PUBLIKACE PRAŽSKÉ STÁTNÍ HVĚZDÁRNY.
Č. 6.
PUBLICATIONS DE L'OBSERVATOIRE NATIONAL DE PRAGUE.

THE SPECTRAL DISTRIBUTION OF STARS MAGNITUDE 7·0 AND BRIGHTER IN THE HENRY DRAPER CATALOGUE.

BY

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PART I.

TEXT AND TABLES.

1929.
IMPRIMERIE DE JEDNOTA ČESKOSLOVENSKÝCH MATEMATIKŮ A FYSIKŮ
A PRAGUE.

Abstract: The distribution of stars of mag. 7·0 and brighter of the H. D. C. is here studied in the system of galactic co-ordinates. There are tables of numbers of stars according to both the co-ordinates for individual clases of magnitude and for all the spectral subdivisions. Also the distribution of the density of stars in longitude and latitude separately is studied for the spectral classes B, A, F, G, K, M. Finally, to illustrate the distribution of stellar density according to both co-ordinates simultaneously, the maps for the classes B, A, F, G, K, M were constructed with the lines of the same density.

In this paper the distribution of the stars of mag. 7.0 and brighter for different spectral classes is discussed on the basis of the Henry Draper Catalogue *in the system of galactic co-ordinates*. The investigation of this catalogue has been in progress for some years, and during this time several papers have been printed on many matters connected therewith.

All positions of the stars in question have been transformed in galactic co-ordinates by the table of *R. T. A. Innes* (*Circular Union Observatory, Transvaal*, No 29, 1915 pag. 226 et seq.) — without respect to the value of $23^0\ 35'\ 27{\cdot}3''$ for galact. longitudes. The positions of the stars of which the galactic latitude is greater than $\pm\ 80^0$, have been transformed by means of the formulas from the same *Circular, No 10, p. 17.*

The transformation of the positions with the $\beta < \pm\ 80^0$ was made according to the following principle:

The tabular value of the AR and δ designes the galactic transformation of the positions of all stars, the AR and δ of which is limited by $AR \pm 10^m$ and $\delta \pm 2^0\ 30'$.

The statistical results of the catalogue are given in the tables I, II, III, IV. In the maps 1 to 14 the course of stellar density is illustrated by the lines of the same density.

Table I. Distribution of stars mag. 7·0 and brighter according to galactic latitude and magnitude.[1])

For each one from the spectral subdivisions and for the spectral class *O* the number of stars for the areals of 20° latitude and for the following magnitude intervals is given, viz.: mag 4·0 and brighter, 4·01—4·50, 4·51—5·0, 5·01—5·50, 5·51—6·0, 6·01—6·50, 6·51—7·0.

O										
Mean gal. latitude / Magnitude	+80°	+60°	+40°	+20°	0°	−20°	−40°	−60°	−80°	Σ
] 4·0	—	—	—	—	2	2	—	—	—	4
4·01—4·5	—	—	—	—	1	1	—	—	—	2
4·51—5·0	—	—	—	—	2	1	—	—	—	3
5·01—5·5	—	—	—	—	7	1	—	—	—	8
5·51—6·0	—	—	—	—	6	1	—	—	—	7
6·01—6·5	—	—	—	—	6	—	—	—	—	6
6·51—7·0	—	—	—	—	14	4	—	—	—	18
Σ	—	—	—	—	38	10	—	—	—	48
B0										
] 4·0	—	1	—	3	2	5	—	—	—	11
4·01—4·5	—	—	—	1	2	2	—	—	—	5
4·51—5·0	—	—	—	—	2	1	—	—	—	3
5·01—5·5	—	—	—	—	5	1	—	—	—	6
5·51—6·0	—	—	—	—	8	1	—	—	—	9
6·01—6·5	—	—	—	2	15	5	—	—	—	22
6·51—7·0	—	—	—	1	28	2	—	—	—	31
Σ	—	1	—	7	62	17	—	—	—	87
B1										
] 4·0	—	—	—	3	8	7	—	—	—	18
4·01—4·5	—	—	—	—	2	1	—	—	—	3
4·15—5·0	—	—	—	—	5	2	1	—	—	8
5·01—5·5	—	—	—	1	3	1	—	—	—	5
5·15—6·0	—	—	—	—	7	2	—	—	—	9
6·01—6·5	—	—	—	—	8	1	—	—	—	9
6·51—7·0	—	—	—	—	4	1	—	—	—	5
Σ	—	—	—	4	37	15	1	—	—	57

[1]) It is to be observed that +80° (or 15°) at the head of the columns of individual tables indicates all stars having a galactic co-ordinate between + 90° and +70° (or between 0° and 30°), that + 60° (or 45°) embraces all stars between latitude +70° and + 50° (or between longitude 30° and 60°) etc.

B2

Mean gal. latitude / Magnitude	+80°	+60°	+40°	+20°	0°	−20°	−40°	−60°	−80°	Σ
]4·0	—	1	—	7	4	2	1	—	—	15
4·01—4·5	—	—	—	1	1	5	—	1	—	8
4·51—5·0	—	—	—	2	9	2	—	—	—	13
5·01—5·5	—	—	—	—	6	6	—	—	—	12
5·51—6·0	—	—	—	2	10	3	—	—	—	15
6·01—6·5	—	—	—	2	14	—	—	—	—	16
6·51—7·0	—	—	1	—	24	1	1	—	—	27
Σ	—	1	1	14	68	19	2	1	—	106

B3

]4·0	—	1	—	6	17	6	1	—	—	31
4·01—4·5	—	—	—	14	8	7	—	—	—	29
4·51—5·0	—	—	—	13	29	14	2	—	—	58
5·01—5·5	—	—	1	9	49	17	6	—	—	82
5·51—6·0	—	2	1	8	33	28	3	3	—	78
6·01—6·5	—	—	—	12	73	38	2	—	1	126
6·51—7·0	—	—	1	13	76	17	—	—	—	107
Σ	—	3	3	75	285	127	14	3	1	511

B5

]4·0	—	—	3	1	5	6	—	2	—	17
4·01—4·5	—	1	—	1	10	9	—	2	1	24
4·51—5·0	—	—	2	6	13	2	4	3	1	31
5·01—5·5	—	—	1	7	22	9	7	2	—	48
5·51—6·0	—	—	—	8	27	17	4	1	—	57
6·01—6·5	—	—	—	11	52	22	3	—	—	88
6·51—7·0	—	—	1	6	68	25	—	—	—	100
Σ	—	1	7	40	197	90	18	10	2	365

B8

Mean gal. latitude / Magnitude	+80°	+60°	+40°	+20°	0°	−20°	−40°	−60°	−80°	Σ
] 4·0	—	—	3	1	3	7	4	1	—	19
4·01—4·5	—	—	2	1	3	6	1	4	—	17
4·51—5·0	—	—	2	2	13	7	—	1	—	25
5·01—5·5	—	1	4	10	20	12	5	3	1	56
5·51—6·0	—	—	5	16	44	30	13	1	—	109
6·01—6·5	—	—	3	18	60	39	5	4	2	131
6·51—7·0	—	1	1	30	106	65	6	5	1	215
Σ	—	2	20	78	249	166	34	19	4	572

B9

] 4·0	—	—	—	—	2	—	1	—	—	3
4·01—4·5	—	—	1	3	2	—	1	—	—	7
4·51—5·0	—	—	2	—	3	3	3	5	—	16
5·01—5·5	1	1	1	5	14	15	2	2	1	42
5·51—6·0	—	4	7	14	44	34	7	2	1	113
6·01—6·5	1	4	14	46	89	40	11	4	—	209
6·51—7·0	1	5	13	70	154	115	26	6	4	394
Σ	3	14	38	138	308	207	51	19	6	784

A0

] 4·0	1	9	7	9	10	5	6	—	—	47
4·01—4·5	—	4	2	8	7	5	3	1	1	31
4·51—5·0	2	4	7	5	10	9	6	5	3	51
5·01—5·5	4	14	7	26	26	27	10	4	2	120
5·51—6·0	3	20	32	52	55	48	21	3	3	237
6·01—6·5	4	21	53	100	140	85	32	19	4	458
6·51—7·0	5	34	71	164	202	162	70	31	4	743
Σ	19	106	179	364	450	341	148	63	17	1687

A2

Mean gal. latitude / Magnitude	+80⁰	+60⁰	+40⁰	+20⁰	0⁰	−20⁰	−40⁰	−60⁰	−80⁰	Σ
] 4·0	1	5	4	7	1	4	2	3	—	27
4·01—4·5	—	3	2	2	7	3	1	3	—	21
4·51—5·0	—	4	7	12	9	7	3	7	—	49
5·01—5·5	4	3	13	15	22	21	7	8	—	93
5·51—6·0	8	11	16	29	39	26	15	9	2	155
6·01—6·5	6	16	23	45	61	36	19	13	5	224
6·51—7·0	11	25	49	70	120	78	32	22	6	413
Σ	30	67	114	180	259	175	79	65	13	982

A3

] 4·0	—	1	2	1	1	2	1	1	1	10
4·01—4·5	—	—	2	1	5	3	2	1	—	14
4·51—5·0	—	1	1	2	11	3	3	1	—	22
5·01—5·5	1	3	3	6	8	8	7	2	2	40
5·51—6·0	2	5	11	13	13	12	7	3	1	67
6·01—6·5	12	6	8	22	35	22	10	4	4	123
6·51—7·0	6	11	23	29	44	37	32	9	3	194
Σ	21	27	50	74	117	87	62	21	11	470

A5

] 4·0	—	—	1	1	6	3	3	—	—	14
4·01—4·5	—	1	1	2	6	3	—	—	—	13
4·51—5·0	—	4	5	—	5	6	5	1	—	26
5·01—5·5	2	3	4	8	13	7	2	3	3	45
5·51—6·0	4	3	6	6	14	11	11	5	2	62
6·01—6·5	4	3	12	22	22	16	9	4	2	94
6·51—7·0	4	11	19	35	39	30	21	6	4	169
Σ	14	25	48	74	105	76	51	19	11	423

F0

Mean gal. latitude / Magnitude	+80°	+60°	+40°	+20°	0°	−20°	−40°	−60°	−80°	Σ
] 4·0	—	5	3	1	7	4	1	1	—	22
4·01—4·5	—	2	2	2	4	3	2	—	—	15
4·51—5·0	3	3	3	4	6	5	4	1	—	29
5·01—5·5	—	5	7	9	12	16	9	1	2	61
5·51—6·0	2	7	8	14	21	25	13	15	3	108
6·01—6·5	4	12	21	28	42	26	26	9	5	173
6·51—7·0	8	23	38	53	66	49	31	26	6	300
Σ	17	57	82	111	158	128	86	53	16	708

F2

] 4·0	—	—	—	—	1	1	—	—	—	2
4·01—4·5	—	—	1	—	1	—	2	1	—	5
4·51—5·0	—	—	—	—	—	1	2	—	—	3
5·01—5·5	—	—	4	1	6	7	1	3	1	23
5·51—6·0	—	4	8	9	7	6	6	4	1	45
6·01—6·5	4	13	24	16	21	18	11	5	3	115
6·51—7·0	6	19	37	45	36	38	22	23	5	231
Σ	10	36	74	71	72	71	44	36	10	424

F5

] 4·0	—	—	3	1	7	3	2	—	—	16
4·01—4·5	—	2	1	2	4	7	2	2	—	20
4·51—5·0	1	4	5	4	6	7	1	2	—	30
5·01—5·5	3	2	5	10	13	5	10	6	3	57
5·51—6·0	3	9	9	17	22	17	13	7	—	97
6·01—6·5	6	19	18	32	31	32	26	15	4	183
6·51—7·0	13	28	46	50	70	54	40	33	9	343
Σ	26	64	87	116	153	125	94	65	16	746

F8

Mean gal. latitude / Magnitude	+80°	+60°	+40°	+20°	0°	−20°	−40°	−60°	−80°	Σ
] 4·0	—	1	1	3	3	2	—	1	—	11
4·01—4·5	—	—	1	1	4	—	2	3	—	11
4·51—5·0	1	—	1	3	8	—	2	—	—	15
5·01—5·5	—	—	3	4	7	4	2	1	—	21
5·51—6·0	1	2	4	6	8	5	3	5	—	34
6·01—6·5	—	10	9	12	17	15	10	6	2	81
6·51—7·0	5	9	24	36	31	36	20	16	3	180
Σ	7	22	43	65	78	62	39	32	5	353

G0

] 4·0	1	—	4	—	3	3	4	—	—	15
4·01—4·5	3	—	1	2	9	1	—	—	—	16
4·51—5·0	1	3	1	4	5	4	1	2	2	23
5·01—5·5	3	1	5	5	8	7	5	2	—	36
5·51—6·0	—	4	11	13	11	8	9	6	1	63
6·01—6·5	—	16	12	26	17	23	10	12	6	122
6·51—7·0	2	11	27	47	47	49	51	29	6	269
Σ	10	35	61	97	100	95	80	51	15	544

G5

] 4·0	—	1	3	4	2	2	4	1	—	17
4·01—4·5	1	—	2	1	3	3	2	4	—	16
4·51—5·0	—	2	4	7	5	7	8	3	—	36
5·01—5·5	2	6	13	12	18	18	10	5	3	87
5·51—6·0	2	11	17	16	26	27	21	22	4	146
6·01—6·5	4	11	34	48	47	50	43	34	9	280
6·51—7·0	11	23	48	100	101	107	72	67	23	552
Σ	20	54	121	188	202	214	160	136	39	1134

K0

Mean gal. latitude / Magnitude	+80°	+60°	+40°	+20°	0°	−20°	−40°	−60°	−80°	Σ
] 4·0	2	10	11	17	18	21	12	4	8	103
4·01—4·5	—	1	9	10	17	13	5	11	—	66
4·51—5·0	2	8	11	30	31	21	18	9	4	134
5·01—5·5	10	14	35	39	52	46	26	12	7	241
5·51—6·0	16	33	45	79	98	71	58	41	17	458
6·01—6·5	18	62	93	156	168	148	89	69	14	817
6·51—7·0	36	87	160	259	254	207	165	77	44	1289
Σ	84	215	364	590	638	527	373	223	94	3108

K2

] 4·0	—	—	—	3	5	2	3	—	—	13
4·01—4·5	—	—	—	2	2	3	1	1	—	9
4·51—5·0	—	—	4	2	1	3	1	2	—	13
5·01—5·5	2	1	2	12	4	10	4	1	3	39
5·51—6·0	1	5	9	13	25	21	6	4	2	86
6·01—6·5	4	8	12	25	54	37	15	9	5	169
6·51—7·0	4	23	34	44	84	46	27	8	3	273
Σ	11	37	61	101	175	122	57	25	13	602

K5

] 4·0	—	1	2	2	12	4	1	—	1	23
4·01—4·5	1	—	4	3	3	—	1	1	—	13
4·51—5·0	1	1	2	6	10	8	7	3	—	38
5·01—5·5	—	2	7	7	19	6	—	2	2	45
5·51—6·0	3	5	14	13	13	14	16	5	2	85
6·01—6·5	4	5	19	19	27	26	18	4	1	123
6·51—7·0	3	16	22	33	58	43	21	13	3	212
Σ	12	30	70	83	142	101	64	28	9	539

Ma = M0

Mean gal. latitude / Magnitude	+80°	+60°	+40°	+20°	0°	−20°	−40°	−60°	−80°	Σ
] 4·0	—	1	1	1	2	3	2	1	—	11
4·01—4·5	—	1	1	—	1	1	2	—	1	7
4·51—5·0	2	6	1	2	6	3	7	—	1	28
5·01—5·5	—	5	7	12	6	5	7	2	1	45
5·51—6·0	2	5	5	11	14	7	5	3	1	53
6·01—6·5	1	10	8	13	23	11	11	8	3	88
6·51—7·0	3	7	16	28	22	22	7	10	5	120
Σ	8	35	39	67	74	52	41	24	12	352

Mb = M3

] 4·0	—	—	—	2	1	1	—	2	—	6
4·01—4·5	—	—	—	1	1	—	1	3	—	6
4·51—5·0	—	1	1	1	1	3	1	1	1	10
5·01—5·5	—	2	2	3	3	1	6	1	—	18
5·51—6·0	1	2	5	5	2	4	2	3	—	24
6·01—6·5	—	3	1	10	10	3	6	4	—	37
6·51—7·0	2	4	7	13	11	8	10	1	—	56
Σ	3	12	16	35	29	20	26	15	1	157

Mc

] 4·0	—	—	—	—	—	—	—	—	—	—
4·01—4·5	—	—	—	—	—	—	—	—	—	—
4·51—5·0	—	—	—	—	—	—	—	—	—	—
5·01—5·5	—	—	—	—	—	—	—	—	—	—
5·51—6·0	—	—	—	—	—	—	—	—	—	—
6·01—6·5	—	—	—	—	—	—	—	—	—	—
6·51—7·0	—	—	—	—	—	1	—	—	—	1
Σ	—	—	—	—	—	1	—	—	—	1

Table II. Distribution of stars of mag. 7·0 and brighter according to galactic longitude and magnitude.

