DEPARTMENT OF THE INTERIOR
CANADA
Sir JAMES ALEXANDER LOUGHEED, K.C.M.G., K.C., Minister;
W. W. CORY, C.M.G., Deputy Minister.

PUBLICATIONS

OF THE

Dominion Astrophysical Observatory

Victoria, B.C.

J. S. PLASKETT, Director

Vol. II, No. 1

THE RADIAL VELOCITIES OF 594 STARS

BY

J. S. PLASKETT, W. E. HARPER, R. K. YOUNG, H. H. PLASKETT

OTTAWA
GOVERNMENT PRINTING BUREAU
1921

ERRATA TO VOLUME II NO. 1.

CORRECTIONS TO VELOCITIES

Page	19	Boss	87	For	−21.9	read −21.0
"	19	"	346	"	−44.8	" −44.6
"	21	"	1260	"	+25.8	" +27.1
"	21	"	1415	"	−47.7	" +47.7
"	21	"	1693	"	+13.3	" +13.1
"	28	"	5751	"	+ 8.3	" − 8.3
"	29	"	5815	"	− 3.7	" + 3.7
"	29	"	6001	"	−10.6	" +10.6
"	31	"	6158Fo	"	− 5.2	" − 5.6
"	48	"	969	"	+ 3.2	" − 3.2
"	49	"	1042	"	+17.8	" +16.8
"	68	"	2624	"	− 5.5	" − 5.9
"	76	"	3189	"	− 1.2	" −16.2
"	95	"	4422	"	+18.2	" −18.2
"	105	"	5046	"	− 0.9	" −30.9
"	113	"	5560	"	−34.0	" −34.9

CORRECTIONS TO POSITIONS

Pages	21	and	50	Boss	1149	should read	Boss	1150
"	21	"	52	"	1461	" "	H.R.	2038
"	23	"	66	"	2534	" "	Boss	2543
"	26	"	98	"	4587	declination, for	+26° 15′	read +26° 05′
"	31	"	123	"	1219	" "	+08° 02′	" +08° 22′
"	62			"	2210	" "	+53° 22′	" +53° 33′
"	91			"	4242	" "	+40° 07′	" +49° 07′

PUBLICATIONS
OF THE
Dominion Astrophysical Observatory
VICTORIA
VOL. II, No. 1

THE RADIAL VELOCITIES OF 594 STARS

BY J. S. PLASKETT, W. E. HARPER, R. K. YOUNG, H. H. PLASKETT

INTRODUCTION

The observation, measurement and reduction of the stars whose velocities are given in this number have been equably distributed among the authors but the introduction and the descriptive matter is necessarily the work of one writer and has been undertaken by the director.

An account of the founding and organization of the observatory and a full description of the building, telescope and spectrograph have been given in Vol. I, No. 1 Publications of the Dominion Astrophysical Observatory and only a summary of the principal optical and other constants need be given in this introduction to the first main programme of work completed at the observatory.

In planning the equipment, first consideration was given as to its suitability for the determination of stellar radial velocities which it was proposed to make the principal work undertaken at the new institution. This decision was reached in the first place because of the need of many additional radial velocities for statistical purposes, a need probably more pressing than in the case of proper motions or parallaxes, the other two factors required to determine the distribution and motion of the stars in space. The determination of proper motions is considerably ahead of that of radial velocities or parallaxes and moreover does not necessarily require a large telescope. The recent cooperative application of many large telescopes to the determination of stellar distance is rapidly increasing the number of known parallaxes so that the need for radial velocities seemed the more pressing. In the second place the director and the proposed staff already had considerable experience in radial velocity work and there would hence be little question of its success, while at the time this question was being considered, some doubt was felt as to the suitability of large reflecting telescopes for parallax work.

OBSERVING LIST

In deciding upon the observing list of stars the advice of Professor Kapteyn and of other interested astronomers was obtained with the result that the list was compiled from Boss's Preliminary General Catalogue, thus ensuring well determined proper motions of all stars observed. The velocities of all stars with measurable lines of the fifth visual magnitude and brighter had been determined at the Lick Observatory and in addition velocities for 500 stars had been published by Mt. Wilson. Other scattered velocities had been obtained and these were compiled as far as possible and all stars with known velocities were eliminated. Further, owing to the latitude of the observatory, 48° 31′ north, it was not deemed profitable to observe much below the equator which was then chosen as a convenient dividing line. The Boss stars north of the equator whose velocities had not previously been determined or for which observations for velocity had not been obtained were then divided by cooperative arrangement between Mt. Wilson and Victoria,

23489—1½

the general plan being for Victoria to take the even minutes and Mt. Wilson the odd minutes of right ascension. There resulted a list of 770 stars varying in magnitude between about the fifth and ninth. Of these 770 stars the observation of 50 of about the eighth magnitude or fainter was postponed for lower dispersion leaving 720 stars between the fifth and eighth magnitudes for radial velocity determination. In the course of the work 183 of these proved to be spectroscopic binaries or otherwise unusable leaving for the main catalogue 537 stars.

The Telescope

The telescope has an effective aperture of 72 inches (182·9 cm.) with a focal length of the principal mirror of 361·3 inches (903·3 cm.). The spectrograph, however, has been used with the Cassegrain combination of the telescope, the secondary convex mirror having a clear aperture of 19 inches (48·3 cm.) and a focal length of 117 inches (297·2 cm.). It is placed about 86 inches (218·4 cm.) inside the focus of the principal mirror, the resulting focal length of the combination being 108 feet (32·92 metres) with an aperture ratio of one to eighteen. A hole through the centre of the main mirror permits the spectrograph to be attached below the tube along the optical axis of the telescope, a very convenient position. The mechanical parts of the telescope were designed with special reference to speed and ease of setting on the stars and to accurate following, and the instrument has more than fulfilled all expectations and even hopes in this regard. The mechanism has been fully described in Vol. I, No. 1 of these publications and it need only be added that the average time required, with observer and night assistant, from the end of the exposure on the spectrum of one star to the beginning of the exposure on the next is two minutes. This time is increased to from three to four minutes if the observer is operating the telescope unassisted or if succeeding stars are on opposite sides of the zenith, when the dome has to be revolved through 180 degrees. The following also is especially satisfactory as there is no trace of any periodic error in the drive, an annoying defect in many telescopes, and the star image remains centred on the slit without attention for several minutes. The slit subtends a width of about 0·3 and a length of about 2·5 seconds of arc at the Cassegrain focus and if the clock is set to drive slightly fast or slow, the star image travels slowly and uniformly from one end to the other, being brought back at intervals of three to five minutes by the slow motion. This ensures a uniformly exposed star spectrum of the necessary width and makes it easily possible for the observer to operate unassisted without loss of exposure on the plate, as the image will remain on the slit a sufficient time for the necessary developing or changing plates.

The Spectrograph

The spectrograph* has also been fully described, but it will be of advantage to recapitulate the principal optical and mechanical features. It was designed to combine the stability and freedom from flexure of theb ox form spectrographs introduced at the Lick Observatory with the range of dispersions and of spectral regions afforded by the universal type of which several notable examples were supplied by the Jno. A. Brashear Co. It

*Vol. I, p. 81 these Publications, also Ap. J. *49*, p. 209, May, 1919.

is arranged for using either one, two or three prisms which, with three different cameras, give a choice of nine dispersions ranging from 50 A to 7 A to the millimetre at Hγ. The prisms are mounted on a minimum deviation link work, to which also the cameras are geared, enabling any desired region to be made central and the change from any one dispersion or region to any other to be made in a few minutes, while the clamping arrangements are so devised that in every position or form the instrument is as rigid as if specially designed for that particular form.

The aperture of the collimator objective is 2·5 inches (63·5 mm.) and its focal length 45 inches (1143 mm.). The apertures of the camera objectives are 3 inches (76·2 mm.) and their focal lengths are 16·5 inches (417 mm.), 28 inches (711 mm.) and 38 inches (965 mm.). As it was not possible to obtain material for the prisms during the war, we were fortunate in being able to obtain the loan of a Hilger prism of 2·5 inches aperture made of 0 118 glass, the same as proposed for the permanent prisms, from Professor Chant of the University of Toronto. The angle was 60° as compared with 63° proposed and the dispersion some fifteen per cent smaller.

This prism which gave, with the medium focus camera, a linear dispersion at Hγ of 34·8 A per millimetre, was used in the spectrograph from the beginning of observation May 7, 1918, until Aug. 12, 1919, when it was replaced by a prism of slightly denser glass of refracting angle 62° which gives with the same camera a dispersion of 29 A per millimetre. This prism was made by Hilger and gives beautiful definition. About a year later the prisms of 0 118 glass of 63° angle originally ordered for the spectrograph from the Brashear Co. were supplied and also give beautiful definition so that the spectrograph is now complete and can be used with any desired dispersion and at any region of the spectrum.

Within the last few months the spectrograph has been further improved by the application of a Callendar Recorder to regulate and control its temperature. The regulation had been previously attained by the use of a mercury contact thermometer, actuating a special relay which turned the heating current in the temperature case on and off. This arrangement worked fairly satisfactorily but it had always been intended to use a Callendar Recorder, which was ordered in June, 1916, but only received in February, 1921. The advantage of the new method consists in its increased sensitiveness, in the avoidance of stratification troubles in the case and prism box, and in much greater constancy of temperature regulation. The recording and regulating unit consists of a platinum wire resistance thermometer, which has been divided into five equal sections. Three of these sections are symmetrically distributed inside the spectrograph box while the other two are placed one on each side of the outer case near the heating wires, which are nearly uniformly distributed over the inside of this felt-lined case. It is evident that the mean temperature throughout the whole interior will remain constant while, with the old arrangement, only the temperature near the regulating thermometer was affected and temperatures in other parts of the instrument might easily differ by one or two degrees. The recorder works very satisfactorily and should make a marked improvement in constancy of temperature conditions and in the definition and freedom from error of the resulting spectra.

Observing Arrangements

When the radial velocity programme was commenced we were necessarily limited to one-prism dispersion as only the borrowed Hilger prism was available. However, had the spectrograph been complete, the dispersion chosen for this list of stars would have probably been about the same. More accurate velocities could undoubtedly have been obtained with three-prism dispersion but at the expense of nearly five-fold the observing time. As will be seen later the probable error of a single plate of a star with good lines is not much more than a kilometre per second with the one-prism dispersion used and, while this error would be halved by using three prisms, the gain in accuracy, which, even with one-prism dispersion, is sufficient for any statistical purpose, would hardly compensate for the greatly increased time required to complete the programme. Further, stars with broad and diffuse lines, of which there are many in this list, can probably be more accurately determined with low dispersion and there did not seem to be much point in obtaining the velocities of some of the stars with a probable error of a quarter of a kilometre while many of them could not, by any dispersion, be more closely determined than two or more kilometres. It was decided to make six plates of each star so that the accuracy of determination of the majority of the stars would be within half a kilometre, and in those stars with poor lines to obtain eight or ten plates so as to reduce the accidental error and make the whole system of velocities as homogeneous as possible. In this way the reliability of the velocity values would be little inferior to those obtained from three or four three-prism plates with only about one-third of the observing time. This number of plates was adhered to except in the case of a few stars for which, owing to unusually poor observing weather last season, only four or five plates could be obtained. It did not seem desirable to carry over the work for another year and delay the publication of the velocities for the sake of obtaining six plates of every one of the stars on the programme, as even with four or five plates good velocities can be obtained.

No computing assistance was available and the observers had to measure and reduce all the spectrograms. In such a case it seemed undoubtedly the best plan for the stars to be divided among the observers, each one observing, measuring and reducing the stars assigned to him. This added interest to the work, prevented confusion in credit for binaries or other interesting objects discovered and gave the observers greater incentive to effectively follow up their stars. From May 7, 1918 to April 22, 1919 only the director and Dr. R. K. Young were available for carrying on the work. On April 22, 1919, Mr. W. E. Harper and on Oct. 4, 1919, Mr. H. H. Plaskett joined the staff and commenced observing. Of the 720 stars which have been observed for radial velocity J. S. Plaskett had 180, W. E. Harper 159, R. K. Young 254, H. H. Plaskett 127. Efficient assistance with most of the observing was given by Mr. T. T. Hutchison, who also maintains the mechanism in good working order and there is no doubt that a considerable increase in the number of spectra than would otherwise have been obtained is due to his capable assistance. The division of the stars as indicated above was arranged so as to take account of the length of time each was engaged in the work, with an allowance for the director on account of administrative and other duties, and has worked out well, each finishing the stars allotted at about the same time.

Measuring Engines

There were available for measuring the spectra when observations commenced a Toepfer measuring engine and a Hartmann Spectro-Comparator which were purchased by the Chief Astronomer about 1909 and were transferred to this observatory. A Gaertner spectrum measuring engine was obtained in 1919 so that three machines are now in use. It was decided before observations commenced that the spectro-comparator would be used for stars of spectral types F–M while the micrometer engines would be employed for stars of early type in which there were fewer lines, generally free from blends. Experience has shown the wisdom of this decision as the use of the spectro-comparator not only saves time in measuring the complex spectra of later type but gives results with a considerably lower accidental error and with a freedom from possible systematic error likely to arise from the uncertainties of wave length in the many blended lines in low dispersion spectra of these types. It has, however, been found that in many F-type spectra, the lines are diffuse and in these cases more accurate measures can be obtained on the micrometer microscope. Unless the lines are sharply defined, it is impossible to make accurate coincidence settings on the star lines and the measures are much more uncertain than when the broad lines are set on singly by the spider line in the micrometer engines.

Wave Lengths.

As evidently the values of velocity obtained in spectra measured by micrometer microscopes depend upon the wave lengths employed in the reduction, considerable attention was devoted to this phase of the question. Different methods and systems have been used by different observers, and it was deemed important for homogeneous results that some definite system should be adopted and adhered to throughout so that, even if later some of the accepted wave lengths required changing, the necessary corrections to the velocities could be applied without trouble or confusion. The adopted system was developed by Dr. Young and though in some respects it is a compromise between fixed wave-lengths for each line based on laboratory values and Albrecht's system of wave length changing with spectral type or the system used at Allegheny of adjusting wave lengths in each star, it has the decided advantage of using fixed wave lengths throughout with the resultant homogeneity of the velocity values.

The method used by Dr. Young was to employ standard laboratory values for the wave lengths of the principal lines of elements such as hydrogen, helium, silicon, oxygen, magnesium, calcium, etc., except in the few cases in which such wave lengths gave systematic residuals in the velocity determinations from several stars. In these cases, the wave length was adjusted slightly so as to make the residual, from velocities based on the generally used and accepted wave lengths, as small as possible. The same procedure was followed for the possibly blended lines in stars of types A to F where the identification was uncertain; for example in the strong line at 4549·7, the line at 4352·0, and in other similar cases, a wave length was adopted which gave the minimum residual in several stars from the velocity obtained from standard lines. In the case of lines where the wave length varied considerably from star to star so that no fixed value could be used, such lines were omitted from the tables and not used in the velocity measures. The resulting

table of wave lengths given below is divided into two sections, one giving wave lengths for B-type and the other for A- to F-type stars, while below these two tables are given the wave lengths of the iron comparison lines used. These wave lengths were obtained from Burns' table and reduced to Rowland's scale as the wave lengths of most of the star lines used are given in that system. In selecting iron lines for this table the object was to choose a sufficient number of both strong and weak lines so that if the comparison spectrum was overexposed the set of weak lines could be used and if underexposed, the strong lines would be available.

B-TYPE STARS.

Wave Length	Element	Source	Setting	rVs
3888·794	He	Merrill	21·1796	708
3933·825	Ca	Rowland	25·9543	738
3945·250	O	β Canis Majoris	27·1270	745
3954·550	O	β Canis Majoris	28·0704	751
3964·875	He	Merrill	29·1063	758
3968·625	Ca	Rowland	29·4796	761
3970·243	H	α Cygni (14 plates)	29·6402	762
3982·900	O	β Canis Majoris	30·8863	770
3995·260	N	β Canis Majoris	32·0864	778
4009·495	He	12 B-type stars	33·4485	788
4026·0	H	Pickering ζ Puppis	35·0015	799
4026·349	He	15 B-type stars	35·0340	799
4069·409	O	β Canis Majoris	38·9564	828
4070·06	O	Clark and Lunt	39·0144	828
4072·125	O	β Canis Majoris	39·1979	830
4076·090	O	β Canis Majoris	39·5490	832
4089·12	Si	Frost 10 Lacertae	40·6929	841
4097·55	N	Frost 10 Lacertae	41·4247	847
4101·890	H	Wright	41·7989	850
4119·409	O	β Canis Majoris	43·2925	862
4120·973	He	14 stars	43·4245	863
4128·211	Si	Hartmann and others	44·0327	868
4131·047	Si	Hartmann and others	44·2699	870
4144·000	He	12 stars	45·3441	878
4153·600	O	Star lines	46·1311	885
4190·080	O	Star lines	49·0533	910
4200·7	H	Pickering ζ Puppis	49·8842	917
4253·983	S	β Canis Majoris	53·9244	954
4267·384	C	13 stars	54·9082	964
4317·270	O	β Canis Majoris	58·4616	998
4319·287	O	β Canis Majoris	58·6392	1000
4340·634	H	Rowland and 20 stars	60·0694	1015
4349·693	O	β Canis Majoris	60·6835	1021
4351·526	O	β Canis Majoris	60·8071	1022
4367·010	O	β Canis Majoris	61·8433	1033
4388·130	He	16 stars	63·2330	1048
4415·050	O	β Canis Majoris	64·9665	1068
4417·120	O	β Canis Majoris	65·0980	1069
4437·718	He	Runge and Paschen	66·3940	1083
4471·648	He	16 stars	66·4781	1108
4481·400	Mg	Adams from stars	69·0657	1115
4534·139	Fe	Rowland	72·1592	1153
4542·4	H	Pickering ζ Puppis	72·6312	1159

B-TYPE STARS—*Concluded.*

Wave Length	Element	Source	Setting	rVs
4552·762	Si	Several sources	73·2186	1167
4567·966	Si	Several sources	74·0714	1178
4574·918	Si	Several sources	74·4577	1183
4685·90	He	Frost 10 Lacertae	80·3345	1273
4713·308	He	Laboratory	81·7066	1285

A- to F-TYPE STARS

Wave Length	Element	Source	Setting	rVs
3933·825	Ca	Rowland	25·9543	738
3968·625	Ca	Rowland	29·4796	761
3970·243	H	α Cygni	29·6402	762
4005·408	Fe	Rowland	33·0596	785
4013·900	Ti–Fe	Rowland	33·8655	791
4022·000	Fe	Rowland	34·6276	797
4030·842	Fe–Mn	Rowland	35·4519	802
4033·230	Fe–Mn	Rowland	35·6730	804
4034·620	Fe–Mn	Rowland	35·8016	804
4035·837	Co–Mn	Rowland	35·9139	805
4045·940	Fe	Harper 14 Aurigae	36·8409	812
4057·600	Fe+	Rowland	37·8986	820
4063·715	Fe	Rowland	38·4481	824
4071·888	Fe	Rowland	39·1768	829
4077·870	Sr	Harper 14 Aurigae	39·7062	834
4101·890	H	Wright	41·7989	850
4118·830	Fe	Rowland	43·2436	861
4131·000	Ba–Mg	Several stars	44·2659	869
4132·235	Fe	Rowland	44·3690	870
4143·839	Fe	Harper 14 Aurigae	45·3308	878
4191·678	Fe	Rowland	49·1789	911
4198·667	Fe	Harper 14 Aurigae	49·7258	916
4202·180	Fe	Rowland	49·9993	918
4215·733	Sr–Fe	Harper 14 Aurigae	51·0455	928
4227·107	Ca–(Fe?)	Harper 14 Aurigae	51·9128	936
4233·425	Fe+	Harper 14 Aurigae	52·3905	940
4236·000	Fe	Harper 14 Aurigae	52·5843	942
4250·616	Fe	Rowland	53·6753	952
4254·505	Cr	Rowland	53·9630	955
4260·557	Fe	Rowland	54·4086	959
4271·675	Fe	Harper 14 Aurigae	55·2204	966
4282·834	Fe–Ca	Rowland	56·0267	974
4290·100	Ti	Mean of several	56·5470	979
4307·980	Fe+	Mean of several	57·8124	990
4315·178	Ti–Fe	Rowland	58·3159	997
4325·920	Fe	Rowland	59·0610	1004
4340·634	H	Rowland	60·0694	1015
4352·000	Cr–Mg	Mean of several	60·8391	1023
4383·720	Fe	Rowland	62·9451	1045
4395·286	Ti+	Rowland	63·6979	1054

A- to F-TYPE STARS—*Concluded.*

Wave Length	Element	Source	Setting	rVs
4404·880	Fe	Mean of several	64·3165	1060
4415·293	Fe	Rowland	64·9819	1068
4443·976	Ti	Rowland wt. changed	66·7831	1088
4466·727	Fe	Rowland	68·1796	1105
4468·663	Ti	Rowland	68·2972	1106
4481·400	Mg	Adams	69·0657	1115
4501·448	Ti	Rowland	70·2582	1130
4508·455	Fe	Rowland	70·6701	1135
4515·508	?	Rowland	71·0823	1140
4520·397	Fe–?	Rowland	71·3665	1143
4522·870	Ti–Fe	Rowland	71·5098	1145
4528·798	Fe	Rowland	71·8523	1149
4534·139	Ti	Rowland	72·1592	1153
4549·700	Ti–Fe	Mean of several	73·0456	1165
4563·939	Ti	Rowland	73·8466	1175
4572·156	Ti	Rowland	74·3045	1181
4584·018	Fe	Rowland	74·9601	1190
4861·527	H	Rowland	88·6406	1396

COMPARISON

Wave Length	Setting	Wave Length	Setting
3788·025	9·5263	4308·071	57·8188
3815·990	12·9042	4325·932	59·0618
3834·373	15·0624	4337·214	59·8362
3856·519	17·5997	4376·099	62·4446
3865·673	18·6290	4383·714	62·9447
3895·807	21·9397	4404·919	64·3190
3928·077	25·3607	4415·295	64·9821
3930·452	25·6052	4427·481	65·7528
3969·412	29·5577	4476·195	68·7527
4005·400	33·0588	4494·743	69·8616
4045·972	36·8439	4528·796	71·8522
4063·754	38·4515	4603·120	76·0021
4071·898	39·1777	4859·936	88·5703
4118·707	43·2331	4871·511	89·0802
4143·984	45·3428	5006·132	95·7046
4181·913	48·4083		
4202·188	49·9999		
4236·110	52·5925	log c = 5·5022282	
4260·647	54·4152	λ_o = 2179·766	
4282·566	56·0075	S_o = 207·1651	

REDUCTION

The simple plan of reducing the measures developed at Ottawa*, a modification of Hartmann's method†, has been used throughout. A set of Hartmann constants was computed from three comparison lines carefully measured on a plate taken at about the average observing temperature. The central ray of the spectrograph is λ4200 and so

*Report of Chief Astronomer, 1907, p. 95. †A.N. No. 3703.

the iron line at 4202·198 was placed at the centre of the microscope scale at reading 50. The screws are of half millimetre pitch and the micrometer reading for each wave length of star and comparison lines was computed from the constants obtained as above and these readings are for reference entered in the tables of wave lengths above. Velocities per revolution of the micrometer screw for all the star lines were also computed and are given in the tables. The process of reduction of the plate is then a very simple one. The plate is measured first with red right and the measures repeated with red left. From the mean of these two measures the differences between the computed and measured micrometer readings of the comparison lines which rarely exceed 0·05 revolutions, 25 microns, are entered in a column of the measurement forms. The corrected readings of the star lines are obtained by simple interpolation or by running a smooth curve through these differences. The velocity displacement in revolutions for each star line then follows by subtracting the tabulated micrometer reading, while the velocity is obtained by multiplying this difference by the tabulated velocity per revolution. Ten or fifteen minutes thus suffices to completely reduce the measure of a star with ten or twelve lines.

Spectro-Comparator Measures

The process of measurement and reduction with the Hartmann Spectro-Comparator is even simpler and more direct than on the micrometer engines. As previously stated all stars with moderately sharp lines from F0 to M are measured on this engine, four standard spectra being used. A spectrum of Proycon is used for stars from F0 to about F8, a sky spectrum for stars from F8 to G5, a spectrum of Arcturus from G5 to K5 and of α Herculis for the late K- and M- types. These spectra were carefully made on Seed 23 plates as it is advantageous to have the definition as good as possible. They were made about twice as wide as the average star spectrum so as to have a sufficiently wide strip of the standard spectrum on each side of the spectrum to be measured, which facilitates the accurate making of coincidences.

Each of these standard spectra was marked similarly with 23 dots in a position visible in the field of the comparator, these dots serving to indicate the regions to be measured and being brought successively to the centre of the ocular field in the measurement. The wave lengths to which these dots correspond are given in the table below, in which also the constants required for reduction by Hartmann's short method of summation are entered. By simply summing the differences between coincidences in the two measurements red right and red left and multiplying by the required constant of which the logarithm is given in the table and adding the velocity of the standard, the required stellar velocity is obtained. The table gives wave lengths and constants for alternate regions which generally were only used in the measurement. Even in this case there is overlapping in the field of the ocular and there were sufficient regions available in most spectra to keep the accidental error low. However, on some occasions in cases of insufficient exposure or in the M-types where the spectrum is weak in the violet every region between say 13 and 23 was measured.

CONSTANTS FOR SPECTRO-COMPARATOR

Region	Wave Length	end 23	end 21	end 19
1	4000	1·5911	1·6217	1·6559
3	4040	1·6368	1·6710	1·7095
5	4081	1·6861	1·7246	1·7684
7	4123	1·7397	1·7835	1·8341
9	4167	1·7988	1·8492	1·9188
11	4212	1·8647	1·9241	
13	4258	1·9395	2·0110	
15	4306	2·0267		
17	4357	2·1317		
19	4410			
21	4465			
23	4522			

VELOCITIES OF STANDARDS

It will be of interest at this point as showing the care taken in the measures and the accordance in these beautifully defined stellar spectra to indicate the methods used and to give the individual separate velocities obtained in determining the velocities of the standards employed. For it is evident that if an inaccurate velocity is used for any standard all the stellar velocities obtained therefrom will have a systematic error of like amount. As two dispersions were used, of 35 A and 29 A to the millimetre at Hγ, two separate sets of standards were made. For the first prism, 35 A dispersion, a standard of the planet Mars No. 33, of the Sky No. 1710, of α Bootis No. 1659, of Procyon No. 860 and of α Herculis No. 29 were made. However, the standard of α Herculis was not used in this dispersion and was only measured twice. Similarly for the 29 A dispersion a standard of the Sky No. 2728, of α Bootis No. 2702, of Procyon No. 3375 and of α Herculis No. 2774 were later made.

The velocity displacements of the Sky and Mars standards are readily theoretically computed, and these computed velocities were used rather than any velocities which could be obtained by measurement on the micrometer misroscope, where possible errors of blended wave lengths and difficulties of identification in these low dispersion spectra would render such measures uncertain to the extent of about a kilometre. Although it is possible to use the solar spectrum on the comparator for spectral types between F and M, more easy and certain coincidences are possible when the standard is of nearly the same type as the spectrum to be measured. Consequently, as above stated, F-, K-, and M-type standards were made and their velocity displacements were obtained by comparing them with the Sky and Mars standards whose velocities are known. As the measures below show, much more accurate and reliable values were secured by this method than would be likely from micrometer measures. It will be evident from the relatively small accidental errors of measurement that the velocities of these standards are determined to one or at the most two-tenths of a kilometre per second and the only contingency to be guarded against is the danger of systematic displacements in the original Sky and Mars standards whose computed velocities were used as the basis of

all comparator measures. These can be and were checked up by measurement against each other, for it is unlikely that any systematic effects would balance. Also the velocity values obtained for the stellar standards were compared with the velocities obtained elsewhere by high dispersion spectrographs. Further indirect evidence of the probable reliability of the values is given by the high order of agreement obtained in different plates of practically all stars with good lines. When such is the case with the flickering and unsteady illumination of slit and collimator, it is unlikely that the sky and planetary standards which have uniform surface illumination and are taken under the best conditions, can have any systematic displacement of the solar with respect to the comparison lines.

The individual measures of the various standards are tabulated herewith while below the measures are given the mean values and probable errors of each standard and also the probable errors of a single plate.

MEASURES OF STANDARDS AT DISPERSION 35 A

Meas'r	Mars 33 Sky 1710	Meas'r	Procyon 860 Sky 1710 Mars 33	Meas'r	Arcturus 1659 Sky 1710	Meas'r	Arcturus 1659 Mars 33
P	+11·98	P	−31·32	P	−13·90	P	−14·65
"	12·21	"	31·90	"	14·13	"	13·93
"	11·42	Y	30·99	Y	15·11	"	14·28
"	11·56	"	32·30	"	13·49	Y	13·10
Y	11·61	"	30·85	P	12·69	"	13·76
"	11·21	"	31·25	"	14·22	"	12·57
"	9·09	P	32·29	Y	11·88		
"	10·13	"	32·14	"	12·09		
"	10·03	Y	32·74				
"	10·46	"	31·51				
	Mean +10·97 ±0·20		−31·76 ±0·12		−13·56 ±0·15		
	S.Pl. ±0·63		±0·38		±0·54		

MEASURES OF STANDARDS AT DISPERSION 29 A

Meas'r	Procyon 3375 Sky 2728	Meas'r	Arcturus 2702 Sky 2728	Sky 2728 Arcturus 2702	Meas'r	α Herculis 2774 Arcturus 2702	Arcturus 2702 α Herculis 2774
P	−22·29	P	−18·04	+17·34	P	−10·07	+10·83
H	21·82	"	18·47	18·58	"	9·52	11·17
Y	22·55	H	18·00	17·69	H	9·08	8·57
P′	22·17	"	17·26	17·97	"	8·91	11·44
P	21·94	Y	18·39	17·80	Y	9·03	11·82
H	21·14	"	17·07	17·85	"	9·30	10·63
Y	21·55	"	17·85	17·77	B	11·27	10·79
P′	21·94	B	18·94	18·12	"	11·99	11·72
	Mean −21·92 ±0·08		−17·94 ±0·09		−10·38 ±0·21		
	S.Pl. ±0·23		±0·35		±0·83		

In these measures twelve regions on the average were measured direct and reversed on each plate. Also the plates were alternately interchanged on the machine, for example comparing Arcturus and the sky, the sky was first used as a standard on the lower micrometer slide with Arcturus above and when this measure was completed, Arcturus was placed on the lower slide and used as a standard with the sky above, thus diminishing likelihood of personal equation in measurement.

It is readily seen from the measures and probable errors that accidental variations in the measure of good quality plates such as these are, even with single prism dispersion, satisfactorily small. Even with measures made by four different individuals, the total accidental error per plate, which in this case will include personal equation in measurement, varies between $\pm 0 \cdot 23$ and $\pm 0 \cdot 83$ km. per second, the best agreement being obtained in Procyon and the poorest in α Herculis. There appears to be a slight systematic difference in measurers, as Plaskett and Boothroyd appear to get values numerically higher than Harper and Young. If the residuals were obtained from each measurer singly the accidental errors per plate would be lower.

We are now in a position to make the comparisons above mentioned between measured and computed values of the standards.

The computed values of the Mars and the two sky plates are

Mars.	No. 33	$= +10 \cdot 95$ km.
Sky	No. 1710	$= + 0 \cdot 50$ km.
Sky	No. 2728	$= - 0 \cdot 33$ km.

The mean measured value of Mars No. 33 as obtained from Sky No. 1710 is $+10 \cdot 97 \pm 0 \cdot 20$ a deviation from the computed value of $0 \cdot 02$ km. A further comparison between the Sky and Mars plates can be obtained from the measures of Arcturus No. 1659 against each of these plates. The mean against the computed value of Mars comes out $-13 \cdot 71$ and against the computed value of the Sky $-13 \cdot 44$, a difference of only $0 \cdot 27$ km. Evidently if there is a systematic displacement in either of these standards it must be of the same amount and the same direction in both, a most unlikely contingency. Further evidence is afforded by reducing the velocities of the stellar standard plates to the sun and comparing the radial velocities with those obtained with higher dispersion.

Arcturus 1659	Meas'd Vel.	$-13 \cdot 56$:	Red'd Rad. Vel.		$-4 \cdot 32$
Arcturus 2702	" "	$+17 \cdot 94$:	" "	"	$-4 \cdot 19$
Compare with velocities					
Lick Observatory					$-3 \cdot 9$
Mt. Wilson	" 31 plates				$-4 \cdot 3$
Yerkes	" 10 "				$-4 \cdot 3$
Cape	" 33 "				$-5 \cdot 3$
Procyon 860	Meas'd Vel.	$-31 \cdot 76$:	Red'd Rad. Vel.		$-4 \cdot 39$
Procyon 3375	" "	$-21 \cdot 92$:	" "	"	$-2 \cdot 58$
Compare with velocities					
Lick Observatory	(Secondary Var. Range $1 \cdot 5$ km.)				$-3 \cdot 5$
Cape "	(Range $2 \cdot 1$ km., 45 plates)				$-3 \cdot 6$

α Herculis 2774 Meas'd Vel. $-10\cdot38$: Red'd Rad. Vel. $-32\cdot88$

Compare with velocities

Lick Observatory		$-32\cdot2$
Cape "	(Range $1\cdot1$)	$-32\cdot4$

The differences are remarkably small considering the small dispersion and I think it is safe to assume that the velocities measured on the spectro-comparator and based on these standards will be free from systematic errors of sensible magnitude.

In the early stages of this work a number of F to M stars whose velocities had been determined elsewhere were measured on the comparator and comparison between these measures and those at the Lick Observatory with three-prism dispersion was made by Dr. Young. For 29 plates of 14 stars the average difference Lick$-$D.A.O.$=+0\cdot80$. Mt. Wilson obtains for 26 stars F to M, Lick$-$Mt. Wilson$=+1\cdot0$. So that the values obtained here, so far as can be gathered from so few observations, lie between those of Lick and Mt. Wilson.

While every care has been taken in the measures with the micrometer microscope and while the system of wave lengths used is as accurate and homogeneous as it is possible to make it in our present knowledge of wave lengths in the high temperature stars, it is not possible to use the same checks as with the spectro-comparator and consequently we can not feel so confident about the velocities of the B- and A-types. There is good agreement in the few cases in which F-type stars have been measured by both methods and there is no reason to believe that there will be any large systematic difference in the velocities of the B and A stars here and at other observatories. If there is such a difference, and unfortunately no data are at present available, it will be due to slight differences in the system of wave lengths used and correction can be easily made, owing to the uniform system used throughout, at any time that better values of wave lengths are obtained. Any slight systematic effect is not of much moment in most of these stars as the character of the lines and the small number measureable make the accidental errors overshadow the systematic.

Reduction to Sun

The reductions of velocities to the sun were carried out by Schlesinger's formulae* but the very considerable labour involved in computing the constants for over 700 stars was reduced more than three-fourths by the use of tables computed by Dr. R. K. Young while at Ottawa. In the formula $v = b \sin(\odot - \lambda) + c$, the major part of the work entailed is in transforming the right ascensions and declinations of the stars whose velocities are to be determined into latitudes and longitudes. For this purpose a set of tables was computed and compiled in manuscript form by Dr. R. K. Young giving the longitude and latitude for every degree in declination between 0° and 90° and for every 4m in right ascension in the first and third quadrants. The values for the other two quadrants or for negative declinations follow simply from these tabular values. The differences are entered in the tables and simple interpolation between the tabular values enables the latitude and longitude of any star to the nearest minute of arc, which is ample to

* Ap. J. 10, p. 1.

give the correction value within 0·01 km., to be obtained in two or three minutes. Direct computation would require some fifteen or twenty minutes with a much greater chance of error. The values of log b are given in a short table for every ten minutes of longitude between 0° and 90° while the value of c, which depends upon both latitude and longitude but which at the maximum is only half a kilometre, is obtained from a simple graph. λ, β log b and c can hence be obtained for any star in less than five minutes while direct computation would require probably half an hour with much greater likelihood of error. The values of the velocity of the observer with respect to the sun follow from these constants with an error less than the hundredth of a kilometre. The tables for conversion of co-ordinates occupy 120 pages, for log b, 2 pages and the graph of the value of c, 1 page. These tables would be of great value to other observers of radial velocities and would have other uses but the expense of printing would be very great. It is possible that some photographic method of reproduction might give a sufficient number of copies to supply all radial velocity observers at a modest expense and the question is being looked into.

Probable Errors

The relative accuracy of these velocity determinations can be estimated readily in a few moments by examining a number of the individual observations for different stars for accordance of values and probably as good an idea can thus be gained as will be obtained by any numerical values of probable errors determined by least squares. But following the usual procedure the probable error of a single plate and of the mean value of the velocity has been computed from the plate residuals of the, on the average, six radial velocity measures of each star. While six observations is a small number, to apply the method of least squares, it at least serves to give comparative values and the method has been very generally used in similar discussions. It will be noticed that the probable errors of the mean velocity vary between ±0·1 and about ±3·8 km. per second with a corresponding range for the probable errors per plate between ±0·2 and ±10·0 km. per second. It need hardly be stated that this great difference in the accuracy of determination from different stars is undoubtedly mainly due to the great differences in character of the spectral lines.

The spectra, so far as accuracy of radial velocity measurement is concerned, may be grouped into three main classes. We may take first of all as giving the most reliable values, the stars of spectral type between Fo and M, which with the exception of a few early F's where the lines are fuzzy, have a large number of sharply defined metallic lines and have all been measured on the spectro-comparator. The probable errors of the mean velocity for these stars range between about ±0·1 and ±1·0, and for a single plate between ±0·2 and ±2·5 with the average about ±0·5 and ±1·2 respectively. Values below about ±0·3 for the mean and ±0·7 per plate may be taken as due to accidentally good agreement while those above ±0·7 for the mean and ±1·7 for the single plate, while also possibly accidental, may perhaps be due to a real variation of small amplitude in the velocity, which higher dispersion would be required to prove. However, generally speaking, the observations are distributed over two or three seasons and, as the amplitude must be low, it is unlikely that the mean velocity obtained will differ much from the

true velocity of the system, if the star should be binary. The second main class may be taken to include about one-fourth of the A's and perhaps two-thirds of the B's in which are a number of fairly sharp and accurately measureable metallic and metalloidal lines. In this group may also be included the fuzzy-lined F's. The probable errors for this group, measured on the micrometer microscope, range from about $\pm 0 \cdot 5$ to $\pm 1 \cdot 5$ for the mean velocity, and $\pm 1 \cdot 2$ to $\pm 3 \cdot 5$ for the single plate, the differences depending almost entirely on the number and character of the lines. The third group embraces those stars mostly of the A-type, though a few B- and O-type spectra are included, in which all the lines are very diffuse and broad and frequently also weak and lacking in contrast and in which not more than three or four lines can be measured. In many of these spectra only $H\gamma$ and $H\delta$ are capable of being measured, sometimes only $H\gamma$, and the proper position in the, often unsymmetrical, diffuse lightening of the continuous spectrum on which to set the micrometer wire is largely a matter of guess work. In such cases the accidental errors are bound to be high, and as the dispersion used is probably the most suitable for this class of spectrum, the only thing to do is to accept the values as given, recognizing that the high probable error is inherent in the type of spectrum and that no present known methods can effect any marked improvement. An attempt was made in many of these difficult objects to reduce the error of the mean by making eight or ten plates of each, but this was not feasible in all cases. The probable errors of this class range from about $\pm 1 \cdot 0$ to $\pm 3 \cdot 8$ for the mean and from $\pm 2 \cdot 5$ to $\pm 10 \cdot 0$ for a single plate.

Suspected Binaries

It was in many cases difficult to decide, particularly in the first and third groups, whether a given star was or was not a spectroscopic binary, especially when the range of velocity observed was only slightly greater than should be expected from the quality of the lines. Each observer has had considerable experience in radial velocity work and, in making a decision in doubtful cases, was influenced by the general character of the plates and the quality of the spectrum for measurement, but there are several stars near the border line whose position may later be reversed. In these cases, in which the range of variation is small, the estimated or mean velocity may be generally accepted as being sufficiently near the true velocity of the system, whether binary or constant velocity, to serve for statistical purposes. As it is unlikely that orbital determinations of small range binaries will be undertaken, it has been thought desirable to include these and certain others, such as double lined spectra, in which the systematic velocities can be closely estimated, in a supplementary table of estimated velocities. It is believed that the differences between estimated and true velocities in these stars is less than the error in velocity of some of the poor lined A's given in the first list in which no well grounded suspicion of binary character was entertained.

23489—2

Tables of Velocities.

Considerable thought and discussion have been devoted to the best method of tabulating the velocities observed. It was finally decided that the most useful plan would be to tabulate first the mean velocities of all the stars which, from the data available, were considered constant in velocity. This table is followed by a summary table of the velocities of the systems of all spectroscopic binaries whose orbits have been determined here. For, although these have all appeared in earlier numbers of these publications, it has been deemed convenient to recapitulate the velocities. A third summary table contains the estimated velocities of a number of stars most of which have been announced as binary and which have been generally discussed in the preceding paragraph.

These tables of mean velocities are followed by the detailed table of the velocities of individual plates of all the stars summarized in the first and third tables above. These tables contain full details not only of the velocities of each plate but give the character of the spectrum and any peculiarity noted in the spectrum or the measures and should be consulted when more information than can be obtained from the summary tables is required.

Constant Velocity Stars

The table below contains the mean velocity of all stars assigned to be of constant velocity and, although higher dispersion or more numerous observations may later show some of these to have variable velocity, it is believed the number will be relatively few and that in any case the error in velocity will be small. The first column contains the Boss number and the second the ordinary designation of the star. The third and fourth columns contain the coordinates for 1900. The fifth and sixth give the visual magnitude and spectral type from the Henry Draper Catalogue, those later than 7 hours right ascension having been kindly supplied by Miss Cannon. The seventh column contains the mean radial velocity obtained from the number of plates given in the ninth column. The observer and measurer of the star is given in the eighth column. The tenth and eleventh columns contain the probable errors of the mean velocity and of a single plate deduced from the residuals in the usual way.

TABLE I. MEAN VELOCITIES OF 537 STARS.

Star	Desig'n	R. A.		Decl.		Vis. Mag.	Spect.	Rad. Vel.	Obs.	No. of Plates	Probable Errors	
											Mean	Plate
		h	m	°	′							
2	86 Pegasi	00	00·6	+12	51	5·66	Ko	+ 2·6	H	6	1·0	2·4
29	23 And.	00	08·3	40	29	5·73	A5	−29·8	Y	6	1·3	2·9
45	38 Pisc.	00	12·3	08	19	6·62	F5	+36·6	H	6	1·4	3·1
49		00	12·7	01	08	6·43	G5	− 9·6	Y	5	0·7	1·7
54	40 Pisc.	00	14·8	15	42	6·77	Ko	+18·7	P	6	0·5	1·2
57	ρ And.	00	15·9	37	25	5·20	F5	+ 7·6	Y	6	0·5	1·1
73	44 Pisc.	00	20·3	01	23	5·99	G5	− 3·6	P′	5	0·5	1·2
80	46 Pisc.	00	22·8	18	58	6·65	Ko	+ 6·2	P	5	0·1	0·2
87		00	24·8	59	25	5·92	B9	−21·9	Y	5	3·8	9·3
89	28 And.	00	24·8	29	12	5·26	Fo	−11·2	Y	6	0·2	0·4
97	λ Cass.	00	26·2	53	59	4·88	B8	−11·0	H	6	2·9	7·0
119		00	30·8	59	47	5·76	A3	− 9·5	Y	6	1·5	3·4
126		00	32·2	81	56	6·40	F8	−34·6	P	6	0·3	0·8
134	55 Pisc.	00	34·6	20	54	5·57	Ko	−18·1	P	6	0·4	0·9
140		00	36·3	24	05	5·98	A5p	−15·6	P	6	0·3	0·8
167	61 Pisc.	00	42·6	20	23	6·60	F8	− 1·0	Y	7	0·5	1·3
180		00	44·7	44	27	6·12	Ao	+ 0·6	P	7	0·8	2·2
188		00	46·2	02	50	6·51	G5	+ 4·6	P′	5	0·7	1·6
192		00	48·1	52	09	6·22	Ao	− 1·2	P	6	0·3	0·6
208		00	52·2	65	49	6·00	B9	−11·3	P	6	0·6	1·4
230	26 Ceti	00	58·7	00	50	6·07	Fo	+ 3·5	H	5	2·7	6·0
231		00	59·0	39	27	6·69	Fo	+12·4	Y	6	1·2	3·0
235	74 Pisc.	01	00·4	20	56	5·55	A2	− 4·8	Y	7	2·0	5·3
236	74 Pisc.	01	00·4	20	56	5·82	Ao	− 4·7	Y	6	3·8	9·3
239		01	00·7	79	29	6·38	Ko	−27·5	H	6	0·9	2·2
240		01	00·7	04	22	6·75	F2	− 9·9	Y	5	0·9	2·0
241	76 Pisc.	01	00·7	31	39	6·64	Ko	+26·9	P′	6	0·5	1·1
246	41 And.	01	02·2	43	24	5·16	A2	+ 7·9	P	6	0·6	1·4
248	78 Pisc.	01	02·4	31	29	6·29	F2	+10·0	H	6	1·7	4·1
249	79 Pisc.	01	02·6	20	12	5·63	A2	− 9·3	Y	5	2·6	5·8
262	44 And.	01	04·6	41	33	5·74	Go	−13·1	H	6	0·2	0·5
301	35 Cass.	01	14·4	64	08	6·32	Ao	−18·7	Y	6	3·5	8·6
318	ρ Pisc.	01	20·9	18	39	5·32	Fo	− 9·3	P′	6	0·6	1·6
330	49 And.	01	24·1	46	30	5·33	G5	−11·2	H	5	0·6	1·3
332	μ Pisc.	01	24·9	05	38	5·12	K2	+35·4	P′	6	0·7	1·6
346		01	30·3	48	12	6·17	Ko	−44·8	H	6	0·9	2·2
367	105 Pisc.	01	34·3	15	54	6·11	Ko	+17·1	H	5	0·5	1·1
368		01	34·7	42	47	5·54	Fo	+15·2	P	6	0·8	2·1
370		01	34·9	67	32	5·54	Aop	+ 3·8	P	6	0·7	1·6
402		01	42·7	37	27	6·05	G5	+35·9	P′	6	0·3	0·7
409		01	44·6	51	27	5·90	F5	−18·4	H	6	0·7	1·7
439	3 Pers.	01	52·2	48	43	5·78	G5	− 0·1	H	5	0·7	1·6
440		01	52·2	64	08	5·18	Ao	+ 7·1	P	10	1·9	6·0
447		01	54·1	11	49	6·14	A2	−12·6	Y	5	2·7	6·0
475	54 Cass.	02	00·5	71	05	6·74	F8	− 2·1	Y	6	0·3	0·7
495	64 Ceti	02	06·1	08	06	5·74	Go	−19·2	H	6	0·7	1·7
499	60 And.	02	06·9	43	45	5·08	Ko	−49·0	P′	6	0·5	1·0
510	20 Aries	02	10·0	25	17	5·84	F2	+26·0	P	6	0·4	0·9
531	63 And.	02	14·4	49	42	5·56	Aop	− 5·2	Y	6	1·2	2·9
533		02	14·9	56	47	6·54	A2p	−48·3	H	5	1·1	2·5
555	11 Tri.	02	21·5	+31	22	5·80	Ko	−40·3	P′	6	0·6	1·5

23489—2½

TABLE I.

Star	Desig'n	R. A.	Decl.	Vis. Mag.	Spect.	Rad. Vel.	Obs.	No. of Plates	Probable Errors	
									Mean	Plate
		h m	o ′							
559	12 Tri.	02 22·3	+29 14	5·38	Fo	−27·6	Y	6	0·9	2·2
561	13 Tri.	02 23·0	29 29	5·90	Go	+40·6	Y	6	0·3	0·7
565		02 24·8	24 48	5·86	F5	−12·8	Y	5	1·0	2·2
573		02 26·5	51 52	6·51	A2	−11·6	Y	5	1·1	2·5
607		02 35·0	05 41	6·25	F2	+16·7	H	3	1·0	1·7
615	μ Aries	02 36·7	19 35	5·72	Ao	− 8·3	Y	5	2·1	4·7
624	36 Aries	02 38·7	17 21	6·47	Ko	−32·7	P	6	0·4	1·1
635	40 Aries	02 42·9	17 52	6·04	Ko	+46·5	P′	6	0·3	0·6
636		02 43·0	24 47	5·87	Ao	+12·8	P	7	0·8	2·2
643	41 Aries	02 44·1	26 51	3·68	B8	− 7·5	Y	6	1·5	3·7
656		02 48·0	61 07	5·63	F5	+28·4	P	6	0·3	0·6
662		02 50·9	07 59	6·08	F8	+27·7	P	6	0·6	1·4
667	47 Aries	02 52·3	20 16	5·85	Fo	+27·4	Y	6	0·7	1·7
668	π Pers.	02 52·4	39 16	4·62	A2	+13·6	P	8	1·4	4·0
669	47 H Ceph.	02 52·8	79 01	5·66	Ma	−40·0	Y	5	0·7	1·6
687		02 56·2	81 05	5·95	A2	− 3·5	Y	5	1·1	2·5
689	51 Aries	02 56·5	26 14	7·00	Go	+ 8·0	Y	6	0·3	0·7
697	k Pers.	02 58·0	56 19	5·08	Ko	−45·1	Y	6	0·6	1·5
704		03 00·9	12 48	5·84	G5	−15·4	P	6	0·5	1·3
758		03 14·7	48 43	6·17	F5	+24·0	P	6	0·5	1·2
770	63 Aries	03 17·0	20 23	5·25	Ko	+ 1·3	P	7	0·7	1·7
774		03 18·2	33 11	5·64	Ao	+ 1·4	P	9	1·5	4·5
775	64 Aries	03 18·4	24 22	5·66	Ko	+11·7	H	6	0·5	1·2
792	66 Aries	03 22·6	22 28	6·11	G5	+50·8	P	6	0·5	1·2
799		03 24·2	73 00	6·41	Ao	− 9·6	Y	6	4·9	12·0
815	7 Tauri	03 28·5	24 07	5·92	A2	+28·3	P′	6	1·0	2·4
835	12 Tauri	03 34·7	02 44	5·76	G5	+21·0	H	5	0·9	2·0
840		03 36·5	66 53	5·84	F2	+ 4·7	P	6	0·6	1·4
843	14 Tauri	03 38·0	19 21	6·34	G5	+79·8	H	5	0·7	1·6
850		03 38·8	70 34	5·40	Ao	+15·4	P	6	0·8	2·1
853		03 39·0	45 22	5·64	B9	+ 0·3	Y	6	0·5	1·2
883		03 44·3	25 17	5·38	A3	+ 1·3	H	6	2·5	6·1
890	31 Tauri	03 46·6	06 15	5·62	B9	+14·7	P	8	1·4	4·1
908	32 Tauri	03 50·9	22 12	5·76	Fo	+32·5	P	7	0·5	1·4
924		03 56·1	58 53	5·07	Fo	−20·2	P	6	0·5	1·2
925		03 56·4	09 43	5·68	B8	+ 1·7	Y	6	1·6	3·9
934	40 Tauri	03 58·4	05 09	5·33	B3	+12·1	P	7	1·3	3·4
937		03 58·9	02 33	5·39	F5	−18·8	Y	5	0·2	0·4
944	ψ Tauri	04 00·8	28 44	5·29	Fo	+10·4	P	6	0·7	1·8
957		04 05·0	83 34	5·39	B3	−11·3	Y	5	1·9	4·2
969		04 08·1	61 36	5·64	B8	− 3·2	Y	5	3·2	7·1
973		04 08·8	57 37	5·80	Ko	−37·6	Y	6	0·3	0·7
1040		04 22·1	21 24	5·74	A5	+35·7	P	6	0·7	1·7
1042	75 Tauri	04 22·7	16 08	5·29	G5	+16·8	P	6	0·5	1·1
1043	76 Tauri	04 22·7	14 30	5·97	Fo	+50·1	Y	6	1·7	4·2
1055	81 Tauri	04 24·9	15 29	5·49	A5	+38·4	Y	6	0·8	2·0
1056	83 Tauri	04 25·0	13 31	5·49	Fo	+39·2	P	6	0·6	1·5
1060		04 26·3	42 49	6·80	Fo	+ 1·9	P′	6	1·1	2·6
1083	2 Cam.	04 32·0	53 17	5·44	Fo	+18·9	Y	6	2·4	5·9
1086	89 Tauri	04 32·5	15 51	5·80	Fo	+35·6	P	6	1·6	3·9
1114		04 38·9	+10 58	5·35	A3	+38·8	P	7	1·1	2·9

TABLE I.

