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Stellar Distribution
and
The Law of Chance

with a special discussion of the Paris Carte-du-Ciel Zone $\delta = +24^{\circ}$

By

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Abbreviations used:

T. P. = Publications de l'Observatoire Astronomique de l'Université de Tartu (Dorpat)

G. P. = Publications of the Astronomical Laboratory at Groningen

K. Mattiesen'i trükk, Tartus.

1. Introduction.

The following contains a study of the *irregularity of stellar distribution,* discussed from the standpoint of the theory of probabilities. The general character of the galactic phenomenon, i. e. in what concerns the variation of stellar number with galactic latitude, may now be regarded as established with sufficient precision through the researches made at Groningen and other observatories; an investigation of the deviations from the smooth curves representing the effect of galactic latitude may form a second step in studying the structure of our universe. One of the possible deviations, a supposed regular dependence upon the galactic longitude, will not be considered here; we shall confine ourselves only to a discussion of *local* deviations and irregularities.

The irregularity of stellar distribution in the Milky Way, where star-clouds are contrasted by coal-sacks almost devoid of stars, is well known; the men who contributed the most to the knowledge of these irregularities since the time of W. Herschel were E. E. Barnard and Max Wolf; generally, however, relatively little attention was paid to the phenomenon. In most cases only the *descriptive* method of investigation was applied, the observer's *impression* from visual observation or from a photographic plate being the only criterion. Under such circumstances it is not surprising that the majority of the dark markings of Barnard's list [1]) are near the Milky Way: "Their apparent preference for the bright regions of the Milky Way is obviously due to the fact that they are more readily shown with a bright background" [2]).

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1) *Astrophysical Journal,* **49** (1919), pp 14—17.

2) E. E. Barnard, *ibidem* p. 12. Of course, a real concentration of dark nebulae towards the Milky Way seems to exist, though in a much less degree than shown by the objects of Barnard's list.

Analytical methods of investigation seem to point at an irregularity of stellar distribution also outside the Milky Way, an irregularity which cannot be accounted for by accidental deviations; from a discussion of stellar distribution in the *B. D.* and in the *C. P. D.* W. Stratonoff arrived at the discovery of *star-clouds* into which appear crowded the brighter stars, represented by these catalogues[1]; the well-known *Taurus* region of extended obscuration was recently studied by F. W. Dyson and P. J. Melotte[2], and subsequently discussed by A. Pannekoek[3]. H. H. Turner has suggested the existence of a "spiral of obscuration" extending over the whole sky[4].

There may be two causes accounting for the observed irregularities, or for the areas devoid of stars: a) real variations of stellar density in space, i. e. real vacancies, holes or clusters of stars; were this the only cause, its importance in the study of stellar distribution would not be very great, since in this case the shape and dimensions of the *schematical* universe need not be altered; b) absorption of light by dark cosmic clouds; this factor is of fundamental importance, as the concluded dimensions and star-density of our universe depend directly upon the assumption as to the amount of absorption of light in space.

Probably both causes affect the apparent distribution of stars; absorption of light seems, however, to be by far the more conspicuous of the two.

There is a piece of work, undertaken by father J. G. Hagen at the Vatican Observatory, which does not deal directly with stellar distribution, but the purpose of which is in near relationship with our present investigation: this is the "Durchmusterung of the Heavens for Obscure Cosmic Clouds"[5]; in this *Durchmusterung* the density of obscure nebulae as observed in the field of a 16-inch refractor is estimated in a certain arbitrary scale; from the description the physical meaning of this scale is not quite certain, but in some way the estimates must be related to the integrated light of stars fainter than the limiting

1) Etudes sur la structure de l'Univers. *Publ. de l'Obs. de Tachkent* № 2, 3.

2) *Monthly Notices,* **80** (1919), pp. 3—7.

3) *The Distance of the Dark Nebulae in Taurus* etc. Amsterdam, 1920.

4) *Monthly Notices,* **75**. 465; **76**, 149 (1915).

5) Atti d. Pontificia Accad. Romana, 1922 and 1923; *Specola Astronomica Vaticana X.*

magnitude of the 16-inch refractor; probably only stars of magnitude 17 and fainter are affecting the estimates, brighter stars although invisible in the telescope being too far apart to produce a continuous background; since all star-counts refer to brighter stars, the results derived from the former are not directly comparable with the results of Hagen's Durchmusterung. On the other hand, the interpretation which Hagen gives to his observations is, maybe, too categorical; he pretends to *see* directly the dark clouds, neglecting the two alternatives of explanation mentioned above; this accounts, probably, for the circumstance that Hagen believes the dark nebulae to be crowded around the galactic poles; the low luminosity of the background of the sky near the galactic poles, hitherto attributed to a real (perspective) scarcity of stars in this direction, he apparently ascribes to a more powerful absorption. The methods of observation and the conclusions arrived at by father Hagen were criticized by K. Lundmark [1]), and in certain points this criticism may be regarded as valid. In any case a confirmation of Hagen's results by some kind of photometric measures must be awaited before any conclusions can be drawn.

It may be added that a useful bibliography relating to star-counts and stellar distribution is given by H. Nort [2]).

The star-counts discussed below were made by Miss M. Lukk.

Mr. A. Pohla repeated the counts for a few of the charts; Mr. P. Simberg and Mr. R. Livländer assisted in the preparation of the results for press.

2. Theory and Arrangement of Star-Counts.

The Paris *Carte-du-Ciel* Zone at $\delta = +24^0$, a complete copy of which our observatory possesses, was chosen as a sample object for discussion; for purposes of *absolute* stellar counts the *Carte-du-Ciel* charts are somewhat inconvenient on account of their non-homogeneity; but since our chief task will consist in comparing the density at different points of a very limited area of the sky, covered by a single chart, in our case the non-homogeneity of the series is of no consequence. From the standpoint of counting the *Carte-du-Ciel* presents the advantage that the triple

1) *Publ. of the Astr. Soc. of the Pacific*, № 200 (1922).

2) *Recherches Astronomiques de l'Obs. D'Utrecht* **VII** (1917).

exposures facilitate the discrimination between stars and defects of the plate.

Counted were stars on each chart within squares of $10' \times 10'$, corresponding to 4 squares of the *réseau*; the region outside the *réseau* was neglected; when the total number of stars on a chart approached or surpassed 4000, the chart was divided into 4 quadrants, each of which was treated independently, and stars were counted within *each* square of the *réseau*. In this way on each chart or on each quadrant of the rich charts stars were counted in 169 areas. The results of the counts, together with a special explanation, are given in table I at the end of this discussion. No subdivision according to classes of stellar magnitude was attempted.

Let N be the total number of stars counted on a chart [1]), ν — the number of equal areas into which the chart was subdivided ($\nu = 169$), $p = \frac{1}{\nu}$, r — the number of stars within one area (square), or the density of stars, π — the probability, and $n = n(r)$ — the average frequency of the density r; we have

$$\pi = \frac{N!}{r!(N-r)!} \; p^r (1-p)^{N-r} \quad . \; . \; . \quad (1)$$

and

$$n = \nu\pi \quad . \; . \; . \quad (2);$$

these formulae furnish the *theoretical distribution of the densities*, and may be compared with the observed distribution. With the aid of formulae (1) and (2) table 1 was computed with $\nu = \frac{1}{p} = 169$; for this purpose the following approximate formula was used:

$$\log n = r \log N - \log r! + (r-1) \log p + (N-r) \log (1-p) - $$
$$- 0.217 \, \frac{r(r-1)}{N} \quad . \; . \; . \quad (3).$$

It may be remarked that the densities r are too small to allow of substituting, instead of (1), a Gaussian.

If the chart is regarded as a part of an infinite area, having an average star -density ϱ, whereas the number N on a chart is

1) Not identical with the number given by the Paris authority.

subject to accidental variation, a somewhat different formula for π will be obtained:

$\pi = \frac{\varrho^r}{r!} e^{-\varrho}$ . . . (1′). As the true density is unknown, we may assume as its most probable value $\varrho = \frac{N}{\nu}$. The difference between (1) and (1′) is, however, too small to be of practical value, and in the following formula (1) was used.

With $r = 0$, formulae (1) or (1′) become

$$\pi_0 = (1 - p)^N, \text{ or}$$
$$\pi_0 = e^{-\varrho}.$$

The data of table 1 were not used directly, but the $n(r)$ for each r were plotted with the N as abscissae and smooth curves drawn: the theoretical values of $n(r)$ given in table I were read from these curves.

Table 1.

Theoretical frequency n(r) of the density r.

$\nu = 169.$

r	N									
	200	300	400	500	600	700	800	900	1000	1200
0	51.5	28.5	15.7	8.7	4.8	2.7	1.5	0.8	0.4	0.1
1	61.4	50.9	37.5	25.9	17.2	11.1	7.0	4.3	2.7	1.0
2	36.3	45.3	44.5	38.4	30.6	23.0	16.6	11.6	7.9	3.5
3	14.3	26.8	35.2	37.9	36.3	31.8	26.2	20.7	15.7	8.3
4	4.2	11.8	20.8	28.0	32.3	33.0	31.1	27.5	23.2	14.7
5	1.0	4.2	9.8	16.6	22.9	27.4	29.5	29.4	27.6	20.9
6	0.2	1.2	3.8	8.2	13.5	18.9	23.3	26.1	27.3	24.8
7	0.03	0.3	1.3	3.4	6.8	11.2	15.8	19.9	23.1	25.2
8	0.004	0.07	0.4	1.3	3.0	5.8	9.3	13.2	17.0	22.4
9	0.0006	0.01	0.1	0.4	1.2	2.6	4.9	7.8	11.2	17.7
10	—	0.002	0.02	0.1	0.4	1.1	2.3	4.1	6.6	12.5
11	—	0.0003	0.005	0.03	0.1	0.4	1.0	2.0	3.5	8.0
12	—	5.10^{-5}	0.0009	0.007	0.04	0.1	0.4	0.9	1.7	4.8
13	—	—	—	0.002	0.01	0.04	0.1	0·4	0.8	2.6
14	—	—	—	0.0004	0.003	0.01	0.05	0.1	0.3	1.3
15	—	—	—	7.10^{-5}	0.0006	0.003	0.01	0.05	0.1	0.6
16	—	—	—	—	—	—	0.004	0.02	0.05	0.3
17	—	—	—	—	—	—	0.001	0.005	0.02	0.1
18	—	—	—	—	—	—	—	0.001	0.005	0.04
19	—	—	—	—	—	—	—	0.0004	0.002	0.02
20	—	—	—	—	—	—	—	—	—	0.006
21	—	—	—	—	—	—	—	—	—	0.002
22	—	—	—	—	—	—	—	—	—	0.0006
Sum	168.9	169.1	169.1	168.9	169.2	169.2	169.1	168.9	169.2	168.9

Table 1. Continued.

r	N 1400	1600	1800	2000	2400	2800	3200	3600	4000
0	0.04	0.01	0.004	0.001	0.0001	10^{-5}	—	—	—
1	0.4	0.1	0.04	0.01	0.002	0.0002	2.10^{-5}	—	—
2	1.4	0.6	0.2	0.08	0.01	0.001	0.0002	2.10^{-5}	—
3	4.0	1.8	0.8	0.3	0.05	0.008	0.001	0.0001	2.10^{-5}
4	8.3	4.3	2.1	1.0	0.2	0.03	0.005	0.0008	0.0001
5	13.9	8.3	4.5	2.3	0.5	0.1	0.02	0.003	0.0005
6	19.2	13.1	8.1	4.6	1.3	0.3	0.06	0.01	0.002
7	22.8	17.7	12.4	7.9	2.6	0.7	0.2	0.04	0.007
8	23.6	20.9	16.5	11.7	4.7	1.5	0.4	0.1	0.02
9	21.7	22.0	19.5	15.4	7.4	2.8	0.9	0.2	0.06
10	18.0	20.9	20.9	18.2	10.5	4.6	1.6	0.5	0.1
11	13.5	18.0	20.1	19.6	13.6	7.0	2.8	1.0	0.3
12	9.3	14.2	18.0	19.4	16.2	9.6	4.5	1.7	0.6
13	5.9	10.3	14.7	17.6	18.1	12.3	6.5	2.8	1.0
14	3.5	7.0	11.1	14.9	18.0	14.5	8.8	4.3	1.8
15	1.9	4.4	7.9	11.8	17.1	16.1	11.2	6.1	2.8
16	1.0	2.6	5.2	8.6	15.1	16.7	13.2	8.1	4.1
17	0.5	1.4	3.3	6.0	12.6	16.3	14.8	10.2	5.7
18	0.2	0.8	1.9	4.0	9.9	14.9	15.5	12.1	7.5
19	0.1	0.4	1.1	2.5	7.4	13.0	15.4	13.6	9.4
20	0.04	0.2	0.6	1.4	5.2	10.8	14.6	14.5	11.1
21	0.02	0.08	0.3	0.8	3.5	8.5	13.2	14.7	12.6
22	0.006	0.03	0.1	0.4	2.3	6.4	11.3	14.2	13.5
23	0.002	0.01	0.06	0.2	1.4	4.6	9.3	13.2	13.9
24	0.0007	0.005	0.03	0.1	0.8	3.2	7.4	11.7	13.7
25	—	0.002	0.01	0.05	0.5	2.1	5.6	9.9	13.0
26	—	—	0.005	0.02	0.2	1.3	4.0	8.1	11.8
27	—	—	0.002	0.01	0.1	0.8	2.8	6.4	10.4
28	—	—	0.0007	0.004	0.07	0.5	1.9	4.9	8.8
29	—	—	—	0.002	0.03	0.3	1.2	3.6	7.1
30	—	—	—	0.0007	0.02	0.2	0.8	2.5	5.6
31	—	—	—	—	0.007	0.08	0.5	1.7	4.3
32	—	—	—	—	0.003	0.04	0.3	1.2	3.2
33	—	—	—	—	—	0.02	0.2	0.7	2.3
34	—	—	—	—	—	0.01	0.09	0.5	1.6
35	—	—	—	—	—	0.005	0.05	0.3	1.1
36	—	—	—	—	—	—	—	0.2	0.7
37	—	—	—	—	—	—	—	0.1	0.4
38	—	—	—	—	—	—	—	0.05	0.3
Sum	169.3	169.1	169.4	168.9	169.4	169.3	169.1	169.2	168.8

It is easy to show that almost all factors systematically influencing the observed stellar distribution, as absorption, clustering, non-uniform sensitiveness of the plate, etc, will result in producing a *positive excess*, i. e. the observed frequency of small or great densities will be greater than the theoretical frequency, whereas intermediate densities will be less frequent: the effect of each of the factors mentioned above may be represented as a superposition of two or more curves (error-curves) like those given in table 1. In fact only about $\frac{1}{3}$ of the charts examined showed no sensible positive excess; about 20 % had a positive excess of such a size that the chances for accidental configuration producing it were less than 1 : 100 000.

The following examples may serve as an illustration, how deviations from the law of chance will influence the distribution of densities.

a. Effect of the distance from the centre. It is well known that the limiting magnitude of a photograph, and, therefore, the stellar density varies with the distance from the centre of the plate. To investigate this phenomenon, the sum of the numbers of stars counted in each of the squares $a, b, c, \ldots q, b', \ldots q'$ (fig. 1) was taken; fig. 1 represents the scheme of a chart, the squares equalling $10' \times 10'$; the squares b and b', c and c' etc are located symmetrically, so that by taking the sum $b + b'$, $c + c'$ etc an effect of unsymmetry of the field is eliminated. Table 2 represents the effect of the distance from the centre. The 12 richest charts which were divided into 4 quadrants were not used in deriving this table. The first column of the table gives the square according to the denotation of fig. 1; square a has been doubled, to make the number comparable with the pairs of other squares; the next column contains the distance from the centre in minutes of arc; the 3^d column gives the total number of stars counted on the 168 charts

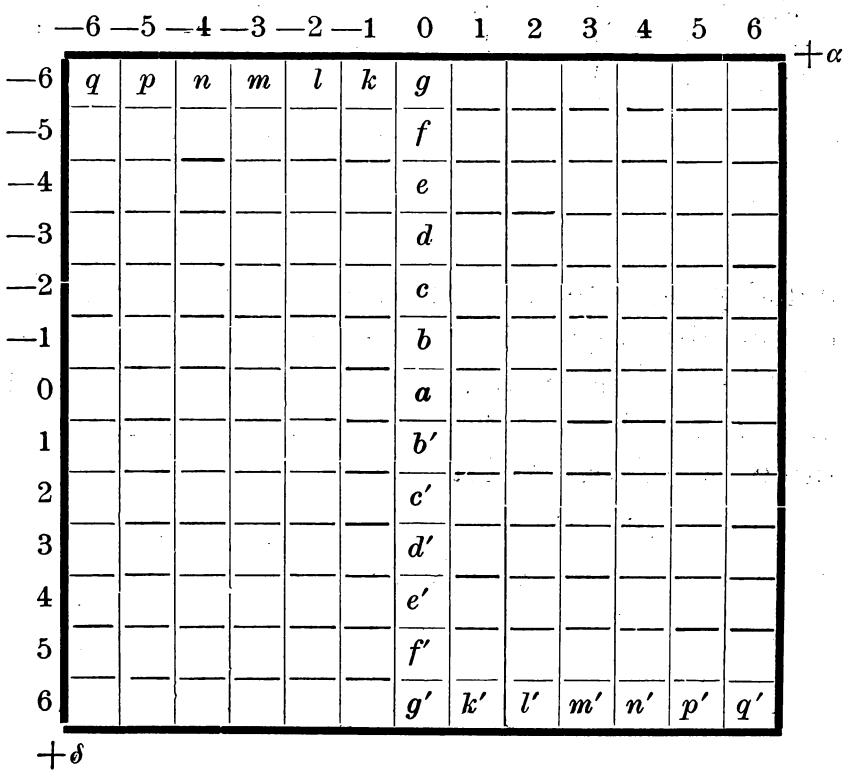

Fig. 1.

Table 2.

Square	Distance	Number	Rel. Area	Mean Rel. Number (density)	Lim. Magn.
$a+a$	0′.0	1820	1	0.856	— 0.23
$b+b'$	10.0	1770	8	0.833	— 0.26
$c+c'$	20.0	1917	12	0.902	— 0.13
$d+d'$	30.0	2190	20	1.031	+ 0.03
$e+e'$	40.0	2338	28	1.100	+ 0.13
$f+f'$	50.0	2489	28	1.171	+ 0.23
$g+g'$	60.0	2160			
$k+k'$	60.8	2058	40	0.981	— 0.03
$l+l'$	63.2	2037			
$m+m'$	67.1	1965			
$n+n'$	72.1	1871	28	0.873	— 0.19
$p+p'$	78.1	1728			
$q+q'$	84.8	1463	4	0.688	— 0.52
Sum	—	—	169	—	—
Mean	—	2125	—	1.000	0.00

within the corresponding squares; the 4th column gives the area on the chart having the same effective distance as the corresponding square, the unit of area equalling 100 sq. minutes; the 5th column gives the relative density expressed in units of the average density of the chart; the last column represents the deviation of the limiting magnitude from the effective limiting magnitude of the whole chart, the latter being near 14.5 in the Harvard scale; the data of the last column were derived with the aid of table IV of *G. P.* **27**.

The distribution of density, given in the 5th column of table 2, may be substituted, with an approximation sufficient for our purposes, by the following schematized distribution:

$\frac{1}{3}$	of the area with a *mean* density			0.865;
$\frac{1}{3}$		„	„	1.000;
$\frac{1}{6}$		„	„	1.100;
$\frac{1}{6}$		„	„	1.167.

Assuming these figures, and using table 1, we can calculate the effect of the non-uniformity of the plate upon the distribution of densities: it is sufficient to superpose the curves $n(r)$ corresponding to values of N proportional to the *mean* density, the component curves being multiplied by their relative areas. In this way for 3 selected values of N (total number per chart) the computation was executed.

1) $N = 300$.

Component curves: $N =$ 260; 300; 330; 350

area = $\frac{1}{3}$; $\frac{1}{3}$; $\frac{1}{6}$; $\frac{1}{6}$.

r =	0	1	2	3	4	5	6	7
resulting distribution	28.7	50.9	44.4	26.8	12.0	4.3	1.3	0.3
theoretical distrib.	28.5	50.9	45.3	26.8	11.8	4.2	1.2	0.3
Difference	+0.2	0.0	−0.9	0.0	+0.2	+0.1	+0.1	0.0

2) $N = 1000$.

r =	0	1	2	3	4	5	6	7	8
resulting distrib.	0.5	3.1	8.5	16.3	23.1	27.0	26.2	22.3	16.3
theor. distrib.	0.4	2.7	7.9	15.7	23.2	27.6	27.3	23.1	17.0
difference	+0.1	+0.4	+0.6	+0.6	−0.1	−0.6	−1.1	−0.8	−0.7

$N = 1000$. Continued.

r =	9	10	11	12	13
resulting distrib.	11.2	6.9	3.8	2.0	1.0
theor. distrib.	11.2	6.6	3.5	1.7	0.8
difference	0.0	+0.3	+0.3	+0.3	+0.2

3) $N = 3200$.

r =	10	13	16	20	23	26	28
resulting distrib.	2.3	7.3	12.7	13.1	8.9	4.5	2.6
theor. distrib.	1.6	6.5	13.2	14.6	9.3	4.0	1.9
difference	+0.7	+0.8	−0.5	−1.5	−0.4	+0.5	+0.7

From the above figures it may be inferred that the non-uniformity of the photographs produces a very slight, almost negligible deviation from the theoretical chance distribution.

b) *Errors of observation (counting).*

In counting stars in a region of the sky, on a photograph or a photographically reproduced chart, the brighter stars, up to a certain limit, are recorded completely, whereas of the faintest objects only a fraction can be recorded. The total number, r, counted within a limited region, may be represented as the sum of two numbers,

$$r = r_1 + r_2,$$

r_1 being the number of objects which can be recorded completely, r_2 — the number recorded among the uncompletely observed group (the latter is always greater than r_2); for a given region r_1 is constant, whereas r_2 is subject to accidental variation. The probable error of the total number r is thus given by the well-known formula

$$\text{p. e.}\,(r) = \pm 0.674 \sqrt{r_2}.$$

Let us put $r_2 = kr$; we have

$$\text{p. e.}\,(r) = \pm 0.674 \sqrt{kr} \quad \ldots \quad (4).$$

The factor k represents the fraction of r subject to accidental variation; as in some way this quantity must be related to the number of faint stars, some dependence upon the galactic latitude appeared probable, which dependence was, however, neglected.

The counts were made at daylight; charts denoted by uneven numbers were counted in June-August, those with even numbers — in October-November, 1923; the character of illumination was doubtlessly different for these two series of counts, but no perceptible difference was revealed by the result; the mean effective limiting magnitude, in the scale of *G. P.* **27**, table IV, determined as will be explained below, came out as

14.55 ± 0.03 for the uneven charts, and
14.53 ± 0.03 for the even charts.

The agreement of the counted number with the number given by the Paris authority was generally good; the total number counted here was 254 607, the sum of the numbers printed at the head of each chart — 261 797; this gives a ratio of count: Paris = 0.973. However, after rejecting 12 charts mentioned in table 3, where the Paris number appears somewhat doubtful, the numbers become 247 108 and 247 293 respectively, giving a ratio 0.999.

An abnormal discrepancy presented 12 charts, particulars of which are given in the following table.

Table 3.

Charts for which the counted number differed considerably from the Paris number.

№	6	13	27	65	66	81	88	99	129	131	132	134	All
N Paris	1291	905	1604	1504	1705	1155	1558	358	1038	1074	1189	1123	14504
N Count	554	651	873	818	862	509	461	214	677	658	635	587	7499
lim. magn. of count.	13.79	14.76	14.51	14.52	14.58	15.14	14.65	13.64	13.93	14.23	13.85	13.90	14.27
Remark	—	+	+	+	+	+	+	—	—	+	—	—	...

In the line of remarks "+" means that the copy apparently approaches the normal conditions, as judged from the limiting magnitude attained in the count, and "—" means that the limiting magnitude of the count is considerably below the average.

The source of the discrepancy may be sought in the process of printing, through which some delicate details of the plate may have been lost. From the following considerations this explanation appears, however, not convincing. For the 12 exceptional charts the average limiting magnitude of the count equals 14.27 ± 0.10, the limiting magnitude corresponding with the Paris number is 15.19, whereas the average of all 180 charts is 14.54; thus the numbers counted on the charts answer much better the average conditions than the Paris numbers. If anything is exceptional with these 12 charts, it is the Paris numbers which present the exception, whereas our counts are in all appearences all right.

To investigate the personal errors of counting, 12 selected charts were counted independently by Mr. A. Pohla in December, 1923. Tables 4—6 contain a summary of the comparison of the counts made by Miss Lukk and Mr. Pohla.

Table 4.

Chart		19	22	27[1])	29	52[2])	81[1])	88[1])	97	108	132[1])	142	168
N	*L.*	1734	764	873	2135	4043	509	461	231	389	635	3426	1235
	P.	1574	671	791	2249	3688	433	421	194	334	544	2994	1056
	Paris	1685	779	(1604)	2340	3670	(1155)	(1558)	241	356	(1189)	2880	1381
P. : *L.*		0.91	0.88	0.91	(1.05)	0.91	0.85	0.91	0.84	0.86	0.86	0.88	0.85

From table 4 it follows that *P.* counted on the average a smaller number of stars than *L.*; there is only one exception — chart 29. The average ratio $P : L$ results as 0.89; without the peculiar charts 29 and 52, the ratio becomes 0.88.

In tables 5 and 6 Δ_0 is the mean value of Δ; $1 - \Delta_0 : r$ equals the ratio $P : L$ for the particular value of r; there is no systematic change with r in this ratio. The factor k represents the coefficient of formula (4), computed from formulae (5).

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1) *Vide* table 3.

2) Counted by quadrants and by squares $5' \times 5'$.

Table 5.

Distribution of differences $\Delta = P.—L.$

All charts except 29 and 52.

Δ	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14,15	16,17	18—20	21—24	25—28	29—33
	r = number counted by *L*, within a square 10′ × 10′																			
	Frequency of Δ																			
⩽—8	—	—	—	—	—	—	—	—	0	0	0	0	1	0	0	0	0	2	2	4
—7	—	—	—	—	—	—	—	0	0	0	0	0	0	0	1	0	1	1	0	1
—6	—	—	—	—	—	—	0	2	0	0	0	0	1	1	1	1	2	1	0	2
—5	—	—	—	—	—	0	0	0	0	0	1	1	0	0	0	3	4	1	2	4
—4	—	—	—	—	0	1	0	2	1	3	2	3	1	1	3	2	4	2	5	2
—3	—	—	—	1	2	3	4	4	4	6	5	7	6	3	6	2	5	5	1	3
—2	—	—	8	10	17	24	14	12	14	4	13	3	5	5	8	5	2	7	1	4
—1	—	30	48	85	55	53	33	18	18	15	14	12	10	8	7	5	6	3	5	4
—0	99	159	149	120	89	83	45	38	28	18	14	7	8	5	7	8	5	10	0	1
+1	2	6	8	2	8	4	5	6	1	4	1	2	1	2	1	0	1	1	0	0
+2	0	2	0	0	1	1	1	0	0	0	0	0	0	0	1	1	1	0	0	0
+3	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1	0	0	0	0	0
+4	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
⩾+5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
S (Sum)	101	197	214	219	172	170	102	84	66	50	50	35	33	27	36	27	31	33	16	25
Δ_0	+0.0	—0.10	—0.24	—0.47	—0.49	—0.61	—0.65	—0.71	—0.95	—0.98	—1.34	—1.5	—1.7	—1.1	—1.7	—1.8	—2.5	—2.2	—3.6	—4.3
k	...	+0.05	0.05	0.02	0.02	0.03	0.02	0.12	0.01	0.04	0.02	0.04	0.09	0.08	0.08	0.06	0.06	0.09	0.06	0.11
$1—\Delta_0 : r$	...	0.90	0.88	0.84	0.88	0.88	0.89	0.90	0.88	0.89	0.87	0.86	0.86	0.92	0.88	0.89	0.87	0.90	0.86	0.86

Table 6.

