KINEMATIC STUDIES OF EARLY TYPE STARS. I. PHOTOMETRIC SURVEY, SPACE MOTIONS, AND COMPARISON WITH RADIO OBSERVATIONS

42p.

N63 22952

Code None

V. C. Rubin
Georgetown College Observatory
Washington, D. C.

J. Burley
Goddard Space Flight Center
Greenbelt, Maryland

A. Kiasatpoor, B. Klock, G. Pease, E. Rutscheidt and C. Smith
Georgetown College Observatory
Washington, D. C.

Reprinted with permission from *Astronomical Journal*, volume 67, number 8, pages 491-531, October 1962

From the ASTRONOMICAL JOURNAL
Vol. 67, No. 8, 1962, October—No. 1303
Printed in U. S. A.

Kinematic Studies of Early-Type Stars. I. Photometric Survey, Space Motions, and Comparison with Radio Observations

VERA C. RUBIN
Georgetown College Observatory, Washington, D. C.

JAYLEE BURLEY
Goddard Space Flight Center, NASA, Greenbelt, Maryland

AHMAD KIASATPOOR, BENNY KLOCK, GERALD PEASE, ERICH RUTSCHEIDT, AND CLAYTON SMITH
Georgetown College Observatory, Washington, D. C.

(Received August 2, 1962)

In order to compare the kinematic properties of early-type stars and gas in the solar vicinity, a catalogue of O–B5 stars with published radial velocities and within 3 kpc of the sun has been prepared. For 1440 stars, radial velocities, apparent magnitudes, spectral classes, and $B-V$ or other color measures have been taken from the literature; spectroscopically calibrated distances, corrected for absorption, have been computed. With the stars grouped in 5° longitude zones, the distribution of stellar radial velocity within each zone is compared with the corresponding 21-cm line profile. There is general qualitative agreement between the stellar and radio radial-velocity distributions in most longitude zones. However, the range in radial velocities exhibited by the stars is often larger than that predicted by the radio model of the galaxy, to a distance of 3 kpc from the sun. This could be accounted for by a value of R_0 larger than the conventional value of $R_0=8.2$ kpc, and by random stellar motions of the order of 20 km/sec in one component. In some longitude zones systematic differences appear; in the third quadrant, the stellar radial velocities are more negative than the velocities observed for the gas, even after the application of a +10 km/sec correction to the Lick radial velocities.

For 898 stars, proper motions on the N30 system are available, and cylindrical velocity components with respect to the center of the galaxy are computed. From the components of motion circular about the center of the galaxy, a mean rotation curve is derived for the stellar component of the galaxy in the solar vicinity. For a distance from the center of the galaxy $R=6$ kpc, the mean circular velocity is about 15 km/sec larger than the circular velocity adopted for the radio model. At $R\approx 8$ kpc, the stellar and gas rotation curves coincide. For $R>8.5$ kpc, the stellar curve is flat, and does not decrease as is expected for Keplerian orbits.

The velocity component Π radial from the center of the galaxy has a large scatter for individual stars. In the mean, the Π vs R curve has a negative slope of about -5 km/sec per kpc. Stars toward the center show a velocity of recession from the center; stars with large R indicate a slight velocity of approach toward the center, for the conventional choice of solar motion. This agrees well with the expansion observed for interstellar hydrogen.

I. INTRODUCTION

THIS paper presents the results of a study of the motions of early-type stars in the galactic disk and within 3 kpc of the sun. The work was undertaken to investigate the general question of whether the stars and gas in the solar vicinity exhibit similar motions. In particular, studies were made to determine (1) whether the radial-velocity distribution of these stars, as a function of longitude, is similar to the radial-velocity distribution exhibited by the 21-cm hydrogen emission; (2) whether the variation of the circular velocity about the center of the galaxy of these stars is similar to the rotation curve determined from 21-cm observations; and (3) whether these stars show a systematic motion radial from the center of the galaxy.

In recent years, rapid progress in deducing the structure and dynamics of the galaxy has come from 21-cm observations. With the assumption of circular orbits, radio astronomers have analyzed the radial velocity of interstellar hydrogen and deduced a rotation curve for the gaseous component of the galaxy (Kwee, Muller, and Westerhout 1954; Schmidt 1956). From optical studies, again assuming circular orbits, Munch and Munch (1960) and earlier observers (Mayall 1951; Bahng, Code, and Whitford 1957) have derived a rotation curve for the stellar component of the galaxy by resolving the observed radial velocities of distant stars into motions at right angles to the radius vector from the center to each star. Yet large-scale deviations from circular motion have been found for the gas in the expanding arm of the galaxy at 3 kpc from the center (van Woerden, Rougoor, and Oort 1957). Similarly, systematic deviations of the radial velocities of early-type stars from the predicted Oort double sine function are found (see Feast and Thackeray 1958).

In view of the great interest in this question, it is worthwhile to investigate the kinematical properties of young stars in the solar vicinity, not merely from a study of their radial velocities, but from a study of their galactic space motions. This paper presents the results of an investigation of radial velocities and space motions of 1440 O–B5 stars, within 11° of the galactic plane, and within 3 kpc of the sun, which was undertaken to determine the variation of galactic motions of these stars.

Neither Blaauw's (1956) study of nearby O and B stars, nor Eggen's (1961) analysis of the motions of bright O and B stars contains stars at sufficient distances from the sun to study their motions as a function of distance from the center of the galaxy. Hence an extensive catalogue of O–B5 stars has been prepared, and is presented in Sec. II. For each star, a distance is calculated from photometric data which have been taken from the literature. Each of the 1440 stars has a published radial velocity; 898 of the stars have both color measures and published proper motions as well.

Section III contains a comparison of the radial-velocity distribution of these stars with the correspond-

ing 21-cm H I radial-velocity distribution. The stellar velocities are grouped by longitude zones and examined by a procedure which approximates the method used to analyze the 21-cm observations. The results are presented graphically.

The galactic space motions of 898 stars from the catalogue are analyzed in Sec. IV. From the adopted radial velocity and proper motion of each star, a circular component about the center of the galaxy and a component radial from the center is computed. In Sec. V, a rotation curve for the stellar component of our region of the galaxy is determined, and compared with the rotation curve for the gaseous component. Section VI contains a discussion of the variation of the component radial from the center of the galaxy, for these stars. Some general conclusions from this study are presented in Sec. VII.

II. CATALOGUE

In order to study the space motions of early-type stars, a catalogue of O-B5 stars has been prepared, using the best available radial velocities, proper motions, luminosity, and spectral classifications. From Wilson's (1953) General Catalogue of Stellar Radial Velocities (GCRV), a list of all O-B5 stars, $|b|<11°$, with radial velocities accurate to within ± 5 km/sec was compiled. Additional stars of known constant radial velocity, principally from Feast, Thackeray, and Wesselink (1955, 1957) and Fehrenbach and co-workers (Barbier and Boulon 1959; Boulon, Duflot, and Fehrenbach 1958; Boulon and Fehrenbach 1959; Duflot and Fehrenbach 1956, 1957) were added to the list. A total of about 1600 stars was obtained. The published literature was searched for visual magnitudes, MK spectral classifications, absolute magnitudes, and $B-V$ or other color measures. For each star m_0-M was formed; only 1440 stars with $m_0-M\leqslant 12.6$ ($r\leqslant 3.3$ kpc) were retained. The limiting distance of about 3 kpc is chosen as an optimistic compromise between the distance to which results are of interest and the distance to which observational material is available. These stars, with photometric data and sources for each, comprise Table I. The numbered references in the final four columns refer to the list of sources at the end of the table.

A description of each column follows.

Col. 1: A running number for each star. An asterisk indicates that the star has a published proper motion and is contained in Table IV.

Col. 2: The Wilson (1953) number of the star. Numbers in italics refer to the list of references at the end of Table I, and identify the source of radial velocity for stars not in GCRV.

Col. 3: The HD number where available. Otherwise, BD, AGK_2, CPD, GC, Aitken (A), Kapteyn Area (K), NGC (N), or IC (I) number.

Cols. 4 and 5: New galactic coordinates (l^{II}) and (b^{II}), computed with the pole $\alpha=12^h49^m$, $\delta=+27°.4$, as adopted by the International Astronomical Union (Blaauw, Gum, Pawsey, and Westerhout 1959).

Cols. 6 and 7: α and δ, 1950.

Col. 8: Radial velocity ρ uncorrected for the solar motion, from GCRV or other source listed in Col. 2. For a few stars, the tabulated value is a mean of recent observations (Fehrenbach and co-workers, Evans, Menzies, and Stoy 1959) and GCRV. No correction has been applied to the Lick velocities (Feast and Thackeray 1958) in the table.

Col. 9: Visual apparent magnitude V, where possible. Other visual magnitudes have been assumed to be equivalent to the magnitude of the Johnson–Morgan system. Corrections for duplicity have been adopted for eight stars as follows:

Star number	188	277	352	402	410	545	681	1137
Δm (mag.)	+0.2	+0.7	+0.11	+0.6	+0.16	+0.61	+0.2	+0.2

P following the magnitude indicates a photographic magnitude; v refers to a variable.

Col. 10: Spectral classification, on the MK system when available. The few stars later than B5 are classified B5 or earlier in GCRV.

Col. 11: Absolute magnitude, most often from the calibration of early-type stars of Johnson and Iriarte (1958). For stars with no luminosity class, class V has been assumed, and the Johnson–Iriarte calibration adopted. These values are enclosed in parentheses. About 60 stars have absolute magnitudes taken from Petrie and co-workers (Petrie 1955, 1956; Petrie and Moyls 1956; Beals 1955). Although the calibration of Petrie differs from that of Johnson–Iriarte, no correction has been applied. A value of $M=-7^m.0$ has been used for Of stars (Kopylov 1959).

Col. 12: Visual absorption in magnitudes A_V, most often from $B-V$ measures. A value of 3 for the ratio of total to selective absorption has been assumed. Normal colors were taken from Johnson (1958). The following conversions (Morgan, Harris, and Johnson 1953; Feast and Thackeray 1958) were adopted for color measures not on the UBV system:

Morgan, Code, Whitford; Stebbins	$B-V=2.07C_1+0.30$
Oosterhoff	$B-V=1.107C+1.371$.

The entry $A_V=0.0$ indicates that the computed value was negative, but always equal to 0.0 to one decimal place.

Col. 13: Distance modulus, computed from $m-M-A_V$. Where photometric data are missing for one star in a double, the distance modulus of the second star is enclosed in parentheses. For stars with no individual M or A_V values, but which are known members of a cluster, the cluster distances have been listed. A uniform correction of $+0^m.2$ has been used to convert photographic to visual apparent magnitude for those stars indicated by P in Col. 9. In all, 1162 stars have computed distance moduli. The remaining stars have no absorption measures, and hence no listed distance

TABLE I. Positions, magnitudes, distances, and radial velocities for 1440 O–B5 stars within 3 kpc of the sun.

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sp. (15)	M (16)	A_V (17)
1*	10023	157056	0°46	+ 6°56	17h18m9	−24°57′	− 3.6	3m28	B2 IV	−3m3	0m06	6.5	55	55	25	55
2*	*16*	164032	0.89	− 3.24	17 57.3	−29 49	+17.	7.48	B1 Ib	−6.1	0.96	12.6	17	17	25	17
3	10478	N6520	2.89	− 2.85	18 0.3	−27 53	−25.	10.8	B0			11.2	58	58		21
4	10474	N6520	2.90	− 2.82	18 0.2	−27 52	−31.	10.8	B3			11.2	58	58		21
5	10481	N6520	2.92	− 2.86	18 0.4	−27 52	−22.	10.5	B2			11.2	58	58		21
6*	10225	160730	3.59	+ 3.00	17 39.5	−24 17	−72.	9.68	O8	−5.2	2.91	12.0	17	17	25	17
7*	10354	162978	4.53	+ 0.30	17 51.8	−24 53	−11.	6.20	O8	−5.2	1.05	10.4	17	17	25	17
8	10646	166611	4.87	− 4.06	18 9.4	−26 45	−23.	9.68P	B1 V	−3.6			46	46	25	
9	*16*	164741	5.16	− 1.64	18 0.6	−25 19	−17.	9.13	B1 III	−4.4	1.68	11.8	41	16	25	41
10*	10004	156779	5.43	+10.33	17 17.3	−18 46	−15.4	9.3	B5	(−1.0)	0.87	9.4	54	54	26	54
11*	*16*	165016	5.85	− 1.58	18 1.9	−24 41	+ 3.	7.44	B0 III:	−5.4	0.63	12.2	41	16	25	41
12*	10465	164536	5.97	− 0.91	17 59.6	−24 15	−11.	6.87	B3	(−1.7)	0.51	8.1	54	54	26	54
13*	10488	164794	6.01	− 1.21	18 0.8	−24 22	+ 9.	5.86	O5	−5.5	0.93	10.4	36	36	25	36
14	10512	N6530	6.02	− 1.36	18 1.4	−24 26	− 2.	8.8	B4		0.96	10.7	58	58		24
15	10503	N6530	6.04	− 1.29	18 1.2	−24 23	−35.	8.9	B4		0.96	10.7	58	58		24
16	10510	N6530	6.06	− 1.33	18 1.4	−24 23	+55.	8.3	B2		0.96	10.7	58	58		24
17	10513	N6530	6.07	− 1.35	18 1.5	−24 23	−22.	9.3	B3		0.96	10.7	58	58		24
18	10505	N6530	6.08	− 1.30	18 1.3	−24 21	−35.	9.0	B5		0.96	10.7	58	58		24
19	10509	N6530	6.09	− 1.32	18 1.4	−24 21	+22.	9.6	B5		0.96	10.7	58	58		24
20*	10514	N6530	6.12	− 1.35	18 1.6	−24 20	−14.	9.1	B3		0.96	10.7	58	58		24
21*	10523	165052	6.12	− 1.48	18 2.1	−24 24	+ 3.	6.79	O7	−5.5	1.29	11.0	36	36	25	36
22*	10458	A10991C	6.99	− 0.24	17 59.3	−23 2	− 2.	9.4	B2			(12.2)	58	58		
23*	10459	164492	7.00	− 0.26	17 59.4	−23 2	+ 4.	7.63	O7	−5.5	0.96	12.2	17	17	25	17
24*	10407	163800	7.05	+ 0.69	17 55.9	−22 31	+ 5.	6.92	O8	−5.2	1.83	10.3	36	36	25	36
25*	10416	163892	7.15	+ 0.62	17 56.4	−22 28	− 5.	7.14	O9 IV	−5.8	1.59	11.4	36	36	25	36
26*	10425	164002	7.15	+ 0.46	17 57.0	−22 33	−17.	7.15	B0.5 V	−4.0	0.93	10.2	36	36	25	36
27*	10452	164402	7.16	− 0.04	17 58.9	−22 47	−13.	5.73	B0 Ib	−6.2	0.69	11.2	36	36	25	36
28*	10476	164704	7.24	− 0.37	18 0.3	−22 53	− 5.	7.65	B5	(−1.0)	0.57	8.1	54	54	26	54
29*	10472	164637	7.35	− 0.23	18 0.0	−22 43	− 9.	6.73	B0.5 III	−4.9	0.57	11.1	55	36	25	55
30*	10489	164833	7.35	− 0.46	18 0.9	−22 50	−23.	6.86	B0 III	−5.4	0.93	11.3	36	36	25	36
31*	10480	164717	7.48	− 0.26	18 0.4	−22 37	−19.4	8.3	B3	(−1.7)	0.63	9.4	54	54	26	54
32*	10493	164844	7.59	− 0.35	18 1.0	−22 34	− 9.	8.0	B1 V	−3.6	0.69	10.9	36	36	25	36
33	10496	N6531	7.66	− 0.34	18 1.1	−22 30	− 2.	9.5	B2		0.81	10.5	58	58		24
34	10500	164883	7.67	− 0.36	18 1.2	−22 30	− 9.6	7.28	B0 V	−4.4	0.93	10.8	17	17	25	17
35	10502	N6531	7.67	− 0.36	18 1.2	−22 30	−48.	8.6	B5		0.81	10.5	58	58		24
36*	10448	164359	7.69	+ 0.34	17 58.6	−22 8	−14.	7.4	B0 III	−5.4	1.17	11.6	36	36	25	36
37	10504	N6531	7.70	− 0.37	18 1.3	−22 29	+ 4.	8.6	B3		0.81	10.5	58	58		24
38	10501	N6531	7.72	− 0.33	18 1.2	−22 27	−16.	9.1	B3		0.81	10.5	58	58		24
39*	10560	165612	7.72	− 1.26	18 4.7	−22 54	−16.	7.7	B3	(−1.7)	0.87	8.5	54	54	26	54
40	10477	164703	7.74	− 0.08	18 0.3	−22 18	−10.	9.3	B5	(−1.0)	1.02	9.3	54	54	26	54
41	10515	164992	7.77	− 0.44	18 1.7	−22 27	−25.	9.7	B5	(−1.0)	0.87	9.8	54	54	26	54
42*	10540	165288	7.93	− 0.74	18 3.2	−22 28	− 7.	9.1	B5	(−1.0)	0.87	9.2	54	54	26	54
43	10573	165765	7.96	− 1.34	18 5.5	−22 44	−20.	9.4	B5	(−1.0)	0.57	9.8	54	54	26	54
44*	10536	165287	8.22	− 0.55	18 3.1	−22 7	+ 5.	8.7	B5	(−1.0)	1.08	8.6	54	54	26	54
45*	10192	160186	8.23	+ 6.74	17 36.4	−18 23	+ 5.8	9.05	B0.5 V	−4.0	1.41	11.6	17	17	25	17
46*	10569	165689	8.31	− 1.04	18 5.1	−22 17	−12.	7.9	B5	(−1.0)	0.63	8.3	54	54	26	54
47	10595	22°12627	8.43	− 1.36	18 6.6	−22 20	−10.	10.2P	B2 V	−2.5			46	46	25	
48*	10580	165812	8.47	− 1.10	18 5.7	−22 10	−24.	7.89	B5	(−1.0)	0.63	8.3	54	54	26	54
49*	10585	165857	8.48	− 1.15	18 5.9	−22 11	−34.	8.7	B5	(−1.0)	0.75	9.0	54	54	26	54
50*	10664	166852	8.51	− 2.33	18 10.4	−22 44	−17.	8.69	B2	(−2.5)	1.44	9.8	41	41	26	41
51	10107	159319	8.52	+ 9.73	17 26.4	−16 33	−14.2	8.7	B5 ne				58	58		
52*	10176	159864	8.52	+ 7.39	17 34.7	−17 48	+ 6.9	8.59	B0.5 II	−5.5	1.50	12.6	17	17	25	17
53	10598	166054	8.69	− 1.27	18 6.8	−22 4	−20.	9.9	B3				58	58		
54*	10233	160886	8.81	+ 6.00	17 40.3	−18 17	−20.	9.7	B5	(−1.0)	0.96	9.7	54	54	26	54
55*	10554	165516	8.93	− 0.45	18 4.2	−21 27	− 6.	6.29	B0.5 Ib	−6.1	0.96	11.4	17	17	25	17
56	10694	167200	8.93	− 2.54	18 12.1	−22 28	− 8.4	9.4	B4 n				58	58		
57*	10466	164581	9.02	+ 0.84	17 59.6	−20 44	− 6.	6.85	B1 V	−3.6	1.05	9.4	36	36	25	36
58*	10629	166443	10.05	− 0.94	18 8.4	−20 43	− 4.	8.74	B1 V:e	−3.6	1.35	11.0	17	17	33	17
59*	10534	165285	10.08	+ 0.53	18 3.0	−19 58	−11.	9.01	B0.5 V:nne	−4.0	1.77	11.2	17	17	25	17
60*	10453	164438	10.36	+ 1.80	17 58.9	−19 6	−27.	7.48	O9 IV	−5.8	1.95	11.3	17	17	25	17
61*	10637	166546	10.36	− 0.93	18 9.0	−20 26	+ 3.	7.25	O9.5 III	−5.7	1.05	11.9	19	19	25	19
62	10681	167000	10.40	− 1.47	18 11.1	−20 40	−20.	9.2	B5	(−1.0)	1.20	9.0	54	54	26	54
63*	10698	167264	10.45	− 1.74	18 12.2	−20 45	− 6.3	5.38	B0 Ia	−6.6	0.87	11.1	17	17	25	17
64	10662	166826	10.53	− 1.19	18 10.3	−20 25	−12.	9.9	B5				58	58		
65	10687	167090	10.61	− 1.49	18 11.6	−20 29	−10.	9.4	B5	(−1.0)	0.96	9.4	54	54	26	54
66	10680	20°5043	10.70	− 1.30	18 11.1	−20 19	+28.	9.52	O6	−5.5	3.51	11.5	17	17	25	17
67*	10699	167263	10.75	− 1.57	18 12.2	−20 24	− 5.	5.98	O9 II	−6.1	1.05	11.0	17	17	25	17
68*	10912	169704	11.02	− 4.50	18 23.8	−21 33	−16.	9.4	B5	(−1.0)	1.14	9.3	54	54	26	54
69*	10656	166787	11.06	− 0.81	18 10.0	−19 46	− 8.	8.4	B0.5 Ib–II	−5.8	2.22	12.0	36	36	25	36
70	10718	167436	11.18	− 1.58	18 13.1	−20 2	−28.	9.3	B5	(−1.0)	0.69	9.6	54	54	26	54
71*	10644	166628	11.26	− 0.51	18 9.3	−19 27	+ 3.1	7.17	B3 Ia	−7.1	2.13	12.1	17	17	25	17
72*	10619	166291	11.31	− 0.05	18 7.7	−19 11	−22.8	9.06	B1.5 V	−3.0	1.35	10.7	17	17	25	17
73*	11111	172256	11.40	− 7.79	18 37.2	−22 43	+ 3.	8.6	B5	(−1.0)	0.51	9.1	54	54	26	54
74*	11034	171348	11.41	− 6.52	18 32.3	−22 8	− 9.	7.95	B2 e	−3.6	1.26	10.3	32	32	32	32
75*	10744	167815	11.65	− 1.75	18 14.7	−19 42	− 7.5	7.59	B2	(−2.5)	1.26	8.8	54	54	26	54
76	10679	166999	11.74	− 0.73	18 11.1	−19 8	− 6.	9.5	B5	(−1.0)	0.87	9.6	54	54	26	54
77*	10483	164738	11.82	+ 2.22	18 0.4	−17 37	+ 6.	7.10	B5	(−1.0)	1.14	7.0	54	54	26	54
78*	10842	20°5108	11.82	− 2.91	18 19.4	−20 6	+17.	9.16	B0.5 II	−5.5	2.37	12.3	17	17	25	17
79*	10676	166965	11.83	− 0.63	18 10.9	−19 0	−13.	8.8	B3 II	−4.4	1.62	11.6	36	36	25	36
80	10638	166568	11.85	− 0.10	18 9.0	−18 44	−19.	9.0	B1.5 (V)pe	−3.6	1.35	11.2	36	36	33	36
81*	10688	167088	11.86	− 0.80	18 11.6	−19 4	−10.	8.5	B3	(−1.7)	0.75	9.4	54	54	26	54
82*	10473	164700	11.97	+ 2.37	18 0.2	−17 25	+ 2.	7.5	B5	(−1.0)	0.96	7.5	54	54	26	54
83*	10700	167287	11.98	− 0.92	18 12.3	−19 1	+ 0.	7.0	B1 Ib	−6.1	0.87	12.2	36	36	25	36
84	10695	167224	12.00	− 0.86	18 12.1	−18 58	−12.4	7.9	B3 II	−4.4	0.81	11.5	36	36	25	36
85*	10773	168138	12.00	− 1.93	18 16.1	−19 29	− 7.9	9.1	B3	(−1.7)	1.08	9.7	54	54	26	54
86*	10611	166188	12.13	+ 0.49	18 7.4	−18 12	−23.	9.0	B2 V:pe	−3.6	2.19	10.4	36	36	33	36
87*	10721	167479	12.27	− 1.03	18 13.3	−18 49	−10.6	8.2	B3	(−1.7)	0.87	9.0	54	54	26	54
88	10713	167412	12.56	− 0.80	18 13.0	−18 27	−18.	8.6	B5	(−1.0)	0.63	9.0	54	54	26	54
89*	10705	167336	12.57	− 0.65	18 12.5	−18 22	− 3.	8.71	B0 II	−5.7	2.46	12.0	17	17	25	17
90	10784	168230	12.57	− 1.73	18 16.5	−18 53	− 2.	9.5	B3	(−1.7)	2.61	8.6	54	54	26	54

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sp. (15)	M (16)	A_V (17)
91	10723	167478	12°59	− 0°86	18h13m3	−18°27′	−26.	9m2	B5	(−1m0)	1m08	9.1	54	54	26	54
92*	10742	167771	12.70	− 1.12	18 14.5	−18 29	+ 9.	6.54	O8	−5.2	1.29	10.4	19	19	25	19
93*	10764	168021	12.71	− 1.47	18 15.8	−18 38	− 1.	6.9	B0 Ib	−6.2	1.38	11.7	36	36	25	36
94*	10765	A11240C	12.71	− 1.47	18 15.8	−18 38	+26.	8.0	B2			(11.7)	58	58		
95*	10435	164188	13.09	+ 3.67	17 57.8	−15 48	+ 6.3	8.70	B0.5 IV	−4.5	1.41	11.8	17	17	25	17
96*	11066	171611	13.16	− 6.00	18 33.7	−20 21	−22.8	7.37	B5	(−1.0)	1.20	7.2	54	54	26	54
97	10753	167902	13.20	− 1.01	18 15.1	−17 59	−19.	9.4	B5	(−1.0)	0.75	9.6	54	54	26	54
98	10668	166920	13.29	+ 0.26	18 10.6	−17 18	−22.	10.5	B5	(−1.0)	1.20	10.3	54	54	26	54
99*	10620	166287	13.36	+ 1.09	18 7.7	−16 50	−17.	7.6	B0.5 III	−4.9	1.56	10.9	36	36	25	36
100*	10635	166540	13.44	+ 0.81	18 8.9	−16 54	− 1.6	7.9	B0.5 IV	−4.5	1.50	10.9	53	53	25	53
101*	10675	166964	13.44	+ 0.29	18 10.8	−17 9	−26.	8.8	B5	(−1.0)	1.08	8.7	54	54	26	54
102*	10576	165808	13.46	+ 1.73	18 5.6	−16 26	−16.	7.4	B5	(−1.0)	1.20	7.2	54	54	26	54
103*	10621	166304	13.47	+ 1.13	18 7.8	−16 43	−23.	9.33	B1 V	−3.6	1.35	11.6	17	17	25	17
104*	10628	166418	13.53	+ 1.02	18 8.3	−16 43	+ 6.4	8.1	B0 II	−5.7	2.19	11.6	53	53	25	53
105*	10877	169271	13.67	− 2.57	18 21.8	−18 19	−11.	9.0	B3	(−1.7)	1.68	9.0	54	54	26	43
106*	10828	168675	13.68	− 1.75	18 18.8	−17 55	− 6.	9.1	B5	(−1.0)	1.50	8.6	54	54	26	54
107*	10809	168489	13.69	− 1.45	18 17.7	−17 46	− 8.	8.9	B0 III	−5.4	1.86	12.4	58	36	25	36
108	*15*	M25	13.71	− 4.47	18 29.0	−19 10	+ 4.	9.68	B2 V:	−2.5	1.80	10.4	23	13	25	23
109	*15*	M25	13.71	− 4.47	18 29.0	−19 10	+ 4.	10.16	B5 V:	−1.0	1.77	9.4	23	13	25	23
110	*15*	M25	13.71	− 4.47	18 29.0	−19 10	+ 4.	8.82	B5 V	−1.0	1.17	8.6	23	13	25	23
111	*15*	M25	13.71	− 4.47	18 29.0	−19 10	+ 4.	10.35	B5 V:	−1.0	1.41	9.9	23	13	25	23
112	10711	167397	13.83	− 0.07	18 12.9	−16 59	+ 4.	8.2	B0	(−4.4)	1.44	11.2	54	54	26	54
113*	10431	164103	13.91	+ 4.28	17 57.3	−14 47	−31.	8.12	B5 IV	−1.8	0.78	9.1	17	17	25	17
114	10673	166963	13.94	+ 0.56	18 10.8	−16 35	−20.	9.7	B5	(−1.0)	1.14	9.6	54	54	26	54
115*	10520	165049	13.95	+ 3.04	18 1.8	−15 22	−18.2	8.18	B2 III	−3.6	1.83	10.0	17	17	25	17
116*	10649	166689	13.96	+ 0.90	18 9.6	−16 24	− 4.6	7.34	B1 Ib–II	−5.7	0.96	12.1	36	36	25	36
117	10767	168078	14.07	− 0.73	18 15.8	−17 5	−36.	9.8	B5	(−1.0)	1.14	9.7	54	54	26	54
118*	10816	168571	14.07	− 1.38	18 18.2	−17 24	− 4.8	7.79	B1 Ib–II	−5.7	2.22	11.3	17	17	25	17
119*	10839	168765	14.14	− 1.62	18 19.2	−17 27	−17.7	9.5	B5	(−1.0)	1.68	8.8	54	54	26	54
120*	10791	168352	14.20	− 0.99	18 17.0	−17 6	−23.	8.9	B2	(−2.5)	1.74	9.7	54	54	26	54
121*	10796	168368	14.22	− 1.00	18 17.1	−17 5	− 4.	9.6	B3	(−1.7)	1.74	9.6	54	54	26	54
122*	10814	168552	14.25	− 1.26	18 18.1	−17 11	− 7.4	8.2	B3 Ib	−5.9	1.50	12.6	53	53	25	53
123	10801	168418	14.30	− 1.01	18 17.3	−17 1	−20.	9.43	B2 III	−3.6	1.71	11.3	17	17	25	17
124*	10884	169419	14.40	− 2.31	18 22.3	−17 33	+ 2.6	9.5	B0 II–III	−5.6	2.49	12.6	36	36	25	36
125	10757	167999	14.41	− 0.46	18 15.5	−16 40	− 7.3	9.4	B5	(−1.0)	1.14	9.3	54	54	26	54
126	10838	168748	14.41	− 1.44	18 19.1	−17 8	−32.	10.5	B5	(−1.0)	1.68	9.8	54	54	26	54
127*	10636	166566	14.50	+ 1.37	18 9.0	−15 42	−11.	7.9	B1 II	−5.3	1.50	11.7	36	36	25	36
128*	11007	171012	14.52	− 4.37	18 30.2	−18 24	−17.5	6.98	B0.5 Ia	−6.8	1.86	11.9	36	36	25	36
129*	10634	166539	14.57	+ 1.46	18 8.8	−15 36	+ 0.	8.83	B0 IV	−5.0	1.65	12.2	17	17	25	17
130*	10647	166666	14.65	+ 1.34	18 9.4	−15 35	− 4.	9.21	B1 (V)ne	−3.6	1.50	11.3	17	17	33	17
131*	10779	168163	14.79	− 0.44	18 16.2	−16 19	−15.	8.77	B6 IV	−1.5	0.96	9.3	51	51	25	51
132*	10651	166716	14.85	+ 1.40	18 9.6	−15 23	− 6.	7.95	B0 II–III	−5.6	1.29	12.3	36	36	25	36
133*	10659	166803	15.07	+ 1.38	18 10.1	−15 12	− 3.2	7.9	B0.5 III	−4.9	1.56	11.2	36	36	25	36
134*	10787	168302	15.10	− 0.44	18 16.8	−16 3	−41.1	9.26	B5 V	−1.0	1.08	9.2	17	17	25	17
135*	10538	165319	15.12	+ 3.34	18 3.1	−14 12	+30.	7.94	B0 Ia	−6.6	2.43	12.1	17	17	25	17
136*	11408	175876	15.28	−10.58	18 55.2	−20 30	+14.	6.73	O6	−5.5	0.63	11.6	36	36	25	36
137*	10745	167838	15.39	+ 0.27	18 14.8	−15 27	− 5.5	6.73	B5 Ia	−7.0	1.62	12.1	17	17	25	17
138*	10935	170097	15.48	− 2.61	18 25.5	−16 44	+14.	8.4	B0	(−4.4)	1.38	11.4	54	54	26	54
139*	10778	168162	15.50	− 0.03	18 16.1	−15 30	−33.1	9.4	B5	(−1.0)	2.49	7.9	54	54	26	54
140	10702	167312	15.51	+ 0.99	18 12.4	−15 0	−26.	10.7	B5				58	58		
141*	10602	166125	15.57	+ 2.54	18 6.9	−14 12	−19.	9.08	B3 II–III	−3.7	2.13	10.6	17	17	25	17
142	10710	167409	15.79	+ 1.00	18 12.9	−14 45	−19.7	10.1	B4				58	58		
143*	10968	170604	15.87	− 3.10	18 28.1	−16 37	− 5.	8.4	B0.5 II	−5.5	1.26	12.6	36	36	25	36
144	10722	K134	15.94	+ 0.97	18 13.3	−14 38	−28.	9.83P	B1 V	−3.6			46	46	25	
145*	10806	15°4930	16.03	− 0.13	18 17.5	−15 5	+21.	9.42	O6 p	−5.5	3.18	11.7	19	19	25	19
146	10720	167497	16.20	+ 1.15	18 13.2	−14 19	−22.4	9.20	B2 II	−4.9	2.28	11.8	51	36	25	51
147*	10904	169673	16.20	− 1.68	18 23.5	−15 40	−16.8	7.17	B1 II	−5.3	0.87	11.6	36	36	25	36
148*	10804	168444	16.21	− 0.01	18 17.4	−14 52	−16.	8.86	O8 V	−5.2	2.58	11.5	36	36	25	36
149*	10259	161306	16.42	+ 9.92	17 42.4	− 9 48	−22.	8.31	B2 e	−3.6	2.43	9.5	54	32	33	54
150*	11197	173375	16.60	− 6.66	18 42.7	−17 36	−12.	7.06	B6 V	−0.7	0.78	7.0	38	38	25	38
151	10780	168207	16.68	+ 0.55	18 16.3	−14 11	− 5.	9.4	B5	(−1.0)	1.68	8.7	54	54	26	54
152*	10777	168183	16.80	+ 0.67	18 16.1	−14 1	− 4.	8.2	B0 III	−5.4	1.80	11.8	36	36	25	36
153	10990	170796	16.80	− 2.89	18 29.1	−15 42	+ 2.	9.7	B5				58	58		
154*	10716	167451	16.82	+ 1.51	18 13.1	−13 36	−15.	8.23	B0.5 Ib	−6.1	2.97	11.4	17	17	25	17
155*	10997	170938	16.85	− 3.05	18 29.8	−15 44	+27.	7.87	B1 Ia	−6.9	3.09	11.7	17	17	25	17
156*	10851	168917	16.92	− 0.31	18 19.9	−14 23	−16.	8.44	O9 V:	−4.8	2.22	11.0	19	19	25	19
157*	10762	168075	16.94	+ 0.83	18 15.8	−13 49	+27.	8.9	O7	−5.5	2.28	12.1	58	36	25	36
158*	10763	168076	16.94	+ 0.83	18 15.8	−13 49	+25.	8.6	O5	−5.5	2.37	11.7	58	36	25	36
159	10776	N6611	16.95	+ 0.75	18 16.1	−13 51	+17.	9.6	O9		2.55	12.0	58	58		24
160*	10775	168137	16.96	+ 0.76	18 16.1	−13 50	+26.	9.2	O8 V	−5.2	2.13	12.3	58	36	25	36
161*	11047	171469	17.15	− 3.71	18 32.8	−15 46	+ 3.	9.5	B2	(−2.5)	1.86	10.1	54	54	26	54
162*	10931	170061	17.21	− 1.61	18 25.2	−14 44	+ 9.	9.30	B0.5: ne(V?)	−4.0	2.28	11.0	17	17	25	17
163	10915	169755	17.26	− 1.26	18 24.0	−14 32	− 1.	9.26	O8 V	−5.2	2.52	11.9	19	19	25	19
164*	10888	169454	17.54	− 0.66	18 22.4	−14 0	−25.2	6.61	B1 Ia+	−6.0	3.36	9.2	17	17	60	17
165*	10703	167330	17.66	+ 2.17	18 12.4	−12 33	−36.	8.23	O9 I–II	−6.2	2.82	11.6	17	17	25	17
166*	10859	169034	17.66	− 0.08	18 20.5	−13 37	− 7.	8.14	B5 Ia	−7.0	3.99	11.2	17	17	25	17
167*	10701	167311	17.69	+ 2.18	18 12.4	−12 31	− 4.	8.22	B0 Ib e	−6.2	2.85	11.6	32	32	25	32
168*	11139	172694	17.76	− 5.18	18 39.4	−15 54	+ 5.	8.11	B0 e	−4.4	1.50	11.0	32	32	33	32
169	10955	170453	17.87	− 1.81	18 27.2	−14 15	+ 5.	9.2	B1 II–III	−4.9	1.83	12.3	36	36	25	36
170*	10911	169727	17.98	− 0.81	18 23.8	−13 41	−13.	9.28	O6	−5.5	3.36	11.4	17	17	25	17
171	11109	172293	17.98	− 4.45	18 37.1	−15 22	−23.7	10.3	B5				58	58		
172	11024	171293	18.20	− 2.87	18 31.7	−14 27	−25.6	10.1	B4				58	58		
173*	10754	167971	18.25	+ 1.68	18 15.3	−12 16	+ 1.	7.50	O8 f	−6.4	3.18	10.7	17	17	28	17
174*	10755	12°4982	18.32	+ 1.69	18 15.4	−12 12	+23.	9.26	B0 II	−5.7	2.88	12.1	17	17	25	17
175	11033	171392	18.35	− 2.95	18 32.3	−14 21	− 3.	9.4	B2	(−2.5)	1.56	10.3	54	54	26	54
176*	10769	168112	18.44	+ 1.62	18 15.9	−12 8	− 8.	8.52	O6	−5.5	3.03	11.0	17	17	25	17
177	11098	172176	18.47	− 4.01	18 36.4	−14 44	−36.	9.9	B5				58	58		
178*	10966	170581	18.48	− 1.71	18 28.0	−13 40	+19.	9.44	B1 III	−4.4	2.10	11.7	18	18	25	18
179*	11008	171054	18.48	− 2.33	18 30.3	−13 57	+ 2.	9.01	B1 Vpe	−3.6	1.38	11.2	17	17	33	17
180*	11125	172510	18.62	− 4.44	18 38.3	−14 48	− 6.	8.7	B1 V	−3.6	1.56	10.7	53	53	25	53

TABLE I (*continued*)

Star No (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	$m_g - M$ (13)	Sources m (14)	Sp. (15)	M (16)	A_V (17)
181*	10938	170159	18°79	− 0°94	18h25m8	−13° 2′	− 8.8	8m36	B0.5 Ib	−6m1	2m37	12.1	17	17	25	17
182*	10652	166734	18.91	+ 3.63	18 9.6	−10 45	−11.	8.42	O8 f	(−7.0)	4.20	11.2	17	17	29	17
183*	10954	170452	18.99	− 1.22	18 27.2	−12 59	−14.	8.75	O9:V	−4.8	2.52	11.0	19	19	25	19
184*	11181	173251	19.39	− 5.06	18 42.0	−14 24	−46.	9.09	B1 II	−5.3	2.73	11.7	18	18	25	18
185*	10913	169754	20.02	+ 0.25	18 23.9	−11 23	+32.	8.38	B0.5 Ia	−6.8	3.78	11.4	17	17	25	17
186*	11018	171198	20.04	− 1.74	18 31.1	−12 18	+54.	9.54	O7:	−5.5	2.67	12.4	19	19	25	19
187*	11104	172252	21.03	− 2.82	18 36.9	−11 55	−11.	9.48	B2:npe(V)	−3.6	2.67	10.4	17	17	33	17
188*	10985	170740	21.06	− 0.54	18 28.7	−10 50	−16.8	6.0	B3	(−1.7)	1.38	6.3	41	41	26	41
189*	11246	173991	21.43	− 5.12	18 46.0	−12 37	−16.	9.2	B2	(−2.5)	1.56	10.1	54	54	26	54
190	11255	174070	21.44	− 5.22	18 46.4	−12 39	− 5.	9.1	B4				58	58		
191	11160	173011	21.81	− 3.52	18 40.9	−11 33	− 4.	8.9	B0.5 V	−4.0			58	36	25	
192*	10910	169753	21.91	+ 1.28	18 23.8	− 9 14	−28.3	7.8	B3 Ib	−5.9	2.49	11.2	36	36	25	36
193*	11119	172427	22.16	− 2.49	18 37.8	−10 46	−14.	9.46	B1 IV	−4.1	2.22	11.3	18	18	25	18
194	11323	174705	22.64	− 5.46	18 49.5	−11 42	− 5.6	7.9	B2:e	−3.6			58	32	33	
195	11628	178861	23.88	− 9.88	19 7.9	−12 34	− 9.	8.3	B5				58	58		
196*	11122	172488	23.97	− 1.63	18 38.1	− 8 46	+50.	7.62	B0.5 V	−4.0	2.46	9.2	17	17	25	17
197*	11339	174886	24.02	− 5.04	18 50.5	−10 17	+ 4.	7.73	B3 e	−2.5	1.11	9.1	32	32	33	32
198	11656	179407	24.03	−10.40	19 10.1	−12 40	−90.	9.3	B2 n				58	58		
199	11491	176853	24.59	− 7.31	18 59.8	−10 48	−12.9	6.7	B4	−1.4			44	44	44	
200	11134	172637	24.65	− 1.50	18 38.9	− 8 6	− 9.1	9.7	B4				58	58		
201*	11105	172275	25.05	− 0.76	18 37.b	− 7 24	+23.	9.35	O6	−5.5	3.27	11.6	17	17	25	17
202	11252	174069	25.12	− 3.31	18 46.3	− 8 31	+ 6.	7.6	B2				58	58		
203*	11115	172367	25.20	− 0.82	18 37.5	− 7 18	−11.	9.50	B0 V	−4.4	2.25	11.6	17	17	25	17
204*	11220	173637	25.32	− 2.54	18 43.9	− 7 59	−46.	9.0	B1 IV	−4.1	1.74	11.4	36	36	25	36
205	11254	174083	25.40	− 3.20	18 46.4	− 8 13	−25.	10.3	B4 n				58	58		
206*	10977	170714	25.46	+ 1.84	18 28.5	− 5 50	−15.8	7.31	B5 n	−2.4	1.62	8.1	54	54	45	54
207*	11605	178487	25.78	− 8.56	19 6.5	−10 18	−49.8	8.7	B0	(−4.4)	1.50	11.6	54	54	26	54
208*	11178	173219	25.81	− 1.70	18 41.8	− 7 10	+ 6.	7.80	B1:V:pne	−3.6	1.44	10.0	17	17	33	17
209	11273	174243	25.94	− 3.15	18 47.2	− 7 43	−16.	10.1	B3				58	58		
210*	11304	174513	25.94	− 3.48	18 48.4	− 7 52	− 7.	8.6	B1 V:pne	−3.6	0.87	11.3	36	36	33	36
211	11340	174902	26.83	− 3.61	18 50.5	− 7 8	− 6.	9.7	B4				58	58		
212*	11199	173438	28.16	− 0.77	18 42.8	− 4 39	− 4.	8.23	B0.5 Ia	−6.8	3.00	12.0	17	17	25	17
213*	11653	179406	28.24	− 8.32	19 10.0	− 8 1	−15.	5.37	B3 IV	−2.5	1.26	6.6	52	52	25	53
214*	11467	176630	28.55	− 5.05	18 58.8	− 6 16	− 7.	7.69	B4 IV	−2.1	0.75	9.0	38	38	25	38
215*	11820	181858	29.06	−10.57	19 19.6	− 8 18	−13.7	6.49	B5 s	−1.2	0.57	7.1	54	54	45	54
216	11655	179405	29.56	− 7.65	19 10.0	− 6 33	−24.	8.6	B5 e				58	58		
217	11156	173003	30.54	+ 1.06	18 40.7	− 1 42	−11.	7.7	B4				58	58		
218	11174	173198	30.73	+ 0.91	18 41.6	− 1 36	−22.	8.1	B1 V	−3.6			58	36	25	
219	11088	172028	31.05	+ 2.82	18 35.4	− 0 26	−12.8	8.1	B3				58	58		
220	11041	171491	31.11	+ 3.64	18 32.6	+ 0 0	−20.	8.3	B5				58	58		
221	11263	174182	32.35	+ 0.28	18 46.8	− 0 27	−16.	8.3	B3 n				58	58		
222*	11521	177284	32.58	− 3.76	19 1.6	− 2 6	− 6.	8.60	B0.5 p	(−4.0)	2.31	10.3	17	17	26	17
223*	11377	175544	33.66	− 0.84	18 53.2	+ 0 12	− 4.	7.35	B3 V	−1.7	0.90	8.2	17	17	25	17
224*	11553	177752	33.85	− 3.64	19 3.5	− 0 55	+ 7.	8.7	B3	(−1.7)	1.20	9.2	54	54	26	54
225*	10961	170580	34.13	+ 6.60	18 27.6	+ 4 2	−22.2	6.50	B2 V	−2.5	1.20	7.8	54	35	25	54
226*	10834	168797	34.39	+ 9.14	18 19.0	+ 5 25	− 9.	6.14	B2 e	−3.6	0.57	9.2	32	32	32	32
227*	10984	170783	34.74	+ 6.63	18 28.6	+ 4 35	−10.	7.70	B5	(−1.0)	1.20	7.5	54	54	26	54
228	11885	182975	35.25	− 8.92	19 24.8	− 2 7	− 1.	8.2	B3				58	58		
229	11619	178720	35.84	− 3.62	19 7.1	+ 0 51	−20.8	9.1	B5				58	58		
230	11770	181074	36.56	− 5.90	19 16.5	+ 0 26	−39.	8.9	B3				58	58		
231	11537	177549	36.77	− 1.84	19 2.5	+ 2 30	− 7.	9.1	B3				58	58		
232	11741	180642	36.83	− 5.25	19 14.7	+ 0 58	−14.	8.1	B3				58	58		
233	11798	181474	36.86	− 6.17	19 18.0	+ 0 34	−14.7	8.9	B5				58	58		
234*	11554	177812	37.51	− 1.77	19 3.6	+ 3 11	+28.6	8.60	B1 Ib	−6.1	2.43	12.3	17	17	25	17
235*	11576	178129	37.81	− 1.95	19 4.8	+ 3 22	+23.	7.41	B3 Ia	−7.1	1.86	12.6	17	17	25	17
236	11856	182519	38.41	− 6.60	19 22.4	+ 1 44	−13.9	8.4	B5	−2.1			45	45	45	
237	11836	182222	39.45	− 5.63	19 20.9	+ 3 6	− 1.	9.3	B3				58	58		
238	11917	183442	40.06	− 7.03	19 27.0	+ 2 59	−45.	8.0	B5	−0.7			45	45	45	
239*	11299	174571	40.62	+ 4.10	18 48.4	+ 8 39	+ 6.	8.89	B3 V:pe	−2.5	2.28	9.1	17	17	33	17
240	11935	183734	40.84	− 6.99	19 28.3	+ 3 41	− 3.7	8.6	B5				58	58		
241*	11961	184279	41.14	− 7.62	19 31.1	+ 3 39	− 9.	6.78	B0.5 IV	−4.5	0.57	10.7	36	36	25	36
242	11679	179790	41.22	− 1.96	19 11.2	+ 6 23	−10.	10.1	B5 n				58	58		
243	12033	185423	41.43	− 8.94	19 36.3	+ 3 16	− 1.	6.4	B4	−3.1			45	45	45	
244*	11371	175514	41.71	+ 3.38	18 53.0	+ 9 17	−84.	8.59	O8:Vnn	−5.2	2.70	11.1	17	17	25	17
245*	11436	176304	42.85	+ 2.88	18 56.9	+10 4	−22.6	6.57	B2 V	−2.3	1.47	7.4	2	2	2	2
246*	11540	177624	43.07	+ 1.36	19 2.8	+ 9 34	−10.	6.93	B5	−1.0	1.32	6.6	54	45	45	54
247*	12038	185507	43.26	− 8.06	19 36.7	+ 5 17	− 4.8	5.17	B3	−1.6	0.87	5.9	54	45	45	54
248*	11696	180126	44.33	− 0.70	19 12.6	+ 9 43	− 9.1	8.2	B3	(−1.7)	1.26	8.6	54	54	26	54
249*	12135	5*4285	44.64	− 9.33	19 43.8	+ 5 52	−27.	8.39	B6 e	−0.7	0.24	8.8	32	32	33	32
250*	11731	180587	45.57	− 0.55	19 14.4	+10 53	− 8.6	8.6	B5	(−1.0)	0.45	9.2	54	54	26	54
251*	12100	186456	45.81	− 8.12	19 41.8	+ 7 28	−10.	8.14	B2.5 e	−3.6	0.81	10.9	32	32	33	32
252	11405	230211	46.45	+ 5.22	18 55.1	+14 20	− 3.	9.9	B4 e				58	58		
253	11601	178512	46.51	+ 2.24	19 6.1	+13 1	− 7.	7.0	B5				58	58		
254*	12190	187567	46.83	− 9.29	19 47.9	+ 7 46	−28.	6.45	B2 e	−3.6	0.42	9.6	32	32	32	32
255*	11275	174391	47.02	+ 7.56	18 47.5	+15 53	− 7.4	6.59	B3 V	−1.8	0.42	8.0	2	2	2	2
256	12080	186205	47.06	− 6.97	19 40.2	+ 9 6	−10.8	8.7	B5				58	58		
257*	11714	180398	47.36	+ 0.63	19 13.6	+13 1	−33.	7.91	B6 e	−0.7	0.60	8.0	32	32	33	32
258*	12110	186587	48.71	− 6.73	19 42.6	+10 39	+ 1.	7.36	B3	−1.6	1.14	7.8	54	45	45	54
259	12111	A12864C	48.71	− 6.73	19 42.6	+10 39	−14.	9.5	B4 n			(7.8)	58	58		
260*	12218	187961	49.23	− 8.50	19 49.9	+10 13	−12.6	6.48	B5 n	(−1.0)	0.57	6.9	54	54	26	54
261*	11890	183144	49.74	− 1.32	19 25.3	+14 11	+ 4.	6.26	B5 n	(−1.0)	0.33	6.9	54	54	26	54
262*	11838	231285	50.07	+ 0.02	19 21.1	+15 7	−17.	9.50	B0 III	−5.4	3.15	11.8	17	17	25	17
263*	12066	185936	50.91	− 4.41	19 38.8	+13 42	−14.2	5.84	B3	−1.0	0.57	6.3	54	45	45	54
264*	11392	175803	51.25	+ 7.88	18 54.1	+19 47	−22.	7.97	B3 V	−1.7	1.14	8.5	54	15	25	54
265	11573	230705	51.29	+ 5.10	19 4.7	+18 34	+ 5.	11.26P	B3 V	−1.7			46	46	25	
266*	11265	174261	51.70	+10.01	18 46.8	+21 7	−15.2	6.93	B5 n	(−1.0)	0.51	7.4	54	54	26	54
267*	11427	176254	52.19	+ 7.72	18 56.5	+20 33	− 6.9	6.72	B3 s	(−1.7)	0.81	7.6	54	54	26	54
268*	11973	184502	52.24	− 1.78	19 32.0	+16 9	−22.5	6.81	B3	−1.8	0.45	8.2	54	45	45	54
269	12078	186182	52.32	− 3.98	19 40.1	+15 8	− 5.3	8.0	B5				58	58		
270*	11476	176819	52.67	+ 7.25	18 59.2	+20 46	−10.3	6.55	B2	(−2.5)	1.26	7.8	54	54	26	54