Star	Desig'n	R. A.	Decl.	Vis. Mag.	Spect.	Rad. Vel.	Obs.	No. of Plates	Probable Errors	
									Mean	Plate
		h m	° ′							
1129		04 42·8	+31 16	5·76	Ko	+22·7	Y	6	0·3	0·7
1149	4 Orion	04 46·9	55 06	5·58	Ao	+ 3·5	Y	6	0·7	1·7
1166		04 50·1	24 27	6·28	Fo	−12·1	H	6	1·2	2·9
1252	18 Orion	05 10·5	11 14	5·50	Ao	− 8·5	P	8	0·6	1·8
1260		05 12·4	33 39	5·39	Aop	+25·8	P	8	0·7	2·0
1350		05 28·7	47 40	6·05	Fo	+12·4	P	6	0·8	2·0
1378	26 Aur.	05 32·2	30 26	5·49	A2	− 2·5	P′	6	0·9	2·2
1383		05 32·6	07 29	5·70	B8	+17·5	Y	5	1·8	4·0
1412	28 Cam.	05 38·4	55 53	6·79	Ao	+18·7	P	6	0·5	1·3
1415		05 38·8	15 01	7·14	Go	−47·7	Y	5	0·9	2·0
1428	133 Tauri	05 42·0	13 52	5·20	B5	+29·3	P	8	1·1	3·1
1434	132 Tauri	05 42·9	24 32	5·02	Ko	+19·4	H	6	0·3	0·7
1445	135 Tauri	05 44·7	14 16	5·71	Ko	+44·7	P′	6	0·5	1·1
1461	54 Orion	05 47·4	20 17	6·56	B9	− 6·7	H	6	3·8	9·2
1499	35 Cam.	05 56·6	51 35	6·30	A5	+19·3	Y	5	1·4	3·1
1530	36 Cam.	06 02·8	65 44	5·39	Ko	+ 8·0	H	6	0·3	0·7
1545	68 Orion	06 06·0	19 49	5·70	B9	+29·9	Y	5	0·6	1·3
1550	69 Orion	06 06·2	16 09	4·92	B3	+ 6·9	P	8	2·2	6·2
1552	40 Cam.	06 06·7	60 02	5·56	Ko	+12·7	P	6	0·4	1·0
1557		06 08·0	86 46	6·57	G5	+24·8	H	5	0·6	1·1
1563		06 08·9	36 12	6·42	Fo	+ 5·3	Y	5	0·7	1·6
1564	71 Orion	06 09·0	19 12	5·18	F5	+33·6	H	6	0·5	1·2
1571	42 Aur.	06 10·1	46 28	6·46	Fo	− 8·6	Y	5	2·7	6·0
1583		06 12·1	27 15	6·72	Ko	−46·0	Y	5	0·8	1·8
1584	10 Gem.	06 12·8	23 38	6·59	G5	+41·0	P	6	0·5	1·3
1585	3 Lyn.	06 12·9	61 48	7·15	Fo	+ 8·2	Y	5	1·2	2·7
1626	77 Orion	06 22·1	00 21	5·29	Ko	+33·4	P	6	0·4	1·0
1628		06 22·1	02 58	5·77	G5	+53·1	P	6	0·3	0·6
1647		06 26·2	11 36	5·08	A2	− 5·6	H	6	1·2	2·9
1650	20 Gem.	06 26·5	17 51	6·60	F8	− 0·5	P′	6	0·3	0·8
1668	49 Aur.	06 29·0	28 06	5·05	Ao	+19·6	P	9	1·4	4·1
1678		06 30·1	00 58	5·69	B5	+10·2	P	7	0·8	2·0
1679	23 Gem.	06 30·2	16 53	6·69	F5	+30·5	Y	5	0·9	2·1
1693	53 Aur.	06 32·1	29 04	5·54	Ao	+13·3	Y	6	2·3	5·1
1694	50 Aur.	06 32·2	42 35	5·09	G5	+16·9	H	6	0·4	1·0
1720	13 Lyn.	06 38·3	57 17	5·47	G5	+18·9	P	6	0·4	0·9
1722	28 Gem.	06 38·4	29 04	5·54	Ko	+15·1	P′	6	0·4	1·0
1728	57 Aur.	06 40·0	48 53	5·28	Ko	−10·0	H	6	0·6	1·5
1744	43 Cam.	06 42·9	69 00	5·13	B5	−26·1	P	9	1·2	3·7
1753	14 Lyn.	06 44·2	59 34	5·44	F5	+13·7	Y	5	1·6	3·6
1764	60 Aur.	06 46·3	38 34	6·32	F5	+31·4	P′	5	0·6	1·3
1786	ψ Aur.	06 50·4	45 14	4·80	A2	− 8·2	H	6	1·9	4·6
1794	62 Aur.	06 52·3	38 12	6·15	K2	+23·2	P′	6	0·6	1·4
1803	41 Gem.	06 54·5	16 13	5·86	K2	+21·4	H	5	0·4	0·9
1813		06 58·1	11 06	5·25	K2	+21·2	Y	6	0·3	0·7
1824	17 Lyn.	07 00·7	60 57	6·73	Ko	+ 2·2	P	6	0·4	0·9
1835	45 Gem.	07 02·6	16 05	5·58	Ko	−18·1	P′	6	0·6	1·4
1850	48 Gem.	07 06·3	24 17	5·76	F5	+13·3	P	6	0·6	1·6
1851		07 06·4	81 26	6·20	B9	− 8·9	Y	4	1·1	2·2
1852	49 Gem.	07 06·7	25 55	6·89	Ao	− 7·6	H	5	3·4	7·6
1859		07 08·4	+24 53	6·66	B9	+ 1·7	Y	5	0·3	0·7

TABLE I.

Star	Desig'n	R. A.	Decl.	Vis. Mag.	Spect.	Rad. Vel.	Obs.	No. of Plates	Probable Errors	
									Mean	Plate
		h m	° ′							
1864		07 09·0	+12 18	5·84	Ko	+28·8	P′	6	0·5	1·2
1871	25 H Cam.	07 10·1	82 36	5·11	Mb	+11·2	Y	5	0·4	0·9
1879		07 10·9	49 38	4·80	A2	−19·9	Y	6	1·5	3·7
1900		07 14·5	73 16	6·96	Fo	−35·4	H	5	1·6	3·5
1902	20^1 Lyn.	07 14·6	50 20	7·32	Fo	− 2·0	Y	4	2·2	4·4
1903	20^2 Lyn.	07 14·6	50 20	7·42	Fo	+ 4·7	Y	4	3·4	6·8
1904		07 14·5	73 16	6·96	Fo	−30·0	H	4	2·0	4·0
1914	56 Gem.	07 16·1	20 38	5·16	K2	+ 3·5	P′	6	0·5	1·1
1948	22 Lyn.	07 22·3	49 53	5·36	F5	−27·8	P	6	0·3	0·8
1950	η Can. Min.	07 22·6	07 09	5·34	A5	+18·3	H	6	0·6	1·5
1974	7 Can. Min.	07 26·9	02 08	5·26	A5	+32·3	P′	6	1·2	2·8
1980		07 28·7	−56 00	6·04	Ko	− 1·3	H	5	0·7	1·6
1981		07 28·8	31 11	5·34	Ko	− 5·2	Y	6	0·6	1·5
2010	24 Lyn.	07 34·5	58 57	4·96	A2	+ 4·1	H	8	2·4	6·8
2027		07 37·9	24 29	6·84	A5	+26·9	Y	5	1·8	4·0
2028	76 Gem.	07 38·1	26 01	5·40	K5	+ 2·9	H	6	0·7	1·7
2040	81 Gem.	07 40·3	18 45	5·02	K2	+77·7	P	6	0·8	2·0
2071	ζ Can. Min.	07 46·5	02 01	5·11	B8	+27·7	Y	6	1·2	2·9
2092		07 50·0	09 07	5·78	Fo	+19·8	P′	6	0·5	1·2
2101		07 53·0	59 20	5·79	F2	−40·2	Y	5	0·3	0·7
2156	13 Canc.	08 04·1	26 08	6·70	Ko	+ 5·3	P′	5	0·6	1·4
2157	14 Canc.	08 04·4	25 50	5·83	G5	−44·7	H	6	0·4	1·0
2182		08 08·7	59 30	6·70	Ko	−28·8	P	6	0·5	1·3
2197	30 Lyn.	08 12·4	58 03	5·94	F2	−16·9	Y	5	0·6	1·3
2205		08 14·5	21 04	5·93	G5	−19·1	P′	6	0·9	2·1
2210		08 16·2	53 33	5·58	A2	+20·3	P	8	1·5	4·3
2229	25 Canc.	08 20·1	17 23	6·18	F2	+36·6	Y	5	0·5	1·1
2232	22 Canc.	08 20·4	28 14	5·83	K2	+24·3	H	5	0·8	1·8
2234		08 20·5	07 53	5·23	Ko	+15·1	P′	5	0·6	1·4
2238	24 Canc.	08 20·7	24 52	7·10	A3	+15·5	H	5	0·8	1·8
2239		08 20·7	24 52	7·64	G	+17·7	H	2	3·1	4·3
2253	29 Canc.	08 23·0	14 33	5·90	A2	− 7·1	Y	5	2·1	4·7
2271	η Canc.	08 26·9	20 47	5·52	Ko	+22·1	H	5	0·8	1·8
2277	33 Lyn.	08 28·3	36 46	5·83	A2	+23·9	Y	5	1·4	3·1
2284	3 Urs. Maj.	08 30·3	65 22	5·69	Go	−12·2	P	6	0·3	0·7
2296	37 Canc.	08 32·7	09 56	6·48	Ao	+27·3	P′	6	2·6	6·5
2306	34 Lyn.	08 34·1	46 11	5·52	Ko	−37·6	H	5	0·8	1·8
2308	39 Canc.	08 34·4	20 22	6·48	Ko	+33·9	Y	5	0·6	1·3
2309	40 Canc.	08 34·4	20 19	6·52	Ao	+33·4	P′	6	0·7	1·7
2310		08 34·6	20 01	6·40	G5	+36·4	Y	6	0·7	1·7
2313	42 Canc.	08 35·0	20 04	6·72	A5	+26·6	H	6	2·0	4·9
2364		08 44·3	33 41	6·22	F8	+ 4·4	P	6	0·3	0·7
2392		08 50·1	46 01	5·92	Ko	+59·5	P′	6	0·7	1·8
2398	59 Canc.	08 50·8	33 18	5·48	A3	+ 6·7	P	8	1·5	4·3
2402	63 Canc.	08 52·0	15 58	5·64	A5	−11·0	H	5	0·6	1·3
2430		08 58·3	51 13	6·73	F2	+17·3	H	5	0·7	1·6
2439	ω Hyd.	09 00·7	05 30	5·41	Ko	+26·0	Y	6	0·4	1·0
2474	17 Urs. Maj.	09 08·5	57 10	5·48	K5	−30·9	H	5	0·7	1·6
2494Pr		09 12·3	35 47	6·40	A5	+25·4	P	6	0·9	2·2
2494Fo		09 12·3	35 47	6·60	A5	+28·9	P	6	0·7	1·8
2530	41 Lyn.	09 22·1	+46 02	5·56	G5	+37·9	P	6	0·4	0·9

TABLE I.

Star	Desig'n	R.A.	Decl.	Vis. Mag.	Spect.	Rad. Vel.	Obs.	No. of Plates	Probable Errors	
									Mean	Plate
		h m	° ′							
2534	141 Hyd.	09 24·7	+34 05	5·98	Ko	+ 1·4	P	6	0·5	1·2
2556	6 Leo.	09 26·5	10 09	5·28	Ko	+20·8	H	5	0·8	1·8
2576	7 Leo.	09 30·5	14 49	6·21	Ao	+23·9	P	8	1·3	3·7
2578		09 30·8	31 37	5·74	Ma	−22·2	P	6	0·5	1·3
2583	9 Leo.	09 32·1	25 07	6·60	F8	+30·4	Y	6	0·5	1·2
2586	11 Leo.	09 32·6	14 48	6·60	F2	+20·0	H	6	1·0	2·4
2611	28 Urs. Maj.	09 38·2	64 07	6·50	F2	−32·5	Y	5	0·8	1·8
2620	14 Leo. Min.	09 40·3	45 35	6·80	Ko	−44·4	P	6	0·5	1·1
2621		09 40·9	07 10	5·99	Ma	+ 0·9	P′	6	0·6	1·5
2624	19 Leo.	09 42·0	12 03	6·37	Fo	− 5·9	H	6	2·1	5·1
2626	15 Leo. Min.	09 42·1	46 29	5·20	Go	+ 4·2	H	6	0·4	1·0
2642	22 Leo.	09 46·3	24 52	5·33	A2	− 0·4	P	8	1·0	2·7
2660		09 50·2	57 54	5·99	G5	−46·3	H	5	0·5	1·1
2662	18 Leo. Min.	09 50·7	32 51	6·60	F2	+ 6·8	P′	6	0·5	1·2
2671		09 52·9	08 48	6·27	Ko	−17·4	H	6	0·6	1·5
2673		09 53·0	57 18	5·71	K5	−14·2	Y	6	0·5	1·2
2685	13 Sext.	09 59·0	03 42	6·42	F2	− 2·4	H	6	0·8	2·0
2711	34 Leo.	10 06·2	13 51	6·41	F5	−17·5	Y	6	0·7	1·7
2724	23 Leo. Min.	10 10·6	29 48	5·35	Ao	+15·3	Y	9	2·3	6·9
2727	24 Leo. Min.	10 10·8	29 10	6·51	Go	+28·8	Y	6	0·7	1·7
2736		10 12·8	44 33	6·69	G5	− 6·9	P′	6	0·4	1·0
2740		10 41·1	54 43	6·22	Ko	+ 8·1	H	5	0·6	1·3
2752	42 Leo.	10 16·5	15 29	6·10	B9	+ 8·8	P	6	0·7	1·8
2761	28 Leo. Min.	10 18·4	34 13	5·78	Ko	−22·0	Y	6	0·5	1·2
2780	35 Urs. Maj.	10 22·8	66 08	6·39	Ko	−25·1	P′	6	0·4	1·0
2800	46 Leo.	10 26·9	14 39	5·74	Ma	+34·0	H	6	0·7	1·8
2828		10 32·9	54 12	5·72	Ko	+45·4	P	6	0·5	1·1
2838		10 34·7	68 58	5·90	Ko	+ 6·0	P	6	0·5	1·2
2847		10 36·6	32 14	6·33	Ma	+14·3	P	6	0·6	1·4
2858Fo	35 Sext.	10 38·1	05 16	5·99	Ko	− 3·2	H	5	0·5	1·1
2858Pr	35 Sext.	10 38·1	05 16	7·10	G	− 1·2	H	3	1·5	2·6
2864	36 Sext.	10 40·0	03 00	6·57	K2	+ 9·4	Y	5	0·7	1·6
2865	41 Urs. Maj.	10 40·2	57 53	6·49	Ma	− 1·0	Y	5	0·6	1·3
2883	53 Leo.	10 44·0	11 04	5·27	Ao	−18·4	Y	8	2·3	6·5
2895		10 46·5	53 06	6·72	Ko	−12·8	H	4	0·6	1·2
2896		10 46·5	53 03	6·58	Ko	− 6·6	H	4	0·2	0·4
2910		10 50·2	34 02	5·23	Ko	−22·5	P	6	0·3	0·7
2912		10 50·6	42 33	6·11	Ko	−55·7	P′	6	0·5	1·3
2913	55 Leo.	10 50·6	01 16	6·05	F2	+ 2·2	Y	6	0·4	1·0
2918		10 52·0	78 18	6·26	G5	−50·4	H	5	0·3	0·7
2924		10 54·7	43 27	6·12	F8	− 6·4	P	6	0·2	0·5
2967		11 08·4	20 41	6·94	Go	+44·2	Y	6	0·3	0·7
2970	69 Leo.	11 08·7	00 29	5·40	Ao	+ 1·9	Y	8	0·9	2·5
2973		11 08·8	08 37	5·90	Ko	+15·8	H	5	0·9	2·0
2977		11 10·3	53 19	6·34	F2	−43·4	Y	6	0·3	0·7
2978	73 Leo.	11 10·6	13 51	5·48	Ko	+11·7	P	6	0·7	1·7
2979		11 10·8	13 24	6·54	Fo	−20·7	Y	6	2·2	5·4
2993		11 16·9	64 53	5·98	Ao	+ 0·6	Y	9	2·5	7·5
3000	79 Leo.	11 18·9	01 58	5·52	G5	− 9·8	P	6	0·6	1·4
3007		11 20·4	56 24	5·85	G5	− 6·7	P′	6	0·4	1·0
3008	81 Leo.	11 20·4	+17 01	5·63	F2	+15·6	P	6	0·5	1·3

TABLE I.

Star	Desig'n	R. A.	Decl.	Vis. Mag.	Spect.	Rad. Vel.	Obs.	No. of Plates	Probable Errors	
									Mean	Plate
		h m	° ′							
3027		11 24·8	+81 41	6·13	Ao	+ 2·2	Y	6	0·6	1·5
3072		11 35·0	58 31	6·10	Ao	+ 2·6	P	8	0·9	2·6
3083		11 38·3	42 17	6·81	G5	+ 1·8	P	6	0·5	1·2
3135	7 Virg.	11 54·8	04 13	5·24	Ao	− 3·6	Y	6	0·9	2·2
3142	1 Com. Ber.	11 56·6	22 39	6·58	F8	+ 9·8	H	8	0·9	2·5
3149		11 58·6	06 07	6·52	F5	+ 7·6	Y	6	0·7	1·7
3156		12 00·2	77 28	5·96	Ko	−18·7	P	6	0·4	1·1
3157		12 00·6	63 30	6·24	Ko	−27·2	Y	6	0·5	1·2
3171	11 Virg.	12 05·0	06 22	5·74	Fo	− 9·2	Y	6	0·5	1·2
3173	3 Com. Ber.	12 05·5	17 22	6·34	Ao	−12·8	Y	9	1·9	5·7
3181	5 Com. Ber.	12 07·1	21 06	5·67	G5	−25·8	Y	6	0·3	0·7
3189		12 10·4	70 45	5·89	Ko	−16·2	Y	6	0·3	0·7
3198		12 12·5	29 30	5·68	Ao	− 7·5	P	8	1·0	2·7
3207	5 Draco.	12 14·4	75 43	5·41	A2	− 8·5	Y	8	2·0	5·7
3219	70 Urs. Maj.	12 16·1	58 25	5·72	K2	−44·0	H	6	0·9	2·2
3235	6 Can. Ven.	12 20·9	39 34	5·22	Ko	− 4·0	Y	6	0·5	1·2
3267		12 26·1	53 37	6·23	F8	−23·5	P′	6	0·6	1·4
3278		12 28·7	33 48	5·43	Ko	−20·6	P	6	0·4	0·9
3346	37 Virg.	12 46·5	03 36	6·12	Ko	+ 2·9	H	6	0·6	1·5
3356	32 Cam.	12 48·4	83 57	5·28	A2	+ 3·5	P	6	1·4	3·3
3380	9 Draco.	12 56·2	67 08	5·50	Ko	−31·4	P	6	0·3	0·9
3392	14 Can. Ven.	13 01·1	36 20	5·11	B9	−22·6	Y	11	1·7	5·6
3397	39 Cam.	13 01·4	21 42	6·04	F2	− 1·1	Y	6	0·4	1·0
3402		13 02·4	62 35	6·31	Ko	+13·9	P	6	0·4	1·0
3431		13 08·8	01 59	6·76	K2	+ 9·5	P′	6	0·8	2·1
3459		13 16·7	02 37	5·68	Ao	− 9·7	Y	8	4·4	12·4
3470		13 18·6	85 17	7·35	Go	+ 9·6	Y	6	0·5	1·2
3492	71 Virg.	13 24·3	11 20	5·78	Ko	+ 0·0	P	6	0·4	1·0
3494		13 24·8	60 28	5·41	Ao	− 5·1	P	8	0·7	2·0
3497		13 26·1	79 10	5·94	G5	+14·3	Y	6	0·4	1·0
3509	81 Urs. Maj.	13 30·3	55 52	5·48	Aop	−13·6	Y	8	1·4	4·0
3527		13 34·8	71 45	5·67	Ko	+14·4	H	6	0·6	1·5
3533	2 Boot.	13 36·3	23 01	5·80	G5	+ 3·8	Y	6	0·3	0·7
3557		13 42·2	78 34	6·11	Ko	− 8·2	P′	6	0·5	1·3
3559		13 42·7	39 03	5·57	Ko	−10·7	H	6	0·2	0·5
3561	81 Urs. Maj.	13 42·9	54 56	5·53	Aop	− 5·3	Y	6	1·0	2·4
3570		13 44·2	31 41	5·81	Ko	+10·5	H	7	0·5	1·3
3581		13 46·7	35 10	6·00	Ma	−41·9	P′	7	0·3	0·8
3588	7 Boot.	13 48·4	18 25	5·71	Ko	− 9·8	P	6	0·3	0·6
3591		13 48·7	29 08	5·84	A5	−12·9	Y	6	1·0	2·4
3597	86 Urs. Maj.	13 50·1	54 13	5·65	Ao	−22·4	Y	8	2·3	6·5
3598		13 50·3	79 29	6·63	G5	− 3·8	P	6	0·5	1·1
3601	9 Boot.	13 52·0	27 59	5·18	Ko	−39·5	Y	7	0·3	0·8
3630		14 03·9	44 20	5·44	Mb	−38·4	Y	7	0·4	1·1
3631	13 Boot.	14 04·6	49 56	5·44	Ma	−13·6	Y	6	0·6	1·5
3636	3 Urs. Min.	14 06·2	75 04	6·34	A3	− 4·8	Y	7	0·9	2·4
3652	κ Boot.	14 09·9	52 16	6·75	A5	−24·2	Y	6	1·1	2·7
3674		14 13·8	51 46	6·09	Ao	−12·3	Y	7	2·3	6·0
3730		14 30·4	47 13	6·57	Ao	+ 5·0	P	9	1·4	4·2
3740		14 34·5	44 04	5·92	Ko	−48·7	P	6	0·3	0·7
3741		14 34·7	+52 00	6·79	F2	−24·7	H	6	0·8	1·9

TABLE I.

Star	Desig'n	R. A.	Decl.	Vis. Mag.	Spect.	Rad. Vel.	Obs.	No. of Plates	Probable Errors	
									Mean	Plate
		h m	° ′							
3753	31 Boot.	14 36·8	+08 35	5·03	G5	−22·3	Y	6	0·5	1·2
3754	32 Boot.	14 36·9	12 05	5·63	G5	−23·1	P	6	0·2	0·5
3764		14 39·8	40 51	5·79	Ko	+10·7	P	6	0·3	0·9
3767	108 Virg.	14 40·4	01 09	5·54	B9	−10·4	Y	7	2·1	5·6
3793	39 Boot.	14 46·3	49 07	5·64	F5	−32·3	P′	6	0·4	1·0
3795		14 46·6	37 40	5·50	Ko	−67·0	Y	6	0·7	1·7
3803		14 48·9	59 42	5·67	K2	+10·4	H	6	0·6	1·5
3816	1 Serp.	14 52·4	00 14	5·71	Ko	+19·5	P	6	0·4	1·1
3817		14 52·5	16 48	5·78	Ko	−16·0	H	6	0·4	1·0
3831	2 Serp.	14 56·7	00 14	5·91	Ko	−33·6	P′	7	0·8	2·1
3853	47 Boot.	15 02·2	48 32	5·59	Ao	−15·5	Y	6	0·8	2·0
3854		15 02·7	36 50	6·30	F5	− 6·5	Y	6	0·6	1·5
3856		15 03·4	54 56	5·21	G5	+14·6	Y	6	0·3	0·7
3859	46 Boot.	15 04·1	26 41	5·73	Ko	+18·3	Y	6	0·9	2·2
3860		15 04·2	25 29	5·94	Ko	−16·2	Y	6	0·6	1·5
3908	o Cor. Bor.	15 16·0	29 59	5·57	Ko	−53·2	Y	6	0·7	1·7
3911		15 17·2	52 17	5·52	A3	+ 3·4	P	8	1·5	4·1
3930		15 21·0	63 42	5·78	K2	−45·7	P′	6	0·5	1·3
3933		15 22·4	34 41	5·87	Ko	−47·9	H	6	0·9	2·2
3979	ϕ Boot.	15 34·2	40 41	5·41	G5	−10·4	P′	6	0·2	0·6
3982	θ Urs. Min.	15 34·4	77 41	5·33	K5	−24·0	H	7	0·8	2·1
3984		15 34·9	43 56	6·75	A2	−11·6	H	7	2·6	6·8
3992	19 Serp.	15 36·4	16 21	5·97	G5	+ 3·2	P	6	0·4	1·0
4003	π Cor. Bor.	15 40·1	32 50	5·60	Ko	− 3·8	Y	6	0·3	0·7
4004		15 40·2	52 40	5·48	Aop	−16·9	H	8	1·3	3·7
4012	ν Serp.	15 42·7	14 25	5·72	Ao	−35·2	P	6	1·3	3·2
4057	λ Cor. Bor.	15 52·1	38 14	5·47	F2	−11·5	Y	6	0·9	2·2
4060	ϕ Serp.	15 52·6	14 42	5·66	Ko	−69·4	P	6	0·6	1·4
4075	5 Herc.	15 56·7	18 06	5·28	G5	−16·6	P′	6	0·5	1·2
4101	κ Herc.	16 03·6	17 19	5·34	G5	− 9·4	Y	6	0·5	1·2
4104	8 Herc.	16 04·2	17 30	6·07	Ao	−17·4	Y	8	2·1	5·9
4113		16 06·0	68 04	5·40	Ao	−14·4	Y	7	3·8	10·0
4142	17 Herc.	16 12·0	23 22	6·59	Ko	+15·0	H	6	0·2	0·5
4151	19 Urs. Min.	16 13·7	76 08	5·51	B8	− 2·5	Y	7	1·8	4·8
4154	19 Herc.	16 14·2	26 08	6·63	G5	− 8·4	P′	6	0·9	2·2
4160		16 16·2	73 38	5·98	Ao	−16·0	Y	6	1·3	3·2
4161		16 16·5	39 57	5·54	F2	−30·7	P	8	0·7	1·9
4176	23 Herc.	16 19·1	32 34	6·20	A2	− 7·3	P	8	2·2	6·2
4181	η Urs. Min.	16 20·4	75 59	5·04	Fo	−11·8	Y	6	1·0	2·4
4184	25 Herc.	16 21·9	37 37	5·53	A3	− 5·4	Y	8	2·3	6·5
4186		16 22·0	69 20	5·44	Ko	− 8·4	H	6	0·3	0·7
4187		16 22·2	55 26	5·66	A2	− 5·4	P	6	0·5	1·3
4191		16 22·5	61 56	5·64	G5	−23·8	P′	6	0·4	1·0
4207		16 26·2	20 42	5·29	G5	+17·4	H	7	0·5	1·3
4209	34 Herc.	16 27·4	49 10	6·22	Ao	− 8·9	P	7	0·9	2·4
4214		16 28·8	45 50	5·55	Ao	−18·5	Y	7	1·2	3·2
4220	σ Herc.	16 30·9	42 39	4·25	Ao	−10·9	P	8	1·3	3·7
4223		16 31·3	79 11	5·54	A3	−12·8	Y	6	0·9	2·4
4240		16 36·0	56 13	5·44	G5	−19·1	Y	6	0·3	0·7
4242	42 Herc.	16 36·0	49 07	5·14	Ma	−55·8	H	6	0·4	1·0
4244	14 Oph.	16 36·7	+01 21	5·86	Fo	−46·4	P′	6	0·8	1·9

TABLE I.

Star	Desig'n	R. A.	Decl.	Vis. Mag.	Spect.	Rad. Vel.	Obs.	No. of Plates	Probable Errors	
									Mean	Plate
		h m	° ′							
4257	41 Herc.	16 40·1	+06 16	6·71	G5	− 6·3	Y	6	0·5	1·2
4258		16 40·1	34 13	5·90	F2	−11·2	H	6	1·0	2·4
4276		16 45·0	13 26	5·95	Ao	−24·3	H	7	1·4	3·6
4286	50 Herc.	16 46·7	29 59	5·86	K5	−12·1	P′	6	0·6	1·5
4305		16 50·2	43 00	6·74	Go	+ 5·8	H	6	0·3	0·7
4310	56 Herc.	16 50·9	25 54	6·33	Ko	− 0·6	P′	6	0·5	1·3
4311	54 Herc.	16 51·0	18 35	5·56	K2	+11·5	H	6	0·7	1·7
4329		16 56·7	22 47	5·74	Ko	+11·0	P′	6	0·7	1·6
4336	32 Oph.	16 58·6	14 14	5·10	Ma	+41·0	H	6	0·7	1·7
4349		17 02·0	43 57	6·36	Ao	− 9·7	Y	7	0·8	2·1
4350		17 02·1	22 13	5·72	K2	−97·2	P′	6	0·5	1·3
4358		17 04·5	36 04	5·38	A5	−32·2	Y	7	0·7	1·8
4359		17 04·5	40 39	6·27	A2	− 8·4	Y	6	0·7	1·7
4364		17 06·3	40 54	5·12	Ko	−59·4	Y	6	0·8	2·0
4365	63 Herc.	17 07·0	24 21	6·19	A3	− 3·2	Y	6	2·0	4·9
4382		17 11·7	62 59	5·47	A3	− 8·7	Y	6	2·0	4·9
4400		17 15·9	18 10	5·17	Ma	−46·1	P	7	0·5	1·2
4416	73 Herc.	17 19·9	23 03	5·70	A3	−20·7	Y	6	1·0	2·4
4422		17 21·0	37 02	6·48	G5	−18·2	P′	6	0·7	1·8
4428		17 23·7	00 25	5·16	A5	−34·5	Y	6	2·4	5·9
4430	77 Herc.	17 24·1	48 21	5·81	A2	−17·8	Y	7	2·8	5·9
4432		17 24·4	60 07	5·66	A2	+12·7	P	10	1·5	4·8
4441	78 Herc.	17 27·9	28 29	5·58	Ao	−27·4	Y	8	2·2	6·2
4453	53 Oph.	17 29·8	09 39	5·77	A2	−14·9	Y	6	0·7	1·7
4468	79 Herc.	17 33·4	24 22	5·67	Ao	− 6·7	Y	8	1·6	4·5
4471	82 Herc.	17 34·0	48 38	5·54	Ko	+27·0	H	6	0·4	1·0
4472		17 34·1	02 05	6·35	Ko	− 1·5	P	6	0·6	1·4
4484		17 38·1	41 42	6·97	A2	−42·2	Y	6	2·0	4·9
4486	83 Herc.	17 38·4	24 37	5·59	K5	−28·0	P′	6	0·6	1·4
4506		17 44·1	20 36	5·77	Ko	−25·4	P′	6	0·6	1·4
4510		17 46·5	29 21	5·61	Ko	−14·5	P′	6	0·6	1·4
4511	30 Draco.	17 46·7	50 48	5·19	A2	−59·1	H	8	1·2	3·4
4518		17 48·8	40 00	6·06	Ko	−68·3	H	7	0·9	2·3
4522	90 Herc.	17 50·0	40 01	5·12	Ko	−33·0	P′	6	0·8	1·8
4543		17 54·9	43 26	6·88	B9	−42·3	H	6	2·6	6·3
4572		18 00·5	48 28	6·06	Ao	− 8·1	Y	6	1·2	2·9
4578	98 Herc.	18 01·8	22 13	5·32	Ma	−22·5	P	6	0·2	0·5
4587		18 03·8	26 15	6·00	A3	−20·5	Y	8	3·1	8·8
4589		18 04·5	43 27	5·11	G5	−17·2	H	7	0·6	1·6
4593		18 04·6	36 23	5·67	Ko	− 6·9	Y	7	0·4	1·1
4594	73 Oph.	18 04·6	03 58	5·67	F2	−14·6	P′	6	1·1	2·6
4595		18 04·8	03 06	5·73	F5	−14·2	H	6	0·6	1·5
4603	41 Draco.	18 07·5	79 59	5·80	F5	+ 5·6	P	7	0·6	1·6
4605	24 Urs. Min.	18 07·8	87 00	5·86	A3	+ 0·2	P	6	0·8	2·0
4606	104 Herc.	18 08·2	31 22	5·02	Ma	− 1·4	P′	6	0·5	1·2
4609		18 08·4	54 15	5·94	Ko	−16·8	P	6	0·4	0·9
4626		18 14·3	07 13	5·57	Ko	− 8·7	P′	6	0·6	1·4
4651		18 18·4	17 46	5·48	Ko	−19·0	H	6	0·7	1·7
4653		18 19·0	49 04	5·09	Ma	+13·8	P′	6	0·8	1·9
4730		18 36·7	62 26	5·60	Ao	−11·5	H	6	0·9	2·3
4742		18 40·1	+31 50	5·52	Fo	− 3·7	H	7	0·8	2·2

TABLE I.

Star	Desig'n	R. A.	Decl.	Vis. Mag.	Spect.	Rad. Vel.	Obs.	No. of Plates	Probable Errors	
									Mean	Plate
		h m	° ′							
4775	9 Lyrae	18 46·2	+32 26	5·16	A2	+ 8·2	H	7	2·6	6·8
4782		18 48·2	73 58	5·38	G5	+ 2·2	H	6	0·5	1·2
4795		18 50·3	42 47	6·86	K2	− 9·6	Y	6	1·0	2·4
4811		18 52·1	48 44	5·11	F5	−12·2	H	6	0·4	1·0
4818	10 Aquil.	18 54·2	13 46	5·94	A3p	+14·5	P′	6	0·8	2·0
4831	λ Lyrae	18 56·3	32 00	5·11	K5	−15·1	H	6	0·5	1·2
4833		18 56·3	62 16	6·44	Ko	− 8·6	P	6	0·4	1·1
4848	49 Draco.	18 58·8	55 31	5·52	G5	+ 8·6	P′	6	0·3	0·6
4863		19 02·2	76 55	6·49	Fo	−28·5	H	6	1·0	2·4
4875		19 04·1	05 55	5·37	F2	−53·8	P	7	0·6	1·5
4885	19 Lyrae	19 07·9	31 07	5·77	Ao	−31·8	Y	8	1·3	2·7
4887	21 Aquil.	19 08·7	02 07	5·10	B8	− 8·4	P′	6	1·0	2·3
4902	22 Aquil.	19 11·6	04 40	5·40	A2	−25·4	P	8	1·2	3·2
4905		19 11·9	14 23	5·46	Ao	−22·2	Y	7	2·5	6·6
4907	54 Draco.	19 12·1	57 32	5·26	Ko	−29·1	H	6	0·5	1·2
4911	59 Draco.	19 12·8	76 24	5·06	Fo	− 5·4	P′	6	0·6	1·5
4920		19 14·0	46 49	6·04	F8	−45·0	Y	6	0·5	1·2
4924	28 Aquil.	19 15·0	12 12	5·42	Fo	− 0·7	H	6	0·5	1·2
4939		19 17·4	54 12	6·24	Ao	− 6·6	Y	6	2·4	5·9
4957		19 20·8	50 05	6·31	B9	−25·0	Y	7	1·8	4·8
4958		19 20·8	43 12	5·95	G5	− 2·0	P	6	0·5	1·2
4965	5 Vulp.	19 21·9	19 54	5·58	Ao	−29·7	Y	8	2·6	7·3
4977		19 24·8	14 23	5·73	Ko	−40·6	H	6	0·7	1·7
4994		19 28·7	50 06	5·73	Ko	− 9·3	H	6	0·4	1·0
5010	ϵ Sag.	19 32·8	16 14	5·67	Ko	−32·4	P′	6	0·8	1·9
5035		19 38·5	40 01	6·20	A3	−33·0	H	6	1·0	2·4
5045	15 Cygni	19 40·7	37 07	5·02	Ko	−23·9	P′	6	0·3	0·8
5046	ν Aquil.	19 40·8	07 22	5·72	A2	−30·9	H	6	0·6	1·5
5049		19 42·1	34 46	6·23	Ko	−20·2	Y	6	0·4	1·0
5057		19 44·4	69 06	5·90	Ao	− 1·0	P′	6	0·5	1·1
5065		19 46·2	10 10	5·22	Go	− 2·9	H	6	0·6	1·5
5075	20 Cygni	19 48·2	52 45	5·17	Ko	−20·2	P′	6	0·9	2·1
5127	25 Cygni	19 56·2	36 46	5·15	B3	−11·7	H	9	2·2	6·6
5137	26 Cygni	19 58·5	49 49	5·28	Ko	+ 0·3	P′	6	0·3	0·7
5139	14 Sag.	19 58·9	15 45	5·47	Ao	−27·3	H	6	1·2	2·9
5151	η Sag.	20 00·7	19 42	5·26	Ko	−40·7	P′	6	0·5	1·2
5154	69 Draco.	20 02·4	76 13	6·43	Ma	−69·9	H	5	0·4	0·9
5156	17 Vulp.	20 02·5	23 19	5·08	B3	−12·0	Y	6	1·8	4·0
5184	68 Draco.	20 09·9	61 47	5·72	F5	−17·9	P	7	0·4	0·9
5185	21 Vulp.	20 10·2	28 24	5·20	A3	+ 3·8	Y	6	2·3	5·6
5203		20 12·8	45 16	5·87	F5	−41·4	Y	6	0·7	1·5
5204		20 12·8	64 27	7·25	G5	−67·7	P	6	0·6	1·5
5205		20 13·4	40 03	5·50	K5	−21·4	Y	6	0·9	2·2
5226		20 18·2	05 01	5·41	Ko	−12·3	H	5	0·4	1·0
5249	40 Cygni	20 23·9	38 07	5·45	Ao	− 3·8	P	9	1·3	3·8
5259		20 26·5	10 57	6·39	Ao	+ 0·7	H	6	4·2	9·4
5260		20 26·7	10 55	6·39	Ao	−12·0	H	7	3·8	9·9
5264		20 27·0	55 44	5·87	B9	−23·3	Y	6	1·9	4·7
5271	46 Cygni	20 28·2	48 53	5·57	Ma	−66·0	H	6	0·6	1·5
5280		20 30·4	72 12	6·42	K2	−43·9	P	6	0·5	1·3
5283		20 30·6	+46 21	5·59	B9	−22·7	P′	6	0·9	2·3

TABLE I.

Star	Desig'n	R. A.	Decl.	Vis. Mag.	Spect.	Rad. Vel.	Obs.	No. of Plates	Probable Errors	
									Mean	Plate
		h m	° ′							
5290	73 Draco.	20 32·8	+74 37	5·18	A2p	+ 4·4	H	6	0·9	2·2
5299	θ Delph.	20 34·1	12 58	6·06	K5	−13·1	Y	7	0·4	1·1
5303	28 Vulp.	20 34·2	23 46	5·04	B5	−29·2	H	8	3·1	8·7
5309		20 34·9	29 59	5·86	Ko	+12·4	Y	6	0·5	1·2
5343	13 Delph.	20 42·8	05 38	5·59	Ao	− 6·2	H	6	2·8	6·8
5355		20 44·6	47 28	5·65	Ko	−29·5	P′	6	0·3	0·8
5358	15 Delph.	20 44·9	12 11	6·00	F5	+ 1·7	H	6	0·5	1·2
5365	56 Cygni	20 46·6	43 41	5·07	A5	−24·8	Y	7	0·8	2·4
5382		20 50·7	04 09	6·04	Go	−30·7	P′	6	0·6	1·4
5385	17 Delph.	20 50·9	13 21	5·39	Ko	−11·2	H	6	0·2	0·5
5388		20 52·1	80 11	5·58	Ko	−26·3	H	6	0·4	1·0
5401		20 54·8	44 04	5·76	Ko	−21·9	P′	6	1·1	2·7
5412		20 57·0	59 02	5·75	K2	−14·2	H	6	0·7	1·7
5416		20 58·6	39 07	6·54	K2	− 9·9	Y	6	1·0	2·4
5425		21 00·1	41 14	6·33	F2	−11·5	Y	6	1·1	2·7
5428	4 Equu.	21 00·5	05 34	6·03	F8	−23·4	P′	5	0·8	1·8
5453		21 09·3	59 35	5·65	B2	−18·3	P	7	0·8	2·0
5459		21 10·4	40 44	7·17	G5	−11·3	Y	6	0·8	2·2
5472		21 14·3	55 22	6·18	K2	−18·4	H	6	0·8	2·0
5478		21 16·0	49 06	5·65	B5	−23·4	Y	7	2·2	5·8
5479	9 Equu.	21 16·2	06 56	6·01	K5	−18·8	H	5	1·1	2·4
5504		21 20·1	25 45	5·74	Fo	− 6·8	Y	6	0·6	1·5
5515	35 Vulp.	21 23·3	27 11	5·38	Ao	− 9·5	Y	6	0·9	2·2
5519		21 23·8	31 47	5·74	Fo	−25·2	Y	7	0·7	1·8
5553	74 Cygni	21 32·9	39 58	5·09	A5	− 3·6	Y	8	2·6	7·3
5560	25 Aquar.	21 34·5	01 48	5·33	Ko	−34·9	P	6	0·5	1·1
5567	75 Cygni	21 36·3	42 49	5·35	K5	−29·2	Y	6	0·3	0·7
5585	79 Cygni	21 39·3	37 50	5·62	Ao	−23·8	Y	7	2·6	4·7
5605	27 Aquar.	21 42·2	02 14	5·50	Ao	+15·4	Y	6	1·4	3·5
5619		21 46·4	60 49	6·41	Ma	−19·7	Y	6	0·6	1·2
5621		21 46·9	19 22	5·68	B9	−21·4	Y	6	1·6	3·9
5630		21 48·9	19 13	5·76	Ao	+ 4·6	P	6	0·8	2·0
5642		21 52·9	64 52	5·85	B2	−16·4	P	8	1·5	4·0
5656		21 56·0	57 10	6·49	Ao	− 3·7	H	6	3·3	8·1
5665	21 Peg.	21 58·4	10 54	5·75	Ao	− 1·2	Y	6	0·6	1·5
5673		22 00·6	26 12	5·93	Ko	−27·8	Y	6	0·5	1·2
5675	15 Ceph.	22 00·6	59 20	6·74	B5	−18·8	P′	6	1·9	4·8
5678	18 Ceph.	22 00·8	62 38	5·46	Mb	− 6·3	H	6	0·8	2·0
5721		22 08·2	56 21	5·42	F8	−18·8	Y	6	0·9	2·2
5722		22 08·3	71 37	6·36	B9	− 3·8	P	8	1·1	3·2
5723		22 08·4	69 38	5·54	F2	− 0·4	Y	6	0·5	1·2
5724		22 08·4	34 07	5·42	Ko	− 8·7	H	6	0·6	1·5
5727		22 08·7	60 16	5·52	Ko	− 3·8	Y	6	0·5	1·2
5737		22 10·5	42 28	5·70	Ao	−38·9	Y	7	2·6	6·4
5751		22 12·8	56 43	6·05	Ko	+ 8·3	P′	6	0·6	1·3
5754		22 14·6	37 15	6·11	Fo	+ 6·5	P	6	0·3	0·8
5756	25 Ceph.	22 14·9	62 18	5·99	K5	− 4·5	Y	6	0·3	0·7
5771		22 18·8	66 12	7·30	F	− 1·5	Y	5	1·2	2·6
5797	36 Peg.	22 24·1	08 38	5·82	K2	−29·3	P′	6	0·9	2·3
5798		22 24·5	26 16	5·96	K2	−45·3	H	7	0·6	1·6
5800	37 Peg.	22 24·9	+03 56	5·47	F5	− 0·9	P	7	0·8	2·1

TABLE I.

Star	Desig'n	R. A.	Decl.	Vis. Mag.	Spect.	Rad. Vel.	Obs.	No. of Plates	Probable Errors	
									Mean	Plate
		h m	° ′							
5815		22 28·0	+39 16	5·80	A3	− 3·7	Y	6	2·3	5·6
5823		22 30·1	69 24	6·02	F2	− 5·5	P′	6	0·9	2·2
5826		22 30·4	69 51	6·26	Ao	−20·1	H	5	1·4	3·0
5840	40 Peg.	22 34·0	19 00	5·80	G5	−19·0	H	5	0·4	0·9
5843		22 34·7	56 17	5·47	Mb	+ 7·6	P′	6	0·6	1·4
5872	45 Peg.	22 40·6	18 51	6·45	Ko	−22·6	P	5	0·2	0·5
5917	51 Peg.	22 52·5	20 14	5·59	Go	−31·6	Y	6	0·3	0·7
5922	52 Peg.	22 54·2	11 12	5·79	Fo	+14·0	P′	6	2·0	5·0
5924	2 Pisc.	22 54·2	00 26	5·59	Ko	−14·1	H	5	0·6	1·3
5974	60 Peg.	23 06·9	26 18	6·40	Ko	− 9·8	Y	5	1·1	2·3
5990		23 12·5	44 37	6·55	K2	−38·6	P	6	0·2	0·5
6001	11 And.	23 14·8	48 04	5·42	Ko	−10·6	Y	6	0·6	1·5
6008	12 And.	23 16·1	37 38	5·75	F5	− 9·1	P	6	0·4	1·0
6015	66 Peg.	23 18·0	11 46	5·28	Ko	− 4·4	H	5	0·4	0·9
6032		23 22·0	70 08	6·74	A2	−16·0	P	6	1·0	2·4
6033	9 Pisc.	23 22·1	00 34	6·44	Ko	− 4·4	Y	5	0·9	2·0
6036	69 Peg.	23 22·7	24 37	5·87	Ao	−16·7	P	7	0·5	1·2
6049	14 And.	23 26·3	38 42	5·34	Ko	−59·3	Y	6	0·5	1·2
6058		23 28·5	21 57	5·51	Mb	+ 2·1	P	6	0·5	1·3
6064	15 Pisc.	23 30·5	00 45	6·65	Ko	+ 5·3	P′	5	1·1	2·4
6112		23 44·3	58 25	6·44	F2	+29·4	H	6	1·6	3·9
6114	79 Peg.	23 44·6	28 17	5·91	A3	− 5·3	P	6	0·3	0·8
6121	80 Peg.	23 46·2	08 46	6·11	Ma	− 9·7	Y	5	1·5	3·3
6141		23 50·5	52 11	6·77	Ko	− 1·1	Y	6	1·1	2·7
6158Pr		23 54·4	33 11	6·58	F8	− 8·6	P	6	0·3	0·8
6158Fo		23 54·4	33 11	6·58	F8	− 5·2	P	6	0·3	0·8
6161		23 54·8	+86 09	6·71	Ao	−18·3	H	6	1·8	4·3

SPECTROSCOPIC BINARIES

The Table below contains the velocity of the system of all spectroscopic binaries whose orbits have been determined at this observatory. Although these have previously appeared in these publications, they are summarized here for convenience. The arrangement of the table is similar to Table I above with the addition of a twelfth column containing a reference to the page number of Vol. I in which the orbit is discussed.

TABLE II. VELOCITIES OF 22 SPECTROSCOPIC BINARIES

Star	Desig'n	R. A.	Decl.	Vis. Mag.	Spect.	Rad. Vel.	Obs.	No. of Plates	Probable Errors		Ref. V.I.P.
									Mean	Plate	
		h m	° ′								
Boss 1508	1 Gem.	05 58·0	+23 16	4·30	G5	+19·7	Y	77	±0·2	±1·6	119
	U Cor.	15 14·1	32 1	7·5	B3	− 7·5	P	17	1·7	8·5	187
	TW Draco.	15 32·4	64 14	7·45	B9	− 0·3	P	14	0·9	2·6	145
H.R. 6169		16 30·9	17 15	6·17	Ao	− 9·9	Y	42	0·8	2·9	233
" 6385		17 06·1	12 35	6·46	A2	+ 3·5	H	32	0·3	1·5	197
	U Oph.	17 11·4	1 19	5·7	B9	−11·5	P	14	1·9	8·3	138
	TX Herc.	17 15·4	42 00	8·0	A2	− 6·4	P	16	1·0	2·6	207
Boss 4507		17 44·4	47 39	6·34	Ao	−27·3	H	23	0·3	1·2	125
" 4669		18 02·1	29 46	5·71	A2	+ 7·5	Y	31	0·2	1·0	131
" 4602		18 07·5	79 59	6·18	F5	+ 2·9	B	16	0·6	2·4	245
" 4790	o Draco.	18 49·7	59 16	4·8	K	−19·5	Y	17	0·2	0·8	263
	RS Vulpec.	19 13·4	22 16	7·3	B8	−22·0	P	15	0·6	1·8	141
	Z Vulpec.	19 17·5	25 23	7·1	B3	−15·1	P	18	1·1	6·0	251
Boss 5026		19 36·4	54 44	5·86	F5	−15·6	H	25	0·4	2·1	157
" 5070		19 47·2	40 20	5·62	B3	− 6·2	H	21	1·8	3·0	257
" 5292	ι Delph.	20 33·0	11 02	5·49	A2	− 5·5	H	20	0·5	1·9	153
	Y Cygni	20 48·1	34 17	7·0	B2	−49·1	P	24	2·3	17·2	213
H.R. 8170		21 17·2	39 55	6·46	F8	+ 0·2	P	15	0·3	0·9	113
" 8427		22 02·0	47 45	6·2	B3	−17·8	Y	32	1·3	8·4	193
Boss 5900		22 48·2	16 19	5·72	Ko	−12·8	H	17	0·3	1·3	203
H.R. 8800		23 02·7	45 33	6·56	B3	−15·1	Y	29	1·8	6·4	239
" 8803		23 03·0	+59 13	6·28	B3	− 7·4	B	29	0·5	2·6	281

ESTIMATED VELOCITIES

The velocities of the 35 stars in the following table, which comprise those discussed under the heading "Suspected Binaries" above, have been obtained from the individual velocities in the final table, Table V, generally by taking the arithmetic mean, but in certain special cases, mentioned in the notes, by a modified method. In this table 32 of the stars are classified as spectroscopic binaries as indicated in the last column and except in double line spectra have all relatively small range in velocity. The other 3 stars have not been placed in the binary class although they possibly belong in that division. Although subject to change on further investigation, the estimated are believed to be very close to the true velocities and are worth giving for statistical purposes. But they are purposely separated from the stars in the two previous lists, whose velocities are not likely to be changed so that there may be no misapprehension in their use. It is suggested, in order to get a proper idea of the relative value of these velocities, that the table of individual velocities of these 35 stars, Table V, be consulted by anyone proposing to use them. The arrangement of the columns is similar to that in the two previous tables except that the probable errors are omitted and a column giving the serial number of the binaries as published in Vol. I., No. 10 and Vol. I, No. 26 is added.