Distribution of differences $\Delta = P.—L.$

Chart 52.

	r = number counted by $L.$ within a square $5' \times 5'$															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Δ	Frequency of Δ															
—5	—	—	—	—	—	0	0	0	0	0	0	0	0	0	1	0
—4	—	—	—	—	0	0	1	0	0	0	0	1	0	1	0	0
—3	—	—	—	0	0	1	1	1	3	4	0	0	2	0	0	0
—2	—	—	0	2	3	8	10	8	8	5	6	3	1	3	0	0
—1	—	0	11	27	34	30	33	21	26	16	8	6	1	2	1	0
0	2	11	26	45	45	57	48	36	26	21	11	4	4	2	2	1
+1	0	0	2	1	8	5	4	6	6	4	2	1	1	0	0	0
+2	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0
S (Sum)	2	11	39	75	90	104	97	72	70	50	27	15	9	8	4	1
Δ_0	0.0	0.00	—0.23	—0.40	—0.36	—0.36	—0.58	—0.47	—0.61	—0.68	—0.67	—1.11				
k	...	...	0.03	0.01	0.02	0.03	0.03	0.01	0.02	0.02	0.00	0.04				
$1—\Delta_0 : r$	...	1.0	0.89	0.87	0.91	0.93	0.90	0.93	0.92	0.92	0.93	0.91				

$$\left.\begin{array}{l} k = \dfrac{1}{2r}\left[\dfrac{\Sigma(\Delta-\Delta_0)^2}{S-1} - 0.12\, r\right] \ldots \text{ for table 5, and} \\ k = \dfrac{1}{2r}\left[\dfrac{\Sigma(\Delta-\Delta_0)^2}{S-1} - 0.09\, r\right] \ldots \text{ for table 6} \end{array}\right\} (5);$$

the denotations are those of the preceding tables.

These formulae were derived on the assumption that the *accidental* errors of counting were equal for both observers; the *systematic* difference of the observers introduces an accidental error with a mean square deviation equal to

$$\pm\sqrt{(1-P:L)\,r};$$

taking into account formula (4), the *total* mean square deviation of the difference $P.—L.$ becomes

$$\sqrt{\frac{\Sigma(\Delta-\Delta_0)^2}{S-1}} = \sqrt{[2k+(1-P:L)]\,r};$$

substituting for $P:L$ the values 0.88 (table 5) or 0.91 (table 6), formulae (5) can be obtained.

The quantity k represents the fraction of stellar number which is subject to accidental variation during the count made by one observer; in table 5 the values may be divided into two groups:

$$\text{for } r \leqslant 11, \text{ mean } k = 0.04;$$
$$\text{,, } r > 11, \text{ ,, } k = 0.08.$$

In table 6 the mean value of k is 0.02.

The increase of k with the density r in table 5 cannot be regarded as real, since in table 6, where the density is the greatest, a very small value of k resulted. The difference is probably due to the non-homogeneity of the material in table 5, different charts presenting different degrees of difficulty in counting.

The error-dispersion of the count, being added to the true dispersion of the chart, increases the observed dispersion of densities, producing thus also a *positive excess*, which is, however, very small, as may be inferred from the following figures; the probable error of an observed value of r was assumed equal to

$$\pm 0.674 \sqrt{0.04\, r} \text{ for } r \leqslant 11, \text{ and}$$
$$\pm 0.674 \sqrt{0.08\, r} \text{ for } r > 11.$$

1) $N = 300$.

$r =$	0	1	2	3	4	5	6	7
true distrib.	28.5	50.9	45.3	26.8	11.8	4.2	1.2	0.3
observ. distr.	28.8	51.8	44.8	25.0	12.3	4.5	1.4	0.4
difference	+0.3	+0.9	−0.5	−1.8	+0.5	+0.3	+0.2	+0.1

2) $N = 1000$.

$r =$	0	1	2	3	4	5	6	7
true distrib.	0.4	2.7	7.9	15.7	23.2	27.6	27.3	23.1
observ. distr.	0.4	3.0	8.3	16.3	22.9	27.1	26.7	22.6
difference	0.0	+0.3	+0.4	+0.6	−0.3	−0.5	−0.6	−0.5

$N = 1000$. Continued.

$r =$	8	9	10	11	12	13	14	15
true distrib.	17.0	11.2	6.6	3.5	1.7	0.8	0.3	0.1
observ. distr.	16.7	11.3	6.9	3.8	1.6	0.9	0.4	0.2
difference	−0.3	+0.1	+0.3	+0.3	−0.1	+0.1	+0.1	+0.1

c) *Double or multiple stellar groups.* Only groups are here considered which cannot be perceived individually as distinct clusters, but which affect statistically the distribution. For the sake of simplicity we shall confine our attention to double groups only, as there is no radical difference in the effect produced by multiple or double groups. The deviation from the chance distribution in this case has its origin in the circumstance that some of the stars which enter into the count as independent individuals, are not such but are forced to make agree their position with the position of other stars physically connected with them.

The double stars which may influence the stellar distribution in our counts are more like known wide pairs with common proper motion, as *Mizar-Alcor*, than double stars in the proper sense. Assuming the average magnitude of the stars in our counts to be 13.0 vis., and estimating the average absolute magnitude at $-2.0\,(\pi = 1'')$ which corresponds to spectral type *F*, the average parallax becomes $0''.001$. The inferior limit of distance, above which stars were counted as separate individuals, may be assumed $= 10''$, which corresponds to a projected distance of 10000 astronomical units. The upper limit of distance for a physically connected pair hardly exceeds 200 000 astron. units = 1 parsec or about $3'$ on the chart; according to a statistical investigation of double stars by the writer[1]), the number of such distant companions may be roughly estimated; with some extrapolation of the distance-distribution the following data were found.

Number of companions per 1000 single, double, or multiple systems within the limits of projected distance from 10 000 to 200 000 astr. units:

$\Delta m_{vis.}$	0.0—0.9	1.0—1.9	2.0—2.9	3.0—3.9	4.0—4.9	5.0—5.9	6.0—6.9
number	16	22	24	29	27	21	52

The difference of magnitude is here denoted by Δm.

The *effective* frequency of companions which could be included in our counts may be computed in the following way, taking 14.5 as the limiting magnitude (photographic).

magn.	relative number	effective limit of Δm	number of companions per 1000
13.5—14.5	8	0.5	8
12.5—13.5	4	1.5	27
11.5—12.5	1.6	2.5	50
$<$ 11.5	0.5	3.5	77
	Weighted mean . . .		21

1) T.P. **25** 6 (1924).

The weighted mean is 21 per 1000 *systems* or per 1021 counted objects. We may assume that 0.02 of the counted stars are companions of double systems, the components of the latter representing thus 0.04 of the counted number. This value is hardly in error by more than 50 %, and may be somewhat overestimated.

Let the number of components of double systems, divided by N, the total counted number, be β; the number of independent systems, which are thought to be distributed according to the law of chance, is

$$N' = N(1 - \tfrac{1}{2}\beta).$$

The distribution of the *systems* is obtained by entering table 1 with the argument N'; to obtain the distribution of *counted stars*, all values of r are to be multiplied by the factor

$$\gamma = \frac{1}{1 - \frac{1}{2}\beta};$$

as r must remain an integer, instead of multiplying by γ, the frequency $n(r)$ must be changed so as to produce the same effect as the increase of r in the ratio γ; this may be obtained by assuming that a certain fraction of the frequency $n(r)$ represents the frequency of $r+1$ and, if needed, also of $r+2$ etc. The smallness of β allows to substitute the rigorous solution by a more simple process.

With $\beta = 0.04$ the computation was made for the following two particular cases.

1) $N = 300$.

$r =$	0	1	2	3	4	5	6	7	8
result. distr.	29.9	50.5	44.0	26.3	12.0	4.5	1.4	0.4	0.1
chance distr.	28.5	50.9	45.3	26.8	11.8	4.2	1.2	0.3	0.1
difference	+1.4	−0.4	−1.3	−0.5	+0.2	+0.3	+0.2	+0.1	0.0

2) $N = 1100$.

$r =$	0	1	2	3	4	5	6	7
result. distr.	0.2	1.8	5.5	11.9	18.8	24.3	26.2	24.4
chance distr.	0.2	1.6	5.2	11.7	18.8	24.6	26.6	24.7
difference	0.0	+0.2	+0.3	+0.2	0.0	−0.3	−0.4	−0.3

$N = 1100$. Continued.

$r =$	8	9	10	11	12	13	14	15	16
result. distr.	20.1	14.7	9.6	5.8	3.2	1.4	0.8	0.4	0.2
chance distr.	20.2	14.7	9.5	5.6	3.1	1.4	0.8	0.4	0.2
difference	—0.1	0.0	+0.1	+0.2	+0.1	0.0	0.0	0.0	0.0

The deviation from the chance distribution is in both cases negligible.

d) *Obscured regions and clusters of stars.*

The real phenomenon must be very complicated; we shall consider here some simplest schematical cases, consisting in a superposition of two distributions with different areas and different mean density. In the following s denotes the relative area, N — the mean density *per chart.*

1) Small obscured region on an average background.

$s_1 = 0.1$, $N_1 = 200$; $s_2 = 0.9$, $N_2 = 1200$. Mean $N = 1100$.

$r =$	0	1	2	3	4	5	6	7
result. distr.	5.2	7.0	6.8	8.9	13.6	18.9	22.5	22.7
chance distr.	0.2	1.6	5.2	11.7	18.8	24.6	26.6	24.7
difference	+5.0	+5.4	+1.6	—2.8	—5.2	—5.7	—4.1	—2.0

$r =$	8	9	10	11	12	13	14
result. distr.	20.2	15.9	11.3	7.2	4.3	2.3	1.2
chance distr.	20.2	14.7	9.5	5.6	3.1	1.4	0.8
difference	0.0	+1.2	+1.8	+1.6	+1.2	+0.9	+0.4

2) Small cluster of moderate density on an average background.

$s_1 = 0.1$, $N_1 = 2000$; $s_2 = 0.9$, $N_2 = 1000$. Mean $N = 1100$.

$r =$	0	1	2	3	4	5	6	7	8
result. distr.	0.4	2.4	7.1	14.1	21.0	25.0	25.2	21.6	16.5
chance distr.	0.2	1.6	5.2	11.7	18.8	24.6	26.6	24.7	20.2
difference	+0.2	+0.8	+1.9	+2.4	+2.2	+0.4	—1.4	—3.1	—3.7

2) Continued.

$r=$	9	10	11	12	13	14	15	16	17	⩾18
result. distr.	11.6	7.7	5.1	3.4	2.5	1.8	1.3	0.9	0.6	0.7
chance distr.	14.7	9.5	5.6	3.1	1.4	0.8	0.4	0.2	0.0	0.0
difference	−3.1	−1.8	−0.5	+0.3	+1.1	+1.0	+0.9	+0.7	+0.6	+0.7

3) Equal areas with considerable difference of density.
$s_1 = 0.5$, $N_1 = 400$; $s_2 = 0.5$, $N_2 = 1600$. Mean $N = 1000$.

$r=$	0	1	2	3	4	5	6	7	8
result. distr.	7.8	18.8	22.6	18.5	12.6	9.0	8.4	9.5	10.6
chance distr.	0.4	2.7	7.9	15.7	23.2	27.6	27.3	23.1	17.0
difference	+7.4	+16.1	+14.7	+2.8	−10.6	−18.6	−18.9	−13.6	−6.4

$r=$	9	10	11	12	13	14	15	16	⩾17
result. distr.	11.0	10.4	9.0	7.1	5.2	3.5	2.2	1.3	1.4
chance distr.	11.2	6.6	3.5	1.7	0.8	0.3	0.1	0.0	0.0
difference	—0.2	+3.8	+5.5	+5.4	+4.4	+3.2	+2.1	+1.3	+1.4

4) Equal areas with small difference of density.
$s_1 = 0.5$, $N_1 = 800$; $s_2 = 0.5$, $N_2 = 1200$. Mean $N = 1000$.

$r=$	0	1	2	3	4	5	6	7	8
result. distr.	0.8	4.0	10.0	17.2	22.9	25.2	24.0	20.5	15.8
chance distr.	0.4	2.7	7.9	15.7	23.2	27.6	27.3	23.1	17.0
difference	+0.4	+1.3	+2.1	+1.5	—0.3	—2.4	—3.3	—2.6	—1.2

$r=$	9	10	11	12	13	14	15	16
result. distr.	11.3	7.4	4.5	2.6	1.3	0.7	0.3	0.1
chance distr.	11.2	6.6	3.5	1.7	0.8	0.3	0.1	0.0
difference	+0.1	+0.8	+1.0	+0.9	+0.5	+0.4	+0.2	+0.1

e) *Irregular variation of the sensitiveness of the plate and non-homogeneity of the process of engraving*; the effect must be similar to the effect produced by source d), but must be very small; no data are available from which the average size of the effect can be even roughly calculated; from what we know of the precision attained in photographic photometry we may estimate the maximum deviation of the limiting magnitude of a square of the chart at, say, $\pm 0.2 - \pm 0.3$ stellar magnitudes relative to the mean limiting magnitude of the whole chart; comparing this with the data of table 2, we conclude that the influence upon the apparent distribution must be less than the change produced by source *a*) (effect of the distance from the centre). The effect of source *e*) may thus be safely neglected.

f) *Effect of varying galactic latitude*; it may be easily shown that the influence upon the density-distribution, produced by the *regular* change of stellar number with galactic latitude, is entirely imperceptible for a small area like the area covered by the *Carte-du-Ciel* charts.

We shall now introduce a quantity w, which may be called the *weight* of the positive excess of an observed curve; if P denotes the probability that a positive excess equal or greater than the observed excess will occur by chance, the weight will be defined by

$$w = \frac{1}{P} \quad \ldots \quad (6).$$

In table I for each chart showing a distribution with a positive excess weights were computed, separately for the ascending and descending branches of the curve (w_1 and w_2 respectively); the weights range from a few units to 10^{120}; it may be remarked that the method of computation used gave *minimum* values for the weights, so that in many cases the true weights are several times greater than those given in table I. As only the order of magnitude of the weight was needed, a rough method of computation could be applied; the method is briefly described below.

Let us take a certain part of the distribution of densities, comprised between $r = r_1$ and $r = r_k$, for which positive deviations may be expected; this may be the ascending or the descending branch of the curve; let n_o be the observed, n_c — the computed (chance) frequency of the density r; in a chance distribution the values n_o are spread around the mean value, n_c, with a dispersion equal to $\sqrt{n_c}$; for small n_c the distribution is asymmetrical, and if only *positive* deviations are considered, the dispersion may be assumed equal to $\sqrt{n_c} + \sqrt{\frac{1}{8}}$, the approximation being fair even for as small values of n_c as 0.01; instead of the dispersion, the unit of the Gaussian, c, may be computed:

$$c = \sqrt{2n_c} + \tfrac{1}{2} \ldots (7)$$ [1].

We may put

$$x = \frac{n_o - n_c}{c} \ldots (8).$$

The probability of a positive deviation *equal or greater* than $n_o - n_c$ is given by

$$p = 1 - \Theta(x) \ldots (9), \text{ where}$$

$$\Theta(x) = \frac{1}{\sqrt{\pi}} \int_{-\infty}^{x} e^{-x^2} dx;$$

the weight is given by

$$w = \frac{1}{p} \ldots (10).$$

Let between r_1 and r_k be i positive and $k-i$ negative deviations, and let w_α, w_β, ... be the weights of the positive deviations; the total weight of the group is given by

$$w = \frac{i!(k-i)!}{k!} w_\alpha \cdot w_\beta \ldots (11).$$

Tables 7 and 8 facilitate the computation of the weights. In computing the weights of the two branches, the ascending branch was assumed to end at r_0-1 for $N < 600$, at r_0-2 for N from 600 to 1100 etc, r_0 being the most frequent density in a chance distribution; likewise the descending branch was assumed to begin at r_0+2, r_0+3, etc respectively. From the above given examples it appears that within the limits of the ascending or descending branches thus defined negative deviations may occur as a rule; therefore the weights computed are *minimum values*, as mentioned above.

Table 7.

c = effective unit of Gaussian for positive deviations ($n_o - n_c > 0$)

n_c	0.0001	0.001	0.01	0.1	0.2	0.4	0.7	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0
c	0.38	0.46	0.60	1.00	1.3	1.6	1.9	2.2	2.4	2.6	2.9	3.3	3.7	4.0	4.2
n_c	8	9	10	12	14	16	18	20	24	28	32	36	40	50	60
c	4.5	4.7	5.0	5.4	5.8	6.2	6.5	6.8	7.4	8.0	8.5	9.0	9.4	10.5	11.5

1) Approximate formula, used only for $n_c > 4$.

Table 8.

$$w = \frac{1}{1-\Theta(x)}$$

x	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5
w	2	2.5	3	3.5	4	5	6	8	10	12	17	22	30	40	60
x	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
w	80	120	180	300	400	600	1000	1800	3000	5000	8000	14000	24000	40000	80000
x	4.	5.	6.	7.	8	9	10	11	12	13	14	15	16		
w	10^{8}	10^{12}	10^{17}	5.10^{22}	10^{29}	5.10^{36}	10^{45}	10^{54}	10^{64}	10^{75}	10^{87}	10^{100}	10^{115}		

The different factors affecting the observed distribution of densities may be subdivided into two groups: 1) real differences of density, which were considered under the heading *d*); 2) various sources of error, to which belong all other cases discussed above, including *c*) also. Among the sources of error only factors *a*), *b*) and *c*) are of importance, the effect of *e*) and *f*) being negligible. It is interesting to calculate the combined effect of the three principal sources of error; the result for two values of N (total number of stars counted) is given below.

1) $N = 300$.

$r =$	0	1	2	3	4	5	6	7	8
result. distr.	30.4	51.4	42.6	24.5	12.7	4.9	1.7	0.5	0.1
chance distr.	28.5	50.9	45.3	26.8	11.8	4.2	1.2	0.3	0.1
difference	+1.9	+0.5	—2.7	—2.3	+0.9	+0.7	+0.5	+0.2	0.0

$$w_1 = 5;\ \text{Log } w_1 = 0.7$$
$$w_2 = 32;\ \text{Log } w_2 = 1.5.$$

2) $N = 1000$.

$r =$	0	1	2	3	4	5	6	7
result. distr.	0.5	3.6	9.2	17.1	22.8	26.2	25.2	21.5
chance distr.	0.4	2.7	7.9	15.7	23.2	27.6	27.3	23.1
difference	+0.1	+0.9	+1.3	+1.4	—0.4	—1.4	—2.1	—1.6

$N = 1000$. Continued.

$r =$	8	9	10	11	12	13	14	15
result. distr.	15.9	11.3	7.3	4.3	2.0	1.1	0.5	0.2
chance distr.	17.0	11.2	6.6	3.5	1.7	0.8	0.3	0.1
difference	—1.1	+0.1	+0.7	+0.8	+0.3	+0.3	+0.2	+0.1

$$w_1 = 45; \ \mathrm{Log}\ w_1 = 1.65 \quad (N = 1000)$$
$$w_2 = 128; \ \mathrm{Log}\ w_2 = 2.1.$$

The *weights* were computed in each case according to the method described above. It may be inferred that w_2, the weight of the descending branch, is more sensitive for the combined influence of observational errors than w_1. Were the assumed size of the error-effect correct, and were there no obscuration or clustering of stars, it should be expected that one-half of the charts would show a weight less than $\overline{w}$, and one-half — greater than $\overline{w}$, $\overline{w}$ denoting the theoretical weight of the combined error-effect. Real differences of density must increase the proportion of great w on the expense of the small ones. From the above calculations we may assume:

for N =	200—400	400—600	600—900	900—1200,
$\mathrm{Log}\,\overline{w}_2$ =	1.5	1.8	2.0	2.2.

The frequency of w_2 above or below the adopted value of $\overline{w}_2$ is tabulated below; charts with $N > 1200$ are not taken into consideration as they occur almost exclusively in low galactic latitudes were considerable real differences of stellar density are observed.

	$w_2 < \overline{w}_2$ [1]	$1000 > w_2 \geqslant \overline{w}_2$ [1]	$w_2 \geqslant 1000$ [1]
N	Number of charts		
200—400	15	0	0
400—600	28	5	1
600—900	33	6	8
900—1200	10	4	4
200—1200	86	15	13

Charts with $w_2 \geqslant 1000$ may be left out of consideration, as there is little doubt that they correspond to real differences of density; for the remaining charts there is an overwhelming preponderance of weights less than the supposed median value, $\overline{w}_2$; as among the large weights there must be several due to real irregularities of density, we conclude that *the importance of*

1) Actually *Log* w_2 rounded off to 0.1 were counted, instead of w_2.

the combined sources of error has been largely overestimated above, that the combined effect hardly exceeds $\frac{1}{2}$—$\frac{1}{3}$ of the computed value, *and that almost every perceptible deviation from the law of probabilities,* say of a weight 10 or more, *must correspond to real obscuration or stellar clustering.*

It appears thus that the inevitable errors and influences, which tend to increase the dispersion of densities, are counterbalanced by some unknown factor acting in the opposite direction. As such a factor may be imagined a *systematic* error of counting; let us suppose that in rich regions the percentage of faint stars that remain unperceived be greater than in regions where the stars are scarce; this then would tend to increase low densities and diminish great ones, reducing thus the dispersion. An effect of this kind appears not improbable, though uncontrollable by the data of observation.

3. Limiting Magnitude.

In the following the zero-point of the scale of magnitudes, and the function

$$\frac{d\,(\text{Log}\,N)}{dm} = f(B_{gal.})\,[1],$$

near $m = 14.5$,

were taken according to *Groningen Publications* **27**, table IV; the individual limiting magnitudes (m_0) for each chart were derived from the counts themselves, and represent thus to some extent independent observational data. The only assumption made in deriving m_0 was that the *average* limiting magnitude remained constant throughout the whole series; seasonal changes of atmospheric transparency, plate sensitiveness, etc are thus directly affecting the limiting magnitude adopted; in all appearance the error introduced by this source does not surpass 0.1—0.2 st. mg., if it exists at all.

The *difference* of the limiting magnitude, Δm_0, for two *adjacent* charts could be derived with fair precision from a comparison of the counted numbers in the strip $20' \times 130'$ common to both charts [2], by taking the difference equal to the difference

1) The *unit interval* of magnitudes is defined by this quantity.

2) Width of the strip $= 130' - 120'\, Cos\, 24^0 =$ almost exactly $20'$.

of the *effective* magnitudes of table IV, *G. P.* 27. Table 9 gives the result of the comparison. The galactic latitudes of each strip are not given in this table, as they may be easily interpolated from the galactic latitudes of the centra, contained in table 11.

In table 9 $n_1 : n_2$ is the ratio of stellar numbers counted in the common strip; Δm_0 is the corresponding difference of the limiting magnitude; $x = m_0 + const.$ is the concluded limiting magnitude reckoned from an arbitrary zero-point.

The probable error of Δm_0 may be estimated in the following way; let $n_2 > n_1$, and $p = n_1 : n_2$; since on both charts stars were counted within the same area, the n_1 stars counted on the first chart must *all* have been counted also on the second chart, and only the difference $n_2 - n_1$ may be regarded as subject to accidental variation; the probable error of the ratio p is given,

Table 9.

Ch.	$n_1 : n_2$	Δm_0[1]	$m_0 + const.$	*Ch.*	$n_1 : n_2$	Δm_0	$m_0 + const.$	*Ch.*	$n_1 : n_2$	Δm_0	$m_0 + const.$
180			+0.34	13			+0.28	26			+0.60
	139 : 114	+0.27			94 : 104	−0.06			202 : 141	+0.52	
1			−0.06	14			+0.23	27			+0.03
	108 : 142	−0.42			132 : 114	+0.23			158 : 114	+0.47	
2			+0.24	15			−0.11	28			−0.50
	144 : 151	−0.07			102 : 79	+0.45			171 : 268	−0.68	
3			+0.18	16			−0.66	29			+0.16
	132 : 123	+0.08			84 : 121	−0.57			307 : 220	+0.47	
4			−0.02	17			−0.18	30			−0.32
	142 : 101	+0.50			114 : 130	−0.22			175 : 437	−1.28	
5			−0.64	18			−0.05	31			+1.02
	89 : 92	−0.07			126 : 201	−0.67			252 : 139	+0.79	
6			−0.69	19			+0.52	32			+0.29
	69 : 112	−0.72			238 : 92	+1.36			135 : 184	−0.39	
7			−0.09	20			−0.93	33			+0.76
	96 : 172	−0.87			65 : 159	−1.26			181 : 45	+1.71	
8			+0.67	21			+0.24	34			−0.88
	116 : 101	+0.20			117 : 93	+0.33			42 : 91	−0.87	
9			+0.36	22			−0.17	35			+0.07
	99 : 113	−0.17			149 : 139	+0.11			103 : 186	−0.74	
10			+0.41	23			−0.37	36			+0.88
	117 : 138	−0.24			128 : 187	−0.55			240 : 69	+1.52	
11			+0.53	24			+0.09	37			−0.59
	92 : 91	+0.04			162 : 126	+0.39			137 : 158	−0.18	
12			+0.38	25			−0.37	38			−0.37
	104 : 106	0.00			127 : 254	−1.03			230 : 215	+0.08	
13			+0.28	26			+0.60	39			−0.39

1) Preceding *minus* following.

Table 9. Continued.

