.18	.024
C	834.....	50281	6 47.4	— 5 3	6.8	K6	.58	.100
	1776A....	50522	6 48.6	+58 33	4.8†	G6	.13	.017
	1778A....	50635	6 49.0	+13 18	4.7	A7n	.11	.030
	1778B.....	.....	6 49.0	+13 18	7.4	G4	.11	.032
	1780.....	50692	6 49.2	+25 30	5.8	Go	.04	.052
C	837.....	.....	6 49.5	+40 13	8.4	Mo	.44	.066
	1783.....	50778	6 49.5	—11 55	4.2	K4	.14	.017
	1784.....	50806	6 49.6	—28 24	6.0	G3	.54	.050
	BD +40°	1759.....	6 49.7	+40 12	10.7	A4n	.03	.002
	1785.....	50877	6 50.0	—24 4	4.1	cK5	.01	.005
ADS	5669A....	51067	6 50.8	+75 22	6.8	F8	.26	.026
ADS	5669B.....	.....	6 50.8	+75 22	7.8	K0	.26	.038
	1789A....	51199	6 51.3	—20 1	4.6	F2	.06	.026
C	841.....	51219	6 51.4	+1 18	7.7	G5	.57	.027
BD +69°	400.....	51349	6 51.9	+69 21	7.5	M2	.00	.002
BD +2°	1794.....	51440	6 52.2	+38 11	6.2	K0	.13	.008
	1796.....	51530	6 52.6	+26 13	6.1	F4	.18	.027
	1483.....	51565-6	6 52.7	+ 2 26	8.2†	F2†	.....	.006
	BD -10°	1786.....	6 53.3	—10 39	6.8	K0	.03	.005
	1799A....	51733	6 53.4	—24 30	5.6†	F0	.10	.030
C	1801.....	51802	6 53.7	+87 12	5.3	M2	.05	.008
	847.....	51866	6 54.0	+48 32	8.2	K5	.70	.050
	1803.....	52005	6 54.5	+16 13	5.9	cK4	.02	.002
	BD +33°	1454.....	6 55.2	+33 50	7.3	A8s	.....	.008
	1806.....	52497	6 56.3	+24 21	5.2	cG2	.02	.005
	1808.....	52666	6 57.0	— 5 35	5.4	M2	.01	.007
	1809.....	52711	6 57.2	+29 30	6.0	G2	.83	.044
	1810A....	52877	6 57.7	—27 47	3.7	Mo	.01	.007
	1813.....	52960	6 58.1	+11 6	5.2	K5	.03	.010
	1814(C)..	268518	6 58.2	+20 45	8.4	G1	.12	.018
	1818.....	53208	6 59.2	— 5 11	5.9	K3	.01	.004
	1822.....	53329	6 59.6	+34 38	5.6	G3	.09	.014
	1824.....	53633	7 0.7	+60 57	6.7	K1	.05	.007
	1825A....	53683	7 0.8	+60 54	8.7	G9	.04	.003
	BD +34°	1530.....	7 0.9	+34 9	6.4†	K4	0.03	0.006

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
C 855.....	54046	7 <sup>h</sup> 2 <sup>m</sup> 3	+15° 41'	7.5	F8	0".23	4.2	0".022
1832.....	54079	7 2.4	+ 7 38	5.9	Ko	.03	0.6	.009
BD +59° 1053.....	54099	7 2.5	+59 13	7.6	G7	.06	0.3	.003
C 856.....	54100	7 2.5	+15 41	7.4	F7	.21	4.2	.023
BD +60° 1034.....	54122	7 2.6	+60 23	7.3	G8	.03	0.5	.004
1835A....	54131	7 2.6	+16 5	5.6	G8	.11	0.6	.010
ADS 5816A....	54244	7 3.0	+17 4	7.6	K5	.02	0.6	.004
ADS 5816B....	.....	7 3.0	+17 4	7.7	K4	.02	0.8	.004
ADS 5827A....	54371	7 3.4	+25 54	7.3†	G6	.22	4.7	.030
C 861.....	54563	7 4.2	+21 25	6.4	G7	.51	4.8	.048
1839.....	54605	7 4.3	-26 14	2.0	cG3	.00	-3.8	.007
ADS 5854A....	54649	7 4.6	+55 58	7.7	K1	.04	0.5	.004
1840A....	54719	7 4.8	+30 25	4.5	K3	.05	-0.1	.012
1841.....	54716	7 4.8	+39 29	5.1	K5	.05	0.0	.010
1844.....	54810	7 5.3	- 4 5	5.0	K1	.22	0.6	.013
1846.....	54895	7 5.6	+51 36	5.7	M3	.02	0.0	.007
1848.....	55057	7 6.3	- 0 8	5.4	A8n	.02	1.7	.018
1849.....	55070	7 6.3	-27 20	5.6	G7	.02	0.4	.009
1850.....	55052	7 6.4	+24 18	5.8	F3	.06	2.6	.023
ADS 5871AB..	55130	7 6.6	+27 24	7.1†	F6	.09	3.7	.021
BD +60° 1038.....	55178	7 6.8	+59 56	7.3	G5	.04	0.9	.005
1854.....	55280	7 7.2	+59 49	5.3	K2	.27	2.0	.022
1856A....	55383	7 7.6	+16 20	5.3	M4	.05	-0.5	.007
C 867.....	55458	7 7.8	+25 11	8.4	K1	.45	6.0	.033
1860.....	55575	7 8.4	+47 25	5.6	F8	.18	4.1	.050
1861A....	55621	7 8.6	+25 4	6.0	M1	.11	0.2	.007
1864.....	55730	7 9.0	+12 17	5.8	G5	.06	1.1	.011
1865.....	55751	7 9.1	+ 3 17	5.6	Ko	.03	0.3	.009
1868.....	55870	7 9.7	+28 4	5.9	M1	.02	-0.1	.006
1871.....	55966	7 10.1	+82 36	5.1	M4	.04	0.0	.010
1873A....	56003	7 10.2	+ 0 1	6.5	G5	.02	0.3	.006
1876.....	56099	7 10.5	+59 18	7.6	F7	.08	3.4	.014
1878.....	56160	7 10.8	-26 52	5.8	K4	.05	0.5	.009
1881.....	56243	7 11.2	+59 26	6.9	K5	.04	0.2	.005
C 873.....	56274	7 11.3	-12 53	7.7	F9	.51	3.9	.017
1887(A)...	56577	7 12.4	-23 8	4.8	Mo	.00	-1.9	.005
1888(B)...	56578	7 12.4	-23 8	7.0	Fo	.06	2.6	.013
BD -14° 1810.....	56617	7 12.6	-14 40	8.1	F5	.....	2.8	.009
1889.....	56618	7 12.6	-27 42	4.8	M3	.04	-0.4	.009
20C 418.....	.....	7 13.0	+33 2	10.0	M2	.56	8.9	.060
1894A....	56820	7 13.5	+60 5	6.3	Fo	.01	1.9	.013
1897.....	56963	7 14.1	+45 25	5.6	A7s	.04	1.7	.017
1898A....	56986	7 14.2	+22 10	3.8†	A8n	.02	2.2	.048
1898B....	.....	7 14.2	+22 10	8.0	K6	.02	6.9	.060
1900A....	57044	7 14.5	+73 16	7.1†	A7n	0.04	2.1	0.010

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

225

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
1902(B)...	57066	7 <sup>h</sup> 14 <sup>m</sup> 6	+50°20'	7.7†	A5n	0.06	2.1	0.008
1903(A)...	57067	7 14.6	+50 20	7.6†	A5n	.05	1.9	.007
1908.....	57146	7 14.8	-26 24	5.4	cG5	.03	-2.8	.002
1912A....	57264	7 15.4	+36 57	5.2	G9	.09	0.9	.014
1914.....	57423	7 16.0	+20 38	5.2	Mo	.07	0.2	.010
1915.....	57478	7 16.4	-14 10	5.7	G5	.02	0.8	.010
1916.....	57508	7 16.5	+81 6	6.5	G7	.00	0.6	.007
1918.....	57615	7 17.0	-25 42	6.1	M4	.03	-0.3	.005
1919.....	57669	7 17.2	+40 52	5.3	K0	.02	-0.7	.006
1921.....	57727	7 17.4	+25 15	5.1	G5	.07	1.0	.015
C 1923.....	57749	7 17.5	- 5 48	5.8	F3	.02	2.0	.017
884.....	.....	7 17.7	+46 18	9.2	K2	.45	6.1	.024
1926.....	57927	7 18.3	+27 50	5.7	F0	.02	1.8	.017
1931.....	58207	7 19.5	+28 0	3.9	G7	.14	0.7	.023
1936.....	58367	7 20.2	+ 9 28	5.1	G5	.02	0.3	.011
1937.....	58425	7 20.5	+68 40	5.8	K2	.04	0.7	.010
1938.....	58461	7 20.5	-13 33	5.8	F0	.20	2.8	.025
1940.....	58551	7 20.9	+21 44	6.5	F4	.31	3.7	.027
1941.....	58579	7 21.0	+20 27	5.9	A6n	.03	1.9	.016
1945A....	58728	7 21.8	+21 39	5.8†	F4	.13	3.1	.029
BD +29°1535.....	58746	7 21.9	+29 37	7.4	A8n	.03	1.9	.008
$\beta$ GC 4062A....	233399	7 22.3	+50 11	9.0	G3	.05	4.2	.011
$\beta$ GC 4062B....	.....	7 22.3	+50 11	9.4	G4	.05	0.7	.002
1948.....	58855	7 22.3	+49 53	5.4	F5	.14	3.3	.038
ADS 6117AB..	58945	7 22.7	+50 12	8.7†	A9n	.04	2.3	.005
1951A....	58954	7 22.7	-17 40	5.7	A5n	.01	2.1	.019
1952A....	58946	7 22.7	+31 59	4.2	A8s	.24	2.4	.044
1953A....	58972	7 22.7	+ 9 7	4.9†	K4	.06	0.1	.011
1957A....	59067	7 23.2	-11 21	6.8†	F1†	.01	2.8	.016
1959A....	59148	7 23.6	+28 7	5.4†	K1	.05	0.5	.010
C 897.....	59201	7 23.8	+73 29	8.4	K2	.32	6.2	.036
1962.....	59294	7 24.2	+12 13	4.8	K3	.02	-0.3	.010
1963.....	59311	7 24.3	- 1 42	5.8	K5	.01	-0.1	.007
1964.....	59380	7 24.6	- 7 21	6.0	F5	.14	3.4	.030
1965A....	59438	7 24.8	-14 47	6.4†	F4	.32	3.3	.024
BD + 8°1791.....	59604	7 25.6	+ 8 46	7.2	F2	.....	3.2	.016
1968.....	59612	7 25.6	-22 49	4.8	cA7s	.01	0.9	.017
U Monocerotis.....	59693	7 26.0	- 9 34	7.1*	cG2e	.04	-2.0	.002
1971.....	59686	7 26.0	+17 18	5.6	K2	.09	0.5	.010
BD +66° 512.....	59720	7 26.3	+66 41	7.5	M4	.02	-0.2	.003
1975.....	60081	7 27.7	+15 51	6.7	G8	.01	0.3	.005
BD -18°1893.....	60092	7 27.8	-18 17	7.5	F5	.....	2.3	.009
1979C....	.....	7 28.2	+32 5	9.5†	Mre	.20	8.8	.072
TY Puppis*	60265	7 28.5	-20 35	9.3†	A9n	.....	2.4	.004
1980.....	60294	7 28.6	+55 59	6.0	K2	0.04	0.6	0.008

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
1981A....	60318	7 <sup>h</sup> 28 <sup>m</sup> 8	+31°11'	5.8†	K0	0".03	0.2	0".008
1982.....	60341	7 28.9	-19 12	5.8	K3	.08	0.4	.008
1985.....	60414	7 29.2	-14 18	5.4†	M3ep*	.02	-1.8	.004
1986.....	60437	7 29.3	+46 24	5.8	M0	.05	0.2	.008
1987.....	60522	7 29.8	+27 7	4.2	Mo	.12	0.0	.014
1988.....	60532	7 29.8	-22 5	4.5	F5	.08	3.0	.050
1989(A)...	60584	7 30.1	-23 15	5.9	F4	.09	3.0	.026
1990(B)...	60585	7 30.1	-23 15	6.0	F5	.13	2.8	.023
1997A....	60986	7 32.0	+35 16	5.6	G5	.04	0.8	.011
1999.....	61064	7 32.3	- 3 53	5.2	F5	.07	1.5	.018
2000.....	61106	7 32.6	+57 19	6.2	K5	.02	0.5	.007
2001.....	61110	7 32.6	+34 49	4.9	F1	.12	2.2	.029
2005.....	61338	7 33.7	+17 54	5.2	M0	.00	-0.1	.009
2006.....	61363	7 33.8	+48 22	5.8	G6	0.14	0.9	.010
2008A....	61421	7 34.1	+ 5 29	0.5	F3	1.24	3.1	.331
2016.....	61772	7 35.8	-15 2	5.2	K5	0.03	-0.3	.008
2020.....	61913	7 36.4	+14 27	5.8	M3	.02	-1.0	.004
2021.....	61935	7 36.5	- 9 19	4.1	K0	.08	0.6	.020
2023.....	62044	7 37.1	+29 8	4.6†	K1p*	.25	0.5	.015
2024.....	62066	7 37.1	+65 42	6.0	K2	.05	0.3	.007
2028.....	62285	7 38.0	+26 1	5.4	Mo	.03	-0.4	.007
C 922.....	62301	7 38.1	+39 49	6.8	F4	.68	3.9	.026
2029A....	62345	7 38.4	+24 38	3.7	G7	.07	0.6	.024
2030.....	62412	7 38.7	-26 7	5.8	G5	.03	0.9	.010
2031A....	62509	7 39.2	+28 16	1.2	G8	.62	0.9	.087
2032A....	62576	7 39.5	-28 10	4.8	K5	.01	-0.1	.010
2034.....	62613	7 39.8	+80 31	6.5	G8	.48	5.0	.050
2037.....	62647	7 40.0	+37 46	5.4	M3	.03	-0.3	.007
2040.....	62721	7 40.3	+18 45	5.3†	K5	.10	0.2	.010
ADS 6369A....	.....	7 40.8	+53 55	8.8	K6	.56	6.6	.036
2049A....	62898	7 41.1	+33 40	5.3	Mo	.04	-0.3	.008
2050.....	62902	7 41.1	- 6 32	5.7	K5	.11	0.6	.010
2051.....	62952	7 41.3	-14 19	5.1	A6n	0.02	1.6	.020
2053.....	63077	7 41.8	-33 59	5.4	Go	1.72	4.6	.069
2054A....	63208	7 42.6	+23 23	6.9†	F3†	0.02	3.2	.018
2057.....	63332	7 43.2	+54 23	6.0	F6	.05	3.5	.032
2058A....	63336	7 43.3	-11 57	5.7†	F5	.12	3.7	.040
2064.....	63660	7 44.8	-24 40	5.6†	G3	.04	0.9	.011
2065A....	63700	7 45.1	-24 37	3.5	cG6	.01	-2.9	.005
2068.....	63752	7 45.4	- 8 56	5.8	K3	.01	-0.9	.005
2074.....	64092	7 47.1	+22 35	7.1	G6	.02	0.5	.005
2075A....	64096	7 47.1	-13 38	5.8†	G2	.34	4.8	.063
CD -33°4218.....	64101	7 47.1	-33 49	8.3	A4n	.16	2.0	.005
2076.....	64106	7 47.2	+47 39	6.4	K2	0.02	0.5	.007
C 935.....	64090	7 47.2	+30 55	8.2	F8	1.96	4.2	0.016

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

227

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
ADS	2077.....	64152	7 <sup>h</sup> 47 <sup>m</sup> 4	—20°55'	5.8	G8	0".06	0".010
	2079.....	64144	7 47.4	+47 49	5.7	K4	.04	.008
	2082.....	64238	7 47.7	—14 35	5.7	cF3	.02	—0.4
	6426A....	64259	7 47.8	—13 36	6.9	K1	.09	0.4
	2084.....	64307	7 48.2	+74 11	5.6	K5	.03	—0.2
C	2086.....	64379	7 48.5	—34 27	5.0	F3	.33	3.3
	940.....	64468	7 49.1	+19 31	7.9	K6	.47	6.6
	2092.....	64685	7 50.1	+ 9 8	5.8	F4	.09	2.9
ADS	2098.....	64960	7 51.3	+16 3	6.0	K3	.06	0.4
	6483AB..	65123	7 52.1	+ 1 24	7.1†	F6	.18	3.7
BD — 0°1864.....	65158	7 52.3	— 0 21	7.0	A2s	.01	1.4	.008
	2099.....	65228	7 52.6	—22 37	4.4	cG2	.04	—2.6
	2101.....	65301	7 53.0	+59 19	5.8	F2	.03	2.3
	2104.....	65345	7 53.2	+ 2 29	5.4	G6	.18	0.8
	2106.....	65448	7 53.6	+63 22	6.0	G1	.02	1.2
C	2107.....	65429	7 53.6	+61 16	6.7	F3	.04	3.3
	947.....	65430	7 53.7	+21 8	7.8	K1	0.57	5.7
	949.....	65583	7 54.3	+29 31	6.9	G7	1.17	5.2
	2112.....	65626	7 54.5	+57 33	7.0†	F8	0.08	3.2
	2117.....	65714	7 54.9	+25 40	5.9	G8	.01	—0.1
BD +54°1190.....	65734	7 55.0	+54 25	7.5	A6n	.01	2.0	.008
	2118.....	65759	7 55.1	+17 35	5.8	K3	.02	0.0
	2126.....	65953	7 56.1	— 1 7	4.9	K5	.10	—0.1
	2129.....	66138	7 57.0	+58 3	6.8	F3	.12	3.1
	2130.....	66141	7 57.1	+ 2 37	4.6	K3	.11	0.1
C	952.....	66171	7 57.2	+72 13	8.0	G0	.50	3.9
	2131.....	66216	7 57.4	+28 4	5.3†	K2	.06	0.3
	2133.....	66347	7 57.9	+22 21	6.8	K3	.04	0.3
ADS	6554AB..	66509	7 58.8	+12 35	8.7†	K2	.14	5.6
ADS	6608A....	66633	7 59.4	+74 39	8.6†	A6n	.05	1.9
BD +12°1762.....	66637	7 59.4	+12 29	8.5	K2	.....	—0.1	.002
	2139.....	66751	8 0.0	+70 1	6.5	F8	.20	4.2
	2140.....	66783	8 0.0	—17 23	6.6	K5	.02	—0.2
	2144.....	66875	8 0.4	+22 55	6.2	M3	.02	—0.7
	2146.....	67228	8 1.9	+21 52	5.4	G3	.08	4.1
C	2148.....	67370	8 2.5	+42 43	6.4	K3	.07	0.4
	2149A....	67402	8 2.7	+27 46	6.8	G9	.04	0.4
	2150.....	67447	8 2.9	+68 46	5.5	G4	.01	—0.6
	961.....	67458	8 2.9	—29 6	6.9	G2	.52	4.5
	2152.....	67483	8 3.1	+13 56	6.3	F3	.03	2.6
ADS	6623A....	67501	8 3.2	+32 31	7.1†	F5	.01	3.0
	6623B....	.....	8 3.2	+32 31	8.0	F8	.01	2.9
	2153.....	67523	8 3.3	—24 1	3.2†	cF5	.10	—0.7
	2155A....	67594	8 3.6	— 2 42	4.4	cG6	.02	—2.2
	2156.....	67690	8 4.2	+26 8	6.7	K3	0.04	0.0

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
2157.....	67767	8 <sup>h</sup> 4 <sup>m</sup> 4	+25° 49'	5.8	G6	0".36	4.2	0".048
2161.....	68017	8 5.4	+32 46	7.0	G4	.80	4.9	.038
2162.....	68077	8 5.9	+56 45	5.9	G9	.04	0.1	.007
2163.....	68146	8 6.0	-13 30	5.6	F7	.24	3.4	.036
2168(A)...	68257	8 6.5	+17 57	6.1†	F7	.15	3.6	.032
2169(C)...	68256	8 6.5	+17 57	6.0	G2	.14	4.4	.048
2170A....	68290	8 6.6	-12 38	4.7	G7	.03	0.8	.017
2172.....	68312	8 6.7	- 7 28	5.4	G8	.06	0.9	.013
2173.....	68351	8 7.0	+29 57	5.9†	A2sp*	.02	0.9	.010
2174.....	68375	8 7.0	+76 4	5.7	G6	.03	0.9	.011
C 2178A....	68457	8 7.4	+60 41	6.4	A7s	.02	2.0	.013
C 971.....	68638	8 8.1	+57 24	7.8	G6	.40	5.4	.033
C 973.....	68744	8 8.7	+73 39	8.6	G1	.27	4.2	.013
2182.....	68771	8 8.7	+59 30	6.7	K2	.04	0.7	.006
2183.....	68752	8 8.7	-15 29	5.0	G6	.02	-0.4	.008
C 974.....	68788	8 8.8	+73 44	8.6	K1	.56	6.2	.033
2186A....	68951	8 9.7	+72 43	6.2	M0	.03	0.0	.006
ADS 6736A....	69054	8 10.1	+75 8	6.5	K1	.09	0.7	.007
2193.....	69148	8 10.6	+62 49	6.1†	G5	.02	0.4	.007
2195A....	69267	8 11.1	+ 9 30	3.8	K4	.08	0.2	.019
C 977.....	69479	8 12.0	+30 56	8.7	K6	.87	7.2	.050
BD + 4° 1945.....	69479	8 12.1	+ 4 31	7.0†	F8†	.02	3.6	.021
2197.....	69548	8 12.4	+58 3	5.9	F2	0.06	3.5	.033
2199.....	69830	8 13.7	-12 18	6.0	K0	1.03	5.3	.072
2201.....	69879	8 13.9	-29 42	6.4	G6	0.05	0.8	.008
2202.....	69897	8 14.0	+27 32	5.2	F6	.39	3.4	.044
2203.....	69976	8 14.3	+60 57	6.5	K0	.01	0.7	.007
2205.....	69994	8 14.5	+21 4	5.9	K1	.09	0.5	.008
2208.....	70272	8 16.0	+43 31	4.4	K5	.11	0.1	.014
C 982.....	70352	8 16.3	+66 48	8.9	K5	.52	6.5	.033
2212.....	70442	8 16.9	-19 46	5.9†	Go†	.04	0.9	.010
2215.....	70523	8 17.4	-17 16	5.8	K0	.09	0.5	.009
2218.....	70569	8 17.6	+18 39	5.9	F0	.06	3.1	.027
2220A....	70647	8 17.9	+42 20	6.2	K5	.01	-0.1	.005
BD +39° 2095.....	70648	8 18.0	+39 49	8.8	A4n	.02	1.6	.004
2221.....	70673	8 18.1	-12 44	6.3	G7	.06	0.6	.007
2223A....	70734	8 18.5	+10 57	6.3	M2	.02	0.3	.006
2224A....	70761	8 18.6	-26 2	5.9	cF5	.02	-1.2	.004
20C 473.....	70958	8 18.9	+32 57	9.9	K6	.64	7.4	.032
2227.....	70958	8 19.6	- 3 26	6.0†	F2	.22	3.5	.032
2229.....	71030	8 20.2	+17 23	6.2	F4	.25	3.0	.023
2231.....	71088	8 20.3	+67 38	6.0	G7	.06	0.8	.009
2232A....	71093	8 20.4	+28 13	5.8	K4	.13	0.6	.009
2234A....	71115	8 20.5	+ 7 53	5.2	G6	.04	0.6	.012
2236.....	71148	8 20.6	+45 59	6.3	G4	0.36	4.9	0.052

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

229

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
2238(A) ..	71152	8 <sup>h</sup> 20 <sup>m</sup> 7	+24°52'	7.1	F1	0".10	2.8	0".014
2239(B) ..	71153	8 20.7	+24 52	7.6	F6	.09	4.0	.019
2240(B) ..	71150	8 20.7	+27 16	6.3	A2n	.01	2.1	.014
2241(A) ..	71151	8 20.7	+27 16	6.3	A3n	.01	2.0	.014
2243(B) ..	.....	8 20.8	-23 43	8.5	K3	.03	-0.3	.002
2245.....	71250	8 21.2	+12 59	5.8	M3	.12	-1.1	.004
2246A....	71297	8 21.5	- 3 40	5.4	Fo	.07	2.6	.027
2247A....	71369	8 22.0	+61 3	3.5	G1	.17	0.5	.025
2248.....	71377	8 22.0	-12 12	5.7	K3	.10	0.2	.008
ADS 6829A....	71449	8 22.4	+51 32	9.3†	A9n	.06	1.8	.003
20C 474.....	.....	8 22.5	+46 15	9.9	K6	.50	7.4	.032
2254AB..	71663	8 23.4	- 2 11	7.0†	Fo	.03	2.6	.013
2256.....	71704	8 23.7	+67 38	7.8	G7	.06	1.0	.004
C 996.....	71881	8 24.7	+50 58	7.4	G3	.38	4.7	.029
2260.....	71952	8 25.1	+53 27	6.5	Ko	.09	2.2	.014
2261.....	71986	8 25.3	+85 24	7.4	F5	.13	3.2	.014
2263.....	72041	8 25.6	+24 25	5.7	A9n	.11	2.2	.020
2265A....	72094	8 25.9	+18 26	5.6	M1	.09	-0.2	.007
BD +29°1772.....	72146	8 26.2	+29 39	7.1	G6	.02	1.1	.006
2268.....	72184	8 26.4	+38 22	6.0	K3	.20	0.5	.008
2271.....	72292	8 26.9	+20 47	5.5	K5	.06	0.7	.011
2272.....	72291	8 26.9	+36 47	6.1	F1	.14	4.0	.038
2275.....	72324	8 27.1	+24 25	6.4	K1	0.09	0.0	.005
20C 475.....	.....	8 27.4	+67 38	9.2	Mo	1.09	8.3	.066
BD +54°1244.....	72522	8 28.2	+54 4	8.7	G8	*	0.7	.003
2278.....	72582	8 28.6	+73 59	6.3	G7	0.11	0.6	.007
C 1000.....	72614	8 28.8	+42 6	8.6	K6	0.66	6.6	.040
ADS 6871AB..	72626	8 28.8	-24 16	6.9†	A7s	.....	1.8	.010
2279.....	72673	8 29.0	-31 11	6.4	G8	1.34	5.9	.079
2282.....	72779	8 29.6	+19 56	6.6	F5	0.04	1.9	.011
BD +20°2123.....	72846	8 30.0	+20 7	8.3	A3n	.06	1.8	.005
2284.....	72905	8 30.3	+65 22	5.7	Go	.09	4.2	.050
2285(A) ..	72945	8 30.5	+ 6 58	6.3†	F6	.20	4.1	.036
2286(B) ..	72946	8 30.5	+ 6 58	7.2	G5	.20	5.2	.040
2287.....	72968	8 30.6	- 7 38	5.6	A4sp*	.03	0.9	.011
2289.....	73017	8 30.9	+53 45	5.7	G6	.07	1.4	.014
2290.....	73108	8 31.5	+64 41	4.8	K2	.05	0.5	.014
BD +20°2129.....	73142	8 31.7	+20 50	8.1	F7	.04	3.1	.010
BD +20°2131.....	73161	8 31.8	+20 22	9.1	A4n	.04	2.1	.004
2293.....	73171	8 31.9	+53 4	6.0	K1	.04	0.6	.008
BD +20°2132.....	73174	8 31.9	+20 6	8.3	F2p*	.03	2.4	.007
BD +20°2133.....	73175	8 32.0	+19 52	8.2	A4n	.03	2.1	.006
2294.....	73192	8 32.1	+33 9	6.1	K2	.02	0.1	.006
BD +19°2053.....	73210	8 32.1	+19 38	6.7	A6n	.03	2.1	.012
C 1008.....	73226	8 32.2	+26 24	7.7	G2	0.24	4.8	0.026



CATALOGUE—*Continued*

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$
BD +20°2136.....	73294	8 <sup>h</sup> 32 <sup>m</sup> 6	+20°34'	8.1	F6	0".01	2.3	0".007
BD +20°2138.....	73345	8 32.9	+20 21	8.6	A7n	.04	1.7	.004
C 1012.....	73393	8 33.1	+56 2	8.1	G2	.46	4.7	.021
BD +21°1880.....	73428	8 33.3	+21 9	8.8	G4	.03	0.4	.002
BD +20°2141.....	73430	8 33.3	+20 22	8.7	A6n	.04	1.6	.004
2300.....	73449	8 33.4	+20 2	8.1	A3n	.03	1.7	.005
2301.....	73450	8 33.4	+19 57	8.6	A6n	.03	1.5	.004
2302.....	73471	8 33.5	+ 3 42	4.5	K3	.03	-0.3	.011
2304.....	73508	8 33.7	+33 5	6.9	K0	.05	0.6	.005
BD +20°2148.....	73574	8 34.0	+20 26	8.1	A8n	.04	1.4	.005
2305.....	73575	8 34.0	+20 8	6.7	A6n	.04	1.5	.009
BD +19°2064.....	73576	8 34.0	+19 38	7.8	A3n	.03	1.8	.006
2306.....	73593	8 34.1	+46 11	5.5	G6	.08	2.6	.026
ADS 6915D.....	73598	8 34.1	+19 54	6.7	G6	.04	0.9	.007
ADS 6915A.....	73618	8 34.2	+19 55	7.4†	A6s	.04	1.3	.006
ADS 6915C.....	73619	8 34.2	+19 54	7.9†	F1p	.04	2.1	.007
2308.....	73665	8 34.4	+20 22	6.5	G7	.04	0.8	.007
2309.....	73666	8 34.4	+20 19	6.5	A2s	.04	0.7	.007
C 1014.....	73667	8 34.4	+11 53	7.9	K3	.53	6.8	.060
ADS 6913A.....	73668	8 34.4	+ 6 8	7.8	G3	.33	5.0	.027
ADS 6913B.....	.....	8 34.4	+ 6 8	8.8	G9	.33	5.9	.026
BD +20°2163.....	73711	8 34.6	+19 53	7.4	A6n	.03	2.0	.008
2310C.....	73709	8 34.6	+20 3	9.0†	cFo	.03	2.5	.005
2310A.....	73710	8 34.6	+20 1	6.4	G7	.04	0.8	.008
BD +19°2069.....	73712	8 34.6	+19 42	6.8	A5n	.03	1.8	.010
BD +20°2168.....	73730	8 34.7	+20 12	8.7	F3p*	.04	2.6	.006
2311A.....	73731	8 34.7	+19 54	6.8†	A6n	.04	1.5	.009
2312A.....	73752	8 34.8	-22 19	5.2†	G6	.48	4.6	.076
BD +19°2073.....	73763	8 34.9	+19 35	8.0	A4n	.04	2.0	.006
2313.....	73785	8 35.0	+20 4	6.7	A6n	.04	1.6	.010
2314.....	73819	8 35.2	+19 56	6.8	A5n	.04	1.7	.010
2315.....	73840	8 35.3	-12 7	5.2	K5	.09	0.2	.010
ADS 6930A.....	73871	8 35.5	+20 50	7.1†	A4n	.00	2.3	.011
BD +20°2179.....	73872	8 35.5	+20 17	8.8	A3n	.04	2.0	.004
ADS 6931A.....	73890	8 35.6	+19 37	8.9†	A4n	.04	1.9	.005
2317A.....	73898	8 35.6	-29 12	5.0	G4	.09	1.4	.019
BD +33°1742.....	73922	8 35.8	+33 44	8.5	K3	.....	0.4	.002
BD +20°2185.....	73974	8 36.1	+20 14	7.0	G7	.04	0.6	.005
20C 481.....	74000	8 36.2	-15 59	9.4	A9s	.63	2.7	.005
BD +19°2083.....	74028	8 36.5	+19 46	7.9	A6n	.04	1.9	.006
2321A.....	74137	8 37.1	-15 35	5.0	G8	.08	0.9	.015
2328.....	74228	8 37.7	+13 2	6.2†	A9s‡	.01	2.7	.020
BD +44°1783.....	74327	8 38.3	+44 33	8.5	A9s	.06	2.1	.005
2333A.....	74377	8 38.6	+42 3	8.2	K5	.70	6.8	.052
2335A.....	74395	8 38.8	- 6 52	4.7	cG4	0.01	-1.4	0.006

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

231

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD +33°	2336A....	74442	8 <sup>h</sup> 39 <sup>m</sup> 0	+18°31'	K0	0".24	0.5	0".018
	2338.....	74485	8 39.2	+31 4	G4	.02	1.0	.010
	1754.....	74484	8 39.3	+33 36	M0	.01	-1.3	.001
	2339.....	74521	8 39.3	+10 27	A4sp*	.03	0.5	.010
	1026.....	74576	8 39.6	-38 32	K5	.44	6.4	.091
C	2343.....	74591	8 39.7	+ 6 3	A3n	.00	1.4	.012
	2345(B)....	.....	8 40.3	- 2 14	F3	.03	3.2	.013
	2346(A)....	74688	8 40.3	- 2 14	F5	.02	2.9	.017
	2348A....	74739	8 40.6	+29 8	G6	.05	0.3	.017
	2351.....	74794	8 41.0	- 1 41	K0	.05	0.6	.009
BD +45°	2354A....	74874	8 41.5	+ 6 47	F8	.19	2.7	.063
	2354C.....	.....	8 41.5	+ 6 47	F7	.19	3.5	.014
	2355.....	74918	8 41.7	-13 11	G4	.03	0.8	.017
	1641.....	75117	8 43.0	+45 20	F4	.05	2.9	.011
	490.....	.....	8 43.0	+36 53	M1	.56	8.5	.040
BD +45°	1643.....	75172	8 43.3	+45 20	A8n	.02	2.7	.007
	2364.....	75332	8 44.3	+33 40	F7	.11	3.6	.030
	2367.....	75486	8 45.1	+62 20	F0	.02	2.8	.026
	2368.....	75506	8 45.2	+44 6	G6	.04	0.7	.013
	2369.....	75528	8 45.5	+15 43	G2	.13	4.0	.035
ADS	2370.....	75558	8 45.6	+16 22	G3	.03	2.5	.011
	2372.....	75629	8 45.8	-29 5	G7	0.03	0.3	.007
	7067A....	75632	8 46.0	+71 11	M1	1.39	8.5	.069
	7067B.....	.....	8 46.0	+71 11	M1	1.39	8.5	.063
	2375.....	75691	8 46.3	-27 20	K4	0.16	-0.1	.014
BD +12°	1927.....	75700	8 46.4	+12 15	K2	.04	0.6	.004
	2378A....	75716	8 46.5	+28 38	M3	.02	-1.0	.003
	2380.....	75732	8 46.6	+28 43	K0	.54	5.0	.060
	2381A....	75737	8 46.7	- 6 48	F0	.05	2.4	.019
	1042.....	75767	8 46.8	+ 8 27	G1	.31	4.2	.029
C	2383.....	75958	8 48.0	+64 59	G3	.09	0.9	.010
	2384A....	75959	8 48.1	+30 57	G7	.05	0.5	.008
	2384B.....	.....	8 48.1	+30 57	K1	.05	0.7	.007
	2385.....	75972	8 48.2	+65 54	G6	.03	0.5	.004
	7082A....	76095	8 49.0	+26 36	G1	.44	4.5	.032
ADS	2391.....	76219	8 49.7	+28 19	G6	.04	0.4	.011
	2392.....	76291	8 50.1	+46 1	K2	.12	0.8	.010
	2393.....	76294	8 50.1	+ 6 20	G5	.10	0.3	.025
	2394.....	76351	8 50.5	+12 0	K5	.02	0.1	.008
	2401.....	76572	8 51.9	+30 37	F3	.07	3.4	.027
BD +21°	1947.....	.....	8 52.1	+20 52	F2	.00	3.0	.006
	2404A....	76644	8 52.4	+48 26	A4n	.50	2.1	.063
	2404BC.....	.....	8 52.4	+48 26	M1	.50	8.2	.030
	2407A....	76756	8 53.0	+12 15	F0	.05	2.3	.040
	2409A....	76813	8 53.4	+32 48	G9	0.06	0.3	.009