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sp. (15)	M (16)	A_V (17)
271*	11475	176818	53°.27	+ 7°.55	18h59m.2	+21°26′	− 9.	6m.86	B3	(−1m.7)	1m.14	7.4	54	54	26	54
272*	12032	185418	53.61	− 2.17	19 36.2	+17 9	− 2.	7.45	B0.5 V	−4.0	1.50	10.0	17	17	25	17
273	12506	191337	53.67	−10.68	20 6.7	+12 52	−10.	7.9	B5 n				58	58		
274*	11724	180554	54.74	+ 4.40	19 14.1	+21 18	−17.	4.60	B3 IV	−2.5	0.63	6.5	54	52	25	54
275	12085	186272	54.74	− 2.73	19 40.6	+17 51	−14.7	7.9	B4	−1.5			45	45	45	
276	12039	185605	54.93	− 1.63	19 37.0	+18 34	− 9.	7.9	B3	−1.8			45	45	45	
277	11345	175227	55.01	+10.39	18 51.4	+24.13	− 2.1	9.1	B4	−0.8			43	43	43	
278*	11895	183261	55.01	+ 1.47	19 25.7	+20 9	+ 7.	7.15	B3 n	(−1.7)	0.63	8.2	54	54	26	54
279*	*11*	183537	55.21	+ 1.18	19 27.2	+20 11	−16.	6.39	B5 V	−1.0	0.39	7.0	54	11	25	54
280*	11536	177648	55.26	+ 7.68	19 2.5	+23 15	−14.	7.2:	B2 e	−3.6	0.99	9.8	32	32	32	32
281	12176	187323	55.79	− 3.74	19 46.5	+18 15	−36.	8.0	B5 n				58	58		
282	11750	180939	55.83	+ 4.60	19 15.5	+22 21	−21.4	6.9	B5	−1.0			43	45	43	
283	12560	191980	56.09	−10.09	20 9.8	+15 12	−33.	8.0	B5 n				58	58		
284*	11880	183013	56.11	+ 2.39	19 24.5	+21 33	− 6.1	7.23	B3	(−1.7)	0.75	8.2	54	54	26	54
285*	11822	182032	56.34	+ 3.75	19 19.8	+22 24	−17.8	7.7	B3	(−1.7)	0.81	8.6	54	54	26	54
286*	11751	180968	56.36	+ 4.86	19 15.6	+22 56	+ 1.	5.40	B0.5 IV:	−4.5	0.99	8.9	36	36	25	36
287*	12222	188001	56.49	− 4.32	19 50.1	+18 33	+ 9.	6.22	O8 f	(−7.0)	0.96	12.3	19	19	29	19
288*	12059	185859	56.65	− 1.00	19 38.3	+20 22	+ 5.2	6.49	B0.5 Ia	−6.8	1.77	11.5	17	17	25	17
289	12119	186703	56.67	− 2.30	19 43.1	+19 44	− 9.8	8.9	B3				58	58		
290*	11782	181360	56.77	+ 4.65	19 17.2	+23 12	−14.2	7.50	B3	(−1.7)	0.99	8.2	54	54	26	54
291*	11596	178540	56.88	+ 7.59	19 6.0	+24 39	−19.	6.66	B5	(−1.0)	0.51	7.2	54	54	26	54
292*	12175	187230	56.90	− 3.09	19 46.5	+19 32	− 3.	7.5	B2 III	−3.6	0.99	10.1	36	36	25	36
293*	11862	22°3687	56.91	+ 3.29	19 22.7	+22 41	− 1.9	9.38	B2 (V)pe	−3.6	2.61	10.4	17	17	33	17
294*	11477	176871	57.62	+ 9.64	18 59.3	+26 13	−14.	5.50	B5 V	−1.0	0.57	5.9	54	52	25	54
295	12297	188972	57.83	− 4.84	19 54.9	+19 26	− 7.9	8.6	B5 n				58	58		
296*	12339	189550	58.45	− 5.23	19 57.7	+19 45	−13.	7.5	B2 V	−2.5	0.63	9.4	54	16	25	54
297*	12098	186412	58.73	− 0.61	19 41.3	+22 22	−40.9	6.53	B5	(−1.0)	0.39	7.1	54	54	26	54
298*	11814	181963	59.04	+ 5.29	19 19.4	+25 30	−13.	7.26	B2 V	−2.5	0.99	8.8	54	16	25	54
299*	11817	181987	59.05	+ 5.24	19 19.6	+25 29	−15.1	7.3	B4	−1.0	1.02	7.3	54	45	45	54
300*	11769	181164	59.16	+ 6.11	19 16.4	+25 59	− 7.6	7.32	B3 s	(−1.7)	0.51	8.5	54	54	26	54
301	12091	22°3781	59.36	− 0.14	19 40.9	+23 9	+ 4.	9.75	B0 IV	−5.0	2.19	12.6	17	17	25	17
302*	12095	22°3782	59.39	− 0.15	19 41.0	+23 10	+20.	9.34	O7	−5.5	2.64	12.2	17	17	25	17
303*	11478	176914	59.56	+10.56	18 59.3	+28.20	− 5.5	6.78	B5 n	(−1.0)	0.51	7.3	54	54	26	54
304*	12208	187811	59.72	− 2.06	19 48.9	+22 29	−26.	4.94	B2.5 e	−3.6	0.09	8.4	32	32	32	32
305	12210	22°3836	59.94	− 1.96	19 49.0	+22 43	+ 4.	9.20	B1 II	−5.3	2.19	12.3	17	17	25	17
306*	12118	23°3759	60.28	− 0.19	19 43.1	+23 55	−21.	8.77	B0 II	−5.7	3.18	11.3	17	17	25	17
307	11704	180316	60.49	+ 7.65	19 13.0	+27 52	−10.	6.7	B5				58	58		
308*	12392	190066	60.69	− 4.54	20 0.2	+22 1	+15.8	6.48	B1 Iab	−6.3	1.08	11.7	17	17	25	17
309*	12003	184942	60.79	+ 2.54	1[illegible].3.8	+25 43	−17.1	7.46	B3	(−1.7)	0.87	8.3	54	54	26	54
310	12131	25°3952	61.47	+ 0.38	19 43.6	+25 14	+ 7.	10.15	O8	−5.2	2.82	12.5	17	17	25	17
311*	12546	191877	61.58	− 6.45	20 [illegible].2	+21 44	−18.	6.11	B1 Ib	−6.1	0.69	11.5	36	36	25	36
312*	12478	190993	62.48	− 4.64	20 4.7	+23 28	− 5.4	5.08	B3	−1.0	0.39	5.7	54	45	45	54
313	11852	182568	62.90	+ 6.62	19 22.2	+29 31	−21.	4.86	B3 IV	−2.5			52	52	25	
314	11722	180613	63.55	+ 8.94	19 14.0	+31 9	+ 8.8	6.8	B3				58	58		
315*	12024	185268	64.00	+ 3.98	19 35.2	+29 13	−20.1	6.26	B5 n	(−1.0)	0.33	6.9	54	54	26	54
316	11857	182616	64.20	+ 7.24	19 22.4	+30 57	−16.	7.2	B5				58	58		
317*	11790	181492	64.55	+ 8.58	19 17.6	+31 52	−18.6	6.64	B4	(−1.3)	0.45	7.5	54	54	26	54
318*	12625	192685	65.18	− 5.16	20 13.1	+25 26	− 2.	4.82	B3 V	−1.7	0.39	6.1	54	52	25	54
319*	11743	180844	65.33	+ 9.63	19 14.8	+33 2	−30.2	7.01	B5	(−1.0)	0.21	7.8	54	54	26	54
320*	12674	193220	65.61	− 5.72	20 16.2	+25 29	− 5.	6.78	B3	(−1.7)	0.51	8.0	54	54	26	54
321	12138	29°3732	65.74	+ 2.80	19 43.9	+30 8	+ 5.	9.7P	B2 V	−2.5			46	46	25	
322*	11781	181409	65.80	+ 9.30	19 17.2	+33 18	+10.	6.32	B3	(−1.7)	0.27	7.8	54	54	26	54
323	12525	191671	66.80	− 2.75	20 8.1	+28 7	− 1.	7.6	B4 n				58	58		
234*	12532	191746	66.99	− 2.74	20 8.5	+28 17	− 4.4	6.94	B2 V	−2.5	0.87	8.6	54	35	25	54
325*	12364	189779	67.06	− 0.12	19 58.6	+29 45	− 5.	8.22	B2 III	−3.6	1.02	10.8	17	17	25	17
326	12147	186980	67.39	+ 3.64	19 44.4	+31 59	+ 4.	7.48	O7.5	−5.3	1.20	11.6	17	17	25	17
327	12363	29°3842	67.47	+ 0.13	19 58.6	+30 14	+14.	10.11	B1 V:e?	−3.6	2.25	11.5	17	17	33	17
328*	11951	184171	67.98	+ 7.44	19 29.9	+34 21	−21.8	4.85	B3 IV	−2.5	0.39	7.0	54	52	25	54
329	12596	29°3944	68.45	− 2.64	20 11.8	+29 33	−10.	10.0P	B5 V	−1.0			46	46	25	
330*	12181	187459	68.81	+ 3.86	19 46.9	+33 19	−10.	6.44	B0.5 Ib	−6.1	1.20	11.3	17	17	25	17
331*	12609	192517	68.90	− 2.47	20 12.3	+30 1	−10.8	6.94	B3	−2.3	0.63	8.6	54	45	45	54
332*	12445	190603	69.49	+ 0.40	20 2.6	+32 5	+21.1	5.65	B1.5 Ia+	−6.8	2.10	10.4	17	17	44	17
333*	12608	192539	70.42	− 1.45	20 12.3	+31 51	−23.	7.29	B2 III	−3.6	1.11	9.8	17	17	25	17
334	*11*	227292	70.47	+ 1.47	20 0.8	+33 29	−20.	9.0P	B5 V	−1.0			11	11	25	
335*	11898	183362	70.70	+ 9.80	19 25.8	+37 50	−16.2	6.39	B2 e	−3.6	0.24	9.8	32	32	32	32
336	12660	193009	71.03	− 1.70	20 14.9	+32 13	−22.	7.02	B1 V:pnne	−3.6	1.32	9.3	36	36	33	36
337	12705	193683	71.16	− 2.54	20 18.5	+31 51	+14.2	7.40	B3 s	(−1.7)	0.33	8.8	54	54	26	54
338	12319	226868	71.34	+ 3.06	19 56.5	+35 4	−13.	8.89	B0 Ib	−6.2	3.21	11.9	17	17	25	17
339	*1*	191811	71.54	+ 0.21	20 8.7	+33 42	−14.	7.8P	B3 V	−1.7			1	1	25	
340*	12882	196243	71.56	− 6.11	20 33.1	+30 5	−22.	7.41	B5	(−1.0)	0.51	7.9	54	54	26	54
341	12348	227018	71.59	+ 2.86	19 58.0	+35 10	+41.	8.99	O7	−5.5	2.10	12.4	17	17	25	17
342	*1*	227920	71.73	+ 0.78	20 6.9	+34 10	−22.	8.9P	B3 V	−1.7			1	1	25	
343*	12481	227704	71.99	+ 1.47	20 4.8	+34 46	−10.	8.60	B0 III	−5.4	1.92	12.1	17	17	25	17
344*	12296	189066	72.06	+ 3.89	19 54.9	+36 7	−23.	6.04	B3	(−1.7)	0.39	7.4	54	54	26	54
345	12396	227245	72.17	+ 2.62	20 0.5	+35 32	−13.	9.74	O7	−5.5	2.82	12.4	17	17	25	17
346	12459	190864	72.46	+ 2.01	20 3.8	+35 27	+ 0.	7.76	O6	−5.5	1.56	11.7	17	17	25	17
347	12464	190919	72.55	+ 2.02	20 4.0	+35 32	−16.	7.30	B1 Ib	−6.1	1.44	12.0	36	36	25	36
348*	12414	190429	72.58	+ 2.62	20 1.6	+35 53	−16.	6.64	O5 f	−7.6	2.0	12.2	48	48	40	40
349	12415	A13312B	72.58	+ 2.62	20 1.6	+35 53	− 7.	7.2	O9 III	−6.5	1.7	12.0	48	48	40	40
350	12468	35°3956	72.63	+ 2.05	20 4.1	+35 37	−19.	8.85	B0.5 V	−4.0	1.41	11.4	17	17	25	17
351	12504	227877	72.64	+ 1.47	20 6.5	+35 19	−100.	9.2	B1:IV:nn	−4.1	1.17	12.1	36	36	25	36
352*	12465	190918	72.66	+ 2.06	20 4.1	+35 39	−21.8	7.12	O9.5 III+WN5	−5.7	1.86	11.0	36	47	25	36
353	12467	35°3955	72.67	+ 2.07	20 4.1	+35 40	− 6.2	7.3	B1 Ib	−6.1	1.20	12.2	36	36	25	36
354	12477	227696	72.68	+ 1.93	20 4.7	+35 36	−15.	8.3	B0.5 IV:	−4.5	1.50	11.3	36	36	25	36
355	*1*	191495	72.74	+ 1.42	20 7.0	+35 22	−10.	8.12	B0 V	−4.4	1.11	11.4	36	36	25	36
356*	12511	191566	72.75	+ 1.35	20 7.3	+35 20	−37.	7.7	B0.5 IV	−4.5	1.44	10.8	36	36	25	36
357	12512	191567	72.75	+ 1.35	20 7.3	+35 20	−29.	8.7	B2			(10.8)	58	58		
358*	13125	199140	72.75	−10.47	20 52.2	+28 20	−12.	6.44	B2 III	−3.6	0.51	9.5	36	36	25	36
359	12492	191201	72.76	+ 1.79	20 5.5	+35 35	− 5.4	7.12	B0 III	−5.4	1.38	11.1	36	36	25	36
360	12441	227460	72.88	+ 2.59	20 2.5	+36 7	−10.	9.9	B0.5:V	−4.0	3.48	10.4	36	36	25	36

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sources Sp. (15)	Sources M (16)	Sources A_V (17)
361*	12427	190467	72°94	+ 2°77	20h 1m9	+36°16′	+29.	8m21	B5 II:n	−4m0	0m93	11.3	17	17	25	17
362	12516	191612	72.99	+ 1.43	20 7.6	+35 35	−21.	7.8	O8	−5.2	1.71	11.3	36	36	25	36
363*	12350	189687	73.07	+ 3.75	19 58.1	+36 54	− 4.	5.22	B2 e	−3.6	0.18	8.6	32	32	32	32
364	12500	227836	73.17	+ 1.89	20 6.2	+35 59	−16.	9.6	B2::pne	(−3.6)	1.74	11.5	36	36	34	36
365	12461	227607	73.24	+ 2.49	20 3.9	+36 22	+ 5.	10.3	B2	−3.1	2.4	11.0	40	40	40	40
366	12552	A13486AB	73.26	+ 1.17	20 9.4	+35 40	−10.	9.3	B3				58	58		
367	12553	A13486D	73.26	+ 1.17	20 9.4	+35 40	− 3.	9.2	B3				58	58		
368	12544	191917	73.34	+ 1.30	20 9.1	+35 48	+ 4.	7.8	B1 III	−4.4	0.99	11.2	36	36	25	36
369	12860	196006	73.49	− 4.25	20 31.5	+32 44	−27.	7.08	B3 s	(−1.7)	0.39	8.4	54	54	26	54
370*	12514	191610	73.91	+ 2.03	20 7.6	+36 41	−13.6	4.99	B2.5 e	−3.6	0.12	8.5	32	32	32	32
371*	12591	192445	73.95	+ 1.07	20 11.7	+36 11	+ 4.	7.26	B2 e	−3.6	0.45	10.4	32	32	32	32
372	12044	185780	74.16	+ 9.08	19 37.3	+40 31	− 5.	7.47	B2	(−2.5)	0.57	9.4	54	54	26	54
373	12484	227728	74.65	+ 3.11	20 5.1	+37 53	−19.	9.9	B2	−3.1	1.0	12.0	40	40	40	40
374*	12653	192987	74.87	+ 0.99	20 14.6	+36 54	− 6.	6.32	B7	−1.6	0.21	7.7	54	45	45	54
375	12619	192639	74.91	+ 1.47	20 12.7	+37 12	− 2.	7.2	O8 f	−7.6	2.6	12.2	40	40	40	40
376*	12207	187879	75.21	+ 7.13	19 48.9	+40 28	− 3.9	5.62	B1 IV:	−4.1	0.81	8.9	36	36	25	36
377	12655	193007	75.37	+ 1.28	20 14.8	+37 29	+20.	8.0	B0.5 II	−5.5	1.9	11.6	58	31	25	24
378	12656	I4996	75.37	+ 1.28	20 14.8	+37 29	−18.	10.5	B1		1.92	10.9	58	58		24
379	12657	I4996	75.37	+ 1.28	20 14.8	+37 29	−58.	9.5	B0		1.92	10.9	58	58		24
380	12282	188891	75.54	+ 6.19	19 54.0	+40 16	−24.	7.22	B3	(−1.7)	0.45	8.5	54	54	26	54
381	12605	228461	75.58	+ 2.05	20 12.2	+38 5	+ 6.	9.47	B2 II:	−4.9	1.86	12.5	17	17	25	17
382*	12312	189178	75.66	+ 5.93	19 55.5	+40 14	−26.2	5.43	B3	−1.2	0.51	6.1	54	45	45	54
383*	12673	193237	75.83	+ 1.33	20 15.9	+37 53	− 8.9	4.9	Bp			10.9	58	37		37
384*	13095	198820	75.84	− 7.36	20 50.0	+32 40	−18.	6.35	B3 III	−2.9	0.57	8.7	36	36	25	36
385*	12670	193183	75.95	+ 1.51	20 15.5	+38 5	+ 0.	7.12	B1.5 Ib	−6.0	1.92	11.2	36	36	25	36
386*	12586	192422	75.96	+ 2.44	20 11.6	+38 37	− 1.7	7.09	B0.5 Ib	−6.1	2.10	11.1	17	17	25	17
387*	12744	194335	76.04	+ 0.03	20 21.9	+37 19	−31.	5.93	B2 e	−3.6	0.09	9.4	32	32	32	32
388*	12252	188461	76.15	+ 7.02	19 51.9	+41 13	−12.9	6.82	B3 s	(−1.7)	0.39	8.1	54	54	26	54
389	12696	193611	76.28	+ 1.17	20 17.9	+38 10	−11.1	9.2	B0 Vp	−4.4	2.55	11.0	58	36	25	36
390*	12980	197419	76.64	− 4.17	20 40.4	+35 17	− 6.8	6.50	B2:e	−3.6	0.45	9.6	54	32	33	54
391	12748	N6913	76.94	+ 0.57	20 22.3	+38 22	−31.	10.2	B0		3.06	10.3	58	58		24
392	12746	N6913	76.96	+ 0.61	20 22.2	+38 24	−32.	10.2	Be		3.06	10.3	58	58		24
393	12750	N6913	76.98	+ 0.58	20 22.4	+38 24	−32.	9.7P	B0		3.06	10.3	58	58		24
394	12752	N6913	76.98	+ 0.55	20 22.5	+38 23	−15.	9.9P	B0		3.06	10.3	58	58		24
395	12690	193514	76.99	+ 1.79	20 17.3	+39 6	−20.	7.3	O7 f			10.9	58	37		37
396	12711	229049	77.00	+ 1.36	20 19.2	+38 52	−17.	9.62	B2 III:p	−3.6	2.16	11.1	17	17	25	17
397	12749	N6913	77.00	+ 0.59	20 22.4	+38 25	−20.	10.8P	B0		3.06	10.3	58	58		24
398	12751	N6913	77.00	+ 0.59	20 22.4	+38 25	−16.	9.9P	B0		3.06	10.3	58	58		24
399	12580	192281	77.13	+ 3.40	20 10.8	+40 7	−60.	7.55	O5 f	(−7.0)	2.10	12.4	17	17	29	17
400*	13097	198846	77.25	− 6.23	20 50.1	+34 28	−56.8	7.1	B0 IV	−5.0	0.99	11.1	36	36	25	36
401*	12676	193322	78.10	+ 2.79	20 16.3	+40 35	− 7.	5.82	O8	−5.2	1.41	9.6	36	36	25	36
402	12692	228911	78.34	+ 2.65	20 17.6	+40 42	− 8.6	9.3	B2	−3.1			43	43	43	
403	12380	190025	78.35	+ 6.67	19 59.6	+42 54	−14.	7.29	B3	(−1.7)	0.51	8.5	54	54	26	54
404	12738	N6910	78.67	+ 2.01	20 21.4	+40 36	−29.	10.4P	B1		3.15	11.1	58	58		24
405	12740	194279	78.68	+ 1.99	20 21.5	+40 36	−30.5	7.01	B1.5 Ia	−7.0	3.60	10.4	17	17	25	17
406	12739	N6910	78.75	+ 2.06	20 21.4	+40 42	−38.	9.4P	O8		3.15	11.1	58	58		24
407	12772	194839	79.52	+ 1.87	20 24.6	+41 13	−21.1	7.49	B0.5 Ia	−6.8	3.60	10.7	17	17	25	17
408*	13090	198784	79.77	− 4.03	20 49.6	+37 48	− 4.	6.97	B3	−1.2	1.26	6.9	54	45	45	54
409*	12787	195089	80.19	+ 2.05	20 25.9	+41 52	− 6.6	7.24	B3	(−1.7)	0.75	8.2	54	54	26	54
410*	12706	193793	80.94	+ 4.18	20 18.8	+43 42	+21.	6.99	O6+WC6	−5.5	2.28	10.2	36	47	25	36
411*	13383	202904	80.98	−10.06	21 15.9	+34 41	+ 4.	4.45	B2 e	−3.6	0.33	7.7	32	32	32	32
412*	12227	188209	81.00	+10.09	19 50.5	+46 54	− 6.2	5.61	O9.5 III	−5.7	0.75	10.6	19	19	25	19
413*	13323	201819	81.06	− 8.08	21 9.1	+36 6	− 6.	6.40	B1 Vp	−3.6	0.57	9.4	36	36	25	36
414*	12243	188439	81.77	+10.33	19 51.5	+47 41	−65.	6.15	B0.5 IIIp	−4.9	0.57	10.5	36	36	25	36
415*	12230	188252	81.80	+10.52	19 50.6	+47 48	−18.3	5.70	B2 III	−3.6	0.51	8.8	36	36	25	36
416	13147	199356	82.02	− 3.13	20 53.5	+40 6	−13.	7.12	B2 IVp:	−3.3	1.17	9.2	17	17	25	17
417*	13131	199218	82.22	− 2.72	20 52.5	+40 31	−22.2	6.71	B6 e	−0.7	0.24	7.2	32	32	33	32
418*	12821	195592	82.36	+ 2.96	20 28.9	+44 9	−28.	7.08	O9.5 Ia	−6.4	3.36	10.1	17	17	25	17
419*	12689	193536	82.82	+ 5.80	20 17.2	+46 10	− 8.9	6.28	B2	−1.8	0.57	7.5	54	54	44	54
420	12850	195985	83.13	+ 3.04	20 31.1	+44 49	− 7.	7.50	B5	(−1.0)	0.57	7.9	54	54	26	54
421*	13479	204172	83.39	− 9.95	21 23.7	+36 27	+ 2.8	5.84	B0 Ib	−6.2	0.39	11.6	36	36	25	36
422	13146	199355	83.71	− 1.69	20 53.5	+42 19	−23.	6.9	B5				58	58		
423*	13491	204403	83.94	− 9.86	21 25.3	+36 54	−20.	5.20	B4	−1.9	0.33	6.8	54	45	45	54
424*	12948	197036	84.37	+ 2.51	20 37.7	+45 29	−15.1	6.46	B3 n	(−1.7)	0.63	7.5	54	54	26	54
425*	13326	201910	84.71	− 4.81	21 9.5	+40 59	−12.2	7.30	B5 n	(−1.0)	0.39	7.9	54	54	26	54
426*	13112	199081	84.91	− 0.19	20 51.5	+44 12	−19.5	4.68	B5 V	−1.0	0.39	5.3	54	52	25	54
427*	12849	195965	85.70	+ 5.00	20 30.8	+48 3	+10.	6.98	B0 V	−4.4	0.75	10.6	17	17	25	17
428*	13160	199579	85.70	− 0.30	20 54.8	+44 44	− 5.8	5.96	O6	−5.5	1.11	10.4	17	17	25	17
429*	13065	198478	85.75	+ 1.50	20 47.2	+45 56	− 7.2	4.83	B3 Ia	−7.1	1.56	10.4	17	17	25	17
430	13455	203731	85.87	− 6.70	21 20.9	+40 29	+ 5.1	7.52	B2 e	−3.6	1.17	10.0	32	32	32	32
431*	12816	195556	86.07	+ 5.75	20 28.5	+48 47	−22.	4.89	B2 V	−2.5	0.57	6.8	54	52	25	54
432*	13077	198625	86.28	+ 1.70	20 48.2	+46 28	−15.	6.48	B4 n	(−1.3)	0.81	7.0	54	54	26	54
433*	13207	200310	87.16	− 0.09	20 59.4	+45 58	−10.	5.43	B1 e	−3.6	0.12	8.9	32	32	32	32
434*	13394	203064	87.61	− 3.84	21 16.6	+43 44	+ 1.	5.06	O8	−5.2	0.84	9.4	36	36	25	36
435*	13308	201733	87.70	− 1.68	21 8.2	+45 18	+ 9.	6.64	B3 e	−2.5	0.21	8.9	32	32	33	32
436*	13191	200120	88.02	+ 0.97	20 58.1	+47 19	+ 1.	4.49	B1 e	−3.6	0.69	7.4	32	32	32	32
437	13345	202347	88.22	− 2.08	21 11.9	+45 24	− 9.	7.47	B1 V	−3.6	0.69	10.4	36	36	25	36
438*	12982	197511	88.38	+ 4.99	20 40.7	+50 10	− 3.3	5.41	B3	−2.3	0.63	7.1	54	45	45	54
439	13533	205060	88.44	− 6.39	21 29.6	+42 29	− 7.	7.22	B6 e	−0.7	0.45	7.5	32	32	33	32
440*	13126	199216	88.93	+ 3.03	20 52.3	+49 21	− 6.6	7.03	B1 II	−5.3	2.16	10.2	17	17	25	17
441*	13014	235350	89.35	+ 5.15	20 43.7	+51 1	−18.	9.27	B0.5 IV	−4.5	1.71	12.1	17	17	25	17
442*	13318	201836	89.36	− 0.26	21 8.8	+47 29	− 8.8	6.36	B5	(−1.0)	0.69	6.7	54	54	26	54
443*	13368	202654	90.16	− 0.68	21 13.9	+47 46	−26.	6.32	B5 n	(−1.0)	0.39	6.9	54	54	26	54
444*	13522	204860	90.16	− 4.18	21 28.1	+45 16	− 1.	6.96	B5 n	(−1.0)	0.51	7.4	54	54	26	54
445*	12770	194883	90.41	+ 9.60	20 24.2	+54 31	−27.6	7.37	B3 e	−2.5	0.48	9.4	32	32	33	32
446*	13498	204536	90.65	− 3.15	21 26.1	+46 21	−15.	6.88	B4	−1.4	0.69	7.6	54	45	45	54
447*	13413	203245	91.71	− 0.07	21 17.8	+49 18	−23.	5.65	B5	(−1.0)	0.51	6.1	54	54	26	54
448	13569	47°3487	92.54	− 3.08	21 34.0	+47 41	−30.	9.12	B5 keq	−2.7	2.52	9.3	17	60	60	17
449*	12994	197770	93.88	+ 9.00	20 42.0	+56 56	−15.	6.36	B2 s	(−2.5)	1.80	7.1	54	54	26	54
450*	13250	200857	94.25	+ 5.59	21 2.4	+55 2	−14.	9.66	B3 III	−2.9	2.28	10.3	17	17	25	17

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sources Sp. (15)	Sources M (16)	Sources A_V (17)
451*	13162	199661	94°.82	+ 7°.48	20h54m.9	+56°42′	−19.	6m.14	B3	(−1m.7)	0m.27	7.6	54	54	26	54
452*	13694	207330	94.83	− 3.21	21 44.9	+49 5	−12.3	4.26	B3 III	−2.9	0.51	6.6	36	36	25	36
453*	13637	206672	95.48	+ 1.29	21 40.3	+50 58	− 8.2	4.78	B3 V	−1.7	0.51	6.0	54	52	25	54
454	13473	204116	96.38	+ 3.57	21 22.9	+55 10	−23.	7.96	B1 Ve	−3.6	2.25	9.3	36	36	33	36
455*	13693	207329	96.62	− 1.06	21 44.9	+51 53	−25.	7.60	B1.5 Ib?e	−6.0	1.38	12.2	17	17	25	17
456*	13889	209961	96.64	− 6.01	22 3.9	+47 59	−17.8	6.16	B3	(−1.7)	0.51	7.4	54	54	26	54
457*	13720	207793	97.40	− 0.94	21 48.3	+52 28	− 8.6	6.60	B0.5 III	−4.9	1.98	9.5	17	17	25	17
458*	14058	212120	97.80	− 8.87	22 19.0	+46 17	− 9.5	4.66	B6 IV	−0.7	0.39	5.0	54	52	25	54
459*	13384	203025	97.99	+ 6.53	21 15.9	+58 24	−17.4	6.42	B1.5 e	−3.6	1.41	8.6	32	32	32	32
460*	13336	202214	98.52	+ 7.99	21 10.5	+59 47	−16.2	5.63	B0 V	−4.4	1.23	8.8	17	17	25	17
461*	13537	205196	98.57	+ 4.42	21 30.1	+57 17	−14.	7.45	B0 Ib	−6.2	2.37	11.3	17	17	25	17
462	13696	235618	98.72	+ 1.40	21 45.2	+55 7	− 5.	9.66	B1 IV	−4.1	2.82	10.9	17	17	25	17
463*	13388	239626	99.11	+ 7.54	21 16.3	+59 54	−19.	9.74P	B0.5 III–IV	−4.7	3.06	11.6	50	10	25	50
464*	13605	206267	99.29	+ 3.74	21 37.4	+57 16	− 7.8	5.62	O6	−5.5	1.59	9.5	19	19	25	19
465*	13643	206773	99.79	+ 3.62	21 40.8	+57 30	−22.	6.91	B0 V:pe	−4.4	1.53	9.8	17	17	25	17
466	13472	204150	100.19	+ 7.46	21 22.9	+60 36	−37.	7.61	B0 n	(−4.4)	0.87	11.1	54	54	26	54
467	13524	204964	100.37	+ 6.66	21 28.4	+60 9	−19.	7.5	B3				58	58		
468*	13415	203374	100.52	+ 8.63	21 17.9	+61 39	− 7.	6.64	B0 IVpe	−5.0	1.86	9.8	36	36	25	36
469*	13535	205139	100.54	+ 6.62	21 29.6	+60 14	−14.5	5.52	B1 II	−5.3	1.11	9.7	36	36	25	36
470*	14051	212044	100.62	− 4.35	22 18.3	+51 36	−13.6	6.98	B1:V:pnne	−3.6	0.90	9.7	17	17	33	17
471	13312	201888	100.81	+10.41	21 8.4	+63 5	−23.5	6.5	B5				58	58		
472	*10*	210072	100.84	− 0.38	22 4.5	+55 0	−28.	7.65	B2 V	−2.5	1.65	8.5	17	17	25	17
473*	13833	209296	101.07	+ 1.27	21 58.9	+56 28	−32.	8.28	B6:V:n	−0.7	1.20	7.8	17	17	25	17
474*	13701	207538	101.59	+ 4.68	21 46.1	+59 28	−14.6	7.31	B0 V	−4.4	1.89	9.8	17	17	25	17
475*	14099	212791	101.65	− 4.31	22 23.8	+52 11	−13.	8.09	B2.5 e	−3.6	0.57	11.1	32	32	32	32
476*	13943	210628	101.77	− 0.02	22 8.4	+55 50	−22.	6.92	B6:V:	−0.7	0.72	6.9	17	17	25	17
477*	14197	214240	101.79	− 7.15	22 33.8	+49 49	−15.3	6.20	B3	−1.9	0.81	7.3	54	54	44	54
478	*10*	57°1515	101.95	+ 1.68	22 2.3	+57 19	−32.	9.4P	B3 IV	−2.5			10	10	25	
479*	14170	235874	101.96	− 5.94	22 30.9	+50 57	−56.	9.64	B3 III	−2.9	0.60	11.9	17	17	25	17
480	13608	206327	102.01	+ 6.78	21 37.6	+61 20	−30.	8.7	B2	(−2.5)	1.05	10.2	54	54	26	54
481*	13847	209481	102.01	+ 2.19	22 0.4	+57 46	−11.	5.50	O9 V	−5.4	1.08	9.8	36	36	28	36
482*	13597	206165	102.27	+ 7.24	21 36.6	+61 51	−13.2	4.87	B2 Ib	−6.0	1.50	9.4	36	36	25	36
483*	13420	203467	102.74	+10.70	21 18.3	+64 40	−18.	5.14	B2 e	−3.6	0.63	8.1	32	32	32	32
484*	14140	213322	103.06	− 3.06	22 27.4	+53 59	−10.1	6.59	B5	(−1.0)	0.75	6.8	54	54	26	54
485	13688	207308	103.10	+ 6.81	21 44.3	+62 4	−23.	7.6	B0.5 V	−4.0	1.68	9.9	36	36	25	36
486*	13677	207198	103.14	+ 7.00	21 43.5	+62 14	−18.4	5.96	O9 II	−6.1	1.86	10.2	19	19	25	19
487*	13867	209744	103.28	+ 3.49	22 2.3	+59 34	−17.4	6.7	B1 V	−3.6		9.3	58	37	25	37
488*	13799	208905	103.53	+ 5.16	21 55.8	+61 3	−22.	6.98	B1 Vp?	−3.6	1.05	9.5	17	17	25	17
489*	13959	210839	103.83	+ 2.61	22 9.8	+59 10	−74.	5.05	O6 f	−6.5	1.71	9.8	17	17	28	17
490	13758	61°2213	103.94	+ 6.49	21 51.6	+62 21	−25.	9.5	B3				58	58		
491	13763	61°2215	103.98	+ 6.48	21 51.9	+62 22	−34.	10.0	B3				58	58		
492*	13753	208218	103.99	+ 6.62	21 51.2	+62 29	−21.8	6.76	B1 III:	−4.4	1.74	9.4	36	36	25	36
493*	13767	208392	104.04	+ 6.46	21 52.4	+62 23	−25.7	7.10	B1 IV:	−4.1	1.68	9.5	36	36	25	36
494	13770	208440	104.05	+ 6.43	21 52.6	+62 22	−14.	8.8	B2				58	58		
495	13842	209454	104.08	+ 5.06	21 59.9	+61 18	−17.	7.9	B3 n	(−1.7)	1.14	8.5	54	54	26	54
496*	14407	217050	104.23	− 9.99	22 54.9	+48 25	−11.3	5.48	B3 e	−2.5	0.39	7.6	32	32	33	32
497*	13835	209339	104.58	+ 5.87	21 59.2	+62 15	−20.2	6.48	B0 IV	−5.0	1.05	10.4	36	36	25	36
498*	13884	209975	104.87	+ 5.39	22 3.6	+62 2	−12.8	5.10	O9.5 Ib	−6.2	1.02	10.3	17	17	25	17
499*	13786	208682	105.89	+ 8.45	21 54.2	+65 5	−14.5	5.88	B2 e	−3.6	0.51	9.0	32	32	32	32
500*	14538	218674	106.47	− 9.92	23 7.0	+49 23	− 4.	6.53	B3.5	−1.6	0.84	7.3	54	45	45	54
501*	13801	208947	106.55	+ 9.00	21 55.9	+65 55	+ 2.4	6.28	B3	−1.5	0.69	7.1	54	45	45	54
502*	14504	218344	106.64	− 8.44	23 4.3	+50 49	−12.7	7.17	B3	(−1.7)	0.39	8.5	54	54	26	54
503	14161	239989	106.67	+ 2.30	22 30.2	+60 26	−37.	10.09P	B3.5 V	−1.5	1.98	9.8	50	46	25	50
504*	14314	215835	107.06	− 0.90	22 44.9	+57 49	−35.4	8.59	O6 n	−5.5	1.95	12.1	17	17	25	17
505	14319	N7380	107.15	− 0.85	22 45.3	+57 54	−44.	10.4P	B0		1.74	11.6	58	58		24
506	14322	N7380	107.21	− 0.88	22 45.8	+57 54	−23.	10.5P	B2		1.74	11.6	58	58		24
507*	14357	216411	108.04	− 0.35	22 49.6	+58 45	−44.	7.20	B1 Ia	−6.9	2.34	11.8	17	17	25	17
508*	14509	236044	108.17	− 5.08	23 4.8	+54 30	−37.	9.60	B1 V	−3.6	1.38	11.8	17	17	25	17
509*	14114	213087	108.50	+ 6.39	22 25.5	+64 53	−14.7	5.46	B0.5 Ib	−6.1	1.71	9.8	17	17	25	17
510*	14460	240171	108.57	− 2.67	23 0.6	+56 52	−19.	9.90	B1 V	−3.6	1.32	12.2	17	17	25	17
511*	14456	217817	109.63	− 0.17	23 0.3	+59 35	−33.3	6.87	B3	(−1.7)	0.87	7.7	54	54	26	54
512*	14506	218376	109.95	− 0.78	23 4.5	+59 9	− 8.5	4.84	B0.5 IV	−4.5	0.72	8.6	17	17	25	17
513*	14466	217943	109.99	+ 0.33	23 1.3	+60 11	−17.	6.57	B3	(−1.7)	0.87	7.4	54	54	26	54
514*	14280	215371	110.05	+ 5.72	22 41.3	+65 4	−23.	6.76	B3	(−1.7)	0.81	7.6	54	54	26	54
515*	14515	218440	110.14	− 0.54	23 5.1	+59 27	− 4.6	6.28	B2 V	−2.5	0.87	7.9	54	35	25	54
516*	14327	216014	110.38	+ 5.25	22 46.1	+64 48	−20.6	6.8v	B0.5 V:nn	−4.0	1.77	9.0	17	17	25	17
517*	14421	217297	110.82	+ 3.52	22 56.6	+63 26	−10.1	7.36	B1.5 V	−3.0	1.71	8.6	36	36	25	36
518	14577	K19	110.94	− 1.01	23 12.3	+59 19	−68.	11.0P	B1 V	−3.6	3.36	11.4	50	46	25	50
519	14475	218066	111.24	+ 2.98	23 2.0	+63 7	− 9.9	7.62	B1:V:	−3.6	1.98	9.2	17	17	25	17
520*	14499	218342	111.39	+ 2.73	23 4.1	+62 57	−13.	7.38	B0 IV	−5.0	2.13	10.2	17	17	25	17
521	14592	K19	111.39	− 0.38	23 13.9	+60 4	−76.	11.3P	B1.5 V	−3.0	2.97	11.5	50	46	25	50
522*	14681	220562	111.40	− 3.36	23 21.8	+57 16	− 3.7	6.76	B3.5	−1.8	1.41	7.2	54	45	45	54
523*	14151	213571	111.41	+10.53	22 28.6	+69 55	−17.9	7.16	B3.5	−0.7	0.60	7.3	54	45	45	54
524	*6*	220016	111.59	− 1.20	23 17.6	+59 22	+ 2.	8.0P	B3 V	−1.7			6	6	25	
525*	14523	218537	111.72	+ 3.05	23 5.7	+63.22	−35.9	6.27	B3 V	−1.7	0.51	7.5	5	35	25	5
526	14782	221711	112.08	− 5.74	23 31.8	+55 13	− 4.8	7.41	B3	(−1.7)	0.99	8.1	54	54	26	54
527*	14640	220057	112.13	+ 0.22	23 17.8	+60 53	−41.	6.82	B5	−0.8	0.87	6.8	54	45	45	54
528*	14737	221253	112.46	− 2.66	23 27.7	+58 16	−15.9	4.89	B3	−1.2	0.39	5.7	54	54	44	54
529*	14542	218723	112.48	+ 4.43	23 7.2	+64 56	−12.3	6.62	B3	−0.7	0.87	6.4	54	45	45	54
530*	14561	219063	112.57	+ 3.87	23 10.0	+64 27	+14.2	7.22	B5	(−1.0)	0.63	7.6	54	54	26	54
531	14698	K19	112.67	− 0.45	23 23.8	+60 26	−24.	11.30P	B3.5 V	−1.5	3.63	9.4	50	46	25	50
532	*6*	240312	112.73	− 1.63	23 27.2	+59 20	+ 8.	8.6P	B2 V	−2.5			6	6	25	
533*	14587	219523	112.75	+ 3.31	23 13.4	+64 0	−14.	7.07	B5	−0.6	0.75	6.9	54	45	45	54
534*	14889	223152	112.76	−10.35	23 44.5	+50 58	− 4.	7.47	B5	(−1.0)	0.63	7.8	54	54	26	54
535	*6*	240344	113.94	− 1.18	23 35.3	+60 7	−19.	9.2P	B5 V	−1.0			6	6	25	
536*	14967	224151	115.43	− 4.64	23 53.0	+57 8	−25.5	6.00	B0.5 II	−5.5	1.44	10.1	17	17	25	17
537*	15004	224572	115.56	− 6.36	23 56.5	+55 29	−12.6	4.93	B1 V	−3.6	0.63	7.9	36	36	25	36
538	15005	A17140B	115.56	− 6.36	23 56.5	+55 29	− 5.	7.0	B3			(7.9)	58	58		
539*	14919	223501	115.82	+ 0.19	23 47.4	+61 56	−38.	7.79	B2.5 e	−3.6	0.81	10.6	32	32	32	32
540	14954	223987	116.18	− 0.51	23 51.7	+61 20	−43.	7.54	B1.5 Ib	−6.0	2.04	11.5	17	17	25	17

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sp. (15)	M (16)	A_V (17)
541*	14991	224424	116°20	− 2°46	23h55m2	+59°26′	−71.	8m09	B1 Iab	−6m3	2m73	11.7	17	17	25	17
542*	14956	224055	116.29	− 0.29	23 52.2	+61 34	−42.	7.17	B3 Ia	−7.1	2.49	11.8	17	17	25	17
543*	14887	223128	116.59	+ 4.71	23 44.2	+66 30	−14.	5.94	B3	−1.7	0.63	7.0	54	45	45	54
544*	15037	224905	116.83	− 1.82	23 59.1	+60 11	−16.9	8.47	B1 Vn	−3.6	1.23	10.8	17	17	25	17
545*	25	225257	116.87	− 3.79	0 2.3	+58 15	+11.	7.12	B3	−0.6	0.87	6.8	54	43	43	54
546*	15030	224868	116.87	− 1.44	23 58.8	+60 34	−15.	7.36	B4	−1.2	1.08	7.5	54	45	45	
547	*10*	62°1499	117.10	+ 0.90	23 56.8	+62 54	−28.	9.2P	B5 IV	−1.8			10	10	25	
548	*10*	60°0001	117.14	− 1.66	0 1.3	+60 24	+ 0.	9.6P	B4 IV	−2.1			10	10	25	
549*	9	225094	117.63	+ 1.27	0 0.8	+63 22	−43.	6.24	B3 Ia	−7.1	1.35	12.0	17	17	25	
550*	84	593	117.78	− 2.78	0 7.9	+59 24	− 3.	6.69	B1 V	−3.6	0.87	9.4	17	17	25	17
551*	217	1976	118.69	−10.62	0 21.6	+51 45	−12.	5.56	B5 IV	−1.8	0.15	7.2	17	17	25	17
552	163	1383	119.02	− 0.89	0 15.6	+61 27	−40.	7.63	B1 II	−5.3	1.50	11.4	17	17	25	17
553	201	1743	119.51	− 0.48	0 19.3	+61 55	−32.	8.7	B0 III	−5.4	1.62	12.5	36	36	25	36
554*	206	1810	119.61	− 0.44	0 20.1	+61 58	−47.	8.4	B0 IV	−5.0	1.50	11.9	36	36	25	36
555*	246	2329	119.83	− 4.17	0 24.9	+58 17	−14.	7.43	B3 V	−1.7	0.81	8.3	17	17	25	17
556	257	2451	120.32	− 0.25	0 26.0	+62 14	−48.	8.73	B0.5 IV	−4.5	1.41	11.8	17	17	25	17
557	270	2654	120.53	− 0.42	0 27.9	+62 5	− 1.	7.31	B3	(−1.7)	0.99	8.0	54	54	26	54
558*	337	3360	120.78	− 8.92	0 34.2	+53 37	+ 2.1	3.72	B2 V	−2.5	0.24	6.0	4	4	25	54
559*	301	2905	120.83	+ 0.13	0 30.1	+62 39	− 2.3	4.16	B1 Ia	−6.9	0.96	10.1	17	17	25	17
560*	229	2083	120.91	+ 9.04	0 22.9	+71 32	− 5.	6.89	B1 V	−3.6	0.87	9.6	17	17	25	17
561*	386	3950	121.56	−10.51	0 39.8	+52 4	−92.	6.93	B0	(−4.4)	1.29	10.0	54	54	26	54
562*	342	3366	121.91	+10.05	0 34.6	+72 37	−15.1	7.06	B3 s	(−1.7)	0.99	7.8	54	54	26	54
563*	467	4768	122.81	− 3.20	0 47.5	+59 24	−39.	7.57	B5 Ib	−5.8	1.38	12.0	17	17	25	17
564*	478	4841	122.93	+ 0.92	0 48.4	+63 31	−26.	6.86	B5 Ia	−7.0	1.95	11.9	17	17	25	17
565	490	5005	123.14	− 6.25	0 50.0	+56 21	−24.	7.9	O6	−5.5	1.11	12.3	36	36	25	36
566*	526	5394	123.58	− 2.14	0 53.7	+60 27	− 6.8	2.25	B0 IV:e	−5.0	1.11	6.1	36	36	25	36
567	534	5458	123.62	− 0.31	0 54.3	+62 17	−42.	9.1	B2 n	(−2.5)	1.44	10.2	54	54	26	54
568	545	5551	123.69	+ 0.86	0 55.2	+63 27	−51.	7.71	B1.5 Ib	−6.0	2.37	11.2	17	17	25	17
569	601	6182	124.40	− 1.00	1 0.8	+61 34	−43.	8.23	B1 Ibp	−6.1	1.95	12.4	17	17	25	17
570*	618	6343	124.40	+ 3.14	1 2.6	+65 42	− 7.8	7.25	B7 e	−0.4	0.84	6.8	32	32	25	32
571*	622	6417	124.89	− 5.07	1 3.0	+57 29	−24.	7.10	B5	(−1.0)	0.75	7.4	54	54	26	54
572	645	K8	124.97	− 2.27	1 4.9	+60 16	+ 6.	10.16P	B1.5 V	−3.0	1.59	11.8	50	46	25	50
573	677	K8	125.41	− 3.13	1 7.9	+59 23	−12.	11.50P	B2.5 V	−2.1			46	46	25	
574*	683	236644	125.63	− 5.17	1 8.4	+57 20	−59.	9.61P	B3 V	−1.7	0.27	11.2	50	46	25	50
575*	703	7252	125.68	− 1.87	1 10.9	+60 37	− 2.5	7.12	B1 V	−3.6	1.05	9.7	17	17	25	17
576	748	AQ Cas	126.13	− 0.32	1 15.8	+62 7	−20.	10.0v	B3+B9				58	58		
577*	738	236683	126.28	− 3.81	1 14.2	+58 38	−31.	9.80P	B2 V	−2.5	0.69	11.8	50	46	25	50
578*	739	7636	126.42	− 5.07	1 14.3	+57 22	−14.	6.61	B1.5 e	−3.6	1.17	9.0	32	32	32	32
579	747	N457	126.55	− 4.48	1 15.7	+57 56	−37.	9.8	B3 e		1.41	12.3	58	58		24
580	752	N457	126.59	− 4.45	1 16.0	+57 58	−37.	9.9	B3		1.41	12.3	58	58		24
581	757	N457	126.63	− 4.41	1 16.4	+58 0	−42.	10.0	B3		1.41	12.3	58	58		24
582	758	N457	126.63	− 4.41	1 16.4	+58 0	−55.	9.7	B1		1.41	12.3	58	58		24
583*	760	7902	126.68	− 4.47	1 16.7	+57 56	−31.	6.93	B6 Ib	−5.7	1.38	11.2	17	17	25	17
584	743	7694	126.71	− 7.25	1 14.8	+55 10	− 8.9	7.41	B1 V	−3.6	0.57	10.4	36	36	25	36
585*	854	9105	127.39	+ 0.81	1 27.9	+63 5	−38.	7.47	B5 Iab	−6.3	1.89	11.9	17	17	25	17
586*	842	8965	127.69	− 2.26	1 26.6	+60 0	+ 1.	7.28	B0.5 V	−4.0	0.90	10.4	17	17	25	17
587*	867	9311	128.03	− 1.77	1 29.9	+60 26	−39.	7.26	B5 Ib	−5.8	1.56	11.5	36	36	25	36
588	868	A1209B	128.03	− 1.77	1 29.9	+60 26	−37.	10.1	B3			(11.5)	58	58		
589	869	N581	128.06	− 1.81	1 30.1	+60 23	−43.	9.2	B3		1.11	12.1	58	58		24
590	*6*	9365	128.10	− 1.82	1 30.4	+60 22	+ 5.	8.1P	B3				6	6		
591*	901	236800	128.59	− 2.43	1 33.5	+59 41	−25.	9.56	B1 III:n	−4.4	1.68	12.3	17	17	25	17
592	*6*	60°0182	128.68	− 1.78	1 35.1	+60 19	− 4.	8.7P	B3				6	6		
593	*6*	10362	129.05	− 0.84	1 39.5	+61 10	− 5.	6.4P	B5 Ib	−5.8			6	6	25	
594*	939	236827	129.26	− 2.67	1 38.3	+59 20	−42.	9.49P	B3.5 V	−1.5	1.53	9.7	50	46	25	50
595	*6*	61°0179	129.47	− 0.91	1 42.8	+61 1	− 9.	8.6P	(B5)				6	6		
596	990	GC2142	129.51	− 0.90	1 43.1	+61 1	−33.	9.1	B3				58	58		
597*	1052	11415	129.85	+ 1.64	1 50.8	+63 25	− 8.1	3.44	B3 p	(−1.7)	0.27	4.9	4	4	26	54
598*	1040	236896	130.43	− 1.51	1 49.3	+60 13	−48.	9.86P	B5 V	−1.0	1.44	9.6	50	46	25	50
599*	1139	12509	130.78	+ 2.65	2 1.3	+64 9	−17.2	7.09	B1 III	−4.4	1.83	9.7	17	17	25	17
600	*1*	11734	131.05	− 1.84	1 53.5	+59 45	−24.	8.7P	B2 IV	−3.3			1	1	25	
601*	1064	11606	131.07	− 2.57	1 52.3	+59 2	+12.5	7.03	B2 e	−3.6	0.93	9.7	32	32	32	32
602	1423	15472	131.13	+ 9.71	2 28.9	+70 43	−45.	7.87	B3 e	−2.5	0.81	9.6	32	32	33	32
603	*7*	11859	131.21	− 1.75	1 54.9	+59 48	+ 6.	7.9P	B5 III	−2.2			7	7	25	
604*	1036	11241	131.58	− 6.71	1 48.7	+54 54	− 3.	5.49	B2 V	−2.5	0.06	7.9	54	35	25	54
605*	1113	12302	131.81	− 1.96	1 59.1	+59 26	+ 2.	8.06	B1:V:pe	−3.6	1.53	10.1	17	17	33	17
606	*1*	12150	132.03	− 3.43	1 57.7	+57 58	−58.	8.4P	B2 IV	−3.3			1	1	25	
607*	1089	236917	132.29	− 5.50	1 55.6	+55 54	−27.	9.83P	B4 Vnea	−1.3	0.87	10.5	50	46	25	50
608	*7*	62°0193	132.85	+ 1.80	2 16.6	+62 43	−19.	9.8P	B5 V	−1.0			7	7	25	
609	1148	12709	132.92	− 4.11	2 2.7	+57 4	−16.	7.7P	B4 IV	−2.1			10	10	25	
610*	1206	236954	133.30	− 2.04	2 10.0	+58 56	−49.	9.40	B3 Ib–II	−5.2	2.40	12.2	17	17	25	17
611	*1*	13420	133.44	− 2.65	2 9.6	+58 19	−69.	9.6P	B4 III	−2.5			1	1	25	
612	*10*	13656	133.51	− 2.03	2 11.6	+58 53	− 7.	9.2P	B3 V	−1.7			10	10	25	
613	1166	12981	133.63	− 5.19	2 5.4	+55 50	−32.	9.5	B3				58	58		
614	1199	56°0444	133.81	− 4.24	2 8.6	+56 41	−18.4	9.2	B3				58	58		
615	*10*	13506	133.84	− 3.60	2 10.3	+57 17	−33.	9.2P	B2 V	−2.5			10	10	25	
616*	1232	13716	133.99	− 3.29	2 12.1	+57 32	−50.	8.27	B0.5 III	−4.9	1.80	11.4	17	17	25	17
617*	1221	13561	134.21	− 4.55	2 10.7	+56 16	−44.	8.83	B0.5 V:p?	−4.0	1.11	11.7	17	17	25	17
618*	1249	13841	134.38	− 3.93	2 13.3	+56 48	−39.	7.37	B2 Ib	−6.0	1.17	12.2	17	17	25	17
619*	1253	13854	134.38	− 3.91	2 13.3	+56 49	−43.	6.47	B1 Iab	−6.3	1.38	11.4	17	17	25	17
620*	1247	13831	134.45	− 4.22	2 13.1	+56 30	−47.	8.26	B0 IIIp?	−5.4	1.20	12.5	17	17	25	17
621*	1256	13866	134.51	− 4.22	2 13.5	+56 29	−45.	7.48	B2 Ib	−6.0	1.05	12.4	17	17	25	17
622*	1350	236960	134.58	− 1.51	2 20.8	+59 1	−45.	9.76	B0.5 III	−4.9	2.19	12.5	17	17	25	17
623*	1261	13970	134.62	− 4.25	2 14.2	+56 25	−27.	8.5	B5 n	(−1.0)	0.96	8.5	54	54	26	54
623*	1282	14134	134.64	− 3.74	2 15.5	+56 54	−43.7	6.55	B3 Ia	−7.1	1.77	11.9	17	17	25	17
625	1283	56°0527	134.65	− 3.73	2 15.6	+56 54	−33.4	8.4	B3				58	58		
626*	1284	14143	134.65	− 3.70	2 15.7	+56 56	−41.7	6.65	B2 Ia	−7.1	2.04	11.7	17	17	25	17
627*	1286	14162	134.68	− 3.70	2 15.9	+56 55	−37.	9.37	B0.5 V	−4.0	1.98	11.4	17	17	25	17
628	1424	15558	134.73	+ 0.92	2 28.9	+61 14	−50.	7.82	O6	−5.5	2.61	10.7	36	36	25	36
629	1431	15629	134.77	+ 1.01	2 29.5	+61 18	−38.	8.42	O5	−5.5	2.25	11.7	17	17	25	17
630*	1299	14250	134.80	− 3.72	2 16.7	+56 52	−48.	8.96	B0.5 V:n	−4.0	1.80	11.2	17	17	25	17