The distribution of the stars is given for the areals of 30° in longitude and for spectral subdivisions according to classes of magnitude.

O													
Mean gal. long. / Magnitude	15°	45°	75°	105°	135°	165°	195°	225°	255°	285°	315°	345°	Σ
] 4·0	—	—	—	—	1	1	2	—	—	—	—	—	4
4·01—4·5	—	—	—	—	1	—	1	—	—	—	—	—	2
4·51—5·0	—	1	—	—	1	—	1	—	—	—	—	—	3
5·01—5·5	—	3	—	—	—	1	—	—	2	2	—	—	8
5·51—6·0	—	1	—	—	1	—	—	—	2	2	1	—	7
6·01—6·5	1	1	—	—	—	1	—	1	—	1	1	—	6
6·51—7·0	2	—	—	2	—	3	1	1	1	5	3	—	18
Σ	3	6	—	2	4	6	5	2	5	10	5	—	48
B0													
] 4·0	—	—	1	—	3	3	—	1	—	2	1	—	11
4·01—4·5	—	—	3	—	1	—	—	—	—	—	—	—	4
4·51—5·0	—	1	—	—	1	—	2	—	—	—	—	—	4
5·01—5·5	1	1	—	—	—	—	—	—	—	2	1	1	6
5·51—6·0	3	2	—	—	1	1	—	—	—	1	1	—	9
6·01—6·5	3	2	2	—	—	4	1	1	2	6	1	—	22
6·51—7·0	1	3	4	2	1	1	3	7	1	1	7	—	31
Σ	8	9	10	2	7	9	6	9	3	12	11	1	87
B1													
] 4·0	—	2	—	4	1	1	1	—	5	4	—	—	18
4·01—4·5	—	—	—	—	—	2	1	—	—	—	—	—	3
4·51—5·0	2	—	—	—	1	2	1	—	—	2	—	—	8
5·01—5·5	—	—	—	1	—	1	—	—	—	3	—	—	5
5·51—6·0	—	—	—	—	1	3	—	—	2	3	—	—	9
6·01—6·5	2	—	2	—	—	2	—	—	1	—	2	—	9
6·51—7·0	—	1	—	—	—	1	1	—	1	1	—	—	5
Σ	4	3	2	5	3	12	4	—	9	13	2	—	57

B2

Mean gal. long. / Magnitude	15°	45°	75°	105°	135°	165°	195°	225°	255°	285°	315°	345°	Σ
] 4·0	—	1	—	—	1	—	2	—	5	6	—	—	15
4·01—4·5	—	—	—	1	2	2	—	1	—	2	—	—	8
4·51—5·0	2	1	2	—	3	1	2	1	1	—	—	—	13
5·01—5·5	—	1	—	1	2	4	3	1	—	—	—	—	12
5·51—6·0	5	3	—	—	3	1	2	—	1	—	—	—	15
6·01—6.5	2	—	1	2	1	1	3	1	3	—	2	—	16
6·51—7.0	1	3	3	1	4	2	4	1	1	5	—	2	27
Σ	10	9	6	5	16	11	16	5	11	13	2	2	106

B3

] 4·0	1	1	2	1	3	—	2	5	4	10	2	—	31
4·01—4·5	2	1	2	1	3	1	2	2	8	5	1	1	29
4·51—5·0	7	4	2	2	9	4	9	3	7	7	3	1	58
5·01—5·5	7	4	4	6	7	11	16	12	4	6	3	2	82
5·51—6·0	4	5	2	3	7	6	18	12	5	8	4	4	78
6·01—6·5	13	15	3	5	15	18	19	17	7	4	2	8	126
6·51—7·0	9	12	3	6	4	7	20	8	18	4	6	10	107
Σ	43	42	18	24	48	47	86	59	53	44	21	26	511

B5

] 4·0	1	2	1	3	—	1	3	3	—	1	—	2	17
4·01—4·5	1	—	—	5	3	2	2	4	5	—	—	2	24
4·51—5·0	3	1	—	3	—	2	3	5	5	5	1	3	31
5·01—5·5	3	2	3	6	3	3	4	8	4	6	2	4	48
5·51—6·0	3	3	1	5	5	5	12	8	3	7	4	1	57
6·01—6·5	9	4	3	2	4	12	18	16	7	4	1	8	88
6·51—7·0	9	11	5	3	10	14	23	9	4	4	2	6	100
Σ	29	23	13	27	25	39	65	53	28	27	10	26	365

B8

Mean gal. long. / Magnitude	15⁰	45⁰	75⁰	105⁰	135⁰	165⁰	195⁰	225⁰	255⁰	285⁰	315⁰	345⁰	Σ
] 4·0	3	—	—	3	1	3	1	4	—	2	2	—	19
4·01—4·5	1	2	1	—	1	2	1	1	1	2	3	2	17
4·51—5·0	1	2	3	—	—	3	6	1	4	1	4	—	25
5·01—5·5	5	3	5	4	6	3	2	6	4	8	3	7	56
5·51—6·0	8	4	8	12	15	5	11	12	12	8	10	4	109
6·01—6·5	11	10	9	11	11	14	14	13	10	12	8	8	131
6·51—7·0	19	12	18	13	15	20	15	29	15	22	22	15	215
Σ	48	33	44	43	49	50	50	66	46	55	52	36	572

B9

] 4·0	—	—	—	—	—	—	1	1	—	—	—	1	3
4·01—4·5	1	1	1	—	—	—	—	2	1	1	—	—	7
4·51—5·0	1	—	1	—	3	3	—	3	3	1	1	—	16
5·01—5·5	1	3	4	1	8	3	6	6	5	1	1	3	42
5·51—6·0	9	11	12	13	13	2	13	14	8	10	4	4	113
6·01—6·5	17	20	21	13	21	23	19	11	15	21	9	19	209
6·51—7·0	34	29	22	28	38	40	32	44	43	34	26	24	394
Σ	63	64	61	55	83	71	71	81	75	68	41	51	784

A0

] 4·0	7	5	2	3	5	6	1	4	2	1	3	8	47
4·01—4·5	5	2	2	4	2	5	4	—	3	—	3	1	31
4·51—5·0	7	1	6	4	4	6	—	—	2	6	9	6	51
5·01—5·5	11	12	13	10	10	13	9	10	6	6	9	11	120
5·51—6·0	22	27	20	21	13	32	10	17	18	7	21	29	237
6·01—6·5	33	41	36	26	33	42	44	40	50	36	27	50	458
6·51—7·0	78	72	53	59	54	53	72	73	70	48	49	62	743
Σ	163	160	132	127	121	157	140	144	151	104	121	167	1687

A2

Magnitude \ Mean gal. long.	15°	45°	75°	105°	135°	165°	195°	225°	255°	285°	315°	345°	Σ
] 4·0	3	4	2	2	3	1	2	—	3	1	4	2	27
4·01—4·5	—	3	2	2	2	—	2	2	2	1	3	2	21
4·51—5·0	7	2	5	11	1	—	3	4	3	6	5	2	49
5·01—5·5	8	6	10	12	14	10	9	9	5	4	2	4	93
5·51—6·0	14	9	21	10	16	15	13	14	11	11	8	13	155
6·01—6·5	17	20	23	21	23	11	23	20	13	18	22	13	224
6·51—7·0	48	47	25	24	31	36	36	32	46	29	26	33	413
Σ	97	91	88	82	90	73	88	81	83	70	70	69	982

A3

] 4.0	—	—	1	—	1	2	1	—	1	2	1	1	10
4·01—4·5	3	1	—	1	3	3	—	1	2	—	—	—	14
4·51—5·0	3	2	1	2	3	1	3	1	—	2	1	3	22
5·01—5·5	7	2	1	5	6	2	2	4	2	3	3	3	40
5·51—6·0	4	7	6	5	6	2	6	1	7	9	5	9	67
6·01—6·5	14	8	10	10	1	10	15	9	11	17	9	9	123
6·51—7·0	15	18	17	22	10	26	16	10	13	9	17	21	194
Σ	46	38	36	45	30	46	43	26	36	42	36	46	470

A5

] 4·0	—	1	4	1	—	—	—	2	—	1	2	3	14
4·01—4·5	—	1	—	1	2	—	2	3	2	1	—	1	13
4·51—5·0	5	5	3	2	6	—	—	2	1	1	—	1	26
5·01—5·5	8	2	4	2	6	5	2	3	4	—	5	4	45
5·51—6·0	2	4	6	5	8	9	2	4	3	8	7	4	62
6·01—6·5	5	6	5	12	5	10	9	5	8	11	11	7	94
6·51—7·0	17	9	20	19	18	15	9	19	17	13	8	5	169
Σ	37	28	42	42	45	39	24	38	35	35	33	25	423

F0

Magnitude \ Mean gal. long.	15°	45°	75°	105°	135°	165°	195°	225°	255°	285°	315°	345°	Σ
] 4·0	2	—	—	2	2	3	1	3	3	2	—	4	22
4·01—4·5	2	1	1	1	2	—	1	2	2	—	2	1	15
4·51—5·0	4	2	1	2	4	1	2	—	—	6	6	1	29
5·01—5·5	4	4	9	7	7	4	3	6	5	2	6	4	61
5·51—6·0	14	6	11	11	19	10	7	5	9	7	6	3	108
6·01—6·5	16	14	18	18	16	16	14	13	10	9	17	12	173
6·51—7·0	20	22	37	37	25	20	25	28	25	18	22	21	300
Σ	62	49	77	78	75	54	53	57	54	44	59	46	708

F2

] 4·0	—	—	—	—	—	—	—	—	—	1	1	—	2
4·01—4·5	1	—	—	—	1	—	—	2	1	—	—	—	5
4·51—5·0	1	—	—	—	—	—	1	—	—	—	1	—	3
5·01—5·5	4	—	2	—	—	1	3	5	2	1	2	3	23
5·51—6·0	7	4	4	3	3	8	5	3	3	1	—	4	45
6·01—6·5	9	10	7	13	16	7	11	6	10	5	6	15	115
6·51—7·0	17	26	15	22	22	16	23	20	11	19	19	21	231
Σ	39	40	28	38	42	32	43	36	27	27	29	43	424

F5

] 4·0	2	—	3	2	1	2	2	1	—	2	1	—	16
4·01—4·5	3	2	—	—	1	—	3	4	2	2	2	1	20
4·51—5·0	3	3	2	2	2	4	2	4	—	2	5	1	30
5·01—5·5	6	3	6	4	10	2	4	5	3	7	1	6	57
5·51—6·0	11	9	13	12	5	9	6	1	7	8	6	10	97
6·01—6·5	12	14	17	16	20	19	11	13	13	17	11	20	183
6·51—7·0	26	27	30	31	29	28	32	23	23	29	26	39	343
Σ	63	58	71	67	68	64	60	51	48	67	52	77	746

F8

Mean gal. long. / Magnitude	15⁰	45⁰	75⁰	105⁰	135⁰	165⁰	195⁰	225⁰	255⁰	285⁰	315⁰	345⁰	Σ
] 4·0	1	1	2	1	1	3	1	1	—	—	—	—	11
4·01—4·5	—	3	1	—	—	1	1	1	1	1	1	1	11
4·51—5·0	1	1	2	—	1	2	1	2	3	1	1	—	15
5·01—5·5	2	2	3	1	1	—	1	1	2	4	4	—	21
5·51—6·0	1	1	4	3	2	6	5	3	2	1	5	1	34
6·01—6·5	8	8	6	5	3	6	6	10	8	9	5	7	81
6·51—7·0	16	11	15	15	20	12	9	14	24	9	23	12	180
Σ	29	27	33	25	28	30	24	32	40	25	39	21	353

G0

] 4·0	2	1	—	3	1	1	1	—	2	—	1	3	15
4·01—4·5	1	—	4	2	1	1	—	2	2	—	1	2	16
4·51—5·0	3	2	2	3	2	1	1	2	2	1	1	3	23
5·01—5·5	2	2	5	3	3	2	4	4	2	7	1	1	36
5·51—6·0	3	4	4	9	4	5	5	7	8	4	4	6	63
6·01—6·5	12	3	3	9	13	9	13	11	13	15	7	14	122
6·51—7·0	25	15	17	22	19	20	30	27	28	22	31	13	269
Σ	48	27	35	51	43	39	54	53	57	49	46	42	544

G5

] 4·0	1	1	1	—	2	—	2	5	1	1	1	2	17
4·01—4·5	1	2	—	—	4	—	5	1	—	2	1	—	16
4·51—5·0	3	3	2	1	5	—	2	3	3	2	6	6	36
5·01—5·5	8	3	9	9	7	9	9	6	3	7	7	10	87
5·51—6·0	13	7	17	17	21	14	18	10	8	3	11	7	146
6·01—6·5	16	21	36	27	29	26	24	21	14	17	32	17	280
6·51—7·0	39	41	65	56	65	55	48	28	31	56	37	31	552
Σ	81	78	130	110	133	104	108	74	60	88	95	73	1134

K0

Magnitude \ Mean gal. long.	15°	45°	75°	105°	135°	165°	195°	225°	255°	285°	315°	345°	Σ
] 4·0	9	13	7	8	10	6	6	11	8	4	11	10	103
4·01—4·5	6	3	3	4	10	6	5	4	3	8	4	10	66
4·51—5·0	4	17	14	11	10	12	14	13	13	6	12	8	134
5·01—5·5	16	19	20	15	14	16	19	26	28	26	25	17	241
5·51—6·0	42	31	31	22	35	40	44	29	55	49	44	36	458
6·01—6·5	82	61	70	66	72	57	74	65	85	68	64	53	817
6·51—7·0	110	115	90	70	105	100	121	123	109	127	111	108	1289
Σ	269	259	235	196	256	237	283	271	301	288	271	242	3108

K2

] 4·0	—	—	2	1	—	1	1	—	3	4	—	1	13
4·01—4·5	—	—	1	—	—	2	1	1	2	2	—	—	9
4·51—5·0	1	2	1	—	—	1	2	1	1	2	2	—	13
5·01—5·5	3	4	—	3	6	1	7	5	4	1	4	1	39
5·51—6·0	8	9	7	3	4	6	7	8	9	7	9	9	86
6·01—6·5	27	15	8	6	8	10	18	20	22	19	6	10	169
6·51—7·0	43	39	10	11	9	24	28	14	29	16	17	33	273
Σ	82	69	29	24	27	45	64	49	70	51	38	54	602

K5

] 4·0	3	2	—	—	2	2	4	4	2	4	—	—	23
4·01—4·5	—	—	—	1	2	—	3	3	—	2	—	2	13
4·51—5·0	4	1	4	2	1	1	4	7	2	3	3	6	38
5·01—5·5	5	6	1	4	2	5	3	8	3	2	3	3	45
5·51—6·0	8	8	3	5	4	3	13	10	11	7	5	8	85
6·01—6·5	13	19	12	5	11	9	6	12	2	14	8	12	123
6·51—7·0	30	24	12	14	16	17	15	10	13	18	18	25	212
Σ	63	60	32	31	38	37	48	54	33	50	37	56	539

Ma = M0

Mean gal. long. / Magnitude	15°	45°	75°	105°	135°	165°	195°	225°	255°	285°	315°	345°	Σ
] 4·0	2	1	1	1	2	—	—	1	1	1	1	—	11
4·01—4·5	—	—	1	—	1	—	1	1	1	1	1	—	7
4·51—5·0	4	5	1	2	2	3	3	—	3	2	1	2	28
5·01—5·5	5	7	4	2	3	1	3	3	5	3	3	6	45
5·51—6·0	4	3	6	2	6	9	5	4	4	6	2	2	53
6·01—6·5	16	12	3	5	11	3	10	11	6	5	4	2	88
6·51—7·0	15	15	11	8	11	6	9	11	11	8	9	6	120
Σ	46	43	27	20	36	22	31	31	31	26	21	18	352

Mb = M3

] 4·0	—	—	—	—	—	1	—	—	1	2	1	1	6
4·01—4·5	1	—	—	—	—	—	—	2	2	1	—	—	6
4·51—5·0	1	2	—	—	—	—	1	1	2	2	1	—	10
5·01—5·5	3	4	1	—	1	—	1	2	3	2	—	1	18
5·51—6·0	—	4	1	4	2	2	—	1	4	2	1	3	24
6·01—6·5	6	4	3	1	1	2	2	5	3	3	5	2	37
6·51—7·0	3	8	2	4	4	3	2	5	4	4	5	12	56
Σ	14	22	7	9	8	8	6	16	19	16	13	19	157

Mc

] 4·0	—	—	—	—	—	—	—	—	—	—	—	—	—
4·01—4·5	—	—	—	—	—	—	—	—	—	—	—	—	—
4·51—5·0	—	—	—	—	—	—	—	—	—	—	—	—	—
5·01—5·5	—	—	—	—	—	—	—	—	—	—	—	—	—
5·51—6·0	—	—	—	—	—	—	—	—	—	—	—	—	—
6·01—6·5	—	—	—	—	—	—	—	—	—	—	—	—	—
6·51—7·0	1	—	—	—	—	—	—	—	—	—	—	—	1
Σ	1	—	—	—	—	—	—	—	—	—	—	—	1

Table III. Distribution of stars of mag. 7·0 and brighter of individual classes of magnitude according to galactic latitude.