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
2410.....	76830	8 <sup>h</sup> 53 <sup>m</sup> 5	+18°31'	6.6	M4	0".09	-0.1	0".005
2411.....	76827	8 53.5	+68 1	5.0	M3	.02	0.0	.010
2412.....	76932	8 54.0	-15 45	5.9	F5	.32	3.5	.033
2413.....	76943	8 54.2	+42 11	4.1	F2	.50	3.3	.069
2415.....	76990	8 54.5	+84 35	6.8†	F2	.02	2.9	.017
ADS 7139A....	77175	8 55.8	+15 40	8.6	K6	.33	7.5	.060
2423.....	77309	8 56.7	+54 41	5.7	A2n	.00	2.1	.019
2425.....	77353	8 56.8	- 0 6	5.8	G8	.09	0.2	.008
C 1070.....	77408	8 57.2	+33 17	7.1	F6	.40	3.5	.019
2430.....	77570	8 58.3	+51 13	6.7	F4	.13	3.3	.021
2432.....	77601	8 58.5	+48 56	5.9†	F1	.02	1.1	.011
2434.....	77800	8 59.6	+67 16	5.3	K5	.05	-0.1	.008
BD +59°1218.....	77818	8 59.7	+59 17	7.6	K0	.17	2.2	.008
2437.....	77912	9 0.2	+38 51	4.7	G5	.04	-0.5	.009
CD -31°6877.....	77938	9 0.3	-32 3	7.7	M5	.....	-0.1	.003
BD +17°2007.....	77985	9 0.6	+17 31	7.6	G7	.02	0.5	.004
2439.....	77996	9 0.7	+ 5 30	5.4	K2	.02	0.0	.008
2441A....	78154	9 1.6	+67 32	5.0†	F4	.07	3.5	.050
2442A....	78175	9 1.7	+23 23	6.3	F3	.16	2.9	.021
2442B....	.....	9 1.7	+23 23	6.7	F4	.16	3.3	.021
2443.....	78209	9 1.8	+52 0	4.5	F2p*	.13	2.2	.035
2444.....	78235	9 2.0	+30 3	5.4	G7	.03	0.6	.011
BD +59°1221.....	78249	9 2.1	+59 32	7.2	K2	.17	2.2	.010
2446A....	78362	9 2.7	+63 55	5.0†	cF6	.12	-0.5	.008
2447.....	78418	9 2.9	+27 3	6.3†	G3	.40	4.7	.048
ADS 7198A....	78391	9 2.9	- 6 44	8.4	F9	.14	3.5	.010
2448.....	78479	9 3.4	+17 52	7.4	K4	.06	0.3	.004
2449.....	78515	9 3.6	+22 27	5.5†	G9	.01	0.6	.010
CD -31°6936.....	78523	9 3.6	-31 52	8.5	F1	.31	3.1	.008
2450A....	78541	9 3.7	-25 27	4.8	M0	.04	-0.5	.009
C 1083.....	78558	9 3.8	-14 44	7.3	G1	.55	4.5	.027
2453.....	78668	9 4.4	-11 57	5.8	G6	.02	1.1	.011
2455.....	78715	9 4.6	+22 24	6.1	G5	.01	0.8	.009
2456.....	78732	9 4.7	- 8 23	5.7	G6	.04	0.5	.009
2463A....	79028	9 6.4	+61 50	5.5†	F9	.03	4.0	.050
2464.....	79096	9 6.8	+15 24	6.4	G7	.58	4.8	.048
ADS 7243A....	79107	9 6.9	+47 24	7.8†	F4	.04	3.7	.015
2466.....	79181	9 7.4	-19 20	5.8	G9	0.08	0.9	.010
2469(A)...	79210	9 7.6	+53 7	7.9	M0	1.68	9.0	.166
2470(B)...	79211	9 7.6	+53 7	8.0	M0	1.68	8.7	.138
2474.....	79354	9 8.4	+57 9	5.5	M0	0.04	0.1	.008
2478.....	79452	9 9.1	+35 3	6.0	G3	.15	2.3	.018
2480.....	79554	9 9.7	+15 21	5.6	K1	.04	0.3	.009
2490.....	79910	9 11.7	- 5 56	5.7†	K4	.00	0.5	.009
ADS 7284AB..	79969	9 12.0	+29 00	7.9†	K4	0.52	6.3	0.048

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

233

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
2494A....	80024	9 <sup>h</sup> 12 <sup>m</sup> 3	+35°47'	6.4†	A4n	0".06	2.0	0".013
2496.....	80105	9 12.7	-11 33	7.3	G6	.06	0.6	.005
2498.....	80130	9 12.8	+60 12	7.5	K0	.05	0.8	.005
2501.....	80218	9 13.4	+18 8	6.6	F4	.18	3.5	.024
2502A....	80290	9 13.8	+51 41	6.1	F3	.14	3.6	.032
ADS 7307A....	80441	9 14.7	+38 37	6.6†	F3	.05	3.1	.020
ADS 7307B....	.....	9 14.7	+38 37	6.8	F2	.05	3.2	.019
2505A....	80479	9 14.8	-15 25	5.9	K4	.08	0.3	.008
2506.....	80499	9 15.0	-11 33	4.9	G5	.02	0.0	.010
2507.....	80493	9 15.0	+34 49	3.3	Mo	.22	-0.2	.020
2508.....	80536	9 15.4	+25 35	7.3	G1	.16	4.3	.025
2511A....	80586	9 15.6	-9 8	5.0	G9	.03	0.9	.015
1104.....	80715	9 16.1	+40 38	8.4†	K3	.52	6.2	.036
1106.....	80719	9 16.2	-15 11	6.3	F6	.13	2.9	.021
2516.....	80874	9 17.1	-25 32	4.9	M1	.02	0.3	.012
2518.....	80956	9 17.7	+25 37	6.5	G2	.12	1.0	.008
2520.....	81058	9 18.3	+26 21	6.8	K3	.05	0.8	.006
2524A....	81146	9 18.8	+26 37	4.6	K2	.06	0.6	.016
2525.....	81169	9 18.9	-28 24	4.9	G7	.16	0.7	.014
2527.....	81192	9 19.1	+20 13	6.7	G5	.15	3.7	.025
BD +33°1859.....	81299	9 19.7	+33 12	7.9	G5	.04	0.9	.004
2528.....	81361	9 20.0	+17 1	6.3	G9	.08	0.6	.007
2529.....	81420	9 20.4	-4 41	5.8	K5	.02	0.1	.007
2530.....	81688	9 22.1	+46 2	5.6	G5	.14	1.0	.012
2533A....	81797	9 22.7	-8 14	2.2	K5	.04	-0.8	.025
2534.....	81799	9 22.7	-21 54	4.9	K3	.25	0.2	.011
2535.....	81809	9 22.8	-5 38	5.7†	G1	.23	4.2	.050
2536.....	81817	9 22.9	+81 46	4.6	K5	.03	-0.5	.010
2538A....	81858	9 23.1	+9 30	5.9†	F8	.06	3.8	.038
2539A....	81873	9 23.2	+8 37	5.9	K0	.02	0.6	.009
2540A....	81937	9 23.6	+63 30	3.8	A4n	.12	1.9	.042
BD +34°1998.....	81964	9 23.9	+34 0	7.8	K3	.....	0.2	.003
BD +33°1870.....	81976	9 24.0	+33 45	8.6†	A7s	.....	1.6	.004
2541A....	81997	9 24.1	-2 20	4.8	F4	.13	3.2	.048
2543A....	82087	9 24.7	+34 6	6.0	G8	.06	-0.2	.006
1126.....	82106	9 24.7	+6 5	7.6	K5	.53	6.8	.069
2546.....	82198	9 25.5	+35 33	5.5	M1	.13	0.2	.009
2547.....	82189	9 25.5	+72 39	5.8	F6	.10	3.3	.032
2548A....	82205	9 25.5	-26 9	5.7	K3	.03	0.4	.009
2549.....	82210	9 25.6	+70 16	4.6	F9	.09	3.7	.066
20C 532.....	.....	9 25.8	+36 46	10.2	M2	.55	9.4	.069
BD +48°1780.....	82287	9 26.0	+48 36	7.9	A4n	.03	1.7	.006
2550.....	82308	9 26.0	+23 25	4.5	K5	.06	0.5	.016
BD +20°2332.....	82309	9 26.1	+20 26	7.4	K3	0.12	0.7	.005
2552A....	82328	9 26.2	+52 8	3.3	F4	1.10	3.3	0.100

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$	
ADS	7415A....	82372	9 <sup>h</sup> 26 <sup>m</sup> 4	+20°29'	8.3	A9s	0".12	2.9	0".008
	2555.....	82395	9 26.6	+11 45	5.1	K1	.13	0.6	.013
	2556A....	82381	9 26.6	+10 9	5.3	K4	.02	-0.1	.008
	2558.....	82434	9 26.8	-40 2	3.6	A7n	.20	2.3	.055
C	1131.....	82443	9 26.9	+27 26	7.1	G9	.28	5.1	.040
	2561.....	82522	9 27.4	+36 56	6.4	K4	.06	0.3	.006
	2566.....	82635	9 28.1	+36 51	4.6	G6	.03	1.0	.019
	2569.....	82734	9 28.6	-20 40	5.2	K0	.03	0.9	.014
	2570.....	82741	9 28.8	+40 4	5.0	G8	.03	1.0	.016
BD	+8°2243....	82819	9 29.4	+ 8 38	8.1	M3	.02	-0.5	.002
	2572.....	82870	9 29.6	- 5 28	5.7	K1	.06	0.5	.009
	2573A....	82885	9 29.7	+36 16	5.5	K0	.77	5.3	.091
	2578.....	83069	9 30.8	+31 37	5.7	M2	.04	-0.4	.006
C	1143.....	83186	9 31.5	+72 12	7.8	F5	.26	3.5	.014
	2580.....	83189	9 31.5	+16 53	5.9	K1	.02	0.0	.007
	2582.....	83240	9 31.9	+ 7 17	5.4†	G9	.07	0.6	.011
	2583.....	83273	9 32.1	+25 7	6.6	F8	.11	3.0	.019
	2584.....	83287	9 32.1	+40 41	5.2	A6n	.02	2.0	.023
	2585.....	83332	9 32.5	-24 51	5.9	K1	.08	0.7	.009
	2586.....	83343	9 32.6	+14 48	6.6	F2	.12	3.0	.019
	2589.....	83425	9 33.2	+ 5 6	4.8	K3	.18	0.2	.012
	2591.....	83489	9 33.7	+69 42	5.7	G9	.09	0.7	.010
	2592.....	83506	9 33.8	+72 42	5.4	G7	.04	-0.3	.007
	2595.....	83618	9 34.7	- 0 41	4.1	K3	.08	0.4	.018
	2597A....	83698	9 35.2	+39 24	7.3†	G2	.17	4.3	.025
	2601.....	83805	9 35.8	+40 13	5.5	G6	.08	0.1	.008
	2602A....	83808	9 35.8	+10 21	4.5†	cF5	.15	-0.8	.009
	2603.....	83821	9 35.9	+26 22	6.4	K2	.05	0.4	.006
C	1153.....	84035	9 37.1	+43 10	8.1	K6	.82	7.2	.066
	2609.....	84117	9 37.7	-23 28	5.0	F7	.47	3.8	.057
	2611.....	84179	9 38.2	+64 7	6.5	A7n	.04	1.9	.012
	2612.....	84194	9 38.3	+14 29	5.6	M2	.01	-0.3	.007
	2614.....	84335	9 39.4	+57 35	5.4	M3	.02	-0.5	.007
	2615.....	84367	9 39.7	-27 19	5.0	F7	.06	2.1	.026
	2617.....	84406	9 39.9	+63 43	6.9	K0	.19	2.5	.013
	2618.....	84441	9 40.2	+24 14	3.1	cG3	.05	-1.3	.013
	2620.....	84453	9 40.3	+45 35	6.8	K0	.16	2.1	.011
	2621.....	84542	9 40.9	+ 7 10	6.0	M1	.04	-0.1	.006
	2622.....	84561	9 41.0	+12 16	5.9	K4	.02	0.1	.007
	2623.....	84607	9 41.2	+ 2 15	5.7	F0	.07	2.1	.019
	2624.....	84722	9 42.1	+12 2	6.4	A3n	.06	2.2	.014
	2626.....	84737	9 42.1	+46 29	5.2	G0	.24	3.8	.052
C	1163.....	84937	9 43.5	+14 14	8.3	A4sp*	.83	4.9	.021
	2632A....	84999	9 43.9	+59 31	3.9	A6n	.33	1.5	.033
	2633.....	85029	9 44.1	+40 6	6.8	M2	0.02	-0.4	0.004

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

235

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$	
C	2634.....	85040	9 <sup>h</sup> 44 <sup>m</sup> 2	+21°39'	6.5†	A8s	0".05	1.7	0".011
	2636.....	85217	9 45.3	+ 4 49	6.7†	F6	.16	3.0	.018
	2637A....	85235	9 45.3	+54 32	5.0†	A3s	.01	1.3	.018
	2639.....	85268	9 45.6	+13 32	6.7	Mo	0.04	-0.3	.004
	1167.....	.....	9 46.2	-11 49	10.1	M2	1.85	9.5	.076
20C	2644.....	85373	9 46.3	+38 23	7.0†	A3n	0.06	2.1	.010
	2645.....	85444	9 46.7	-14 23	4.3	G6	.03	0.5	.017
	2648.....	85503	9 47.1	+26 29	4.1	K3	.23	0.5	.019
	553.....	.....	9 48.8	+63 16	9.1	M1	.69	8.9	.091
	2654.....	85762	9 48.9	+ 5 25	7.0	Mo	.03	-0.1	.004
BD	2656.....	85841	9 49.5	+73 21	6.0	K3	.08	0.5	.008
	2657.....	85859	9 49.7	-25 28	5.0	K3	.21	1.2	.017
	+0°2582....	85904	9 49.9	+ 0 17	8.1	M4	.08	-0.4	.002
	2658.....	85951	9 50.2	-18 32	5.2	M1	.05	0.2	.010
	2660.....	85945	9 50.3	+57 54	6.0	G5	.07	0.5	.008
	2662.....	86012	9 50.7	+32 51	6.6	F3	.04	2.9	.018
	2663.....	86080	9 51.1	+ 9 24	5.9	K2	.09	0.3	.008
	2665.....	86146	9 51.6	+41 32	5.5†	F5	.12	3.0	.032
	2668.....	86322	9 52.6	+75 14	7.1	K0	.07	0.2	.004
	2670.....	86359	9 52.8	+15 42	7.6	G7	.04	2.3	.009
C	2671.....	86369	9 52.8	+ 8 47	6.3	K3	.04	0.0	.005
	2673.....	86378	9 53.0	+57 17	6.0†	K5	.05	0.5	.008
	2675.....	86513	9 53.8	+30 7	5.9	G9	.11	0.3	.008
	2677.....	86564	9 54.2	-28 50	7.3	G5	.01	0.2	.004
	1189.....	86661	9 54.9	+56 5	8.3	K0	.50	5.4	.026
C ADS	2680.....	86663	9 54.9	+ 8 31	4.9	M2	.04	-0.1	.010
	2681.....	86728	9 55.2	+32 25	5.6	G4	.68	4.8	.069
	1192.....	86839	9 56.1	+71 21	8.3	G2	.24	4.3	.016
	7621A....	87127	9 57.9	+38 30	6.8	F7	.17	3.0	.017
	2684.....	87141	9 58.0	+54 23	5.7	F4	.02	3.1	.030
ADS	2685.....	87301	9 59.0	+ 3 41	6.4	F3	.13	2.8	.019
	7632A....	87443	9 59.9	+31 34	8.4†	Ag्न	.04	2.5	.007
	2693.....	87682	10 1.6	+ 6 6	6.3	G6	.04	0.7	.008
	2696A....	87837	10 2.6	+10 29	4.6	K5	.12	0.2	.013
	2698B....	87884	10 2.9	+12 29	7.6	K1	.25	5.5	.038
ADS	7655A....	87998	10 3.6	-19 15	7.2	F8	.36	3.9	.022
	2700.....	88048	10 4.0	+ 6 40	6.8	K4	.02	0.5	.005
	2701.....	88161	10 5.0	+41 9	6.5	K3	.02	0.2	.005
	2704.....	88218	10 5.2	-35 22	6.3	F9	.44	3.7	.030
	2705.....	88215	10 5.2	-12 19	5.4	Ag्न	0.18	2.0	.021
C	1218.....	88230	10 5.3	+49 58	6.8	Mo	1.45	8.3	.200
	2706A....	88284	10 5.7	-11 52	4.1†	G9	0.22	0.1	.016
C	2708.....	88333	10 6.0	- 7 56	5.8	K2	.05	0.4	.008
	1222.....	88371	10 6.3	+24 15	8.6	G2	.41	4.5	.015
	2711A....	88355	10 6.3	+13 51	6.8†	F3	0.07	3.3	0.020

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD +51°1585.....	88512	10 <sup>h</sup> 7 <sup>m</sup> 4	+51° 0'	6.9†	A6n	0".01	2.2	0".011
BD - 9°3017.....	88517	10 7.4	- 9 49	8.5	M6	.....	-0.2	.002
C 1225.....	233719	10 7.5	+53 1	9.2	M0	.75	7.8	.052
BD +51°1586.....	233720	10 7.5	+50 48	7.9	G8	.04	0.7	.004
2714.....	88547	10 7.6	+ 5 7	5.9	K0	.06	0.4	.008
20C 567.....	.....	10 7.9	+10 6	9.8	K5	.63	6.3	.020
2717.....	88697	10 8.8	- 6 53	7.3	F6	.19	3.2	.015
C 1229.....	88725	10 8.9	+ 3 39	7.7	G0	.46	4.0	.018
2718.....	88742	10 9.0	-32 32	6.4	G0	.36	4.6	.044
2719.....	88764	10 9.2	- 7 30	7.1	G7	.04	1.1	.006
2720.....	88786	10 9.3	+31 58	6.6	G3	.05	0.5	.006
2727.....	88986	10 10.8	+29 11	6.5	G0	.11	4.0	.032
ADS 7704AB..	88987	10 10.8	+18 14	7.3†	F2	.01	2.8	.013
2728(B)...	89010	10 11.0	+24 0	5.9	G2	.21	4.2	.046
2730(A)...	89025	10 11.1	+23 55	3.9†	F0	.03	1.3	.030
2731.....	89056	10 11.3	+14 14	5.7	M1	.04	0.0	.007
2734A....	89125	10 11.7	+23 36	5.8	F3	.42	4.0	.044
2735.....	89254	10 12.7	- 7 34	5.4	F1	.16	1.6	.017
2736.....	89269	10 12.8	+44 33	6.7	G5	.31	4.4	.035
ADS 7721A....	89376	10 13.7	+21 4	9.3†	K5	.17	6.7	.030
BD +15°2188.....	89396	10 13.9	+15 10	8.5	K5	.06	0.5	.003
2740.....	89414	10 14.1	+54 43	6.2	K3	.02	0.1	.006
C 1244.....	.....	10 14.2	+20 22	9.4	M4e	.49	11.0	.209
2741.....	89449	10 14.3	+19 59	5.0	F5	.33	3.3	.046
2742(A)...	89484	10 14.5	+20 21	2.6	K1	.34	0.3	.035
2743(B)...	89485	10 14.5	+20 21	3.8	G5	.35	1.1	.029
C 1246.....	89668	10 15.7	- 0 58	9.4	M0	.68	8.1	.055
C 1247.....	89707	10 16.0	-14 59	7.0	F5	.34	3.8	.023
2750.....	89744	10 16.2	+41 44	5.9	F6	.19	3.5	.033
2751.....	89758	10 16.4	+42 0	3.5†	K5	.08	-0.1	.019
20C 576.....	89777	10 16.5	-16 32	9.1	K1	.54	5.7	.021
ADS 7744A....	89906	10 17.4	+15 51	7.4	G2	.29	4.8	.030
2757.....	89962	10 17.8	+ 7 3	6.6†	K3	.11	0.7	.007
2759.....	90043	10 18.4	- 0 24	6.6	K0	.06	1.4	.009
2761.....	90040	10 18.4	+34 13	5.8	K1	.03	0.5	.009
2762.....	90089	10 18.9	+83 4	5.3	F1	.08	3.4	.042
2765.....	90250	10 20.0	+35 56	6.6	K0	.14	0.9	.007
2766.....	90254	10 20.0	+ 9 18	5.9	M3	.04	0.0	.007
2768.....	90277	10 20.2	+34 18	4.8	F3	.11	2.1	.029
2770.....	90362	10 20.7	- 6 33	5.8	M1	.19	-0.5	.005
2771.....	90432	10 21.3	-16 20	4.1	K5	.15	0.5	.019
2772.....	90473	10 21.5	- 0 29	6.8	K2	.05	0.7	.006
ADS 7778A....	90483	10 21.7	+18 35	8.7	G5	.15	4.4	.014
ADS 7778B....	.....	10 21.7	+18 35	8.7	G5	.15	4.3	.013
2774.....	90485	10 21.7	- 3 53	6.6	G7	0.07	0.3	0.005



## SPECTROSCOPIC ABSOLUTE MAGNITUDES

237

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
ADS	2775.....	90508	10 <sup>h</sup> 21 <sup>m</sup> 9	+49°19'	G2	0".90	4.4	0".038
	2776A....	90537	10 22.1	+37 13	G8	.16	0.6	.017
	7779A....	90572	10 22.3	+ 4 4	G9	.15	2.2	.009
	2780.....	90633	10 22.8	+66 8	K2	.04	0.9	.008
C	1264.....	90711	10 23.2	- 6 5	K0	.48	5.2	.026
BD +30°	2021.....	90717	10 23.4	+30 15	K1	.03	0.8	.007
	2782.....	90718	10 23.5	+14 51	G5	.08	1.3	.007
	2785.....	90839	10 24.2	+56 30	F8	.18	3.5	.055
	2789.....	90957	10 24.9	-29 9	K5	.07	0.4	.007
	2793.....	91011	10 25.3	+ 2 40	K0	.08	2.2	.010
20C	582.....	.....	10 25.5	+46 3	M1	.84	8.2	.076
	2795.....	91075	10 25.7	+81 1	G4	.02	0.9	.007
	2796A....	91106	10 26.0	- 7 7	M0	.04	0.2	.006
BD +30°	2031.....	91163	10 26.4	+30 14	F8	.09	3.4	.013
	2799.....	91190	10 26.6	+76 14	G7	.03	0.7	.014
	2800.....	91232	10 26.9	+14 39	M2	.04	-0.6	.005
	2801.....	91256	10 27.1	+ 5 10	G9	.03	1.0	.006
	2802A....	91312	10 27.4	+40 56	A4n	.14	1.8	.025
	2806.....	91347	10 27.7	+49 42	F8	.29	3.8	.017
	2813.....	91480	10 28.7	+57 36	A9s	.07	2.7	.032
	2815A....	91550	10 29.3	-23 14	K4	.01	0.1	.009
	2816.....	91612	10 29.6	+ 7 28	G6	.12	0.8	.013
	2818.....	91706	10 30.2	-22 40	F5	.11	2.9	.022
	2819.....	91752	10 30.6	+36 51	F3	.05	3.4	.027
	2821A....	91880	10 31.4	-15 50	M1	.03	-0.4	.004
ADS	7846A....	91881	10 31.4	-26 9	F3	.....	3.1	.021
	2822.....	91889	10 31.6	-11 42	F5	.73	3.8	.040
	2824.....	92000	10 32.2	+34 36	K2	.03	0.3	.005
	2825.....	92036	10 32.5	-26 54	M2	.11	-0.1	.009
	2828.....	92095	10 32.9	+54 11	K3	.12	0.4	.009
	2829.....	92125	10 33.1	+32 30	cG2	.01	-1.6	.005
	2831.....	92168	10 33.4	+38 26	F8	.23	3.3	.027
	2832.....	92196	10 33.5	+16 39	F2	.05	3.1	.020
	2836.....	92214	10 33.7	-16 21	K0	.11	1.0	.013
	7873A....	92321	10 34.5	+38 55	K5	.03	0.3	.003
ADS	7873B....	.....	10 34.5	+38 55	K3	.03	0.6	.003
ADS	7871A....	92323	10 34.5	+ 9 22	F6	.10	3.0	.010
	2838.....	92354	10 34.7	+68 58	K3	.04	0.2	.007
	2841.....	92424	10 35.1	+66 14	K4	.18	1.2	.017
	2844.....	92523	10 35.9	+69 36	K4	.02	-0.1	.009
C	1290.....	92538	10 35.9	+66 32	G0	.21	3.6	.010
	2846.....	92588	10 36.3	- 1 13	K1	.19	2.5	.017
BD +1°	2847.....	92620	10 36.6	+32 13	M5	.03	0.0	.005
	2471.....	92706	10 37.2	+ 1 23	K2	.01	0.7	.004
	2851A....	92749	10 37.5	+ 4 6	F5	0.10	3.2	0.019

## CATALOGUE—Continued

Star		HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$
BD	+47°2853(A)...	92787	10 <sup>h</sup> 37 <sup>m</sup> 7	+46°44'	5.3	Fo	0".29	2.5	0".027
	+47°1806.....		10 38.1	+46 49	9.9	G1	.15	4.3	.008
	+47°2857(B)...	92855	10 38.1	+46 44	8.4†	Go	.28	3.9	.013
	+47°2858A....	92841	10 38.2	+ 5 16	6.0	K4	.04	0.2	.007
	+47°2858B....		10 38.2	+ 5 16	7.1	G7	.04	0.8	.005
BD ADS	+33°2022.....	92940	10 38.8	+33 9	7.6	A8s	.03	2.2	.008
	+33°7914A....	93013	10 39.4	+45 30	8.2†	G7	.04	1.1	.004
	+33°2864.....	93102	10 40.0	+ 3 1	6.6	K4	.05	0.4	.006
BD	+44°2865.....	93132	10 40.1	+57 54	6.5	M2	.08	0.3	.006
	+44°2012.....	93213	10 40.7	+44 38	8.0	F4	.16	3.6	.013
	2868.....	93244	10 40.9	+ 6 54	6.3	K1	.04	0.4	.007
	2869.....	93257	10 41.0	+19 25	5.6	K3	.10	0.4	.009
	2870.....	93291	10 41.1	+14 43	5.6	G4	.15	0.9	.011
	2872.....	93410	10 42.0	-25 31	6.9	G7	.18	1.1	.007
	2877.....	93527	10 42.7	-15 6	7.4	F2	.13	3.4	.016
	2881.....	93636	10 43.4	+29 57	6.3	K1	.10	2.0	.014
	2882.....	93704	10 44.0	- 8 34	7.2	G4	.03	1.0	.006
	2887.....	93765	10 44.4	+28 30	6.1	A8n	.02	2.2	.017
	2888.....	93813	10 44.7	-15 40	3.3	K3	.21	0.4	.026
	2890.....	93859	10 45.0	+57 7	5.8	K1	.07	0.4	.008
C	2891.....	93875	10 45.1	+59 51	5.7	K2	.06	0.7	.010
	1307.....	94028	10 46.1	+20 49	8.1	F1	.50	3.6	.013
	2896.....	94084	10 46.5	+53 2	6.6	Ko	.09	0.6	.006
	2897.....	94132	10 46.7	+70 23	6.1	G9	.43	4.4	.046
BD	+33°2049.....	94178	10 47.1	+33 31	7.6	G7	.05	2.4	.009
	2898.....	94247	10 47.5	+55 7	5.4	K2	.07	0.3	.010
	2899.....	94264	10 47.7	+34 45	3.9	K2	.30	2.2	.046
	2902A....	94388	10 48.6	-19 36	5.3	F6	.25	3.2	.038
	2903.....	94402	10 48.6	- 1 36	5.7	G6	.09	0.7	.010
	7974A....	94469	10 49.2	+21 18	8.4	F1	.02	2.9	.008
	2904.....	94480	10 49.3	+26 1	6.2	A5n	.06	1.9	.014
	2906.....	94481	10 49.3	-13 14	5.8	G4	.03	0.8	.010
	2907.....	94497	10 49.4	+34 34	5.9	G7	.09	0.9	.010
	2910.....	94600	10 50.2	+34 2	5.2	K1	.11	0.5	.011
	2912.....	94669	10 50.5	+42 33	6.1	K1	.10	0.6	.008
C	2913A....	94672	10 50.6	+ 1 16	6.0	F3	.10	2.9	.024
	2914.....	94671	10 50.6	+18 41	7.6†	G4	.07	1.2	.005
	2915.....	94705	10 50.8	+ 6 43	6.0	M5	.02	-0.9	.004
	1325.....	94718	10 50.9	+28 17	8.6	G6	.47	4.9	.018
	2916A....	94738	10 51.0	+ 0 58	6.9	K3	.01	0.1	.004
20C	599.....		10 51.4	+42 25	9.6	K3	.79	6.3	.022
BD	+ 0°2918.....	94860	10 52.0	+78 18	6.3	G7	.08	0.5	.007
	+ 0°2718.....	94864	10 52.0	+ 0 14	6.9	F4	.12	2.8	.015
	+ 0°2920.....	95128	10 53.9	+40 58	5.1	Go	.32	4.2	.066
	+ 0°2921.....	95129	10 54.0	+36 38	6.2	M2	0.10	0.0	0.006

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

239

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
2922.....	95212	10 <sup>h</sup> 54 <sup>m</sup> 5	+46° 4'	5.7	K5	0".02	0.4	0".009
2924.....	95241	10 54.7	+43 27	6.1	Go	.18	3.5	.030
2925.....	95272	10 54.9	-17 46	4.2	K1	.48	0.7	.020
2926.....	95310	10 55.2	+39 45	5.1	A7s	.07	1.6	.020
2927.....	95345	10 55.4	+ 4 9	5.0	K3	.02	0.3	.011
CD -25°8383.....	95405	10 55.7	-25 19	9.0	K3	.04	0.4	.002
2930.....	95418	10 55.8	+56 55	2.4	A2s	.09	0.7	.046
BD + 0°2725.....	95453	10 56.0	+ 0 36	7.9	A7s	.05	1.7	.006
BD +81° 359.....	95544	10 56.6	+81 35	8.3	G4	.22	4.2	.015
2931.....	95578	10 56.7	- 1 57	5.3†	M1	.04	0.1	.010
ADS 8022A....	95577	10 56.8	+15 9	8.9	F4	.08	3.2	.007
2933A....	95689	10 57.6	+62 17	2.3†	G7	0.14	0.0	.035
2935.....	95735	10 57.9	+36 38	7.6	M2	4.77	10.7	.417
2937A....	95808	10 58.3	-10 46	5.6	G6	0.14	0.9	.011
2938.....	95849	10 58.5	+ 0 32	6.2	K3	.07	0.6	.008
C 1347.....	95955	10 59.0	+66 21	8.5	K4	.26	6.6	.042
2940A....	95934	10 59.0	+38 47	6.1	A6n	.07	2.3	.017
2941.....	95976	10 59.2	+38 47	7.4	F5	.09	3.3	.015
BD +66° 697.....	96074	10 59.8	+66 25	7.7	G8	.03	2.4	.009
2942A....	96097	10 59.9	+ 7 53	4.7	F3	.35	2.1	.030
C 2943.....	96094	10 59.9	+25 45	7.5	Go	0.40	4.1	.021
1349.....	96202	11 0.5	+44 2	8.6	M2	4.54	10.1	.200
2947.....	96202	11 0.5	-26 45	5.1	F4	0.20	3.0	.038
2949.....	96418	11 1.7	+26 5	6.7	F6	.07	3.2	.020
2950A....	96436	11 1.8	+ 2 30	5.7	G7	.38	2.6	.024
C 1353.....	96511	11 2.2	+82 17	7.4†	G3	.23	4.8	.030
ADS 8065A....	96527	11 2.2	+53 22	7.6†	F9	.08	4.1	.020
2954.....	96616	11 2.7	-42 6	5.3	A5sp*	.08	1.2	.015
C 1356.....	96700	11 3.2	-29 38	6.5	G1	.55	4.1	.033
2958.....	96833	11 4.0	+45 2	3.2	K1	.07	0.5	.029
$\beta$ GC 5691C....	96972	11 4.8	+66 35	8.8	G7	.00	1.3	.003
$\beta$ GC 5691A....	97033	11 5.2	+66 34	9.0	G5	.36	3.7	.009
ADS 8083A....	97101	11 5.6	+31 0	8.8	M1	.62	8.7	.096
ADS 8083B....	97100	11 5.6	+31 0	10.4	M2	.62	10.3	.096
ADS 8083C....	97100	11 5.6	+31 0	9.0	G5	.06	2.5	.005
BD +59°1353.....	97140	11 5.8	+59 27	7.3	F9	.05	3.7	.019
C 1364.....	97233	11 6.4	-14 26	9.0	Mo	.92	8.0	.063
2967AB..	97561	11 8.4	+20 41	7.7†	G4	.42	4.1	.019
2971A....	97584	11 8.6	+74 1	7.8	K5	.41	6.4	.052
2971B....	97584	11 8.6	+74 1	8.3	Mo	.01	0.2	.002
2972A....	97603	11 8.8	+21 4	2.6	A2n	.21	2.1	.079
2973.....	97605	11 8.8	+ 8 36	5.9	K3	.13	0.7	.009
2974.....	97633	11 9.0	+15 59	3.4	A4s	.11	1.0	.033
2976.....	97778	11 9.9	+23 38	4.9	M2	.02	-1.0	.007
2977A....	97855	11 10.3	+53 19	6.3	F2	0.18	3.7	0.030

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$	
C	2978.....	97907	11 <sup>h</sup> 10 <sup>m</sup> 6	+13°51'	5.8†	K <sub>3</sub>	0".03	0.4	0".008
	2979.....	97937	11 10.7	+13 23	6.5	A6n	.09	1.9	.012
	2980.....	97989	11 11.1	+50 1	6.0	K <sub>0</sub>	.09	1.0	.010
	2983.....	98118	11 12.1	+ 2 34	5.4	Mo	.16	0.6	.011
	1375.....	.....	11 12.2	- 1 26	9.7	K6	.53	7.6	.038
ADS	2984A....	98231	11 12.9	+32 6	5.1†	Go	.73	4.3	.069
	2984B....	98230	11 12.9	+32 6	5.6†	Go	.73	4.6	.063
	2985A....	98262	11 13.1	+33 38	3.7	K <sub>3</sub>	.03	-0.1	.017
	2986.....	98281	11 13.2	- 4 31	7.3	G5	.81	4.8	.032
	8128A....	98354	11 13.8	+14 49	6.9†	F7	.16	4.3	.030
ADS	2988.....	98366	11 13.8	+ 2 12	6.0	K <sub>0</sub>	.08	0.6	.008
ADS	8131A....	98427	11 14.3	- 1 6	6.6	F6	.27	3.8	.027
	8131B....	.....	11 14.3	- 1 6	7.6	G6	.27	4.4	.023
C	2989.....	98430	11 14.3	-14 14	3.8	K <sub>0</sub>	0.23	0.8	.025
	1383.....	.....	11 14.8	+66 23	9.3	M1	2.99	9.2	.096
ADS	8140A....	98736	11 16.6	+18 44	8.2†	K <sub>0</sub>	0.18	5.4	.027
20C	630.....	.....	11 17.1	+15 0	10.3	K <sub>0</sub>	.57	5.6	.011
	2994.....	98824	11 17.3	+17 59	7.0	K <sub>2</sub>	.10	0.1	.004
	2995.....	98839	11 17.3	+44 2	5.1	G7	.04	0.1	.010
	2997.....	98991	11 18.4	-18 14	5.5†	F3	.31	2.2	.022
	2999A....	99028	11 18.7	+11 5	4.0	F4	.18	2.6	.052
	2999B....	.....	11 18.7	+11 5	6.8	F5	.18	3.1	.018
	3000.....	99055	11 18.9	+ 1 57	5.5	G7	.03	0.8	.011
	3002.....	99167	11 19.6	-10 19	5.1	Mo	.04	-0.2	.009
	3004.....	99196	11 19.8	+11 59	6.0	K4	.12	0.2	.007
	3007.....	99283	11 20.3	+56 24	5.8	G6	.07	0.9	.010
	3008A....	99285	11 20.4	+17 0	5.6	F2	.14	3.0	.030
	3011.....	99329	11 20.7	+ 4 25	6.7†	A8n	.09	2.1	.012
	3014(A)..	99491	11 21.7	+ 3 33	6.2	K <sub>0</sub>	.74	5.2	.063
	3015(B)..	99492	11 21.7	+ 3 33	7.6	K5	.74	6.2	.052
	3017.....	99564	11 22.1	-11 48	6.0	F4	.11	3.0	.025
	3020.....	99651	11 22.8	- 1 9	6.3	K <sub>2</sub>	.04	0.2	.006
C	3021A....	99648	11 22.8	+ 3 24	5.2	G7	0.03	0.0	.009
	1412.....	.....	11 23.3	+ 8 6	9.7	G7	1.21	5.3	.013
	3022.....	99747	11 23.4	+62 19	5.9	F1	0.27	3.0	.026
	3025.....	99902	11 24.5	+15 58	6.0	K4	.07	0.2	.007
	3026B....	.....	11 24.7	-23 55	7.7	F1	.05	3.3	.013
	3028.....	99984	11 25.1	+43 43	5.9	F5	.09	3.3	.030
	3029.....	99998	11 25.2	- 2 27	5.1	K5	.03	0.5	.012
	3030.....	100006	11 25.3	+18 58	5.7	K <sub>0</sub>	.08	1.0	.011
ADS	8189A....	100018	11 25.4	+41 50	8.1†	F1	.13	3.2	.010
	3031.....	100029	11 25.5	+69 53	4.1	Mo	.04	-0.3	.013
	3032A....	100180	11 26.6	+14 55	6.2	F7	.38	4.0	.036
	3032B....	.....	11 26.6	+14 55	9.0	K6	.38	7.5	.050
	3033A....	100203	11 26.7	+61 38	5.8†	F4	0.08	3.5	0.035