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sources Sp. (15)	Sources M (16)	Sources A_V (17)
631	1352	14707	134°91	− 2°35	2h20m9	+58° 7′	−30.	9m89	B0.5 III	−4m9	2m49	12.3	17	17	25	17
632	1226	13661	134.94	− 6.38	2 11.5	+54 18	−50.	8.6	B3 ne				58	58		
633*	1311	14357	135.00	− 3.89	2 17.6	+56 38	−41.1	8.52	B2 II	−4.9	1.59	11.8	17	17	25	17
634*	1320	14443	135.00	− 3.59	2 18.4	+56 55	−39.5	8.04	B2 Ib	−6.0	1.53	12.5	17	17	25	17
635*	1318	14434	135.07	− 3.81	2 18.3	+56 41	−20.	8.48	O6	−5.5	1.44	12.5	17	17	25	17
636*	1306	14302	135.10	− 4.42	2 17.0	+56 6	−43.	8.57	B1 II–III	−4.9	1.53	11.9	17	17	25	17
637	1344	14605	135.40	− 4.03	2 20.0	+56 22	−28.	9.34	B0.5 (V)pe	−4.0	1.65	11.7	17	17	25	17
638*	1369	14956	135.43	− 2.86	2 23.2	+57 27	−24.	7.17	B2 Ia	−7.1	2.64	11.6	17	17	25	17
639*	1357	14818	135.61	− 3.94	2 21.7	+56 23	−46.	6.21	B2 Ia	−7.1	1.41	11.9	17	17	25	17
640	1385	15124	135.75	− 3.17	2 24.6	+57 3	−10.3	8.2	B4 n				58	58		
641*	1403	15325	135.98	− 3.10	2 26.4	+57 2	−33.	8.51	B1 IV	−4.1	2.04	10.6	17	17	25	17
642*	1420	15571	136.22	− 2.81	2 28.8	+57 13	−42.	8.33	B1 II:	−5.3	2.43	11.2	17	17	25	17
643*	1294	14220	136.25	− 8.02	2 16.2	+52 20	−45.8	7.04	B5	−1.1	0.63	7.5	54	45	45	54
644*	1436	15690	136.32	− 2.66	2 29.9	+57 19	−35.	8.02	B1.5 Ib	−6.0	2.46	11.6	17	17	25	17
645*	1447	236971	136.60	− 2.60	2 32.0	+57 16	−51.	9.55	B1 IV	−4.1	2.28	11.4	17	17	25	17
646*	1589	237011	137.18	+ 1.05	2 47.7	+60 21	−43.	9.5	(B2 III)	−3.6	2.04	11.1	49	49	25	49
647*	1586	17505	137.19	+ 0.91	2 47.3	+60 13	−17.	7.06	O7	−5.5	2.16	10.4	17	17	25	17
648*	1606	237015	137.38	+ 0.96	2 48.8	+60 11	−15.	9.4	(B3 II)	−4.4	2.04	11.8	49	49	25	49
649	1700	18876	137.45	+ 3.99	3 1.2	+62 50	− 2.9	7.4	B5				58	58		
650*	1824	20336	137.46	+ 7.06	3 15.6	+65 28	+20.	4.76	B2 Ve	−3.6	0.39	8.0	4	4	33	54
651*	1652	18352	137.73	+ 2.15	2 55.8	+61 5	− 1.5	6.80	B1 V	−3.6	1.47	8.9	17	17	25	17
652*	1650	18326	138.02	+ 1.50	2 55.4	+60 22	−40.	7.82	O8	−5.2	2.07	11.0	17	17	25	17
653*	1730	19243	138.13	+ 3.65	3 4.8	+62 12	−24.7	6.72	B1 V:e	−3.6	1.44	8.9	17	17	33	17
654	1783	19968	139.46	+ 2.96	3 11.5	+60 56	− 7.	8.0	B5				58	58		
655*	1797	20134	140.17	+ 2.16	3 13.0	+59 53	−15.	7.45	B2 e	−3.6	1.14	9.9	32	32	32	32
656	2207	23982	141.64	+ 7.42	3 48.7	+63 20	−13.	8.05	B2.5 e	−3.6	1.47	10.2	32	32	32	32
657*	1963	237153	142.82	+ 2.23	3 30.6	+58 29	−39.	9.97P	B3 III	−2.9	5.85	7.2	50	46	25	50
658*	1727	19268	143.15	− 5.22	3 4.5	+52 1	+ 6.	6.17	B5	(−1.0)	0.75	6.4	54	54	26	54
659	2295	25090	143.18	+ 7.34	3 58.5	+62 17	− 3.	7.28	B1 s	(−3.6)	1.92	9.0	54	54	26	54
660	2340	N1502	143.65	+ 7.64	4 3.2	+62 12	−10.	10.3	B3		2.31	9.7	58	58		24
661	2339	N1502	143.66	+ 7.62	4 3.1	+62 11	−51.	10.1	B3		2.31	9.7	58	58		24
662	2341	N1502	143.66	+ 7.65	4 3.3	+62 12	−10.	10.0	B3		2.31	9.7	58	58		24
663*	2344	25639	143.67	+ 7.66	4 3.4	+62 12	−17.	7.1	B0 n			(10.3)	58	58		
664*	2345	25638	143.67	+ 7.66	4 3.4	+62 12	− 9.	7.0	B0 II–III	−5.6	2.31	10.3	36	36	25	36
665*	2328	25443	143.68	+ 7.35	4 1.7	+61 58	− 1.6	6.74	B0.5 III	−4.9	1.83	9.8	17	17	25	17
666	2351	N1502	143.70	+ 7.68	4 3.7	+62 12	−23.	9.8	B3		2.31	9.7	58	58		24
667*	1992	22253	144.27	+ 0.93	3 33.8	+56 35	+ 5.	6.53	B0.5 III	−4.9	1.83	9.6	17	17	25	17
668*	2087	237174	144.73	+ 2.25	3 42.3	+57 22	−13.	9.26P	B3 V	−1.7	0.75	10.4	50	46	25	50
669	2296	25132	145.48	+ 4.73	3 58.5	+58 49	−16.	7.22	B5				30	30		
670*	1819	20365	145.61	− 6.06	3 15.1	+50 2	− 5.	5.30	B3 V	−1.7	0.51	6.5	54	35	25	54
671*	1823	20418	145.74	− 6.12	3 15.6	+49 55	+ 3.	5.08	B3	−1.1	0.45	5.7	54	43	43	54
672	1781	20017	145.91	− 7.68	3 11.4	+48 30	−28.	7.91	B7 e	−0.4	1.23	7.1	32	32	25	32
673*	1862	20809	146.78	− 6.50	3 19.7	+49 2	+ 4.8	5.30	B5	−1.2	0.45	6.0	54	43	43	54
674*	1910	21428	147.45	− 5.70	3 25.8	+49 20	− 1.	4.67	B5 V	−1.0	0.63	5.0	54	52	25	54
675*	1897	21278	147.53	− 6.19	3 24.5	+48 53	+ 7.	4.94	B3 V	−1.7	0.87	5.8	54	52	25	54
676*	2160	23675	148.11	− 1.29	3 45.7	+52 30	+ 2.	6.72	B0.5 III	−4.9	2.10	9.5	17	17	25	17
677*	2182	23800	148.32	− 1.34	3 46.6	+52 20	−18.	6.94	B1 IV	−4.1	1.74	9.3	17	17	25	17
678*	2241	24431	148.83	− 0.71	3 51.8	+52 30	− 9.9	6.72	O9 IV–V	−5.3	2.07	10.0	17	17	25	17
679*	1984	22192	149.17	− 6.09	3 32.9	+48 2	+ 0.3	4.21	B5 e	−1.0	0.24	5.0	32	32	25	32
680	6	25141	149.45	+ 0.12	3 58.4	+52 44	+24.	8.5P	B5 V	−1.0			6	6	25	
681*	1911	21448	149.99	− 9.37	3 25.8	+44 53	−12.	7.6	B2.5	−2.6	1.80	8.4	54	43	43	54
682*	2039	22928	150.29	− 5.76	3 39.4	+47 38	− 9.	3.03	B5 III	−2.2	0.06	5.2	27	27	25	27
683*	1950	21803	150.61	− 9.18	3 29.2	+44 41	+3.7	6.40	B2 IV	−3.3	0.81	8.9	17	17	25	17
684*	3004	32343	150.99	+10.79	5 1.8	+58 54	−11.	5.22	B2 e	−3.6	0.45	8.4	32	32	32	32
685	2354	25787	151.03	− 0.38	4 4.0	+51 19	+ 4.	7.5	B3				58	58		
686*	2236	24432	151.12	− 3.49	3 51.8	+48 54	−10.8	6.82	B3 II	−4.4	2.19	9.0	17	17	25	17
687	2646	A3274B	151.91	+ 3.94	4 28.0	+53 48	− 1.	6.6	B1				58	58		
688*	2647	28446	151.92	+ 3.95	4 28.1	+53 48	− 7.	5.86	B0 III	−5.4	1.29	10.0	36	36	25	36
689	2247	24504	151.94	− 4.32	3 52.4	+47 44	+ 9.8	5.3	B7	−0.8			43	43	43	
690*	2451	232932	152.49	+ 0.31	4 13.8	+50 50	− 8.	9.33P	B5 V	−1.0	1.02	9.5	50	46	25	50
691*	2476	27192	152.81	+ 0.57	4 16.4	+50 48	−18.	5.54	B2 IV	−3.3	0.87	8.0	4	4	25	54
692*	2365	25940	153.65	− 3.05	4 5.0	+47 35	+ 3.	4.03	B3 e	−2.5	0.54	6.0	32	32	33	32
693	2250	24560	153.90	− 6.54	3 52.8	+44 47	−10.	8.14	B2 e	−3.6	1.38	10.4	32	32	32	32
694*	2770	232999	155.72	+ 3.14	4 40.8	+50 27	+ 1.	9.37	B1 IV	−4.1	2.46	11.0	17	17	25	17
695*	2448	26906	155.75	− 3.12	4 13.7	+46 6	−14.	7.9	B1.5	−3.5	1.29	10.1	54	45	45	54
696*	2507	27396	156.08	− 2.41	4 17.9	+46 23	+ 1.3	4.89	B6 III	−1.9	0.51	6.3	54	52	25	54
697*	2560	27795	156.79	− 2.17	4 21.8	+46 3	−21.	7.16	B3 s	(−1.7)	1.62	7.2	54	54	26	54
698*	2266	24760	157.36	−10.09	3 54.5	+39 52	− 1.	2.96	B0.5 V	−4.0	0.51	6.4	36	36	25	36
699	2399	26420	158.00	− 6.65	4 9.2	+42 0	+ 3.	7.86	B3 e	−2.5	1.56	8.8	32	32	33	32
700	7	45°0462	159.26	− 0.28	4 39.4	+45 32	−20.	8.6P	B3 V	−1.7			7	7	25	
701	7	29180	159.34	− 1.58	4 34.2	+44 36	−12.	8.0P	B2 V	−2.5			7	7	25	
702	2891	K24	160.29	+ 1.60	4 51.4	+45 58	−45.	11.2P	B(4) Vneγ	−1.3	2.1	10.6	50	46	25	50
703	2786	K24	160.71	− 0.74	4 42.8	+44 8	−12.	10.6P	B2 Ve	−3.6	2.49	11.9	50	46	33	50
704	2899	K24	161.17	+ 0.94	4 51.7	+44 52	+ 1.	10.8P	B4 V	−1.3	2.37	9.9	50	46	25	50
705	7	30004	161.28	− 1.36	4 42.3	+43 18	− 1.	8.6P	B3 V	−1.7			7	7	25	
706	7	30481	161.28	− 0.33	4 46.6	+43 58	−24.	9.4P	B5 V	−1.0			7	7	25	
707*	2850	30650	161.80	− 0.44	4 48.0	+43 30	+34.	7.37	B5 n	(−1.0)	0.63	7.7	54	54	26	54
708*	3119	33988	162.21	+ 4.77	5 12.7	+46 22	−26.	6.88	B2 e	−3.6	1.47	9.0	32	32	32	32
709	11	44°0498	162.48	+ 1.52	4 58.8	+44 12	+32.	10.0P	B5 V	−1.0			11	11	25	
710	2935	31617	162.88	+ 0.51	4 55.8	+43 16	+ 3.5	7.42	B2 IV	−3.3	0.72	10.0	17	17	25	17
711*	2769	29866	163.05	− 3.29	4 40.7	+40 42	+41.	6.06	B7:e	−0.4	0.63	5.8	32	32	25	32
712	3071	33357	165.19	+ 1.61	5 8.2	+42 6	+ 3.	8.40	B1:(V)n(e)	−3.6	0.78	11.2	17	17	33	17
713*	3018	32630	165.35	+ 0.27	5 3.0	+41 10	+ 7.4	3.28	B3 V	−1.7	0.27	4.7	54	35	25	54
714	3065	33232	166.00	+ 0.77	5 7.2	+40 57	+ 9.3	8.16	B3:e	−2.5	0.81	9.8	32	32	33	32
715*	3195	34759	166.57	+ 2.93	5 18.3	+41 45	+ 5.	5.12	B5	−0.8	0.39	5.5	54	43	43	54
716	3086	33604	166.94	+ 0.69	5 9.8	+40 9	+ 7.	7.26	B2 V:pe	−3.6	0.87	10.0	17	17	33	17
717	3053	33088	167.02	− 0.23	5 6.2	+39 32	+10.2	8.1v	B3+B3				58	58		
718	3020	32672	167.55	− 1.33	5 3.3	+38 27	+ 4.8	7.7:	B3	(−1.7)	0.99	8.4	54	54	26	54
719*	3524	37657	167.57	+ 6.78	5 38.7	+43 2	+47.8	7.10	B2 e	−3.6	1.08	9.6	32	32	32	32
720*	2917	31327	168.15	− 4.41	4 53.0	+36 5	− 5.	6.06	B2 Ib	−6.0	1.71	10.4	17	17	25	17

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sp. (15)	M (16)	A_V (17)
721	2705	29309	168°95	− 9°95	4h35m0	+31°54′	+18.4	7m1	B3				58	58		
722*	3062	33203	168.95	− 1.50	5 6.9	+37 14	+ 8.6	6.17	B2 II:+K?	−4m9	2m85	8.2	36	36	25	36
723	3056	33152	169.14	− 1.72	5 6.6	+36 57	− 4.1	8.10	B2 e	−3.6	1.65	10.0	32	32	32	32
724*	3180	34656	170.04	+ 0.26	5 17.3	+37 23	+ 0.	6.71	O7	−5.5	1.50	10.7	36	36	25	36
725	3210	34921	170.05	+ 0.72	5 19.2	+37 38	− 9.	7.51	B0 IV:pe	−5.0	1.32	11.2	17	17	25	17
726*	3842	41541	170.23	+10.68	6 4.3	+42 40	+ 4.6	6.88	B5	(−1.0)	0.75	7.1	54	54	26	54
727	3146	34333	170.44	− 0.58	5 15.0	+36 34	− 1.1	7.56	B5	(−1.0)	1.14	7.4	54	54	26	54
728	3175	34576	170.62	− 0.24	5 16.9	+36 37	− 0.4	7.38	B5 n	(−1.0)	0.75	7.6	54	54	26	54
729*	3123	34078	172.09	− 2.26	5 13.0	+34 15	+59.1	5.81	O9.5 V	−4.6	1.38	9.0	36	36	25	36
730*	3307	35921	172.77	+ 0.61	5 26.4	+35 20	−29.	6.81	O9.5 III	−5.7	1.50	11.0	17	17	25	17
731	2843	30675	173.60	−10.21	4 47.7	+28 14	+20.	7.7	B3	−0.5			44	44	44	
732	3281	35653	173.72	− 0.50	5 24.5	+33 55	+ 3.	7.44	B0.5 V	−4.0	1.20	10.2	17	17	25	17
733	3416	N1960	174.51	+ 1.04	5 32.8	+34 7	− 5.	9.2	B4		0.72	10.5	58	58		24
734	3432	N1960	174.51	+ 1.11	5 33.1	+34 9	− 1.	8.6	B3		0.72	10.5	58	58		24
735	3443	N1960	174.52	+ 1.13	5 33.2	+34 9	−18.	8.8	B3		0.72	10.5	58	58		24
736	3430	N1960	174.53	+ 1.10	5 33.1	+34 8	+ 2.	9.5	B3		0.72	10.5	58	58		24
737	3445	N1960	174.53	+ 1.17	5 33.4	+34 10	+ 8.	9.0	B2 e		0.72	10.5	58	58		24
738	3408	N1960	174.54	+ 1.03	5 32.8	+34 5	− 7.3	9.8	B3		0.72	10.5	58	58		24
739*	3429	GC6941	174.55	+ 1.09	5 33.1	+34 6	+11.	8.5	B3		0.72	10.5	58	58		24
740	3433	N1960	174.55	+ 1.09	5 33.1	+34 6	−10.	9.2	B2		0.72	10.5	58	58		24
741	3439	N1960	174.55	+ 1.11	5 33.2	+34 7	−14.	9.3	B5		0.72	10.5	58	58		24
742	3434	N1960	174.58	+ 1.07	5 33.1	+34 4	−25.	9.7	B4		0.72	10.5	58	58		24
743	3444	N1960	174.64	+ 1.10	5 33.4	+34 2	− 8.	8.7	B3		0.72	10.5	58	58		24
744	3497	245967	175.00	+ 1.76	5 37.0	+34 5	+ 8.	10.5P	B3 V	−1.7	2.6	9.8	50	46	25	50
745*	3363	36371	175.78	− 0.61	5 29.5	+32 9	− 0.2	4.88	B5 Iab	−6.3	1.14	10.0	36	36	25	36
746*	3016	32656	177.17	− 8.69	5 2.8	+26 22	+16.9	6.56	B5 n	(−1.0)	0.81	6.8	54	54	26	54
747	3487	37366	177.63	− 0.11	5 36.2	+30 52	+21.	7.52	B5	(−1.0)	0.75	7.8	54	54	26	54
748*	3484	37367	179.04	− 1.03	5 36.1	+29 11	+30.	6.00	B2 V	−2.5	1.32	7.2	4	4	25	54
749	3659	248890	179.08	+ 2.77	5 51.2	+31 8	−13.	10.4P	B3.5 V	−1.5	0.5	11.6	50	46	25	50
750*	3041	32990	179.26	− 9.56	5 5.1	+24 12	+16.2	5.50	B2 V	−2.5	1.11	6.9	4	4	25	54
751*	3658	39477	179.62	+ 2.40	5 51.0	+30 29	+ 4.	7.46	B5 n	(−1.0)	1.38	7.1	54	54	26	54
752*	3011	32641	179.90	−10.73	5 2.6	+23 0	+ 1.	6.66	B5 n	(−1.0)	1.02	6.6	54	54	26	54
753*	3355	36374	180.10	− 3.50	5 29.3	+26 57	+20.	7.11	B5	−1.2	1.32	7.0	54	45	45	54
754*	3494	37438	181.90	− 2.72	5 36.6	+25 52	+14.8	5.00	B2 V	−2.5	0.39	7.1	4	4	25	54
755*	3826	41398	182.27	+ 3.88	6 3.0	+28 56	+17.9	7.46	B2 Ib	−6.0	1.44	12.0	17	17	25	17
756*	3549	38010	182.76	− 2.19	5 40.6	+25 25	+19.	6.86	B1 V:pe	−3.6	1.11	9.4	36	36	33	36
757*	3397	36819	182.96	− 4.52	5 32.4	+24 0	+22.6	5.28	B3 V	−1.7	0.57	6.4	4	4	25	54
758	3578	247331	182.98	− 1.61	5 43.3	+25 32	−14.	8.73P	B3 Vneγ	−2.5			46	46	33	
759*	3282	35708	183.75	− 7.17	5 24.6	+21 54	+14.4	4.83	B3 V	−1.7	0.33	6.2	4	4	25	54
760*	3712	40111	183.97	+ 0.84	5 54.9	+25 57	+ 8.	4.81	B1 Ib	−6.1	0.36	10.6	17	17	25	17
761	3277	243780	184.10	− 7.46	5 24.4	+21 27	+21.	9.94P	B3 V+F8	−1.7			46	46	25	
762*	3250	35395	184.59	− 8.39	5 22.2	+20 32	+11.5	6.83	B0.5 III:	−4.9	1.86	9.9	36	36	25	36
763*	3545	37967	184.62	− 3.43	5 40.3	+23 11	+19.1	6.21	B3 e	−2.5	0.42	8.3	32	32	33	32
764*	3468	37202	185.69	− 5.63	5 34.7	+21 7	+24.3	3.00	B2 III:p	−3.6	0.33	6.3	4	4	25	54
765*	3754	N2129	186.57	+ 0.12	5 57.9	+23 20	+15.	10.1	B3		2.01	11.6	58	58		24
766*	3758	250289	186.58	+ 0.14	5 58.0	+23 20	+11.	8.27	B2 III:e	−3.6	2.40	9.5	17	17	33	17
767*	3759	23°1149	186.62	+ 0.14	5 58.1	+23 18	+14.2	7.38	B3 Ib	−5.9	2.19	11.1	17	17	25	17
768*	3273	35671	187.06	− 9.43	5 24.2	+17 55	+19.	5.31	B5 V	−1.0	0.51	5.8	4	4	25	54
769*	3377	36576	187.40	− 7.84	5 30.6	+18 30	+44.	5.50	B3 ne	(−2.5)	0.81	7.2	54	54	34	54
770	3245	35349	187.41	−10.31	5 21.9	+17 9	+13.6	7.9	B5 n				58	58		
771*	3874	42087	187.76	+ 1.77	6 6.7	+23 7	+16.	5.76	B2.5 Ib	−5.9	1.02	10.6	17	17	25	17
772*	3973	43384	187.99	+ 3.53	6 13.9	+23 46	+13.2	6.23	B3 Iab	−6.3	1.71	10.8	17	17	25	17
773*	3259	35532	188.01	−10.32	5 23.2	+16 39	+31.4	6.18	B3 n	(−1.7)	0.51	7.4	54	54	26	54
774*	4003	43818	188.50	+ 3.88	6 16.3	+23 29	+18.2	6.92	B0 II	−5.7	1.74	10.9	17	17	25	17
775*	3850	41690	188.60	+ 0.74	6 4.6	+21 53	+15.5	7.71	B1 V	−3.6	1.44	9.9	17	17	25	17
776*	3672	39698	188.97	− 2.88	5 52.0	+19 45	+ 7.2	5.89	B2 V	−2.5	0.51	7.9	4	4	25	54
777*	3995	254755	189.10	+ 3.34	6 15.5	+22 42	+ 9.	8.84	O9 V:p?	−4.8	2.73	10.9	17	17	25	17
778*	3799	41117	189.69	− 0.87	6 0.9	+20 8	+16.8	4.71	B2 Ia	−7.1	1.26	10.6	36	36	25	36
779	3875	42088	190.03	+ 0.50	6 6.7	+20 31	+23.4	7.55	O6	−5.5	1.17	11.9	17	17	25	17
780*	3520	37711	190.09	− 7.31	5 38.4	+16 31	+21.	4.87	B3 IV	−2.5	0.39	7.0	4	4	25	54
781	3918	253214	190.70	+ 0.85	6 9.4	+20 6	− 6.	9.47	B1.5:V:nn	−3.0	1.47	11.0	17	17	25	17
782*	*11*	42896	190.81	+ 1.22	6 11.0	+20 11	− 7.	8.59	B1:V:nn	−3.6	0.57	11.6	17	17	25	17
783*	3381	36653	191.09	− 9.99	5 31.1	+14 16	+19.1	5.58	B3	(−1.7)	0.51	6.8	54	54	26	54
784	3657	39508	191.95	− 4.93	5 50.9	+16 9	−29.6	8.2	B3 n				58	58		
785*	3699	40005	192.16	− 4.18	5 54.0	+16 21	+32.	6.91	B2.5	−1.4	0.69	7.6	54	45	45	54
786*	4059	256413	192.16	+ 3.18	6 21.1	+19 56	+17.	8.93	B5 III	−2.2	1.53	9.6	17	17	25	17
787*	4070	44811	192.40	+ 3.21	6 21.7	+19 44	+10.	8.42	O7.5 V	−5.3	1.35	12.4	17	17	25	17
788*	4131	45542	192.42	+ 4.35	6 26.0	+20 15	+39.4	4.15	B6 e	−0.7	0.09	4.8	32	32	25	32
789*	3812	41285	192.84	− 2.36	6 2.0	+16 40	− 5.	7.5:	B5 n	(−1.0)	0.45	8.0	54	54	26	54
790*	3594	38622	193.18	− 7.33	5 44.9	+13 53	+28.3	5.20	B2 V	−2.5	0.33	7.4	4	4	25	54
791*	3671	39680	194.07	− 5.88	5 51.9	+13 51	−18.	7.99	O6:pe	−5.5	1.02	12.5	17	17	25	17
792*	3912	42545	194.13	− 1.11	6 9.2	+16 9	+22.	4.92	B5 V	−1.0	0.15	5.8	4	4	25	54
793*	3868	41997	194.14	− 1.99	6 6.0	+15 43	−18.	8.42	O7	−5.5	2.10	11.8	17	17	25	17
794	3684	Z Ori	194.35	− 5.73	5 53.0	+13 41	+ 2.	9.6v	B3				58	58		
795*	3851	41753	194.80	− 2.72	6 4.7	+14 47	+22.1	4.40	B3 V	−1.7	0.12	6.0	54	35	25	54
796	3686	39882	195.01	− 6.05	5 53.2	+12 57	+14.	8.3	B5				58	58		
797*	3855	41909	195.58	− 2.93	6 5.5	+14 0	− 1.	8.8	B3		0.54	10.2	58	58		24
798*	3862	41943	195.62	− 2.90	6 5.7	+13 59	+15.	7.8	B2		0.54	10.2	58	58		24
799	3863	A4728B	195.62	− 2.90	6 5.7	+13 59	+23.	8.5	B1		0.54	10.2	58	58		24
800	3864	252266	195.63	− 2.91	6 5.7	+13 58	+17.8	9.0	B3 n		0.54	10.2	58	58		24
801*	3860	252248	195.65	− 2.95	6 5.6	+13 56	+32.	8.8	B5		0.54	10.2	58	58		24
802	3882	252680	195.71	− 2.53	6 7.2	+14 5	−16.	8.8	B2				58	58		
803	4201	46264	195.78	+ 3.72	6 30.2	+16 59	− 4.	7.9	B5				58	58		
804*	3911	42560	195.81	− 2.07	6 9.1	+14 13	+24.	4.35	B3 V	−1.7	0.27	5.8	54	52	25	54
805	3861	252249	195.84	− 3.05	6 5.6	+13 43	− 6.	9.0	B5				58	58		
806*	3893	42352	196.16	− 2.57	6 8.0	+13 40	+14.	6.67	B3	−3.8	0.75	9.7	54	45	45	54
807*	4053	44637	196.34	+ 0.81	6 20.6	+15 8	+20.	8.03	B2 V:pe	−3.6	1.44	10.2	17	17	33	17
808*	4029	44172	196.42	+ 0.11	6 18.2	+14 44	−30.	7.29	B5	−0.5	0.27	7.5	54	45	45	54
809*	3948	43112	196.49	− 1.56	6 12.3	+13 52	+36.	5.81	B1 V	−3.6	0.00	9.4	36	36	25	36
810*	4108	45314	196.96	+ 1.52	6 24.4	+14 55	+10.	6.64	O9? pe	(−4.8)	1.38	10.1	17	17	26	17

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sp. (15)	M (16)	A_V (17)
811*	4564	51354	197°55	+ 9°40	6h54m8	+17°58′	+ 8.4	7m12	B3 e	−2m5	0m06	9.6	32	32	33	32
812	3896	42401	197.65	− 3.33	6 8.2	+12 0	+ 8.	7.7	B4	−1.5			45	45	45	
813	3798	250980	198.82	− 6.03	6 0.9	+ 9 40	− 1.	9.18P	B2 Vneβ	−3.6			46	46	33	
814*	4026	44173	199.00	− 1.31	6 18.1	+11 47	+18.8	6.43	B5 n	(−1.0)	0.39	7.0	54	54	26	54
815	4097	45122	199.22	+ 0.02	6 23.3	+12 13	+ 8.	8.5	B5				58	58		
816*	3920	42655	199.25	− 3.85	6 9.5	+10 21	+ 6.5	7.43	B5	(−1.0)	0.51	7.9	54	54	26	54
817*	4080	44965	199.56	− 0.41	6 22.4	+11 43	+27.	7.82	B3 II	−4.4	1.47	10.8	17	17	25	17
818	4102	257366	200.41	− 0.40	6 24.1	+10 58	− 3.	8.9	B3 e				58	58		
819*	4160	45995	200.63	+ 0.68	6 28.4	+11 17	−20.	6.15	B2 V:nne	−3.6	0.48	9.3	17	17	33	17
820*	3929	42908	200.85	− 4.30	6 11.0	+ 8 44	+41.	8.18	B3 e	−2.5	0.72	10.0	32	32	33	32
821*	3913	42597	201.82	− 5.31	6 9.3	+ 7 24	+23.	6.91	B2	(−2.5)	0.57	8.8	54	54	26	54
822	4163	258853	201.92	+ 0.03	6 28.5	+ 9 50	−11.	9.0	B3				58	58		
823*	4261	46883	202.04	+ 1.33	6 33.4	+10 20	+16.	8.1	B0.5:V	−4.0	2.04	10.1	36	36	25	36
824	4370	262677	202.10	+ 3.35	6 40.8	+11 13	−16.	9.0	B5				58	58		
825*	4334	47839	202.93	+ 2.20	6 38.2	+ 9 57	+33.2	4.68	O7	−5.5	0.30	9.9	36	36	25	36
826*	4323	9°1331	202.95	+ 2.05	6 37.7	+ 9 52	+18.	7.8	B5 n		0.30	9.4	58	58		24
827	4312	47469	202.96	+ 1.68	6 36.4	+ 9 41	− 5.7	7.8	B5				58	58		
828*	4348	47961	203.03	+ 2.28	6 38.7	+ 9 54	+23.3	7.47	B2.5 V	−2.1	0.24	9.3	57	57	25	57
829*	4327	47777	203.13	+ 2.04	6 38.0	+ 9 42	+ 6.	7.9	B3		0.30	9.4	58	58		24
830	4344	262013	203.23	+ 2.12	6 38.5	+ 9 39	+ 2.3	9.0	B5 n				58	58		
831*	4341	47887	203.34	+ 2.04	6 38.4	+ 9 31	+19.3	7.14	B2 III:	−3.6	0.18	10.6	17	17	25	17
832*	3956	43285	203.43	− 5.13	6 13.0	+ 6 5	+26.	6.04	B5 e	−1.0	0.15	6.9	32	32	25	32
833*	4216	259597	203.49	− 0.16	6 30.8	+ 8 22	+38.	8.57	B0.5:V:nne	−4.0	1.26	11.3	17	17	25	17
834	4235	259954	203.58	+ 0.10	6 31.9	+ 8 24	−16.	9.21	B2 IV	−3.3	0.90	11.6	17	17	25	17
835	4345	262042	203.58	+ 1.97	6 38.6	+ 9 16	+ 2.	8.6	B3				58	58		
836	4225	259828	203.76	− 0.10	6 31.5	+ 8 9	+11.	11.06P	B5 V	−1.0			46	46	25	
837	4316	261490	204.14	+ 1.17	6 36.8	+ 8 24	−16.	8.6	B3				58	58		
838	4148	45789	204.15	− 1.51	6 27.2	+ 7 9	+ 5.	7.9	B3				58	58		
839	4264	260537	204.38	+ 0.22	6 33.8	+ 7 45	− 8.2	8.8	B5				58	58		
840*	4403	48977	204.72	+ 2.83	6 43.8	+ 8 39	+10.3	5.84	B3	(−1.7)	0.21	7.3	54	54	26	54
841	4509	266098	204.84	+ 4.96	6 51.7	+ 9 31	− 0.5	8.4	B2				58	58		
842*	3805	41253	204.89	− 9.20	6 1.4	+ 2 52	+33.8	7.5	B4	−0.8	0.93	7.4	45	45	45	54
843*	3958	43317	205.02	− 5.95	6 13.1	+ 4 18	+13.	6.44	B4	−1.0	0.45	7.0	54	45	45	54
844*	4155	45910	205.33	− 1.94	6 27.9	+ 5 54	− 1.	6.77	B2:III:pe	−3.6	1.68	8.7	17	17	33	17
845*	4306	47417	205.35	+ 0.35	6 36.1	+ 6 57	+32.	6.97	B0 IV	−5.0	0.93	11.0	17	17	25	17
846	4377	262938	205.49	+ 1.78	6 41.5	+ 7 29	− 9.9	9.0	B5				58	58		
847*	4263	46966	205.81	− 0.53	6 33.8	+ 6 8	+38.	6.88	O8	−5.2	0.81	11.3	17	17	25	17
848*	4277	47129	205.87	− 0.31	6 34.7	+ 6 11	+24.5	6.08	O8	−5.2	1.11	10.2	17	17	25	17
849	4257	46846	205.96	− 0.78	6 33.2	+ 5 53	+ 5.	8.8	B3 n				58	58		
850	*1*	46469	206.04	− 1.42	6 31.1	+ 5 31	+ 9.	8.5P	B2 V	−2.5			1	1	25	
851	4488	50228	206.09	+ 3.82	6 49.9	+ 7 53	− 1.	7.8	B5				58	58		
852*	4173	46106	206.20	− 2.09	6 29.0	+ 5 4	+13.	8.1	B0.5 V	−4.0		10.7	58	37	25	37
853*	4352	48099	206.20	+ 0.80	6 39.3	+ 6 24	+31.	6.38	O6	−5.5	0.81	11.1	17	17	25	17
854*	4180	46149	206.22	− 2.04	6 29.2	+ 5 4	+34.	7.61	O8	−5.2	1.50	11.3	17	17	25	17
855	4179	5°1281	206.31	− 2.09	6 29.2	+ 4 58	+23.	9.2P	B4				58	58		
856*	4181	46150	206.31	− 2.06	6 29.3	+ 4 59	+36.3	6.76	O6	−5.5	1.35	10.9	17	17	25	17
857	4182	N2244	206.32	− 2.07	6 29.3	+ 4 58	+34.	10.4P	B3		1.65	11.1	58	58		24
858*	4192	46202	206.32	− 2.01	6 29.5	+ 5 0	+25.	8.16	O9 V	−4.8	1.20	11.8	36	36	25	36
859*	4167	46056	206.34	− 2.25	6 28.7	+ 4 52	+18.	8.15	O8	−5.2	1.50	11.8	17	17	25	17
860	4171	259012	206.35	− 2.20	6 28.9	+ 4 53	− 1.4	9.0	B4				58	58		
861*	4054	44700	206.37	− 4.52	6 20.7	+ 3 47	+29.	6.25	B3 IV	−2.5	0.45	8.3	4	4	25	54
862	4189	N2244	206.38	− 2.07	6 29.4	+ 4 55	+34.	9.7P	B3		1.65	11.1	58	58		24
863*	4191	46223	206.43	− 2.07	6 29.5	+ 4 52	+43.4	7.28	O5	−5.5	1.62	11.2	17	17	25	17
864*	4258	46867	206.44	− 1.01	6 33.3	+ 5 21	+16.	8.30	B0.5 V	−4.0	1.50	10.8	17	17	25	17
865	4154	245911	206.68	− 2.68	6 27.8	+ 4 22	+ 0.2	7.9	B3				58	58		
866	*1*	46484	206.79	− 1.75	6 31.3	+ 4 42	+18.	7.74	B1 V	−3.6	1.86	9.5	17	17	25	17
867*	4222	46485	206.90	− 1.84	6 31.2	+ 4 34	+14.	8.27	O8	−5.2	1.92	11.6	17	17	25	17
868*	4289	47240	206.97	− 0.75	6 35.2	+ 5 0	+36.	6.15	B1 Ib	−6.1	0.96	11.3	17	17	25	17
869*	4268	47032	207.08	− 1.12	6 34.1	+ 4 44	+10.	8.83	B0 III	−5.4	2.25	12.0	17	17	25	17
870	4298	47359	207.10	− 0.65	6 35.8	+ 4 56	− 2.	8.8	B2 e				58	58		
871	7	47089	207.15	− 1.07	6 34.4	+ 4 42	+ 5.	9.6P	B5 III	−2.2			7	7	25	
872*	4296	47360	207.33	− 0.80	6 35.7	+ 4 40	+20.	8.19	B0.5 V	−4.0	1.23	11.0	17	17	25	17
873*	4301	47382	207.35	− 0.78	6 35.8	+ 4 39	+18.	7.14	B0 III	−5.4	1.41	11.1	17	17	25	17
874*	4303	47398	207.36	− 0.73	6 36.0	+ 4 40	+ 6.2	8.35	B2	(−2.5)	0.81	10.0	54	54	26	54
875	4410	263775	207.43	+ 1.54	6 44.2	+ 5 39	+38.	9.5	B3				58	58		
876	4570	51506	207.82	+ 4.41	6 55.2	+ 6 37	−10.	7.7	B3 n				58	58		
877*	3955	43301	208.07	− 7.59	6 13.0	+ 0 51	+ 9.	7.19	B5 nn	(−1.0)	0.39	7.8	54	54	26	54
878*	4475	50083	208.44	+ 2.39	6 49.1	+ 5 9	+ 9.7	6.92	B2 e	−3.6	0.90	9.6	32	32	32	32
879	4529	50868	208.52	+ 3.32	6 52.6	+ 5 30	−10.	8.1	B2 Vne	−3.6			16	16	33	
880*	4374	48434	208.54	+ 0.06	6 41.0	+ 3 59	+34.5	5.78	B0 III	−5.4	0.87	10.3	36	36	25	36
881*	4243	46711	208.59	− 2.41	6 32.3	+ 2 48	+18.3	9.10	B3 II	−4.4	3.15	10.4	17	17	25	17
882*	4253	46847	208.73	− 2.26	6 33.1	+ 2 45	+10.6	8.96	B0 III:p	−5.4	2.91	11.4	17	17	25	17
883*	4232	46573	208.74	− 2.63	6 31.8	+ 2 34	+30.	7.95	O7	−5.5	1.95	11.5	17	17	25	17
884	4385	48717	208.90	+ 0.21	6 42.2	+ 3 44	+40.	7.7	B4				58	58		
885*	4615	52559	209.17	+ 4.87	6 59.3	+ 5 38	+33.8	6.46	B2 s	(−2.5)	0.87	8.1	54	54	26	54
886	3996	43777	209.45	− 7.57	6 15.6	− 0 21	+20.4	8.3	B3 n				58	58		
887	4378	48553	209.97	− 0.51	6 41.6	+ 2 27	+10.	8.7	B3				58	58		
888*	4304	47432	210.02	− 2.12	6 36.0	+ 1 40	+58.4	6.13	O9.5 II	−5.9	1.50	10.5	36	36	25	36
889*	4395	48914	210.07	− 0.11	6 43.2	+ 2 33	+ 9.	7.5	B5	−3.1	0.39	10.2	45	45	45	54
890*	4247	46769	210.29	− 3.19	6 32.7	+ 0 56	+10.2	5.6	B3 s	(−1.7)	0.75	6.6	53	53	26	53
891	4549	51171	210.29	+ 2.75	6 53.8	+ 3 40	−15.3	8.3	B5				58	58		
892*	4361	48279	210.41	− 1.16	6 40.1	+ 1 46	+10.	7.97	O8	−5.2	1.26	11.9	17	17	25	17
893	4384	48691	211.63	− 1.26	6 42.0	+ 0 38	− 4.	7.7	B0.5 IV	−4.5			58	36	25	
894*	4436	49567	211.77	− 0.06	6 46.5	+ 1 4	+23.2	6.06	B3 II–III	−3.7	0.30	9.5	36	36	25	36
895*	4425	49330	211.85	− 0.42	6 45.4	+ 0 50	− 0.8	8.88	B0:pnne	(−4.4)	1.68	11.6	17	17	26	17
896*	4220	46487	211.99	− 4.52	6 31.1	− 1 11	+25.	5.02	B3 n	−1.0	0.33	5.7	54	54	45	54
897	4569	51507	212.31	+ 2.07	6 55.1	+ 1 34	−18.6	7.9	B2				58	58		
898*	4052	44701	212.62	− 7.82	6 20.5	− 3 15	+ 8.	6.58	B5 n	−1.9	0.39	8.1	54	54	45	54
899*	4869	57291	213.06	+ 8.15	7 18.1	+ 3 41	+ 6.8	6.84	B5	−1.3	0.27	7.9	54	54	45	54
900*	4513	50696	213.10	+ 0.74	6 51.8	+ 0 15	+36.	8.91	B1:(V)nne	−3.6	0.75	11.8	17	17	33	17

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sp. (15)	M (16)	A_V (17)
901	4694	1°1699	213°28	+ 4°45	7h 5m3	+ 1°48′	+11.	9m7	B5				58	58		
902	4709	54596	213.28	+ 4.89	7 6.9	+ 2 0	− 4.1	7.8	B3				58	58		
903	4485	50230	213.64	− 0.11	6 49.8	− 0 37	+17.1	8.8	dB2	−2m5			39	39	25	
904*	4110	45418	214.03	− 7.42	6 24.5	− 4 19	+14.6	6.88	B5 n	(−1.0)	0m39	7.5	54	54	26	54
905*	4103	45321	214.21	− 7.62	6 24.1	− 4 34	+10.	6.07	B3	−0.9	0.51	6.5	54	54	45	54
906*	4121	45546	214.52	− 7.39	6 25.5	− 4 44	+24.5	5.06	B2 V	−2.5	0.18	7.4	55	52	25	55
907	4526	50646	214.56	+ 0.15	6 52.4	− 1 19	+11.8	8.5	dB3	−1.7			39	39	25	
908	4202	46339	214.77	− 6.20	6 30.2	− 4 25	+ 6.1	8.9	B3 n				58	58		
909*	4955	58784	214.83	+ 9.10	7 24.7	+ 2 34	+ 6.	8.5	B2	(−2.5)	0.69	10.3	54	54	26	54
910	4559	1°1471	215.14	+ 0.44	6 54.5	− 1 42	+75.	10.13P	B1 V	−3.6			46	46	25	
911*	4321	47761	215.83	− 4.66	6 37.6	− 4 39	+29.	8.63	B2 V:pe	−3.6	1.23	11.0	17	17	33	17
912	4493	50348	216.35	− 1.40	6 50.2	− 3 37	− 0.8	8.8	dB5	−1.0			39	39	25	
913*	4016	44112	216.36	−10.59	6 17.3	− 7 48	+29.	5.24	B2 V	−2.5	0.12	7.6	55	52	25	55
914*	4584	51756	216.42	+ 0.19	6 56.0	− 2 57	+25.	7.23	B0.5 IV	−4.5	0.63	11.1	17	17	25	17
915	4125	45585	216.48	− 8.34	6 25.6	− 6 54	+ 7.2	8.9	B5 n				58	58		
916*	4137	45725	216.66	− 8.21	6 26.4	− 7 0	+22.	4.6:	B3 Ve	−2.5	0.15	7.0	32	55	33	55
917*	4138	45726	216.66	− 8.21	6 26.4	− 7 0	+18.	5.2	B3 ne			(7.0)	58	58		
918	4139	45727	216.66	− 8.21	6 26.4	− 7 0	+23.	5.4:	B3 e	−2.5	0.4	7.5	32	32	33	32
919	4627	2°1892a	216.84	+ 1.07	6 59.9	− 2 55	+42.	10.43P	B3 V	−1.7			46	46	25	
920*	4552	51193	216.87	− 0.65	6 53.8	− 3 44	+59.8	8.4	B1 V:nn	−3.6	0.69	11.3	36	36	25	36
921	4572	3°1668	217.02	− 0.28	6 55.4	− 3 42	+45.	9.76P	B3 V	−1.7			46	46	25	
922	4624	52718	217.07	+ 0.90	6 59.7	− 3 12	+27.	9.1	dB3	−1.7			39	39	25	
923*	4357	48215	217.33	− 4.84	6 39.7	− 6 4	+23.	6.88	B5	−0.4	0.0	7.3	54	54	45	54
924	4566	51452	217.35	− 0.59	6 54.9	− 4 8	+27.	8.5	B0:III:nn	−5.4			58	36	25	
925*	4203	46380	217.52	− 7.56	6 30.3	− 7 28	+15.	8.00	B1 e	−3.6	2.07	9.5	32	32	32	32
926*	4445	49787	217.67	− 2.84	6 47.5	− 5 27	+13.	7.54	B2 e	−3.6	0.57	10.6	32	32	32	32
927*	4632	52918	218.01	+ 0.61	7 0.4	− 4 10	+24.8	4.89	B1 V	−3.6	0.45	8.0	36	36	25	36
928	4223	46519	218.23	− 7.66	6 31.2	− 8 8	+20.	9.1	B5 n				58	58		
929	4655	4°1806a	218.25	+ 1.10	7 2.6	− 4 9	+68.	10.55P	B3 V	−1.7			46	46	25	
930	4688	3°1746	218.42	+ 1.72	7 5.1	− 4 1	+65.	10.61P	B5 Veγ	−1.0			46	46	25	
931	4242	46738	218.74	− 7.61	6 32.3	− 8 34	+ 9.	8.9	B4				58	58		
932	4681	54003	218.85	+ 1.35	7 4.6	− 4 34	+15.	9.2v	B3+B5				58	58		
933*	4287	47299	219.11	− 6.99	6 35.2	− 8 37	+22.	8.4	B3	(−1.7)	0.63	9.5	54	54	26	54
934*	4602	52266	219.13	− 0.68	6 57.9	− 5 45	+ 5.	7.23	O9 V	−4.8	0.90	11.1	17	17	25	17
935	4685	54081	219.46	+ 1.11	7 4.9	− 5 13	+38.4	10.0	B4				58	58		
936	4964	58973	219.84	+ 6.64	7 25.2	− 2 58	− 3.1	8.4	B5				58	58		
937	4561	51477	221.19	− 2.61	6 54.8	− 8 28	−47.	8.3	dB3	−1.7			39	39	25	
938*	4359	48282	221.28	− 6.78	6 39.9	−10 27	+24.	8.85	B3 III	−2.9	1.50	10.2	17	17	25	17
939	4683	54024	221.60	− 0.09	7 4.6	− 7 40	+36.	8.9	B5				58	58		
940	4210	46428	221.66	− 9.55	6 30.5	−12 1	+10.7	8.5	B4 n				58	58		
941*	4176	46185	221.97	−10.07	6 29.1	−12 31	+ 6.9	6.76	B5	(−1.0)	0.27	7.5	54	54	26	54
942	4769	55753	221.99	+ 1.63	7 11.5	− 7 13	+29.	9.3	B5				58	58		
943*	4130	45677	222.09	−10.97	6 26.0	−13 1	+25.	7.55	B3? pe	−2.5	0.69	9.4	32	32	33	32
944*	4605	52382	222.18	− 2.15	6 58.3	− 9 8	+51.	6.36	B1 Ib	−6.1	1.14	11.3	36	36	25	36
945*	4662	53667	222.31	− 0.85	7 3.2	− 8 39	+38.	7.75	B0.5 III	−4.9	1.56	11.1	17	17	25	17
946*	4667	53754	222.40	− 0.85	7 3.4	− 8 44	+41.5	8.16	B1 II	−5.3	1.35	12.1	17	17	25	17
947*	4158	46064	222.43	−10.51	6 28.3	−13 7	+ 2.3	6.15	B2	(−2.5)	0.24	8.4	55	55	26	55
948*	4347	48038	222.66	− 7.82	6 38.6	−12 8	−10.	6.78	B3	(−1.7)	0.99	7.5	54	54	26	54
949	4687	54104	223.27	− 0.85	7 5.0	− 9 30	+19.1	8.1	gB3	−2.9			39	39	25	
950*	4649	53367	223.72	− 1.89	7 2.1	−10 23	+19.	6.97	B0 IV:e	−5.0	2.22	9.8	17	17	25	17
951*	4450	49888	224.05	− 6.00	6 47.8	−12 33	+ 3.	7.23	B2 e	−3.6	0.39	10.4	32	32	32	32
952*	4668	53755	224.05	− 1.68	7 3.5	−10 35	+16.	6.48	B0 V:	−4.4	0.75	10.1	55	36	25	55
953*	4711	54662	224.17	− 0.77	7 7.0	−10 16	+58.	6.21	O7	−5.5	1.08	10.6	55	55	25	55
954*	4618	52721	224.18	− 2.85	6 59.5	−11 14	+16.	6.59	B2 e	−3.6	0.90	9.3	32	32	32	32
955	4634	53035	224.22	− 2.52	7 0.8	−11 7	+19.2	8.2	dB2	−2.5			39	39	25	
956*	4889	57682	224.41	+ 2.62	7 19.6	− 8 53	+23.	6.17	O9 V	−4.8	0.60	10.4	36	36	25	36
957*	4734	55135	224.48	− 0.38	7 9.0	−10 21	+14.	7.30	B6 e	−0.7	0.27	7.7	32	32	33	32
958	4647	53339	224.54	− 2.38	7 1.9	−11 20	+17.	9.1	B5				58	58		
959*	4650	53456	224.69	− 2.34	7 2.3	−11 27	+18.	7.4	B5	(−1.0)	0.69	7.7	54	54	26	54
960*	4464	50091	224.70	− 6.08	6 48.7	−13 10	+ 6.	8.5	B3 n(B2)	(−1.7)	0.66	9.5	49	49	26	49
961*	4678	53974	224.71	− 1.80	7 4.3	−11 13	+31.	5.28	B0.5 IV	−4.5	0.99	8.8	36	36	25	36
962	4785	55901	224.71	+ 0.39	7 12.2	−10 12	+12.	8.4	B5				58	58		
963	4402	49067	224.72	− 7.42	6 43.8	−13 47	+33.4	8.9	B4 n				58	58		
964*	4783	55879	224.73	+ 0.35	7 12.1	−10 14	+32.6	5.99	B0 IV	−5.0	0.36	10.6	36	36	25	36
965	4682	54025	224.77	− 1.75	7 4.6	−11 15	+17.4	8.4	dB3	−1.7			39	39	25	
966	4697	54306	225.39	− 1.83	7 5.5	−11 50	+18.7	9.1	dB3	−1.7			39	39	25	
967*	4454	49977	225.44	− 6.59	6 48.2	−14 3	+16.	7.97	B2 e	−3.6	1.32	10.2	32	32	32	32
968	4595	52162	225.45	− 4.11	6 57.3	−12 56	+21.3	7.9	B3 n				58	58		
969	4720	54879	225.55	− 1.27	7 7.8	−11 43	+15.6	7.9	O9.5 V	−4.6			58	36	25	
970*	4676	53975	225.68	− 2.31	7 4.3	−12 19	+33.	6.49	O8	−5.2	0.63	11.1	55	36	25	55
971*	4666	53756	225.95	− 2.70	7 3.4	−12 44	+19.	7.32	B2 IV	−3.3	0.48	10.1	17	17	25	17
972*	4979	59211	226.11	+ 3.55	7 26.2	− 9 56	+30.	6.62	B5	−0.8	0.39	7.0	54	54	45	54
973	4669	53857	226.13	− 2.68	7 3.8	−12 53	− 1.5	8.5	B5 n				58	58		
974	4670	A5790B	226.13	− 2.68	7 3.8	−12 53	+22.7	8.7	B4				58	58		
975	4752	55442	226.14	− 0.95	7 10.1	−12 5	+22.	9.2	dB3	−1.7			39	39	25	
976	4828	56827	226.60	+ 0.39	7 15.8	−11 52	+23.	9.5	dB1	−3.6			39	39	25	
977	4421	49315	226.87	− 8.16	6 45.0	−16 1	+ 8.6	7.5	B5				58	58		
978	5069	60873	227.22	+ 5.11	7 33.9	−10 9	+ 4.	8.3	B5 n				58	58		
979*	4495	50463	227.58	− 7.03	6 50.5	−16 9	+16.6	6.99	B5	(−1.0)	0.51	7.5	54	54	26	54
980	4648	53340	228.02	− 4.18	7 1.9	−15 15	+22.	8.4	B4				58	58		
981	5034	60260	228.03	+ 3.79	7 30.8	−11 30	+19.	8.9	B4 ne				58	58		
982*	4600	52244	228.33	− 5.52	6 57.5	−16 8	− 1.2	9.16	B2:III:pne	−3.6	1.65	11.1	17	17	33	17
983	4748	55394	228.43	− 2.24	7 9.8	−14 43	− 9.	8.9	gB5	−2.2			39	39	25	
984*	5289	65307	228.59	+10.43	7 55.4	− 8 42	+24.	9.4	B3	(−1.7)	0.21	10.9	54	54	26	54
985*	4553	51309	228.70	− 6.68	6 53.9	−16 59	+41.	4.38	B3 II	−4.4	0.33	8.4	55	55	25	55
986*	4721	54911	228.99	− 3.08	7 7.8	−15 36	+15.9	7.32	B2 II	−4.9	0.42	11.8	17	17	25	17
987*	4707	54575	229.07	− 3.47	7 6.5	−15 51	−28.	8.47	B6 e	−0.7	1.26	7.9	32	32	33	32
988*	4756	55538	229.13	− 2.42	7 10.5	−15 25	+17.3	7.8	B2 III	−3.6	0.69	10.7	36	36	25	36
989	4810	K123	229.19	− 1.38	7 14.4	−14 59	+33.	10.5P	B5 V	−1.0			46	46	25	
990	4780	55885	229.20	− 2.04	7 12.0	−15 18	+57.	8.90P	B(5) Vneβ	−1.0	1.02	9.1	46	46	25	54

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sources Sp. (15)	Sources M (16)	Sources A_V (17)
991*	4716	54764	229°.42	− 3°.44	7h 7m3	−16° 9′	+ 6.4	6m02	B1 II	−5m3	0m78	10.5	55	36	25	55
992	5077	60993	229.73	+ 3.85	7 34.4	−12 57	+23.	9.1	B3 n				58	58		
993*	5000	59543	229.74	+ 1.95	7 27.6	−13 53	+ 4.7	6.94	B5	(−1.0)	0.81	7.1	54	54	26	54
994*	4833	K123	229.85	− 1.30	7 16.0	−15 32	+65.	8.60P	B3 III	−2.9	0.81	10.9	50	46	25	50
995	4803	56310	230.14	− 2.08	7 13.7	−16 9	+24.4	6.79	B1 V	−3.6			36	36	25	
996*	5035	60325	230.46	+ 2.52	7 31.1	−14 14	+21.7	6.24	B1 V	−3.6	0.81	9.0	36	36	25	36
997*	5068	60855	230.91	+ 3.02	7 33.8	−14 23	+21.1	5.62	B2 e	−3.6	0.42	8.8	55	32	32	55
998*	4924	58343	231.08	− 0.21	7 22.4	−16 6	− 4.5	5.33	B2.5 e	−3.6	0.51	8.4	32	32	32	32
999	4836	56952	231.26	− 2.00	7 16.2	−17 6	+ 8.4	9.1	B4 n				58	58		
1000*	4503	50707	231.31	− 8.62	6 51.4	−20 10	+30.7	4.82	B1 IV	−4.1	0.09	8.8	55	36	25	55
1001*	4969	59094	231.35	+ 0.52	7 25.6	−15 59	+14.7	8.44	B2 V:nne	−3.6	1.17	10.9	17	17	33	17
1002	4465	50118	231.65	− 9.49	6 48.7	−20 51	+18.	7.1	B3 n				58	58		
1003	4586	51898	232.08	− 7.75	6 56.2	−20 28	+25.1	8.9	B5 n				58	58		
1004	5087	61207	232.12	+ 2.76	7 35.3	−15 34	+15.	7.9	B5				58	58		
1005	4901	57907	232.13	− 1.30	7 20.5	−17 32	+29.	8.3	dB5	−1.0			39	39	25	
1006	4562	51549	232.45	− 8.29	6 54.8	−21 2	+17.	8.1	B5				58	58		
1007	4722	54935	232.47	− 4.86	7 7.9	−19 30	+20.2	7.5	B5				58	58		
1008	4823	56727	232.50	− 2.93	7 15.2	−18 38	+24.	8.9	B5 n				58	58		
1009	4499	50562	232.70	− 9.45	6 50.8	−21 46	+25.3	8.5	B3 n				58	58		
1010	5018	59934	232.75	+ 0.78	7 29.4	−17 5	+16.	8.08	B2 V	−2.5	0.63	10.0	51	51	25	51
1011	4541	51200	233.15	− 8.99	6 53.4	−21 58	+10.	7.11	B3 IV	−2.5			38	38	25	
1012	5362	66738	233.19	+ 9.66	8 2.1	−13 0	+13.	7.5	B3				58	58		
1013	4788	56013	233.32	− 4.10	7 12.4	−19 54	+20.	7.3	B2 n				58	58		
1014*	5170	62729	233.37	+ 4.07	7 42.6	−16 0	+15.	8.31	B3 e	−2.5	0.54	10.3	32	32	33	32
1015	4762	55692	233.70	− 4.67	7 11.0	−20 30	+22.6	8.1	B3 n				58	58		
1016*	4604	52437	233.73	− 8.03	6 58.2	−22 3	+ 9.	6.51	B4 Vne	−1.3	0.00	7.8	55	38	25	55
1017	5156	62589	233.98	+ 3.49	7 41.8	−16 49	+16.2	8.1	B5 n				58	58		
1018*	4546	51283	234.02	− 9.33	6 53.7	−22 53	+38.	5.28	B3 II-III	−3.7	0.00	9.0	55	36	25	55
1019	4582	51854	234.17	− 8.84	6 55.9	−22 48	+27.	9.2	B4 n				58	58		
1020*	5012	59813	234.20	− 0.18	7 28.8	−18 49	+16.	8.97	B0 III	−5.4	2.49	11.9	51	51	25	51
1021	4911	58131	234.49	− 2.39	7 21.2	−20 8	+32.2	7.3	B2 n				58	58		
1022*	5152	62532	234.83	+ 2.92	7 41.5	−17 50	+30.	8.41	B1:V:pnne	−3.6	1.02	11.0	17	17	33	17
1023	5437	68468	235.06	+10.70	8 9.7	−14 1	+14.	8.5	B4 e				58	58		
1024*	4926	58416	235.07	− 2.35	7 22.5	−20 37	+16.	9.3	dB1	−3.6	0.87	12.0	39	39	25	54
1025	4929	N2384	235.35	− 2.45	7 22.7	−20 55	+46.		B0			11.7		58		21
1026	4931	58465	235.36	− 2.43	7 22.8	−20 55	+27.	8.7	B4				58	58		
1027	4938	58509	235.39	− 2.39	7 23.0	−20 55	+26.	8.5	B4 n				58	58		
1028	5436	68444	235.48	+10.41	8 9.6	−14 31	+15.	9.2	B4 n				58	58		
1029	5066	60859	235.49	+ 0.39	7 33.6	−19 40	+25.	9.0	dB3	−1.7			39	39	25	
1030*	4937	58510	235.52	− 2.46	7 23.0	−21 4	+20.2	6.73	B2	(−2.5)	0.99	8.2	54	54	26	54
1031*	5080	61068	235.53	+ 0.61	7 34.5	−19 35	+22.	5.7	B2 III	−3.6	0.18	9.1	36	36	25	36
1032*	4636	53138	235.56	− 8.24	7 0.9	−23 46	+48.4	3.04	B3 Ia	−7.1	0.12	10.0	55	55	25	55
1033	4865	57370	235.60	− 3.85	7 17.9	−21 48	+26.	9.1	B5 n				58	58		
1034	5126	62053	235.61	+ 1.84	7 39.2	−19 3	+14.4	9.0	gB5	−2.2			39	39	25	
1035	5051	60553	235.63	− 0.12	7 32.0	−20 2	+28.2	6.8	B2				58	58		
1036*	4859	57236	235.65	− 4.01	7 17.4	−21 55	+19.	8.75	O8	−5.2	1.53	12.4	19	19	25	19
1037	4772	55856	235.83	− 5.60	7 11.7	−22 49	+17.4	6.2	B3				58	58		
1038	5076	61022	235.97	+ 0.31	7 34.3	−20 7	+28.	9.3	dB5	−1.0			39	39	25	
1039	5375	67072	236.15	+ 8.26	8 3.5	−16 13	+30.	9.2	B5				58	58		
1040*	5411	67880	236.53	+ 9.08	8 7.2	−16 6	+32.9	5.67	B3 s	(−1.7)	0.06	7.3	55	55	26	55
1041*	4878	57573	236.54	− 4.12	7 18.8	−22 45	+10.	6.60	B3 V	−1.7	0.12	8.2	55	38	25	55
1042*	4588	52018	236.55	− 9.83	6 56.5	−25 21	+28.	5.58	B3	(−1.7)	0.09	7.2	55	58	26	55
1043	4997	59497	236.60	− 1.91	7 27.3	−21 45	+15.	8.4	B3 ne				58	58		
1044	4614	52670	236.62	− 9.24	6 59.0	−25 9	+ 6.	5.8	B3				58	58		
1045	5008	59773	236.70	− 1.62	7 28.6	−21 42	+20.	8.2	dB3	−1.7			39	39	25	
1046	4899	57910	236.88	− 3.88	7 20.4	−22 56	+10.	9.2	B5 e				58	58		
1047*	4959	58978	237.41	− 2.99	7 24.9	−22 59	+48.	5.48	B0 IV?pe	−5.0	0.42	10.1	36	36	25	36
1048	4717	54912	237.51	− 7.47	7 7.7	−25 9	+28.	5.8	B3				58	58		
1049	5143	62391	237.53	+ 1.17	7 40.8	−21 3	+12.	9.2	dB1	−3.6			39	39	25	
1050	5381	67303	237.55	+ 7.68	8 4.5	−17 42	+11.	9.2	B5				58	58		
1051*	4840	57060	237.83	− 5.37	7 16.6	−24 28	−11.	4.90v	O7 f(var.)	(−7.0)	0.42	11.5	36	36	29	36
1052*	4843	57061	238.18	− 5.55	7 16.6	−24 52	+40.4	4.40	O9 III	−6.1	0.27	10.2	36	36	25	36
1053	4844	N2362	238.19	− 5.53	7 16.7	−24 52	+47.	8.1	B2		0.33	10.9	58	58		24
1054	4845	N2362	238.22	− 5.52	7 16.8	−24 53	+15.	9.2	B4		0.33	10.9	58	58		24
1055	4842	N2362	238.23	− 5.58	7 16.6	−24 55	+42.	8.6	B4		0.33	10.9	58	58		24
1056	4853	57192	238.23	− 5.45	7 17.1	−24 52	+26.	7.3	B3				58	58		
1057	4754	55522	238.39	− 7.29	7 10.2	−25 51	+21.6	5.9	B3				58	58		
1058*	5369	66834	238.90	+ 6.28	8 2.5	−19 35	+13.8	6.12	B3 V	−1.7	0.09	7.7	55	38	25	55
1059*	4786	56014	238.97	− 7.08	7 12.2	−26 16	0.	4.42	B3 IIIpe	−2.5	0.24	6.7	55	55	33	55
1060*	5407	67797	239.04	+ 7.40	8 6.8	−19 6	+19.	4.40	B3 V	−1.7	0.09	6.0	55	55	25	55
1061*	5188	63271	239.20	+ 1.35	7 45.1	−22 24	+ 7.	5.89	B1 IV	−4.1	0.18	9.8	55	38	25	55
1062	5239	64298	239.36	+ 2.66	7 50.3	−21 52	+ 5.	8.7	B3 e				58	58		
1063*	4791	56139	239.41	− 7.15	7 12.8	−26 41	+26.	4.0	B3 IVe	−2.5	0.06	6.4	55	55	33	55
1064	5250	64418	239.76	+ 2.58	7 50.9	−22 15	+16.	9.6	B4				58	58		
1065	5348	66396	240.75	+ 4.53	8 0.3	−22 4	+21.2	9.0	B5				58	58		
1066	8	62747	240.76	− 0.25	7 42.5	−24 33	+15.	5.53	B1 V	−3.6			8	8	25	
1067*	5103	61556	241.96	− 2.43	7 36.8	−26 41	+33.	4.6	B5 n	(−1.0)	0.00	5.6	58	58	26	55
1068*	4671	54031	242.08	−10.59	7 4.1	−30 35	+14.	6.92	B3 IV	−2.5	0.03	9.4	56	56	25	56
1069	5485	69562	242.27	+ 7.50	8 14.6	−21 44	+11.8	6.7	B4				58	58		
1070	4781	55985	242.54	− 8.92	7 12.0	−30 15	+19.	6.3	B4				58	58		
1071	5141	62413	242.96	− 1.97	7 40.8	−27 19	+40.	10.29P	B4 Veα	−1.3			46	46	25	
1072	4799	56342	242.99	− 8.80	7 13.4	−30 36	+33.4	5.3	B5				58	58		
1073*	4778	55958	243.21	− 9.27	7 11.9	−31 0	+28.	6.60	B3	(−1.7)	0.06	8.2	55	58	26	55
1074*	4921	58325	243.42	− 6.93	7 22.0	−30 7	+ 7.	6.59	B3 V	−1.7	0.00	8.3	55	55	25	55
1075	4910	58155	244.86	− 7.90	7 21.1	−31 50	+23.5	5.4	B5 n				58	58		
1076	4945	58766	244.95	− 7.30	7 23.8	−31 38	+10.3	6.2	B4				58	58		
1077*	4996	59550	245.04	− 6.52	7 27.2	−31 21	+ 8.	5.76	B3 IV	−2.5	0.00	8.3	55	55	25	55
1078*	4919	58286	245.15	− 7.93	7 21.6	−32 6	+21.3	5.38	B3	(−1.7)	0.03	7.0	55	58	26	55
1079	4989	59499	245.37	− 6.77	7 26.9	−31 45	+ 2.	6.5	B3				58	58		
1080	4990	59500	245.37	− 6.77	7 26.9	−31 45	+ 4.	7.2	B3 n				58	58		