TABLE III. ESTIMATED VELOCITIES OF 35 STARS

Star	Desig'n	R. A.	Decl.	Vis. Mag.	Spect.	Est. Vel.	Obs.	No. of Plates	Reference No.
		h m	° ′						
179		00 40·7	+63 42	5·45	F2	+ 5·2	Y	5	103
307	47 Andr.	01 17·9	37 12	5·53	Ao	+14·3	Y	6	4
435		01 50·7	01 21	6·18	Go	+30·0	P′	6	110
726		08 08·4	84 34	5·78	Ko	+82·4	H	6	113
781		08 21·0	59 36	4·42	B9p	− 6·	Y	2	
1021	56 Persei	04 18·1	33 44	5·81	F5	−31·2	Y	6	
1068		04 28·4	28 46	5·70	B9	+12·2	P	6	21
1219	14 Orionis	05 02·5	08 02	5·47	Fop	+ 5·2	Y	6	119
1367	22 Cam.	05 30·6	56 18	6·89	F5	+20·4	H	6	123
1369		05 30·9	26 52	5·70	B8	+ 8·7	Y	4	29
1455	137 Tauri	05 46·7	14 09	5·57	B9	− 5·4	Y	5	32
2206		08 14·6	24 20	5·87	Ao	+22·7	H	8	131
2311	41 Cancri	08 34·7	19 54	6·32	A2	+38·1	Y	4	132
2383	6 Urs. Maj.	08 48·1	64 59	5·62	G5	− 0·1	Y	6	134
2824	36 Leo Min.	10 32·2	34 36	6·55	Ko	+16·7	P′	6	141
3299	26 Com. Ber.	12 34·2	21 36	5·51	Ko	−26·1	Y	6	148
3354		12 48·3	83 58	5·81	Ao	− 0·8	P	4	46
3555	3 Bootis	13 42·1	26 12	5·91	F5	+10·9	Y	4	47
3652		14 09·9	52 16	6·61	A5	−24·	Y	6	48
4098	45 Serp.	16 02·9	10 10	5·63	A5	−28·9	Y	6	51
4129		16 08·1	36 41	5·68	K5	−28·	Y	7	155
4263		16 40·9	55 53	6·18	A2p	−49·9	H	7	
4351		17 02·1	48 57	6·32	Ko	+11·6	Y	6	159
4401		17 16·1	25 37	5·32	A2	− 5·7	Y	6	161
4622		18 13·0	56 34	6·41	Fo	− 8·	H	45	63
4644	107 Herc.	18 17·1	28 49	5·05	A5	−33·4	P	7	64
4661		18 20·9	39 27	5·04	A2	−31·6	Y	7	65
4745	46 Draco.	18 40·7	55 26	5·08	Ao	−26·	H	6	166
4870		19 03·1	41 16	6·15	B3	−26·	Y	10	69
4971		19 22·5	88 59	6·55	Mb	+ 0·6	Y	6	173
5150		20 00·7	31 56	5·69	Bo	+20·	Y	8	75
5230		20 18·9	45 27	5·87	Ko	−23·7	P′	4	178
5442		21 04·4	29 48	5·57	Ao	−28·5	Y	7	80
5447		21 07·1	53 09	5·73	B9	−22·4	P	10	81
5495		21 18·5	+48 58	5·87	Ko	− 2·1	P′	6	181

Tables of Individual Velocities

These tables have been very carefully compiled so as to give as complete information as is feasible about the radial velocities of the stars observed, and to place this information in as concise, compact and convenient a form as possible. It was out of the question to consider the publication of the complete measures of the individual spectra, but it was deemed essential to give the measured velocity of each plate and as full a description as possible of the character of and any peculiarities in the spectrum, as only then can a reliable estimate be formed of the value of the results. The two final tables following—Table IV the radial velocities of 3287 plates of 537 constant velocity stars, an average of 6·1 plates per star—and Table V the radial velocities of 206 plates of 35 probably binary stars—contain the individual measures of the summary tables I and III above. The arrangement of the columns is the same in both tables and a single description will suffice.

In the first column are given the number of the star in Boss's Preliminary General Catalogue, printed in bold faced type and beneath this the right ascension and declination for 1900. No other identifying designations are given as they can easily be obtained from Boss's Catalogue or from the summary table. In the second column, the spectral type and the visual and photographic magnitude as given in the Henry Draper Catalogue are tabulated. In the third column is given the date to the nearest thousandth of a day of the individual observations. It was not thought necessary to give the Julian day although this was given in the list of binaries where such information is more likely to be used. The fourth column contains the velocities of individual plates given, except in cases where the measures are very uncertain, to the nearest tenth of a kilometre. Where any plate has been remeasured, and this was frequently done when the observer did not feel satisfied with the first measure, it is indicated by an asterisk opposite the velocity. It should be mentioned that although in general the remeasuring was done by the observer himself, in some cases of doubt another astronomer made the remeasure, care being taken in all cases so far as possible that these remeasures should not be influenced by knowledge of the direction of the previous deviation. The mean velocity with its probable error, computed in the usual way from the residuals of the separate observations, is given in bold faced type immediately below the individual velocities. The fifth column contains the number of lines or regions measured, according as micrometer engine or spectro-comparator was used. In the case of the latter, information in regard to the regions measured is given by the method of numbering. For example 13–23 means every region, eleven in all, between No. 13 and No. 23 of the previous table, between wave lengths 4258 and 4522. Similarly 5=23 indicates that alternate regions, the odd-numbered regions, between No. 5 and No. 23, between wave lengths 4081 and 4522, embracing ten regions have been measured. The sixth column contains the quality of the individual plates for measurement so far as strength, width and uniformity of the exposure of the spectrum plate and suitable development have to do with the ease and accuracy of the measurement, but has nothing to do with the quality of the spectrum of the star so far as number and definition of the lines are concerned, this being described generally in the eighth column under " Remarks." The seventh column gives a designation of the observer

P standing for J. S. Plaskett, H for W. E. Harper, Y for R. K. Young, P′ for H. H. Plaskett, B for S. L. Boothroyd. The last column contains remarks on the quality of the spectrum for measurement, on any peculiarity in the spectrum, or unusual or interesting feature in the star. It was deemed much more convenient to place these remarks beside the measures rather than in a supplementary table and there is generally sufficient space for all necessary description. It is only when the number of lines measured and the quality of the spectrum is known that the cause of the large differences in the probable errors can be appreciated.

It would not be right to close these introductory and descriptive remarks without expressing as director my appreciation of the spirit in which my collaborators in this work undertook the large amount of measurement and reduction involved. An investigation of this magnitude largely develops into work of a routine character and it is more difficult to maintain the interest than in separate shorter researches which often yield valuable results with much less routine labour. Although a certain amount of the time of each observer was devoted to other work, as the various numbers already issued indicate, the main time and energy have been given to the completion of these velocities. The relatively short time in which they have been obtained is sufficient evidence of the industry with which the work has been pursued, while the low probable errors indicate the accuracy and care of the measures.

The capable help of two other members of the staff should be acknowledged. The efficient assistance of Mr. T. T. Hutchison in much of the observing and his skill in maintaining the instrument in perfect operating condition which has already been referred to has undoubtedly materially shortened the observing time required. Similarly the time required in the preparation for printing of the large amount of tabular matter involved and in proof reading has been much shortened by the very efficient help of Miss H. R. Keay who in addition to her secretarial duties has ably and carefully carried through much of this necessary work. She has also relieved the observers of the labour of numbering the plates and of entering the observing data on the envelope containers, and in these and other ways has helped to bring this work to completion in a considerably shorter time than would otherwise have been possible. It is to me a very pleasant duty to express my appreciation of the manner in which the staff of the observatory have undertaken and carried through this work.

28489—3

TABLE IV. INDIVIDUAL VELOCITIES OF 537 STARS

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2	Ko	1919 Aug. 15·955	+ 9·4*	14 – 23	Fair	H	While the first plate is slightly underexposed the result should be fairly trustworthy and the star is strongly suspected of being binary. First and second plates given half weight.
		Sept. 1·941	+ 8·8	20 – 23	Poor	"	
00h 00·6m	5·66	Sept. 21·852	+ 1·1	3 = 23	Good	"	
+12° 51′	6·66	Oct. 6·795	+ 1·0	5 = 23	"	"	
		1920 July 23·972	– 1·3*	9 = 23	Fair	"	
		Oct. 12·812	+ 2·9	9 = 23	"	"	
			+2·6 ±1·0				
29	A5	1918 Nov. 1·714	−27·9	18	Good	Y	There are many well defined lines in the spectrum of this star and it is suspected of being a binary.
		Nov. 20·722	−26·9	15	"	"	
00h 08·3m	5·73	Dec. 20·594	−23·5	13	"	"	
+40° 29′	5·87	1919 Jan. 10·550	−30·7	15	"	"	
		Aug. 6·972	−36·6	8	"	"	
		Dec. 3·616	−33·2	13	"	"	
			−29·8 ±1·3				
45	F5	1919 Oct. 3·837	+29·0*	7	Fair	H	With proper exposure the lines would be well measureable but all the plates are slightly underexposed with consequent loss of sharpness in the lines. Fifth plate is given half weight.
		Oct. 18·776	+39·4	5	"	"	
00h 12·3m	6·62	1920 Jan. 2·572	+39·8	10	"	"	
+08° 19′	7·04	Oct. 29·765	+41·5	8	"	"	
		1921 July 13·955	+38·8	3	Poor	"	
		July 17·939	+32·0	9	Good	"	
			+36·6 ±1·4				
49	G5	1919 Aug. 10·945	−11·6	15 – 23	Fair	Y	The lines are of good quality in this spectrum but all the plates are somewhat weak.
		Aug. 19·921	– 6·7	9 = 23	"	"	
		Sept. 24·834	– 7·1	13 = 23	"	"	
00h 12·7m	6·43	Dec. 3·651	−11·9	5 – 23	Good	"	
+01° 08′	7·21	1920 Oct. 31·742	−10·8	11 = 23	Fair	"	
			−9·6 ±0·7				
54	Ko	1918 Oct. 29·744	+19·8	13 – 23	Fair	P	This K-type star has lines of good quality. Owing to faintness and winter observing three plates are rather weak.
		1919 Jan. 19·600	+19·2	12 – 22	Good	"	
00h 14·8m	6·77	Feb. 1·590	+18·4	12 – 22	"	"	
+15° 42′	7·77	1920 Nov. 7·794	+21·1	11 = 23	Fair	"	
		Dec. 13·687	+16·2	11 = 23	"	"	
		1921 Jan. 9·640	+17·2	9 = 23	"	"	
			+18·7 ±0·5				
57	F5	1918 Sept. 13·882	+ 8·8	1 = 19	Good	Y	
		Oct. 30·699	+ 5·8	1 = 19	"	"	
00h 15·9m	5·20	Nov. 22·708	+ 5·4	1 = 19	"	"	
+37° 25′	5·62	1919 Jan. 29·567	+ 9·7	1 = 19	"	"	
		1920 July 25·977	+ 7·5	1 = 23	"	"	
		Aug. 31·869	+ 8·7	1 = 23	"	"	
			+7·6 ±0·5				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
73	G5	1919 Oct. 26·787	− 4·6	5 = 23	Good	P′	The lines are of good
		Dec. 2·628	− 5·6	11 = 23	Fair	"	quality but spectra are
00h 20·3m	5·99	1920 Aug. 10·925	− 3·0	13 = 23	"	"	somewhat weak.
+01° 23′	6·77	Dec. 11·679	− 3·3	15 = 23	"	"	
		1921 July 12·926	− 1·3	11 = 23	"	"	
			−3·6 ±0·5				
80	Ko	1919 Dec. 4·712	+ 6·2	5 = 23	Good	P	Good quality lines
		1920 July 27·969	+ 5·6	9 = 23	"	"	and accordant meas-
00h 22·8m	6·65	Sept. 27·894	+ 6·4	9 = 23	Fair	"	ures distinguish this
+18° 58′	7·65	Dec. 13·718	+ 6·5	9 = 23	"	"	star.
		1921 Jan. 9·669	+ 6·3	11 = 23	Poor	"	
			+6·2 ±0·1				
87	B9	1918 Oct. 30·753	−36*	2	Good	Y	Exceedingly poor
		1919 Aug. 10·959	−19	2	"	"	spectrum and the large
00h 24·8m	5·92	Oct. 5·808	− 6	2	"	"	range can not be taken
+59° 25′	5·90	Nov. 19·675	−29	2	"	"	to indicate binary char-
		Dec. 7·623	− 4*	2	"	"	acter.
		1920 Nov. 4·741	−32	2	"	"	
			−21·0 ±3·8				
89	Fo	1918 Nov. 20·736	−11·5	1 = 21	Good	Y	Good spectrum for
		Dec. 20·605	−10·6	1 = 19	"	"	accurate measurement.
00h 24·8m	5·26	1919 Aug. 19·934	−11·0	1 = 19	"	"	
+29° 12′	5·54	Nov. 4·751	−12·2	1 = 19	"	"	
		1920 Aug. 25·893	−11·7	1 = 23	"	"	
		Aug. 31·891	−10·3	1 = 23	"	"	
			−11·2 ±0·2				
97	B8	1919 July 28·984	+ 1*	4	Good	H	Very broad hydro-
		Aug. 9·987	−27	3	"	"	gen lines with trace of
00h 26·2m	4·88	Aug. 18·939	−13	3	"	"	helium 4471 and 4026.
+53° 59′	4·83	Sept. 1·914	−11	4	"	"	Hγ looks complex on
		1920 Sept. 1·930	−16	4	"	"	first plate. This star
		Dec. 14·583	± 0	3	Fair	"	is λ Cassiopeiae, a
			−11·0 ±2·9				visual double, separa-
							tion 0″·5.
119	A3	1918 Oct. 30·760	−11·9	7	Good	Y	The lines in the
		1919 Jan. 10·580	− 3·6	9	"	"	spectrum of this star
00h 30·8m	5·76	Aug. 10·966	− 4·5	7	"	"	are diffuse and faint.
+59° 47′	5·84	Dec. 7·606	−10·0	8	"	"	Comparison with an α
		1920 Oct. 21·753	−18·9	7	"	"	Cygni standard shows
		Nov. 4·757	− 7·9	7	"	"	many of the lines char-
			−9·5 ±1·5				acteristic of this spect-
							rum.

23489—31½

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
126	F8	1918 Oct. 29·781	−36·2	5 = 21	Good	P	The lines in this star
		Nov. 26·742	−35·2	5 = 21	"	"	are only moderately
00h 32·2m	6·40	1919 Jan. 7·587	−33·5	7 = 21	Fair	"	sharp and seem to vary
+81° 56′	6·90	1920 Aug. 12·984	−33·2	9 = 23	"	"	slightly in quality.
		Sept. 2·924	−34·5	9 = 23	Good	"	
		Oct. 25·798	−35·2	7 = 23	"	"	
			−34·6 ±0·3				
134	Ko	1918 Oct. 29·795	−19·4	5 = 23	Good	P	Good lines.
		Nov. 24·726	−17·4	5 = 23	"	"	
00h 34·6m	5·57	Dec. 15·685	−17·9	5 = 23	"	"	
+20° 54′	6·57	1919 Jan. 7·621	−17·1	5 = 23	Fair	"	
		Aug. 28·976	−16·7	7 = 23	"	"	
		1920 Sept. 27·918	−20·0	9 = 23	Good	"	
			−18·1 ±0·4				
140	A5p	1918 Oct. 6·873	−15·1	1 = 23	Good	P	The lines in this
		Oct. 20·775	−15·6	1 = 23	Fair	"	spectrum which is
00h 36·3m	5·98	Oct. 27·724	−17·2	1 = 23	Good	"	nearer Fo are extra-
+24° 05′	6·12	Nov. 14·733	−14·3	1 = 23	"	"	ordinarily narrow and
		Dec. 15·695	−14·4	1 = 23	"	"	sharp.
		1919 Nov. 25·696	−17·0	1 = 23	"	"	
			−15·6 ±0·3				
167	F8	1919 Aug. 19·949	+ 1·4	1 = 23	Good	Y	Good quality spect-
		Aug. 29·904	+ 0·3	1 = 23	"	"	rum.
00h 42·6m	6·60	Sept. 24·859	− 0·8	9 = 23	"	"	
+20° 23′	7·10	Oct. 28·809	− 4·2	3 = 23	"	"	
		1920 Aug. 11·928	− 3·6	15 = 23	Poor	"	
		Oct. 28·760	+ 0·7	7 = 23	Good	"	
		Nov. 11·720	− 1·0	7 = 23	"	"	
			−1·0 ±0·5				
180	Ao	1918 Oct. 27·746	− 2·0	12	Good	P	The lines in this Ao
		Nov. 24·737	− 2·8	12	"	"	star are mostly faint
00h 44·7m	6·12	Dec. 15·710	− 0·1	13	"	"	but are fairly sharp
+44° 27′	6·12	Dec. 28·650	+ 1·9	12	"	"	especially the stronger
		1919 Aug. 7·992	− 2·0	12	Poor	"	enhanced lines.
		Nov. 25·731	+ 4·4	18	Good	"	
		1920 Sept. 16·867	+ 5·1	13	Fair	"	
			+0·6 ±0·8				
188	G5	1919 Oct. 17·784	+ 2·1*	13 = 23	Good	P′	Good spectrum for
		Oct. 29·774	+ 2·7*	15 = 23	Fair	"	measurement.
00h 46·2m	6·51	Dec. 2·723	+ 5·4	11 = 23	"	"	
+02° 50′	7·29	1920 Aug. 30·920	+ 4·7	13 = 23	"	"	
		1921 July 17·970	+ 8·0*	9 = 23	Good	"	
			+4·6 ±0·7				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
192	Ao	1918 Nov. 24·750	− 0·4	1 = 19	Good	P	The spectral type of
		Dec. 15·721	− 0·8	1 = 19	"	"	this star is about F2
00h 48·1m	6·22	Dec. 29·644	− 2·4	1 = 19	"	"	with strong sharp lines
+52° 09′	6·22	1919 Jan. 7·603	− 1·1	1 = 19	"	"	and it has consequent-
		1920 Aug. 13·003	− 0·2	5 = 19	Fair	"	ly been measured on
		Oct. 18·842	− 2·2	3 = 19	"	"	the spectro-compara-
			−1·2 ±0·3				tor.
208	B9	1918 Oct. 6·858	−11·1	14	Good	P	Good Mg and K but
		Oct. 19·847	−10·8	11	Fair	"	the other lines are
00h 52·2m	6·00	Oct. 27·810	−14·3	14	"	"	faint and difficult to
+65° 49′	5·98	Nov. 26·756	− 8·1	17	Good	"	set on.
		1920 Oct. 25·837	−12·2	11	"	"	
		Nov. 10·803	−11·3	9	Fair	"	
			−11·3 ±0·6				
230	Fo	1919 Aug. 15·977	+16·4*	3	Poor	H	Somewhat broad and
		Sept. 15·867	+ 3·5	12	Good	"	fuzzy lines characterize
00h 58·7m	6·07	1920 Jan. 5·557	− 5·0*	12	"	"	this spectrum making
+00° 50′	6·35	Nov. 9·742	− 6·7	3	Poor	"	the internal agreement
		Dec. 30·660	+10·8	8	Fair	"	of the lines poor on
						"	even the best plates.
			+3·5 ±2·7				First and fourth plates
							given half weight.
231	Fo	1918 Nov. 1·731	+16·5	5	Fair	Y	Only very wide and
		Dec. 20·647	+11·5	5	"	"	poor lines present in
00h 59·0m	6·69	1919 Aug. 29·934	+12·3	9	"	"	the spectrum of this
+39° 27′	6·97	Oct. 5·830	+ 6·4	5	"	"	star which give dis-
		1920 Aug. 31·922	+11·4	5	Poor	"	cordant velocities.
		Nov. 4·778	+16·4	6	"	"	
			+12·4 ±1·2				
235	A2	1918 Nov. 1·758	−15·7	2	Good	Y	Only the hydrogen
		Nov. 6·758	− 0·9	2	"	"	lines were measured in
01h 00·4m	5·55	Nov. 6·769	−12·3	3	"	"	this spectrum. Both
+20° 56′	5·61	Dec. 30·624	+ 3·3	2	"	"	K and 4481 are very
		Dec. 30·637	− 3·8	2	"	"	faint.
		1920 Aug. 11·964	− 9·2	1	Poor	"	
		Oct. 21·776	+ 5·1	2	Good	"	
			−4·8 ±2·0				
236	Ao	1918 Nov. 1·767	+10	3	Good	Y	Only poor hydrogen
		Dec. 20·664	+14	2	"	"	lines measurable. K
01h 00·4m	5·82	Dec. 20·676	− 3	2	"	"	and 4481 very faint.
+20° 56′	5·82	Dec. 30·650	−15	2	"	"	
		Dec. 30·663	−19	2	"	"	
		1920 Oct. 21·850	−15	2	"	"	
			−4·7 ±3·8				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
239	Ko	1919 Sept. 23·846	−27·9	7 = 23	Good	H	The lines are of the usual good quality found in K-type spectra.
		1920 Jan. 5·598	−31·6	5 = 23	"	"	
01h 00·7m	6·38	Jan. 19·577	−22·0*	16 − 23	Fair	"	
+79° 29′	7·38	Oct. 8·853	−28·9	13 = 23	"	"	
		1921 Feb. 5·620	−26·9	11 = 23	"	"	
		July 11·965	−27·8	16 − 23	"	"	
			−27·5 ±0·9				
240	F2	1919 Sept. 22·893	−12·7	11 − 23	Poor	Y	Good spectrum. This star is H.R. 313 the brighter star of a wide double.
		Oct. 2·862	− 7·2	3 = 23	Good	"	
01h 00·7m	6·75	1920 Aug. 8·991	− 5·8*	15 = 23	Poor	"	
+04° 22′	7·09	Oct. 28·806	−11·9	1 = 23	Good	"	
		1921 Jan. 10·565	−11·8	9 = 19	"	"	
			−9·9 ±0·9				
241	Ko	1919 Oct. 23·719	+25·6*	17 = 23	Poor	P′	Good spectrum for measurement.
		Nov. 7·800	+26·4	9 = 23	Good	"	
01h 00·7m	6·64	1920 Oct. 11·861	+27·2	13 = 23	Fair	"	
+31° 39′	7·64	Dec. 11·732	+26·3	15 = 23	"	"	
		1921 Jan. 9·698	+30·2	13 = 23	"	"	
		Jan. 15·582	+25·6	11 = 23	Good	"	
			+26·9 ±0·5				
246	A2	1918 Oct. 8·838	+ 4·7	16	Good	P	The lines of this spectrum are numerous and though rather broad give good interagreement in measurement.
		Oct. 20·790	+ 7·0	16	"	"	
01h 02·2m	5·16	Oct. 29·833	+ 9·1	13	"	"	
+43° 24′	5·22	Nov. 14·763	+ 6·5	16	"	"	
		1919 Aug. 28·994	+ 9·9	15	Fair	"	
		Oct. 8·918	+10·2	13	Good	"	
			+7·9 ±0·6				
248	F2	1919 Aug. 15·994	+10·6	13	Fair	H	Numerous medium broad and fuzzy lines are present in this star. The fifth plate is only given half weight.
		Sept. 9·914	+ 7·9	10	Good	"	
01h 02·4m	6·29	Sept. 21·881	+17·3	15	"	"	
+31° 29′	6·63	1920 Sept. 6·909	+ 4·7	11	Fair	"	
		1921 Jan. 12·584	+18·2*	4	Poor	"	
		Feb. 15·600	+ 5·6	10	Good	"	
			+10·0 ±1·7				
249	A2	1918 Nov. 1·747	− 2·3	5	Good	Y	The hydrogen lines in this star are wide and diffuse. There are indications of many faint wide metallic lines which give very discordant measures.
		Dec. 20·613	−22·8*	4	"	"	
01h 02·6m	5·63	1919 Jan. 31·573	−15·9	9	"	"	
+20° 12′	5·69	Sept. 16·900	+ 1·0*	4	Weak	"	
		1920 Nov. 11·757	− 6·7	4	Good	"	
			−9·3 ±2·6				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
262	Go	1919 Aug. 18·955	−12·9	9 = 23	Good	H	
		Sept. 15·903	−13·7	1 = 23	"	"	
01h 04·6m	5·74	Sept. 21·907	−14·1	1 = 23	"	"	
+41° 33′	6·30	1920 Sept. 6·928	−13·2	1 = 23	"	"	
		Oct. 19·772	−12·0	7 = 23	"	"	
		Nov. 2·765	−13·7	9 − 23	Fair	"	
			−13·1 ± 0·2				
301	Ao	1919 Jan. 8·601	−36*	3	Good	Y	Only wide Hydrogen and very poor faint K and 4481.
		Aug. 10·991	− 9	3	"	"	
01h 14·4m	6·32	Sept. 7·917	− 8	2	"	"	
+64° 08′	6·32	Dec. 7·660	−26	2	"	"	
		1920 Sept. 3·943	−28	1	Poor	"	
		Oct. 31·787	− 5	1	"	"	
			−18·7 ± 3·5				
318	Fo	1919 Aug. 14·993	− 5·4*	12	Good	P′	A fuzzy line F. More satisfactory measures were obtained on micrometer than on comparator. Comparison very weak in fifth plate.
		1920 Aug. 21·956	−12·7	4	Fair	"	
01h 20·9m	5·32	Oct. 6·825	− 8·1	5 = 23	Good	"	
+18° 39′	5·60	Oct. 27·811	−10·6	9 = 23	Fair	"	
		Nov. 3·814	− 9·5	15 = 23	Poor	"	
		Nov. 7·816	− 9·4*	8	Good	"	
			−9·3 ± 0·6				
330	G5	1919 Aug. 18·972	−10·9*	9 = 23	Fair	H	The spectrum lines are good but the plates are all a little underexposed.
		Sept. 15·926	−11·8	5 = 23	Good	"	
01h 24·1m	5·33	1920 Jan. 21·576	−13·6	9 = 23	Fair	"	
+46° 30′	6·11	Sept. 6·947	−11·8	7 = 23	"	"	
		Nov. 19·746	− 8·1*	11 = 23	"	"	
			−11·2 ±0·6				
332	K2	1919 Oct. 4·859	+37·1	15 = 23	Fair	P′	Good spectrum for measurement.
		1920 Aug. 10·991	+34·8	13 = 23	Good	"	
01h 24·9m	5·12	Aug. 30·946	+37·4	9 = 23	"	"	
+05° 38′	6·19	Oct. 6·854	+33·1	11 = 23	Fair	"	
		Oct. 27·826	+36·8	11 = 23	"	"	
		1921 Jan. 3·595	+33·0	13 = 23	"	"	
			+35·4 ±0·6				
346	Ko	1919 Sept. 9·943	−42·5	11 = 23	Good	H	The usual K-type spectrum. The third plate was made with lower dispersion than usual and individual lines measured. Last plate given half weight.
		Sept. 21·938	−43·8	5 = 23	"	"	
01h 30·3m	6·17	1920 Jan. 2·668	−49·3	13	"	"	
+48° 12′	7·17	Sept. 24·865	−48·0	11 = 23	Fair	"	
		Oct. 8·888	−43·9	9 = 23	Good	"	
		Dec. 30·700	−40·5*	17 = 23	Poor	"	
			−44·6 ±0·8				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
367	Ko	1919 Sept. 12·920	+18·8	11 = 23	Good	H	The usual good lines
		Sept. 23·918	+14·6	15 = 23	Fair	"	of a K-type spectrum.
01h 34·3m	6·11	1920 Aug. 29·922	+16·7	15 = 23	"	"	
+15° 54′	7·11	Oct. 26·793	+17·7	13 = 23	"	"	
		Oct. 29·820	+17·5	15 = 23	"	"	
			+17·1 ±0·5				
368	Fo	1918 Oct. 29·842	+18·7	17	Fair	P	The lines of this Fo
		Nov. 24·806	+10·8	17	Good	"	star are rather diffuse.
01h 34·7m	5·54	Dec. 10·766	+14·1	17	"	"	Measures of the first
+42° 47′	5·82	1919 Jan. 7·710	+18·6	17	"	"	four spectra on the
		Aug. 29·008	+13·3	15	"	"	comparator were so
		Dec. 4·751	+16·0	19	"	"	ragged that all plates
			+15·2 ±0·8				were measured on mi-
							crometer.
370	Aop	1918 Nov. 26·767	+ 6·5	16	Good	P	The lines of this
		Dec. 15·733	+ 1·8	15	"	"	spectrum are faint and
01h 34·9m	5·54	Dec. 29·717	+ 5·5	16	"	"	diffuse and accurate
+67° 32′	5·54	1919 Jan. 7·723	+ 1·3	14	"	"	measurement is not
		Oct. 8·894	+ 1·7	12	Fair	"	easy. It is peculiar
		Dec. 4·740	+ 5·8	15	Good	"	in the strong silicon
			+3·8 ±0·7				pair at 4128, 4131.
402	G5	1919 Oct. 17·820	+37·5	9	Good	P′	Good spectrum for
		1920 Aug. 30·961	+35·7	9 = 23	Fair	"	measurement.
01h 42·7m	6·05	Oct. 13·885	+35·5	13 = 23	"	"	
+37° 27′	6·83	Oct. 25·911	+34·4	5 = 23	Good	"	
		Nov. 10·841	+25·9	13 = 23	Poor	"	
		Dec. 6·734	+36·7	5 = 23	Good	"	
			+35·9 ±0·3				
409	F5	1919 Aug. 21·970	−16·1	7 = 23	Fair	H	Nice spectrum to
		Oct. 6·832	−18·3	1 = 23	Good	"	measure.
01h 44·6m	5·90	Dec. 5·680	−17·4	1 = 23	"	"	
+51° 27′	6·32	1920 Sept. 1·941	−16·4	3 = 23	"	"	
		1921 Jan. 2·628	−22·7	9 = 23	Fair	"	
		Feb. 12·600	−19·4	3 = 23	"	"	
			−18·4 ±0·7				
439	G5	1919 Aug. 21·992	+ 2·0	13 = 23	Fair	H	
		Oct. 6·868	+ 2·2	1 = 23	Good	"	
01h 52·2m	5·78	1920 Jan. 21·603	− 2·0	5 = 23	Good	"	
+48° 43′	6·56	Sept. 28·854	+ 0·4	9 = 23	Fair	"	
		1921 Jan. 2·659	− 3·0	7 = 23	"	"	
			−0·1 ±0·7				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks.
440	Ao	1918 Nov. 26·775	+11	2	Good	P	Extremely broad and strong hydrogen lines and broad and very weak Mg and K are the only lines visible in this spectrum. Measures depend generally on Hγ and Hδ.
		Dec. 15·741	+20	2	"	"	
01h 52·2m	5·18	Dec. 15·749	+16	2	"	"	
+64° 08′	5·18	Dec. 29·732	+ 9	2	"	"	
		1919 Jan. 7·735	+ 7	2	"	"	
		Jan. 7·747	+13	2	"	"	
		Dec. 11·717	− 7	3	"	"	
		Dec. 11·731	− 7	3	"	"	
		1920 Nov. 10·858	+ 2	4	"	"	
		Nov. 10·870	+ 5	4	"	"	
			+7·1 ±1·9				
447	A2	1918 Nov. 1·794	− 8	8	Poor	Y	Many wide diffuse lines characterize the spectrum of this star. The agreement of the measures from the individual lines is very poor.
		1919 Jan. 29·602	−24	13	Fair	"	
01h 54·1m	6·14	Sept. 7·939	− 3	8	Good	"	
+11° 49′	6·20	1920 Aug. 31·964	− 8	7	"	"	
		1921 Jan. 10·624	−20	4	Poor	"	
			−12·6 ±2·7				
475	F8	1918 Nov. 1·815	− 1·4	1 = 21	Good	Y	
		1919 Jan. 10·596	− 0·8	3 = 19	"	"	
02h 00·5m	6·74	Sept. 24·901	− 2·7	9 = 23	"	"	
+71° 05′	7·24	Nov. 19·758	− 4·3	1 = 23	"	"	
		Dec. 7·691	− 2·0	9 = 23	"	"	
		1920 Sept. 3·973	− 1·3	5 = 23	"	"	
			−2·1 ±0·3				
495	Go	1919 Oct. 3·879	−20·2	7 = 23	Good	H	The fourth plate is underexposed and is given half weight.
		Oct. 13·888	−19·7	9 = 23	Fair	"	
02h 06·1m	5·74	1920 Jan. 26·604	−22·8	1 = 23	Good	"	
+08° 06′	6·30	Sept. 24·884	−13·8	16 = 23	Poor	"	
		Oct. 8·921	−17·6	7 = 23	Fair	"	
		Oct. 29·863	−18·5	9 = 23	Good	"	
			−19·2 ±0·7				
499	Ko	1919 Oct. 26·850	−47·8	9 = 23	Good	P′	Good spectrum for measurement. The last plate which was exceedingly weak and gave a discrepant value was not used in forming the mean.
		Nov. 29·765	−47·9	1 = 23	"	"	
02h 06·9m	5·08	1920 Jan. 13·644	−48·7	11 = 23	"	"	
+43° 45′	6·08	Aug. 31·011	−51·2	9 = 23	"	"	
		Oct. 25·926	−49·6	5 = 23	"	"	
		Dec. 4·751	−43·7*	17 = 23	Poor	"	
			−49·0 ±0·5				
510	F2	1918 Oct. 29·856	+24·7	1 = 21	Good	P	The lines in this spectrum are of about average quality for this type.
		Nov. 26·787	+27·5	1 = 21	"	"	
02h 10·0m	5·84	Dec. 10·779	+26·2	1 = 21	"	"	
+25° 17′	6·18	1919 Jan. 7·767	+28·0	1 = 21	"	"	
		Dec. 4·765	+24·7	1 = 19	"	"	
		1920 Sept. 27·933	+24·9	7 = 19	"	"	
			+26·0 ±0·4				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
531	Aop	1918 Oct. 28·785	− 5·8	6	Good	Y	The hydrogen lines
		1919 Jan. 31·585	− 8·2	6	"	"	in this star are fairly
02h 14·4m	5·56	Jan. 31·589	− 1·8	6	"	"	sharp. K is faint but
+49° 42′	5·56	Nov. 4·774	− 6·5	5	"	"	sharp. The silicon lines
		1920 Nov. 4·814	+ 1·2	5	"	"	4128, 31 are also pres-
		Nov. 11·774	−10·3	3	Fair	"	ent and sharp as are
			−5·2 ±1·2				also 4481 and 4534.
533	A2p	1919 Sept. 9·999	−48·3	11	Fair	H	All lines, including
		Sept. 12·956	−50·1	10	"	"	the hydrogen series,
02h 14·9m	6·54	Sept. 15·975	−53·4	10	"	"	are narrow and many
+56° 47′	6·60	Dec. 5·715	−44·6	9	"	"	of them are unusually
		1920 Nov. 9·878	−44·9	8	"	"	intense.
			−48·3 ±1·1				
555	Ko	1919 Oct. 17·843	−42·9*	1 = 23	Good	P′	Good spectrum for
		Nov. 7·846	−41·4	1 = 23	"	"	measurement.
02h 21·5m	5·80	Dec. 2·760	−37·7	1 = 23	"	"	
+31° 22′	6·80	1920 Oct. 6·888	−41·3	11 = 23	Fair	"	
		Oct. 27·933	−38·2*	11 = 23	"	"	
		Dec. 11·798	−40·6	11 = 23	"	"	
			−40·3 ±0·6				
559	Fo	1918 Nov. 11·808	−25·9	3 = 19	Good	Y	The lines in this star
		Dec. 16·754	−27·4	3 = 19	"	"	are fuzzy and not well
02h 22·3m	5·38	1919 Aug. 19·986	−24·6	7 = 23	"	"	suited for measure-
+29° 14′	5·66	Dec. 3·684	−30·2	1 = 23	"	"	ment on the Hartmann
		1920 Oct. 31·812	−24·5	1 = 23	"	"	comparator.
		1921 Jan. 10·640	−33·3	5 = 23	"	"	
			−27·6 ±0·9				
561	Go	1918 Nov. 11·826	+41·8	5 = 19	Good	Y	
		1919 Jan. 10·629	+40·9	1 = 19	"	"	
02h 23·0m	5·90	Sept. 7·959	+39·9	3 = 23	"	"	
+29° 29′	6·46	Dec. 3·700	+39·8	1 = 23	"	"	
		1920 Oct. 31·828	+39·5	3 = 23	"	"	
		1921 Jan. 10·659	+41·7	1 = 23	"	"	
			+40·6 ±0·3				
565	F5	1918 Oct. 30·802	− 9·8	1 = 19	Good	Y	Good spectrum.
		Dec. 4·773	−15·6	7 = 19	Poor	"	
02h 24·8m	5·86	1919 Sept. 7·981	−18·4	7 = 23	Good	"	
+24° 48′	6·28	Dec. 3·721	− 8·9	7 = 23	"	"	
		1920 Sept. 29·903	−11·2	1 = 23	"	"	
			−12·8 ±1·0				
573	A2	1918 Nov. 11·785	− 6·5	2	Poor	Y	Many lines are pres-
		1919 Jan. 10·572	−10·3	7	Good	"	ent in the spectrum of
02h 26·5m	6·51	Sept. 22·933	−16·4	5	Poor	"	this star and on well
+51° 52′	6·57	1920 Sept. 28·967	−16·4	6	Good	"	exposed plates several
		Nov. 5·850	− 9·0	7	"	"	are fairly sharp and
		Nov. 9·903	−11·1	7	"	"	narrow.
			−11·6 ±1·1				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
607	F2	1919 Oct. 3·941	+15·0	16	Good	H	The lines are of good quality for measurement.
		Oct. 18·868	+19·6	14	"	"	
02h 35·0m	6·25	1920 Sept. 2·019	+15·6	17	"	"	
+05° 41′	6·59		**+16·7 ±1·0**				
615	Ao	1918 Nov. 22·794	− 6·3	4	Good	Y	Only wide hydrogen and wide K and very faint 4481.
		Dec. 20·709	−12·0	4	"	"	
02h 36·7m	5·72	1919 Sept. 8·003	+ 3·3	3	"	"	
+19° 35′	5·72	Dec. 3·742	−12·9	3	"	"	
		1920 Nov. 4·799	−13·7	3	"	"	
			−8·3 ±2·1				
624	Ko	1920 Sept. 3·039	−32·7	13 = 23	Poor	P	The lines in this spectrum are of the usual good quality of the K-type but the spectra are all somewhat weak.
		Sept. 27·956	−33·5	13 = 23	Fair	"	
02h 38·7m	6·47	Oct. 25·947	−35·1	13 = 23	"	"	
+17° 21′	7·47	Dec. 6·767	−30·1	13 = 23	"	"	
		1921 Jan. 9·724	−32·7	13 = 23	"	"	
		Jan. 15·633	−32·3	13 = 23	"	"	
			−32·7 ±0·4				
635	Ko	1919 Oct. 17·875	+46·8	11 = 23	Good	P′	Good spectrum for measurement.
		Oct. 26·890	+44·8	11 = 23	Fair	"	
02h 42·9m	6·04	Nov. 29·787	+46·9	1 = 23	Good	"	
+17° 52′	7·04	1920 Oct. 18·877	+47·4	13 = 23	Fair	"	
		Dec. 6·800	+46·1	15 = 23	"	"	
		Dec. 11·819	+47·0	15 = 23	"	"	
			+46·5 ±0·3				
636	Ao	1918 Oct. 20·840	+ 9·8	13	Good	P	Mg. and K lines are sharp but other lines faint or diffuse. The silicon pair and a trace of helium are present in this spectrum.
		Oct. 27·883	+13·5	5	"	"	
02h 43·0m	5·87	Nov. 24·851	+ 7·0	9	"	"	
+24° 47′	5·87	Nov. 30·744	+17·0	7	"	"	
		1919 Aug. 29·026	+13·4	7	Fair	"	
		Nov. 25·765	+13·5	10	Good	"	
		1920 Oct. 11·895	+15·1	9	Fair	"	
			+12·8 ±0·8				
643	B8	1918 Nov. 20·804	−14	3	Good	Y	Very poor spectrum for measurement. Wide hydrogen and very faint K and 4481 are the only lines present.
		Nov. 20·810	− 8	3	"	"	
02h 44·1m	3·68	1919 Jan. 8·671	−10	3	"	"	
+26° 51′	3·63	Jan. 8·676	− 9	3	"	"	
		Sept. 8·017	+ 3	3	"	"	
		Sept. 8·022	− 7	4	"	"	
			−7·5 ±1·5				
656	F5	1918 Oct. 6·923	+29·2	1 = 21	Good	P	The lines are sharper than in the average F5 star and the measures accordant.
		Oct. 19·922	+29·0	1 = 21	"	"	
02h 48·0m	5·63	Oct. 24·891	+28·7	7 = 21	Fair	"	
+61° 07′	6·05	Nov. 24·865	+29·0	1 = 21	Good	"	
		1919 Dec. 11·751	+28·0	1 = 19	"	"	
		1920 Nov. 10·886	+26·7	3 = 19	Fair	"	
			+28·4 ±0·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Red. Vel.	Regions Lines	Qual.	Obs.	Remarks
662	F8	1918 Nov. 26·801	+29·3	1 = 21	Good	P	This spectrum is
		Dec. 15·761	+24·6	1 = 21	"	"	scarcely as far ad-
02h 50·9m	6·08	1919 Jan. 11·640	+29·6	5 = 21	Fair	"	vanced as F8. The
+07° 59′	6·58	Jan. 19·624	+27·7	1 = 21	Good	"	lines are of good qual-
		1920 Oct. 11·920	+28·4	5 = 19	Fair	"	ity.
		Oct. 18·897	+26·6	3 = 19	Good	"	
			+27·7 ±0·6				
667	Fo	1918 Nov. 20·820	+28·6	7 = 19	Fair	Y	Good spectrum but
		1919 Jan. 10·689	+28·9	9 = 19	"	"	lines are not the best
02h 52·3m	5·85	Jan. 29·625	+31·2	3 = 19	"	"	for accurate measure-
+20° 16′	6·13	Aug. 20·001	+25·8	1 = 23	Good	"	ment.
		Dec. 3·762	+26·0	1 = 23	"	"	
		1920 Feb. 8·582	+24·0	3 = 23	"	"	
			+27·4 ±0·7				
668	A2	1918 Oct. 29·867	+24·2	4	Good	P	The only measure-
		Nov. 26·811	+21·1	4	"	"	able lines in this spect-
02h 52·4m	4·62	Nov. 26·817	+14·1	4	"	"	trum are Hγ, Hδ, Mg
+39° 16′	4·68	Dec. 15·776	+10·6	4	"	"	and K. They are all
		1919 Nov. 25·786	+ 9·3	4	Fair	"	very broad and Mg is
		Nov. 25·799	+11·6	4	"	"	faint. The type is
		1920 Oct. 11·936	+ 9·0	4	Good	"	probably slightly fur-
		Oct. 11·946	+ 8·7	4	"	"	ther advanced than A2.
			+13·6 ±1·4				
669	Ma	1918 Nov. 4·859	−38·7	12 − 22	Poor	Y	This is a good spec-
		1919 Jan. 10·658	−41·2	12 − 21	"	"	trum but most of the
02h 52·8m	5·66	Sept. 24·927	−43·7	17 = 23	"	"	plates are rather weak.
+79° 01′	7·01	Dec. 7·720	−38·1	13 = 23	"	"	
		1920 Oct. 28·826	−38·7	11 = 23	Good	"	
			−40·0 ±0·7				
687	A2	1918 Oct. 28·846	− 4·4	19	Good	Y	Good spectrum with
		Dec. 30·699	− 0·7	19	"	"	many fine lines. The
02h 56·2m	5·95	1919 Sept. 16·969	− 0·1	12	"	"	last plate is given
+81° 05′	6·01	Oct. 5·921	− 5·2	1 = 23	"	"	half weight.
		1921 Feb. 2·616	−10·1	3	Poor	"	
			−3·5 ±1·1				
689	Go	1919 Aug. 30·017	+ 6·5	13 = 23	Fair	Y	Good spectrum.
		Sept. 24·954	+ 9·7	11 = 23	"	"	
02h 56·5m	7·00	Oct. 2·936	+ 8·3	9 = 23	Good	"	
+26° 14′	7·28	Oct. 28·866	+ 7·4	5 = 23	"	"	
		1920 Oct. 31·846	+ 8·2	1 = 23	"	"	
		Nov. 11·805	+ 7·7	1 = 23	"	"	
			+8·0 ±0·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
697	Ko	1918 Nov. 1·855	−45·3	1 = 21	Good	Y	Good spectrum.
		1919 Jan. 10·674	−42·4	1 = 21	"	"	
02 58·0m	5·08	Feb. 17·590	−42·4	1 = 21	"	"	
+56° 19′	6·08	Sept. 22·959	−45·5	1 = 23	"	"	
		Dec. 7·740	−47·6	1 = 23	"	"	
		1920 Oct. 28·892	−47·2	1 = 23	"	"	
			−45·1 ±0·6				
704	G5	1918 Nov. 26·827	−15·6	13 − 23	Fair	P	This G5 Star has
		Dec. 21·763	−13·2	13 − 22	"	"	lines of good quality.
03h 00·9m	5·84	1919 Jan. 19·637	−15·4	13 − 22	"	"	
+12° 48′	6·62	Jan. 30·579	−18·7*	13 − 22	Good	"	
		Mar. 8·610	−15·2	13 − 22	"	"	
		Nov. 25·827	−14·1	9 = 23	Poor	"	
			−15·4 ±0·5				
758	F5	1919 Feb. 2·583	+27·2	1 = 21	Good	P	The lines in this spec-
		Feb. 11·595	+23·3	1 = 21	"	"	trum are of about
03h 14·7m	6·17	Dec. 4·783	+24·0	1 = 19	"	"	average quality for this
+48° 43′	6·59	1920 Sept. 27·980	+23·0	3 = 19	Fair	"	type and the measures
		Oct. 18·947	+23·8	1 = 19	Good	"	satisfactorily accord-
		Nov. 10·902	+22·5	3 = 19	Fair	"	ant.
			+24·0 ±0·5				
770	Ko	1918 Oct. 6·957	+ 4·9	13 − 23	Good	P	This star has good
		Oct. 19·906	+ 3·8	13 − 23	Poor	"	lines but the measures
03h 17·0m	5·25	Nov. 26·841	− 1·1*	13 − 23	Good	"	do not agree as well as
+20° 23′	6·25	Dec. 20·777	+ 2·5	13 − 23	"	"	they should. The ve-
		1919 Feb. 23·677	− 1·7	13 − 23	"	"	locity may vary over a
		Mar. 2·605	+ 1·6	13 − 22	"	"	small range.
		Nov. 25·862	− 1·1	9 = 23	Fair	"	
			+1·3 ±0·7				
774	Ao	1918 Dec. 21·792	+11	3	Good	P	The broad and dif-
		1919 Jan. 7·776	+11	3	"	"	fuse lines in this spec-
03h 18·2m	5·64	Jan. 7·790	− 3	3	"	"	trum are difficult to
+33° 11′	5·64	Jan. 19·649	+ 3	3	"	"	set on accurately. Only
		Jan. 19·657	+ 9	3	"	"	Hγ, Hδ, Mg and K
		Dec. 4·801	− 2	4	"	"	have been measured.
		Dec. 4·835	− 7	4	"	"	
		1920 Nov. 10·919	+ 3	4	Fair	"	
		Nov. 10·935	− 1	4	"	"	
			+1·4 ±1·5				
775	Ko	1919 Sept. 10·024	+13·7*	11 = 23	Fair	H	
		Sept. 12·972	+10·3	5 = 23	Good	"	
03h 18·4m	5·66	Oct. 24·898	+14·5*	16 − 23	Poor	"	
+24° 22′	6·66	1920 Oct. 9·019	+11·3	11 = 23	Fair	"	
		Nov. 2·850	+10·7	9 = 23	"	"	
		1921 Jan. 12·688	+ 9·7	19 = 23	Poor	"	
			+11·7 ±0·5				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
792	G5	1918 Oct. 29·876	+49·0	7 = 23	Fair	P	The type appears to
		Dec. 22·740	+51·6	5 = 23	Good	"	be slightly earlier than
03h 22·6m	6·11	1919 Jan. 7·808	+52·1	5 = 23	Fair	"	G5. The lines are
+22° 28′	6·89	Jan. 19·668	+52·1	1 = 21	Good	"	sharp.
		Dec. 11·779	+48·0	5 = 23	Fair	"	
		1920 Sept. 27·999	+51·8	9 = 23	Good	"	
			+50·8 ±0·5				
799	Ao	1918 Oct. 30·839	+ 6·2	3	Good	Y	Very poor spectrum.
		1919 Jan. 31·618	−14·9	3	"	"	Only wide diffuse hyd-
03h 24·2m	6·41	Oct. 2·975	+15·0	2	"	"	rogen, weak, wide K
+73° 00′	6·41	1920 Oct. 29·918	−30·8	1	Poor	"	and 4481.
		1921 Jan. 27·597	− 6·7	2	Good	"	
		Feb. 15·681	−26·6	2	"	"	
			−9·6 ±4·9				
815	A2	1919 Dec. 2·814	+33·2*	5	Fair	P′	The lines in this star
		1920 Sept. 6·027	+28·1	5	"	"	are sharp, save the
03h 28·5m	5·92	Oct. 11·960	+28·3	4	"	"	hydrogen series, but
+24° 07′	5·98	Oct. 18·966	+31·6	8	Good	"	the contrast between
		Dec. 6·819	+24·4*	7	Fair	"	the absorption lines
		Dec. 11·839	+24·0	4	Poor	"	and the continuous
			+28·3 ±1·0				spectrum is not as marked as in α Cygni.
835	G5	1919 Sept. 13·017	+23·6	11 = 23	Good	H	Last plate given half
		1920 Feb. 2·613	+24·1*	11 = 23	Fair	"	weight as much under-
03h 34·7m	5·76	Nov. 9·846	+22·0	9 = 23	Good	"	exposed.
+02° 44′	6·54	1921 Jan. 15·659	+19·0	13 = 23	Fair	"	
		Feb. 15·714	+11·9*	18 − 23	Poor	"	
			+21·0 ±0·9				
840	F2	1918 Oct. 6·940	+ 5·5	13	Poor	P	The lines in this
		Oct. 20·862	+ 2·6	16	Fair	"	spectrum are not sharp
03h 36·5m	5·84	Oct. 29·893	+ 2·0	19	Good	"	enough to give satis-
+66° 53′	6·18	Nov. 24·885	+ 4·6	16	Fair	"	factory measures on
		1920 Nov. 10·953	+ 7·1	12	"	"	the comparator.
		Dec. 6·833	+ 6·7	16	Good	"	
			+4·7 ±0·6				
843	G5	1919 Sept. 21·979	+84·2*	11 = 23	Fair	H	
		Oct. 13·856	+78·4	3 = 23	Good	"	
03h 38·0m	6·34	Dec. 5·760	+79·1	9 = 23	Fair	"	
+19° 21′	7·12	1920 Feb. 23·600	+79·5	5 = 23	Good	"	
		1921 Feb. 3·689	+78·0	5 = 23	"	"	
			+79·8 ±0·7				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
850	Ao	1919 Jan. 19·680	+16·2	19	Good	P	The type of this spectrum is nearer A2. The lines are numerous and sharp.
		Jan. 19·686	+10·7	22	"	"	
03h 38·8m	5·40	Jan. 30·602	+14·0	18	Fair	"	
+70° 34′	5·40	Feb. 11·610	+19·4	17	Good	"	
		1920 Nov. 10·970	+16·3	15	"	"	
		Nov. 10·983	+16·1	17	"	"	
			+15·4 ±0·8				
853	B9	1918 Oct. 28·869	− 0·8	7	Good	Y	Type is B2 or B3. Helium lines are sharp. The silicon lines 4128 and 4131 are also present.
		Oct. 30·819	+ 0·0	9	"	"	
03h 39·0m	5·64	Nov. 22·890	+ 1·2	8	"	"	
+45° 22′	5·62	Dec. 4·790	+ 1·3	9	"	"	
		1919 Sept. 25·003	− 2·7	9	"	"	
		Dec. 3·778	+ 2·8	8	"	"	
			+0·3 ±0·5				
883	A3	1919 Sept. 22·008	+ 3·9	11	Good	H	Visual binary very close at present. Third and fourth plates give results bright component alone. Fainter component about 20 km. more positive. Unable to separate during 1920. Spectra not quite identical.
		Oct. 6·960	+ 9·6	10	"	"	
03h 44·3m	5·38	Oct. 6·974	− 4·6	7	"	"	
+25° 17′	5·46	Oct. 18·890	−14·0	7	"	"	
		1920 Sept. 1·997	+ 5·2	12	"	"	
		Nov. 19·890	+ 7·8	11	Fair	"	
			+1·3 ±2·5				
890	B9	1918 Oct. 8·940	+10·4	6	Good	P	This spectrum is of type B5. The lines are diffuse and the measures only moderately accurate.
		Oct. 19·945	+17·4	7	"	"	
03h 46·6m	5·62	Oct. 29·924	+ 7·7	7	"	"	
+06° 15′	5·60	Nov. 20·870	+23·2	6	"	"	
		1919 Mar. 8·622	+20·6	7	"	"	
		Dec. 4·832	+ 6·3	7	"	"	
		1920 Sept. 28·019	+14·2	5	Fair	"	
		Sept. 28·033	+17·6	6	"	"	
			+14·7 ±1·4				
908	Fo	1918 Dec. 7·775	+34·6	1 = 21	Good	P	The lines of this Fo spectrum are slightly sharper than the average and the measures satisfactory.
		Dec. 22·758	+33·2	1 = 21	"	"	
03h 50·9m	5·76	Dec. 29·773	+32·8	1 = 21	"	"	
+22° 12′	6·04	1919 Jan. 19·728	+35·1	1 = 21	"	"	
		Oct. 8·951	+30·7	5 = 21	Poor	"	
		Dec. 11·835	+32·5	1 = 19	Good	"	
		1920 Mar. 2·635	+29·0	1 = 19	Fair	"	
			+32·5 ±0·5				
924	Fo	1918 Dec. 14·792	−21·0	1 = 21	Good	P	This spectrum has good lines and is of type F2.
		1919 Jan. 19·717	−17·5	1 = 21	"	"	
03h 56·1m	5·07	Jan. 30·616	−21·1	1 = 21	"	"	
+58° 53′	5·35	Feb. 11·624	−21·9	1 = 21	"	"	
		Nov. 25·887	−21·2	1 = 19	"	"	
		1920 Oct. 11·975	−18·3	5 = 19	"	"	
			−20·2 ±0·5				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
925	B8	1918 Nov. 4·801	+ 3·8	1	Good	Y	Poor hydrogen and wide diffuse helium lines. The agreement of measures is much better than to be expected.
		Nov. 4·834	+ 2·1	2	"	"	
03h 56·4m	5·68	Dec. 20·755	+ 3·9	1	"	"	
+09° 43′	5·63	Dec. 20·769	+ 0·8	1	"	"	
		1919 Feb. 14·649	− 9·3	1	"	"	
		1920 Nov. 4·827	+ 9·1	3	"	"	
			+1·7 ±1·6				
934	B3	1918 Oct. 6·972	+ 9·6	11	Good	P	The lines in this B3 spectrum rather diffuse but the measures are fairly satisfactory.
		Oct. 8·951	+ 3·0	11	"	"	
03h 58·4m	5·33	Oct. 19·953	+ 8·9	12	"	"	
+05° 09′	5·16	Oct. 29·937	+13·8	8	Fair	"	
		1920 Jan. 3·754	+16·8	9	Good	"	
		Sept. 28·045	+15·5	8	Fair	"	
		Sept. 28·055	+16·8	8	"	"	
			+12·1 ±1·3				
937	F5	1918 Nov. 11·849	−18·2	1 = 19	Good	Y	Good spectrum.
		Dec. 20·785	−19·6	1 = 19	"	"	
03h 58·9m	5·39	1919 Feb. 5·616	−18·7	1 = 19	"	"	
+02° 33′	5·81	1920 Nov. 4·842	−18·1	1 = 23	"	"	
		1921 Feb. 14·624	−19·4	1 = 19	"	"	
			−18·8 ±0·2				
944	Fo	1918 Dec. 14·806	+ 8·8	16	Good	P	The lines in this spectrum are too broad for accurate measurement on the comparator.
		Dec. 29·787	+13·9	16	"	"	
04h 00·8m	5·29	1919 Jan. 19·739	+ 8·9	16	"	"	
+28° 44′	5·57	Jan. 30·627	+ 9·2	17	"	"	
		Dec. 11·855	+ 8·6	20	Fair	"	
		1920 Feb. 14·662	+13·1	20	"	"	
			+10·4 ±0·7				
957	B3	1919 Sept. 22·979	− 3·7*	3	Good	Y	Rather poor hydrogen but on well exposed plates Hγ has a fair centre and there is a fairly narrow K line.
		Sept. 22·993	− 6·0	3	"	"	
04h 05·0m	5·39	Oct. 5·935	−17·3	2	"	"	
+83° 34′	5·22	Oct. 5·944	−13·1	2	"	"	
		1920 Oct. 28·909	−16·6	3	"	"	
			−11·3 ±1·9				
969	B8	1918 Oct. 30·866	−20*	3	Good	Y	Very poor spectrum, wide, diffuse helium and wide hydrogen. Faint K and 4481.
		1919 Jan. 6·714	+ 9	2	"	"	
04h 08·1m	5·64	Jan. 6·726	− 3	2	"	"	
+61° 36′	5·59	1920 Oct. 28·929	− 5	1	"	"	
		1921 Jan. 27·664	+ 3	2	"	"	
			+3·2 ±3·2				
973	Ko	1918 Oct. 30·871	−38·3	1 = 23	Good	Y	
		Dec. 30·716	−38·4	9 = 23	"	"	
04h 08·8m	5·80	1919 Feb. 17·606	−38·3	1 = 23	"	"	
+57° 37′	6·80	Sept. 23·019	−36·2	11 = 23	"	"	
		Oct. 5·961	−36·6	7 = 23	"	"	
		1920 Feb. 18·603	−38·0	1 = 23	"	"	
			−37·6 ±0·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
1040	A5	1918 Dec. 14·819	+36·2	18	Good	P	The lines in this A5 spectrum are numerous but rather wide and diffuse.
		Dec. 21·812	+34·2	13	"	"	
04h 22·1m	5·74	Dec. 29·799	+32·8	13	"	"	
+21° 24′	5·88	1919 Jan. 30·649	+36·8	13	"	"	
		Dec. 4·845	+40·0	12	Fair	"	
		1920 Mar. 2·631	+34·3	14	"	"	
			+35·7 ±0·7				
1042	G5	1918 Oct. 8·961	+17·4	10 − 21	Good	P	The lines are of good quality and the measures accordant.
		Dec. 10·816	+16·0	10 − 21	"	"	
04h 22·7m	5·29	1919 Feb. 2·610	+14·4	10 − 21	"	"	
+16° 08′	6·07	Dec. 4·866	+17·1	5 = 23	"	"	
		1920 Oct. 18·983	+16·2	5 = 23	"	"	
		Dec. 6·845	+19·5	7 = 23	Fair	"	
			+17·8 ±0·5				
1043	Fo	1918 Nov. 4·884	+45·5	11	Good	Y	The lines although numerous are not of the best quality and the small range observed makes it doubtful whether the star is a binary or not.
		Dec. 16·827	+58·2	12	"	"	
04h 22·7m	5·97	1919 Feb. 17·621	+52·7	14	"	"	
+14° 30′	6·25	Nov. 19·836	+54·9	10	"	"	
		1920 Feb. 8·623	+48·6	9	"	"	
		1920 Feb. 25·598	+40·9	10	"	"	
			+50·1 ±1·7				
1055	A5	1918 Oct. 30·903	+38·1	24	Good	Y	Good spectrum.
		Dec. 16·794	+39·9	19	"	"	
04h 24·9m	5·49	1919 Jan. 31·673	+35·1	18	"	"	
+15° 29′	5·63	Nov. 19·860	+40·3	1 = 23	"	"	
		1920 Feb. 29·601	+35·2	1 = 23	"	"	
		Sept. 29·964	+41·8	10	"	"	
			+38·4 ±0·8				
1056	Fo	1918 Dec. 21·826	+39·4	14	Good	P	The lines in this Fo star are too diffuse for successful measures on the comparator.
		1919 Jan. 19·759	+43·5	15	"	"	
04h 25·0m	5·49	Jan. 30·660	+38·4	14	Fair	"	
+13° 31′	5·77	Feb. 11·637	+39·2	16	Good	"	
		1920 Oct. 18·997	+37·5	12	Fair	"	
		Dec. 6·858	+37·1	13	"	"	
			+39·2 ±0·6				
1060	Fo	1919 Oct. 26·942	+ 2·2	7	Fair	P′	The lines are too diffuse for measurement on the comparator.
		Dec. 30·778	+ 6·1	6	Good	"	
04h 26·3m	6·80	1920 Feb. 14·639	+ 3·5	7	"	"	
+42° 49′	7·08	Oct. 12·000	+ 4·1*	4	Fair	"	
		Dec. 11·864	− 3·1*	3	Poor	"	
		Dec. 13·787	− 1·6	5	Fair	"	
			+1·9 ±1·1				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
1083	Fo	1918 Nov. 20·881	+13·7	6	Good	Y	The hydrogen lines
		1919 Sept. 17·008	+24·2	9	"	"	are wide and strong in
04h 32·0m	5·44	Oct. 2·999	+18·8	3	"	"	the spectrum of this
+53° 17′	5·72	1920 Feb. 22·634	+32·3	5	"	"	star. Calcium K is
		Oct. 28·951	+ 6·2	7	"	"	also strong and there
		1921 Mar. 27·641	+18·2	6	"	"	are many wide, faint,
			+18·9 ±2·4				fuzzy, metallic lines.
1086	Fo	1919 Feb. 1·658	+35·5	10	Good	P	The lines though
		Feb. 11·669	+38·1	13	"	"	numerous are broad
04h 32·5m	5·80	Feb. 23·626	+42·4	11	"	"	and diffuse making the
+15° 51′	6·08	1920 Oct. 12·027	+29·6	13	Fair	"	measures somewhat un-
		Oct. 19·012	+27·7	10	"	"	certain.
		Dec. 6·872	+40·0	10	"	"	
			+35·6 ±1·6				
1114	A3	1918 Dec. 10·841	+35·0	16	Good	P	The lines in this star
		Dec. 14·857	+36·5	12	Fair	"	are also diffuse and the
04h 38·9m	5·35	Dec. 29·812	+43·8	13	Good	"	measures not as ac-
+10° 58′	5·43	1919 Jan. 30·681	+43·5	12	Fair	"	cordant as for sharp
		Mar. 20·624	+43·2	14	Good	"	lines.
		Nov. 25·915	+36·9	14	Fair	"	
		1920 Mar. 2·645	+33·7	15	"	"	
			+38·8 ±1·1				
1129	Ko	1918 Dec. 20·859	+24·9	14 – 22	Poor	Y	Good spectrum.
		1919 Feb. 17·638	+21·4	3 – 21	Good	"	
04h 42·8m	5·76	Sept. 24·981	+21·9	11 – 23	"	"	
+31° 16′	6·76	Dec. 7·762	+22·8	9 – 23	"	"	
		1920 Feb. 25·623	+21·7	1 – 23	"	"	
		Nov. 4·876	+23·3	3 – 23	"	"	
			+22·7 ±0·3				
1149	Ao	1918 Oct. 28·950	+ 4·1	4	Good	Y	The lines in this star
		Nov. 6·861	+ 4·2	5	"	"	are sharp and narrow.
04h 46·9m	5·58	1919 Jan. 6·740	+ 6·1	4	"	"	K, 4481, 4549 and the
+55° 06′	5·58	Jan. 6·751	+ 5·8	4	"	"	hydrogen lines are
		Feb. 5·659	+ 1·0	4	"	"	present.
		Feb. 5·672	− 0·3*	4	"	"	
			+3·5 ±0·7				
1166	Fo	1919 Sept. 23·993	−15·4	14	Fair	H	There is good inter-
		Oct. 4·006	− 6·5	18	Good	"	nal agreement among
04h 50·1m	6·28	Oct. 7·001	− 7·5	17	"	"	the lines in spite of
+24° 27′	6·56	1920 Jan. 26·661	−16·4	17	"	"	their fuzzy character.
		Feb. 6·676	−16·2*	9	Poor	"	
		Feb. 27·624	−10·7	16	Good	"	
			−12·1 ±1·2				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
1252	Ao	1919 Feb. 1·671	− 8·6	6	Good	P	Broad but well defined hydrogen lines, a strong and fairly sharp Mg and K with a few other faint lines make the measures accordant for this class of spectrum.
		Feb. 11·683	−13·4	6	"	"	
05h 10·5m	5·50	Feb. 11·694	− 8·0	6	"	"	
+11° 14′	5·50	Feb. 23·640	− 9·7	6	Fair	"	
		Feb. 23·651	− 4·2	5	Good	"	
		Dec. 4·900	− 6·1	5	"	"	
		Dec. 4·917	− 9·9	6	Fair	"	
		1920 Mar. 2·658	− 8·0	6	"	"	
			−8·5 ±0·6				
1260	Aop	1918 Dec. 10·865	+25·4	12	Good	P	This spectrum is very peculiar, showing a strong silicon pair 4128-31, traces of helium 4472, and also strong lines nearly in the position of the ζ. Puppis series at 4200·9 and 4026·0.
		Dec. 21·851	+30·8	10	"	"	
05h 12·4m	5·39	Dec. 29·872	+22·5	11	"	"	
+33° 39′	5·39	1919 Jan. 7·831	+28·7	9	Fair	"	
		Mar. 20·656	+26·8	10	Good	"	
		Mar. 20·666	+26·9	12	"	"	
		Mar. 23·631	+26·2	10	"	"	
		Mar. 23·642	+29·5	9	Fair	"	
			+27·1 ±0·7				
1350	Fo	1919 Feb. 2·634	+ 8·4	14	Good	P	The lines are too diffuse for satisfactory measurement on the comparator.
		Feb. 11·707	+11·2	12	"	"	
05h 28·7m	6·05	Feb. 16·676	+14·2	14	"	"	
+47° 40′	6·33	Feb. 23·678	+11·5	15	Fair	"	
		Nov. 25·953	+12·3	20	"	"	
		1920 Oct. 19·026	+17·1	15	"	"	
			+12·4 ±0·8				
1378	A2	1919 Nov. 29·857	− 4·6*	6	Good	P′	This star which is listed as A2 is really Fo. The lines are too diffuse to measure to advantage on the comparator.
		Dec. 30·804	− 2·7	6	"	"	
05h 32·2m	5·49	1920 Oct. 14·039	+ 0·6	1 = 19	"	"	
+30° 26′	5·55	Oct. 30·910	− 7·3*	3	Fair	"	
		Dec. 6·908	− 2·4	4	Good	"	
		Dec. 6·915	+ 1·3*	4	Fair	"	
			−2·5 ±0·9				
1383	B8	1918 Dec. 30·815	+18·6	9	Good	Y	The hydrogen and helium lines in this star are of good quality and calcium K is very good. The range of the measures possibly indicates a binary.
		1919 Jan. 6·796	+14·1	6	"	"	
05h 32·6m	5·70	Jan. 10·754	+10·5	5	"	"	
+07° 29′	5·65	1920 Feb. 8·649	+17·7	8	"	"	
		1921 Jan. 10·755	+26·8	5	"	"	
			+17·5 ±1·8				
1412	Ao	1919 Jan. 30·759	+18·1	15	Good	P	This star is more nearly of the type A2 with numerous sharp lines yielding reliable velocities.
		Feb. 2·669	+19·4	12	"	"	
05h 38·4m	6·79	Feb. 11·736	+16·3	10	Fair	"	
+56° 53′	6·79	Feb. 16·658	+19·4	11	"	"	
		1920 Nov. 11·004	+17·2	9	Poor	"	
		Dec. 6·962	+21·7	12	Fair	"	
			+18·7 ±0·5				