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

241

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$		
C	3034.....	100238	11 <sup>h</sup> 26 <sup>m</sup> 9	— 5°55'	7.3†	K1	0".10	0.6	0".005	
	1421.....	100255	11 27.1	+29 36	7.8	F2	.12	3.3	.013	
	3037(B)...	100286	11 27.3	—28 43	5.9	F7	.14	3.4	.032	
	3038(A)...	100287	11 27.3	—28 43	5.8	F6	.14	3.6	.036	
	3039.....	100343	11 27.7	— 7 17	6.2	K4	.02	0.3	.007	
C	3042.....	100407	11 28.1	—31 18	3.7	G7	.21	0.4	.022	
	1426.....	100446	11 28.4	+65 48	7.2	F5	.20	3.7	.020	
	3044.....	100563	11 29.2	+ 3 37	5.8	F5	.22	3.4	.033	
	3046.....	100615	11 29.6	+55 20	5.8	G8	0.01	0.7	.010	
	3047.....	100623	11 29.6	—32 18	6.1	K2	1.06	5.8	.087	
	3050.....	100696	11 30.2	+69 53	5.4	G6	0.18	0.8	.012	
	3058.....	100920	11 31.8	— 0 16	4.5	G8	.04	0.3	.014	
	3059.....	100949	11 32.0	—22 24	6.7	K0	.07	0.9	.007	
	3063.....	101107	11 33.0	+44 11	5.5	A7n	.15	2.0	.020	
	3066A....	101154	11 33.3	— 1 53	6.2	K1	.04	0.1	.006	
	3067.....	101153	11 33.3	+ 8 41	5.5	M6	.01	0.2	.009	
	3069A....	101177	11 33.5	+45 40	6.6†	G1	.59	4.2	.033	
	3069B.....	.....	11 33.5	+45 40	8.7†	K5	.59	6.6	.038	
	3070.....	101198	11 33.6	—12 39	5.6	F5	.14	3.4	.036	
	654.....	101206	11 33.7	+42 52	8.3†	K5	.46	6.9	.052	
C	+45°	1437.....	101227	11 33.8	+44 51	8.3†	G4	.28	5.3	.025
BD		1951.....	101300	11 34.4	+45 5	8.2	A8n	.01	1.9	.005
3074.....		101484	11 35.6	+21 54	5.4	K1	.08	0.6	.011	
3075.....		101501	11 35.8	+34 46	5.5	G6	.39	5.2	.087	
3077.....		101563	11 36.2	—28 39	6.8†	G0	.38	3.9	.026	
BD	+45°	1955.....	101585	11 36.3	+44 45	7.8	M3	.02	—0.2	.003
BD	+68°	3078.....	101606	11 36.4	+32 18	5.7	F1	.35	3.6	.038
		658.....	101656	11 36.8	+68 45	9.1	G4	.67	4.4	.011
		3081.....	101673	11 36.9	+67 18	5.5	K2	.06	0.1	.008
		3083.....	101853	11 38.3	+42 17	6.8	G8	.03	0.7	.006
C		3086.....	101933	11 38.8	— 6 7	6.2	G8	.08	0.7	.008
		1449.....	101967	11 39.0	+45 3	7.8	F4	.22	3.2	.012
		3087.....	102070	11 39.7	—17 48	4.9	G8	.05	0.6	.014
C		1452.....	102158	11 40.3	+48 14	8.0	F9	.65	3.8	.014
		3089.....	102212	11 40.7	+ 7 5	4.2	M1	.19	—0.5	.011
ADS		3090.....	102224	11 40.8	+48 20	3.8	K1	.14	0.4	.021
		3093.....	102328	11 41.6	+56 11	5.4	K3	0.04	0.6	.011
		3095.....	102365	11 41.7	—39 57	5.0	G4	1.57	5.2	.110
		3098A....	102509	11 42.8	+20 46	4.8†	F4	0.16	3.4	.052
		8311A....	102590	11 43.5	+14 50	5.9	A6n	.12	2.3	.019
BD	+34°	3100.....	102620	11 43.7	—26 12	5.4	M4	.03	—0.5	.007
		3101A....	102647	11 44.0	+15 8	2.2	A4n	.51	2.1	.096
		3105.....	102870	11 45.5	+ 2 20	3.8	F8	.79	4.0	.110
		3108.....	102928	11 45.9	— 4 47	6.1†	K0	0.01	2.2	.017
		2264.....	102942-3	11 46.0	+33 56	6.4†	F1†	.....	2.1	0.014

## CATALOGUE—Continued

	Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$
BD ADS BD	3110.....	103026	11 <sup>h</sup> 46 <sup>m</sup> 6	-30°16'	6.0	F5	0".31	3.4	0".030
	+87°3112.....	103095	11 47.2	+38 26	6.5	G5	7.04	6.3	.091
	99.....	103126	11 47.4	+86 47	9.1	K0	0.34	5.6	.020
	8337A....	103246	11 48.3	+74 19	7.1†	F7	.09	3.5	.019
	+14°2447.....	103311	11 48.7	+14 35	8.1	F0	.03	2.8	.009
$\beta$ GC $\beta$ GC	3118.....	103327	11 48.8	- 3 13	7.3	G6	.07	4.1	.023
	5960A....	103432	11 49.4	+19 58	8.4	G6	.45	4.8	.019
	5960B....	103431	11 49.5	+19 59	8.4	G7	.44	5.2	.023
	3119.....	103462	11 49.6	-25 10	5.5	G4	.08	1.1	.013
	3121.....	103484	11 49.9	+ 9 0	5.6	K0	.03	1.0	.012
C	3123A....	103578	11 50.5	+16 12	5.8†	A4s	.02	1.2	.012
	3124.....	103596	11 50.6	-27 55	6.1	K5	.03	0.1	.006
	3125.....	103605	11 50.8	+57 9	5.9	K0	0.01	0.5	.008
	1487.....	103932	11 53.0	-27 8	7.2	K6	1.24	7.0	.091
	3128.....	103945	11 53.1	+ 4 2	6.9	M4	0.01	-0.9	.003
	3132A....	104055	11 53.9	+ 1 5	6.5	K3	.07	-0.1	.005
	3136.....	104216	11 55.1	+81 25	6.4	M4	.07	-1.0	.003
	3137.....	104304	11 55.6	- 9 53	5.6	G7	.49	4.7	.066
	3140.....	104356	11 55.9	- 1 13	6.4	G8	.08	0.3	.006
	3141.....	104438	11 56.5	+36 36	5.6	K1	.14	0.5	.010
BD	3142.....	104452	11 56.6	+22 39	6.6	F6	.04	1.8	.011
	3145.....	104556	11 57.4	+43 39	6.8	G9	.62	4.5	.035
	+30°2217.....	104710	11 58.4	+30 14	7.7	M5	.03	-0.1	.003
	3148.....	104731	11 58.5	-41 52	5.3	F4	.34	3.1	.036
	3149.....	104755	11 58.6	+ 6 7	6.5	F2	.17	3.2	.022
C	1492.....	104800	11 59.0	+ 3 55	9.3	G0	.57	3.2	.006
	3150A....	104827	11 59.2	+22 1	6.1†	A8s	.04	2.1	.016
	3150B.....	.....	11 59.2	+22 1	7.5	F2	.04	2.9	.012
	3154.....	104904	11 59.7	+86 8	6.4	F6	.11	2.5	.017
	3155.....	104979	12 0.1	+ 9 17	4.2	G5	.22	1.1	.024
C	1497.....	104988	12 0.1	- 0 57	8.4	K0	.53	5.4	.025
	3156.....	104985	12 0.2	+77 28	6.0	G8	.17	0.7	.009
	3157A....	105043	12 0.6	+63 30	6.2	K2	.09	0.6	.008
	3158.....	105089	12 0.9	- 2 34	6.5	G8	.05	0.6	.007
	8419AB..	105122	12 1.0	+69 15	7.8†	F5	.06	3.0	.011
BD BD ADS	+28°2077.....	105101	12 1.0	+28 7	9.7	F9	.09	3.1	.005
	+ 0°2897.....	105390	12 3.0	+ 0 11	8.9	F4	.07	2.9	.006
	8434B....	105422	12 3.1	+56 1	8.4	G1	.18	4.3	.015
	3166.....	105452	12 3.3	-24 10	4.2	F2	.09	2.8	.052
	8440A....	105590	12 4.3	-11 18	6.8	G2	.34	4.2	.030
C	1511.....	105631	12 4.6	+40 49	7.4	K1	.32	5.4	.040
	3169.....	105639	12 4.6	+ 2 28	6.1	K3	.19	1.8	.014
	3171.....	105702	12 5.0	+ 6 22	5.7	F6	.17	1.5	.014
	3172.....	105707	12 5.0	-22 4	3.2	K3	.06	0.3	.026
C	1515.....	105791	12 5.6	+66 13	8.7	F1	0.31	3.4	0.009



## SPECTROSCOPIC ABSOLUTE MAGNITUDES

243

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$	
ADS	3177A....	105943	12 <sup>h</sup> 6 <sup>m</sup> 5	+82° 16'	6.3	K5	0".02	-0.1	0".005
ADS	8450A....	105963	12 6.5	+53 59	7.5	K2	.22	6.4	.060
	8450B....	.....	12 6.5	+53 59	7.7	K1	.22	5.9	.044
	3179.....	106002	12 6.8	+57 37	6.5	K5	.02	0.1	.005
	3180.....	105981	12 6.8	+26 26	6.1†	K4	.06	0.3	.007
	3181.....	106057	12 7.1	+21 6	5.7	G8	.03	1.0	.011
C	1522.....	106116	12 7.4	- 2 32	7.4	G6	.74	4.6	.027
C	1523.....	106156	12 7.8	+10 36	8.0	K1	.43	5.3	.029
C	1524.....	106210	12 8.1	+11 24	7.9	G2	.59	4.3	.019
ADS	8470A....	106365	12 9.1	+33 20	6.8	K3	.13	0.7	.006
	3186.....	106478	12 9.8	+53 59	6.3	K0	.02	0.9	.008
ADS	8477A....	106515	12 10.0	- 6 42	7.7†	G5	.27	4.6	.024
ADS	8477B....	.....	12 10.0	- 6 42	7.7	G8	0.32	5.2	.032
C	1533.....	106516	12 10.0	- 9 44	6.1	F3	1.02	3.5	.030
	3189.....	106574	12 10.4	+70 45	5.9	K2	0.04	0.4	.008
ADS	8486A....	.....	12 10.9	+ 6 12	10.0	K6	.32	7.4	.030
	3193A....	106690	12 11.1	+41 13	5.8	M0	.05	0.3	.008
	3194.....	106714	12 11.3	+24 30	5.1	G8	.03	0.9	.014
	3195.....	106760	12 11.5	+33 37	5.4†	K0	.12	0.5	.010
	3196A....	106798	12 11.9	+80 41	7.3	A8n	.03	2.0	.009
C	1536.....	106811	12 11.9	+64 11	8.4	G3	.29	4.2	.014
	3198A....	106887	12 12.5	+29 30	5.7	A9n	.06	2.5	.023
BD	+15° 2441.....	106888	12 12.5	+15 0	8.1	F8	.06	4.2	.017
C	1539.....	106949	12 12.8	+15 35	8.3	F6	.15	3.1	.009
BD	+19° 2547.....	106972	12 13.0	+19 0	7.5	F5	.03	3.1	.013
	3201A....	106976	12 13.0	- 3 24	6.6	F4	.02	3.0	.019
	3201B....	106975	12 13.0	- 3 24	7.0	F5	.02	3.2	.017
C	1541.....	107054-5	12 13.5	+30 49	6.1	A7n	.15	2.4	.018
ADS	8506A....	107068	12 13.6	+12 21	8.7	G1	.....	3.0	.007
ADS	8506B....	.....	12 13.6	+12 21	9.2	G1	.....	3.9	.009
	3204.....	107113	12 13.9	+86 59	6.3	F0	.21	3.2	.024
C	1542.....	107146	12 14.1	+17 6	7.0	G3	.24	5.2	.044
BD	-15° 3450.....	107149	12 14.1	-15 43	7.8	M1	.....	-0.4	.002
	3205A....	107161	12 14.2	- 8 22	7.0	K0	.04	0.6	.005
BD	+15° 2445.....	107170	12 14.3	+15 7	6.7	G9	.07	0.4	.005
	3208.....	107192	12 14.4	+88 15	6.3	F0	.07	3.0	.022
20C	695.....	.....	12 14.4	+28 56	10.1	M2	.64	8.7	.052
	3209.....	107213	12 14.5	+28 43	6.3	F8	.24	3.1	.023
	3211.....	107274	12 14.9	+49 32	5.6	M1	.01	-0.8	.005
ADS	8514A....	107288	12 15.0	+14 25	6.9	K0	.05	0.8	.006
	3212A....	107341	12 15.3	+38 27	6.7	G7	.06	0.7	.006
	3213.....	107328	12 15.3	+ 3 52	5.1	K1	.31	0.4	.011
	3214.....	107325	12 15.3	+27 11	5.7	K2	.14	0.6	.010
	3216A....	107383	12 15.7	+18 21	4.9	G6	.14	0.6	.014
	3217.....	107418	12 15.8	-13 1	5.4	K3	0.00	0.4	0.010



## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
C 3219.....	107465	12 <sup>h</sup> 16 <sup>m</sup> 0	+58°25'	5.7	K5	0".08	0.4	0".009
BD 1551.....	107596	12 16.9	+42 42	9.1	Mo	.57	8.7	.083
BD +17°2469.....	107612	12 17.0	+17 17	6.6	A3sp*	.....	0.6	.006
BD -14°3500.....	107642	12 17.1	-15 0	6.7	K2	.....	0.4	.005
3223A....	107705	12 17.4	+ 5 52	6.5	F7	.18	3.8	.029
3224A....	107700	12 17.5	+26 24	5.1†	F2	.02	2.4	.029
3226.....	107815	12 18.1	-24 17	5.8	K1	.03	0.8	.010
3228A....	107869	12 18.6	-29 47	6.6	Mo	.00	-0.8	.003
3230.....	107950	12 19.2	+52 7	5.3†	G6	.01	0.5	.011
ADS 8539A....	108007	12 19.4	+26 8	6.6†	A6n	.04	1.9	.011
C 1563.....	108081	12 19.9	- 3 40	8.4†	G4	.26	4.6	.017
C 1564.....	108076	12 19.9	+38 52	8.1	F6	.62	3.9	.014
3233.....	108123	12 20.2	+24 29	6.1	K1	.07	0.7	.008
3234.....	108135	12 20.3	+57 20	6.0	M3	.03	0.2	.007
C 1566.....	108153	12 20.4	+32 25	9.3	K4	.46	7.0	.035
3235.....	108225	12 20.9	+39 34	5.2	G4	.09	0.9	.014
3242.....	108381	12 22.0	+28 49	4.6	K3	.12	0.4	.014
ADS 8553A....	108421	12 22.2	+27 35	9.2†	K5	.24	6.4	.027
ADS 8553B....	.....	12 22.2	+27 35	9.5	K6	.24	7.3	.036
BD +42°2307.....	108464	12 22.6	+41 55	7.5†	F3†	.05	3.1	.013
3246.....	108477	12 22.6	-16 5	6.5	G4	.03	0.1	.005
3247.....	108506	12 22.7	- 4 4	6.3†	A8n	.08	1.6	.011
3248.....	108502	12 22.8	+56 16	5.8	M2	.03	0.6	.009
ADS 8561A....	108574	12 23.2	+45 21	7.4	F8	.31	4.1	.022
ADS 8561B....	108575	12 23.2	+45 21	8.0	G2	.31	4.2	.017
3252.....	108680	12 24.0	- 1 53	7.6	M4	.05	-0.4	.003
3254.....	108722	12 24.4	+24 40	5.5	F2	.02	1.8	.018
C 1579.....	108754	12 24.6	- 2 46	8.7	G6	.70	4.7	.016
3258A....	108799	12 24.9	-12 50	6.4	F8	.25	3.8	.030
3259.....	108821	12 25.1	-23 9	5.9	Mo	.03	-0.2	.006
3261.....	108845	12 25.3	+52 5	6.2	F6	.28	3.3	.026
3262AB..	108875	12 25.5	+10 16	8.5†	F5	.08	2.8	.007
ADS 8576A....	108877	12 25.5	+ 4 4	7.4	G7	.02	0.9	.005
3264.....	108910	12 25.7	- 3 31	7.1	K4	.08	0.0	.004
3265.....	108907	12 25.7	+69 45	5.2	M4	.08	-0.5	.007
3267.....	108954	12 26.1	+53 37	6.2	F7	.18	3.9	.035
BD +17°2489.....	108957	12 26.1	+17 10	7.5	K1	.02	0.8	.005
20C 713.....	.....	12 26.3	+ 9 22	9.7	M1	.84	8.8	.066
ADS 8585B....	.....	12 26.4	-10 31	8.7	F1	.08	2.4	.006
3270.....	109014	12 26.5	- 4 30	6.3	G9	.05	1.0	.009
3272.....	109085	12 26.9	-15 39	4.9†	F2	.44	2.9	.040
3273.....	109141	12 27.4	-13 18	5.7	A9n	.15	1.2	.013
ADS 8591A....	109213	12 28.0	+75 22	7.5	G9	.02	0.8	.005
3274.....	109217	12 28.0	+10 51	6.5	G7	.06	0.7	.007
3275.....	109272	12 28.4	-12 17	5.8	G8	0.05	0.8	0.010

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
3278.....	109317	12 <sup>h</sup> 28 <sup>m</sup> 7	+33°48'	5.4	G7	0".04	0.6	0".011
3279.....	109358	12 29.0	+41 54	4.3	G0	.76	4.2	.096
3280.....	109379	12 29.1	-22 51	2.8	G4	.06	0.0	.027
3284(B)...	109510	12 30.1	+18 56	7.2†	A9s	.02	2.5	.011
3285(A)...	109511	12 30.1	+18 56	5.2	G9	.02	0.4	.011
ADS 3287.....	109551	12 30.5	+70 34	5.5†	K2	.03	0.3	.009
ADS 8606A....	109628	12 31.0	+11 57	9.0†	G0	.30	3.4	.008
8606B.....	.....	12 31.0	+11 57	9.0	G0	.30	4.5	.013
3288.....	109646	12 31.1	+80 48	7.4	F3	.08	3.1	.014
3291.....	109742	12 32.0	+17 38	5.8	K5	.05	0.3	.008
3293A....	109799	12 32.4	-26 35	5.4	F2	.12	3.0	.033
3294.....	109896	12 33.3	+ 2 24	6.0	M3	.09	0.0	.006
3295A....	109944	12 33.6	- 3 49	7.2†	M0	.05	-0.5	.003
3298.....	110014	12 34.1	- 7 27	4.8	K3	.08	0.3	.013
3299.....	110024	12 34.1	+21 37	5.8†	G8	.08	0.5	.009
C 1604.....	110313	12 36.0	+69 21	8.2	G1	.46	4.3	.017
BD +84°284.....	.....	12 36.1	+84 11	10.0	K1	.20	6.1	.017
BD +75°479.....	110312	12 36.1	+74 58	8.1	K4	.02	-0.2	.002
3303(B)...	110317	12 36.1	-12 28	6.4†	F1	.12	1.9	.013
3304(A)...	110318	12 36.1	-12 28	6.3†	F6	.13	2.1	.014
3307A....	110379	12 36.6	- 0 54	3.6	F0	.56	2.8	.069
3307B....	110380	12 36.6	- 0 54	3.7	F0	.56	2.9	.069
3308.....	110418	12 36.8	- 6 57	7.2	M1	.05	-0.4	.003
BD +84°286.....	110533	12 37.8	+84 12	7.7†	F9	.23	3.4	.014
3316.....	110619	12 38.4	-37 9	7.5	G5	.71	4.9	.030
3317.....	110646	12 38.5	- 1 2	6.1	G4	.10	2.8	.022
3318.....	110666	12 38.7	-27 47	5.7	K4	.07	0.3	.008
3321.....	110897	12 40.3	+39 49	6.0	F9	.38	4.3	.046
3326.....	111028	12 41.3	+10 6	5.9	K1	.53	2.4	.020
3327.....	111067	12 41.7	+17 7	5.3	K4	.01	0.3	.010
3330.....	111199	12 42.4	- 5 45	6.3	F5	.05	2.9	.021
3331.....	111239	12 42.8	+ 4 7	6.7	M4	.01	0.2	.005
3336.....	111335	12 43.5	+67 20	5.7	K5	.01	0.3	.008
C 1627.....	111395	12 43.9	+25 23	6.4	G6	.37	4.9	.050
C 1628.....	111456	12 44.3	+60 52	5.9	F6	.10	3.1	.027
C 1630.....	111515	12 44.6	+ 1 45	8.1	G6	.66	4.9	.023
C 1633.....	111631	12 45.6	- 0 13	8.7	M0	.39	8.4	.087
3344A....	111720	12 46.2	- 9 48	6.5	G8	.02	0.9	.008
3346.....	111765	12 46.5	+ 3 36	6.1	K4	.04	0.3	.007
3347.....	111812	12 46.8	+28 5	5.1	F5	.03	2.3	.027
ADS 8690A....	111844	12 47.0	+19 43	7.7†	F0†	.07	1.3	.005
3348(A)...	111862	12 47.2	+17 37	6.5	M0	.02	-0.3	.004
3350(B)...	111892	12 47.4	+17 39	6.9	F5	.05	2.7	.014
C 1640.....	111980	12 47.9	-17 57	8.3	F6	.88	3.0	.009
3353.....	111998	12 48.1	- 3 1	6.2	F6	0.26	3.2	0.025

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
3355A....	112033	12 <sup>h</sup> 48 <sup>m</sup> .4	+21°47'	5.2†	G6	0".06	0.7	0".013
3360.....	112097	12 48.8	+12 58	6.6†	A8s	.07	2.6	.016
3362.....	112142	12 49.2	— 9 0	4.9	M3	.03	—0.5	.008
3367A....	112300	12 50.6	+ 3 56	3.7	M3	.48	—0.1	.017
3368.....	112374	12 51.1	—25 55	6.8	cF6	.03	—1.0	.003
BD —13°3627.....	112429	12 51.5	+65 59	5.3	A5n	.04	2.0	.022
BD +44°2238.....	112575	12 52.5	—13 55	8.9	K6	.54	7.1	.044
C 1657.....	112610	12 52.9	+44 21	8.0	F4	.07	3.3	.011
C 3374.....	112758	12 53.9	— 9 18	7.7	K1	.85	5.8	.042
	112769	12 54.0	+17 57	5.0	Mo	.04	0.2	.011
C 1660.....	112956	12 55.2	+69 19	8.2	G7	.40	4.9	.022
C 1661.....	112943	12 55.2	— 2 10	9.5	Mo	.73	8.0	.050
3378A....	112992	12 55.4	— 2 50	6.1	K2	.05	0.7	.008
3379A....	112989	12 55.5	+31 19	5.1	G9	.04	0.1	.010
ADS 8735A....	113022	12 55.7	+18 55	6.1	F4	.24	3.4	.029
3380.....	113092	12 56.1	+67 8	5.5	G9	.15	0.3	.009
C 1666.....	113083	12 56.1	—26 50	8.2	F4	.54	4.0	.014
3381.....	113095	12 56.2	+17 40	6.0	G7	.03	0.5	.008
C 1667.....	113101	12 56.2	— 7 54	8.7	K0	.50	5.5	.023
ADS 8740A....	113097	12 56.3	+16 25	9.5	F6	.....	3.2	.005
3382A....	113139	12 56.4	+56 54	4.9	A6n	.10	1.8	.024
3383.....	113226	12 57.2	+11 30	3.0	G6	.27	0.4	.030
3385.....	113337	12 57.9	+64 9	6.0	F4	.18	3.3	.029
3387A....	113415	12 58.4	—20 3	6.1†	F8	.14	3.8	.035
3388AB...	113459	12 58.8	— 3 8	7.2†	A7n	.06	2.0	.009
3394.....	113817	13 1.2	—14 23	7.2	G8	.03	2.4	.011
ADS 3396A....	113847	13 1.4	+45 48	5.7	K2	.05	0.4	.009
8777A....	113865	12 1.4	+29 34	6.4	A3n	.00	1.9	.013
3397.....	113848	13 1.5	+21 41	6.0	F1	.09	3.1	.026
3398.....	113866	13 1.5	+23 9	5.9	M5	.07	—0.4	.005
3401.....	113996	13 2.4	+28 10	4.9	K5	.09	0.2	.011
3402.....	113994	13 2.4	+62 35	6.3	G7	.04	0.6	.007
3403.....	114038	13 2.7	—10 12	5.3	K3	.02	0.3	.010
$\beta$ GC 6393A....	114060	13 3.0	+24 33	8.6	G5	.27	5.1	.020
$\beta$ GC 6393B.....	.....	13 3.0	+24 33	9.0	G8	.27	5.6	.021
BD + 4°2696.....	114094	13 3.2	+ 4 19	9.5	G6	.54	5.2	.014
3404.....	114113	13 3.3	— 8 27	5.7	K3	.08	0.7	.010
3405.....	114149	13 3.7	—22 35	5.1	K1	.06	0.4	.011
C 1687.....	114174	13 3.8	+ 5 46	6.9	G6	.68	4.2	.029
3406.....	114256	13 4.2	+10 33	6.0	K0	.02	0.7	.009
3408.....	114287	13 4.5	— 9 48	6.2	K5	.02	0.3	.007
BD +18°2696.....	114300	13 4.6	+18 0	8.7	Mo	.12	—0.1	.002
3412AB...	114378-9	13 5.1	+18 3	6.0†	F4	.45	3.6	.033
ADS 8810A....	114493	13 5.8	+13 50	7.3	K2	.04	0.7	.005
C 1692.....	114606	13 6.4	+10 9	8.5	F9	0.56	3.5	0.010

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

247

## CATALOGUE—Continued

	Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$
C CD	3421.....	114613	13 <sup>b</sup> 6 <sup>m</sup> 5	−37° 16′	4.9	G3	0".39	4.6	0".087
	3422A....	114642	13 6.7	−15 40	5.1	F5	.31	3.0	.038
	3423.....	114674	13 6.9	+41 19	7.3	G6	.03	0.6	.005
	1693.....	114703	13 7.0	+68 2	8.8	K1	.73	5.7	.024
	−34° 8720.....	114692	13 7.0	−34 12	7.6	F7	0.51	3.1	.013
ADS C C	3424.....	114710	13 7.2	+28 23	4.3	G0	1.18	4.5	.110
	3425.....	114729	13 7.2	−31 20	6.7	G0	0.38	4.1	.030
	8814A....	114723	13 7.3	+32.37	7.5†	F4	.04	3.2	.014
	1695.....	114762	13 7.5	+18 3	7.7	F7	.58	3.5	.014
	1702.....	.....	13 8.8	+74 23	9.8	G2	.33	4.7	.010
	3430.....	114946	13 8.8	−19 24	5.6	G6	.20	4.7	.066
	3434A....	115046	13 9.5	+11 52	5.8	M0	.09	0.1	.007
	3435(A)...	115080	13 9.7	−10 50	6.9	G3	.38	4.7	.036
	3436(B)...	115079	13 9.8	−10 49	7.8	K2	.01	0.6	.004
	3438.....	115202	13 10.6	−19 25	5.3	K1	.32	2.1	.023
ADS BD	3442.....	115337	13 11.6	+81 0	6.3	G5	.01	0.8	.008
	3443.....	115383	13 11.8	+ 9 57	5.2	F8	.38	3.7	.050
	8841A....	115404	13 11.9	+17 33	6.7†	K3	.67	6.2	.079
	3444.....	115466	13 12.2	−10 1	7.2	A8s	.09	2.3	.010
	−14° 3683.....	115467	13 12.2	−15 1	6.7	G7	.....	0.7	.006
BD BD	3445.....	115478	13 12.3	+14 12	5.4	K5	.03	0.4	.010
	3446.....	115521	13 12.6	+ 6 0	5.0	M2	.02	−0.4	.008
	+14° 2593.....	115539	13 12.7	+14 18	7.3	G4	.10	1.2	.006
	−17° 3811.....	115559	13 12.8	−17 47	9.2	G1	.19	3.7	.008
	3447.....	115604	13 13.1	+41 6	4.7	F5	0.12	2.0	.029
ADS C	3448A....	115617	13 13.2	−17 45	4.8	G6	1.52	5.2	.120
	3449.....	115659	13 13.5	−22 39	3.3	G6	0.08	0.6	.029
	8861A....	.....	13 14.9	+35 40	9.6	M1	.88	9.2	.083
	3454.....	115903	13 15.1	−10 47	7.1†	K0	.13	0.5	.005
	1722.....	116012	13 15.7	+ 4 39	8.8	K5	.58	6.4	.033
C	3455.....	116010	13 15.8	+40 41	5.7	K1	.06	0.5	.009
	1723.....	116056	13 16.1	+43 38	8.2	K2	.44	5.5	.029
	3460.....	116175	13 16.8	−12 3	7.1	M1	.03	−0.4	.003
	3466.....	116303	13 17.7	+44 26	6.4	A8s	.08	1.1	.009
	3467.....	116365	13 18.1	− 4 24	5.9	K3	.03	0.4	.008
ADS ADS	3470.....	116459	13 18.6	+85 17	7.4	F7	.13	3.4	.016
	8887A....	116495	13 18.9	+29 45	9.5†	M0	.54	8.3	.057
	8887B....	.....	13 18.9	+29 45	9.8	K6	.54	7.5	.035
	3471.....	116568	13 19.3	− 4 38	6.1†	F3	.16	3.5	.030
	3474A....	116656	13 19.9	+55 27	2.9†	A2s	.13	0.8	.038
C	3475B....	116657	13 19.9	+55 27	4.3†	A6s	.13	1.5	.027
	3477.....	116713	13 20.3	−39 14	5.2	K1p*	.20	1.6	.019
	3481.....	116870	13 21.4	−12 11	5.6	K5	.14	0.2	.008
	1738.....	116926	13 21.8	+68 42	9.7	G3	.26	4.3	.008
	3482.....	116976	13 22.1	−15 27	4.9	K3	0.13	0.7	0.014

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
3483.....	117043	13 <sup>h</sup> 22 <sup>m</sup> 6	+63°46'	6.6	G6	0".44	5.1	0".050
3484.....	117104	13 22.9	-24 42	7.3	F7	.07	2.1	.009
3485.....	117126	13 23.2	-0 19	7.8†	G1	.46	4.2	.019
3487.....	117176	13 23.5	+14 19	5.2	G5	.63	4.4	.069
3488.....	117187	13 23.6	+72 55	6.1	M1	.03	-0.5	.005
BD +34°2426.....	117262	13 24.1	+34 11	8.2	K2	.03	0.5	.003
3489.....	117246	13 24.1	-18 13	7.0	K2	.04	0.1	.004
3490.....	117267	13 24.1	-0 51	6.4	K0	.08	0.7	.007
ADS 8917A.....	.....	13 24.2	+12 0	8.6†	G8	.....	5.2	.021
3492.....	117304	13 24.3	+11 20	5.8	G9	.07	0.7	.010
BD +71° 651.....	117317	13 24.4	+70 51	7.5	A9s	.04	2.1	.008
BD -7°3631.....	117421	13 25.1	-8 4	9.6	F5	.....	3.3	.005
BD +70° 741.....	117448	13 25.3	+70 39	7.5	G8	.04	1.0	.005
3497.....	117566	13 26.1	+79 10	5.9	G4	.14	0.5	.008
C 1748.....	117635	13 26.6	-1 49	7.3	G7	.88	5.1	.036
BD +88° 77.....	117672	13 26.8	+88 4	8.4	F2	.02	2.4	.006
3499.....	117675	13 26.8	-5 44	4.8	M3	.11	0.1	.011
3500.....	117710	13 26.9	+42 37	6.2	K2	.09	0.6	.008
+9°2773.....	117697	13 26.9	+9 30	7.9	F9	.02	3.3	.012
3503A.....	117789	13 27.5	-14 51	5.6	K2	.07	0.5	.010
3504.....	117818	13 27.7	-9 39	5.4	G5	.05	1.1	.014
3505.....	117878	13 28.2	-7 7	7.1	A4n	.08	2.1	.010
ADS 8939A.....	117902	13 28.3	+35 25	7.3†	A3n	.05	2.1	.009
20C 787.....	117939	13 28.6	-38 23	7.1	G3	.62	4.8	.035
ADS 8949A.....	118036	13 29.2	+0 12	7.7†	K1	.23	6.0	.046
3507A.....	118054	13 29.4	-12 42	6.3†	A1n	.07	1.7	.012
3510.....	118219	13 30.3	-4 53	5.8	G6	.07	1.0	.011
3511.....	118216	13 30.3	+37 42	5.3†	F2	.08	2.7	.030
C 1761.....	118330	13 31.1	-0 25	7.0	F6	.23	3.4	.019
ADS 8959A.....	118328	13 31.2	+68 17	8.9†	G2	.17	4.3	.012
ADS 8959B.....	.....	13 31.2	+68 17	9.4	G4	.17	4.6	.011
3518A.....	118623	13 33.0	+36 48	5.3†	A3n	.10	2.2	.024
3522A.....	118742	13 33.7	+39 41	7.9†	G2	.28	4.1	.017
3523A.....	118741	13 33.7	+51 13	6.8†	M3	.02	-1.4	.002
3526AB.....	118889	13 34.6	+11 15	6.3†	A6n	.11	1.5	.011
3527.....	118904	13 34.8	+71 45	5.7	K2	.04	0.4	.009
BD +76° 493.....	118936	13 35.1	+76 26	8.0	G3	.29	4.2	.017
BD +48°2141.....	118954	13 35.1	+48 24	7.9	F0	.03	2.6	.009
3531A.....	119055	13 35.9	+20 28	5.7	A3s	.05	1.2	.013
3531B.....	.....	13 35.9	+20 28	8.6	A7s	.05	1.4	.004
BD +33°2361.....	119054	13 36.0	+33 21	7.8	F5	.06	3.8	.016
3533.....	119126	13 36.3	+23 0	5.8	G9	.04	0.8	.010
ADS 8992A.....	119124	13 36.4	+51 1	6.3	F9	.16	3.9	.033
3534.....	119149	13 36.4	-8 12	5.2	M2	.11	0.0	.009
20C 795.....	119217	13 36.8	+0 23	9.6	M1	0.42	8.6	0.063