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sp. (15)	M (16)	A_V (17)
1081	4958	59026	247°.19	− 8°.23	7h24m.8	−24° 2′	+ 7.	6m.0	B5 n				58	58		
1082*	4839	57150	248.78	−10.92	7 16.5	−26 39	+18.6	4.78	B3 Ve	−2m.5	0m.12	7.2	55	55	23	55
1083*	4850	57219	248.82	−10.85	7 16.9	−26 39	+23.	5.10	B3 V	−1.7	0.09	6.7	55	55	25	55
1084*	*15*	58260	248.88	− 9.84	7 21.5	−26 15	+36.	6.74	B3 IIIk	−2.9	0.18	9.5	55	55	25	55
1085	5356	K148	248.92	− 0.34	8 1.4	−31 34	+ 8.	11.4P	B4 V	−1.3			46	46	25	
1086*	*15*	60098	249.46	− 8.30	7 29.6	−26 3	+21.	6.68	B5 III	−2.2	0.12	8.8	55	55	25	55
1087*	5052	60606	249.85	− 7.96	7 32.0	−26 14	−10.	5.55	B3:Vnek	−2.5	0.36	7.7	55	23	23	55
1088*	5106	61641	250.46	− 7.16	7 36.9	−26 23	+19.	5.79	B5	(−1.0)	0.0	6.8	55	58	26	55
1089*	5466	69080	250.52	+ 1.36	8 12.2	−31 59	−54.	6.05	dB3	−1.7	0.09	7.7	55	39	25	55
1090*	5363	64802	251.48	− 4.15	7 52.3	−35 45	+27.7	5.49	B5	(−1.0)	0.0	6.5	55	55	26	55
1091*	5118	61925	251.55	− 7.46	7 38.2	−37 28	+23.	5.99	B3 IV	−2.5	0.48	8.0	55	23	25	55
1092*	5116	61899	252.13	− 7.82	7 38.0	−28 9	+22.6	5.75	B3 n	(−1.7)	0.36	7.1	55	55	26	55
1093*	5111	61831	252.15	− 7.90	7 37.7	−28 12	+26.4	4.84	B3 n	(−1.7)	0.00	6.5	55	55	26	55
1094	5174	62991	252.31	− 6.73	7 43.3	−37 46	+24.	6.4	B5 n				58	58		
1095	5130	62236	252.51	− 7.70	7 39.5	−38 35	+40.	5.5	B3				58	58		
1096*	5194	63465	253.07	− 6.64	7 45.6	−38 23	+12.2	5.06	B3	(−1.7)	0.24	6.5	55	58	26	55
1097*	5458	68980	253.58	− 0.85	8 11.6	−35 45	+35.	4.7	B3 ne	−2.5	0.24	7.0	55	55	24	55
1098*	5249	64503	253.90	− 5.92	7 50.9	−38 44	−21.	4.49	B3 IV	−2.5	0.00	7.0	55	55	25	55
1099	5462	69081	253.98	− 0.99	8 12.1	−36 10	+18.	5.9	dB5	−1.0			39	39	25	
1100*	*15*	68450	254.46	− 2.01	8 9.2	−37 8	+39.	6.44	O9.5 Ik	−6.3	0.63	12.1	55	55	25	55
1101*	5588	71801	254.61	+ 2.04	8 26.1	−34 57	+22.8	5.74	B3 V	−1.7	0.12	7.3	55	55	25	55
1102*	5526	70556	254.95	+ 0.15	8 19.5	−36 19	+16.	5.19	B3	(−1.7)	0.00	6.9	55	58	26	55
1103*	5765	74575	254.99	+ 5.78	8 41.6	−33 0	+15.3	3.68	B2 II	−4.9	0.12	8.5	55	55	25	55
1104*	*15*	63868	255.16	− 7.41	7 47.5	−40 34	+23.	6.50	B5 V	−1.0	0.03	7.5	55	55	25	55
1105*	*15*	68982	255.66	− 2.26	8 11.5	−38 16	+22.	7.52	B3 V	−1.7	0.90	8.3	55	55	25	55
1106*	*15*	63425	255.67	− 8.18	7 45.3	−41 23	+45.	6.93	B1 I–III	−5.3	0.18	12.0	55	55	25	55
1107*	5278	65315	255.89	− 6.25	7 54.7	−40 36	+13.8	6.78	B3 n	(−1.7)	0.03	8.4	55	55	26	55
1108	*15*	62542	255.91	− 9.23	7 41.0	−42 6	+18.	8.04	B5 V	−1.0	0.99	8.0	55	55	25	55
1109*	5359	66811	255.98	− 4.71	8 1.8	−39 52	−24.	2.24	O5 f	(−7.0)	0.12	9.1	55	55	20	55
1110	5235	64365	257.32	− 8.11	7 50.0	−42 46	+32.2	6.2	B3				58	58		
1111	*15*	63806	257.44	− 8.77	7 47.2	−43 12	+34.	7.11	B3 III	−2.9	0.18	9.8	55	55	25	55
1112*	5333	64287	257.47	− 8.26	7 49.7	−42 58	+14.	6.31	B3	(−1.7)	0.06	8.0	55	58	26	55
1113*	*15*	63118	257.51	− 9.53	7 43.7	−43 38	+35.	6.02	B5 V	−1.0	0.24	6.8	55	15	25	55
1114*	5633	72787	257.87	+ 0.98	8 31.5	−38 12	+ 5.	6.48	dB3	−1.7	0.03	8.2	55	39	25	55
1115	5288	65460	258.34	− 7.58	7 55.3	−43 22	+28.	5.4	B3				58	58		
1116	5273	65211	258.53	− 7.94	7 54.1	−43 43	+13.7	6.0	B5 n				58	58		
1117	5294	65551	258.90	− 7.82	7 55.7	−43 58	+15.8	5.1	B3				58	58		
1118*	5418	68217	260.06	− 5.96	8 7.9	−43 58	+ 8.	5.20	B3	(−1.7)	0.00	6.9	55	58	26	55
1119	5576	71459	260.09	− 2.39	8 24.1	−41 59	+27.8	5.3	dB3	−1.7			58	39	25	
1120*	5317	63922	260.18	−10.19	7 47.7	−46 15	+24.	4.10	B0 II	−5.7	0.27	9.5	55	55	25	55
1121	*15*	73882	260.20	+ 0.65	8 37.4	−40 15	+26.	7.19	O8 nk	−5.2	2.13	10.3	55	55	25	55
1122*	*15*	75869	260.23	+ 3.57	8 49.3	−38 27	+30.	7.01	B2 V	−2.5	0.12	9.4	55	55	25	55
1123*	5198	63578	260.24	−10.56	7 46.0	−46 29	+36.	5.2	B1 V	−3.6	0.45	8.4	36	36	25	36
1124*	5564	71302	260.50	− 2.89	8 23.2	−42 36	+23.	5.98	dB3	−1.7	0.06	7.6	55	39	25	55
1125*	5216	63949	260.61	−10.43	7 47.7	−46 44	+25.2	5.84	B2	(−2.5)	0.24	8.1	55	55	26	55
1126*	*15*	64318	261.09	−10.30	7 49.7	−47 5	+27.	6.54	B3 IIIk	−2.9	0.24	9.2	55	55	25	55
1127	5471	69302	261.99	− 6.17	8 12.8	−45 41	+20.	6.0	B3				58	58		
1128*	5258	64760	262.05	−10.43	7 51.8	−47 58	+41.	4.24	B1 Ib	−6.1	0.09	10.2	55	55	25	55
1129	5597	72067	262.08	− 3.09	8 27.4	−44 0	+ 3.	5.9	dB3	−1.7			58	39	25	
1130	5449	68895	262.17	− 6.69	8 10.9	−46 7	+12.7	6.1	B4				58	58		
1131	5296	65598	262.20	− 9.74	7 55.8	−47 45	+11.7	6.1	B5 n				58	58		
1132	5599	72127	262.57	− 3.35	8 27.8	−44 33	+20.	5.2	dB3	−1.7			58	39	25	
1133*	*15*	69404	262.58	− 6.46	8 13.3	−46 20	+13.	6.43	B3 Vnnek	−1.7	0.15	8.0	55	55	25	55
1134*	5608	72350	262.71	− 3.19	8 29.0	−44 34	+24.	6.37	B5 IV	−1.8	0.0	8.2	38	38	25	38
1135*	*15*	65930	262.77	− 9.74	7 57.5	−48 14	+18.	6.84	B2 V	−2.5	0.33	9.0	55	55	25	55
1136	5417	68243	262.80	− 7.70	8 7.9	−47 12	+20.	4.8	B3 n				58	58		
1137*	5419	68273	262.80	− 7.68	8 8.0	−47 11	+35.	2.4	O7:+WC7	−5.5	1.74	6.2	47	47	25	55
1138	5461	69144	262.88	− 6.92	8 12.0	−46 50	+25.	5.3	B5				58	58		
1139	*15*	66765	263.05	− 9.14	8 1.4	−48 10	+24.	6.62	B5 III	−2.2	0.00	8.8	55	55	25	55
1140*	5424	68324	263.33	− 7.98	8 8.2	−47 47	+ 5.	5.58	B3 V	−1.7	0.0	7.3	38	38	25	38
1141*	5307	65818	263.48	−10.28	7 56.8	−49 7	+20.	4.5v	B2 n	(−2.5)	0.18	6.8	58	55	26	55
1142*	*15*	67621	263.54	− 8.70	8 5.2	−48 21	+18.	6.34	B3 III	−2.9	0.0	9.2	55	55	25	55
1143*	*15*	72798	263.78	− 3.45	8 31.4	−45 35	+22.	6.45	B5 III	−2.2	0.06	8.6	55	55	25	55
1144	5438	68657	263.92	− 8.05	8 9.7	−48 19	+14.6	5.9	B3				58	58		
1145	*15*	75549	263.94	+ 0.02	8 47.3	−43 34	+20.	7.31	B3 V	−1.7	0.18	8.8	55	55	25	55
1146*	*15*	69973	264.02	− 6.90	8 15.8	−47 46	+14.	6.91	B5 Vn	−1.0	0.03	7.9	55	55	25	55
1147*	*15*	66464	264.06	−10.04	7 59.9	−49 29	+11.	7.24	B3 III	−2.9	0.27	9.9	55	55	25	55
1148	*15*	75860	264.16	+ 0.28	8 49.2	−43 24	+23.	7.59	B2 Ik	−6.3	2.67	11.2	55	55	25	55
1149	5319	66005	264.19	−10.51	7 57.8	−49 50	+13.	6.4	B5				58	58		
1150	5320	66006	264.19	−10.51	7 57.8	−49 50	+23.	6.6	B5				58	58		
1151*	*12*	68451	264.32	− 8.48	8 8.8	−48 53	+20.1	7.33	B2 III	−3.6	0.27	10.7	55	55	25	55
1152*	5750	74371	264.44	− 2.01	8 40.2	−45 14	+24.6	5.22	B5 Iab	−6.3	0.90	10.6	55	55	25	55
1153	*12*	68608	264.60	− 8.52	8 9.5	−49 8	+14.4	7.89	B5 III	−2.2	0.12	10.0	55	55	25	55
1154*	5541	70930	264.98	− 6.50	8 21.0	−48 20	+26.	4.82	B2 III	−3.6	0.24	8.2	55	55	25	55
1155*	5598	72108	265.15	− 5.28	8 27.5	−47 46	+14.	5.32	B5 n	(−1.0)	0.03	6.3	55	55	26	55
1156	5615	72485	265.30	− 4.96	8 29.6	−47 42	+11.	6.5	B4				58	58		
1157*	*15*	76898	265.30	+ 0.85	8 55.7	−44 4	+20.	7.39	B5 Vn	−1.0	0.03	8.4	55	55	25	55
1158	5830	K172	265.51	− 0.91	8 48.9	−45 22	−19.	9.1	B2 Vne	−3.6	1.92	10.8	55	55	23	55
1159*	*15*	76566	265.65	+ 0.06	8 53.6	−44 51	+22.	6.25	B3 V	−1.7	0.09	7.9	55	55	25	55
1160	5856	K172	266.19	− 0.84	8 51.7	−45 51	+16.	9.10P	B1 V	−3.6	3.72	9.2	50	46	25	50
1161*	5828	75821	266.25	− 1.53	8 48.9	−46 20	+ 8.	5.09	O9.5 II	−5.9	0.14	10.8	55	55	25	55
1162	6008	78958	266.46	+ 2.72	9 7.7	−43 41	+44.	8.97	B0.5 Ib	−6.1	2.64	12.4	55	55	25	55
1163*	*15*	74234	266.57	− 3.87	8 39.3	−48 3	+ 8.	6.94	B2 Vk	−2.5	0.21	9.2	55	55	25	55
1164*	6040	79735	266.58	+ 3.81	9 12.5	−43 1	+32.	5.09	B5 Vn	−1.0	0.0	6.1	56	56	25	56
1165*	5755	74455	266.59	− 3.62	8 40.6	−47 55	+58.	5.50	B3 Vn	−1.7	0.00	7.2	55	38	25	55
1166*	*15*	78616	266.79	+ 1.97	9 5.9	−44 26	+26.	6.78	B1 k	(−3.6)	0.72	9.7	55	55	26	55
1167*	*15*	74273	267.14	− 4.28	8 39.5	−48 45	+18.	5.90	B2 Vn	−2.5	0.06	8.3	55	55	25	55
1168	5893	46°4786	267.36	− 1.04	8 55.2	−46 52	+22.	9.06	B0.5 Ib	−6.1	3.03	12.1	55	55	25	55
1169*	6013	79186	267.37	+ 2.25	9 9.3	−44 40	+35.4	4.99	B3 Ia	−7.1	1.02	11.1	55	55	25	55
1170*	5851	76161	267.89	− 2.43	8 51.0	−48 10	+ 3.	6.29	B6:Vn	−0.7	0.0	7.0	38	38	25	38

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sources Sp. (15)	Sources M (16)	Sources A_V (17)
1171	5575	71510	267°95	− 7°93	8h24m1	−51°34′	+18.	5m2	B3 n				58	58		
1172*	5772	74753	268.10	− 4.49	8 42.1	−49 38	+28.	5.15	B3 n	(−1m7)	0m0	6.8	55	55	26	55
1173*	*15*	73127	268.23	− 6.42	8 33.0	−50 55	+ 7.	6.57	B5 Vn	−1.0	0.00	7.6	55	55	25	55
1174*	6020	79275	268.68	+ 1.14	9 9.8	−46 23	+ 7.	5.78	B2 IV	−3.3	0.06	9.0	55	56	25	55
1175*	5733	74195	270.26	− 6.80	8 38.9	−52 45	+17.1	3.59	B3 V	−1.7	0.06	5.2	55	55	25	55
1176	5731	74146	270.33	− 6.93	8 38.5	−52 53	+36.	5.4	B5				58	58		
1177*	5734	74196	270.33	− 6.85	8 38.9	−52 50	+14.	5.91	B8 IV	+0.1	0.0	5.8	38	38	25	38
1178*	5759	74560	270.60	− 6.66	8 41.0	−52 56	+21.6	4.84	B5 IV	−1.8	0.0	6.6	55	55	25	55
1179*	*15*	77464	271.17	− 3.52	8 59.1	−51 22	+28.	6.70	B2 Vk	−2.5	0.18	9.0	55	55	25	55
1180*	*15*	81347	271.30	+ 1.39	9 21.7	−48 4	+20.	6.27	B5 Vk	−1.0	0.03	7.2	55	55	25	55
1181*	5888	76805	271.62	− 4.79	8 54.8	−52 32	+22.2	4.68	B5 V	−1.0	0.09	5.6	55	55	25	55
1182*	6285	84816	271.85	+ 6.68	9 44.6	−44 31	− 8.	5.54	B2:Vn	−2.5	0.15	7.9	55	55	25	55
1183*	6194	82984	273.02	+ 2.03	9 31.9	−48 47	+27.4	5.10	B4 Vn	−1.3	0.15	6.2	55	55	25	55
1184*	6336	85980	273.25	+ 7.13	9 52.3	−45 3	+26.	5.69	B4 V	−1.3	0.18	6.8	38	38	25	38
1185*	5798	75311	273.89	− 8.41	8 45.4	−56 35	+27.	4.81	B2 Vn	−2.5	0.27	7.0	38	38	25	38
1186*	5655	73390	274.14	−10.52	8 34.1	−58 3	+28.	5.25	B3 Vn	−1.7	0.15	6.8	55	38	25	55
1187*	6160	82419	274.31	− 0.20	9 28.4	−51 18	+10.	5.44	B5	(−1.0)	0.18	6.3	55	55	26	55
1188*	*16*	81370	274.39	− 1.80	9 21.6	−52 31	+13.	8.8	B0 IV:	−5.0	1.29	12.5	36	36	25	36
1189*	*15*	78548	274.93	− 5.68	9 5.1	−55 36	+29.	6.10	B5 Vn	−1.0	0.00	7.1	55	55	25	55
1190*	6134	81848	275.18	− 1.94	9 24.7	−53 10	+22.	5.10	B5 n	(−1.0)	0.12	6.0	55	55	26	55
1191*	*15*	86523	275.67	+ 5.04	9 55.8	−48 11	− 2.	6.04	B3 Vnn	−1.7	0.18	7.6	55	55	25	55
1192*	*15*	76640	275.75	− 8.48	8 53.6	−58 3	+13.	6.38	B5 III	−2.2	0.12	8.5	55	55	25	55
1193*	5745	74375	275.82	−10.86	8 39.5	−59 35	+12.9	4.32	B2 III	−3.6	0.36	7.6	55	55	25	55
1194*	6104	81188	275.89	− 3.54	9 20.6	−54 48	+21.9	2.49	B2 IV	−3.3	0.15	5.6	55	55	25	55
1195*	*16*	83043	276.17	− 1.36	9 32.2	−53 25	+16.	8.6	B1 V:pe	−3.6	0.93	11.3	36	36	33	36
1196	5898	77002	276.70	− 8.89	8 55.8	−59 2	+24.6	4.93	B3 IV	−2.5			56	56	25	
1197*	6335	85953	276.87	+ 2.51	9 52.0	−50 55	+ 7.6	5.92	B2 III	−3.6	0.24	9.3	55	55	25	55
1198*	*15*	88015	276.89	+ 6.15	10 5.6	−48 1	+17.	6.38	B3 III	−2.9	0 12	9.2	55	55	25	55
1199*	6353	86352	277.30	+ 2.60	9 54.5	−51 6	+ 9.	6.36	B3	(−1.7)	0.06	8.0	55	58	26	55
1200*	5864	76538	277.33	− 9.92	8 52.7	−60 10	+ 2.	5.77	B5	(−1.0)	0.18	6.6	55	55	26	55
1201*	*15*	87026	277.34	+ 3.72	9 59.0	−50 14	+ 5.	6.88	B5 V	−1.0	0.03	7.8	55	55	25	55
1202*	*15*	83865	277.53	− 1.65	9 37.8	−54 32	+13.	6.82	B5 V	−1.0	0.06	7.8	55	55	25	55
1203*	6018	79351	277.70	− 7.37	9 9.7	−58 46	+23.3	3.43	B3 IV	−2.5	0.03	5.9	55	55	25	55
1204*	6358	86466	278.20	+ 1.66	9 55.4	−52 24	+16.	6.11	B3 V	−1.7	0.18	7.6	55	55	25	55
1205*	*15*	82919	278.41	− 4.00	9 31.3	−56 52	+ 6.	7.11	B5 V	−1.0	0.33	7.8	55	55	25	55
1206*	6427	88206	279.15	+ 3.39	10 7.0	−51 34	+23.	4.85	B5 IV	−1.8	0.06	6.6	55	55	25	55
1207*	6380	87152	279.18	+ 1.50	9 59.9	−53 7	+12.	6.20	B5 n	(−1.0)	0.06	7.1	55	55	26	55
1208*	*16*	89137	279.69	+ 4.45	10 13.7	−51 0	+ 3.	7.95	O9.5 V	−4.6	0.69	11.9	41	16	25	41
1209*	*15*	89587	279.84	+ 5.19	10 17.1	−50 28	+ 7.	6.88	B5 III	−2.2	0.03	9.0	55	55	25	55
1210*	*16*	87380	280.04	+ 0.66	10 1.2	−54 18	− 6.	9.05	B1 IVn	−4.1	0.87	12.3	41	16	25	41
1211*	6021	79447	280.22	− 9.61	9 10.1	−62 7	+16.6	3.96	B3 IV	−2.5	0.03	6.4	55	55	25	55
1212*	*16*	89174	280.24	+ 3.68	10 13.9	−51 57	−19.	7.97	B1 III	−4.4	1.02	11.4	41	16	25	41
1213*	*15*	81038	280.73	− 8.60	9 19.3	−61 47	+17.	6.91	B5 Vn	−1.0	0.15	7.8	55	55	25	55
1214*	6469	89104	281.73	+ 1.34	10 13.4	−54 43	+ 9.	6.16	B3	(−1.7)	0.06	7.8	55	15	26	55
1215*	6514	89890	282.98	+ 0.89	10 19.0	−55 47	+ 9.8	4.50	B5 IV	−1.8	0.09	6.2	55	55	25	55
1216*	*15*	92155	283.87	+ 3.97	10 35.3	−53 36	+10.	6.40	B3 Vn	−1.7	0.15	8.0	55	55	25	55
1217*	*15*	88825	284.27	− 2.91	10 11.3	−59 40	− 2.	6.09	B5 Vnne	−1.0	0.24	6.8	55	55	25	55
1218*	*15*	89740	284.54	− 1.81	10 17.9	−58 54	+18.	6.91	B3 Vn	−1.7	0.21	8.4	55	55	25	55
1219	*16*	90657	285.02	− 0.90	10 24.7	−58 23	+ 6.	9.81	B2 Ve	−3.6	1.86	11.6	41	16	33	41
1220*	*16*	90087	285.16	− 2.13	10 20.6	−59 30	− 2.	8.0	O9.5 V	−4.6	1.05	11.6	36	36	25	36
1221*	*15*	92464	285.18	+ 2.26	10 37.4	−55 44	+32.	7.10	B5 Vn	−1.0	0.18	7.9	55	55	25	55
1222*	6459	88907	285.30	− 4.33	10 11.7	−61 25	+11.	6.38	B3 V	−1.7	0.24	7.8	55	55	25	55
1223*	*16*	88115	285.33	− 5.53	10 6.1	−62 25	−18.	8.4	B1 III	−4.4	0.81	12.0	36	36	25	36
1224	*14*	91850	285.50	+ 0.07	10 33.1	−57 55	− 9.	9.12	B1 III	−4.4	1.20	12.3	14	14	25	14
1225*	6638	92287	285.63	+ 1.06	10 36.1	−57 0	+20.	5.90	B3 III	−2.9	0.15	8.7	55	55	25	55
1226	*16*	95029	285.64	+ 7.17	10 55.2	−51 34	−31.	8.90	B2 V	−2.5	0.69	10.7	41	16	25	41
1227*	*15*	91943	285.81	+ 0.09	10 33.7	−57 56	− 8.	6.71	B0.5 Ik	−6.3	0.81	12.2	55	55	25	55
1228*	*15*	91969	285.85	+ 0.07	10 33.9	−57.58	+ 0.	6.51	O9.5 Ik	−6.3	0.78	12.0	55	55	25	55
1229	*14*	92044	285.93	+ 0.06	10 34.4	−58 1	−12.	8.27	B0.5 III	−4.9	1.29	11.9	14	14	25	14
1230	*14*	303067	285.94	+ 0.08	10 34.5	−58 0	−10.	9.56	B1 V	−3.6	0.90	12.3	14	14	25	14
1231	*14*	57°3522	285.94	+ 0.08	10 34.5	−58 0	− 2.	10.18	B2 V	−2.5	0.63	12.0	14	14	25	14
1232	*14*	57°3507	285.94	+ 0.08	10 34.5	−58 0	−14.	9.28	B1 V	−3.6	0.66	12.2	14	14	25	14
1233	*14*	57°3500	285.94	+ 0.08	10 34.5	−58 0	−23.	8.74	B1 III	−4.4	0.72	12.4	14	14	25	14
1234	*14*	57°3524	285.94	+ 0.08	10 34.5	−58 0	−16.	9.30	B1 V	−3.6	0.57	12.3	14	14	25	14
1235	*14*	57°3524	285.94	+ 0.08	10 34.5	−58 0	−21.	9.10	B1 III	−4.4	1.32	12.2	14	14	25	14
1236	*14*	57°3523	285.94	+ 0.08	10 34.5	−58 0	−23.	8.03	B1 III	−4.4	0.84	11.6	14	14	25	14
1237	*14*	57°3506	285.94	+ 0.08	10 34.5	−58 0	−11.	7.62	B1 II	−5.3	0.93	12.0	14	14	25	14
1238	*14*	57°3521	285.94	+ 0.08	10 34.5	−58 0	−20.	8.15	B1 III	−4.4	0.96	11.6	14	14	25	14
1239*	*16*	92206	286.23	− 0.17	10 35.5	−58 22	−10.	7.68	O7	−5.5	1.70	11.5	20	20	25	20
1240	*16*	92714	286.62	+ 0.10	10 39.1	−58 19	+ 3.	9.47	B2 Ve	−3.6	1.14	11.9	41	16	33	41
1241	*16*	92982	286.71	+ 0.45	10 41.0	−58 3	+ 2.	8.97	B1 II	−5.3	1.77	12.5	41	16	25	41
1242*	6672	92964	287.10	− 0.36	10 40.7	−58 57	− 1.7	5.36	B3 Ia	−7.1	1.05	11.4	55	55	25	55
1243*	6603	91465	287.18	− 3.16	10 30.2	−61 26	+26.	3.44	B3 Ve	−2.5	0.18	5.8	56	56	33	56
1244*	*16*	95275	287.18	+ 4.51	10 57.0	−54 37	−27.	8.6	O9 V	−4.8	0.90	12.5	36	36	25	36
1245	*16*	92554	287.61	− 2.03	10 37.9	−60 40	−38.	8.75	B0 V:	−4.4	1.74	11.4	41	16	25	41
1246*	*16*	93206	287.67	− 0.94	10 42.5	−59 44	−27.	6.47	B0 Ib:	−6.2	1.20	11.5	41	36	25	36
1247*	*16*	94909	287.94	+ 1.93	10 54.1	−57 17	−29.	7.3	B0 Ib	−6.2	2.13	11.4	36	36	25	36
1248	*15*	93010	288.09	− 2.04	10 41.3	−60 54	+ 4.	6.39	B3 III	−2.9	0.60	8.7	55	55	25	55
1249*	*15*	94491	288.18	+ 0.55	10 51.3	−58 38	−11.	6.24	B5 V	−1.0	0.18	7.1	55	55	25	55
1250*	*16*	93843	288.25	− 0.91	10 46.7	−59 58	− 9.	7.46	O6.5	−5.5	0.81	12.2	41	16	25	41
1251*	*15*	96088	289.04	+ 1.99	11 1.8	−57 41	+ 2.	6.13	B3 III	−2.9	0.09	8.9	55	55	25	55
1252*	6686	93194	289.50	− 4.46	10 42.3	−63 42	+25.5	4.81	B3 V	−1.7	0.18	6.3	55	59	25	55
1253*	6667	92938	289.57	− 5.00	10 40.5	−64 12	+24.2	4.80	B3 V	−1.7	0.18	6.3	55	59	25	55
1254*	6678	93030	289.60	− 4.90	10 41.2	−64 8	+24.	2.75	B0 Vp	−4.4	0.24	6.9	55	55	25	55
1255*	6685	93163	289.62	− 4.72	10 42.1	−63 59	+ 8.	5.76	B5 s	(−1.0)	0.51	6.2	55	55	26	55
1256*	6593	91272	289.75	− 7.81	10 28.6	−66 44	− 9.	6.18	B5	(−1.0)	0.51	6.7	55	58	26	55
1257*	6939	98718	289.95	+ 6.09	11 18.7	−54 13	+14.	3.88	B5 Vn	−1.0	0.00	4.9	55	55	25	55
1258*	6711	93607	289.96	− 4.69	10 45.0	−64 7	+16.	4.84	B4 IV	−2.1	0.09	6.8	55	55	25	55
1259*	*15*	93714	290.12	− 4.80	10 45.8	−64 17	− 1.	6.53	B3 III	−2.9	0.69	8.7	55	55	25	55
1260*	6890	97670	290.83	+ 0.93	11 11.3	−59 21	+16.8	5.73	B3 s	(−1.7)	0.24	7.2	55	55	26	55

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_0-M (13)	Sources m (14)	Sp. (15)	M (16)	A_V (17)
1261*	*16*	99890	291°.73	+ 4°.42	11h26m.6	−56°22′	−10.	8m.37	B0.5 V:	−4m.0	0m.60	11.8	41	16	25	41
1262*	*16*	98927	292.36	− 0.03	11 20.1	−60 47	− 9.	9.09	B1.5 Ve	−3.6	1.14	11.6	41	16	33	41
1263*	*16*	97522	292.78	− 4.32	11 10.2	−64 57	+ 4.	7.8	B1 Ib–II	−5.7	1.59	11.9	36	36	25	36
1264*	6979	99556	292.86	+ 0.09	11 24.3	−60 50	+ 9.4	5.41	B5 IV	−1.8	0.15	7.1	56	56	25	56
1265*	*15*	100276	293.31	+ 0.77	11 29.5	−60 20	− 3.	7.2	B1 Ib	−6.1	0.75	12.6	36	36	25	36
1266*	*15*	99953	293.93	− 2.13	11 27.0	−63 17	+ 2.	6.5	B2 Ia	−7.1	1.44	12.2	36	36	25	36
1267*	7055	100929	293.97	+ 0.50	11 34.0	−60 47	+ 9.1	5.81	B3 IV	−2.5	0.30	8.0	55	55	25	55
1268*	*15*	96706	294.50	− 9.73	11 5.0	−70 36	+ 7.	5.56	B3 III	−2.9	0.42	8.0	55	55	25	55
1269*	*16*	99857	294.78	− 4.94	11 26.3	−66 13	−14.	7.5	B1 Ib	−6.1	1.02	12.6	36	36	25	36
1270*	*15*	101131	294.78	− 1.63	11 35.5	−63 3	−16.	7.10	O7 nk	−5.5	1.05	11.6	55	55	25	55
1271*	*16*	101964	295.21	− 0.68	11 41.3	−62 15	− 3.	8.43	B0.5 III	−4.9	0.78	12.6	41	16	25	41
1272*	*16*	102567	295.62	− 0.24	11 45.6	−61 56	−17.	9.45	B1 Vne	−3.6	0.87	12.2	41	16	33	41
1273*	*16*	102997	295.89	+ 0.20	11 48.7	−61 34	− 2.	6.6	B5 Ia	−7.0	1.20	12.4	36	36	25	36
1274*	*16*	103146	295.97	+ 0.54	11 50.0	−61 15	−37.	8.39	B1 III:	−4.4	0.90	11.9	41	16	25	41
1275*	7157	102776	296.17	− 1.74	11 47.2	−63 31	+37.	4.31	B5 V	−1.0	0.00	5.3	55	55	25	55
1276*	7207	103884	296.75	− 0.22	11 55.1	−62 10	+16.	5.56	B3 V	−1.7	0.12	7.1	55	55	25	55
1277*	7302	105937	296.78	+10.03	12 9.0	−52 5	+21.	3.96	B3 V	−1.7	0.12	5.5	55	55	25	55
1278*	7244	104841	297.64	− 0.78	12 1.7	−62 53	+16.3	4.72	B2 IV	−3.3	0.45	7.6	55	55	25	55
1279*	*16*	105627	298.15	− 0.09	12 7.1	−62 18	+ 2.	8.11	O9 V	−4.8	1.02	11.9	41	16	25	41
1280*	7332	106490	298.23	+ 3.80	12 12.5	−58 28	+26.4	2.81	B2 IV	−3.3	0.03	6.1	3	3	25	3
1281*	*16*	106871	298.47	+ 4.42	12 14.9	−57 53	− 4.	8.7	B0 IV	−5.0	1.20	12.5	41	16	25	41
1282	*16*	103715	298.59	− 9.25	11 54.0	−71 23	−23.	9.14	B2 ne	(−3.6)	1.14	11.6	41	16	34	41
1283*	*16*	106325	298.60	+ 0.26	12 11.4	−62 1	+ 2.	8.60	B1 III	−4.4	1.50	11.5	41	16	25	41
1284*	7324	106343	298.93	− 1.83	12 11.6	−64 8	− 7.	6.21	B2 Ia	−7.1	0.78	12.5	55	55	25	55
1285	*16*	106730	299.20	− 1.89	12 13.9	−64 14	− 5.	8.34	Bpe	(−3.6)	1.1	10.8	41	16	34	41
1286*	*15*	106344	299.23	− 3.94	12 11.5	−66 16	+ 9.	7.13	B5 V	−1.0	0.42	7.7	55	55	25	55
1287*	7369	106983	299.33	− 1.37	12 15.7	−63 44	+18.7	4.04	B3 V	−1.7	0.06	5.7	55	55	25	55
1288*	7470	108250	300.12	− 0.39	12 23.7	−62 51	+27.	5.31	B4 IV	−2.1	0.15	7.3	56	56	25	56
1289*	7471	108248	300.13	− 0.36	12 23.8	−62 49	−11.2	1.36	B1 IV	−4.1	0.03	5.4	59	59	25	9
1290*	7472	108249	300.13	− 0.36	12 23.8	−62 49	− 0.6	1.86	B3 n			(5.4)	9	58		
1291*	7545	109026	301.46	− 9.31	12 29.5	−71 51	+14.	3.86	B5 IV	−1.8	0.00	5.7	55	55	25	55
1292*	*16*	109978	301.56	+ 0.40	12 36.7	−62 10	−70.	8.8	O9 IV	−5.8	2.25	12.4	36	36	25	36
1293*	7585	109668	301.66	− 6.31	12 34.2	−68 52	+18.	2.70	B3 IV	−2.5	0.00	5.2	3	3	25	3
1294*	*15*	109867	301.71	− 4.32	12 35.9	−66 53	−16.	6.24	B0.5 Ik	−6.3	0.78	11.8	55	55	25	55
1295	*16*	110785	302.13	+ 3.24	12 42.2	−59 21	−26.	10.01	B2 V	−2.5	0.69	11.8	41	16	25	41
1296	*16*	110660	302.17	− 1.18	12 41.5	−63 46	−26.	10.0	B1 V	−3.6	3.43	11.2	36	36	25	36
1297*	7655	110956	302.23	+ 6.38	12 43.5	−56 13	+16.7	4.64	B3 V	−1.7	0.12	6.2	55	55	25	55
1298*	*16*	110863	302.24	+ 2.32	12 42.9	−60 16	−31.	9.1	B1 Vp	−3.6	1.80	10.9	36	36	25	36
1299*	7654	110879	302.45	− 5.24	12 43.2	−67 50	+42.	3.04	B3 V	−1.7	0.06	4.7	55	55	25	55
1300*	7661	111123	302.46	+ 3.18	12 44.8	−59 25	+20.	1.24	B0 III	−5.4	0.18	6.5	55	55	25	55
1301	7711	111973	303.22	+ 2.50	12 50.8	−60 6	− 1.3	6.1	B2				58	58		
1302*	7719	112078	303.35	+ 3.71	12 51.7	−58 53	+16.	4.62	B3 V	−1.7	0.12	6.2	55	55	25	55
1303*	7717	112092	303.36	+ 5.70	12 51.6	−56 54	+11.9	4.02	B3 V	−1.7	0.06	5.7	55	55	25	55
1304*	7718	112091	303.37	+ 5.70	12 51.7	−56 54	+19.	5.18	B5 Ve	−1.0	0.06	6.1	55	55	25	55
1305*	*16*	112147	303.42	+ 3.86	12 52.2	−58 44	−29.	9.2	B0:V:pe	−5.0	1.80	12.4	36	36	25	36
1306	*16*	112272	303.49	− 1.49	12 53.5	−64 5	−38.	7.4	B0.5 Ia	−6.8	3.06	11.1	36	36	25	36
1307	7726	112244	303.55	+ 6.03	12 53.0	−56 34	+22.	5.6	O9				15	15		
1308	*16*	112843	303.68	− 9.76	12 57.8	−72 21	−43.	9.66	B2 III:	−3.6	1.05	12.2	41	16	25	41
1309*	7771	113120	303.87	− 8.62	12 59.7	−71 12	−35.	6.02	B1 Vne	−3.6	0.93	8.7	55	38	33	55
1310	*16*	113016	304.05	− 1.77	12 58.7	−64 21	+ 6.	9.20	B2 V:	−2.5	1.23	10.5	41	16	25	41
1311	*16*	112825	304.06	+ 3.17	12 57.3	−59 25	− 5.	9.71	B1.5 IVe	−3.6	1.80	11.5	41	16	33	41
1312	*15*	113708	304.55	− 2.38	13 3.6	−64 56	−17.	8.15	B0.5 III:k	−4.9	0.78	12.3	55	55	25	55
1313*	7809	113904	304.68	− 2.49	13 4.9	−65 2	−28.4	5.50	B0 e	(−4.4)	0.84	9.1	55	55	26	55
1314*	*16*	114800	305.47	− 0.62	13 10.9	−63 7	−28.	7.7	B2 Vpe	−3.6	1.11	10.2	36	36	33	36
1315*	*15*	114886	305.52	− 0.83	13 11.5	−63 19	−11.	6.87	O9 Vk	−4.8	1.29	10.4	55	55	25	55
1316*	*16*	115034	305.61	− 1.14	13 12.5	−63 37	− 7.	8.87	B1 V	−3.6	0.96	11.5	41	16	25	41
1317*	*16*	114441	305.80	+ 7.41	13 8.4	−55 5	− 8.	8.1	B2 IVpe	−3.6	1.26	10.4	36	36	33	36
1318	*16*	114733	305.83	+ 4.38	13 10.4	−58 6	−46.	9.67	B0.5 V	−4.0	1.53	12.1	41	16	25	41
1319*	*16*	115363	305.88	− 0.98	13 14.8	−63 26	−71.	7.8	B1 Ia+	−6.9	2.43	12.3	36	36	25	36
1320	*16*	116849	306.61	− 3.68	13 24.6	−66 2	−36.	9.2	B1:V:pe	−3.6	1.26	11.5	36	36	33	36
1321*	7936	116072	306.70	+ 1.67	13 19.3	−60 43	− 7.	6.66	B4 Vn	−1.3	0.12	7.8	38	38	25	38
1322*	7939	116087	306.71	+ 1.65	13 19.4	−60 44	+26.	4.52	B5 IV	−1.8	0.06	6.3	55	55	25	55
1323*	*16*	116168	306.76	+ 1.47	13 20.0	−60 54	−22.	9.27	B2 IV:	−3.3	1.11	11.5	41	16	25	41
1324	*16*	116766	306.88	− 1.20	13 23.9	−63 32	−20.	10.25	B2 V	−2.5	1.11	11.6	41	16	25	41
1325	*16*	117111	306.91	− 2.93	13 26.4	−65 15	−19.	7.6	B1 Vpe	−3.6	1.11	10.1	16	36	33	36
1326	*16*	117216	307.03	− 2.58	13 27.1	−64 53	+14.	10.3	B1 V:	−3.6	1.68	12.2	36	36	25	36
1327*	*15*	117024	307.06	− 1.31	13 25.7	−63 37	−12.	7.11	B2	(−2.5)	0.87	8.7	55	55	26	55
1328*	*15*	115842	307.08	+ 6.84	13 17.7	−55 32	− 2.	6.1	B0.5 Iab	−6.3	1.56	10.8	36	36	25	36
1329	*16*	117357	307.63	+ 0.77	13 27.9	−61 29	−24.	9.21	B0 Vne	−4.4	1.35	12.3	41	16	25	41
1330	7935	116084	307.73	+10.41	13 19.2	−51 55	−15.	6.1	B1				58	58		
1331	*16*	117797	307.87	+ 0.05	13 30.9	−62 9	−25.	9.35	O8.5	−5.0	2.16	12.2	41	16	25	41
1332*	*16*	118969	308.52	− 1.40	13 38.7	−63 28	−18.	10.06	B1.5 V	−3.0	0.72	12.3	41	16	25	41
1333	*16*	118681	308.86	+ 1.74	13 36.6	−60 19	+ 8.	9.53	B2 V	−2.5	1.02	11.0	41	16	25	41
1334*	*16*	119646	309.23	− 0.25	13 42.8	−62 12	−14.	6.6	B2 Ib–II	−5.5	1.05	11.0	36	36	25	36
1335*	8097	119159	309.97	+ 5.40	13 39.6	−56 31	−48.	6.15	B2 IV	−3.3	0.24	9.2	38	38	25	38
1336*	8073	118716	310.19	+ 8.72	13 36.7	−53 13	+ 5.6	2.30	B1 V	−3.6	0.09	5.8	55	55	25	55
1337*	8337	124471	311.27	− 5.10	14 12.7	−66 21	−20.	5.74	B2 s	(−2.5)	0.54	7.7	55	55	26	55
1338	*16*	122691	311.34	− 0.92	14 1.8	−62 20	− 9.	9.3	B0.5 Vn	−4.0	1.23	12.1	41	16	25	41
1339*	8251	122451	311.77	+ 1.25	14 0.3	−60 8	−12.	1.02	B1 III	−4.4	0.09	5.3	56	56	25	56
1340*	*16*	122450	312.02	+ 2.12	14 0.3	−59 14	−26.	9.35	B2 V?e	−3.6	1.95	11.0	41	16	33	41
1341*	*16*	123056	312.16	+ 1.03	14 3.8	−60 14	−39.	8.2	O9.5 V	−4.6	1.38	11.4	36	36	25	36
1342*	*16*	122879	312.26	+ 1.78	14 2.9	−59 29	+ 1.	6.41	B0 I	−6.3	0.87	11.8	55	55	25	55
1343*	*15*	128293	312.73	− 7.41	14 35.2	−67 59	−14.	6.70	B3 Vne	−2.5	0.57	8.6	55	55	33	55
1344*	*15*	130021	313.25	− 8.47	14 45.1	−68 44	+ 1.	6.50	B3 III	−2.9	0.30	9.1	55	55	25	55
1345*	*16*	127489	313.86	− 3.54	14 30.5	−63 59	−33.	9.07	B2 Vne	−3.6	1.14	11.5	41	16	33	41
1346*	8323	124367	314.13	+ 3.96	14 11.5	−56 51	+16.	5.04	B3 Ve	−2.5	0.30	7.2	55	55	33	55
1347	*8*	129954	314.22	− 6.33	14 44.5	−66 23	+19.	5.90	B2 V	−2.5	0.51	7.9	55	55	25	55
1348*	*15*	129740	314.29	− 5.90	14 43.3	−65 58	+ 8.	7.35	B5 III	−2.2	0.27	9.3	55	55	25	55
1349*	8645	131058	315.03	− 6.05	14 50.4	−65 47	−21.	6.08	B4 V	−1.3	0.36	7.0	55	38	25	55
1350*	*15*	129092	315.26	− 2.80	14 39.4	−62 45	− 5.	6.41	B3 V:	−1.7	0.36	7.8	55	55	25	55

TABLE I (*continued*)

Star No. (1)	Wilson No. (2)	HD or other (3)	l^{II} (4)	b^{II} (5)	α_{1950} (6)	δ_{1950} (7)	Rad. Vel. ρ km/sec (8)	m_{vis} (9)	Spectral type (10)	M (11)	A_V (12)	m_v-M (13)	Sources m (14)	Sources Sp. (15)	Sources M (16)	Sources A_V (17)
1351*	8657	131492	316°71	− 3°31	14h52m7	−62°35′	− 1.	5m27	B3 Vne	−2m5	0m27	7.5	56	56	33	56
1352*	15	133738	318.40	− 3.22	15 5.0	−61 42	− 8.	6.96	B5 III–V	−1.8	0.45	8.3	55	15	25	55
1353*	8559	129557	318.58	+ 3.78	14 41.6	−55 23	− 5.	6.09	B2 IV	−3.3	0.48	8.9	55	55	25	55
1354*	8472	127381	318.93	+ 9.25	14 29.2	−50 14	− 1.8	4.41	B2 IV	−3.3	0.12	7.6	55	55	25	55
1355*	15	134657	319.18	− 3.05	15 9.9	−61 9	−12.	6.36	B5 V	−1.0	0.33	7.0	55	55	25	55
1356	8	135160	319.69	− 2.84	15 12.6	−60 43	+ 4.	5.73	B1 Ve	−3.6	0.51	8.8	55	8	25	55
1357*	8822	135240	319.69	− 2.91	15 12.9	−60 46	+88.	5.08	O9 V	−4.8	0.75	9.1	55	55	25	55
1358*	8508	128345	320.13	+ 9.85	14 34.5	−49 13	+14.3	4.04	B3 V	−1.7	0.12	5.6	55	55	25	55
1359*	8840	135591	320.13	− 2.65	15 14.8	−60 19	− 6.	5.32	O9 I	−6.2	0.20	11.3	20	20	20	20
1360*	16	136239	321.22	− 1.74	15 18.3	−58 58	−61.	8.07	B2 I	−6.3	3.21	11.2	41	16	25	41
1361*	8891	136415	321.24	− 1.97	15 19.4	−59 9	−17.2	4.50	B5	(−1.0)	1.05	4.4	55	58	26	55
1362*	15	133518	323.08	+ 5.47	15 3.3	−51 50	− 2.	6.39	B3 III	−2.9	0.30	9.0	55	55	25	55
1363*	8724	133242	325.33	+ 9.93	15 1.7	−46 51	+17.	3.88	B3 V	−1.7	0.18	5.4	55	55	25	55
1364*	9121	141318	326.79	− 0.73	15 47.2	−54 54	− 2.	5.72	B2 III	−3.6	0.78	8.5	55	55	25	55
1365	13	N6087	327.78	− 5.43	16 15.0	−57 47	+ 2.		B5 V			9.7		13		13
1366	13	N6087	327.78	− 5.43	16 15.0	−57 47	+ 2.		B5 V			9.7		13		13
1367	13	N6087	327.78	− 5.43	16 15.0	−57 47	+ 2.		B5 V			9.7		13		13
1368	13	N6087	327.78	− 5.43	16 15.0	−57 47	+ 2.		B5 V(e)			9.7		13		13
1369*	16	142468	327.94	− 0.76	15 53.5	−54 12	−40.	8.06	B0.5 I	−6.3	2.22	12.1	41	16	25	41
1370*	15	140605	328.09	+ 1.94	15 43.0	−52 0	−13.	7.07	B5 Vnn	−1.0	0.36	7.7	55	55	25	55
1371*	16	144320	328.58	− 2.35	16 4.0	−54 59	+ 8.	9.30	B2 Ve	−3.6	1.35	11.6	41	16	33	41
1372*	8888	136504	329.23	+10.32	15 19.3	−44 31	+ 4.	3.36	B3 V	−1.7	0.03	5.0	55	55	25	55
1373*	9622	150745	329.77	− 8.48	16 42.1	−58 25	−16.	5.9	B3				58	58		
1374	9633	150898	329.98	− 8.48	16 43.1	−58 15	−51.	5.8	B0 n				58	58		
1375*	16	145846	331.28	− 1.12	16 11.8	−52 15	−38.	9.03	B1 V:e	−3.6	1.77	10.9	41	16	33	41
1376*	9822	153716	331.88	− 9.87	17 0.1	−57 39	+ 6.	5.74	B5 V	−1.0	0.24	6.5	38	38	25	38
1377*	16	149729	333.67	− 3.83	16 35.4	−52 26	0.	9.11	B2 Vn	−2.5	0.69	10.9	41	16	25	41
1378*	9455	147971	335.99	+ 0.98	16 23.5	−47 27	−12.	4.46	B5 V	−1.0	0.24	5.2	55	55	25	55
1379*	15	150041	336.65	− 1.50	16 37.0	−48 40	−18.	7.07	B0 Ik	−6.3	0.90	12.5	55	55	25	55
1380	15	150135	336.71	− 1.58	16 37.6	−48 40	−39.	7.1	O6 k	−5.5			15	15	25	
1381	9578	150136	336.71	− 1.58	16 37.6	−48 40	+23.	5.6	O7:	−5.7			58	20	20	
1382*	9738	152478	336.78	− 4.64	16 52.3	−50 36	+28.	6.32	B3 ne	(−2.5)	0.54	8.3	55	55	34	55
1383*	9475	148379	337.25	+ 1.57	16 26.1	−46 8	−19.3	5.61	B2 Ia	−7.1	2.52	10.2	38	38	25	38
1384*	15	148259	338.19	+ 2.67	16 25.3	−44 42	+ 5.	7.4	B2 Ve	−3.6	1.14	9.9	55	55	33	55
1385*	15	150958	338.56	− 1.16	16 43.0	−47 0	−39.	7.28	O6 ek	−5.5	2.01	10.8	55	55	25	55
1386	9655	151300	338.73	− 1.48	16 45.1	−47 5	−47.	9.24	O6	−6.0	3.35	11.9	20	20	20	20
1387*	9218	143699	339.12	+10.42	16 0.1	−38 28	− 1.	4.88	B3 V	−1.7	0.18	6.4	55	55	25	55
1388*	9522	149038	339.38	+ 2.52	16 30.5	−43 56	+ 5.	5.38	B0.5 Iab	−6.3	0.78	10.9	38	38	25	38
1389*	9558	149711	340.39	+ 2.36	16 34.9	−43 18	+ 2.3	5.99	B3 IV	−2.5	0.54	8.0	38	38	25	38
1390	9539	149404	340.55	+ 3.00	16 32.9	−42 45	−48.	5.6	O9				58	58		
1391*	15	154043	340.57	− 3.62	17 1.6	−47 0	−12.	7.08	B1 Ik	−6.3	2.40	11.0	55	55	25	55
1392*	10116	158427	340.76	− 8.83	17 28.0	−49 50	− 2.	2.94	B3 Ve	−2.5	0.06	5.4	55	55	33	55
1393*	10028	157042	342.02	− 6.32	17 19.5	−47 25	−19.	5.2	B3 ne	(−2.5)	0.2	7.5	55	55	34	55
1394*	15	157698	342.64	− 6.68	17 23.3	−47 6	−15.	7.15	B5 V–III	−1.8	0.33	8.6	55	55	25	55
1395*	9704	152236	343.03	+ 0.86	16 50.5	−42 17	−26.2	4.3	B0.5 Ie	−6.3	2.79	7.8	12	12	25	12
1396	9614	150742	343.08	+ 3.18	16 41.2	−40 45	+11.8	5.7	B3 n				58	58		
1397	9700	152147	343.16	+ 1.09	16 50.0	−42 2	−28.	8.1	B0 I	−6.3		10.7	58	37	25	37
1398	9686	151932	343.23	+ 1.44	16 48.8	−41 46	+25.	6.6	OW7				58	58		
1399*	9703	152235	343.31	+ 1.10	16 50.5	−41 55	−36.	6.2	B1 I	−6.3		10.7	58	37	25	37
1400*	9692	152003	343.34	+ 1.41	16 49.3	−41 42	−28.	7.2	B0 I	−6.3		10.7	58	37	25	37
1401*	9726	152424	343.35	+ 0.89	16 51.5	−42 1	−18.	6.6	O9 I	−6.2		10.7	58	37	25	37
1402	9695	152076	343.41	+ 1.40	16 49.6	−41 39	−30.	9.5	B0 IV, V	−4.7		10.7	58	37	25	37
1403*	9706	152234	343.45	+ 1.21	16 50.5	−41 44	− 6.	5.3	B0.5 I	−6.3		10.7	58	37	25	37
1404*	9710	152249	343.45	+ 1.16	16 50.7	−41 46	−24.1	6.0	O9 I	−6.2		10.7	58	37	25	37
1405*	9707	152233	343.47	+ 1.22	16 50.5	−41 43	−16.	7.2	O6	−5.5		10.7	58	37	25	37
1406	9715	41°11044	343.50	+ 1.16	16 50.9	−41 44	−38.	7.2	cB2				58	58		
1407	9716	152314	343.51	+ 1.14	16 51.0	−41 44	−34.	8.8	O9 IV, V	−5.3		10.7	58	37	25	37
1408	9693	152042	343.52	+ 1.53	16 49.4	−41 29	−30.	9.1	cB2				58	58		
1409	9701	152218	343.52	+ 1.29	16 50.4	−41 38	−44.	7.4P	O9 IV, V	−5.3		10.7	58	37	25	37
1410	9708	152247	343.60	+ 1.30	16 50.6	−41 34	−16.6	9.5	O9			10.7	58	37		37
1411*	9680	151804	343.62	+ 1.93	16 48.1	−41 9	−62.5	5.4	O8 f			10.7	58	37		37
1412*	15	155985	343.63	− 3.91	17 13.4	−44 43	−17.	6.47	B0.5 Ik	−6.3	1.32	11.4	55	55	25	55
1412*	9723	152408	344.09	+ 1.49	16 51.5	−41 4	−138.	6.0	O8 fp			10.7	58	37		37
1414*	15	152723	344.81	+ 1.61	16 53.4	−40 26	− 7.	7.10	O6 k	−5.5	1.38	11.2	55	55	25	55
1415	9601	150475	345.13	+ 5.40	16 39.5	−37 45	−22.	8.85	B2	(−2.5)	1.35	10.0	41	41	26	41
1416	9905	155134	345.47	− 1.36	17 8.0	−41 44	−18.	8.93P	B2 V	−2.5	1.68	10.0	50	46	25	50
1417*	9496	148703	345.94	+ 9.22	16 28.1	−34 36	+ 0.4	4.22	B3 IV	−2.5	0.09	6.6	55	55	25	55
1418*	9682	151890	346.12	+ 3.91	16 48.5	−37 58	−25.	3.09	B1.5 V	−3.0	0.0	6.1	36	36	25	56
1419*	9690	151985	346.19	+ 3.87	16 48.9	−37 56	+ 2.	3.56	B2 IV	−3.3	0.06	6.8	55	55	25	55
1420	16	154040	346.68	+ 1.15	17 1.3	−39 15	−18.	10.05	B2:V:e	−3.6	1.89	11.8	41	16	33	41
1421	9950	155959	346.77	− 1.59	17 13.1	−40 49	−13.	9.0P	B0.5 III–IV	−4.7			46	46	25	
1422*	16	154911	347.84	+ 0.75	17 6.6	−38 34	− 3.	9.29	B1.5 V?ne	−3.6	1.86	11.0	41	16	33	41
1423*	15	155775	348.80	+ 0.16	17 11.9	−38 9	+ 2.	6.72	O9.5 k	(−4.6)	0.87	10.4	55	55	26	55
1424*	15	163254	349.90	− 8.61	17 53.6	−41 58	−51.	6.76	B5 Vnk	−1.0	0.15	7.6	55	55	25	55
1425*	9862	154368	349.97	+ 3.22	17 3.1	−35 23	+ 9.	6.11	O9.5 I–II	−6.1	2.28	9.9	55	55	25	55
1426*	9839	154090	350.83	+ 4.29	17 1.5	−34 3	+ 8.	4.86	B1 II–IIIe	−4.9	1.56	8.2	55	56	25	55
1427*	10217	160578	351.05	− 4.71	17 39.0	−39 0	−10.	2.41	B2 IV	−3.3	0.03	5.7	55	55	25	55
1428*	10113	158408	351.29	− 1.85	17 27.4	−37 15	+18.	2.70	B3 Ib	−5.9	0.0	8.6	55	55	25	55
1429*	10136	158926	351.75	− 2.21	17 30.2	−37 4	0.	1.62	B2 IV	−3.3	0.00	4.9	55	55	25	55
1430*	15	161807	351.78	− 5.84	17 45.9	−38 58	−32.	7.01	B3 V:nnk	−1.7	0.36	8.4	55	55	25	55
1431*	10653	166596	351.89	−10.97	18 9.7	−41 21	−15.3	5.46	B3	(−1.7)	0.06	7.1	55	58	26	55
1432	9935	155806	352.58	+ 2.87	17 12.0	−33 30	+ 4.5	5.5	O8 e				58	58		
1433	9915	155336	352.60	+ 3.63	17 9.1	−33 2	+ 1.	9.59	B2	(−2.5)	1.44	(10.6)	41	41	26	41
1434*	9920	155450	353.20	+ 3.92	17 9.7	−32 23	+16.	5.92	B1 III	−4.4	0.60	9.7	56	56	25	56
1435	10161	33°12242	354.74	− 0.92	17 32.9	−33 51	−31.	9.36	B1 Ia	−6.9	4.02	12.2	17	17	25	17
1436	10125	33°12155	354.76	+ 0.06	17 29.0	−33 18	−22.	9.09	B0 III	−5.4	3.27	11.2	17	17	25	17
1437*	10145	159176	355.66	+ 0.06	17 31.4	−32 33	− 4.	5.71	O7	−5.5	1.23	10.0	36	36	25	36
1438	10364	163181	358.13	− 3.77	17 53.0	−32 28	−40.8	6.6v	B1 e				58	58		
1439*	10618	166197	358.45	− 7.10	18 7.6	−33 49	−31.7	6.15	B2 IIIk	−3.6	0.24	9.5	55	55	25	55
1440	10740	167647	358.82	− 8.48	18 14.3	−34 8	+10.	6.0vP	B5+A2				58	58		