The results of table I. are summed up for individual magnitudes according to spectral subdivisions in the areals of 20° *latitude.* (With summary for classes *O*, *B*, *A*, *F*, *G*, *K*, *M*). The magnitude intervals are: 4·0 and brighter, 4·01—5·0, 5·01—6·0, 6·01—7·0.

Stars mag. 4·0 and brighter.										
Mean gal. latitude / Sub-divisions	+ 80°	+ 60°	+ 40°	+ 20°	0°	— 20°	— 40°	— 60°	— 80°	Σ
Oa	—	—	—	—	—	—	—	—	—	—
Ob	—	—	—	—	—	—	—	—	—	—
Oc	—	—	—	—	—	—	—	—	—	—
Od	—	—	—	—	1	—	—	—	—	1
Oe	—	—	—	—	—	—	—	—	—	—
Oe5	—	—	—	—	—	2	—	—	—	2
Oap	—	—	—	—	1	—	—	—	—	1
Ocp	—	—	—	—	—	—	—	—	—	—
Oep	—	—	—	—	—	—	—	—	—	—
Oe5p	—	—	—	—	—	—	—	—	—	—
O	—	—	—	—	2	2	—	—	—	4
B0	—	1	—	3	2	5	—	—	—	11
B1	—	—	—	3	8	7	—	—	—	18
B2	—	1	—	7	4	2	1	—	—	15
B3	—	1	—	6	17	6	1	—	—	31
B5	—	—	3	1	5	6	—	2	—	17
B	—	3	3	20	36	26	2	2	—	92
B8	—	—	3	1	3	7	4	1	—	19
B9	—	—	—	—	2	—	1	—	—	3
A0	1	9	7	9	10	5	6	—	—	47
A2	1	5	4	7	1	4	2	3	—	27
A3	—	1	2	1	1	2	1	1	1	10
A	2	15	16	18	17	18	14	5	1	106

Stars mag. 4·0 and brighter.

Sub-divisions \ Mean gal. latitude	+ 80°	+ 60°	+ 40°	+ 20°	0°	— 20°	— 40°	— 60°	— 80°	Σ
A5	—	—	1	1	6	3	3	—	—	14
F0	—	5	3	1	7	4	1	1	—	22
F2	—	—	—	—	1	1	—	—	—	2
F	—	5	4	2	14	8	4	1	—	38
F5	—	—	3	1	7	3	2	—	—	16
F8	—	1	1	3	3	2	—	1	—	11
G0	1	—	4	—	3	3	4	—	—	15
G	1	1	8	4	13	8	6	1	—	42
G5	—	1	3	4	2	2	4	1	—	17
K0	2	10	11	17	18	21	12	4	8	103
K2	—	—	—	3	5	2	3	—	—	13
K	2	11	14	24	25	25	19	5	8	133
K5	—	1	2	2	12	4	1	—	1	23
Ma	—	1	1	1	2	3	2	1	—	11
Mb	—	—	—	2	1	1	—	2	—	6
Mc	—	—	—	—	—	—	—	—	—	—
M	—	2	3	5	15	8	3	3	1	40

Stars mag. 4·01—5·0.

Sub-divisions \ Mean gal. latitude	+ 80°	+ 60°	+ 40°	+ 20°	0°	— 20°	— 40°	— 60°	— 80°	Σ
Oa	—	—	—	—	—	—	—	—	—	—
Ob	—	—	—	—	—	—	—	—	—	—
Oc	—	—	—	—	—	—	—	—	—	—
Od	—	—	—	—	—	—	—	—	—	—
Oe	—	—	—	—	—	—	—	—	—	—
Oe5	—	—	—	—	—	—	—	—	—	—
Oap	—	—	—	—	—	—	—	—	—	—
Ocp	—	—	—	—	—	—	—	—	—	—
Oep	—	—	—	—	—	—	—	—	—	—
Oe5p	—	—	—	—	3	2	—	—	—	5
O	—	—	—	—	3	2	—	—	—	5
B0	—	—	—	1	4	3	—	—	—	8
B1	—	—	—	—	7	3	1	—	—	11
B2	—	—	—	3	10	7	—	1	—	21
B3	—	—	—	27	37	21	2	—	—	87
B5	—	1	2	7	23	11	4	5	2	55
B	—	1	2	38	81	45	7	6	2	182
B8	—	—	4	3	16	13	1	5	—	42
B9	—	—	3	3	5	3	4	5	—	23
A0	2	8	9	13	17	14	9	6	4	82
A2	—	7	9	14	16	10	4	10	—	70
A3	—	1	3	3	16	6	5	2	—	36
A	2	16	28	36	70	46	23	28	4	253
A5	—	5	6	2	11	9	5	1	—	39
F0	3	5	5	6	10	8	6	1	—	44
F2	—	—	1	—	1	1	4	1	—	8
F	3	10	12	8	22	18	15	3	—	91

Stars mag. 4·01—5·0.

Mean gal. latitude / Sub-divisions	+ 80°	+ 60°	+ 40°	+ 20°	0°	— 20°	— 40°	— 60°	— 80°	Σ
F5	1	6	6	6	10	14	3	4	—	50
F8	1	—	2	4	12	—	4	3	—	26
G0	4	3	2	6	14	5	1	2	2	39
G	6	9	10	16	36	19	8	9	2	115
G5	1	2	6	8	8	10	10	7	—	52
K0	2	9	20	40	48	34	23	20	4	200
K2	—	—	4	4	3	6	2	3	—	22
K	3	11	30	52	59	50	35	30	4	274
K5	2	1	6	9	13	8	8	4	—	51
Ma	2	7	2	2	7	4	9	—	2	35
Mb	—	1	1	2	2	3	2	4	1	16
Mc	—	—	—	—	—	—	—	—	—	—
M	4	9	9	13	22	15	19	8	3	102

Stars mag. 5·01—6·0.

Oa	—	—	—	—	—	—	—	—	—	—
Ob	—	—	—	—	—	—	—	—	—	—
Oc	—	—	—	—	—	—	—	—	—	—
Od	—	—	—	—	1	—	—	—	—	1
Oe	—	—	—	—	1	—	—	—	—	1
Oe5	—	—	—	—	9	2	—	—	—	11
Oap	—	—	—	—	1	—	—	—	—	1
Ocp	—	—	—	—	—	—	—	—	—	—
Oep	—	—	—	—	—	—	—	—	—	—
Oe5p	—	—	—	—	1	—	—	—	—	1
O	—	—	—	—	13	2	—	—	—	15

Stars mag. 5·01—6·0.

Sub-divisions \ Mean gal. latitude	+ 80°	+ 60°	+ 40°	+ 20°	0°	— 20°	— 40°	— 60°	— 80°	Σ
B0	—	—	—	—	13	2	—	—	—	15
B1	—	—	—	1	10	3	—	—	—	14
B2	—	—	—	2	16	9	—	—	—	27
B3	—	2	2	17	82	45	9	3	—	160
B5	—	—	1	15	49	26	11	3	—	105
B	—	2	3	35	170	85	20	6	—	321
B8	—	1	9	26	64	42	18	4	1	165
B9	1	5	8	19	58	49	9	4	2	155
A0	7	34	39	78	81	75	31	7	5	357
A2	12	14	29	44	61	47	22	17	2	248
A3	3	8	14	19	21	20	14	5	3	107
A	23	62	99	186	285	233	94	37	13	1032
A5	6	6	10	14	27	18	13	8	5	107
F0	2	12	15	23	33	41	22	16	5	169
F2	—	4	12	10	13	13	7	7	2	68
F	8	22	37	47	73	72	42	31	12	344
F5	6	11	14	27	35	22	23	13	3	154
F8	1	2	7	10	15	9	5	6	—	55
G0	3	5	16	18	19	15	14	8	1	99
G	10	18	37	55	69	46	42	27	4	308
G5	4	17	30	28	44	45	31	27	7	233
K0	26	47	80	118	150	117	84	53	24	699
K2	3	6	11	25	29	31	10	5	5	125
K	33	70	121	171	223	193	125	85	36	1057

Stars mag. 5·01—6·0.

Sub. divisions \ Mean gal. latitude	+ 80°	+ 60°	+ 40°	+ 20°	0°	— 20°	— 40°	— 60°	— 80°	Σ
K5	3	7	21	20	32	20	16	7	4	130
Ma	2	10	12	23	20	12	12	5	2	98
Mb	1	4	7	8	5	5	8	4	—	42
Mc	—	—	—	—	—	—	—	—	—	—
M	6	21	40	51	57	37	36	16	6	270

Stars mag. 6·01—7·0.

Oa	—	—	—	—	2	—	—	—	—	2
Ob	—	—	—	—	—	1	—	—	—	1
Oc	—	—	—	—	1	—	—	—	—	1
Od	—	—	—	—	1	—	—	—	—	1
Oe	—	—	—	—	2	—	—	—	—	2
Oe5	—	—	—	—	11	3	—	—	—	14
Oap	—	—	—	—	—	—	—	—	—	—
Ocp	—	—	—	—	2	—	—	—	—	2
Oep	—	—	—	—	1	—	—	—	—	1
Oe5p	—	—	—	—	—	—	—	—	—	—
O	—	—	—	—	20	4	—	—	—	24
B0	—	—	—	3	43	7	—	—	—	53
B1	—	—	—	—	12	2	—	—	—	14
B2	—	—	1	2	38	1	1	—	—	43
B3	—	—	1	25	149	55	2	—	1	233
B5	—	—	1	17	120	47	3	—	—	188
B	—	—	3	47	362	112	6	—	1	531

Stars mag. 6·01—7·0.

Sub-divisions \ Mean gal. latitude	+ 80°	+ 60°	+ 40°	+ 20°	0°	— 20°	— 40°	— 60°	— 80°	Σ
B8	—	1	4	48	166	104	11	9	3	346
B9	2	9	27	116	243	155	37	10	4	603
A0	9	55	124	264	342	247	102	50	8	1201
A2	17	41	72	115	181	114	51	35	11	637
A3	18	17	31	51	79	59	42	13	7	317
A	46	123	258	594	1011	679	243	117	33	3104
A5	8	14	31	57	61	46	30	10	6	263
F0	12	35	59	81	108	75	57	35	11	473
F2	10	32	61	61	57	56	33	28	8	346
F	30	81	151	199	226	177	120	73	25	1082
F5	19	47	64	82	101	86	66	48	13	526
F8	5	19	33	48	48	51	30	22	5	261
G0	2	27	39	73	64	72	61	41	12	391
G	26	93	136	203	213	209	157	111	30	1178
G5	15	34	82	148	148	157	115	101	32	832
K0	54	149	253	415	422	355	254	146	58	2106
K2	8	31	46	69	138	83	42	17	8	442
K	77	214	381	632	708	595	411	264	98	3380
K5	7	21	41	52	85	69	39	17	4	335
Ma	4	17	24	41	45	33	18	18	8	208
Mb	2	7	8	23	21	11	16	5	—	93
Mc	—	—	—	—	—	1	—	—	—	1
M	13	45	73	116	151	114	73	40	12	367

Summary.

Stars mag. 4·0 and brighter.

Spectral class \ Mean gal. latitude	+ 80°	+ 60°	+ 40°	+ 20°	0°	− 20°	− 40°	− 60°	− 80°	Σ
O	—	—	—	—	2	2	—	—	—	4
B	—	3	3	20	36	26	2	2	—	92
A	2	15	16	18	17	18	14	5	1	106
F	—	5	4	2	14	8	4	1	—	38
G	1	1	8	4	13	8	6	1	—	42
K	2	11	14	24	25	25	19	5	8	133
M	—	2	3	5	15	8	3	3	1	40
	5	37	48	73	122	95	48	17	10	455

Stars mag. 4·01—5·0.

O	—	—	—	—	3	2	—	—	—	5
B	—	1	2	38	81	45	7	6	2	182
A	2	16	28	36	70	46	23	28	4	253
F	3	10	12	8	22	18	15	3	—	91
G	6	9	10	16	36	19	8	9	2	115
K	3	11	30	52	59	50	35	30	4	274
M	4	9	9	13	22	15	19	8	3	102
	18	56	91	163	293	195	107	84	15	1022

Stars mag. 5·01—6·0.

O	—	—	—	—	13	2	—	—	—	15
B	—	2	3	35	170	85	20	6	—	321
A	23	62	99	186	285	233	94	37	13	1032
F	8	22	37	47	73	72	42	31	12	344
G	10	18	37	55	69	46	42	27	4	308
K	33	70	121	171	223	193	125	85	36	1057
M	6	21	40	51	57	37	36	16	6	270
	80	195	337	545	890	668	359	202	71	3347

Summary.

Stars mag. 6·01—7·0.

Spectral class \ Mean gal. latitude	+ 80°	+ 60°	+ 40°	+ 20°	0°	— 20°	— 40°	— 60°	— 80°	Σ
O	—	—	—	—	20	4	—	—	—	24
B	—	—	3	47	362	112	6	—	1	531
A	46	123	258	594	1011	679	243	117	33	3104
F	30	81	151	199	226	177	120	73	25	1082
G	26	93	136	203	213	209	157	111	30	1178
K	77	214	381	632	708	595	411	264	98	3380
M	13	45	73	116	151	114	73	40	12	637
	192	556	1002	1791	2691	1890	1010	605	199	9936

Stars mag. 7·0 and brighter.

O	—	—	—	—	38	10	—	—	—	48
B	—	6	11	140	649	268	35	14	3	1126
A	73	216	401	834	1383	976	374	187	51	4495
F	41	118	204	256	335	275	181	108	37	1555
G	43	121	191	278	331	282	213	148	36	1643
K	115	306	546	879	1015	863	590	384	146	4844
M	23	77	125	185	245	174	131	67	22	1049
	295	844	1478	2572	3996	2848	1524	908	295	14760

Table IV. Distribution of stars mag. 7·0 and brighter of individual classes of magnitude according to galactic longitude.

The results of table II. are summed up for individual magnitudes according to spectral subdivisions in the areals of 30° *longitude*. (With summary for classes *O*, *B*, *A*, *F*, *G*, *K*, *M*). The magnitude intervals are: 4·0 and brighter, 4·01—5·0, 5·01—6·0, 6·01—7·0.

Stars mag. 4·0 and brighter.