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

249

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
C	3536.....	119228	13 <sup>h</sup> 36 <sup>m</sup> 9	+55°11'	4.8	M2	0.03	0.011
	1777.....	119288	13 37.3	+ 8 54	6.1	F3	.39	.024
	3537A....	119425	13 38.0	+ 4 3	5.7†	K3	.30	.010
	3538A....	119461	13 38.3	- 3 46	7.0	K4	.04	.005
	3541.....	119584	13 39.0	+23 12	6.4	K4	.07	.007
C	3542.....	119605	13 39.1	-15 41	5.7	F9	.01	.018
	3543.....	119706	13 39.7	- 7 8	7.1	K0	.04	.005
	3544.....	119756	13 40.0	-32 32	4.4	F0	0.49	.042
	1784.....	.....	13 40.2	+18 20	9.7	M1	1.86	.079
	3548A....	119853	13 40.6	-11 56	5.8	G7	0.02	.010
C	1786.....	119850	13 40.7	+15 26	8.5	M2	2.29	.200
	1789.....	119992	13 41.5	+56 23	6.4	F4	0.37	.025
	3551.....	120033	13 41.9	- 9 13	6.2	K5	.04	.007
	3553.....	120052	13 42.0	-17 22	5.8	M2	.06	.005
	3554.....	120066	13 42.0	+ 6 51	6.3	G2	.50	.032
20C	3555.....	120064	13 42.1	+26 12	6.6†	F3	.07	.022
	3557.....	120084	13 42.2	+78 34	6.1	G7	.08	.008
	3558A....	120136	13 42.5	+17 57	4.5	F6	.49	.063
	808.....	.....	13 42.5	+ 6 49	9.7	M0	.54	.052
	3559.....	120164	13 42.7	+39 3	5.6	G9	.12	.010
C	3561.....	120198	13 42.9	+54 56	5.5	A2sp*	.02	.012
	1796.....	120237	13 43.1	-35 12	6.5	F8	.57	.032
	3568.....	120348	13 43.9	+42 33	6.8	K2	.08	.005
	3570.....	120420	13 44.1	+31 41	5.8	G7	.04	.011
	3571.....	120452	13 44.4	-17 38	5.1	K2	.11	.013
ADS	9031A....	120476	13 44.5	+27 29	7.9†	K6	.46	.066
ADS	9031B....	.....	13 44.5	+27 29	8.3	K6	0.46	.066
20C	813.....	120467	13 44.5	-21 36	7.9	K6	1.82	.087
	3572.....	120477	13 44.7	+16 18	4.3	M0	0.11	.017
	3573.....	120539	13 45.0	+21 46	5.1	K5	.02	.011
C	3574.....	120565	13 45.2	+83 15	6.2	G6	.06	.009
	1804.....	120690	13 45.8	-23 53	6.5	G5	.66	.046
	3581.....	120819	13 46.7	+35 10	6.0	M1	.07	.006
	BD -17°3949.....	120901	13 47.2	-18 13	7.0	F3	.....	.027
	3584.....	120933	13 47.4	+34 56	5.0	M2	.04	.008
BD	3588.....	121107	13 48.4	+18 26	5.7	G4	.04	.009
	3589A....	121130	13 48.5	+65 13	4.8	M3	.00	.008
	3594.....	121299	13 49.6	- 1 1	5.3	K2	.09	.010
	3595A....	121325	13 49.7	- 7 34	6.5†	F7	.16	.025
	3595B....	.....	13 49.7	- 7 34	7.7	G1	.17	.021
BD	3596A....	121370	13 49.9	+18 54	3.1†	F7	.37	.105
	3598.....	121457	13 50.3	+79 29	6.6	K1	.05	.007
	3601.....	121710	13 52.0	+27 59	5.2	K5	.06	.008
	BD +44°2312.....	121825	13 52.8	+44 46	7.6	F9	.01	.018
	C 1826.....	121849	13 52.9	-33 30	8.4	G3	0.58	0.017

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$	
ADS	9072A....	121906	13 <sup>h</sup> 53 <sup>m</sup> 4	+19°57'	8.6	F2	0".06	3.0	0".008
C	1828.....	121953	13 53.7	+65 51	7.6	G2	.29	4.0	.019
	3605.....	121980	13 53.8	+15 8	6.0	K5	.09	0.6	.008
	3607.....	122066	13 54.4	-24 31	5.8	F3	.24	2.6	.023
	3608.....	122106	13 54.6	- 3 4	6.3	F5	.07	2.9	.021
20C	825.....	.....	13 54.8	+34 21	10.2	A4sp*	.54	5.0	.009
	3614.....	122430	13 56.7	-26 57	5.7	K3	.04	0.3	.008
BD	+29°2483.....	122442	13 56.8	+28 53	7.9	A7s	.01	1.9	.006
$\beta$ GC	6703A....	122510	13 57.2	-31 12	6.6†	F5	.11	2.6	.016
ADS	9090B.....	.....	13 58.5	+46 49	9.9	M4	.55	10.0	.105
ADS	9094AB...	122769	13 58.8	+ 8 58	8.5†	F5	.....	3.0	.008
	3616.....	122837	13 59.0	-14 29	6.4	G6	.05	0.8	.008
BD	+29°2486.....	122992	14 0.0	+29 37	8.2	M4	.06	-0.2	.002
	3622.....	123123	14 0.7	-26 12	3.5	K3	.17	0.4	.024
	3623.....	123139	14 0.8	-35 53	2.3	G9	.75	0.6	.046
	3625.....	123255	14 1.4	- 8 50	5.5	A8n	.14	2.2	.022
BD	+29°2493.....	123409	14 2.4	+28 54	7.0	G6	.05	2.5	.013
ADS	9115A....	123453	14 2.7	-12 27	7.7†	F7	.14	3.5	.014
	3629.....	123630	14 3.7	- 9 52	6.5	G7	.02	0.9	.008
	3630.....	123657	14 3.9	+44 20	5.4	M4	.04	-1.0	.005
C	1858.....	123760	14 4.5	+10 43	8.2†	G1	.17	4.7	.020
	3631A....	123782	14 4.6	+49 56	5.4	M2	.07	-0.3	.007
	3632.....	123934	14 5.4	-15 50	5.1	M3	.03	-1.7	.004
	3634.....	123977	14 5.7	+59 49	6.5	G8	.12	0.6	.007
	3635.....	123999	14 5.8	+25 34	5.3†	F5	.08	2.9	.033
	3638.....	124206	14 7.0	-26 47	5.2	K3	.06	0.2	.010
	3640.....	124248	14 7.2	- 9 26	7.3	A8s	.05	1.8	.008
	3641.....	124281	14 7.5	-26 9	6.3	G7	.00	0.3	.006
	3642.....	124294	14 7.6	- 9 49	4.3	K2	.13	0.6	.018
	3644.....	124425	14 8.5	- 0 22	6.1†	F4	.24	2.8	.022
	3647.....	124553	14 9.1	- 5 29	6.3	F8	.32	3.6	.029
	3649.....	124547	14 9.2	+78 1	5.3†	K4	.04	0.3	.010
	3650.....	124570	14 9.3	+13 26	5.5	F6	.27	3.4	.038
ADS	9167A....	124640	14 9.7	+55 48	8.8†	K5	.34	6.7	.038
ADS	9167B.....	.....	14 9.7	+55 48	9.1	K5	.34	6.8	.035
	3652B....	124674	14 9.9	+52 15	6.9†	F1	.06	3.2	.018
	3654A....	124675	14 9.9	+52 15	4.9†	A7n	.07	1.6	.022
	3655.....	124679	14 10.0	+10 34	5.4	G6	.17	1.0	.013
	3656.....	124730	14 10.2	+69 54	5.4	M2	.07	0.3	.010
ADS	9182A....	124757	14 10.3	+ 3 36	7.8†	F7	.19	4.1	.018
ADS	9182B....	.....	14 10.3	+ 3 36	7.9	F8	.19	4.3	.019
	3658.....	124755	14 10.4	+41 59	6.2	K3	.12	0.9	.009
	3660.....	124850	14 10.8	- 5 31	4.2	F5	0.43	3.0	.057
	3662.....	124897	14 11.1	+19 42	0.2	K0	2.28	0.2	.100
ADS	9192A....	125040	14 11.9	+20 35	6.6†	F4	0.18	3.4	0.023



## SPECTROSCOPIC ABSOLUTE MAGNITUDES

251

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
ADS 9191A....	125140.	14 <sup>h</sup> 12 <sup>m</sup> 5	+57° 8'	9.7†	G3	0".03	3.9	0".007
ADS 9191B.....	14 12.5	14 12.5	+57 8	11.0	F1	.02	2.8	.002
BD +15°2690.....	125180	14 12.7	+15 44	6.0	M3	.01	-0.3	.005
3671A.....	125276	14 13.3	-25 22	5.9	F4	.54	3.7	.036
3673.....	125351	14 13.8	+35 58	5.1†	K1	.02	0.4	.011
3678.....	125454	14 14.4	- 1 48	5.2	G9	.14	0.9	.014
C 1882.....	125455	14 14.4	- 4 41	7.6	K1	.67	5.5	.038
3679.....	125451	14 14.4	+13 28	5.3	F1	.11	3.0	.035
BD +15°2695.....	125504	14 14.7	+15 23	8.1	K5	.01	0.2	.003
3681.....	125560	14 15.0	+16 46	5.0	K3	.16	0.7	.014
3689.....	125932	14 17.3	-27 18	4.9	K3	.23	0.6	.014
ADS 9237B....	125906	14 17.4	- 7 19	7.5†	F6	.12	3.7	.017
C 1885.....	126035	14 17.6	+30 6	8.6	M0	.73	8.1	.079
3691.....	126035	14 18.0	-11 15	6.3	G7	.07	0.6	.007
C 1886.....	126053	14 18.1	+ 1 43	6.3	G3	.53	4.5	.044
3692BC..	126128	14 18.5	+ 8 54	7.6†	F2	.07	3.0	.012
3695.....	126218	14 19.1	-24 21	5.4	G8	.08	0.5	.010
3698A....	126251	14 19.3	-11 13	6.7†	F0	.08	2.6	.015
ADS 9258A....	126367	14 19.9	-19 31	6.4	A8s	.06	2.7	.018
3701.....	126400	14 20.0	-26 24	6.6	G7	0.08	2.4	.014
$\beta$ GC 6869A.....	14 21.1	14 21.1	+24 6	9.5	M1	1.39	9.0	.079
$\beta$ GC 6869B.....	14 21.1	14 21.1	+24 6	9.6	M2	1.40	9.2	.083
3703.....	126597	14 21.4	+38 51	6.3	K2	0.02	0.2	.006
3704.....	126660	14 21.8	+52 19	4.1	F6	.47	3.3	.069
3708.....	126766	14 22.3	-12 55	6.7	F2	.09	3.2	.020
3710A....	126868	14 23.0	- 1 47	5.0	F8	.13	3.6	.052
860.....	14 23.3	14 23.3	+24 18	10.2	M0	.50	7.3	.026
3711.....	126927	14 23.4	- 6 27	5.7	K5	.08	0.3	.008
3714A....	127168	14 24.8	- 3 48	7.0	F1	.11	3.2	.017
3715.....	127243	14 25.2	+50 18	5.6	G4	0.31	2.7	.026
C 1905.....	127339	14 25.6	- 8 12	9.3	M1	1.26	8.8	.079
ADS 9291A....	127356	14 25.8	-15 11	8.3†	G4	0.43	5.0	.022
20C 868.....	127506	14 26.7	+35 53	8.2	K5	.55	6.9	.055
3717A....	127665	14 27.5	+30 49	3.8	K3	.15	0.5	.022
3718A....	127700	14 27.7	+76 8	4.4	K4	.02	0.2	.014
3719AB..	127726	14 27.9	+27 7	6.5†	A3n	.09	2.0	.013
3721.....	127739	14 28.0	+22 42	6.0	F2	.13	2.6	.021
3722A....	127762	14 28.1	+38 45	3.0	A5n	.18	1.6	.052
C 1913.....	127871	14 28.7	+ 9 47	8.9	K6	.54	6.8	.038
ADS 9306A....	127930	14 29.0	+49 37	7.8	F3	.05	3.3	.013
3728.....	128165	14 30.2	+53 20	7.4	K5	.32	6.7	.072
3729.....	128167	14 30.3	+30 11	4.5	F2	.23	3.2	.055
C 1920.....	14 30.9	14 30.9	+34 11	9.5	M0	.76	8.4	.060
3733.....	128333	14 31.2	+49 48	5.9	M1	.07	-0.3	.006
3734.....	128429	14 31.7	-11 53	6.2	F5	0.95	3.1	0.024

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$
3735A*...	128620	14 <sup>h</sup> 32 <sup>m</sup> 8	-60°25'	0.3	G4	3".67	4.8	0".794
3735B*...	128621	14 32.8	-60 25	1.7	K5	3.67	6.2	.794
3736.....	128750	14 33.6	+18 44	6.0	K2	0.10	0.5	.008
3737.....	128756	14 33.6	-24 36	8.1	K0	.05	0.7	.003
3740.....	128902	14 34.5	+44 4	5.9	K2	.11	0.1	.007
ADS 3741AB...	128941	14 34.7	+52 1	7.6†	F4	.05	2.9	.011
BD + 0° 9331A....	128967	14 34.9	+27 14	8.4	F2	.04	1.9	.005
3223.....	129230	14 36.3	+ 0 32	8.1	G7	.03	0.7	.003
3752A....	129247	14 36.4	+14 9	4.4	A2n	.06	2.1	.035
3753.....	129312	14 36.7	+ 8 35	5.0	G5	.01	-0.3	.009
3754.....	129336	14 36.9	+12 5	5.6	G7	.20	0.6	.010
3757.....	129456	14 37.5	-34 45	4.1	K5	.21	0.3	.017
3758.....	129502	14 37.8	- 5 13	4.3†	F3	.34	2.7	.048
ADS 9352A....	.....	14 38.0	+19 55	9.9†	M0	.....	7.2	.029
ADS 9346A....	129580	14 38.2	+58 23	7.1	K0	.24	4.9	.036
ADS 9346B....	.....	14 38.2	+58 23	8.1	G7	.24	4.5	.019
20C 879.....	.....	14 38.4	+ 6 15	10.2	G2	.92	4.7	.008
3761.....	129712	14 39.0	+26 57	4.9	M3	.02	-0.8	.007
3762A....	129798	14 39.6	+61 41	6.3†	F4	.08	3.0	.022
3764.....	129846	14 39.9	+40 53	5.8	K4	.02	0.2	.008
3766A....	129926	14 40.2	-25 1	5.0	F1	.21	2.0	.025
3766B....	.....	14 40.2	-25 1	6.9	F9	.21	3.4	.020
3768.....	129978	14 40.4	-15 2	6.6	K2	.03	0.5	.006
3769.....	129980	14 40.5	-20 45	6.4	F9	.13	3.8	.030
3770.....	129972	14 40.6	+17 23	4.7	G6	.08	0.6	.015
3771A....	129989	14 40.6	+27 30	2.8†	K0	.05	-0.1	.026
3771B....	129988	14 40.6	+27 30	5.1	A3n	.05	1.8	.022
BD +34° 2559.....	130083	14 41.1	+34 47	8.1†	M2	.04	-0.7	.002
ADS 9380A....	130145	14 41.4	+10 5	7.6†	G1	.27	4.5	.024
3773.....	130157	14 41.5	-20 54	6.1	K5	.02	0.0	.006
ADS 9378A....	130188	14 41.7	+42 48	7.7†	F5	.13	3.2	.013
C 1948.....	.....	14 41.7	+16 57	9.3	K6	.95	7.9	.052
ADS 9387A....	130412	14 43.0	-16 55	7.4†	G7	.....	4.7	.029
3778A....	130529	14 43.5	-23 50	5.8	K1	.03	-0.3	.006
3779A....	130559	14 43.8	-13 44	5.8†	A4sp*	.07	0.3	.008
3779B....	.....	14 43.8	-13 44	6.7	A4sp*	.07	0.6	.006
BD +18° 2935.....	130652	14 44.2	+18 37	7.4	K0	.03	0.6	.004
3781.....	130694	14 44.4	-27 33	4.6	K4	.25	-0.1	.011
BD +44° 2393.....	130741	14 44.8	+44 39	9.4	F5	.06	3.9	.008
3784A....	130819	14 45.2	-15 35	5.3	F4	.13	3.1	.036
3785.....	130817	14 45.2	+38 13	6.0	F3	.28	3.1	.026
C 1960.....	130871	14 45.5	+ 7 14	9.4	K6	.60	6.8	.030
3789.....	130945	14 45.7	+46 32	5.8	F4	.09	3.1	.029
3790.....	130952	14 45.8	- 1 53	5.0	G6	.16	1.0	.016
3791.....	130989	14 46.0	-17 22	6.7	F4	0.13	3.2	0.020

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

253

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD $-20^{\circ}4107$ .....	130991	14 <sup>h</sup> 46 <sup>m</sup> 0	$-20^{\circ}12'$	7.5	G9	.....	0.5	0".004
C 1962.....	130992	14 46.0	$-23^{\circ}53'$	7.7	K5	1".02	6.9	.069
3792.....	131027	14 46.2	$-17^{\circ}57'$	6.8	G7	0.02	0.7	.006
3793A.....	131041	14 46.3	$+49^{\circ}8'$	6.1†	F6	.15	3.3	.027
3793B.....	.....	14 46.3	$+49^{\circ}8'$	7.1†	F1	.15	3.2	.017
3795.....	131111	14 46.5	$+37^{\circ}41'$	5.5	K0	.23	1.3	.014
3797.....	131117	14 46.6	$-30^{\circ}10'$	6.4	G1	.34	4.0	.033
3798A.....	131156	14 46.8	$+19^{\circ}31'$	4.8	G5	.17	5.3	.126
3798B.....	.....	14 46.8	$+19^{\circ}31'$	6.8	K5	.17	6.9	.105
ADS 9418AB..	131315	14 47.8	$+45^{\circ}20'$	8.5†	G0	.09	4.0	.013
ADS 9419A....	131316	14 47.8	$+45^{\circ}1'$	8.0	F5	.03	2.6	.008
ADS 9423A....	131334	14 47.9	$+19^{\circ}9'$	8.2†	G0	.18	4.2	.016
3801.....	131430	14 48.5	$-24^{\circ}14'$	5.4	K2	.04	0.4	.010
BD $+66^{\circ}873$ .....	131444	14 48.6	$+66^{\circ}3'$	7.2	M0	.01	-0.6	.003
ADS 9425A....	131473	14 48.7	$+16^{\circ}7'$	6.9†	F9	.02	3.4	.020
3803.....	131507	14 48.9	$+59^{\circ}42'$	5.7	K4	.18	0.4	.009
C 1972.....	131511	14 48.9	$+19^{\circ}33'$	6.0	K1	.50	5.5	.079
3804.....	131530	14 49.0	$-11^{\circ}29'$	5.8	G7	.07	0.8	.010
C 1973.....	131582	14 49.3	$+23^{\circ}45'$	8.8	K6	.82	6.9	.042
3809.....	131873	14 51.0	$+74^{\circ}34'$	2.2	K5	.03	-0.5	.029
3810.....	131918	14 51.3	$-11^{\circ}0'$	5.6	K4	0.00	0.0	.008
3812(B)..	131976	14 51.6	$-20^{\circ}58'$	8.0	M2	1.92	9.3	.182
3813(A)..	131977	14 51.6	$-20^{\circ}58'$	5.8	K5	2.04	6.9	.166
ADS 9442A....	132029	14 51.8	$+32^{\circ}42'$	6.1	A3n	.....	1.9	.014
3814.....	132052	14 52.0	$-3^{\circ}56'$	4.6	A9n	0.19	1.8	.027
C 1980.....	132142	14 52.3	$+54^{\circ}4'$	7.9	K0	1.08	5.4	.032
3816A....	132132	14 52.4	$+0^{\circ}14'$	5.7	K1	0.07	0.5	.009
3817.....	132146	14 52.5	$+16^{\circ}47'$	5.8	G5	.03	0.2	.008
3822.....	132254	14 53.1	$+50^{\circ}2'$	5.7	F7	.26	3.8	.042
3823A....	132345	14 53.5	$-10^{\circ}45'$	6.0	K4	.13	0.2	.007
$\beta$ GC 7075A....	132347	14 53.5	$-30^{\circ}19'$	7.0	F0	.07	3.1	.017
ADS 9457A....	132375	14 53.7	$-4^{\circ}35'$	6.0	F6	.38	3.5	.032
C 1988.....	132475	14 54.2	$-21^{\circ}36'$	8.5	A9sp*	.78	4.7	.017
C 1989.....	132683	14 55.3	$-10^{\circ}43'$	9.3	M0	.47	8.8	.079
3827.....	132813	14 56.0	$+66^{\circ}20'$	4.9	M5	.08	-0.3	.009
3828.....	132833	14 56.1	$-2^{\circ}22'$	5.7	M0	.05	-0.5	.006
3831A....	132933	14 56.7	$+0^{\circ}15'$	6.0†	M2	.03	-1.0	.004
3833.....	133002	14 57.1	$+82^{\circ}55'$	5.7	G0	.20	3.8	.042
3834.....	133124	14 57.7	$+25^{\circ}24'$	4.9	K5	.06	0.5	.013
3835.....	133165	14 57.8	$+2^{\circ}29'$	4.6	K0	.05	0.7	.017
3836.....	133208	14 58.2	$+40^{\circ}47'$	3.6	G5	.06	0.3	.022
3837.....	133216	14 58.2	$-24^{\circ}53'$	3.4	M4	.09	-0.3	.018
3841.....	133392	14 59.1	$+35^{\circ}36'$	5.7	G8	.05	0.4	.009
BD $+29^{\circ}2618$ .....	133544	15 0.0	$+29^{\circ}26'$	7.8	A2n	.03	1.9	.007
3842.....	133582	15 0.2	$+27^{\circ}20'$	4.7	K2	0.18	0.4	0.014

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
3843.....	133621	15 <sup>h</sup> 0 <sup>m</sup> 3	+72° 9'	6.7	G2	0".40	4.1	0".030
3847(A)...	133640	15 0.5	+48 3	5.3†	G1	.40	4.5	.069
3849.....	133774	15 1.0	-15 52	5.3	K5	.06	-0.1	.008
3851.....	133872	15 1.7	+84 20	7.1	K3	.02	0.2	.004
BD +29°2621.....	.....	15 1.8	+29 23	9.2	G6	.02	1.0	.002
BD +30°2611.....	.....	15 2.7	+30 24	8.5	F0	.04	2.2	.005
3855.....	134083	15 2.9	+25 16	5.0	F4	.26	3.3	.046
C 2010.....	134088	15 2.9	- 7 31	8.1	F8	.48	4.0	.015
C 2011.....	134113	15 3.0	+ 9 16	8.7	F8	.53	3.4	.009
C 2012.....	.....	15 3.1	+25 18	10.2	Mo	.98	8.6	.048
3856.....	134190	15 3.4	+54 56	5.2	G4	.04	0.9	.014
20C 912.....	.....	15 3.6	+32 48	10.8	G0	.51	4.0	.004
ADS 9517A....	134285	15 3.9	+ 2 4	7.8	F1	.....	2.7	.010
3858.....	134329	15 4.0	-23 36	6.8	K5	.05	0.3	.005
3859.....	134320	15 4.1	+26 41	5.7	K2	.03	0.0	.007
3860A....	134335	15 4.2	+25 29	5.9	K1	0.02	0.8	.010
2018.....	134440	15 4.7	-15 59	9.9	K0	3.60	5.7	.014
C 2019.....	134439	15 4.7	-15 54	9.4	G2	3.68	4.4	.010
3867.....	134943	15 7.5	+19 21	6.0	M4	0.00	-0.5	.005
3869.....	134987	15 7.6	-24 56	6.4	G4	.40	4.5	.042
3870.....	135100	15 8.2	+49 4	8.9†	F1	.03	2.9	.006
ADS 9535A....	135101	15 8.3	+19 39	6.8	G5	.66	4.8	.040
ADS 9535B....	.....	15 8.3	+19 39	7.6	G6	0.66	4.6	.025
ADS 9544AB...	135204	15 8.8	- 0 58	7.2†	G8	1.37	5.3	.042
20C 920.....	.....	15 8.8	- 3 26	9.6	Mo	0.78	8.2	.052
3873A....	135208	15 8.8	-18 3	6.7	F3	.12	3.2	.020
BD +59°1632.....	135244	15 9.0	+59 26	7.6	K5	.01	-0.1	.003
BD +76° 552.....	135363	15 9.6	+76 34	9.2	K1	.21	6.3	.026
3881.....	135402	15 9.8	+38 38	6.4	K2	.05	0.5	.007
3882.....	135482	15 10.2	+ 5 19	5.4	K0	.02	0.3	.010
3884.....	135534	15 10.6	-22 2	5.7	K5	.04	0.4	.009
3887A....	135722	15 11.5	+33 41	3.5	G4	.16	0.8	.029
ADS 9564A....	135725	15 11.5	- 7 55	8.2†	G4	.25	4.6	.019
3891.....	135758	15 11.7	-29 47	4.4	K0	.03	0.2	.014
BD +10°2818.....	135775	15 11.8	+10 4	6.6	F4	.....	1.9	.011
3893.....	136064	15 13.5	+67 44	5.2	F9	.46	3.1	.038
ADS 9573A....	136136	15 13.9	+44 10	8.6	G8	.03	4.4	.014
ADS 9573B....	.....	15 13.9	+44 10	8.6	G6	.03	4.8	.017
3894.....	136138	15 13.9	+20 56	5.7	G5	.04	0.5	.009
ADS 9580A....	136160	15 13.9	+10 48	6.7	F5	.08	3.6	.024
ADS 9580B....	.....	15 13.9	+10 48	8.1	G0	.08	4.2	.017
ADS 9578A....	136176	15 14.0	+27 12	7.1†	F8	.12	3.7	.021
3895A....	136202	15 14.2	+ 2 9	5.2	F6	0.64	3.3	.042
20C 923.....	.....	15 14.2	- 7 21	10.6	M5	1.32	11.0	.120
C 2043.....	136257	15 14.6	- 8 18	7.9	F8	0.21	3.4	0.013

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

255

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
C 2044.....	136274	15 <sup>h</sup> 14 <sup>m</sup> 7	+26° 4'	8.1	G4	0".58	4.4	0".018
3900.....	136366	15 15.2	-17 48	6.2	G8	.07	0.3	.007
BD -14°4182.....	136406	15 15.4	-15 1	7.5	G9	.....	0.5	.004
3902A....	136407	15 15.4	-15 11	6.1	A6n	.03	1.7	.013
3904.....	136479	15 15.8	-5 28	5.6	K1	.08	0.6	.010
3907A....	136514	15 15.9	+1 5	5.5	K4	.12	1.1	.013
3908.....	136512	15 16.0	+29 59	5.6	G7	.14	0.8	.011
ADS 9592A....	136526	15 16.1	+31 4	9.9	F3	.....	3.4	.005
ADS 9592B....	.....	15 16.1	+31 4	10.1	F4	.....	3.4	.005
3912.....	136726	15 17.2	+72 11	5.1	K4	.02	0.3	.011
C 3913.....	136801	15 17.5	-14 47	6.7	Mo	.00	0.0	.005
2055.....	136834	15 17.7	+1 47	8.7	K5	.51	6.2	.032
3917.....	136956	15 18.4	-12 1	5.8	G6	.06	0.5	.009
3918.....	137006	15 18.6	-0 40	6.1	A5n	.08	2.0	.015
3919.....	137052	15 18.8	-9 58	5.4†	F3	.18	2.9	.032
3922.....	137071	15 18.9	+39 56	5.8	K4	.03	-0.3	.006
3923A....	137107	15 19.1	+30 39	5.9†	F9	.24	4.1	.044
3926(A)...	137391	15 20.7	+37 44	4.5	A7n	.17	1.9	.030
3927(B)...	137392	15 20.7	+37 42	7.2†	G0	.17	4.5	.029
3930.....	137443	15 21.0	+63 42	5.8	K4	.11	0.5	.009
ADS 3931.....	137471	15 21.2	+15 47	5.5	M1	.03	-0.1	.008
9634A....	137557	15 21.6	+18 31	8.3†	F4	.02	3.4	.010
3932.....	137629	15 21.9	+47 25	7.2†	F9	.06	3.7	.020
3933.....	137704	15 22.4	+34 41	5.9	K5	.12	0.1	.007
3935.....	137744	15 22.6	-16 22	5.9	K4	.05	0.4	.008
3936.....	137759	15 22.7	+59 19	3.5	K3	.01	0.2	.022
$\beta$ GC 7268A....	137763	15 22.7	-8 59	6.8	K1	.35	5.8	.063
$\beta$ GC 7268B....	137778	15 22.7	-8 59	8.1	K5	.35	6.5	.048
C 2067.....	137826	15 23.1	+66 54	9.0	G4	.28	4.8	.014
3938.....	137853	15 23.3	+25 27	6.3	M1	.04	-0.1	.005
3940.....	137909	15 23.7	+29 27	4.0†	A7s	.19	1.1	.026
3941.....	137949	15 23.9	-17 6	7.2	F1p*	.07	1.0	.006
3942.....	138137	15 25.0	-16 16	5.9	G6	.02	0.7	.009
ADS 9672A....	138367	15 26.6	+57 47	6.9	F5	.30	3.6	.022
3945.....	138481	15 27.3	+41 10	5.2	K5	.02	-0.2	.008
3948.....	138562	15 27.8	-0 51	5.8	G9	.05	0.6	.009
3951.....	138688	15 28.6	-27 43	5.5†	K4	.05	0.3	.009
3952.....	138716	15 28.7	-9 43	4.8	K1	.39	2.1	.029
3958.....	138852	15 29.5	+64 33	5.9	G5	.13	1.1	.011
3959A....	138905	15 29.9	-14 27	4.0	G6	.06	1.1	.026
3960A....	138918	15 30.0	+10 52	4.5†	A5n	.07	1.6	.026
3960B....	138917	15 30.0	+10 52	5.2	F0	.07	2.3	.026
3961.....	139006	15 30.5	+27 3	2.3	A1n	.16	1.8	.079
3962A....	139063	15 31.0	-27 48	3.8	K5	.01	0.2	.019
3963.....	139074	15 31.0	+17 59	6.1	G8	0.08	0.7	0.008

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$
3966.....	139137	15 <sup>h</sup> 31 <sup>m</sup> 4	— 0°14'	6.8†	F5	0".04	2.8	0".016
3967.....	139153	15 31.6	+39 21	5.4	M2	.03	—0.3	.007
3968.....	139195	15 31.7	+10 21	5.7†	G7	.14	0.5	.009
BD +82° 456.....	139213	15 31.8	+82 14	8.7†	G2	.21	4.1	.012
3969.....	139216	15 31.8	+15 26	6.8	M6	.01	—0.9	.003
BD +28° 2447.....	139224	15 31.9	+28 45	8.3	F1	.02	3.1	.009
3970.....	139225	15 31.9	+16 27	5.9	A6n	.06	1.9	.016
3971.....	139254	15 31.9	—22 49	5.8	K0	.09	0.9	.010
3972.....	139307	15 32.2	+50 2	7.5	K5	.02	0.0	.003
BD — 0° 2990.....	139308	15 32.3	— 0 33	8.1	K1	.04	0.4	.003
ADS 9716C....	139323	15 32.4	+40 10	7.9	K5	.46	6.3	.048
ADS 9716AB..	139341	15 32.5	+40 8	7.4†	K4	.46	6.3	.060
3974.....	139446	15 33.1	—18 58	5.5	G2	.13	2.3	.023
3975(B)....	139460	15 33.3	— 8 28	6.6	F6	.03	3.5	.024
3976(A)....	139461	15 33.3	— 8 28	6.5	F6	.03	3.8	.029
ADS 9727A....	139569	15 33.8	+30 26	8.8†	F6	.03	3.3	.008
ADS 9727B.....	.....	15 33.8	+30 26	9.0	G1	.03	4.3	.011
C 2093.....	139590	15 33.9	+ 0 1	7.6	F9	.22	3.7	.017
3979.....	139641	15 34.2	+40 41	5.4	G5	.08	0.8	.012
3981.....	139663	15 34.4	—23 30	5.1	K4	.04	0.7	.013
3982.....	139669	15 34.4	+77 41	5.3	K4	.04	0.1	.009
3983(A)....	139777	15 35.0	+80 47	6.5	G3	.25	4.5	.040
3984.....	139780	15 35.0	+43 56	6.8	A1n	.00	2.1	.011
3985.....	139798	15 35.1	+47 8	5.8	F1	.16	3.2	.030
3986(B)....	139813	15 35.2	+80 47	7.6	K0	.25	5.4	.036
RW Coronae*.....	139815	15 35.2	+29 56	9.9†	F0	.....	2.9	.004
BD — 0° 2997.....	139840	15 35.3	— 0 35	8.3	G8	.11	0.7	.003
3990.....	139997	15 36.2	—19 21	5.3†	M0	.13	0.4	.010
3992.....	140027	15 36.4	+16 21	6.0	G6	.03	0.2	.007
ADS 9747AB..	140122	15 36.9	+ 0 46	8.1†	A7s	0.03	1.8	.005
C 2101.....	140283	15 37.7	—10 36	7.3	A5sp*	1.18	4.9	.033
3996.....	140301	15 37.8	—14 43	6.4	K0	0.11	2.0	.013
4000A....	140538	15 39.0	+ 2 50	5.8	G5	.17	4.4	.052
4001A....	140573	15 39.3	+ 6 44	2.8	K2	.14	0.5	.035
4002.....	140687	15 39.9	—24 24	7.5	K1	.10	2.3	.009
4003.....	140716	15 40.0	+32 50	5.6	G9	.04	0.7	.010
C 2109.....	140901	15 41.0	—37 36	6.1	G6	.50	4.8	.055
4010.....	141004	15 41.6	+ 7 40	4.4	G0	.24	4.1	.087
C 2112.....	141039	15 41.7	+53 18	7.3	G2	.26	4.0	.022
4015.....	141477	15 44.2	+18 27	4.3	M1	.11	—0.2	.013
4020A....	141652	15 45.1	+80 18	7.3†	Fop†	.05	2.5	.011
4023.....	141680	15 45.2	+ 2 30	5.3	G6	.06	0.4	.010
4024.....	141714	15 45.4	+26 22	4.7	G4	.11	1.6	.024
4026.....	141795	15 45.8	+ 4 47	3.8	A6s	.14	1.8	.040
4029.....	141853	15 46.1	—13 50	6.2	G5	0.04	0.3	0.007