1. Barbier, M., and Boulon, J. 1959, *J. Obs.* **43**, 69.
2. Beer, A. 1961, *Monthly Notices Roy. Astron. Soc.* **123**, 191.
3. Bertiau, F. C., S. J. 1958, *Astrophys. J.* **128**, 533.
4. Blaauw, A. 1956, *ibid.* **123**, 408.
5. Blaauw, A., Hiltner, W. A., and Johnson, H. L. 1959, *ibid.* **130**, 69.
6. Boulon, J., Duflot, M., and Fehrenbach, Ch. 1958, *Publ. Obs. Haute Provence* **4**, No. 34.
7. Boulon, J., and Fehrenbach, Ch. 1959, *ibid.* **4**, No. 55.
8. Buscombe, W., and Morris, P. M. 1960, *Monthly Notices Roy. Astron. Soc.* **121**, 263.
9. Canadian *Observer's Handbook* 1960, edited by R. J. Northcott (Royal Astronomical Society of Canada), p. 65.
10. Duflot, M., and Fehrenbach, Ch. 1956, *Publ. Obs. Haute-Provence* **3**, No. 49.
11. ——. 1957, *ibid.* **4**, No. 12.
12. Evans, D. S., Menzies, A., and Stoy, R. H. 1959, *Monthly Notices Roy. Astron. Soc.* **119**, 638.
13. Feast, M. W. 1957, *ibid.* **117**, 193.
14. ——. 1958, *ibid.* **118**, 618.
15. Feast, M. W., Thackeray, A. D., and Wesselink, A. J. 1955, *Mem. Roy. Astron. Soc.* **LXVII**, 51.
16. ——. 1957, **LXVIII**, 1.
17. Hiltner, W. A. 1956, *Astrophys. J. Suppl.* **2**, 389.
18. Hiltner, W. A., and Iriarte, B. 1955, *Astrophys. J.* **122**, 185.
19. Hiltner, W. A., and Johnson, H. L. 1956, *ibid.* **124**, 367.
20. Hoffleit, D. 1956, *ibid.* **124**, 61.
21. Hogg, H. S. 1959, *Handbuch der Physik*, edited by S. Flugge (Springer-Verlag, Berlin), Vol. LIII, p. 129.
22. Johnson, H. L. 1958, *Lowell Obs. Bull.* **4**, 37.
23. ——. 1960, *Astrophys. J.* **131**, 620.
24. Johnson, H. L., Hoag, A. A., Iriarte, B., Mitchell, R. I., and Hallam, K. L. 1961, *Lowell Obs. Bull.* **5**, 133.
25. Johnson, H. L., and Iriarte, B. 1958, *ibid.* **4**, 47.
26. Reference 25. Luminosity class V has been assumed.
27. Johnson, H. L., and Morgan, W. W. 1953, *Astrophys. J.* **115**, 313.
28. Kopylov, I. M. 1958, *Crimean Obs. Publ.* **XX**, 156.
29. ——. 1959, *Ann. d'Astrophys. Suppl.* **8**, 41.
30. McCuskey, S. W. 1956, *Astrophys. J. Suppl.* **2**, 298.
31. Meadows, A. J. 1961, *Monthly Notices Roy. Astron. Soc.* **123**, 81.
32. Mendoza, E. E. 1958, *Astrophys. J.* **128**, 207.
33. Reference 32. Known low-luminosity star; absolute magnitude has been determined from 32.
34. Reference 32. Luminosity class V assumed; absolute magnitude determined from 32.
35. Morgan, W. W. 1951, *Publ. Obs. Univ. Mich.* **10**, 33.
36. Morgan, W. W., Code. A. D., and Whitford, A. E. 1955, *Astrophys. J. Suppl.* **2**, 41.
37. Morgan, W. W., Whitford, A. E., and Code, A. D. 1953, *Astrophys. J.* **118**, 318.
38. Morris, P. M. 1961, *Monthly Notices Roy. Astron. Soc.* **122**, 325.
39. Munch, L. 1952, *Bol. Tonantzintla y Tac.* **2**, 1.
40. Numerova, A. B. 1958, *Crimean Obs. Publ.* **XIX**, 189.
41. Oosterhoff, P. Th. 1951, *Bull. Astron. Inst. Neth.* **XI**, 299.
42. Petrie, R. M. 1955, *Publ. Dominion Astrophys. Obs.* **IX**, 297.
43. ——. 1955, *ibid.* **IX**, 251.
44. ——. 1956, *Vistas in Astronomy*, edited by A. Beer (Pergamon Press, London and New York), Vol. II, p. 1346.
45. Petrie, R. M., and Moyls, B. N. 1956, *Publ. Dominion Astrophys. Obs.* **X**, 287.
46. Popper, D. M. 1944, *Astrophys. J.* **100**, 94.
47. Roberts, M. S. 1962, *Astron. J.* **67**, 79.
48. Roman, N. G. 1951, *Astrophys. J.* **114**, 492.
49. Schmidt-Kaler, Th. *Z. Astrophys.* **53**, 1.
50. Seyfert, C. K., and Popper, D. M. 1941, *Astrophys. J.* **93**, 461. For conversion to MK spectral class, see reference 46.
51. Sharpless, S. (unpublished).
52. Slettebak, A. 1955, *Astrophys. J.* **121**, 653.
53. Smith, E. van P. 1956, *ibid.* **124**, 43.
54. Stebbins, J., Huffer, C. M., and Whitford, A. E. 1940, *ibid.* **91**, 20.
55. Stoy, R. H. 1961, *Cape Mimeo.* 12, Royal Obs., Cape of Good Hope.
56. de Vaucouleurs, A. 1957, *Monthly Notices Roy. Astron. Soc.* **117**, 449.
57. Walker, M. F. 1956, *Astrophys. J. Suppl.* **2**, 365.
58. Wilson, R. E. *General Catalogue of Stellar Radial Velocities* (Carnegie Institution of Washington, Washington, D. C.).
59. Woods, M. L. 1955, *Mem. Commonwealth Obs. Mt. Stromlo* **3**, 1.
60. Beals, C. S. 1955, *Publ. Dominion Astrophys. Obs.* **IX**, 1.

moduli; these stars will be within 3 kpc (unless, in a few cases, they are supergiants). With this possible exception, all 1440 stars in Table I have $m_0-M \leqslant 12^m.6$.

Cols. 14, 15, 16, and 17: Sources for m, Spectral type, M, and A_v. The numbers refer to the references following the table. In cases where several values are available for one entry, preference is given, in general, to the most recent work.

For many stars, m_0-M in Table I does not agree exactly with m_0-M published by the original authors (for example Hiltner 1956; Oosterhoff 1951). This is due to our use of the recent Johnson–Iriarte calibration, rather than retaining the older calibration used by the observer. This fact, plus Stoy's (1961) recent publication of photometric data of southern stars on the *UBV* system, has substantially added to the uniformity of the data in Table I.

The intrinsic luminosities of the stars in Table I range from $M=-7^m.3$ for a supergiant to $M=-1^m.0$ for a B5V star. Hence a high-luminosity star with $m=7$ will be too distant for inclusion, while a low-luminosity B5 star with $m=11$ could be included. The radial-velocity observations cannot be considered complete even to $m=7$, although some 10th-mag. stars are included. This means that while many supergiant stars at about 3 kpc are contained in this sample, no low-luminosity stars at 3 kpc have observed radial velocities. Indeed, the limiting distance of completeness for the low-luminosity stars must be within 500 pc, a distance which is hardly of galactic dimensions.

The distribution of spectral classes of these stars is listed in Table II. There are 281 stars with luminosity classes I, II, and III.

It is possible to estimate by several methods the total number of O–B5 stars within 3 kpc of the sun, if we extrapolate from the number in the immediate solar vicinity. From the density of O, B, and A stars in the solar neighborhood (Schmidt 1956), a total of 15 000 O and B stars would be expected within 3 kpc, if the ratio of A stars to O and B stars is about 1000 to 1. This same number is predicted by the study of Blaauw (1956) from the 500 OB stars observed within 600 pc of the sun. From Roberts' (1957) estimate of the total number of early-type stars in the galaxy, about 7×10^4 OB stars are within 3 kpc of the sun, or 50 times the number of stars in Table I.

From a comparison of the number of OB stars in a small region of the Hamburg–Warner and Swasey atlas (Hardorp, Rohlfs, Slettebak, and Stock 1959) with the number of stars in Table I in the same region, it appears that about 6 to 10 times as many stars appear in the Hamburg work. This atlas, complete to $m_{pg}\approx13$, should contain most of the OB stars within 3 kpc. From these various estimates, we conclude conservatively that perhaps 5% of all O-B5 stars within 3 kpc of the sun are contained in Table I.

Finally, we may estimate the completeness from Table I itself. In the table, there are 400 stars with $r\leqslant500$ pc. If we assume that the table is essentially complete to this distance, then 15 000 stars would be expected to a distance 6 times as far. This is about 10 times the total number of stars in this study.

The projection on the galactic plane of the 1162 stars with computed values of m_0-M is shown in Fig. 1. The sun is in the middle; the concentric circles mark distances of 1, 2, and 3 kpc from the sun. The arcs indicate distance from the center of the galaxy, for an assumed value of $R_0=8.2$ kpc for the distance from the sun to the center.

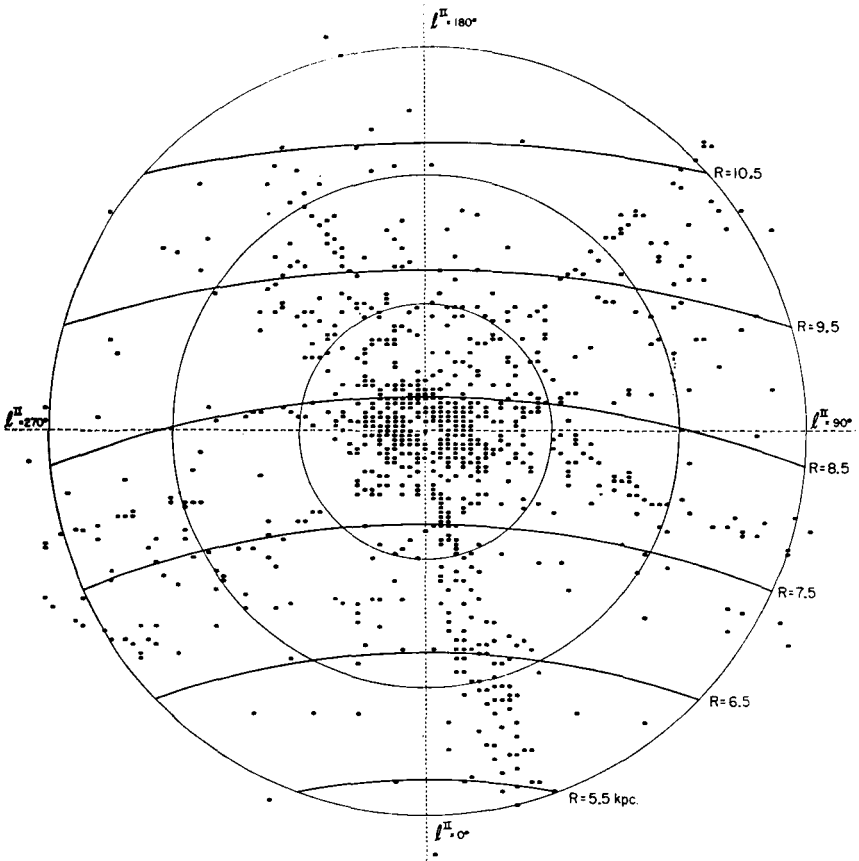

FIG. 1. The projection on the galactic plane of 1162 O–B5 stars with computed m_0-M. Some points represent more than one star. The sun is at the middle; the concentric circles represent distances of 1, 2, and 3 kpc from the sun. The arcs indicate distance from the center of the galaxy, for $R_0=8.2$ kpc. The original plot was made from Table I by an IBM 7090.

Clearly, it is not easy to discern outlines of spiral structure from such a drawing alone. Whether the open lanes are real, due to observational selection, or due to absorbing matter in these directions is not known. However, there is a qualitative coincidence between the open lanes in Fig. 1, and the regions of maximum *H* I density in the Leiden surveys (Muller and Westerhout 1957; Schmidt 1957). The regions of greatest hydrogen density according to Schmidt (1957, Plate B) are at $l^{II}=145°$ and 155°, in the direction of the Perseus arm (Bok 1959). In Fig. 1, very few stars appear in the general region of the Perseus arm. Secondary maxima in the hydrogen density occur at $l^{II}=45°$, 225°, 240°, 285°, and 320°. In most of these directions there is a marked absence of stars in Fig. 1. Beer (1961), in noting a similar anticorrelation between hydrogen density and early-type stars, has concluded that in regions of low gas density, star formation has depleted the gas. Significant amounts of gas would then be found only where there are few young stars.

A more simple explanation can actually suffice: in regions of maximum hydrogen density, the visual absorption is so great that giant O and B stars at 3 kpc are too faint for most observing programs. Toward $l^{II}=146°$, the total photographic absorption at $r=1$ kpc is already $2^m.3$ (McCuskey 1956); the limiting magnitude of observation is thus effectively decreased at least one magnitude with respect to regions with $l^{II}<130°$. Detailed studies of faint OB stars at longitudes corresponding to the directions of maximum hydrogen density will be necessary to determine if spiral arms in our galaxy are marked by early-type stars, gas, and dust, or a combination of both stars and interstellar material. The Hamburg–Warner and Swasey program of observations of luminous stars in the northern Milky Way (Hardorp *et al.* 1959; Stock, Nassau, and Stephenson 1960) should make such studies possible.

The most notable concentrations of stars in Fig. 1 occur toward $l^{II}=15°$, the extension of the Sagittarius arm; toward $l^{II}=200°$, the Orion spur; and toward

TABLE II. Distribution of spectral classes for stars in Table I.

Spectral class	Number of stars	Number with computed m_0-M
O	133	127
B0	175	170
B1	174	163
B2	224	199
B3	363	268
B4	69	30
B5	277	181
Bp, Be, later than B5	25	24

$l^{II}=300°$, the Carina–Cygnus arm. There is general agreement with the drawings of Bok (1959) and van de Hulst (1958). From this sample of stars alone, little evidence is found for placing the sun at the inner edge of a spiral arm.

When all B3 and later-type stars are deleted from Fig. 1, only the region within 500 pc of the sun is altered significantly. No clearer outline of galactic structure emerges, however.

III. RADIAL VELOCITIES

Rapid progress has been made in recent years in the study of the structure of our galaxy, from the analysis of the radial velocities of the 21-cm H I emission line. On the assumption that the average motion of matter in the galactic disk is perpendicular to the radius vector from the center, and that the velocity of rotation is independent of the position angle of this radius vector, the relation between the mean radial velocity ρ, longitude l^{II}, and angular velocity $\omega(R)$, follows directly from geometrical considerations:

$$\rho=R_0[\omega(R)-\omega_0]\sin l^{II}, \qquad (1)$$

where R_0 is the distance from the sun to the center and ω_0 is the angular velocity in the vicinity of the sun. For adopted values of R_0, ω_0, and the variation of $\omega(R)$ with R, the analysis of the 21-cm line profile at a given longitude makes it possible to associate an observed radial velocity with a corresponding distance from the center of the galaxy.

Operationally, the radio astronomer looks along a wide-angle line of sight, and records the integrated intensity of 21-cm emission at all distances along this line as a function of radial velocity. In contrast, the optical astronomer observes radial velocities for individual stars at known (or approximately known) distances, at all longitudes. Because of the differences inherent in the observing and analyzing procedures, it is not surprising that it is difficult to relate the motions of the stars to the motions of the gas. Since the radio observations record a range in radial velocity, it is risky to attempt to identify any one hump in the radio line profile with an optical feature. Yet the great interest in determining whether the motions of the gas and stars are similar makes it worthwhile to devise some method of comparison which will be meaningful.

In an attempt to analyze the stellar data by a method approximating that used for radio observations, the following procedure is adopted. The stars in Table I are divided into 5° zones, each zone centered at a longitude for which a 21-cm line profile is available. The distribution of stellar radial velocities in each zone is compared with the corresponding 21-cm line profile. The zone width adopted, about twice the beamwidth of the Dutch receiver, was chosen so as to include a sufficient number of stars. In the case of radio observations the intensity received at the antenna from two similar sources at different distances would differ, the nearer being more intense. In the present study, however, each star is given unit weight. For the stellar sample, the observational selection should compensate, to some degree, for the natural weighting in the radio observations.

The distribution of the stellar radial velocities from Table I is shown in Fig. 2. The midpoint of each longitude zone and the number of stars in each zone are listed in columns 1 and 2. The remaining columns tabulate the number of stars within each 10 km/sec radial-velocity interval; the midpoint of the velocity interval is shown at the head of each column. No correction for solar motion has been applied. Each Lick radial velocity for stars $m\geqslant 6.5$ has been corrected +10 km/sec, as suggested by Feast and Thackeray (1958). For stars with a velocity in GCRV which is a weighted mean of several observations, including Lick, the Lick observations have been corrected +10 km/sec and a new weighted mean computed. A total of 455 Lick (or means including Lick) stars are included in the 1440 stars.

The sine curve superimposed in the tabulated values of Fig. 2 represents the zero point of radial velocity, after correction for the local solar motion of 20 km/sec toward $\alpha=270°$, $\delta=+30°$ ($\dot{x}_0=+10.5$, $\dot{y}_0=+15$, $\dot{z}_0=+7$ km/sec). This value was chosen to conform to the value used in reducing the radio observations. The (approximate) double sine in Fig. 2 marks the limits of the radial velocities predicted by Eq. (1) for the neutral hydrogen to a distance of 3 kpc, with $R_0=8.2$ kpc, $\omega_0=26.4$ km/sec per kpc, and the variation of $\omega(R)$ with R as given by Schmidt (1956). If the motion of the stellar component of the galaxy is similar to that of the gaseous component, this double sine should also mark the limits of the stellar radial velocities. Radial velocities in excess are due to either random motions, systematic noncircular motions, or errors in the adopted parameters. However, because in most longitude zones the stellar sample includes no stars as distant as 3 kpc, the amplitude of variation should actually be smaller than that shown by the curve.

These radial velocity distributions are plotted as histograms in Fig. 3. The number of stars in each 10 km/sec interval, corrected for the local solar motion, is shown for 28 longitude zones. In some cases, the sum of two adjacent zones has been plotted. The bar at the base of each histogram indicates the radial-velocity range predicted for the radio model of the galaxy, to a distance of 3 kpc from the sun; the black portion of the bar is the velocity range to a distance of 1.5 kpc. Superimposed on each histogram is that part of the corresponding 21-cm line profile which covers the same radial-velocity interval, corrected only for the local solar motion. For $0°\leqslant l^{II}\leqslant 242°$, the line profiles come from Muller and Westerhout (1957); for $255°\leqslant l^{II}\leqslant 341°$ they are from Kerr, Hindman, and Gum (1959).

l^{II}	No.*	ρ <-60	-55	-45	-35	-25	-15	-5	+5	+15	+25	+35	+45	+55	>+60 km/sec
3°	9	1				2	4	1		1					
8	55				1	3	12	20	13	4		1			1
13	76				1	5	12	17	25	12	3	1			
18	45				1	3	5	9	11	6	4	4	1		1
23	20	1			1	1	4	4	6	1		1		1	
28	11				1		3	2	4	1					
33	11					1	2	4	3	1					
38	11				1	1	1	3	2	1		2			
43	11	1				2	1	4	3						
48	12				1	1	3	5	2						
53	18					1	7	6	4						
58	28			1		5	7	5	8	1	1				
63	12				1	2	4	3	2						
68	14					3	3	3	2	2	1				
74	56	1	1		2	10	20	12	6	1	2		1		
79	27	2	1		1	9	5	7	1		1				
85	16					4	5	4	2	1					
90	14					3	2	6	3						
95	9				1	2	5	1							
100	26		1		4	4	11	6							
105	24	1		1	2	7	10	2	1						
110	21	2		2	3	2	6	5	1						
115	21	1		2	1	3	8	3	1	2					
120	14	1		4	1		3	4	1						
125	22		3	2	5	5	2	4	1						
130	23		1	3	5	3	1	5	4	1					
135	40	1	3	16	10	4	5	1							
140	9			1		1	3	3			1				
145	17			1	1	2	2	7	4						
150	16						4	4	7		1				
155	8					1	3	1	3						
160	11			1		3	2	2	2			1			
165	9								6	1		1	1		
170	12							5	3	2			1	1	
175	17					1	2	5	5	3	1				
180	9						1		2	3	2	1			
185	13						1		1	8	3				
190	18						1	2	2	6	4	2	1		
195	24				1			4	4	3	9	2	1		
200	14					1	1	2	3	3	2	1		1	
205	47							4	9	11	9	11	3		
210	25							3	5	3	6	6		2	
215	26							1	4	7	6	3	3		2
220	22				1				2	4	5	5	2	1	2
225	34							1	2	7	12	8	2	2	
230	27						1	1	3	2	9	8	1	1	1
235	41								2	1	17	16	4	1	
240	23						1		3	4	8	3	2	2	
245	12								3	4	3	1	1		
249	8		1				1		1	2	2	1			
253	15					1				4	7	2	1		
258	19					1			2	5	5	5	1		
263	34								2	12	17	2	1		
268	18						1		5	4	4	2	1	1	
273	15							1		3	10	1			
278	17							1	5	7	4				
282	9						1	1	4	3					
287	40				2	7	8	9	6	2	5	1			
292	12						1	3	5	3					
297	19				1	1	3	5	3	3	2	1			
302	25	1		1	3	3	3	3	1	6	3		1		
307	20	1		1	1	6	5	4		1	1				
312	17			1	2	3	3	1	5	2					
318	10						1	6	1	1					1
323	4	1					1	1		1					
328	11		1	1			2	1	6						
333	3				1				2						
338	15			2	2		4	2	3		1	1			
343	24	2		1	5	5	7	2		1	1				
348	9		1			1	2	1	4						
353	11				2	1	2		4	2					
358	5			1	1			2		1					

FIG. 2. The distribution of stellar radial velocities from Table I, by longitude zones. The midpoint of each radial velocity interval is shown at the top of each column. The sine curve represents the zero point of radial velocity after correction for the local solar motion. The (approximate) double sine marks the limits of the radial velocities predicted by the radio model of the galaxy for matter at a distance of 3 kpc from the sun.

At each longitude, the stellar and radio radial velocities should be compared only over the range predicted by Eq. (1), indicated by the bar in each zone. In the radio line profiles, radial velocities in excess of those predicted are assumed to come from clouds at distances greater than $r=3$ kpc.

The comparison of the line profiles and the optical histograms can be only qualitative, at best; we are not comparing areas under the curves but only gross features. For small l^{II}, although the histograms have well-defined maxima, the range in radial velocity is considerably greater than predicted. The width of the 21-cm line profiles is also greater, but this is attributed to emission from clouds at great distances from the sun. In the profile at $l^{\mathrm{II}}=26°$, for example, the maximum at $\rho=-35$ km/sec is placed at about $r=17$ kpc, i.e., beyond the center of the galaxy, because at this longitude all radial velocities within 3 kpc of the sun should be positive. In the stellar case, with distances of the stars known, the excess radial velocities and the negative tails for $l^{\mathrm{II}}<79°$ give some idea of the random stellar velocities; peculiar motions of 20 km/sec in one component must be common if we adopt the radio model of the galaxy.

In general, the agreement between the radio and the stellar data is reasonable, for $l^{\mathrm{II}}<70°$, with the exception that the stellar velocities cover a greater range than that expected from Eq. (1).

At $l^{\mathrm{II}}=79°$, clouds with $r=3$ kpc are at a distance $R=8.2$ kpc from the center of the galaxy, so $\omega(R)-\omega_0=0$. The optical radial-velocity distribution at this longitude thus reflects only the random motions of the stars. However, the observed radial-velocity spread of over 50 km/sec at this longitude is well over twice the random cloud velocity of 6 km/sec adopted by Westerhout (1957). A curious fact is that this zone contains exceptionally young stars: 6 of the 27 stars in the zone are O9 or earlier, only 4 are B3 or later. The 13 stars with $\rho\leqslant-5$ km/sec contain only one star later than B1.5. Thus the youngest stars, which might be expected to reflect the motions of the gas from which they have recently formed, are moving with velocities considerably in excess of the adopted random gas velocity. However, the apparent random motions of the order of 20 km/sec indicated by the stars in this zone ($l^{\mathrm{II}}=79°$) are close to the value $\bar{\sigma}=14.8\pm2.2$ km/sec computed by Feast and Thackeray (1958) from their study of 150 O and B stars.

In the longitude zones $87°\leqslant l^{\mathrm{II}}\leqslant147°$, the second maximum in the radio profiles, at about $\rho=-50$ km/sec, is due to hydrogen in the Perseus arm. Similar secondary peaks are lacking in the stellar sample. In these regions especially, only velocities included in the darkened portion of the bar should be considered, because of the absence of stars beyond about $r=1.5$ kpc. Here, too, the range in stellar velocities exceeds the predicted range.

In the third quadrant, the stellar radial velocities are excessively negative, with respect to the radio observations and the predicted velocities, even though a correction of +10 km/sec has been applied to the Lick observations. If the circular velocity of these stars is greater than that adopted for the radio model, then excess negative velocities would be observed. Corresponding excess positive velocities would be expected in the second quadrant, but the lack of distant stars in this quadrant makes the comparison impossible at this time.

For $l^{\mathrm{II}}>270°$, there is general agreement between the main features of the histograms and the radio line profiles. The large positive tails in both the radio and the optical cases have signs opposite to that expected for nearby objects in the fourth quadrant.

From this general qualitative comparison it appears that the distributions of stellar radial velocities in the galactic plane are not dissimilar to the radial velocity distributions of the 21-cm line profiles. This was to be expected, perhaps, for the adopted procedure is insensitive to small-scale irregularities. However, in

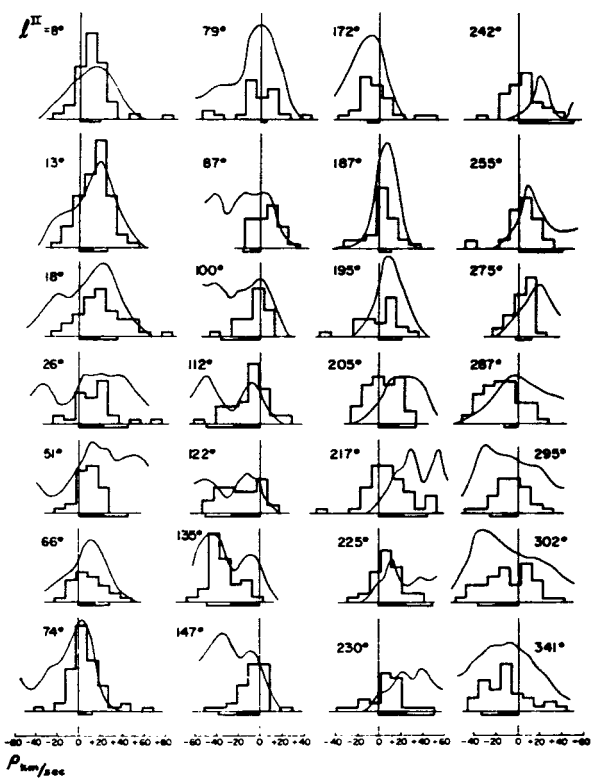

FIG. 3. A comparison, by longitude zones, of the distribution of stellar radial velocities with the corresponding 21-cm line profile. The number of stars in each 10 km/sec velocity interval is shown by the histogram; the radial-velocity scale is at the base of each column. Both stellar and radio radial velocities have been corrected for the local solar motion. The bar at the base of each histogram indicates the predicted range of radial velocities for matter within 3 kpc of the sun, on the usual radio model of the galaxy. The blackened portion of each bar represents the predicted velocity range to a distance of $r=1.5$ kpc.

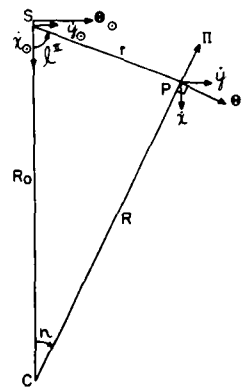

FIG. 4. The kinematical relations between the sun S, the center of the galaxy C, and a star at P. The sun has rectangular velocity components $\dot{x}_0$ and $\dot{y}_0$ in the galactic plane. The rotational velocity about the center of the galaxy at the position of the sun is Θ_0. The star at P has rectangular velocity components $\dot{x}$ and $\dot{y}$. For P, the cylindrical velocity components about the center of the galaxy are given by Θ, at right angles to the line CP and positive in the direction of rotation; and Π, radial along the line CP and positive outward.

many directions the stellar radial velocities exceed those predicted by the usual radio model of the galaxy. Two explanations could account for this. It is likely that random stellar velocities are larger than random motions assumed for the clouds. Unfortunately, the random motions of both the stars and of the gas clouds are not known with any certainty. In the stellar case, the large motions of O and B stars in associations are attributed by Blaauw (1956 and references therein) to an expansion from newly formed associations. Petrie (1958) and Woolley and Eggen (1958) conclude that such motions are random, rather than systematic. In either case, however, it would be expected that in some directions in the galactic plane, large ranges in stellar radial velocities would be observed. Whether, in such regions, a corresponding larger velocity of the *H* I clouds is to be expected depends on the model one adopts for the formation of stars and associations. An excellent review of this problem has been given by Kahn (1960) and is omitted here.

A second explanation for the spread in the observed stellar radial velocities is that the distance from the center of the galaxy to the sun is greater than 8.2 kpc (Weaver 1961). If R_0 is increased to $R_0=10$ kpc, but $\omega(R)-\omega_0$ is not altered, then the absolute value of the predicted radial velocity at each longitude [Eq. (1)] would be increased by about 25%; each bar in Fig. 3 would be lengthened by 25%. This correction would not account for the long tails of the distributions, with signs opposite to those predicted, nor would it improve the agreement in the directions where $\omega(R)-\omega_0$ is small. In many directions, however, increasing R_0 would improve the agreement between the stellar and the 21-cm observations.

The double sine in Fig. 2 has been drawn for $R_0=8.2$ kpc, $r=3$ kpc. For a value of $R_0=10$ kpc, the same curve would indicate the predicted radial velocity for matter at $r=2.3$ kpc. This distance is a reasonable one for the stellar sample; only 10% of these stars have $r>2.3$ kpc. Hence the curve for $R_0=10$ kpc, $r=2.3$ kpc should represent fairly well the limits of the radial-velocity distribution.

IV. GALACTIC SPACE MOTIONS

Munch and Munch (1960) have recently deduced a rotation curve for the inner parts of the galaxy from the radial velocities of 18 distant early-type stars, assuming circular orbits about the galactic center. Each observed radial velocity was resolved into a velocity at right angles to the radius vector from the center to the star, and the variation of this rotational velocity was examined as a function of distance from the center. Toward the center of the galaxy, where the results are of most interest, the angle between the radial velocity and the circular component approaches 90°, so any random stellar motion or motion of the star radial from the center will be magnified and included in the circular component. While additional radial-velocity data will eliminate the influence of the random motions, systematic radial motions will continue to obscure the results.

It is possible to determine a rotation curve of the stellar component of the galaxy in the solar vicinity, from the space motions of early-type stars in the galactic disk, without assuming strictly circular motions. In this case, the proper motions as well as the radial velocities are employed. Even though the accuracy of the proper motions has long been a subject of debate, it should be possible to obtain meaningful results for a large sample of stars, barring large systematic errors in the proper motions.

In Fig. 4, a star near the galactic plane at P is at longitude l^{II} and distance r from the sun S. The center of the galaxy is at C; the distance from the sun to the center of the galaxy is R_0, the distance from the center to the star is R. The sun is assumed to have known velocity components $\dot{x}_0$, $\dot{y}_0$, and $\dot{z}_0$ with respect to the local standard of rest: $\dot{x}_0$ in the direction $l^{\mathrm{II}}=0°$, $b^{\mathrm{II}}=0°$; $\dot{y}_0$ in the direction $l^{\mathrm{II}}=90°$, $b^{\mathrm{II}}=0°$; $\dot{z}_0$ in the direction $b^{\mathrm{II}}=90°$. In the vicinity of the sun, the rotational velocity about the center of the galaxy is given by $\Theta_0=\omega_0 R_0$.

For a star at P with observed proper motion and radial velocity, the tangential velocity components in longitude T_l, and latitude T_b, computed from the proper motion in longitude and latitude, are given by

$$T_l=\kappa r\mu_l'' \text{ km/sec}, \quad T_b=\kappa r\mu_b'' \text{ km/sec}; \quad \kappa=4.74. \quad (2)$$

The space components in the galactic plane, corrected for the local solar motion and the rotational velocity

at the sun, are

$$\dot{x}_c = -T_l \sin l^{II} - T_b \cos l^{II} \sin b^{II} + \rho \cos l^{II} \cos b^{II} + \dot{x}_0, \quad (3)$$

$$\dot{y}_c = T_l \cos l^{II} - T_b \sin l^{II} \sin b^{II} + \rho \sin l^{II} \cos b^{II} + \dot{y}_0 + \Theta_0. \quad (4)$$

We now define a cylindrical velocity component system, centered at the center of the galaxy; Θ is the velocity component perpendicular to the radius vector from the center to the star, parallel to the galactic plane, and positive in the direction of rotation; Π is the component radial from the center of the galaxy, parallel to the galactic plane and positive outward; Z is the component perpendicular to the galactic plane. For the star at P, the Θ and Π components are

$$\Theta = \dot{x}_c \sin n + \dot{y}_c \cos n, \quad (5)$$

$$\Pi = -\dot{x}_c \cos n + \dot{y}_c \sin n, \quad (6)$$

where n is the galactocentric longitude of P, measured in the direction of rotation.

If P is in the galactic plane, $\dot{x}_c$ and $\dot{y}_c$ simplify, and Fig. 4 is a plane figure. If P is not in the galactic plane, then in Fig. 4, $\dot{x}_c$, $\dot{y}_c$, Θ, and Π are not in the plane of the page, but parallel to it. Equations (5) and (6) are exact; no approximation has been made in computing the Θ and Π components of each star.

Because of the greater accuracy in the linear velocity determined from radial-velocity observations than from the proper-motion observations, it is important to be able to estimate the probable error in each of the computed components. For a star in the direction of the center of the galaxy, the Π component is coincident with the radial-velocity component, so the probable error of Π for stars in this direction will not increase for increasing distance of the stars. The Θ component in this direction coincides with the proper-motion component, and hence its probable error will be larger for more distant stars. For a star near $l^{II}=90°$, the Θ component is coincident with the radial velocity and will be well determined. In addition, for any chosen distance R from the center of the galaxy, some stars will be near the sun, others will have $r \approx 3$ kpc. These latter stars will have less well determined Θ and Π components, and should be given less weight in the determination of mean Θ and mean Π for that value of R.

For these reasons, a probable error of each component has been computed for every star as follows. From Eqs. (3) and (4), for a star in the galactic plane, to first order in r/R,

$$\dot{x}_c = -T_l \sin l^{II} + \rho \cos l^{II} + \dot{x}_0, \quad (7)$$

$$\dot{y}_c = T_l \cos l^{II} + \rho \sin l^{II} + \dot{y}_0 + \Theta_0, \quad (8)$$

$$\cos n = 1, \quad (9)$$

$$\sin n = (r/R) \sin l^{II}. \quad (10)$$

TABLE III. Proper-motion data for 898 O–B5 stars.

Source No.	Source	Number of stars	Probable error
1	Bertiau (1958)	30	±0".003
2	Morgan (1956)	304	.003
3	Morgan (1952)	51	.003
4	*Yale Trans.* 24, 25, 26, 27	78	.004
5	*Cape Obs. Ann.* XVII, XVIII, XIX, XX	35	.007
6	General Cat. (Boss 1937)	211	.006
7	*Yale Trans.* 12–14; 16–22	185	.007
8	Reiz (1957)	3	.006
9	Morgan (1933)	1	±0.006

Hence from (5) and (6),

$$\Theta = \dot{x}_c (r/R) \sin l^{II} + \dot{y}_c, \quad (11)$$

$$\Pi = -\dot{x}_c + \dot{y}_c (r/R) \sin l^{II}. \quad (12)$$

To a degree of approximation which is satisfactory for the error analysis, we write

$$\epsilon(\Theta) \approx \epsilon(\dot{y}_c), \quad (13)$$

$$\epsilon(\Pi) \approx \epsilon(-\dot{x}_c), \quad (14)$$

where ϵ represents the probable error of the quantity in parenthesis. Hence from (2), (8), (13), and the relation between m and r,

$$\epsilon(\Theta) = \epsilon(T_l \cos l^{II} + \rho \sin l^{II} + \dot{y}_0 + \Theta_0), \quad (15)$$

$$\epsilon(T_l) = \pm[\kappa^2 r^2 \epsilon^2(\mu_l) + \kappa^2 \mu_l^2 \epsilon^2(r)]^{\frac{1}{2}}, \quad (16)$$

$$\epsilon(r) = r[(\log_e 10)/5] \epsilon(m_0 - M). \quad (17)$$

Thus,

$$\epsilon(\Theta) = \pm\{\kappa^2 r^2 \cos^2 l^{II} [\epsilon^2(\mu_l) + 0.21 \mu_l^2 \epsilon^2(m_0 - M)] + \sin^2 l^{II} \epsilon^2(\rho)\}^{\frac{1}{2}}. \quad (18)$$

For any star, the probable error of Θ involves two terms, one of which varies as $r \cos l^{II}$ times the probable error in the proper-motion observations, and will be the dominant term except when $\cos l^{II}$ is small. The second term varies as $\sin l^{II}$ times the probable error in the radial-velocity observations, and is not a function of distance of the star. In directions where $\cos l^{II}$ is small, $\epsilon(\Theta)$ will be small, in general; for stars with large r and $\cos l^{II} \approx 1$, $\epsilon(\Theta)$ will be large. At any given R, the stars with large probable errors should be given less weight in the formation of the mean Θ for that R.

Similarly, from Eqs. (2), (7), and (14),

$$\epsilon(\pi) = \pm\{\kappa^2 r^2 \sin^2 l^{II} [\epsilon^2(\mu_l) + 0.21 \mu_l^2 \epsilon^2(m_0 - M)] + \cos^2 l^{II} \epsilon^2(\rho)\}^{\frac{1}{2}}. \quad (19)$$

The error in the Π component will be smallest for $\cos l^{II} \approx \pm 1$, i.e., toward the center and anticenter.

For 898 stars with absorption measures and computed values of $m_0 - M$ in Table I, proper motions on the N30 system were obtained. The sources of the proper motions and the adopted probable error of each source are listed in Table III.

Proper motions not on the N30 system were converted to N30 by means of the tables given by Morgan (1952). Proper motions from sources 4, 5, 7, and 9 were first converted to the GC system by tables published in each source, then converted to N30. The correction to the precession recommended by Morgan and Oort (1951) has been applied.

For 898 proper-motion stars indicated by an asterisk in Table I, the Θ and Π components and the probable errors of each have been computed on the NASA IBM 7090. The results of the calculations are contained in Table IV. A description of the table follows.

Cols. 1, 2, and 3: Star number, longitude (l^{II}), and radial velocity, repeated from Table I. The Lick radial velocities have not been corrected.

Cols. 4 and 5: Annual proper motion in right ascension μ_α and declination μ_δ, on the N30 system, with the Morgan–Oort (1951) correction applied.

Cols. 6 and 7: Annual proper motion in galactic longitude μ_l and galactic latitude μ_b, based on the new galactic coordinates.

Col. 8: Distance from the sun to the star r computed from m_0-M, Table I.

Col. 9: Distance from the center of the galaxy to the star R for $R_0=8.2$ kpc. A change in R_0 would change each computed R by the same amount, to first order in r/R.

Cols. 10 and 11: The tangential motion in longitude T_l and latitude T_b, in km/sec, not corrected for the local solar motion.

Cols. 12, 13, and 14: Components of space motion of the star, $\dot{x}$, $\dot{y}$, and $\dot{z}$, centered at the sun, uncorrected for solar motion. The axes are directed: $\dot{x}$ toward $l^{\mathrm{II}}=0°$, $b^{\mathrm{II}}=0°$; $\dot{y}$ toward $l^{\mathrm{II}}=90°$, $b^{\mathrm{II}}=0°$; $\dot{z}$ toward $b^{\mathrm{II}}=90°$.

Col. 15: The component of motion of the star at right angles to the radius vector from the center of the galaxy to the star Θ, computed from Eq. (5), minus the circular velocity at the sun. This is followed by the computed probable error of Θ, Eq. (18). Conventional values for the local solar motion and the rotational velocity at the sun were adopted: $\dot{x}_0=+10.5$ km/sec, $\dot{y}_0=+15$ km/sec, $\dot{z}_0=+7$ km/sec, $\Theta_0=215$ km/sec (van de Hulst, Muller, and Oort 1954; these authors use $\Theta_0=216$ km/sec). The following probable errors of observation were adopted:

$\epsilon(m_0-M)$ $=\pm 0^{\mathrm{m}}.3$,

$\epsilon(\rho)$ $=\pm 5$ km/sec for 683 non-Lick stars,

$\epsilon(\rho)$ $=\pm 8$ km/sec for 215 Lick stars,

$\epsilon(\mu_l)$ from Table III.

Col. 16: The component of the motion of the star in the direction radial from the center of the galaxy, followed by the probable error. These quantities have been computed from Eqs. (6) and (19), with the parameters listed above.

Col. 17: The source of the proper motion; the numbers refer to Table III. Where two sources are listed, the mean of two published values has been adopted.

The formation of a rotation curve for the stellar component of the galaxy is discussed in the next section.

V. ROTATION CURVE

For each of the 898 stars in the solar vicinity, a Θ component of motion has been computed, without any assumption of circular orbits of the stars. However, in order to form from these values one mean curve, we must assume that it is meaningful to group all the stars at a given distance from the center of the galaxy into one mean point. This mean is then the value $\langle\Theta\rangle$ for that R.

The stars in Table IV were divided into 18 groups according to distance from the center of the galaxy. A weighted mean and its probable error, $\langle\Theta\rangle\pm\epsilon(\langle\Theta\rangle)$, was formed for each group, using the relation

$$\langle\Theta\rangle\pm\epsilon(\langle\Theta\rangle)=\frac{\Sigma w_i\Theta_i}{\Sigma w_i}\pm 0.6745\left[\frac{\Sigma w_i(\Theta_i-\langle\Theta\rangle)^2}{(n-1)\Sigma w_i}\right]^{\frac{1}{2}}. \quad (20)$$

The weight corresponding to each value Θ_i is the inverse square of the computed probable error of Θ_i. The weighted mean and the probable error of the weighted mean is shown for each of the 18 distance groups in the lower drawing of Fig. 5; the values are listed in Table VI. Eight isolated stars closest to the center and the two most distant ones have not been included in the mean. The solid curve represents the rotation curve of the gaseous component of the galaxy, from Kwee, Muller, and Westerhout (1954) and Schmidt (1956).

For distances closer to the center of the galaxy than the sun, the rotation curve lies above the radio curve. This is similar to the results of Munch and Munch (1960) from the analysis of the radial velocities of 18 distant OB stars. For distances farther from the galactic center than the sun, the stellar velocities do not decrease as does the Schmidt curve, as is expected on the basis of Keplerian orbits.

At $R=8.2$ kpc, the value of $\langle\Theta\rangle-\Theta_0$ is zero, for $\dot{y}_0=+15$ km/sec. This implies that with respect to all stars in the ring $R=8.2$ kpc in this sample, the sun is moving 15 km/sec faster than the mean rotational velocity at this distance.

It is important to investigate to what extent this computed rotation curve would be affected by systematic errors in the observed quantities. In this section we consider the effects of systematic observational errors in (a) the MK luminosity calibration; (b) the proper-motion system; (c) the radial velocities.

TABLE IV. Distances, radial velocities, proper motions, and galactic space motions for 898 O–B5 stars.