Mean gal. longitude / Subdivisions	15°	45°	75°	105°	135°	165°	195°	225°	255°	285°	315°	345°	Σ
Oa	—	—	—	—	—	—	—	—	—	—	—	—	—
Ob	—	—	—	—	—	—	—	—	—	—	—	—	—
Oc	—	—	—	—	—	—	—	—	—	—	—	—	—
Od	—	—	—	—	—	—	1	—	—	—	—	—	1
Oe	—	—	—	—	—	—	—	—	—	—	—	—	—
Oe5	—	—	—	—	1	1	—	—	—	—	—	—	2
Oap	—	—	—	—	—	—	1	—	—	—	—	—	1
Ocp	—	—	—	—	—	—	—	—	—	—	—	—	—
Oep	—	—	—	—	—	—	—	—	—	—	—	—	—
Oe5p	—	—	—	—	—	—	—	—	—	—	—	—	—
O	—	—	—	—	1	1	2	—	—	—	—	—	4
B0	—	—	1	—	3	3	—	1	—	2	1	—	11
B1	—	2	—	4	1	1	1	—	5	4	—	—	18
B2	—	1	—	—	1	—	2	—	5	6	—	—	15
B3	1	1	2	1	3	—	2	5	4	10	2	—	31
B5	1	2	1	3	—	1	3	3	—	1	—	2	17
B	2	6	4	8	8	5	8	9	14	23	3	2	92
B8	3	—	—	3	1	3	1	4	—	2	2	—	19
B9	—	—	—	—	—	—	1	1	—	—	—	1	3
A0	7	5	2	3	5	6	1	4	2	1	3	8	47
A2	3	4	2	2	3	1	2	—	3	1	4	2	27
A3	—	—	1	—	1	2	1	—	1	2	1	1	10
A	13	9	5	8	10	12	6	9	6	6	10	12	106

Stars mag. 4·0 and brighter.

Sub-divisions \ Mean gal. longitude	15°	45°	75°	105°	135°	175°	195°	225°	255°	285°	315°	345°	Σ
A5	—	1	4	1	—	—	—	2	—	1	2	3	14
F0	2	—	—	2	2	3	1	3	3	2	—	4	22
F2	—	—	—	—	—	—	—	—	—	1	1	—	2
F	2	1	4	3	2	3	1	5	3	4	3	7	38
F5	2	—	3	2	1	2	2	1	—	2	1	—	16
F8	1	1	2	1	1	3	1	1	—	—	—	—	11
G0	2	1	—	3	1	1	1	—	2	—	1	3	15
G	5	2	5	6	3	6	4	2	2	2	2	3	42
G5	1	1	1	—	2	—	2	5	1	1	1	2	17
K0	9	13	7	8	10	6	6	11	8	4	11	10	103
K2	—	—	2	1	—	1	1	—	3	4	—	1	13
K	10	14	10	9	12	7	9	16	12	9	12	13	133
K5	3	2	—	—	2	2	4	4	2	4	—	—	23
Ma	2	1	1	1	2	—	—	1	1	1	1	—	11
Mb	—	—	—	—	—	1	—	—	1	2	1	1	16
Mc	—	—	—	—	—	—	—	—	—	—	—	—	—
M	5	3	1	1	4	3	4	5	4	7	2	1	40

Stars mag. 4·01—5·0.

Sub-divisions \ Mean gal. longitude	15°	45°	75°	105°	135°	165°	195°	225°	255°	285°	315°	345°	Σ
Oa	—	—	—	—	—	—	—	—	—	—	—	—	—
Ob	—	—	—	—	—	—	—	—	—	—	—	—	—
Oc	—	—	—	—	—	—	—	—	—	—	—	—	—
Od	—	—	—	—	—	—	—	—	—	—	—	—	—
Oe	—	—	—	—	—	—	—	—	—	—	—	—	—
Oe5	—	1	—	1	1	—	2	—	—	—	—	—	5
Oap	—	—	—	—	—	—	—	—	—	—	—	—	—
Ocp	—	—	—	—	—	—	—	—	—	—	—	—	—
Oep	—	—	—	—	—	—	—	—	—	—	—	—	—
Oe5p	—	—	—	—	—	—	—	—	—	—	—	—	—
O	—	1	—	1	1	—	2	—	—	—	—	—	5
B0	—	1	3	2	—	2	—	—	—	—	—	—	8
B1	2	—	—	—	1	4	2	—	—	2	—	—	11
B2	2	1	2	1	5	3	2	2	1	2	—	—	21
B3	9	5	4	3	12	5	11	5	15	12	4	2	87
B5	4	1	—	8	3	4	5	9	10	5	1	5	55
B	17	8	9	14	21	18	20	16	26	21	5	7	182
B8	2	4	4	—	1	5	7	2	5	3	7	2	42
B9	2	1	2	—	3	3	—	5	4	2	1	—	23
A0	12	3	8	8	6	11	4	—	5	6	12	7	82
A2	7	5	7	13	3	—	5	6	5	7	8	4	70
A3	6	3	1	3	6	4	3	2	2	2	1	3	36
A	29	16	22	24	19	23	19	15	21	20	29	16	253
A5	5	6	3	3	8	—	2	5	3	2	—	2	39
F0	6	3	2	3	6	1	3	2	2	6	8	2	44
F2	2	—	—	—	1	—	1	2	1	—	1	—	8
F	13	9	5	6	15	1	6	9	6	8	9	4	91

Stars mag. 4·01—5·0.

Sub-divisions \ Mean gal. longitude	15°	45°	75°	105°	136°	165°	195°	225°	255°	285°	315°	345°	Σ
F5	6	5	2	2	3	4	5	8	2	4	7	2	50
F8	1	4	3	—	1	3	2	3	4	2	2	1	26
G0	4	2	6	5	3	2	1	4	4	1	2	5	39
G	11	11	11	7	7	9	8	15	10	7	11	8	115
G5	4	5	2	1	9	—	7	4	3	4	7	6	52
K0	10	20	17	15	20	18	19	17	16	14	16	18	200
K2	1	2	2	—	—	3	3	2	3	4	2	—	22
K	15	27	21	16	29	21	29	23	22	22	25	24	274
K5	4	1	4	3	3	1	7	10	2	5	3	8	51
Ma	4	5	2	2	3	3	4	1	4	3	2	2	35
Mb	2	2	—	—	—	—	1	3	4	3	1	—	16
Mc	—	—	—	—	—	—	—	—	—	—	—	—	—
M	10	8	6	5	6	4	12	14	10	11	6	10	102

Stars mag. 5·01—6·0

Oa	—	—	—	—	—	—	—	—	—	—	—	—	—
Ob	—	—	—	—	—	—	—	—	—	—	—	—	—
Oc	—	—	—	—	—	—	—	—	—	—	—	—	—
Od	—	1	—	—	—	—	—	—	—	—	—	—	1
Oc	—	—	—	—	—	—	—	—	—	1	—	—	1
Oe5	—	3	—	—	1	1	—	—	3	2	1	—	11
Oap	—	—	—	—	—	—	—	—	1	—	—	—	1
Ocp	—	—	—	—	—	—	—	—	—	—	—	—	—
Oep	—	—	—	—	—	—	—	—	—	1	—	—	1
Oe5p	—	—	—	—	—	—	—	—	—	—	—	—	—
O	—	4	—	—	1	1	—	—	4	4	1	—	15

Stars mag. 5·01—6·0.

Mean gal. longitude / Subdivisions	15°	45°	75°	105°	135°	165°	195°	225°	255°	285°	315°	345°	Σ
B0	4	3	—	—	1	1	—	—	—	3	2	1	15
B1	—	—	—	1	1	4	—	—	2	6	—	—	14
B2	5	4	—	1	5	5	5	1	1	—	—	—	27
B3	11	9	6	9	14	17	34	24	9	14	7	6	160
B5	6	5	4	11	8	8	16	16	7	13	6	5	105
B	26	21	10	22	29	35	55	41	19	36	15	12	321
B8	13	7	13	16	21	8	13	18	16	16	13	11	165
B9	10	14	16	14	21	5	19	20	13	11	5	7	155
A0	33	39	33	31	23	45	19	27	24	13	30	40	357
A2	22	15	31	22	30	25	22	23	16	15	10	17	248
A3	11	9	7	10	12	4	8	5	9	12	8	12	107
A	89	84	100	93	107	87	81	93	78	67	66	87	1032
A5	10	6	10	7	14	14	4	7	7	8	12	8	107
F0	18	10	20	18	26	14	10	11	14	9	12	7	169
F2	11	4	6	3	3	9	8	8	5	2	2	7	68
F	39	20	36	28	43	37	22	26	26	19	26	22	344
F5	17	12	19	16	15	11	10	6	10	15	7	16	154
F8	3	3	7	4	3	6	6	4	4	5	9	1	55
G0	5	6	9	12	7	7	9	11	10	11	5	7	99
G	25	21	35	32	25	24	25	21	24	31	21	24	308
G5	21	10	26	26	28	23	27	16	11	10	18	17	233
K0	58	50	51	37	49	56	63	55	83	75	69	53	699
K2	11	13	7	6	10	7	14	13	13	8	13	10	125
K	90	73	84	69	87	86	104	84	107	93	100	80	1057

Stars mag. 5·01—6·0.

Sub-divisions \ Mean gal. longitude	15°	45°	75°	105°	135°	165°	195°	225°	255°	285°	315°	345°	Σ
K5	13	14	4	9	6	8	16	18	14	9	8	11	130
Ma	9	10	10	4	9	10	8	7	9	9	5	8	98
Mb	3	8	2	4	3	2	1	3	7	4	1	4	42
Mc	—	—	—	—	—	—	—	—	—	—	—	—	—
M	25	32	16	17	18	20	25	28	30	22	14	23	270

Stars mag. 6·01—7·0.

Oa	1	—	—	—	—	—	—	—	—	—	1	—	2
Ob	—	—	—	—	—	1	—	—	—	—	—	—	1
Oc	—	—	—	—	—	—	—	—	—	1	—	—	1
Od	—	—	—	—	—	—	—	—	—	1	—	—	1
Oe	2	—	—	—	—	—	—	—	—	—	—	—	2
Oe5	—	1	—	2	—	3	1	—	1	2	4	—	14
Oap	—	—	—	—	—	—	—	—	—	—	—	—	—
Ocp	—	—	—	—	—	—	—	—	2	—	—	—	2
Oep	—	—	—	—	—	—	—	—	—	1	—	—	1
Oe5p	—	—	—	—	—	—	—	—	—	—	—	—	—
O	3	1	—	2	—	4	1	—	3	5	5	—	24
B0	4	5	6	2	1	5	4	8	3	7	8	—	53
B1	2	1	2	—	—	3	1	—	2	1	2	—	14
B2	3	3	4	3	5	3	7	2	4	5	2	2	43
B3	22	27	6	11	19	25	39	25	25	8	8	18	233
B5	18	15	8	5	14	26	41	25	11	8	3	14	188
B	49	51	26	21	39	62	92	60	45	29	23	34	531

Stars mag. 6·01—7·0.

Sub-divisions \ Mean gal. longitude	15°	45°	75°	105°	135°	165°	195°	225°	255°	295°	315°	345°	Σ
B8	30	22	27	24	26	34	29	42	25	34	30	23	346
B9	51	49	43	41	59	63	51	55	58	55	35	43	603
A0	111	113	89	85	87	95	116	113	120	84	76	112	1201
A2	65	67	48	45	54	47	59	52	59	47	48	46	637
A3	29	26	27	32	11	36	31	19	24	26	26	30	317
A	286	277	234	227	237	275	286	281	286	246	215	254	3104
A5	22	15	25	31	23	25	18	24	25	24	19	12	263
F0	36	36	55	55	41	36	39	41	35	27	39	33	473
F2	26	36	22	35	38	23	34	26	21	24	25	36	346
F	84	87	102	121	102	84	91	91	81	75	83	81	1082
F5	38	41	47	47	49	47	43	36	36	46	37	59	526
F8	24	19	21	20	23	18	15	24	32	18	28	19	261
G0	37	18	20	31	32	29	43	38	41	37	38	27	391
G	99	78	88	98	104	94	101	98	109	101	103	105	1178
G5	55	62	101	83	94	81	72	49	45	73	69	48	832
K0	192	176	160	136	177	157	195	188	194	195	175	161	2106
K2	70	54	18	17	17	34	46	34	51	35	23	43	442
K	317	292	279	236	288	272	313	271	290	303	267	252	3380
K5	43	43	24	19	27	26	21	22	15	32	26	37	335
Ma	31	27	14	13	22	9	19	22	17	13	13	8	208
Mb	9	12	5	5	5	5	4	10	7	7	10	14	93
Mc	1	—	—	—	—	—	—	—	—	—	—	—	1
M	84	82	43	37	54	40	44	54	39	52	49	59	637

Summary.

Stars mag. 4·0 and brighter.

Spectral class \ Mean gal. longitude	15°	45°	75°	105°	135°	165°	195°	225°	255°	285°	315°	345°	Σ
O	—	—	—	—	1	1	2	—	—	—	—	—	4
B	2	6	4	8	8	5	8	9	14	23	3	2	92
A	13	9	5	8	10	12	6	9	6	6	10	12	106
F	2	1	4	3	2	3	1	5	3	4	3	7	38
G	5	2	5	6	3	6	4	2	2	2	2	3	42
K	10	14	10	9	12	7	9	16	12	9	12	13	133
M	5	3	1	1	4	3	4	5	4	7	2	1	40
Σ	37	35	29	35	40	37	34	46	41	51	32	38	455

Stars mag. 4·01—5·0.

O	—	1	—	1	1	—	2	—	—	—	—	—	5
B	17	8	9	14	21	18	20	16	26	21	5	7	182
A	29	16	22	24	19	23	19	15	21	20	29	16	253
F	13	9	5	6	15	1	6	9	6	8	9	4	91
G	11	11	11	7	7	9	8	15	10	7	11	8	115
K	15	27	21	16	29	21	29	23	22	22	25	24	274
M	10	8	6	5	6	4	12	14	10	11	6	10	102
Σ	95	80	74	73	98	76	96	92	95	89	85	69	1022

Stars. mag 5·01—6·0.

O	—	4	—	—	1	1	—	—	4	4	1	—	15
B	26	21	10	22	29	35	55	41	19	36	15	12	321
A	89	84	100	93	107	87	81	93	78	67	66	87	1032
F	39	20	36	28	43	37	22	26	26	19	26	22	344
G	25	21	35	32	25	24	25	21	24	31	21	24	308
K	90	73	84	69	87	86	104	84	107	93	100	80	1057
M	25	32	16	17	18	20	25	28	30	22	14	23	270
Σ	294	255	281	261	310	290	312	293	288	272	243	248	3347

Summary.

Stars mag. 6·01—7·0.

Spectral class \ Mean gal. longitude	15°	45°	75°	105°	135°	165°	195°	225°	255°	285°	315°	345°	Σ
O	3	1	—	2	—	4	1	—	3	5	5	—	24
B	49	51	26	21	39	62	92	60	45	29	23	34	531
A	286	277	234	227	237	275	286	281	286	246	215	254	3104
F	84	87	102	121	102	84	91	91	81	75	83	81	1082
G	99	78	88	98	104	94	101	98	109	101	103	105	1178
K	317	292	279	236	288	272	313	271	290	303	267	252	3380
M	84	82	43	37	54	40	44	54	39	52	49	59	637
Σ	922	868	772	742	824	831	928	855	853	811	745	785	9936

Stars mag. 7·0 and brighter.

O	3	6	—	3	3	6	5	—	7	9	6	—	48
B	94	86	49	65	97	120	175	126	104	109	46	55	1126
A	417	386	361	352	373	397	392	398	391	339	320	369	4495
F	138	117	147	158	162	125	120	131	116	106	121	114	1555
G	140	112	139	143	139	133	138	136	145	141	137	140	1643
K	432	406	394	330	416	386	455	394	431	427	404	369	4844
M	124	125	66	60	82	67	85	101	83	92	71	93	1049
Σ	1348	1238	1156	1111	1272	1234	1370	1286	1277	1223	1105	1140	14760

Among the stars classified by the spectral subdivisions quite distinctly, there are some, the spectra of which are not defined, and some in the classes with very few individuals. Neither of these kinds are included in our tables. The summary of these exceptions is in the following table V.

Table V.

Spectral class	Number
B	5
A	19
G	15
K	1
Na	4
Nb	2
S	1
—	1
Sum	48

The numbers and percentages of all stars examined (except *O*-stars) according to magnitude are in the following tables VI and VII.