Ch.	$n_1 : n_2$	Δm_0	m_0+*const.*	*Ch.*	$n_1 : n_2$	Δm_0	m_0+*const.*	*Ch.*	$n_1 : n_2$	Δm_0	m_0+*const.*
39			−0.39	65			+0.04	91			+0.78
	165 : 474	−1.31			110 : 112	−0.03			54 : 56	−0.07	
40			+0.96	66			+0.10	92			+0.83
	355 : 85	+1.83			140 : 121	+0.24			73 : 54	+0.53	
41			−0.90	67			−0.11	93			+0.27
	100 : 224	−1.00			147 : 108	+0.47			81 : 99	−0.38	
42			+0.07	68			−0.55	94			+0.62
	463 : 371	+0.31			102 : 105	−0.04			77 : 100	−0.50	
43			−0.29	69			−0.48	95			+1.08
	469 : 409	+0.20			81 : 109	−0.43			91 : 111	−0.32	
44			−0.53	70			−0.02	96			+1.37
	297 : 243	+0.26			73 : 112	−0.64			88 : 25	+2.04	
45			−0.87	71			+0.64	97			−0.72
	242 : 604	−1.12			145 : 95	+0.64			41 : 52	−0.38	
46			+0.16	72			+0.02	98			−0.39
	1251 : 1308	−0.08			83 : 93	−0.17			43 : 34	+0.40	
47			+0.10	73			+0.21	99			−0.84
*	648 : 565	+0.17			116 : 93	+0.30			32 : 66	−1.19	
48			−0.20	74			−0.07	100			+0.30
	443 : 669	−0.61			74 : 104	−0.50			73 : 66	+0.19	
49			+0.27	75			+0.44	101			+0.02
	992 : 1579	−0.67			115 : 53	+1.13			48 : 46	+0.08	
50			+0.80	76			−0.68	102			−0.16
	1468 : 1352	+0.09			42 : 76	−0.86			60 : 67	−0.19	
51			+0.57	77			+0.19	103			−0.08
	1109 : 549	+0.97			79 : 88	−0.20			64 : 89	−0.56	
52			−0.54	78			+0.40	104			+0.38
	545 : 1298	−1.25			51 : 38	+0.43		*	75 : 70	+0.11	
53			+0.60	79			−0.02	105			+0.16
	809 : 1008	−0.32			58 : 75	−0.46			54 : 51	+0.09	
54			+0.80	80			+0.44	106			−0.05
	855 : 572	+0.54			69 : 80	−0.22			85 : 91	−0.21	
55			+0.24	81			+0.66	107			+0.05
	394 : 379	+0.03		*	78 : 46	+0.84			85 : 68	+0.32	
56			+0.20	82			−0.19	108			−0.39
	318 : 232	+0.49			68 : 81	−0.25			51 : 50	+0.04	
57			−0.26	83			+0.06	109			−0.55
	235 : 275	−0.22		*	55 : 53	+0.08			49 : 48	+0.04	
58			−0.01	84			−0.03	110			−0.72
	251 : 190	+0.36			57 : 43	+0.49			53 : 81	−0.71	
59			−0.34	85			−0.53	111			−0.14
	186 : 125	+0.54			45 : 52	−0.27			76 : 85	−0.14	
60			−0.85	86			−0.28	112			−0.14
	102 : 188	−0.84			57 : 50	+0.23			75 : 95	−0.36	
61			+0.04	87			−0.52	113			+0.11
	220 : 151	+0.56		*	41 : 61	−0.71		*	92 : 92	0.00	
62			−0.48	88			+0.17	114			0.00
	143 : 194	−0.46			69 : 109	−0.75			61 : 84	−0.48	
63			+0.02	89			+0.90	115			+0.36
	142 : 223	−0.57			101 : 74	+0.53			104 : 125	−0.29	
64			+0.63	90			+0.35	116			+0.54
	162 : 108	+0.63			51 : 67	−0.44			115 : 119	−0.08	
65			+0.04	91			+0.78	117			+0.56

Table 9. Continued.

Ch.	$n_1 : n_2$	Δm_0	m_0+const.	Ch.	$n_1 : n_2$	Δm_0	m_0+const.	Ch.	$n_1 : n_2$	Δm_0	m_0+const.
117			+0.56	138			—0.03	159			+0.75
	132 : 126	+0.20			352 : 162	+1.07			352 : 196	+0.84	
118			+0.29	139			—1.19	160			—0.16
	104 : 72	+0.54			187 : 343	— 0.85		*	231 : 193	+0.23	
119			—0.21	140			—0.43	161			—0.46
	64 : 115	—0.84			274 : 593	—1.02			182 : 258	—0.53	
120			+0.67	141			+0.48	162			0.00
	130 : 80	+0.75			503 : 457	+0.13			190 : 221	—0.20	
121			0.00	142			+0.24	163			+0.12
	49 : 65	—0.46			529 : 728	—0.41			300 : 320	—0.09	
122			+0.56	143			+0.54	164			+0.14
	74 : 77	—0.03			519 : 479	+0.13			290 : 346	—0.21	
123			+0.67	144			+0.32	165			+0.27
*	134 : 187	—0.49			322 : 252	+0.29			321 : 163	+0.95	
124			+1.25	145			—0.08	166			—0.77
	200 : 64	+1.68			231 : 347	— 0.49			138 : 257	—0.93	
125			—0.32	146			+0.31	167			+0.07
	127 : 129	—0.03			376 : 429	—0.14		*	171 : 168	+0.03	
126			—0.17	147			+0.34	168			—0.05
	129 : 189	—0.54			472 : 445	+0.06			172 : 146	+0.25	
127			+0.48	148			+0.19	169			—0.43
	171 : 66	+1.37			371 : 503	—0.37			128 : 121	+0.11	
128			—0.78	149			+0.48	170			—0.66
	82 : 91	—0.15			447 : 386	+0.18			126 : 257	—1.06	
129			—0.55	150			+0.21	171			+0.27
	120 : 181	—0.62			311 : 166	+0.80			169 : 138	+0.31	
130			+0.15	151			—0.68	172			—0.17
	142 : 105	+0.48			151 : 239	—0.59			101 : 132	—0.45	
131			—0.25	152			—0.17	173			+0.14
	133 : 99	+0.45			260 : 389	—0.47			124 : 133	—0.11	
132			—0.63	153			+0.22	174			+0.13
	88 : 139	—0.60			465 : 513	—0.16			160 : 99	+0.70	
133			—0.01	154			+0.31	175			—0.70
	162 : 106	+0.58		*	481 : 438	+0.12			105 : 194	—0.93	
134			—0.58	155			+0.11	176			+0.10
	101 : 253	—1.31			291 : 707	— 1.19			133 : 178	—0.40	
135			+0.70	156			+1.23	177			+0.36
	331 : 283	+0.22			419 : 395	+0.09			171 : 156	+0.13	
136			+0.44	157			+1.08	178			+0.11
	317 : 260	+0.28			348 : 220	+0.65			142 : 240	—0.76	
137			+0.08	158			+0.36	179			+0.74
	318 : 315	+0.03			239 : 335	— 0.46			180 : 151	+0.27	
138			—0.03	159			+0.75	180			+0.34

Remark. With an asterisk are marked the ratios for which table I gives slightly different numbers. The difference is introduced by a final revision of the counts, table 9 being derived from the original data before the revision; as the change in each case was very small, it appeared unnecessary to re-calculate the data of table 9.

according to the theory of probabilities, by

$$\text{p. e.} = \pm 0.674 \sqrt{\frac{p(1-p)}{n_2}} \quad \ldots (12),$$

and

$$\frac{\text{p. e.}^{1)}}{p} = \pm 0.674 \sqrt{\frac{1-p}{n_1}} \quad \ldots (12').$$

On an average, we may put $n_2 = 200$, $p = 0.75$, $n_1 = 150$; this gives

$$\frac{\text{p. e.}}{p} = \pm 0.027.$$

With an average stellar ratio $= 1 : 2\frac{1}{2}$ per magnitude this corresponds to a probable error in Δm_0 equal to

$$\pm 0.03 \text{ stellar magnitudes.}$$

For high galactic latitudes, where stars are scarce, the probable error is about twice as great, whereas in the rich galactic regions it is about one-half of the value given above. The accuracy of Δm_0 may be regarded as very satisfactory from the standpoint of *accidental* errors, as for the maximum distance which may occur in our chain — 12 hours in right ascension or 90 charts — the probable error will attain only

$$\pm 0.03 \sqrt{90} = \pm 0.3 \text{ st. mg. approximately.}$$

But *systematic* errors are of such importance in the long chain that they make the comparison of widely separated charts illusory, if the Δm_0 alone are used; indeed, such a small systematic error as 0.01 st. mg. would give a maximum difference $= 0.9$ st. mg. at two opposite points of the zone; the asymmetry of the chart, due to the inclination of the plate or some asymmetry in the object-glass, may produce an effect many times greater. An additional standard of comparison must therefore be found; for lack of better standards the *average limiting magnitude* was assumed to remain constant troughout the chain.

The limiting magnitude of a chart k may be assumed equal to

$$m_{0(k)} = -\sum^{k} \Delta m_0 + y_k \quad \ldots (13),$$

1) *Relative* probable error.

where y_k is a systematic correction depending on k, the order of the chart, and Δm_0 is given by table 9. $\overset{k}{\Sigma}\, \Delta m_0$ is the algebraic sum of Δm_0, reckoned from the beginning of table 9.

The values $z = -\overset{k}{\Sigma}\, \Delta m_0$ were plotted against k as abscissae; a median curve was drawn from hand through the points; in drawing the curve care was taken to make the curve fall in the middle between the *maximum* and *minimum* curves, which also were traced; such a proceeding appeared to give more reliable results than simply taking the mean; e. g. the extreme values of atmospheric absorption are probably fairly constant, the maximum transparency being a constant of our atmosphere, and the minimum transparency being limited by the judgement of the observer. It is interesting to note that the difference between the *maximum* and *minimum* curves showed a relatively small range, varying from 1.3 to 2.0 st. mg., with a mean value of 1.6 st. mg.; this relative constancy may be regarded as a check of our hypothesis regarding the constancy of the average limiting magnitude throughout the chain. The majority of the Paris plates were obtained before 1905, chiefly in 1897—99; to allow for a possible variation of the sensitiveness of the plates with time, the charts obtained after 1905 were discussed separately; the curve derived from these charts ran fairly parallelly to the general curve, with a small constant shift indicating that the new plates were by about 0.2—0.3 st. mg. more sensitive than the old ones.

The correction y_k could be represented by

$$y_k = -0.0477\ k + v_k \quad . \; . \; . \; (14),$$

where the coefficient — 0.0477 is evidently due to the *mean asymmetry* of the plate, the difference of limiting magnitudes of the *East* and *West* edges of the chart equalling 0.0477 st. magnitudes; v_k proved to be a complicated periodical function, represented by table 10.

The value $x = m_0 + const.$, given in table 9, was computed from

$$m_0 + const. = x_k = -\overset{k}{\Sigma}\, \Delta m_0 - 0.0477\ k + v_k \quad . \; . \; . \; (15).$$

The limiting magnitude of the strip 20′ wide is not the same as the effective limiting magnitude of the *whole* chart evidently both sets of limiting magnitudes differ by a constant value, which, however, there is no need to determine; by adding a certain constant, c, to x_k the effective limiting magnitude of the chart may be obtained directly. The constant was determined in the following way. Table IV of *G. P.* 27 was entered with the argument $\log N_1$, N_1 being the average number of stars counted on the chart per square degree; the magnitude m_1 obtained in this way is given in the 5th column of table 11; the mean value of m_1 resulted as 14.54; the mean value of $m_0 + const.$ in table 9 is $+0.06$; hence the correction is

$$c = 14.54 - 0.06 = +14.48.$$

Table 10.

Ch.	v_k	*Ch.*	v_k	*Ch.*	v_k	*Ch.*	v_k	*Ch.*	v_k	*Ch.*	v_k
1	+0.26	31	−0.96	61	−0.22	91	+1.52	121	+0.81	151	+1.80
2	+0.19	32	−0.85	62	−0.13	92	+1.55	122	+0.95	152	+1.76
3	+0.11	33	−0.72	63	−0.04	93	+1.57	123	+1.08	153	+1.73
4	+0.03	34	−0.60	64	+0.05	94	+1.59	124	+1.22	154	+1.71
5	−0.04	35	−0.48	65	+0.13	95	+1.60	125	+1.38	155	+1.68
6	−0.11	36	−0.36	66	+0.21	96	+1.61	126	+1.54	156	+1.66
7	−0.18	37	−0.26	67	+0.29	97	+1.61	127	+1.70	157	+1.64
8	−0.24	38	−0.17	68	+0.37	98	+1.61	128	+1.86	158	+1.62
9	−0.31	39	−0.07	69	+0.45	99	+1.61	129	+1.99	159	+1.60
10	−0.38	40	+0.02	70	+0.52	100	+1.60	130	+2.11	160	+1.58
11	−0.45	41	+0.04	71	+0.59	101	+1.56	131	+2.24	161	+1.55
12	−0.51	42	+0.06	72	+0.66	102	+1.51	132	+2.36	162	+1.53
13	−0.57	43	+0.06	73	+0.73	103	+1.45	133	+2.43	163	+1.50
14	−0.63	44	+0.06	74	+0.79	104	+1.39	134	+2.49	164	+1.48
15	−0.69	45	+0.03	75	+0.85	105	+1.33	135	+2.50	165	+1.44
16	−0.74	46	−0.01	76	+0.91	106	+1.26	136	+2.51	166	+1.40
17	−0.79	47	−0.10	77	+0.97	107	+1.20	137	+2.48	167	+1.36
18	−0.83	48	−0.19	78	+1.02	108	+1.13	138	+2.45	168	+1.32
19	−0.88	49	−0.28	79	+1.08	109	+1.05	139	+2.40	169	+1.24
20	−0.92	50	−0.37	80	+1.13	110	+0.97	140	+2.36	170	+1.16
21	−0.96	51	−0.46	81	+1.18	111	+0.89	141	+2.30	171	+1.08
22	−1.00	52	−0.56	82	+1.22	112	+0.80	142	+2.24	172	+1.00
23	−1.04	53	−0.62	83	+1.26	113	+0.73	143	+2.18	173	+0.91
24	−1.08	54	−0.69	84	+1.30	114	+0.67	144	+2.13	174	+0.83
25	−1.10	55	−0.66	85	+1.34	115	+0.60	145	+2.07	175	+0.75
26	−1.12	56	−0.62	86	+1.37	116	+0.54	146	+2.02	176	+0.67
27	−1.12	57	−0.55	87	+1.40	117	+0.52	147	+1.96	177	+0.58
28	−1.13	58	−0.47	88	+1.43	118	+0.50	148	+1.91	178	+0.50
29	−1.10	59	−0.39	89	+1.46	119	+0.59	149	+1.88	179	+0.42
30	−1.06	60	−0.31	90	+1.49	120	+0.68	150	+1.84	180	+0.34

By adding this correction to x_k, the *true* (observed) limiting magnitude m_0, given in the 4th column of table 11, was obtained.

4. Areas of Minimum and Maximum Density.

The chief purpose of our investigation consists in looking on a chart for regions where the density of stars is unusually small or large as compared with the mean density of the chart. There may be used two criteria to discriminate between chance configurations and real abnormalities of density in our counts: a) the comparison of the frequency-function of densities, $n(r)$, with a chance distribution, and b) the consideration of the *geometrical* distribution of densities, *adjacent* squares of excessively low or high density deserving especial attention. Criterion *a*) has been theoretically discussed in section 2; there is given a numerical expression for the inverse probability of an observed configuration, in the form of the "weights" w_1 and w_2; in most occasions the frequency of densities served as the chief guide in searching for the exceptional areas. As to the geometrical distribution, no mathematical expression for the probability of different configurations was used; the problem is too complicated to allow of a general solution without certain restrictions; on the other hand, the sensitiveness of this criterion is much less than the sensitiveness of the frequency-function of densities; therefore, the geometrical configuration was used only as an auxiliary method, the chief weight being laid upon the character of the function $n(r)$.

The actual search for the exceptional areas was made in the following way. On charts where some positive excess of the function $n(r)$ either on the ascending or on the descending branch was found, adjacent groups of the low or high density which showed the excess where sought; in table I the densities of the sparse areas, found in this way, are printed in heavy type, whereas the densities of the rich areas are printed in italics. In the majority of cases the reality of these configurations stands without question, as the *weight* (inverse probability) of the excess, itself considerable, must be multiplied by the "weight" of the geometrical configuration. In doubtful cases an approximate value of the probability of the geometrical configuration was used in deciding the reality of some area found.

For the remaining charts, where no certain positive excess was revealed by the frequency of densities, the geometrical configuration only was examined; very few areas worth notion were found.

It may be expected that the excess in the frequency-function $n(r)$ and the peculiarities of the geometrical distribution, both being due to a common cause, are not independent from one another; a great excess in $n(r)$ must be accompanied almost certainly by real areas of obscuration or clustering, the ascending branch (weight w_1) being especially sensitive for obscuration, and the descending branch (w_2) — for clustering; this is confirmed by the observational data, as shown by the following tables.

Table α.

	Log w_1	< 0.6	0.6 ... 0.8	0.9 ... 1.1	1.2 ... 1.4	1.5 ... 1.7	1.8 ... 2.0	2.1 ... 2.3	2.4 ... 2.6	2.7 ... 2.9	3.0 ... 3.2	3.3 ... 3.5	3.6 ... 3.8	3.9 ... 4.1	4.2 ... 4.4	4.5 ... 4.7	4.8 ... 5.0	> 5.0
number of charts on which	areas of obscuration were found	13	5	10	7	4	6	4	7	3	5	2	2	3	5	1	2	34
	no areas of obscuration were found	49	6	3	2	3	1	2	1	0	0	0	0	0	0	0	0	0
number of charts on which	areas of clustering were found	17	4	9	4	5	7	3	7	3	4	2	2	3	5	1	2	34
	no areas of clustering were found	45	7	4	5	2	0	3	1	0	1	0	0	0	0	0	0	0

Table β.

	Log w_2	< 0.6	0.6 ... 0.8	0.9 ... 1.1	1.2 ... 1.4	1.5 ... 1.7	1.8 ... 2.0	2.1 ... 2.3	2.4 ... 2.6	2.7 ... 2.9	3.0 ... 3.2	3.3 ... 3.5	3.6 ... 3.8	3.9 ... 4.1	4.2 ... 4.4	4.5 ... 4.7	4.8 ... 5.0	> 5.0
number of charts on which	areas of obscuration were found	13	3	7	5	5	6	8	6	2	6	5	4	4	0	1	3	35
	no areas of obscuration were found	42	8	3	4	3	2	1	3	0	0	0	0	0	0	0	0	1
number of charts on which	areas of clustering were found	13	2	3	7	7	6	7	8	2	5	4	4	4	0	1	3	36
	no areas of clustering were found	42	9	7	2	1	2	2	1	0	1	1	0	0	0	0	0	0

Tables 11, 12 and 13 contain the result of the examination of the charts.

In table 11 the first column contains the ordinal number of the chart; next follow: B — the galactic latitude of the centre of the chart; N — the total number counted; m_0 — the

Table γ. Distribution of weights.

Log w	<0.6	0.6 ... 0.8	0.9 ... 1.1	1.2 ... 1.4	1.5 ... 1.7	1.8 ... 2.0	2.1 ... 2.3	2.4 ... 2.6	2.7 ... 2.9	3.0 ... 3.2	3.3 ... 3.5	3.6 ... 3.8	3.9 ... 4.1	4.2 ... 4.4	4.5 ... 4.7	4.8 ... 5.0	>5.0
frequency of w_1	62	11	13	9	7	7	6	8	3	5	2	2	3	5	1	2	34
frequency of w_2	55	11	10	9	8	8	9	9	2	6	5	4	4	0	1	3	36
theoretical (chance) frequency	135	23	11	5.6	2.8	1.4	0.7	0.35	0.18	0.09	0.045	0.022	0.011	0.006	0.003	0.0015	0.0015

true limiting magnitude, derived as explained in the preceding section; m_1 — the limiting magnitude taken with the argument *Log N* from table IV of *Groningen Publications* **27**; the difference $m_1 - m_0$, which may be taken as a measure of the relative density of stars; positive differences indicate that the region of the chart is richer than on the average for the same galactic latitude; negative differences indicate a relative scarceness of stars, maybe due to absorption of light in space; next are given *Log* w_1 and *Log* w_2, w_1 and w_2 denoting the *weights* of the positive excess of the ascending and descending branches of the curve $n(r)$ respectively; weights below 5, or *Log* w below 0.7 are not recorded; s_1 is the total area covered on the chart by the regions of minimum density, the unit of area being100 square minutes; m' is the effective limiting magnitude of the sparse area, read from table IV of *G.P.* **27**; $A = \frac{s_1 \Delta_1}{169}$ may be called the *relative obscuration*, a quantity which will be discussed in the following section; Δ_1 is defined by

$$\Delta_1 = m' - m_1;$$

in a like manner, s_2 is the area, m'' — the effective limiting magnitude of the region of maximum density, and $C = \frac{s_2 \Delta_2}{169}$ is the *relative clustering*, Δ_2 being given by

$$\Delta_2 = m'' - m_1.$$

Finally, the two last columns contain the differences $m' - m_0$ and $m'' - m_0$, given to the first decimal place only, which, like the differences in the 6[th] column, may serve as a measure of the defect resp. excess of density in the poor resp. rich areas, as compared with the normal density given by Van Rhijn for the corresponding galactic latitude.

Doubtful data relating to the minima or maxima are bracketed; as doubtful were regarded regions for which *neither* of the weights surpassed a certain limiting value; this minimum value of the weight was assumed as follows:

for regions of minimum density, $\text{Log } w_1 = 0.8$ or $\text{Log } w_2 = 1.4$;
for regions of maximum density, $\text{Log } w_1 = 1.4$ or $\text{Log } w_2 = 1.1$.

Among the charts where w exceeded this limit at least $\frac{2}{3}$ showed definite regions of obscuration or clustering. Thus the reality of the not bracketed regions of obscuration or clustering is highly probable, the probability being much increased by the peculiarity of the geometrical configuration. It may be remarked that *statistically* the doubtful (bracketed) areas are nevertheless of almost the same value as the others, whereas in an *individual* consideration of the areas it is safe to reject the doubtful ones.

The effective magnitudes m' and m'' were corrected for the distance from the centre, to make these values comparable with the effective limiting magnitude of the average chart. According to the data of table 2 the following round values of the correction were adopted:

mean distance from centre	0′	10′	20′	30′	40′	50′
adopted correction (st. mg.)	+0.30	+0.20	+0.10	0.00	—0.10	—0.20
mean distance from centre	60′	63′	67′	72′	78′	85′
adopted correction (st. mg.)	—0.10	0.00	+0.10	+0.20	+0.30	+0.50

The corrections are small and in the majority of cases produce no substantial change in the result.

Tables 12 and 13 contain a list of the regions of minimum and maximum density, the cases bracketed in table 11 being omitted but for a single exception (in table 13, № *98*, where the geometrical configuration is remarkable). The coordinates refer, if possible, to the centre of gravity of the region; on the other hand, it appeared safe to record only coordinates of points actually found in the region; as the centre of gravity could not answer this restriction in every case, on many complicated configurations coordinates of several characteristic centra of the same region were noted, instead of the centre of gravity; as an example may serve № 27 of table 12, where coordinates of 6 centra are given.

Table 11.

Ch.	B	N	Lim. Magn. Obs. m_0	Lim. Magn. G.P.27 m_1	m_1-m_0	Log w_1	Log w_2	Minima s_1	Minima [1])m'	Minima $\frac{s_1\Delta_1}{169}(A)$	Maxima s_2	Maxima [1])m''	Maxima $\frac{s_2\Delta_2}{169}(C)$	$m'-m_0$	$m''-m_0$
1	—38°	771	14.42	14.50	+0.08	0.7	0.8	—	—	—	—	—	—	—	—
2	—38	918	14.72	14.77	+0.05	—	—	—	—	—	—	—	—	—	—
3	—38	871	14.66	14.70	+0.04	1.8	4.0	4	12.06	0.02	21	15.68	0.12	—2.6	+1.0
4	—38	895	14.46	14.73	+0.27	2.0	1.7	11	13.47	0.08	7	15.50	0.03	—1.0	+1.0
5	—39	638	13.84	14.27	+0.43	—	—	—	—	—	—	—	—	—	—
6	—39	554	13.79	14.07	+0.28	2.4	1.8	20	12.24	0.22	12	14.90	0.06	—1.6	+1.1
7	—39	783	14.39	14.57	+0.18	—	—	—	—	—	—	—	—	—	—
8	—39	1137	15.15	15.14	—0.01	5.8	2.3	6	13.57	0.06	35	15.92	0.16	—1.6	+0.8
9	—39	820	14.84	14.63	—0.21	2.6	3.3	9	12.72	0.10	17	15.65	0.10	—2.1	+0.8
10	—39	645	14.89	14.30	—0.59	—	—	—	—	—	—	—	—	—	—
11	—38	929	15.01	14.77	—0.24	3.9	3.6	8	12.37	0.11	3	15.20	0.01	—2.6	+0.2
12	—38	681	14.86	14.33	—0.53	—	—	[9	13.08	0.07]	[2	15.60	0.02]	(—1.8)	(+0.7)
13	—38	651	14.76	14.27	—0.49	—	0.7	[7	12.37	0.08]	—	—	—	(—2.4)	—
14	—37	673	14.71	14.23	—0.48	1.9	2.5	—	—	—	3	15.40	0.02	—	+0.7
15	—36	663	14.37	14.20	—0.17	—	—	—	—	—	—	—	—	—	—
16	—36	523	13.82	13.86	+0.04	—	1.3	—	—	—	3	15.12	0.02	—	+1.3
17	—35	852	14.30	14.50	+0.20	1.1	1.8	7	13.00	0.06	8	15.69	0.06	—1.3	+1.4
18	—35	901	14.43	14.57	+0.14	—	—	—	—	—	—	—	—	—	—
19	—34	1734	15.00	15.43	+0.43	1.0	2.3	7	14.69	0.03	5	16.15	0.02	—0.3	+1.2
20	—33	492	13.55	13.59	+0.04	—	—	—	—	—	—	—	—	—	—
21	—32	1036	14.72	14.60	—0.12	2.0	3.1	6	12.97	0.06	21	15.36	0.10	—1.8	+0.6
22	—31	764	14.31	14.11	—0.20	4.3	3.6	31	12.44	0.31	9	14.96	0.04	—1.9	+0.6
23	—30	854	14.11	14.22	+0.11	0.9	2.0	17	12.83	0.14	—	—	—	—1.3	—
24	—29	1143	14.57	14.60	+0.03	—	1.2	[2	11.90	0.03]	4	15.90	0.03	(—2.7)	+1.3
25	—28	862	14.11	14.07	—0.04	—	0.8	—	—	—	—	—	—	—	—
26	—27	1231	15.08	14.57	—0.51	2.6	—	17	13.32	0.13	15	15.18	0.05	—1.8	+0.1
27	—26	873	14.51	13.97	—0.54	3.4	3.5	12	12.11	0.13	5	15.06	0.03	—2.4	+0.6
28	—25	787	13.98	13.79	—0.19	0.9	3.1	28	12.77	0.17	2	15.42	0.02	—1.2	+1.4
29	—23	2135	14.64	15.06	+0.42	3.0	2.6	9	14.15	0.05	4	15.80	0.02	—0.5	+1.2
30	—22	1306	14.16	14.33	+0.17	1.5	—	3	12.59	0.03	4	15.40	0.02	—1.6	+1.2
31	—21	2331	15.50	15.06	—0.44	30.	11.	21	13.60	0.18	31	15.53	0.09	—1.9	+0.0
32	—20	877	14.77	13.65	—1.12	5.6	3.5	25	12.13	0.22	7	14.78	0.05	—2.6	+0.0
33	—18	1378	15.24	14.13	—1.11	17.	11.	40	12.81	0.31	24	15.06	0.13	—2.4	—0.2
34	—17	274	13.60	12.15	—1.45	1.0	1.3	26	10.54	0.25	—	—	—	—3.1	—
35	—15	593	14.55	12.89	—1.66	5.7	4.0	32	11.18	0.33	12	14.07	0.08	—3.4	—0.5
36	—14	1458	15.36	13.97	—1.39	120.	54.	61	12.24	0.62	35	14.98	0.21	—3.1	—0.4
37	—12	738	13.89	13.06	—0.83	5.0	5.3	14	11.04	0.17	7	14.12	0.04	—2.8	+0.2
38	—11	1430	14.11	13.89	—0.22	13.	25.	43	12.74	0.29	9	15.21	0.07	—1.4	+1.1

1) Corrected for distance from the centre of the plate.