23489—4½

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
1415	Go	1919 Oct. 6·009	+49·7	13 = 23	Fair	Y	All the plates of this
		Dec. 31·724	+39·3	6	Poor	"	star are weak owing to
05h 38·8m	7·14	1920 Nov. 4·909	+50·3	15 = 23	Weak	"	its faintness and winter
+15° 01′	7·70	Nov. 11·857	+43·4	15 = 23	"	"	observing. The second
		April 6·657	+47·3	15 = 23	"	"	plate is defective and
			+47·7 ±0·9				is not included in the mean.
1428	B5	1918 Dec. 21·876	+29·6	13	Good	P	The type of spec-
		Dec. 29·906	+35·0	12	"	"	trum appears slightly
05h 42·0m	5·20	1919 Jan. 7·877	+24·6	10	Fair	"	earlier than B5. Heli-
+13° 52′	5·08	Jan. 19·796	+33·6	10	"	"	um and hydrogen lines
		1920 Mar. 2·670	+25·4	10	Good	"	fairly well defined and
		Mar. 2·683	+23·7	11	"	"	measures fairly good.
		Oct. 12·054	+28·3	10	"	"	
		Oct. 12·062	+34·2	10	"	"	
			+29·3 ±1·1				
1434	Ko	1919 Dec. 1·842	+21·0	3 = 23	Good	H	The usual good lines
		1920 Jan. 19·692	+17·3	5 = 23	Fair	"	of a K-type spectrum.
05h 42·9m	5·02	Feb. 6·713	+18·9	5 = 23	Good	"	
+24° 32′	6·02	Feb. 20·622	+19·9	1 = 23	"	"	
		Feb. 23·615	+19·2	1 = 23	"	"	
		Sept. 29·017	+20·0	9 = 23	Fair	"	
			+19·4 ±0·3				
1445	Ko	1919 Oct. 29·949	+44·0	1 = 23	Good	P′	The fifth plate which
		Nov. 29·881	+44·2	1 = 23	"	"	was very weak and
05h 44·7m	5·71	Dec. 30·836	+45·1	1 = 23	"	"	discrepant was not
+14° 16′	6·71	1920 Oct. 27·958	+47·2	11 = 23	Fair	"	used in forming the
		Dec. 11·891	+38·8*	17 = 23	Poor	"	mean.
		1921 Jan. 15·774	+42·8	15 = 23	Fair	"	
			+44·7 ±0·5				
1461	B9	1919 Dec. 1·865	+ 7·5	5	Good	H	The lines are poor
		Dec. 5·808	+ 8·3	3	"	"	but the range shown is
05h 47·4m	6·56	1920 Feb. 2·644	−23·0	3	Poor	"	almost too much to be
+20° 17′	6·54	Feb. 13·678	−21·0	2	Fair	"	ascribed to accidental
		Feb. 23·629	− 1·4	5	Good	"	error of measurement.
		Nov. 9·966	−10·5	4	Fair	"	
			−6·7 ±3·8				
1499	A5	1919 Feb. 5·692	+22·4	10	Good	Y	The spectrum of this
		Feb. 17·675	+24·1	11	"	"	star shows many rather
05h 56·6m	6·30	Dec. 7·806	+17·7	9	"	"	poorly defined lines.
+51° 35′	6·44	1921 Jan. 10·828	+12·3	8	"	"	
		Mar. 30·637	+20·1	8	"	"	
			+19·3 ±1·4				
1530	Ko	1919 Feb. 2·705	+ 8·6*	1 = 23	Good	H	
		Feb. 23·723	+ 7·4*	11 = 23	Fair	"	
06h 02·8m	5·39	Mar. 23·648	+ 7·7	1 = 23	Good	"	
+65° 44′	6·39	1920 Feb. 9·654	+ 9·0	5 = 23	"	"	
		Mar. 1·661	+ 8·6	11 = 23	Fair	"	
		Nov. 5·971	+ 6·4	13 = 23	"	"	
			+8·0 ±0·3				

TABLE IV.

Star	Type Mag.	Date G.T.M.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
1545	B9	1918 Nov. 20·939	+29·1	4	Good	Y	The calcium line K
		1919 Jan. 31·709	+30·0	4	"	"	in this star is fairly
06h 06·0m	5·70	Jan. 31·725	+27·5	4	"	"	sharp. The other lines
+19° 49′	5·68	Oct. 28·974	+32·8	3	"	"	Hδ and Hγ and 4481
		1920 Feb. 8·663	+29·9	4	Good	"	are rather poor.
			+29·9 ±0·6				
1550	B3	1918 Dec. 10·934	+11·5	6	Good	P	Very diffuse hydro-
		Dec. 21·908	+21·5	4	"	"	gen and helium lines
06h 06·2m	4·92	Dec. 21·920	+11·3	6	"	"	and sharp K which
+16° 09′	4·75	1919 Jan. 7·892	+10·8	4	Fair	"	agrees within errors of
		Jan. 7·903	+ 0·6	5	"	"	measurement with the
		Dec. 4·932	− 5·7	6	"	"	other lines. The star
		Dec. 4·943	− 5·7	5	"	"	may be binary of small
		1920 Oct. 12·073	+10·9	5	"	"	range.
			+6·9 ±2·2				
1552	Ko	1919 Feb. 2·692	+12·1	5 = 23	Good	P	The lines are of the
		Feb. 16·708	+13·7	1 = 23	"	"	usual good quality in
06h 06·7m	5·56	Feb. 23·737	+10·4*	5 = 23	"	"	K-type stars.
+60° 02′	6·56	Mar. 23·660	+13·2	5 = 23	"	"	
		1920 Feb. 12·724	+12·1	5 = 23	"	"	
		Feb. 24·710	+14·5	5 = 23	"	"	
			+12·7 ±0·4				
1557	G5	1920 Jan. 5·803	+25·2*	15 = 23	Fair	H	Plates are all a little
		Jan. 21·739	+22·2	13 = 23	"	"	underexposed.
06h 08·0m	6·57	Feb. 23·677	+26·4	15 = 23	"	"	
+86° 46′	7·35	1921 July 8·834	+23·5	14 − 23	"	"	
		July 13·786	+26·6	14 − 23	"	"	
			+24·8 ±0·6				
1563	Fo	1918 Nov. 5·003	+ 4·1	11 = 21	Weak	Y	Good spectrum.
		1919 Mar. 19·641	+ 8·1	1 = 19	Good	"	
06h 08·9m	6·42	1920 Feb. 8·681	+ 6·8	3 = 23	"	"	
+36° 12′	6·70	1921 Mar. 12·669	+ 2·9	7 = 23	"	"	
		Mar. 30·654	+ 4·7	10	"	"	
			+5·3 ±0·7				
1564	F5	1919 Feb. 4·695	+33·3	1 = 21	Good	H	The spectrum has
		Feb. 16·753	+31·8	1 = 21	"	"	excellent sharp lines
06h 09·0m	5·18	Mar. 2·698	+32·1	1 = 21	"	"	for measurement on
+19° 12′	5·60	April 6·651	+33·6	1 = 21	"	"	the comparator with
		Dec. 5·829	+33·9	3 = 23	"	"	the sky standard.
		1920 Jan. 19·724	+36·9	5 = 23	Fair	"	
			+33·6 ±0·5				
1571	Fo	1918 Nov. 20·956	− 9·9	3	Good	Y	Poor hydrogen and
		1920 Jan. 25·757	+ 3·4	3	"	"	several wide almost
06h 10·1m	6·46	Feb. 22·707	− 4·7	2	"	"	immeasurable lines.
+46° 28′	6·74	1921 Jan. 27·704	−20·4	2	"	"	The agreement of the
		April 2·673	−11·3	2	"	"	measures is as good as
			−8·6 ±2·7				could be expected.

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
1583	Ko	1919 Dec. 31·777	−44·5	8	Good	Y	Good spectrum. All
		1920 Feb. 11·763	−34·0	6	Weak	"	the plates are rather
06h 12·1m	6·72	Feb. 25·668	−47·3	13 = 23	Good	"	weak. The second
+27° 15′	7·72	1921 Mar. 30·675	−48·6	15 = 23	Fair	"	plate is out of focus
		April 17·670	−43·5	15 = 23	"	"	and was omitted.
			−46·0 ±0·8				
1584	G5	1919 Dec. 11·885	+40·6	5 = 21	Good	P	The lines are of good
		1920 Mar. 9·645	+40·7	5 = 21	Fair	"	quality but faintness
06h 12·8m	6·59	Dec. 13·899	+40·3	9 = 21	Poor	"	and winter observing
+23° 38′	7·37	1921 Feb. 7·709	+43·2	11 = 21	"	"	made most of the plates
		Feb. 17·723	+39·5	11 = 21	"	"	too weak.
		Mar. 3·659	+38·8	7 = 23	Good	"	
			+41·0 ±0·5				
1585	Fo	1919 Dec. 7·839	+ 7·5	10	Good	Y	The lines in the
		1920 Feb. 29·628	+ 8·1	11	"	"	spectrum of this star
06h 12·9m	7·15	Oct. 29·006	+ 9·9	5	Fair	"	are rather poor, not
+61° 48′	7·43	1921 Jan. 27·746	+13·4	7	Weak	"	sufficiently good to use
		April 6·683	+ 2·0	9	Good	"	the Hartmann engine.
			+8·2 ±1·2				
1626	Ko	1919 Feb. 2·758	+33·1*	5 = 23	Good	P	The lines are of good
		Mar. 6·703	+35·6*	9 = 23	Fair	"	quality.
06h 22·1m	5·29	1920 Dec. 13·917	+31·2	11 = 23	"	"	
+00° 21′	6·29	1921 Feb. 17·750	+33·5	17 = 23	Poor	"	
		Feb. 24·748	+34·0	13 = 23	"	"	
		Mar. 3·683	+33·0	7 = 23	Good	"	
			+33·4 ±0·4				
1628	G5	1919 Feb. 2·769	+53·2	5 = 23	Good	P	Good lines.
		Mar. 11·713	+53·3	13 = 23	Fair	"	
06h 22·1m	5·77	1920 Dec. 13·931	+52·2	11 = 23	"	"	
+02° 58′	6·55	1921 Feb. 17·784	+53·0*	13 = 23	Poor	"	
		Mar. 3·706	+52·4	9 = 23	Good	"	
		Mar. 5·666	+54·7	7 = 23	"	"	
			+53·1 ±0·3				
1647	A2	1919 Dec. 1·884	− 0·1*	12	Good	H	Broad and strong
		1920 Jan. 19·738	− 8·2	4	Fair	"	hydrogen lines as well
06h 26·2m	5·08	Feb. 2·673	−10·4	8	"	"	as calcium K are pre-
+11° 36′	5·14	Feb. 13·689	− 8·3	14	Good	"	sent with numerous
		Feb. 20·638	− 6·2	6	"	"	other faint and ill-
		Sept. 29·034	− 0·7	11	Fair	"	defined lines.
			−5·6 ±1·2				
1650	F8	1919 Dec. 30·923	− 2·4	9 = 23	Good	P′	Fairly sharp line
		1920 Oct. 31·009	− 0·4*	7 = 19	Poor	"	spectrum but the ma-
06h 26·5m	6·6	Dec. 11·953	− 2·2	17 = 23	"	"	jority of the plates are
+17° 51′	6·72	1921 Feb. 16·687	+ 1·0	9 = 23	Good	"	rather weak.
		Feb. 16·705	− 0·3	11 = 23	"	"	
		Feb. 25·647	+ 1·1	13 = 23	Fair	"	
			−0·5 ±0·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
1668	Ao	1918 Dec. 29·922	+20	2	Good	P	Very broad and diffuse hydrogen lines with diffuse and faint Mg and K and only traces of helium render the measures uncertain.
		1919 Feb. 1·801	+23*	2	"	"	
06h 29·0m	5·05	Feb. 1·814	+25	2	"	"	
+28° 06′	5·05	Feb. 16·786	+27	2	"	"	
		Feb. 16·801	+17	2	"	"	
		1920 Mar. 2·702	+ 4*	3	Fair	"	
		Mar. 2·727	+14*	4	"	"	
		Mar. 9·672	+22	4	Good	"	
		Mar. 9·682	+23	5	"	"	
			+19·6 ±1·4				
1678	B5	1919 Jan. 30·823	+ 8·6	10	Fair	P	This spectrum has the moderately diffuse lines of many of the B stars but the measures are nevertheless fairly accordant.
		Feb. 2·784	+ 6·9	8	"	"	
06h 30·1m	5·69	Feb. 16·769	+10·0	5	Poor	"	
+00° 58′	5·57	Mar. 11·690	+ 7·7	8	Good	"	
		Mar. 18·667	+13·3	10	"	"	
		1920 Mar. 9·698	+15·2	8	Fair	"	
		Mar. 9·712	+10·0	9	Good	"	
			+10·2 ±0·8				
1679	F5	1919 Oct. 3·045	+30·0	15 = 23	Fair	Y	Good spectrum.
		Dec. 3·860	+27·5	1 = 19	Good	"	
06h 30·2m	6·69	1920 Feb. 8·704	+28·2	9 = 19	"	"	
+16° 53′	7·11	Feb. 22·666	+34·3	1 = 19	"	"	
		1921 Mar. 30·695	+32·4	13 = 23	"	"	
			+30·5 ±0·9				
1693	Ao	1918 Dec. 16·903	+22·4	5	Good	Y	Good K line, also 4233 and 4481. Hydrogen lines not very good. Spectrum lines seem to change somewhat as if spectrum might be composite.
		1919 Jan. 29·767	− 0·9	7	"	"	
06h 32·1m	5·54	Feb. 21·714	+17·9	4	Poor	"	
+29° 04′	5·54	Oct. 28·926	+18·9	5	Good	"	
		Dec. 3·901	+10·7	4	"	"	
		1920 Jan. 25·772	+ 9·6	2	Poor	"	
			+13·1 ±2·3				
1694	G5	1919 Dec. 1·944	+18·2	5 = 23	Good	H	
		1920 Jan. 5·834	+15·0	3 = 19	"	"	
06h 32·2m	5·09	Jan. 19·753	+14·8*	5 = 23	"	"	
+42° 35′	5·87	Feb. 20·654	+17·6	1 = 23	"	"	
		Sept. 29·048	+18·3	9 = 23	Fair	"	
		Oct. 9·049	+17·4	9 = 23	"	"	
			+16·9 ±0·4				
1720	G5	1919 Feb. 1·770	+18·6	5 = 21	Good	P	The spectrum appears to be slightly earlier than G5 with good lines.
		Feb. 16·720	+20·8	1 = 21	"	"	
06h 38·3m	5·47	Mar. 22·680	+20·3	13 = 23	Poor	"	
+57° 17′	6·25	Mar. 23·672	+17·9	1 = 21	Good	"	
		1920 Feb. 12·767	+17·2	5 = 23	Good	"	
		Feb. 24·722	+18·9	5 = 23	"	"	
			+18·9 ±0·4				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
1722	Ko	1919 Dec. 2·903	+13·2	5 = 23	Good	P′	Sharp lines.
		1920 Feb. 7·760	+16·2	11 = 23	"	"	
06h 38·4m	5·54	Oct. 14·059	+16·0	13 = 23	Fair	"	
+29° 04′	6·54	Nov. 11·026	+15·6	15 = 23	"	"	
		1921 Jan. 15·802	+15·9	13 = 23	"	"	
		Feb. 25·669	+13·8	15 = 23	Poor	"	
			+15·1 ±0·4				
1728	Ko	1919 Dec. 1·961	− 8·8	5 = 23	Good	H	
		1920 Jan. 5·853	− 8·9	5 = 23	"	"	
06h 40·0m	5·28	Feb. 9·640	−13·6	1 = 23	"	"	
+48° 53′	6·28	Feb. 20·670	−11·1	1 = 23	"	"	
		Feb. 23·658	−10·1	1 = 23	"	"	
		Oct. 9·069	− 7·7	11 = 23	Fair	"	
			−10·0 ±0·6				
1744	B5	1919 Feb. 1·785	−30·7	7	Good	P	A spectrum with strong hydrogen and weak helium and other lines all broad and diffuse. Measures difficult and rather uncertain. Type nearer B8.
		Mar. 2·671	−25·3	6	"	"	
06h 42·9m	5·13	Mar. 2·680	−33·0	5	"	"	
+69° 00′	5·01	Mar. 18·687	−24·3	4	"	"	
		Mar. 23·685	−19·1	5	"	"	
		1920 Feb. 12·741	−18·6	7	"	"	
		Feb. 12·752	−21·5	8	"	"	
		Oct. 19·068	−30·2	7	"	"	
		Oct. 19·081	−31·8	7	"	"	
			−26·1 ±1·2				
1753	F5: A2	1919 Feb. 5·711	+18·8	3 = 19	Good	Y	Spectrum only fair. Star is double, separation of components 0″.5 unresolved. Measures are of blend which is practically of F5 star as it is considerably the brighter.
		Feb. 17·692	+18·1	1 = 21	"	"	
06h 44·2m	5·44	Nov. 19·936	+15·8	15 = 23	Poor	"	
+59° 34′	5·86	1921 Feb. 14·765	+ 7·8	7 = 23	Good	"	
		April 23·651	+ 8·0	15 = 23	Fair	"	
			+13·7 ±1·6				
1764	F5	1920 Feb. 10·688	+28·9*	1 = 23	Good	P′	Beautiful sharp lines but spectra are, with one exception, weak.
		Nov. 11·044	+33·1	11 = 23	Poor	"	
06h 46·3m	6·32	1921 Jan. 15·820	+32·5	9 = 23	Fair	"	
+38° 34′	6·74	Feb. 25·695	+30·3	13 = 23	Poor	"	
		Mar. 1·610	+32·1	9 = 23	"	"	
			+31·4 ±0·6				
1786	A2	1919 Dec. 1·976	−18	3	Fair	H	Very broad and strong hydrogen and calcium K with faint ill-defined magnesium 4481.
		1920 Jan. 5·882	− 8	1	"	"	
06h 50·4m	4·80	Jan. 19·769	− 6	2	"	"	
+45° 14′	4·86	Feb. 23·646	− 8	3	Good	"	
		Oct. 29·965	+ 3*	4	"	"	
		Nov. 5·998	−12*	4	Fair	"	
			−8·2 ±1·9				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
1794	K2	1920 Feb. 10·711	+23·0	1 = 23	Good	P′	
		Mar. 16·641	+21·5	11 = 23	"	"	
06h 52·3m	6·15	1921 Feb. 16·730	+21·8	9 = 23	Fair	"	
+38° 12′	7·22	Feb. 16·756	+25·5*	13 = 23	"	"	
		Feb. 25·746	+25·6*	15 = 23	Poor	"	
		Mar. 8·619	+21·9	5 = 23	Good	"	
			+23·2 ±0·6				
1803	K2	1920 Feb. 9·683	+23·1	15 = 23	Poor	H	
		Feb. 27·705	+19·3	9 = 23	Fair	"	
06h 54·5m	5·86	Mar. 22·652	+21·3	13 = 23	"	"	
+16° 13′	6·93	Nov. 10·013	+21·2	15 = 23	Poor	"	
		1921 Feb. 3·742	+22·3*	16 — 23	"	"	
			+21·4 ±0·4				
1813	K2	1918 Nov. 20·975	+22·0	11 = 23	Weak	Y	Good spectrum.
		Dec. 16·920	+22·7	17 = 23	"	"	
06h 58·1m	5·25	1919 Jan. 31·765	+21·1	15 = 23	"	"	
+11° 06′	6·32	Mar. 24·644	+21·6	9 = 23	Good	"	
		1920 Feb. 8·722	+20·2	11 = 23	Fair	"	
		Mar. 21·630	+19·3	15 = 23	Weak	"	
			+21·2 ±0·3				
1824	Ko	1920 April 8·656	+ 3·1	5 = 23	Good	P	Good lines but most
		Nov. 11·072	+ 2·3	13 = 23	Poor	"	of the plates are rather
07h 00·7m	6·73	Dec. 13·953	+ 2·5	7 = 23	Fair	"	weak.
+60° 57′	7·73	1921 Feb. 27·729	+ 1·6	13 = 23	Poor	"	
		Mar. 5·622	− 0·1	9 = 23	Good	"	
		Mar. 13·633	+ 4·0	11 = 23	Fair	"	
			+2·2 ±0·4				
1835	Ko	1919 Dec. 2·931	−15·8*	5 = 23	Good	P′	
		1920 Feb. 7·786	−17·5	5 = 23	"	"	
07h 02·6m	5·58	Feb. 28·760	−20·2	1 = 19	"	"	
+16° 05′	6·58	Mar. 25·663	−17·4	5 = 23	"	"	
		Mar. 30·638	−20·9*	7 = 23	"	"	
		1921 Mar. 8·644	−16·6	11 = 23	Fair	"	
			−18·1 ±0·6				
1850	F5	1918 Dec. 10·944	+10·5	18	Good	P	Numerous lines but
		1919 Jan. 7·918	+15·6	12	Fair	"	not sharp enough for
07h 06·3m	5·76	Jan. 30·851	+13·4	16	Good	"	satisfactory measure-
+24° 17′	6·18	Dec. 11·919	+12·5	16	"	"	ment on the compara-
		1920 Feb. 21·750	+11·2	18	"	"	tor.
		Mar. 9·726	+16·4	18	"	"	
			+13·3 ±0·6				
1851	B9	1919 Feb. 5·738	− 7·6	4	Good	Y	Many fair lines.
		Feb. 17·708	− 6·5	3	"	"	Calcium K. Hydrogen
07h 06·4m	6·20	Mar. 24·660	−14·0	3	"	"	and helium lines and
+81° 26′	6·20	1920 Mar. 24·040	− 7·6	4	Fair	"	the silicon lines 4128–31.
			−8·9 ±1·1				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
1852	Ao	1920 Feb. 9·705	−24*	3	Fair	H	The spectrum has broad hydrogen lines. λ4481 and K are also present but faint.
		Feb. 13·721	+ 3*	3	"	"	
07h 06·7m	6·89	Mar. 15·635	+ 3	2	Poor	"	
+25° 55′	6·89	Mar. 22·688	−12	4	Good	"	
		1921 Feb. 3·786	− 8	2	Fair	"	
			−7·6 ±3·4				
1859	B9	1918 Dec. 30·886	+ 2·2	2	Fair	Y	Several good lines are present in this star. Hγ, 4481, also 4549 and several other metallic lines, 4063-71, etc.
		1919 Jan. 6·868	+ 3·3	3	"	"	
07h 08·4m	6·66	Mar. 19·665	+ 1·2	4	Good	"	
+24° 53′	6·64	Mar. 24·679	+ 1·6	4	"	"	
		1920 Feb. 8·739	+ 0·4	2	Poor	"	
			+1·7 ±0·3				
1864	Ko	1920 Feb. 24·738	+27·5	5 = 23	Good	P′	
		Mar. 16·629	+29·8*	13 = 23	Fair	"	
07h 09·0m	5·84	Oct. 31·039	+30·8	17 = 23	Poor	"	
+12° 18′	6·84	1921 Feb. 16·778	+27·9	11 = 23	Fair	"	
		Mar. 8·659	+27·1	11 = 23	"	"	
		Mar. 8·675	+30·0	11 = 23	"	"	
			+28·8 ±0·5				
1871	Mb	1919 Feb. 17·725	+10·2	3 = 23	Good	Y	Good spectrum.
		1920 Feb. 22·740	+11·9	9 = 23	"	"	
07h 10·1m	5·11	Oct. 29·038	+10·1	13 = 23	"	"	
+82° 36′	6·46	1921 Jan. 27·783	+12·9	13 = 23	"	"	
		July 2·917	+11·0	17 = 23	Weak	"	
			+11·2 ±0·4				
1879	A2	1918 Nov. 21·017	−26·1	3	Good	Y	Several very wide, faint, fuzzy lines. K, Hδ, Hγ strong and wide, 4481 very faint.
		Nov. 21·028	−19·8*	3	"	"	
07h 10·9m	4·80	Dec. 16·936	−17·2	4	"	"	
+49° 38′	4·86	Dec. 16·948	−17·5	3	"	"	
		1919 Jan. 29·784	−12·4*	3	Fair	"	
		Jan. 29·795	−26·6*	3	Good	"	
			−19·9 ±1·5				
1900	Fo	1920 Jan. 21·786	−30	9	Fair	H	Broad fuzzy lines characterize this spectrum. There is a bare suspicion of complexity.
		Feb. 9·737	−39	8	"	"	
07h 14·5m	6·96	Feb. 20·701	−36	11	Good	"	
+73° 16′	7·24	Mar. 1·684	−30	4	Poor	"	
		1921 Feb. 15·805	−42	12	Fair	"	
			−35·4 ±1·6				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
1902	Fo	1919 Dec. 7·868	− 6·4	2	Poor	Y	The spectrum of this
		Dec. 31·866	+ 7·0*	3	"	"	and the next star are
07h 14·6m	7·32	1920 Feb. 29·654	− 7·1	5	Good	"	almost identical con-
+50° 20′	7·60	1921 Jan. 10·868	− 1·4	4	"	"	sisting of several wide
			−2·0 ±2·2				diffuse lines. The two
							stars form a wide
1903	Fo	1919 Dec. 31·823	− 3·3	8	Good	Y	double. The proper
		1920 Jan. 25·794	+15·5*	4	Poor	"	motions in Boss' cata-
07h 14·6m	7·42	Feb. 29·680	− 8·5	8	Good	"	logue are not identical
+50° 20′	7·70	1921 April 13·668	+15·2*	2	Poor	"	though the similarity
			+4·7 ±3·4				of the spectra would
							point to a physical
							system.
1904	Fo	1920 Feb. 9·772	−28·0	17	Fair	H	Spectrum similar to
		Feb. 20·740	−40·2	6	Poor	"	Boss 1900 above, from
07h 14·5m	6·96	Mar. 1·704	−29·0	4	"	"	which it is distant 30″,
+73° 16′	7·24	1921 April 4·663	−25·0	7	"	"	save that its lines are
			−30·0 ±2·0				much sharper. All
							plates underexposed
							and last three given
							only half weight.
1914	K2	1920 Feb. 10·734	+ 1·0*	9 = 23	Good	P′	Though range is
		Feb. 28·776	+ 4·2	9 = 23	"	"	large, star is probably
07h 16·1m	5·16	Mar. 16·682	+ 5·5	13 = 23	Fair	"	not a binary. The
+20° 38′	6·23	1921 Feb. 16·797	+ 3·1	15 = 23	"	"	only discrepant plate is
		Feb. 16·811	+ 3·9	15 = 23	"	"	very weak and is there-
		Mar. 1·743	+12·5*	15 = 23	Poor	"	fore not used in mean.
			+3·5 ±0·5				
1948	F5	1918 Dec. 10·954	−28·1	3 = 21	Good	P	The lines in this
		Dec. 29·937	−28·1	3 = 21	"	"	spectrum are slightly
07h 22·3m	5·36	1919 Feb. 2·824	−26·9	3 = 21	"	"	broader than the aver-
+49° 53′	5·78	Feb. 4·737	−27·8	3 = 21	"	"	age but give good
		Nov. 26·025	−26·1	1 = 19	"	"	measures.
		1920 Feb. 12·795	−29·5	1 = 19	"	"	
			−27·8 ±0·3				
1950	A5	1919 Dec. 1·988	+18·0	16	Fair	H	Very broad intense
		1920 Jan. 19·827	+17·0	15	"	"	calcium lines H and K
07h 22·6m	5·34	Feb. 27·732	+16·2	18	Good	"	with fairly strong and
+07° 09′	5·48	Mar. 15·654	+20·8	15	Fair	"	narrow hydrogen and
		Mar. 22·711	+16·4	20	Good	"	numerous metallic lines
		Oct. 29·974	+21·3	22	Fair	"	feature this star's spec-
			+18·3 ±0·6				trum.
1974	A5	1919 Oct. 30·026	+34·9	9	Good	P′	Listed A5 but more
		Dec. 2·954	+33·9*	10	"	"	closely a fuzzy-line F.
07h 26·9m	5·26	1920 Feb. 24·750	+31·0	13	"	"	Maximum range occurs
+02° 08′	5·40	Mar. 25·686	+29·2	7 = 23	"	"	in two successive plates
		1921 Mar. 8·690	+27·7*	9	Fair	"	on same night. Not a
		Mar. 8·706	+37·4*	5	Poor	"	binary.
			+32·3 ±1·2				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Line	Qual.	Obs.	Remarks
1980	Ko	1920 Feb. 13·744	− 1·3	3 = 23	Good	H	Spectrum good.
		Feb. 23·694	− 4·1	1 = 23	"	"	Third plate remeasured
07h 28·7m	6·04	Mar. 26·653	+ 2·5*	7 = 23	"	"	with only 0·4 km.
+56° 00′	7·04	1921 Feb. 15·839	− 2·4	3 = 23	"	"	difference to first meas-
		Mar. 4·649	− 1·0	5 = 23	"	"	ure.
			−1·3 ±0·7				
1981	Ko	1918 Nov. 20·998	− 5·9	1 = 21	Good	Y	Good spectrum.
		Dec. 20·892	− 4·5	1 = 21	"	"	
07h 28·8m	5·34	1919 Feb. 17·796	− 8·6	7 = 23	"	"	
+31° 11′	6·34	Dec. 3·920	− 5·6	5 = 23	"	"	
		1920 Feb. 25·695	− 3·7	3 = 23	"	"	
		Mar. 14·651	− 2·8	5 = 23	"	"	
			−5·2 ±0·6				
2010	A2	1918 Dec. 10·967	+11·5	4	Good	H	There are broad in-
		1919 Feb. 4·753	+15·5	3	"	"	tense hydrogen lines
07h 34·5m	4·96	Feb. 4·775	− 6·1	3	"	"	and calcium K in the
+58° 57′	5·02	Mar. 18·700	+16·4	3	"	"	spectrum. 4481 is faint
		Mar. 18·707	− 3·7	3	"	"	but sometimes meas-
		1920 Feb. 13·756	− 3·5	3	Fair	"	ureable. Error of meas-
		Mar. 1·718	− 7·0	3	Good	"	urement large but it
		Mar. 1·722	+ 9·8	3	"	"	seems peculiar that
			+4·1 ±2·4				pairs of plates are so discordant.
2027	A5	1919 Mar. 21·679	+29·5	4	Poor	Y	The spectrum of this
		Dec. 3·959	+20·7	3	Good	"	star is very poor, con-
07h 37·9m	6·84	1920 Feb. 8·763	+20·9	3	"	"	sisting of several wide
+24° 29′	6·98	Mar. 14·670	+28·3	3	"	"	diffuse lines only the
		1921 Mar. 30·714	+35·2*	4	Fair	"	best of which could be
			+26·9 ±1·8				measured.
2028	K5	1919 Feb. 11·793	+ 4·4	5 = 21	Good	H	
		April 1·652	+ 0·1	5 = 21	"	"	
07h 38·1m	5·40	April 13·650	+ 3·2	5 = 21	"	"	
+26° 01′	6·58	1920 Mar. 15·756	+ 4·9*	16 − 23	Fair	"	
		April 9·663	− 0·5*	9 = 23	Good	"	
		Oct. 29·995	+ 5·5	15 = 23	Fair	"	
			+2·9 ±0·7				
2040	K2	1919 Feb. 11·808	+82·2*	5 = 23	Good	P	The usual good lines
		April 13·639	+78·8	5 = 23	"	"	of this type but the
07h 40·3m	5·02	Dec. 4·987	+75·0	7 = 23	Fair	"	measures disagree more
+18° 45′	6·09	1920 Feb. 21·764	+74·8	5 = 23	Good	"	than expected. Vel-
		Mar. 9·740	+79·7	7 = 23	Fair	"	ocity may be slightly
		Mar. 30·667	+75·7	7 = 23	"	"	variable.
			+77·7 ±0·8				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2071	B8	1919 Jan. 10·867	+25·9	4	Good	Y	The four lines K, Hδ, Hγ and 4481 are
		Jan. 10·874	+32·0	4	"	"	
07h 46·5m	5·11	Jan. 31·806	+19·8	4	"	"	fine and sharp in this
+02° 01′	5·06	Jan. 31·816	+30·0	4	"	"	star. The helium ser-
		Feb. 21·739	+31·5	4	"	"	ies is present but faint
		April 7·664	+30·0	7	"	"	and was not measured
			+27·7 ±1·2				save on the last plate.
2092	Fo	1919 Dec. 2·972	+22·8*	7 = 23	Good	P′	A rather fuzzy-line F
		1920 Feb. 7·814	+20·8	5 = 23	"	"	
07h 50·0m	5·78	Feb. 10·753	+18·5	3 = 23	"	"	but comparator meas-
+09° 07′	6·06	Feb. 24·759	+19·0	11 = 23	"	"	ures are in fair agree-
		Mar. 16·691	+19·5	11 = 23	Poor	"	ment.
		1921 Mar. 19·635	+18·5*	9 = 23	Fair	"	
			+19·8 ±0·5				
2101	F2	1919 Feb. 5·762	−41·3	1 = 19	Good	Y	Good spectrum.
		Feb. 17·755	−41·0	1 = 19	"	"	
07h 53·0m	5·79	1920 Feb. 25·744	−39·8	1 = 23	"	"	
+59° 20′	6·13	Mar. 14·686	−39·1	1 = 19	"	"	
		Mar. 21·672	−40·0	1 = 19	"	"	
			−40·2 ±0·3				
2156	Ko	1920 Feb. 24·779	+ 6·2	11 = 23	Good	P′	The majority of the
		Mar. 16·713	+ 5·2	15 = 23	Fair	"	spectra are underex-
08h 04·1m	6·70	1921 Mar. 29·652	+ 5·1	15 = 23	"	"	posed on account of
+26° 08′	7·70	April 5·651	+ 1·9*	15 = 23	Poor	"	the faintness of star.
		April 8·655	+ 8·3*	13 = 23	Fair	"	
			+5·3 ±0·6				
2157	G5	1920 Jan. 19·856	−44·1	7 = 23	Fair	H	An excellent K-type
		Feb. 23·722	−44·0	1 = 23	Good	"	spectrum.
08h 04·4m	5·83	April 9·678	−43·2	1 = 23	"	"	
+25° 50′	6·61	Oct. 30·021	−44·2	9 = 23	Fair	"	
		1921 Jan. 8·881	−47·1	13 = 23	"	"	
		Feb. 3·836	−45·4	1 = 23	Good	"	
			−44·7 ±0·4				
2182	Ko	1920 Mar. 5·767	−30·0	9 = 23	Fair	P	Lines of good qual-
		April 13·660	−29·9	5 = 23	Good	"	ity.
08h 08·7m	6·70	April 22·664	−29·6	5 = 23	Fair	"	
+59° 30′	7·70	Dec. 13·979	−28·0	11 = 23	"	"	
		1921 Mar. 5·763	−25·3	11 = 23	"	"	
		Mar. 13·743	−30·0	11 = 23	Good	"	
			−28·8 ±0·5				
2197	F2	1919 Feb. 5·783	−17·0	1 = 19	Good	Y	Good spectrum.
		Feb. 17·741	−20·2*	1 = 19	"	"	
07h 12·4m	5·94	Mar. 21·700	−14·5*	1 = 19	"	"	
+58° 03′	6·28	1920 Mar. 21·688	−15·8	10	"	"	
		1921 Feb. 20·736	−16·8	11	"	"	
			−16·9 ±0·6				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2205	G5	1919 Oct. 30·063	−16·8	3 = 23	Good	P′	Range is large for this type of star and re-measures are accordant. It might be a binary of small range.
		Dec. 2·998	−20·8	5 = 23	"	"	
08h 14·5m	5·93	1920 Feb. 21·778	−23·5*	11 = 23	"	"	
+21° 04′	6·71	Mar. 25·705	−16·4*	11 = 23	Fair	"	
		1921 Mar. 19·662	−17·4*	17 = 23	Poor	"	
		Mar. 15·655	−20·0	13 = 23	Fair	"	
			−19·1 ±0·9				
2210	A2	1918 Dec. 29·974	+29·1	9	Fair	P	The type is more nearly A5 with numerous metallic lines which are broad and faint and difficult to measure accurately.
		1919 Feb. 11·838	+29·2	9	Good	"	
08h 16·2m	5·58	Feb. 23·814	+21·8	7	"	"	
+53° 22′	5·64	Mar. 18·746	+19·2	6	"	"	
		Dec. 11·940	+10·3	10	"	"	
		1920 Feb. 12·781	+17·4	8	"	"	
		Mar. 9·753	+16·0	11	"	"	
		Mar. 9·764	+19·7	10	"	"	
			+20·3 ±1·5				
2229	F2	1919 Mar. 21·662	+36·9	1 = 19	Good	Y	Good spectrum.
		April 14·649	+34·3	1 = 19	"	"	
08h 20·1m	6·18	1920 Feb. 29·734	+38·5	1 = 19	"	"	
+17° 23′	6·52	April 7·642	+37·4	1 = 19	"	"	
		1921 April 3·676	+38·0	1 = 19	"	"	
			+36·6 ±0·5				
2232	K2	1920 Feb. 9·800	+20·7*	14 = 23	Fair	H	
		Feb. 27·793	+25·8	5 = 23	Good	"	
08h 20·4m	5·83	April 12·677	+27·1*	11 = 23	"	"	
+28° 14′	6·90	Nov. 10·048	+24·6	15 = 23	Fair	"	
		1921 Feb. 3·867	+20·5	5 = 23	Good	"	
			+24·3 ±0·8				
2234	Ko	1920 Feb. 10·772	+14·0	1 = 23	Good	P′	
		Feb. 28·791	+13·9*	5 = 23	"	"	
08h 20·5m	5·23	Oct. 31·069	+18·4*	11 = 23	Fair	"	
+07° 53′	6·23	Dec. 6·988	+15·5	7 = 23	"	"	
		1921 Mar. 27·660	+13·6	1 = 23	Good	"	
			+15·1 ±0·6				
2238	A3	1919 Dec. 2·044	+15·8	9	Fair	H	The numerous lines are reasonably well-defined.
		1920 Feb. 28·737	+13·2	16	Good	"	
08h 20·7m	7·10	1921 Feb. 3·908	+16·5	20	"	"	
+24° 52′	7·18	Feb. 15·875	+12·8	14	Fair	"	
		Mar. 4·677	+19·0	15	Good	"	
			+15·5 ±0·8				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2239	G	1920 Feb. 23·755	+20·8*	14	Good	H	Lines are moderately sharp. Second plate given half weight. The star is 5″ from preceding with which, according to Burnham, it forms a physical system.
		1921 Mar. 4·709	+11·5	8	Poor	"	
08h 20·7m	7·64						
+24° 52′	8·20						
			+17·7 ±3·1				
2253	A2	1918 Dec. 20·965	− 8·6	11	Good	Y	Many diffuse lines are present in the spectrum. The third plate was given half weight.
		1919 Jan. 31·858	− 5·7	13	"	"	
08h 23·0m	5·90	Mar. 24·709	+ 8·0	7	Poor	"	
+14° 33′	5·96	1920 Oct. 29·061	−14·7	8	Good	"	
		1921 April 3·672	−15·2	8	"	"	
		April 17·700	− 6·4	8	"	"	
			−7·1 ±2·1				
2271	Ko	1920 Jan. 21·881	+24·6	11 = 23	Fair	H	
		Feb. 27·792	+20·7	5 = 23	Good	"	
08h 26·9m	5·52	Mar. 22·742	+20·3*	11 = 23	Fair	"	
+20° 47′	6·52	Oct. 30·043	+25·1	13 = 23	"	"	
		1921 April 4·693	+19·8	11 = 23	"	"	
			+22·1 ±0·8				
2277	A2	1918 Dec. 30·937	+17·8	3	Good	Y	Very poor K and 4481. Hδ and Hγ wide and diffuse. Range is smaller than to be expected.
		1919 Jan. 31·881	+30·4	2	"	"	
08h 28·3m	5·83	Mar. 21·711	+26·0	2	"	"	
+36° 46′	5·89	1920 April 14·660	+24·0	2	"	"	
		1921 April 7·673	+21·2	3	"	"	
			+23·9 ±1·4				
2284	Go	1918 Dec. 10·980	−12·9	1 = 19	Fair	P	Lines of good quality.
		1919 Feb. 11·851	−12·0	1 = 19	Good	"	
08h 30·3m	5·69	Mar. 20·725	−12·0	1 = 19	"	"	
+65° 22′	6·25	April 13·670	−10·3	1 = 19	"	"	
		Dec. 11·961	−13·2	1 = 19	"	"	
		1920 Mar. 2·757	−13·0	1 = 21	Fair	"	
			−12·2 ±0·3				
2296	Ao	1920 Feb. 7·839	+30	2	Fair	P′	This star shows a large range but is probably not a binary as the lines are diffuse and difficult to measure.
		Feb. 21·795	+32	4	"	"	
08h 32·7m	6·48	1921 Feb. 16·827	+19	1	"	"	
+09° 56′	6·48	Feb. 16·846	+26	2	Poor	"	
		Mar. 29·676	+16*	3	Fair	"	
		April 14·688	+41*	3	Poor	"	
			+27·3 ±2·6				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2306	Ko	1920 Jan. 19·912	−35·4	5 = 23	Good	H	
		Feb. 20·790	−36·8	1 = 23	"	"	
08h 34·1m	5·52	Mar. 1·769	−37·3	1 = 23	"	"	
+46° 11′	6·52	Nov. 6·017	−36·4	17 = 23	Poor	"	
		1921 Jan. 8·927	−41·9*	9 = 23	Fair	"	
			−37·6 ±0·8				
2308	Ko	1920 Feb. 18·813	+36·0	10	Weak	Y	Good spectrum.
		Feb. 29·701	+31·6	11 = 23	Good	"	
08h 34·4m	6·48	Mar. 14·707	+36·5	15 − 23	"	"	
+20° 22′	7·48	1921 Jan. 27·818	+32·1	15 = 23	"	"	
		April 3·734	+33·4	11 = 23	"	"	
			+33·9 ±0·6				
2309	Ao	1919 Dec. 30·951	+35·0	3	Fair	P′	A number of sharp metallic lines characterize this star.
		1920 Feb. 10·798	+30·8	5	Good	"	
08h 34·4m	6·52	Feb. 24·800	+36·2	5	"	"	
+20° 19′	6·52	1921 Feb. 16·870	+32·2	2	Fair	"	
		Mar. 8·768	+31·9	3	"	"	
		April 16·665	+34·5	4	Good	"	
			+33·4 ±0·7				
2310	G5	1920 Feb. 8·793	+33·2	13 = 23	Good	Y	Good spectrum. All the plates are a little weak.
		Feb. 29·716	+34·5	15 = 23	"	"	
08h 34·6m	6·40	Mar. 14·732	+37·7	15 = 23	"	"	
+20° 01′	7·18	1921 Jan. 27·863	+35·4	15 = 23	"	"	
		April 3·793	+38·1	15 = 23	"	"	
		April 6·715	+39·7	15 = 23	"	"	
			+36·4 ±0·7				
2313	A5	1920 Feb. 9·827	+32·9	10	Fair	H	This star is one of the Praesepe group and has broad, fuzzy lines.
		Feb. 23·774	+29·7	14	"	"	
08h 35·0m	6·72	1921 Feb. 3·954	+22·7	6	Poor	"	
+20° 04′	6·86	Mar. 4·745	+16·9	15	Fair	"	
		April 4·718	+36·5	9	"	"	
		May 4·709	+20·5	9	"	"	
			+26·6 ±2·0				
2364	F8	1919 Mar. 20·745	+ 4·8	1 = 21	Good	P	Sharp lines and accordant measures characterize this spectrum.
		April 6·697	+ 5·1	1 = 21	"	"	
08h 44·3m	6·22	April 15·669	+ 5·3	1 = 21	"	"	
+33° 41′	6·72	May 1·685	+ 4·9	11 = 21	Poor	"	
		Dec. 11·995	+ 3·2	5 = 21	Fair	"	
		1920 Feb. 12·865	+ 3·0	1 = 19	Good	"	
			+4·4 ±0·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2392	Ko	1919 Dec. 3·031	+62·2	5 = 23	Good	P′	
		1920 Feb. 21·815	+56·9*	3 = 23	"	"	
08h 50·1m	5·92	Mar. 16·741	+59·9	5 = 23	"	"	
+46 01′	6·92	1921 Feb. 16·892	+57·7	11 = 23	"	"	
		Mar. 8·732	+58·3	13 = 23	Fair	"	
		April 21·807	+62·2	13 = 23	"	"	
			+59·5 ±0·7				
2398	A3	1919 Feb. 16·842	+ 7·3	7	Good	P	This spectrum contains numerous metallic lines but broad and ill defined so that inter-agreement of measures is poor.
		Feb. 23·828	+ 9·6	8	"	"	
08h 50·8m	5·48	Mar. 8·806	+ 6·1	12	"	"	
+33° 18′	5·56	Mar. 20·759	+ 7·1	8	"	"	
		Dec. 5·011	− 3·7	12	"	"	
		1920 Mar. 9·775	+12·6	10	"	"	
		Mar. 30·692	− 4·5	10	"	"	
		Mar. 30·728	+ 3·0	8	"	"	
			+6·7 ±1·5				
2402	A5	1919 Mar. 23·738	− 7·3	12	Good	H	Hydrogen lines with H and K are strong. The numerous metallic lines are not very well defined except 4481.
		April 6·711	−11·5	15	"	"	
08h 52·0m	5·64	April 22·660	−11·2	17	"	"	
+15° 58′	5·78	Dec. 12·029	−12·9	9	Poor	"	
		1921 April 4·742	−12·0	12	Good	"	
			−11·0 ±0·6				
2430	F2	1920 Feb. 20·813	+18·4	1 = 23	Good	H	The lines are sharp enough to measure on the comparator.
		Mar. 1·752	+18·2	1 = 23	"	"	
08h 58·3m	6·73	Mar. 22·770	+17·0	1 = 23	"	"	
+51° 13′	7·07	1921 Feb. 15·916	+16·6*	7 = 23	Fair	"	
		April 25·699	+19·4	10 − 23	"	"	
			+17·3 ±0·7				
2439	Ko	1919 Mar. 24·739	+23·7	11 = 23	Good	Y	Good spectrum.
		April 27·667	+27·6	14 − 23	Fair	"	
09h 00·7m	5·41	1920 Feb. 8·830	+25·8	13 = 23	Good	"	
+05° 30′	6·41	Feb. 29·774	+28·0	1 = 23	"	"	
		1921 April 6·741	+24·8	7 = 23	"	"	
		April 17·720	+26·0	15 = 23	Fair	"	
			+26·0 ±0·4				
2474	K5	1920 Feb. 13·806	−33·6	5 = 23	Good	H	Good spectrum.
		Mar. 1·783	−28·2	3 = 23	"	"	
09h 08·5m	5·48	Mar. 26·698	−30·4	15 = 23	Fair	"	
+57° 10′	6·66	April 5·697	−33·1	13 = 23	"	"	
		1921 April 23·664	−29·2	14 − 23	"	"	
			−30·9 ±0·7				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2494 Pr.	A5	1919 Mar. 23·755	+22·3	8	Good	P	This pair of stars is
		April 1·711	+21·3	5	Fair	"	separated by about
$09^h\ 12{\cdot}3^m$	6·4	April 22·681	+27·2	7	Good	"	1".5 with practically
+35° 47′	6·7	1920 April 8·707	+28·4	9	Fair	"	constant position angle
		April 13·694	+23·4	10	Good	"	and distance for 60
		April 22·685	+29·6	11	"	"	years. They were ob-
			+25·4 ±0·9				served separately, the spectra are of practically the same type A5
2494 Fol.	A5	1919 Mar. 23·774	+30·0	9	Good	P	with numerous rather
		April 1·728	+32·9	10	"	"	poorly defined metallic
$09^h\ 12{\cdot}3^m$	6·6	April 22·704	+28·9	8	"	"	lines. The lines in the
+35° 47′	6·9	1920 April 13·720	+29·6	10	"	"	following star are con-
		April 22·700	+24·6	12	"	"	siderably sharper than
		April 22·715	+27·7	9	"	"	in the preceding.
			+28·9 ±0·7				
2530	G5	1919 Feb. 11·878	+37·7	1 = 21	Good	P	Excellent lines.
		Mar. 18·808	+39·6	1 = 21	"	"	
$09^h\ 22{\cdot}1^m$	5·56	April 1·747	+37·2	1 = 21	"	"	
+46° 02′	6·34	April 15·688	+35·7	1 = 21	Fair	"	
		1920 Feb. 12·862	+37·9	1 = 19	Good	"	
		Mar. 2·786	+39·1	5 = 21	Fair	"	
			+37·9 ±0·4				
2534	Ko	1919 Mar. 25·734	+ 0·9	1 = 23	Good	P	The usual good lines
		April 13·683	− 0·2	1 = 23	"	"	of K-type spectra.
$09^h\ 24{\cdot}7^m$	5·98	1920 Feb. 12·876	+ 0·7	5 = 23	"	"	
+34° 05′	6·98	Mar. 9·790	+ 3·6	5 = 23	Fair	"	
		April 2·759	+ 3·7	7 = 23	"	"	
		April 10·674	− 0·3	9 = 23	Poor	"	
			+1·4 ±0·5				
2556	Ko	1920 Jan. 21·914	+25·0*	14 − 23	Fair	H	
		Feb. 23·789	+19·0	7 = 23	Good	"	
$09^h\ 26{\cdot}5^m$	5·28	April 12·716	+21·2	11 = 23	"	"	
+10° 09′	6·28	1921 Jan. 8·978	+18·2	11 = 23	"	"	
		April 4·754	+20·5	16 − 23	Fair	"	
			+20·8 ±0·8				
2576	Ao	1919 Mar. 8·818	+31·1	6	Good	P	The hydrogen lines,
		Mar. 20·791	+23·0	5	Fair	"	a fairly good Mg and
$09^h\ 30{\cdot}5^m$	6·21	April 13·704	+31·6	6	Good	"	K and occasionally
+14° 49′	6·21	1920 May 4·701	+18·9	6	Fair	"	some faint metallic
		Dec. 14·001	+19·8	9	"	"	lines are all that can be
		1921 Feb. 24·840	+23·4	4	Poor	"	measured in this spec-
		Mar. 5·792	+16·5	5	Fair	"	trum.
		Mar. 23·789	+27·2	5	"	"	
			+23·9 ±1·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2578	Ma	1919 Mar. 20·774	−24·5	9 = 23	Fair	P	This spectrum is
		April 6·735	−23·8	9 = 23	"	"	rather a late K-type
09h 30·8m	5·74	1920 Mar. 9·812	−21·6	7 = 23	Good	"	and the measures are
+31° 37′	7·09	April 17·665	−19·1	11 = 23	Poor	"	reasonably accordant.
		Dec. 14·017	−21·0	9 = 23	Good	"	
		1921 Mar. 5·810	−21·2	9 = 23	"	"	
			−22·2 ±0·5				
2583	F8	1919 Mar. 21·739	+29·8	13 = 23	Fair	Y	Good spectrum.
		April 21·727	+30·9	9 = 23	Good	"	
09h 32·1m	6·60	1920 Feb. 8·852	+29·4	1 = 19	"	"	
+25° 07′	7·10	Feb. 29·790	+33·3*	11 = 23	"	"	
		1921 Jan. 10·939	+28·8*	9 = 23	"	"	
		April 17·751	+30·0	11 = 23	Fair	"	
			+30·4 ±0·5				
2586	F2	1920 Feb. 9·859	+16·0	15 = 23	Poor	H	Plates are in general
		Feb. 23·803	+25·2	7 = 23	Good	"	underexposed. The
09h 32·6m	6·60	1921 Mar. 4·777	+18·9	13 = 23	Fair	"	lines are not sharp and
+14° 48′	6·94	April 4·841	+16·2	14 − 23	"	"	the range shown may
		April 15·703	+21·4	14 − 23	"	"	be expected from the
		May 2·685	+22·2	12 − 23	"	"	accidental error of
			+20·0 ±1·0				measurement.
2611	F2	1919 Mar. 19·734	−32·7	8	Good	Y	Lines in this star are
		April 14·691	−34·6	9	"	"	too diffuse to measure
09h 38·2m	6·50	1920 Feb. 22·804	−33·6	7	"	"	with the Hartmann
+64° 07′	6·84	Mar. 14·752	−34·0	7	"	"	comparator but they
		Mar. 21·726	−27·8	6	"	"	are numerous and fair.
			−32·5 ±0·8				
2620	Ko	1920 Mar. 9·841	−41·2	9 = 23	Poor	P	The first plate of
		April 22·737	−44·5	5 = 23	Good	"	this star is weak and
09h 40·3m	6·80	Dec. 14·040	−43·9	7 = 23	Fair	"	should probably only
+45° 35′	7·80	1921 Mar. 5·840	−45·8	9 = 23	Good	"	have been given half
		Mar. 13·773	−45·4	9 = 23	"	"	weight.
		Mar. 27·749	−45·4	7 = 23	"	"	
			−44·4 ±0·5				
2621	Ma	1920 Feb. 7·906	− 1·8*	15 = 23	Fair	P′	This star which is
		Feb. 28·835	+ 1·3*	13 = 23	Good	"	listed as Ma approxi-
09h 40·9m	5·99	1921 Mar. 29·793	+ 2·6	15 = 23	Fair	"	mates more closely to
+07° 10′	7·34	April 5·705	+ 0·4	15 = 23	"	"	Ko. Though range is
		April 8·714	− 2·4	15 = 23	"	"	large, no reason to sus-
		May 12·708	+ 5·6*	15 = 23	"	"	pect it a binary.
			+0·9 ±0·6				