## SPECTROSCOPIC ABSOLUTE MAGNITUDES

257

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$	
4031.....	141992	15 <sup>h</sup> 46 <sup>m</sup> 9	+21°17'	4.9	K5	0".05	-0.1	0".010	
4032.....	142091	15 47.5	+35 58	4.8	K1	.36	1.9	.026	
4039.....	142198	15 48.1	-16 26	4.3	G8	.16	0.6	.018	
4040.....	142267	15 48.5	+13 31	6.2	F9	.59	3.7	.032	
4042.....	142373	15 49.2	+42 44	4.6	F7	.76	3.6	.063	
C	2124.....	142474	15 49.7	+74 43	9.3	K6	.32	7.9	.052
	4047.....	142531	15 49.9	+56 7	5.9	G8	.06	0.7	.009
	4048.....	142574	15 50.2	+20 36	5.8	Mo	.08	-0.5	.005
	4051.....	142640	15 50.6	-14 6	6.7†	F4	.11	3.2	.020
	4053A....	142661	15 50.7	- 1 52	6.7	F7	.11	3.9	.027
	4054.....	142780	15 51.3	+43 26	5.5	M3	0.08	-0.3	.007
	4055.....	142860	15 51.8	+15 59	4.2†	F5	1.33	3.3	.066
	4060.....	142980	15 52.6	+14 42	5.7	K4	0.13	-0.1	.007
	4063A....	143107	15 53.4	+27 10	4.2	K2	.11	0.3	.017
	4065.....	143173	15 53.8	+83 15	7.3	A6n	.02	2.1	.009
C	2134.....	143291	15 54.5	+28 1	8.1	G7	.85	5.0	.024
	4067.....	143333	15 54.7	-16 14	5.8†	F7	.75	3.1	.029
BD +29°	2748.....	143393	15 55.0	+29 44	7.2	K3	.06	0.4	.004
	4069.....	143435	15 55.3	+36 56	5.7	K5	.03	-0.1	.007
	4074.....	143553	15 55.9	+ 4 42	5.9	K0	.08	0.9	.010
BD +30°	2735.....	143586	15 56.2	+29 55	8.6	G9	.02	2.0	.005
	4075.....	143666	15 56.7	+18 6	5.3	G6	.15	0.7	.012
	4077A....	143761	15 57.2	+33 36	5.4	G0	.81	3.9	.050
	4078.....	143787	15 57.3	-25 35	5.1	K5	.08	0.2	.010
	4079.....	143803	15 57.4	+75 52	6.9	G5	.03	0.8	.006
	4082(AB)..	144069-70	15 58.9	-11 6	5.7†	F4	.07	3.0	.029
	4083(C)....	.....	15 58.9	-11 6	7.2	G7	.08	5.1	.038
ADS	9910A....	144087	15 58.9	-11 10	6.9	G6	.11	4.3	.030
ADS	9910B....	144088	15 58.9	-11 10	7.6	K1	.11	5.9	.046
	4085.....	144204	15 59.5	+53 12	6.2	K5	.04	0.0	.006
	4088.....	144208	15 59.6	+36 54	5.9	F3	.03	3.4	.032
C	2149.....	144287	15 59.9	+25 31	7.1	G8	.86	5.3	.044
	4090.....	144284	16 0.0	+58 50	4.4†	F7	.46	3.0	.052
C	2152.....	144515	16 1.2	+10 57	8.8†	K0	.49	5.7	.024
C	2154.....	144579	16 1.5	+39 26	6.8	G8	.57	5.4	.052
	4095.....	144608	16 1.5	-20 36	4.6	G2	.07	0.6	.016
	4096.....	144690	16 2.0	-26 4	5.6	M2	.12	-0.8	.005
C	2160.....	144872	16 2.9	+38 55	8.6	K5	.59	6.6	.040
2cC	968.....	.....	16 2.9	+34 55	10.5	Mo	.64	8.3	.036
	4099.....	144937	16 3.3	+10 21	6.7	A6n	.05	2.3	.013
	4101(A)...	145001	16 3.6	+17 19	5.3	G4	.04	0.5	.011
	4102(B)...	145000	16 3.6	+17 19	6.5	K2	.05	0.7	.007
	4103.....	145002	16 3.6	+ 8 48	5.9	M3	.02	-0.3	.006
C	2163.....	145148	16 4.3	+ 6 40	6.0	K2	.76	5.6	.083
	4106.....	145206	16 4.6	- 3 12	5.7†	K5	0.02	0.2	0.008



## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$	
ADS	4107.....	145250	16 <sup>h</sup> 4 <sup>m</sup> 8	−29° 9'	5.2	K <sub>3</sub>	0".14	0.3	0".010
	4108A....	145328	16 5.3	+36 45	4.9	K <sub>1</sub>	.32	1.3	.019
	4124.....	145675	16 7.2	+44 5	6.5	K <sub>1</sub>	.34	5.2	.055
	4125.....	145713	16 7.4	+23 45	6.0	M <sub>4</sub>	.03	−0.5	.005
	9959A....	145730	16 7.4	+12 10	8.3	A8s	.....	2.9	.008
$\beta$ GC	7542B....	145743	16 7.5	+14 48	8.7	G <sub>9</sub>	.....	0.5	.002
$\beta$ GC	7542A....	145772	16 7.6	+14 49	8.1	K <sub>4</sub>	.02	0.3	.003
	4127.....	145809	16 7.8	−21 9	6.7	G <sub>0</sub>	.13	4.1	.030
	4129.....	145849	16 8.1	+36 41	6.0†	K <sub>4</sub>	.04	0.3	.007
	4130.....	145892	16 8.3	+ 5 17	5.6	K <sub>5</sub>	.05	0.3	.009
C BD	4131.....	145897	16 8.3	−11 35	5.5	K <sub>3</sub>	.02	0.1	.008
	4132A....	145958	16 8.6	+13 48	7.5†	K <sub>0</sub>	.46	5.6	.042
	4132B....	.....	16 8.6	+13 48	7.6	K <sub>1</sub>	.46	5.6	.040
	2172.....	145991	16 8.9	+66 6	9.6†	G <sub>6</sub>	.28	4.8	.011
	+32°2691.....	146025	16 9.0	+32 51	7.9	K <sub>0</sub>	.03	0.5	.003
	4134.....	146051	16 9.1	− 3 26	3.0	M <sub>0</sub>	.16	−0.1	.024
	4136.....	146169	16 9.9	+ 8 7	6.8	K <sub>4</sub>	.03	0.6	.006
	4137.....	146233	16 10.2	− 8 6	5.6	G <sub>1</sub>	.56	4.1	.050
	4138A....	146361	16 10.9	+34 7	6.8†	F6	.30	3.7	.024
	4138B....	146362	16 10.9	+34 7	6.7	G <sub>1</sub>	.30	4.0	.029
ADS	4139.....	146388	16 11.0	+19 4	5.9	K <sub>3</sub>	.10	0.6	.009
	9982A....	146413	16 11.1	+ 7 37	9.4†	K <sub>6</sub>	.....	7.2	.036
	4140.....	146436	16 11.1	−19 51	6.6	G <sub>8</sub>	.03	0.5	.006
BD	4141.....	146452	16 11.3	+11 40	7.5	G <sub>7</sub>	.06	0.7	.004
	+32°2697.....	146470	16 11.4	+32 25	8.5	K <sub>3</sub>	.04	0.5	.003
BD	−14°4389.....	146543	16 11.7	−15 5	7.4	A <sub>5</sub> n	.....	1.8	.008
BD	4142.....	146604	16 12.0	+23 22	6.6	G <sub>7</sub>	.03	1.1	.008
	+19°3077.....	146698	16 12.5	+19 6	7.6	M <sub>0</sub>	.02	0.0	.003
	4146A....	146738	16 12.7	+29 24	5.7	A <sub>3</sub> n	.03	2.0	.018
	4147.....	146791	16 13.0	− 4 27	3.3	G <sub>7</sub>	.09	0.7	.030
BD	+38°2747.....	146828	16 13.2	+38 53	8.0	K <sub>5</sub>	.03	−0.3	.002
BD	−14°4398.....	146850	16 13.3	−14 38	6.1	K <sub>4</sub>	.05	0.2	.007
BD	4150.....	146834	16 13.3	−19 58	6.4	G <sub>7</sub>	.03	0.9	.008
	+75°585.....	.....	16 13.7	+74 54	8.8	M <sub>5</sub>	.04	0.1	.002
	4152.....	146969	16 14.0	+66 37	8.2	K <sub>4</sub>	.01	−0.4	.002
C	4154.....	147025	16 14.2	+26 8	6.6	G <sub>6</sub>	.01	1.0	.008
	4155.....	147084	16 14.6	−23 56	4.8	A <sub>5</sub> s	.04	0.6	.014
	4157.....	147142	16 15.0	+75 28	6.5	K <sub>3</sub>	.04	0.4	.006
	4159.....	147232	16 15.6	+60 0	5.6	M <sub>4</sub>	.02	−0.8	.005
	2184.....	147379	16 16.5	+67 29	8.9	M <sub>0</sub>	.50	8.7	.091
	4161.....	147365	16 16.5	+39 57	5.5	A <sub>9</sub> n	.11	3.0	.032
	4163.....	147449	16 17.0	+ 1 16	4.8	A <sub>7</sub> n	.17	1.9	.026
	4165A....	147547	16 17.5	+19 23	4.1†	A <sub>6</sub> n	.06	1.5	.030
	4169.....	147677	16 18.2	+31 7	4.7	K <sub>0</sub>	.13	0.4	.014
	4170.....	147700	16 18.3	−19 48	4.6	G <sub>9</sub>	0.07	0.6	0.016

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

259

## CATALOGUE—Continued

	Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$
BD	4173(B)...	I47749	16 <sup>h</sup> 18 <sup>m</sup> 6	+34° 2'	5.4	M2	0".05	-0.1	0".008
	4175(A)...	I47767	16 18.7	+33 56	5.3	K5	.06	0.1	.009
	+32°2717.....	I47851	16 19.2	+32 52	7.9	K4	.01	0.5	.003
	4181.....	I48048	16 20.4	+75 59	5.3†	A8n	.26	1.7	.019
BD	+32°2721.....	I48096	16 20.7	+32 42	8.1	K3	.04	0.4	.003
ADS C	4182A....	I48112	16 20.8	+14 16	4.5	A2s	.08	0.9	.019
	10057A....	I48147	16 21.0	+17 32	7.9	F8	.02	3.3	.012
	2193.....	I48211	16 21.3	-21 54	7.6	F8	.42	3.5	.015
	4186.....	I48293	16 22.0	+69 20	5.4	K1	.03	0.8	.012
	4188.....	I48349	16 22.3	- 7 22	5.4	M2	.18	-0.4	.007
BD	4191A....	I48374	16 22.5	+61 55	5.9†	G7	.05	0.4	.008
	4192A....	I48387	16 22.6	+61 44	2.9	G6	.06	0.7	.036
	4192B.....	.....	16 22.6	+61 44	8.8	K1	.06	5.3	.020
	+51°2097.....	I48433	16 23.0	+51 22	7.3	A8s	.11	2.4	.010
	4193A....	I48478	16 23.3	-26 13	1.5†	M1†	.04	-3.8	.009
ADS	10069A....	I48492	16 23.4	+21 7	8.3	F9	.11	3.8	.013
C	4195.....	I48513	16 23.5	+ 0 53	5.5	K5	.08	0.1	.008
	2196.....	I48530	16 23.6	+ 3 29	9.0	K0	.53	5.5	.020
ADS	4197.....	I48604	16 24.1	-14 20	5.8	G2	.02	1.6	.014
	10075AB..	I48653	16 24.5	+18 37	7.7†	K2	0.51	5.7	.040
20C	995.....	.....	16 24.7	-12 24	10.0	M5	1.24	11.7	.219
C	2200.....	I48704	16 24.8	-38 47	7.5	K1	0.54	5.8	.046
	4201.....	I48783	16 25.4	+42 6	5.0	M6	.03	-0.6	.008
	4202A....	I48786	16 25.4	-16 24	4.4	G5	0.07	0.4	.016
	2201.....	I48816	16 25.6	+ 4 26	7.4	F7	1.45	3.6	.017
ADS C	4204.....	I48856	16 25.9	+21 42	3.1†	G5	0.11	0.1	.025
	4206.....	I48898	16 26.2	-21 15	4.6	A6s	.03	1.2	.021
	4207.....	I48897	16 26.2	+20 42	5.3	G4	.10	0.6	.011
	10094A....	I48980	16 26.7	+ 5 39	7.6	F1	.....	2.7	.010
	2202.....	I49105	16 27.4	+48 11	7.0	F8	.30	3.7	.022
	4211A....	I49141	16 27.8	+33 44	6.7	A2n	.04	1.9	.011
	4212.....	I49161	16 27.9	+11 42	4.9	M0	.20	0.0	.010
	4214B.....	.....	16 28.8	+45 49	8.6	F9	.03	4.2	.013
	4217A....	I49420	16 29.6	+30 43	7.0†	F0	.04	1.5	.008
	4222.....	I49661	16 31.1	- 2 7	5.9	K0	.55	5.4	.079
C	2214.....	I49890	16 32.6	+31 9	7.3	F7	.48	4.0	.022
C	2217.....	I49957	16 32.9	+31 19	10.0	K6	.59	7.6	.033
Anon.....	.....	.....	16 33.0	+31 22	10	A7n	.....	2.0	.002
BD	4228.....	I50030	16 33.3	+46 49	6.0	G6	.02	0.3	.007
	+31°2877.....	.....	16 33.4	+31 25	9.6	K5	.....	7.1	.032
BD	+51°2121.....	.....	16 34.2	+51 45	9.6	G1	.12	4.0	.008
ADS	4234.....	I50275	16 34.9	+77 39	6.4	K0	.29	2.2	.014
	10138A....	.....	16 35.1	+38 31	8.0	A3n	.02	2.2	.007
	4235.....	I50365	16 35.5	-17 52	6.6	F0	.06	2.8	.017
	4237(B)..	I50379	16 35.6	+ 4 24	6.9	A5n	0.02	2.2	0.011

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
4239.....	150416	16 <sup>h</sup> 35 <sup>m</sup> 8	-17°33'	5.0	G8	0".02	0.2	0".011
4240.....	150449	16 36.0	+56 13	5.4	K0	.08	0.9	.013
4242A.....	150450	16 36.0	+49 7	5.1	M2	.04	-0.2	.009
4246A.....	150680	16 37.5	+31 47	3.0	G0	.60	3.7	.138
4247.....	150682	16 37.6	+27 7	6.4†	F2	.05	3.8	.030
BD +66° 969.....		16 38.7	+66 7	9.3	F9	.....	3.3	.006
4254.....	150937	16 39.1	-23 0	6.9	F3	.04	3.1	.017
4255A.....	150997	16 39.5	+39 7	3.6	G4	.10	1.0	.030
4257A.....	151090	16 40.1	+ 6 17	6.7	G6	.35	4.5	.036
4259.....	151101	16 40.2	+64 47	5.0	K2	.02	-0.2	.009
ADS 4261.....	151179	16 40.7	-25 21	6.6	G6	.02	0.7	.007
10188AB.....	151188	16 40.8	+43 40	8.9†	K6	.....	7.0	.042
4262.....	151203	16 40.8	+15 56	5.8	M3	.05	-0.3	.006
4263.....	151199	16 40.9	+55 52	6.5†	A2sp*	.09	-0.1	.005
BD +33° 2775.....	151216	16 41.0	+33 29	9.1	K1	.06	2.2	.004
4264A.....	151217	16 41.0	+ 8 46	5.4	M0	.02	-0.1	.008
C 2238.....	151288	16 41.4	+33 41	8.2	M0	.37	8.7	.126
ADS 10201A.....	151367	16 41.8	+30 11	8.7	F1	.05	3.2	.008
4267A.....	151415	16 42.1	-24 21	7.5	M0	.02	0.1	.003
BD +34° 2839.....	151482	16 42.5	+33 59	8.1	A4n	.02	2.0	.006
C 2242.....	151541	16 42.9	+68 16	7.6	G7	.51	4.8	.027
4270.....	151613	16 43.4	+56 58	4.9	F1	.06	3.1	.044
4272.....	151680	16 43.7	-34 7	2.4	G9	.67	0.1	.035
4273.....	151769	16 44.3	-10 36	4.7	F5	.13	2.6	.038
4275.....	151837	16 44.8	+55 35	7.0	K5	.04	0.5	.005
4279.....	151937	16 45.4	+30 8	6.7	K1	.10	-0.1	.004
BD +45° 2453.....	152030	16 45.9	+45 23	8.7	F2	.04	2.9	.007
4284A.....	152107	16 46.3	+46 9	4.9	A4sp*	.08	0.3	.012
ADS 10229A.....	152113	16 46.4	+ 9 35	7.0†	F4	.13	3.4	.019
4286.....	152173	16 46.7	+29 59	5.9	M1	.01	-0.1	.006
4290.....	152311	16 47.5	-20 15	5.9	G1	.06	4.1	.044
4292.....	152334	16 47.5	-42 11	3.8	K5	.27	0.6	.023
4293A.....	152303	16 47.5	+77 41	6.0	F1	.21	3.3	.029
4294.....	152326	16 47.6	+24 49	5.2	K1	.02	-0.6	.007
ADS 10235A.....	152380	16 47.9	+28 50	6.7†	F5	0.03	3.5	.023
C 2248.....	152391	16 47.9	+ 0 11	6.8	G9	1.67	5.5	.055
4298.....	152534	16 48.8	-23 21	7.0	G7	0.03	0.9	.006
4300.....	152598	16 49.2	+31 52	5.4	A8s	.10	2.2	.023
4301.....	152601	16 49.2	- 5 59	5.4	K3	0.04	0.2	.009
TT Herculis*.....		16 49.9	+17 0	9.1†	A3s	.....	1.7	.003
C 2251AB*.....	152751	16 50.1	- 8 9	9.6†	M3e	1.24	10.3	.138
4303.....	152781	16 50.3	-16 39	6.5	K2	0.09	2.3	.014
4305.....	152792	16 50.4	+43 0	6.7	G0	.35	3.9	.027
4307.....	152815	16 50.6	+21 7	5.5	G7	.06	0.8	.011
4310A.....	152863	16 50.9	+25 54	6.3	G4	0.03	1.1	0.009

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

261

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD +75°	4311A....	152879	16 <sup>h</sup> 51 <sup>m</sup> 0	+18°36'	5.6	K5	0".11	0".009
	605.....	153143	16 52.6	+75 32	7.9†	F1	.04	.008
	4314.....	153166	16 52.7	+60 31	7.2	K3	.04	.005
	4315.....	153210	16 52.9	+ 9 32	3.4	K2	.30	.026
	4316.....	153287	16 53.4	+25 30	6.7	G5	.01	.006
ADS	10277A....	153301	16 53.5	+15 18	8.2†	G9	.....	1.3
	4317.....	153344	16 53.8	+62 16	7.0	G4	.32	4.7
	4318.....	153336	16 53.8	-24 56	5.9	M3	.02	-0.1
	4319.....	153363	16 54.0	-24 50	5.8	F4	.08	2.9
20C	1014.....	.....	16 54.1	+25 55	9.7	M2	.56	9.3
	4322.....	153597	16 55.5	+65 17	5.1†	F6	.25	3.5
	4323.....	153687	16 55.8	- 4 4	5.0	K4	.10	0.5
	4326.....	153727	16 56.0	-18 44	6.4	K0	.05	0.6
	4327A....	153751	16 56.2	+82 12	4.7†	G1	.02	0.3
	4329.....	153834	16 56.7	+22 47	5.7	K3	.03	0.0
	4330.....	153956	16 57.5	+56 50	6.1	K1	.05	0.8
	4333.....	154088	16 58.2	-28 26	6.7	G8	.29	4.8
	4336.....	154143	16 58.5	+14 14	5.1	M3	.07	0.1
	4337.....	154132	16 58.6	-25 30	6.8	A6s	.09	1.8
	BD +30°2925.....	.....	15 58.8	+29 58	8.6	F6	.02	2.8
BD +29°	4339.....	154212	16 59.0	-10 57	7.1	K2	.02	0.0
	2927.....	154227	16 59.1	+29 38	8.0	K3	.01	0.2
	4340(A)...	154228	16 59.1	+13 45	5.9	A2n	.05	2.1
C	4341(B)...	154278	16 59.4	+13 43	6.1	G9	.14	1.0
	2277.....	154345	16 59.8	+47 12	6.7	K0	0.86	5.2
C	4342.....	154363	16 59.8	- 4 54	7.9	M0	1.49	7.8
	4343.....	154356	16 59.9	+35 33	6.8	M4	0.06	-1.0
	2278.....	.....	17 0.0	- 4 56	10.0	M3	1.44	9.9
C	2279.....	154417	17 0.2	+ 0 51	5.9	F8	0.32	3.9
BD +29°	2933.....	.....	17 0.9	+29 49	8.1	K4	.04	0.8
ADS	4348A....	154660	17 1.7	- 1 31	6.2	A2n	.06	2.2
	10329A....	154712	17 2.0	+59 43	8.5	K5	.43	7.2
	4350A....	154733	17 2.1	+22 13	5.7	K4	.12	0.9
ADS	4351.....	154732	17 2.2	+48 57	6.6†	K1	.09	0.7
	10338A....	154759	17 2.3	+47 6	8.1	K3	.05	1.1
BD +73°	4352.....	154779	17 2.4	-17 29	6.1	K0	.02	0.6
	4354A....	154906	17 3.3	+54 36	5.8	F6	.11	3.3
	4354B....	154905	17 3.3	+54 36	5.8	F6	.11	3.3
	755.....	154928	17 3.4	+73 27	7.7	K5	.01	-0.3
	2284.....	154931	17 3.4	+ 4 34	7.3	F8	.21	3.7
ADS	4356.....	155078	17 4.3	-10 24	5.6	F5	.14	3.2
	4360A....	155125	17 4.6	-15 36	3.1†	A2s	.09	1.3
	4364.....	155410	17 6.3	+40 54	5.4†	K3	.05	0.5
	4366.....	155644	17 7.7	+10 42	5.6	M2	0.04	-0.4
	10394A....	155642	17 7.8	+21 21	7.2	K2	.....	1.0

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
ADS 10394B....	.....	17 <sup>h</sup> 7 <sup>m</sup> 8	+21° 21'	8.5	K0	.....	1.8	0.005
20C 1023AB...	155876	17 9.2	+45 52	10.1†	M4	1.56	10.3	.110
4370(B)...	155885	17 9.2	-26 27	5.3	K1	1.22	6.5	.174
4371(A)...	155886	17 9.2	-26 27	5.3	K3	1.24	6.5	.174
BD +14° 3206....	155967	17 9.7	+14 42	8.1	F2	.01	3.3	.011
C 2297.....	.....	17 9.9	+42 28	10.2	M1	1.07	8.8	.052
4372.....	156026	17 10.1	-26 24	6.7	K5	1.25	7.3	.132
4373(A)...	156014	17 10.1	+14 30	3.6†	M5	0.03	-1.9	.008
4374(B)...	156015	17 10.1	+14 30	5.7†	F8	.03	2.1	.019
BD -15° 4502....	156115	17 10.6	-15 6	6.8	M0	.....	-0.8	.003
BD +15° 3141....	156144	17 10.8	+15 2	8.3	G6	.03	0.9	.003
4376B.....	.....	17 10.9	+24 57	8.3	G4	.12	3.8	.013
4379A....	156266	17 11.5	- 0 20	4.9†	K4	.06	0.2	.011
4381.....	156283	17 11.6	+36 55	3.4	K5	.02	-0.1	.020
4383(B)...	156350	17 11.9	-24 11	6.9	F5	.08	2.8	.015
ADS 4384(A)...	156349	17 11.9	-24 11	5.4	K1	0.07	0.7	.011
10433A....	156342	17 12.0	+14 47	8.0	G0	.....	4.1	.017
4386A....	156384	17 12.1	-34 53	5.9	K5	1.16	7.0	.116
ADS 10425AB...	156389	17 12.2	+56 15	8.5†	F4	0.01	3.5	.010
BD -15° 4511....	156461	17 12.6	-15 41	7.2	G3	.....	2.5	.011
BD + 2° 3295....	156681	17 13.9	+10 58	5.3	K5	.10	0.1	.009
4393.....	156824	17 14.6	+ 2 40	8.6	F1	.....	3.0	.008
ADS 10448A....	156874	17 14.9	+28 56	5.8	G8	.04	0.3	.008
4394.....	156890	17 15.0	+60 49	6.7	A9n	.04	1.3	.008
4394.....	156897	17 15.0	-21 0	4.5	F2	.32	3.2	.055
VW Draconis.....	156947	17 15.3	+60 47	6.4*	G9	.05	0.2	.006
C 2310.....	156968	17 15.4	+ 9 34	8.2	G0	.31	4.4	.017
4397.....	156992	17 15.6	-24 48	6.6	K2	.06	0.6	.006
4400.....	157049	17 15.9	+18 10	5.2	M2	0.05	-0.5	.007
4403A....	157214	17 16.9	+32 36	5.4	G2	1.06	4.7	.072
4407.....	157236	17 17.1	-28 3	5.4	K5	0.04	0.1	.009
4408.....	157325	17 17.5	+46 20	5.8	M0	.05	-0.4	.006
4409.....	157370	17 17.8	+71 54	6.8	K2	.02	0.4	.005
4411.....	157482	17 18.4	+40 4	6.0†	F8	.08	3.4	.030
4412.....	157498	17 18.5	- 9 16	7.8	G1	.04	4.3	.020
4413A....	157527	17 18.7	-21 21	6.0	G7	.04	0.7	.009
4414.....	157588	17 19.0	-24 9	6.3	K1	.00	0.8	.008
4420.....	157792	17 20.3	-24 5	4.3	A9s	0.13	1.8	.032
C 2322.....	157881	17 20.8	+ 2 14	7.5	K6	1.31	7.7	.110
ADS 10530A....	157906	17 21.0	+47 22	7.8	F7	.....	3.5	.014
4421.....	157919	17 21.0	-29 47	4.4	F3	0.16	2.0	.033
4422A....	157910	17 21.0	+37 2	6.5	G2	.05	0.3	.006
4423.....	157950	17 21.3	- 5 0	5.1†	F1	.10	2.8	.035
4424.....	157968	17 21.4	-12 25	6.3	F5	.08	3.4	.026
4425.....	157999	17 21.6	+ 4 14	4.4	K1	0.00	-0.2	0.012

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

263

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
ADS 10553A....	158116	17 <sup>h</sup> 22 <sup>m</sup> 3	+29°33'	7.6	A7sp*	0".03	1.0	0".005
ADS 10553B.....		17 22.4	+29 33	9.1	K1	.....	1.0	.002
C 2326.....		17 22.9	+31 9	9.7	G7	.42	5.0	.011
BD +31°3026.....	158225	17 23.0	+31 21	7.0	F4	.03	3.1	.017
C 2328.....	158226	17 23.0	+31 10	8.6	G1	.32	4.1	.013
4433A....	158614	17 25.2	— 0 59	5.9†	G6	.21	4.8	.060
C 2333.....	158633	17 25.3	+67 23	6.3	K1	.54	5.8	.079
BD +68°930.....		17 26.2	+68 27	9.1	G7	.80	4.5	.012
4437AB..	158837	17 26.3	+ 2 48	6.6†	G3	.04	0.8	.007
BD +1°3450.....	158855	17 26.5	+ 1 45	7.2	K2	.....	0.4	.004
4438.....	158899	17 26.7	+26 11	4.8†	K4	.02	0.1	.011
4440.....	158974	17 27.1	+31 14	5.8	G8	.01	0.5	.009
4443A....	159181	17 28.2	+52 23	3.0	cG2	.02	—1.7	.011
4446.....	159332	18 29.0	+19 20	5.6	F4	.10	2.7	.026
C 2339.....	159329	17 29.1	+63 56	7.4	F9	.21	3.6	.017
4447.....	159353	17 29.2	+16 23	5.7	Kc	.06	0.9	.011
4450.....	159433	17 29.7	—38 34	4.3	K1	.22	1.0	.022
4451A....	159466	17 29.8	+13 14	6.7	G4	.04	2.5	.014
4455.....	159501	17 29.9	+41 19	5.8	K1	.11	0.8	.010
ADS 10638A....	159481	17 29.9	+ 6 6	7.5	F8	.05	3.3	.014
ADS 10638C....	159482	17 29.9	+ 6 4	8.5	F8	.62	3.8	.011
4457.....	159532	17 30.1	—42 56	2.0	cF1*	.01	—1.1	.024
4458B....	159541	17 30.2	+55 15	5.0	A8s	.16	2.3	.029
4461A....	159834	17 31.7	+21 4	5.8	A6s	.03	1.3	.013
4464.....	159966	17 32.4	+68 12	5.5†	G9	.14	0.5	.010
4467.....	160042	17 32.7	—21 51	6.7	G7	0.03	2.4	.014
C 2347.....		17 33.4	+18 37	9.8	M1	1.35	9.2	.076
C 2348.....		17 33.9	+18 37	9.1	F1	0.28	3.6	.008
4470A....	160269	17 34.0	+61 57	5.3	G1	.56	4.2	.060
4471.....	160290	17 34.0	+48 39	5.5	K1	.06	0.7	.011
4472A....	160315	17 34.1	+ 2 5	6.4	K0	.05	0.9	.008
BD +18°3424.....		17 34.3	+18 37	9.5	K5	.09	6.4	.024
4473.....	160538	17 35.4	+74 17	7.1	K0	.08	0.7	.005
C 2351.....	160605	17 35.8	+68 52	8.6	K2	0.15	5.1	.020
C 2353.....	160693	17 36.2	+37 16	8.4	F8	1.00	3.7	.011
C 2354.....		17 37.0	+68 26	9.2	M3	1.33	10.4	.174
4480A....	160835	17 37.0	+24 34	6.5	K1	0.05	0.8	.007
4480B....		17 37.0	+24 34	8.8	F1	.05	3.2	.008
BD +68°947.....	160861	17 37.2	+68 27	8.4†	F5	.07	3.1	.009
4481.....	160915	17 37.4	—21 38	4.9	F5	.10	3.5	.052
4482A....	160910.	17 37.5	+16 0	5.6	F1	.10	3.1	.032
4483.....	160922	17 37.5	+68 48	5.2†	F4	.33	3.3	.042
4485.....	161083	17 38.4	—22 9	7.1†	A5n	.02	2.0	.010
4486.....	161074	17 38.4	+24 37	5.6	K5	.13	0.3	.009
4487.....	161096	17 38.5	+ 4 37	2.9	K1	0.16	0.5	0.033



## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD $-16^{\circ}4603$ .....	161100	17 <sup>h</sup> 38 <sup>m</sup> 5	$-16^{\circ}50'$	7.3	F0	.....	2.3	0.010
C 2358.....	161198	17 39.0	+21 40	7.4	G8	0.63	5.3	.038
4488.....	161239	17 39.3	+24 22	5.7	G6	.13	1.2	.013
4492.....	161471	17 40.6	-40 5	3.1	cF6	.00	-2.1	.009
20C 1062.....	.....	17 40.9	+43 26	10.3	M3	.59	9.5	.069
ADS 10775A....	161589	17 41.2	- 4 26	9.3	G2	.....	4.3	.010
ADS 10781A....	161623	17 41.5	- 1 11	8.1	G1	.05	4.2	.017
4497A....	161797	17 42.5	+27 47	3.5	G4	.82	4.2	.138
4497B....	.....	17 42.5	+27 47	10.2†	M3	.82	10.2	.100
C 2366.....	161848	17 42.8	+ 4 59	9.0	K3	.60	6.4	.030
ADS 10777A....	161865	17 42.9	+51 59	8.6	G5	.04	0.9	.003
4503.....	161912	17 43.2	-40 3	4.9	A5sp*	.02	0.6	.014
4504(A)...	162003	17 43.7	+72 12	4.9	F5	.27	3.1	.044
4505(B)...	162004	17 43.7	+72 12	6.4†	F6	.27	3.8	.030
4506.....	162076	17 44.1	+20 36	5.8	G5	.02	2.3	.020
4508.....	162211	17 44.8	+25 39	5.3	K1	.05	0.4	.010
4510.....	162555	17 46.5	+29 21	5.6	G8	.05	0.6	.010
BD $+44^{\circ}2777$ .....	162751	17 47.5	+44 31	7.7	A4s	.04	1.3	.005
4515.....	162757	17 47.5	-10 53	6.3	K1	.07	1.0	.009
ADS 10858A....	162756	17 47.6	- 7 53	7.6	G2	.25	4.5	.024
BD $+40^{\circ}3225$ .....	162826	17 47.9	+40 5	6.5	F8	.03	3.4	.024
4516.....	162917	17 48.4	+ 6 7	6.1†	F4	.13	3.3	.027
4518.....	162989	17 48.8	+40 0	6.1	K4	.05	0.1	.006
4522A....	163217	17 50.0	+40 2	5.1	K1	.05	0.4	.011
BD $+42^{\circ}2951$ .....	163418	17 50.9	+42 40	7.6	G8	.00	0.8	.004
4526.....	163428	17 51.0	-23 56	7.1†	M0	.00	-1.6	.002
4528.....	163506	17 51.4	+26 4	5.5	cF5	.00	-1.5	.004
4529.....	163532	17 51.5	- 4 4	5.6	G9	.03	0.8	.011
4530.....	163547	17 51.6	+22 29	5.7	K3	.00	0.2	.008
4531.....	163588	17 51.8	+56 53	3.9	K3	.12	0.6	.022
BD $+45^{\circ}2620$ .....	163589	17 51.8	+45 33	8.2	G3	.05	3.8	.013
BD $+45^{\circ}2621$ .....	163608	17 51.9	+45 13	8.0	A2n	.02	1.9	.006
ADS 10904A....	163609	17 51.9	+21 30	8.2†	G3	.08	4.2	.016
4535.....	163770	17 52.8	+37 16	4.0	cK1	0.01	-1.3	.009
Barnard's star.....	.....	17 53.0	+ 4 25	9.7	M5	10.27	12.7	.398
4536.....	163917	17 53.5	- 9 46	3.5	G9	0.12	0.5	.025
4538.....	163993	17 53.9	+29 16	3.8	G7	.09	0.6	.023
4539.....	163989	17 53.9	+76 59	5.0	F5	.24	2.9	.038
BD $+45^{\circ}2627$ .....	163990	17 53.9	+45 23	6.2	M6	.03	-0.2	.005
4540.....	164031	17 54.1	-24 17	6.7	K0	.04	0.6	.006
4541A....	164058	17 54.3	+51 30	2.4	K5	.03	-0.1	.032
4542.....	164136	17 54.7	+30 12	4.5	F1	.00	2.0	.032
ADS 10955A....	164253	17 55.2	+30 3	7.3†	G4	.04	0.7	.005
4544.....	164259	17 55.2	- 3 41	4.9†	F1	.15	2.9	.040
4546.....	164358	17 55.6	-17 9	6.3	K3	0.01	-0.7	0.004



## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$	
BD -22°	4547.....	164349	17 <sup>h</sup> 55 <sup>m</sup> 6	+16°45'	4.7	G8	0".01	0.1	0".012
	4510.....	164514	17 56.4	-22 54	7.3	cA8	.....	-0.7	.003
	4553.....	164584	17 56.7	-24 17	5.5	A8s	.02	1.4	.015
	2385.....	164595	17 56.8	+29 34	7.2	G1	.21	4.7	.032
C	4554.....	164613	17 56.9	+72 1	5.8†	F2	.01	2.3	.020
	4555.....	164646	17 57.1	+45 30	5.9	Mo	.04	-0.1	.006
BD +30°	4556(B)...	164668	17 57.3	+21 36	5.2	G3	.03	0.7	.013
	3106.....	164755	17 57.6	+30 39	7.1	K4	.01	0.7	.005
	4559A....	164765	17 57.6	- 8 11	6.1†	F3	.04	2.5	.019
ADS	11003A....	164922	17 58.4	+26 20	7.1	Ko	.72	5.4	.046
BD +30°	3112.....	165073	17 59.1	+30 21	8.1	F5	0.06	3.6	.013
	4571A....	165341	18 0.4	+ 2 31	4.3†	K1	1.13	5.9	.209
	4571B.....	.....	18 0.4	+ 2 31	6.0	K6	1.13	7.3	.182
	4572B.....	.....	18 0.5	+48 28	8.0	G9	0.02	0.6	.003
C	2392.....	165401	18 0.7	+ 4 39	6.8	F7	.30	4.5	.035
	11045A....	.....	18 0.8	+21 26	8.4†	F9	.....	3.3	.010
BD +42°	4574.....	165438	18 0.9	- 4 46	5.9	K1	.15	2.1	.017
	2996.....	165566	18 1.4	+42 51	7.5	Ko	.02	-0.3	.003
ADS	11060A....	165590	18 1.6	+21 26	7.9†	G1	.05	3.6	.014
	4578.....	165625	18 1.8	+22 13	5.3	M2	.02	-0.4	.007
C	4579.....	165687	18 2.0	-17 10	5.7	K1	.12	0.7	.010
	2396.....	165670	18 2.1	+ 8 52	8.0†	F5	.15	4.0	.016
	4580.....	165760	18 2.5	+ 8 43	4.7	G8	.02	0.4	.014
	4581A....	165777	18 2.6	+ 9 33	4.2†	A5s	.10	1.5	.029
BD -21°	4866.....	165784	18 2.6	-21 28	6.6	F2	.04	3.1	.020
	4582A....	165908	18 3.2	+30 33	5.2	F5	.11	4.1	.060
BD -15°	4832.....	165945	18 3.3	+15 33	9.2	A6sp*	.....	1.1	.002
	W Serpentis.....	166126	18 4.1	-15 34	8.5	cG5e*	.....	-3.7	.000
	4589.....	166208	18 4.5	+43 27	5.1	G5	.07	0.7	.013
	4593.....	166229	18 4.6	+36 23	5.7	K4	.21	0.7	.010
BD -16°	4594A....	166233	18 4.6	+ 3 59	6.2†	A7n	.04	1.7	.013
	4595A....	166285	18 4.9	+ 3 6	5.7	F4	.19	3.0	.029
	4744.....	166418	18 5.4	-16 44	8.7	G1	.....	4.5	.014
	4596A....	166464	18 5.6	-23 43	5.1	Ko	.04	0.8	.014
ADS	11123A....	166479	18 5.7	+16 27	6.5†	F3	.02	3.9	.030
	4597.....	166460	18 5.7	+ 3 18	5.7	K2	.03	0.3	.008
BD +56°	2068.....	166494	18 5.8	+56 47	8.2	G2	.08	3.5	.011
	+43°2897.....	166516	18 5.9	+43 33	8.1	Ko	.02	0.4	.003
C	2403.....	166620	18 6.3	+38 27	6.4	K2	.57	5.9	.079
	4601.....	166640	18 6.5	+36 27	5.9	G7	.01	0.5	.008
	4602(B)...	166865	18 7.5	+79 59	6.7†	F5	.13	3.4	.022
	4603(A)...	166866	18 7.6	+79 59	6.1†	F6	.12	3.2	.026
	4606.....	167006	18 8.1	+31 23	5.0	M3	.02	-0.1	.010
	4607.....	167036	18 8.3	-21 44	5.7	K3	.03	0.5	.009
	4608.....	167027	18 8.3	+56 15	7.5	K3	0.04	0.4	0.004