Table 11. Continued.

Ch.	*B*	*N*	Lim. Magn. Obs. m_0	Lim. Magn. *G.P.*27 m_1	m_1-m_0	Log w_1	Log w_2	Minima s_1	Minima m'	Minima $\frac{s_1\Delta_1}{169}(A)$	Maxima s_2	Maxima m''	Maxima $\frac{s_2\Delta_2}{169}(C)$	$m'-m_0$	$m''-m_0$
39	− 9°	1244	14.09	13.69	−0.40	3.1	3.0	8	12.69	0.05	16	14.36	0.06	−1.4	+0.3
40	− 8	2696	15.44	14.62	−0.82	14.	18.	24	13.90	0.10	23	15.34	0.10	−1.5	−0.1
41	− 6	586	13.58	12.71	−0.87	0.7	0.8	—	—	—	—	—	—	—	—
42	− 5	2852	14.55	14.66	+0.11	19.	25.	29	13.66	0.17	17	15.24	0.06	−0.9	+0.7
43	− 3	2466	14.19	14.47	+0.28	2.1	8.	16	13.77	0.07	24	14.99	0.07	−0.4	+0.8
44	− 2	2436	13.95	14.44	+0.49	8.8	8.0	23	13.60	0.11	19	15.05	0.07	−0.4	+1.1
45	0	1680	13.61	13.97	+0.36	2.5	12.	50	13.36	0.18	6	15.14	0.04	−0.2	+1.5
46	+ 1	6491	14.64	15.77	+1.13	49.	59.	14	14.61	0.10	14	16.73	0.08	−0.0	+2.1
47	+ 3	5539	14.58	15.57	+0.99	21.	17.	22	14.31	0.16	9	16.71	0.06	−0.3	+2.1
48	+ 5	3392	14.28	14.84	+0.56	4.3	4.0	6	13.42	0.05	0.5	16.01	0.00	−0.9	+1.7
49	+ 6	5708	14.75	15.63	+0.88	5.5	9.	4	14.19	0.04	4	16.55	0.02	−0.6	+1.8
50	+ 8	10246	15.28	1)16.53	+1.25	9.	12.	5	15.68	0.03	15	17.00	0.04	+0.4	+1.7
51	+10	8693	15.05	1)16.30	+1.25	17.	10.	18	15.59	0.07	3	17.02	0.01	+0.5	+2.0
52	+12	4043	13.94	15.28	+1.34	17.	7.	4	14.40	0.02	1	16.43	0.01	+0.5	+2.5
53	+13	7336	15.08	1)16.18	+1.10	6.	6.	7	15.08	0.05	0.8	17.07	0.00	0.0	+2.0
54	+15	6103	15.28	16.00	+0.72	4.	6.	3	15.10	0.02	4	16.79	0.02	−0.2	+1.5
55	+17	3271	14.72	15.22	+0.50	4.1	3.7	13	14.51	0.05	50	15.51	0.09	−0.2	+0.8
56	+18	2667	14.68	15.06	+0.38	4.4	6.	10	14.17	0.05	17	15.56	0.05	−0.5	+0.9
57	+20	1557	14.22	14.43	+0.21	0.7	2.4	5	13.51	0.03	5	15.11	0.02	−0.7	+0.9
58	+21	1637	14.47	14.56	+0.09	7.	9.	18	13.30	0.14	10	15.40	0.05	−1.2	+0.9
59	+23	1303	14.14	14.40	+0.26	—	—	—	—	—	[2	15.06	0.01]	—	(+0.9)
60	+24	696	13.63	13.59	−0.04	1.3	1.6	5	11.37	0.07	—	—	—	−2.3	—
61	+26	1446	14.52	14.73	+0.21	1.3	1.1	7	13.89	0.03	[6	15.46	0.03]	−0.6	(+0.9)
62	+28	960	14.00	14.25	+0.25	1.1	2.5	—	—	—	3	15.06	0.01	—	+1.1
63	+30	1145	14.50	14.67	+0.17	3.1	2.8	12	13.15	0.11	6	15.22	0.02	−1.4	+0.7
64	+31	1231	15.11	14.83	−0.28	—	1.0	—	—	—	—	—	—	—	—
65	+33	818	14.52	14.32	−0.20	1.8	1.8	14	12.58	0.14	13	15.13	0.06	−1.9	+0.6
66	+35	862	14.58	14.50	−0.08	2.1	2.0	—	—	—	—	—	—	—	—
67	+37	765	14.37	14.43	+0.06	2.5	0.9	29	13.06	0.24	13	15.33	0.07	−1.3	+1.0
68	+39	674	13.93	14.33	+0.40	0.7	1.1	[4	11.63	0.06]	—	—	—	(−2.3)	—
69	+40	594	14.00	14.27	+0.27	—	—	[11	12.32	0.13]	—	—	—	(−1.7)	—
70	+42	585	14.46	14.30	−0.16	—	0.8	—	—	—	—	—	—	—	—
71	+44	784	15.12	14.80	−0.32	—	—	—	—	—	[6	15.73	0.03]	—	(+0.6)
72	+46	654	14.50	14.60	+0.10	1.6	2.6	—	—	—	2	15.82	0.01	—	+1.3
73	+48	684	14.69	14.77	+0.08	—	—	[8	13.06	0.08]	—	—	—	(−1.6)	—
74	+49	694	14.41	14.83	+0.42	0.6	0.7	—	—	—	—	—	—	—	—
75	+51	747	14.92	15.00	+0.08	—	—	—	—	—	—	—	—	—	—
76	+53	325	13.80	13.83	+0.03	—	—	—	—	—	—	—	—	—	—
77	+55	551	14.67	14.67	0.00	—	—	—	—	—	—	—	—	—	—
78	+57	465	14.88	14.50	−0.38	—	—	—	—	—	—	—	—	—	—
79	+58	344	14.46	14.00	−0.46	1.3	0.9	57	12.80	0.40	—	—	—	−1.7	—
80	+60	446	14.92	14.50	−0.42	—	—	—	—	—	—	—	—	—	—
81	+62	509	15.14	14.75	−0.39	1.3	0.8	8	12.88	0.09	—	—	—	−2.3	—
82	+64	377	14.29	14.27	−0.02	—	—	—	—	—	—	—	—	—	—
83	+66	435	14.54	14.57	+0.03	—	—	—	—	—	[2	15.97	0.02]	—	(+1.4)
84	+67	388	14.45	14.38	−0.07	—	—	—	—	—	—	—	—	—	—
85	+69	307	13.95	14.08	+0.13	—	—	—	—	—	—	—	—	—	—
86	+71	392	14.20	14.46	+0.26	0.9	1.3	20	12.43	0.24	2	16.29	0.02	−1.8	+2.1

1) Extrapolation.

Table 11. Continued.

Ch.	*B*	*N*	Lim. Magn. Obs. m_0	Lim. Magn. *G.P.*27 m_1	$m_1 - m_0$	Log. w_1	Log. w_2	Minima s_1	Minima m'	Minima $\frac{s_1 \Delta_1}{169}(A)$	Maxima s_2	Maxima m''	Maxima $\frac{s_2 \Delta_2}{169}(C)$	$m' - m_0$	$m'' - m_0$
87	+73°	299	13.96	14.12	+0.16	—	—	—	—	—	[2	16.32	0.03]	—	(+2.4)
88	+74	461	14.65	14.78	+0.13	—	—	—	—	—	—	—	—	—	—
89	+76	719	15.33	15.54	+0.16	1.2	0.8	—	—	—	[2	17.00	0.02]	—	(+1.6)
90	+77	428	14.83	14.69	—0.14	—	—	[12	12.98	0.12]	—	—	—	(—1.8)	—
91	+79	420	15.26	14.69	—0.57	0.9	2.3	18	12.90	0.19	2	16.40	0.02	—2.4	+1.1
92	+81	403	15.31	14.62	—0.69	—	—	—	—	—	—	—	—	—	—
93	+82	430	14.75	14.73	—0.02	0.8	1.7	19	12.38	0.26	18	15.94	0.13	—2.4	+1.2
94	+84	525	15.10	15.12	+0.02	1.0	—	—	—	—	—	—	—	—	—
95	+86	648	15.56	15.46	—0.10	—	1.5	—	—	—	4	16.49	0.02	—	+0.9
96	+87	691	15.85	15.58	—0.27	—	—	—	—	—	—	—	—	—	—
97	+86	231	13.76	13.75	—0.01	—	—	—	—	—	—	—	—	—	—
98	+85	323	14.09	14.31	+0.22	—	—	—	—	—	—	—	—	—	—
99	+84	214	13.64	13.65	+0.01	—	—	—	—	—	—	—	—	—	—
100	+83	429	14.78	14.73	—0.05	—	—	—	—	—	—	—	—	—	—
101	+81	389	14.50	14.58	+0.08	1.0	1.3	25	12.69	0.28	—	—	—	—1.8	—
102	+79	353	14.32	14.39	+0.07	—	—	—	—	—	—	—	—	—	—
103	+78	464	14.40	14.81	+0.41	1.6	2.1	9	12.52	0.12	—	—	—	—1.9	—
104	+76	492	14.86	14.92	+0.06	—	—	—	—	—	—	—	—	—	—
105	+75	478	14.64	14.86	+0.22	—	—	—	—	—	[2	16.46	0.02]	—	(+1.8)
106	+73	482	14.43	14.86	+0.43	—	—	—	—	—	—	—	—	—	—
107	+71	559	14.53	15.04	+0.51	—	—	[3	11.56	0.06]	—	—	—	(—3.0)	—
108	+69	389	14.09	14.46	+0.37	—	—	—	—	—	—	—	—	—	—
109	+68	361	13.93	14.27	+0.34	—	—	—	—	—	—	—	—	—	—
110	+66	411	13.76	14.46	+0.70	1.1	2.2	—	—	—	11	15.83	0.09	—	+2.1
111	+64	541	14.34	14.86	+0.52	—	—	—	—	—	—	—	—	—	—
112	+62	652	14.34	15.11	+0.77	—	0.8	—	—	—	—	—	—	—	—
113	+60	571	14.59	14.89	+0.30	—	—	—	—	—	—	—	—	—	—
114	+59	593	14.48	14.89	+0.41	—	1.3	—	—	—	2	16.29	0.02	—	+1.8
115	+57	716	14.84	15.14	+0.30	—	—	—	—	—	[2	16.42	0.02]	—	(+1.6)
116	+55	746	15.02	15.14	+0.12	—	—	—	—	—	—	—	—	—	—
117	+53	725	15.04	14.97	—0.07	—	—	—	—	—	[2	16.30	0.02]	—	(+1.3)
118	+51	730	14.77	14.97	+0.20	1.6	2.1	2	11.80	0.04	4	16.11	0.03	—3.0	+1.3
119	+50	461	14.27	14.27	0.00	—	—	—	—	—	[6	15.26	0.04]	—	(+1.0)
120	+48	848	15.15	15.08	—0.07	—	—	—	—	—	—	—	—	—	—
121	+46	445	14.48	14.07	—0.41	—	—	[18	12.63	0.15]	—	—	—	(—1.8)	—
122	+44	461	15.04	14.03	—1.01	2.1	2.6	20	12.36	0.20	—	—	—	—2.7	—
123	+42	718	15.15	14.60	—0.55	2.6	3.2	8	12.76	0.09	17	15.41	0.08	—2.4	+0.3
124	+41	1362	15.73	15.54	—0.19	2.4	2.0	—	—	—	4	16.80	0.03	—	+1.1
125	+39	550	14.16	14.07	—0.09	—	—	[26	13.01	0.16]	[3	15.45	0.02]	(—1.2)	(+1.3)
126	+37	788	14.31	14.47	+0.16	—	1.1	[5	12.40	0.06]	[7	15.40	0.04]	(—1.9)	(+1.1)
127	+35	1243	14.96	15.07	+0.11	3.4	3.8	12	13.42	0.12	12	16.03	0.07	—1.5	+1.1
128	+33	408	13.70	13.34	—0.36	—	1.0	[15	11.46	0.17]	—	—	—	(—2.2)	—
129	+32	677	13.93	13.97	+0.04	0.7	1.8	29	12.90	0.18	6	15.33	0.05	—1.0	+1.4
130	+30	1121	14.63	14.63	0.00	1.4	—	12	13.34	0.09	[9	15.35	0.04]	—1.3	(+0.7)
131	+28	658	14.23	13.72	—0.51	2.5	1.1	21	12.18	0.19	—	—	—	—2.0	—
132	+26	635	13.85	13.56	—0.29	0.6	0.8	—	—	—	—	—	—	—	—
133	+25	1023	14.47	14.17	—0.30	3.2	2.6	14	12.90	0.11	8	14.90	0.03	—1.6	+0.4
134	+23	587	13.90	13.28	—0.62	—	—	[15	12.22	0.09]	—	—	—	(—1.7)	—
135	+22	1773	15.18	14.72	—0.46	4.3	2.6	33	13.97	0.15	42	15.23	0.13	—1.2	+0.0
136	+20	2121	14.92	14.84	—0.08	1.5	1.5	5	14.03	0.02	2	15.44	0.01	—0.9	+0.5
137	+18	1775	14.56	14.47	—0.09	1.0	2.6	18	13.54	0.10	12	15.02	0.04	—1.0	+0.5

Table 11. Continued.

Ch.	B	N	Lim. Magn. Obs. m_0	Lim. Magn. G.P.27 m_1	m_1-m_0	Log. w_1	Log. w_2	Minima s_1	Minima m'	Minima $\frac{s_1\Delta_1}{169}(A)$	Maxima s_2	Maxima m''	Maxima $\frac{s_2\Delta_2}{169}(C)$	$m'-m_0$	$m''-m_0$
138	+16°	2129	14.45	14.62	+0.17	1.3	7.	6	13.96	0.02	11	15.09	0.03	—0.5	+0.6
139	+15	979	13.29	13.50	+0.21	3.1	3.4	36	12.48	0.22	—	—	—	—0.8	—
140	+13	2006	14.05	14.40	+0.35	9.	8.	11	13.05	0.09	20	14.98	0.07	—1.0	+0.9
141	+11	4430	14.96	15.38	+0.42	4.7	6.	10	14.43	0.06	8	16.31	0.04	—0.5	+1.4
142	+ 9	3426	14.72	14.97	+0.25	14.	14.	33	14.38	0.12	34	15.45	0.10	—0.3	+0.7
143	+ 8	4437	15.02	15.28	+0.26	2.3	6.	7	14.02	0.05	11	16.05	0.05	—1.0	+1.0
144	+ 6	3059	14.80	14.75	—0.05	21.	14.	24	13.98	0.11	22	15.38	0.08	—0.8	+0.6
145	+ 5	1571	14.40	13.91	—0.49	5.2	5.4	17	13.20	0.07	9	14.63	0.04	—1.2	+0.2
146	+ 3	3072	14.79	14.72	—0.07	54.	46.	30	13.59	0.20	44	15.28	0.15	—1.2	+0.5
147	+ 1	3489	14.82	14.88	+0.06	59.	38.	57	14.19	0.23	42	15.45	0.14	—0.6	+0.6
148	0	3358	14.67	14.82	+0.15	62.	68.	44	14.01	0.21	32	15.51	0.13	—0.7	+0.8
149	— 2	3232	14.96	14.77	—0.19	11.	11.	46	14.19	0.16	13	15.62	0.07	—0.8	+0.7
150	— 3	2406	14.69	14.42	—0.27	7.	7.	13	13.50	0.07	14	15.01	0.05	—1.2	+0.3
151	— 5	930	13.80	13.27	—0.53	3.8	5.8	11	11.94	0.09	13	14.28	0.08	—1.9	+0.5
152	— 6	1607	14.31	13.94	—0.37	1.6	1.7	—	—	—	2	14.82	0.01	—	+0.5
153	— 8	2387	14.70	14.47	—0.23	24.	17.	54	13.70	0.25	33	15.18	0.14	—1.0	+0.5
154	— 9	2888	14.79	14.81	+0.02	9.	8.	33	14.01	0.16	38	15.27	0.11	—0.8	+0.5
155	—11	2485	14.59	14.62	+0.03	10.	11.	40	13.81	0.19	29	15.17	0.09	—0.8	+0.6
156	—12	3967	15.71	15.28	—0.43	6.	4.	5	13.56	0.05	7	16.08	0.03	—2.2	+0.4
157	—13	2241	15.56	14.56	—1.00	5.2	5.8	25	13.71	0.13	12	15.30	0.05	—1.8	—0.3
158	—15	1563	14.84	14.10	—0.74	3.6	2.3	9	12.93	0.06	5	15.01	0.03	—1.9	+0.2
159	—16	2633	15.23	14.91	—0.32	2.9	3.1	19	14.22	0.08	25	15.44	0.08	—1.0	+0.2
160	—18	1784	14.32	14.47	+0.15	5.3	5.0	17	13.52	0.10	14	15.14	0.06	—0.8	+0.8
161	—19	1328	14.02	14.13	+0.11	1.8	1.3	7	13.13	0.04	11	14.78	0.04	—0.9	+0.8
162	—20	1476	14.48	14.37	—0.11	2.1	2.2	14	13.47	0.07	—	—	—	—1.0	—
163	—22	1653	14.60	14.62	+0.02	2.1	5.1	—	—	—	7	15.48	0.04	—	+0.9
164	—23	2070	14.62	15.00	+0.38	5.3	4.7	5	13.71	0.04	4	15.71	0.02	—0.9	+1.1
165	—25	2427	14.75	15.32	+0.57	2.7	5.6	4	14.84	0.01	29	15.85	0.09	+0.1	+1.1
166	—26	1010	13.71	14.18	+0.47	—	1.4	—	—	—	11	15.21	0.07	—	+1.5
167	—27	1552	14.55	14.90	+0.35	5.8	2.2	22	13.73	0.14	39	15.51	0.14	—0.8	+1.0
168	—28	1235	14.43	14.63	+0.20	1.4	3.2	4	12.96	0.04	—	—	—	—1.5	—
169	—29	802	14.05	14.04	—0.01	—	—	—	—	—	—	—	—	—	—
170	—30	806	13.82	14.11	+0.29	1.0	0.7	13	12.75	0.11	[3	15.01	0.02]	—1.1	+1.2
171	—31	1574	14.75	15.17	+0.42	4.3	2.0	16	14.02	0.11	8	15.78	0.03	—0.7	+1.0
172	—32	875	14.31	14.36	+0.05	2.7	2.8	15	12.43	0.17	7	15.34	0.04	—1.9	+1.0
173	33	981	14.62	14.60	—0.02	1.7	0.9	—	—	—	—	—	—	—	—
174	—34	981	14.61	14.63	+0.02	0.7	1.2	—	—	—	8	15.60	0.05	—	+1.0
175	—34	679	13.78	14.07	+0.29	—	—	[4	12.01	0.05]	—	—	—	(—1.8)	—
176	—35	1213	14.58	15.00	+0.42	2.0	1.5	9	13.51	0.08	4	15.84	0.02	—1.1	+1.3
177	—36	1064	14.84	14.90	+0.06	0.8	1.1	—	—	—	—	—	—	—	—
178	—36	1022	14.59	14.83	+0.24	0.7	—	[3	12.88	0.04]	—	—	—	(—1.7)	—
179	—37	1310	15.22	15.25	+0.03	1.4	—	—	—	—	—	—	—	—	—
180	—38	908	14.82	14.73	—0.09	—	1.6	—	—	—	4	15.70	0.02	—	+0.9

Table 12.

Catalogue of Obscured Regions in the Zone +24° (from 22°55′ to 25°05′)

s = area, unit of area = 100 square minutes.

№	1900 α	1900 δ +	s	Ch.	Rem.
	h m				
1	0 18.2	24°10′	2	3	
2	18.9	23 45	2	3	
3	21.5	24 10	5	4	
4	23.3	23 50	6	4	
5	37.5	24 05	5	6	
6	40.4	23 40	6	6	
7	41.1	24 20	4	6	
8	42.9	23 45	5	6	
9	1 00.4	24 10	6	8	
10	07.4	24 50	9	9	
11	20.7	23 00	1	11	
12	21.5	23 10	1	11	
13	23.6	24 10	4	11	}
„	23.6	23 40			
14	2 09.5	24 10	6	17	
15	21.1	23 05	7	19	
16	46.2	23 15	28	21,22	
17	49.8	23 20	5	22	
18	53.5	23 30	5	23	
19	53.1	24 00			}
„	56.7	24 00	12	23	
„	56.7	24 30			
20	3 19.3	23 40			}
„	20.7	23 40	17	26	
„	21.5	23 30			
„	24.0	23 35			
21	26.7	23 50	11	27	
22	36.4	23 40	28	28	
23	40.0	23 15	6	29	
24	40.0	25 00	3	29	
25	55.6	25 00	3	30	
26	4 03.6	24 45	26	31,32	
27	09.1	24 35			}
„	10.9	25 00			
„	12.8	24 45	51	32,33	
„	15.3	25 00			
„	17.8	24 45			
„	20.0	24 40			
28	24.8	24 10	26	34	=Barnard 18
29	28.4	25 00	4	35	
30	30.2	24 00	8	35	
31	31.3	24 55	5	35	
32	36.0	23 50	2	36	
32a	40.0	24 45	75	35—37	
33	52.4	23 15	12	38	
34	52.4	24 40	1	38	
35	56.6	24 10	4	38	

№	1900 α	1900 δ	s	Ch.	Rem.
	h m				
36	4 53.8	24°45′			}
„	55.3	24 40	30	38,39	
„	57.5	24 50			
„	5 00.4	24 50			
37	12.0	23 55	18	40	
38	16.0	24 50	6	40	
39	23.6	23 30	26	42	} Ch. 41 too poor to show the region.
„	24.4	24 40			
40	26.7	24 50	3	42	
41	34.5	23 50	16	43	
42	41.8	23 00			}
„	43.3	23 10	8	44	
„	42.5	23 20			
43	45.5	23 00	5	44	
44	47.2	24 55	8	44	
45	49.8	23 30	28	44,45	
46	55.6	23 15	2.0	46	
47	52.7	24 15			}
„	54.9	23 50	24.	45,46	
„	56.0	24 15			
48	6 00.4	23 52	1.8	46	
49	01.8	23 00	3.8	46	
50	04.4	23 00	1.5	46	corner, doubtful
51	04.6	24 50	2.0	46	corner, doubtful
52	08.0	23 22	1.2	47	
53	08.0	24 00	12.	47	
54	08.4	24 40			}
„	09.3	24 48	4.0	47	
„	08.7	25 00			
55	09.8	23 05	2.5	47	
56	11.4	23 30	1.8	47	
57	14.0	24 35	1.5	48	
58	15.3	24 05	2.0	48	
59	19.8	23 02	2.8	48,49	
60	27.5	25 00	0.8	50	corner, doubtful
61	28.6	24 58	2.2	50	
62	36.2	23 00	1.5	50,51	
63	36.6	25 00	5.2	50,51	
64	37.5	23 08	1.5	51	
65	38.4	24 35	1.0	51	
66	43.2	25 02	1.5	51	
67	44.0	23 02	2.8	51,52	corner
68	43.8	24 32	5.0	51,52	}
„	44.6	24 58			
69	46.0	23 05	2.0	52	
70	47.3	23 05	1.2	52	

Table 12. Continued.

№	1900 α	1900 δ +	s	Ch.	Rem.
	h m				
71	6 50.2	24° 55′	6.2	52	
„	51.6	25 00			
72	51.8	24 18	2.8	52	
„	52.5	24 35			
73	52.6	23 55	0.8	53	
74	58.3	22 58	2.2	53	
„	59.0	23 08			
75	7 00.2	24 22	2.5	53	
76	00.5	23 35	1.2	53	
77	08.0	24 50	2.0	54	
78	14.5	23 30	7.	55	
79	16.4	24 45	5	55	
80	20.7	25 00	3	56	
81	22.9	25 00	1	56	
82	24.0	23 05	6	56	
83	28.7	23 50	5	57	
84	31.6	23 10	11	58	
„	35.3	23 00			
85	35.6	25 00	2	58	
86	39.6	25 00	5	58	
87	52.0	24 20	5	60	
88	57.1	23 00	7	61	
89	8 19.2	24 55	12	63	
90	28.0	24 40	3	65	
91	33.1	24 25	8	65	
92	35.2	23 50	3	65	
93	46.2	23 55	18	67	
„	48.4	24 25			
94	49.5	24 00	5	67	
95	8 50.9	25 00	6	67	
96	10 20.8	23 35	27	79	
97	22.2	24 55	18	79	
98	26.9	24 15	12	79	
99	40.4	23 30	8	81	
100	11 16.4	23 50	12	86	
„	16.4	24 30			
101	20.7	24 00	8	86	
102	11 59.3	24 00			
„	12 01.5	23 20	18	91	
„	04.4	23 10			
103	13.1	23 05	10	93	
„	14.5	23 20			
104	15.3	24 20			
„	14.5	24 00	9	93	
„	16.0	24 00			
105	13 17.8	25 00	18	101	
„	21.5	24 50			
106	24.0	23 15	7	101	
107	13 36.4	23 25	9	103	
108	15 33.8	24 15	2	118	
109	16 06.5	24 00	14	122	
„	09.1	24 10			

№	1900 α	1900 δ +	s	Ch.	Rem.
	h m				
110	16 10.2	23° 15′	6	122	
111	12.0	24 15	4	123	
112	12.0	24 55	4	123	corner
113	43.6	24 45	6	127	
114	47.3	23 05	2	127	
115	51.2	25 00	4	127	
116	17 02.2	23 35	29	129	
117	12.7	24 20			
„	14.9	24 10	12	130	
„	15.6	23 50			
118	20.0	24 05	21	131	
119	36.0	24 10	3	133	
120	37.8	24 00	3	133	
121	37.5	23 10	8	133	
„	39.6	23 10			
122	48.4	23 10	19	135	
„	49.1	24 00			
123	51.3	23 15	4	135	
124	51.3	24 00	7	135	
125	52.7	23 20	3	135	
126	56.4	23 15	5	136	
127	18 06.5	23 50	18	137	
128	16.4	23 50	6	138	
129	22.9	23 15			
„	22.2	23 45	36	139	
„	23.6	24 25			
130	29.8	24 20	1	140	
131	31.3	24 30	3	140	
132	35.6	25 00	5	140,141	
133	36.4	23 10	2	140	
134	44.2	23 08	2.2	141	
135	44.0	24 40			
„	46.5	24 20	24.	141,142	
„	47.3	25 00			
136	51.2	23 05	11	142	
137	59.6	23 10	8	143,144	
138	19 03.3	24 00	6	144	
139	06.2	24 00	3	144	
140	08.0	23 05	5	144	
141	08.4	24 50	5	144	
142	09.1	23 40	3	145	
143	11.3	23 40	3	145	
144	14.9	23 40			
„	16.0	23 10	25	145,146	
„	19.6	23 05			
145	25.1	25 00	3	147	
146	26.5	23 10	3	147	
147	24.4	23 35		146	
„	29.1	24 15	49	147	
„	31.6	24 50		148	
148	29.5	23 00	3	147	
149	32.4	23 05	7	147,148	

Table 12. Continued.