These tables show in what proportion the stars are mixed when analyzed on the basis of apparent brightness. The tabulated quantities for a given interval of magnitude are expressed as percentages of the total number of stars in that interval. The numbers for the class *A* show the highest change of the increase of relative numbers with the decreasing brightness down to the 7th mag. For the classes *F*, *G* and *K* this change is smaller and for the class *G* not so striking as Shapley's result (*Harvard Circular 226*) for the stars of mag. 8·25 and brighter. In mag. class 5·01—6·0 there is a decrease of frequencies for all subdivisions of this class *G*. For class *B* the known decrease of relative numbers with decreasing brightness is clearly shown, and also for class *M* but with a smaller proportion. The increase of relative numbers with decreasing brightness quite distinct and not diminished is evident in subdivisions *B9*, *A0*, *F2*, *G5*, *K0*, *K2*. For the subdivisions *G5* Shapley has found the same effect for all stars of the Henry Draper Catalogue. (*Harvard Circular 226*, *p.* 4).

Table VI.

Numbers of stars to successive magnitude for each spectral subdivision.

Spectr. subdivisions \ Mag.	] 4·0	4·01—5·0	5·01—6·0	6·01—7·0	] 7·0
B0	11	8	15	53	87
B1	18	11	14	14	57
B2	15	21	27	43	106
B3	31	87	160	233	511
B5	17	55	105	188	365
B	92	182	321	531	1126
B8	19	42	165	346	572
B9	3	23	155	603	784
A0	47	82	357	1201	1687
A2	27	70	248	637	982
A3	10	36	107	317	470
A	106	253	1032	3104	4495
A5	14	39	107	263	423
F0	22	44	169	473	708
F2	2	8	68	346	424
F	38	91	344	1082	1555
F5	16	50	154	526	746
F8	11	26	55	261	353
G0	15	39	99	391	544
G	42	115	308	1178	1643
G5	17	52	233	832	1134
K0	103	200	699	2106	3108
K2	13	22	125	442	602
K	133	274	1057	3380	4844
K5	23	51	130	335	539
Ma	11	35	98	208	352
Mb	6	16	42	93	157
Mc	—	—	—	1	1
M	40	102	270	637	1049
B, A, F	236	526	1697	4717	7176
G, K, M	115	491	1635	5195	7536

Table VII.

Frequency of spectral subdivisions for successive magnitude intervals.

Spectr. subdivisions \ Mag.	] 4·0	4·01—5·0	5·01—6·0	6·01—7·0	] 7·0
B0	2·4	0·8	0·5	0·5	0·6
B1	4·0	1·1	0·4	0·1	0·4
B2	3·3	2·1	0·8	0·4	0·7
B3	6·9	8·6	4·8	2·4	3·5
B5	3·8	5·4	3·2	1·9	2·5
B	20·4	17·9	9·6	5·4	7·6
B8	4·2	4·1	5·0	3·5	3·9
B9	0·7	2·3	4·7	6·1	5·3
A0	10·4	8·1	10·7	12·1	11·4
A2	6·0	6·9	7·4	6·4	6·7
A3	2·2	3·5	3·2	3·2	3·2
A	23·5	25·0	30·9	31·3	30·5
A5	3·1	3·8	3·2	2·7	2·9
F0	4·9	4·3	5·1	4·8	4·8
F2	0·4	0·8	2·0	3·5	2·9
F	8·4	9·0	10·3	10·9	10·5
F5	3·5	4·9	4·6	5·3	5·0
F8	2·4	2·6	1·7	2·6	2·4
G0	3·3	3·8	3·0	3·9	3·7
G	9·3	11·3	9·2	11·9	11·2
G5	3·8	5·1	7·0	8·4	7·7
K0	22·8	19·7	21·0	21·3	21·1
K2	2·9	2·2	3·8	4·5	4·1
K	29·5	27·0	31·7	34·1	33·0
K5	5·1	5·0	3·9	3·4	3·7
Ma	2·4	3·5	2·9	2·1	2·4
Mb	1·3	1·6	1·3	0·9	1·0
Mc	—	—	—	—	—
M	8·8	10·0	8·1	6·4	7·1
B, A, F,	52·3	51·7	50·9	47·6	48.8
G, K, M	47·7	48·3	49·1	52·4	51.2

General remarks regarding the distribution of stars:

I. According to galactic latitude:

The effect of the galactic zone $\pm 30^0\ \beta$ is shown in the following table:

Table VIII.

Spectr. class:	Mag. 4·0 and brighter			Mag. 4·01—5·0			Mag. 5·01—6·0		
	Total	$\pm 30^0\ \beta$	%	Total	$\pm 30^0\ \beta$	%	Total	$\pm 30^0\ \beta$	%
O	4	4	100	5	5	100	15	15	100
B	92	82	89·1	182	164	90·0	321	290	90·3
A	106	53	50·0	253	152	60·0	1032	704	68·3
F	38	24	63·1	91	48	52·8	344	192	55·8
G	42	25	59·5	115	71	61·7	308	170	55·2
K	133	74	55·6	274	161	58·8	1057	587	55·5
M	40	28	70·0	102	50	49·0	270	145	53·7
Σ	455	290	63.7	1022	651	63·7	3347	2103	62·8

Spectr. class:	Mag. 6·01—7·0			Mag. 7·0 and brighter		
	Total	$\pm 30^0\ \beta$	%	Total[2])	$\pm 30^0\ \beta$	%
O	24	24	100	48	48	100
B	531	521	98·1	1126	1057	93·9
A	3104	2284	73·6	4495	3193	71·0
F	1082	602	55·7	1555	866	55·6
G	1178	625	53·1	1643	891	54·2
K	3380	1935	57·2	4844	2757	56·9
M	637	381	59·8	1049	604	57·6
Σ	9936	6372	64·1	14760	9416	63·8

For classes *B* and *A* the known accumulation in the nearness of the Milky Way is clearly shown. As regards the magnitude classes 4·1—5·0, 5·1—6·0, 6·1—7·0 the percentage increases in the classes *B* by 8·1%, in *A* by 13·6%, in *F* by 2·9%, in *M* by 10·8% and decreases in *G* by 8·6%, in *K* by 1·6%. All stars *O* are in the galactic zone.

[2]) The total number of the stars of this table differs from that of table VI. and X. by 48 stars: This difference is caused by another way of computing the numbers for the individual classes. However, this mistake has not a noticeable influence on the results.

The accumulation of stars in the galactic zone for individual spectral subdivisions by the table IX may be shown:

Tab. IX.

Subdivisions	Total	$\pm 30^0\ \beta$	%	Subdivisions	Total	$\pm 30^0\ \beta$	%
B0	87	86	98·8	B8	572	493	86·2
B1	57	56	98·3	B9	784	653	83·3
B2	106	101	95·3	A0	1687	1155	68·7
B3	511	487	95·3	A2	982	614	62·5
B5	365	327	87·8	A3	470	278	59·1
A5	423	255	60·3	F5	746	394	52·8
F0	708	397	56·1	F8	353	205	58·1
F2	424	214	50·5	G0	544	292	53·7
G5	1134	604	53·3	K5	539	326	60·5
K0	3108	1755	56·5	Ma	352	193	54·8
K2	602	398	66·1	Mb	157	84	53·5

The distribution of the stars of mag. 6·0 and brighter, 6·01—7.0 and 7·0 and brighter on both hemispheres is evident from the following tables X and XI from which the first table gives the numbers and the second the percentages of the total number of stars for every spectral subdivision.

Table X.

Mag. / Spectral class	6·0 and brighter		6·01—7·0		7·0 and brighter	
	Hemisphere		Hemisphere		Hemisphere	
	N	S	N	S	N	S
O	8	16	8	16	16	32
B	219	378	195	345	414	723
A	680	704	1460	1636	2140	2340
F	202	269	569	507	771	776
G	227	234	562	605	789	839
K	675	786	1660	1708	2335	2494
M	200	205	329	309	529	514
Σ	2211	2592	4783	5126	6994	7718

Table XI.

Spectral class \ Mag.	6·0 and brighter		6·01—7·0		7·0 and brighter	
	Hemisphere		Hemisphere			
	N	S	N	S	N	S
O	33·3	66·7	33·3	66·7	33·3	66·7
B	36·7	63·3	36·1	63·9	36·5	63·5
A	49·1	50·9	47·2	52·8	47·8	52·2
F	42·9	57·1	53·0	47·0	49·8	50·2
G	49·2	50·8	48·2	51·8	48·5	51·5
K	46·2	53·8	49·3	50·7	48·3	51·7
M	49·4	50·6	51·6	48·4	50·7	49·3
Total	46·0	54·0	48·3	51·7	47·6	52·4

The distribution of the stellar density of the stars of mag. 7·0 and brighter according to spectral classes in areals of 10° latitude, *reduced on 100 square degrees* is shown in the table XII, and in the accompanying diagrams No I and II.

Table XII.

The star-density and the galactic latitude.

Spect. class \ Mean β	+85°	75°	65°	55°	45°	35°	25°	15°	5°	—5°	15°	25°	35°	45°	55°	65°	75°	85°	Mean density
B	0·0	0·0	0·2	0·2	0·1	0·2	1·5	2·9	7·0	11·4	5·6	2·0	0.7	0·6	0·2	0·5	0·3	0·3	1·9
A	8·0	5·3	6·6	5·7	6·6	7·9	10·5	14·0	17·3	21·4	16·3	12·4	7·0	6·6	5·8	4·2	4·1	3·9	9·1
F	3·2	3·5	3·7	3·0	3·5	3·9	3·9	3·6	4·3	4·8	4·1	4·2	3·2	3·3	3·5	2·4	3·1	2·2	3·5
G	4·5	2·9	3·2	3·2	2·9	4·0	4·3	3·9	4·5	4·7	3·9	4·5	3·8	3·8	4·0	4·1	3·2	1·6	3·7
K	9·3	9·3	8·0	9·0	9·8	10·0	12·1	13·8	14·0	14·3	13·3	12·3	10·7	10·7	9·4	12·7	12·9	8·7	11·1
M	1·3	1·7	2·3	2·0	2:8	1·8	3·0	2·6	3·4	3·5	2·8	2·3	1·4	1·3	1·8	1·7	1·6	1·6	2·2

II. According to galactic longitude:

It was emphasized by *Nort* (*The Harvard Map of the Sky, Recherches astronomiques de l'Observatoire d'Utrecht* VII, 1917 pag. 117) that the study of distribution of the stars according to galactic longitude is wanted. Nort quotes Eddington's words (*Stellar Movements* p. 196).

I have also studied this question on the basis of my material. I have used for the spectral classes *B*, *G*, *M* areals with 40° in longitude, for the classes *A*, *F*, *K* areals with 30° in longitude and three zones of gal. latitude: + 90°

to + 20°, ± 20°, — 20° to — 90°. The results, where the density is reduced on 100 *square degrees*, are in the tables XIII and XIV and in the diagrams Nos III, IV, V.

Table XIII.

The star-density and the galactic longitude.

Spectr. class	Mean λ / Zone	20°	60°	100°	140°	180°	220°	260°	300°	340°	Mean density	Mean
B	+ 90° to + 20°	0·4	0·4	0·3	0·2	0·4	0·5	0·8	1·1	0·3	0·5	2·8
	± 20°	5·9	5·6	4·0	8·3	9·5	11·2	7·4	9·5	3·3	7·2	
	— 20° to — 90°	0·9	0·6	0·9	2·0	1·1	0·7	0·3	0·7	0·7	0·9	
G	+ 90° to + 20°	3·6	3·1	3·2	3·9	3·2	4·5	3·1	4·4	3·4	3·6	3·9
	± 20°	4·2	3·6	5·2	4·3	4·8	3·8	4·8	3·6	4·1	4·3	
	— 20° to — 90°	3·5	4·1	3·9	3·3	3·9	4·2	4·6	3·9	4·2	3·9	
M	+ 90° to + 20°	3·2	2·6	1·7	2·5	2·1	2·5	2·0	1·6	3·0	2·4	2·9
	± 20°	5·0	3·6	1·7	2·6	3·1	4·0	2·9	2·6	2·2	3·1	
	— 20° to — 90°	2·3	2·5	1·7	1·8	1·3	2·3	2·1	2·9	2·5	2·2	

As it was possible to expect, the mean density in the galactic zone is more diffrent from that in the polar zones for the spectral classes *B* and *A* only, which show the evident tendency of accumulation to the Milky Way. For the other classes the differences in the density of the three zones are small (See the diagrams at the end of this paper).

Class B. In accordance with the distribution of stars on both the hemispheres, the mean density of the southern zone is greater by a small amount than the density of the northern one. There is no striking change in the course of density in both polar zones. In the northern zone the maximum 1.1 lies in the mean longitude 300° (constellations of Scorpius and Libra[3]), in

[3]) To compare the positions with the constellations, see the writer's paper „*The Maps of the Boundaries of the Constellations in the Galactic System of Co-ordinates*". (Publications de l'Observatoire National de Prague, No 5).

Table XIV.

The star-density and the galactic longitude.

Spectr. class	Mean λ / Zone β	15°	45°	75°	105°	135°	165°	195°	225°	255°	285°	315°	345°	Mean density	Mean
A	+ 90° to + 20°	7·8	9·6	6·7	7·6	7·2	8·6	8·2	6·2	7·9	7·1	6·6	8·2	7·6	
	± 20°	20·9	17·4	17·6	13·9	16·1	16·5	18·2	20·4	19·3	17·4	14·6	15·1	17·3	10.8
	— 20° to — 90°	7·4	6·4	7·0	8·6	8·9	9·7	7·2	7·8	7·0	4·9	6·3	8·4	7·5	
F	+ 90° to + 20°	3·6	4·0	3·8	4·7	5·7	3·6	3·2	2·7	3·6	2·0	3·5	3·0	3·6	
	± 20°	4·8	3·5	4·6	5·2	3·9	4·6	3·8	5·0	2·9	4·6	4·1	3·8	4·2	3.8
	— 20° to — 90°	3·5	2·9	4·5	3·7	4·4	2·8	3·1	3·9	3·5	3·5	2·8	3·1	3·5	
K	+ 90° to + 20°	12·0	10·4	10·4	9·1	10·5	9·4	9·1	9·5	10·8	10·4	8·8	9·6	10·0	
	± 20°	16·0	14·9	11·4	11·2	14·6	14·0	16·1	14·4	15·2	13·2	13·7	11·7	13·9	11·7
	— 20° to — 90°	9·8	9·5	12·4	8·6	10·9	10·1	14·9	10·1	11·9	13·0	12·5	11·0	11·2	

the southern zone the maximum 2·0 is in the mean longitude 140° (Taurus-Eridanus). Both values are only twice as great as the corresponding mean density. The maximum deviations from the mean density 7.2 are in the galactic zone. The maximum density 11·2 stars on 100 sq. degrees is in the mean longitude 220°, the minimum 3·3 lies at the mean longitude 340°. This *chief maximum* lies in the constellation of Argo Navis, the minimum in the part of sky with the constellations of Sagittarius, Serpens (pars poster.), Scutum, Ophiuchus and Aquila. The secondary maximum 9·5 is at the mean longitude 300°. This is caused chiefly by the stars in the constellation of Scorpius. The secondary minimum exists at the mean longitude 100° (4·0 on 100 sq. degrees) and is caused by the parts of sky in the constellation of Perseus, Auriga (Taurus). The maximum density of the southern polar zone 2·0 lies at the mean longitude 140°. It is caused by the stars in the region of Taurus-Eridanus-Orion. Minimum of density 0·3 in mean longitude 260° is caused by the regions of Octans, Apus, Pavo, which are poor in *B* stars.

Class A. The mean density of both the polar zones is almost the same, that of the galactic zone is more than twice as great. In the galactic zone there is *maximum* at the mean longitude 15° viz. 20·9 being the *maximum maximorum* in the distribution of stars down to mag. 7·0 according to longitude. The regions of Lyra, Cygnus and Vulpecula contribute to it. The secondary maximum 20·4 lies at mean longitude 225°. It is caused by the agglomeration of *A*-stars in the constellations of Vela, Carina, Centaurus. Minimum of density 13.9 is situated at the mean longitude 105°, being caused by a smaller number of the stars in question in the regions (partly) of Perseus and Auriga. In both polar zones the individual densities are only little different from the corresponding mean density.

Classes F and G. The number of stars of both classes *F* and *G* being almost the same, I have used intentionally the different zones of longitude: for *G*-stars 40° and for *F*-stars 30°. But the results for both classes are nearly the same. The mean density of the galactic zone and the mean densities of the polar ones are in both classes nearly equal. There is no striking fluctuation in the distribution of individual densities as regards the value of mean density.