28489—5½

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2624	Fo	1920 Feb. 20·836	− 3	10	Fair	H	Broad hazy bands characterize this spectrum making for a large probable error of measurement. Third and fourth plates are weighted one-half.
		Feb. 27·815	+ 8*	8	"	"	
09h 42·0m	6·37	Mar. 22·806	− 5	4	"	"	
+12° 03′	6·65	1921 April 4·724	± 0	2	Poor	"	
		April 15·737	−21*	10	Fair	"	
		May 2·717	−12	6	"	"	
			−5·5 ±2·2				
2626	Go	1919 Feb. 11·890	+ 5·3*	1 = 21	Good	H	An excellent star to measure.
		Mar. 18·818	+ 2·2*	1 = 21	"	"	
09h 42·1m	5·20	April 1·759	+ 4·6	1 = 21	"	"	
+46° 29′	5·76	April 13·714	+ 5·8*	1 = 23	"	"	
		1920 Feb. 27·831	+ 4·6	1 = 23	"	"	
		1921 Jan. 9·027	+ 2·5	1 = 23	"	"	
			+4·2 ±0·4				
2642	A2	1919 Feb. 11·915	−10·4*	16	Good	P	Numerous metallic lines and the strength of H and K make this spectrum A5. The lines are rather broad and the first plate differs considerably from others. Omitting this the velocity is +0·3 ±0·4.
		Feb. 23·881	+ 2·2*	13	"	"	
09h 46·3m	5·33	Mar. 8·828	− 1·6	13	"	"	
+24° 52′	5·39	Mar. 25·717	+ 1·6	7	"	"	
		Dec. 5·034	+ 2·1	16	"	"	
		1920 Feb. 26·834	− 0·1	15	"	"	
		Feb. 26·847	− 0·9	14	"	"	
		Mar. 2·819	− 1·0	11	Fair	"	
			−0·4 ±1·0				
2660	G5	1920 Feb. 13·821	−48·8	1 = 23	Good	H	
		Mar. 15·768	−45·6	3 = 23	"	"	
09h 50·2m	5·99	May 3·684	−45·6	3 = 23	"	"	
+57° 54′	6·77	1921 April 4·865	−47·1	12 − 23	Fair	"	
		April 21·838	−44·2	8 − 23	"	"	
			−46·3 ±0·5				
2662	F2	1920 Feb. 10·843	+ 5·1	1 = 23	Good	P′	The 5th plate is not used in forming mean as it is very weak and gave a widely discrepant value on remeasurement on micrometer.
		Feb. 28·864	+ 6·1	1 = 23	"	"	
09h 50·7m	6·60	Mar. 25·755	+ 6·1	5 = 23	Fair	"	
+32° 51′	6·94	1921 Feb. 16·994	+ 9·8*	9 = 23	"	"	
		Mar. 25·829	+ 1·8*	5 = 19	Poor	"	
		April 16·770	+ 7·0	7 = 23	Fair	"	
			+6·8 ±0·5				
2671	Ko	1920 Feb. 20·871	−15·8	15 = 23	Fair	H	The usual K-type lines.
		April 9·716	−21·1	13 = 23	"	"	
09h 52·9m	6·27	1921 Mar. 4·808	−18·4	16 − 23	"	"	
+08° 48′	7·27	April 15·766	−17·0	14 − 23	"	"	
		April 21·682	−17·5	16 − 23	"	"	
		April 29·709	−14·8	18 − 23	Poor	"	
			−17·4 ±0·6				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2673	K5	1919 Mar. 19·754	−16·3	5 = 23	Good	Y	Good spectrum.
		April 14·704	−14·0	5 = 23	"	"	
09h 53·0m	5·71	April 23·652	−13·8	15 − 23	Fair	"	
+57° 18′	6·89	1920 Feb. 22·827	−14·5	13 = 23	Good	"	
		Mar. 14·768	−10·8	15 = 23	Fair	"	
		Mar. 21·752	−15·6	7 = 23	Good	"	
			−14·2 ±0·5				
2685	F2	1920 Jan. 21·948	− 5·5	15 = 23	Fair	H	The lines in this spectrum are not at all sharp.
		Feb. 23·818	− 2·6	11 = 23	"	"	
09h 59·0m	6·42	1921 Mar. 18·847	− 4·7	11 = 23	"	"	
+03° 42′	6·76	April 7·751	± 0·0	17 − 23	Poor	"	
		April 15·799	+ 2·1	16 − 23	"	"	
		May 4·746	− 3·8	16 − 23	"	"	
			−2·4 ±0·8				
2711	F5	1919 Mar. 19·791	−20·3	1 = 19	Good	Y	Good spectrum.
		April 14·719	−13·9	1 = 19	"	"	
10h 06·2m	6·41	April 27·701	−18·1	1 = 19	"	"	
+13° 51′	6·83	1920 Feb. 25·791	−19·1	9 = 23	Fair	"	
		April 14·701	−18·5	3 = 23	Good	"	
		April 21·670	−14·8	3 = 19	"	"	
			−17·5 ±0·7				
2724	Ao	1918 May 9·705	+24·7	2	Fair	Y	Very poor spectrum. Only Hδ and Hγ measurable.
		May 29·693	+ 7·8	2	"	"	
10h 10·6m	5·35	Nov. 21·070	+12·0	2	Good	"	
+29° 48′	5·35	Nov. 21·084	+ 7·5	2	"	"	
		Dec. 30·973	+ 6·8	2	"	"	
		Dec. 30·985	+ 4·0	2	"	"	
		1919 Mar. 21·754	+30·1	2	"	"	
		Mar. 21·762	+14·8	2	"	"	
		April 4·713	+30·2	2	"	"	
			+15·3 ±2·3				
2727	Go	1919 April 23·685	+33·4*	1 = 19	Good	Y	Good spectrum.
		1920 Feb. 8·878	+28·7	1 = 19	"	"	
10h 10·8m	6·51	Feb. 22·859	+27·1	1 = 19	"	"	
+20° 10′	7·07	April 7·696	+28·8	9 = 19	"	"	
		1921 Feb. 20·802	+26·1	15 = 23	Poor	"	
		April 6·792	+28·8	11 = 23	Good	"	
			+28·8 ±0·7				
2736	G5	1920 Feb. 21·875	− 8·2	1 = 19	Good	P′	The fourth plate is not used in forming mean as re-measures by P and P′ differ by more than 10 km. It is a very weak plate.
		Mar. 16·803	− 6·1	1 = 19	"	"	
10h 12·8m	6·69	May 11·690	− 8·3	3 = 19	"	"	
+44° 33′	7·47	1921 Feb. 17·042	+ 3·5*	15 = 23	Poor	"	
		April 2·881	− 6·3	11 = 23	Fair	"	
		April 16·861	− 5·8	11 = 23	"	"	
			−6·9 ±0·4				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2740	Ko	1919 Dec. 2·093	+10·0	13 = 23	Fair	H	The usual K-type lines.
		1920 Feb. 13·843	+10·5	5 = 23	Good	"	
10^h $14·1^m$	6·22	Mar. 1·798	+ 6·7	1 = 23	"	"	
+54° 43′	7·22	Mar. 15·800	+ 6·8	15 = 23	Poor	"	
		1921 April 15·872	+ 6·3	14 — 23	"	"	
			+8·1 ±0·6				
2752	B9	1919 Feb. 11·929	+10·3	7	Good	P	Excellent Mg and K lines and a number of fainter metallic lines are characteristic of this spectrum.
		Mar. 8·851	+13·5	6	"	"	
10^h $16·5^m$	6·10	Mar. 8·862	+ 9·5	5	"	"	
+15° 29′	6·08	Mar. 25·752	+ 8·9	5	"	"	
		1920 Feb. 12·892	+ 5·6	11	"	"	
		April 24·671	+ 8·5	10	Fair	"	
			+8·8 ±0·7				
2761	Ko	1919 Jan. 6·942	−22·1	1 = 23	Good	Y	Good spectrum.
		Mar. 19·772	−23·5	1 = 23	"	"	
10^h $18·4^m$	5·78	April 14·732	−24·1	1 = 23	"	"	
+34° 13′	6·78	1920 Mar. 14·784	−19·5	13 = 23	"	"	
		April 21·732	−22·5	11 = 23	"	"	
		1921 April 13·760	−30·3	7 = 23	"	"	
			−22·0 ±0·5				
2780	Ko	1920 Feb. 10·875	−26·7	1 = 23	Good	P′	
		Feb. 28·961	−23·6	5 = 23	"	"	
10^h $22·8^m$	6·39	April 20·725	−25·7	13 = 23	Fair	"	
+66° 08′	7·39	1921 Mar. 29·864	−26·2	1 = 23	Good	"	
		April 5·857	−23·2	15 = 23	Fair	"	
		April 16·809	−25·2	11 = 23	"	"	
			−25·1 ±0·4				
2800	Ma	1920 Feb. 9·898	+35·7	15 = 23	Fair	H	Lines good but fourth plate much underexposed and is given half weight.
		Feb. 23·833	+33·9	9 = 23	Good	"	
10^h $26·9^m$	5·74	April 5·738	+35·2	15 = 23	Fair	"	
+14° 39′	7·09	1921 Feb. 15·973	+27·9	22 — 23	Poor	"	
		Mar. 4·847	+32·6	13 = 23	Good	"	
		April 29·740	+35·8	16 — 23	Fair	"	
			+34·0 ±0·7				
2828	Ko	1919 Mar. 23·806	+45·3	5 = 23	Good	P	Lines of the usual good quality for K-type in this spectrum.
		April 6·780	+46·2	7 = 23	Fair	"	
10^h $32·9^m$	5·72	April 22·727	+47·3	7 = 23	Good	"	
+54° 12′	6·72	1920 Mar. 5·814	+42·3	7 = 23	Poor	"	
		Dec. 14·091	+45·6	11 = 23	"	"	
		1921 Mar. 13·810	+45·5	11 = 23	Fair	"	
			+45·4 ±0·5				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2838	Ko	1919 Mar. 23·822	+ 3·9	5 = 23	Good	P	Good quality lines.
		April 6·795	+ 4·5	13 — 23	Fair	"	
$10^h\ 34{\cdot}7^m$	5·90	April 22·749	+ 6·9	13 — 23	"	"	
+68° 58′	6·90	1921 Mar. 5·869	+ 8·9*	11 = 23	"	"	
		Mar. 13·864	+ 6·4	11 = 23	"	"	
		Mar. 27·774	+ 5·3	7 = 23	Good	"	
			+6·0 ±0·5				
2847	Ma	1920 Feb. 12·920	+14·1	7 = 23	Good	P	The lines are of good
		April 10·769	+16·5	11 = 23	Fair	"	quality and the devia-
$10^h\ 36{\cdot}6^m$	6·33	April 22·763	+16·5	9 = 23	"	"	tion of the last plate
+32° 14′	7·68	1921 Mar. 13·924	+15·6	11 = 23	Poor	"	has not been explained.
		Mar. 27·797	+15·8	7 = 23	Good	"	
		April 2·833	+10·4*	11 = 23	Fair	"	
			+14·3 ±0·6				
2858	Ko	1919 April 28·676	− 4·0	5 = 21	Good	H	Spectrum good. 6″
		May 5·687	− 1·4*	14 — 23	Fair	"	distant is the following
$10^h\ 38{\cdot}1^m$	5·99	1920 Feb. 27·857	− 3·7	11 = 23	"	"	fainter star. According
+05° 16′	6·99	1921 Mar. 4·885	− 5·2	14 = 23	"	"	to Burnham the pair is
		April 7·820	− 1·8	16 — 23	"	"	fixed.
			−3·2 ±0·5				
2858	G	1919 April 28·716	− 0·9	8	Poor	H	Plates much under-
		May 2·684	+ 2·5	7	"	"	exposed but spectrum
$10^h\ 38{\cdot}1^m$	7·1	1921 April 7·789	− 5·1	5	"	"	estimated approxi-
+05° 16′	7·7		**−1·2 ±1·5**				mately G-type.
2864	K2	1920 Feb. 18·876	+ 6·0	6	Fair	Y	Good spectrum.
		Feb. 29·836	+10·9	13 = 23	Good	"	First plate taken with
$10^h\ 40{\cdot}0^m$	6·57	April 7·730	+10·5	13 = 23	"	"	short camera for which
+03° 00′	7·64	1921 Jan. 10·970	+12·0*	17 = 23	Poor	"	no Hartmann stand-
		April 6·766	+ 7·7	15 = 23	Good	"	ards are as yet avail-
			+9·4 ±0·7				able.
2865	Ma	1920 Feb. 18·846	+ 1·5	7	Good	Y	Good spectrum. All
		Feb. 29·811	− 4·3*	15 = 23	"	"	the plates are rather
$10^h\ 40{\cdot}2^m$	6·49	Mar. 21·779	+ 0·3	15 = 23	"	"	weak.
+57° 53′	7·84	April 25·684	− 1·8	15 = 23	"	"	
		1921 Jan. 27·934	− 0·8	15 = 23	"	"	
			−1·0 ±0·6				
2883	Ao	1919 Jan. 31·896	−22·7	3	Good	Y	Only wide hydro-
		Jan. 31·909	− 8·1	1	"	"	gen, faint K and 4481.
$10^h\ 44{\cdot}0^m$	5·27	Mar. 21·792	−40·2*	3	Fair	"	
+11° 04′	5·27	Mar. 21·802	−17·0	3	Good	"	
		Mar. 24·753	− 9·4	1	Fair	"	
		Mar. 24·762	−21·2	3	Good	"	
		April 25·664	−11·7	3	"	"	
		April 28·674	−17·3	3	"	"	
			−18·4 ±2·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2895	Ko	1919 May 5·718	−11·9*	1 = 23	Good	H	Good quality spectrum.
		1920 Feb. 13·869	−15·2*	5 = 23	"	"	
10^h $46·5^m$	6·72	Mar. 1·821	−12·9	1 = 23	"	"	
+53° 06′	7·72	April 9·779	−11·1	9 = 23	Fair	"	
			−12·8 ±0·6				
2896	Ko	1920 Feb. 13·892	− 6·5	5 = 23	Good	H	The lines are good and agreement satisfactory.
		Mar. 1·844	− 5·9	1 = 23	"	"	
10^h $46·5^m$	6·58	April 9·798	− 7·1	5 = 23	"	"	
+53° 03′	7·58	May 3·723	− 7·0	9 = 23	Fair	"	
			−6·6 ±0·2				
2910	Ko	1919 Mar. 25·770	−23·7	1 = 23	Good	P	The lines are of good quality and the measures agree unusually well.
		April 12·764	−22·4	1 = 23	Fair	"	
10^h $50·2^m$	5·23	April 29·669	−20·7	1 = 23	Good	"	
+34° 02′	6·23	1920 Feb. 12·946	−23·1	5 = 23	"	"	
		Feb. 26·863	−22·5	5 = 23	"	"	
		Mar. 30·762	−22·5	5 = 23	Fair	"	
			−22·5 ±0·3				
2912	Ko	1920 Feb. 7·943	−58·8*	11 = 23	Fair	P′	The velocity of sixth plate is the mean of three measures, two by P′ and one by P. P considers that there is some local distortion as his measures are peculiar. Given half weight.
		Feb. 24·903	−55·2	1 = 23	Good	"	
10^h $50·6^m$	6·11	Mar. 25·822	−54·5	1 = 23	"	"	
+42° 33′	7·11	April 13·758	−55·3	5 = 23	"	"	
		1921 Mar. 29·934	−56·7	7 = 23	"	"	
		April 12·836	−51·4*	11 = 23	Fair	"	
			−55·7 ±0·5				
2913	F2	1919 Jan. 31·927	+ 2·2	1 = 19	Good	Y	Good spectrum.
		Mar. 21·776	+ 4·7	9 = 21	Fair	"	
10^h $50·6^m$	6·05	April 14·744	+ 4·0	1 = 19	Good	"	
+01° 16′	6·39	May 4·672	+ 0·0	1 = 19	"	"	
		1920 Feb. 8·897	+ 2·2	1 = 23	"	"	
		April 7·756	+ 1·5	1 = 19	"	"	
			+2·2 ±0·4				
2918	G5	1920 Feb. 23·850	−51·3	5 = 23	Good	H	The lines are of good quality.
		Mar. 1·867	−51·9	7 = 23	"	"	
10^h $52·0^m$	6·26	Mar. 15·830	−49·7	9 = 23	Fair	"	
+78° 18′	7·04	1921 Mar. 4·920	−50·6	7 = 23	Good	"	
		April 25·721	−48·7	14 = 23	Fair	"	
			−50·4 ±0·3				
2924	F8	1919 Mar. 8·876	− 5·9	1 = 21	Good	P	Lines of good quality and accordant measures make the probable error of measurement less than 0·5 km. per plate.
		Mar. 23·875	− 7·0	1 = 21	"	"	
10^h $54·7^m$	6·12	April 13·697	− 6·4	1 = 21	"	"	
+43° 27′	6·62	April 29·680	− 6·9	1 = 21	"	"	
		1920 Feb. 26·883	− 7·0	1 = 19	"	"	
		Mar. 30·796	− 5·3	5 = 21	Fair	"	
			−6·4 ±0·2				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2967	Go	1919 May 4·695	+43·8	5 = 19	Good	Y	This is a good quality spectrum but all the plates except the first are rather underexposed.
		1920 Feb. 25·823	+45·8	15 = 23	"	"	
11h 08·4m	6·94	Feb. 29·862	+44·4	15 = 23	"	"	
+20° 41′	7·50	Mar. 14·830	+44·5	17 = 23	Weak	"	
		April 25·711	+42·9	11 = 23	Good	"	
		May 5·702	+44·1	13 = 23	"	"	
			+44·2 ±0·3				
2970	Ao	1918 May 9·721	+ 2·1	3	Good	Y	Wide strong hydrogen and a weak K line and 4481 are the only lines present in the spectrum.
		Dec. 31·020	− 1·3	3	"	"	
11h 08·7m	5·40	1919 Jan. 6·980	+ 7·1	3	"	"	
+00° 29′	5·40	Jan. 6·994	− 6·9	2	"	"	
		Mar. 24·796	+ 4·8	1	"	"	
		Mar. 24·805	± 0·0	3	"	"	
		1920 April 14·735	+ 8·6	1	"	"	
		May 5·677	+ 0·6	1	"	"	
			+1·9 ±0·9				
2973	Ko	1919 April 28·723	+19·3	1 = 21	Fair	H	The range seems a little more than one would expect from the good character of the lines.
		1920 Feb. 23·867	+18·5*	12 − 23	"	"	
11h 08·8m	5·90	Mar. 22·836	+15·4	3 − 23	Good	"	
+08° 37′	6·90	April 23·707	+13·3	11 = 23	Fair	"	
		1921 April 7·843	+12·4	14 − 23	"	"	
			+15·8 ±0·9				
2977	F2	1919 Mar. 19·811	−43·7	1 = 19	Good	Y	Good spectrum.
		April 7·716	−43·7	1 = 19	"	"	
11h 10·3m	6·34	April 14·757	−43·1	1 = 19	"	"	
+53° 19′	6·68	1920 Feb. 22·897	−43·7	1 = 19	"	"	
		Mar. 14·800	−41·2	3 = 19	"	"	
		Mar. 21·822	−44·9	15 = 23	Fair	"	
			−43·4 ±0·3				
2978	Ko	1919 Mar. 25·783	+15·4	5 = 23	Good	P	The lines are of good quality and the rather unusually large range may be due to real variation in velocity.
		1920 Feb. 12·963	+10·7	5 = 23	"	"	
11h 10·6m	5·48	April 2·781	+10·1	9 = 23	Fair	"	
+13° 51′	6·48	May 4·731	+14·3	7 = 23	Good	"	
		1921 Mar. 13·957	+11·3	9 = 23	Fair	"	
		Mar. 27·820	+ 8·6	7 = 23	Good	"	
			+11·7 ±0·7				
2979	Fo	1919 Mar. 24·779	−14·6	9	Good	Y	Many rather wide fuzzy lines in the spectrum which give discordant measures. The range is no larger than to be expected.
		April 7·767	−34·9	7	"	"	
11h 10·8m	6·54	April 23·723	−20·0	6	"	"	
+13° 24′	6·82	1920 Feb. 8·912	−12·7	5	"	"	
		April 7·776	−24·4	6	"	"	
		April 28·707	−17·9	5	"	"	
			−20·7 ±2·2				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2993	Ao	1919 Feb. 5·887	+ 7·7	3	Good	Y	Only wide, strong hydrogen and wide K and faint, wide 4481 in the spectrum of this star.
		Feb. 17·864	+22·6	1	Poor	"	
$11^h\ 16{\cdot}9^m$	5·98	April 7·736	+ 5·1	3	Good	"	
$+64°\ 53'$	5·98	April 21·756	− 7·1	3	"	"	
		1920 Feb. 22·919	−10·3	3	"	"	
		Mar. 21·804	− 7·3	2	"	"	
		Mar. 24·785	+10·7	1	Fair	"	
		May 2·694	− 5·8	1	"	"	
			+0·6 ±2·5				
3000	G5	1919 Mar. 25·798	−11·4	5 = 23	Good	P	The lines are sharp but the range in velocity rather greater than usual may be due to a real variation.
		1920 April 15·799	− 7·9	5 = 23	Fair	"	
$11^h\ 18{\cdot}9^m$	5·52	April 22·781	−10·2	5 = 23	Good	"	
$+01°\ 58'$	6·30	1921 Mar. 5·906	− 9·0	11 = 23	Poor	"	
		Mar. 13·942	− 8·0	11 = 23	Fair	"	
		Mar. 27·835	−12·3	7 = 23	Good	"	
			−9·8 ±0·6				
3007	G5	1920 Feb. 21·901	− 7·6	3 = 23	Good	P′	
		Mar. 16·827	− 7·5	9 = 23	"	"	
$11^h\ 20{\cdot}4^m$	5·85	April 10·791	− 6·4	1 = 19	"	"	
$+56°\ 24'$	6·63	April 29·745	− 6·2	11 = 23	Fair	"	
		May 14·699	− 8·2	9 = 23	"	"	
		June 1·704	− 4·2	7 = 23	Good	"	
			−6·7 ±0·4				
3008	F2	1919 Feb. 23·906	+18·6	1 = 19	Good	P	The lines in this F2 star are fairly sharp and the measures as accordant as can be expected.
		Mar. 18·869	+17·5	1 = 19	"	"	
$11^h\ 20{\cdot}4^m$	5·63	April 1·797	+13·3	1 = 19	"	"	
$+17°\ 01'$	5·97	1920 Feb. 26·901	+14·7	3 = 21	"	"	
		1921 Mar. 5·925	+15·0	9 = 21	Fair	"	
		Mar. 13·971	+14·7	7 = 21	"	"	
			+15·6 ±0·5				
3027	Ao	1919 Feb. 5·915	+ 3·8	13	Good	Y	Numerous lines of good quality for measurement are present in this star.
		Feb. 17·887	+ 1·9	12	"	"	
$11^h\ 24{\cdot}8^m$	6·13	Mar. 28·782	− 1·2	14	"	"	
$+81°\ 41'$	6·13	April 7·751	+ 4·3	14	"	"	
		April 21·741	+ 0·9	11	"	"	
		1920 Mar. 24·755	+ 3·4	13	"	"	
			+2·2 ±0·6				
3072	Ao	1919 Feb. 11·946	+ 0·2	8	Good	P	Broad but strong hydrogen and sharp Mg and K with a few faint metallic lines give fairly accordant results.
		Feb. 23·931	− 3·6	7	"	"	
$11^h\ 35{\cdot}0^m$	6·10	Mar. 8·890	+ 7·1	8	"	"	
$+58°\ 31'$	6·10	Mar. 23·858	+ 8·2	7	"	"	
		1920 April 2·808	− 0·2	8	Fair	"	
		1921 Mar. 27·877	+ 3·6	5	Good	"	
		Mar. 27·888	+ 3·4	6	"	"	
		April 2·773	+ 1·9	6	Fair	"	
			+2·6 ±0·9				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
3083	G5	1919 April 29·692	+ 3·3	5 = 23	Good	P	This spectrum has
		1920 Mar. 16·892	+ 1·7	7 = 23	Fair	"	sharp lines and is
11h 38·3m	6·81	May 13·715	− 1·9	11 = 23	Poor	"	nearer K than G5 in
+42° 17′	7·59	1921 Mar. 13·997	+ 0·7	9 = 21	Fair	"	type.
		Mar. 27·857	+ 1·4	5 = 23	Good	"	
		April 12·895	+ 3·6	11 = 23	Poor	"	
			+1·8 ±0·5				
3135	Ao	1919 Jan. 7·009	+ 0·6*	8	Good	Y	The lines in this
		Jan. 7·022	− 2·5	6	"	"	spectrum are narrow
11h 54·8m	5·24	Jan. 31·944	− 5·0	8	"	"	and sharp. K, Hγ,
+04° 13′	5·24	Jan. 31·955	− 2·0	4	"	"	Hδ, 4549, 4481. The
		Mar. 28·801	− 9·4	4	"	"	metallic lines 4045,
		Mar. 28·815	− 3·2	7	"	"	etc., also show faintly.
			−3·6 ±0·9				Cannon in D. O. Pub.
							Vol. IV, No. 2, gives
							−0·5 ± 1·7.
3142	F8	1919 April 28·944	+ 5·4	12 − 21	Poor	H	The lines are some-
		May 20·713	+12·7	5 = 21	Good	"	what broad and only
11h 56·6m	6·58	1920 Feb. 20·904	+10·0	9 = 23	"	"	fair for measurement.
+22° 39′	7·08	Feb. 23·909	+10·7	5 = 23	Fair	"	
		Mar. 1·902	+ 3·5*	9 = 23	"	"	
		April 5·778	+14·8	9 = 23	"	"	
		April 12·787	+13·1*	9 = 23	"	"	
		May 19·697	+ 8·5	7 = 23	Good	"	
			+9·8 ±0·9				
3149	F5	1919 April 23·749	+ 6·1	1 = 19	Good	Y	Good spectrum.
		May 21·703	+11·0	1 = 19	"	"	
11h 58·6m	6·52	1920 Feb. 8·939	+ 4·6	9 = 23	Fair	"	
+06° 07′	6·94	Feb. 25·897	+10·0	9 = 23	"	"	
		April 7·799	+ 5·2	9 = 23	Good	"	
		April 25·737	+ 8·5	9 = 23	"	"	
			+7·6 ±0·7				
3156	Ko	1919 Mar. 23·840	−21·3	5 = 23	Good	P	
		April 13·766	−18·3	5 = 23	"	"	
12h 00·2m	5·96	1921 Mar. 5·886	−16·8	7 = 23	Fair	"	
+77° 28′	6·96	Mar. 13·884	−19·3	7 = 23	Good	"	
		April 2·801	−19·1	7 = 23	"	"	
		April 12·793	−17·3	11 = 23	Poor	"	
			−18·7 ±0·4				
3157	Ko	1918 May 25·718	−27·9	13 − 23	Good	Y	
		May 27·714	−28·8	10 − 21	"	"	
12h 00·6m	6·24	June 2·702	−28·3	3 = 21	"	"	
+63° 30′	7·24	June 3·702	−28·1	5 = 21	"	"	
		1919 Mar. 24·832	−26·0	5 = 23	"	"	
		April 14·770	−24·0	5 = 23	"	"	
			−27·2 ±0·5				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
3171	Fo	1918 May 9·742	−10·2	1 = 19	Good	Y	Good spectrum.
		May 20·728	− 8·7	11 = 21	"	"	
12h 05·0m	5·74	1919 Jan. 7·039	− 6·9	1 = 19	"	"	
+06° 22′	6·02	Jan. 31·990	− 7·6	1 = 19	"	"	
		Mar. 24·816	−12·5	1 = 19	"	"	
		April 7·783	− 9·6	1 = 19	"	"	
			−9·2 ±0·5				
3173	Ao	1918 May 21·752	−18·6	4	Good	Y	The hydrogen lines Hδ and Hγ and rather poor K and 4481 are the only lines in the spectrum.
		1919 Mar. 19·843	− 2·3	4	"	"	
12h 05·5m	6·34	Mar. 19·857	− 9·5	4	"	"	
+17° 22′	6·34	April 14·783	−16·7	4	"	"	
		April 27·732	−23·8	2	Poor	"	
		May 4·717	− 9·1	4	Good	"	
		1920 Feb. 8·959	−19·1	1	Fair	"	
		April 7·822	− 3·2	4	Good	"	
			−12·8 ±1·9				
3181	G5	1919 Mar. 19·827	−26·2	1 = 19	Good	Y	Good spectrum.
		April 14·805	−24·3	1 = 19	"	"	
12h 07·1m	5·67	April 23·771	−24·5	1 = 19	"	"	
+21° 06′	6·45	May 19·683	−26·2	1 = 19	"	"	
		1920 Feb. 29·883	−27·7	13 = 23	Fair	"	
		April 25·757	−25·8	3 = 23	Good	"	
			−25·8 ±0·3				
3189	Ko	1919 April 21·769	−17·3	1 = 23	Good	Y	Good spectrum.
		May 4·735	−15·5	1 = 23	"	"	
12h 10·4m	5·89	1920 Feb. 22·940	−14·8	1 = 23	"	"	
+70° 45′	6·89	Mar. 14·864	−15·6	11 = 23	Fair	"	
		April 21·756	−17·8	7 = 23	Good	"	
		April 28·749	−16·3	13 = 23	Weak	"	
			−1 ·2 ±0·3				
3198	Ao	1919 Mar. 8·933	− 8·6	14	Good	P	This spectrum of type A2 has numerous metallic lines which are rather faint and broad making the range of velocity larger than normal.
		Mar. 20·855	− 5·2	15	"	"	
12h 12·5m	5·68	April 13·832	−12·5	13	"	"	
+29° 30′	5·68	April 26·777	−12·8	14	"	"	
		1920 Feb. 12·983	−10·2	17	Fair	"	
		Feb. 26·931	− 4·0	12	"	"	
		Feb. 26·942	− 4·5	14	Good	"	
		Mar. 30·828	− 2·3	13	Fair	"	
			−7·5 ±1·0				
3207	A2	1919 Feb. 5·941	− 1·5	3	Good	Y	Very poor spectrum and although range is large it is doubtful if any real range is indicated.
		Feb. 17·924	−12·2	3	Poor	"	
12h 14·4m	5·41	Feb. 17·906	+ 2·1	3	Good	"	
+75° 43′	5·47	April 7·800	−21·2	3	Good	"	
		May 9·689	−19·0	3	"	"	
		May 9·709	− 4·5	3	"	"	
		April 21·778	− 3·0	3	"	"	
		May 12·716	− 9·0	2	"	"	
			−8·5 ±2·0				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
3219	K2	1919 April 28·762	−40·7*	7 = 21	Fair	H	The range in velocity seems larger than is warranted by the excellent lines in the spectrum.
		May 5·740	−42·0	1 = 21	Good	"	
12h 16·1m	5·72	1920 Jan. 21·994	−46·3	11 = 23	Fair	"	
+58° 25′	6·79	Feb. 9·937	−47·1*	14 − 23	"	"	
		Feb. 23·923	−46·9	3 = 23	Good	"	
		Mar. 15·868	−40·7	9 = 23	Fair	"	
			−44·0 ±0·9				
3235	Ko	1919 Jan. 6·061	− 3·4	1 = 23	Good	Y	Good spectrum.
		Jan. 31·971	− 1·5	1 = 23	"	"	
12h 20·9m	5·22	Mar. 21·868	− 2·2	1 = 23	"	"	
+39° 34′	6·22	April 27·765	− 4·7	1 = 23	"	"	
		1920 Feb. 8·974	− 7·5	1 = 23	"	"	
		Feb. 29·895	− 4·9	1 = 23	"	"	
			−4·0 ±0·5				
3267	F8	1920 Feb. 8·975	−25·1*	9 = 23	Poor	P′	
		Feb. 21·934	−22·8	3 = 19	Good	"	
12h 26·1m	6·23	Mar. 16·873	−21·2*	1 = 19	"	"	
+53° 37′	6·73	April 10·809	−25·0	1 = 19	"	"	
		April 24·782	−25·1	1 = 19	"	"	
		May 6·772	−21·9*	9 = 19	Fair	"	
			−23·5 ±0·6				
3278	Ko	1919 Mar. 20·841	−20·1	5 = 23	Good	P	Good spectrum, sharp lines and accordant measures.
		April 13·844	−20·2	5 = 23	Fair	"	
12h 28·7m	5·43	May 1·746	−22·9	5 = 23	"	"	
+33° 48′	6·43	1920 Feb. 12·999	−21·5	1 = 21	Good	"	
		April 15·817	−20·3	5 = 23	"	"	
		May 13·732	−18·8	7 = 23	Poor	"	
			−20·6 ±0·4				
3346	Ko	1919 May 5·766	+ 2·9	10 − 21	Good	H	Good spectrum but plates all slightly underexposed.
		1920 Feb. 13·936	+ 0·6*	13 = 23	Fair	"	
12h 46·5m	6·12	Feb. 23·885	+ 4·3	15 = 23	"	"	
+03° 36′	7·12	Mar. 22·870	+ 5·9*	13 = 23	"	"	
		April 9·816	+ 4·1	15 = 23	"	"	
		April 30·764	− 0·6	13 = 23	"	"	
			+2·9 ±0·6				
3356	A2	1919 Mar. 8·918	− 2·9	5	Good	P	Broad but strong hydrogen lines and weak and broad Mg and K were measured in this spectrum.
		Mar. 25·824	+ 8·1	6	"	"	
12h 48·4m	5·28	April 1·825	+ 5·5	4	"	"	
+88° 57′	5·84	April 13·794	+ 5·6	3	"	"	
		1921 Mar. 13·898	− 2·8	6	"	"	
		Mar. 13·906	+ 7·4	5	"	"	
			+3·5 ±1·4				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
3380	Ko	1919 Mar. 25·840	−28·6	5 = 23	Fair	P	Good spectrum and accordant measures.
		April 13·806	−32·4	5 = 23	Good	"	
12h 56·2m	5·50	May 3·740	−30·4	5 = 23	"	"	
+67° 08′	6·50	1920 Feb. 26·959	−31·6	5 = 23	"	"	
		May 4·774	−32·7	5 = 23	"	"	
		May 14·725	−32·7	5 = 23	Fair	"	
			−31·4 ±0·3				
3392	B9	1918 May 10·830	−39·1*	3	Good	Y	Poor spectrum. Strong Hydrogen and poor K and 4481. If we base velocities on Hγ alone there is very little range indicated.
		May 16·694	−26·5	3	"	"	
13h 01·1m	5·11	May 20·747	−10·2*	3	"	"	
+36° 20′	5·09	June 18·724	−25·4	3	"	"	
		1919 Feb. 1·006	−11·0	4	"	"	
		Feb. 1·017	−18·2	4	"	"	
		Mar. 21·833	−31·2	3	"	"	
		Mar. 21·841	−23·0	4	"	"	
		Mar. 28·823	−19·3	4	"	"	
		Mar. 28·839	−19·1	4	"	"	
		May 27·695	−26·2	5	"	"	
			−22·6 ±1·7				
3397	F5	1918 May 14·756	− 1·0	14	Good	Y	Good Spectrum.
		May 16·719	+ 0·8	16	"	"	
13h 01·4m	6·04	May 24·698	− 0·1	18	"	"	
+21° 42′	6·46	June 18·708	− 1·3	19	"	"	
		1919 Mar. 19·873	− 1·4	1 = 19	"	"	
		April 7·829	− 3·6	1 = 19	"	"	
			−1·1 ±0·4				
3402	Ko	1919 Mar. 23·914	+15·0	7 = 23	Poor	P	Good quality lines.
		April 1·842	+14·2	5 = 23	Good	"	
13h 02·4m	6·31	April 26·818	+14·9	5 = 23	"	"	
+62° 35′	7·31	May 6·759	+10·9	5 = 23	"	"	
		1920 Mar. 16·913	+14·1	5 = 23	"	"	
		May 4·806	+14·1	5 = 23	"	"	
			+13·9 ±0·4				
3431	K2	1920 Feb. 10·966	+ 9·5	15 = 23	Fair	P′	All the spectra are underexposed on account of faintness of star. Though the range is large star has probably a constant velocity.
		Feb. 24·952	+ 6·8*	15 = 23	"	"	
13h 08·8m	6·76	Mar. 25·866	+11·4*	13 = 23	"	"	
+01° 59′	7·83	April 10·841	+ 8·2*	11 = 23	"	"	
		April 24·818	+ 6·7*	15 = 23	"	"	
		1921 May 3·793	+14·2*	15 = 23	"	"	
			+9·5 ±0·8				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
3459	Ao	1919 Feb. 1·033	−26	2	Good	Y	Poor Hydrogen and
		Mar. 28·870	−31	3	Good	"	a wide K line and poor
13h 16·7m	5·68	April 7·849	−19	4	"	"	4481. The range is
+02° 37′	5·68	June 4·705	− 5	3	"	"	large but may well be
		1920 May 2·753	+ 6	2	Poor	"	due to interpretation
		May 5·774	− 1	2	Good	"	placed upon the struc-
		May 9·703	+23	2	Poor	"	ture of the wide diffuse
		May 24·696	−25	1	Good	"	lines.
			−9·7 ±4·4				
3470	Go	1919 April 27·752	+ 7·7	7 = 23	Good	Y	Good spectrum.
		May 19·707	+ 7·3	7 = 23	"	"	
13h 18·6m	7·35	1920 Feb. 29·928	+11·4	3 = 23	"	"	
+85° 17′	7·91	Mar. 21·872	+ 8·9	5 = 23	"	"	
		April 25·785	+10·3	17 = 23	Poor	"	
		May 12·753	+12·1	7 = 23	Good	"	
			+9·6 ±0·5				
3492	Ko	1919 Mar. 20·872	− 0·2	5 = 23	Fair	P	Lines of usual good
		May 3·774	+ 1·2	5 = 23	Good	"	quality.
13h 24·3m	5·78	1920 Feb. 28·992	− 2·0	5 = 23	Fair	"	
+11° 20′	6·78	April 13·847	+ 1·1	5 = 23	"	"	
		June 18·714	− 1·4	5 = 23	Good	"	
		July 8·705	+ 1·2	7 = 23	Fair	"	
			0·0 ±0·4				
3494	Ao	1919 Feb. 23·949	− 4·9	4	Good	P	All lines broad.
		Mar. 8·950	− 0·7	6	"	"	Hydrogen strong, Mg
13h 24·8m	5·41	Mar. 23·887	− 8·8	5	"	"	and K weak. Some
+60° 28′	5·41	Mar. 23·896	− 4·4	4	"	"	faint metallic lines
		April 13·819	− 8·8	5	"	"	show but were not
		1920 Feb. 13·012	− 2·2	4	"	"	measured.
		Feb. 26·973	− 4·1	4	"	"	
		Feb. 26·983	− 7·2	4	"	"	
			−5·1 ±0·7				
3497	G5	1919 April 21·786	+16·2	1 = 19	Good	Y	Good spectrum.
		May 4·753	+14·4	1 = 19	"	"	
13h 26·1m	5·94	May 27·721	+14·6	1 = 19	"	"	
+79° 10′	6·72	1920 Feb. 29·954	+13·4	3 = 23	"	"	
		April 28·786	+14·4	5 = 23	"	"	
		May 21·720	+13·1	3 = 23	"	"	
			+14·3 ±0·4				
3509	Aop	1919 Feb. 17·943	−12·9	4	Good	Y	Hydrogen lines
		Feb. 17·957	−21·3	2	Weak	"	strong but with a fair
13h 30·3m	5·48	Mar. 24·857	−13·4	4	Good	"	center. K and 4481
+55° 52′	5·48	Mar. 24·866	− 8·1	4	"	"	rather faint.
		April 7·818	−10·2	4	"	"	
		May 9·734	−10·0	3	"	"	
		1920 Feb. 9·002	−24·5	4	"	"	
		Mar. 14·936	− 8·5	2	"	"	
			−13·6 ±1·4				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
3527	Ko	1919 April 28·782	+11·7	1 = 21	Good	H	Usual K-type excellent lines.
		May 20·734	+18·5	1 = 21	"	"	
13h 34·8m	5·67	1920 Jan. 22·035	+15·5	7 = 23	Fair	"	
+71° 45′	6·67	Feb. 9·978	+13·1	5 = 23	Good	"	
		Feb. 23·937	+14·1	1 = 23	"	"	
		Mar. 22·903	+13·8	5 = 23	"	"	
			+14·4 ±0·6				
3533	G5	1919 Mar. 21·918	− 5·5	1 = 23	Good	Y	
		April 11·851	+ 2·0	1 = 23	"	"	
13h 36·3m	5·80	April 23·786	+ 4·3	3 = 23	"	"	
+23° 01′	6·58	1920 Feb. 9·015	+ 3·2	1 = 23	"	"	
		Feb. 22·963	+ 3·5	3 = 23	"	"	
		April 7·842	+ 4·2	3 = 23	"	"	
			+3·8 ±0·3				
3557	Ko	1920 Feb. 21·958	− 7·8	1 = 23	Good	P′	
		Mar. 25·918	−20·4*	3 = 23	"	"	
13h 42·2m	6·11	April 10·880	− 6·3*	5 = 23	"	"	
+78° 34′	7·11	May 1·823	− 9·8	1 = 19	"	"	
		May 14·753	− 9·0	1 = 23	"	"	
		May 23·750	− 5·8	5 = 23	"	"	
			−8·2 ±0·5				
3559	Ko	1919 May 2·770	− 9·4	1 = 21	Good	H	Spectrum good and measures accordant.
		May 22·711	−11·2	5 = 21	"	"	
13h 42·7m	5·57	June 3·703	−10·4	1 = 21	"	"	
+39° 03′	6·57	1920 Feb. 13·953	−11·6	1 = 23	"	"	
		Feb. 20·945	−11·0	1 = 23	"	"	
		Feb. 23·937	−10·5	1 = 23	"	"	
			−10·7 ±0·2				
3561	Aop	1919 Feb. 17·973	− 4·5	6	Good	Y	The lines in this spectrum are very similar to those in α Cygni but diffuse and fainter.
		Mar. 24·876	− 1·2	9	"	"	
13h 42·9m	5·53	April 7·864	−10·1	1 = 23	"	"	
+54° 56′	5·53	May 9·761	− 2·7	1 = 23	"	"	
		June 6·711	−10·0	7	"	"	
		1920 Mar. 14·567	− 3·2	6	"	"	
			−5·3 ±1·0				
3570	Ko	1919 Mar. 8·963	+12·4	1 = 21	Good	H	Good spectrum.
		Mar. 25·892	+ 8·5	1 = 21	"	"	
13h 44·2m	5·81	April 22·813	+ 9·7	1 = 21	"	"	
+31° 41′	6·81	May 6·774	+10·4	1 = 21	"	"	
		May 22·765	+ 7·7*	5 = 21	Fair	"	
		1920 Feb. 20·966	+13·1	15 = 23	"	"	
		Feb. 27·926	+11·8	5 = 23	Good	"	
			+10·5 ±0·5				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
3581	Ma	1920 Feb. 11·004	−41·9	9 = 23	Good	P′	This star which is
		Feb. 21·991	−43·7*	13 = 23	"	"	listed Ma is very close-
13h 46·7m	6·00	Feb. 24·984	−42·5	11 = 23	"	"	ly similar to α Bootis.
+35° 10′	7·35	April 10·946	−40·6	9 = 23	"	"	The fifth plate which
		April 29·823	−35·9*	17 = 23	Poor	"	is very weak and dis-
		May 6·804	−42·0	15 = 23	Fair	"	crepant is not used in
		June 1·763	−40·8	13 = 23	Good	"	forming the mean.
			−41·9 ±0·3				
3588	Ko	1919 Mar. 8·975	−11·2	5 = 23	Fair	P	Good lines and ac-
		Mar. 25·897	−10·1	5 = 23	"	"	cordant measures.
13h 48·4m	5·71	April 22·837	− 8·9	5 = 23	"	"	
+18° 25′	6·71	May 6·787	− 9·2	5 = 23	Good	"	
		1920 May 13·752	− 8·9	7 = 23	Fair	"	
		May 27·697	−10·4	5 = 23	Good	"	
			−9·8 ±0·3				
3591	A5	1919 Mar. 19·887	− 7·4	9	Good	Y	Many lines in this
		Mar. 28·898	−16·6	9	"	"	spectrum which are of
13h 48·7m	5·84	April 11·868	− 9·9	11	"	"	fair quality only.
+29° 08′	5·98	April 14·827	−16·3	12	"	"	
		May 4·770	−11·7	13	"	"	
		1920 Feb. 9·030	−15·5	11	"	"	
			−12·9 ±1·0				
3597	A0	1919 Mar. 19·899	−19·4	2	Good	Y	Very poor hydrogen
		Mar. 28·957	−12·0	2	"	"	also poor K and 4481.
13h 50·1m	5·65	April 7·876	−21·9	2	"	"	
+54° 13′	5·65	April 23·816	−32·3	2	"	"	
		May 9·802	−33·9	3	"	"	
		1920 Mar. 14·916	−20·2	2	"	"	
		May 5·790	−31·6	2	"	"	
		May 9·756	− 7·7	1	Poor	"	
			−22·4 ±2·3				
3598	G5	1919 Mar. 25·861	− 3·2	5 = 23	Fair	P	The spectral type is
		April 26·797	− 4·9	5 = 23	Good	"	nearer K. Lines are
13h 50·3m	6·63	1920 Mar. 16·934	− 5·9	7 = 23	Fair	"	good.
+79° 29′	7·41	April 22·845	− 4·4	7 = 23	"	"	
		May 4·722	− 1·1*	7 = 23	"	"	
		May 27·734	− 3·1	7 = 23	"	"	
			−3·8 ±0·5				
3601	Ko	1919 April 21·839	−38·2	3 = 23	Good	Y	
		May 19·753	−38·2	5 = 23	"	"	
13h 52·0m	5·18	June 4·720	−40·3	1 = 23	"	"	
+27° 59′	6·18	1920 Feb. 9·043	−41·5	9 = 23	"	"	
		Feb. 22·981	−39·8	11 = 23	"	"	
		May 2·776	−38·8	11 − 23	"	"	
		May 12·791	−40·0	7 = 23	"	"	
			−39·5 ±0·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
3630	Mb	1918 May 24·736	−40·9	2 − 21	Good	Y	Good spectrum.
		May 26·739	−38·3	1 = 23	"	"	
14^h $03·9^m$	5·44	May 27·756	−38·9	5 = 23	"	"	
+44° 20′	6·79	June 2·736	−37·8	1 = 23	"	"	
		June 3·756	−38·1	15 − 21	"	"	
		1919 Mar. 19·913	−35·6	1 = 23	"	"	
		May 4·785	−39·2	1 = 23	"	"	
			−38·4 ±0·4				
3631	Ma	1919 April 14·859	−11·4	9 = 23	Good	Y	Good spectrum.
		May 4·810	−14·4	11 = 23	"	"	
14^h $04·6^m$	5·44	1920 Feb. 9·057	−16·5	13 = 23	"	"	
+49° 56′	6·79	Feb. 22·997	−15·2	13 = 23	"	"	
		Mar. 21·901	−11·5	13 = 23	"	"	
		April 7·864	−12·5	7 = 23	"	"	
			−13·6 ±0·6				
3636	A3	1918 May 14·822	− 7·4	15	Good	Y	Many lines in the spectrum of this star but they are not of the best quality for measurement.
		May 16·756	− 8·0	7	Poor	"	
14^h $06·2^m$	6·34	June 3·729	− 3·0	11	Good	"	
+75° 04′	6·42	July 16·708	+ 0·7	16	"	"	
		1919 Mar. 24·888	− 8·1	15	"	"	
		April 14·840	− 2·3	17	"	"	
		May 21·731	− 5·4	9	Poor	"	
			−4·8 ±0·9				
3652	A5	1918 May 20·799	−29·2*	14	Good	Y	The measures refer to the faint star. There are many good lines in the spectrum and the range may indicate a binary of small range. Campbell gives −19 for the velocity of the bright star.
		June 17·755	−27·7	11	"	"	
14^h $09·9^m$	6·75	July 12·711	−19·4	14	"	"	
+52° 16′	7·03	1919 Mar. 24·907	−27·1	11	"	"	
		April 7·903	−22·3	7	Poor	"	
		May 19·732	−19·7	1 = 21	Good	"	
			−24·2 ±1·1				
3674	Ao	1918 May 22·718	−30·8*	4	Good	Y	Spectrum is possibly composite. Sometimes lines are sharp as on the last three plates and on the first plate they are diffuse. The mean probably gives a fair value for the velocity of the star.
		June 17·731	−10·0	3	"	"	
14^h $13·8^m$	6·09	July 11·689	−16·2	1	"	"	
+51° 46′	6·09	July 12·694	−11·2	4	"	"	
		1919 Mar. 21·986	− 5·6	6	"	"	
		April 7·762	− 7·5	8	"	"	
		June 6·729	− 4·8	9	"	"	
			−12·3 ±2·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
3730	Ao	1919 Mar. 18·901	+10·6	4	Good	P	All lines broad. Hydrogen and K strong. A few metallic lines present are weak and not usually measurable. Type A2.
		April 1·861	+15·6	4	"	"	
14^h $30·4^m$	6·57	April 1·875	− 5·1	4	"	"	
+47° 13′	6·57	May 3·790	+ 1·0	4	Fair	"	
		May 3·803	− 6·2	5	"	"	
		1920 May 4·828	+13·5	4	Good	"	
		May 4·842	+12·8	5	"	"	
		June 18·733	+ 1·6	7	"	"	
		June 18·747	+ 1·6	7	"	"	
			+5·0 ±1·4				
3740	Ko	1919 Mar. 18·918	−48·3	5 = 23	Fair	P	Good lines.
		April 22·866	−49·2	11 = 23	Poor	"	
14^h $34·5^m$	5·92	May 3·819	−46·8	5 = 23	Good	"	
+44° 04′	6·92	1920 Feb. 29·054	−49·8	5 = 23	"	"	
		April 13·874	−48·6	11 = 23	Fair	"	
		May 4·858	−49·5	9 = 23	"	"	
			−48·7 ±0·3				
3741	F2	1919 May 2·793	−20·8*	1 = 21	Good	H	Plates are well exposed but lines are not sharp.
		May 5·796	−26·2	1 = 21	"	"	
14^h $34·7^m$	6·79	May 20·756	−27·9	1 = 21	"	"	
+52° 00′	7·13	June 3·730	−27·7	1 = 21	"	"	
		1920 Feb. 10·002	−23·0	9 = 23	"	"	
		Feb. 23·977	−22·8	1 = 23	"	"	
			−24·7 ±0·8				
3753	G5	1919 Mar. 24·923	−19·7	1 = 21	Good	Y	Good spectrum.
		April 21·852	−22·8	1 = 21	"	"	
14^h $36·8^m$	5·03	June 2·709	−24·8	1 = 21	"	"	
+08° 35′	5·81	1920 Feb. 9·071	−23·8	7 = 23	"	"	
		May 5·804	−22·0	1 = 23	"	"	
		May 12·809	−21·0	7 = 23	"	"	
			−22·3 ±0·5				
3754	G5	1919 Mar. 8·987	−24·5	5 = 23	Good	P	Good lines. Probable error per plate ±0·5 km.
		Mar. 25·967	−23·7	5 = 23	"	"	
14^h $36·9^m$	5·63	May 6·801	−21·9	5 = 23	"	"	
+12° 05′	6·41	1920 April 22·910	−22·6	5 = 23	"	"	
		May 13·772	−23·2	7 = 23	"	"	
		May 27·765	−23·0	5 = 23	"	"	
			−23·1 ±0·2				
3764	Ko	1918 May 8·833	+ 8·8*	3 = 23	Good	P	Also good lines and accordant measures.
		June 2·773	+11·1	1 = 23	"	"	
14^h $39·8^m$	5·79	June 19·708	+ 9·6	1 = 23	"	"	
+40° 51′	6·79	June 26·710	+12·2	1 = 23	"	"	
		1919 Mar. 20·892	+10·7	5 = 23	Fair	"	
		April 26·901	+11·8	5 = 23	Good	"	
			+10·7 ±0·3				