№	1900 α	1900 δ +	s	Ch.	Rem.	№	1900 α	1900 δ +	s	Ch.	Rem.
	h m						h m				
150	19 36.0	24°15′	3	148		171	20 52.4	23°40′	3	158	
151	36.0	23 35	2	148		172	54.5	23 20	6	158	
152	39.2	23 45	10	148		173	59.6	23 40	5	159	
153	39.6	24 50	21	148,149		174	59.6	24 40	7	159	
154	41.5	23 25				175	21 05.5	25 00	7	159	
"	43.6	24 00	18	149		176	07.6	24 25	7	160	
"	45.1	23 45				177	11.3	24 10	3	160	
155	44.7	25 00	3	149		178	12.0	23 50	3	160	
156	47.6	24 00				179	16.4	24 35	4	160	
"	48.0	24 25				180	16.4	23 00	3	161	
"	47.6	24 55	28	149,150		181	23.6	25 00	4	161	
"	51.3	24 20				182	27.3	23 55	14	162	
"	50.5	23 55				183	41.8	23 05	2	164	
157	57.8	24 00				184	42.5	24 00	1	164	
"	59.3	23 50	11	151		185	44.0	24 05	2	164	
"	20 00.0	24 10				186	56.4	23 15	4	165	
158	15.3	24 00	54	153		187	22 09.5	24 55	2	167	
159	23.6	23 55	31	154		188	10.9	23 40	9	167	
160	24.7	23 15	2	154		189	11.6	25 00	3	167	
161	32.0	23 45	16	155		190	12.0	23 10	7	167	
162	33.5	24 15	6	155		191	20.4	24 50	4	168	
163	35.6	25 00	3	155		192	31.3	24 00	13	170	
164	36.0	23 50	13	155,156		193	42.9	23 05	6	171	
165	43.0	24 20	0.5	156		194	43.2	24 55	10	171	
166	43.8	25 02	1.2	156		"	44.4	24 20			
167	44.5	24 35	0.5	156	doubtful	195	50.2	24 40	15	172	
168	47.6	23 45	18	157		"	51.6	24 20			
169	51.6	25 00	4	157	corner	"	51.6	24 45			
170	52.0	23 00	3	157	corner	196	23 24.4	24 20	9	176	

Table 13.

Catalogue of Regions of Maximum Stellar Density in the Zone +24°.

s = area; unit of area = 100 square minutes.

№	1900 α	1900 δ +	s	Ch.	Rem.	№	1900 α	1900 δ +	s	Ch.	Rem.
	h m						h m				
1	0 12.8	24°20′	4	3		*9*	0 54.5	23°40′			
2	13.8	24 55	14	3		"	56.0	23 40	12	8	
3	27.2	23 40	7	4		"	57.8	23 30			
4	37.8	24 40	5	6		*10*	57.1	24 20	9	8	
5	41.0	23 05	3	6		*11*	1 02.6	24 25	5	9	
6	41.2	25 00	4	6		*12*	05.5	24 20			
7	52.4	24 05	6	8		"	06.9	24 05			
8	53.1	24 50	8	8		"	06.2	23 50	12	9	
"	54.2	24 30				"	04.7	23 55			

Table 13. Continued.

№	1900 α	1900 δ +	s	Ch.	Rem.
	h m				
13	1 48.4	23°50′	3	14	
14	58.0	23 30	3	16	
15	2 06.5	24 35	2	17	
16	07.6	24 50	2	17	
17	25.0	24 35	5	19	
18	51.0	24 30	9	22	
19	3 15.6	23 30	15	26	
„	15.6	24 10			
„	15.6	24 40			
„	17.8	24 20			
20	31.6	24 20	5	27	
„	31.6	24 00			
21	40.0	24 40	2	28	
22	45.5	23 25	2	29	
23	47.6	24 35	4	29,30	
24	55.4	23 50	31	31	
„	59.3	23 20			
25	4 09.1	23 20	4	32	
26	11.4	23 05	3	32	
27	14.4	23 00	6	33	
28	15.3	23 55	2	33	
29	16.7	23 10	1	33	
30	17.5	23 20	1	33	
31	18.9	23 50	13	33	
32	34.9	23 25	10	35	
33	37.5	23 05	11	36	
34	40.4	23 30	5	36	
35	41.8	23 00	2	36	
36	42.5	23 55	11	36	
37	43.6	23 20	6	36	
38	49.5	23 45	5	37	
39	51.6	24 05	2	37	
40	59.6	23 40	24	38,39	
41	5 09.1	24 45	9	40	
42	10.2	23 00	2	40	
43	10.9	25 00	4	40	
44	11.3	24 35	6	40	
45	12.4	23 00	2	40	
46	26.5	23 10	13	42	
„	28.4	23 15			
47	30.2	24 20	1	42	
48	32.8	24 30	8	42,43	
49	38.9	24 40	18	43,44	
„	39.6	24 20			
„	39.6	23 50			
50	43.3	24 20	1	44	
51	43.6	25 00	7	44	
52	43.6	23 40	2	44	
53	46.2	23 40	4	44	
54	46.9	24 25	2	44	
55	51.7	25 00	3	45	
56	54.9	23 20	1	45	

№	1900 α	1900 δ +	s	Ch.	Rem.
	h m				
57	5 57.1	24°52′	2.5	46	
58	58.0	23 22	0.8	46	
59	58.0	24 25	0.5	46	
60	58.7	24 08	0.8	46	
61	58.9	24 42	0.5	46	
62	59.1	23 32	2.0	46	
63	6 03.2	24 22	8.2	46,47	very strong cluster
64	03.6	23 42	3.2	46,47	
65	05.3	23 58	0.8	47	
66	06.5	23 12	0.5	47	
67	07.3	23 05	0.5	47	
68	16.9	24 35	0.5	48	
69	25.6	23 35	1.0	49	
70	26.0	24 05	1.0	49	
71	27.0	23 32	0.8	49	
72	27.0	24 03	0.8	49	
73	28.2	23 42	4.0	49,50	
74	28.4	24 15	4.0	50	
75	30.7	23 18	3.8	50	
76	30.7	24 38	1.2	50	
77	34.9	24 20	2.0	50	
78	35.6	24 05	0.8	51	
79	36.6	24 12	0.8	51	
80	37.0	24 02	0.8	51	
81	39.3	23 20	1.0	51	
82	45.0	23 45	0.5	52	
83	47.6	23 38	0.5	52	
84	59.6	23 48	0.8	54	
85	7 04.4	24 55	0.5	54	
86	09.1	23 40	36.	55	
87	13.5	24 30	7	55	
88	14.5	23 55	7	55	
89	18.9	24 00	2	56	
90	19.6	23 20	4	56	
91	20.7	24 30	3	56	
92	21.5	23 55	6	56	
93	23.2	24 10	2	56	
94	25.1	23 20	3	57	
95	26.9	25 00	2	57	
96	32.8	24 20	6	58	
97	39.6	23 30	4	58	
98	8 01.8	23 15	6	61	
99	08.4	24 50	3	62	
100	12.4	24 00	3	63	
101	16.0	24 20	3	63	
102	29.1	23 10	3	65	
103	29.8	23 50	3	65	
104	30.5	23 10	3	65	
105	33.5	23 15	4	65	
106	50.9	23 10	13	67	
107	9 29.1	24 30	2	72	
108	11 23.6	23 35	2	86,87	

Table 13. Continued.

№	1900 α	δ +	s	Ch.	Rem.
	h m				
109	11 58.9	23° 50′	2	91	
110	12 18.2	23 50			
„	19.6	24 20	18	93	
„	20.4	23 50			
111	12 32.0	23 50	4	95	
112	14 32.7	24 50	11	110	
„	34.5	24 55			
113	15 03.6	23 10	2	114	
114	33.1	23 55	4	118	
115	16 16.0	23 10	6	123	
116	16.4	24 40	2	123	
117	19.2	24 00	9	123	
118	21.8	24 50	4	124	
119	43.6	23 30	5	127	
120	48.7	23 40	4	127	
121	51.6	24 00	3	127	
122	17 04.7	23 05	3	129	
123	07.6	24 00	3	129	
124	36.0	24 40	8	133	
125	47.6	24 30			
„	49.8	24 40			
„	52.0	24 30	42	135	
„	54.9	24 30			
„	55.6	23 40			
126	18 01.5	23 25	2	136	
127	10.9	23 50	14	137,138	
„	12.0	24 15			
128	18.9	23 35	5	138	
129	18.9	24 30	4	138	
130	27.6	23 05	2	140	
131	29.5	23 30	11	140	
132	30.5	23 00	1	140	
133	32.0	23 10	3	140	
134	36.0	23 55	4	140,141	
135	38.5	24 28	1.0	141	
136	40.4	24 28	0.5	141	
137	40.9	23 28	0.8	141	
138	41.5	24 00	2.2	141	
139	42.7	23 32	1.5	141	
140	45.1	23 40	14.	142	
141	48.3	24 30	3.	142	
142	51.2	23 50	17.	142	
143	54.4	24 42	1.2	143	
144	56.4	24 58	0.8	143	
145	57.3	24 50	1.0	143	
146	57.6	24 22	1.2	143	
147	58.7	23 35	1.5	143	
148	19 01.8	23 30	1.	144	
149	04.0	24 45	21.	144	
150	11.6	24 50	7.	145	

№	1900 α	δ +	s	Ch.	Rem.
	h m				
151	19 18.5	24° 35′		145,	
„	22.2	24 40	60	146,	great star-cloud
„	25.5	24 35		147	
„	28.0	24 40			
152	25.1	23 00	1	147	
153	27.6	23 30			
„	29.8	23 25			
„	30.9	23 55	42	147,148	
„	33.8	24 20			
„	35.3	24 40			
154	33.8	23 30	9	148	
„	36.7	23 20			
155	38.2	24 00	1	148	
156	39.0	23 10	7	148,149	
157	41.1	23 45	4	149	
158	41.1	24 20	1	149	
159	44.7	23 20	1	149	
160	48.4	23 35	7	149,150	
161	53.5	25 00	3	150	
162	54.2	23 10	5	150	
163	56.8	24 45	13	151	
„	58.5	25 00			
164	20 06.2	23 00	2	152	
165	12.0	24 10	8	153	
166	15.3	25 00	1	153	
167	17.5	25 00	3	153	
168	18.9	24 10	1	153	
169	19.2	23 20			
„	20.4	24 00	34	153,154	
„	20.4	24 50			
170	26.9	23 10	33	154,155	
„	27.2	23 45			
„	28.4	24 30			
171	30.9	25 00	2	155	
172	32.0	23 10	1	155	
173	33.1	24 50	8	155	
174	34.0	23 10	3	155	
175	37.8	24 45	1.2	156	
176	40.2	24 50	0.8	156	
177	41.1	24 28	0.5	156	
178	41.6	24 42	1.2	156	
179	45.1	23 15	2	157	
180	45.8	24 50	6	157	
181	50.9	24 35	2	157	
182	51.6	23 55	2	157	
183	52.8	24 40	2	158	
184	57.5	24 50	3	158	
185	21 01.8	23 45	2	159	
186	02.2	23 20	2	159	

Table 13. Continued.

№	1900 α	δ +	s	Ch.	Rem.	№	1900 α	δ +	s	Ch.	Rem.
	h m						h m				
187	21 01.1	24°00′	15	159	}	*203*	21 49.1	24°35′	10	165	
„	01.8	24 50				*204*	52.0	25 00	3	165	
„	04.0	24 10				*205*	54.2	23 25	4	165	
188	05.5	23 40	3	159		*206*	54.5	23 50	4	165	
189	06.2	24 30	3	159		*207*	54.2	24 30	17	165,166	}
190	09.8	24 50	2	160		„	57.5	24 45			
191	11.3	23 10	3	160		*208*	59.6	23 30	2	166	
192	12.7	24 25	2	160		*209*	22 04.8	23 45	16	167	}
193	14.5	23 15	7	160		„	05.5	23 15			
194	18.5	24 50	5	161		*210*	05.1	24 40	19	167	}
195	21.5	24 50	3	161		„	08.7	24 30			
196	21.5	23 20	3	161		*211*	11.6	24 30	4	167	
197	33.5	24 50	2	163		*212*	39.6	23 15	8	171	
198	33.8	24 20	1	163		*213*	48.0	23 10	4	172	
199	39.6	23 30	4	163		*214*	50.2	23 05	3	172	
200	41.1	24 30	1	164		*215*	23 06.9	24 00	8	174	
201	44.7	23 40	1	164		*216*	16.4	24 20	4	176	
202	45.8	23 20	2	164		*217*	49.8	24 45	4	180	

5. Discussion of Results.

a) *Galactic condensation.* In table 14 are given mean values of the difference $m_1 - m_0$ (table 11) for different galactic zones. B is the galactic latitude, n — the number of charts. The probable errors are derived from the internal agreement of the values.

Table 14.

$\pm B$	0°...9°	10°...19°	20°...29°	30°...35°	36°...39°	40°...59°	60°...74°	75°...87°
n	25	24	29	22	24	22	17	17
Mean $m_1 - m_0$	+0.10	−0.10	−0.06	+0.07	−0.02	−0.07	+0.22	−0.03
p. e.	±0.06	±0.06	±0.05	±0.07	±0.06	±0.07	±0.08	±0.08

From this table it may be inferred that the change of stellar density with galactic latitude as derived from the Paris *Carte-du-Ciel* Zone at +24° is in excellent agreement with the results of Van Rhijn[1]; the deviations are small and show no systematic character. This may be regarded as a check of the method by which the limiting magnitudes were derived here.

1) *G. P.* 27.

b) *Obscuration and clustering: generalities.*

The fundamental problem of the real nature of the observed irregularities in stellar distribution will now be discussed. In table 11 are given two measures of the irregularity:

$$\text{the } \textit{relative obscuration}, \ A = \frac{s_1 \Delta_1}{169};$$

and

$$\text{the } \textit{relative clustering}, \ C = \frac{s_2 \Delta_2}{169}.$$

In the case of absorption Δ_1 may be regarded as representing the amount of absorption, which is proportional to the depth of the absorbing matter; the product of depth by area, $s_1 \Delta_1$, divided by the total area of the chart, represents thus a quantity to some extent proportional to the *average mass of absorbing matter per unit area* (per chart). Such would be the meaning of the quantity A were the area of minimum density the only area subject to absorption; in a real case absorption may be present in a less degree on the whole chart, the area noted by us representing a *maximum* of absorption; therefore, no exact physical meaning can be attributed to A, as well as to C; each may be regarded as a measure of the *contrastness* and *irregularity* of stellar distribution, A relating to the minima, C — to the maxima of density. A chart covered by a *uniform* absorbing veil will show no irregularity in the distribution of the stars whatever the amount of the absorption be[1]). If nevertheless it may be hoped to get some information on the presence of obscuring matter from the quantity A (maybe C also), i. e. from a study of the irregularity of stellar distribution, the reason for such a hope lies in the purely empirical fact that known extended nebulae — bright or dark — show an extremely irregular structure; such an obscure nebula placed in front of a stellar background would produce corresponding irregularities in the apparent distribution of the stars. Obscure nebulae which cover only a part of the chart may, of course, be detected more easily than extended nebulosities covering the whole chart.

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1) As an example chart 41 may be mentioned, where intense general absorption appears associated with an almost normal chance distribution of the stars.

Another quantity which may serve as a measure of obscuration is the difference $m_1—m_0$, given in the 6th column of table 11; this difference represents the relative *excess of stellar density* in a given region, as compared with the average density for the corresponding galactic latitude; it is very convenient for our purposes to measure the density in stellar magnitudes, instead of using the numbers themselves. At the limiting magnitude of the charts the average increase of stellar number per 1 magnitude interval is about $2\frac{1}{2}$, so that, roughly speaking, to $m_1—m_0 = +1.0$ corresponds a density 2.5 times, and to $m_1—m_0 = -1.0$ — a density 0.4 times the normal density.

The total *effective* absorption, a, may be assumed equal to

$$a = -(m_1—m_0) + f(B) \quad . \; . \; . \; (15),$$

where $f(B)$ is an unknown function of the galactic latitude, B. By removing the obscuring matter the apparent density of stars is increased in the same proportion, as it is by entering table IV of *G.P.* 27 [1]) with the argument $m_1 + a$, instead of m_1. If $f(B)$ is small or constant, $m_1—m_0$ may be regarded as a measure of the differential absorption.

In the case of real obscuration the quantity a has the following meaning: it represents the *minimum value* of the true absorption along the path of the ray, coming from the remotest stars of the chart. In the case of *real stellar grouping* (clustering) a looses its physical meaning and may be regarded as a purely conventional measure of the relative density of stars.

We now possess two series of numerical data which may help to solve the problem of irregularity of stellar distribution: the *measures of irregularity*, A and C, and the *density excess*, $m_1—m_0$.

c) *Acuracy of* $m_1—m_0$. In section 3 the probable error in m_0 was estimated at ± 0.03 st. mg.; the accidental probable error in N (total number) is of the order p. e. $= \pm 0.674 \sqrt{N}$, or with $N = 1000$, p. e. $= \pm 0.02 N$; this corresponds to a probable error in m_1 equal to ± 0.02 st. mg.; the accidental probable error of a difference $m_1—m_0$ becomes thus:

1) As table IV of *G.P.* 27 reaches only limiting magnitude 16.00, for the sake of convenience the table was extended by extrapolation, assuming a constant value of $\delta = \frac{d(\text{Log } N)}{dm}$ for a given B, $\delta_{m > 16.0} = \delta_{m = 16.0}$.

$$\text{p. e. } (m_1-m_0) = \pm\sqrt{0.03^2+0.02^2} = \pm 0.04 \text{ st. mg.}$$

Systematic errors in m_0, depending on a seasonal change of the sensitiveness of the plate, hardly exceed 0.20 st. mg.; the mean differences m_1-m_0 of table 14 show a dispersion of ± 0.10 st. mg., or a p. e. of ± 0.07 st. mg.; since in this quantity real deviations of stellar density in different galactic zones are included, the value found may be regarded as a maximum value, and the true probable error in m_1-m_0, including also systematic seasonal errors, may be estimated at

$$\textbf{p. e. } (m_1-m_0) < \pm\sqrt{0.04^2+0.07^2} = \pm \mathbf{0.08} \text{ st. mg.}$$

The real dispersion shown by m_1-m_0 in table 11 is much greater and corresponds to a probable error of

$$\pm \mathbf{0.31} \textbf{ st. mg.} \text{ (dispersion } \pm 0.46 \text{ st. mg.).}$$

Moreover, the m_1-m_0 show a systematical variation, *adjacent values* presenting ordinarily a smooth and gradual change, which is due to *systematic* deviations of the density in extended regions of the sky; evidently *p. e.* (m_1-m_0) is less than

$$\pm 0.674 \sqrt{\frac{\Delta_a{}^2}{2}},$$

Δ_a denoting the dispersion of differences of m_1-m_0 for two adjacent charts. In this way we found

$$p.\,e.\ (m_1-m_0) < \pm 0.13 \text{ st. mg.}$$

As the major part of this must be due to real variations of density, the above found value, ± 0.08, may be regarded as confirmed. The accuracy of the differences m_1-m_0 is thus as high as for direct photometric observations of individual stars.

d) *Density excess and irregularity of distribution.*

On fig. 2a and 2b the quantities m_1-m_0, A and C are represented graphically; from an inspection of the curves the following preliminary conclusions may be drawn:

1) A and C in the majority of cases apparently depend upon one another; there may be found but very few instances where apparent clustering is not associated with obscuration: it may be suggested that *statistically* both phenomena have a common origin, either in absorption or in the peculiarities of stellar grouping;

2) the relative minima of $m_1—m_0$ (or of stellar density) correspond to maxima of the irregularity, A and C, and *vice versa*; thus apparently the factor that reduces the number of visible stars is at the same time the cause of this irregularity of stellar distribution; within the limits of reasonability such a factor may be sought only in the *absorption of light in space* by irregularly distributed dark matter.

These statements are even more clearly put forth by table 15. There is a steady decrease of A with increasing $m_1—m_0$, or with increasing excess of density; an exception presents only the last value, where for the 7 richest charts the relative absorption is somewhat greater than for the preceding less rich charts; but it must be remembered that these charts (№ 46, 47, 49, 50, 51, 52, 53) are all placed in low galactic latitudes (B from $+1^0$ to $+13^0$) where a high observed density of stars may nevertheless be associated with considerable absorption.

Table 15.

Correlation of the *Density Excess* ($m_1—m_0$), the *Relative Obscuration* (A) and the *Relative Clustering* (C).

$m_1—m_0$	—1.66 ... ... —1.20	— 1.19 ... ... —0.80	—0.79 ... ... —0.40	—0.39 ... ... 0.00	+0.01 ... ... +0.40	+0.41 ... ... +0.80	+0.81 ... ... +1.34
Number of charts	3	7	21	48	74	20	7
Mean A	0.400	0.161	0.103	0.070	0.065	0.038	0.067
Mean C	0.097	0.053	0.032	0.033	0.030	0.029	0.031
$C:A$	0.16	0.33	0.31	0.47	0.46	0.76	0.46

As to the relative clustering, C, its variation is at first parallel to A, but from $m_1—m_0 > —0.80$ it becomes constant. The range of variation of C is less than the range of A.

To understand better the consequences of the data of table 15, the alternatives presented by the two chief hypotheses alluded at in the Introduction must be stated more precisely.

1. *Only absorption, no clustering*. The maxima of density correspond in this case to more transparent parts of the nebulosity; with increasing absorption (or decreasing $m_1—m_0$) both A and C must steadily increase, beginning from zero, the ratio $C:A$ remaining approximately constant.

2. *Only clustering, no absorption*; positive excesses of densyti are expected where the clustering is especially intense; thus

an increase of C with increasing $m_1—m_0$ is to be expected; as the apparently "obscured" regions represent in this case only interstices between the clusters, A must vary in the same sense as C.

From table 15 it is obvious that case 2. does not answer the observed facts, whereas case 1. agrees tolerably well with the data of the table. But evidently a mixture of both cases may best account for the observations. We arrive thus at the conclusion that in the real universe

the observed irregularity of distribution of the stars is chiefly due to absorption of light by irregular obscure cosmic clouds, and in a less degree — to a slight tendency of stars to crowd together, or to form real clusters; the slight clustering explains why the ratio $C:A$ increases with the increasing excess of density; for $m_1—m_0 < —0.80$ the areas of maximum density are apparently in the majority of cases only *holes* in the dark nebulosity, through which the stars of the background are allowed to shine with a comparatively small loss in brightness; for more transparent regions, with $m_1—m_0 > —0.80$, approximately one half or more of the rich areas may also represent such holes, whereas the remaining areas are real clusters or condensations of stars in space. Beginning from $m_1—m_0 > —0.80$ the decrease of the part of C due to the *apparent* clusters (holes in the nebulosity) is apparently counterbalanced by the increase of the other part of C originating from the *real* clusters, the resulting value of C remaining thus constant.

As the irregularities in stellar distribution seem to occur more or less almost in every region of the sky, we are led to the conception of an absorbing veil covering apparently the whole sky and transmitting only a part of the light of stars placed behind; the veil reveals itself only by some local condensations or holes which produce non-uniform absorption and give origin to the apparent irregularity of distribution of the stars. Were the veil removed, the density of stars would be much greater than the observed, and the distribution upon a small area would be probably very similar to a chance distribution but for the real clusters, sometimes disturbing the distribution. Let us call the imaginary density of stars, obtained after removing the absorbing matter, the *ideal density*, and the corresponding effective limiting magnitude — the *ideal magnitude*, m_i[1]). In the case of apparent clusters the effective limiting magnitude (m'') has in m_i an upper limit, corresponding to full transparency; on the contrary, the effective limiting magnitude of the sparse regions (m') is subject to no restriction; it may be expected therefore that m' must attain much greater absolute values and must show a greater dispersion than m''; this is confirmed by the data contained in the two last columns of table 11. The differences $m'-m_0$ and $m''-m_0$, or the density excesses of the obscured and the rich areas respectively there given, crowd around their mean values with the following dispersion:

$m'-m_0$ (obscuration), mean $=-1.39$ st. mg.; dispersion $=\pm 0.83$ st. mg.
$m''-m_0$ (clustering), „ $=+0.93$ „ „ ; „ $=\pm 0.59$ „ „

For comparison the dispersion of m_1-m_0, or of the density excess of the whole chart, may be mentioned:

$$\pm 0.46 \text{ st. mg.}$$

The dispersion of $m''-m_0$ is unexpectedly small, especially if it is taken into account that a large proportion of the "clusters" cover an area of only 200 square minutes or less, where chance deviations of the density may have strongly influenced the individual values of m'', without perceptibly affecting the whole chart.

e) *Galactic distribution of obscuration and clustering.* Table 16 contains data relating to the galactic distribution; the mean values were derived from *all* data of table 11, using also the doubtful ones (which are bracketed in table 11); for comparison are given in parentheses mean values computed without using the doubtful data of table 11; the difference of both sets of data is but slight.

The table shows decidedly a decrease of A and C, as well as of the ratio $C:A$, with the increasing galactic latitude; thus both obscuration and clustering have a galactic concentration of the same character as revealed by the stars. The behaviour of the ratio $C:A$ indicates that *real clustering* plays a more important part in low galactic latitudes than near the galactic poles. The fact that the maximum of absorption occurs in the galactic zone $10^0...19^0$, instead of the galactic equator, is due to the effect of the well-known *Taurus* region of obscuration; near

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1) Taken from *G.P.* 27, table IV, with the ideal density as argument.

the galactic pole ($B = 75^0 .. 87^0$) a secondary maximum of obscuration is indicated, due evidently to real absorption.

Table 16.
Galactic Distribution of the Relative Obscuration (A) and Relative Clustering (C).

$\pm B$ (gal. lat.)	$0^0...9^0$	$10^0...19^0$	$20^0...29^0$	$30^0...35^0$	$36^0...39^0$	$40^0...59^0$	$60^0...74^0$	$75^0...87^0$
Mean A	0.111 (0.111)	0.140 (0.140)	0.071 (0.067)	0.088 (0.078)	0.054 (0.035)	0.050 (0.033)	0.023 (0.019)	0.057 (0.050)
Mean C	0.070 (0.070)	0.053 (0.053)	0.033 (0.032)	0.028 (0.025)	0.029 (0.025)	0.012 (0.007)	0.009 (0.006)	0.012 (0.010)
Ratio $C : A$	0.63 (0.63)	0.38 (0.38)	0.46 (0.48)	0.32 (0.32)	0.54 (0.71)	0.24 (0.21)	0.39 (0.32)	0.21 (0.20)
Number of charts	25	24	29	22	24	22	17	17

From a smoothed curve the galactic condensation (ratio of $B = 0^0$ to $B = 90^0$) comes out as 3.6 : 1 for the obscuration, and as 8 : 1 for the clustering; the galactic condensation of stars to limiting magnitude 14.5 (photographic) is 7 : 1, according to Van Rhijn. Since obscure nebulae can be found only if they are nearer to us than the background of stars, and since the apparent galactic condensation is chiefly a function of the distance, it is not surprising that obscure nebulae show a smaller condensation than stars of the background against which the nebulae are projected; on the other hand, the *real* galactic condensation of the absorbing matter may be also somewhat less pronounced than for stars. The galactic condensation of *clustering* is greater than for stars of the same limiting magnitude; if it is taken into account that the percentage of real clusters increases towards the galactic equator, the galactic condensation of *real clustering* must be much greater than 8 : 1, and thus surpasses considerably the galactic condensation of stars.