Class K. There are no striking deviations in the values of density from the mean value in this class also. The mean density of the polar zones, 10·0 and 11.2 respectively, is the largest mean density of all polar zones of all the spectral classes. But the mean density of the galactic zone 13·9 is in this class smaller than in the class *A* (17·3). The maximum of the class *K*, 16·1 stars on the 100 sq. degrees lies in the galactic zone at the mean longitude 195°, and is caused by the accumulation of stars in the constellations of Puppis, Pyxis and Vela. The secondary maximum is at the m. long. 15° and it is caused by the accumulation of stars chiefly in the northern part of this zone in the constellations of Cygnus (partly Vulpecula and Lyra).

Class M. In this class there are also no striking differences in density. The mean density of all three zones is smaller than that of the *G*- and *F*-classes. The maximum density 5·0 is in the galactic zone, at the mean longitude 15° (where also the secondary maximum for *K*-stars lies). This is in the region of CYGNUS, VULPECULA, LYRA.

To illustrate the distribution of stars according to the galactic longitude and latitude simultaneously, the maps were constructed for every spectral class *B*, *A*, *F*, *G*, *K*, *M* and for each hemisphere. Moreover the maps for all stars of mag. 7·0 and brighter were designed. The method by which the whole work was made is the same as that used by *Schiaparelli*[4]) for the study of the distribution of the stars visible with the naked eye and by *Stratonov*[5]) for the stars of B. D. and Cape Ph. D. The sky is divided into 36 zones by circles of galactic latitude of the distance of 5°. Every zone is divided in spherical trapezoids (at the pole there is division in sectors). The circles of galactic latitude between $\beta = +50^0$ and -50^0 are marked for every 5° of longitude. The following zones, $\pm 50^0$ to $\pm 60^0$ are divided by 10° of longitude and the zones $\pm 60^0$ to $\pm 80^0$ by 15°. The zones $\pm 80^0$ to $\pm 85^0$ are divided into 8 areals and the polar zones into 4 areals of 90°. In this manner the sky is divided into 1800 individual areals.

To draw the maps of the *Atlas* annexed to this paper, the number of stars was deducted between $\beta = +80^0$ to -80^0 for every 4 neighbouring areals and between $\beta = \pm 80^0$ to $\pm 90^0$ for every areal. Then the density of the stars for these new areals *reduced on 100 square degrees* was ascertained and the numbers of density were indicated on the maps. Finally the lines of equal density were drawn and the regions of the same density were made conspicuous by the same shade of hatching. The number of stars for individual spectral classes being not too great and varying according to the class, it was not possible to use the same density scale on all the maps.

The limiting degrees of density are:

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[4]) *Publicaz. del R. Osserv. di Brera in Milano, No XXXIV.*

[5]) *Etudes sur la structure de l'Univers. Publications de l'Observatoire astronomique et physique de Tachkent, No. 2.*

Class: $B = B0 - A3$: 5, 10, 15. 20, 30.
$A = B8 - A3$: 10, 20, 30.
$F = A5 - F2$: 3, 6, 9, 12.
$G = F5 - G0$: 3, 6, 9, 12.
$K = G5 - K2$: 10, 20, 30.
$M = K5 - Mc$: 3, 6, 9.
All stars down to mag. 7·0 : 20, 30, 40, 50, 60, 70, 80, 90.

Description of the maps.

Spectral class B (maps 1 and 2). There are 414 stars on the northern galactic hemisphere and 723 on the southern hemisphere, or 36·5% and 63·5% respectively. The mean density reduced to 100 degrees is 2·7.

B-stars are distributed, as is well known, along the galactic equator. The zone of these, with smallest density at least 2·0, reaches on the northern hemisphere at the highest at $\lambda = 295^0$ to $\beta = 40^0$ (constel. Libra), at the lowest at $\lambda = 135^0$, $\beta = 5^0$ (Gemini) and in Serpens-Scutum ($\lambda = 325^0$ $\beta = 5^0$). On the southern hemisphere this zone is wider. The smallest latitude reached by it is 15^0 at $\lambda = 80^0$ in the region of Andromeda-Perseus and the lowest in Aries, Taurus, Eridanus ($\lambda = 105^0$, $125,^0$ 155^0) where it falls to $\beta = -50^0$. In this zone, to maximum latitude $\pm 50^0$, the greater part of the *B*-stars is situated. Only 7 stars of the northern hemisphere (1·7%) and 21 of the southern hemisphere (2·9%) have a latitude higher than 50^0. In addition to this connected zone, there are on both hemispheres isolated groups of a smaller number of stars. These reach on the n. h. to the $\beta = 70^0$ and on the s. h. as far as the pole. The s. h. is more filled up by the stars in this sense also. These isolated groups follow on the s. h. approximately the way from $\lambda = 335^0$ through the constellations Aquila, Capricornus, Pisc. Austr. and Sculptor to the pole. Another group of this kind is in the region of Equuleus , Pegassus and Pisces.

The *highest accumulations* of stars are: the *chief maximum* of the *north. h.* with the density 19·1 (19 stars in areal of 99·5 degrees) in he region of Norma and Scorpius ($\lambda = 285^0$ $\beta = 5^0$), then the agglomerations in Cepheus with density 16·0 (16 stars in areal of 99·5 sq. degrees) ($\lambda = 45^0$ $\beta = 5^0$) and in Cygnus with density 11·0 (22 stars in areal of 199 sq. d., $\lambda = 15^0$ to 25^0, $\beta = 5^0$). The *chief maximum* of *the southern hemisphere* and simultaneously the *maximum maximorum* of both the hemispheres, 47 stars in the areal of 99·5 sq. d. (density 47·3) lies in the constellation Vela ($\lambda = 205^0$ $\beta = -5^0$). Other accumulations are: in Canis Maior-Puppis with density 41·2 (41 stars on 99·5 sq. d., $\lambda = 185^0$ $\beta = -5^0$), 31·1 and 28·0 in Orion (57 stars on 199 sq. d.), mean $\lambda = 150^0$ $\beta = -15^0$. There are some accumulations in Perseus and in the region of Lacerta and Andromeda also.

The parts of sky with a small number of stars, irrespective of the parts round the poles, are the following: on the northern hemisphere at $\lambda = 320^0$ to 345^0 in the constellation of SAGITTARIUS, OPHIUCHUS, SERPENS where also SHAPLEY[6]) found few stars of the mag. 5·25—6·25 (he ascribes this decrease of density to the dark nebulae in OPHIUCHUS and SCORPIUS), on the southern hemisphere in region $\lambda = 330^0$ to 345^0, $\beta = -5^0$ in SCUTUM and AQUILA.

The general character of the northern hemisphere is that the density about 10 and over is more numerous in the part at $\lambda = 355^0$ to 60^0 and $\lambda = 175^0$ to 300^0. On the southern hemisphere the zone of great accumulation of stars reaches from $\lambda = 90^0$ to 245^0 and in some places from $\lambda = 35^0$ to 55^0.

The galactic concentration in $\beta = \pm 30^0$ is clearly shown in table VIII and increases with the higher class of magnitude. The total amount of increase in stars of mag. 4·1—5·0 to 6·1—7·0 is 8·1%.

Spectral class A (*maps 3 and 4*). The number of stars on the n. h. is 2140 and on the s. h. 2340 (47·8%, 52·2%) so that a striking preponderance of the southern hemisphere does not exist. The mean density reduced on 100 sq. degrees is 10·9.

The distribution of *A*-stars is, generally speaking, uniform on both sides of the galactic equator, except the galactic region. But not even in this part do striking accumulations exist. The course of the lines of equal density has on both the hemispheres the following general character: the line of density 10·0 divides the hemisphere into two parts; in the one, in the direction toward the galactic equator, where all the densities are higher than or equal to 10·0 and in the second in the direction toward the poles. In this part the densities are, on the whole, lower than 10·0, except some isolated groups. In the proximity of the poles, chiefly of the north pole, there exist places of density 20·0 also. Thus the line of density 10·0 makes nearly the boundary to which the influence of the galactic zone reaches.

Northern hemisphere: The *chief maximum* lies in CYGNUS ($\lambda = 25^0$ $\beta = 5^0$) with density 34·2, number of stars 34 on 99·5 sq.degrees. Other accumulations are: the second maximum in CYGNUS with density 29·1, in PUPPIS (dens. 27·1), in CEPHEUS (dens. 27·0) etc.

Minima: There do not exist here any large parts of sky with densities under 5·0. The smalls parts are situated chiefly in HERCULES, LIBRA and OPHIUCHUS, near the pole from $\beta = 60^0$ and in LEO.

Southern hemisphere: The *chief maximum* of both the hemispheres lies in the region of VELA-CARINA with density 38·2 (38 stars on 99·5 sq. d.), with the centre of the region at $\lambda = 235^0$ $\beta = -5^0$, in CYGNUS ($\lambda = 35^0$ $\lambda = -5^0$), in ARIES-

[6]) *Harvard Circular 239 (1922).*

Taurus ($\lambda = 105^0$ $\beta = -25^0$) and in Monoceros ($\lambda = 165^0$ $\beta = -5^0$); the densities of these accumulations are 36·1, 34·2 and 32·1 respectively.

Minima: The densities smaller than 5 stars on 100 sq. d. and descending to zero exist in the region from the line of density 10 to the pole. The poorest parts are in Sculptor and Cetus and in the vicinity of the pole.

It is clearly shown that the greatest number of accumulations of *A*-stars is situated near the galactic equator. The galactic concentration is shown by the table VIII and increases with the higher class of magnitude, total amount of increase being from stars of mag. 4·1—5·0 to class 6·1—7·0 13·6%.

Spectral class F (maps 5 and 6). There are of this class 771 stars on the northern hemisphere and 776 on the s. h. viz. 49·8% and 50·2% respectively. The mean density reduced on 100 sq. degrees is 3·7.

The general character of these maps is quite different from those of *A*-stars. Here exist chiefly smaller parts of sky delimited by the lines of the same density.

The *maximum* of the *n. h.* 12·6 lies in Cancer ($\lambda = 140^0$ $\beta = 45^0$) where 9 stars on 70·6 sq. d. exist. Another accumulation with density 12·0 (10 stars on 81·8 sq. d.) is also in Cancer ($\lambda = 145^0$ $\beta = 35^0$). Near the pole in Coma, there is an areal with density little greater than 10.

The *maximum density* of the *southern hemisphere*, 23·1 (viz. 21 stars on 90·5 sq. d.) lies at $\lambda = 125^0$ $\beta = -25^0$ in Taurus. Another agglomeration with 12 stars on 99.5 sq. d. is in Aquila ($\lambda = 345^0$ $\beta = -5^0$).

Near the southern pole exist local densities smaller than the ones around the north pole and nowhere do they exceed a density of 7 stars on 100 sq. d.

Minima: The areals where no one star of this class was ascertained, are on both the hemispheres chiefly in the vicinity of the poles, beginning with $\beta = \pm 80^0$. The influence of the galactic zone is here not evident. In the zone $\pm 30^0$ (see table VIII) the number of stars of mag. 4·0 and brighter is greater in this class by 13% than in the class *A* for the same magnitude, but it diminishes for mag. 4·0—5·0 and holds good for the other classes of magnitude on 55% of total number. But of the total number of stars of mag. 7·0 and brighter, the number of *F*-stars in this zone is by 15·4% smaller than for the *A*-stars. The subdivision *A5* in the galactic zone (see table IX) has practically the same number as *A3* (60·3% and 59·1% respectively).

Class G (maps 7 and 8). The number of stars of this class is a little greater than that of the *F*-stars. On the northern hemisphere there are 789 stars and on the southern 839, so that the s. h. has a numerical superiority of 3%. The mean density is 4·0. The general appearance of these maps is similar to that of *F*-stars. Similarly the density near the northern pole is greater than that around the south pole. There are on both hemispheres chiefly smaller

regions delimited by the lines of equal density, and large parts of this kind practically do not exist.

The *maximum* of density of the *north. h.*, 15·2 on the 100 sq. d. (3 stars on 19.7 sq. degrees) exists near the pole ($\lambda = 300^0$ $\beta = 85^0$) in COMA. The density of 12·0 (viz. 10 stars on 81·8 sq. d.) is in the constellation of HYDRA in the direction of the constellation of CORVUS ($\lambda = 235^0$ $\beta = 35^0$). Besides these, some places exist with density above the mean. The parts of the sky poor in stars are near the pole and in the region of VIRGO — LEO (centre $\lambda = 255^0$ $\beta = 80^0$), URSA MAIOR-HERCULES (partly) — DRACO (centre $\lambda = 60^0$ $\beta = 40^0$), LEO-SEXTANS ($\lambda = 90^0$ $\beta = 50^0$) and in some other places.

The *southern hemisphere* differs from the northern one in that near the pole the local densities and the total density also are smaller; moreover the maximum density is here lower than on the north. hemisph.

The *maximal accumulation* 12·0 lies in the region of PERSEUS-AURIGA ($\lambda = 105^0$ $\beta = -5^0$). The regions poor in stars are near the pole, chiefly in the part from $\lambda = 315^0$ to 135^0 and at some places particularly in low latitudes.

The number of stars in the zone $\beta = \pm 30^0$ mag. 4·0 and brighter is by 9·5% greater and for mag. 4·0—5·0 by 1.7% greater than for *A*-stars, (table VIII) but falls to 53·1% for stars of mag. 6·0—7·0. For the total amount of *G*-stars down to 7·0 mag. this number is by 16·8% lower than in class *A*. For individual spectral subdivisions the number of stars in the galactic zone in table IX is given. I was not able to ascertain whether the percentage of accumulation in $\beta = \pm 30^0$ of the *F8*-stars (58·1%) that is higher than that for subdivisions *F5* and *G0* is real or whether it is caused by the small number of stars in question.

Class K (*maps 9 and 10*). There are on the northern hemisphere 2335 stars and on the southern 2494, being 48·3% and 51·7% respectively. The mean density is 11·7.

Northern hemisphere. The *chief maximum* of this hemisphere with density 24.1 is in PUPPIS-PYXIS ($\lambda = 195^0$ $\beta = 5^0$). Other accumulations are: in AURIGA ($\lambda = 125^0$ $\beta = 15^0$) with density 23·8 (23 star son 96·5 sq. d.), in CYGNUS, with density 23·1 ($\lambda = 15^0$ $\beta = 5^0$) in the region of ANTLIA-VELA ($\lambda = 215^0$ $\beta = 15^0$) with density 21·7 (21 stars on 96·5 sq. d.).

The regions of this hemisphere poor in stars are near the pole, where the density falls to 5·0 on 100 sq. d. and where there occurs also an areal with the zero-density (COMA). Besides this, there are low densities, about 5 stars on 100 sq. d. in some parts of the constellation of URSA MAIOR and in BOOTES.

Southern hemisphere: The accumulations are: the *chief maximum* of the whole sphere for *K*-stars, with density 30·4 (viz. 6 stars on 19·7 sq. d.) in the constellations of CETUS-SCULPTOR ($\lambda = 45^0$ $\beta = -85^0$), in the region of MICROSCOPIUM-PISC. AUSTRINUS ($\lambda = 315^0$ $\beta = -45^0$) with density 28·3

(20 stars on 70·6 sq. d.), in CARINA ($\lambda = 205^0$ $\beta = -25^0$) with density 28·7 (26 stars on 90.5 sq. d.) etc. The areals poor in stars are distributed over the whole hemisphere.

The number of stars in the zone $\beta = \pm 30^0$ (table VIII) for the mag. class 4·0 and brighter and for mag. 5·1—6·0 is 55·6% of the total amount of *K*-stars, viz. by 5·6% higher than in the class *A*; for mag. 4·1—5·0 it is a little smaller than for mag. class 4·0 and for the class 6·1—7·0 lower than for mag. 5·1—6·0. For the total amount of stars down to mag. 7·0 this number is by 14·1% higher than for class *A*.

Class M (*maps 11 and 12*). On the northern hemisphere there are 529 stars and on the southern 514, viz. 50·7% and 49·3% respectively. The mean density reduced on 100 sq. d is 2·5.

Northern hemisphere: The *maximum* of density, 11·2 (8 stars on 70·6 sq. d.) lies in HERCULES ($\lambda = 5^0$ $\beta = 45^0$). Near the pole there is density 10·1 (2 stars on 19·7 sq. d.) in the constellation of COMA. Apart from these two accumulations, the densities 7 to 9 are near the galactic equator. The regions poor in stars are chiefly near the pole.