Star No. (1)	l^{II} (2)	ρ km/sec (3)	μ_α 0".0000 (4)	μ_δ 0".0000 (5)	μ_l 0".0000 (6)	μ_b 0".0000 (7)	r kpc (8)	R kpc (9)	T_l km/sec (10)	T_b km/sec (11)	$\dot{x}$ km/sec (12)	$\dot{y}$ km/sec (13)	$\dot{z}$ km/sec (14)	$\Theta-\Theta_0$ km/sec (15)	Π km/sec (16)	Source μ_α-δ (17)
1	0°.46	− 4	+00	−20	−17	−12	0.2	8.0	− 16	− 11	− 2	− 16	− 11	− 1± 4	− 8± 5	2
2	0.89	+ 17	−01	+10	+08	+06	3.3	4.9	+126	+ 97	+ 20	+126	+ 96	+142 111	− 27 5	7
6	3.59	− 72	−10	−07	−13	+08	2.5	5.7	−153	+ 93	− 67	−157	+ 89	−144 86	+ 59 7	7
7	4.53	− 11	+04	+02	+05	−04	1.2	7.0	+ 27	− 22	− 13	+ 26	− 22	+ 41 34	+ 6 6	6,7
10	5.43	− 15	+00	−02	−02	−02	0.8	7.4	− 6	− 7	− 13	− 7	− 9	+ 7 25	+ 5 8	7
11	5.85	+ 3	−03	+14	+10	+10	2.8	5.5	+134	+134	− 7	+134	+134	+149 93	+ 15 11	7
12	5.97	− 11	+06	+06	+09	−04	0.4	7.8	+ 19	− 9	− 13	+ 17	− 8	+ 32 12	+ 4 8	6.7
13	6.01	+ 9	+02	−01	+01	−03	1.2	7.0	+ 4	− 18	+ 8	+ 4	− 18	+ 20 17	− 14 5	2
20	6.12	− 14	−16	−01	−12	+18	1.4	6.8	− 76	+120	− 3	− 76	+120	− 61 47	− 4 9	7
21	6.12	+ 3	+04	−04	−01	−07	1.6	6.6	− 5	− 53	+ 2	− 5	− 52	+ 10 22	− 7 8	2
22	6.99	− 2	−06	−12	−14	+01	2.8	5.5	−187	+ 12	+ 21	−186	+ 12	−169 85	− 29 12	6
23	7.00	+ 4	+09	+01	+07	−11	2.8	5.5	+ 94	−138	− 8	+ 94	−138	+109 41	+ 18 9	2
24	7.05	+ 5	+03	−08	−05	−08	1.1	7.1	− 25	− 43	+ 9	− 24	− 43	− 9 17	− 15 8	2
25	7.15	− 5	+10	+05	+12	−10	1.9	6.3	+104	− 88	− 17	+103	− 88	+117 64	+ 19 9	7
26	7.15	− 17	+12	+46	+48	+08	1.1	7.1	+251	+ 44	− 48	+247	+ 43	+261 50	+ 47 10	7
27	7.16	− 13	+04	−08	−04	−09	1.7	6.5	− 33	− 75	− 9	− 34	− 75	− 19 25	+ 5 6	2
28	7.24	− 5	+09	+05	+11	−09	0.4	7.8	+ 21	− 17	− 8	+ 20	− 17	+ 35 14	− 1 8	7
29	7.35	− 9	+12	+05	+13	−12	1.7	6.6	+101	− 96	− 22	+ 98	− 96	+113 49	+ 22 10	6,7
30	7.35	− 23	+14	−30	−16	−32	1.8	6.4	−140	−276	− 7	−142	−276	−127 55	0 11	6,7
31	7.48	− 19	+03	+41	+38	+16	0.8	7.4	+136	+ 59	− 37	+132	+ 59	+147 31	+ 31 9	7
32	7.59	− 9	+06	+04	+08	−06	1.5	6.7	+ 56	− 40	− 17	+ 54	− 40	+ 69 50	+ 14 10	7
36	7.69	− 14	+00	+15	+13	+07	2.1	6.1	+131	+ 71	− 32	+128	+ 71	+141 62	+ 38 11	6,7
39	7.72	− 16	−31	−05	−25	+35	0.5	7.7	− 60	+ 82	− 6	− 61	+ 82	− 46 18	− 3 8	7
42	7.93	− 7	−06	+39	+30	+26	0.7	7.5	+ 98	+ 86	− 19	+ 97	+ 86	+111 26	+ 13 9	7
44	8.22	+ 5	−02	+13	+10	+08	0.5	7.7	+ 25	+ 21	+ 2	+ 26	+ 21	+ 41 18	− 10 8	7
45	8.23	+ 6	−27	+08	−13	+37	2.1	6.1	−129	+361	− 18	−132	+360	−118 71	+ 12 13	7
46	8.31	− 12	+10	+21	+25	−02	0.5	7.7	+ 55	− 5	− 20	+ 52	− 5	+ 67 17	+ 12 8	7
48	8.47	− 24	+18	+22	+32	−11	0.5	7.7	+ 68	− 25	− 34	+ 64	− 24	+ 79 18	+ 26 8	7
49	8.48	− 34	+09	−02	+04	−12	0.6	7.6	+ 13	− 37	− 36	+ 8	− 36	+ 23 21	+ 29 8	7
50	8.51	− 17	+03	+05	+06	−02	0.9	7.3	+ 28	− 7	− 21	+ 25	− 6	+ 40 30	+ 15 9	7
52	8.52	+ 7	+04	+11	+13	+01	3.3	4.9	+205	+ 9	− 25	+204	+ 10	+215 112	+ 57 19	7
54	8.81	− 20	−14	+07	−04	+20	0.9	7.3	− 16	+ 84	− 26	− 20	+ 81	− 6 29	+ 19 9	7
55	8.93	− 6	+00	−02	−02	−01	1.9	6.3	− 14	− 13	− 4	− 15	− 13	0 27	+ 3 9	2
57	9.02	− 6	−01	−03	−03	−01	0.8	7.5	− 11	− 3	− 4	− 12	− 3	+ 3 21	− 3 9	6,7
58	10.05	− 4	−06	−16	−18	−01	1.6	6.6	−135	− 7	+ 19	−133	− 7	−117 55	− 26 13	7
59	10.08	− 11	−04	−36	−34	−13	1.7	6.5	−379	−110	+ 39	−276	−110	−259 68	− 52 14	7,7
60	10.36	− 27	+03	+03	+05	−03	1.8	6.4	+ 43	− 23	− 34	+ 38	− 24	+ 51 26	+ 37 9	2
61	10.36	+ 3	+14	−14	−03	−24	2.4	5.9	− 29	−278	+ 4	− 29	−278	− 13 78	+ 1 16	7
63	10.45	− 6	+05	+01	+04	−06	1.7	6.6	+ 34	− 49	− 14	+ 32	− 48	+ 47 24	+ 15 7	2
67	10.75	− 5	+03	−02	+00	−05	1.6	6.6	+ 3	− 39	− 6	+ 2	− 39	+ 17 22	+ 6 6	2
68	11.02	− 16	+21	−19	−03	−35	0.7	7.5	− 11	−121	− 23	− 16	−120	− 1 24	+ 16 9	7
69	11.06	− 8	+20	−13	+02	−32	2.5	5.8	+ 29	−375	− 19	+ 26	−375	+ 39 82	+ 30 18	7
71	11.26	+ 3	+06	−05	−00	−10	2.6	5.6	− 1	−130	+ 2	− 1	−130	+ 14 37	+ 8 11	2
72	11.31	− 23	−01	+09	+07	+05	1.4	6.9	+ 48	+ 33	− 32	+ 43	+ 33	+ 57 45	+ 32 12	7
73	11.40	+ 3	+22	+17	+29	−20	0.7	7.6	+ 90	− 63	− 23	+ 87	− 63	+102 25	+ 18 9	7
74	11.41	− 9	−26	+05	−12	+34	1.1	7.1	− 66	+185	+ 25	− 63	+184	− 47 38	− 30 11	7
75	11.65	− 8	+08	+06	+11	−08	0.6	7.6	+ 29	− 21	− 14	+ 27	− 21	+ 42 9	+ 7 8	2
77	11.82	+ 6	+12	−04	+05	−17	0.3	8.0	+ 6	− 21	+ 5	+ 8	− 21	+ 23 7	− 14 8	6,7
78	11.82	+ 17	−12	−48	−50	−08	2.9	5.4	−688	−114	+152	−671	−115	−636 132	−210 28	7
79	11.83	− 13	−05	+09	+05	+10	2.1	6.2	+ 46	+ 99	− 21	+ 42	+ 99	+ 56 68	+ 29 16	7
81	11.86	− 10	+25	−03	+15	−33	0.8	7.5	+ 53	−119	− 22	+ 49	−119	+ 64 26	+ 18 10	7
82	11.97	+ 2	+17	−05	+08	−24	0.3	7.9	+ 12	− 36	+ 1	+ 13	− 36	+ 28 11	− 9 8	7
83	11.98	0	−15	−06	−15	+15	2.8	5.5	−200	+198	+ 45	−195	+198	−175 93	− 51 21	7
85	12.00	− 8	+07	+07	+11	−06	0.9	7.4	+ 45	− 25	− 18	+ 42	− 24	+ 57 29	+ 14 10	7
86	12.13	− 23	−09	−01	−07	+10	1.2	7.0	− 39	+ 58	− 15	− 43	+ 57	− 29 39	+ 11 12	7
87	12.27	− 11	+10	−03	+04	−15	0.6	7.6	+ 13	− 43	− 14	+ 10	− 43	+ 25 21	+ 8 9	7
89	12.57	− 3	+01	+19	+17	+07	2.5	5.8	+208	+ 87	− 47	+203	+ 87	+212 86	+ 78 21	7
92	12.70	+ 9	+04	−03	+00	−07	1.2	7.0	+ 1	− 40	+ 8	+ 3	− 40	+ 19 17	− 9 6	2
93	12.71	− 1	+08	+02	+07	−10	2.2	6.1	+ 76	−100	− 20	+ 73	−100	+ 86 32	+ 34 11	2
94	12.71	+ 26	+02	−06	−04	−06	2.2	6.1	− 40	− 62	+ 32	− 33	− 63	− 15 61	− 27 15	6,7
95	13.09	+ 6	+04	−33	−26	−21	2.3	6.0	−284	−226	+ 84	−271	−225	−248 83	− 98 21	7
96	13.16	− 23	−01	−11	−11	−04	0.3	7.9	− 14	− 6	− 19	− 19	− 3	− 4 9	+ 11 8	7
99	13.36	− 17	+19	−06	+08	−27	1.5	6.7	+ 60	−197	− 27	+ 55	−197	+ 69 50	+ 31 14	7
100	13.44	− 2	−02	−00	−01	+02	1.5	6.7	− 8	+ 13	0	− 8	+ 13	+ 7 49	+ 1 14	7
101	13.44	− 26	+13	−23	−11	−28	0.5	7.7	− 28	− 73	− 18	− 34	− 73	− 19 18	+ 11 9	7
102	13.46	− 16	+04	+15	+15	+03	0.3	7.9	+ 20	+ 4	− 20	+ 16	+ 3	+ 31 9	+ 13 8	7
103	13.47	− 23	−08	+06	−00	+12	2.1	6.2	− 1	+122	− 24	− 7	+121	+ 6 67	+ 32 17	7
104	13.53	+ 6	+21	+02	+17	−26	2.1	6.2	+165	−258	− 28	+163	−258	+175 71	+ 48 19	7
105	13.67	− 11	+15	−23	−10	−30	0.6	7.6	− 31	− 91	− 7	− 33	− 90	− 18 21	+ 1 9	7
106	13.68	− 6	+02	−14	−11	−10	0.5	7.7	− 27	− 25	0	− 28	− 24	− 13 17	− 7 9	7
107	13.69	− 8	+26	−00	+18	−33	3.0	5.3	+254	−477	− 80	+242	−477	+244 103	+123 26	7
113	13.91	− 31	+06	−15	−09	−14	0.7	7.6	− 28	− 45	− 20	− 34	− 47	− 19 22	+ 14 9	7
115	13.95	− 18	−03	−09	−10	−00	1.0	7.2	− 49	− 1	− 6	− 52	− 1	− 37 33	+ 1 11	7
116	13.96	− 5	−06	−31	−33	−04	2.6	5.7	−413	− 55	+ 96	−402	− 55	−374 101	−125 26	7
118	14.07	− 5	+10	+12	+17	−08	1.8	6.5	+151	− 66	− 43	+145	− 65	+157 62	+ 58 17	7
119	14.14	− 18	+05	+17	+18	+01	0.6	7.6	+ 50	+ 3	− 29	+ 45	+ 3	+ 59 20	+ 24 9	7
120	14.20	− 23	+33	−15	+09	−49	0.9	7.4	+ 39	−204	− 35	+ 31	−204	+ 46 29	+ 33 11	7
121	14.22	− 4	−16	−05	−15	+17	0.8	7.4	− 60	+ 67	+ 12	− 59	+ 67	− 43 28	− 18 10	7
122	14.25	− 7	+17	−34	−18	−38	3.3	5.1	−286	−601	+ 50	−282	−601	−257 113	− 69 30	7
124	14.40	+ 3	+13	+01	+10	−17	3.3	5.1	+152	−262	− 46	+145	−261	+150 108	+ 96 29	7
127	14.50	− 11	−03	−19	−19	−05	2.2	6.1	−199	− 51	+ 40	−195	− 51	−175 75	− 47 21	7
128	14.52	− 18	+05	−08	−04	−11	2.4	5.9	− 44	−122	− 15	− 50	−120	− 36 34	+ 23 12	2
129	14.57	0	+26	−17	+03	−41	2.8	5.6	+ 38	−529	+ 3	+ 40	−529	+ 55 80	+ 30 24	7
130	14.65	− 4	+09	−09	−02	−15	1.8	6.5	− 17	−131	+ 3	− 17	−131	− 1 58	+ 1 17	7
131	14.79	− 15	+08	+05	+09	−07	0.7	7.5	+ 32	− 25	− 23	+ 27	− 25	+ 42 24	+ 19 10	7
132	14.85	− 6	+03	−06	−04	−06	2.9	5.5	− 49	− 85	+ 9	− 48	− 85	− 32 93	+ 6 26	7
133	15.07	− 3	+04	−12	−08	−10	1.7	6.5	− 67	− 85	+ 16	− 65	− 85	− 48 56	− 15 17	7
134	15.10	− 41	+08	−17	−10	−18	0.7	7.5	− 33	− 58	− 32	− 42	− 58	− 28 23	+ 26 10	7
135	15.12	+ 30	−01	+02	+01	+03	2.6	5.7	+ 9	+ 34	+ 25	+ 16	+ 36	+ 33 84	− 5 23	7,7
136	15.28	+ 14	+08	+00	+05	−10	2.1	6.2	+ 54	−104	− 19	+ 50	−105	+ 63 30	+ 34 11	2

TABLE IV (*continued*)

Star No. (1)	l^{II} (2)	ρ km/sec (3)	μ_α 0".0000 (4)	μ_δ 0".000 (5)	μ_l 0".000 (6)	μ_b 0".000 (7)	r kpc (8)	R kpc (9)	T_l km/sec (10)	T_b km/sec (11)	$\dot{x}$ km/sec (12)	$\dot{y}$ km/sec (13)	$\dot{z}$ km/sec (14)	$\Theta-\Theta_0$ km/sec (15)	Π km/sec (16)	Source $\mu_{\alpha,\delta}$ (17)
137	15°.39	− 6	+04	+13	+14	+02	2.6	5.7	+171	+ 20	− 51	+163	+ 20	+170 ± 43	+ 88 ± 14	2
138	15.48	+ 14	+07	+03	+07	−07	1.9	6.4	+ 61	− 63	− 6	+ 62	− 64	+ 76 61	+ 18 19	7
139	15.50	− 33	+22	+04	+18	−26	0.4	7.8	+ 33	− 46	− 41	+ 23	− 46	+ 37 13	+ 33 8	7
141	15.57	− 19	+07	−07	−02	−12	1.3	6.9	− 10	− 74	− 13	− 13	− 75	+ 1 42	+ 13 14	7
143	15.87	− 5	−01	−05	−06	−01	3.3	5.1	− 90	− 9	+ 19	− 88	− 9	− 70 106	− 4 31	7
145	16.03	+ 21	−31	−19	−39	+31	2.2	6.1	−400	+320	+131	−378	+320	−349 88	−156 26	7
147	16.20	− 17	−00	+15	+13	+07	2.1	6.2	+125	+ 74	− 49	+116	+ 75	+126 69	+ 71 21	7
148	16.21	− 16	−00	−15	−14	−07	2.0	6.3	−129	− 63	+ 21	−129	− 63	−111 66	− 22 21	7
149	16.42	− 22	+06	−18	−11	−16	0.8	7.4	− 42	− 61	+ 1	− 44	− 64	− 28 26	− 6 9	7
150	16.60	− 12	−01	−33	−30	−14	0.3	8.0	− 35	− 17	− 3	− 38	− 15	− 23 6	− 6 8	3
152	16.80	− 4	−01	+03	+01	+03	2.3	6.0	+ 16	+ 34	− 9	+ 14	+ 34	+ 28 73	+ 25 23	7,7
154	16.82	− 15	−05	+55	+44	+33	1.9	6.4	+400	+300	−138	+377	+299	+378 80	+179 25	7
155	16.85	+ 27	+07	−26	−19	−21	2.2	6.1	−197	−214	+ 72	−184	−215	−161 74	− 77 24	7
156	16.92	− 16	−07	−19	−22	+00	1.6	6.7	−166	+ 3	+ 33	−163	+ 3	−145 55	− 39 18	7
157	16.94	+ 27	+19	−19	−04	−33	2.6	5.7	− 49	−411	+ 46	− 37	−411	− 16 84	− 30 27	7,7
158	16.94	+ 25	+08	+05	+10	−07	2.2	6.1	+ 99	− 77	− 4	+102	− 77	+116 71	+ 28 23	7,7
160	16.96	+ 26	+19	−04	+09	−26	2.9	5.5	+126	−353	− 7	+130	−353	+141 93	+ 52 29	7,7
161	17.15	+ 3	−12	−03	−11	+14	1.0	7.2	− 56	+ 71	+ 24	− 52	+ 71	− 35 34	− 27 13	7
162	17.21	+ 9	+19	+23	+33	−13	1.6	6.7	+245	− 99	− 67	+236	− 99	+246 60	+ 89 20	7
164	17.54	− 25	+12	+08	+15	−11	0.7	7.5	+ 48	− 37	− 39	+ 38	− 37	+ 53 12	+ 36 8	2
165	17.66	− 36	−25	+08	−11	+36	2.1	6.2	−108	+360	− 14	−118	+358	−104 68	+ 15 23	7
166	17.66	− 7	+07	+14	+17	−02	1.7	6.6	+137	− 17	− 48	+129	− 16	+139 58	+ 66 20	7
167	17.69	− 4	+02	−11	−09	−07	2.1	6.2	− 86	− 74	+ 25	− 82	− 74	− 64 67	− 20 23	7
168	17.76	+ 5	+01	+02	+03	+00	1.6	6.7	+ 19	+ 3	− 1	+ 20	+ 3	+ 35 43	+ 8 16	9
170	17.98	− 13	+17	+09	+19	−17	1.9	6.4	+172	−156	− 68	+159	−156	+167 64	+ 92 22	7
173	18.25	+ 1	+02	+06	+06	+01	1.4	6.9	+ 41	+ 4	− 12	+ 39	+ 4	+ 54 20	+ 18 10	2
174	18.32	+ 23	+13	+15	+22	−09	2.6	5.8	+273	−115	− 61	+267	−115	+270 90	+121 30	7
176	18.44	− 8	−06	+09	+03	+12	1.6	6.7	+ 25	+ 93	− 18	+ 20	+ 92	+ 34 50	+ 26 18	7
178	18.48	+ 19	+22	−11	+05	−33	2.2	6.2	+ 48	−344	− 7	+ 48	−344	+ 62 69	+ 28 24	7
179	18.48	+ 2	+17	+19	+28	−13	1.7	6.6	+228	−105	− 75	+216	−105	+224 62	+101 22	7
180	18.62	− 6	−20	+09	−06	+30	1.4	6.9	− 39	+198	+ 21	− 34	+198	− 17 44	− 19 17	7
181	18.79	− 9	+06	+09	+12	−03	2.6	5.8	+144	− 40	− 55	+133	− 40	+137 85	+ 97 30	7
182	18.91	− 11	+10	+01	+08	−12	1.7	6.6	+ 63	−100	− 25	+ 58	−100	+ 71 55	+ 39 20	7
183	18.99	− 14	+29	−32	−09	−52	1.6	6.7	− 68	−392	+ 1	− 71	−391	− 56 51	+ 1 19	7
184	19.39	− 46	+05	−01	+03	−06	2.2	6.2	+ 27	− 64	− 57	+ 8	− 60	+ 16 69	+ 74 25	7
185	20.02	+ 32	+07	+30	+31	+05	1.9	6.4	+278	+ 48	− 65	+272	+ 48	+279 69	+106 26	7
186	20.04	+ 54	−03	−02	−04	+03	3.0	5.5	− 63	+ 46	+ 74	− 40	+ 44	− 13 95	− 47 35	7
187	21.03	− 11	+03	+09	+09	+00	1.2	7.1	+ 54	+ 2	− 29	+ 46	+ 3	+ 59 38	+ 36 16	7
188	21.06	− 17	+05	−16	−11	−14	0.2	8.0	− 10	− 12	− 12	− 15	− 12	0 3	+ 4 5	2
189	21.43	− 16	+09	+27	+30	+01	1.0	7.2	+150	+ 6	− 69	+134	+ 7	+146 38	+ 78 17	7
192	21.91	− 28	+09	−06	+01	−14	1.7	6.6	+ 4	−119	− 25	− 5	−119	+ 7 54	+ 37 23	7
193	22.16	− 14	+26	−00	+17	−34	1.8	6.6	+147	−292	− 80	+126	−291	+132 59	+107 25	7
196	23.97	+ 50	−08	−23	−26	−00	0.7	7.6	− 87	0	+ 81	− 59	− 2	− 41 24	− 85 11	7
197	24.02	+ 4	+11	−09	−01	−18	0.7	7.6	− 2	− 57	0	− 2	− 57	+ 13 20	− 2 10	7
201	25.05	+ 23	−02	+12	+09	+08	2.1	6.4	+ 86	+ 81	− 15	+ 88	+ 81	+100 64	+ 48 31	7
203	25.20	− 11	−05	−08	−11	+03	2.1	6.4	−110	+ 29	+ 37	−104	+ 29	− 83 64	− 29 31	7
204	25.32	− 46	−13	−06	−14	+15	1.9	6.5	−126	+134	+ 18	−131	+136	−113 59	− 16 29	7
206	25.46	− 16	+05	−12	−08	−12	0.4	7.8	− 15	− 24	− 7	− 20	− 25	− 5 13	+ 1 9	7,7
207	25.78	− 50	−04	−12	−14	+00	2.1	6.4	−134	+ 3	+ 14	−142	+ 11	−124 65	− 12 32	7
208	25.81	+ 6	+09	+06	+12	−09	1.0	7.3	+ 56	− 41	− 20	+ 52	− 41	+ 66 31	+ 26 16	7
210	25.94	− 7	−05	−05	−08	+05	1.8	6.6	− 66	+ 41	+ 25	− 61	+ 41	− 43 55	− 15 28	7
212	28.16	− 4	−02	−03	−04	+02	2.5	6.1	− 44	+ 19	+ 17	− 40	+ 19	− 24 74	+ 9 40	7
213	28.24	− 15	+11	−10	−02	−19	0.2	8.0	− 2	− 19	− 15	− 10	− 16	+ 5 4	+ 7 5	2
214	28.55	− 7	+09	+07	+13	−09	0.6	7.7	+ 37	− 25	− 26	+ 28	− 25	+ 43 19	+ 26 12	7
215	29.06	− 14	−02	−25	−24	−08	0.3	8.0	− 30	− 10	+ 1	− 34	− 8	− 19 5	− 9 5	2
222	32.58	− 6	−13	−07	−15	+14	1.1	7.3	− 82	+ 77	+ 43	− 69	+ 77	− 50 34	− 40 22	7
223	33.66	− 4	−01	−07	−07	−02	0.4	7.8	− 14	− 4	+ 4	− 14	− 4	+ 2 13	− 8 10	7
224	33.85	+ 7	−01	−08	−08	−02	0.7	7.6	− 25	− 8	+ 19	− 17	− 8	− 1 20	− 19 15	7
225	34.13	− 22	+03	−07	−04	−08	0.4	7.9	− 8	− 13	− 13	− 18	− 16	− 3 5	+ 8 5	3
226	34.39	− 9	−09	−08	−13	+08	0.7	7.6	− 44	+ 26	+ 14	− 44	+ 24	− 28 10	− 15 8	3
227	34.74	− 10	−02	−11	−11	−03	0.3	7.9	− 17	− 4	+ 2	− 19	− 5	− 4 10	− 8 9	7
234	37.51	+ 29	−11	−04	−11	+13	2.9	6.2	−149	+172	+117	− 97	+171	− 51 78	− 85 60	7
235	37.81	+ 23	+00	−03	−02	−02	3.3	5.9	− 37	− 25	+ 40	− 16	− 26	+ 4 87	+ 25 68	7
239	40.62	+ 6	−12	+19	+09	+24	0.7	7.7	+ 30	+ 76	− 19	+ 23	+ 76	+ 37 18	+ 22 16	7
241	41.14	− 9	+00	+01	+01	+00	1.4	7.2	+ 6	+ 1	− 11	− 1	+ 2	+ 12 15	+ 29 13	2
244	41.71	− 84	+05	+04	+08	−05	1.7	7.0	+ 59	− 41	−100	− 10	− 45	− 12 42	+123 38	7
245	42.85	− 23	+07	+00	+05	−10	0.3	8.0	+ 8	− 14	− 21	− 9	− 15	+ 5 5	+ 16 5	3
246	43.07	− 10	−03	+10	+07	+08	0.2	8.0	+ 7	+ 8	− 12	− 2	+ 8	+ 13 4	+ 6 4	3
247	43.26	− 5	+02	−03	−01	−05	0.2	8.1	− 1	− 3	− 3	− 4	− 3	+ 11 4	− 4 4	2
248	44.33	− 9	+09	−06	+01	−15	0.5	7.8	+ 3	− 38	− 9	− 4	− 37	+ 10 14	+ 9 13	7
249	44.64	− 27	−09	+09	+01	+16	0.6	7.8	+ 4	+ 43	− 17	− 11	+ 46	+ 3 14	+ 17 14	7
250	45.57	− 9	−15	+00	−10	+19	0.7	7.7	− 33	+ 62	+ 18	− 29	+ 62	− 12 17	− 15 18	7
251	45.81	− 10	+02	+09	+09	+01	1.5	7.2	+ 67	+ 9	− 54	+ 41	+ 10	+ 46 17	+ 84 18	3
254	46.83	− 28	−01	−00	−01	+01	0.8	7.7	− 3	+ 3	− 16	− 22	+ 7	− 8 9	+ 22 9	2
255	47.02	− 7	+03	−01	+01	−04	0.4	7.9	+ 2	− 7	− 6	− 3	− 8	+ 12 5	+ 4 5	2
257	47.36	− 33	+11	−13	−04	−20	0.4	7.9	− 8	− 37	− 16	− 29	− 37	− 15 10	+ 13 10	7
258	48.71	+ 1	−02	+09	+06	+06	0.4	8.0	+ 11	+ 11	− 7	+ 9	+ 11	+ 24 8	+ 5 9	6,7
260	49.23	− 13	−03	+14	+10	+10	0.2	8.0	+ 11	+ 12	− 16	− 1	+ 13	+ 14 7	+ 10 7	7
261	49.74	+ 4	+08	−05	+01	−12	0.2	8.0	+ 1	− 14	+ 2	+ 3	− 14	+ 19 4	− 7 4	3
262	50.07	− 17	+01	−17	−15	−09	2.3	7.0	−158	− 97	+110	−114	− 97	− 73 51	− 88 61	7,7
263	50.91	− 14	−01	−17	−16	−07	0.2	8.1	− 14	− 6	+ 2	− 20	− 5	− 5 4	− 8 4	2
264	51.25	− 22	+09	+12	+17	−06	0.5	7.9	+ 40	− 14	− 43	+ 9	− 16	+ 22 13	+ 45 15	7
266	51.70	− 15	+11	+00	+07	−14	0.3	8.0	+ 10	− 19	− 15	− 3	− 22	+ 12 7	+ 11 7	6
267	52.19	− 7	−02	−14	−14	−03	0.3	8.0	− 22	− 5	+ 13	− 18	− 6	− 2 5	− 17 5	2
268	52.24	− 23	+01	+02	+02	+00	0.4	7.9	+ 4	0	− 17	− 15	+ 1	− 1 5	+ 16 6	2
270	52.67	− 10	−02	−03	−04	+01	0.4	8.0	− 7	+ 3	− 1	− 12	+ 1	+ 3 5	− 2 5	2
271	53.27	− 9	+07	−17	−11	−16	0.3	8.0	− 16	− 23	+ 9	− 14	− 24	+ 1 5	− 13 6	4
272	53.61	− 2	−01	−11	−11	−04	1.0	7.6	− 51	− 18	+ 39	− 32	− 18	− 13 21	− 29 27	7
274	54.74	− 17	−05	−04	−07	+05	0.2	8.1	− 7	+ 4	− 5	− 18	+ 3	− 3 4	− 2 4	2
278	55.01	+ 7	−00	−11	−10	−05	0.4	8.0	− 20	− 11	+ 21	− 6	− 10	+ 10 6	− 21 6	2

TABLE IV (*continued*)

Star No. (1)	l^{II} (2)	ρ km/sec (3)	μ_α 0".0000 (4)	μ_δ 0".000 (5)	μ_l 0".000 (6)	μ_b 0".000 (7)	r kpc (8)	R kpc (9)	T_l km/sec (10)	T_b km/sec (11)	$\dot{x}$ km/sec (12)	$\dot{y}$ km/sec (13)	$\dot{z}$ km/sec (14)	$\Theta-\Theta_0$ km/sec (15)	Π km/sec (16)	Source μ_α,δ (17)
279	55°.21	− 16	+01	−19	−16	−10	0.3	8.1	− 19	− 12	+ 7	− 24	− 12	− 9 ± 5	− 12 ± 5	2
280	55.26	− 14	−03	+03	+01	+05	0.9	7.7	+ 4	+ 23	− 13	− 11	+ 20	+ 2 15	+ 24 22	6
284	56.11	− 6	−01	−16	−15	−06	0.4	8.0	− 31	− 13	+ 22	− 22	− 13	− 6 7	− 23 8	4
285	56.34	− 18	+04	−17	−13	−13	0.5	7.9	− 31	− 32	+ 17	− 30	− 33	− 14 7	− 17 9	4
286	56.36	+ 1	+06	−08	−03	−11	0.6	7.9	− 9	− 31	+ 10	− 2	− 31	+ 14 6	− 6 8	2
287	56.49	+ 9	−03	−06	−08	+01	2.9	7.0	−108	+ 11	+ 96	− 52	+ 10	− 11 24	− 39 36	2
288	56.65	+ 5	−02	−20	−19	−07	2.0	7.3	−181	− 70	+153	− 96	− 70	− 47 21	−129 32	2
290	56.77	− 14	+07	−01	+04	−09	0.4	8.0	+ 7	− 18	− 13	− 7	− 19	+ 8 5	+ 13 6	3
291	56.88	− 19	+04	−14	−10	−11	0.3	8.1	− 13	− 15	+ 2	− 21	− 17	− 6 5	− 6 5	4
292	56.90	− 3	+04	−06	−03	−08	1.0	7.7	− 14	− 39	+ 9	− 12	− 38	+ 4 20	+ 6 29	7
293	56.91	− 2	+06	−08	−03	−11	1.2	7.6	− 18	− 63	+ 16	− 9	− 63	+ 8 13	+ 3 19	4
294	57.62	− 14	−03	−08	−09	+00	0.2	8.1	− 6	0	− 2	− 15	− 2	0 4	− 5 3	2
296	58.45	− 13	+11	+01	+08	−13	0.8	7.8	+ 30	− 45	− 35	+ 1	− 44	+ 13 15	+ 43 22	7
297	58.73	− 41	+04	−11	−07	−10	0.3	8.1	− 9	− 13	− 14	− 40	− 12	− 25 5	+ 9 5	4
298	59.04	− 13	+03	−12	−09	−09	0.6	7.9	− 24	− 25	+ 15	− 21	− 26	− 5 6	− 12 8	2
299	59.05	− 15	+06	−01	+03	−08	0.3	8.1	+ 4	− 11	− 11	− 10	− 12	+ 5 5	+ 7 5	4
300	59.16	− 8	+04	+07	+09	−02	0.5	8.0	+ 21	− 4	− 22	+ 5	− 4	+ 19 7	+ 24 9	4
302	59.39	+ 20	+01	−03	−02	−03	2.8	7.2	− 29	− 35	+ 35	+ 2	− 35	+ 19 27	+ 33 45	4
303	59.56	− 6	+10	+17	+22	−05	0.3	8.1	+ 30	− 6	− 28	+ 11	− 7	+ 26 6	+ 25 6	4
304	59.72	− 26	+16	−19	−05	−29	0.5	8.0	− 12	− 65	− 4	− 31	− 64	− 16 6	+ 4 7	2
306	60.28	− 21	+02	−11	−08	−08	1.8	7.5	− 73	− 69	+ 53	− 55	− 69	− 30 18	− 25 31	4
308	60.69	+ 16	−01	−14	−12	−06	2.2	7.4	−128	− 60	+117	− 53	− 61	− 11 22	− 78 39	4
309	60.79	− 17	−08	+07	+01	+13	0.5	8.0	+ 1	+ 28	− 10	− 15	+ 27	− 1 6	+ 10 8	4
311	61.58	− 18	+05	−30	−21	−22	2.0	7.5	−202	−205	+158	−132	−202	− 80 23	−141 41	4
312	62.48	− 5	+10	−02	+06	−12	0.1	8.1	+ 4	− 8	− 6	− 4	− 8	+ 12 5	− 1 3	2
315	64.00	− 20	+05	+04	+07	−04	0.2	8.1	+ 8	− 5	− 15	− 14	− 6	0 0	+ 11 5	4
317	64.55	− 19	+04	−05	−02	−07	0.3	8.1	− 3	− 11	− 5	− 16	− 13	− 1 6	+ 2 8	6
318	65.18	− 2	+05	−02	+02	−06	0.2	8.1	+ 2	− 5	− 3	− 1	− 5	+ 14 5	− 4 3	2
319	65.33	− 30	+05	−09	−05	−10	0.4	8.1	− 9	− 17	− 3	− 28	− 22	− 13 6	+ 1 10	6
320	65.61	− 5	−08	+08	+01	+14	0.4	8.0	+ 1	+ 26	− 2	− 2	+ 26	+ 14 5	+ 2 6	2
322	65.80	+ 10	−11	−33	−36	−03	0.4	8.1	− 62	− 5	+ 61	− 16	− 3	+ 2 7	− 62 12	6
324	66.99	− 4	−07	+10	+04	+13	0.5	8.0	+ 9	+ 33	− 9	+ 1	+ 34	+ 16 5	+ 13 7	2
325	67.06	− 5	+08	−13	−06	−16	1.4	7.8	− 40	−110	+ 35	− 20	−110	− 1 12	− 9 26	4
328	67.98	− 22	+01	+01	+02	−01	0.3	8.1	+ 2	− 1	− 10	− 19	− 4	− 4 5	+ 5 4	2
330	68.81	− 10	+03	−02	+00	−05	1.8	7.7	+ 1	− 41	− 3	− 7	− 41	+ 5 19	+ 42 48	6
331	68.90	− 11	+13	−17	−04	−23	0.5	8.0	− 11	− 58	+ 5	− 16	− 58	− 1 6	− 3 10	4
332	69.49	+ 21	−14	−12	−19	+09	1.2	7.9	−109	+ 49	+110	− 19	+ 49	+ 11 9	− 89 21	2
333	70.42	− 23	−07	+08	+02	+12	0.9	7.9	+ 9	+ 52	− 16	− 17	+ 52	− 4 10	+ 28 25	6
335	70.70	− 16	+17	−12	−02	−23	0.9	7.9	− 8	− 99	+ 8	− 2	−101	+ 14 6	+ 7 12	2
340	71.56	− 22	+06	−04	+02	−09	0.4	8.1	+ 3	− 15	− 10	− 21	− 13	− 7 5	+ 9 7	4
343	71.99	− 10	−10	−10	−15	+05	2.6	7.8	−181	+ 61	+169	− 67	+ 60	− 3 25	−117 75	8
344	72.06	− 23	−04	+06	+02	+07	0.3	8.1	+ 4	+ 10	− 11	− 21	+ 8	− 6 5	+ 8 4	2
348	72.58	− 16	−03	−10	−10	−02	2.8	7.8	−128	− 31	+117	− 52	− 32	− 4 14	− 61 41	2
352	72.66	− 22	−03	−06	−06	−00	1.6	7.9	− 48	− 2	+ 40	− 35	− 3	− 14 8	− 12 22	2
356	72.75	− 37	+06	+04	+08	−04	1.4	7.9	+ 54	− 28	− 63	− 19	− 29	− 16 13	+ 88 40	6
358	72.75	− 12	+04	−09	−04	−10	0.8	8.0	− 15	− 37	+ 8	− 22	− 34	− 6 6	+ 1 11	2
361	72.94	+ 29	+09	−13	−05	−16	1.8	7.9	− 39	−140	+ 48	+ 23	−139	+ 44 16	− 1 50	8
363	73.07	− 4	+00	+03	+02	+01	0.5	8.1	+ 6	+ 2	− 7	− 2	+ 2	+ 13 8	+ 11 8	2
370	73.91	− 14	−02	+13	+10	+09	0.5	8.1	+ 24	+ 21	− 27	− 7	+ 21	+ 7 5	+ 30 8	2
371	73.95	+ 4	−03	−01	−02	+02	1.2	8.0	− 13	+ 13	+ 14	0	+ 13	+ 16 7	+ 9 17	2
374	74.87	− 6	+09	+02	+08	−08	0.3	8.1	+ 14	− 13	− 15	− 2	− 13	+ 13 5	+ 13 10	6
376	75.21	− 4	−02	−05	−06	−00	0.6	8.1	− 17	− 1	+ 16	− 8	− 1	+ 8 5	− 10 9	2
382	75.66	− 26	+02	+01	+01	−01	0.2	8.2	+ 1	− 1	− 8	− 25	− 4	− 10 5	+ 1 3	2
383	75.83	− 9	−06	−07	−09	+02	1.5	8.0	− 66	+ 12	+ 62	− 25	+ 12	0 8	− 34 23	2
384	75.84	− 18	−10	+05	−04	+13	0.5	8.1	− 11	+ 34	+ 7	− 16	+ 36	0 5	− 4 8	2
385	75.95	0	−03	−16	−15	−06	1.7	8.0	−121	− 52	+118	− 28	− 52	+ 10 9	− 82 29	2
386	75.96	− 2	−05	−07	−08	+01	1.7	8.0	− 67	+ 6	+ 64	− 18	+ 6	+ 8 8	− 30 25	2
387	76.04	− 31	+01	+01	+02	−01	0.8	8.1	+ 7	− 2	− 14	− 28	− 2	− 15 6	+ 22 11	2
388	76.15	− 13	−04	−10	−12	−01	0.4	8.1	− 23	− 2	+ 19	− 18	− 4	− 1 5	− 19 7	2
390	76.64	− 7	−15	−07	−17	+10	0.8	8.0	− 66	+ 39	+ 63	− 19	+ 40	+ 2 6	− 52 15	2
400	77.25	− 57	+17	−06	+09	−20	1.7	8.0	+ 70	−159	− 84	− 56	−151	− 60 12	+107 47	6
401	78.10	− 7	−02	−01	−02	+02	0.8	8.1	− 9	+ 8	+ 7	− 9	+ 7	+ 7 5	+ 5 12	2
408	79.77	− 4	−01	+06	+04	+05	0.2	8.2	+ 5	+ 5	− 5	− 3	+ 5	+ 12 5	+ 1 4	2
409	80.19	− 7	−02	+01	−01	+03	0.4	8.1	− 1	+ 6	0	− 7	+ 6	+ 8 5	+ 1 6	2
410	80.94	+ 21	−18	−02	−13	+15	1.1	8.1	− 66	+ 80	+ 68	+ 5	+ 81	+ 28 6	− 46 18	2
411	80.98	+ 4	+07	−02	+04	−08	0.3	8.2	+ 7	− 13	− 7	+ 3	− 13	+ 18 5	+ 6 5	2
412	81.00	− 6	−07	+04	−00	+08	1.3	8.1	− 3	+ 50	0	− 15	+ 48	− 1 6	+ 24 19	2
413	81.06	− 6	+07	+04	+09	−04	0.8	8.1	+ 31	− 13	− 32	− 3	− 12	+ 9 5	+ 43 11	2
414	81.77	− 65	−10	−04	−09	+07	1.3	8.1	− 53	+ 39	+ 43	− 78	+ 27	− 57 6	− 29 19	2
415	81.80	− 18	−14	−07	−14	+09	0.6	8.1	− 37	+ 23	+ 33	− 27	+ 20	− 10 5	− 30 10	2
417	82.22	− 22	+06	+04	+08	−03	0.3	8.2	+ 10	− 4	− 13	− 21	− 3	− 6 5	+ 9 8	6
418	82.36	− 28	−11	−08	−14	+05	1.0	8.1	− 67	+ 26	+ 63	− 38	+ 24	− 15 6	− 48 31	6
419	82.82	− 9	−08	+10	+04	+13	0.3	8.2	+ 6	+ 19	− 7	− 10	+ 18	+ 5 5	+ 5 9	6
421	83.39	+ 3	+01	−05	−03	−05	2.1	8.2	− 29	− 46	+ 28	− 8	− 46	+ 9 6	+ 19 30	2
423	83.94	− 20	+00	+01	+01	+00	0.2	8.2	+ 1	+ 1	− 3	− 19	+ 4	− 4 5	− 2 3	2
424	84.37	− 15	+05	+05	+07	−01	0.3	8.2	+ 11	− 1	− 12	− 14	− 2	+ 1 5	+ 10 5	2
425	84.71	− 12	−12	−11	−17	+02	0.4	8.2	− 31	+ 4	+ 30	− 15	+ 5	+ 2 5	− 30 12	6
426	84.91	− 20	+07	−01	+04	−06	0.1	8.2	+ 2	− 3	− 4	− 19	− 3	− 4 5	− 4 2	2
427	85.70	+ 10	−15	+04	−06	+15	1.3	8.2	− 36	+ 92	+ 36	− 1	+ 92	+ 19 5	− 9 19	2
428	85.70	− 6	−07	+05	−01	+09	1.2	8.2	− 8	+ 53	+ 8	− 6	+ 53	+ 9 5	+ 15 17	2
429	85.75	− 7	+01	−02	−01	−02	1.2	8.2	− 6	− 10	+ 6	− 7	− 10	+ 8 5	+ 16 17	2
431	86.07	− 22	+09	+05	+09	−04	0.2	8.2	+ 10	− 4	− 12	− 21	− 7	− 6 5	+ 7 4	2
432	86.28	− 15	+05	+04	+06	−01	0.3	8.2	+ 7	− 1	− 8	− 14	− 2	+ 1 5	+ 4 4	2
433	87.16	− 10	+08	+04	+08	−03	0.6	8.2	+ 23	− 10	− 24	− 9	− 9	+ 5 5	+ 29 9	2
434	87.61	+ 1	−01	−10	−08	−07	0.8	8.2	− 28	− 24	+ 28	− 2	− 24	+ 16 5	− 17 11	2
435	87.70	+ 9	+01	−01	+00	−02	0.6	8.2	+ 1	− 6	0	+ 9	− 6	+ 24 5	+ 7 17	6
436	88.02	+ 1	+02	+02	+03	−00	0.3	8.2	+ 4	0	− 4	+ 1	0	+ 16 5	+ 2 4	2
438	88.38	− 3	−01	+02	+01	+02	0.3	8.2	+ 1	+ 3	− 1	− 3	+ 2	+ 12 5	− 2 4	2
440	88.93	− 7	−05	−05	−07	+01	1.1	8.3	− 37	+ 3	+ 37	− 7	+ 3	+ 12 5	− 18 16	2
441	89.35	− 18	−06	+02	−02	+06	2.6	8.6	− 25	+ 71	+ 24	− 25	+ 69	− 9 5	+ 30 50	4

TABLE IV (*continued*)

Star No. (1)	l^{II} (2)	ρ km/sec (3)	μ_α 0".0000 (4)	μ_δ 0".0000 (5)	μ_l 0".0000 (6)	μ_b 0".0000 (7)	r kpc (8)	R kpc (9)	T_l km/sec (10)	T_b km/sec (11)	$\dot{x}$ km/sec (12)	$\dot{y}$ km/sec (13)	$\dot{z}$ km/sec (14)	$\Theta-\Theta_0$ km/sec (15)	Π km/sec (16)	Source $\mu_{\alpha,\delta}$ (17)
442	89°.36	−9	+02	−08	−05	−07	0.2	8.2	−5	−7	+5	−9	−7	+6 ± 5	−10 ± 6	6
443	90.16	−26	+04	−12	−06	−11	0.2	8.2	−7	−13	+7	−26	−12	−11 5	−12 4	2
444	90.16	−1	+20	+03	+18	−13	0.3	8.2	+25	−18	−25	−2	−18	+12 5	+23 9	6
445	90.41	−28	−08	−01	−04	+05	0.8	8.2	−16	+18	+16	−30	+13	−14 5	−8 11	2
446	90.65	−15	+03	+04	+05	+00	0.3	8.2	+8	0	−8	−15	+1	0 5	+6 9	6
447	91.71	−23	+13	+09	+15	−03	0.2	8.2	+12	−2	−11	−23	−2	−8 5	+5 5	6
449	93.88	−15	−10	−03	−07	+04	0.3	8.2	−9	+6	+10	−15	+3	+1 5	−14 4	2
450	94.25	−14	−07	−01	−05	+04	1.1	8.4	−26	+20	+27	−14	+18	+4 5	−8 17	2
451	94.82	−19	+05	+05	+07	−00	0.3	8.2	+10	0	−9	−20	−3	−5 5	+7 5	2
452	94.83	−12	+03	−00	+02	−03	0.2	8.2	+2	−3	−1	−13	−2	+3 5	−4 3	2
453	95.48	−8	−00	−00	−01	−00	0.2	8.2	−1	0	+1	−8	0	+7 5	−8 2	2
455	96.62	−25	−05	−15	−14	−09	2.8	8.9	−180	−113	+182	−6	−113	+57 8	−115 57	4
456	96.64	−18	−09	+03	−05	+08	0.3	8.2	−7	+11	+9	−16	+13	0 5	−12 9	6
457	97.40	−9	−09	−03	−08	+04	0.8	8.3	−31	+13	+32	−4	+13	+14 5	−21 12	2
458	97.80	−10	+19	+04	+19	−07	0.1	8.2	+9	−3	−8	−11	−2	+4 5	0 3	6
459	97.99	−17	−02	+10	+06	+08	0.5	8.3	+15	+19	−12	−21	+17	−7 5	+15 8	2
460	98.52	−16	−10	−03	−07	+03	0.6	8.3	−20	+8	+22	−14	+6	+3 5	−18 9	2
461	98.57	−14	−11	+01	−06	+07	1.8	8.7	−53	+56	+55	−10	+55	+14 6	−19 27	2
463	99.11	−19	−09	+06	−00	+09	2.1	8.8	−4	+86	+9	−29	+82	−15 8	+28 39	4
464	99.29	−8	−05	−03	−05	+00	0.8	8.4	−20	+1	+21	−4	0	+13 5	−10 12	2
465	99.79	−22	+10	−01	+05	−06	0.9	8.4	+22	−27	−18	−24	−29	−11 5	+30 13	2
468	100.52	−7	−22	−07	−17	+06	0.9	8.4	−72	+28	+73	+2	+26	+25 6	−58 16	2
469	100.54	−15	+00	+04	+03	+03	0.9	8.4	+11	+10	−8	−17	+9	−3 5	+19 12	2
470	100.62	−14	+01	−12	−05	−10	0.9	8.4	−23	−43	+25	−12	−42	+5 8	−13 17	4
473	101.07	−32	−13	+06	−05	+12	0.4	8.3	−9	+20	+15	−30	+20	−14 5	−17 7	4
474	101.59	−15	−07	+03	−02	+06	0.9	8.4	−8	+26	+11	−15	+25	+1 6	+1 13	2
475	101.65	−13	−03	−09	−07	−06	1.7	8.7	−54	−48	+56	−5	−46	+18 8	−23 32	4
476	101.77	−22	+17	+10	+18	+00	0.2	8.3	+21	0	−16	−26	0	−11 5	+11 5	4
477	101.79	−15	+02	+07	+05	+05	0.3	8.3	+7	+7	−4	−15	+9	0 5	+1 4	2
479	101.96	−56	−05	+01	−03	+03	2.4	9.0	−39	+39	+49	−42	+45	−18 11	−9 45	4
481	102.01	−11	−07	−01	−05	+03	0.9	8.4	−22	+13	+24	−7	+13	+11 6	−10 13	2
482	102.27	−13	−07	−01	−05	+02	0.8	8.4	−16	+8	+19	−10	+6	+6 5	−10 11	2
483	102.74	−18	+03	+05	+05	+02	0.4	8.3	+9	+4	−5	−20	0	−5 5	+5 6	2
484	103.06	−10	+00	+07	+04	+06	0.2	8.3	+4	+7	−2	−10	+7	+5 5	−3 3	2
486	103.14	−18	−14	+01	−07	+07	1.1	8.5	−37	+34	+41	−14	+32	+6 6	−24 16	2
487	103.28	−17	+04	+02	+04	+00	0.7	8.4	+13	+1	−8	−20	0	−5 5	+16 10	2
488	103.53	−22	−19	+01	−10	+10	0.8	8.4	−38	+36	+43	−16	+34	+3 6	−33 12	2
489	103.83	−74	−03	−09	−07	−06	0.9	8.5	−31	−24	+47	−63	−28	−43 6	−40 13	2
492	103.99	−22	−13	+11	+00	+15	0.8	8.4	+1	+52	+6	−27	+49	−11 6	+1 11	2
493	104.04	−26	−09	+09	+01	+11	0.8	8.4	+4	+42	+3	−30	+39	−15 8	+4 11	2
496	104.23	−11	+12	−05	+09	−09	0.3	8.3	+13	−15	−10	−17	−13	−2 5	+7 5	2
497	104.58	−20	−08	+05	−01	+08	1.2	8.6	−7	+44	+13	−22	+41	−6 6	+5 17	2
498	104.87	−13	−08	+01	−04	+04	1.1	8.6	−21	+24	+24	−9	+23	+8 6	−5 16	2
499	105.89	−15	−06	+04	−00	+06	0.6	8.4	0	+17	+5	−16	+15	−1 5	0 9	2
500	106.47	−4	+07	+02	+07	−01	0.3	8.3	+9	−1	−8	−7	0	+8 5	+5 4	2
501	106.55	+2	−04	+05	+02	+06	0.3	8.3	+2	+7	−2	+1	+7	+16 5	−1 4	2
502	106.64	−13	−00	+01	+00	+01	0.5	8.4	0	+3	+3	−12	+4	+4 6	−1 9	4
504	107.06	−35	+04	−06	+00	−07	2.6	9.3	+3	−84	+8	−36	−83	−23 15	+35 48	4
507	108.04	−44	−29	−05	−22	+06	2.3	9.2	−242	+61	+244	+34	+61	+101 15	−185 44	2
508	108.17	−37	+08	+03	+07	+00	2.3	9.2	+81	+2	−66	−60	+5	−63 15	+94 43	4
509	108.50	−15	−05	−03	−04	−01	0.9	8.5	−19	−3	+22	−8	−4	+9 6	−10 13	2
510	108.57	−19	+11	−07	+05	−10	2.8	9.4	+70	−130	−58	−46	−128	−51 18	+97 50	4
511	109.63	−33	+11	+00	+08	−03	0.3	8.3	+13	−5	−1	−36	−5	−20 5	−2 5	2
512	109.95	−9	+08	+01	+06	−01	0.5	8.4	+15	−3	−11	−13	−3	+1 5	+13 7	2
513	109.99	−17	−12	−23	−17	−17	0.3	8.3	−25	−25	+29	−7	−25	+9 5	−32 6	4
514	110.05	−23	+07	−03	+02	−04	0.3	8.3	+4	−7	+4	−22	−9	−7 5	−7 5	2
515	110.14	−5	+08	−01	+05	−03	0.4	8.3	+9	−6	−7	−8	−6	+7 5	+6 5	2
516	110.38	−21	−08	+02	−03	+04	0.6	8.4	−10	+12	+17	−17	+10	0 6	−12 9	2
517	110.82	−10	+09	+07	+09	+04	0.5	8.4	+21	+10	−16	−18	+9	−3 5	+18 8	2
520	111.39	−13	−03	+07	+01	+07	1.1	8.7	+5	+38	+1	−16	+37	−1 7	+14 15	2
522	111.40	−4	+08	−01	+06	−03	0.3	8.3	+7	−4	−5	−6	−4	+9 5	+2 4	2
523	111.41	−18	+21	−07	+06	−11	0.3	8.3	+8	−16	−2	−17	−19	−2 6	−1 8	6
525	111.72	−36	+00	−02	−01	−02	0.3	8.3	−1	−3	+14	−33	−5	−17 5	−18 5	2
527	112.13	−41	−05	+11	+00	+12	0.2	8.3	0	+13	+15	−38	+13	−23 5	−21 4	2
528	112.46	−16	+21	+04	+17	−01	0.1	8.3	+11	−1	−4	−19	0	−4 5	−3 3	2
529	112.48	−12	+46	−03	+26	−14	0.2	8.3	+24	−13	−17	−19	−13	−5 5	+11 6	6
530	112.57	+14	−21	−01	−13	+04	0.3	8.3	−20	+7	+14	+20	+8	+36 6	−15 9	6
533	112.75	−14	−45	−07	−30	+04	0.2	8.3	−34	+5	+37	0	+4	+16 6	−42 8	6
534	112.76	−4	+05	−03	+04	−04	0.4	8.3	+7	−7	−5	−8	−6	+7 5	+3 7	4
536	115.43	−26	−07	+01	−05	+02	1.0	8.7	−26	+11	+34	−11	+13	+7 8	−20 14	2
537	115.56	−13	+05	−01	+04	−02	0.4	8.4	+7	−3	−1	−15	−2	0 5	−1 5	2
539	115.82	−38	−22	−03	−16	+01	1.3	8.9	−97	+4	+104	+8	+4	+36 18	−82 36	6
541	116.20	−71	−12	+03	−08	+05	2.2	9.4	−85	+50	+107	−24	+53	+11 20	−72 39	4
542	116.29	−42	−36	−07	−26	−01	2.3	9.4	−287	−14	+276	+89	−14	+159 23	−210 46	2
543	116.59	−14	+05	+06	+05	+05	0.3	8.3	+6	+6	+2	−15	+5	0 5	−6 4	2
544	116.83	−17	−43	+04	−31	+10	1.4	8.9	−210	+69	+194	+82	+69	+123 19	−157 36	4
545	116.87	+11	+05	−10	+02	−11	0.2	8.3	+2	−12	−7	+8	−12	+23 5	+2 4	2
546	116.87	−15	−06	+00	−04	+01	0.3	8.3	−6	+1	+12	−10	+2	+5 5	−16 5	2
549	117.63	−43	−17	+27	−06	+29	2.5	9.6	−74	+341	+89	−11	+340	+21 18	−46 33	2
550	117.78	−3	+06	−02	+04	−03	0.8	8.6	+15	−10	−12	−10	−10	+4 7	+18 10	2
551	118.69	−12	+14	−03	+13	−04	0.3	8.3	+17	−6	−8	−19	−3	−4 5	+4 5	2
554	119.61	−47	−07	+06	−04	+07	2.4	9.6	−50	+74	+66	−16	+75	+11 18	−29 30	2
555	119.83	−14	+15	−01	+12	−02	0.5	8.4	+25	−5	−15	−25	−3	−10 6	+14 7	2
558	120.78	+2	+19	−11	+16	−12	0.2	8.3	+12	−9	−11	−6	−9	+9 5	+4 4	2
559	120.83	−2	+04	−02	+02	−02	1.0	8.8	+12	−11	−9	−8	−11	+6 9	+21 13	2
560	120.91	−5	−03	+03	−01	+03	0.8	8.7	−5	+13	+8	−3	+12	+13 7	0 10	2
561	121.56	−92	−06	−09	−06	−09	1.0	8.8	−30	−41	+77	−68	−24	−45 9	−71 13	2
562	121.91	−15	+01	−03	+00	−03	0.4	8.4	+1	−5	+7	−12	−8	+3 5	−9 5	2
563	122.81	−39	−19	−02	−14	−02	2.5	9.8	−169	−22	+164	+58	−20	+104 29	−108 45	4
564	122.93	−26	−26	−03	−17	−03	2.4	9.7	−196	−33	+178	+85	−33	+132 24	−119 37	2

TABLE IV (*continued*)

Star No. (1)	l^{II} (2)	ρ km/sec (3)	μ_α 0".0000 (4)	μ_δ 0".000 (5)	μ_l 0".000 (6)	μ_b 0".000 (7)	r kpc (8)	R kpc (9)	T_l km/sec (10)	T_b km/sec (11)	$\dot{x}$ km/sec (12)	$\dot{y}$ km/sec (13)	$\dot{z}$ km/sec (14)	$\Theta-\Theta_0$ km/sec (15)	Π km/sec (16)	Source $\mu_{\alpha\text{-}\delta}$ (17)
566	123°.58	− 7	+32	−05	+24	−04	0.2	8.3	+ 19	− 4	− 12	− 16	− 3	− 1 ± 5	+ 5 ± 4	2
570	124.40	− 8	+04	−06	+03	−06	0.2	8.3	+ 3	− 6	+ 2	− 8	− 7	+ 7 6	− 7 6	6
571	124.89	− 24	−06	−14	−04	−14	0.3	8.4	− 6	− 20	+ 19	− 18	− 18	− 2 5	− 23 5	2
574	125.63	− 59	+03	+00	+03	+00	1.7	9.3	+ 21	+ 3	+ 17	− 60	+ 8	− 43 20	− 1 27	4
575	125.68	− 3	−15	+11	−12	+10	0.9	8.7	− 49	+ 42	+ 41	+ 28	+ 42	+ 46 9	− 30 12	2
577	126.28	− 31	−11	+05	−09	+04	2.3	9.7	− 98	+ 47	+ 95	+ 36	+ 49	+ 66 27	− 54 37	4
578	126.42	− 14	+11	−07	+10	−06	0.6	8.6	+ 29	− 18	− 14	− 30	− 16	− 15 7	+ 15 8	2
583	126.68	− 31	−12	+00	−10	−01	1.7	9.3	− 78	− 7	+ 82	+ 22	− 5	+ 47 22	− 54 28	4
585	127.39	− 38	−01	+00	−01	+00	2.4	9.8	− 11	+ 1	+ 32	− 24	0	− 4 21	− 1 27	2
586	127.69	+ 1	−01	−05	−00	−05	1.2	9.0	− 1	− 28	+ 1	+ 1	− 28	+ 15 14	+ 13 18	4
587	128.03	− 39	−11	−19	−05	−20	2.0	9.6	− 50	−188	+ 67	− 5	−186	+ 20 19	− 39 24	2
591	128.59	− 25	+04	+12	+01	+13	2.9	10.2	+ 10	+172	+ 4	− 20	+172	− 7 34	+ 32 43	4
594	129.26	− 42	−13	+04	−11	+02	0.9	8.8	− 45	+ 9	+ 61	− 4	+ 11	+ 16 12	− 54 14	4
597	129.85	− 8	+49	−18	+36	−09	0.1	8.3	+ 16	− 4	− 8	− 17	− 4	− 2 4	− 1 4	2
598	130.43	− 48	−18	−07	−11	−09	0.8	8.8	− 44	− 37	+ 65	− 9	− 36	+ 11 12	− 60 13	4
599	130.78	− 17	−06	−03	−03	−04	0.9	8.8	− 13	− 15	+ 20	− 4	− 16	+ 12 9	− 14 10	2
601	131.07	+ 13	−00	−02	+00	−02	0.9	8.8	0	− 7	− 8	+ 9	− 8	+ 24 11	+ 15 13	4
604	131.58	− 3	+21	−08	+19	−03	0.4	8.5	+ 35	− 6	− 24	− 26	− 6	− 11 6	+ 20 6	2
605	131.81	+ 2	−24	+01	−18	−03	1.0	8.9	− 88	− 17	+ 65	+ 60	− 17	+ 80 16	− 49 18	4
607	132.29	− 27	+09	+11	+04	+13	1.3	9.1	+ 25	+ 77	− 5	− 31	+ 79	− 17 17	+ 15 18	4
610	133.30	− 49	+12	−07	+11	−03	2.8	10.3	+145	− 43	− 71	−136	− 41	−134 38	+ 77 41	4
616	133.99	− 50	−06	+00	−04	−01	1.9	9.6	− 40	− 9	+ 64	− 8	− 6	+ 15 26	− 42 27	4
617	134.21	− 44	−37	+01	−29	−08	2.2	9.9	−305	− 84	+254	+177	− 80	+229 41	−196 42	4
618	134.38	− 39	+00	−03	+01	−02	2.8	10.3	+ 15	− 30	+ 18	− 40	− 27	− 23 28	+ 8 28	2
619	134.38	− 43	−02	+00	−01	+00	1.9	9.6	− 13	+ 1	+ 39	− 22	+ 3	− 2 19	− 20 20	2
620	134.45	− 47	−05	−03	−03	−04	3.2	10.7	− 42	− 54	+ 65	− 7	− 50	+ 19 42	− 27 43	4
621	134.51	− 45	−10	+10	−11	+07	3.0	10.5	−156	+106	+137	+ 83	+109	+121 34	− 81 34	2
622	134.58	− 45	+13	+05	+08	+08	3.2	10.7	+120	+117	− 56	−114	+118	−111 44	+ 69 44	4
623	134.62	− 27	−09	+07	−09	+05	0.5	8.6	− 22	+ 11	+ 34	− 3	+ 13	+ 13 8	− 35 8	4
624	134.64	− 44	−04	−03	−02	−04	2.4	10.0	− 19	− 49	+ 46	− 20	− 46	+ 2 24	− 20 25	2
626	134.65	− 42	+01	−04	+03	−04	2.2	9.9	+ 26	− 40	+ 12	− 50	− 37	− 34 22	+ 6 23	2
627	134.68	− 37	+06	−02	+06	−01	1.9	9.6	+ 52	− 6	− 11	− 63	− 3	− 50 26	+ 24 26	4
630	134.80	− 48	−06	+12	−08	+09	1.7	9.5	− 67	+ 77	+ 78	+ 17	+ 80	+ 41 24	− 56 25	4
633	135.00	− 41	+11	−03	+10	−00	2.3	10.0	+109	− 1	− 48	−106	+ 1	− 99 33	+ 57 33	4
634	135.00	− 40	+11	+29	−01	+30	3.2	10.7	− 14	+449	+ 18	+ 2	+451	+ 17 43	+ 21 43	4
635	135.07	− 20	−15	−01	−11	−05	3.2	10.7	−163	− 82	+133	+ 97	− 80	+135 45	− 72 45	4
636	135.10	− 43	−21	+07	−18	+00	2.4	10.0	−210	+ 5	+178	+119	+ 8	+160 38	−127 38	4
638	135.43	− 24	−11	−01	−08	−04	2.1	9.8	− 75	− 44	+ 71	+ 35	− 42	+ 59 23	− 41 22	2
639	135.61	− 46	−03	+03	−03	+02	2.4	10.1	− 34	+ 19	+ 55	− 7	+ 22	+ 16 25	− 28 24	2
641	135.98	− 33	+02	−04	+03	−03	1.3	9.2	+ 21	− 21	+ 10	− 39	− 20	− 23 18	− 1 18	4
642	136.22	− 42	+06	+09	+01	+10	1.7	9.5	+ 12	+ 81	+ 19	− 35	+ 83	− 18 24	− 5 23	4
643	136.25	− 46	+05	+08	+02	+09	0.3	8.4	+ 2	+ 13	+ 30	− 32	+ 19	− 16 5	− 35 5	2
644	136.32	− 35	−02	−09	+02	−09	2.1	9.8	+ 22	− 91	+ 13	− 43	− 90	− 26 29	+ 4 28	4
645	136.60	− 51	+01	+05	−01	+05	1.9	9.7	− 8	+ 42	+ 41	− 28	+ 44	− 8 26	− 24 25	4
646	137.18	− 43	+08	+04	+04	+06	1.7	9.5	+ 28	+ 47	+ 13	− 50	+ 46	− 33 23	− 2 22	4
647	137.19	− 17	+29	−09	+23	+01	1.2	9.1	+133	+ 6	− 78	−109	+ 6	−101 19	+ 78 17	2
648	137.38	− 15	−14	−07	−06	−11	2.3	10.0	− 69	−121	+ 56	+ 42	−122	+ 64 33	− 24 30	4
650	137.46	+ 20	+21	−11	+17	−02	0.4	8.5	+ 32	− 5	− 37	− 10	− 2	+ 4 6	+ 33 6	2
651	137.73	− 2	−11	+02	−08	−02	0.6	8.7	− 23	− 6	+ 17	+ 16	− 6	+ 32 8	− 16 7	2
652	138.02	− 40	−10	−09	−03	−12	1.6	9.4	− 19	− 88	+ 41	− 11	− 89	+ 8 23	− 26 21	4
653	138.13	− 25	−01	−11	+05	−10	0.6	8.7	+ 15	− 28	+ 7	− 26	− 30	− 11 7	− 8 7	2
655	140.17	− 15	−14	−07	−06	−12	1.0	9.0	− 26	− 53	+ 26	+ 11	− 53	+ 28 15	− 20 12	4
657	142.82	− 39	+05	−02	+04	+01	0.3	8.4	+ 5	+ 1	+ 28	− 28	− 1	− 12 5	− 34 5	4
658	143.15	+ 6	+36	−22	+40	−03	0.2	8.4	+ 36	− 2	− 26	− 26	− 3	− 11 5	+ 19 5	2
663	143.67	− 17	−11	+08	−11	+00	1.1	9.2	− 60	+ 2	+ 49	+ 38	− 1	+ 57 28	− 40 21	6
664	143.67	− 9	−28	−09	−08	−20	1.1	9.2	− 45	−110	+ 22	+ 40	−110	+ 57 27	− 13 21	6
665	143.68	− 2	−13	+02	−08	−05	0.9	9.0	− 35	− 22	+ 19	+ 29	− 22	+ 45 12	− 14 9	2
667	144.27	+ 5	−07	+04	−07	−00	0.8	8.9	− 29	− 1	+ 13	+ 27	0	+ 42 11	− 9 8	2
668	144.73	− 13	+08	−09	+10	−03	1.2	9.2	+ 58	− 18	− 23	− 54	− 19	− 41 20	+ 26 15	4
670	145.61	− 5	+26	−27	+36	−09	0.2	8.4	+ 34	− 9	− 14	− 31	− 8	− 16 5	+ 7 5	2
671	145.74	+ 3	+25	−29	+36	−11	0.1	8.3	+ 24	− 8	− 15	− 18	− 8	− 3 4	+ 7 5	2
673	146.78	+ 5	+24	−23	+33	−06	0.2	8.3	+ 25	− 5	− 17	− 18	− 5	− 3 4	+ 9 5	2
674	147.45	− 1	+24	−28	+35	−10	0.1	8.3	+ 17	− 5	− 8	− 15	− 4	0 4	− 1 4	2
675	147.53	+ 7	+23	−25	+33	−08	0.1	8.3	+ 23	− 5	− 18	− 16	− 6	− 1 4	+ 9 5	2
676	148.11	+ 2	+04	+00	+03	+02	0.8	8.9	+ 10	+ 9	− 7	− 7	+ 9	+ 8 11	+ 7 9	2
677	148.32	− 18	+05	−02	+05	+02	0.7	8.8	+ 16	+ 5	+ 7	− 23	+ 6	− 7 9	− 9 7	2
678	148.83	− 10	−07	−05	−02	−08	1.0	9.1	− 10	− 36	+ 14	+ 3	− 36	+ 19 17	− 11 12	4
679	149.17	0	+29	−29	+41	−06	0.1	8.3	+ 19	− 3	− 10	− 17	− 3	− 2 4	+ 1 5	2
681	149.99	− 12	+17	−09	+20	+03	0.5	8.6	+ 45	+ 6	− 13	− 44	+ 8	− 29 13	+ 8 9	6
682	150.29	− 9	+30	−35	+46	−09	0.1	8.3	+ 24	− 5	− 4	− 25	− 4	− 10 4	− 6 5	2
683	150.61	+ 4	+15	−13	+20	−01	0.6	8.7	+ 58	− 4	− 31	− 49	− 5	− 35 17	+ 27 10	6
684	150.99	− 11	−07	−09	+04	−10	0.5	8.6	+ 9	− 22	+ 2	− 11	− 23	+ 4 7	− 6 6	2
686	151.12	− 11	+12	−09	+15	+01	0.6	8.8	+ 44	+ 3	− 12	− 44	+ 4	− 29 10	+ 8 7	2
688	151.92	− 7	+02	−03	+03	−01	1.0	9.1	+ 16	− 6	− 1	− 17	− 6	− 2 13	+ 2 8	2
690	152.49	− 8	+18	+06	+08	+16	0.8	8.9	+ 31	+ 60	− 7	− 32	+ 60	− 17 14	+ 5 8	4
691	152.81	− 18	+11	−06	+12	+03	0.4	8.6	+ 22	+ 5	+ 6	− 28	+ 5	− 13 6	− 12 5	2
692	153.65	+ 3	+24	−30	+39	−06	0.2	8.3	+ 29	− 5	− 15	− 25	− 5	− 10 5	+ 7 5	2
694	155.72	+ 1	+19	−00	+12	+14	1.6	9.7	+ 89	+102	− 32	− 83	+102	− 70 30	+ 32 14	4
695	155.75	− 14	−04	−10	+04	−10	1.0	9.2	+ 22	− 50	+ 6	− 27	− 50	− 11 14	− 7 8	3
696	156.08	+ 1	+21	−39	+43	−13	0.2	8.4	+ 37	− 11	− 16	− 34	− 11	− 19 7	+ 7 5	6
697	156.79	− 21	+16	−08	+18	+06	0.3	8.5	+ 23	+ 8	+ 10	− 29	+ 9	− 14 8	− 18 6	8
698	157.36	− 1	+18	−27	+33	−07	0.2	8.4	+ 30	− 6	− 10	− 29	− 6	− 14 5	+ 1 5	2
707	161.80	+ 34	+30	−10	+29	+19	0.3	8.5	+ 47	+ 31	− 47	− 34	+ 31	− 20 11	+ 39 6	6
708	162.21	− 26	+02	+02	−01	+03	0.6	8.8	− 2	+ 9	+ 26	− 6	+ 7	+ 10 17	− 32 7	6
711	163.05	+ 41	+06	−08	+11	+00	0.1	8.3	+ 8	0	− 41	+ 5	− 2	+ 20 4	+ 32 5	6
713	165.35	+ 7	+27	−70	+74	−18	0.1	8.3	+ 31	− 7	− 15	− 28	− 7	− 13 4	+ 5 5	2
715	166.57	+ 5	+17	−38	+42	−06	0.1	8.3	+ 25	− 3	− 11	− 23	− 3	− 8 4	+ 1 5	2
719	167.57	+ 48	+11	−04	+10	+08	0.8	9.0	+ 40	+ 33	− 51	− 30	+ 38	− 16 13	+ 45 6	2
720	168.15	− 5	−01	+00	−01	−01	1.2	9.4	− 6	− 7	+ 7	+ 5	− 6	+ 20 17	− 11 6	2
722	168.95	+ 9	−08	−19	+09	−19	0.4	8.6	+ 19	− 40	− 11	− 17	− 40	− 2 7	+ 3 5	2