There is a circumstance which makes the galactic condensation of A appear greater than it really is. The possibility of detecting an obscured region depends highly upon the number of stars on a chart; the greater the number (N), the smaller the area or contrast of obscuration which can be found with certainty: if N is small, the excess in the distribution of densities produced by a small area cannot be distinguished from chance deviations. Since N increases towards the galactic equator, obscured areas in low galactic latitudes are more easily detected than in high latitudes. To obtain an idea of the apparent increase of the galactic condensation of A, the different galactic zones must be compared under equal conditions.

From a consideration of the obscured regions actually found the following *minimum* values of A which can be detected were estimated (smoothed values):

N	250	350	450	550	650	750	900	1100	1300	1500
minimum A, observed	(0.20)	(0.20)	0.10	0.06	0.06	0.03	0.02	0.03	0.02	0.03
„ „, smoothed	0.22	0.14	0.09	0.07	0.05	0.04	0.03	0.02	0.02	0.01

Below $N = 400$ the conditions of detecting are very bad; therefore all charts with the true limiting magnitude, m_0, less than 14.40 were rejected; there remained 117 charts having $m_0 \geqslant 14.40$, for which near the galactic poles N approached 400. For $N = 400$ the minimum value of A is 0.12; all A less than this value were also rejected; table 17 gives the galactic distribution of the material restricted in this way.

Table 17.

Galactic Distribution of Relative Obscuration.

Only $A > 0.11$ and charts with $m_0 > 14.39$ used.

$\pm B$	$0^0 \ldots 19^0$	$20^0 \ldots 39^0$	$40^0 \ldots 59^0$	$60^0 \ldots 87^0$
Mean A	0.098	0.031	0.039	0.046
Number of charts	33	44	19	21

In this table all galactic zones are placed in equal conditions of observation; it may be remarked that the rejection of small values of A is to some extent equivalent to the use of the *nearest* cosmic clouds only, as such clouds will produce the greatest apparent absorption (defect of density) and will have the greatest angular dimensions, i. e. the nearer the clouds, the greater the corresponding value of A will be. Table 17 gives for the galactic condensation of A a value near 2:1; the secondary maximum near the galactic pole is more pronounced than in table 16 (where for the joined zones 60^0—87^0 the maximum disappears, the mean value being 0.040); it may be suggested that the secondary maximum is due to relatively near clouds. The crowding of dark nebulae towards the Milky Way is thus confirmed by table 17, the somewhat smaller value of the galactic condensation being in all appearance due to the relative nearness of the selected objects.

The true galactic condensation of relative obscuration projected against a background of limiting magnitude 14.5 must lie between the two values found above, 3.6 : 1 and 2 : 1, and may be safely assumed equal to 3 : 1.

As to the possibility of detecting relative clustering, it depends in a far less degree upon the number of stars per chart, and practically all charts and galactic zones may be regarded as comparable with one another in what concerns the value of C.

f) *Structure of the universe.* The subsequent considerations are preliminary; a study of the distribution of stars of different magnitudes in a great number of obscured and rich areas is needed to solve the problem of the real nature of these areas, and finally the study of proper motions, spectra, etc. will decide the question; but this is a work of futurity; in the meanwhile a working hypothesis based on evidence already gained may prove to be useful.

It appears that almost in every region of the sky indications of absorption of light by dark cosmic clouds can be found; everywhere amongst the stars of our galactic universe are spread patches of dark nebulosity; as indicated by the galactic condensation, the geometry of the universe of dark nebulae is similar to the geometry of the universe of stars; whether the shape of both universes is identical, or whether there is some difference in the shape of surfaces of equal density, cannot be decided from the material available.

A vague estimate of the amount of absorption can be made in the following way. Let us assume formula (15) as representing the total absorption, a; our assumption is justified by the circumstance that the difference $m_1—m_0$ is almost exclusively accounted for by absorption; the function $f(B)$ is to be determined.

We will admit the following linear relation between the total absorption, a, and the relative obscuration, A:

$$a = kA \quad . \ . \ . \ (16),$$ where evidently

$k > 1$, as the observed contrast of absorption, A, represents only a fraction of the total absorption. The value of k depends upon the typical structure of the obscure nebulae and cannot be predicted in advance. On the basis of the hypotheses represented by formulae (15) and (16) and with the aid of the data contained in tables 15 an 16 the function $f(B)$ may be determined by successive approximations. Table 18 represents the data in a compact form; the distribution of the excess of density, $m_1—m_0$, according to galactic latitude is also added.

Table 18.

$m_1—m_0$ limits	mean	A mean	Number per Galactic Zone $\pm0^0...\pm19^0$	$\pm20^0...\pm39^0$	$\pm40^0...\pm59^0$	$\pm60^0...\pm87^0$	mean $f(B)$, 1st approx.	mean α, 2nd approx.
—1.66...—1.20	—1.5	0.400	3	0	0	0	1.9	3.4
—1.19...—0.80	—1.0	0.161	5	1	1	0	1.6	2.6
—0.79...—0.40	—0.6	0.103	5	10	3	3	1.2	1.8
—0.39... 0.00	—0.2	0.070	9	22	8	9	1.1	1.3
+0.01...+0.40	+0.2	0.067	15	35	8	16	1.1	0.9
0.41... 0.80	+0.6	0.038	5	7	2	6	1.1	0.5
0.81... 1.34	+1.1	0.065	7	0	0	0	1.9	0.8
	Mean A		0.125	0.071	0.050	0.040	—	—
1st approx., $k=15$; $f(B)=$			1.9	1.1	0.8	0.6	—	—
2nd approx., $k=15$; $f(B)=$			"	"	"	"	—	—

From the table it appears that the extreme values of $m_1—m_0$, below — 1.2 and above + 0.8, occur only in the galactic zone $0^0...19^0$; values of $m_1—m_0$ between — 1.2 and + 0.8, which are distributed over several zones, were therefore used only for the 1st approximation of the coefficient k; mean values of A were thus plotted against the mean $m_1—m_0$ as abscissae; the inclination of the straight line drawn through the points gave $k=15$ ($f(B)$ being preliminarily assumed to be constant); the first approximation of $f(B)$, given at the foot of the table for each galactic zone, was computed from

$$f(B) = 15\, A \quad . . . \quad (17);$$

this formula follows from formulae (15) and (16) if it is taken into account that for a given galactic zone on the average $m_1—m_0=0$ (see table 14). The second approximation of α (the total absorption) for each $m_1—m_0$, contained in the last column of table 18, was found according to formula (15) by substituting for $f(B)$ the mean values $f(B)=15\, A$, contained in the last but one column of the table; these mean values were computed from the first approximation of $f(B)$ with weights equal to the observed frequency, given in the same table.

The second approximation of k and $f(B)$ was found by plotting the mean values of A (3[d] column) against the a (last column) as abscissae; all points except the first fitted perfectly into the straight line

$a = 15\ A$ (18); thus the second approximation turned out to be identical with the first approximation. How the straight line represents the observations may be judged from the following:

	mean A	0.400	0.161	0.103	0.070	0.067	0.038	0.065
st. mg.	a, 2nd approx.	3.4	2.6	1.8	1.3	0.9	0.5	0.8
st. mg.	$a = 15\ A$	6.00	2.42	1.55	1.05	1.00	0.57	0.98
st. mg.	difference	−2.6	+0.18	+0.25	+0.25	−0.10	−0.07	−0.18

The outstanding first value is of low weight, being based on only 3 adjacent charts in the *Taurus* region of obscuration. It must be remarked that formulae (17) and (18) hold only for *mean* values of A of a group of charts, having thus only statistical meaning; for individual charts there is no use of applying these formulae.

Formula (17) follows from (18) with $m_1 - m_0 = 0$, i. e. $f(B)$ represents the effective *average* absorption for the galactic zone B. Table 19 contains a comparison of the observed density of stars with the ideal density, i. e. the density after removing the absorbing matter, according to the numerical data here found.

Table 19.

Gal. Latitude limits ±	Gal. Latitude mean	Effective absorption, st. magn.	Star-Density (lim. magn. 14.5 ptgr.) observed (Van Rhijn)	ideal	Ratio
0°...19°	10°	1.9	500	2600	5.2
20°...39°	30°	1.1	230	560	2.4
40°...59°	50°	0.8	120	210	1.7
60°...87°	74°	0.6	83	120	1.4

The galactic condensation, defined as the ratio of average densities in the zones 0°...19° and 60°...87° respectively, becomes as follows:

observed condensation = 6.0 : 1,
true condensation = 22 : 1.

On fig. 2 the broken smooth curve represents the quantity $-f(B)$, or the ideal value of m_1-m_0 which corresponds to zero absorption; the distance between this curve and the observed absorption, m_1-m_0, is equal to the hypothetical total amount of effective absorption; it is interesting to note that nowhere does the observed m_1-m_0 fall below the theoretical limit; charts 106—112, between $\alpha = 14^h0^m - 14^h48^m$, approach very closely this limit; it appears that only in this part of the zone no obscuring matter affecting the light of the 14.5 magnitude stars exists.

6. Summary.

1. The distribution of stars in the Paris *Carte-du-Ciel* Zone, $\delta = +24^0$, has been studied, for which purpose about 250 000 stars were counted; the complete counts are contained in table I.

2. About 75 % of the charts show more or less considerable deviations from a chance distribution, the deviations consisting in the presence of areas of excessively low or high density.

3. The irregularity of distribution increases as the relative density[1]) of stars decreases; this may be reasonably explained only on the assumption that *real absorption* of light by irregular cosmic clouds is the chief cause of the irregularity in stellar distribution. Real clustering appears to play a comparatively small part in determining the characteristic features of stellar distribution; a considerable proportion of the areas of relative maxima of stellar density correspond evidently to "holes" in the nebulosity, i. e. to more transparent portions of the latter.

4. Table 11 contains a summary of the data used in the *statistical* discussion; table 12 contains a list of 197 *areas of minimum density* (maximum absorption), table 13—217 *areas of maximum density* ("holes" in the nebulosity or real clusters) of which one may feel individually sure; the whole sky may yield about 14 000 objects of each kind; the regions of maximum obscuration cover 46 square degrees or 0.054 of the entire zone, the regions of maximum density — 34 square degrees or 0.041 of the zone; outside the regions of maximum absorption less intense or more regular absorption seems to be present almost

1) As compared with the normal density for the given galactic latitude.

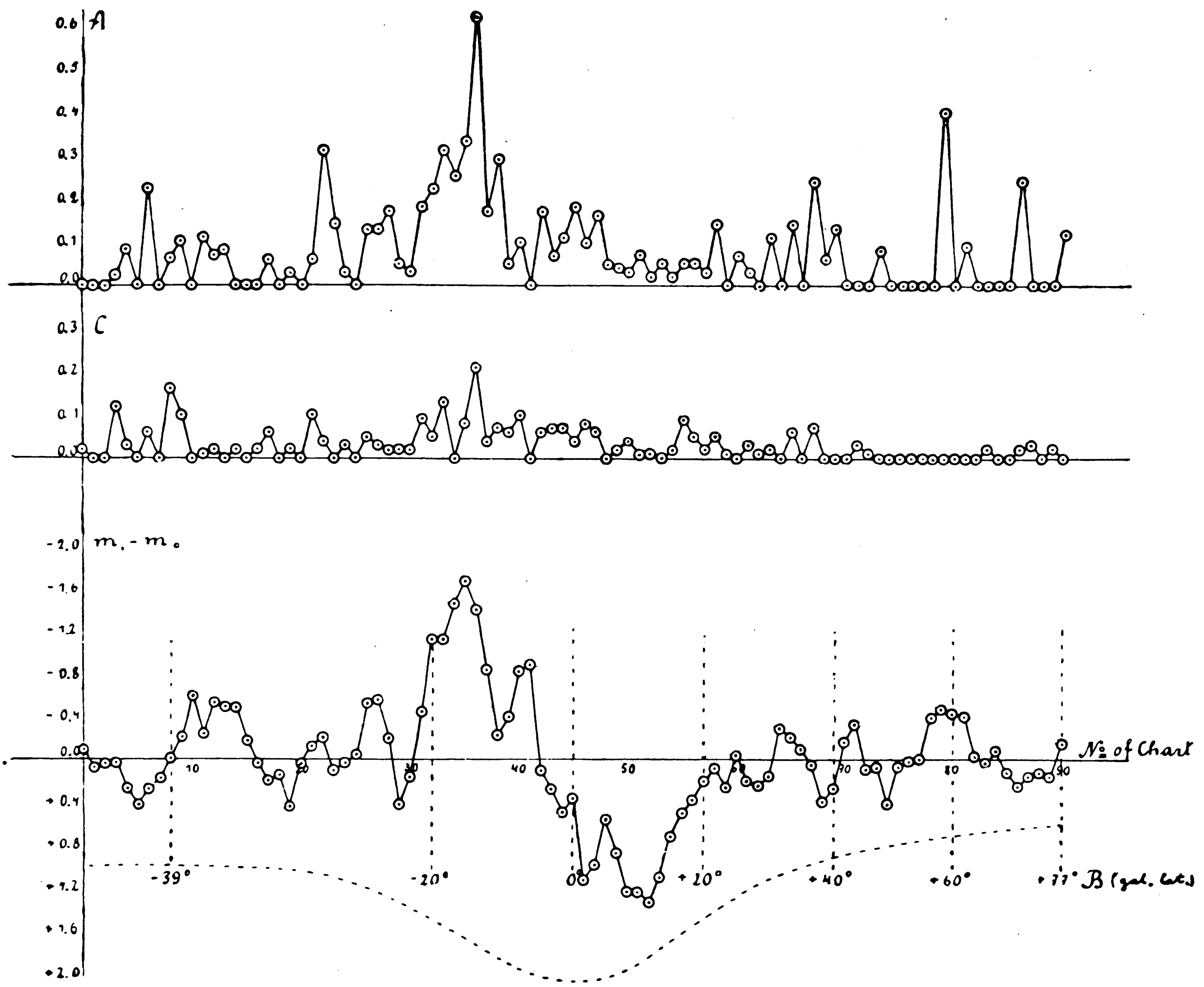

Fig. 2a.

The figures represent the variation of the different data, found in the preceding investigation, along the zone. As abscissae are taken the №-os of the corresponding charts. Certain limiting values of the galactic latitude (*B*) are also indicated.

The upper curve represents *A*, the *relative obscuration*; the 2nd curve from above represents *C*, the *relative clustering*; the next curve, m_1—m_0, gives the

everywhere in the sky [1]), very few regions being free of it; of the whole zone only the portion from $\alpha = 14^h0^m$ to $\alpha = 14^h48^m$ seems to show no absorption up to stars of limiting magnitude 14.5 phtgr.

1) Perhaps there may exist some relationship between the general absorption and the clouds of stationary calcium in space; such a relationship appears highly probable, if the theory of J. S. Plaskett (*Publ. of Dominion Astrophys. Observatory, Victoria,* vol. II № 16) is adopted.

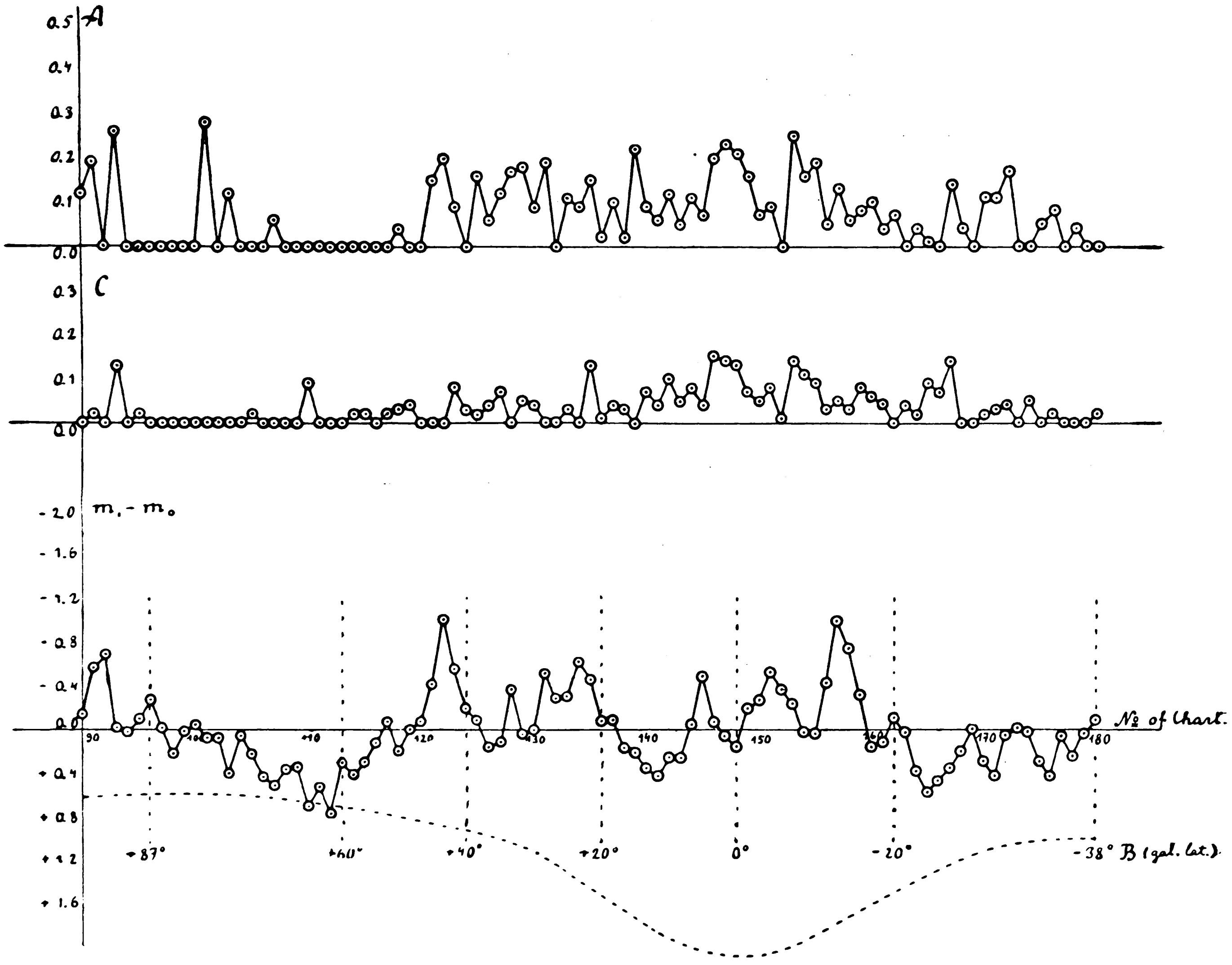

Fig. 2b.

relative excess of stellar density, expressed in stellar magnitudes; negative values of $m_1—m_0$ indicate that the density is below the average for the corresponding galactic zone; positive values — that the density is above the average. The smooth dotted line below represents the supposed *ideal density,* i. e. the density after removing the presumable absorbing matter.

5. The irregularity of stellar distribution increases from the galactic pole towards the galactic equator; thus the dark nebulae, as well as real clusters of stars, show a galactic distribution analogous to that of the stars.

As numerical equivalents of the irregularity two quantities were introduced, A — the *relative obscuration,* and C — the *relative clustering*; a definition of these quantities is given in section 4, and further explained in section 5.

As measured by these quantities, the galactic condensation of relative obscuration equals 3 : 1, and the galactic condensation of relative clustering is 8 : 1.

6. On the assumption of a linear relation between the *total absorption* and the *relative obscuration*, an assumption supported by the observational data, the average effect of obscuration in different galactic zones is estimated as follows:

were the obscuring matter removed, the number per square degree of stars from the brightest to magnitude 14.5 *photographic* would appear greater than the actually observed number in the following ratio:

gal. latitude	$\pm 0^0 ... \pm 19^0$	$\pm 20^0 ... \pm 39^0$	$\pm 40^0 ... \pm 59^0$	$\pm 60^0 ... \pm 90^0$
ratio	5.2	2.4	1.7	1.4

7. The distribution of the average density of stars according to galactic latitude, as derived from the Paris charts here discussed, is in fair agreement with the results of Van Rhijn (*G.P.* 27).

Table I.

Counts of Stars made by Miss M. Lukk on the Charts of the Paris *Carte-du-Ciel* Zone $+24^{\circ}$.

The charts are printed in the order of *increasing right ascension.*

The *rectangular coordinates* are reckoned from the centre of the chart; the unit is 10′ of arc.

The *orientation* is such as in an inverting telescope.

The printed numbers give *the counted number of stars* (star-density r) within squares 10′×10′. However, when the total number on a chart approaches or surpasses 4000, the chart is divided into 4 quadrants, and the numbers are given for squares 5′×5′.

At the head of each scheme of a chart are given: α, the right ascension, and B, the approximate galactic latitude of the centre; N, the total number *counted*; w_1 and w_2, the "weights" or the inverse probabilities of the positive excess in the ascending and descending branches respectively of the observed distribution of densities; s_1 — the total area of the *regions of minimum density* found on the chart, in units of 100 square minutes, and δ_1 — the average star-density of these areas; s_2 — the total area, and δ_2 — the average star-density of the *regions of maximum density.*

On the schemes of the charts the densities of the regions of excessively low density are printed in heavy type; the densities of the rich regions are printed in italics.

Besides each chart the distribution of densities, $n(r)$, is given; *obs.* denotes the observed distribution, *theor.* — the most probable chance distribution.

№ 1. $\alpha = 0^h0^m$; $B = -38^0$. $N = 771$; $w_1 = 5$; $w_2 = 6$.

$s_1 = -$; $\delta_1 = -$; $s_2 = -$; $\delta_2 = -$

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6 $+\alpha$
−6	2	3	1	0	7	6	2	5	6	5	3	6	1
−5	4	0	5	5	6	5	7	8	4	4	4	5	3
−4	5	14	6	3	5	5	2	5	3	9	5	2	5
−3	6	2	4	2	2	9	3	5	5	4	5	9	3
−2	5	3	6	2	4	3	4	6	4	5	3	9	4
−1	2	6	5	3	0	6	4	2	10	2	5	6	5
0	6	5	4	8	6	1	6	5	2	2	1	4	2
+1	7	6	8	9	4	4	3	1	4	1	4	3	4
+2	4	3	6	5	4	4	7	5	6	3	1	6	3
+3	6	5	7	7	6	4	6	3	6	6	2	7	4
+4	3	7	5	10	5	4	3	2	4	5	6	2	5
+5	1	3	7	9	5	9	6	4	5	4	4	2	2
+6	3	3	6	7	5	2	9	10	3	4	7	3	2

$+\delta$

r	$n(r)$ obs.	$n(r)$ theor.
0	3	1.8
1	8	8.1
2	21	18.2
3	24	27.6
4	29	31.7
5	32	29.0
6	26	22.3
7	11	14.4
8	3	8.1
9	8	4.2
10	3	1.9
≥11	1	0.9

№ 2. $\alpha = 0^h8^m$; $B = -38^0$. $N = 918$; —

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6 $+\alpha$
−6	6	3	6	4	6	2	4	5	5	4	5	4	2
−5	4	6	10	4	5	4	9	7	4	7	4	6	7
−4	2	8	7	5	8	8	4	6	5	8	3	7	3
−3	9	5	7	6	3	2	4	8	2	7	6	5	5
−2	9	4	4	7	6	4	7	2	3	4	6	11	2
−1	9	5	4	4	4	6	7	8	9	4	6	5	6
0	7	2	4	4	5	6	6	3	10	5	9	5	5
+1	5	9	7	5	3	5	2	4	2	4	5	9	7
+2	6	6	8	3	3	3	5	6	3	5	7	7	11
+3	7	4	2	6	6	8	4	8	3	2	4	7	3
+4	3	7	6	6	6	4	7	7	7	9	5	3	1
+5	4	4	5	2	8	4	8	9	5	6	14	10	5
+6	3	5	7	6	7	4	4	3	7	7	5	4	4

$+\delta$

r	$n(r)$ obs.	$n(r)$ theor.
0	0	0.7
1	1	3.9
2	13	10.6
3	17	19.5
4	34	26.5
5	27	29.1
6	25	26.5
7	25	20.6
8	11	14.0
9	10	8.3
10	3	4.6
11	2	2.3
≥12	1	1.6

№ 3. $\alpha = 0^h16^m$; $B = -38^0$. $N = 871$; $w_1 = 60$; $w_2 = 10\,000$.

$s_1 = 4$; $\delta_1 = 0.8$; $s_2 = 21$; $\delta_2 = 9.9$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	2	5	6	5	5	6	3	1	4	3	7	5
−5	4	6	2	3	6	3	4	5	3	3	2	0	3
−4	6	3	5	4	4	4	7	7	7	6	4	5	4
−3	2	5	3	3	1	5	3	2	8	5	4	6	2
−2	8	3	8	6	**6**	10	6	2	1	3	**1**	9	8
−1	4	5	3	3	4	7	2	3	4	8	**1**	8	2
0	6	3	*8*	5	3	2	4	2	5	6	5	8	4
1	7	*8*	4	5	*8*	4	1	7	**1**	**0**	8	1	6
+2	6	*12*	*15*	*9*	5	4	7	8	6	5	5	5	2
+3	*9*	6	4	3	8	4	4	5	3	3	5	5	6
+4	5	3	4	7	4	6	3	4	5	6	5	3	7
+5	*12*	*8*	*8*	*12*	*8*	*8*	*12*	4	6	3	7	4	12
+6	*7*	*8*	*11*	*8*	*9*	*10*	*8*	3	6	6	5	1	9

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	2	1.0
1	9	5.2
2	12	13.0
3	27	22.5
4	25	28.8
5	26	30.0
6	22	25.4
7	12	18.7
8	20	11.9
9	5	6.6
10	2	3.4
11	1	2.6
12	5	0.7
⩾13	1	0.4

№ 4. $\alpha = 0^h24^m$; $B = -38^0$. $N = 895$; $w_1 = 100$; $w_2 = 50$.