Southern hemisphere: Here the densities are lower than those on the northern hemisphere. The *maximum density* 9·0 (9 stars on 99·5 sq. d.) is in CYGNUS ($\lambda = 35^0$ $\beta = -5^0$) and in CARINA ($\lambda = 235^0$ $\beta = -5^0$). Some other accumulations have density between 7 and 9 stars on 100 sq. d.

Around the pole and in numerous places of the hemisphere there are densities under the mean. Similarly as on the northern hemisphere the higher densities (7.0 and more) are chiefly in latitude of -5^0.

The number of stars of this class in the zone of $\beta = \pm 30^0$ (table VIII) of the mag. 4·0 and brighter being 70%, for stars of mag. 4.0—5.0 it drops to 49%, for mag. 5·0—6·0 to 53·7%, for 6·0—7·0 to 59·8%, and for all the stars down to mag. 7·0 it is 57·6%. These percentages, viz. for the stars down to mag. 4·0, for 6·1—7·0 and for stars of mag. 7·0 and brighter are the greatest except classes *B* and *A*. The *M*-stars mag. 4·0 and brighter are thus strongly concetrated to the M. W. This fact. *Shapley* has found for *Ma* and *Mb* stars fainter than the eight magnitude (*Harvad Circular* 245). From the numbers of stars *Mb*, (see table I pag.11.), it is clearly seen that the stars of this subdivision do not have maximum number in areal of the mean latitude 0^0, but are more numerous between latitude $+30^0$ and $+10^0$. *Shapley* has found the same for *Ma* stars brighter than the eight magnitude and between latitudes -10^0 and $+30^0$. (*Harvard Circular* 245).

All stars down to mag. 7·0 (*maps 13 and 14*). There are on the northern hemisphere 6994 stars and 7718 on the southern one, viz. 47·6% and 52·4% the southern hemisphere having the predominance by 4·8% only. The mean density is 35.6 on 100 square degrees.

The maps show, as is clear, the summary of all the preceding ones.

Northern hemisphere. The *chief maximum* with density 79·4 (79 stars on 99·5 sq. d.) lies in constellation CYGNUS ($\lambda = 15^0$ $\beta = 5^0$), this constellation being here the centre of accumulation, as is well known from STRATONOV's work and from other studies. Near the chief maximum the secondary one exists with density 78·4. Other accumulations are in the region of PYXIS-VELA-CRUX with density 70·4 in CRUX ($\lambda = 245^0$ $\beta = 5^0$, viz. 70 stars on 99·5 sq. d.), in SCORPIUS with the same density ($\lambda = 285^0$ $\beta = 5^0$) and with 67·3 in VELA ($\lambda = 225^0$ $\beta = 5^0$).

The *minimum density* is at the pole in COMA BERENI with density 6·8 (2 stars on 29·3 sq. d.) at $\lambda = 345^0$ $\beta = 80^0$. Another minimum lies in the region of the constellations of CORONA BOR.-HERCULES (density 8·5 viz. 6 stars on 70·6 sq. d.). There do not exist any large regions of sky poor in stars. But the reason for this fact may be that the densities are calculated on the basis of the number of stars from chiefly 4 neighbouring areals.

Southern hemisphere: On this hemisphere, the course of degrees of density is more complicated. Except the *G*-and *M*-stars, having a maximum of density on the northern hemisphere, the maxima of other classes lie on the southern hemisphere. That is why the greatest accumulations of stars to mag. 7·0 are situated also on this hemisphere. The agglomerations are at a small latitude $\beta = -5^0$ chiefly on symmetrical places to these on the northern hemisphere. The *chief maximum* with density 95·5 stars on 100 sq. d. (95 stars on 99·5 sq. d.) lies at $\lambda = 205^0$ $\beta = -5^0$ in the region of PUPPIS-VELA. Here, in the region of the constellation of ARGO some other accumulations, known also by the works of other authors, exist: density 93.5 ($\lambda = 185^0$ $\beta = -5^0$) and 86·4 ($\lambda = 195^0$ $\beta = -5^0$), in the region of CANIS M.-PUPPIS and PUPPIS-VELA, 85·4 and 80·4 ($\lambda = 235^0$ $\beta = -5^0$ and $\lambda = 255^0$ $\beta = -5^0$) in the constellation of VELA-CARINA, 79·4 ($\lambda = 215^0$ $\beta = -5^0$) in VELA, 77·4 ($\lambda = 165^0$ $\beta = -5^0$) in the region of MONOCEROS-CANIS MAIOR. The second region of high densities lies between $\lambda = 355^0$ and $\lambda = 45^0$, viz. in the constellations of SAGITTA-VULPECULA, CYGNUS and LACERTA. The maximum density 76·4 is at the position $\lambda = 5^0$ $\beta = -5^0$ in VULPECULA, the second, with density 75·4 in LACERTA ($\lambda = 35^0$, $\beta = -5^0$).

Densities of about 10 and lower are here more numerous than around the north pole. This is chiefly in constellations SCULPTUR and CETUS, where the minimum of density of this hemisphere exists.

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Prague, Octobre 1928.

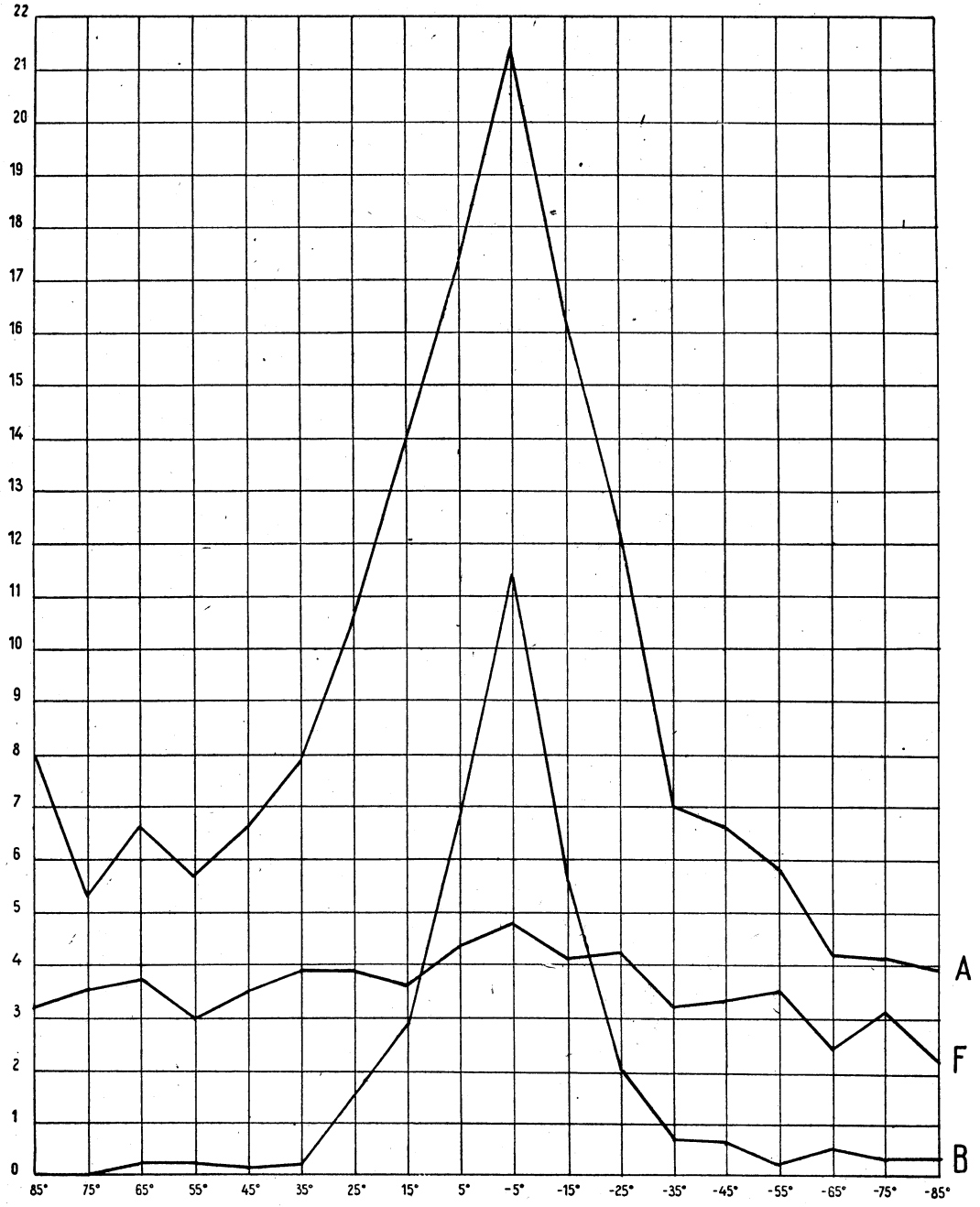

Fig. I. *Star density as function of galactic latitude.*
Abscissas are mean latitudes, ordinates are star-densities reduced on 100 sq. degrees.

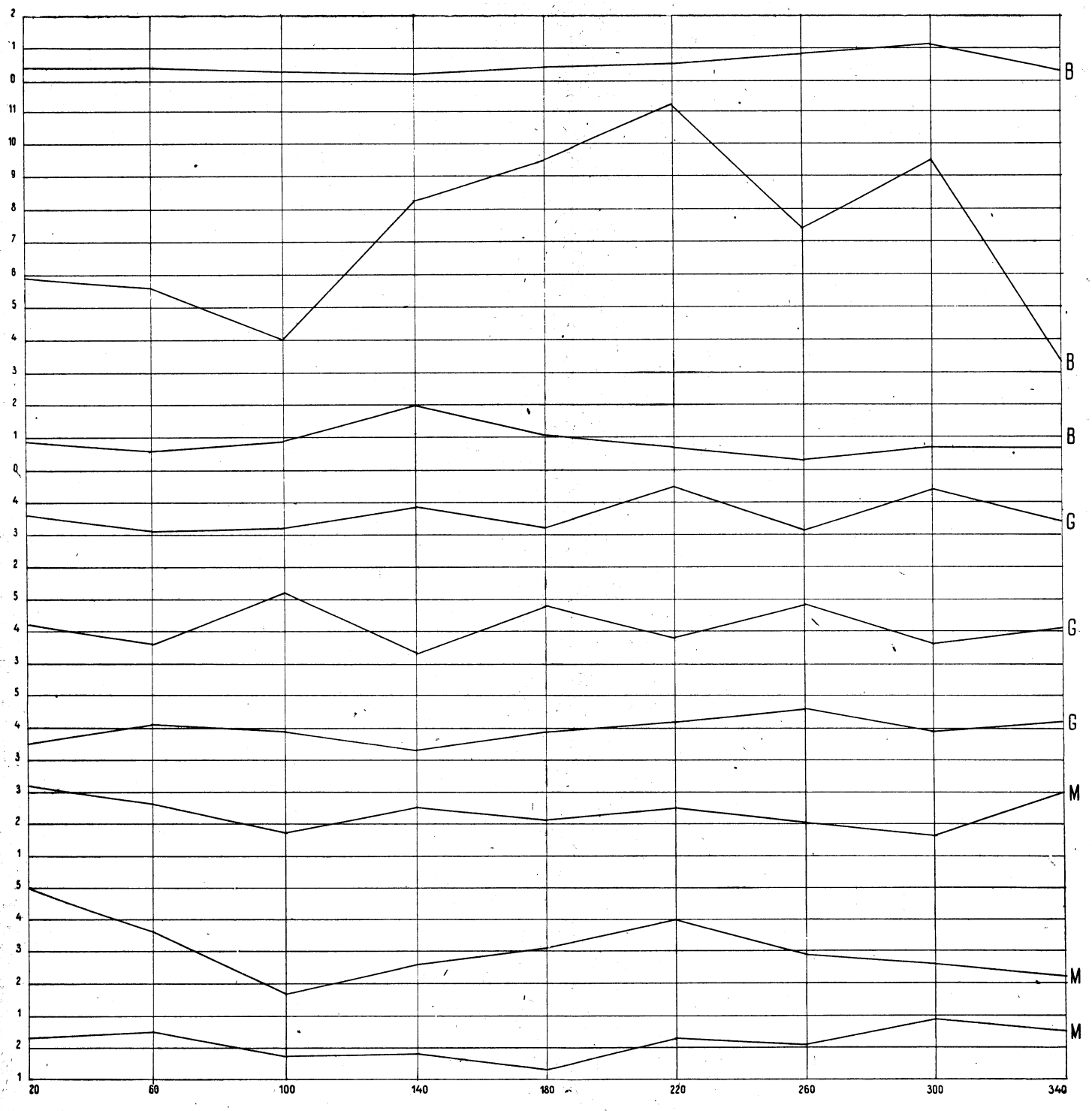

Fig. III. *Star density as function of galactic longitude in three zones of latitude (+ 90⁰ to + 20⁰, ± 20⁰, — 20⁰ to — 90⁰).*

Abscissas are mean galactic longitudes, ordinates are star-densities reduced on 100 sq. degrees.

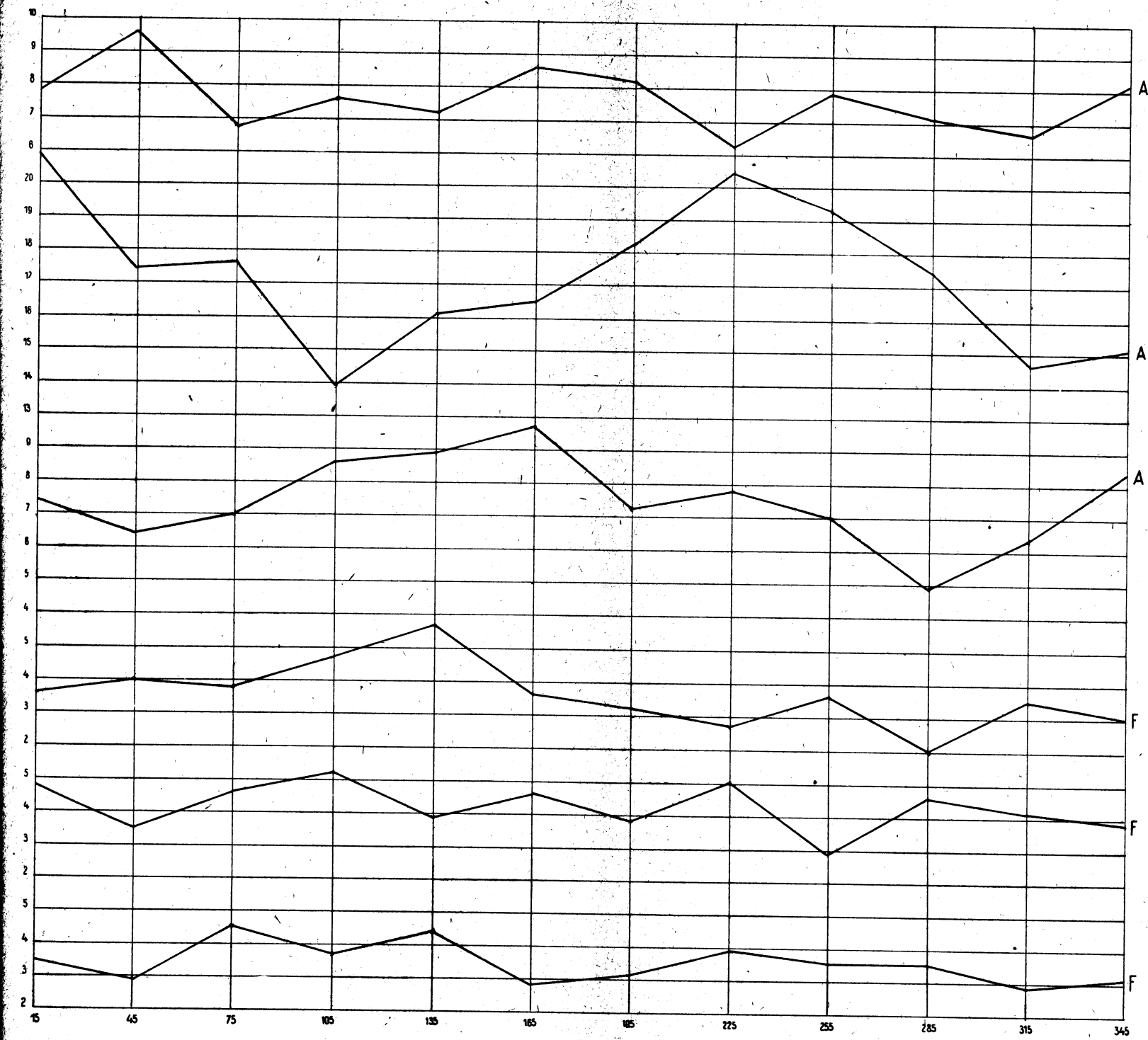

Fig. IV. *Star density as function of galactic longitude in three zones of latitude* ($+ 90^0$ *to* $+ 20^0$, $\pm 20^0$, $- 20^0$ *to* 90^0).