23489—6½

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
3767	B9	1919 Mar. 21·936	−11·5	3	Fair	Y	Hydrogen lines are broad but Hγ is fairly well defined. K and 4481 are faint.
		Mar. 28·939	−15·6	3	"	"	
14h 40·4m	5·54	May 4·823	−11·2	3	Good	"	
+01° 09′	5·52	June 2·732	−16·6	3	"	"	
		1920 Mar. 1·001	−17·2	2	Poor	"	
		Mar. 21·916	+ 8·0*	4	Good	"	
		May 30·721	−10·3	4	"	"	
			−10·4 ±2·1				
3793	F5	1920 Feb. 22·015	−30·6	1 = 19	Good	P′	These measures refer to the preceding star of the pair, separation 3″·5. The following is a spectroscopic binary. Both stars have a common proper motion and the whole may form an interesting triple system.
		Feb. 29·014	−31·6	1 = 19	"	"	
14h 46·3m	5·64	April 24·854	−32·4	1 = 19	"	"	
+49° 07′	6·06	May 14·781	−31·4	1 = 19	"	"	
		May 23·848	−34·1	5 = 19	Fair	"	
		June 29·725	−33·4	7 = 19	"	"	
			−32·3 ±0·4				
3795	Ko	1919 Mar. 21·966	−68·5	7 = 23	Good	Y	Good spectrum.
		April 11·889	−68·8	1 = 23	"	"	
14h 46·6m	5·50	May 19·746	−61·7*	1 = 23	"	"	
+37° 40′	6·50	Feb. 8·095	−68·1	5 = 23	"	"	
		Feb. 23·063	−67·9	5 = 23	"	"	
		Mar. 21·931	−67·0	11 = 23	"	"	
			−67·0 ±0·7				
3803	K2	1919 April 28·800	+ 9·9	1 = 21	Good	H	Spectrum good. The fifth plate given half weight.
		May 2·817	+ 8·4	1 = 21	"	"	
14h 48·9m	5·67	May 20·776	+10·7	1 = 21	"	"	
+59° 42′	6·74	June 3·754	+12·6	1 = 21	"	"	
		1920 Jan. 22·073	+15·2*	16 − 23	Fair	"	
		Feb. 10·024	+ 8·2	5 = 23	Good	"	
			+10·4 ±0·6				
3816	Ko	1920 Mar. 16·956	+19·6	9 = 23	Poor	P	
		April 22·925	+22·1	7 = 23	Good	"	
14h 52·4m	5·71	June 18·765	+19·9	7 = 23	Fair	"	
+00° 14′	6·71	June 29·708	+19·5	7 = 23	"	"	
		July 1·708	+17·4	7 = 23	Good	"	
		July 8·722	+18·3	7 = 23	Poor	"	
			+19·5 ±0·4				
3817	Ko	1919 May 5·850	−14·2	1 = 21	Good	H	Good spectrum.
		May 22·812	−15·4	5 = 21	"	"	
14h 52·5m	5·78	June 3·710	−15·2	5 = 21	"	"	
+16° 48′	6·78	1920 Feb. 13·976	−15·6	5 = 23	"	"	
		Feb. 23·962	−17·8	1 = 23	"	"	
		Feb. 28·009	−17·7	3 = 23	"	"	
			−16·0 ±0·4				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
3831	Ko	1920 Feb. 11·032	−40·1*	13 = 23	Fair	P′	All the spectra are under-exposed. The first and third plates are the means of three measures. Though range is large, star is probably constant velocity.
		Feb. 25·010	−34·0	15 = 23	Good	"	
14h 56·7m	5·91	Mar. 25·958	−29·4*	15 = 23	Poor	"	
+00° 14′	6·91	April 10·939	−32·7	15 = 23	Fair	"	
		May 1·865	−30·7	15 = 23	Poor	"	
		May 11·802	−33·9	17 = 23	"	"	
		June 1·792	−34·6	13 = 23	Fair	"	
			−33·6 ±0·8				
3853	Ao	1918 May 22·778	−14·3	4	Weak	Y	Excellent hydrogen lines and good K and 4481 are present in the spectrum. The silicon pair 4128-31 also show and the line 4233. Many metallic lines show faintly.
		June 18·738	−15·9	4	Good	"	
15h 02·2m	5·59	July 30·681	−14·6	6	"	"	
+48° 32′	5·59	1919 April 7·933	−13·3	3	"	"	
		May 4·834	−21·3	6	"	"	
		July 13·702	−13·9	5	"	"	
			−15·5 ±0·8				
3854	F5	1918 May 16·852	− 6·9	7 = 19	Good	Y	
		May 21·783	− 6·6	1 = 19	"	"	
15h 02·7m	6·30	June 18·754	− 3·7	1 = 19	"	"	
+36° 50′	6·72	July 2·724	− 8·6	1 = 19	"	"	
		1919 April 14·875	− 9·2	1 = 19	"	"	
		June 2·756	− 3·9	1 = 19	"	"	
			−6·5 ±0·6				
3856	G5	1918 June 20·705	+13·3	1 = 19	Good	Y	Good spectrum.
		July 11·699	+14·3	1 = 19	"	"	
15h 03·4m	5·21	1919 April 7·923	+15·5	1 = 21	"	"	
+54° 56′	5·99	May 29·757	+15·9	1 = 21	"	"	
		1920 May 2·826	+14·7	1 = 23	"	"	
		May 15·790	+14·0	3 = 23	"	"	
			+14·6 ±0·3				
3859	Ko	1918 May 24·777	+20·3	9 = 21	Good	Y	Good spectrum. The range of the measures may indicate a binary with small variation.
		June 18·776	+14·9	1 = 21	"	"	
15h 04·1m	5·73	July 12·730	+18·8	11 − 21	"	"	
+26° 41′	6·73	1919 April 14·891	+18·4	9 = 21	"	"	
		May 4·847	+21·8	11 = 21	"	"	
		June 6·745	+23·4	11 = 21	"	"	
			+18·3 ±0·9				
3860	Ko	1918 June 20·726	−18·5	13 − 23	Good	Y	Good spectrum.
		1919 Mar. 24·951	−14·9	11 − 23	"	"	
15h 04·2m	5·94	April 21·870	−19·2	5 − 23	"	"	
+25° 29′	6·94	June 4·739	−13·0	11 − 23	"	"	
		June 20·725	−16·5	11 = 23	Weak	"	
		1920 Mar. 1·017	−15·3	15 = 23	"	"	
			−16·2 ±0·6				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
3908	Ko	1918 June 20·751	−56·5	1 = 21	Good	Y	Good spectrum.
		1919 Mar. 24·936	−52·4	14 − 23	Fair	"	
$15^h\ 16{\cdot}0^m$	5·57	April 14·907	−53·1	5 = 23	Good	"	
+29° 59′	6·57	June 4·762	−49·3	1 = 23	"	"	
		1920 Feb. 23·015	−53·0	1 = 23	"	"	
		May 5·834	−54·9	1 = 23	"	"	
			−53·2 ±0·7				
3911	A3	1918 May 22·798	+ 6·9	4	Fair	P	All the lines are broad and the metallic lines are in addition so faint and diffuse as not to be accurately measurable.
		June 2·813	+ 3·0	5	Good	"	
$15^h\ 17{\cdot}2^m$	5·52	June 19·728	− 6·8*	4	"	"	
+52° 17′	5·60	June 22·749	+10·6	4	"	"	
		1919 Mar. 18·933	− 3·9*	5	"	"	
		April 1·889	+ 1·4	5	"	"	
		April 26·837	+ 9·1	5	"	"	
		May 3·859	+ 7·0*	5	"	"	
			+3·4 ±1·5				
3930	K2	1919 July 22·711	−41·3*	9 = 23	Poor	P′	The first plate, over-developed to the extent of a curious reversal at edges of comparison lines, is given half weight in forming mean.
		1920 Feb. 11·053	−46·6	1 = 23	Good	"	
$15^h\ 21{\cdot}0^m$	5·78	Feb. 25·029	−45·4	1 = 23	"	"	
+63° 42′	6·85	April 13·902	−44·1	11 = 23	Fair	"	
		May 6·836	−47·2	15 = 23	"	"	
		May 11·839	−47·6*	5 = 23	Good	"	
			−45·7 ±0·5				
3933	Ko	1919 April 28·847	−44·6	1 = 21	Good	H	The lines are good and one would almost suspect a small range in variation.
		May 2·876	−44·3	3 = 21	"	"	
$15^h\ 22{\cdot}4^m$	5·87	May 22·857	−50·9*	9 = 23	Fair	"	
+34° 41′	6·87	June 3·796	−46·0	1 = 21	Good	"	
		1920 Feb. 10·076	−50·8	7 = 23	Fair	"	
		Feb. 23·991	−51·0	3 = 23	Good	"	
			−47·9 ±0·9				
3979	G5	1919 July 22·695	− 8·9	11	Poor	P′	The first plate is given half weight in forming the mean on account of bad over-development.
		1920 Feb. 11·070	−11·7	1 = 19	Good	"	
$15^h\ 34{\cdot}2^m$	5·41	Feb. 25·044	− 9·4	1 = 19	"	"	
+40° 41′	6·19	Mar. 25·989	−10·7	5 = 23	"	"	
		April 13·925	−10·6	1 = 19	"	"	
		May 1·895	−10·2	5 = 19	Fair	"	
			−10·4 ±0·2				
3982	K5	1919 April 1·925	−26·9*	3 = 23	Good	H	Spectrum good.
		April 26·885	−27·3	5 = 21	"	"	
$15^h\ 34{\cdot}4^m$	5·33	May 30·761	−18·4*	14 − 23	Fair	"	
+77° 41′	6·51	June 16·747	−23·3	3 = 21	Good	"	
		1920 Feb. 10·057	−26·0	11 = 23	Fair	"	
		Feb. 24·046	−23·4	5 = 23	Good	"	
		April 9·897	−22·5	5 = 23	"	"	
			−24·0 ±0·8				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
3984	A2	1919 May 2·907	− 5	3	Fair	H	Several fuzzy metallic lines are present in addition to broad hydrogen and calcium. There is poor agreement among the lines themselves.
		May 20·822	+12*	5	"	"	
15h 34·9m	6·75	May 31·781	−10	7	Good	"	
+43° 56′	6·81	June 9·797	−31	5	"	"	
		June 23·742	−15	5	"	"	
		1920 April 23·855	−25	3	"	"	
		May 19·798	−10	4	"	"	
			−11·6 ±2·6				
3992	G5	1919 Mar. 20·912	+ 3·3	1 = 19	Fair	P	Good lines and accordant measures. Comparison spectrum weak on fourth plate.
		May 6·828	+ 4·6	5 = 21	"	"	
15h 36·4m	5·97	June 11·768	+ 3·8	3 = 21	Good	"	
+16° 21′	6·75	June 24·722	+ 0·4	1 = 19	Fair	"	
		1920 April 22·942	+ 4·2	7 = 23	"	"	
		July 22·703	+ 2·7	9 = 23	"	"	
			+3·2 ±0·4				
4003	Ko	1919 Mar. 24·966	− 5·3	5 = 23	Good	Y	Good spectrum.
		April 21·892	− 3·9	1 = 23	"	"	
15h 40·1m	5·60	June 4·786	− 4·9	1 = 23	"	"	
+32° 50′	6·60	July 13·711	− 2·6	1 = 23	"	"	
		1920 Feb. 23·033	− 4·1	5 = 23	"	"	
		May 12·831	− 2·3	1 = 23	"	"	
			−3·8 ±0·3				
4004	Aop	1919 Mar. 18·946	−22·0	14	Good	H	The hydrogen lines are strong yet well defined. Mg 4481 is an excellent sharp line. Calcium K is sometimes present as a sharp narrow line. Numerous other lines are present but faint. Almost believe star to be a spectroscopic binary.
		April 1·902	−16·9	10	"	"	
15h 40·2m	5·48	April 22·891	−25·6	11	"	"	
+52° 40′	5·48	May 22·895	−16·7	11	"	"	
		June 5·805	−11·3	8	"	"	
		July 25·689	−13·4	5	Fair	"	
		1920 Feb. 10·117	− 9·2	7	"	"	
		Feb. 24·036	−20·1	7	Good	"	
			−16·9 ±1·3				
4012	Ao	1919 Mar. 8·983	−29·5	8	Good	P	The spectrum is A2. Numerous metallic lines but all faint and diffuse.
		June 26·737	−40·3	6	"	"	
15h 42·7m	5·72	July 10·717	−35·4	10	"	"	
+14° 25′	5·72	July 17·697	−27·5	9	"	"	
		1920 Feb. 27·060	−34·1	7	"	"	
		May 13·786	−34·7	6	Fair	"	
			−35·2 ±1·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4057	F2	1919 Mar. 24·980	−17·1	10	Good	Y	Many lines are present in the spectrum of this star but they are rather diffuse and difficult to measure.
		April 14·923	−10·5	11	"	"	
15h 52·1m	5·47	May 29·800	−11·9	10	"	"	
+38° 14′	5·81	July 6·707	− 9·9	10	"	"	
		1920 Feb. 23·048	− 7·1	10	"	"	
		May 12·853	−12·5	9	"	"	
			−11·5 ±0·9				
4060	Ko	1919 Mar. 20·934	−71·4	5 = 23	Good	P	Range slightly greater than usual for K-type stars but velocity probably constant.
		July 3·710	−69·1	5 = 23	Fair	"	
15h 52·6 m	5·66	July 15·699	−68·5	7 = 23	"	"	
+14° 42′	6·66	1920 Feb. 27·079	−69·4	7 = 23	"	"	
		May 13·804	−73·1	5 = 23	"	"	
		July 22·722	−69·3	11 = 23	"	"	
			−69·4 ±0·6				
4075	G5	1919 Aug. 7·683	−18·2*	7 = 23	Good	P′	
		1920 Feb. 11·084	−17·2	1 = 21	"	"	
15h 56·7m	5·28	Feb. 24·057	−18·2	1 = 19	"	"	
+18° 06′	6·06	April 10·955	−13·9	1 = 23	"	"	
		May 6·863	−16·5	13 = 23	Fair	"	
		May 14·802	−15·4	1 = 19	Good	"	
			−16·6 ±0·5				
4101	G5	1918 June 20·771	−10·5	1 = 19	Good	Y	
		July 5·719	− 9·8	1 = 19	"	"	
16h 03·6m	5·34	1919 Mar. 25·008	−11·7	3 = 21	"	"	
+17° 19′	6·12	June 1·813	− 6·7	1 = 21	"	"	
		June 17·798	−10·0	1 = 21	"	"	
		July 13·721	− 7·8	1 = 21	"	"	
			−9·4 ±0·5				
4104	Ao	1918 May 24·848	−28·5	3	Good	Y	Poor spectrum. Only hydrogen and poor K and 4481. This star was announced as binary in *Jour. R.A.S.C.* 1918. A mistake was discovered in second measure and the corrected range is not larger than can be ascribed to accidental error.
		June 17·789	−16·3	3	"	"	
16h 04·2m	6·07	July 11·712	−16·3	2	"	"	
+17° 30′	6·07	1919 April 7·957	−21·2	1	Fair	"	
		June 2·807	−27·0	2	Good	"	
		1920 Mar. 21·950	−18·4	1	Fair	"	
		April 7·982	− 0·9	1	Good	"	
		April 25·818	−10·5	1	"	"	
			−17·4 ±2·1				
4113	Ao	1918 May 9·896	− 9	3	Good	Y	Only very poor Hδ and Hγ. K and 4481 are present but very poor.
		May 20·821	+ 6*	2	"	"	
16h 06·0m	5·40	June 14·801	0	2	"	"	
+68° 04′	5·40	July 2·763	−30	1	"	"	
		1919 June 4·809	− 2	3	"	"	
		1920 Mar. 21·992	−33	1	"	"	
		May 2·842	−33	2	"	"	
			−14·4 ±3·8				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4142	Ko	1919 May 5·882	+13·8	1 = 21	Good	H	Measures are accordant on this good spectrum.
		May 20·845	+15·4	5 = 21	"	"	
16h 12·0m	6·59	June 23·774	+14·9	3 = 21	"	"	
+23° 22′	7·59	1920 Mar. 2·005	+15·9	11 = 23	Fair	"	
		April 23·877	+14·9	7 = 23	Good	"	
		May 31·750	+14·9	7 = 23	"	"	
			+15·0 ±0·2				
4151	B8	1918 June 24·712	− 2·7	1	Fair	Y	The two hydrogen lines Hδ and Hγ are as a rule fairly well defined. K and 4481 are present but of poor quality.
		1919 May 19·825	− 1·1	3	Good	"	
16h 13·7m	5·51	June 11·784	+ 1·8	3	"	"	
+76° 08′	5·46	July 20·705	+ 3·2	3	"	"	
		1920 Mar. 22·023	−16·7	2	"	"	
		May 2·874	+ 0·9	2	"	"	
		June 20·756	− 2·9	2	"	"	
			−2·5 ±1·8				
4154	G5	1920 Feb. 22·042	− 8·8	7 = 23	Fair	P′	Though range is large star is probably constant velocity. The velocity for the last plate is the mean of three measures, two by P′ and one by P.
		Feb. 29·082	− 9·2	11 = 23	"	"	
16h 14·2m	6·63	May 11·877	− 5·4	15 = 23	Poor	"	
+26° 08′	7·41	May 23·881	− 4·3*	13 = 23	"	"	
		June 12·774	−10·3	11 = 23	Good	"	
		July 26·697	−12·3*	9 = 23	Fair	"	
			−8·4 ±0·9				
4160	Ao	1918 June 24·732	−15·7	5	Good	Y	Besides the hydrogen series there are present traces of many metallic lines which are not well defined and a strong K, 4481 and 4549 are fairly good lines.
		1919 May 19·814	−17·5	5	"	"	
16h 16·2m	5·98	June 6·799	−10·5	4	"	"	
+73° 38′	5·98	July 2·736	−14·0	3	Poor	"	
		1920 Mar. 22·007	−13·8	4	Fair	"	
		May 2·858	−24·3	4	Good	"	
			−16·0 ±1·3				
4161	F2	1918 May 22·926	−28·8	1 = 23	Good	P	The type is slightly more advanced than F2. The lines are not so sharp as usual which probably accounts for the larger range than usual.
		May 26·948	−28·3	1 = 21	"	"	
16h 16·5m	5·54	June 2·846	−28·8*	1 = 21	"	"	
+39° 57′	5·88	June 19·772	−27·7	1 = 19	"	"	
		1919 Mar. 20·953	−32·7	1 = 19	"	"	
		April 13·989	−33·8	1 = 19	"	"	
		May 3·892	−28·2	1 = 19	"	"	
		June 28·755	−34·7*	1 = 19	"	"	
			−30·7 ±0·7				
4176	A2	1918 June 2·860	+ 5·8	5	Good	P	Strong hydrogen lines and the K line are practically all the measurable lines. The metallic lines are broad and very weak.
		June 19·784	− 9·7	4	"	"	
16h 19·1m	6·20	June 22·766	−11·5	4	"	"	
+32° 34′	6·26	1919 Mar. 20·971	−22·6	4	Fair	"	
		May 6·937	− 3·9	5	Good	"	
		June 28·772	−14·8	5	"	"	
		1920 June 18·780	+ 1·8	5	Fair	"	
		July 8·799	− 3·6	7	"	"	
			−7·3 ±2·2				

TABLE IV.

Date	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4181	Fo	1918 June 27·704	−17·5	6	Good	Y	Many rather fuzzy lines only the best of which were measured.
		1919 May 19·834	−11·8	7	"	"	
16h 20·4m	5·04	June 11·796	− 7·5	8	"	"	
+75° 59′	5·32	July 2·747	−14·0	9	"	"	
		1920 May 2·887	− 9·0	7	"	"	
		June 20·781	−11·1	11	"	"	
			−11·8 ±1·0				
4184	A3	1918 June 18·795	− 5·3	2	Good	Y	Poor spectrum. Weak 4481 and K and a wide strong hydrogen series.
		July 2·781	−11·2	3	"	"	
16h 21·9m	5·53	July 16·741	+ 3·7	2	"	"	
+37° 37′	5·61	1919 Mar. 25·022	−10·8	4	Poor	"	
		April 7·989	+ 4·2	3	"	"	
		June 2·830	−12·2	4	Good	"	
		1920 Feb. 23·105	−19·5	3	"	"	
		Mar. 21·964	+ 7·9	2	"	"	
			−5·4 ±2·3				
4186	Ko	1919 May 20·868	− 7·1	1 = 21	Good	H	Measures are accordant on this good spectrum.
		June 3·773	− 7·5	1 = 21	"	"	
16h 22·0m	5·44	June 30·751	− 7·8	1 = 21	"	"	
+69° 20′	6·44	July 19·709	− 8·8	1 = 21	"	"	
		1920 Feb. 10·091	−10·3	5 = 23	"	"	
		Feb. 24·094	− 9·2	1 = 23	"	"	
			−8·4 ±0·3				
4187	A2	1918 June 26·742	− 5·3	15	Good	P	The type is Ao with excellent hydrogen, K, and Mg lines. Other metallic lines are relatively fainter but several were measured.
		June 29·781	− 4·3	20	"	"	
16h 22·2m	5·66	July 21·696	− 7·6	12	Fair	"	
+55° 26′	5·72	July 24·703	− 2·7	16	"	"	
		1919 Mar. 23·994	− 7·9*	16	Good	"	
		May 6·951	− 4·5	15	"	"	
			−5·4 ±0·5				
4191	G5	1920 Feb. 11·099	−25·8	9 = 23	Good	P′	Components of this close double, 1″, were never observed separately.
		Feb. 25·069	−23·2	9 = 23	"	"	
16h 22·5m	5·64	May 14·823	−23·0	9 = 23	"	"	
+61° 56′	6·42	June 1·816	−21·9	5 = 23	"	"	
		June 29·740	−24·9	9 = 23	"	"	
		Aug. 3·685	−23·9	11 = 23	"	"	
			−23·8 ±0·4				
4207	G5	1919 May 2·932	+17·7	1 = 21	Good	H	The fourth plate is given half weight only.
		May 30·783	+13·6*	5 = 21	"	"	
16h 26·2m	5·29	July 8·743	+18·6	3 = 21	"	"	
+20° 42′	6·07	1920 Jan. 22·117	+20·7	17 = 23	Fair	"	
		Feb. 20·994	+17·2	3 = 23	Good	"	
		Feb. 24·026	+16·9	5 = 23	"	"	
		April 23·891	+18·8	9 = 23	"	"	
			+17·4 ±0·5				

TABLE IV.

Date	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4209	Ao	1918 May 22·906	− 7·1	12	Good	P	A typical Ao spectrum with good hydrogen Mg and K lines and other fainter metallic lines.
		June 2·878	−12·4	10	"	"	
16h 27·4m	6·22	June 19·798	−14·3	7	"	"	
+49° 10′	6·22	June 22·781	− 9·1	11	"	"	
		1919 Mar. 25·975	− 3·8	13	"	"	
		April 26·953	− 7·1	10	"	"	
		1920 May 4·926	− 8·5	12	Fair	"	
			−8·9 ±0·9				
4214	Ao	1918 June 28·716	−16·8	3	Fair	Y	Wide poor hydrogen, a strong K and very faint 4481.
		1919 Mar. 28·997	−22·3	3	"	"	
16h 28·8m	5·55	April 8·004	−17·4	1	Poor	"	
+45° 50′	5·55	June 2·845	−21·6	3	Good	"	
		July 30·694	−18·9	1	Poor	"	
		1920 Mar. 21·978	− 8·8	3	Good	"	
		April 25·839	−23·4	3	"	"	
			−18·5 ±1·2				
4220	Ao	1919 Mar. 25·992	−11·5	5	Fair	P	Diffuse but fairly strong hydrogen lines and broad and very faint Mg and K are all the lines measurable. Considering the quality of the lines the measures are good.
		June 24·776	− 8·0	5	"	"	
16h 30·9m	4·25	June 28·786	−14·0	5	Good	"	
+42° 39′	4·25	June 28·790	− 6·4	4	"	"	
		1920 May 13·819	−23·1	4	"	"	
		June 10·849	− 7·5	4	"	"	
		July 1·822	− 9·5	4	Fair	"	
		July 1·826	− 7·1	5	"	"	
			−10·9 ±1·3				
4223	A3	1918 June 28·728	−10·4*	8	Good	Y	The lines in the spectrum of this star are diffuse and the internal agreement from the various lines is poor.
		1919 May 19·848	−15·0	7	"	"	
16h 31·3m	5·54	June 11·809	−10·8	9	"	"	
+79° 11′	5·62	July 2·757	−13·0	8	"	"	
		July 23·695	−18·2	8	"	"	
		1920 June 27·748	− 9·3	7	"	"	
			−12·8 ±0·9				
4240	G5	1919 April 21·953	−20·1	1 = 21	Good	Y	Good spectrum.
		June 1·852	−17·9	1 = 21	"	"	
16h 36·0m	5·44	July 20·713	−19·0	1 = 21	"	"	
+56° 13′	6·22	1920 May 12·914	−20·1	1 = 23	"	"	
		May 30·784	−20·4	1 = 23	"	"	
		June 30·734	−17·0	11 = 23	"	"	
			−19·1 ±0·3				
4242	Ma	1919 May 2·955	−53·2*	5 = 21	Good	H	Plates are well exposed and measures are accordant.
		May 20·885	−55·0*	5 = 21	"	"	
16h 36·0m	5·14	June 3·830	−57·0	1 = 21	"	"	
+40° 07′	6·49	June 23·802	−56·0	5 = 23	"	"	
		July 8·758	−56·8	5 = 21	"	"	
		1920 Feb. 24·005	−57·0	5 = 23	"	"	
			−55·8 ±0·4				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4244	Fo	1920 Feb. 22·073	−44·0	8	Good	P′	All re-measures were made on the comparator. Lines are somewhat fuzzy.
		April 10·989	−48·8	9	"	"	
16h 36·7m	5·86	May 6·889	−43·4*	3	Poor	"	
+01° 21′	6·14	May 14·842	−46·7*	5	Good	"	
		June 12·798	−45·6	11 = 23	Fair	"	
		Aug. 3·700	−50·1*	9 = 23	Good	"	
			−46·4 ±0·8				
4257	G5	1919 June 11·839	− 7·8	9 = 21	Good	Y	
		July 2·778	− 3·3	3 = 21	"	"	
16h 40·1m	6·71	July 27·736	− 8·4	13 = 23	Weak	"	
+06° 16′	7·49	1920 April 25·881	− 4·3	5 = 23	Good	"	
		May 5·882	− 7·1	7 = 21	"	"	
		May 24·797	− 6·6	11 = 23	Fair	"	
			−6·3 ±0·5				
4258	F2	1919 April 22·926	− 4·9*	8	Poor	H	The first, second and fourth plates were measured on the comparator as well with fair agreement to the micrometer engine. Prefer to use the latter measures alone as lines somewhat fuzzy.
		May 5·906	−11·7*	14	Good	"	
16h 40·1m	5·90	May 20·900	−11·6	15	"	"	
+34° 13′	6·24	June 3·852	− 9·8*	16	"	"	
		1920 Feb. 24·016	−15·3	12	"	"	
		April 23·937	−13·9	14	"	"	
			−11·2 ±1·0				
4276	Ao	1919 May 5·922	−20·4*	8	Good	H	The hydrogen lines are fair for measurement while 4549 and 4481 are sharp and it would almost seem as if the velocity was variable.
		May 20·912	−20·6	10	"	"	
16h 45·0m	5·95	June 23·816	−35·4*	7	"	"	
+13° 26′	5·95	July 10·747	−20·8	2	Fair	"	
		1920 May 31·850	−23·3	6	"	"	
		June 14·826	−27·2	5	Good	"	
		July 19·705	−22·2	3	Fair	"	
			−24·3 ±1·4				
4286	K5	1919 July 29·705	−12·3*	15 = 23	Fair	P′	
		1920 Feb. 25·099	−13·3	13 = 23	Good	"	
16h 46·7m	5·86	May 6·923	− 8·4*	15 = 23	Fair	"	
+29° 59′	7·04	June 12·814	−13·5	11 = 23	Good	"	
		July 26·714	−14·1*	11 = 23	Fair	"	
		Aug. 10·685	−11·1	15 = 23	"	"	
			−12·1 ±0·6				
4305	Go	1919 May 30·813	+ 7·2	3 = 21	Good	H	Spectrum is good and measures are accordant.
		June 30·770	+ 5·3	1 = 21	"	"	
16h 50·2m	6·74	July 18·723	+ 4·8	1 = 21	"	"	
+43° 00′	7·30	1920 Mar. 1·951	+ 6·4	9 = 23	Fair	"	
		April 9·947	+ 6·6	3 = 23	Good	"	
		May 3·875	+ 4·8	7 = 23	Fair	"	
			+5·8 ±0·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4310	Ko	1920 Feb. 22·101	+ 1·7*	9 = 23	Good	P′	
		May 1·961	− 0·3	11 = 23	"	"	
16h 50·9m	6·33	June 1·867	− 2·3	5 = 23	"	"	
+25° 54′	7·33	June 29·778	+ 0·8	1 = 19	"	"	
		July 26·732	− 0·4	3 = 19	"	"	
		Aug. 10·705	− 3·1*	9 = 23	Fair	"	
			−0·6 ±0·5				
4311	K2	1919 May 30·848	+ 8·7*	5 = 23	Good	H	The range is somewhat larger than one would expect from a good spectrum.
		June 30·787	+13·7	1 = 21	"	"	
16h 51·0m	5·56	July 18·701	+14·6	11 − 21	Fair	"	
+18° 35′	6·63	1920 Feb. 24·071	+11·2	5 = 23	Good	"	
		June 21·753	+12·2	15 = 23	Poor	"	
		July 5·749	+ 8·7	7 = 23	Good	"	
			+11·5 ±0·7				
4329	Ko	1919 Aug. 14·692	+ 8·2*	13 = 23	Fair	P′	The third plate is the mean of three measures, two by P′ and one by P.
		1920 April 13·981	+ 9·3	11 = 23	"	"	
16h 56·7m	5·74	June 15·794	+14·0*	11 = 23	Good	"	
+22° 47′	6·74	July 6·753	+12·1	13 = 23	"	"	
		July 26·747	+12·2	13 = 23	Fair	"	
		Aug. 10·723	+10·2	13 = 23	"	"	
			+11·0 ±0·7				
4336	Ma	1919 May 30·881	+41·2*	14 − 21	Fair	H	
		July 14·757	+40·5	5 = 21	Good	"	
16h 58·6m	5·10	July 15·743	+38·7	13 − 21	Fair	"	
+14° 14′	6·45	1920 Feb. 24·082	+42·1	11 = 23	Good	"	
		June 25·756	+40·8	7 = 23	"	"	
		July 7·719	+43·0	15 = 23	"	"	
			+41·0 ±0·3				
4349	Ao	1918 May 9·924	−11·6	15	Good	Y	Many fine lines are present in the spectrum of this star which is nearer type A2 than Ao.
		May 20·860	−12·8	9	"	"	
17h 02·0m	6·36	May 24·865	−10·2	11	"	"	
+43° 57′	6·36	June 18·831	− 3·1	12	"	"	
		July 11·724	−12·4	14	"	"	
		1919 July 9·748	− 8·4	11	"	"	
		July 30·708	− 9·6	11	"	"	
			−9·7 ±0·8				
4350	K2	1920 April 24·975	−96·9	11 = 23	Fair	P′	This star gives one of the highest velocities in the list. A weak plate secured Aug. 12·670 giving a velocity 85·8 was not used and the plate Aug. 30·650 was secured in its place.
		May 6·953	−95·5	15 = 23	"	"	
17h 02·1m	5·72	June 22·791	−94·4	13 = 23	"	"	
+22° 13′	6·79	July 3·763	−98·9	11 = 23	Good	"	
		Aug. 3·712	−98·9	9 = 23	"	"	
		Aug. 30·650	−98·7	13 = 23	"	"	
			−97·2 ±0·5				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4358	A5	1918 May 20·876	−36·7	22	Good	Y	Very many lines which are of good quality for measurement are present in the spectrum of this star.
		June 3·887	−33·0	14	"	"	
$17^h\ 04{\cdot}5^m$	5·38	June 14·853	−29·9	21	"	"	
+36° 04′	5·52	June 27·749	−28·0	15	"	"	
		June 28·797	−32·6	15	"	"	
		July 16·751	−33·0	21	"	"	
		1919 July 20·753	−32·2	10	"	"	
			−32·2 ±0·7				
4359	A2	1918 May 20·899	− 5·5	11	Good	Y	Good spectrum. Sharp strong K. Many fine rather faint lines and good 4549.
		May 20·899	− 7·8	16	"	"	
$17^h\ 04{\cdot}5^m$	6·27	June 21·783	−12·9	16	"	"	
+40° 39′	6·33	June 28·759	− 9·0	14	"	"	
		July 12·754	− 7·5	14	"	"	
		1919 July 20·743	− 7·6	11	"	"	
			−8·4 ±0·7				
4364	Ko	1918 May 21·868	−61·2	1 = 21	Good	Y	Good spectrum.
		June 27·769	−59·3	5 = 21	"	"	
$17^h\ 06{\cdot}3^m$	5·12	July 16·764	−61·2	13 − 21	"	"	
+40° 54′	6·12	1919 Aug. 19·665	−54·1	5 = 23	"	"	
		1920 May 2·950	−59·3	11 = 23	"	"	
		May 21·895	−61·6	7 = 23	"	"	
			−59·4 ±0·8				
4365	A3	1918 May 21·893	− 8·1	6	Good	Y	The lines in this star, though fairly numerous, are very diffuse and give discordant results.
		June 24·780	− 7·1	5	Poor	"	
$17^h\ 07{\cdot}0^m$	6·19	1919 July 9·762	− 7·5	6	Good	"	
+24° 21′	6·27	1920 April 8·006	− 6·3	5	"	"	
		May 5·910	+ 5·2	6	"	"	
		June 2·892	− 9·8	3	Poor	"	
			−3·2 ±2·0				
4382	A3	1918 June 24·754	−22·5	10	Good	Y	The lines in the spectrum of this star are wide and diffuse and give discordant measures.
		July 11·739	−12·3	8	"	"	
$17^h\ 11{\cdot}7^m$	5·47	1919 June 29·772	−11·7	12	"	"	
+62° 59′	5·55	July 23·727	− 3·7	10	"	"	
		1920 June 27·816	− 3·1	9	"	"	
		July 18·712	− 8·6	9	"	"	
			−8·7 ±2·0				
4400	Ma	1918 May 26·831	−46·9*	8 − 23	Good	P	The lines are good quality and the remeasures give about the same values. Although the mean velocities are different in 1918 and 1919, the difference is not sufficient, with single-prism dispersion, to indicate variation.
		May 27·866	−48·5*	8 − 23	"	"	
$17^h\ 15{\cdot}9^m$	5·17	June 2·919	−46·9*	8 − 23	"	"	
+18° 10′	6·52	June 21·766	−47·6*	8 − 23	"	"	
		1919 June 24·787	−43·5*	7 = 23	Fair	"	
		June 28·802	−44·1*	7 = 23	Good	"	
		1920 June 18·818	−45·0	5 = 23	Fair	"	
			−46·1 ±0·5				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4416	A3	1918 June 27·789	−25·1	11	Good	Y	Many lines are present in this spectrum but they are rather wide and diffuse.
		1919 April 22·004	−24·8	12	"	"	
17h 19·9m	5·70	June 29·787	−17·4	12	"	"	
+23° 03′	5·78	July 13·767	−20·5	11	"	"	
		1920 May 24·872	−20·4	11	"	"	
		July 9·809	−16·2	5	Poor	"	
			−20·7 ±1·0				
4422	G5	1920 June 12·835	−19·7	1 = 19	Good	P′	The fifth plate is mean of three measures, two by P′ and one by P, given half weight as it is weak. Though range is large, star is probably not a binary
		June 29·826	−19·6	7 = 23	"	"	
17h 21·0m	6·48	July 26·763	−21·1*	5 = 23	Fair	"	
+37° 02′	7·26	Aug. 30·670	−17·8	9 = 23	Good	"	
		Sept. 16·651	−12·6*	17 = 23	Poor	"	
		Sept. 27·624	−15·6	5 = 23	Good	"	
			+18·2 ±0·7				
4428	A5	1918 May 4·929	−29·0	4	Good	Y	The lines in this star are very wide and diffuse and only the best of them could be measured.
		1919 Aug. 19·676	−33·4	6	"	"	
17h 23·7m	5·16	1920 May 2·994	−34·0	5	"	"	
+00° 25′	5·30	July 9·732	−23·0	5	"	"	
		July 18·750	−48·8	4	"	"	
		July 25·697	−38·7	5	"	"	
			−34·5 ±2·4				
4430	A2	1918 June 27·817	−20·4	2	Good	Y	Only wide hydrogen and wide K and very faint 4481.
		July 23·724	−30·7	3	"	"	
17h 24·1m	5·81	1919 July 9·735	− 7·6	4	"	"	
+48° 21′	5·87	Aug. 6·704	−32·2	2	"	"	
		1920 May 4·892	− 3·5	4	"	"	
		July 18·733	−11·2	4	"	"	
		July 25·725	−18·1	3	"	"	
			−17·8 ±2·8				
4432	A2	1918 June 26·753	− 0·5*	4	Good	P	All the lines are very broad and diffuse. The hydrogen lines are fairly strong but Mg and K weak and barely visible.
		July 24·717	+21·0*	4	"	"	
17h 24·4m	5·66	1919 June 28·843	+19·5	3	"	"	
+60° 07′	5·72	June 28·860	+ 7·7	3	"	"	
		July 1·765	+ 7·7	3	"	"	
		July 1·773	+12·3	3	"	"	
		July 17·774	+13·6	3	"	"	
		July 17·785	+21·5	3	"	"	
		July 29·753	+18·0	2	Fair	"	
		July 29·772	+ 6·7	3	"	"	
			+12·7 ±1·5				
4441	A0	1918 May 27·898	−25·0	3	Good	Y	Poor hydrogen, weak K and a very weak 4481 are the only lines present in the spectrum.
		July 2·799	−28·5	1	Poor	"	
17h 27·9m	5·58	1919 June 27·830	−46·0	1	Poor	"	
+28° 29′	5·58	June 29·801	−28·8	3	Good	"	
		June 29·814	−25·1	3	"	"	
		July 27·697	−30·8	3	"	"	
		1920 July 4·792	−16·2	2	"	"	
		July 25·710	−19·4	2	"	"	
			−27·4 ±2·2				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4453	A2	1918 June 18·881	−18·3	5	Good	Y	Fine spectrum.
		July 30·732	−12·2	7	"	"	Many fine metallic
$17^h\ 29{\cdot}8^m$	5·77	1919 July 9·778	−13·4	12	"	"	lines are present which
+09° 39′	5·83	July 23·743	−17·3	8	"	"	are sharp and narrow.
		Aug. 19·685	−13·5	12	"	"	
		1920 May 30·872	−15·1	8	"	"	
			−14·9 ±0·7				
4468	Ao	1918 July 1·790	− 8·3	2	Poor	Y	Wide strong hydro-
		1919 May 19·900	+ 0·4	3	Good	"	gen and a strong K and
$17^h\ 33{\cdot}4^m$	5·67	July 6·806	−13·8	3	"	"	very faint 4481.
+24° 22′	5·67	July 23·754	− 2·4	3	"	"	
		1920 Mar. 22·061	− 8·8	2	"	"	
		April 8·024	−10·4	1	Poor	"	
		May 5·986	−15·0	3	Good	"	
		May 30·892	+ 4·7	2	"	"	
			−6·7 ±1·6				
4471	Ko	1919 April 22·970	+25·5*	1 = 21	Good	H	An excellent spectrum.
		June 3·892	+27·4	1 = 21	"	"	
$17^h\ 34{\cdot}0^m$	5·54	July 7·769	+29·0	1 = 21	"	"	
+48° 38′	6·54	July 8·772	+25·2	1 = 21	"	"	
		1920 Mar. 2·055	+26·2	1 = 23	"	"	
		April 5·980	+28·4	5 = 23	"	"	
			+27·0 ±0·4				
4472	Ko	1919 July 1·865	+ 0·7	7 = 23	Good	P	The lines are of good
		Aug. 28·678	− 0·6	11 = 23	Fair	"	quality but four of the
$17^h\ 34{\cdot}1^m$	6·35	1920 June 18·844	+ 0·7	7 = 23	Good	"	plates are rather weak.
+02° 05′	7·35	July 22·773	− 3·3	11 = 23	Poor	"	
		July 27·702	− 4·1	9 = 23	Fair	"	
		Aug. 5·687	− 2·1	11 = 23	"	"	
			−1·5 ±0·6				
4484	A2	1919 May 4·945	−44·3	3	Poor	Y	Very poor spectrum.
		June 11·901	−51·5	2	"	"	Poor hydrogen and
$17^h\ 38{\cdot}1^m$	6·97	July 20·767	−46·3	4	"	"	wide strong K line.
+41° 42′	7·03	July 27·713	−42·7	2	"	"	Indication of many
		1920 May 5·958	−30·2	2	Fair	"	diffuse metallic lines.
		May 30·838	−38·0	1	"	"	All the plates are weak.
			−42·2 ±2·0				
4486	K5	1919 Aug. 14·704	−27·2	13 = 23	Good	P′	The third and fourth
		1920 June 15·822	−27·0	15 = 23	"	"	plates are the means of
$17^h\ 38{\cdot}4^m$	5·59	July 3·776	−30·9*	13 = 23	"	"	three measures each,
+24° 37′	6·77	July 13·723	−19·9*	15 = 23	Poor	"	two by P′ and one by
		Aug. 3·726	−28·9	13 = 23	Good	"	P. Star is probably not
		Aug. 14·672	−26·1	15 = 23	Fair	"	a binary and the fourth
			−28·0 ±0·6				plate is not used in forming mean.