$s_1 = 11$; $\delta_1 = 2.2$; $s_2 = 7$; $\delta_2 = 9.4$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	6	5	7	6	3	4	4	6	6	5	5	4
−5	0	4	5	7	7	2	6	6	7	11	8	5	5
−4	5	5	4	4	4	**3**	4	3	10	6	5	3	4
−3	3	4	3	3	4	4	6	9	4	6	*8*	*9*	7
−2	8	6	4	6	**0**	**3**	4	4	6	*10*	*13*	*10*	*8*
−1	5	4	7	8	8	**3**	**2**	**3**	6	*8*	5	5	5
0	8	**3**	**3**	**3**	5	**2**	6	9	5	4	9	8	3
+1	2	5	**7**	**0**	5	4	8	2	2	7	5	6	4
+2	8	3	10	**2**	5	5	3	3	9	3	2	6	9
+3	6	4	6	4	4	2	3	4	8	10	6	3	1
+4	2	8	6	10	9	7	3	4	3	0	5	2	10
+5	5	7	7	8	5	8	8	8	10	8	5	4	7
+6	2	6	5	8	5	7	3	3	4	8	3	4	5

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	4	1.0
1	1	4.5
2	12	11.8
3	25	21.0
4	29	27.7
5	27	29.6
6	21	26.1
7	13	19.9
8	20	13.1
9	7	7.6
10	8	4.0
11	1	2.0
12	0	0.9
⩾13	1	0.6

№ 5. $\alpha = 0^h 32^m$; $B = -39°$. $N = 638$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	5	4	4	6	2	4	6	5	4	2	4	2	4
−5	3	2	4	4	2	3	7	9	3	10	5	3	3
−4	2	2	2	1	3	4	4	7	3	4	4	5	3
−3	6	6	8	3	4	3	4	2	4	4	6	2	4
−2	4	3	3	5	2	5	2	3	4	4	1	3	5
−1	3	4	0	3	6	3	4	5	4	8	6	3	4
0	8	2	5	3	3	4	5	6	2	5	2	3	3
+1	4	1	2	3	2	2	3	1	5	1	3	3	4
+2	4	5	4	7	1	2	11	2	6	5	6	7	0
+3	3	1	1	7	3	2	3	1	2	2	3	3	1
+4	2	8	5	3	5	3	3	9	1	1	2	4	7
+5	4	7	5	4	3	3	5	2	6	4	2	4	1
+6	3	5	4	3	4	4	3	7	3	4	3	3	5

r	$n(r)$ *obs.*	*theor.*
0	2	3.8
1	13	14.8
2	27	27.8
3	42	34.7
4	38	32.9
5	20	24.9
6	11	15.4
7	8	8.4
8	4	3.9
9	2	1.6
10	1	0.6
⩾11	1	0.2

№ 6. $\alpha = 0^h 40^m$; $B = -39°$. $N = 554$; $w_1 = 280$; $w_2 = 70$.

$s_1 = 20$; $\delta_1 = 0.9$; $s_2 = 12$; $\delta_2 = 6.7$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	3	4	4	0	1	3	*7*	5	3	1	2	0
−5	1	3	1	2	5	7	2	*8*	*7*	3	6	2	0
−4	4	4	2	1	2	4	4	4	4	4	4	5	1
−3	2	2	5	2	2	4	3	**1**	**1**	3	**1**	2	3
−2	5	6	8	5	**1**	**1**	**1**	**1**	3	4	**1**	5	2
−1	3	4	5	**1**	4	7	2	3	3	2	**1**	2	2
0	2	5	**1**	**1**	3	6	2	5	2	**0**	**1**	2	2
+1	3	5	**1**	**1**	3	3	3	4	**0**	2	2	1	1
+2	6	1	8	3	4	7	**1**	**1**	**1**	3	5	4	2
+3	1	2	3	3	4	7	5	3	2	2	1	6	0
+4	3	*9*	*6*	*6*	*6*	3	4	3	6	6	3	5	3
+5	6	5	7	*6*	5	0	4	*6*	2	1	2	4	1
+6	2	4	0	2	6	5	5	*6*	*7*	*6*	4	6	6

r	$n(r)$ *obs.*	*theor.*
0	8	6.3
1	32	20.9
2	31	34.0
3	27	37.5
4	23	30.8
5	18	20.0
6	18	11.1
7	8	5.2
8	3	2.1
⩾9	1	1.4

№ 7. $\alpha = 0^h48^m$; $B = -39^0$. $N = 783$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	1	9	5	4	4	4	3	6	5	4	3	2
−5	0	3	4	8	3	4	0	6	6	0	3	3	3
−4	3	2	2	5	3	2	3	6	5	4	3	4	3
−3	3	10	3	7	4	4	7	6	7	5	7	2	4
−2	5	2	8	11	8	2	5	5	4	2	2	3	4
−1	6	5	3	4	3	5	3	7	6	4	8	3	4
0	3	6	2	5	7	4	5	6	4	7	6	1	5
+1	5	2	2	5	8	4	1	7	5	5	4	6	8
+2	3	9	11	7	5	4	10	3	8	8	6	8	5
+3	9	2	7	6	6	6	6	4	2	2	6	4	3
+4	5	7	6	5	6	7	6	5	6	10	5	1	5
+5	3	4	5	2	5	1	5	3	1	3	9	5	3
+6	5	6	4	2	6	4	4	8	8	2	2	1	3

r	*n(r)* *obs.*	*n(r)* *theor.*
0	3	1.8
1	7	7.8
2	19	17.4
3	29	26.9
4	27	31.5
5	29	29.3
6	23	22.8
7	12	14.8
8	11	8.8
9	4	4.5
10	3	2.1
11	2	0.9
⩾12	0	0.5

№ 8. $\alpha = 0^h56^m$; $B = -39^0$. $N = 1137$; $w_1 = 600\,000$; $w_2 = 200$.

$s_1 = 6$; $\delta_1 = 2.7$; $s_2 = 35$; $\delta_2 = 10.9$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	11	8	6	5	2	2	8	8	5	7	7	2
−5	4	4	10	3	8	7	7	7	4	9	5	4	2
−4	9	5	5	5	9	6	5	9	5	9	5	3	5
−3	11	3	5	*11*	2	9	*10*	*10*	*9*	*10*	*10*	7	9
−2	4	4	3	*9*	*10*	*10*	*10*	4	8	*10*	5	2	8
−1	6	*11*	7	4	8	6	*11*	5	7	8	11	9	3
0	2	*10*	*14*	8	9	7	6	5	9	*10*	7	8	3
+1	*9*	*10*	6	5	7	4	*10*	*13*	3	*13*	6	2	2
+2	*12*	7	3	3	9	5	8	*9*	*10*	*10*	7	4	2
+3	5	6	6	*7*	*18*	3	9	*13*	7	2	5	5	6
+4	2	*12*	6	*14*	2	10	8	*11*	3	8	4	9	1
+5	6	*9*	*16*	*8*	8	9	6	2	6	4	4	4	4
+6	4	4	4	*13*	4	9	5	7	10	7	4	2	3

r	*n(r)* *obs.*	*n(r)* *theor.*
0	0	0.2
1	1	1.4
2	16	4.5
3	12	10.4
4	20	17.3
5	20	23.3
6	14	26.0
7	17	25.1
8	15	21.1
9	20	15.9
10	17	10.6
11	7	6.5
12	2	3.7
13	4	1.8
14	2	0.9
15	0	0.4
⩾16	2	0.4

№ 9. $\alpha = 1^h4^m$; $B = -39^0$. $N = 820$; $w_1 = 360$; $w_2 = 2000$.

$s_1 = 9$; $\delta_1 = 1.2$; $s_2 = 17$; $\delta_2 = 9.5$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	5	2	4	3	7	8	2	4	9	3	2	4	7
−5	1	3	1	5	6	5	2	5	4	0	5	5	6
−4	3	5	7	3	6	8	6	5	5	4	6	4	1
−3	6	9	9	7	3	3	4	8	0	4	2	4	6
−2	3	8	5	2	6	4	5	5	*8*	7	3	4	10
−1	5	3	8	8	11	4	3	*10*	*8*	*10*	*9*	4	2
0	4	4	6	3	6	12	7	*11*	6	4	*8*	4	4
+1	1	2	4	3	7	4	7	5	*10*	6	*8*	6	3
+2	3	3	7	7	*9*	*10*	6	*8*	*14*	*11*	4	2	5
+3	4	7	4	*8*	*8*	*9*	6	6	4	2	5	4	3
+4	7	1	3	4	4	6	8	5	2	3	3	**2**	**2**
+5	3	5	5	4	3	1	2	3	4	3	**2**	**1**	**2**
+6	2	2	7	2	4	2	4	5	**1**	**1**	**0**	4	**0**

r	$n(r)$ obs.	$n(r)$ theor.
0	4	1.4
1	8	6.4
2	20	15.8
3	24	25.0
4	33	30.0
5	20	29.9
6	17	24.0
7	13	16.9
8	14	9.9
9	6	5.4
10	5	2.7
11	3	1.2
12	1	0.4
13	0	0.1
$\geqslant$14	1	0.05

№ 10. $\alpha = 1^h12^m$; $B = -39^0$. $N = 645$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	6	6	2	2	4	4	4	5	5	3	10	2
−5	3	6	3	6	4	8	7	2	0	4	5	3	7
−4	5	8	5	4	6	1	5	5	5	3	5	5	3
−3	4	5	5	3	7	3	2	5	3	4	6	5	4
−2	4	11	3	2	6	5	1	2	1	3	3	4	5
−1	3	5	3	4	2	0	3	2	3	8	4	5	4
0	4	5	8	1	2	3	3	2	2	4	5	2	8
+1	2	3	4	2	2	1	0	5	6	3	5	3	3
+2	4	6	5	3	1	2	2	4	4	3	3	6	4
+3	3	4	3	0	3	3	3	3	4	2	3	7	4
+4	5	3	2	5	1	3	2	4	3	2	8	3	2
+5	3	2	4	6	3	8	4	7	3	3	3	3	7
+6	3	3	4	2	1	2	2	3	7	3	5	4	4

r	$n(r)$ obs.	$n(r)$ theor.
0	4	3.7
1	8	14.3
2	27	27.0
3	47	34.5
4	30	33.0
5	26	25.5
6	11	15.8
7	7	8.7
8	7	4.2
9	0	1.8
10	1	0.7
$\geqslant$11	1	0.2

№ 11. $a = 1^h20^m$; $B = -38^0$. $N = 929$; $w_1 = 800$; $w_2 = 400$.

$s_1 = 8$; $\delta_1 = 1.1$; $s_2 = 3$; $\delta_2 = 7.8$

$+\delta$ \ $+a$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	9	2	5	3	6	10	6	**0**	8	3	4	**4**	4
−5	1	8	6	4	4	5	9	10	**0**	6	9	4	4
−4	6	1	7	5	6	2	6	6	8	5	5	4	3
−3	7	4	5	6	9	8	10	**3**	7	16	5	4	**2**
−2	5	7	8	8	14	5	6	6	7	4	6	**2**	4
−1	9	5	5	5	2	7	10	7	4	6	4	**2**	3
0	2	11	4	*10*	5	2	5	10	7	7	7	**1**	5
+1	6	4	7	*10*	2	4	4	4	5	7	5	**2**	6
+2	7	5	*13*	7	8	12	4	8	10	7	**0**	4	2
+3	7	7	8	8	3	4	8	2	6	8	9	5	5
+4	4	4	4	12	7	11	5	8	8	4	6	7	2
+5	5	7	1	4	4	4	8	4	3	6	6	4	0
+6	2	3	5	1	3	2	2	4	4	5	7	4	5

r	*n(r)* obs.	*n(r)* theor.
0	4	0.9
1	5	3.8
2	16	10.4
3	9	19.2
4	34	26.2
5	25	29.0
6	19	26.6
7	21	20.9
8	15	14.4
9	6	8.7
10	8	4.9
11	2	2.4
12	2	1.1
13	1	0.4
⩾14	2	0.2

№ 12. $a = 1^h28^m$; $B = -38^0$. $N = 681$; $w_1 = -$; $w_2 = -$.

[$s_1 = 9$; $\delta_1 = 1.6$; $s_2 = 2$; $\delta_2 = 9.5$]

$+\delta$ \ $+a$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	2	3	6	4	6	2	3	8	1	3	1	6
−5	2	3	4	6	6	3	2	3	3	6	7	5	8
−4	4	6	6	7	4	2	3	4	7	6	4	6	1
−3	5	3	4	4	*10*	*9*	4	7	3	9	7	5	3
−2	2	6	5	6	3	5	4	1	4	5	6	5	5
−1	3	5	6	3	9	3	2	3	2	7	6	4	7
0	1	7	6	4	3	5	4	4	4	2	4	5	3
+1	4	4	6	**1**	**2**	**2**	**1**	5	3	1	4	3	5
+2	3	2	3	4	5	**2**	5	2	5	4	**2**	1	5
+3	5	5	3	3	7	**0**	**0**	4	5	4	3	3	6
+4	4	2	2	3	2	6	**3**	**3**	4	4	2	4	2
+5	4	0	2	5	5	7	7	3	1	6	3	2	2
+6	3	5	3	5	3	3	5	5	9	4	2	3	5

r	*n(r)* obs.	*n(r)* theor.
0	3	3.0
1	11	11.9
2	24	24.3
3	36	32.5
4	30	33.2
5	27	26.9
6	20	17.8
7	11	10.6
8	2	5.4
9	4	2.3
⩾10	1	1.5

№ 13. $\alpha = 1^h 36^m$; $B = -38°$. $N = 651$; ($w_1 = 2.4$; $w_2 = 5$).

[$s_1 = 7$; $\delta_1 = 1.1$; $s_2 = -$; $\delta_2 = -$]

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	2	3	5	5	2	5	3	1	1	8	3	4
−5	3	5	1	3	8	5	6	3	1	5	6	2	1
−4	4	2	6	8	6	4	3	5	7	5	7	8	3
−3	5	3	5	6	3	5	3	1	2	4	5	6	1
−2	4	3	2	2	3	6	4	3	2	6	3	5	3
−1	5	5	2	3	5	2	3	2	7	**1**	**0**	**1**	6
0	7	3	2	7	6	0	4	4	2	4	**1**	**2**	4
+1	2	7	6	4	1	2	4	7	5	**2**	**1**	7	3
+2	1	6	3	3	2	1	4	3	3	5	3	4	7
+3	4	8	5	4	5	5	6	4	4	5	3	5	6
+4	5	3	3	3	5	2	6	5	2	4	7	3	2
+5	5	2	4	6	6	5	5	5	6	0	2	2	3
+6	2	7	4	6	5	5	4	2	3	3	1	2	1

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	3	3.6
1	16	13.7
2	27	26.4
3	34	34.0
4	22	33.1
5	32	25.8
6	19	16.2
7	11	9.2
8	5	4.4
9	0	1.9
⩾10	0	1.1

№ 14. $\alpha = 1^h 44^m$; $B = -37°$. $N = 673$; $w_1 = 80$; $w_2 = 350$.

$s_1 = -$; $\delta_1 = -$; $s_2 = 3$; $\delta_2 = 9.7$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	4	7	4	0	2	1	3	2	1	4	8	6
−5	2	1	9	7	5	2	6	3	6	5	5	2	5
−4	4	2	4	5	2	5	3	9	0	7	3	4	2
−3	5	1	9	5	1	4	5	4	4	3	2	3	5
−2	5	3	4	4	2	4	4	4	4	7	3	3	*10*
−1	2	7	2	5	2	3	2	3	2	3	1	*7*	*12*
0	4	4	7	4	5	2	3	2	2	4	1	4	6
+1	10	2	2	7	6	1	7	1	4	4	3	4	3
+2	7	6	6	2	2	1	3	3	1	2	4	7	4
+3	6	6	4	5	3	3	2	2	4	7	1	5	12
+4	5	4	3	4	4	7	1	4	5	4	1	6	3
+5	2	6	6	8	2	9	7	1	7	1	4	4	4
+6	2	3	6	4	3	1	1	2	4	4	8	2	1

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	2	3.3
1	20	12.4
2	30	25.0
3	23	33.0
4	38	33.2
5	17	26.5
6	13	17.3
7	15	10.2
8	3	5.1
9	4	2.2
10	2	0.9
⩾11	2	0.6

№ 15. $a = 1^h 52^m$; $B = -36^0$. $N = 663$. —

$-\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	6	6	6	1	3	3	5	3	9	5	4	4	5
−5	1	4	4	5	5	4	6	13	4	8	4	4	1
−4	4	4	5	3	2	2	3	5	4	3	3	1	2
−3	4	6	4	3	3	6	2	4	4	2	2	3	7
−2	2	7	7	5	3	4	6	2	2	2	5	7	2
−1	4	8	6	10	3	3	3	6	3	3	3	2	6
0	4	5	2	4	4	4	2	2	6	2	4	9	5
+1	3	3	4	1	3	4	4	1	2	2	6	4	3
+2	10	4	3	2	4	2	2	3	6	3	1	2	5
+3	5	10	5	4	7	2	3	6	3	4	3	5	4
+4	3	4	0	3	3	7	1	7	7	3	2	3	4
+5	2	3	2	5	7	3	7	2	6	1	4	4	6
+6	2	0	4	4	2	3	2	5	1	6	2	3	1

$+\delta$

r	$n(r)$ obs.	$n(r)$ theor.
0	2	3.5
1	11	13.4
2	31	27.0
3	36	31.2
4	37	33.0
5	17	27.7
6	17	19.2
7	10	11.6
8	2	6.1
9	2	2.9
10	3	1.2
⩾11	1	1.0

№ 16. $a = 2^h 0^m$; $B = -36^0$. $N = 523$; $w_1 = 3.5$; $w_2 = 18$.

$s_1 = -$; $\delta_1 = -$; $s_2 = 3$; $\delta_2 = 8.0$

$-\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	3	0	3	1	5	4	2	4	5	4	2	1
−5	2	1	1	1	2	2	2	0	4	6	7	5	3
−4	2	3	5	4	4	3	4	4	2	3	3	3	6
−3	2	9	1	8	7	1	2	6	6	4	6	3	4
−2	3	0	4	9	1	1	1	2	1	5	0	4	7
−1	1	5	8	0	5	2	2	3	3	4	1	7	1
0	6	4	2	2	3	2	3	4	2	2	4	4	2
+1	2	2	5	2	3	4	2	2	4	0	2	3	0
+2	2	5	3	5	3	4	1	1	6	2	6	2	3
+3	3	4	6	2	0	2	4	3	1	4	0	2	3
+4	2	4	2	2	2	3	3	4	3	0	6	3	3
+5	2	6	1	5	5	3	5	4	0	1	2	4	2
+6	3	1	1	2	8	2	3	3	4	5	2	4	3

$+\delta$

r	$n(r)$ obs.	$n(r)$ theor.
0	11	7.7
1	21	23.9
2	42	36.4
3	32	38.0
4	29	29.0
5	14	17.9
6	11	9.2
7	4	4.1
8	3	1.6
9	2	0.5
⩾10	0	0.3

№ 17. $a = 2^h 8^m$; $B = -35^0$. $N = 852$; $w_1 = 12$; $w_2 = 70$.

$s_1 = 7$; $\delta_1 = 1.7$; $s_2 = 8$; $\delta_2 = 11.0$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	2	5	3	3	4	3	7	3	8	5	8	5
−5	8	3	7	3	6	2	3	5	6	4	5	2	5
−4	4	6	3	4	3	4	7	8	6	7	5	5	5
−3	4	5	6	4	7	4	8	6	12	3	4	10	7
−2	6	9	5	4	6	*11*	2	3	7	4	2	2	4
−1	6	0	3	4	5	5	*10*	4	8	5	5	2	5
0	5	6	7	3	2	5	**2**	**2**	**1**	7	3	5	3
+1	5	2	**6**	6	2	8	4	7	**2**	6	3	4	6
+2	6	5	6	4	7	7	7	6	**2**	**1**	3	7	5
+3	5	6	6	4	*13*	8	*11*	**2**	5	6	3	1	2
+4	4	7	5	7	*10*	4	4	*11*	7	8	7	3	6
+5	3	6	7	6	3	*11*	*11*	8	6	3	4	6	1
+6	2	3	3	2	8	4	6	2	3	8	6	2	3

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	1	1.1
1	4	5.6
2	20	13.8
3	27	23.3
4	23	29.3
5	25	30.0
6	27	25.2
7	19	18.4
8	12	11.4
9	1	6.3
10	3	3.2
11	5	1.5
12	1	0.6
⩾13	1	0.3

№ 18. $a = 2^h 16^m$; $B = -35^0$. $N = 901$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	7	5	3	5	4	6	4	6	2	12	0	2	7
−5	2	5	6	8	7	3	7	10	4	7	6	5	3
−4	7	5	6	5	6	5	7	7	9	4	8	9	3
−3	7	8	3	4	6	5	3	6	5	9	7	2	1
−2	3	4	4	5	4	8	2	3	4	9	10	5	10
−1	3	7	5	4	4	5	5	4	4	4	4	5	4
0	10	5	3	6	2	3	3	4	4	6	3	7	5
+1	4	6	4	5	6	3	5	5	3	7	8	4	8
+2	7	6	7	8	4	6	4	3	5	5	3	7	3
+3	3	4	4	6	9	5	5	14	9	7	8	6	5
+4	3	9	4	8	1	4	8	8	6	7	6	5	3
+5	4	0	6	9	4	6	3	10	7	5	3	5	5
+6	2	4	4	6	7	5	6	10	4	7	6	3	4

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	2	0.8
1	2	4.3
2	7	11.6
3	24	20.8
4	33	27.6
5	30	29.4
6	23	26.1
7	21	20.0
8	11	13.3
9	8	7.8
10	6	4.2
11	0	2.0
12	1	0.9
13	0	0.4
⩾14	1	0.4

№ 19. $\alpha = 2^h 24^m$; $B = -34^0$. $N = 1734$; $w_1 = 10$; $w_2 = 200$.

$s_1 = 7$; $\delta_1 = 5.3$; $s_2 = 5$; $\delta_2 = 16.8$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	**5**	**6**	**4**	**6**	**6**	10	7	8	7	10	7	8	8
−5	**6**	10	**4**	10	11	13	16	14	15	11	11	7	8
−4	14	6	8	11	13	14	14	8	19	13	10	9	8
−3	6	5	12	14	8	10	12	13	11	7	11	9	8
−2	7	10	9	9	7	11	12	7	17	11	6	5	11
−1	8	9	10	12	17	9	5	11	5	12	14	11	7
0	8	10	9	5	7	7	13	10	9	12	14	9	10
+1	13	7	13	9	10	10	11	10	13	11	14	11	15
+2	8	5	13	10	6	11	9	11	13	12	9	16	11
+3	5	10	13	15	9	12	*17*	*18*	*16*	12	20	7	8
+4	9	8	9	10	11	3	12	*16*	*17*	13	12	10	8
+5	6	7	14	13	7	16	12	14	13	13	7	14	6
+6	5	8	5	13	19	7	14	17	17	9	7	5	9

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0—2	0	0.4
3	1	1.0
4	2	2.8
5	11	5.7
6	10	9.6
7	18	13.9
8	16	18.2
9	17	20.5
10	18	21.4
11	18	19.7
12	12	17.0
13	16	13.4
14	12	9.9
15	3	6.7
16	5	4.3
17	6	2.7
18	1	1.5
19	2	0.8
⩾20	1	0.8

№ 20. $\alpha = 2^h 32^m$; $B = -33^0$. $N = 492$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	2	2	1	2	6	1	3	2	3	1	6	1
−5	2	5	2	1	4	3	3	3	4	3	1	4	4
−4	1	3	4	5	6	1	7	1	0	2	2	3	1
−3	4	2	3	3	6	0	4	2	2	9	2	1	2
−2	1	5	2	5	3	2	2	2	6	2	3	3	2
−1	1	4	2	3	4	6	1	3	7	6	5	3	2
0	4	4	2	1	5	3	1	4	4	4	6	4	2
+1	5	6	5	5	2	3	1	0	1	0	3	2	2
+2	2	4	4	4	3	2	1	4	4	2	4	2	1
+3	2	3	4	1	3	4	1	3	4	0	1	3	1
+4	5	2	4	6	1	4	2	1	7	2	3	3	2
+5	8	2	4	3	4	0	2	1	0	1	2	2	4
+6	4	8	2	3	2	3	3	0	3	3	2	2	3

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	8	9.2
1	28	26.4
2	43	38.9
3	34	38.0
4	30	27.5
5	10	16.2
6	10	7.9
7	3	3.2
8	2	1.2
⩾9	1	0.5

№ 21. $a = 2^h40^m$; $B = -32^0$. $N = 1036$; $w_1 = 100$; $w_2 = 1400$.

$s_1 = 6$; $\delta_1 = 1.7$; $s_2 = 21$; $\delta_2 = 10.7$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	3	2	7	6	*11*	2	6	9	6	4	4	**0**
−5	14	7	4	*12*	*11*	6	*13*	6	6	7	5	**3**	**1**
−4	3	6	4	8	3	*10*	6	2	6	8	7	**2**	**3**
−3	8	*10*	5	12	2	8	*10*	8	*11*	*10*	5	**1**	4
−2	*10*	6	6	10	5	7	7	3	2	*9*	6	5	4
−1	2	9	9	3	3	5	3	8	6	*11*	6	3	6
0	7	1	3	5	5	5	8	6	*13*	9	*11*	7	5
+1	3	5	*11*	3	4	5	6	9	9	4	5	5	2
+2	5	6	*10*	2	5	7	4	4	11	8	8	6	8
+3	5	4	6	6	*10*	7	4	5	3	4	5	12	5
+4	8	10	4	*10*	9	7	7	*13*	3	5	9	4	8
+5	3	6	6	5	8	8	5	4	*11*	*10*	9	6	3
+6	8	7	6	5	2	5	5	4	3	5	5	6	4

r	*n(r)* *obs.*	*n(r)* *theor.*
0	1	0.4
1	3	2.3
2	10	6.9
3	19	14.3
4	18	21.4
5	28	26.7
6	26	27.3
7	13	23.9
8	15	18.3
9	10	12.6
10	11	7.6
11	8	4.3
12	3	2.3
13	3	1.0
⩾14	1	0.8

№ 22. $a = 2^h48^m$; $B = -31^0$. $N = 764$; $w_1 = 18\,000$; $w_2 = 4200$.

$s_1 = 31$; $\delta_1 = 1.5$; $s_2 = 9$; $\delta_2 = 9.2$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	**2**	**1**	**0**	**2**	**3**	**2**	**3**	1	6	3	7	2	4
−5	**1**	**1**	**0**	**2**	**2**	**3**	**2**	5	**0**	5	6	6	1
−4	**1**	4	4	**2**	**1**	**3**	**2**	5	**3**	**0**	6	5	6
−3	**0**	5	5	**2**	**2**	**2**	**0**	5	**1**	**0**	5	12	9
−2	**2**	5	2	3	3	4	5	2	8	9	8	4	7
−1	4	6	4	4	5	7	3	4	5	4	3	6	5
0	3	2	4	4	3	1	2	10	2	6	5	6	6
+1	1	3	5	1	5	4	3	7	7	*8*	6	6	2
+2	4	6	5	4	6	1	10	7	3	*11*	*8*	4	*8*
+3	7	6	7	8	5	3	5	7	5	4	*8*	*9*	*9*
+4	2	8	5	3	1	3	7	4	2	4	*12*	*10*	5
+5	6	4	8	7	6	4	5	11	6	7	6	4	7
+6	5	4	8	3	7	4	6	3	6	9	2	2	4

r	*n(r)* *obs.*	*n(r)* *theor.*
0	7	2.0
1	13	8.5
2	23	18.8
3	20	28.0
4	25	31.9
5	24	28.9
6	21	22.0
7	14	14.2
8	10	8.0
9	5	4.0
10	3	1.8
11	2	0.8
⩾12	2	0.5

№ 23. $a = 2^h56^m$; $B = -30^0$. $N = 854$; $w_1 = 8$; $w_2 = 100$.