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD +33°3048.....	167042	18 <sup>h</sup> 8 <sup>m</sup> 5	+54°15'	5.9	K0	0".27	2.2	0".018
BD -15°4889.....	167063	18 8.5	+33 15	7.1	M0	.02	-0.6	.003
	167246	18 9.2	-15 25	7.3	K1	.....	0.9	.005
	167570	18 10.6	-20 35	7.1	G2	.02	0.9	.006
	167618	18 10.9	-36 48	3.2	M4	.22	0.1	.024
	167768	18 11.6	- 3 2	6.1	G1	.27	0.8	.009
	167818	18 11.8	-27 5	4.7	K5	.01	-0.4	.010
	168092	18 12.9	+56 33	6.9†	F1	.03	2.7	.014
	168151	18 13.3	+64 22	5.0	F3	.35	3.5	.050
	168322	18 13.9	+40 54	6.1	G4	.18	1.1	.010
ADS	168387	18 14.3	+ 7 13	5.6	K2	.06	0.8	.011
	168415	18 14.4	-15 52	5.7	K5	.05	0.3	.008
	168459	18 14.6	- 8 1	6.6†	F2	.....	2.4	.014
	168454	18 14.6	-29 52	2.8	K2	.05	0.0	.027
	168532	18 15.1	+24 24	5.8†	K4	.02	0.0	.007
	168574	18 15.4	-24 58	6.4	M5	.01	-0.8	.004
	168653	18 15.9	+68 43	6.1	K1	.06	0.7	.008
	168656	18 15.9	+ 3 20	4.9	G5	.02	0.4	.013
	168720	18 16.1	+21 55	5.0	M0	.06	-0.1	.010
	168723	18 16.1	- 2 55	3.4	G8	.90	1.4	.040
ADS	168775	18 16.4	+36 1	4.3	K1	.04	0.9	.021
ADS	168815	18 16.5	-15 8	7.4	K5	.....	-1.1	.002
ADS	168874	18 16.5	-15 8	8.6†	F2	.....	3.1	.008
	169028	18 16.8	+27 29	7.1	G4	.12	5.0	.038
	169110	18 17.6	+51 18	6.5†	K1	.06	0.6	.007
BD +7°3661.....	169113	18 18.0	+23 14	5.7	K5	.08	0.1	.008
	169156	18 18.0	+ 7 9	7.6	K2	.01	0.5	.004
BD -12°5031.....	169170	18 18.2	- 8 59	5.1†	K0	.06	0.7	.013
	169191	18 18.3	-12 38	8.1	K1	.05	0.4	.003
	169305	18 18.4	+17 47	5.5	K2	.06	0.3	.009
	169420	18 19.0	+49 4	5.1	M2	.06	-0.1	.009
	169414	18 19.4	-20 36	5.0	K1	.02	0.3	.011
ADS	169457	18 19.4	+21 43	3.9	K2	.32	0.7	.023
ADS	169510	18 19.6	-16 33	9.8†	F3	.....	2.7	.004
	169576	18 19.6	-16 33	10.8	F8	.....	3.2	.003
BD +43°2962.....	169576	18 19.9	+43 53	8.2	G7	.00	0.8	.003
BD +9°3699.....	169666	18 20.3	+ 9 41	7.9	K2	.02	0.3	.003
	169689	18 20.7	+71 28	7.8	F2	.07	3.3	.013
	169746	18 20.8	+ 7 59	6.0†	F9	.00	0.9	.010
BD +43°2970.....	169746	18 21.1	+43 51	7.0	M2	.04	-0.5	.003
C	169822	18 21.4	+ 8 44	7.9	G2	.55	4.5	.021
BD +15°3463.....	169840	18 21.5	+15 42	7.4	F4	.....	2.8	.012
C	169889	18 21.6	+ 8 34	8.3	G7	.51	4.7	.019
	169916	18 21.8	-25 29	2.9	K1	.20	0.7	.036
BD +8°3696.....	169957	18 22.0	+ 8 3	8.9	G0	0.16	4.0	0.010

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

267

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$	
C	4669.....	169981	18 <sup>h</sup> 22 <sup>m</sup> 1	+29°46'	6.0†	A4s	0".03	1.1	0".010
	4672.....	170153	18 22.9	+72 41	4.0†	F5	.64	4.0	.100
	2423.....	170357	18 23.9	+46 1	8.3	G0	.40	4.0	.014
	4675.....	170397	18 24.1	-14 39	6.0	A2s*	.02	1.3	.011
	4676.....	170433	18 24.3	-18 48	5.8	K0	.11	0.7	.010
BD	4678.....	170474	18 24.5	- 2 3	5.7†	G8	.04	0.6	.010
	+44°2906.....	170615	18 25.3	+44 11	7.7	K2	.01	0.5	.004
	4684.....	170657	18 25.5	-18 58	7.0	K0	.24	5.5	.050
BD	4686.....	170693	18 25.7	+65 30	5.0	K1	.10	0.4	.012
	+ 7°3724.....	170780	18 26.1	+ 8 1	7.6	M2	.03	-0.5	.002
	4688.....	170811	18 26.3	+59 29	6.5	G8	.06	0.8	.007
	4694.....	170975	18 27.0	-14 56	5.9	cK5	.01	-2.5	.002
	4698.....	171115	18 27.8	-24 6	5.7	cK4	.02	-2.2	.003
	4700.....	171237	18 28.4	-24 18	6.4	cF3	.00	-0.8	.004
	4701.....	171245	18 28.6	+23 33	6.0	K5	.01	-0.2	.006
	4703.....	171391	18 29.5	-11 3	5.2	G7	.05	0.5	.011
ADS	4704.....	171416	18 29.6	-29 47	6.5	K0	.03	0.4	.006
	4705.....	171443	18 29.8	- 8 19	4.1	K5	.32	0.3	.017
	11477A...	171586	18 30.6	+ 4 51	6.7	A4sp*	.04	0.8	.007
	4707.....	171635	18 30.8	+56 58	5.0	cF8	.01	-2.0	.004
	4708AB...	171745	18 31.3	+23 31	6.4†	G8	.02	0.6	.007
BD	+65°1277.....		18 31.6	+65 18	8.7	F0	.02	3.2	.008
	4711AB...	171779	18 31.7	+52 16	5.4	G5.	.01	0.4	.010
	4712.....	171802	18 31.7	+ 9 3	5.4	F2	.13	3.0	.033
	4713A....	171834	18 31.8	+ 6 36	5.7†	F1	.15	2.9	.027
	4716.....	171893	18 32.1	-17 19	6.8	F3	.01	2.5	.014
20C	1095.....		18 32.4	+45 39	9.8	M2	.56	8.5	.055
C	2446.....	172085	18 33.1	+24 21	7.4	F9	.15	3.5	.017
ADS	11520AB...	172088	18 33.2	- 3 17	7.2	F8	*	3.9	.022
C	2447.....		18 34.3	+20 33	9.1	F9	.25	3.2	.007
C	2448.....	172310	18 34.4	+28 51	8.2	G8	.48	5.5	.029
	4723A....	172323	18 34.5	+63 37	8.1	F6	.25	4.0	.015
	4724.....	172340	18 34.6	+77 28	5.8	K4	.01	-0.1	.007
	4726.....	172546	18 35.8	-23 56	6.1	F0	.04	2.7	.021
ADS	11560A....	172586	18 36.0	+24 37	8.0	G7	.03	0.7	.003
	4728A....	172712	18 36.6	+52 15	7.5†	A1n	.01	2.3	.009
	4728B....	172713	18 36.6	+52 15	7.7	G0	.01	3.3	.013
	4729.....	172711	18 36.6	+55' 9	7.6	F6	.06	2.9	.011
	4731A....	172748	18 36.8	- 9 9	5.0†	F4	.01	1.4	.019
	11576A....		18 37.1	+31 28	8.5	K4	.82	6.3	.036
	4736A....	173009	18 38.1	- 8 22	5.1	G5	.02	0.1	.010
	4741A....	173399	18 40.0	+44 50	7.1	G2	.04	2.5	.012
	4742.....	173417	18 40.1	+31 50	5.5	F2	.15	2.4	.024
	4743A....	173460	18 40.3	-22 30	5.8	K4	0.03	-0.2	.006
	RZ Ophiuchi*		18 40.9	+ 7 7	10.4†	cF7e	.....	-1.8	0.000

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
4747(A)...	173582	18 <sup>h</sup> 41 <sup>m</sup> 0	+39°34'	5.4	A2n	0".05	1.8	0".019
4748(B)...	173583	18 41.0	+39 34	6.0	A4n	.06	1.6	.013
4749(A)...	173607	18 41.1	+39 30	5.1	A3n	.06	1.8	.022
4750A....	173638	18 41.2	-10 14	5.8	cF4	.01	-0.5	.005
4751A....	173654	18 41.3	-1 4	5.7	A6s	.03	1.8	.017
BD +44°2983....	173648	18 41.3	+37 30	4.6†	A9s	.03	1.8	.027
4753A....	173666	18 41.4	+44 47	7.8	F4	.03	2.1	.007
4754D....	173667	18 41.4	+20 27	4.3	F3	.34	3.1	.057
ADS 11632A....	173649	18 41.4	+37 29	5.9	A3n	0.02	1.9	.016
ADS 11632B....	173739	18 41.8	+59 27	8.8	M4	2.31	10.9	.263
4756....	173740	18 41.8	+59 27	9.7	M5	2.25	12.1	.302
4758....	173764	18 41.9	-4 51	4.8†	cG7	0.02	-1.9	.005
4761....	173780	18 42.0	+26 33	4.9	K1	.03	0.6	.014
4763A....	173880	18 42.6	+18 4	4.7†	A4s	.12	1.9	.027
BD +0°4023....	173949	18 43.1	+60 57	6.3†	G7	.01	2.3	.016
4764A....	174066	18 43.6	+0 25	8.5	G7	.18	4.5	.016
BD -10°4819....	174116	18 43.7	-20 26	5.7†	K1	.03	0.0	.007
ADS 11711A....	174142	18 44.1	-10 29	7.9	K2	.01	0.2	.003
C 2463....	174224	18 44.4	+16 9	8.3†	F7	.06	3.2	.010
4767A....	174309	18 44.5	+17 20	9.2	M1	.61	8.3	.066
ADS 11698A....	174309	18 44.8	-22 17	6.2	A6n	.04	1.8	.013
BD +45°2777....	174343	18 44.9	+49 19	7.8†	F1	.01	2.3	.008
ADS 11752A....	174504	18 45.7	+45 9	6.8	A9s	.11	2.3	.013
BD -6°4932....	174512	18 45.7	-6 23	8.0	A6sp	.....	1.0	.004
4773....	174553	18 45.9	-6 28	9.9	F6	.....	2.8	.004
BD +45°2779....	174589	18 46.1	-3 26	6.0	A6n	.04	1.5	.013
4777(E)....	174600	18 46.2	+45 11	8.6	K4	.05	0.6	.003
4780....	174947	18 46.4	+33 15	10.0	F2	.....	3.1	.004
4781A....	174974	18 48.0	-21 29	5.8	cK0	.01	-1.4	.004
4782....	174974	18 48.1	-22 52	5.0	cK2	.02	-2.9	.003
ADS 11790A....	174980	18 48.3	+73 58	5.4	G8	.08	0.6	.011
ADS 11790B....	175018	18 48.4	+3 16	8.7	F3	.....	3.1	.008
4785....	175190	18 48.4	+3 16	9.2	F3	.....	3.0	.006
4787....	175190	18 49.1	-22 48	5.3†	K5	.10	-0.1	.008
4790A....	175225	18 49.3	+52 51	5.6	G8	.29	4.7	.066
4791....	175306	18 49.7	+59 16	5.1†	G5	.09	0.4	.011
4795....	175317	18 49.8	-16 30	5.6	F5	.19	2.9	.029
4797A....	175466	18 50.3	+42 47	6.9	K5	.03	-0.1	.004
4798....	175492	18 50.5	+22 31	4.9†	G0	.00	0.5	.013
C 2471....	175515	18 50.6	+6 29	6.0†	G9	.09	0.7	.009
4799....	175518	18 50.6	-5 52	8.2	G8	.42	5.3	.026
4800A....	175535	18 50.7	+50 35	5.0	G4	.03	0.8	.014
4801A....	175588	18 51.0	+36 46	4.5	M4	.01	-1.6	.006
4805A....	175635	18 51.2	+33 50	6.4†	G2	.01	0.3	.006
	175740	18 51.7	+41 28	5.6	G8	0.01	0.6	0.010

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
4807.....	175743	18 <sup>h</sup> 51 <sup>m</sup> 7	+17°59'	5.7	K2	0".18	0.7	0".010
4808.....	175751	18 51.7	— 5 59	5.0	K2	.07	0.3	.011
4809.....	175775	18 51.8	—21 14	3.6	K1	.04	0.0	.019
4811A....	175824	18 52.1	+48 44	5.9	F4	.14	2.9	.025
R Lyrae *	175865	18 52.3	+43 49	4.3	M5	0.08	—0.9	.009
C	2475.....	176029	+ 5 48	9.3	M1	1.26	9.2	.096
4815A....	176051	18 53.3	+32 46	5.2	G0	0.22	4.6	.076
4818.....	176232	18 54.2	+13 46	5.9	A6sp*	.05	0.7	.009
4819.....	176246	18 54.3	—25 5	6.4	K0	.05	1.2	.009
4820A....	176303	18 54.5	+13 29	5.4	F6	.12	3.0	.033
ADS	4822.....	176408	+57 41	5.7	K3	.07	0.7	.010
4823.....	176411	18 55.1	+14 56	4.5†	K0	.10	0.5	.016
11916A....	176486	18 55.3	+12 44	7.1	K4	.04	0.0	.004
4825.....	176524	18 55.6	+71 10	5.2†	K0	.07	0.1	.010
4826.....	176527	18 55.7	+26 6	5.3	K2	.09	0.7	.012
BD	4828.....	176593	—15 25	6.4	G6	.01	0.4	.006
+18°	4829.....	176598	+65 7	5.8	G5	.04	0.6	.009
3909.....	176646	18 56.1	+18 20	8.0	G5	.02	0.6	.003
4831.....	176670	18 56.2	+32 0	5.1	K3	.01	—0.3	.008
4832A....	176687	18 56.2	—30 1	3.1†	A4n	.02	1.5	.048
C	4834.....	176678	— 5 53	4.2	K1	.05	0.6	.019
4835.....	176704	18 56.3	—24 59	5.7	K4	.18	0.2	.008
$\beta$ GC	2483.....	230409	+18 57	10.0	G4	.62	4.8	.009
$\beta$ GC	8983A....	176916	+ 8 37	8.3	G4	.01	0.6	.003
8983B....	176915	18 57.4	+ 8 37	9.1	G1	.04	0.4	.002
C	4840A....	176982	— 0 51	8.5	G5	.14	4.5	.016
4840B....	176983	18 57.6	— 0 51	9.4†	G6	.01	4.8	.012
2487.....	177095	18 58.0	—20 35	9.4	G3	.71	4.2	.009
4846A....	177196	18 58.6	+46 48	5.1	A4n	.09	1.6	.020
4847A....	177241	18 58.7	—21 53	3.9	G8	.10	0.7	.023
ADS	4848.....	177249	+55 31	5.5	G2	.02	0.9	.012
BD	+1°	11977A....	+31 16	9.1†	A7s	.01	1.9	.004
3872.....	.....	18 59.2	+ 1 13	10.8†	G5	.....	4.5	.005
4851A....	177474	18 59.7	—37 12	5.0	F7	.30	3.6	.052
4851B....	177475	18 59.7	—37 12	5.0	F7	.30	3.5	.050
ADS	4852(B)...	177442	— 4 11	7.2	K4	.04	0.7	.005
4853(A)...	177463	18 59.7	— 4 11	5.5	K1	.03	0.3	.009
4855A....	177483	18 59.8	+52 7	6.5†	G8	.03	0.2	.005
4857.....	177716	19 0.7	—27 49	3.7†	K1	.27	0.7	.025
12029A....	177749	19 0.9	+ 6 24	6.9	F4	.08	3.0	.017
ADS	12029B....	.....	+ 6 24	8.9	G4	.08	4.8	.015
C	2490.....	177758	—12 2	7.1	F7	.42	3.8	.022
BD	+30°	3409.....	+30 35	6.4	M2	.03	—0.2	.005
4860.....	177808	19 1.2	+31 36	5.8	K5	.08	0.2	.008
BD	+29°	3472.....	+29 46	6.6	M0	0.04	—0.3	0.004

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
C 4863.....	178089	19 <sup>h</sup> 2 <sup>m</sup> 2	+76° 54'	6.5	F3	0".08	3.0	0".020
ADS 2492.....	178126	19 2.2	+ 7 29	9.5	K6	.81	7.7	.044
ADS 12040A....	178091	19 2.3	+30 17	8.5†	G2	.07	4.3	.014
ADS 12040B....	.....	19 2.3	+30 17	9.7	G7	.07	4.6	.010
ADS 12050A....	178211	19 2.6	+22 1	7.4†	F1	.07	3.1	.014
C 2495.....	178428	19 3.5	+16 42	6.3†	G4	.31	4.9	.052
4872A....	178449	19 3.6	+32 21	5.0	A7n	.12	2.0	.025
C 2496.....	178450	19 3.6	+30 6	8.1	G5	.14	4.7	.021
C 2497.....	178496	19 3.7	-21 37	8.7	G4	.45	4.5	.014
4874.....	178524	19 3.8	-21 11	3.0	cF3	.04	-0.5	.020
ADS 4877.....	178770	19 4.8	+39 0	7.6	M6	.01	-0.9	.002
12101A....	178911	19 5.4	+34 26	6.5	G1	.19	4.2	.035
4879.....	179130	19 6.2	-14 45	7.4	K3	.05	0.2	.004
4880.....	179201	19 6.5	-21 49	6.7†	G8	.03	0.5	.006
4881.....	179323	19 7.1	-26 4	5.9	cKo	.02	-1.2	.004
ADS 12145A....	179484	19 7.7	+38 37	8.2†	G4	.27	4.9	.022
ADS 12145BC....	.....	19 7.7	+38 37	8.7	Ko	.27	5.5	.023
4884.....	179497	19 7.7	-12 27	5.6	K3	.04	0.6	.010
ADS 12160C....	179558	19 8.1	+16 41	7.9	G6	.24	4.8	.024
C 2509.....	179626	19 8.2	- 0 45	9.3	F4	.53	3.5	.007
BD +14° 3830.....	179785	19 8.8	+14 46	7.4	K4	.02	0.2	.004
BD +14° 3831.....	179786	19 8.8	+14 26	7.8	M2	.03	-0.6	.002
4891A....	179950	19 9.4	-25 26	6.1†	F5	.05	3.1	.025
4892(B)...	179957	19 9.5	+49 40	6.8	G5	.63	4.8	.040
4893(A)...	179958	19 9.5	+49 40	6.6	G3	.65	4.6	.040
ADS 4894.....	180006	19 9.8	+56 41	5.2	G7	.06	0.6	.012
12201A....	180054	19 9.9	+18 54	7.9†	F5	.02	3.6	.014
4898A....	180262	19 10.8	+14 55	5.7	G7	.02	0.5	.009
4901A....	180409	19 11.3	-11 9	7.0	F7	.14	3.9	.024
4903.....	180540	19 11.8	-19 8	5.0	G5	.02	0.6	.013
4907.....	180610	19 12.1	+57 32	5.3	K2	.08	0.9	.013
4909.....	180711	19 12.5	+67 29	3.2	G8	.13	0.4	.027
4910A....	180756	19 12.7	+49 54	6.3	G6	.01	0.9	.008
4912A....	180809	19 12.9	+37 57	4.5	G9	.01	-0.6	.010
4915.....	180928	19 13.3	-15 43	6.3	K4	.28	0.6	.007
4916A....	180972	19 13.5	+ 0 54	5.3	Ko	.02	0.7	.012
4919A....	181053	19 13.7	+ 0 9	6.5	G9	.01	0.4	.006
4920.....	181096	19 14.0	+46 49	6.0	F3	.28	3.0	.025
4923.....	181276	19 14.8	+53 11	4.3†	G8	.13	0.5	.017
4926.....	181391	19 15.2	- 5 36	5.4†	Ko	.11	2.3	.024
20C 1145.....	.....	19 15.7	+41 28	8.7	K1	.66	5.9	.027
4932.....	181577	19 15.9	-18 2	4.0	Fo	.03	2.3	.046
4935.....	181645	19 16.0	-18 30	6.0	G9	.13	0.7	.009
4937.....	181907	19 17.2	- 0 27	6.0	G8	.05	0.6	.008
4940.....	181984	19 17.5	+73 10	4.9†	K4	0.18	0.5	0.013

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

271

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
4944.....	182416	19 <sup>h</sup> 19 <sup>m</sup> 4	-24°10'	5.6	K4	0".02	0.4	0".009
4945.....	182477	19 19.7	-14 6	5.8	K3	.09	0.3	.008
4950.....	182572	19 20.2	+11 44	5.2	G7	.96	4.5	.072
4953.....	182640	19 20.5	+ 2 55	3.4	A5n	.26	1.9	.050
4958.....	182694	19 20.8	+43 12	6.0	G5	.05	0.6	.008
4960A....	182762	19 21.1	+19 36	5.3	G7	.11	0.3	.010
4961A....	182807	19 21.3	+24 44	6.2	F6	.66	3.6	.030
4962A....	182835	19 21.4	+ 0 8	4.9	cF5	.01	-2.0	.004
4963.....	182900	19 21.8	+12 49	5.8	F3	.07	2.8	.025
4964.....	182926	19 21.8	-18 33	7.3	F4	.02	3.4	.017
4966.....	182917	19 21.9	+50 3	7.1	M7	.02	-0.5	.003
4967A....	182955	19 22.1	+19 42	6.0	M0	.06	0.9	.010
4968.....	182998	19 22.3	-18 34	6.9	K5	.02	0.3	.005
4971.....	183030	19 22.5	+88 59	6.6	M4	.03	-0.3	.004
ADS 12447AB..	183032	19 22.5	+27 7	8.5†	F9	.13	3.8	.011
ADS 12469A....	183063	19 22.6	-12 21	8.0†	G7	.08	5.0	.025
4973A....	183275	19 23.7	-27 11	5.5	K3	.05	0.4	.010
4976(A)...	183439	19 24.5	+24 28	4.6	M1	.17	0.1	.013
BD +42°3351....	183473	19 24.7	+42 33	8.6	G3	.17	4.2	.013
4977.....	183492	19 24.8	+14 23	5.7	K0	.05	0.5	.009
4978(B)...	183491	19 24.8	+24 34	6.0	G6	.01	0.6	.008
BD +14°3937.....	183511	19 24.9	+14 58	8.0	cK4	.....	-1.7	.001
4983.....	183630	19 25.4	- 3 0	5.2	M1	.02	-0.2	.008
4985.....	183877	19 26.4	-28 13	7.0	G6	.74	4.7	.035
4986(A)...	183912	19 26.7	+27 45	3.8†	K0†	.01	-0.7	.013
BD +59°2038.....	183968	19 27.0	+59 34	7.8	K4	.02	0.3	.003
ADS 12557A....	231683	19 27.2	+17 35	9.2	G2	.13	4.5	.011
20C 1156.....	.....	19 27.3	+35 57	10.4	F1	.56	3.6	.004
4993.....	184268	19 28.5	-24 5	6.7	K5	.00	0.0	.005
4994.....	184293	19 28.7	+50 6	5.7	K2	.05	0.6	.010
ADS 12594A....	184360	19 29.0	+20 12	7.2	A5sp*	.06	0.8	.005
4995A....	184406	19 29.2	+ 7 10	4.6	K4	.27	0.9	.018
C 2554.....	184467	19 29.5	+58.23	6.7	K5	.67	6.1	.076
C 2556.....	184489	19 29.6	+ 4 21	10.5	M1	.58	8.7	.044
4996.....	184492	19 29.6	-10 47	5.2	G7	.00	0.4	.011
C 2558.....	184499	19 29.7	+32 59	6.6	G1	.52	4.2	.033
4997.....	184552	19 30.0	-24 56	6.0†	A7s	.03	1.7	.014
5000.....	184759	19 30.9	+29 15	5.9†	F4†	.02	3.5	.033
ADS 12661A....	184853	19 31.3	+ 5 47	6.7	G5	.....	0.3	.005
ADS 12664A....	184860	19 31.3	-10 39	8.7†	K5	.39	6.8	.042
5001.....	184835	19 31.3	-18 27	5.9	K3	.03	0.2	.007
5005.....	184900	19 31.7	+51 1	5.6	F6	.20	3.2	.033
5006.....	184985	19 31.9	-14 31	5.6	F6	.18	3.6	.040
5008.....	185124	19 32.5	- 4 52	5.5	F1	0.12	3.0	.032
5009.....	185144	19 32.6	+69 29	4.8	G8	1.84	5.6	0.145



## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. <i>m</i>	Sp.	$\mu$	Vis. <i>M</i>	Spec. $\pi$	
ADS	5010A....	185194	19 <sup>b</sup> 32 <sup>m</sup> 8	+16°14'	5.7	G8	0".02	0.2	0".008
	12708A....	185297	19 33.3	+ 0 7	7.4	A3n	.06	2.1	.009
	5012.....	185351	19 33.5	+44 28	5.2	K0	.14	2.4	.027
	5013.....	185394	19 33.7	+63 13	6.6	K4	.02	0.1	.005
	5014A....	185395	19 33.8	+49 59	4.6	F2	.25	3.4	.057
	5016.....	185467	19 34.1	-23 39	6.1	K1	.02	0.4	.007
	5019A....	185644	19 35.0	-16 31	5.4	K1	.08	0.5	.010
	5020A....	185713	19 35.4	+71 23	6.9†	F1	.13	3.4	.020
	5021.....	185734	19 35.4	+29 55	5.3†	K0	.04	0.7	.012
	5023A....	185758	19 35.6	+17 47	4.4	cF8	.04	-1.4	.007
ADS	12730A....	185855	19 36.0	+63 36	8.7	F1	.....	3.1	.008
ADS	12730B....	.....	19 36.0	+63 36	10.4	A8n	.....	2.0	.002
	5026.....	185912	19 36.4	+54 44	6.4†	F4	.18	3.0	.021
	5027.....	185958	19 36.6	+17 15	4.4	G7	.04	0.0	.013
	5031.....	186155	19 37.8	+45 17	5.0	F5	.14	1.8	.023
	5033A....	186203	19 37.9	+11 35	5.6†	F3	.01	2.9	.029
	5037(A)...	186408	19 39.2	+59 18	6.3	G3	.22	4.8	.050
	5038(B)...	186427	19 39.2	+50 17	6.4	G2	.22	4.4	.040
	5039.....	186486	19 39.6	+25 32	5.4	G6	.01	0.5	.010
ADS	12850A....	186518	19 39.8	+26 54	7.2†	G4‡	.06	0.5	.005
	5043.....	186619	19 40.4	+41 32	6.0	M0	.02	-0.2	.006
	5044.....	186648	19 40.5	-20 0	5.1	K0	.16	0.7	.013
	5045.....	186675	19 40.7	+37 7	5.0	G8	.08	0.5	.013
	5047.....	186791	19 41.5	+10 22	2.8	K4	.01	-0.8	.019
ADS	12889A....	186858	19 41.8	+33 22	8.3†	K5	.43	6.6	.046
ADS	12889B....	.....	19 41.8	+33 22	8.5	K5	.43	6.6	.042
	5049A....	186927	19 42.1	+34 46	6.2	K0	.01	0.8	.008
	5051A....	187013	19 42.6	+33 30	5.0	F3	.45	3.4	.048
	5051B....	.....	19 42.6	+33 30	8.4	K6	.45	6.8	.048
	5052.....	187076	19 42.9	+18 17	3.8	M2	.01	-1.2	.010
BD	+44°3242....	.....	19 43.4	+44 49	9.6	M3	.02	-0.3	.001
	5053.....	187195	19 43.5	-11 7	6.2	K5	.04	0.7	.008
	5055A....	187259	19 44.0	+11 34	6.1†	F2	.01	3.6	.032
ADS	12972A....	187458	19 45.0	+35 4	6.9†	F2	.12	3.4	.020
	5062A....	187642	19 45.9	+ 8 36	0.9	A1n	.66	2.3	.191
	5063A....	187638	19 45.9	+38 27	6.2	G3	.02	0.5	.007
	5065A....	187691	19 46.2	+10 10	5.2	F8	.27	3.9	.055
	5066.....	187739	19 46.4	-19 18	6.0	G5	.06	1.3	.011
ADS	13010A....	187810	19 46.8	+44 54	8.3	K0	.02	0.6	.003
	5069A....	187849	19 47.0	+38 28	5.4	M2	.10	-0.6	.006
BD	+8°4245....	187894	19 47.3	+ 8 49	9.8	F7	.....	3.0	.004
	5074.....	188041	19 48.1	- 3 22	5.6	A5sp*	.02	0.1	.008
	5075.....	188056	19 48.1	+52 44	5.2	K4	.07	0.5	.011
	5076A....	188088	19 48.3	-24 11	6.3	K5	.43	6.3	.100
	5079A....	188119	19 48.5	+70 1	4.0	G3	0.09	0.9	0.024

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

273

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
	5079B.....	19 <sup>h</sup> 48 <sup>m</sup> 5	+70° 1'	7.1	F6	0".09	3.0	0".015
	5082A.....	188154	19 48.7	— 8 50	6.0	K <sub>5</sub>	.02	0.3
BD	+16°4053.....	188262	19 49.2	+16 31	7.6	cF8	.01	—0.2
	5089.....	188310	19 49.4	+ 8 12	4.9	Ko	.13	0.9
C	2596.....	188326	19 49.5	+38 30	8.0	G4	.34	4.6
	5091.....	188376	19 49.7	—26 34	5.1†	G5	.22	3.6
	5093A.....	188512	19 50.4	+ 6 9	3.9	G8	.48	4.0
	5095.....	188603	19 50.8	—27 26	4.9†	K <sub>3</sub>	.02	—0.2
	5096.....	188650	19 51.2	+36 44	5.8	F6	.01	2.1
BD	+39°3959.....	188875	19 52.2	+39 55	6.7	K <sub>5</sub>	.01	—0.5
	5103A.....	188947	19 52.6	+34 49	4.0	Ko	.05	0.3
	5104.....	189005	19 52.9	—26 28	5.3†	G5	.04	0.9
	5106.....	189063	19 53.1	+60 33	7.3	M1	.01	—0.5
	5114.....	189231	19 53.8	+64 27	6.9	K1	.00	0.2
	5115.....	189245	19 53.9	—33 58	5.7	F4	.34	3.2
	5116.....	189276	19 54.0	+58 35	5.1	K <sub>5</sub>	.02	—0.2
	5118.....	189319	19 54.3	+19 13	3.7	Mo	.06	—0.1
	5119A.....	189340	19 54.4	—10 13	5.9	F8	.49	3.8
BD	+29°3829.....	189379	19 54.6	+29 40	7.4	A4n	.01	1.9
ADS	13196A.....	189378	19 54.7	+33 0	7.6†	F2	.06	3.3
	5125A.....	189577	19 55.5	+17 15	5.6	M4	.02	—0.6
C	2607.....	189558	19 55.5	—12 31	7.6	F6	.50	3.4
	5129.....	189763	19 56.5	—27 59	4.6	M4	.04	—0.1
BD	+53°2335.....	235062	19 56.7	+53 17	8.5	G5	.02	3.9
ADS	13256A.....	189783	19 56.7	+10 28	7.8†	F4	.....	3.3
	5134A.....	190004	19 57.8	+24 39	5.9†	Fo	.10	2.0
C	2616.....	190067	19 58.0	+15 20	7.2	G7	.60	5.2
BD	+35°3920.....	190113	19 58.3	+35 21	8.0	cKo	.03	—2.3
	5137A.....	190147	19 58.5	+49 50	5.3	G9	.02	0.4
	5142.....	190299	19 59.2	— 0 59	5.8	K4	.12	0.4
	5143.....	190327	19 59.3	+ 7 0	5.6	Ko	.02	0.4
	5144.....	190360	19 59.5	+29 38	5.7	G8	.85	4.6
	5146.....	190406	19 59.6	+16 48	5.9	G1	.57	4.4
BD	+29°3873.....	190403	19 59.7	+29 42	6.8	G5	0.02	—0.5
C	2620.....	190404	19 59.7	+23 5	7.2	K3	1.37	6.0
	5149A.....	190544	20 0.4	+64 32	5.4	M1	0.02	—0.2
	5151.....	190608	20 0.7	+19 42	5.3	K1	.08	0.8
	5152A.....	190713	20 1.2	+64 21	6.6	G7	.05	1.0
	5153.....	190940	20 2.4	+67 35	4.7	K2	.05	0.3
	5154.....	190960	20 2.4	+76 12	6.4	M3	.06	0.0
	5157.....	191026	20 2.6	+35 42	5.5	G3	.50	4.5
	5159.....	191067	20 2.9	— 0 58	6.0	K1	.13	0.8
	5162A.....	191174	20 3.5	+63 36	6.2	A3s	.05	1.1
	5163.....	191195	20 3.6	+52 52	5.7	F4	.33	3.3
BD	+36°3883.....	191226	20 3.7	+36 17	7.4	M2	0.01	—0.7