TABLE IV (*continued*)

Star No. (1))	l^{II} (2)	ρ km/sec (3)	μ_α 0°.0000 (4)	μ_δ 0°.000 (5)	μ_l 0°.000 (6)	μ_b 0°.000 (7)	r kpc (8)	R kpc (9)	T_l km/sec (10)	T_b km/sec (11)	$\dot{x}$ km/sec (12)	$\dot{y}$ km/sec (13)	$\dot{z}$ km/sec (14)	$\Theta-\Theta_0$ km/sec (15)	Π km/sec (16)	Source $\mu_{\alpha,\delta}$ (17)
724	170°.04	0	−11	−04	−05	−13	1.4	9.6	− 32	− 86	+ 5	+ 32	− 86	+ 47 ± 20	− 9 ± 6	2
726	170.23	+ 5	+14	−12	+18	+08	0.3	8.5	+ 23	+ 11	− 6	− 22	+ 11	− 7 8	− 3 8	6
729	172.09	+ 59	−05	+35	−33	+15	0.6	8.8	− 97	+ 46	− 47	+105	+ 44	+119 16	+ 40 5	2
730	172.77	− 29	+06	−14	+16	−02	1.6	9.8	+119	− 17	+ 14	−122	− 17	−106 28	− 22 6	2
739	174.55	+ 11	+10	−15	+19	+02	1.3	9.5	+116	+ 11	− 22	−115	+ 11	−100 39	+ 13 9	6
745	175.78	0	−00	−02	+02	−01	1.0	9.2	+ 9	− 7	0	− 9	− 7	+ 6 14	− 8 5	2
746	177.17	+ 17	−07	+01	−07	−07	0.2	8.4	− 7	− 7	− 15	+ 8	− 10	+ 23 4	+ 5 5	4
748	179.04	+ 30	−01	−04	+03	−03	0.3	8.5	+ 4	− 5	− 30	− 3	− 5	+ 12 4	+ 20 5	2
750	179.26	+ 16	+01	−04	+04	−01	0.2	8.4	+ 5	− 1	− 16	− 4	− 4	+ 11 3	+ 5 5	2
751	179.62	+ 4	−05	−00	−03	−06	0.3	8.5	− 4	− 7	− 4	+ 4	− 7	+ 19 8	− 6 5	6
752	179.90	+ 1	−02	−10	+07	−08	0.2	8.4	+ 7	− 8	0	− 7	− 8	+ 8 3	− 11 5	3
753	180.10	+ 20	−11	−17	+07	−22	0.3	8.5	+ 8	− 26	− 18	− 8	− 27	+ 7 5	+ 8 5	4
754	181.90	+ 15	+10	−23	+27	−01	0.3	8.5	+ 34	− 1	− 14	− 34	− 2	− 19 6	+ 3 5	2
755	182.27	+ 18	−15	−17	+05	−25	2.5	10.7	+ 61	−303	− 36	− 63	−301	− 48 48	+ 24 5	4
756	182.76	+ 19	−10	+02	−09	−10	0.8	9.0	− 31	− 37	− 19	+ 30	− 38	+ 45 12	+ 7 5	2
757	182.96	+ 23	+06	−15	+18	−01	0.2	8.4	+ 16	− 1	− 22	− 17	− 3	− 2 3	+ 11 5	2
759	183.75	+ 14	+02	−10	+11	−03	0.2	8.4	+ 9	− 3	− 13	− 10	− 4	+ 5 3	+ 3 5	2
760	183.97	+ 8	−01	−00	−01	−01	1.3	9.5	− 3	− 7	− 8	+ 3	− 6	+ 18 19	− 4 5	2
762	184.59	+ 12	−04	−01	−02	−05	1.0	9.2	− 7	− 23	− 9	+ 7	− 24	+ 22 14	− 4 5	2
763	184.62	+ 19	+03	−19	+19	−06	0.5	8.7	+ 41	− 14	− 15	− 42	− 15	− 27 9	+ 4 5	2
764	185.69	+ 24	+02	−22	+21	−09	0.2	8.4	+ 18	− 8	− 22	− 20	− 10	− 5 4	+ 11 5	2
765	186.57	+ 15	−02	−05	+03	−05	2.1	10.3	+ 31	− 46	− 11	− 33	− 46	− 18 40	− 4 9	4
766	186.58	+ 11	−01	−08	+06	−05	0.8	9.0	+ 24	− 19	− 8	− 25	− 19	− 10 15	− 4 8	4
767	186.62	+ 14	+01	−09	+09	−03	1.7	9.9	+ 68	− 24	− 6	− 69	− 24	− 54 33	− 7 9	4
768	187.06	+ 19	+03	−23	+23	−09	0.1	8.3	+ 16	− 6	− 16	− 18	− 9	− 3 3	+ 5 5	2
769	187.40	+ 44	−01	−03	+02	−02	0.3	8.5	+ 3	− 3	− 42	− 9	− 9	+ 6 4	+ 31 5	2
771	187.76	+ 16	+05	−05	+08	+04	1.3	9.5	+ 49	+ 25	− 8	− 50	+ 25	− 36 20	− 5 6	2
772	187.99	+ 13	+06	−05	+08	+05	1.4	9.6	+ 57	+ 36	− 3	− 58	+ 36	− 43 22	− 11 6	2
773	188.01	+ 31	−01	−05	+03	−05	0.3	8.5	+ 5	− 7	− 29	− 9	− 12	+ 6 4	+ 17 5	2
774	188.50	+ 18	−02	−06	+04	−05	1.5	9.7	+ 28	− 35	− 16	− 31	− 34	− 16 22	+ 1 6	2
775	188.60	+ 16	−01	+02	−02	+00	1.0	9.1	− 10	+ 1	− 17	+ 8	+ 1	+ 23 14	+ 3 5	2
776	188.97	+ 7	−01	−11	+09	−06	0.4	8.6	+ 17	− 12	− 4	− 17	− 12	− 2 6	− 8 5	2
777	189.10	+ 9	+02	−02	+03	+02	1.5	9.7	+ 22	+ 14	− 5	− 23	+ 14	− 8 29	− 11 7	4
778	189.69	+ 17	+00	−09	+08	−04	1.3	9.5	+ 50	− 25	− 8	− 52	− 25	− 38 20	− 7 6	2
780	190.09	+ 21	+04	−21	+21	−07	0.3	8.4	+ 25	− 8	− 15	− 28	− 11	− 13 5	+ 4 5	2
782	190.81	− 7	−03	+07	−08	+00	2.1	10.3	− 80	+ 2	− 8	+ 80	+ 2	+ 94 40	− 14 9	4
783	191.09	+ 19	−03	−06	+03	−08	0.2	8.4	+ 3	− 8	− 16	− 6	− 11	+ 9 3	+ 5 5	2
785	192.16	+ 32	+05	+01	+02	+06	0.3	8.5	+ 4	+ 10	− 31	− 11	+ 7	+ 4 5	+ 19 5	2
786	192.16	+ 17	+01	−15	+14	−05	0.8	9.0	+ 55	− 21	− 6	− 57	− 20	− 43 28	− 8 10	7
787	192.40	+ 10	+08	−11	+15	+05	3.0	11.2	+215	+ 78	+ 41	−211	+ 78	−199 102	− 52 24	7
788	192.42	+ 39	−04	−17	+12	−12	0.1	8.3	+ 5	− 5	− 38	− 14	− 2	+ 1 2	+ 27 5	3
789	192.84	− 5	−04	−22	+16	−16	0.4	8.6	+ 30	− 31	+ 13	− 28	− 31	− 13 14	− 25 6	7
790	193.18	+ 28	+06	−14	+17	−00	0.3	8.5	+ 24	0	− 22	− 29	− 4	− 14 5	+ 10 5	2
791	194.07	− 18	−08	+02	−08	−10	3.2	11.3	−117	−144	+ 3	+122	−142	+135 103	− 38 27	7
792	194.13	+ 22	+04	−17	+17	−04	0.1	8.3	+ 12	− 3	− 18	− 17	− 3	− 2 3	+ 7 5	2
793	194.14	− 18	−05	−05	+00	−09	2.3	10.4	+ 5	−101	+ 22	+ 1	−100	+ 13 74	− 45 20	7
795	194.80	+ 22	+05	−21	+22	−04	0.2	8.4	+ 16	− 3	− 17	− 21	− 4	− 6 3	+ 6 5	2
797	195.58	− 1	−01	−07	+05	−05	1.1	9.3	+ 26	− 27	+ 9	− 25	− 27	− 10 30	− 26 11	6
798	195.62	+ 15	+08	−22	+25	−01	1.1	9.3	+128	− 5	+ 20	−127	− 6	−113 35	− 34 12	6
801	195.65	+ 32	−06	+10	−13	−03	1.1	9.3	− 69	− 17	− 49	+ 58	− 18	+ 74 36	+ 29 11	7
804	195.81	+ 24	+01	−20	+18	−09	0.1	8.3	+ 12	− 6	− 20	− 18	− 7	− 3 3	+ 8 5	2
806	196.16	+ 14	+15	+01	+09	+19	0.9	9.0	+ 39	+ 79	− 6	− 42	+ 78	− 27 24	− 9 9	6,7
807	196.34	+ 20	−01	−15	+12	−09	1.1	9.3	+ 62	− 46	− 2	− 66	− 45	− 51 36	− 14 13	7
808	196.42	− 30	−00	−12	+10	−06	0.3	8.5	+ 15	− 9	+ 33	− 6	− 9	+ 9 9	− 46 5	6,7
809	196.49	+ 36	+18	+04	+09	+24	0.8	8.9	+ 31	+ 88	− 28	− 41	+ 87	− 25 11	+ 13 6	2
810	196.96	+ 10	+07	+00	+04	+09	1.0	9.2	+ 21	+ 43	− 2	− 22	+ 43	− 8 29	− 15 10	6,7
811	197.55	+ 8	−03	−04	+02	−05	0.8	9.0	+ 9	− 20	− 8	− 12	− 19	+ 3 11	− 8 6	2
814	199.00	+ 19	−03	−01	−02	−05	0.3	8.4	− 2	− 6	− 18	− 4	− 6	+ 11 4	+ 6 5	3
816	199.25	+ 7	−03	−08	+05	−08	0.4	8.6	+ 8	− 14	− 2	− 10	− 15	+ 5 5	− 11 5	3
817	199.56	+ 27	−00	−02	+01	−01	1.4	9.6	+ 9	− 8	− 22	− 17	− 8	− 2 45	+ 1 18	7
819	200.63	− 20	+04	−02	+04	+04	0.7	8.9	+ 14	+ 14	+ 24	− 6	+ 14	+ 8 10	− 41 6	2
820	200.85	+ 41	−03	+15	−16	+08	1.0	9.1	− 74	+ 15	− 66	+ 54	+ 11	+ 71 33	+ 44 14	7
821	201.82	+ 23	+04	−20	+20	−04	0.6	8.7	+ 55	− 12	0	− 59	− 14	− 45 11	− 15 6	2
823	202.04	+ 16	−07	−06	−00	−12	1.0	9.2	0	− 60	− 16	− 6	− 60	+ 9 32	− 4 15	7
825	202.93	+ 33	+01	−04	+04	−01	1.0	9.1	+ 16	− 3	− 24	− 28	− 2	− 13 13	+ 5 7	2
826	202.95	+ 18	+01	−20	+18	−08	0.8	8.9	+ 64	− 29	+ 7	− 66	− 28	− 52 25	− 23 13	7
828	203.03	+ 23	+05	+05	−01	+08	0.7	8.9	− 3	+ 29	− 21	− 6	+ 29	+ 9 22	+ 4 12	7
829	203.13	+ 6	+03	+06	−04	+07	0.8	8.9	− 14	+ 24	− 10	+ 11	+ 24	+ 26 23	− 8 12	7
831	203.34	+ 19	−00	−16	+14	−08	1.3	9.4	+ 91	− 49	+ 17	− 91	− 49	− 78 36	− 35 16	6,7
832	203.43	+ 26	−05	−24	+17	−18	0.2	8.4	+ 20	− 21	− 14	− 28	− 23	− 13 7	+ 1 5	6,7
833	203.49	+ 38	−11	+12	−19	−09	1.8	9.9	−161	− 77	− 99	+133	− 77	+153 52	+ 62 24	6,7
840	204.72	+ 10	−02	−07	+05	−06	0.3	8.5	+ 7	− 9	− 7	− 11	− 8	+ 4 4	− 7 5	2
842	204.89	+ 34	+02	−20	+19	−07	0.3	8.5	+ 28	− 10	− 17	− 38	− 15	− 23 10	+ 4 6	7
843	205.02	+ 13	−04	−08	+04	−09	0.3	8.4	+ 5	− 11	− 9	− 9	− 12	+ 6 4	− 5 5	2
844	205.33	− 1	+07	−15	+18	+02	0.5	8.7	+ 46	+ 6	+ 21	− 41	+ 6	− 27 15	− 36 9	6,7
845	205.35	+ 32	−02	+05	−06	−00	1.6	9.7	− 48	− 2	− 49	+ 29	− 2	+ 46 21	+ 20 11	3
847	205.81	+ 38	+07	+11	−05	+14	1.8	9.9	− 46	+124	− 55	+ 25	+124	+ 42 55	+ 24 27	7
848	205.87	+ 25	+01	+00	+00	+01	1.1	9.2	+ 1	+ 7	− 22	− 12	+ 7	+ 4 14	0 8	2
852	206.20	+ 13	+02	−16	+15	−05	1.4	9.5	+ 99	− 31	+ 33	− 94	− 31	− 82 43	− 52 22	7,7
853	206.20	+ 31	+04	+03	+00	+06	1.7	9.7	+ 4	+ 49	− 26	− 16	+ 50	− 1 42	− 1 21	6,7
854	206.22	+ 34	−01	−24	+20	−12	1.8	9.9	+174	−107	+ 50	−169	−108	−159 32	− 65 17	3
856	206.31	+ 36	+06	−02	+06	+07	1.5	9.6	+ 40	+ 51	− 16	− 53	+ 49	− 38 39	− 6 20	6,7
858	206.32	+ 25	−00	+08	−07	+04	2.3	10.3	− 81	+ 41	− 60	+ 61	+ 40	+ 79 69	+ 20 35	7,7
859	206.34	+ 18	+02	−13	+13	−03	2.3	10.3	+136	− 36	+ 45	−129	− 37	−120 70	− 66 35	7
861	206.37	+ 29	+07	−21	+23	−00	0.5	8.6	+ 50	− 1	− 3	− 58	− 3	− 43 9	− 11 6	3
863	206.43	+ 43	−12	−08	−02	−20	1.7	9.8	− 14	−161	− 40	− 5	−162	+ 12 44	+ 11 23	6,7
864	206.44	+ 16	+02	−06	+06	−00	1.4	9.5	+ 43	0	+ 5	− 45	− 1	− 32 37	− 28 20	6,7
867	206.90	+ 14	+01	+22	−19	+12	2.1	10.1	−190	+115	−102	+161	+115	+183 66	+ 54 34	7
868	206.97	+ 36	−03	+01	−03	−03	1.8	9.9	− 30	− 29	− 45	+ 10	− 30	+ 27 46	+ 14 24	6,7,7
869	207.08	+ 10	−06	+03	−07	−06	2.5	10.5	− 86	− 77	− 47	+ 73	− 77	+ 90 75	+ 3 39	7

TABLE IV (*continued*)

Star No. (1)	l^{II} (2)	ρ km/sec (3)	μ_α 0".0000 (4)	μ_δ 0".000 (5)	μ_l 0".000 (6)	μ_b 0".000 (7)	r kpc (8)	R kpc (9)	T_l km/sec (10)	T_b km/sec (11)	$\dot{x}$ km/sec (12)	$\dot{y}$ km/sec (13)	$\dot{z}$ km/sec (14)	$\Theta-\Theta_0$ km/sec (15)	Π km/sec (16)	Source μ_α,δ (17)
872	207°.33	+ 20	−11	+07	−14	−11	1.6	9.6	−107	− 84	− 66	+ 87	− 84	+105 ±49	+ 31 ±26	7
873	207.35	+ 18	−08	+13	−18	−04	1.7	9.7	−138	− 35	− 79	+114	− 35	+134 52	+ 41 28	7
874	207.36	+ 6	−08	−03	−03	−12	1.0	9.1	− 16	− 56	− 12	+ 12	− 56	+ 26 30	− 11 17	7
877	208.07	+ 9	−12	−05	−04	−18	0.4	8.5	− 7	− 31	− 8	+ 4	− 32	+ 19 11	− 8 7	7,7
878	208.44	+ 10	+01	−02	+03	+00	0.8	8.9	+ 11	+ 1	− 3	− 14	+ 1	0 11	− 17 7	2
880	208.54	+ 35	−01	+01	−01	−01	1.1	9.2	− 7	− 6	− 33	− 11	− 6	+ 5 15	+ 10 9	2
881	208.59	+ 18	+10	+07	+00	+17	1.2	9.3	+ 2	+ 95	− 19	− 12	+ 94	+ 3 35	− 5 20	7
882	208.73	+ 11	+07	−07	+11	+06	1.9	9.9	+ 97	+ 57	+ 35	− 91	+ 56	− 81 57	− 58 32	7
883	208.74	+ 30	−17	−14	+00	−29	2.0	10.0	+ 2	−273	− 14	− 10	−274	+ 4 58	− 17 33	7
885	209.17	+ 34	−14	+03	−12	−17	0.4	8.6	− 24	− 35	− 44	+ 3	− 31	+ 19 6	+ 28 5	2
888	210.02	+ 58	−04	−05	+01	−07	1.3	9.3	+ 8	− 44	− 45	− 35	− 46	− 18 31	+ 22 18	6
889	210.07	+ 9	+05	−10	+13	+02	1.1	9.2	+ 66	+ 10	+ 25	− 62	+ 10	− 49 28	− 46 17	6,7
890	210.29	+ 10	−03	−03	+00	−05	0.2	8.4	0	− 5	− 8	− 5	− 6	+ 10 6	− 5 5	6,7
892	210.41	+ 10	−09	−16	+08	−20	2.4	10.3	+ 96	−222	+ 44	− 85	−222	− 78 60	− 71 36	6
894	211.77	+ 23	−01	−00	−00	−01	0.8	8.9	− 1	− 5	− 20	− 11	− 5	+ 4 10	− 1 7	3
895	211.85	− 1	−17	−19	+06	−31	2.1	10.0	+ 55	−312	+ 32	− 45	−312	− 36 59	− 62 37	7
896	211.99	+ 25	−03	−23	+18	−14	0.1	8.3	+ 12	− 9	− 14	− 23	− 11	− 8 3	+ 2 4	3
898	212.62	+ 8	+04	+08	−05	+09	0.4	8.6	− 9	+ 19	− 14	+ 2	+ 17	+ 17 10	− 3 8	6,7
899	213.06	+ 7	−04	−09	+05	−09	0.4	8.5	+ 10	− 17	− 2	− 13	− 16	+ 2 10	− 13 7	6 7
900	213.10	+ 36	−09	+11	−16	−07	2.3	10.2	−170	− 76	−124	+122	− 75	+148 67	+ 69 44	7
904	214.03	+ 15	−02	−02	+00	−03	0.3	8.5	+ 1	− 5	− 11	− 8	− 6	+ 7 8	− 4 7	6,7
905	214.21	+ 10	+05	−08	+11	+04	0.2	8.4	+ 10	+ 3	− 3	− 14	+ 2	+ 1 4	− 10 4	2
906	214.52	+ 25	−03	+00	−02	−03	0.3	8.5	− 3	− 5	− 21	− 11	− 8	+ 4 5	+ 6 5	2
909	214.83	+ 6	−04	+01	−04	−05	1.1	9.2	− 20	− 26	− 20	+ 11	− 25	+ 26 32	− 8 23	7
911	215.83	+ 29	+02	+20	−17	+12	1.6	9.5	−126	+ 93	−103	+ 81	+ 90	+103 45	+ 62 33	7
913	216.36	+ 29	−02	−02	+01	−03	0.3	8.5	+ 1	− 5	− 22	− 17	− 10	− 2 5	+ 6 5	2
914	216.42	+ 25	−14	−11	+00	−24	1.7	9.6	+ 4	−185	− 18	− 18	−185	− 4 45	− 14 33	7
916	216.66	+ 22	−03	−03	+01	−05	0.3	8.4	+ 1	− 6	− 16	− 13	− 9	+ 2 4	+ 2 5	2
917	216.66	+ 18	−11	+04	−11	−12	0.3	8.4	− 13	− 15	− 21	+ 1	− 17	+ 16 7	+ 6 6	6
920	216.87	+ 60	−03	+07	−08	−01	1.8	9.7	− 68	− 5	− 88	+ 18	− 6	+ 41 49	+ 50 37	7
923	217.33	+ 23	+05	−04	+08	+05	0.3	8.4	+ 10	+ 7	− 12	− 23	+ 5	− 8 5	− 2 5	2
925	217.52	+ 15	−03	−14	+10	−10	0.8	8.8	+ 39	− 36	+ 16	− 37	− 38	− 24 22	− 37 18	7
926	217.67	+ 13	−04	−01	−01	−06	1.3	9.3	− 8	− 35	− 14	0	− 35	+ 14 15	− 17 12	3
927	218.01	+ 25	−03	−00	−02	−04	0.4	8.5	− 3	− 7	− 22	− 13	− 7	+ 2 5	+ 5 5	2
933	219.11	+ 22	−02	−19	+16	−10	0.8	8.8	+ 59	− 39	+ 24	− 56	− 42	− 44 22	− 44 18	7
934	219.13	+ 5	−04	−14	+10	−11	1.7	9.5	+ 79	− 90	+ 47	− 64	− 90	− 56 38	− 75 31	6,7
938	221.28	+ 24	−18	+03	−14	−22	1.1	9.1	− 73	−114	− 56	+ 48	−116	+ 65 29	+ 23 26	7
941	221.97	+ 7	+15	+18	−07	+27	0.3	8.4	− 11	+ 41	− 18	− 1	+ 39	+ 14 9	+ 1 9	6,7
943	222.09	+ 25	−06	−10	+05	−13	0.8	8.8	+ 17	− 46	− 1	− 23	− 50	− 9 16	− 22 15	6,7
944	222.18	+ 51	−04	−15	+11	−12	1.8	9.6	+ 96	−101	+ 29	−103	−103	− 94 40	− 56 36	6,7
945	222.31	+ 38	+00	−20	+18	−09	1.7	9.5	+143	− 70	+ 69	−130	− 70	−125 44	− 90 40	7
946	222.40	+ 42	−12	+06	−13	−13	2.6	10.3	−164	−156	−139	+ 94	−157	+127 67	+ 71 61	7
947	222.43	+ 2	−09	−09	+02	−16	0.5	8.6	+ 4	− 37	+ 6	0	− 36	+ 14 11	− 25 10	6,7
948	222.66	− 10	+01	+06	−05	+03	0.3	8.4	− 7	+ 5	+ 2	+ 11	+ 6	+ 26 9	− 19 8	6,7
950	223.72	+ 19	−18	−35	+19	−39	0.9	8.9	+ 83	−170	+ 48	− 69	−176	− 59 21	− 70 20	6,7
951	224.05	+ 3	−21	−00	−14	−28	1.2	9.1	− 79	−161	− 45	+ 67	−160	+ 83 30	+ 7 29	7
952	224.05	+ 16	+06	−11	+14	+03	1.0	9.0	+ 71	+ 16	+ 38	− 63	+ 16	− 52 23	− 61 22	6,7
953	224.17	+ 58	+04	+04	−00	+08	1.3	9.2	− 2	+ 48	− 44	− 39	+ 47	− 22 14	+ 14 14	2
954	224.18	+ 16	−11	+15	−20	−07	0.7	8.7	− 70	− 24	− 59	+ 40	− 25	+ 57 17	+ 33 17	6,7
956	224.41	+ 23	+05	+17	−11	+15	1.2	9.1	− 64	+ 86	− 58	+ 32	+ 87	+ 51 14	+ 23 14	2
957	224.48	+ 14	+14	−05	+14	+16	0.3	8.5	+ 24	+ 27	+ 7	− 27	+ 27	− 12 10	− 23 10	7
959	224.69	+ 18	+00	−06	+06	−02	0.3	8.5	+ 10	− 4	− 6	− 19	− 4	− 5 9	− 11 9	6
960	224.70	+ 6	+19	−01	+14	+24	0.8	8.8	+ 51	+ 89	+ 25	− 47	+ 88	− 35 20	− 47 20	7
961	224.71	+ 31	−05	+01	−04	−06	0.6	8.6	− 10	− 15	− 29	− 14	− 16	+ 2 7	+ 8 7	2
964	224.73	+ 33	−02	−05	+03	−04	1.3	9.2	+ 21	− 28	− 8	− 38	− 27	− 24 14	− 22 14	2
967	225.44	+ 16	−14	+05	−14	−17	1.1	9.0	− 71	− 87	− 55	+ 45	− 88	+ 63 27	+ 20 27	7,7
970	225.68	+ 33	−08	+02	−07	−10	1.7	9.4	− 58	− 80	− 62	+ 19	− 81	+ 39 18	+ 20 18	2
971	225.95	+ 19	+02	+06	−04	+05	1.0	9.0	− 21	+ 23	− 29	0	+ 22	+ 16 12	− 1 12	3
972	226.11	+ 30	−06	−16	+10	−15	0.3	8.4	+ 12	− 18	− 13	− 31	− 16	− 16 6	− 2 6	6,7
979	227.58	+ 17	+05	−11	+13	+01	0.3	8.4	+ 20	+ 1	+ 3	− 26	− 1	− 11 9	− 20 9	6,7
982	228.33	− 1	−13	−21	+10	−27	1.7	9.4	+ 81	−211	+ 75	− 38	−209	− 36 38	−110 42	7
984	228.59	+ 24	+00	+15	−13	+08	1.5	9.3	− 96	+ 59	− 80	+ 53	+ 62	+ 75 35	+ 34 39	7
985	228.70	+ 41	−02	+06	−07	−00	0.5	8.5	− 15	− 1	− 38	− 21	− 6	− 5 6	+ 19 6	2
986	228.99	+ 16	−05	−01	−03	−07	2.3	9.9	− 28	− 80	− 29	+ 10	− 81	+ 24 50	− 24 58	7
987	229.07	− 28	−03	−01	−01	−05	0.4	8.5	− 2	− 9	+ 17	+ 23	− 7	+ 37 10	− 36 11	7
988	229.13	+ 17	−03	−23	+18	−15	1.4	9.2	+119	− 99	+ 81	− 88	− 99	− 84 32	−107 37	7
991	229.42	+ 6	−03	−07	+04	−08	1.3	9.1	+ 25	− 45	+ 16	− 19	− 45	− 8 12	− 49 14	2
993	229.74	+ 5	+08	+35	−25	+27	0.3	8.4	− 32	+ 33	− 27	+ 18	+ 33	+ 33 8	+ 10 8	6,7
994	229.85	+ 65	−17	+06	−17	−19	1.5	9.2	−123	−139	−134	+ 32	−140	+ 60 34	+ 89 41	7
996	230.46	+ 22	−09	+04	−10	−10	0.6	8.6	− 31	− 30	− 38	+ 2	− 29	+ 18 12	+ 15 15	6,7
997	230.91	+ 21	−01	−02	+01	−03	0.6	8.6	+ 2	− 7	− 12	− 18	− 6	− 3 6	− 9 7	2
998	231.08	− 5	+01	−21	+19	−09	0.5	8.5	+ 43	− 21	+ 36	− 23	− 21	− 11 7	− 56 8	2
1000	231.31	+ 31	−01	+06	−06	+01	0.6	8.6	− 16	+ 3	− 32	− 14	− 2	+ 2 7	+ 10 7	2
1001	231.35	+ 15	+11	−20	+25	+04	1.5	9.2	+178	+ 28	+130	−122	+ 28	−126 35	−153 44	7
1014	233.37	+ 15	−03	+06	−08	−01	1.1	8.9	− 43	− 6	− 44	+ 13	− 5	+ 30 24	+ 8 31	7
1016	233.73	+ 9	−07	−20	+14	−18	0.4	8.4	+ 24	− 31	+ 17	− 18	− 32	− 4 8	− 34 9	6,7
1018	234.02	+ 38	−01	−06	+05	−04	0.6	8.6	+ 15	− 12	− 9	− 38	− 18	− 23 7	− 13 8	3
1020	234.20	+ 16	+02	−11	+11	−03	2.4	9.8	+122	− 36	+ 89	− 84	− 36	− 92 48	−127 66	7
1022	234.83	+ 30	+09	+05	+02	+13	1.6	9.2	+ 12	+101	− 4	− 27	+102	− 15 31	− 35 43	7
1024	235.07	+ 16	−09	−05	−02	−14	2.5	9.9	− 22	−163	− 23	+ 5	−164	+ 17 48	− 37 69	7
1030	235.52	+ 20	−05	−37	+29	−24	0.4	8.5	+ 60	− 50	+ 39	− 49	− 50	− 36 11	− 57 13	6
1031	235.53	+ 22	+02	+05	−03	+05	0.7	8.6	− 10	+ 15	− 21	− 12	+ 15	+ 3 7	− 3 8	2
1032	235.56	+ 48	+01	+04	−03	+03	1.0	8.8	− 14	+ 14	− 39	− 33	+ 6	− 17 9	+ 10 12	2
1036	235.65	+ 19	−07	+06	−10	−06	3.0	10.2	−143	− 85	−125	+ 70	− 86	+104 58	+ 38 84	7
1040	236.53	+ 33	−08	−11	+03	−16	0.3	8.4	+ 5	− 22	− 16	− 33	− 17	− 17 5	0 4	2
1041	236.54	+ 10	−01	−27	+23	−14	0.4	8.4	+ 48	− 29	+ 36	− 33	− 30	− 20 9	− 55 12	6,7
1042	236.55	+ 28	−06	+12	−14	−02	0.3	8.4	− 19	− 3	− 31	− 12	− 8	+ 3 6	+ 14 7	6
1047	237.41	+ 48	−04	−01	−02	−05	1.0	8.8	− 10	− 27	− 33	− 34	− 29	− 18 9	+ 3 13	2
1051	237.83	− 11	−02	+04	−05	−01	2.0	9.4	− 46	− 6	− 33	+ 34	− 5	+ 49 16	− 26 25	2
1052	238.18	+ 40	−07	+06	−10	−06	1.1	8.8	− 51	− 30	− 63	− 5	− 33	+ 14 10	+ 28 15	2

TABLE IV (*continued*)

Star No. (1)	l^{II} (2)	ρ km/sec (3)	μ_α 0".0000 (4)	μ_δ 0".000 (5)	μ_l 0".000 (6)	μ_b 0".000 (7)	r kpc (8)	R kpc (9)	T_l km/sec (10)	T_b km/sec (11)	$\dot{x}$ km/sec (12)	$\dot{y}$ km/sec (13)	$\dot{z}$ km/sec (14)	$\Theta-\Theta_0$ km/sec (15)	Π km/sec (16)	Source $\mu_{\alpha,\delta}$ (17)
1058	238°.90	+ 14	−05	−24	+17	−19	0.3	8.4	+ 28	− 32	+ 15	− 29	− 30	− 15 ± 8	− 32 ± 11	7
1059	238.97	0	−06	−03	−01	−09	0.2	8.3	− 1	− 9	0	+ 1	− 9	+ 16 5	− 15 4	3
1060	239.04	+ 19	−07	−11	+04	−15	0.2	8.3	+ 3	− 11	− 8	− 19	− 9	− 4 4	− 6 3	2
1061	239.20	+ 7	−03	+07	−09	−00	0.9	8.7	− 37	0	− 35	+ 13	0	+ 29 8	+ 3 12	3
1063	239.41	+ 26	−04	+07	−09	−02	0.2	8.3	− 8	− 1	− 20	− 18	− 5	− 3 5	+ 5 4	3
1067	241.96	+ 33	−20	+23	−33	−12	0.1	8.3	− 21	− 7	− 34	− 19	− 9	− 4 5	+ 20 5	6
1068	242.08	+ 14	+00	+06	−05	+03	0.8	8.6	− 19	+ 10	− 24	− 5	+ 7	+ 10 11	− 4 19	6
1073	243.21	+ 28	−01	−05	+04	−03	0.4	8.4	+ 9	− 7	− 4	− 28	− 11	− 13 5	− 16 6	3
1074	243.42	+ 7	−13	+06	−13	−12	0.5	8.4	− 29	− 26	− 27	+ 9	− 26	+ 25 9	+ 5 13	6
1077	245.04	+ 8	−10	−01	−05	−11	0.5	8.4	− 11	− 25	− 12	0	− 26	+ 15 7	− 10 12	6
1078	245.15	+ 21	−06	+01	−04	−06	0.3	8.3	− 5	− 7	− 13	− 16	− 10	− 1 5	− 3 7	6
1082	248.78	+ 19	−06	−03	−01	−08	0.3	8.3	− 1	− 11	− 7	− 15	− 14	0 5	− 10 8	6,5
1083	248.82	+ 23	−05	+03	−06	−05	0.2	8.3	− 6	− 5	− 13	− 18	− 9	− 3 5	− 2 6	6,5
1084	248.88	+ 36	+03	−08	+09	+00	0.8	8.5	+ 34	+ 1	+ 19	− 46	− 6	− 34 10	− 46 22	6,5
1086	249.46	+ 21	−13	−01	−06	−14	0.6	8.4	− 18	− 38	− 22	− 8	− 40	+ 7 7	− 3 16	6,5
1087	249.85	− 10	−11	−01	−05	−12	0.3	8.3	− 9	− 19	− 4	+ 15	− 18	+ 29 6	− 16 9	6
1088	250.46	+ 19	−07	−01	−03	−07	0.2	8.3	− 4	− 8	− 9	− 16	− 10	− 1 5	− 7 6	6
1089	250.52	− 54	−05	−01	−02	−06	0.3	8.3	− 4	− 10	+ 14	+ 52	− 11	+ 66 5	− 36 5	3
1090	251.48	+ 28	+03	−03	+04	+02	0.2	8.3	+ 4	+ 2	− 5	− 28	0	− 13 5	− 10 6	6,5
1091	251.55	+ 23	+01	−11	+10	−04	0.4	8.3	+ 20	− 7	+ 12	− 27	− 10	− 13 5	− 31 6	3
1092	252.13	+ 23	−10	+13	−18	−04	0.3	8.3	− 22	− 6	− 28	− 14	− 9	+ 2 5	+ 11 8	6,5
1093	252.15	+ 26	−13	+03	−11	−12	0.2	8.3	− 10	− 12	− 17	− 20	− 15	− 5 5	+ 2 6	6
1096	253.07	+ 12	−05	−01	−03	−06	0.2	8.3	− 3	− 6	− 6	− 10	− 7	+ 5 5	− 10 6	6,5
1097	253.58	+ 35	−07	−03	−02	−09	0.3	8.3	− 2	− 10	− 12	− 33	− 11	− 18 5	− 4 7	6,5
1098	253.90	− 21	−03	−07	+04	−07	0.3	8.3	+ 4	− 8	+ 10	+ 20	− 6	+ 34 5	− 28 7	6
1100	254.46	+ 39	−04	−13	+09	−11	2.6	9.3	+110	−137	+ 97	− 62	−138	− 83 12	−149 39	3
1101	254.61	+ 23	−19	+01	−14	−18	0.3	8.3	− 19	− 25	− 25	− 18	− 24	− 2 5	+ 7 8	6
1102	254.95	+ 16	−10	−03	−04	−11	0.2	8.3	− 5	− 13	− 9	− 14	− 13	+ 1 5	− 8 7	6,5
1103	254.99	+ 15	−16	+04	−16	−13	0.5	8.3	− 37	− 32	− 40	− 8	− 30	+ 8 5	+ 17 9	3
1104	255.16	+ 23	+16	+01	+08	+16	0.3	8.3	+ 12	+ 24	+ 5	− 28	+ 21	− 14 5	− 23 9	6
1105	255.66	+ 22	−34	−03	−19	−35	0.5	8.3	− 42	− 75	− 45	− 8	− 76	+ 8 7	+ 23 18	5
1106	255.67	+ 45	−10	+01	−07	−09	2.5	9.2	− 83	−113	− 87	− 7	−118	+ 20 10	+ 15 36	2
1107	255.89	+ 14	+07	−06	+09	+04	0.5	8.3	+ 20	+ 8	+ 16	− 19	+ 7	− 6 5	− 38 7	2
1109	255.98	− 24	−22	+13	−24	−15	0.7	8.4	− 77	− 48	− 68	+ 46	− 45	+ 64 6	+ 36 14	2
1112	257.47	+ 14	+11	−12	+16	+04	0.4	8.3	+ 30	+ 8	+ 26	− 21	+ 6	− 8 6	− 47 12	6
1113	257.51	+ 35	−04	+00	−03	−04	0.2	8.3	− 3	− 4	− 10	− 32	− 10	− 18 5	− 6 6	6
1114	257.87	+ 5	−09	−00	−06	−08	0.4	8.3	− 12	− 17	− 13	− 3	− 17	+ 12 6	− 9 12	6,5
1118	260.06	+ 8	−10	−07	+00	−13	0.2	8.2	0	− 15	− 1	− 6	− 16	+ 8 5	− 16 3	2
1120	260.18	+ 24	−04	+04	−06	−02	0.8	8.4	− 22	− 6	− 26	− 18	− 10	− 3 5	− 4 12	2
1122	260.23	+ 30	−13	−10	−02	−18	0.8	8.4	− 7	− 64	− 12	− 32	− 62	− 18 6	− 16 21	6,5
1123	260.24	+ 36	−02	+05	−06	+01	0.5	8.3	− 13	+ 2	− 19	− 33	− 5	− 18 5	− 3 7	2
1124	260.50	+ 23	−10	+18	−21	+01	0.3	8.3	− 33	+ 2	− 37	− 17	0	− 1 5	+ 18 10	6
1125	260.61	+ 25	+04	+06	−04	+07	0.4	8.3	− 7	+ 13	− 11	− 26	+ 8	− 11 5	− 9 6	2
1126	261.09	+ 27	+15	+04	+04	+16	0.7	8.3	+ 12	+ 51	+ 7	− 37	+ 45	− 24 6	− 33 20	6
1128	262.05	+ 41	+04	+05	−03	+06	1.1	8.4	− 14	+ 32	− 20	− 44	+ 24	− 29 5	− 14 16	2
1133	262.58	+ 13	−20	+19	−27	−07	0.4	8.3	− 51	− 13	− 52	− 5	− 15	+ 12 5	+ 31 13	6
1134	262.71	+ 24	−13	+10	−16	−06	0.4	8.3	− 34	− 12	− 37	− 19	− 13	− 3 5	+ 15 13	6
1135	262.77	+ 18	+00	+07	−06	+04	0.6	8.3	− 19	+ 12	− 22	− 17	+ 8	− 2 5	− 5 18	6
1137	262.80	+ 35	−02	+07	−07	+02	0.2	8.2	− 6	+ 2	− 10	− 34	− 3	− 19 5	− 5 3	2
1140	263.33	+ 5	+03	+01	+01	+03	0.3	8.2	+ 2	+ 4	+ 1	− 6	+ 3	+ 9 5	− 19 8	6
1141	263.48	+ 20	−03	+08	−09	+02	0.2	8.2	− 10	+ 2	− 12	− 19	− 2	− 4 5	− 4 4	2
1142	263.54	+ 18	−33	+04	−21	−26	0.7	8.3	− 68	− 85	− 68	+ 3	− 87	+ 22 6	+ 38 22	6
1143	263.78	+ 22	−27	+07	−23	−19	0.5	8.3	− 56	− 47	− 58	− 13	− 48	+ 5 5	+ 34 17	6
1146	264.02	+ 14	+22	+06	+08	+22	0.4	8.2	+ 14	+ 39	+ 12	− 20	+ 37	− 6 5	− 32 11	6
1147	264.06	+ 11	+02	+04	−03	+04	1.0	8.4	− 13	+ 19	− 14	− 13	+ 16	+ 1 6	− 21 27	6
1151	264.32	+ 20	−02	−07	+05	−06	1.4	8.4	+ 34	− 37	+ 33	− 18	− 39	− 13 6	− 77 39	6
1152	264.44	+ 25	−04	−03	−00	−06	1.3	8.4	− 3	− 34	− 5	− 23	− 35	− 11 6	− 38 37	6
1154	264.98	+ 26	−05	+07	−08	−00	0.4	8.2	− 18	− 1	− 20	− 24	− 4	− 9 5	− 2 7	2
1155	265.15	+ 14	−11	−00	−06	−09	0.2	8.2	− 6	− 8	− 7	− 13	− 9	+ 2 5	− 9 5	6
1157	265.30	+ 20	+00	+01	−00	+01	0.5	8.3	− 1	+ 3	− 3	− 20	+ 3	− 6 5	− 20 14	6
1159	265.65	+ 22	+01	+08	−06	+06	0.4	8.2	− 10	+ 10	− 12	− 21	+ 10	− 6 5	− 8 11	6
1161	266.25	+ 8	−03	+00	−02	−03	1.4	8.4	− 15	− 18	− 16	− 6	− 18	+ 6 5	− 33 21	2
1163	266.57	+ 8	+17	+18	−04	+24	0.7	8.3	− 12	+ 80	− 13	− 13	+ 79	+ 2 5	− 15 20	6
1164	266.58	+ 32	−20	+11	−23	−08	0.2	8.2	− 18	− 6	− 20	− 31	− 4	− 16 5	+ 6 5	6
1165	266.59	+ 58	−24	−07	−10	−23	0.3	8.2	− 12	− 31	− 16	− 55	− 34	− 40 5	− 1 8	6
1166	266.79	+ 26	−08	−06	−01	−10	0.9	8.3	− 5	− 41	− 7	− 27	− 40	− 14 5	− 25 25	6
1167	267.14	+ 18	+01	+04	−03	+03	0.5	8.2	− 6	+ 7	− 7	− 18	+ 5	− 4 5	− 16 7	3
1169	267.37	+ 35	−03	+02	−03	−00	1.7	8.4	− 27	− 4	− 29	− 34	− 2	− 19 5	− 20 47	6
1170	267.89	+ 3	−15	−01	−09	−12	0.3	8.2	− 11	− 15	− 11	− 2	− 15	+ 13 5	− 7 4	3
1172	268.10	+ 28	+23	−00	+14	+17	0.2	8.2	+ 15	+ 19	+ 14	− 30	+ 17	− 16 5	− 30 4	2
1173	268.23	+ 7	+00	−06	+05	−04	0.3	8.2	+ 8	− 6	+ 8	− 7	− 6	+ 8 5	− 27 9	6
1174	268.68	+ 7	−19	+09	−21	−08	0.6	8.2	− 62	− 25	− 62	− 6	− 25	+ 12 5	+ 34 20	6
1175	270.26	+ 17	−21	+19	−27	−04	0.1	8.2	− 14	− 2	− 14	− 17	− 4	− 2 5	0 2	2
1177	270.33	+ 14	−25	+26	−35	−02	0.1	8.2	− 24	− 1	− 24	− 14	− 3	+ 1 5	+ 9 5	6,5
1178	270.60	+ 22	−15	+22	−26	+03	0.2	8.2	− 26	+ 3	− 25	− 22	0	− 7 5	+ 9 7	6
1179	271.17	+ 28	−07	+03	−07	−03	0.6	8.2	− 20	− 9	− 20	− 28	− 11	− 13 5	− 6 18	6
1180	271.30	+ 20	+03	+06	−03	+06	0.3	8.2	− 3	+ 8	− 3	− 20	+ 9	− 5 5	− 15 4	3
1181	271.62	+ 22	+04	−01	+03	+02	0.1	8.2	+ 2	+ 1	+ 3	− 22	− 1	− 7 5	− 16 2	3
1182	271.85	− 8	−06	+01	−06	−03	0.4	8.2	− 10	− 5	− 11	+ 7	− 6	+ 22 5	− 11 11	6
1183	273.02	+ 27	−08	+00	−06	−05	0.2	8.2	− 5	− 4	− 3	− 28	− 3	− 13 5	− 11 3	3
1184	273.25	+ 26	−09	+06	−11	−02	0.2	8.2	− 12	− 2	− 10	− 27	+ 2	− 12 5	− 6 4	1
1185	273.89	+ 27	+06	+06	−01	+08	0.3	8.2	− 2	+ 9	0	− 28	+ 5	− 14 5	− 17 4	2
1186	274.14	+ 28	−14	+07	−12	−05	0.2	8.2	− 14	− 6	− 12	− 27	− 11	− 12 5	− 5 4	1
1187	274.31	+ 10	−03	+12	−11	+07	0.2	8.2	− 9	+ 6	− 8	− 11	+ 6	+ 4 5	− 7 5	6
1188	274.39	+ 13	−03	−01	−02	−03	3.2	8.6	− 25	− 38	− 24	− 14	− 39	− 9 10	− 68 120	5
1189	274.93	+ 29	−15	−15	+02	−19	0.3	8.2	+ 3	− 24	+ 5	− 26	− 27	− 12 5	− 22 7	6,5
1190	275.18	+ 22	−19	−03	−11	−14	0.2	8.2	− 8	− 10	− 6	− 22	− 11	− 7 5	− 8 5	6,5
1191	275.67	− 2	−08	−02	−05	−07	0.3	8.2	− 7	− 10	− 7	0	− 11	+ 15 5	− 12 5	3
1192	275.75	+ 13	−19	+04	−13	−09	0.5	8.2	− 30	− 21	− 29	− 13	− 22	+ 3 5	+ 5 15	6,5
1193	275.82	+ 13	+03	+01	+01	+02	0.3	8.2	+ 1	+ 4	+ 2	− 13	+ 1	+ 1 5	− 21 5	3

TABLE IV (*continued*)