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4506	Ko	1919 Aug. 14·718	−24·7	7 = 23	Good	P′	
		1920 June 22·832	−22·8*	11 = 23	Fair	"	
17h 44·1m	5·77	June 29·837	−26·6	5 = 19	Good	"	
+20° 36′	6·77	Aug. 1·730	−24·1	11 = 23	Fair	"	
		Aug. 9·742	−26·0	9 = 23	Good	"	
		Aug. 30·687	−28·0*	9 = 23	"	"	
			−25·4 ±0·6				
4510	Ko	1920 April 24·997	−13·1*	5 = 23	Good	P′	
		June 29·849	−13·4*	1 = 23	"	"	
17h 46·5m	5·61	Aug. 1·745	−13·8	13 = 23	Fair	"	
+29° 21′	6·61	Sept. 2·649	−17·6*	11 = 23	"	"	
		Sept. 27·647	−16·0	5 = 23	Good	"	
		Oct. 18·595	−13·2	9 = 23	"	"	
			−14·5 ±0·6				
4511	A2	1919 May 5·978	−58·5	4	Good	H	The hydrogen lines are intense and well defined as is also λ3933. Mg 4481 is not strong but is well defined and the third plate may indicate a real variation.
		June 3·910	−59·0	4	"	"	
17h 46·7m	5·19	June 23·843	−71·8*	6	"	"	
+50° 48′	5·25	July 3·781	−57·5	4	"	"	
		July 25·728	−56·6*	6	Fair	"	
		1920 Mar. 2·076	−57·3	5	Good	"	
		April 6·001	−53·7	2	Fair	"	
		April 30·978	−58·4	5	"	"	
			−59·1 ±1·2				
4518	Ko	1919 June 16·872	−70·2*	5 = 23	Good	H	There is a suspicion of a long period variation as the measures are satisfactory on this good spectrum. The 1920 results are 5 km. more positive than those for 1919.
		June 30·828	−69·5*	1 = 23	"	"	
17h 48·8m	6·06	July 18·750	−73·9*	5 = 23	"	"	
+40° 00′	7·06	1920 April 6·019	−64·8	15 = 23	Poor	"	
		April 9·980	−68·2	13 = 23	Fair	"	
		May 19·859	−67·3	15 = 23	"	"	
		Aug. 20·698	−63·9	13 = 23	"	"	
			−68·3 ±0·9				
4522	Ko	1919 Aug. 14·727	−34·5*	11 = 23	Good	P′	The fifth plate is mean of three measures, two by P′ and one by P. Star is probably not a binary though this plate is discrepant.
		1920 June 19·829	−35·8	5 = 23	Fair	"	
17h 50·0m	5·12	July 6·766	−33·5	3 = 19	Good	"	
+40° 01′	6·12	Aug. 9·767	−34·2*	13 = 23	Fair	"	
		Aug. 21·665	−27·4*	13 = 23	"	"	
		Oct. 18·626	−32·6	5 = 23	Good	"	
			−33·0 ±0·8				
4543	B9	1919 June 18·826	−40	3	Good	H	Broad hydrogen lines with traces of K and 4481 and 4471 feature this spectrum. The range is no greater than might be expected.
		July 14·791	−57*	4	"	"	
17h 54·9m	6·88	1920 May 3·944	−30*	4	Poor	"	
+43° 26′	6·86	July 2·730	−43	2	Good	"	
		July 5·800	−36	2	Fair	"	
		July 19·803	−48	2	"	"	
			−42·3 ±2·6				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4572	Ao	1918 May 9·947	−15·6*	4	Fair	Y	The hydrogen lines
		May 20·922	− 5·7	4	"	"	are wide and strong but
18h 00·5m	6·06	June 18·901	−11·5	5	"	"	have a fair core. K,
+48° 28′	6·06	July 16·837	− 5·0	4	"	"	4481, and 4549 are
		Sept. 5·694	− 5·2*	4	Good	"	good lines. There are
		1919 June 29·847	− 5·9	4	"	"	traces of many faint
			−8·1 ±1·2				lines besides.
4578	Ma	1918 May 9·978	−22·9	1 = 23	Good	P	Good lines and re-
		May 21·919	−22·3	1 = 23	"	"	markably accordant
18h 01·8m	5·32	May 24·927	−22·3	1 = 23	"	"	measures for single
+22° 13′	6·67	May 26·926	−22·6	1 = 23	"	"	prism dispersion char-
		June 2·952	−24·5	10 − 22	Fair	"	acterize this spectrum.
		1919 June 28·895	−21·4	5 = 23	Good	"	
		Aug. 28·703	−21·4	7 = 23	Fair	"	
			−22·5 ±0·2				
4587	A3	1918 May 20·942	−38·7	4	Fair	Y	Poor hydrogen, wide
		May 27·931	−15·6	5	Good	"	strong K line and
18h 03·8m	6·00	July 11·776	−25·8	5	"	"	rather poor 4481.
+26° 15′	6·08	Sept. 2·682	−11·0	4	"	"	There are also present
		1919 May 4·994	−30·8	3	"	"	many faint, rather
		June 2·929	− 7·7	3	"	"	wide, metallic lines.
		Sept. 7·677	−34·4	2	"	"	
		1920 May 24·934	− 5·2*	3	"	"	
			−20·5 ±3·1				
4589	G5	1919 May 5·992	−20·4	1 = 21	Good	H	Spectra are good and
		June 23·855	−13·1	1 = 21	"	"	measurements reliable.
18h 04·5m	5·11	July 14·805	−18·6	1 = 21	"	"	
+43° 27′	5·89	Aug. 18·672	−18·6	3 = 23	"	"	
		1920 Mar. 2·074	−17·1	1 = 23	"	"	
		April 6·036	−17·5	3 = 23	"	"	
		May 31·918	−14·8	1 = 23	"	"	
			−17·2 ±0·6				
4593	Ko	1919 May 4·979	− 7·2	3 = 23	Good	Y	Good spectrum. The
		July 2·832	− 5·1	3 = 23	"	"	plate of Aug. 10 has
18h 04·6m	5·67	July 13·796	− 6·7	1 = 23	"	"	been omitted in taking
+36° 23′	6·67	Aug. 10·732	−18·5	5 = 23	"	"	the mean, as many of
		Aug. 19·716	− 9·4	1 = 23	"	"	the plates taken on
		Sept. 22·624	− 6·5	5 = 23	"	"	that night gave dis-
		1920 July 28·698	− 6·5	13 = 23	Fair	"	cordant results.
			−6·9 ±0·4				
4594	F2	1919 Aug. 14·743	−11·5	7	Fair	P′	A fuzzy line F. The
		1920 July 6·776	−15·7	8	"	"	last measure is the
18h 04·6m	5·67	July 24·768	−19·8*	7	Good	"	mean of three. Though
+08° 58′	6·01	Aug. 8·751	−17·2	6	"	"	range is large star is
		Sept. 2·668	−14·3	3	Fair	"	not a binary.
		Oct. 25·579	− 9·2*	4	"	"	
			−14·6 ±1·1				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4595	F5	1919 June 23·872	−17·8	1 = 21	Good	H	The spectrum is characterized by numerous good lines for the Procyon standard.
		July 21·701	−12·0*	1 = 23	"	"	
18h 04·8m	5·73	Aug. 21·682	−14·3	3 = 23	"	"	
+03° 06′	6·15	1920 April 10·012	−15·9	3 = 23	"	"	
		April 30·992	−13·4	11 = 23	Fair	"	
		May 19·881	−11·8	9 = 23	"	"	
			−14·2 ±0·6				
4603	F5	1918 June 19·860	+ 4·1	1 = 23	Good	P	The lines are only of moderate sharpness in this F5 spectrum.
		June 22·818	+ 7·3	1 = 23	"	"	
18h 07·5m	5·80	June 26·785	+ 8·4	1 = 23	"	"	
+79° 59′	6·22	July 21·732	+ 4·5	1 = 23	"	"	
		1919 July 1·786	+ 8·6*	1 = 19	"	"	
		July 9·808	+ 3·9	1 = 19	"	"	
		July 17·763	+ 2·2	1 = 21	"	"	
			+5·6 ±0·6				
4605	A3	1918 June 26·801	− 0·3	1 = 23	Good	P	This spectrum is A3 as judged by the relative intensity of K but is more like F in the number and intensity of the metallic lines which are not very sharp.
		July 21·753	− 1·2	1 = 23	"	"	
18h 07·8m	5·86	July 27·828	− 4·5*	1 = 23	"	"	
+87° 00′	5·94	1919 July 1·814	+ 2·9	1 = 19	"	"	
		July 17·736	+ 0·2	1 = 19	Fair	"	
		July 29·733	+ 3·9	1 = 19	"	"	
			+0·2 ±0·8				
4606	Ma	1920 May 31·869	+ 0·6	9 = 23	Good	P′	
		July 6·787	− 1·8	13 = 23	"	"	
18h 08·2m	5·02	Aug. 1·760	+ 0·4	11 = 23	"	"	
+31° 22′	6·37	Aug. 10·732	− 3·3*	13 = 23	Fair	"	
		Sept. 7·655	− 2·1	13 = 23	"	"	
		Sept. 18·637	− 2·1	13 = 23	Good	"	
			−1·4 ±0·5				
4609	Ko	1919 July 19·806	−15·6	5 = 23	Good	P	Good lines and accordant measures.
		Aug. 28·742	−17·5	5 = 23	"	"	
18h 08·4m	5·94	1920 July 1·883	−17·8	5 = 23	"	"	
+54° 15′	6·94	July 22·794	−14·8	7 = 23	Fair	"	
		July 27·727	−17·3	7 = 23	"	"	
		Aug. 5·775	−18·1	5 = 23	Good	"	
			−16·8 ±0·4				
4626	Ko	1920 June 19·860	− 7·4	9 = 23	Good	P′	
		July 2·750	− 9·1	1 = 23	"	"	
18h 14·3m	5·57	July 31·811	− 6·9	11 = 23	"	"	
+07° 13′	6·57	Aug. 10·740	−12·8*	13 = 23	Fair	"	
		Sept. 27·661	− 8·6	9 = 23	Good	"	
		Oct. 25·592	− 7·2*	13 = 23	Fair	"	
			−8·7 ±0·6				

28489—7½

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4651	Ko	1919 July 7·836	−18·2	1 = 21	Good	H	The spectrum is good but remeasures of the second and third plates fail to change them materially.
		July 28·708	−23·8*	1 = 23	"	"	
18h 18·4m	5·48	Aug. 15·725	−16·4*	7 − 23	"	"	
+17° 46′	6·48	1920 April 10·031	−19·4	5 = 23	"	"	
		May 3·979	−17·1	13 = 23	Fair	"	
		July 23·760	−19·3	13 = 23	"	"	
			−19·0 ±0·7				
4653	Ma	1920 June 12·889	+10·6*	15 = 23	Fair	P′	
		July 3·804	+16·7	9 = 23	Good	"	
18h 19·0m	5·09	July 24·777	+11·7	11 = 23	"	"	
+49° 04′	6·34	Aug. 7·770	+12·5	11 = 23	"	"	
		Sept. 16·679	+17·3*	17 = 23	Poor	"	
		Nov. 10·589	+14·2	15 = 23	Fair	"	
			+13·8 ±0·8				
4730	Ao	1919 June 30·878	−12·9	7	Good	H	The hydrogen lines are narrow and well defined. Exceptionally narrow lines are measured also at 4549, 4481, 4233, 4215, 4131, 4128 and 4077. Suspect low range variation.
		July 18·800	−14·1*	7	"	"	
18h 36·7m	5·60	Aug. 15·704	−12·1	9	"	"	
+62° 26′	5·60	1920 May 19·932	−14·4	8	"	"	
		June 25·858	− 8·1	6	"	"	
		July 2·788	− 7·5*	7	"	"	
			−11·5 ±0·9				
4742	Fo	1919 June 9·940	− 6·2	5	Poor	H	The numerous lines are somewhat fuzzy but should give better agreement than that indicated by the fourth plate. Its remeasurement on the micrometer engine using 15 lines gave almost identical result.
		July 18·807	− 5·0	1 = 21	Good	"	
18h 40·1m	5·52	Aug. 15·738	− 4·2	5 = 23	"	"	
+31° 50′	5·80	1920 May 3·964	+ 2·4*	7 = 23	Fair	"	
		June 28·867	− 3·4	7 = 23	Good	"	
		July 5·835	− 7·0	7 = 23	"	"	
		July 12·795	− 3·5	3 = 23	"	"	
			−3·7 ±0·8				
4775	A2	1919 July 7·851	+ 8·4	5	Good	H	Hydrogen lines are broad. K is also strong and broad. Numerous other faint lines are present but they are poor for measurement.
		July 18·814	+ 0·6	10	"	"	
18h 46·2m	5·16	Aug. 15·747	+ 4·2	6	Poor	"	
+32° 26′	5·22	1920 May 3·992	+16·3*	5	Fair	"	
		May 19·955	+26·0*	3	Poor	"	
		May 31·941	+ 8·0	4	Good	"	
		June 17·861	+ 1·0*	8	Fair	"	
			+8·2 ±2·6				
4782	G5	1919 July 14·836	+ 2·2	5 = 21	Good	H	
		July 28·737	+ 4·8	1 = 21	"	"	
18h 48·2m	5·38	Sept. 25·637	+ 1·2	5 = 23	"	"	
+73° 58′	6·16	1920 July 2·801	+ 3·0	7 = 23	"	"	
		Sept. 1·728	+ 2·4	9 = 23	"	"	
		Sept. 28·697	− 0·5	11 = 23	Fair	"	
			+2·2 ±0·5				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4795	K2	1919 June 6·904	−10·1	13 = 23	Weak	Y	Good spectrum. All the plates are weak.
		July 9·831	− 8·5	16 − 23	"	"	
18h 50·3m	6·86	Aug. 6·747	−16·5	16 − 23	"	"	
+42° 47′	7·93	1920 May 24·964	− 6·2	15 = 23	"	"	
		June 30·836	− 7·3	15 = 23	"	"	
		Aug. 11·758	− 8·9	15 = 23	"	"	
			−9·6 ±1·0				
4811	F5	1919 July 21·823	−12·0	1 = 21	Good	H	The lines are not sharp though the measures are accordant.
		Aug. 15·757	−11·6	1 = 23	"	"	
18h 52·1m	5·11	Sept. 1·689	−12·1	1 = 23	"	"	
+48° 44′	6·29	1920 July 5·846	−13·8	1 = 23	"	"	
		Aug. 20·727	− 9·8	7 = 23	"	"	
		Sept. 1·771	−14·2	11 = 23	Fair	"	
			−12·2 ±0·4				
4818	A3p	1920 May 31·930	+16·7*	1 = 19	Good	P′	This star which is listed A3p is more closely Fo. Spectra were measured on comparator. Though range is large, star is probably not a binary
		July 24·821	+12·4	1 = 19	"	"	
18h 54·2m	5·94	Aug. 3·839	+14·9	7 = 23	"	"	
+13° 46′	6·02	Oct. 11·672	+13·6	7 = 23	Fair	"	
		Oct. 25·607	+10·4*	7 = 23	"	"	
		Nov. 10·612	+18·2*	9 = 19	Poor	"	
			+14·5 ±0·8				
4831	K5	1919 July 18·839	−15·4	5 = 23	Good	H	
		Sept. 1·710	−17·0	11 = 23	"	"	
18h 56·3m	5·11	1920 June 25·870	−17·4	11 = 23	Fair	"	
+32° 00′	6·29	July 7·826	−13·2	5 = 23	Good	"	
		Sept. 6·711	−14·0	9 = 23	"	"	
		Oct. 8·679	−13·4	11 = 23	Fair	"	
			−15·1 ±0·5				
4833	Ko	1919 July 3·815	− 9·4	5 = 23	Fair	P	Good lines but some of the plates are rather weak.
		July 26·797	−10·1	5 = 23	Good	"	
18h 56·3m	6·44	Aug. 28·735	− 9·7	5 = 23	"	"	
+62° 16′	7·44	Oct. 8·615	− 6·0	9 = 23	Poor	"	
		1920 July 22·837	− 9·4	9 = 23	"	"	
		Aug. 5·799	− 7·1	9 = 23	Fair	"	
			−8·6 ±0·4				
4848	G5	1919 Aug. 14·751	+10·1*	9 = 23	Good	P′	
		1920 July 3·825	+ 9·1	1 = 19	"	"	
18h 58·8m	5·52	Aug. 1·810	+ 7·8	1 = 19	"	"	
+55° 31′	6·30	Aug. 9·850	+ 7·5	9 = 23	Fair	"	
		Nov. 7·566	+ 8·5	5 = 23	"	"	
		Nov. 10·632	+ 8·6	7 = 23	"	"	
			+8·6 ±0·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4883	Fo	1919 July 21·756	−23·0*	1 = 23	Good	H	The numerous lines
		Sept. 15·635	−33·7*	1 = 23	"	"	are fairly sharp and it
19h 02·2m	6·49	Oct. 3·616	−30·3	5 = 23	"	"	would almost seem as
+76° 55′	6·77	1920 July 2·818	−26·4	5 = 23	"	"	if the star were a bin-
		Oct. 29·573	−29·4	1 = 23	"	"	ary having a small
		Nov. 5·580	−28·3	1 = 23	"	"	range.
			−28·5 ±1·0				
4875	F2	1918 June 26·899	−55·2	5 = 19	Good	P	The lines are only
		June 29·832	−55·9	1 = 19	"	"	moderately sharp and
19h 04·1m	5·37	July 12·835	−52·1	1 = 19	"	"	the spectra were also
+05° 55′	5·71	July 27·855	−55·3	5 = 19	"	"	measured on the micro-
		Oct. 24·617	−55·9	5 = 19	"	"	meter with a larger
		1919 July 17·850	−51·7	3 = 19	"	"	range but same mean.
		July 26·815	−50·4	1 = 19	"	"	There may be long
			−53·8 ±0·6				period variation.
4885	Ao	1918 May 20·991	−28·6	5	Good	Y	Many good lines in
		June 17·911	−32·6	8	"	"	this spectrum. 4128-31
19h 07·9m	5·77	July 2·865	−30·6	3	"	"	are sharp and narrow.
+31° 07′	5·77	Aug. 5·806	−28·6	6	"	"	The two weak plates
		Aug. 27·678	−27·2	6	"	"	are given half weight.
		Sept. 23·637	−42·5	3	Weak	"	
		1919 June 4·951	−32·3	6	Good	"	
		Sept. 26·653	−41·2	4	Weak	"	
			−31·8 ±1·3				
4887	B8	1920 June 19·920	− 7·1	8	Good	P′	Many good sharp
		July 6·845	−12·8	7	"	"	lines in this spectrum.
19h 08·7m	5·10	Aug. 12·772	− 8·1	9	"	"	K and 4481 of hair line
+02° 07′	5·05	Sept. 27·693	−11·7	4	"	"	sharpness.
		1921 Mar. 30·046	− 3·6*	8	"	"	
		April 6·028	− 7·4	9	"	"	
			−8·4 ±1·0				
4902	A2	1918 June 29·842	−21·3	11	Good	P	Strong hydrogen
		July 27·868	−27·5	10	Fair	"	lines and broad but
19h 11·6m	5·40	Aug. 22·776	−21·2	9	"	"	sharply defined K. The
+04° 40′	5·46	Aug. 25·751	−20·5	10	Good	"	metallic lines are rath-
		1919 June 28·908	−33·0	12	"	"	er faint and diffuse and
		July 17·861	−31·3	10	Fair	"	not very accurately
		1920 July 8·908	−21·8	10	"	"	measurable.
		July 27·820	−26·3	15	Good	"	
			−25·4 ±1·2				
4905	Ao	1918 May 24·923	−29·6	4	Good	Y	Rather poor hydro-
		July 11·847	−21·8	5	"	"	gen, K and 4481 are
19h 11·9m	5·46	1919 July 20·807	−25·8	2	"	"	the only lines present.
+14° 23′	5·46	Aug. 19·741	−32·4	2	"	"	
		Sept. 16·638	− 2·7*	2	Poor	"	
		Sept. 19·642	−17·1	2	Good	"	
		1920 May 30·932	−26·2	4	"	"	
			−22·2 ±2·5				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4907	Ko	1919 July 21·772	−29·6	1 = 21	Good	H	A good spectrum.
		Aug. 18·743	−25·8	5 = 23	"	"	
19h 12·1m	5·26	Sept. 15·658	−32·0	1 = 23	"	"	
+57° 32′	6·26	1920 July 2·835	−29·5	1 = 23	"	"	
		Sept. 6·698	−28·6	5 = 23	"	"	
		Oct. 8·694	−28·9	5 = 23	"	"	
			−29·1 ±0·5				
4911	Fo	1920 June 19·932	− 6·3	1 = 19	Good	P′	
		July 26·825	− 8·1*	1 = 19	"	"	
19h 12·8m	5·06	Aug. 10·797	− 3·7	3 = 19	"	"	
+76° 24′	5·34	Nov. 7·582	− 5·8	1 = 23	"	"	
		Nov. 10·559	− 6·2	5 = 23	Fair	"	
		Nov. 10·570	− 2·3*	7 = 23	"	"	
			−5·4 ±0·6				
4920	F8	1918 May 27·957	−46·0	22	Good	Y	Good spectrum.
		June 18·931	−45·2	18	"	"	
19h 14·0m	6·04	July 2·900	−46·3	9	"	"	
+46° 49′	6·54	July 23·785	−42·9	15	"	"	
		Aug. 30·667	−46·8	22	"	"	
		1919 Aug. 27·698	−43·0	1 = 21	"	"	
			−45·0 ±0·5				
4924	Fo	1919 July 18·853	− 2·0	15	Good	H	The lines are a little fuzzy and the agreement of the measures is better than expected.
		Aug. 21·760	+ 1·4	16	"	"	
19h 15·0m	5·42	Oct. 11·590	− 3·1	19	"	"	
+12° 12′	5·70	1920 July 7·892	+ 0·5	1 = 23	"	"	
		Oct. 8·622	+ 0·7*	9 = 23	Fair	"	
		Oct. 12·588	− 1·7	7 = 23	Good	"	
			−0·7 ±0·5				
4939	Ao	1918 May 27·977	− 8·6	2	Good	Y	Wide strong hydrogen and K but fairly well defined. Faint 4481 and traces of several metallic lines on the good plates.
		July 23·820	+ 5·0	3	"	"	
19h 17·4m	6·24	July 16·861	+ 1·4	3	Poor	"	
+54° 12′	6·24	Aug. 30·683	− 5·1	3	Good	"	
		1919 Aug. 22·719	−15·4	7	"	"	
		1920 July 4·836	−17·0	3	"	"	
			−6·6 ±2·4				
4957	B9	1918 July 2·884	−23·5	4	Fair	Y	Wide strong hydrogen. K and 4481 fairly sharp and narrow. Plate of July 30 given half weight.
		July 23·802	−22·8	4	Good	"	
19h 20·8m	6·31	Sept. 5·723	−23·2	5	"	"	
+50° 05′	6·29	1919 July 6·871	−28·2	3	"	"	
		July 30·803	−44·5*	3	Poor	"	
		Aug. 27·698	−25·0	3	Good	"	
		1920 Aug. 18·693	−17·6	6	"	"	
			−25·0 ±1·8				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4958	G5	1919 July 17·877	− 1·3	7 = 23	Fair	P	The lines do not seem quite as sharp as usual with this spectral type.
		Aug. 28·768	− 0·8	5 = 23	Good	"	
19h 20·8m	5·95	Oct. 4·624	− 2·8	7 = 23	"	"	
+43° 12′	6·73	1920 June 8·964	− 3·1	7 = 23	Fair	"	
		July 1·903	+ 0·4	7 = 23	"	"	
		July 27·804	− 4·4	5 = 23	"	"	
			−2·0 ±0·5				
4965	Ao	1918 Sept. 16·673	−21·9	2	Poor	Y	K and 4481 weak but measurable. Hγ and Hδ wide and strong. The last measure is rejected.
		Oct. 11·626	−43·1	2	"	"	
19h 21·9m	5·58	1919 June 29·878	−42·4	4	Good	"	
+19° 54′	5·58	July 20·836	−17·6	4	"	"	
		July 30·818	−25·2	4	"	"	
		Aug. 27·677	−34·8	4	"	"	
		1920 June 2·929	−23·0	2	Fair	"	
		July 9·852	− 2·4	1	Poor	"	
			−29·7 ±2·6				
4977	Ko	1919 July 28·774	−37·8	11 = 23	Fair	H	
		Oct. 13·593	−40·6	9 = 23	Good	"	
19h 24·8m	5·73	1920 July 5·862	−43·2	5 = 23	"	"	
+14° 23′	6·73	Sept. 29·673	−40·9	9 = 23	"	"	
		Oct. 14·640	−39·6	9 = 23	"	"	
		Oct. 31·601	−44·4	9 = 23	"	"	
			−40·6 ±0·7				
4994	Ko	1919 July 21·784	−11·4	9 = 23	Good	H	
		Aug. 18·761	− 8·4	5 = 23	"	"	
19h 28·7m	5·73	Oct. 6·640	−10·1	1 = 23	"	"	
+50° 06′	6·73	1920 July 2·882	− 8·0	1 = 23	"	"	
		Oct. 8·710	− 9·6	13 = 23	Fair	"	
		Oct. 19·701	− 8·2	13 = 23	"	"	
			−9·3 ±0·4				
5010	Ko	1919 Aug. 7·731	−33·0	1 = 23	Good	P′	Though range is large, star is probably not a binary.
		Oct. 15·604	−32·6	5 = 23	"	"	
19h 32·8m	5·67	1920 Aug. 12·811	−30·2	11 = 23	"	"	
+16° 14′	6·67	Oct. 18·653	−28·6*	7 = 23	"	"	
		1921 April 6·005	−35·3	11 = 23	Poor	"	
		April 16·967	−35·0*	9 = 23	Fair	"	
			−32·4 ±0·8				
5035	A3	1919 June 16·935	−34·3	17	Good	H	The lines are for the most part broad and ill-defined.
		July 28·796	−35·3	14	"	"	
19h 38·5m	6·20	Aug. 9·793	−26·6	16	"	"	
+40° 01′	6·28	1920 June 25·883	−30·6	8	Fair	"	
		July 2·897	−34·6	14	Good	"	
		Aug. 29·758	−36·7	9	Fair	"	
			−33·0 ±1·0				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5045	Ko	1919 July 22·820	−24·7	1 = 23	Good	P′	
		Oct. 23·583	−23·9	15 = 23	Poor	"	
19h 40·7m	5·02	Nov. 7·562	−25·4	1 = 23	Good	"	
+37° 07′	6·02	1920 Aug. 14·793	−22·4	1 = 19	"	"	
		Sept. 16·765	−22·6	1 = 23	"	"	
		Nov. 7·597	−24·3	1 = 23	"	"	
			−23·9 ±0·3				
5046	A2	1919 July 28·805	−30·3	19	Good	H	Spectrum has numerous well-defined lines. Second and fifth plates are given half weight.
		Aug. 21·789	−34·5	15	Fair	"	
19h 40·8m	5·72	Oct. 11·621	−29·3	14	Good	"	
+07° 22′	5·78	1920 July 23·781	−31·2	19	"	"	
		Sept. 1·793	−27·1	9	Poor	"	
		Oct. 12·607	−32·8	17	Good	"	
			−0·9 ±0·6				
5049	Ko	1919 July 2·903	−18·0	3 = 23	Good	Y	Good spectrum. Fourth plate rejected. cf. Boss 4593.
		July 20·822	−20·3	3 − 15	"	"	
19h 42·1m	6·23	July 27·826	−20·4	13 = 23	"	"	
+34° 46′	7·23	Aug. 10·785	−35·1	15 = 23	"	"	
		Sept. 7·718	−21·1	5 = 23	"	"	
		Oct. 2·633	−21·3	3 = 23	"	"	
			−20·2 ±0·4				
5057	Ao	1919 July 22·790	− 0·1	10	Good	P′	Spectrum more closely Fo. Fifth plate was measured on comparator against Procyon.
		Oct. 26·582	− 1·3	9	"	"	
19h 44·4m	5·90	1920 July 26·833	− 1·5	8	"	"	
+69° 06′	5·90	Aug. 10·805	− 3·9	7	Fair	"	
		Oct. 25·695	− 0·8	1 = 23	"	"	
		Nov. 10·649	+ 1·6*	12	"	"	
			−1·0 ±0·5				
5065	Go	1919 July 28·814	− 0·2	1 = 21	Good	H	Good spectrum.
		Oct. 18·580	− 3·8	1 = 23	"	"	
19h 46·2m	5·22	1920 July 5·878	− 2·6	1 = 23	"	"	
+10° 10′	5·78	Oct. 12·625	− 3·4	7 = 23	"	"	
		Oct. 26·581	− 1·4	1 = 23	"	"	
		Nov. 9·577	− 6·2	1 = 23	"	"	
			−2·9 ±0·6				
5075	Ko	1919 July 22·809	−19·6	1 = 23	Good	P′	Though range is large star has probably constant velocity.
		1920 July 24·848	−23·2	1 = 19	"	"	
19h 48·2m	5·17	Aug. 10·814	−18·5	13 = 23	Fair	"	
+52° 45′	6·17	Oct. 13·750	−21·0	13 = 23	"	"	
		Nov. 10·669	−15·7*	15 = 23	"	"	
		1921 April 17·000	−23·3	1 = 23	"	"	
			−20·2 ±0·9				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5127	B3	1919 June 16·949	−16·3	6	Good	H	The hydrogen and helium lines are not broad but are ill-defined and the first decimal place in the velocities has no significance. There is a sharp K-line which at first was kept separate but later incorporated into the general mean of the plate.
		June 18·954	−34·5	7	"	"	
19h 56·2m	5·15	July 18·912	− 6·9	7	"	"	
+36° 46′	4·98	Aug. 9·821	− 8·8	4	"	"	
		Nov. 24·545	−16·7	6	"	"	
		1920 June 17·941	− 4·5	8	"	"	
		June 28·908	− 5·2	6	"	"	
		Oct. 12·673	− 5·5	5	"	"	
		Nov. 2·594	− 6·9	7	"	"	
			−11·7 ±2·2				
5137	Ko	1919 July 22·832	− 0·7	1 = 23	Good	P′	
		1920 July 24·859	± 0·0	1 = 19	"	"	
19h 58·5m	5·28	Oct. 13·734	+ 1·9	9 = 23	Fair	"	
+49° 49′	6·28	Nov. 10·688	+ 1·0	15 = 23	Poor	"	
		1921 April 17·022	− 0·5	1 = 23	Good	"	
		May 3·904	− 0·1	9 = 23	"	"	
			+0·3 ±0·3				
5139	Ao	1919 July 28·822	−35·5	2	Poor	H	In addition to well-defined hydrogen lines there are sharp lines at λλ 4549, 4481, 4131, 4128 and 3933. The range is larger than might be expected for such good lines but the plates are rather weak.
		Aug. 21·810	−31·6	9	Good	"	
19h 58·9m	5·47	Oct. 13·632	−24·6	4	Fair	"	
+15° 45′	5·47	Sept. 1·814	−28·3	7	"	"	
		Oct. 12·686	−21·4*	7	"	"	
		Oct. 26·614	−26·6	8	Good	"	
			−27·3 ±1·2				
5151	Ko	1919 Aug. 7·881	−42·8	5 = 23	Good	P′	
		Oct. 23·615	−41·4	3 = 23	"	"	
20h 00·7m	5·26	1920 Aug. 1·898	−41·1	1 = 19	"	"	
+19° 42′	6·26	Oct. 27·669	−41·0	9 = 23	"	"	
		1921 May 3·925	−36·8*	9 = 23	Fair	"	
		May 12·933	−41·3	9 = 23	Good	"	
			−40·7 ±0·5				
5154	Ma	1919 July 28·841	−69·3	15 − 23	Fair	H	The plates are all slightly underexposed but the lines are good and measures accordant.
		Oct. 3·672	−71·4	11 = 23	"	"	
20h 02·4m	6·43	Oct. 24·588	−71·3	11 = 23	"	"	
+76° 13′	7·78	1920 July 5·913	−69·1	13 = 23	"	"	
		Oct. 29·603	−68·2	14 − 23	"	"	
			−69·9 ±0·4				
5156	B3	1918 June 17·934	−22·3	6	Good	Y	The usual helium series is present in the spectrum, though rather wide and diffuse. The calcium K line was not seen.
		July 12·849	−12·4	7	"	"	
20h 02·5m	5·08	July 30·790	− 5·6	7	"	"	
+23° 19′	4·91	Sept. 5·777	−12·9	5	"	"	
		1919 July 6·887	−14·2	6	"	"	
		Oct. 5·599	− 4·9	6	"	"	
			−12·0 ±1·8				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5184	F5	1918 June 26·940	−20·1	1 = 23	Good	P	The type is nearer F8 with lines of average sharpness.
		Aug. 3·821	−18·5	1 = 23	"	"	
20h 09·9m	5·72	Aug. 22·818	−17·9	1 = 19	"	"	
+61° 47′	6·14	Aug. 24·780	−15·9	1 = 19	"	"	
		Aug. 25·795	−18·5	1 = 19	"	"	
		1919 June 28·928	−17·8	1 = 19	"	"	
		July 26·853	−16·4	1 = 19	"	"	
			−17·9 ±0·4				
5185	A3	1918 June 17·971	+13·4	4	Good	Y	Wide, poor hydrogen, 4481 very faint. Indications of many fuzzy lines on strong plates.
		July 2·924	− 1·1	4	"	"	
20h 10·2m	5·20	July 12·842	− 6·2	4	"	"	
+28° 24′	5·28	Aug. 30·758	+ 2·9	4	"	"	
		1919 June 11·950	+16·4	3	"	"	
		1921 July 2·840	− 3·6	2	"	"	
			+3·8 ±2·3				
5203	F5	1918 June 28·894	−43·7	1 = 19	Good	Y	Good spectrum.
		July 11·871	−44·1	1 = 21	"	"	
20h 12·8m	5·87	Aug. 30·774	−39·6	1 = 19	"	"	
+45° 16′	6·29	Sept. 11·707	−39·8	1 = 23	"	"	
		1919 July 20·850	−38·4	1 = 19	"	"	
		Aug. 10·790	−42·6	1 = 19	"	"	
			−41·4 ±0·7				
5204	G5	1919 July 19·851	−67·8	5 = 23	Good	P	Good lines but some of the plates are weak.
		1920 July 22·874	−64·6*	11 = 23	Fair	"	
20h 12·8m	7·25	Aug. 5·834	−68·7	11 = 23	"	"	
+64° 27′	8·03	Sept. 27·717	−68·7	9 = 23	"	"	
		Oct. 25·670	−65·5	9 = 23	"	"	
		1921 June 16·942	−70·7*	13 = 23	Poor	"	
			−67·7 ±0·6				
5205	K5	1918 June 28·912	−22·9	13 − 23	Fair	Y	Good spectrum. All the plates are rather weak.
		July 11·881	−22·2	13 − 23	"	"	
20h 13·4m	5·50	Sept. 11·731	−16·8	15 − 23	"	"	
+40° 03′	6·68	1919 July 20·866	−18·4	14 − 23	"	"	
		Aug. 10·800	−24·8	14 − 23	"	"	
		Aug. 22·736	−23·5	15 − 23	"	"	
			−21·4 ±0·9				
5226	Ko	1919 July 21·850	−10·2*	7 = 21	Fair	H	
		Sept. 15·680	−13·6	3 = 23	Good	"	
20h 18·2m	5·41	1920 June 25·905	−14·0	5 = 23	"	"	
+05° 01′	6·41	June 28·915	−12·1	11 = 23	Fair	"	
		Oct. 26·628	−12·4	5 = 23	Good	"	
		1921 July 8·786	−11·5	10 − 23	"	"	
			−12·3 ±0·4				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5249	Ao	1918 Aug. 2·869	− 3·0	4	Good	P	The hydrogen series and a good though broad K are the best lines in this spectrum. The few metallic lines showing are so faint and diffuse as generally to be immeasurable.
		Oct. 13·662	+ 0·4	4	"	"	
20h 23·9m	5·45	Oct. 19·662	0·0	4	"	"	
+38° 07′	5·45	Oct. 24·676	− 8·3	4	"	"	
		Oct. 29·613	− 8·8	5	"	"	
		1919 July 17·925	− 8·8	10	"	"	
		July 17·938	−11·5	6	"	"	
		Aug. 28·792	+ 4·6	9	"	"	
		Aug. 28·800	+ 1·5	5	"	"	
			−3·8 ±1·3				
5259	Ao	1919 Sept. 9·752	− 1·8	7	Poor	H	There are numerous lines in this spectrum but they are very poor and their internal agreement is also poor. Consequently the range shown may be considered as accidental error for the present. The star is a visual double, separation 0″·5.
		Oct. 6·670	+ 8·4	6	"	"	
20h 26·5m	6·99	1920 Oct. 26·669	−22·8	14	Fair	"	
+10° 57′	6·99	1921 July 8·885	+11·0	11	Poor	"	
		July 13·826	+ 8·9	7	"	"	
			+0·7 ±4·2				
5260	Ao	1919 Sept. 9·728	+ 8	2	Fair	H	The spectrum is B8 as helium 4471 and 4026 are seen. All lines are very, very poor for measurement and the great range may well be expected. This star is 15″ from preceding.
		Oct. 18·606	+ 5	3	"	"	
20h 26·7m	6·39	1920 Oct. 26·689	−15	3	"	"	
+10° 55′	6·39	1921 July 8·920	− 6	4	"	"	
		July 11·904	−30	5	"	"	
		July 13·870	−25	5	"	"	
		July 20·839	−21	7	"	"	
			−12·0 ±3·8				
5264	B9	1918 July 16·893	−31·1	2	Good	Y	Very poor spectrum. Wide hydrogen and very faint K and 4481.
		1919 June 29·912	−29·3	2	"	"	
20h 27·0m	5·87	July 6·900	−11·8	2	"	"	
+55° 44′	5·85	July 23·884	−22·2	2	"	"	
		Sept. 22·690	−25·1	3	"	"	
		1920 Aug. 18·740	−20·2	2	"	"	
			−23·3 ±1·9				
5271	Ma	1919 July 21·869	−67·2	13 = 23	Fair	H	
		Aug. 9·854	−69·6	5 = 23	Good	"	
20h 28·2m	5·57	Sept. 23·714	−63·2	9 = 23	"	"	
+48° 53′	6·92	1920 July 7·932	−64·0	13 = 23	Fair	"	
		Aug. 29·785	−64·0	11 = 23	"	"	
		Sept. 6·793	−68·0	13 = 23	"	"	
			−66·0 ±0·6				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5280	K2	1919 July 17·902	−42·7	11 = 23	Fair	P	
		July 26·833	−47·3	7 = 23	Good	"	
20h 30·4m	6·42	Oct. 14·631	−43·9	11 = 23	Fair	"	
+72° 12′	7·49	1920 Sept. 2·742	−41·8	7 = 23	"	"	
		Oct. 18·708	−43·9	9 = 23	"	"	
		1921 June 23·908	−43·5	7 = 23	"	"	
			−43·9 ±0·5				
5283	B9	1919 Aug. 24·790	−22·2	3	Good	P′	Numerous fairly sharp but faint lines appear which are characteristic of the type. Hydrogen lines narrow.
		Oct. 15·640	−24·5	8	"	"	
20h 30·6m	5·59	1920 Aug. 21·796	−19·3*	4	Fair	"	
+46° 21′	5·57	Sept. 16·818	−19·2	2	Poor	"	
		Oct. 27·734	−27·6	4	Fair	"	
		1921 May 3·983	−23·6	9	Good	"	
			−22·7 ±0·9				
5290	A2p	1919 June 23·955	+ 1·8	11	Good	H	There are numerous sharp lines in this spectrum and as all plates are good it would almost seem as if the star were a spectroscopic binary.
		July 14·883	+ 6·0	9	"	"	
20h 32·8m	5·18	Sept. 6·756	+ 3·9	13	"	"	
+74° 37′	5·24	Sept. 18·722	− 0·9	12	"	"	
		1920 Oct. 26·716	+ 8·3	10	"	"	
		Nov. 5·648	+ 7·3	12	"	"	
			+4·4 ±0·9				
5299	K5	1919 July 9·907	−12·9	14 − 23	Fair	Y	Good spectrum. Plate of Aug. 10 omitted in taking mean.
		July 27·858	−13·4	15 − 23	"	"	
20h 34·1m	6·06	Aug. 10·814	−25·6	16 − 23	Weak	"	
+12° 58′	7·24	Aug. 27·739	−10·0	16 − 23	"	"	
		Sept. 24·688	−13·9	15 − 23	"	"	
		1920 July 4·859	−14·5	7 = 23	Good	"	
		July 25·841	−13·8	13 = 23	"		
			−13·1 ±0·4				
5303	B5	1919 June 30·942	−43*	3	Good	H	The spectrum consists of very broad hydrogen lines which are much more intense than the helium lines 4471 and 4026. The range is wholly due most likely to the error of judging the centres of such broad lines. Last plate half weight.
		July 14·927	−17	4	Fair	"	
20h 34·2m	5·04	Sept. 12·720	−11*	4	Good	"	
+23° 46′	4·92	Sept. 18·737	−37	4	"	"	
		Oct. 18·629	−26	3	"	"	
		1920 Aug. 20·800	−34*	4	"	"	
		Oct. 26·687	−27	4	"	"	
		Nov. 2·605	−49*	5	Poor	"	
			−29·2 ±3·1				
5309	Ko	1919 July 9·927	−10·0	5 = 23	Good	Y	Good spectrum. Plate of Aug. 10 omitted in taking mean.
		July 27·843	+12·0	3 = 23	"	"	
20h 34·9m	5·86	Aug. 10·828	+ 5·8	3 = 23	"	"	
+29° 59′	6·86	Aug. 22·752	+14·8	15 − 23	Fair	"	
		Sept. 24·659	+13·1	9 = 23	Good	"	
		1920 June 20·958	+12·0	5 = 23	"	"	
			+12·4 ±0·5				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5343	Ao	1919 July 7·923	− 8	4	Good	H	The hydrogen lines
		July 14·938	−16	4	"	"	are broad and intense.
20h 42·8m	5·59	Sept. 15·698	−17	4	"	"	4481 and K are also
+05° 38′	5·59	Sept. 18·754	− 4	5	"	"	present but much
		1920 June 25·918	+11*	4	"	"	fainter.
		Sept. 1·835	− 3	2	Fair	"	
			−6·2 ±2·8				
5355	Ko	1919 July 22·884	−27·6*	13 = 23	Fair	P′	
		Oct. 15·670	−30·7*	11 = 23	Good	"	
20h 44·6m	5·65	1920 Aug. 1·917	−29·1*	13 = 23	"	"	
+47° 28′	6·65	Oct. 25·738	−30·8	11 = 23	Fair	"	
		1921 May 3·918	−29·6	11 = 23	Good	"	
		May 12·915	−29·2	11 = 23	Good	"	
			−29·5 ±0·3				
5358	F5	1919 July 14·947	+ 4·3	5 = 19	Good	H	The lines are satis-
		July 15·918	+ 2·7	1 = 21	"	"	factory for measure-
20h 44·9m	6·00	1920 June 25·932	+ 1·6	3 = 23	"	"	ment with Procyon on
+12° 11′	6·42	June 28·927	− 0·2	5 = 23	"	"	the spectro-compara-
		Aug. 20·777	− 0·8	5 = 23	"	"	tor.
		Oct. 29·678	+ 2·8	1 = 23	"	"	
			+1·7 ±0·5				
5365	A5	1918 Dec. 11·531	−22·2	16	Good	Y	Numerous good lines.
		1919 June 29·923	−27·3	14	"	"	Plate of Aug. 10
20h 46·6m	5·07	Aug. 10·837	−32·2	12	"	"	omitted in taking
+43° 41′	5·21	Aug. 22·804	−23·9	13	"	"	mean.
		Sept. 16·739	−21·4	13	"	"	
		Oct. 5·611	−26·4	12	"	"	
		1920 July 21·831	−28·4	11	"	"	
			−24·8 ±0·8				
5382	Go	1919 Aug. 14·865	−33·0*	11 = 23	Poor	P′	Spectra are all weak.
		1920 July 6·966	−29·3*	11 = 23	Fair	"	Star is probably much
20h 50·7m	6·04	Aug. 10·841	−28·9	17 = 23	Poor	"	fainter than listed mag-
+04° 09′	6·60	1921 May 12·979	−31·8	13 = 23	Fair	"	nitude.
		July 9·814	−29·5	9 = 23	"	"	
		July 12·808	−31·8	11 = 23	"	"	
			−30·7 ±0·6				
5385	Ko	1919 July 7·937	−10·3	5 = 21	Good	H	
		July 18·878	−11·5	1 = 21	"	"	
20h 50·9m	5·39	Sept. 12·734	−12·5	3 = 23	"	"	
+13° 21′	6·39	1920 June 25·952	−10·5	3 = 23	"	"	
		Oct. 26·701	−11·4	7 = 23	"	"	
		Oct. 29·701	−11·2	9 = 23	"	"	
			−11·2 ±0·2				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5388	Ko	1919 July 14·895	−27·7	3 = 21	Good	H	Third and sixth plates are given half weight.
		Aug. 18·821	−26·2	5 = 23	"	"	
20h 52·1m	5·58	Sept. 25·690	−23·0*	16 − 23	Poor	"	
+80° 11′	6·58	1920 July 5·932	−27·8	1 = 23	Good	"	
		Aug. 29·830	−25·5	5 = 23	"	"	
		Sept. 28·744	−25·2*	16 − 23	Poor	"	
			−26·3 ±0·4				
5401	Ko	1919 Aug. 14·834	−26·0	1 = 23	Good	P′	Individual measures are all accordant, and range is large. Star may possibly be a binary.
		Oct. 17·652	−20·7	1 = 23	"	"	
20h 54·8m	5·76	1920 Aug. 7·845	−20·0	11 = 23	Fair	"	
+44° 04′	6·76	Oct. 13·772	−18·9	9 = 23	Good	"	
		Oct. 27·759	−26·5	5 = 23	Fair	"	
		1921 May 27·956	−19·1*	11 = 23	Good	"	
			−21·9 ±1·1				
5412	K2	1919 July 21·899	−11·9*	11 = 23	Fair	H	Good spectrum but several plates are weak.
		Aug. 15·836	−13·5	13 = 23	"	"	
20h 57·0m	5·75	Sept. 12·764	−18·5*	7 = 23	Good	"	
+59° 02′	6·82	Sept. 21·718	−15·9	5 = 23	"	"	
		1920 Sept. 6·823	−13·1	15 = 23	Fair	"	
		Nov. 5·673	−12·6	13 = 23	"	"	
			−14·2 ±0·7				
5416	K2	1919 July 13·889	− 8·1	15 − 23	Weak	Y	Good spectrum. The observed range is rather large but all the plates are very weak and the discordances are probably not larger than to be expected.
		Aug. 22·781	−15·2	17 − 23	"	"	
20h 58·6m	6·54	Aug. 29·752	−10·0	15 − 23	Fair	"	
+39° 07′	7·61	Sept. 7·750	−11·4	15 − 23	"	"	
		Sept. 22·724	−10·2	18 − 23	Weak	"	
		1920 May 30·956	− 4·6	17 − 23	"	"	
			−9·9 ±1·0				
5425	F2	1918 June 28·928	−12·8	9 = 21	Fair	Y	The lines in the spectrum of this star are rather fuzzy and it is not well suited for measurement on the Hartmann Comparator.
		July 11·894	− 6·7	1 = 19	"	"	
21h 00·1m	6·33	Sept. 5·796	−16·5	11 = 23	"	"	
+41° 14′	6·67	Dec. 11·549	−14·5	7 = 19	"	"	
		1919 July 13·923	− 7·5	13	Good	"	
		Aug. 6·861	−10·9	13	"	"	
			−11·5 ±1·1				
5428	F8	1919 Nov. 7·620	−24·7	9	Good	P′	A fuzzy lined F which gives rather better results on the comparator.
		1920 Aug. 4·855	−23·0	7 = 23	"	"	
21h 00·5m	6·03	Dec. 4·549	−26·8	15 = 23	Poor	"	
+05° 34′	6·53	Dec. 13·548	−20·4	7 = 23	Fair	"	
		1921 July 9·848	−21·9	9 = 23	Good	"	
			−23·4 ±0·8				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5453	B2	1918 June 26·953	−12·9	10	Fair	P	A good lined B2 spectrum. This star is double with two equal components 1″·2 apart lying along the slit so the spectrum is composite. The character of the lines and the measures show that the type and velocities are similar.
		Aug. 22·844	−21·0	14	Good	"	
21h 09·3m	5·65	Aug. 24·810	−17·5	15	"	"	
+59° 35′	5·46	Aug. 25·824	−18·2	19	"	"	
		1919 July 3·934	−23·6	14	"	"	
		July 19·945	−17·4	18	"	"	
		Dec. 4·581	−17·5	13	"	"	
			−18·3 ±0·8				
5459	G5	1919 July 20·894	−14·8	5 = 23	Good	Y	Good spectrum. All the plates are a little weak.
		Aug. 27·774	−11·9	11 = 23	"	"	
21h 10·4m	7·17	Sept. 7·774	−14·4	15 − 23	"	"	
+40° 44′	7·95	1920 July 4·886	− 9·5	15 = 23	"	"	
		Aug. 8·820	− 8·0	15 = 23	"	"	
		Aug. 11·833	− 9·3	15 = 23	"	"	
			−11·3 ±0·8				
5472	K2	1919 July 21·923	−14·6	15 − 23	Fair	H	
		Aug. 15·856	−18·5	15 = 23	"	"	
21h 14·3m	6·18	Sept. 12·795	−20·9	5 = 23	Good	"	
+55° 22′	7·25	1920 Sept. 1·860	−22·4	15 = 23	Fair	"	
		Oct. 8·782	−18·6	16 − 23	"	"	
		Nov. 5·796	−15·2	16 − 23	"	"	
			−18·4 ±0·8				
5478	B5	1918 June 18·967	−22·8	5	Good	Y	Broad hydrogen and a strong helium series. K line is very faint and looks double on plates of June 18 and July 6.
		June 26·971	−25·0	6	"	"	
21h 16·0m	5·65	July 11·917	−17·0	3	Weak	"	
+49° 06′	5·53	Sept. 13·702	−11·1	5	Good	"	
		Nov. 1·592	−26·7	5	"	"	
		1919 July 6·924	−39·6	5	"	"	
		Sept. 16·770	−21·7	3	Fair	"	
			−23·4 ±2·2				
5479	K5	1919 July 28·888	−14·8*	17 − 23	Poor	H	First and fourth plates are given half weight. Would almost suspect a small variation.
		Aug. 9·879	−18·7	13 = 23	Fair	"	
21h 16·2m	6·01	Sept. 15·722	−21·3	13 = 23	Good	"	
+06° 56′	7·19	1920 Sept. 29·749	−15·7	17 − 23	Poor	"	
		1921 July 8·952	−21·1	16 − 23	Fair	"	
			−18·8 ±1·1				
5504	Fo	1918 July 2·958	− 5·0	13	Good	Y	Many lines but their quality for measurement is not the best.
		July 11·928	−11·0	11	"	"	
21h 20·1m	5·74	Sept. 13·723	− 4·6	15	"	"	
+25° 45′	6·02	Nov. 1·581	− 5·9	5 = 19	"	"	
		1919 July 23·898	− 6·5	17	"	"	
		Aug. 10·845	− 7·6	12	"	"	
			−6·8 ±0·6				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5515	Ao	1918 June 28·981	− 9·2	6	Good	Y	Fairly good spectrum. Hydrogen series and strong K and 4481. Also many faint metallic lines.
		July 12·859	− 3·6	8	"	"	
21h 23·3m	5·38	Sept. 13·743	−12·2	4	"	"	
+27° 11′	5·38	1919 June 29·934	−12·0	11	"	"	
		July 23·910	−11·2	7	"	"	
		Aug. 10·855	− 9·0	7	"	"	
			−9·5 ±0·9				
5519	Fo	1918 June 28·958	−26·4	1 = 19	Good	Y	Good spectrum.
		July 12·869	−23·2	1 = 19	"	"	
21h 23·8m	5·74	Sept. 11·839	−26·3	1 = 19	"	"	
+31° 47′	6·02	1919 July 30·860	−22·0	1 = 19	"	"	
		July 13·934	−24·8	1 = 19	"	"	
		July 23·923	−22·7	1 = 19	"	"	
		Aug. 10·857	−30·0	1 = 19	"	"	
			−25·2 ±0·7				
5553	A5	1918 July 2·975	+13·9	4	Good	Y	Poor spectrum. Many wide immeasurable lines. K very strong. 4481 faint.
		Sept. 20·717	−16·2	4	"	"	
21h 32·9m	5·09	Oct. 30·635	−11·2	2	"	"	
+39° 58′	5·23	1919 Aug. 19·796	+ 5·3	3	"	"	
		1920 July 14·859	−13·3	3	"	"	
		Aug. 31·785	− 2·8	3	"	"	
		1921 July 10·816	− 9·8	3	"	"	
		1921 July 10·826	+ 5·4	3	"	"	
			−3·6 ±2·6				
5560	Ko	1918 Oct. 29·637	−36·5	5 = 23	Good	P	A good lined spectrum. Possibly very small long period variation.
		Nov. 5·622	−35·2	5 = 23	"	"	
21h 34·5m	5·33	Nov. 23·619	−37·0	5 = 23	"	"	
+01° 48′	6·33	Dec. 29·544	−34·8	5 = 23	"	"	
		1919 July 17·970	−33·2	13 − 23	Poor	"	
		1920 Nov. 7·656	−32·7	5 = 23	Good	"	
			−34·0 ±0·5				
5567	K5	1918 July 11·943	−30·1	5 = 23	Good	Y	Good spectrum.
		Oct. 11·733	−31·1	13 − 21	"	"	
21h 36·3m	5·35	Oct. 30·649	−29·5	5 = 21	"	"	
+42° 49′	6·53	1919 Aug. 10·876	−27·9	5 = 23	"	"	
		Aug. 22·824	−28·6	15 − 23	"	"	
		1920 Sept. 3·852	−28·2	11 = 23	"	"	
			−29·2 ±0·3				
5585	Ao	1918 June 28·969	− 8·6*	3	Good	Y	Poor spectrum. Weak, wide K and 4481. Strong H δ and Hγ.
		July 16·934	−26·2	3	"	"	
21h 39·3m	5·62	Nov. 4·637	−26·0	3	"	"	
+37° 50′	5·62	Nov. 4·647	−25·5	3	"	"	
		1920 July 14·874	−26·3	4	"	"	
		Oct. 21·594	−23·7	4	"	"	
		1921 July 2·920	−30·0	2	"	"	
			−23·8 ±1·8				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5605	Ao	1918 Nov. 22·562	+17·4	3	Good	Y	Poor spectrum. Hδ, Hγ, K and 4481 are the only lines present.
		Nov. 22·575	+13·1	3	"	"	
21h 42·2m	5·50	Dec. 4·551	+ 7·4	2	Fair	"	
+02° 14′	5·50	Dec. 4·565	+17·5	3	Good	"	
		1919 July 30·873	+14·4	3	Fair	"	
		1921 July 10·862	+22·9	3	Good	"	
			+15·4 ±1·4				
5619	Ma	1919 Aug. 19·815	−20·5	15 − 23	Fair	Y	Good spectrum.
		Sept. 22·769	−20·0	18 − 23	Weak	"	
21h 46·4m	6·41	Oct. 2·677	−20·4	9 − 23	Good	"	
+60° 49′	7·76	1920 July 18·897	−21·7	17 − 23	Weak	"	
		Sept. 29·789	−16·0*	15 − 23	"	"	
			−19·7 ±0·6				
5621	B9	1918 Nov. 22·591	−21·4	7	Good	Y	Sharp K line, also 4128, 31, 4471 and 4481. Hydrogen lines also good. Third plate given half weight.
		Nov. 22·607	−29·7	6	"	"	
21h 46·9m	5·68	1919 July 30·883	−11·9	2	Weak	"	
+19° 22′	5·66	Aug. 22·844	−17·1	6	Good	"	
		1920 July 14·902	−20·9	6	"	"	
		Oct. 21·637	−22·6	6	"	"	
			−21·4 ±1·6				
5630	Ao	1918 Nov. 26·565	+ 6·7	14	Good	P	A good lined Ao spectrum.
		Dec. 31·549	+ 0·1	15	"	"	
21h 48·9m	5·76	1919 Jan. 6·544	+ 7·4	17	"	"	
+19° 13′	5·76	July 15·932	+ 6·7	17	Fair	"	
		July 26·899	+ 4·8	15	Good	"	
		Aug. 28·824	+ 2·0	18	"	"	
			+4·6 ±0·8				
5642	B2	1918 Nov. 26·576	−17·3	8	Good	P	A diffuse lined B spectrum, only hydrogen and helium measurable. H and K of calcium are, however, sharp and narrow and the velocity from these two lines is −17·0 ±0·7.
		Dec. 29·558	− 5·7	8	"	"	
21h 52·9m	5·85	1919 Jan. 6·560	−23·6	6	"	"	
+64° 52′	5·66	July 17·955	−18·6	9	Fair	"	
		July 26·867	−16·2	6	Good	"	
		Aug. 28·838	−14·4	5	"	"	
		Oct. 8·764	−10·6	4	"	"	
		Nov. 25·639	−24·8	3	Fair	"	
			−16·4 ±1·5				
5656	Ao	1919 Aug. 15·875	−15·4	3	Fair	H	When well exposed the hydrogen lines are fairly dependable. Calcium 3933 is also seen. Measures may indicate a real variation in velocity. Fifth plate half weight.
		Aug. 18·876	+ 1·5	4	"	"	
21h 56·0m	6·49	Sept. 1·812	+ 1·5	5	"	"	
+57° 10′	6·49	Sept. 6·828	−16·1*	4	"	"	
		1920 June 28·956	−11·5*	1	Poor	"	
		1921 July 11·837	+13·7	6	Good	"	
			−3·7 ±3·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5665	Ao	1918 Nov. 20·573	− 0·5	5	Good	Y	Several good lines, K 4128, 31, Hγ and 4481. Helium lines present.
		1919 July 2·937	+ 1·0	7	"	"	
21h 58·4m	5·75	July 30·896	− 1·1	4	Fair	"	
+10° 54′	5·75	1920 June 30·917	− 3·0	6	Good	"	
		July 14·918	− 4·4	5	"	"	
		1921 July 10·840	+ 1·1	5	"	"	
			−1·2 ±0·6				
5673	Ko	1918 Nov. 20·591	−28·2	5 = 23	Good	Y	Good spectrum. Fifth plate given half weight.
		1919 July 20·925	−27·7	12 − 23	"	"	
22h 00·6m	5·93	Aug. 27·814	−29·7	13 − 23	"	"	
+26° 12′	6·93	Dec. 3·548	−27·0	7 = 23	"	"	
		1920 June 30·961	−23·0	15 = 23	Weak	"	
		July 25·874	−29·0	5 = 23	Good	"	
			−27·8 ±0·5				
5675	B5	1919 July 22·925	−20·4	5	Fair	P′	A very fuzzy lined star. This star, which is one of a group of four as seen in the finder, has a faint companion 290°, 5″.
		1920 Oct. 18·734	−13·5	2	"	"	
22h 00·6m	6·74	Dec. 13·623	−14·0	6	"	"	
+59° 20′	6·62	1921 Jan. 9·556	−26·7	7	"	"	
		July 12·891	−24·7	9	"	"	
		July 17·900	−13·3	6	Good	"	
			−18·8 ±1·9				
5678	Mb	1919 July 28·867	− 8·5*	5 = 23	Good	H	
		Aug. 21·856	− 8·6	13 = 23	Fair	"	
22h 00·8m	5·46	Sept. 1·846	− 3·6	5 = 23	Good	"	
+62° 38′	6·81	Sept. 9·812	− 4·5	5 = 23	"	"	
		Dec. 1·718	− 9·3	5 = 23	"	"	
		Aug. 20·867	− 3·2	11 = 23	Fair	"	
			−6·3 ±0·8				
5721	F8	1918 Nov. 1·649	−15·4	17	Good	Y	Good spectrum.
		1919 July 30·908	−14·2	16	"	"	
22h 08·2m	5·42	Aug. 19·845	−20·6	1 = 20	"	"	
+56° 21′	5·92	Nov. 19·554	−22·0	1 = 21	"	"	
		1920 July 14·935	−20·2	1 = 19	"	"	
		Oct. 28·653	−20·4	1 = 23	"	"	
			−18·8 ±0·9				
5722	B9	1918 Nov. 24·583	− 2·5	6	Good	P	The best lines are 4481 and K. The other metallic lines are weak and rather diffuse and the hydrogen broad.
		Nov. 26·595	+ 1·5	5	"	"	
22h 08·3m	6·36	Dec. 29·572	− 2·4	8	"	"	
+71° 37′	6·34	1919 Jan. 6·573	− 5·3	8	"	"	
		Aug. 28·853	− 5·5	12	"	"	
		Oct. 8·788	−12·6	4	Fair	"	
		1920 Aug. 5·931	+ 2·7	5	Poor	"	
		Sept. 2·851	− 6·2	8	Good	"	
			−3·8 ±1·1				