Abscissas are mean galactic longitudes, ordinates are star-densities reduced on 100 sq. degrees.

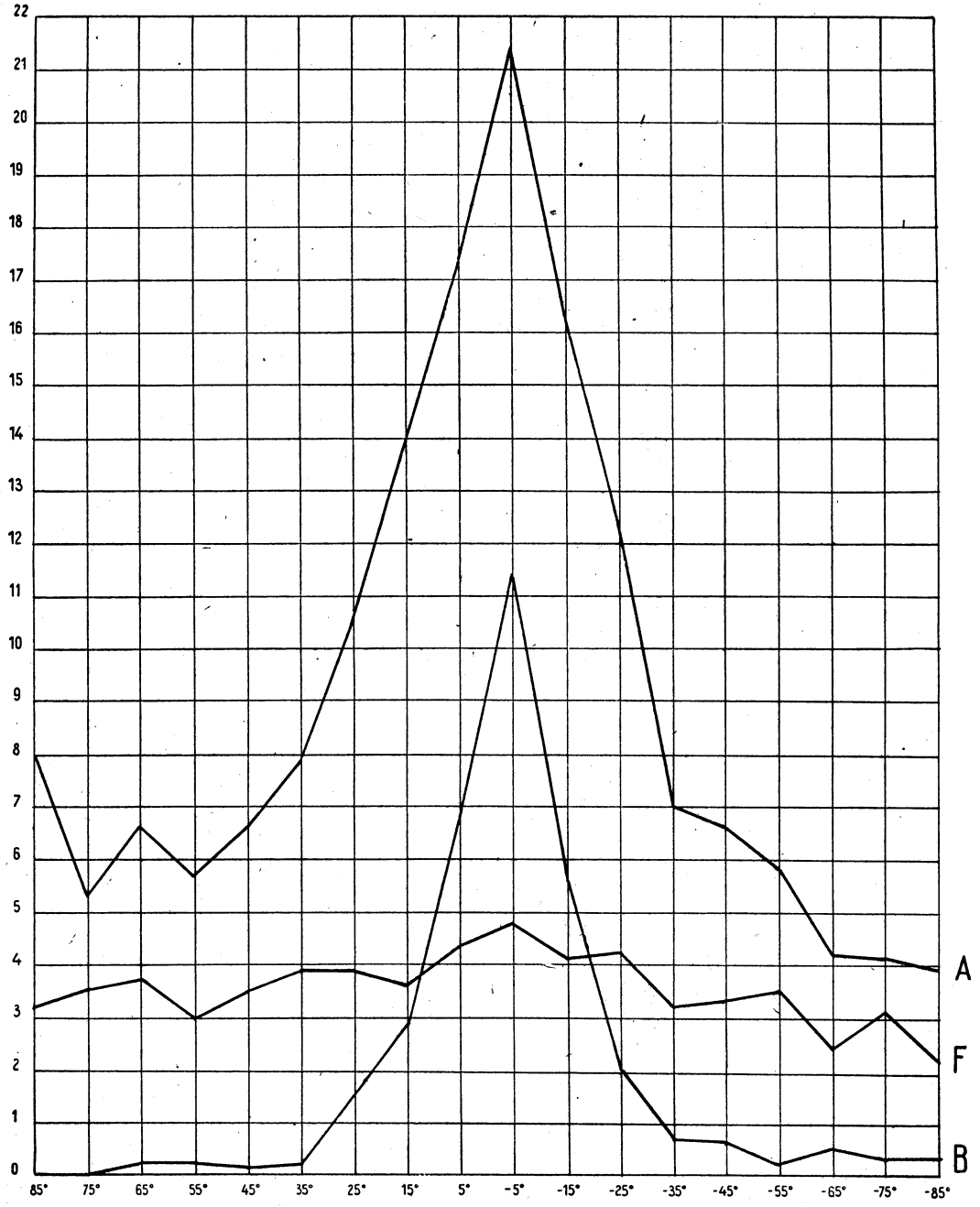

Fig. I. *Star density as function of galactic latitude.*
Abscissas are mean latitudes, ordinates are star-densities reduced on 100 sq. degrees.

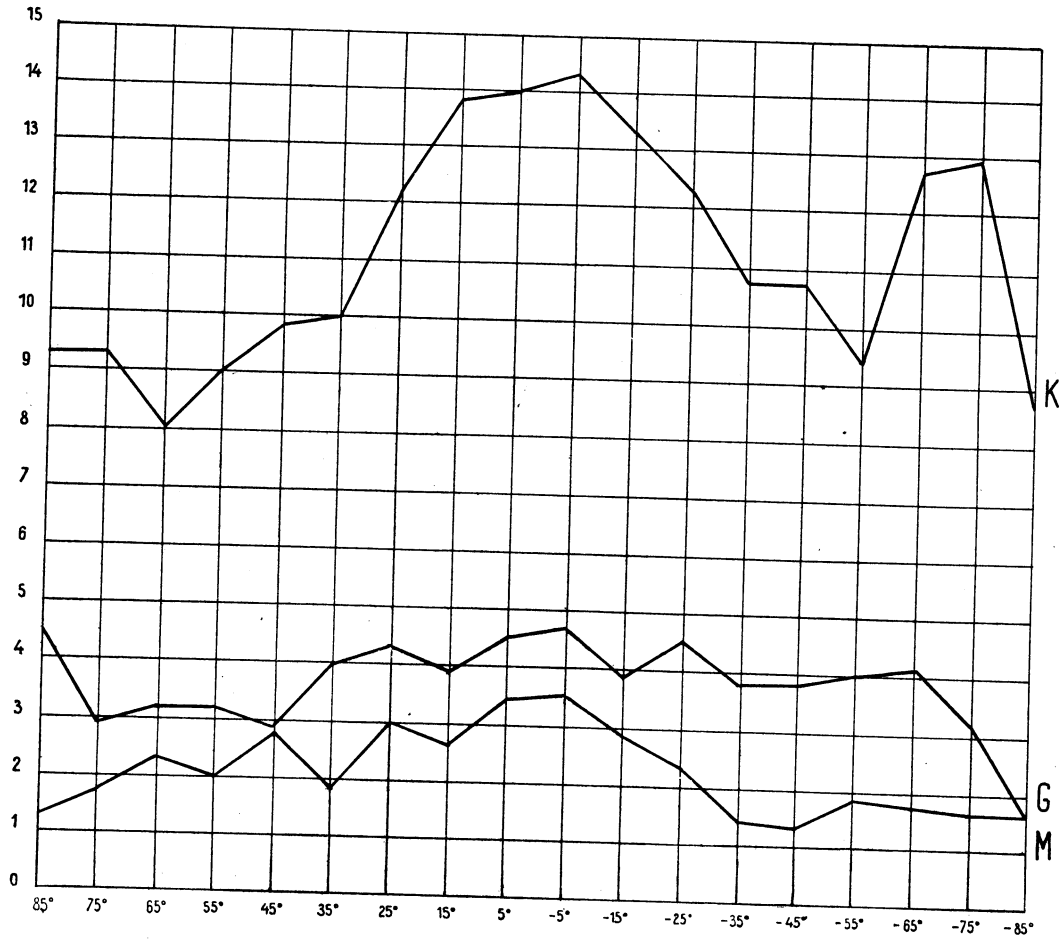

Fig. II. *Star density as function of galactic latitude.*
Abscissas are mean latitudes, ordinates are star-densities reduced on 100 sq. degrees.

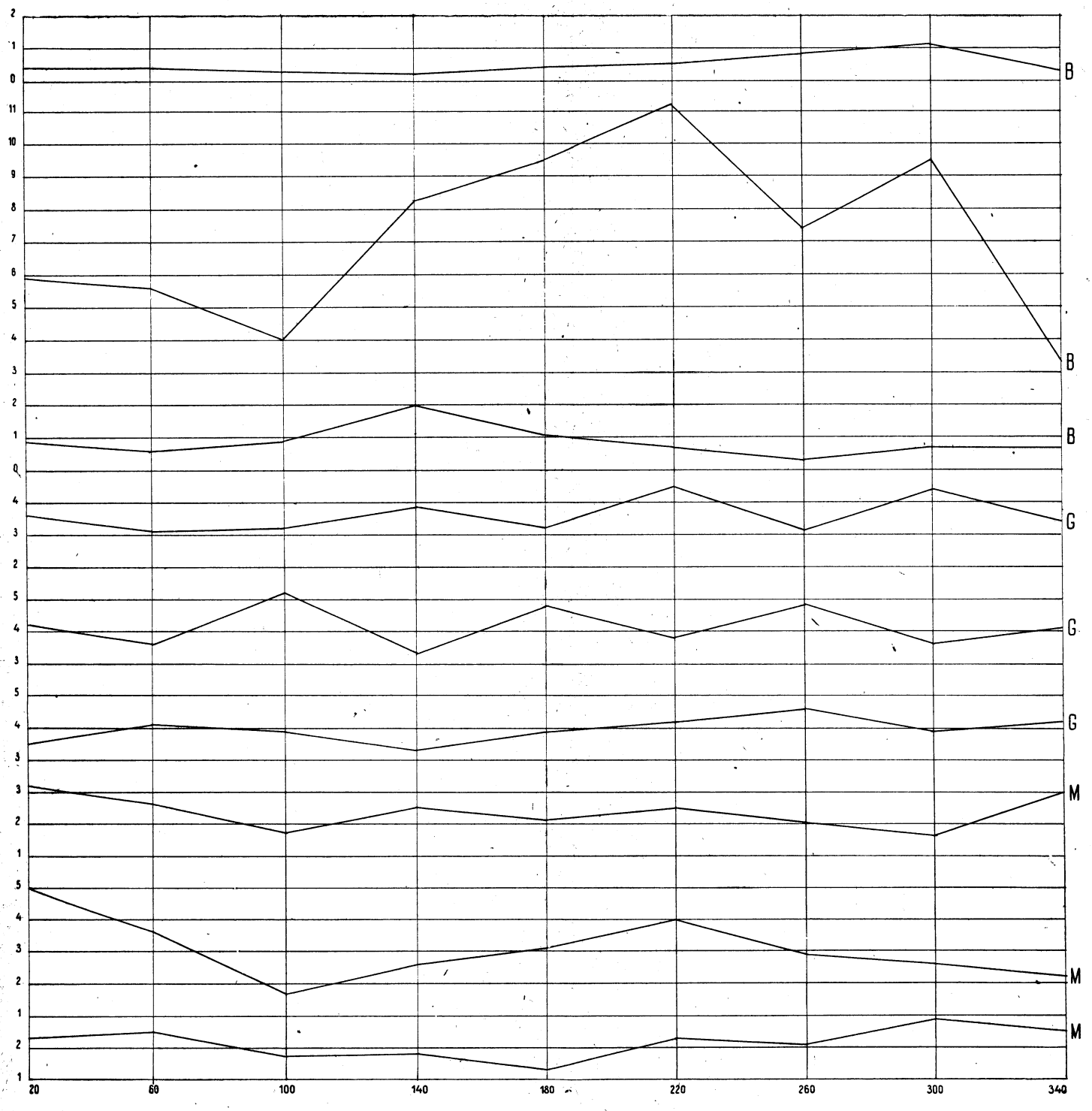

Fig. III. *Star density as function of galactic longitude in three zones of latitude (+ 90⁰ to + 20⁰, ± 20⁰, — 20⁰ to — 90⁰).*

Abscissas are mean galactic longitudes, ordinates are star-densities reduced on 100 sq. degrees.

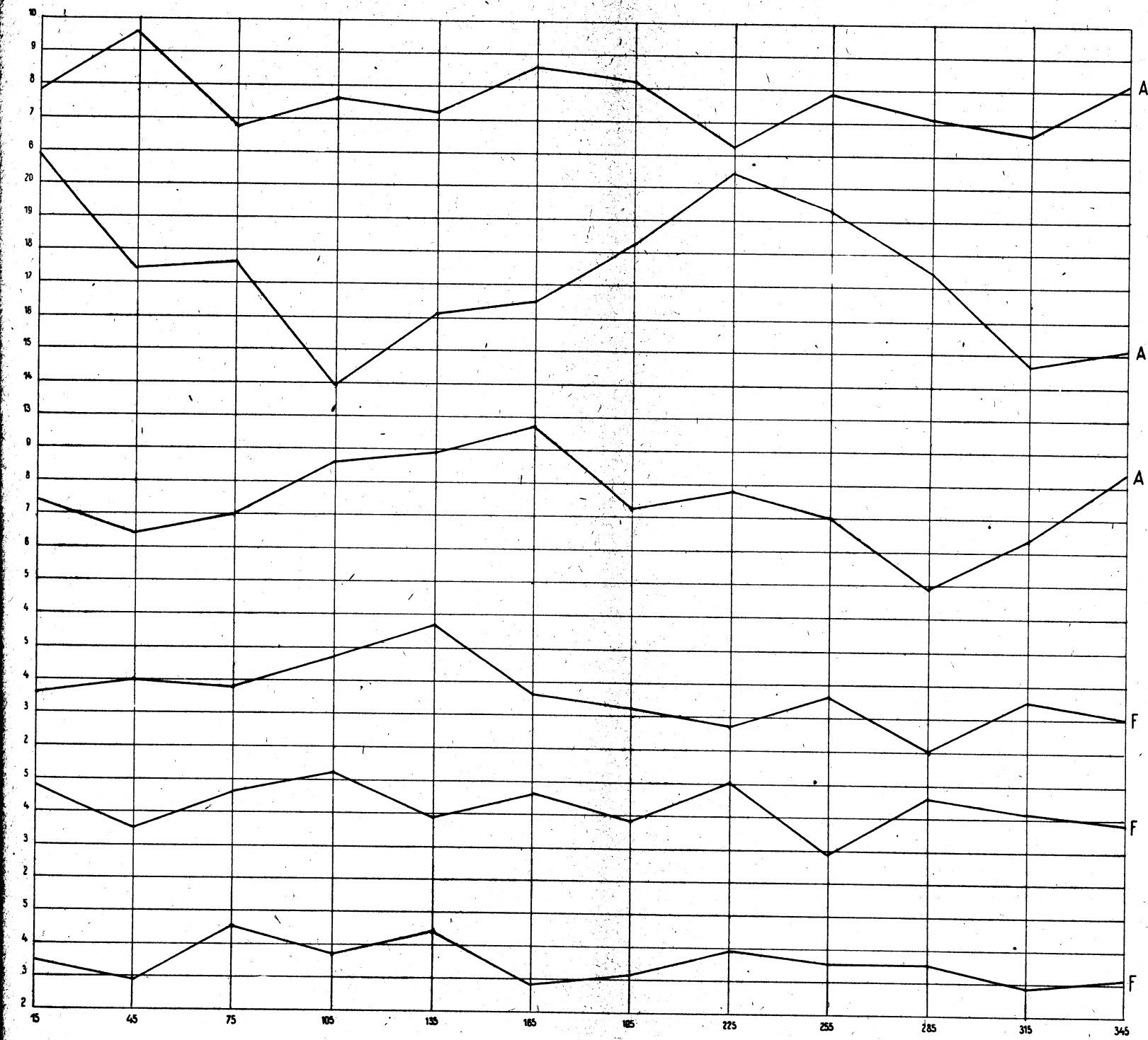

Fig. IV. *Star density as function of galactic longitude in three zones of latitude* ($+ 90^0$ *to* $+ 20^0$, $\pm 20^0$, $- 20^0$ *to* 90^0).

Abscissas are mean galactic longitudes, ordinates are star-densities reduced on 100 sq. degrees.