Star No. (1)	l^{II} (2)	ρ km/sec (3)	μ_α 0".0000 (4)	μ_δ 0".000 (5)	μ_l 0".000 (6)	μ_b 0".000 (7)	r kpc (8)	R kpc (9)	T_l km/sec (10)	T_b km/sec (11)	$\dot{x}$ km/sec (12)	$\dot{y}$ km/sec (13)	$\dot{z}$ km/sec (14)	$\Theta-\Theta_0$ km/sec (15)	Π km/sec (16)	Source μ_α, δ (17)
1194	275°.89	+22	−04	+09	−09	+04	0.1	8.2	−6	+3	−3	−22	+1	−8 ± 5	−10 ± 2	3
1195	276.17	+16	−12	+07	−13	−02	1.8	8.2	−113	−16	−111	−28	−17	+4 9	+53 70	5
1197	276.87	+8	−03	−07	+03	−07	0.7	8.1	+9	−25	+10	−8	−25	+5 6	−40 21	6
1198	276.89	+17	−03	+15	−11	+10	0.7	8.1	−36	+34	−34	−18	+35	−1 6	+5 20	6
1199	277.30	+9	−05	−06	+01	−08	0.4	8.2	+1	−15	+2	−9	−14	+5 5	−23 6	3
1200	277.33	+2	−01	+06	−05	+03	0.2	8.2	−5	+3	−5	−3	+3	+12 5	−11 6	6,5
1201	277.34	+5	+00	+03	−01	+02	0.4	8.2	−2	+4	−2	−5	+4	+9 5	−19 10	6
1202	277.53	+13	−13	−01	−08	−08	0.4	8.2	−14	−14	−13	−14	−14	+1 5	−7 10	6,5
1203	277.70	+23	−19	+09	−17	−04	0.2	8.2	−12	−3	−9	−24	−6	−9 5	−5 3	1
1204	278.20	+16	+03	+07	−02	+07	0.3	8.2	−2	+11	0	−16	+12	−1 5	−19 5	1
1205	278.41	+6	−22	+05	−17	−08	0.4	8.2	−29	−14	−28	−9	−15	+6 5	+8 11	6,5
1206	279.15	+23	−09	+01	−07	−04	0.2	8.2	−7	−4	−3	−24	−3	−9 5	−13 3	8
1207	279.18	+12	−23	−09	−11	−20	0.3	8.2	−13	−25	−11	−15	−24	0 5	−6 4	1
1208	279.69	+3	+12	+09	+05	+14	2.4	8.1	+54	+155	+51	+18	+155	+4 8	−131 34	3
1209	279.84	+7	+11	−00	+09	+06	0.6	8.1	+27	+17	+28	−1	+17	+11 6	−56 18	6
1210	280.04	−6	−17	−10	−05	−17	2.9	8.2	−75	−232	−74	−10	−232	+14 20	−16 108	5
1211	280.22	+17	−45	+12	−31	−15	0.2	8.2	−28	−14	−25	−19	−16	−4 5	+10 5	1
1212	280.24	−19	+15	+09	+07	+15	1.9	8.1	+62	+136	+56	+38	+134	+30 14	−127 72	5
1213	280.73	+17	−08	+02	−06	−03	0.4	8.1	−10	−5	−7	−18	−7	−3 5	−13 10	6,5
1214	281.73	+9	−05	+04	−05	+01	0.4	8.1	−9	+1	−7	−11	+2	+4 5	−13 5	1
1215	282.98	+10	−12	+04	−10	−02	0.2	8.2	−9	−2	−6	−11	−2	+3 5	−9 5	6,5
1216	283.87	+10	−04	+04	−05	+02	0.4	8.1	−9	+3	−7	−12	+4	+3 6	−14 11	6,5
1217	284.27	−2	−03	+01	−02	−01	0.2	8.1	−3	−1	−3	+1	−1	+16 5	−14 6	6,5
1218	284.54	+18	+10	−04	+09	+00	0.5	8.1	+19	+1	+23	−13	0	0 6	−46 13	6,5
1220	285.16	−2	+06	+03	+02	+05	2.1	7.9	+21	+45	+20	+6	+45	+5 21	−89 77	5
1221	285.18	+32	−15	+02	−12	−04	0.4	8.1	−21	−8	−12	−37	−7	−22 6	−7 11	6,5
1222	285.30	+11	−03	−00	−02	−02	0.4	8.1	−3	−3	0	−11	−4	+3 5	−20 5	2
1223	285.33	−18	+06	−04	+06	−01	2.5	7.9	+70	−14	+63	+37	−12	+17 26	−152 92	5
1225	285.63	+20	−17	−07	−08	−13	0.5	8.1	−22	−34	−16	−26	−33	−11 6	−8 15	6,5
1227	285.81	−8	+05	−03	+05	−01	2.8	7.9	+68	−9	+64	+26	−9	+2 22	−156 76	6,5
1228	285.85	0	+04	−12	+09	−09	2.5	7.9	+107	−106	+103	+29	−106	−3 20	−187 70	6,5
1239	286.23	−10	+11	−05	+10	−00	2.0	7.9	+97	−2	+90	+37	−2	+19 22	−163 74	5
1242	287.10	−2	+09	−01	+07	+02	1.9	7.9	+62	+21	+59	+20	+21	+12 17	−125 52	6,5
1243	287.18	+26	−18	+05	−14	−03	0.1	8.2	−10	−2	−1	−28	−3	−13 5	−12 3	2
1244	287.18	−27	−29	+15	−29	+03	3.2	7.9	−439	+44	−428	−101	+42	+65 40	+336 128	5
1246	287.67	−27	+03	+05	−00	+05	2.0	7.8	−1	+51	−9	+25	+52	+32 10	−64 27	2
1247	287.94	−29	+09	+01	+06	+04	1.9	7.8	+56	+35	+44	+46	+34	+41 23	−117 69	5
1249	288.18	−11	−08	+04	−07	+01	0.3	8.1	−9	+1	−12	+8	+1	+23 5	−6 4	3
1250	288.25	−9	+00	−05	+02	−05	2.8	7.8	+32	−59	+27	+19	−59	+7 33	−119 99	5
1251	289.04	+2	−24	−12	−13	−19	0.6	8.0	−37	−54	−33	−16	−54	0 8	+8 17	6,5
1252	289.50	+26	−18	+14	−17	+07	0.2	8.1	−15	+6	−5	−29	+4	−14 5	−10 4	1
1253	289.57	+24	−15	+13	−15	+06	0.2	8.1	−13	+6	−4	−28	+3	−13 5	−11 3	3
1254	289.60	+24	−19	+10	−15	+03	0.2	8.1	−18	+3	−8	−29	+1	−14 5	−8 4	2
1255	289.62	+8	−04	+08	−06	+06	0.2	8.1	−5	+5	−2	−9	+4	+5 5	−13 3	1
1256	289.75	−9	−27	−09	−09	−16	0.2	8.1	−9	−17	−13	+7	−15	+22 5	−4 6	6
1257	289.95	+14	−30	−01	−25	−10	0.1	8.2	−11	−5	−6	−17	−3	−2 5	−7 3	1
1258	289.96	+16	−23	+06	−16	−02	0.2	8.1	−17	−2	−11	−21	−3	−6 5	−5 4	1
1259	290.12	−1	−38	+03	−23	−09	0.5	8.0	−60	−23	−58	−18	−22	8	+33 17	6
1260	290.83	+17	+01	−05	+02	−04	0.3	8.1	+3	−6	+9	−15	−6	0 6	−26 10	5,6
1261	291.73	−10	−11	−04	−08	−07	2.3	7.7	−85	−74	−80	−27	−74	−1 33	+11 81	5
1262	292.36	−9	+15	−00	+10	+04	2.1	7.7	+101	+35	+90	+47	+35	+27 31	−167 74	5
1263	292.78	+4	+05	−06	+05	−04	2.4	7.6	+60	−51	+55	+23	−51	+8 27	−136 63	6
1264	292.86	+9	−17	+05	−14	+01	0.3	8.1	−17	+1	−12	−15	+1	0 5	−5 5	1
1265	293.31	−3	+09	−06	+08	−04	3.3	7.5	+124	−60	+113	+51	−60	−8 38	−226 88	6,5
1266	293.93	+2	+08	+05	+03	+06	2.8	7.5	+44	+83	+42	+13	+82	−4 17	−131 36	2
1267	293.97	+9	−09	+04	−08	+02	0.4	8.0	−15	+4	−10	−14	+4	0 5	−10 6	1
1268	294.50	+7	−36	−06	−14	−13	0.4	8.0	−27	−24	−23	−14	−25	+2 5	+3 6	2
1269	294.78	−14	−26	+05	−17	−00	3.3	7.4	−262	−4	−244	−97	−3	+1 43	+160 92	6
1270	294.78	−16	+07	−01	+05	+00	2.1	7.6	+45	+3	+34	+33	+3	+29 25	−109 54	6,5
1271	295.21	−3	−03	−13	+02	−13	3.3	7.4	+25	−205	+21	+16	−204	−3 54	−128 114	5
1272	295.62	−17	+07	+13	+02	+14	2.8	7.4	+24	+181	+15	+25	+181	+17 45	−109 94	5
1273	295.89	−2	−07	−01	−04	−02	3.0	7.4	−64	−30	−58	−26	−30	−8 20	−31 39	2
1274	295.97	−37	+27	+13	+16	+17	2.4	7.5	+184	+194	+149	+116	+194	+70 42	−252 85	5
1275	296.17	+37	−28	−04	−17	−08	0.1	8.2	−9	−5	+8	−37	−6	−22 5	−21 4	6,5
1276	296.75	+16	−25	−05	−16	−08	0.3	8.1	−20	−11	−11	−23	−11	−8 5	−6 5	1
1277	296.78	+21	−36	−12	−31	−17	0.1	8.1	−19	−10	−7	−28	−6	−14 5	−7 4	1
1278	297.64	+16	−14	+11	−11	+09	0.3	8.1	−18	+14	−8	−23	+14	−8 5	−10 5	1
1279	298.15	+2	−06	−01	−04	−02	2.4	7.4	−45	−19	−39	−23	−19	−9 43	−32 80	5
1280	298.23	+26	−38	−10	−28	−14	0.2	8.1	−22	−11	−7	−34	−9	−19 5	−7 4	2
1281	298.47	−4	−25	−05	−19	−08	3.2	7.2	−288	−114	−251	−142	−114	−41 60	+188 111	5
1283	298.60	+2	+20	−18	+16	−16	2.0	7.5	+156	−149	+138	+72	−149	+44 38	−215 69	5
1284	298.93	−7	−00	+01	−00	+01	3.2	7.2	−3	+15	−6	+4	+15	0 22	−94 39	2
1286	299.23	+9	−25	−17	−13	−19	0.3	8.0	−21	−31	−15	−16	−32	−1 7	−4 9	6
1287	299.33	+19	−52	−12	−33	−16	0.1	8.1	−22	−11	−10	−27	−11	−12 5	−4 4	1
1288	300.12	+27	−48	−20	−31	−23	0.3	8.1	−42	−32	−23	−44	−32	−29 6	+7 7	3
1289	300.13	−11	−40	−13	−26	−16	0.1	8.1	−15	−9	−19	+2	−9	+17 5	+5 3	2
1290	300.13	−1	−44	−08	−29	−11	0.1	8.1	−17	−6	−15	−8	−6	+7 5	+1 4	2
1291	301.46	+14	−92	−01	−43	−04	0.1	8.1	−28	−3	−17	−26	−5	−11 5	+4 5	1
1292	301.56	−70	+16	−14	+12	−13	3.0	7.1	+175	−193	+113	+150	−193	+94 61	−253 100	5
1293	301.66	+18	−55	−09	−29	−11	0.1	8.1	−15	−6	−4	−23	−8	−8 4	−9 3	2
1294	301.71	−16	−13	−11	−07	−11	2.3	7.3	−75	−124	−77	−18	−122	+7 18	+7 29	2
1297	302.23	+17	−34	−25	−28	−26	0.2	8.1	−23	−21	−10	−28	−19	−14 5	−4 4	2
1298	302.24	−31	−26	+13	−19	+12	1.5	7.5	−139	+90	−136	−45	+88	−11 33	+92 51	5
1299	302.45	+42	−52	−16	−29	−17	0.1	8.2	−12	−7	+12	−41	−11	−26 4	−24 3	3
1300	302.46	+20	−43	−17	−32	−18	0.2	8.1	−31	−17	−15	−34	−15	−19 5	0 5	2
1302	303.35	+16	−26	−15	−20	−15	0.2	8.1	−17	−12	−5	−23	−11	−8 5	−10 4	1
1303	303.36	+12	−22	−04	−18	−04	0.1	8.1	−12	−3	−3	−17	−1	−2 4	−10 3	1
1304	303.37	+19	−23	−23	−19	−23	0.2	8.1	−15	−18	−1	−25	−16	−11 5	−13 4	1
1305	303.42	−29	−03	−05	−02	−05	3.0	7.0	−30	−72	−39	+3	−74	+13 63	−58 96	5
1309	303.87	−35	−25	−07	−13	−07	0.5	7.9	−33	−17	−48	+12	−12	+29 7	+24 8	3

TABLE IV (*continued*)

Star No. (1)	l^{II} (2)	ρ km/sec (3)	μ_α 0".0000 (4)	μ_δ 0".000 (5)	μ_l 0".000 (6)	μ_b 0".000 (7)	r kpc (8)	R kpc (9)	T_l km/sec (10)	T_b km/sec (11)	$\dot{x}$ km/sec (12)	$\dot{y}$ km/sec (13)	$\dot{z}$ km/sec (14)	$\Theta-\Theta_0$ km/sec (15)	Π km/sec (16)	Source $\mu_{\alpha,\delta}$ (17)
1313	304°.68	− 28	−00	−08	−01	−08	0.7	7.8	− 2	− 25	− 18	+ 23	− 24	+ 38 ± 7	− 10 ± 8	2
1314	305.47	− 28	−02	−05	−02	−05	1.1	7.6	− 10	− 26	− 24	+ 17	− 26	+ 32 24	− 15 34	5
1315	305.52	− 11	+04	−07	+02	−07	1.2	7.6	+ 11	− 42	+ 2	+ 16	− 42	+ 27 20	− 45 28	6,5
1316	305.61	− 7	−19	+04	−12	+05	2.0	7.2	−117	+ 47	− 99	− 63	+ 47	− 33 45	+ 48 63	5
1317	305.80	− 8	+07	−01	+06	−02	1.2	7.6	+ 35	− 9	+ 25	+ 26	− 10	+ 34 27	− 68 37	5
1319	305.88	− 71	−24	−02	−16	−01	2.9	6.9	−224	− 7	−223	− 73	− 6	+ 4 67	+147 92	5
1321	306.70	− 7	+19	−15	+12	−17	0.4	8.0	+ 21	− 29	+ 13	+ 17	− 29	+ 31 5	− 32 6	3
1322	306.71	+ 26	−25	−10	−19	−08	0.2	8.1	− 17	− 7	+ 2	− 31	− 6	− 16 5	− 16 4	1
1323	306.76	− 22	+02	−07	+00	−07	2.0	7.2	+ 5	− 69	− 8	+ 19	− 69	+ 27 45	− 57 61	5
1327	307.06	− 12	+09	−03	+05	−04	0.5	7.9	+ 14	− 10	+ 4	+ 18	− 10	+ 32 10	− 28 13	6,5
1328	307.08	− 2	+01	+10	+02	+10	1.4	7.4	+ 14	+ 66	+ 5	+ 16	+ 65	+ 26 13	− 54 17	2
1332	308.52	− 18	−39	+14	−23	+18	2.9	6.8	−311	+252	−251	−184	+252	− 92 73	+211 92	5
1334	309.23	− 14	−34	−00	−23	+05	1.6	7.3	−173	+ 34	−143	− 99	+ 34	− 63 21	+108 26	2
1335	309.97	− 48	−05	−03	−05	−02	0.7	7.8	− 16	− 8	− 42	+ 26	− 12	+ 42 8	+ 14 8	2
1336	310.19	+ 6	−15	−14	−16	−12	0.1	8.1	− 11	− 8	− 4	− 12	− 7	+ 3 4	− 9 4	2
1337	311.27	− 20	−00	+01	−00	+01	0.3	8.0	0	+ 1	− 13	+ 15	+ 3	+ 30 5	− 5 5	2
1339	311.77	− 12	−23	−19	−22	−14	0.1	8.1	− 12	− 8	− 17	+ 1	− 8	+ 16 4	+ 4 4	2
1340	312.02	− 26	+03	−04	+01	−05	1.6	7.2	+ 10	− 37	− 9	+ 25	− 38	+ 36 40	− 43 45	5
1341	312.16	− 39	+09	−02	+06	−04	1.9	7.1	+ 54	− 39	+ 14	+ 64	− 40	+ 69 37	− 83 41	6,5
1342	312.26	+ 1	+08	+15	+10	+12	2.3	6.9	+111	+132	+ 80	+ 77	+132	+ 60 24	−163 27	2
1343	312.73	− 14	+00	−20	−08	−18	0.5	7.9	− 20	− 45	− 28	+ 1	− 43	+ 17 11	+ 6 12	6
1344	313.25	+ 1	−05	+08	+01	+09	0.7	7.8	+ 3	+ 27	+ 6	− 1	+ 27	+ 12 13	− 30 14	6
1345	313.86	− 33	−54	+20	−25	+32	2.0	7.0	−240	+307	−183	−156	+309	−107 46	+153 47	6,5
1346	314.13	+ 16	−25	−10	−22	−04	0.3	8.0	− 29	− 5	− 10	− 32	− 4	− 17 7	− 6 7	6,5
1348	314.29	+ 8	−35	−28	−31	−16	0.7	7.7	−107	− 55	− 75	− 77	− 55	− 58 18	+ 54 18	6
1349	315.03	− 21	−15	−22	−18	−15	0.3	8.0	− 22	− 18	− 31	+ 1	− 16	+ 16 7	+ 16 7	6
1350	315.26	− 5	−21	−06	−16	+01	0.4	7.9	− 27	+ 2	− 23	− 16	+ 2	− 1 9	+ 5 9	6,5
1351	316.71	− 1	+04	−05	+01	−06	0.3	8.0	+ 1	− 9	− 1	+ 2	− 8	+ 16 7	− 16 7	6,5
1352	318.40	− 8	−07	−02	−05	+01	0.5	7.9	− 11	+ 1	− 13	− 3	+ 2	+ 12 10	− 6 9	6,5
1353	318.58	− 5	+00	−05	−02	−04	0.6	7.8	− 5	− 12	− 7	− 1	− 13	+ 13 13	− 16 12	6,5
1354	318.93	− 2	−28	−10	−29	+01	0.3	8.0	− 46	+ 2	− 32	− 33	+ 2	− 18 7	+ 16 6	2
1355	319.18	− 12	−11	−12	−13	−06	0.3	8.0	− 15	− 8	− 19	− 3	− 7	+ 12 7	+ 4 6	6,5
1357	319.69	+ 88	−08	−03	−06	+00	0.7	7.7	− 20	+ 1	+ 54	− 72	− 3	− 61 8	− 73 7	2
1358	320.13	+ 14	−22	−12	−25	−02	0.1	8.1	− 16	− 1	+ 1	− 21	+ 1	− 6 5	− 14 5	6
1359	320.13	− 6	−01	+01	+00	+01	1.8	6.9	+ 2	+ 9	− 3	+ 5	+ 9	+ 15 20	− 47 17	2
1360	321.22	− 61	+07	−00	+04	−03	1.7	6.9	+ 35	− 23	− 26	+ 66	− 21	+ 80 39	− 31 31	6,5
1361	321.24	− 17	−14	−42	−32	−29	0.1	8.1	− 12	− 11	− 21	+ 2	− 10	+ 17 4	+ 9 4	6,5
1362	323.08	− 2	+13	−17	+02	−21	0.6	7.7	+ 7	− 62	+ 7	+ 3	− 62	+ 17 15	− 29 12	6
1363	325.33	+ 17	−19	−15	−25	−03	0.1	8.1	− 14	− 2	+ 6	− 21	+ 1	− 7 4	− 18 4	3
1364	326.79	− 2	+06	−02	+02	−05	0.5	7.8	+ 6	− 12	+ 1	+ 6	− 12	+ 20 7	− 20 6	1
1369	327.94	− 40	+10	+18	+18	+08	2.6	6.1	+222	+100	+ 85	+209	+101	+190 88	−193 56	5
1370	328.09	− 13	+09	−02	+05	−07	0.3	7.9	+ 9	− 11	− 6	+ 14	− 12	+ 29 9	− 10 7	6,5
1371	328.58	+ 8	+28	+10	+25	−08	2.1	6.5	+244	− 80	+131	+206	− 80	+191 73	−213 45	5
1372	329.23	+ 4	−10	−07	−13	+00	0.1	8.1	− 6	0	0	− 7	+ 1	+ 7 4	− 12 5	6
1373	329.77	− 16	+05	−06	−02	−07	0.0	8.2	0	0	− 14	+ 8	+ 2	+ 23 3	+ 3 4	6,5
1375	331.28	− 38	−17	−26	−29	−08	1.5	6.9	−209	− 56	−135	−164	− 55	−137 56	+116 31	5
1376	331.88	+ 6	−04	−19	−18	−09	0.2	8.0	− 17	− 9	− 4	− 17	− 9	− 2 4	− 9 5	1
1377	333.67	0	−02	+25	+17	+18	1.5	6.9	+124	+132	+ 63	+107	+131	+113 54	−106 27	5
1378	335.99	− 12	+03	−23	−14	−18	0.1	8.1	− 7	− 9	− 14	− 2	− 10	+ 13 4	+ 2 5	6
1379	336.65	− 18	+19	−02	+11	−15	3.2	5.4	+166	−229	+ 44	+162	−229	+154 85	−143 37	6
1382	336.78	+ 28	−08	−02	−07	+05	0.5	7.8	− 14	+ 10	+ 21	− 24	+ 8	− 10 7	− 36 8	3
1383	337.25	− 19	+11	−02	+07	−10	1.1	7.2	+ 35	− 50	− 3	+ 39	− 51	+ 53 15	− 23 8	3
1384	338.19	+ 5	+13	+05	+14	−07	1.0	7.3	+ 62	− 30	+ 29	+ 55	− 30	+ 68 26	− 53 12	6
1385	338.56	− 39	−11	−18	−21	−03	1.4	6.9	−143	− 23	− 89	−119	− 22	− 98 42	+ 70 17	6
1387	339.12	− 1	−16	−27	−32	−07	0.2	8.0	− 29	− 6	− 10	− 27	− 6	− 12 5	− 2 5	1
1388	339.38	+ 5	−03	−04	−05	−01	1.5	6.8	− 34	− 4	− 7	− 34	− 3	− 20 21	− 19 9	3
1389	340.39	+ 2	−03	−17	−14	−09	0.4	7.8	− 27	− 17	− 6	− 27	− 17	− 12 7	− 8 5	3
1391	340.57	− 12	+27	+20	+33	−10	1.6	6.7	+245	− 75	+ 66	+236	− 74	+244 53	−112 19	6
1392	340.76	− 2	−25	−65	−68	−14	0.1	8.1	− 39	− 8	− 16	− 36	− 8	− 21 6	+ 4 5	2
1393	342.02	− 19	−08	−13	−16	−01	0.3	7.9	− 24	− 1	− 25	− 17	+ 1	− 2 6	+ 12 5	3
1394	342.64	− 15	+10	+01	+07	−08	0.5	7.7	+ 17	− 19	− 11	+ 22	− 17	+ 37 15	− 4 7	6
1395	343.03	− 26	+10	+02	+09	−08	0.4	7.9	+ 15	− 13	− 20	+ 22	− 14	+ 37 10	+ 7 6	6
1399	343.31	− 36	+05	−12	−06	−12	1.4	6.9	− 36	− 81	− 43	− 25	− 81	− 8 38	+ 21 12	6
1400	343.34	− 28	−01	+10	+07	+07	1.4	6.9	+ 47	+ 45	− 14	+ 53	+ 44	+ 68 38	− 12 12	6
1401	343.35	− 18	−06	+03	−02	+07	1.4	6.9	− 11	+ 44	− 21	− 6	+ 43	+ 10 38	− 2 12	6
1403	343.45	− 6	+00	−02	−01	−02	1.4	6.9	− 9	− 11	− 8	− 7	− 11	+ 8 38	− 15 12	6
1404	343.45	− 24	+17	−33	−13	−36	1.4	6.9	− 86	−236	− 43	− 77	−236	− 61 39	+ 24 13	6
1405	343.47	− 16	−14	+15	+02	+21	1.4	6.9	+ 12	+139	− 15	+ 17	+138	+ 32 38	− 10 14	6
1411	343.62	− 63	+08	+05	+10	−04	1.4	6.9	+ 65	− 27	− 41	+ 79	− 29	+ 96 39	+ 13 12	6
1412	343.63	− 17	+08	−06	−00	−11	1.9	6.4	− 1	− 98	− 23	+ 5	− 96	+ 21 52	− 7 16	6
1413	344.09	−138	−08	−06	−10	+03	1.4	6.9	− 66	+ 18	−151	− 26	+ 14	− 3 39	+129 12	6
1414	344.81	− 7	−02	+18	+13	+13	1.7	6.5	+105	+104	+ 18	+104	+103	+116 50	− 52 14	6
1417	345.94	0	−04	−11	−12	−04	0.2	8.0	− 12	− 4	− 2	− 11	− 3	+ 4 3	− 10 5	2
1418	346.12	− 25	−08	−22	−23	−06	0.2	8.0	− 18	− 5	− 28	− 12	− 7	+ 3 4	+ 17 5	2
1419	346.19	+ 2	−07	−23	−23	−08	0.2	8.0	− 25	− 9	− 4	− 25	− 9	− 10 5	− 8 5	1
1422	347.84	− 3	+07	−08	−02	−11	1.6	6.7	− 15	− 84	− 5	− 15	− 84	0 59	− 16 14	5
1423	348.80	+ 2	+03	−04	−02	−05	1.2	7.0	− 10	− 29	0	− 10	− 29	+ 4 34	− 18 8	6
1424	349.90	− 51	+07	+04	+08	−05	0.3	7.9	+ 12	− 8	− 49	+ 21	0	+ 36 9	+ 36 5	6
1425	349.97	+ 9	+10	+06	+12	−06	1.0	7.3	+ 53	− 27	+ 20	+ 51	− 27	+ 65 15	− 37 6	1
1426	350.83	+ 8	−05	+01	−03	+06	0.4	7.8	− 7	+ 12	+ 6	− 8	+ 12	+ 7 6	− 18 5	1
1427	351.05	− 10	−04	−21	−20	−07	0.1	8.1	− 13	− 5	− 12	− 11	− 4	+ 4 3	+ 1 5	2
1428	351.29	+ 18	+01	−25	−20	−14	0.5	7.7	− 50	− 35	+ 9	− 52	− 36	− 37 10	− 21 5	2
1429	351.75	0	+06	−25	−17	−19	0.1	8.1	− 8	− 9	− 1	− 8	− 9	+ 7 2	− 9 5	2
1430	351.78	− 32	+10	+23	+26	+01	0.5	7.7	+ 60	+ 3	− 23	+ 64	+ 6	+ 79 16	+ 10 5	6,5
1431	351.89	− 15	−08	+02	−02	+09	0.3	7.9	− 3	+ 11	− 13	− 1	+ 13	+ 14 7	+ 2 5	6
1434	353.20	+ 16	+21	−04	+12	−24	0.9	7.3	+ 50	− 99	+ 28	+ 47	− 97	+ 61 14	− 43 5	1
1437	355.66	− 4	+06	−01	+04	−07	1.0	7.2	+ 17	− 31	− 3	+ 17	− 31	+ 32 14	− 10 5	2
1439	358.45	− 32	−06	+16	+10	+14	0.8	7.4	+ 39	+ 54	− 24	+ 40	+ 58	+ 55 23	+ 12 5	6

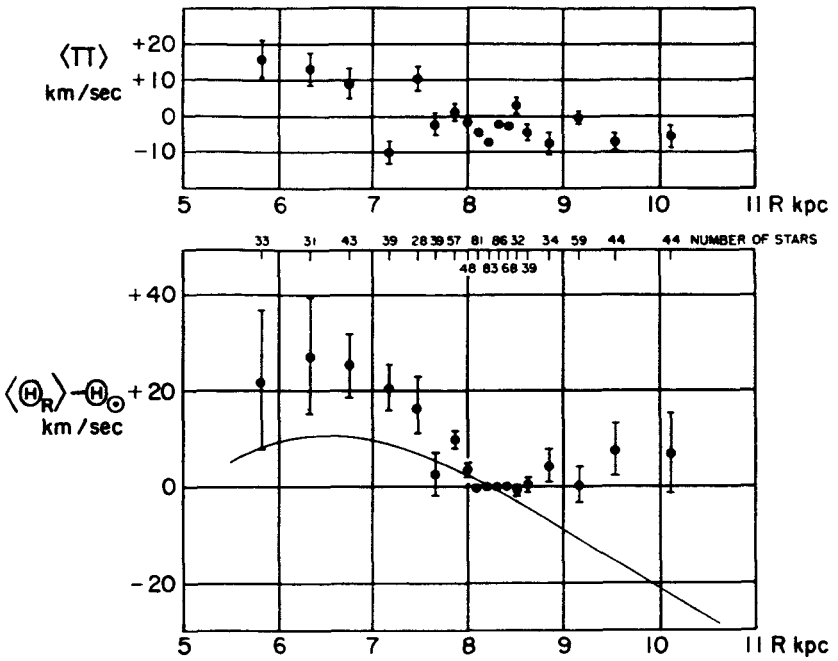

FIG. 5. *Upper plot.* The variation of $\langle\Pi\rangle$ as a function of distance from the center of the galaxy, for 888 stars. The weighted mean and the probable error of the weighted mean is indicated for each distance group. *Lower plot.* The variation of $\langle\Theta\rangle-\Theta_0$ for 888 stars, as a function of distance from the center of the galaxy. The weighted mean and the probable error of the weighted mean is shown for each point. The number of stars in each point is shown at the upper edge of the drawing. The solid curve represents the rotation curve for the gaseous component of the galaxy from the radio model of the galaxy (Kwee, Muller, and Westerhout 1954; Schmidt 1956).

(*a*) *MK luminosity calibration.* To first order in r/R, for a constant error ΔM in the absolute magnitude calibration of the MK luminosity classification, there will be an error in each computed Θ_i from Eqs. (7), (8), and (11), given by

$$\Delta\Theta=-0.46\Delta M[T_l\cos l^{\mathrm{II}}+(r/R)\sin l^{\mathrm{II}}\times(-2T_l\sin l^{\mathrm{II}}+\rho\cos l^{\mathrm{II}}+\dot{x}_0)]. \quad (21)$$

To this same degree of approximation, for the Oort model

$$T_l=r(A\cos 2l^{\mathrm{II}}+B). \quad (22)$$

The corresponding error in the distance of each star is given by

$$\Delta r=-0.46r\Delta M. \quad (23)$$

Toward the center and anticenter of the galaxy,

$$\Delta\Theta=\mp 0.46r\Delta M(A+B). \quad (24)$$

The negative sign is for $l^{\mathrm{II}}=0°$, the positive sign for $l^{\mathrm{II}}=180°$. Hence a positive ΔM, i.e., stars intrinsically fainter, will decrease the distance of each star from the sun. It will also decrease the values of $\langle\Theta\rangle-\Theta_0$ for the inner regions of the galaxy, but raise the rotation curve in the outer regions. Conversely, a negative value of ΔM, i.e., stars intrinsically brighter, will lower the outer rotation curve, but raise the inner parts. The impossibly large value of $\Delta M=-3^{\mathrm{m}}.0$ is necessary to make the computed rotation curve for large R coincide with the radio curve; this would raise the inner parts of the curve approximately 30 km/sec. Toward $l^{\mathrm{II}}=90°$ and 270°, a value of $\Delta M=\pm 0^{\mathrm{m}}.5$ will result in $\langle\Delta\Theta\rangle\approx\mp 2$ km/sec or less.

Similar arguments may be applied to determine the effects of a constant error in the correction for space absorption. If the stars are actually closer, and the interstellar absorption has not been fully accounted for, then the effect on the rotation curve is the same as if the stars were actually fainter; the inner part is lowered, but the outer portion raised. If the ratio of total to selective absorption is equal to 3.2 (Blanco and Lennon 1961), then $\Delta M\approx 0^{\mathrm{m}}.1$ for this sample of stars. In this case, $\Delta\Theta\approx 0.46$ km/sec for $r=1$ kpc and $\cos l^{\mathrm{II}}=1$; the change in $\langle\Theta\rangle$ is negligible.

The calibration of the MK luminosity classification is a question of continuing interest; Petrie (1962) has recently restated his position. However, it appears from the derived rotation curve that a constant error in the luminosity calibration or in the procedure of accounting for interstellar absorption will not be sufficient to make the optical and radio curves coincide. A correction which will improve the agreement of the inner portions will decrease the coincidence elsewhere, and vice versa. As pointed out by Munch and Munch (1960), there is always the possibility that stars formed in different regions of the galaxy may have different intrinsic luminosities. Similarly, there is the possibility that the factor 3 for the ratio of total to selective absorption is not constant around the galactic plane (Sharpless 1952),

TABLE V. Corrections to N30 proper-motion system for a mean N30–FK4 system.

l^{II}	$\Delta\mu_l$
280°	0".000
290	−0.002
310	−0.002
325	−0.004
340	−0.003
350	−0.003
10°	0.000

TABLE VI. Values of $\langle\Theta\rangle-\Theta_0$ for various samples of stars.

Midpoint of distance interval R kpc	Entire sample $\langle\Theta\rangle-\Theta_0$ km/sec	No. stars (888)	No Lick radial velocities $\langle\Theta\rangle-\Theta_0$ km/sec	No. stars (680)	No Lick or assumed class V $\langle\Theta\rangle-\Theta_0$ km/sec	No. stars (575)	$l^{II}\leqslant 180°$ $\langle\Theta\rangle-\Theta_0$ km/sec	No. stars (454)	$l^{II}>180°$ $\langle\Theta\rangle-\Theta_0$ km/sec	No. stars (434)
5.80	+22.1±14.6	33	− 6.5±44.4	8	− 6.5±44.4	8	+19.9±14.7	32	···	1
6.35	+27.4 12.3	31	+29.1 20.3	6	+29.1 20.3	6	+21.4 13.1	28	···	3
6.75	+25.9 6.7	43	+20.2 9.1	20	+20.2 9.1	20	+33.2 9.0	24	+17.9±10.1	19
7.15	+20.9 4.9	39	+21.7 5.3	25	+23.2 5.6	23	+11.9 6.7	22	+30.9 6.9	17
7.45	+17.0 5.6	28	− 0.8 5.9	16	− 0.8 5.9	16	+18.2 8.9	16	+15.1 4.8	12
7.65	+ 2.7 4.4	39	−11.0 5.4	21	−11.0 5.4	21	+10.5 4.5	26	−12.5 9.1	13
7.85	+ 9.9 1.5	57	+ 9.7 1.7	44	+ 9.6 1.7	39	+ 4.8 1.8	29	+15.6 2.3	28
8.0	+ 3.6 1.2	48	+ 3.8 1.2	46	+ 1.8 1.4	32	+ 3.8 1.4	31	+ 3.3 2.2	17
8.1	− 0.3 1.0	81	− 0.3 1.0	80	− 0.9 1.1	64	− 0.1 1.7	33	− 0.4 1.2	48
8.2	+ 0.1 0.9	83	+ 0.1 0.9	83	+ 0.1 1.1	64	+ 3.7 1.1	32	− 2.0 1.3	51
8.3	0.0 0.9	86	0.0 0.9	86	+ 0.4 1.0	67	+ 0.1 1.1	43	− 0.2 1.4	43
8.4	+ 0.1 1.1	68	− 0.3 1.1	61	− 2.6 1.0	48	+ 0.4 1.3	31	− 0.1 1.6	37
8.5	− 0.7 1.7	32	− 0.5 1.7	27	− 2.7 2.2	19	− 1.8 4.1	10	− 0.3 1.7	22
8.65	+ 0.9 1.9	39	+ 0.6 1.8	38	− 0.2 2.0	32	+ 2.6 2.4	19	− 1.2 2.9	20
8.85	+ 4.8 3.9	34	+ 5.8 4.6	26	+ 8.9 4.5	25	+12.3 6.2	18	− 7.9 3.3	16
9.15	+ 0.8 3.5	59	− 1.7 4.3	37	− 1.6 4.3	36	− 0.2 6.4	20	+ 1.5 4.2	39
9.55	+ 7.9 5.3	44	+ 9.0 5.9	32	+ 6.4 6.1	31	+14.5 8.1	20	− 1.0 6.9	24
10.30	+ 7.0± 8.5	44	+13.2±10.9	24	+13.2±10.9	24	+11.4±12.3	20	− 3.3±12.7	24

or even that the method of determining absorption corrections from $B-V$ measures is not completely satisfactory for highly reddened early-type stars.

If the early-type stars toward the center of the galaxy are intrinsically fainter than those toward the anticenter, or if the absorption toward the center of the galaxy is actually greater than computed, and less toward the anticenter, then the stellar and gaseous rotation curves would be more in agreement. What is needed is some method, independent of spectroscopic and color measures, to determine if the stars at the limits of this sample, i.e., toward the center and anticenter, are actually equally distant from the sun. This is not possible at present.

(*b*) *The proper-motion system.* To investigate effects of possible systematic errors in the N30 proper-motion system, the proper motions of these stars have been examined on a mean N30–FK4 system. From FK4 proper motions communicated in advance of publication to the U.S. Naval Observatory by the Astronomischen Rechen-Institut, and kindly made available by F. P. Scott, differences were formed between proper motions of 1532 stars common to N30 and FK4. Mean differences were formed for 144 zones, two hours wide in right ascension and 15° wide in declination. Differences between the two systems are small for stars in the northern sky. At southern declinations, especially south of −30°, the differences become large enough to affect the kinematical interpretations of proper motions observed for that region of the sky.

The corrections to be added to the N30 proper motions for a mean N30–FK4 system are tabulated in Table V, for $l^{II}\geqslant 280°$. These values have been estimated visually from the right ascension–declination comparison. At all other longitudes, $\Delta\mu_l\leqslant 0''.001$, and has been neglected. From Eqs. (7), (8), and (11):

$$\Delta\Theta=\kappa r\Delta\mu_l[\cos l^{II}-(r/R)\sin^2 l^{II}], \qquad (25)$$

for each 4th-quadrant star. Stars with $l^{II}\geqslant 280°$ and $r\geqslant 1$ kpc will in general have $R\leqslant 7.8$ kpc. Hence only points with $R\leqslant 7.8$ kpc will be altered in the rotation curve. But over two-thirds of the stars in this distance range are in the 1st, not the 4th quadrant, so the changes in the mean points will be slight. At each distance, $R=6.3$, 6.7, 7.1, and 7.3 kpc, $\langle\Theta\rangle-\Theta_0$ will be lowered less than 5 km/sec. All other mean points will remain unchanged.

(*c*) *The radial velocities.* From Eqs. (7), (8), and (11),

$$\Delta\Theta=\Delta\rho\sin l^{II}[1+(r/R)\cos l^{II}]. \qquad (26)$$

For a constant error $\Delta\rho$ in the observed radial velocities, all stars, $l^{II}<180°$, will have values of $\langle\Theta\rangle-\Theta_0$ consistently positive or consistently negative with respect to stars with $l^{II}>180°$, depending on the sign of $\Delta\rho$. However, no such difference is noted.

To substantiate these conclusions, several determinations of the mean rotation curve were made, in addition to that plotted in Fig. 5. These include:

(1) a solution with 454 stars, $l^{II}\leqslant 180°$,
(2) a solution with 434 stars, $l^{II}>180°$,
(3) a solution with 680 stars, all Lick radial-velocity stars omitted,
(4) a solution with 575 stars, all Lick and assumed luminosity class V stars omitted,
(5) a preliminary solution (Rubin *et al.* 1962) with 777 stars, calibrated on the older Johnson and Hiltner (1956) calibration, with normal colors taken from Hiltner (1956). The results of solutions 1–4 are listed in Table VI. Note that although the scatter of the mean points is sometimes large, the general form of the rotation curve is similar in all cases.

For a rotation curve of the general form found here, a modified form of the usual Oort double sine in the observed radial velocities would be expected. In the 1st

TABLE VII. Values of ⟨Π⟩ for various samples.

Midpoint of distance interval R kpc	Entire sample ⟨Π⟩ km/sec	No. stars (888)	No Lick radial velocities ⟨Π⟩ km/sec	No. stars (680)	No Lick or assumed class V ⟨Π⟩ km/sec	No. stars (575)
5.80	+15.5±5.5	33	+16.2±13.8	8	+16.2±13.8	8
6.35	+13.2 4.6	31	+ 1.5 8.7	6	+ 1.5 8.7	6
6.75	+ 9.0 4.0	43	+ 6.0 7.1	20	+ 6.0 7.1	20
7.15	−10.1 3.3	39	−18.4 3.3	25	−18.4 3.6	23
7.45	+10.4 3.2	28	− 2.4 6.2	16	− 2.4 6.2	16
7.65	− 2.6 2.9	39	−15.4 4.7	21	−15.4 4.7	21
7.85	+ 1.2 1.7	57	+ 1.0 2.0	44	+ 1.1 2.3	39
8.0	− 1.6 1.3	48	− 1.4 1.3	46	− 0.7 1.6	32
8.1	− 4.7 0.7	81	− 4.7 0.7	80	− 5.4 0.7	64
8.2	− 6.9 0.7	83	− 6.9 0.7	83	− 6.7 0.7	64
8.3	− 1.8 0.9	86	− 1.8 0.9	86	− 1.0 1.1	67
8.4	− 2.3 1.2	68	− 2.2 1.2	61	− 2.4 1.5	48
8.5	+ 3.0 2.6	32	+ 4.5 2.7	27	+ 3.6 3.4	19
8.65	− 4.5 1.7	39	− 4.7 1.7	38	− 3.2 1.4	32
8.85	− 6.9 3.4	34	− 6.4 4.0	26	− 5.0 3.9	25
9.15	− 0.1 2.0	59	+ 2.0 2.5	37	+ 2.4 2.5	36
9.55	− 6.9 2.0	44	− 7.6 2.0	32	− 7.5 2.1	31
10.30	− 5.2±3.4	44	− 2.6± 4.5	24	− 2.6± 4.5	24

quadrant, the stars are moving more rapidly than in the Schmidt (1956) model, and would give rise to excess positive radial velocities. In the 2nd quadrant, the observed radial velocities would be less negative than predicted; in the 3rd quadrant, less positive, and in the 4th quadrant, more negative. Deviations of this sort from the double sine can be easily noted in the radial-velocity analysis of early-type stars by Feast and Thackeray (1958, Figs. 3, 4, and 5) for the 1st, 3rd, and 4th quadrants. The excess negative velocities in the 3rd quadrant have already been noted in Sec. III of this paper.

The value of Oort's constant A, for the solar vicinity, would be difficult to evaluate uniquely, for such a rotation curve. In the solar vicinity, A is given by

$$A=\tfrac{1}{2}[(\Theta_0/R_0)-(d\Theta/dR)_0]. \tag{27}$$

For stars toward the center of the galaxy, $-d\Theta/dR$ is of the order of +20 km/sec per kpc; for stars toward the anticenter it is close to zero. Hence for the adopted values of Θ_0 and R_0, values of A ranging from 23 km/sec per kpc to 13 km/sec per kpc could be expected, depending upon the distribution in galactic longitude of the stars under study. Such widely divergent values of A have actually been obtained in recent studies (Weaver 1961; Feast and Thackeray 1958, and references therein). An analysis is now being made to determine the value of Oort's constants A and B for the stars in Table IV.

VI. COMPONENT OF VELOCITY RADIAL FROM THE CENTER OF THE GALAXY

For 888 stars, the components of motion radial from the center of the galaxy have been combined into one mean curve which is shown in the upper plot of Fig. 5. The circles represent the weighted means; the vertical lines indicate the weighted probable error, computed from Eq. (20). These values of ⟨Π⟩ are listed in Table VII, along with ⟨Π⟩ determined from several other solutions.

The slope of the ⟨Π⟩ vs R curve is independent of the value chosen for $\dot{x}_0$, but the absolute values of ⟨Π⟩ are not. For the adopted value, $\dot{x}_0=+10.5$ km/sec, the values in Fig. 5 result; if $\dot{x}_0=0$ had been used, the horizontal axis would be located at $\rho=-10$ km/sec in Fig. 5.

The value of ⟨Π⟩ is a maximum for stars closest to the center, and decreases with a fairly uniform slope of about 5 km/sec per kpc. Interestingly, this is close to the value one might infer from radio observations. Near the center of the galaxy, the gas is observed to have an expansion velocity of about 50 km/sec (van Woerden *et al.* 1957; Rougoor and Oort 1960). At the position of the sun, the expansion velocity is about 7 km/sec, according to Kerr (1960, 1961).

Again, it is necessary to investigate the effects of systematic observational errors on the determined ⟨Π⟩ curve.

(*a*) *The MK luminosity calibration.* For a constant error ΔM in the absolute magnitude calibration, $\Delta\Pi$ can be found from Eqs. (7), (8), (12), and (22):

$$\Delta\Pi\approx-0.46r\Delta M\sin l^{\mathrm{II}} \times\left[(A\cos 2l^{\mathrm{II}}+B)\left(1+\frac{2r}{R}\cos l^{\mathrm{II}}\right)+\frac{\Theta_0}{R}\right]. \tag{28}$$

For $l^{\mathrm{II}}=0°$ or 180°, $\Delta\Pi$ is zero. For $l^{\mathrm{II}}=90°$ and 270°, $\sin l^{\mathrm{II}}=\pm 1$, and

$$\Delta\Pi\approx\mp 0.46r\Delta M(-A+B+\Theta_0/R). \tag{29}$$

This last expression is approximately equal to zero, because $-A+B\approx\Theta_0/R$ for $R\approx R_0$. Moreover, the mean value ⟨$\Delta\Pi$⟩ will equal zero at every R for a uniform

distribution of stars, because the mean at each R will include equal values of positive and negative $\sin l^{\mathrm{II}}$.

(*b*) *The proper-motion system.* For proper motions on a mean N30–FK4 system, the corrections in Table V were applied. From Eqs. (7), (8), and (12),

$$\Delta\Pi \approx \kappa r \Delta\mu_l \sin l^{\mathrm{II}}[1+(r/R)\cos l^{\mathrm{II}}]. \qquad (30)$$

The value of $\langle\Pi\rangle$ for each point $6.2 \leqslant R \leqslant 7.8$ kpc is increased about $+5$ km/sec on the mean proper-motion system. There is no change in $\langle\Pi\rangle$ for $R>7.8$ kpc.

(*c*) *Radial velocities.* If the radial velocities are in error by a constant $\Delta\rho$,

$$\Delta\Pi \approx \Delta\rho[-\cos l^{\mathrm{II}}+(r/R)\sin^2 l^{\mathrm{II}}]. \qquad (31)$$

For $\Delta\rho$ positive, points toward the center will be lowered, those toward the anticenter will be raised. In the solution for $\langle\Pi\rangle$ with all Lick radial-velocity stars deleted, the six inner points are decreased; there is no significant change in $\langle\Pi\rangle$ for $R>7.8$ kpc. In the solution shown in Fig. 5, the Lick stars have been given lower weight than non-Lick stars.

If the inner points of the $\langle\Pi\rangle$ curve (Fig. 5) are raised 5 km/sec for the mean N30–FK4 proper-motion system, and lowered about the same amount due to corrections to the Lick radial velocities, there is little change from the values shown. Stars toward the center of the galaxy are receding from the center, and approaching the sun. Stars toward the anticenter are approaching the center (for the choice of $\dot{x}_0=+10$ km/sec) and hence approaching the sun. Stars in the center and anticenter directions would thus appear to be contracting toward the observer. Evidence for a contraction of interstellar gas and young stars in the galactic plane, i.e., a negative K term, has been noted and summarized by Feast and Thackeray (1958). The negative slope of the $\langle\Pi\rangle$ curve found here would produce a negative K term in the analysis of the radial velocities; the two phenomena are equivalent (Trumpler and Weaver 1953, p. 583).

Finally, mention should be made of the value $\langle\Pi\rangle=-7$ km/sec at $R=8.2$ kpc. A value of $\dot{x}_0=+10.5$ km/sec has been adopted; this is equivalent to a value of $\Pi_0=-10.5$ km/sec. The computed value of $\dot{x}_c$ for each star has been modified by this amount. Hence a value of $\langle\Pi\rangle$ of about -7 km/sec at $R=8.2$ kpc is principally a reflection of the adopted component of solar motion in the Π direction. Thus, with respect to all the stars in the sample in the ring at $R=8.2$ kpc, the sun has almost no component of motion in the Π (the $-\dot{x}$) direction. If the entire ring of stars is expanding from the center of the galaxy, as Kerr (1960, 1961) has postulated for the gas, such an expansion cannot be deduced from this analysis. All that can be inferred is that the motion of the sun in the Π direction is similar to the $\langle\Pi\rangle$ motion of all the stars with $R=8.2$ kpc.

VII. CONCLUSIONS

In this paper, a catalogue of 1440 early-type stars in the galactic disk and within 3 kpc of the sun has been presented. Photometric data and radial velocities are tabulated for all stars in Table I. For 898 of these stars, proper motions on the N30 system are available and listed in Table IV. From a study of the distribution in the galactic plane, distribution of radial velocities, and galactic space motions, the following conclusions are presented.

(1) About 5% of all O–B5 stars within 3 kpc of the sun are included in this study. No published radial velocities were found for other O–B5 stars within this distance. The projection on the galactic plane of these stars alone (Fig. 1) does not indicate any pronounced spiral structure. This may be due to incompleteness of the sample in the regions where interstellar hydrogen has a maximum density. In conjunction with results from earlier discussions of spiral structure, the Carina–Cygnus arm, the Orion spur, and the Sagittarius extension are apparent.

It is assumed that the stars in Table I constitute a representative sample of the nearby early-type stars in the galactic disk. This may not be the case, if highly reddened stars in regions of large interstellar absorption have not been observed. If these undetected early-type stars are stars of lower velocity, which have not yet emerged from the regions of high gas density in which they were formed, then the motions of the stars in Table I might be larger than the general disk population of early-type stars. Such effects can not be considered at present.

(2) There is good qualitative agreement between the stellar radial-velocity distributions grouped in 5° longitude zones, and the corresponding 21-cm line profiles, in most directions in the galactic plane (Fig. 3). In many cases, however, the stellar velocities show a larger spread in radial velocity than that predicted by the radio model of the galaxy. This could be accounted for by random stellar radial velocities up to 20 km/sec; alternatively, the adopted parameters of the radio model could be altered. A value of $R_0=10$ kpc, rather than the commonly adopted $R_0=8.2$ kpc, would improve the agreement between the stellar and radio radial-velocity distributions in some longitude zones.

(3) For 888 stars, the rotational velocity component about the center of the galaxy has been computed, and a mean curve derived (Fig. 5). Toward the center of the galaxy, the computed curve lies about 15 km/sec above the radio rotation curve (Schmidt 1956). For $R>8$ kpc, the rotation curve is approximately flat. The decrease in rotational velocity expected for Keplerian orbits is not found. It is shown that systematic observational errors will not account for the shape of the curve.

(4) With a rotation curve of the computed form, it is evident that the value of Oort's constant A will vary, depending on the longitude distribution of the sample of

stars under study. This may account in part for the widely divergent values of A found in recent work (Weaver 1961; Feast and Thackeray 1958). For a sample with most stars toward the center of the galaxy, a large value of A would result from the large gradient, $d\Theta/dR$. For stars principally toward the anticenter, a small value of A would be obtained.

(5) The velocity component radial from the center of the galaxy shows a large scatter for individual stars. In the mean, the curve has a negative slope of about -5 km/sec per kpc. Stars toward the center show a velocity of recession from the center; stars with large R indicate a slight velocity of approach toward the center, for the conventional choice of solar motion. This substantiates the observation of Feast and Thackeray (1958) of a contraction of matter in the galactic plane, and agrees well with the expansion postulated for interstellar neutral hydrogen.

This paper is the first of several studies of early-type stars, based on data contained in Tables I and IV. Later papers will consider the angular velocity of the sun about the center of the galaxy, the distribution of absorbing matter in the galactic plane, and the values of Oort's constants A and B determined from the motions of these stars.

ACKNOWLEDGMENTS

This work was done as a class problem in a course on Stellar Dynamics. The senior author would like to thank Martin F. McCarthy, S. J., visiting astronomer at Georgetown College Observatory from the Vatican Observatory, for many stimulating discussions. Special thanks are due Robert J. Rubin. Many of the ideas developed in this paper arose in conversations with him.

REFERENCES

Bahng, J. D., Code, A. D., and Whitford, A. E. 1957, *Sky and Telescope* **16**, 529.
Barbier, M., and Boulon, J. 1959, *J. Obs.* **43**, 69.
Beals, C. S. 1955, *Publ. Dominion Astrophys. Obs.* **IX**, 1.
Beer, A. 1961, *Monthly Notices Roy. Astron. Soc.* **123**, 191.
Bertiau, F. C., S. J. 1958, *Astrophys. J.* **128**, 533.
Blaauw, A. 1956, *ibid.* **123**, 408.
Blaauw, A., Gum, C. S., Pawsey, J. L., and Westerhout, G. 1959, *ibid.* **130**, 702.
Blanco, V. M., and Lennon, C. J. 1961, *Astron. J.* **66**, 524.
Bok, B. J. 1959, *Observatory* **79**, 58.
Boss, B. 1937, *General Catalogue of 33 342 Stars for Epoch 1950* (Carnegie Institution of Washington, Washington, D. C.).
Boulon, J., Duflot, M., and Fehrenbach, Ch. 1958, *Publ. Obs. Haute-Provence* **4**, No. 34.
Boulon, J., and Fehrenbach, Ch. 1959, *ibid.* **4**, No. 55.
Cape Observatory, *Annals of the.* 1954, **XVII**. 1954, **XVIII**. 1954, **XIX**. 1958, **XX**.
Duflot, M., and Fehrenbach, Ch. 1956, *Publ. Obs. Haute-Provence* **3**, No. 49.
——. 1957, *ibid.* **4**, No. 12.
Eggen, O. J. 1961, *Roy. Obs. Bull.* **41**, 245.
Evans, D. S., Menzies, A., and Stoy, R. H. 1959, *Monthly Notices Roy. Astron. Soc.* **119**, 638.
Feast, M. W., and Thackeray, A. D. 1958, *ibid.* **118**, 125.
Feast, M. W., Thackeray, A. D., and Wesselink, A. J. 1955, *Mem. Roy. Astron. Soc.* **LXVII**, 51.
——. 1957, *ibid.* **LXVIII**, 1.
Hardorp, J., Rohlfs, K., Slettebak, A., and Stock, J. 1959, *Luminous Stars in the Northern Milky Way* (Hamburg-Bergedorf), Vol. I.
Hiltner, W. A. 1956, *Astrophys. J. Suppl.* **2**, 389.
Hiltner, W. A., and Johnson, H. L. 1956, *Astrophys. J.* **124**, 367.
van de Hulst, H. C. 1958, *Revs. Modern Phys.* **30**, 913.
van de Hulst, H. C., Muller, C. A., and Oort, J. H. 1954, *Bull. Astron. Inst. Neth.* **XII**, 117.
Johnson, H. L. 1958, *Lowell Obs. Bull.* **4**, 37.
Johnson, H. L., and Hiltner, W. A. 1956, *Astrophys. J.* **123**, 267.
Johnson, H. L., and Iriarte, B. 1958, *Lowell Obs. Bull.* **4**, 47.
Kahn, F. D. 1960, *Die Entstehung von Sternen* (Springer-Verlag, Berlin), p. 154.
Kerr, F. J. 1960, *Nature* **188**, 216.
——. 1961, *Astron. J.* **66**, 47.
Kerr, F. J., Hindman, J. V., and Gum, C. S. 1959, *Australian J. Phys.* **12**, 270.
Kopylov, I. M. 1959, *Ann. d'Astrophys. Suppl.* **8**, 41.
Kwee, K. K., Muller, C. A., and Westerhout, G. 1954, *Bull. Astron. Inst. Neth.* **XII**, 220.
Mayall, N. U. 1951, *Publ. Obs. Univ. Mich.* **10**, 19.
McCuskey, S. W. 1956, *Astrophys. J.* **123**, 458.
Morgan, H. R. 1933, *Publ. U. S. Naval Obs.* 2nd Ser. **XIII**, 163.
——. 1952, *Astron. Papers Am. Ephemeris and Naut. Almanac* **XIII**, part III.
——. 1956, *Astron. J.* **61**, 90.
Morgan, H. R., and Oort, J. H. 1951, *Bull. Astron. Inst. Neth.* **XI**, 379.
Morgan, W. W., Harris, D. L., and Johnson, H. L. 1953, *Astrophys. J.* **118**, 92.
Muller, C. A., and Westerhout, G. 1957, *Bull. Astron. Inst. Neth.* **XIII**, 151.
Munch, G., and Munch, L. 1960, *Astrophys. J.* **131**, 253.
Oosterhoff, P. Th. 1951, *Bull. Astron. Inst. Neth.* **XI**, 299.
Petrie, R. M. 1955, *Publ. Dominion Astrophys. Obs.* **IX**, 251.
——. 1956, *Vistas in Astronomy*, edited by A. Beer (Pergamon Press, London and New York), Vol. II, p. 1346.
——. 1958, *Monthly Notices Roy. Astron. Soc.* **118**, 80.
——. 1962, *ibid.* **123**, 501.
Petrie, R. M., and Moyls, B. N. 1956, *Publ. Dominion Astrophys. Obs.* **X**, 287.
Reiz, A. 1957, *Ann. Lund Obs.* **14**, 1.
Roberts, M. S. 1957, *Publs. Astron. Soc. Pacific* **69**, 59.
Rougoor, G. W., and Oort, J. H. 1960, *Proc. Natl. Acad. Sci. U. S.* **46**, 1.
Rubin, V., Burley, J., Kiasatpoor, A., Klock, B., Pease, G., Rutscheidt, E., and Smith, C. 1962, *Astron. J.* **67**, 281.
Schmidt, M. 1956, *Bull. Astron. Inst. Neth.* **XIII**, 15.
——. 1957, *ibid.* **XIII**, 247.
Sharpless, S. 1952, *Astrophys. J.* **116**, 251.
Stock, J., Nassau, J. J., and Stephenson, C. B. 1960, *Luminous Stars in the Northern Milky Way* (Hamburg-Bergedorf), Vol. II.
Stoy, R. H. 1961, *Cape Mimeo.* **12**, Royal Obs., Cape of Good Hope.
Trumpler, R. J., and Weaver, H. F. 1953, *Statistical Astronomy* (University of California Press, Berkeley and Los Angeles).
Weaver, H. 1961, *Publs. Astron. Soc. Pacific* **73**, 88.
Westerhout, G. 1957, *Bull. Astron. Inst. Neth.* **XIII**, 201.
Wilson, R. E. 1953, *General Catalogue of Stellar Radial Velocities* (Carnegie Institution of Washington, Washington, D. C.).
van Woerden, H., Rougoor, G. W., and Oort, J. H. 1957, *Compt. rend.* **244**, 1691.
Woolley, R. v. d. R., and Eggen, O. J. 1958, *Observatory* **78**, 149.
Yale University, *Trans. Astron. Obs. of*, **11**, 1939. **12**, 1940. **13**, 1943. **14**, 1943. **16**, 1945. **17**, 1945. **18**, 1947. **19**, 1948. **20**, 1949. **21**, 1950. **22**, 1950. **24**, 1953. **25**, 1954. **26**, 1959. **27**, 1959.

NASA-Langley, 1963