23489—8½

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5723	F2	1918 Nov. 1·676	− 0·1	1 = 19	Good	Y	Good spectrum.
		1919 July 30·918	+ 2·2	11	Fair	"	
$22^h\ 08{\cdot}4^m$	5·54	Aug. 19·857	+ 0·7	22	Good	"	
+69° 38′	5·88	Nov. 19·582	− 1·9	5 = 23	"	"	
		1920 Aug. 8·866	− 2·3	1 = 23	"	"	
		Nov. 25·588	− 1·3	1 = 23	"	"	
			−0·4 ±0·5				
5724	Ko	1919 July 18·936	− 7·2	5 = 21	Good	H	
		Aug. 9·914	−12·4	3 = 23	"	"	
$22^h\ 08{\cdot}4^m$	5·42	Sept. 15·761	− 9·5	3 = 23	"	"	
+34° 07′	6·42	Sept. 21·792	− 9·4	1 = 23	"	"	
		Sept. 23·801	− 7·9	5 = 23	"	"	
		1920 July 23·927	− 6·0	11 = 23	Fair	"	
			−8·7 ±0·6				
5727	Ko	1918 Nov. 1·648	− 4·2	5 = 23	Good	Y	Good spectrum.
		1919 July 30·934	− 1·2	14 − 23	Weak	"	
$22^h\ 08{\cdot}7^m$	5·52	Aug. 29·783	− 6·3	3 = 23	Good	"	
+60° 16′	6·52	Sept. 22·816	− 3·0	9 = 23	"	"	
		Nov. 26·556	− 4·7	5 = 23	"	"	
		1920 Aug. 9·927	− 3·2	15 = 23	"	"	
			−3·8 ±0·5				
5737	Ao	1918 Nov. 22·678	−56·3*	1	Good	Y	Poor spectrum. Very poor K. Faint 4481 and wide, diffuse hydrogen. Fourth plate omitted in taking mean.
		1919 July 13·969	−33·1	2	"	"	
$22^h\ 10{\cdot}5^m$	5·70	Aug. 6·894	−31·6	2	"	"	
+42° 28′	5·70	Nov. 26·602	+ 4·7*	1	Poor	"	
		1920 Aug. 18·814	−35·8	2	Good	"	
		Nov. 4·652	−33·9	2	"	"	
		1921 July 10·906	−42·8	1	"	"	
			−38·9 ±2·6				
5751	Ko	1919 Aug. 7·948	− 9·8	1 = 23	Good	P′	The 4th plate which is weak and gave discrepant values on remeasurement is not used in forming the mean.
		1920 Aug. 4·913	− 7·3	6 = 19	"	"	
$22^h\ 12{\cdot}8^m$	6·05	Oct. 18·776	− 6·4	7 = 23	"	"	
+56° 43′	7·05	Dec. 4·647	+ 0·6*	13 = 23	Poor	"	
		Dec. 13·647	−10·2	11 = 23	Fair	"	
		1921 Jan. 9·574	− 7·7	9 = 23	Good	"	
			−8·3 ±0·6				
5754	Fo	1918 Nov. 24·597	+ 6·2	1 = 21	Good	P	The lines are fairly sharp in this Fo spectrum and comparator measures accordant.
		Dec. 31·572	+ 6·3	1 = 21	"	"	
$22^h\ 14{\cdot}6^m$	6·11	1919 Jan. 7·547	+ 5·1	1 = 21	"	"	
+37° 15′	6·39	July 26·915	+ 6·3	1 = 19	"	"	
		Aug. 28·869	+ 6·6	3 = 19	"	"	
		Oct. 4·736	+ 8·7	3 = 19	Fair	"	
			+6·5 ±0·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5756	K5	1919 Aug. 29·809	− 6·2	13 − 23	Fair	Y	Good spectrum.
		Oct. 5·688	− 3·5	1 = 23	Good	"	
22h 14·9m	5·99	Nov. 19·602	− 5·4	15 = 23	Weak	"	
+62° 18′	7·17	1920 Aug. 8·890	− 5·1	13 = 23	Good	"	
		Oct. 31·642	− 3·7	9 = 23	"	"	
		Nov. 25·611	− 3·2	15 = 23	"	"	
			−4·5 ±0·3				
5771	F	1919 Sept. 7·865	+ 2·9	15 − 23	Weak	Y	This star is one component of a double, separation 4″. The A type star is a spectroscopic binary. Spectrum good but all the plates are weak.
		Sept. 24·770	− 3·6	13 − 23	"	"	
22h 18·8m	7·3	1920 Oct. 5·725	+ 2·3	13 = 23	Good	"	
+66° 12′	7·16	Oct. 21·663	− 1·9	15 = 23	Weak	"	
		Oct. 31·676	− 7·0*	17 = 23	"	"	
			−1·5 ±1·2				
5797	K2	1919 Aug. 14·887	−31·9	15 = 23	Fair	P′	Though range is large individual measures are accordant and the star may be a binary.
		1920 Aug. 3·948	−30·9*	13 = 23	"	"	
22h 24·1m	5·82	Nov. 7·696	−25·2	11 = 23	"	"	
+08° 38′	6·89	1921 July 9·888	−26·0	13 = 23	"	"	
		July 9·924	−29·6	13 = 23	"	"	
		July 12·850	−32·1	13 = 23	"	"	
			−29·3 ±0·9				
5798	K2	1919 July 18·955	−43·2	9 = 23	Good	H	
		Aug. 9·932	−48·7	7 = 23	"	"	
22h 24·5m	5·96	Oct. 24·633	−42·6	13 = 23	Fair	"	
+26° 16′	7·03	1920 July 7·951	−46·2	11 = 23	"	"	
		Sept. 28·814	−47·0	13 = 23	"	"	
		Oct. 26·770	−43·0	13 = 23	"	"	
		Nov. 2·671	−46·5	17 = 23	Poor	"	
			−45·3 ±0·6				
5800	F5	1918 Oct. 29·649	+ 2·5	1 = 19	Good	P	The type is somewhat earlier than F5 and the lines are rather diffuse accounting for the rather large range.
		Nov. 23·625	− 0·7	5 = 19	Fair	"	
22h 24·9m	5·47	Dec. 21·619	− 2·4	1 = 19	Good	"	
+03° 56′	5·89	Dec. 29·590	+ 3·8*	5 = 19	Fair	"	
		1919 July 26·929	− 2·5*	1 = 19	"	"	
		Aug. 28·883	− 2·5	3 = 21	"	"	
		1920 Oct. 11·793	− 4·9*	5 = 19	"	"	
			−0·9 ±0·8				
5815	A3	1918 Nov. 20·617	+ 2·9	5	Good	Y	Many lines present in this star but most of them not much use for radial velocity determinations.
		1919 Aug. 6·902	− 5·2	5	"	"	
22h 28·0m	5·80	1920 July 28·875	+10·0	6	"	"	
+39° 16′	5·88	Oct. 28·707	+13·9	5	"	"	
		Nov. 4·670	− 6·7	5	"	"	
		1921 July 10·925	+ 7·1	3	"	"	
			+3·7 ±2·3				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5823	F2	1919 Aug. 14·903	− 1·7*	10	Good	P′	Rather fuzzy lines which probably account for large range.
		Oct. 4·766	− 6·7	13	"	"	
22h 30·1m	6·02	Oct. 26·688	− 4·5	7	"	"	
+69° 24′	6·36	1920 Aug. 9·948	− 5·4	13 = 23	Fair	"	
		Oct. 13·802	−11·4*	9 = 23	"	"	
		Nov. 10·780	− 3·2	9 = 21	Poor	"	
			−5·5 ±0·9				
5826	Ao	1919 July 28·948	−15·3	2	Fair	H	Broad hydrogen lines and faint 4481 are the only ones available for measurement. An underexposed plate of Aug. 15, 1919, suggests double lines but it was not considered reliable.
		Oct. 6·737	−23·5	3	"	"	
22h 30·4m	6·26	1920 Sept. 1·886	−15·4	2	"	"	
+69° 51′	6·26	Sept. 24·835	−25·2	3	Good	"	
		1921 July 11·869	−20·9	3	"	"	
			−20·1 ±1·4				
5840	G5	1919 Aug. 9·951	−19·7	9 = 21	Good	H	
		Aug. 21·882	−17·1	15 = 23	Fair	"	
22h 34·0m	5·80	Oct. 24·669	−18·8	7 = 23	Good	"	
+19° 00′	6·58	1920 July 5·972	−20·2	1 = 23	"	"	
		Oct. 15·747	−19·0	15 = 23	Fair		
			−19.0 ±0.4				
5843	Mb	1919 Aug. 14·931	+ 7·4	11 = 23	Good	P′	
		Oct. 29·704	+ 9·6	5 = 23	"	"	
22h 34·7m	5·47	1920 Aug. 10·901	+ 7·2	13 = 23	"	"	
+56° 17′	6·82	Aug. 30·839	+ 5·7	13 = 23	"	"	
		Nov. 10·748	+10·3	15 = 23	Poor	"	
		Dec. 4·672	+ 5·7	15 = 23	"	"	
			+7·6 ±0·6				
5872	Ko	1919 July 26·947	−21·7	11 = 23	Poor	P	Lines of good quality.
		Dec. 4·608	−22·8	7 = 23	Good	"	
22h 40·6m	6·45	1920 Nov. 7·676	−22·9	5 = 23	"	"	
+18° 51′	7·45	Dec. 13·593	−22·1	11 = 23	Poor	"	
		1921 Jan. 9·612	−23·7	9 = 23	Fair	"	
			−22·6 ±0·2				
5917	Go	1918 Nov. 20·625	−30·6	1 = 19	Good	Y	Good spectrum. Plate of Aug. 10 omitted in taking mean.
		1919 July 20·952	−33·0	1 = 19	"	"	
22h 52·5m	5·59	Aug. 10·888	−42·6	1 = 19	"	"	
+20° 14′	6·15	1920 July 4·957	−32·5	1 = 23	"	"	
		Aug. 18·854	−32·0	11 = 23	"	"	
		Oct. 14·747	−30·9	9 = 23	"	"	
			−31·6 ±0·3				
5922	Fo	1919 Dec. 9·642	+15·0	7	Fair	P′	A very fuzzy line F. The character of the lines will account for the large range.
		1920 Aug. 7·915	+ 3·4*	4	Poor	"	
22h 54·2m	5·79	Aug. 21·903	+10·7	7	"	"	
+11° 12′	6·07	Nov. 7·712	+23·4	8	Good	"	
		Dec. 13·664	+19·9	8	Fair	"	
		1921 July 9·958	+11·7	13	Good	"	
			+14·0 ±2·0				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5924	Ko	1919 Sept. 9·882	−12·1*	17 = 23	Fair	H	Good spectrum but plates all a little under-exposed.
		Oct. 6·765	−15·2	11 = 23	"	"	
22h 54·2m	5·59	Dec. 8·576	−12·1	13 = 23	"	"	
+00° 26′	6·59	1920 Oct. 29·728	−14·3	9 = 23	"	"	
		Nov. 9·707	−16·8*	11 = 23	"	"	
			−14·1 ±0·6				
5974	Ko	1919 Aug. 27·861	− 8·6	14 − 23	Fair	Y	Good spectrum.
		Oct. 2·722	− 9·2	3 = 23	Good	"	
23h 06·9m	6·40	Dec. 7·583	− 7·4	5 = 23	"	"	
+26° 18′	7·40	1920 July 25·949	−15·5	1 = 23	"	"	
		Nov. 4·691	− 8·6	9 = 23	"	"	
			−9·8 ±1·1				
5990	K2	1918 Oct. 29·668	−39·9	3 = 23	Good	P	This spectrum seems unusually strong in the violet for K2 and is also peculiar in an approach towards bands around 4700. Excellent accordance of measures.
		Nov. 24·647	−38·0	5 = 23	"	"	
23h 12·5m	6·55	Dec. 29·606	−38·9	9 = 23	Fair	"	
+44° 37′	7·62	1919 Jan. 7·567	−38·0	5 = 23	"	"	
		Aug. 28·903	−38·2	5 = 23	Good	"	
		Dec. 4·631	−38·3	5 = 23	"	"	
			−38·6 ±0·2				
6001	Ko	1918 Dec. 4·625	+ 9·5	1 = 23	Good	Y	Good spectrum.
		1919 Aug. 19·868	+10·5	1 = 23	"	"	
23h 14·8m	5·42	Sept. 16·800	+14·1	13 = 23	Weak	"	
+48° 04′	6·42	Dec. 3·575	+ 7·9	1 = 23	Good	"	
		1920 Aug. 18·905	+11·0	5 = 23	"	"	
		1921 July 10·947	+10·6	1 = 23	"	"	
			+10·6 ±0·6				
6008	F5	1918 Oct. 29·683	−10·3*	1 = 19	Good	P	A good F5 spectrum.
		Nov. 10·628	− 8·0	5 = 19	Poor	"	
23h 16·1m	5·75	Nov. 23·640	− 6·6	1 = 19	Good	"	
+37° 38′	6·17	Dec. 21·642	− 9·8	1 = 19	"	"	
		1919 Aug. 28·926	− 9·9	1 = 19	"	"	
		Oct. 4·818	− 9·8	1 = 19	"	"	
			−9·1 ±0·4				
6015	Ko	1919 July 28·975	− 5·4	15 = 23	Poor	H	
		Sept. 23·825	− 2·5	15 = 23	Fair	"	
23h 18·0m	5·28	Oct. 3·795	− 2·9	9 = 23	Good	"	
+11° 46′	6·28	Oct. 18·749	− 5·5	7 = 23	"	"	
		1920 July 23·948	− 5·5	11 = 23	Fair	"	
			−4·4 ±0·4				
6032	A2	1920 July 22·947	−15·1	14	Fair	P	The numerous metallic lines are strong but are diffuse and the measures not as accordant as the number of lines should give.
		Aug. 12·927	−16·1	13	Good	"	
23h 22·0m	6·74	Sept. 2·867	−17·8	12	Fair	"	
+70° 08′	6·80	Oct. 18·783	− 9·6	13	Good	"	
		Oct. 25·748	−17·0	16	Fair	"	
		Nov. 10·721	−20·4	13	Poor	"	
			−16·0 ±1·0				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
6033	Ko	1918 Nov. 20·670	− 7·4	15 − 23	Weak	Y	Good spectrum. All the plates are too weak. Second and third plate given half weight.
		1919 Sept. 22·824	+ 0·4*	17 = 23	"	"	
23h 22·1m	6·44	Oct. 28·736	− 6·2	17 = 23	"	"	
+00° 34′	7·44	1920 Sept. 3·850	− 4·1	13 = 23	Good	"	
		Sept. 29·834	− 4·7	17 = 23	Weak	"	
			−4·4 ±0·9				
6036	Ao	1918 Nov. 26·645	−16·7	9	Good	P	Excellent 4481 and K and a few sharp enhanced lines make this spectrum accurately measureable.
		Dec. 31·601	−19·2*	9	Fair	"	
23h 22·7m	5·87	1919 Jan. 6·587	−19·0	9	Good	"	
+24° 37′	5·87	Jan. 19·585	−16·7	9	"	"	
		Oct. 8·826	−14·4	10	"	"	
		Nov. 25·666	−16·4	10	"	"	
		Dec. 11·642	−14·8	8	"	"	
			−16·7 ±0·5				
6049	Ko	1918 Nov. 20·693	−60·1	1 = 23	Good	Y	Good spectrum. Plate taken Aug. 10 omitted in forming mean.
		1919 Aug. 10·922	−69·1	1 = 23	"	"	
23h 26·3m	5·34	Dec. 20·561	−56·9	1 = 23	"	"	
+38° 42′	6·34	Oct. 2·751	−60·1	1 = 23	"	"	
		Dec. 3·597	−61·2	1 = 23	"	"	
		1920 July 14·975	−58·2	1 = 23	"	"	
			−59·3 ±0·5				
6058	Mb	1918 Oct. 20·703	+ 1·0	13 − 23	Fair	P′	A typical Mb spectrum with sharp lines.
		Oct. 24·722	+ 0·2	13 − 23	Good	"	
23h 28·5m	5·51	Nov. 23·669	+ 4·6*	13 − 23	Fair	"	
+21° 57′	6·86	1919 Jan. 6·806	+ 1·6	13 − 23	Good	"	
		Dec. 4·678	+ 2·6	7 = 23	"	"	
		1920 Nov. 7·728	+ 3·9	7 = 23	Fair	"	
			+2·1 ±0·5				
6064	Ko	1919 Oct. 17·716	+ 2·5*	11 = 23	Good	P′	This star was at first suspected of being a binary but re-measures reduced range sufficiently to include it as a probably constant velocity star.
		Oct. 26·736	+ 2·4*	11 = 23	"	"	
23h 30·5m	6·65	Dec. 2·620	+ 4·6	15 = 23	Fair	"	
+00° 45′	7·65	1920 Aug. 3·967	+ 9·1*	15 = 23	"	"	
		Aug. 30·880	+ 7·8	15 = 23	"	"	
			+5·3 ±1·1				
6112	F2	1919 Aug. 9·930	+24·6	3 = 21	Good	H	This may be a spectroscopic binary as the lines appear to change in character. On the last two plates there is a suspicion of complexity.
		Aug. 15·933	+37·7	14	Fair	"	
23h 44·3m	6·44	Sept. 1·886	+31·5	12	Poor	"	
+58° 25′	6·78	1920 Aug. 20·924	+28·0	12	Fair	"	
		Sept. 6·882	+22·0	17	"	"	
		Nov. 5·757	+32·7	15	"	"	
			+29·4 ±1·6				

TABLE IV.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
6114	A3	1918 Oct. 29·704	− 4·4	24	Good	P	A large number of fairly sharp metallic lines makes this spectrum look like an F were it not for the narrowness of K. First four were also measured on comparator.
		Nov. 5·647	− 4·2	25	"	"	
23h 44·6m	5·91	Nov. 14·701	− 6·5	23	"	"	
+28° 17′	5·99	Nov. 24·625	− 6·6	25	"	"	
		1919 Aug. 7·979	− 4·0	22	Fair	"	
		Oct. 8·866	− 6·3	20	"	"	
			−5·3 ±0·3				
6121	Ma	1919 Aug. 6·955	−17·2*	15 − 23	Weak	Y	Good spectrum. Possibly a long period binary.
		Aug. 29·866	−11·4	15 − 23	"	"	
23h 46·2m	6·11	Oct. 5·764	− 8·7	19 − 23	"	"	
+08° 46′	7·46	1920 Aug. 31·838	− 6·9	15 = 23	Good	"	
		Oct. 31·720	− 4·5	15 = 23	"	"	
			−9·7 ±1·5				
6141	Ko	1919 Sept. 13·852	− 2·3	17 − 23	Weak	Y	Good spectrum.
		Sept. 24·808	− 1·9	9 = 23	Good	"	
23h 50·5m	6·77	Oct. 2·778	− 2·4	15 = 23	"	"	
+52° 11′	7·77	1920 Aug. 8·955	+ 6·7*	15 = 23	Weak	"	
		Sept. 3·894	− 3·5	7 = 23	Good	"	
		Nov. 4·718	− 2·9	13 = 23	"	"	
			−1·1 ±1·1				
6158 Pr.	F8	1918 Oct. 19·755	− 7·0	5 = 19	Good	P	This and the following star form a visual double about 2″·3 apart. Visual measures for 80 years do not indicate physical connection.
		Oct. 24·758	− 9·2	5 = 19	"	"	
23h 54·4m	6·58	Oct. 29·716	− 9·8	5 = 19	"	"	
+33° 11′	7·08	Nov. 24·694	− 7·8	5 = 19	"	"	
		Dec. 15·661	− 9·6	5 = 19	"	"	
		1921 Jan. 3·682	− 8·3	9 = 23	Fair	"	
			−8·6 ±0·3				
6158 Fol.	F8	1918 Oct. 19·737	− 7·1	5 = 19	Good	P	The type and magnitude of this and the preceding star are identical which with the approximate equality of velocity forms strong evidence of physical connection.
		Oct. 24·773	− 4·3	5 = 19	"	"	
23h 54·4m	6·58	Oct. 29·727	− 4·8	5 = 19	"	"	
+33° 11′	7·08	Nov. 24·712	− 6·7	5 = 19	"	"	
		Dec. 15·674	− 4·6	5 = 19	"	"	
		1921 Jan 3·649	− 6·2	7 = 21	Fair	"	
			−5·6 ±0·3				
6161	Ao	1919 Sept. 12·882	−13	3	Fair	H	Broad indistinct lines characterize this spectrum. Third plate given half weight.
		Sept. 21·821	−14	2	"	"	
23h 54·8m	6·71	Oct. 24·749	−33*	1	Poor	"	
+86° 09′	6·71	1920 Sept. 1·911	−13	2	Fair	"	
		1921 April 29·772	−23	2	"	"	
		May 11·774	−21	3	"	"	
			−18·3 ±1·8				

TABLE V. INDIVIDUAL VELOCITIES OF 35 STARS.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
179	F2	1919 Jan. 8·569	+ 1·8	1 = 23	Good	Y	
		Aug. 10·973	+ 9·2	1 = 23	"	"	Binary, small range.
00h 44·7m	5·45	Sept. 7·886	+13·6	1 = 23	"	"	
+63° 42′	5·79	Sept. 16·780	+ 5·4	9 = 23	"	"	
		1920 Oct. 31·761	− 4·2	1 = 23	"	"	
			+5·2				
307	Ao	1918 Sept. 11·907	+11·6	14	Good	Y	This star was announced as a binary by this observatory in 1918. Two spectra are present on second plate giving velocities −44 and +67. The mean velocity will be quite trustworthy.
		Oct. 28·762	+11·2	8	"	"	
01h 17·9m	5·53	Nov. 20·750	+14·1	15	"	"	
+37° 12′	5·53	Nov. 20·765	+17·0	13	"	"	
		Dec. 20·687	+15·5	14	"	"	
		Dec. 20·697	+16·6	13	"	"	
			+14·3				
435	Go	1920 Aug. 30·980	+36·9*	13 = 23	Fair	P′	Binary.
		Oct. 13·924	+33·4*	11 = 23	"	"	
01h 50·7m	6·18	Oct. 25·892	+30·0*	9 = 23	"	"	
+01° 21′	6·74	Dec. 13·769	+31·9	11 = 23	"	"	
		1921 Jan. 15·607	+21·7*	17 = 23	Poor	"	
		Feb. 16·634	+ 5·9*	17 = 23	"	"	
			+30·0				
726	Ko	1919 Oct. 6·930	+33·8	3 = 23	Good	H	Binary of probably small range.
		1920 Jan. 5·695	+38·1	5 = 23	"	"	
03h 08·4m	5·78	Feb. 9·665	+38·7	1 = 23	"	"	
+84° 34′	6·78	Dec. 30·765	+28·5*	12 − 23	Fair	"	
		1921 April 7·923	+27·0	14 − 23	"	"	
		May 11·856	+28·6*	3 = 23	Good	"	
			+32·4				
781	B9p	1919 Jan. 8·686	−10·1	10	Good	Y	Frost gives −4 as the velocity for this star. The Lick results are less than −5. It is a fine spectrum and is possibly variable with small range.
		Jan. 8·690	−10·6	9	"	"	
03h 21·0m	4·42						
+59° 36′	4·40						
			−6				
1021	F5	1918 Nov. 22·906	−25·3	1 = 19	Good	Y	The lines in this star are not very good and its binary character is very doubtful.
		Dec. 30·760	−32·8	1 = 19	"	"	
04h 18·1m	5·81	1919 Jan. 29·642	−29·9	1 = 19	"	"	
+33° 44′	6·23	Mar. 21·627	−34·6	1 = 19	"	"	
		Sept. 23·050	−26·6	11 = 23	Poor	"	
		1920 Feb. 8·609	−38·1	1 = 23	Good	"	
			−31·2				

TABLE V.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
1068	B9	1918 Nov. 26·891	+14·3	8	Fair	P	This is No. 21 in the
		Dec. 10·828	+ 6·4	7	Good	"	first list of 100 binaries
04h 28·4m	5·70	Dec. 21·840	+ 3·4	5	"	"	and while there is no
+28° 46′	5·68	1919 Jan. 19·771	+ 8·1	7	"	"	doubt of the variable
		Mar. 8·636	+18·8	5	"	"	velocity the mean is
		Mar. 18·649	+22·0	7	"	"	probably close to the
			+12·2				velocity of the system.
1219	Fop	1918 Nov. 4·901	+ 0·2	1 = 19	Good	Y	Good spectrum.
		Dec. 30·787	+ 4·3	1 = 19	"	"	Binary with small
05h 02·5m	5·47	1919 Oct. 3·016	− 4·9	9 = 23	Fair	"	range.
+08° 02′	5·75	Dec. 3·799	+13·8	1 = 23	Good	"	
		1920 Feb. 8·636	+ 8·2	1 = 23	"	"	
		1921 Jan. 10·738	+ 0·0	1 = 19	"	"	
			+5·2				
1367	F5	1919 Oct. 7·060	+33·0*	7 = 23	Good	H	Binary with small
		1920 Jan. 5·754	+22·5	14	Fair	"	range.
05h 30·6m	6·89	Jan. 21·648	+10·1	7 = 23	Good	"	
+56° 18′	7·31	Feb. 9·624	+10·6	1 = 23	"	"	
		Mar. 1·621	+23·9	5 = 23	"	"	
		Nov. 5·927	+22·1	17 = 23	Poor	"	
			+20·4				
1369	B8	1918 Nov. 4·958	+ 0·5	6	Good	Y	Fine narrow lines in
		1919 Jan. 10·728	+10·8	6	Fair	"	spectrum. Announced
05h 30·9m	5·70	Jan. 10·740	+14·7	6	Good	"	as a binary.
+26° 52′	5·65	Jan. 29·712	+ 8·8	5	Fair	"	
			+8·7				
1455	B9	1918 Dec. 30·827	+ 4·0	9	Good	Y	Announced as a bin-
		1919 Jan. 6·810	− 6·1	7	"	"	ary but the mean velo-
05h 46·7m	5·57	Jan. 10·831	− 9·1	7	"	"	city is probably close
+14° 09′	5·55	Mar. 24·633	−12·9	6	"	"	to the velocity of the
		Dec. 3·839	− 2·1	6	"	"	system.
			−5·4				
2206	Ao	1919 Jan. 7·936	+16·7*	4	Good	H	The seventh plate
		Feb. 23·798	+26·3*	6	"	"	suggests an orbit with
08h 14·6m	5·87	Mar. 18·778	+22·2	3	"	"	considerable eccentri-
+24° 20′	5·87	April 6·683	+12·6*	5	"	"	city and longitude of
		1920 Feb. 27·748	+10·6	2	"	"	periastron nearly zero.
		1921 April 15·666	+22·5	4	"	"	
		April 29·676	+52·0*	4	"	"	
		May 11·691	+18·9	3	"	"	
			+22·7				
2311	A2	1919 Jan. 6·921	+37·7	11	Fair	Y	Binary. Double
		Mar. 21·724	+43·4	15	Good	"	spectrum. The fourth
08h 34·7m	6·32	Dec. 4·003	+32·3	8	Fair	"	plate gives velocities
+19° 54′	6·38	1920 Feb. 29·748	+39·2	4	Good	"	−13·6 and +91·9.
			+38·1				

TABLE V.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
2383	G5	1919 Mar. 19·713	+ 6·2	1 = 19	Good	Y	Probably small range. Velocity of systems estimated as mean of two seasons' observations.
		Apr. 14·666	+ 4·5	1 = 19	"	"	
08h 48·1m	5·62	1920 Feb. 22·784	− 5·0	1 = 23	"	"	
+64° 59′	6·40	Feb. 29·760	− 3·8	1 = 23	"	"	
		Mar. 21·705	− 5·9	5 = 23	"	"	
		Mar. 24·677	− 8·4	13 = 23	"	"	
			−0·1				
2824	Ko	1920 Feb. 24·883	+11·9	11 = 23	Good	P′	Binary.
		May 6·686	+12·5	13 = 23	Fair	"	
10h 32·2m	6·55	1921 Mar. 29·899	+17·2	11 = 23	Good	"	
+34° 36′	7·55	April 5·887	+17·0	15 = 23	Fair	"	
		April 8·836	+20·3	15 = 23	"	"	
		May 3·755	+21·3	11 = 23	Good	"	
			+16·7				
3299	Ko	1919 Mar. 21·884	−30·0	1 = 23	Good	Y	Binary.
		April 14·793	−28·3	1 = 23	"	"	
12h 34·2m	5·51	April 21·806	−26·2	1 = 23	"	"	
+21° 36′	6·51	1920 Feb. 8·988	−23·2	1 = 23	"	"	
		Feb. 25·934	−30·7	15 = 23	Poor	"	
		May 2·726	−18·5*	5 = 23	Good	"	
			−26·1				
3354	Ao	1919 Mar. 8·907	+ 0·1	13	Good	P	Binary No. 46 in Vol. 1 No. 10. Last three plates give doubled spectrum. Faint component assumed 0·85 mass of bright. Mean velocity very close to true.
		Mar. 25·813	+ 0·7	8	"	"	
12h 48·3m	5·81	April 1·812	− 2·6	7	"	"	
+83° 58m	5·81	April 13·782	− 1·5	6	"	"	
			−0·8				
3555	F5	1918 Mar. 19·946	+ 7·2	1 = 19	Good	Y	Double line binary. Good lines. Second plate gives velocities −34·8 and +38·8.
		April 11·836	+ 2·0	4	"	"	
13h 42·1m	5·91	April 14·817	+24·0	1 = 19	"	"	
+26° 12′	6·33	April 23·802	+10·4	1 = 19	"	"	
			+10·9				
3652	A5	1918 May 20·799	−29·2*	14	Good	Y	Binary.
		June 17·755	−27·7	11	"	"	
14h 09·9m	6·61	1919 July 12·711	−19·4	14	"	"	
+52° 16′	6·75	Mar. 24·907	−27·1	11	"	"	
		April 7·903	−22·3	7	"	"	
		May 19·732	−19·7	1 = 21	"	"	
			−24				

TABLE V.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4098	A5	1918 May 21·848	−29·1	2	Good	Y	Announced as a binary in 1918. On looking over plates again I consider the binary character as rather uncertain but in any case mean velocity will be near the velocity of the system.
		May 24·808	−22·6	4	"	"	
16h 02·9m	5·63	June 14·774	−37·9*	2	"	"	
+10° 10′	5·77	July 16·731	−36·0	4	"	"	
		1919 May 4·881	−20·3	5	"	"	
		June 2·783	−27·7	4	"	"	
			−28·9				
4129	K5	1918 May 26·803	−32·7	14 − 22	Fair	Y	The orbit of this star is under investigation and the velocity given is the estimated velocity of the system.
		May 27·823	−30·2	15 − 22	"	"	
16h 08·1m	5·68	June 2·830	−34·2	15 − 22	"	"	
+36° 41′	6·86	1919 May 4·897	−13·7	15 − 23	"	"	
		May 19·799	−10·5	9 = 23	"	"	
		June 17·813	− 9·4	9 = 23	"	"	
		1920 Feb. 23·083	−33·3	13 = 23	"	"	
			−28				
4263	A2p	1919 April 22·948	−50·9	11	Good	H	The lines λλ 4215 and 4077 are strong in this star.
		May 28·839	−52·8	7	"	"	
16h 40·9m	6·18	June 16·769	−52·5	14	"	"	
+55° 53′	6·24	July 19·740	−41·6	9	Fair	"	
		1920 Feb. 10·114	−45·4	8	"	"	
		Feb. 24·059	−45·8	11	Good	"	
		Sept. 1·654	−60·4	11	Fair	"	
			−49·9				
4351	Ko	1918 May 24·892	+ 9·2	1 = 21	Good	Y	Binary.
		June 20·833	+ 5·2	13 − 22	"	"	
17h 02·1m	6·32	July 11·757	+ 7·6	1 = 21	"	"	
+48° 57′	7·32	1919 June 17·836	+ 8·9	1 = 23	"	"	
		July 13·745	+14·4	1 = 23	"	"	
		1920 Mar. 22·043	+22·6	13 = 23	"	"	
			+11·6				
4401	A2	1918 May 27·885	− 2·8	15	Good	Y	Very fine spectrum. Binary with small range.
		June 14·868	+ 0·3	15	"	"	
17h 16·1m	5·32	July 5·743	− 1·1	14	"	"	
+25° 37′	5·38	1919 Aug. 10·693	− 4·9	15	"	"	
		1920 May 21·916	−15·3	14	"	"	
		June 20·833	−10·3	10	"	"	
			−5·7				
4622	Fo	1919 July 7·816	−83·4	10	Good	H	Orbit under investigation. Estimated velocity of system from forty-five plates is −8 km. per sec.
			+66·3	10			
18h 13·0m	6·41						
+56° 34′	6·69		**−8**				

TABLE V.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
4644	A5	1918 June 26·824	−39·8	5	Good	P	Binary No. 64 in Vol. 1, No. 10. Letter from Frost states he finds double lines on two plates. But they are not present on these plates and mean velocity probably close to true velocity.
		July 24·734	−28·9	6	"	"	
18h 17·1m	5·05	Aug. 22·677	−21·6	5	"	"	
+28° 49′	5·19	Aug. 25·739	−42·7	5	"	"	
		Oct. 13·591	−38·5	6	"	"	
		Oct. 15·608	−30·8	8	"	"	
		Oct. 24·604	−31·7	5	"	"	
			−33·4				
4661	A2	1918 May 27·944	−41·1	5	Good	Y	Binary character rather uncertain.
		June 14·884	−23·3	4	"	"	
18h 20·9m	5·04	July 5·794	−45·1	2	"	"	
+39° 27′	5·10	July 11·839	−22·6	4	"	"	
		Aug. 27·665	−19·7	5	"	"	
		Sept. 20·650	−43·4	2	Poor	"	
		1919 July 23·781	−26·4	3	Good	"	
			−31·6				
4745	Ao	1919 June 30·897	−28·8	9	Good	H	Beautiful sharp lines feature this spectrum and on the last plate they are clearly resolved, the other component giving a velocity of +15·9. Estimated velocity of system −26.
		July 14·828	−26·5	6	"	"	
18h 40·7m	5·08	July 21·727	−36·2	7	"	"	
+55° 26′	5·08	Aug. 15·712	−33·3	7	"	"	
		1920 May 19·945	−29·2	5	"	"	
		June 14·895	−58·6	5	"	"	
			−26				
4870	B3	1918 May 24·950	−36·7	9	Good	Y	Binary under investigation by Mr. Boothroyd. The velocity given is the estimated velocity of the system.
		June 14·940	−15·6	7	"	"	
19h 03·1m	6·15	June 17·840	−29·8	8	"	"	
+41° 16′	5·98	June 18·915	−32·6	9	"	"	
		June 27·895	−30·7	8	"	"	
		June 28·881	−19·6	8	"	"	
		Aug. 5·783	− 8·0	12	"	"	
		1919 June 18·909	−26·7	11	"	B	
		June 23·890	−30·3	9	"	"	
		June 24·881	−57·6	3	Poor	"	
			−26				
4971	Mb	1919 July 13·840	− 0·7	15 − 23	Good	Y	Looks like long period binary.
		Aug. 10·755	− 7·6	16 − 23	Poor	"	
19h 22·5m	6·55	Aug. 29·683	− 1·0	17 − 23	"	"	
+88° 59′	7·90	1920 June 20·884	+ 3·6	15 − 23	"	"	
		July 14·821	+ 6·8	15 − 23	"	"	
		Sept. 3·685	+ 2·6	15 − 23	Good	"	
			+0·6				

TABLE V.

Star	Type Mag.	Date G.M.T.	Rad. Vel.	Regions Lines	Qual.	Obs.	Remarks
5150	Bo	1918 June 18·944	+18	13	Good	Y	Peculiar spectrum. Hydrogen and calcium lines seem to differ from helium and other lines. Velocity given is estimated velocity of the system.
		July 11·849	+ 8	12	"	"	
20^h $00·7^m$	5·69	Aug. 5·828	+20	13	"	"	
+31° 56′	5·45	Aug. 30·743	+22·	12	"	"	
		Sept. 5·759	+15	12	"	"	
		1919 June 18·943	+20		"	B	
		June 23·938	+28		"	"	
		June 29·901	+27		"	"	
			+20				
5230	Ko	1919 July 22·857	−18·5*	1 = 23	Good	P′	Binary.
		Nov. 7·589	−21·4	1 = 23	"	"	
20^h $18·9^m$	5·87	1920 July 25·810	−28·9*	5 = 23	"	"	
+45° 27′	6·87	Oct. 27·708	−25·9	5 = 23	"	"	
			−23·7				
5442	Ao	1918 June 18·956	−10·8	6	Good	Y	Orbit under investigation. Velocity given is mean of thirty plates.
		July 2·940	−47·5	4	"	"	
21^h $04·4^m$	5·57	July 11·907	−32·8	6	"	"	
+29° 48′	5·57	Aug. 30·793	−14·1	7	"	"	
		1920 July 14·888	−46·1	6	"	"	
		July 18·864	−38·2	6	"	"	
		July 21·871	−37·1	6	"	"	
			−28·5				
5447	B9	1918 June 20·974	−20·7	7	Good	P	Binary No. 81 in Vol. 1 No. 10. The character and number of the lines vouch for its binary character but the mean velocity is probably very near the velocity of the system.
		Aug. 22·831	−32·4	11	"	"	
21^h $07·1^m$	5·73	Aug. 24·796	−28·8	10	"	"	
+53° 09′	5·71	Aug. 25·812	−30·3	9	"	"	
		Oct. 8·695	−25·2	11	"	"	
		Oct. 29·626	−18·1	11	"	"	
		Nov. 5·608	−20·3	10	"	"	
		Nov. 23·543	−16·0	13	"	"	
		Nov. 26·541	−12·9	16	"	"	
		Nov. 30·575	−18·9	11	"	"	
			−22·4				
5495	Ko	1919 July 22·910	− 1·0	1 = 23	Good	P′	Binary.
		Oct. 23·673	− 4·0	11 = 23	"	"	
21^h $18·5^m$	5·87	1920 Aug. 30·803	− 4·3	5 = 23	"	"	
+48° 58′	6·87	Oct. 11·756	− 8·6*	11 = 23	"	"	
		Dec. 4·577	+ 1·5*	13 = 23	Fair	"	
		Dec. 13·570	− 3·2	13 = 23	"	"	
			−2·1				

Dominion Astrophysical Observatory,
Victoria, B.C.
July, 1921.