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$	
ADS	5165.....	191277	20 <sup>h</sup> 4 <sup>m</sup> 0	+61° 42'	5.6	K3	0".14	0.9	0".011
	5166.....	191408	20 4.6	-36 21	5.3	K4	1.63	6.7	.191
	13434A....	191499	20 5.0	+16 30	7.7	G9	0.17	5.8	.042
	5167(C)...	191571	20 5.5	+20 36	7.6†	K2	.01	0.1	.003
	5168(B)...	.....	20 5.5	+20 37	8.4	G5	.12	4.7	.018
C ADS	5169(A)...	191570	20 5.5	+20 37	6.3	F1	.09	3.1	.023
	5174.....	191753	20 6.4	-12 41	6.4	G9	.03	0.3	.006
	2634.....	191785	20 6.6	+15 53	7.3	K2	.58	5.7	.048
	13461A....	191854	20 6.9	+43 39	7.5†	G4	.10	4.6	.026
	5176.....	191862	20 6.9	-12 55	5.9	F6	.27	3.4	.032
BD BD	5177.....	192004	20 7.6	+26 31	5.8	K4	.02	-0.6	.005
	5179.....	192107	20 8.1	-1 19	5.6	K5	.03	-0.1	.007
	+15° 4089....	192145	20 8.2	+15 47	7.6	F4	0.02	3.5	.015
	+16° 4192....	.....	20 9.1	+16 16	8.4	G2	.....	0.7	.003
	5180.....	192310	20 9.1	-27 20	5.7	K5	1.25	6.4	.138
BD ADS	5183A....	192439	20 9.7	+51 10	6.4	K1	0.02	0.7	.007
	+16° 4200....	.....	20 9.8	+16 27	9.8	G8	.....	0.9	.002
	5184.....	192455	20 9.9	+61 47	5.7	F5	.16	3.0	.029
	5187(A)...	192577	20 10.5	+46 26	4.6†	cK1†	.00	-1.8	.005
	13560A....	192679	20 11.0	+52 49	7.0	F5	.18	3.2	.017
ADS	13560B....	.....	20 11.0	+52 49	9.1	K2	.18	6.0	.024
	5192.....	192713	20 11.2	+23 12	5.7†	cG4	.02	-2.3	.003
	5193A....	192787	20 11.5	+33 26	5.8	G6	.13	1.5	.013
	5194.....	192781	20 11.6	+60 20	6.2	K5	.07	0.2	.006
	5195.....	192806	20 11.6	+27 30	4.7	K2	.04	0.2	.013
BD BD	5196.....	192836	20 11.9	+21 17	6.2	K1	.03	0.5	.007
	+31° 4013....	.....	20 12.0	+32 2	9.1	F7	.....	3.1	.006
	5197A....	192876	20 12.1	-12 49	4.6	cG5	.02	-2.7	.003
	5198.....	192879	20 12.1	-22 7	6.0	G8	.05	0.6	.008
	+27° 3668....	192913	20 12.3	+27 29	6.7	A2sp*	.02	0.7	.006
BD	5200A....	192909	20 12.4	+47 24	4.5†	cK5	.01	-2.5	.004
	5201.....	192944	20 12.5	+24 22	5.4	G7	.03	0.6	.011
	5202A....	192947	20 12.5	-12 51	4.1†	G8	.06	0.3	.017
	-14° 5708....	193102	20 13.4	-14 36	7.4	K0	.....	0.7	.005
	5206A....	193150	20 13.6	-19 26	5.5	K4	.01	-0.5	.006
C BD	2648.....	193202	20 13.8	+76 55	8.8	M0	.51	8.9	.105
	5213.....	193370	20 14.8	+34 40	5.5†	cF5	.02	-1.3	.004
	5216(A)...	193495	20 15.4	-15 6	3.5†	F8†	.04	2.0	.050
	+74° 854.....	193591	20 15.9	+75 6	8.5	M4	.04	0.1	.002
	5218A....	193592	20 15.9	+55 5	6.0†	A7s	.02	2.3	.018
C	5218B....	.....	20 15.9	+55 5	7.7†	F3	.02	3.2	.013
	5219.....	193664	20 16.5	+66 32	6.1	G1	0.56	4.6	.050
	2654.....	193901	20 17.7	-21 40	8.2	F5	1.18	3.9	.014
	5226.....	194013	20 18.2	+5 1	5.4	G7	0.05	0.5	.010
	5229A....	194093	20 18.6	+39 56	2.3	cF7	0.00	-2.1	0.013

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

275

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD +38°	5230.....	194152	20 <sup>h</sup> 18 <sup>m</sup> 8	+45°28'	6.2†	G9	0".05	0.006
	4048.....	229152	20 19.0	+38 9	9.8	K3	.....	6.4 .021
	5231.....	194193	20 19.2	+40 42	6.1	Mo	.05	-0.6 .005
	5232.....	194215	20 19.3	-28 59	6.0	G9	.01	0.6 .008
	5234.....	194258	20 19.7	+68 34	6.0	M5	.04	-0.1 .006
C	5235.....	194317	20 19.9	+31 52	4.6	K5	.04	0.7 .017
	5237A....	194433	20 20.4	-37 44	6.4†	K1	.28	2.5 .017
	5238.....	194577	20 21.3	+21 5	5.8	G6	.02	0.8 .010
	2657.....	194640	20 21.5	-31 11	6.7	G6	.55	5.1 .048
	5242A....	194765	20 22.3	- 2 26	6.6	F6	.10	3.5 .024
	5244A....	194943	20 23.2	-18 9	5.0	F1	.03	2.7 .035
	5246.....	194959	20 23.3	-17 46	6.8	F8	.04	2.4 .013
	5247(D)...	194960	20 23.3	-18 12	6.7	G8	.14	0.6 .006
	5248.....	195006	20 23.7	-22 43	6.2	M1	.03	-0.3 .005
	5251.....	195068	20 24.0	+49 3	5.7	F0	.09	2.5 .023
BD +75°	5254.....	195135	20 24.4	- 3 13	5.1	K2	.07	0.7 .013
	739.....	195191	20 24.8	+75 43	8.0	K2	.....	0.2 .003
	5255.....	195295	20 25.3	+30 2	4.1	cF4	.01	-0.9 .010
	5256.....	195330	20 25.5	-15 23	6.2	G5	.07	1.0 .009
C	2662.....	195506	20 26.7	+45 35	6.6	K3	.17	0.5 .006
C	5261.....	195527	20 26.8	+68 26	7.2	G5	.03	1.2 .006
	5263A....	195564	20 26.9	-10 12	5.8	G3	.32	4.4 .052
	5267A....	195593	20 27.2	+36 36	6.3	cF5	.01	-1.2 .003
	5271(A)...	195774	20 28.2	+48 53	5.6	M2	.04	0.2 .008
	5276.....	195964	20 29.3	+56 26	6.3	K5	.02	0.0 .005
	2667.....	195987	20 29.3	+41 33	7.0	G9	.48	5.4 .048
$\beta$ GC	5279.....	196093	20 30.0	+34 54	4.8	cK4	.02	-2.6 .003
	10335A....	196124	20 30.2	+ 5 47	8.7	K6	.44	6.8 .042
ADS	5280.....	196142	20 30.4	+72 12	6.4	K4	.02	0.0 .005
	14054A....	196310	20 31.4	-13 5	7.6	F1	.05	3.3 .014
C	5284.....	196321	20 31.5	- 2 54	5.2	K5	.01	-0.4 .008
	5285.....	196348	20 31.7	-15 30	6.9	K2	.08	0.3 .005
	5291A....	196524	20 32.8	+14 15	4.5†	F3	.11	2.6 .042
	5293.....	196565	20 33.2	+81 6	6.9	G9	.04	0.6 .005
	5294A....	196574	20 33.2	- 1 27	4.8†	G5	.03	0.5 .014
	5296.....	196620	20 33.5	+31 10	6.4	A5n	.07	1.0 .013
BD + 5°	4570.....	196657	20 33.7	+ 5 18	9.0	F4	.....	2.8 .006
	5299.....	196725	20 34.0	+12 58	6.1	cK4	.02	-1.3 .003
C	2672.....	196761	20 34.2	-24 8	6.3	G7	.66	5.0 .055
	5304A....	196755	20 34.3	+ 9 44	5.2	G2	.32	3.8 .052
C	5305A....	196758	20 34.3	+ 0 8	5.4	G9	.09	0.4 .010
	2673.....	196789	20 34.4	+42 29	7.1	F6	.20	3.2 .017
	5306.....	196777	20 34.4	-18 29	5.3	M2	.04	-0.5 .007
C	5308.....	196787	20 34.5	+81 5	5.6	G8	.03	0.6 .010
	2676A*....	196795	20 34.6	+ 4 37	8.2	K6†	0.84	7.9 0.087

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
ADS 5309.....	196852	20 <sup>h</sup> 34 <sup>m</sup> 9	+29°59'	5.9	G9	0".09	0.7	0".009
ADS 14123A....	196882	20 35.1	+21 22	8.5	K4	.04	0.8	.003
C 2680.....	196892	20 35.1	-19 8	8.2	F4	.44	3.8	.013
ADS 5312.....	196925	20 35.3	+80 44	6.1	G8	.23	2.4	.018
ADS 14152A....	197042	20 35.9	-1 26	8.7	K1	.03	-0.3	.002
BD +14°4389.....	197040	20 36.0	+14 10	7.7	A2n	.....	2.2	.008
C 2682.....	197076	20 36.2	+19 34	6.4	G2	.34	4.9	.050
5317.....	197121	20 36.6	+14 14	6.2	K4	.01	0.0	.006
5319A....	197177	20 37.0	+31 57	6.0†	G7	.02	0.4	.008
BD +19°4489.....	197274	20 37.6	+19 30	7.5	G8	.01	0.4	.004
5321.....	197373	20 38.2	+60 9	6.0	F4	.19	3.4	.030
VW Cephei*.....	197433	20 38.7	+75 14	8.3†	G4p	.63	4.9	.021
20C 1225.....	197481	20 38.9	-31 42	8.1	M2e	.45	8.0	.096
C 2688.....	197623	20 39.8	-0 4	7.7†	G1	.15	4.1	.019
ADS 14233A....	197684	20 40.2	+11 57	6.9†	A7n	.....	2.2	.011
5328.....	197692	20 40.2	-25 38	4.6†	F1	.17	3.5	.060
5330.....	197752	20 40.5	+24 55	5.4†	K2	.18	0.5	.010
BD +31°4210.....	197839	20 41.1	+31 25	8.0	K1	.02	0.4	.003
20C 1228.....	.....	20 41.5	+44 8	9.5	M3	.50	9.4	.096
5331A....	197912	20 41.5	+30 21	4.3	G7	.03	0.7	.019
ADS 14270A....	197913	20 41.6	+15 32	7.5†	G9	.15	5.4	.038
ADS 14270B....	.....	20 41.6	+15 32	8.2	G8	.14	5.4	.027
5334(B)...	197963	20 42.0	+15 46	5.5	F5	.21	2.9	.030
5335(A)...	197964	20 42.0	+15 46	4.5	K1	.21	0.7	.017
5336A....	197989	20 42.2	+33 36	2.9†	K0	.48	0.7	.036
5337.....	198001	20 42.3	-9 52	3.8	A1n	.04	2.3	.050
5338.....	198026	20 42.5	-5 24	4.6	M3	.04	-0.2	.011
5341(B).....	.....	20 42.7	-18 34	8.5	G4	.03	1.8	.005
5342(A)...	198063	20 42.8	-18 34	6.7	G4	.02	1.7	.010
5344.....	198084	20 42.9	+57 13	4.6	F9	.24	3.0	.048
5345A....	198134	20 43.2	+34 0	5.2	K3	.05	0.3	.010
5346A....	198149	20 43.3	+61 27	3.6	G7	.83	2.6	.063
ADS 14278A....	198180	20 43.5	+63 11	8.5	A6n	.....	1.9	.005
5351.....	198208	20 43.7	-18 24	6.4	K4	.04	0.2	.006
ADS 14298A....	198237	20 43.9	+45 13	6.7	M0	.03	0.1	.005
ADS 14314A....	198287-8	20 44.2	+38 55	7.0	cA7se	.03	-1.8	.002
5355A....	198345	20 44.5	+47 28	5.6	K5	.02	0.2	.008
5358A....	198390	20 44.9	+12 10	6.0	F4	.11	3.5	.032
5360.....	198431	20 45.2	-12 55	6.0	K1	.14	0.9	.010
BD +38°4240.....	198456	20 45.4	+38 55	7.9	K0	.03	0.4	.003
5363.....	198542	20 45.8	-27 18	4.2	M1	.02	-0.5	.011
5364A....	198571	20 46.1	-6 0	6.3†	F3	.09	3.1	.023
ADS 14355A....	198626	20 46.4	+30 32	6.8	F2	.06	2.4	.013
5368A....	198732	20 47.2	-24 9	6.2	G5	.11	2.6	.019
5371.....	198743	20 47.3	-9 22	4.8	A8s	0.05	2.2	0.030

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

277

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$	
ADS ADS	5372.....	198802	20 <sup>b</sup> 47 <sup>m</sup> 6	-11°57'	6.4	G1	0".07	3.8	0".030
	5373.....	198809	20 47.8	+26 43	4.8	G2	.10	0.9	.017
	14382A....	198896	20 48.4	+43 23	8.5	G7	.05	3.3	.009
	14382B....	.....	20 48.4	+43 23	8.8	A7s	.....	2.0	.004
	5374.....	199012	20 49.1	-18 18	5.9	K0	.06	1.0	.010
	5376.....	199098	20 49.8	+44 48	5.6	G8	.02	-0.1	.007
	5378.....	199101	20 49.8	+33 3	5.7	K5	.04	-0.1	.007
	5379.....	199169	20 50.3	+27 41	5.2	K5	.01	0.0	.009
	5380.....	199178	20 50.4	+44 0	7.6	G5p*	.02	4.2	.021
	5381.....	199191	20 50.4	+54 8	7.2	G6	.18	4.0	.023
C	5382A....	199223	20 50.7	+ 4 9	6.2†	G6	.06	2.3	.017
	5385.....	199253	20 50.9	+13 20	5.4	K0	.02	-0.1	.008
	2707.....	199305	20 51.3	+61 48	8.6	M2	.77	8.9	.115
	5386A....	199345	20 51.5	-10 5	5.7	K5	.02	0.3	.008
	5388.....	199437	20 52.1	+80 11	5.6	K1	.04	0.8	.011
C	2709.....	199476	20 52.4	+74 23	7.9	G3	.69	4.5	.021
C	2712.....	199580	20 53.1	+42 30	7.9	G9	.28	4.3	.019
BD +48°	3249.....	199612	20 53.2	+48 49	6.0	K0	.00	0.3	.007
ADS	14441A....	199660	20 53.6	+69 34	7.8	G6	.02	1.0	.004
	5395.....	199665	20 53.6	+10 27	5.6	G6	.08	1.0	.012
	5397.....	199697	20 53.8	+21 56	5.6	K4	.00	0.3	.009
	5399AB..	199766	20 54.1	+ 3 55	5.8†	F0	.19	2.9	.026
	5399C....	.....	20 54.1	+ 3 55	7.2	F4	.22	3.8	.021
	5401.....	199870	20 54.7	+44 5	5.8	G7	.13	0.8	.010
	5406.....	199960	20 55.3	- 5 7	6.3	G1	.14	4.0	.035
ADS	14528A....	199976	20 55.4	- 8 44	8.2	G7	.24	4.4	.017
	5407.....	200004	20 55.6	-13 55	6.6	G3	.00	2.3	.014
	5409A....	200044	20 55.9	+18 56	6.0	M3	.08	0.2	.007
CD -34°	14810.....	200072	20 56.0	-34 26	8.7	F8	.....	3.0	.007
C	2718.....	200077	20 56.1	+39 52	6.6	F8	.31	3.8	.027
20C	1250A*....	.....	20 56.2	+39 41	10.2†	M3e	.67	9.9	.087
	5412.....	200205	20 57.0	+59 3	6.1†	K3	.05	0.5	.008
	5413A....	200256	20 57.3	+ 6 47	7.4†	F3	.02	2.9	.013
	5416A....	200465	20 58.5	+39 7	6.5	K3	.01	-0.2	.005
BD +31°	4320.....	200510	20 58.8	+31 57	7.2	K2	.01	-0.4	.003
C	5418A....	200497	20 58.8	- 6 13	6.2†	G4	.02	0.7	.008
	2727A*....	200560	20 59.1	+45 29	7.8	K3	.41	6.1	.046
	2728.....	200580	20 59.1	+ 2 36	8.1	F6	.48	3.7	.013
	5420.....	200577	20 59.2	+38 16	6.2	G8	.01	0.2	.006
	ADS	14597A....	200631	20 59.5	+30 41	7.8	K0	.05	0.8
C	5422.....	200644	20 59.6	+ 5 6	5.9	K5	.02	-0.6	.005
	5425A....	200723	21 0.1	+41 14	6.6†	F0	.05	2.4	.014
	2732.....	200779	21 0.4	+ 6 41	8.9	K6	.55	7.4	.050
	5428.....	200790	21 0.5	+ 5 34	6.0	F7	.17	3.1	.026
	5430A....	200914	21 1.3	-25 24	4.6	M1	0.06	-0.1	0.011

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$	
ADS	5431.....	200905	21 <sup>h</sup> 1 <sup>m</sup> 3	+43° 32'	4.2†	cK5	0".01	-2.0	0".006
	14638A....	200968	21 1.6	-14 19	7.2	K1	0.37	5.9	.055
	5433(A)...	201091	21 2.4	+38 15	5.6	K6	5.20	7.7	.263
	5434(B)...	201092	21 2.4	+38 15	6.3	Mo	5.20	8.6	.288
	5436A....	201251	21 3.2	+47 15	4.9	K5	0.01	-1.4	.005
$\beta$ GC	5438.....	201352	21 3.8	-20 57	6.2	F1	.18	3.3	.026
	5441.....	201381	21 4.1	-11 47	4.5	G8	.09	0.5	.016
	10775A....	201479	21 4.8	+16 57	9.6	F4	.06	2.8	.004
	BD +32° 40' 60.....	201505	21 4.9	+32 22	8.1	G7	.02	0.8	.003
	BD +38° 43' 62.....	201561	21 5.2	+38 19	7.8	K1	.06	0.3	.003
ADS	5443A....	201601	21 5.5	+ 9 44	4.8	cF1	.17	-0.2	.010
	5445.....	201647	21 5.8	-40 40	5.8	F5	.22	3.4	.033
	14708A....	201672	21 5.9	+19 33	8.1†	F2	.04	3.1	.010
	ADS 14708B.....	.....	21 5.9	+19 33	8.5	F2	.04	3.0	.008
	BD +15° 43' 62.....	201751	21 6.5	+15 27	8.7	K4	.03	0.5	.002
ADS	5446.....	201772	21 6.7	-39 50	5.3	F4	.23	2.6	.029
	14736B.....	.....	21 6.8	-15 24	8.0†	F9	.....	3.9	.015
	2749.....	201891	21 7.4	+17 21	7.3	F4	.92	4.2	.024
ADS	5448.....	201901	21 7.4	-28 2	5.6	K5	.17	0.1	.008
	14738A....	201889	21 7.5	+23 45	8.2†	F9	.46	3.9	.014
C	5452.....	202109	21 8.7	+29 49	3.7†	G4	.06	-0.6	.014
	2753.....	202123	21 8.8	+73 18	8.8	K4	.52	6.8	.040
	5455AB...	202275	21 9.6	+ 9 36	5.3†	F3	.32	4.0	.055
	5456.....	202320	21 9.9	-21 4	5.4	K0	.01	0.2	.009
	5457.....	202369	21 10.2	-15 35	5.5	M3	.02	-0.1	.008
C	5458.....	202380	21 10.2	+59 41	7.1	M2	.01	-1.9	.002
	5459A....	202403	21 10.5	+40 44	7.8†	G5	.04	2.3	.008
	5460A....	202444	21 10.8	+37 37	4.1†	F0	.46	2.7	.052
	5461.....	202447	21 10.8	+ 4 50	4.4†	F6	.10	2.6	.044
	5462.....	202466	21 10.9	- 9 38	6.8	M4	0.01	-0.4	.004
C	2757.....	202560	21 11.4	-39 15	6.6	M1	3.51	8.5	.240
C	2763.....	202751	21 12.9	- 0 15	8.5	K6	0.47	6.8	.046
BD	5470.....	202890	21 13.7	-16 36	6.9	G7	.03	1.0	.007
	+17° 45' 46.....	202907	21 13.8	+17 18	7.6	K1	.02	0.7	.004
BD	+17° 45' 48.....	202926	21 13.9	+17 34	7.2	F3	.02	3.2	.016
ADS	14847A....	202940	21 14.0	-26 46	6.6†	G4	.66	5.1	.050
	5472.....	202987	21 14.2	+55 23	6.2	K4	.02	-0.2	.005
C	2770.....	203040	21 14.6	-20 15	9.2	K6	.76	7.9	.055
	5476.....	203222	21 15.8	- 4 59	6.0	G7	.03	0.8	.009
	5479.....	203291	21 16.1	+ 6 56	6.0	M2	.04	-0.3	.005
C	5480A....	203280	21 16.2	+62 10	2.6	A3n	.16	2.0	.076
	5482.....	203344	21 16.6	+23 26	5.8	G8	.25	0.8	.010
	5483.....	203364	21 16.6	- 9 45	6.9	K3	.05	0.4	.005
	5484.....	203387	21 16.7	-17 16	4.3	G6	.03	0.9	.021
	5485A....	203380	21 16.8	+52 33	6.9	F6	0.07	3.6	0.022



## SPECTROSCOPIC ABSOLUTE MAGNITUDES

279

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
5485B....	.....	21 <sup>h</sup> 16 <sup>m</sup> 8	+52°33'	6.9	G5	0".07	4.2	0".029
5486.....	203399	21 16.8	+76 35	6.2	K5	.02	0.0	.006
5487.....	203475	21 17.3	-23 6	5.7	M1	.04	-0.5	.006
5489A....	203504	21 17.5	+19 23	4.2	K0	.12	0.6	.019
5489B....	.....	21 17.5	+19 23	9.2	K5	.12	6.5	.029
5490.....	203525	21 17.6	- 9 45	6.2	Mo	.05	0.0	.006
5491A....	203562	21 17.9	+ 6 23	5.6†	A3s	.05	1.6	.016
BD +15°4404....	203631	21 18.4	+16 4	7.6	K5	.02	-0.1	.003
5494.....	203638	21 18.5	-21 17	5.5	K2	.13	0.5	.010
5495.....	203644	21 18.5	+48 58	6.2†	K0	.07	0.6	.008
BD +41°4115....	.....	21 18.6	+41 26	9.1	K4	.01	0.0	.001
5498A....	203803	21 19.5	+23 51	5.7	F0	.12	2.0	.018
5499.....	203836	21 19.6	+86 37	7.4	A4n	.03	2.1	.009
5500.....	203843	21 19.6	- 3 50	6.4	A9n	.05	1.6	.011
5503.....	203926	21 20.1	- 3 59	5.7	K4	.08	0.2	.008
5504.....	203925	21 20.1	+25 45	5.7	F2	.04	1.9	.017
5507A....	204075	21 21.0	-22 51	4.2†	cG4	.02	-1.3	.008
2783.....	204121	21 21.4	+ 0 41	6.4	F5	.19	3.2	.023
5508A....	204129	21 21.5	+79 55	7.8†	F4	.18	3.3	.013
5509.....	204149	21 21.6	+83 50	7.1	K0	.02	0.7	.005
5510.....	204139	21 21.6	-21 38	6.0	K5	.04	-0.2	.006
5511.....	204153	21 21.7	+46 17	5.5	A7n	.21	1.9	.019
5513.....	204381	21 23.0	-22 15	4.6	G5	.13	0.7	.017
5519.....	204485	21 23.9	+31 47	5.7	F2	0.13	3.5	.036
C 2790.....	204587	21 24.5	-12 56	9.4	Mo	1.05	8.2	.057
5521.....	204692	21 25.2	-14 44	6.8	K2	0.04	0.6	.006
C 2794.....	204712	21 25.3	+11 50	7.7	F5	.18	3.8	.017
5522A....	204724	21 25.4	+23 12	4.8	M1	.02	0.1	.011
5523.....	204771	21 25.8	+46 6	5.3	K0	.11	0.9	.013
C 2797.....	204814	21 26.0	+45 27	7.9	G9	.55	5.1	.027
5527A....	204867	21 26.3	- 6 1	3.1	cG1	.02	-2.5	.008
BD +45°3566....	204933	21 26.8	+46 6	8.3	A8s	.....	2.0	.005
5532B....	.....	21 27.4	+70 7	7.8	A4n	.01	2.0	.007
5533.....	205072	21 27.8	+80 5	6.1	G6	.05	0.9	.009
BD +51°3079....	205114-5	21 28.1	+52 11	6.8†	cG2p†	.02	-1.5	.002
ADS 15076A....	205160	21 28.4	+20 16	7.6†	F4	.04	3.6	.016
ADS 15076B....	.....	21 28.4	+20 16	8.3	F7	.04	3.7	.012
5536.....	205234	21 28.9	+75 58	8.2†	A6n	.03	1.7	.005
5537.....	205289	21 29.2	-20 32	5.8	F1	.04	3.3	.032
5538.....	205306	21 29.3	-20 42	7.0	F4	.06	3.0	.016
5540.....	205342	21 29.5	-23 54	6.4	G7	.08	0.6	.007
BD +67°1324....	.....	21 30.0	+67 56	8.7	K2	.03	0.5	.002
5542.....	205423	21 30.1	- 4 26	5.8	G9	.02	0.3	.008
5543.....	205435	21 30.2	+45 9	4.2	G5	.10	0.6	.019
5546.....	205512	21 30.7	+38 5	5.0	G7	0.15	0.5	0.013

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
BD +26°42'13.....		21 <sup>h</sup> 32 <sup>m</sup> 2	+26°14'	9.3	K5	0".04	0.8	0".002
5550A.....	205765	21 32.4	— 0 50	6.3	A1n	.03	2.0	.014
5550B.....		21 32.4	— 0 50	9.2	F6	.03	3.5	.007
C 2808.....	205855	21 33.0	— 2 45	8.8	K6	.53	7.2	.048
5555.....	205852	21 33.1	+18 52	6.0†	A5n	.10	2.0	.016
5556A.....	205924	21 33.5	+ 5 19	6.1†	A2n	.12	2.3	.017
BD +32°42'16.....	205967	21 33.8	+32 41	7.6	G5	.04	0.2	.003
5558.....	206043	21 34.4	+19 49	5.8	A5n	.12	2.0	.017
5559A.....	206058	21 34.4	— 0 30	7.3†	F7	.24	3.8	.020
5560.....	206067	21 34.5	+ 1 48	5.3	K0	.09	0.8	.013
5561.....	206078	21 34.5	+61 51	7.7	G6	.14	0.7	.004
5562.....	206088	21 34.5	—17 7	4.1†	F2*	.19	1.8	.035
BD +30°44'96.....	206137	21 35.1	+31 5	8.1	F5	.05	3.0	.010
5566.....	206301	21 36.1	—14 30	5.6†	G1	.33	3.9	.046
5567A.....	206330	21 36.3	+42 49	5.4	M1	.05	0.3	.010
5568A.....	206356	21 36.3	—23 43	5.3	G9	.13	0.7	.012
C 2816.....	206374	21 36.6	+26 18	7.4	G3	.36	4.8	.030
BD — 0°42'49.....	206404	21 36.8	— 0 6	7.7	F6	.07	3.1	.012
5569.....	206445	21 37.1	+ 0 50	5.8	K4	.02	—0.5	.005
5570.....	206453	21 37.1	—19 19	4.8	G4	.14	1.0	.017
5571A.....	206482	21 37.3	+57 8	7.1	F4	.05	2.5	.012
5572.....	206487	21 37.3	+ 5 13	5.6	M2	.02	—0.3	.007
5575.....	206546	21 37.6	—20 5	6.5†	A6n	.08	1.4	.010
BD — 0°42'57.....	206660	21 38.5	+ 0 5	7.1	G8	.07	0.6	.005
5583.....	206749	21 39.1	+40 42	5.5	M2	.03	—0.3	.007
5584A.....	206778	21 39.3	+ 9 25	2.5	cK0	.02	—2.3	.011
5587(A).....	206826	21 39.7	+28 17	4.7	F6	.37	3.3	.052
5588(B).....	206827	21 39.7	+28 17	6.1	F3	.32	3.8	.035
C 2823.....		21 39.7	+24 53	9.5	G8	.66	5.1	.013
5589.....	206834	21 39.7	— 9 33	5.6†	G7	.01	0.0	.008
5590.....	206859	21 39.8	+16 53	4.5	cG3	.03	—1.3	.007
5592A.....	206901	21 40.1	+25 11	5.1†	F2	.03	3.0	.038
5592C.....		21 40.1	+25 11	10.0	G9	.....	1.2	.002
5593A.....	206936	21 40.4	+58 19	4.4	M2	.00	—3.0	.003
5594.....	206952	21 40.5	+70 51	4.8	K1	.15	0.4	.013
5595.....	207005	21 40.9	— 9 44	6.2	M3	.02	—0.4	.005
5597.....	207061	21 41.3	—12 9	7.0	F5	.13	3.0	.016
5599.....	207089	21 41.5	+22 29	5.4	cK1	.02	—2.8	.002
5600A.....	207098	21 41.5	—16 35	3.3†	A7s	.39	1.8	.050
5602.....	207134	21 41.8	+25 6	6.5	K2	.15	0.7	.007
5603.....	207130	21 41.8	+71 52	5.4	K1	.06	0.8	.012
C 2833.....	207491	21 44.1	+ 5 15	8.6	K6	.54	7.1	.050
5612.....	207489	21 44.2	+38 29	7.2	cG0	.01	—1.4	.002
5613.....	207503	21 44.3	—13 11	6.4†	A8s	.01	1.7	.011
5614.....	207528	21 44.5	+60 14	5.6	M1	0.01	0.6	0.010

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

281

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
ADS 5616.....	207652	21 <sup>h</sup> 45 <sup>m</sup> .4	+16°49'	5.3	A8n	0".10	2.4	0".026
ADS 15377C....	207804	21 46.5	+32 12	8.5	K1	.03	0.3	.002
5620A....	207826	21 46.8	+66 20	6.8†	F2	.07	2.2	.012
ADS 15392A....	207862	21 47.0	+ 8 37	7.9	A9s	.....	1.9	.006
BD +64°1596.....	207884	21 47.2	+64 46	7.9	M3	.01	-1.0	.002
BD +31°4562.....	207908	21 47.3	+31 27	7.5	K4	.03	0.3	.004
5622.....	207920	21 47.5	- 4 28	6.7	G5	.02	0.8	.007
5623.....	207958	21 47.8	-14 1	5.2	F0	.31	2.9	.035
5625.....	207978	21 48.0	+28 20	5.6	F0	.10	3.2	.033
ADS 15398A....	208074	21 48.7	+66 22	8.7†	F4	.01	3.6	.010
ADS 5631.....	208111	21 49.0	- 4 45	5.9	K2	.10	0.8	.010
ADS 15407A....	208132	21 49.1	+65 17	7.0†	A8s	.02	1.2	.007
ADS 15407B....	208133	21 49.1	+65 17	7.2	F0	.02	2.2	.010
5632.....	208219	21 49.7	+55 44	6.9	G6	.03	0.4	.005
20C 1321.....	.....	21 50.8	+32 10	10.8	G2	.73	4.3	.005
ADS 5638.....	208502	21 51.4	+53 28	6.9	F5	.17	3.6	.022
ADS 15475A....	208552	21 51.9	+15 39	8.3	F5	.04	3.5	.011
ADS 15475B....	.....	21 51.9	+15 39	9.8	G5	.04	5.2	.012
5645.....	208735	21 53.2	-21 40	6.2	M4	.02	-0.4	.005
5647.....	208742	21 53.3	+79 5	6.8	M2	.03	-0.4	.004
C 2857.....	208776	21 53.4	+ 3 18	7.1	F6	.31	3.8	.022
VV Cephei*.....	208816	21 53.8	+63 9	5.7†	M2e	.01	-2.1	.003
5651.....	208906	21 54.3	+29 21	6.8	F6	0.54	3.8	.025
5654*.....	209100	21 55.7	-57 12	4.7	K5	4.69	6.8	.263
5655.....	209128	21 56.0	+ 0 7	5.8	K4	0.01	0.2	.008
BD +30°5657.....	209167	21 56.2	+ 7 47	5.8	K5	.02	0.1	.007
5658A....	209166	21 56.2	+12 38	5.7	F2	.08	2.2	.020
4587.....	209206	21 56.5	+30 15	8.7	A8n	.....	2.3	.005
5659.....	209240	21 56.7	-18 23	6.4	G7	.12	0.5	.007
5661.....	209369	21 57.8	+72 42	5.2	F3	.17	2.9	.035
5671.....	209625	21 59.6	- 1 23	5.5†	A8s	.04	1.8	.018
5673.....	209761	22 0.6	+26 11	5.9	K3	.05	0.8	.010
5674.....	209747	22 0.6	+ 4 34	4.9	K5	.14	0.6	.014
5676.....	209750	22 0.6	- 0 48	3.2	cG1	.02	-2.2	.008
5677(B)...	209791	22 0.9	+64 8	6.5	F7	.23	3.6	.026
5678.....	209772	22 0.9	+62 38	5.5	M5	.05	0.0	.008
5682(A)...	209942	22 1.8	+82 23	7.1	F5	.14	3.7	.021
5683(B)...	209943	22 1.9	+82 23	7.9†	G5	.14	4.8	.024
5685.....	209960	22 2.0	+62 18	5.4	K5	.06	0.5	.010
5686.....	209945	22 2.0	+44 32	5.3	Mo	.02	0.2	.010
BD +29°4585.....	209964	22 2.0	+30 5	8.7	F3	.01	3.2	.008
5688.....	210027	22 2.4	+24 51	4.3†	F3	.30	3.6	.072
BD +29°4586.....	210060	22 2.6	+29 49	7.4	K2	.05	0.5	.004
5691.....	210074	22 2.7	+18 59	5.8	F2	.13	2.8	.025
C 2885.....	210144	22 3.1	+52 39	7.9	K0	0.62	5.4	0.032

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
5694.....	210220	22 <sup>h</sup> 3 <sup>m</sup> 8	+58° 21'	6.3	G4	0".03	0.6	0".007
5697.....	210277	22 4.2	— 8 2	6.6	G9	.46	5.1	.050
5698.....	210302	22 4.3	— 33 2	5.1	F5	.45	3.3	.044
5700.....	210353	22 4.7	+47 27	7.1†	A1s	.04	1.0	.006
5701A....	210354	22 4.8	+32 41	5.6	G6	.09	1.0	.012
5707.....	210434	22 5.3	— 4 46	6.1	K0	.06	0.6	.008
5708.....	210464	22 5.5	— 21 43	6.1	F6	.11	2.9	.023
5709.....	210459	22 5.5	+32 41	4.4	A7n	.03	1.1	.022
2889.....	.....	22 5.9	+22 18	9.4†	K4	.58	6.5	.026
5711.....	210702	22 7.0	+15 33	6.1	G7	.02	0.9	.009
5712.....	210705	22 7.0	— 14 41	6.2	F1	.05	3.2	.025
5714.....	210745	22 7.4	+57 42	3.6	cK5	.01	— 2.3	.007
5715.....	210763	22 7.5	— 5 13	6.4	F4	.07	3.0	.021
5716.....	210807	22 7.9	+71 51	5.0	G3	.03	0.6	.013
5721.....	210855	22 8.2	+56 21	5.4	F6	.27	3.0	.033
5723A....	210884	22 8.4	+69 38	5.5	F3	.06	2.8	.029
5724.....	210889	22 8.4	+34 7	5.4	K2	.05	0.6	.011
5725.....	210918	22 8.5	— 41 51	6.4	G1	.95	4.7	.046
5727.....	210939	22 8.7	+60 16	5.5	G9	.03	0.6	.010
5730.....	211006	22 9.1	+28 7	6.0	K3	.04	0.5	.008
5731A....	211076	22 9.5	+16 42	6.6	K5	.13	0.5	.006
5732A....	211073	22 9.6	+39 13	4.9†	K4	.05	0.2	.011
5741A....	211300	22 11.1	+72 49	6.1	G7	.03	0.1	.006
BD +15° 4604.....	211341	22 11.3	+15 31	8.2	F4	.01	2.5	.007
5742.....	211336	22 11.4	+56 33	4.2	A6n	.45	1.8	.033
ADS 15791A.....	.....	22 11.4	+30 55	8.9	F3	.06	3.1	.007
ADS 15791B.....	.....	22 11.4	+30 55	10.4	F6	.06	3.6	.004
5743.....	211361	22 11.4	— 13 20	5.6	K0	.02	0.5	.010
5744.....	211391	22 11.6	— 8 17	4.3	G6	.11	0.6	.018
5745.....	211392	22 11.6	— 9 32	6.1	K3	.05	0.5	.008
5746.....	211388	22 11.6	+37 15	4.2	K4	.02	— 0.6	.011
5749.....	211434	22 11.9	— 5 53	5.8	G4	.02	0.9	.010
2903.....	211476	22 12.3	+12 24	6.9	G2	.85	4.5	.033
5751.....	211554	22 12.8	+56 43	6.3†	G4	.04	0.1	.006
5752.....	211676	22 13.6	— 13 48	6.1	G7	.07	0.5	.008
C 2908.....	.....	22 13.8	+67 50	9.1	K6	.37	7.9	.057
BD +14° 4772.....	211800	22 14.6	+15 3	7.2	M1	.02	— 0.3	.003
5756.....	211833	22 14.9	+62 18	6.0	K3	.05	0.3	.007
BD +15° 4622.....	.....	22 15.0	+15 20	9.3	K3	0.01	2.1	.004
5758*.....	211998	22 16.0	— 72 44	5.4	G0	1.45	3.9	.050
ADS 15851A....	212005	22 16.1	+24 27	8.3	K0	0.06	0.4	.003
5759.....	212010	22 16.1	— 22 6	5.4	K2	.09	0.2	.009
5767.....	212247	22 17.7	+43 14	8.0	K2	.03	0.8	.004
5768.....	212271	22 17.9	— 25 16	5.6	G9	.09	0.8	.011
5769.....	212320	22 18.3	— 7 42	6.1	G6	0.01	0.3	0.007

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
5771A....	212391	22 <sup>h</sup> 18 <sup>m</sup> 8	+66°12'	6.7	G6	0".04	0.6	0".006
5771B....	212392	22 18.8	+66 12	8.0†	A3s	.04	0.9	.004
5772A....	212395	22 18.8	+20 21	6.2†	F4	.34	3.6	.030
5774.....	212430	22 19.1	-14 2	5.9	G6	.05	0.6	.009
5775.....	212474	22 19.4	-1 42	7.1†	G6	.11	1.0	.006
5776.....	212496	22 19.6	+51 44	4.6	K0	.19	1.0	.019
5781(B)...	212697	22 21.1	-17 15	6.6	G1	.26	4.8	.044
5782(A)...	212698	22 21.1	-17 15	6.4	G2	.21	4.4	.040
5786A....	212754	22 21.5	+3 53	5.8	F5	.30	3.5	.035
5787.....	212774	22 21.7	+85 43	6.8	K0	.05	0.7	.006
5788.....	212790	22 21.9	+53 18	7.4	K2	.01	0.5	.004
BD +53°2876.....	212810	22 22.0	+53 26	7.4	F1	.09	3.3	.015
5790.....	212943	22 22.8	+4 12	4.9	K0	.32	2.3	.030
BD +74°964.....	212955	22 22.9	+74 20	8.0	G5	.02	0.8	.004
BD +69°1250.....	212976	22 23.1	+69 23	8.3†	G6	.02	0.6	.003
5792.....	213022	22 23.4	+70 16	5.7	K2	.04	0.3	.008
ADS 15967A....	213014	22 23.4	+16 45	7.5	G8	.02	0.2	.003
ADS 15966A....	213013	22 23.5	+23 1	8.3	G8	.....	5.4	.026
ADS 15966B....	.....	22 23.5	+23 1	8.8	K2	.....	6.2	.030
C 2920.....	213042	22 23.6	-30 30	7.8	K6	.87	6.9	.066
5793(B)...	213051	22 23.7	-0 32	4.6	F1	.17	2.7	.042
5794(A)...	213052	22 23.7	-0 32	4.4	F2	.21	2.7	.046
5797.....	213119	22 24.1	+8 37	5.8	K5	.06	-0.4	.006
ADS 15972A....	239960	22 24.4	+57 12	9.8	M3	.86	10.8	.158
5798.....	213179	22 24.5	+26 15	6.0	K2	.03	0.2	.007
5799.....	213198	22 24.7	-13 26	6.2	F1	.18	2.2	.016
5800A....	213235	22 24.9	+3 55	5.7†	F2	.15	2.3	.021
5802.....	213296	22 25.3	-26 35	6.5	K1	.07	0.6	.007
5803.....	213320	22 25.4	-11 11	5.2†	A2s	.03	1.1	.015
5804.....	213310	22 25.4	+47 12	4.6	M0	.02	-2.3	.004
BD +75°832.....	213556	22 27.1	+75 43	7.9	K3	0.01	-0.2	.002
20C 1370AB*.....	.....	22 28.7	+53 16	10.7†	M1	1.58	8.6	.038
5816.....	213780	22 28.8	-10 7	6.8	K2	0.01	0.8	.006
5817.....	213789	22 28.9	-2 5	5.9	G6	.04	0.7	.009
BD +52°3240.....	.....	22 29.0	+53 12	10.2	M5	.....	-0.4	.001
5819.....	213845	22 29.2	-21 13	5.3	F3	.26	3.0	.035
5820.....	213893	22 29.5	+0 5	7.0	M0	.09	-0.3	.003
5821.....	213930	22 29.8	+56 6	5.8	G6	.09	0.8	.010
5822.....	213986	22 30.1	-24 30	6.0	K0	.02	0.5	.008
5825.....	214028	22 30.4	-17 59	6.8	K5	.06	0.2	.005
C 2937.....	214059	22 30.5	+4 52	8.4	G4	.45	4.4	.016
5830.....	214128	22 31.0	+19 46	6.7	K2	.12	0.5	.006
BD +60°2412.....	.....	22 31.4	+60 17	9.0	K5	.09	6.9	.038
BD +60°2414.....	214165	22 31.4	+60 19	7.1	F1	.13	3.0	.015
5835A....	214376	22 32.6	-4 45	5.3	K1	0.14	0.8	0.013

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
ADS 16121A....	214422	22 <sup>h</sup> 32 <sup>m</sup> 9	+26°55'	8.3†	G0	0".05	3.8	0".013
5838.....	214470	22 33.3	+73 7	5.2	F3	.17	1.3	.017
BD + 1°4637.....	214547	22 33.8	+ 2 0	10.3	F3	.52	3.2	.004
5839.....	214572	22 34.0	-10 33	7.2	G0	.04	3.7	.020
5840.....	214567	22 34.0	+19 0	5.8	G7	.11	0.6	.009
5841B....	214615	22 34.2	-13 8	8.8†	G8	.28	4.4	.013
BD +68°1319.....	214605-6	22 34.3	+68 41	8.0†	F2*	.02	2.3	.007
ADS 16138AB..	214608	22 34.4	+43 47	7.6†	G0	.24	4.6	.025
5843A....	214665	22 34.7	+56 17	5.5	M4	.06	-0.4	.007
5846.....	214686	22 34.8	- 9 53	7.0†	F6	.17	3.6	.021
5851AB..	214850	22 35.9	+14 1	5.8	G3	.30	4.2	.048
5852.....	214868	22 36.1	+43 45	4.6	K2	.10	-0.1	.011
5855.....	214966	22 36.8	-29 53	6.4	M5	.03	-0.3	.005
5857.....	214995	22 37.0	+14 0	6.1	K0	.10	0.4	.007
5859.....	215081	22 37.6	-22 11	7.3	G3	.05	0.8	.005
BD - 0°4406.....	215093	22 37.7	- 0 17	6.9	F2	.03	2.7	.014
C 2958.....	215110	22 37.8	- 0 6	8.0	G4	.22	4.0	.016
5861.....	215097	22 37.8	-10 38	7.2	K1	.01	0.5	.005
5864.....	215167	22 38.2	-19 21	4.9	K3	.04	0.1	.011
5865A....	215182	22 38.3	+29 42	3.4†	G2	.04	0.6	.027
ADS 16220A....	215324	22 39.1	+45 30	7.4	F5	.17	3.2	.014
5866.....	215318	22 39.2	+80 52	6.9	G0	.02	1.1	.007
5868A....	215359	22 39.6	+38 56	6.2†	K5	.02	0.2	.006
5868B.....	.....	22 39.6	+38 56	8.4	K1	.02	0.9	.003
5869A....	215373	22 39.7	+41 18	5.2	G7	.01	0.6	.012
ADS 16242A....	.....	22 40.5	+10 40	9.7†	K6	.....	7.0	.029
5872.....	215510	22 40.6	+18 50	6.4	G6	.06	0.9	.008
ADS 16248A....	215549	22 40.9	+29 56	6.5	K0	.46	4.8	.046
ADS 16254A....	215578	22 41.1	+18 43	8.0	G8	.03	0.3	.003
5874A....	215648	22 41.7	+11 40	4.3	F3	.54	3.8	.079
5875.....	215665	22 41.7	+23 2	4.1	G6	.06	0.3	.017
5878.....	215721	22 42.2	-20 8	5.4	G7	.24	1.0	.013
20C 1382.....	.....	22 42.5	+43 49	10.2	M5e	.84	11.2	.158
5881A....	215812	22 42.7	- 4 45	7.3†	G3	.35	4.9	.033
5881B.....	.....	22 42.7	- 4 45	7.8	G3	.34	5.0	.027
5884.....	216032	22 44.3	-14 7	4.2	M0	.04	-0.3	.013
5885.....	216131	22 45.2	+24 4	3.7	G6	.15	0.9	.027
5887.....	216174	22 45.6	+55 22	5.6	K0	.09	0.5	.010
ADS 16291A....	216172	22 45.6	+68 2	7.1†	F4	.13	3.0	.015
ADS 16291B.....	.....	22 45.6	+68 2	7.1	F5	.13	2.9	.014
5891.....	216228	22 46.1	+65 40	3.7	K1	.14	0.6	.024
5892.....	216259	22 46.4	+13 26	8.0	K4	.52	6.4	.048
C 2986.....	.....	22 47.3	+31 12	9.4	K6	.50	6.9	.032
5894.....	216385	22 47.3	+ 9 18	5.3	F5	.52	3.3	.040
5895.....	216386	22 47.4	- 8 7	3.8	M2	0.04	-0.2	0.016

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
5896A....	216380	22 <sup>h</sup> 47 <sup>m</sup> 5	+61°10'	6.1†	G3	0".12	1.1	0".010
5897A....	216397	22 47.5	+42 47	5.2	M0	.10	0.1	.010
5899A....	216446	22 47.9	+82 37	5.0	K3	.06	0.1	.010
5900.....	216489	22 48.1	+16 19	6.0†	K1	.03	0.4	.008
SW Lacertae*.....	216598	22 49.1	+37 23	9.8†	F9	.08	4.0	.007
5903A....	216608	22 49.2	+44 13	5.8†	F1	.02	2.8	.025
5904.....	216627	22 49.3	-16 21	3.5	A3s	.05	1.1	.033
5905.....	216637	22 49.4	- 7 44	6.3	K3	.04	0.5	.007
5907.....	216640	22 49.5	-16 48	5.7	K4	.23	1.9	.017
5909A....	216718	22 50.0	- 5 31	5.9	G7	.02	0.8	.010
20C 1391.....	216777	22 50.6	- 8 21	8.9	G1	.57	4.7	.014
5914.....	216946	22 52.0	+49 12	5.1	cK3	.01	-2.4	.003
5915.....	216953	22 52.1	- 5 21	6.4	G6	.02	0.6	.007
5916A....	216956	22 52.1	-30 9	1.3	A2s	.36	1.4	.105
BD +79° 758.....	216991	22 52.4	+79 43	7.8	K3	.01	0.7	.004
5917.....	217014	22 52.6	+20 14	5.6	G0	.21	4.3	.055
5920A....	217166	22 53.5	+ 8 50	7.0†	G1	.42	4.1	.026
5923.....	217251	22 54.3	-13 36	6.3	K5	.01	-0.2	.005
5924A....	217264	22 54.3	+ 0 26	5.6	K1	.10	0.4	.009
5925.....	217303	22 54.7	-25 42	5.8	K0	.08	0.3	.008
C 3001.....	217357	22 55.0	-23 4	7.6	M1	.90	8.7	.166
C 3002.....	.....	22 55.1	+68 29	8.4	K0	.66	5.2	.023
5927.....	217382	22 55.2	+83 49	5.0	K5	.11	0.1	.010
5929.....	217428	22 55.5	- 0 21	6.4	G4	.04	0.4	.006
5931.....	217476	22 55.9	+56 25	5.5	cG3	.01	-3.2	.002
5932.....	217531	22 56.2	- 7 36	6.4	K5	.03	0.4	.006
C 3007.....	217580	22 56.7	- 4 23	7.6	K4	.48	6.1	.050
5934.....	217701	22 57.4	- 7 7	6.5	M2	.04	-0.1	.005
BD +56°2933.....	240174	22 58.3	+56 34	8.6	G4	.11	4.0	.012
BD +30°4867.....	217888	22 58.8	+30 32	8.1	A2s	.01	0.9	.004
5940A....	217906	22 58.9	+27 32	2.6	M2	0.23	-0.6	.023
C 3014.....	217987	22 59.4	-36 26	7.4	M2	6.91	9.5	.263
5942.....	218031	22 59.7	+49 31	4.9	G8	0.23	0.8	.015
5943.....	218029	22 59.7	+66 40	5.5	K3	.03	0.1	.008
BD +30°4869.....	218043	22 59.8	+30 45	6.8	F2	.07	3.1	.018
BD +29°4855.....	218199	23 1.0	+30 11	8.3	G6	.01	1.0	.003
C 3019.....	218209	23 1.2	+65 52	7.5	G3	.61	4.8	.029
5950A....	218240	23 1.3	-24 17	4.8	G9	.07	0.8	.016
BD +30°4875.....	218300	23 1.8	+30 29	8.4	K0	.02	0.6	.003
BD +29°4858.....	218301	23 1.8	+30 5	8.0	A5n	.03	1.9	.006
5952.....	218329	23 2.0	+ 8 52	4.7	M2	.02	0.7	.016
5954.....	218356	23 2.2	+24 56	5.0	cK0	.04	-1.6	.005
C 3023.....	218347	23 2.2	+15 44	9.3	F6	.17	3.4	.007
5957A....	218452	23 3.1	+45 51	5.6	K5	.03	0.2	.008
BD +29°4863.....	218454	23 3.1	+29 54	7.4	K4	0.02	0.3	.004



## CATALOGUE—Continued

	Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
C	5958.....	218470	23 <sup>h</sup> 3 <sup>m</sup> 2	+48° 45'	5.8	F3	0".19	3.1	0".029
	5959.....	218527	23 3.6	+ 1 35	5.6	G4	.18	2.4	.023
	3028.....	218566	23 4.0	- 2 48	8.3	K5	.64	6.4	.042
	5960.....	218594	23 4.1	-21 43	3.8	K1	.06	0.2	.019
	5962A....	218634	23 4.5	+ 8 8	5.4	M4	.00	-1.1	.005
ADS	5963.....	218640	23 4.6	-23 0	5.3†	G2‡	.01	0.6	.011
	5966A....	218658	23 4.7	+74 51	5.0†	G1	.03	0.5	.013
	16557A....	218739	23 5.3	+47 25	6.6	G0	.13	4.8	.044
	5969A....	218753	23 5.5	+58 47	5.6	A9s	.02	2.3	.022
	5971.....	218792	23 5.7	+17 3	5.9	K4	.03	0.1	.007
ADS	5972.....	218804	23 5.8	+43 0	5.8	F3	.28	3.4	.033
	5974.....	218935	23 7.0	+26 18	6.4	K0	.23	2.2	.014
	5975.....	219080	23 8.0	+48 52	4.9†	F2	.13	2.7	.036
	16599A....	219127	23 8.3	+39 27	7.4	A8n	0.09	2.2	.009
	5976.....	219134	23 8.5	+56 37	5.6	K5	2.10	6.6	.158
	5977A....	219175	23 8.8	- 9 28	8.3	F5	0.54	3.8	.013
	5977B....	.....	23 8.9	- 9 28	9.7†	G2	.54	4.4	.009
	5978.....	219215	23 9.1	- 6 35	4.4	M2	.19	0.5	.017
	5981BC...	219430	23 10.6	- 9 38	9.8†	K6	.37	6.8	.025
	5981A....	219449	23 10.7	- 9 38	4.5	K0	.37	0.7	.017
ADS	5982.....	219477	23 10.9	+27 42	6.5	G3	.02	-0.2	.005
	5986.....	219576	23 11.7	- 8 16	5.1	M5	0.02	-0.1	.009
	16644AB...	219617	23 11.9	-14 22	9.0†	A8sp*	1.30	5.0	.016
	5988.....	219615	23 12.0	+ 2 44	3.8	G4	0.75	1.2	.030
	5989.....	219623	23 12.1	+52 40	5.6	F7	.27	3.7	.042
BD	-14° 6441.....	219702	23 12.8	-14 20	6.8	K2	.....	0.2	.005
ADS	5993A....	219734	23 13.1	+48 28	5.0	M2	.04	-0.1	.010
	5996.....	219815	23 13.6	+41 14	6.2†	A9s	.01	2.0	.014
	16665A....	219829	23 13.8	+ 4 52	8.6	K1	.49	5.8	.027
	5998A....	219834	23 13.9	-14 0	5.6†	G4	.31	3.6	.040
	5998B....	.....	23 13.9	-14 0	7.6	K3	.28	6.2	.052
	5999A....	219877	23 14.2	- 5 40	6.0†	F0	.19	3.0	.025
	6000A....	219916	23 14.5	+67 34	5.0†	G7	.06	0.7	.014
	6001.....	219945	23 14.8	+48 5	5.4	K0	.06	0.8	.012
	6002A....	219962	23 15.0	+47 50	6.4	K1	.21	0.4	.006
	3054.....	219953	23 15.0	+28 19	8.8	K3	.66	5.9	.026
C	6003.....	219981	23 15.1	+41 32	6.0	M0	.04	0.1	.007
	6004A....	220009	23 15.2	+ 4 50	5.2	K0	.10	0.4	.011
	BD +14° 4974.....	220078	23 15.8	+14 31	7.6	A6n	.04	1.7	.007
	6006.....	220088	23 15.9	+29 52	5.8	M0	.10	0.4	.008
	BD +59° 2701.....	220102	23 16.0	+59 44	6.7	cF3	.03	-0.3	.004
ADS	6008.....	220117	23 16.1	+37 38	5.8	F5	.14	3.1	.029
	16693A....	220149	23 16.4	+34 53	9.1†	G8	.02	0.6	.002
ADS	16693B....	.....	23 16.4	+34 53	9.1	K2	.....	0.9	.002
C	3059.....	220182	23 16.8	+43 33	7.6	K1	0.67	5.8	0.044

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

287

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
6012A....	220321	23 <sup>h</sup> 17 <sup>m</sup> 7	-20°39'	4.2	K0	0".15	0.7	0".020
6013A....	220334	23 17.8	+20 1	6.6	G0	.32	4.4	.036
6013B.....	220339	23 17.8	+20 1	9.6	K6	.32	7.4	.036
6014.....	220339	23 17.8	-11 19	8.1	K1	.50	5.2	.026
6015AB..	220363	23 18.0	+11 46	5.3	K4	.03	0.1	.009
6016.....	220369	23 18.1	+59 35	5.9	K5	.00	-0.7	.005
6017A....	220436	23 18.6	- 9 1	7.2†	K1	.02	0.5	.005
6019A....	220466	23 18.8	-22 19	6.5	F2	.10	3.2	.022
6020.....	220460	23 18.9	+31 59	6.5	F3	.23	3.2	.022
BD +76° 915.....	220636	23 20.3	+76 58	7.9	F6	.01	3.8	.015
6024.....	220657	23 20.4	+22 51	4.6	F6	.19	2.8	.044
6025A....	220652	23 20.4	+61 44	5.2	M2	.01	-1.2	.005
6026.....	220704	23 20.8	-21 11	4.5	K5	.08	0.0	.013
BD +52°3440.....	220719	23 21.0	+52 26	6.9	M4	.05	-0.1	.004
6028A....	220766	23 21.3	-22 17	6.6	K0	.04	0.3	.005
C 3074.....	220821	23 21.8	+44 47	7.4	F9	.47	4.4	.025
6031A....	220825	23 21.8	+ 0 42	4.9	A3s	.02	0.8	.015
6033.....	220858	23 22.1	+ 0 34	6.4	G7	.06	0.6	.007
BD +43°4462.....	220910	23 22.6	+43 19	8.0	K5	.02	-0.2	.002
BD +32°4649.....	220951	23 22.9	+32 26	7.4	A6n	.....	1.9	.008
6037.....	220954	23 22.9	+ 5 50	4.4	K0	.14	0.5	.017
6040.....	221115	23 24.1	+12 13	4.7	G9	.06	0.5	.014
6041.....	221147	23 24.3	- 2 21	6.6	K1	.03	0.2	.005
6042.....	221148	23 24.4	- 5 5	6.4	K3	.28	2.0	.013
6043.....	221146	23 24.4	- 1 35	7.1	G0	.03	4.1	.025
ADS 16800AB..	221264	23 25.5	+30 17	8.4†	F5	.00	3.3	.010
BD +43°4475.....	221303	23 25.8	+43 25	8.1	G9	.01	0.5	.003
6048.....	221356	23 26.4	- 4 38	6.5	F8	.25	3.6	.026
6049.....	221345	23 26.4	+38 41	5.3	G8	0.29	0.6	.011
C 3081.....	221354	23 26.5	+58 37	6.8	K2	1.06	5.6	.057
6050.....	221357	23 26.5	-21 55	6.2	A7n	0.00	1.2	.010
6051.....	221409	23 26.8	- 1 38	6.5	K1	.02	0.5	.006
BD +59°2740.....	221438	23 27.1	+59 59	9.2	A4s	.07	1.7	.003
C 3085.....	221585	23 28.2	+62 36	7.4	G3	.42	4.4	.025
6058.....	221615	23 28.5	+21 57	5.5	M5	.04	-0.2	.007
$\beta$ GC 12434B....	221639	23 28.7	+59 52	7.3	G0	.09	2.4	.010
$\beta$ GC 12434A....	221670	23 29.0	+59 54	7.7†	G6	.04	0.7	.004
6059AB..	221673	23 29.0	+30 46	5.2	K4	.05	0.2	.010
BD +73°1042.....	221697	23 29.3	+73 40	8.0	G8	.01	0.3	.003
6061.....	221758	23 29.7	+32 57	5.7	K0	.03	0.7	.010
C 3093.....	221830	23 30.4	+30 27	6.7	G0	.59	4.4	.035
6064.....	221833	23 30.4	+ 0 46	6.6	K2	.05	0.5	.006
C 3096.....	221914	23 31.0	+17 53	8.0	G5	.73	4.9	.024
6067.....	221950	23 31.3	+ 1 33	5.6	F0	.12	3.2	.033
6071.....	222107	23 32.7	+45 55	4.3†	G7	0.45	2.3	0.040

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$
6077.....	222368	23 <sup>h</sup> 34 <sup>m</sup> 8	+ 5° 5'	4.3	F5	0".57	3.5	0".069
BD 6078.....	222404	23 35.2	+77 4	3.4	K1	.17	2.1	.055
ADS +74°1033.....	222448	23 35.6	+75 12	7.2	F3	.01	2.4	.011
16919A.....	222455	23 35.6	- 0 8	7.7	K4	.12	0.3	.003
6081.....	222493	23 36.0	-12 14	6.1	G9	.06	0.5	.008
6082.....	222547	23 36.4	-18 35	5.6	K5	.08	-0.1	.007
BD 6083A....	222574	23 36.6	-18 22	5.3†	cG1	.02	-1.9	.004
+74°1034.....	222598	23 36.9	+75 2	8.0	G9	.03	0.5	.003
6085.....	222643	23 37.3	-16 0	5.4	K5	.02	0.6	.011
6086.....	222641	23 37.3	+44 26	6.7	K5	.02	0.0	.005
6088.....	222683	23 37.7	+15 47	6.5	G7	.08	0.7	.007
20C 6089.....	222764	23 38.3	+ 9 47	5.4	M2	.01	-0.2	.008
C 1446.....	222766	23 38.3	- 8 29	9.7	G4	.59	4.4	.009
3115.....	222794	23 38.5	+57 31	7.0	G1	.61	4.0	.025
6094A....	222842	23 39.0	+28 48	5.4†	G7	.08	0.5	.010
BD - 0°4561.....	222860	23 39.2	+ 0 10	8.0	F8	.07	3.3	.011
BD -15°6487.....	222870	23 39.3	-14 59	8.0	F2	.....	2.9	.010
6097.....	222932	23 39.9	+55 15	6.6	G4	.03	0.8	.007
C 3117.....	222935	23 40.0	+29 0	8.9	K2	.91	5.7	.023
6100A....	223029	23 40.9	- 0 18	8.3†	F3	.04	3.2	.010
6101.....	223047	23 41.1	+45 52	5.1	cG5	.02	-1.6	.005
BD - 0°4566.....	223096	23 41.5	- 0 1	7.4	G7	.05	0.9	.005
6104.....	223170	23 42.1	-12 28	5.9	K1	.10	0.5	.008
6105.....	223173	23 42.1	+56 54	5.8	K3	.02	-1.1	.004
6106.....	223165	23 42.2	+58 6	5.1	G9	.09	0.7	.013
C 3121.....	223238	23 42.7	+ 3 37	8.2	G2	.48	4.0	.014
6107A....	223252	23 42.8	- 3 19	5.6	G8	.09	0.5	.010
6109.....	223311	23 43.4	- 6 56	6.3	K4	0.03	-0.5	.004
C 3124.....	.....	23 44.0	+ 1 52	9.1	M2	1.39	9.2	.105
C 3126.....	223498	23 44.9	+ 2 19	8.4	G7	0.49	4.9	.020
6117A....	223552	23 45.4	+51 4	6.5	A9s	.12	2.5	.016
6118.....	223559	23 45.4	-14 57	5.9	K5	.03	0.4	.008
6121.....	223637	23 46.2	+ 8 46	6.1	M3	.06	-0.5	.005
ADS 17054A....	223718	23 46.8	+37 20	7.8†	F5	.11	3.4	.013
ADS 17054B....	.....	23 46.8	+37 20	7.8	F5	.11	3.2	.012
6123.....	223719	23 46.8	+ 2 22	5.8	K5	.02	0.1	.007
6124.....	223731	23 47.2	+77 3	6.5	F3	.29	3.2	.022
6125.....	223755	23 47.3	+21 7	6.3	M2	.06	0.4	.007
6126.....	223774	23 47.4	-14 48	6.0	K3	.10	0.5	.008
6127.....	223768	23 47.4	+18 34	5.2	M3	.05	-0.2	.008
6129A....	223778	23 47.5	+74 59	6.9†	K5	.33	6.5	.083
6130.....	223792	23 47.6	+21 11	6.8	G6	.03	0.8	.006
6131.....	223807	23 47.7	- 9 33	6.0	G9	.04	0.5	.008
6132.....	223825	23 47.8	- 3 43	6.1	G9	0.08	0.5	.008
BD -19°6533.....	223932	23 48.6	-18 56	7.4	G5	.....	4.4	0.025

## SPECTROSCOPIC ABSOLUTE MAGNITUDES

289

## CATALOGUE—Continued

Star	HD	$\alpha$ 1900	$\delta$ 1900	Vis. $m$	Sp.	$\mu$	Vis. $M$	Spec. $\pi$	
C	6135.....	224014	23 <sup>b</sup> 49 <sup>m</sup> 4	+56°57'	4.8	cGo	0".01	-3.0	0".003
	6136.....	224022	23 49.4	-40 51	6.0	F8	.36	3.3	.029
	6137.....	224062	23 49.7	- 0 27	6.0	M5	.06	-0.5	.005
	3131.....	224085	23 49.9	+28 5	7.6†	G8p*	.57	5.2	.033
	6141.....	224152	23 50.5	+52 11	6.8	K3	.07	0.4	.005
ADS	6143.....	224225	23 51.0	-22 33	7.4	M3	.05	0.0	.003
BD	+73°17107A....	224253	23 51.3	-10 3	9.0†	G3	.28	4.5	.013
	1066.....	224272	23 51.4	+73 35	8.2	K0	.02	1.1	.004
	6145.....	224342	23 52.0	+42 6	6.0	F3	.01	2.9	.024
	6148.....	224355	23 52.1	+55 9	6.4†	F3	.02	3.1	.022
U Pegasi*	6150.....	224427	23 52.7	+24 35	4.8	M3	.06	-0.3	.010
	.....	.....	23 52.9	+15 24	10.1†	G3	.....	3.8	.005
	6151.....	224465	23 53.0	+49 53	6.8	G2	.24	4.6	.036
C	3143.....	.....	23 53.5	+46 10	9.5	M0	.64	8.7	.069
	6153A....	224533	23 53.6	- 4 7	5.1	G6	.09	0.5	.012
BD	+26°4721.....	224615	23 54.2	+26 43	8.3	K4	.02	-0.2	.002
20C	6156.....	224617	23 54.2	+ 6 19	4.3†	F3	0.19	2.3	.040
	1467.....	224618	23 54.2	-17 30	9.0	G6	1.19	4.8	.014
	C	3146.....	224619	23 54.3	-20 35	7.4	G3	0.61	4.6
	6158A....	224635	23 54.4	+33 10	7.3†	G0	.11	4.3	.025
ADS	6158B....	224636	23 54.4	+33 10	7.3	G1	.11	4.4	.026
	6159.....	224661	23 54.5	- 6 27	6.8	G7	.06	1.0	.007
	6162A....	224758	23 55.3	+26 22	6.4	F5	.06	3.2	.023
	17178.....	224873	23 56.3	+39 5	9.2†	K1	.06	5.9	.022
	BD	+75°904.....	224917	23 56.7	+75 37	9.0	K3	.02	0.6
C	6171.....	224935	23 56.8	- 6 34	4.7	M3	0.05	-0.7	.008
	6172A....	224930	23 56.9	+26 33	5.9	G1	1.29	4.7	.057
	6174.....	224995	23 57.3	+ 8 24	6.3	A4n	0.00	1.8	.013
	6175.....	225003	23 57.4	+ 7 56	5.8	A9s	.10	2.6	.023
	6176(A)...	225009	23 57.5	+65 33	6.0	G5	.02	0.6	.008
C	6181.....	225197	23 59.2	-17 5	5.8	K2	.05	0.2	.008
	6182.....	225212	23 59.4	-11 4	5.5†	cK5	.01	-2.7	.002
	6184.....	225216	23 59.5	+66 37	5.8	K1	0.10	0.4	.008
	3161.....	225213	23 59.5	-37 51	8.3	M3	6.11	10.0	.219
	C	3162.....	225239	23 59.7	+34 6	6.2	F7	0.76	4.0
ADS	41A....	225291	23 59.8	+45 7	8.0†	F6	.03	3.5	.013
ADS	41B.....	.....	23 59.8	+45 7	9.0	G5	.03	4.8	.014
ADS	48F.....	.....	23 59.9	+45 14	9.9	M2	.89	10.0	.105
	6188.....	6	23 59.9	- 1 4	6.3	G9	0.06	0.5	0.007

## NOTES

HD 151 Emission lines of hydrogen.  $H\beta$  stronger than  $H\gamma$ .BD +61°8  $H\beta$  has emission borders.

HD 1760 Hydrogen lines bright on some plates. Variable. Mag. 5.2-6.0. Period 156 days.

HD 10783	$\lambda$ 4128 and $\lambda$ 4131 strong.
HD 12211	Eclipsing variable. Mag. 8.8–10.9.
HD 14330	Variable. Mag. 10.1–10.5.
HD 14469	Irregular variable. Mag. 7.4–8.4.
HD 14488	Irregular variable. Mag. 8.1–9.4.
HD 14580	Variable. Mag. 10.6–11.4.
HD 14595	Hydrogen strong.
HD 15089	$\lambda$ 4077 and $\lambda$ 4215 strong.
HD 19058	Irregular variable. Mag. 3.3–4.1.
HD 19445	White dwarf.
XY Persei	Eclipsing variable. Mag. 10.5–11.0.
HD 25007	Spectrum strongly veiled by early-type star which may be the visual companion
HD 25878	Hydrogen lines bright. Strong enhanced lines.
HD 26842	ADS states that the system has no appreciable proper motion.
HD 31964	$\epsilon$ Aurigae. Eclipsing variable. Mag. 3.0–4.1.
HD 40312	$\lambda$ 4128 and $\lambda$ 4131 strong.
HD 42474	Irregular variable of W Cephei type. Mag. 7.4–7.9.
HD 42995	$\eta$ Geminorum. Variable. Mag. 3.2–4.2. Period 235 days.
HD 59693	U Monocerotis. Variable. Mag. 5.6–7.3. Period 92 days. RV Tauri type.
HD 60265	Eclipsing variable. Mag. 8.5–8.9.
HD 60414	Spectrum like that of W Cephei.
HD 62044	Strong emission lines of calcium H and K.
HD 68351	$\lambda$ 4128 and $\lambda$ 4131 strong.
HD 72522	Schlesinger states that the proper motion is very small.
HD 72968	$\lambda$ 4077 and $\lambda$ 4215 strong.
HD 73174	Hydrogen strong.
HD 73730	Hydrogen strong.
HD 74521	$\lambda$ 4128 and $\lambda$ 4131 strong.
HD 78209	Hydrogen strong.
HD 84937	White dwarf.
HD 96616	$\lambda$ 4077 and $\lambda$ 4215 strong.
HD 107612	$\lambda$ 4077 and $\lambda$ 4215 strong.
HD 116713	Barium II. $\lambda$ 4555 strong.
HD 120198	$\lambda\lambda$ 4077, 4128, 4131 strong.
20C 825	White dwarf.
HD 128620-1	Estimates from plates loaned by the Lick Observatory.
HD 130559	$\lambda\lambda$ 4030, 4077, 4215 strong.
Boss 3779B	$\lambda\lambda$ 4030, 4077, 4215 strong.
HD 132475	White dwarf.
HD 137949	$\lambda$ 4077 and $\lambda$ 4215 strong.
HD 139815	Eclipsing variable. Mag. 9.3–10.0.
HD 140283	White dwarf.
HD 151199	$\lambda$ 4077 strong.
HD 152107	$\lambda$ 4077 strong.
TT Herculis	Eclipsing variable. Mag. 8.9–9.6.
HD 152751	Found double by Kuiper 1934. $134^{\circ}6$ , $0^{\circ}20$ , $\Delta m = 0.2$ mag.
HD 156947	Irregular variable. Mag. 6.3–7.0.
HD 158116	$\lambda$ 4077 strong.

HD 159532	Lines fuzzy.
HD 161912	$\lambda\lambda$ 4173, 4178, 4233 strong.
HD 165945	$\lambda$ 4077 and $\lambda$ 4215 strong.
HD 166126	Eclipsing variable. Mag. 8.9-10.0. At minimum light, emission lines of <i>Fe II</i> and [ <i>Fe II</i> ] appear.
HD 170397	$\lambda\lambda$ 4077, 4128, 4131 strong.
HD 171586	$\lambda$ 4077 and $\lambda$ 4215 strong.
HD 172088	ADS states that the proper motion is negligibly small.
RZ Ophiuchi	Eclipsing variable. Mag. 9.8-10.6. Period 262 days.
HD 175865	Irregular variable. Mag. 4.0-4.5.
HD 176232	$\lambda$ 4077 and $\lambda$ 4215 strong.
HD 184360	$\lambda$ 4077 strong.
HD 188041	$\lambda$ 4077 and $\lambda$ 4215 strong.
HD 192913	$\lambda\lambda$ 4077, 4128, 4131 strong.
HD 196795	Found double by Kuiper. $312^{\circ}5$ , $0''.66$ , $\Delta m = 1.0$ mag.
HD 197433	Variable of W Urs. Maj. type. The lines are probably double.
HD 199178	Lines fuzzy.
20C 1250A	Found double by Kuiper, 1934. $82^{\circ}5$ , $0''.93$ , $\Delta m = 1.6$ mag.
HD 200560	Found double by Kuiper, 1934. $104^{\circ}0$ , $2''.84$ , $B = 13.0$ mag.
HD 206088	$\lambda$ 4077 strong.
HD 208816	Irregular variable of W Cephei type. Mag. 4.9-5.7.
HD 209100	From plates loaned by the Lick Observatory.
HD 211998	From plates loaned by the Lick Observatory.
20C 1370	Found double by Kuiper, 1934. $225^{\circ}8$ , $0''.55$ , $\Delta m = 0.0$ mag.
HD 214605	Hydrogen strong.
HD 216598	Eclipsing variable. Mag. 9.0-9.8. Period 0.3 days.
HD 219617	White dwarf.
HD 224085	Calcium H and K are bright.
U Pegasi	Eclipsing variable. Mag. 9.3-9.9. Period 0.37 days.

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