$s_1 = 17$; $\delta_1 = 1.9$; $s_2 = -$; $\delta_2 = -$

δ \ α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	7	4	6	9	6	9	10	6	12	2	2	4
−5	4	2	6	8	5	6	6	4	4	7	9	10	3
−4	3	5	**2**	5	8	8	14	5	6	6	9	5	2
−3	6	5	**2**	**3**	4	3	6	5	5	6	9	6	2
−2	3	7	**1**	**1**	5	4	6	7	5	6	5	12	5
−1	5	4	4	4	4	**3**	7	6	6	2	9	6	4
0	6	6	**2**	**2**	**3**	**3**	**3**	**1**	5	3	8	12	4
+1	6	3	**2**	4	**2**	4	4	**1**	6	5	7	4	7
+2	6	6	4	5	5	6	4	**1**	4	3	6	3	3
+3	6	10	5	4	4	1	4	**1**	6	6	7	4	3
+4	14	3	7	5	3	4	2	5	4	3	7	5	5
+5	4	10	7	9	6	9	9	3	4	3	5	7	3
+6	2	4	3	8	3	5	5	3	6	5	3	3	4

+α, +δ

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	0	1.1
1	7	5.4
2	15	13.2
3	26	24.2
4	30	29.3
5	26	30.0
6	30	25.2
7	12	18.4
8	5	11.5
9	9	6.5
10	4	3.3
11	0	1.5
12	3	0.7
$\geqslant$13	2	0.6

№ 24. $a = 3^h4^m$; $B = -29^0$. $N = 1143$; $w_1 = 1.5$; $w_2 = 15$.

[$s_1 = 2$; $\delta_1 = 1.0$]; $s_2 = 4$; $\delta_2 = 14.2$

δ \ α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	7	4	*12*	7	6	8	7	5	3	6	3	7
−5	14	10	7	*16*	4	9	10	6	8	12	6	6	4
−4	6	7	8	7	10	11	6	9	8	6	6	9	7
−3	8	**1**	**1**	5	5	9	4	5	8	7	6	8	6
−2	9	4	6	9	7	2	8	8	10	6	9	9	11
−1	10	11	5	2	8	*14*	6	6	4	5	8	3	5
0	12	6	6	3	9	*15*	7	4	6	3	9	8	5
+1	8	11	6	10	6	5	5	4	7	3	6	6	6
+2	5	3	7	4	7	7	10	4	8	8	4	7	3
+3	4	3	4	7	7	10	5	5	4	7	8	5	6
+4	5	7	8	7	8	5	6	3	5	5	9	9	4
+5	12	8	11	9	10	9	10	6	2	4	7	8	9
+6	6	7	10	5	11	12	9	10	3	3	5	5	3

+α, +δ

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	0	0.3
1	2	1.4
2	3	4.5
3	14	10.3
4	16	17.0
5	21	23.0
6	27	25.9
7	23	25.2
8	20	21.3
9	16	16.0
10	12	10.8
11	6	6.7
12	5	3.8
13	0	1.9
14	2	1.0
$\geqslant$15	2	0.5

№ 25. $\alpha = 3^h 12^m$; $B = -28°$. $N = 862$; $w_1 = 3$; $w_2 = 6$.

$s_1 = -$; $\delta_1 = -$; $s_2 = -$; $\delta_2 = -$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	9	4	0	2	3	1	1	6	6	0	3	5
−5	2	5	6	5	9	7	7	5	7	5	4	3	2
−4	3	8	5	4	6	5	5	3	6	5	1	6	3
−3	2	2	3	3	5	7	4	5	5	3	4	6	5
−2	5	6	9	7	4	5	4	4	6	2	3	5	2
−1	2	6	4	12	2	3	8	1	5	4	5	10	5
0	7	6	4	4	4	9	3	9	7	2	5	2	6
+1	6	5	5	5	5	4	2	5	3	5	3	7	3
+2	4	2	10	8	7	3	6	3	7	5	6	5	6
+3	6	8	15	9	5	5	5	6	7	3	4	6	5
+4	8	3	5	12	5	3	8	6	5	8	5	7	7
+5	4	8	1	5	9	12	5	2	6	8	3	4	5
+6	4	2	6	6	11	4	7	4	6	6	8	2	7

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	2	1.0
1	5	5.2
2	16	13.1
3	22	23.1
4	21	29.0
5	39	30.0
6	25	25.4
7	15	18.7
8	10	11.7
9	7	6.6
10	2	3.4
11	1	1.6
12	3	0.7
⩾13	1	0.6

№ 26. $\alpha = 3^h 20^m$; $B = -27°$. $N = 1231$; $w_1 = 380$; $w_2 = 1.0$.

$s_1 = 17$; $\delta_1 = 3.1$; $s_2 = 15$; $\delta_2 = 11.7$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	5	10	6	12	4	3	9	10	7	10	5	9	8
−5	5	8	8	8	4	4	10	11	9	10	6	6	10
−4	8	7	7	5	7	10	9	4	2	6	8	4	4
−3	13	10	6	5	9	5	10	3	2	4	4	4	4
−2	12	9	8	7	4	1	3	0	5	5	6	6	8
−1	13	16	9	11	3	9	9	3	7	4	7	11	12
0	12	8	10	5	5	2	8	4	7	5	10	12	7
+1	13	10	8	6	7	4	4	7	7	9	4	11	12
+2	11	11	10	14	5	4	7	8	4	2	8	5	5
+3	9	7	8	6	8	6	5	5	2	8	6	9	10
+4	14	12	3	7	6	8	10	8	11	10	7	8	10
+5	7	6	10	7	9	6	10	8	9	7	11	4	8
+6	8	10	3	5	9	8	9	8	5	4	6	6	9

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	1	0.1
1	1	0.9
2	5	3.1
3	7	7.5
4	20	13.7
5	18	19.9
6	16	23.9
7	19	25.0
8	24	22.9
9	17	18.4
10	20	13.5
11	8	8.9
12	7	5.5
13	3	3.1
14	2	1.6
15	0	0.7
⩾16	1	0.6

№ 27. $\alpha = 3^h28^m$; $B = -26^0$. $N = 873$; $w_1 = 2600$; $w_2 = 3200$.

$s_1 = 12$; $\delta_1 = 1.1$; $s_2 = 5$; $\delta_2 = 11.4$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	5	5	5	1	8	7	3	9	6	10	7	3	2
−5	4	10	2	3	3	5	8	3	7	6	5	1	1
−4	4	3	0	4	4	2	3	2	3	5	5	6	9
−3	2	4	5	1	3	4	6	9	5	5	6	7	6
−2	4	2	4	1	1	5	1	4	5	7	8	10	4
−1	7	10	5	3	1	2	0	7	5	1	10	3	7
0	5	3	7	2	1	2	9	5	3	3	3	14	2
+1	9	10	4	1	6	5	5	6	4	3	5	5	9
+2	3	4	7	4	5	4	4	3	5	5	12	11	11
+3	6	8	4	6	6	8	6	4	2	7	5	8	4
+4	7	6	6	4	10	1	5	5	6	4	5	5	4
+5	2	9	8	8	6	5	10	4	6	8	10	8	10
+6	3	8	8	7	4	2	9	1	9	6	4	6	2

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	2	1.0
1	13	4.9
2	14	12.5
3	19	22.1
4	25	28.6
5	29	29.9
6	19	25.6
7	13	19.1
8	12	12.3
9	9	7.0
10	10	3.6
11	2	1.7
12	1	0.7
⩾13	1	0.6

№ 28. $\alpha = 3^h36^m$; $B = -25^0$. $N = 787$; $w_1 = 8$; $w_2 = 1200$.

$s_1 = 28$; $\delta_1 = 2.1$; $s_2 = 2$; $\delta_2 = 12.5$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	3	6	6	4	4	3	4	9	7	4	6	5
−5	1	3	4	6	4	9	4	3	1	3	6	4	7
−4	4	4	3	4	5	2	3	4	8	5	4	3	3
−3	6	6	4	6	7	5	3	1	5	4	4	3	2
−2	3	2	4	4	3	1	2	2	2	3	1	6	11
−1	5	3	3	4	1	3	3	3	1	5	5	7	7
0	6	2	3	4	4	7	3	5	0	11	5	9	7
+1	5	3	3	1	4	1	1	6	4	6	4	11	8
+2	3	2	5	2	4	1	2	2	5	4	4	3	7
+3	7	7	3	5	3	5	6	4	5	6	6	4	7
+4	3	5	1	7	5	9	12	2	6	6	6	12	13
+5	8	12	5	7	5	7	6	6	5	5	4	5	9
+6	2	5	3	0	4	8	3	6	4	9	3	6	6

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	2	1.8
1	12	7.6
2	13	17.4
3	31	26.9
4	33	31.4
5	24	29.3
6	23	22.9
7	14	15.1
8	4	8.8
9	6	4.5
10	0	2.1
11	3	0.9
⩾12	4	0.5

№ 29. $a = 3^h44^m$; $B = -23^0$. $N = 2135$; $w_1 = 900$; $w_2 = 440$.

$s_1 = 9$; $\delta_1 = 5.1$; $s_2 = 4$; $\delta_2 = 21.5$

+δ \ +α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	**6**	9	11	11	10	18	9	21	16	18	10	7	7
−5	**6**	**5**	**4**	11	13	10	13	13	9	14	14	4	7
−4	**7**	**5**	13	16	15	15	6	16	*20*	11	15	8	16
−3	8	10	11	14	18	14	16	15	*22*	15	12	6	8
−2	8	20	17	15	11	14	15	10	18	14	15	10	12
−1	11	10	16	14	13	11	13	12	14	10	14	16	14
0	18	13	10	15	13	17	15	11	13	23	17	13	13
+1	12	9	12	15	9	14	15	9	14	16	21	19	14
+2	13	14	8	15	13	10	13	20	14	12	15	10	14
+3	9	20	7	13	14	19	7	18	17	20	12	*21*	14
+4	12	19	9	9	7	8	7	8	16	13	16	*23*	8
+5	**2**	11	12	15	14	15	5	12	22	11	13	13	10
+6	**7**	**4**	13	18	10	10	9	10	17	6	14	12	8

r	n(r) obs.	n(r) theor.
0—1	0	0.01
2—3	1+0	0.3
4—5	3+3	0.6+1.5
6—7	5+9	3.2+5.8
8—9	9+10	9.0+12.3
10—11	15+11	15.9+17.9
12—13	11+19	19.2+18.6
14—15	20+16	16.5+14.0
16—17	10+5	11.2+8.4
18—19	7+3	5.7+3.9
20—21	5+3	2.6+1.5
22—23	2+2	0.9+0.4
⩾24	0	0.4

№ 30. $a = 3^h52^m$; $B = -22^0$. $N = 1306$; $w_1 = 34$; $w_2 = 2.5$.

$s_1 = 3$; $\delta_1 = 1.7$; $s_2 = 4$; $\delta_2 = 14.5$

+δ \ +α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	6	4	12	7	11	8	9	10	9	9	11	10	8
−5	4	7	8	3	8	8	4	8	5	9	9	3	6
−4	1	9	8	11	10	7	9	8	13	5	7	6	9
−3	2	8	10	6	9	2	6	2	8	13	6	13	6
−2	5	6	9	11	10	10	8	8	6	10	7	6	10
−1	9	11	13	6	6	15	5	6	4	6	8	10	8
0	6	12	8	8	8	7	11	8	6	8	8	11	5
+1	10	11	10	13	11	5	6	7	7	6	5	10	4
+2	6	9	9	5	14	9	9	6	9	9	5	4	5
+3	*12*	*14*	8	8	7	5	10	11	10	7	6	9	10
+4	*18*	9	8	10	8	8	4	14	4	3	4	4	5
+5	*14*	10	9	7	8	4	3	7	10	9	4	7	3
+6	11	6	5	8	9	9	11	4	9	5	**2**	**1**	**2**

r	n(r) obs.	n(r) theor.
0	0	0.1
1	2	0.6
2	5	2.3
3	5	5.6
4	13	11.1
5	14	17.2
6	22	22.0
7	13	24.1
8	27	23.7
9	24	20.0
10	18	15.7
11	12	10.8
12	3	7.1
13	5	4.2
14	4	2.3
15	1	1.1
⩾16	1	1.0

№ 31. $a = 4^h0^m$; $B = -21^0$. $N = 2331$; $w_1 = 10^{30}$; $w_2 = 10^{11}$.

$s_1 = 21$; $\delta_1 = 4.6$; $s_2 = 31$; $\delta_2 = 21.7$

δ \ α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	12	14	15	15	12	14	12	12	10	11	14	7	7
−5	8	18	12	*21*	*20*	*24*	*19*	*23*	*20*	15	13	12	6
−4	11	16	16	15	*20*	*25*	*19*	*21*	13	15	25	16	15
−3	*21*	18	*19*	*22*	*20*	*21*	16	14	13	11	14	16	11
−2	*23*	*21*	*20*	*26*	*19*	10	9	14	8	16	11	15	9
−1	*30*	*27*	*22*	16	16	9	13	10	9	19	7	18	22
0	*19*	*18*	*26*	18	18	11	11	9	8	13	13	19	16
+1	*22*	*18*	*19*	14	10	16	13	14	9	14	17	17	10
+2	13	*22*	13	10	16	13	5	13	15	18	**9**	**6**	**5**
+3	16	*25*	16	13	8	13	14	9	13	**6**	**2**	**9**	**1**
+4	15	14	13	21	17	10	14	15	13	**9**	**1**	**1**	**2**
+5	10	11	18	17	20	24	18	13	10	**4**	**8**	**2**	**1**
+6	6	9	10	12	13	13	13	**4**	**8**	**8**	**2**	**5**	**4**

$+\alpha$ $+\delta$

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 1	0+ 4	0.001
2— 3	4+ 0	0.1
4— 5	3+ 3	0.2+0.7
6— 7	4+ 3	1.6+3.4
8— 9	7+11	5.6+8.5
10—11	10+ 8	11.7+14.7
12—13	7+20	17.1+18.6
14—15	12+10	17.7+16.5
16—17	13+ 4	14.3+11.6
18—19	10+ 8	8.8+6.4
20—21	6+ 6	4.4+2.9
22—23	5+ 2	1.8+1.0
24—25	2+ 3	0.6+0.4
26—27	2+ 1	0.2+0.1
⩾28	1	0.1

№ 32. $a = 4^h8^m$; $B = -20^\circ$. $N = 877$; $w_1 = 400\,000$; $w_2 = 3000$.

$s_1 = 25$; $\delta_1 = 1.4$; $s_2 = 7$; $\delta_2 = 11.9$

δ \ α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	6
−6	5	3	1	6	7	5	4	7	7	4	*9*	*11*	6
−5	9	6	10	10	4	9	1	*9*	5	4	4	*19*	2
−4	4	11	8	6	7	3	6	*9*	*17*	6	6	4	7
−3	7	4	5	7	8	9	7	5	*9*	6	3	4	2
−2	8	5	9	6	2	4	3	5	5	7	10	8	9
−1	7	15	4	7	4	7	3	4	4	6	6	5	3
0	7	8	11	7	2	3	7	4	6	10	4	5	4
+1	4	11	7	7	7	5	1	5	3	8	4	9	7
+2	2	5	8	12	4	1	6	**2**	9	6	6	5	2
+3	6	**1**	3	5	6	4	4	**2**	**2**	4	6	6	1
+4	**0**	**3**	3	5	2	3	**1**	**0**	**3**	4	3	6	3
+5	**0**	**3**	**0**	**1**	4	12	6	3	**1**	**2**	4	**0**	5
+6	3	**2**	**2**	**1**	**1**	5	7	4	**1**	**2**	**3**	**1**	**1**

$+\alpha$ $+\delta$

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	5	1.0
1	14	5.0
2	14	12.5
3	19	22.0
4	27	28.4
5	18	29.9
6	21	25.8
7	20	19.4
8	7	12.5
9	11	7.1
10	4	3.7
11	4	1.7
12	2	0.8
⩾13	3	0.8

№ 33. $a = 4^h16^m$; $B = -18^0$. $N = 1378$; $w_1 = 10^{17}$; $w_2 = 10^{11}$.

$s_1 = 40$; $\delta_1 = 3.0$; $s_2 = 24$; $\delta_2 = 16.0$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	13	8	*13*	*17*	*15*	*13*	10	8	6	4	7	4	5
−5	14	5	11	9	*15*	8	11	*19*	8	10	4	7	6
−4	7	12	10	9	*15*	8	11	9	*19*	7	9	12	13
−3	3	7	9	8	11	*16*	2	9	7	*16*	*16*	8	15
−2	9	13	14	11	5	5	7	9	12	9	*20*	9	8
−1	9	8	14	7	7	*17*	11	7	10	*13*	*21*	*19*	*14*
0	12	8	9	9	10	*17*	5	8	*13*	*18*	*14*	9	*14*
+1	11	7	9	7	9	5	6	5	8	*16*	*13*	**4**	**0**
+2	5	**4**	**4**	6	6	8	9	10	7	7	**2**	**2**	**3**
+3	**4**	**2**	**3**	6	6	11	9	7	12	8	8	**2**	**2**
+4	8	**4**	**4**	7	10	6	6	7	**2**	**0**	**1**	**8**	**4**
+5	**1**	**7**	**1**	8	10	7	6	**1**	**0**	**5**	**7**	**5**	**4**
+6	**2**	**1**	**4**	**4**	**3**	**0**	**1**	**3**	11	**4**	**5**	**4**	**2**

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	4	0.1
1	6	0.4
2	9	1.8
3	5	4.5
4	15	9.3
5	11	15.1
6	10	20.3
7	20	23.3
8	18	23.9
9	18	21.2
10	8	17.4
11	9	12.7
12	5	8.6
13	8	5.4
14	6	3.1
15	4	1.7
16	4	0.8
17	3	0.4
⩾18	6	0.4

№ 34. $a = 4^h24^m$; $B = -17^0$. $N = 274$; $w_1 = 10$; $w_2 = 18$.

$s_1 = 26$; $\delta_1 = 0.31$; $s_2 = -$; $\delta_2 = -$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	5	2	1	0	1	0	1	4	0	3	1	0	1
−5	1	2	4	3	1	3	1	0	1	1	1	2	2
−4	4	3	4	4	3	2	4	3	5	4	2	3	2
−3	3	3	1	1	3	5	1	1	2	2	3	2	2
−2	1	3	2	3	1	1	2	1	2	3	1	2	3
−1	3	4	2	1	5	1	**0**	**1**	**0**	**0**	0	2	0
0	2	1	4	2	3	2	**0**	**0**	**0**	**0**	2	3	1
+1	0	1	2	2	**0**	**1**	**0**	**1**	**0**	**0**	0	1	2
+2	2	1	1	2	**1**	**0**	**1**	**2**	**0**	**0**	2	2	2
+3	0	0	1	0	**0**	**0**	**0**	**0**	**0**	**1**	3	2	1
+4	0	0	3	0	1	2	4	0	1	5	0	1	2
+5	2	1	1	2	1	2	5	4	1	2	4	1	3
+6	1	0	0	3	2	1	4	1	1	1	1	0	0

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	40	32.5
1	50	53.8
2	38	44.0
3	22	24.3
4	13	9.9
⩾5	6	4.5

№ 35. $a = 4^h32^m$; $B = -15^0$. $N = 593$; $w_1 = 500\,000$; $w_2 = 10\,000$.

$s_1 = 32$; $\delta_1 = 0.7$; $s_2 = 12$; $\delta_2 = 8.9$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	2	1	2	3	0	2	7	*11*	6	4	8	5
−5	2	4	7	2	3	3	4	6	5	*8*	6	4	*11*
−4	6	3	2	7	2	7	2	2	*7*	*7*	*13*	*12*	6
−3	4	5	2	4	2	4	3	2	5	*7*	*7*	4	6
−2	3	6	**1**	8	**7**	3	3	5	2	6	*9*	*7*	6
−1	5	2	**1**	**1**	2	**1**	4	2	5	6	*8*	3	3
0	2	2	4	**0**	**2**	**0**	7	4	3	2	0	4	6
+1	4	3	8	6	3	**0**	7	3	0	2	2	3	3
+2	4	6	2	2	7	**4**	5	2	2	**3**	**1**	2	2
+3	5	3	5	2	2	2	3	3	**4**	2	**0**	2	3
+4	4	7	8	4	5	3	**1**	4	2	**1**	**1**	**2**	**1**
+5	**1**	3	3	3	**1**	4	**1**	2	**1**	**1**	**0**	**0**	**0**
+6	**1**	**1**	**0**	4	**0**	**1**	2	2	2	**0**	**0**	**0**	**0**

r	*n(r)* *obs.*	*n(r)* *theor.*
0	16	5.0
1	18	17.5
2	39	30.5
3	26	36.4
4	21	32.3
5	11	22.8
6	13	13.4
7	14	6.7
8	6	2.9
9	1	1.2
⩾10	4	1.0

№ 36. $a = 4^h40^m$; $B = -14^0$. $N = 1458$; $w_1 = 10^{120}$; $w_2 = 10^{54}$.

$s_1 = 61$; $\delta_1 = 2.0$; $s_2 = 35$; $\delta_2 = 17.5$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	12	*20*	*22*	*25*	6	17	12	10	*22*	*16*	12	12	7
−5	13	*24*	*20*	*14*	*19*	7	7	9	8	7	*15*	*16*	9
−4	18	10	11	*14*	*15*	12	*16*	*15*	9	14	9	*20*	*15*
−3	8	11	14	13	*17*	6	*16*	*20*	10	9	10	*17*	*18*
−2	6	11	11	12	*18*	11	*14*	10	*16*	7	10	12	9
−1	**4**	**3**	7	8	7	8	9	13	*18*	*18*	*18*	*18*	*14*
0	8	9	5	10	16	10	15	12	13	*16*	*14*	*14*	13
+1	**2**	8	10	10	5	11	8	16	12	*16*	*21*	**4**	6
+2	**2**	**3**	6	11	6	8	**2**	**2**	**3**	5	**4**	**4**	12
+3	**2**	**3**	**4**	7	**3**	**1**	**4**	**0**	**3**	**3**	**4**	**2**	7
+4	**1**	**5**	**1**	**2**	**1**	**3**	**1**	**3**	**1**	**2**	**6**	**2**	**4**
+5	**0**	**3**	**2**	**2**	**1**	**3**	**0**	**1**	**1**	**2**	**1**	**0**	**4**
+6	**0**	**0**	**0**	**2**	**2**	**1**	**0**	**2**	**1**	**1**	**1**	**1**	**0**

r	*n(r)* *obs.*	*n(r)* *theor.*
0—1	9+15	0.04+0.3
2—3	15+11	1.1+3.2
4—5	9+ 4	6.9+11.7
6—7	7+ 9	17.0+21.4
8—9	8+ 8	22.9+22.4
10—11	10+ 7	19.2+15.2
12—13	10+ 5	11.1+7.3
14—15	8+ 5	4.6+2.7
16—17	9+ 3	1.5+0.7
18—19	7+ 1	0.3+0.1
⩾20	9	0.1

№ 37. $a = 4^h48^m$; $B = -12°$. $N = 738$; $w_1 = 90\,000$; $w_2 = 200\,000$.

$s_1 = 14$; $\delta_1 = 0.57$; $s_2 = 7$; $\delta_2 = 10.1$

δ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	2	5	3	6	0	5	7	1	2	2	3	1
−5	3	0	3	5	6	9	7	7	5	1	3	3	8
−4	8	10	2	8	4	7	4	2	11	7	3	10	4
−3	3	11	6	6	3	6	5	1	5	4	7	4	5
−2	3	1	2	1	4	4	6	3	*8*	*8*	6	2	5
−1	2	2	3	3	3	8	3	*12*	*8*	*11*	7	7	4
0	3	4	6	3	1	2	2	3	4	6	5	*10*	7
+1	**1**	2	5	2	2	3	4	5	4	8	5	*14*	3
+2	**1**	5	1	8	4	7	3	4	5	8	5	2	2
+3	**0**	**1**	2	6	5	6	5	4	5	5	8	8	7
+4	**2**	**1**	**0**	3	6	8	4	8	8	3	3	6	1
+5	**0**	**1**	**1**	4	3	10	5	5	3	3	4	8	5
+6	**0**	**0**	**0**	**0**	4	3	4	2	3	4	2	6	2

$+\delta$

r	$n(r)$ obs.	$n(r)$ theor.
0	9	2.3
1	15	9.5
2	21	20.5
3	30	29.7
4	21	32.5
5	22	28.4
6	14	20.6
7	11	13.0
8	16	7.0
9	1	3.5
10	4	1.5
11	3	0.6
⩾12	2	0.5

№ 38. $a = 4^h56^m$; $B = -11°$. $N = 1430$; $w_1 = 10^{13}$; $w_2 = 10^{25}$.

$s_1 = 43$; $\delta_1 = 3.4$; $s_2 = 9$; $\delta_2 = 24.8$

δ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	**2**	**2**	**2**	10	2	10	14	11	10	12	7	9	11
−5	**5**	**6**	**4**	**1**	6	9	13	10	9	11	12	10	15
−4	9	**5**	**5**	8	8	14	7	10	9	14	15	14	15
−3	**5**	**3**	8	10	15	9	10	14	*20*	*28*	*21*	13	12
−2	**0**	6	7	9	7	9	13	14	*21*	*36*	*40*	*20*	8
−1	8	5	11	11	8	4	7	15	15	*18*	*19*	11	13
0	10	7	12	12	5	7	9	**5**	15	8	12	6	10
+1	12	6	5	6	6	11	**3**	**5**	9	9	7	10	7
+2	8	5	5	6	6	6	8	**2**	10	6	5	8	3
+3	9	12	8	11	6	10	**5**	7	14	8	7	**4**	8
+4	6	**0**	8	**4**	**4**	**5**	4	**5**	**3**	**5**	7	**3**	**4**
+5	7	10	**3**	**3**	8	**5**	7	**4**	**5**	**7**	**4**	**3**	6
+6	6	4	10	6	5	**3**	6	**0**	**2**	**0**	**1**	**3**	**4**

$+\delta$

r	$n(r)$ obs.	$n(r)$ theor.
0— 1	4+ 2	0.1+ 0.4
2— 3	6+10	1.3+ 3.5
4— 5	11+19	7.4+12.7
6— 7	17+15	17.9+22.0
8— 9	15+12	23.2+22.2
10—11	15+ 8	18.8+14.5
12—13	8+ 4	10.4+ 6.7
14—15	7+ 7	4.2+ 2.4
16—17	0+ 0	1.3+ 0.6
18—19	1+ 1	0.3+ 0.2
20—21	2+ 2	0.1 (for 20—⩾36)
22—27	0	
28—29	1+ 0	
30—35	0	
⩾36	2	

№ 39. $a = 5^h4^m$; $B = -9^0$. $N = 1244$; $w_1 = 1300$; $w_2 = 900$.

$s_1 = 8$; $\delta_1 = 2.8$; $s_2 = 16$; $\delta_2 = 12.6$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	8	*13*	5	*10*	6	5	4	11	6	9	10	4
−5	9	*16*	*13*	*9*	*15*	5	9	12	11	10	11	13	10
−4	*10*	*11*	*14*	7	3	6	6	9	11	5	11	8	6
−3	*15*	*10*	5	7	10	7	12	11	7	8	5	7	4
−2	*22*	*9*	*11*	5	3	9	9	6	6	8	7	4	8
−1	9	*13*	*10*	4	5	8	5	5	6	8	6	2	5
0	6	8	4	2	8	3	15	7	10	3	5	6	10
+1	8	5	6	7	12	6	6	7	13	8	4	6	8
+2	12	2	10	5	7	8	3	8	4	5	8	2	4
+3	4	12	8	3	4	8	3	8	5	3	5	12	5
+4	7	**4**	9	9	5	6	4	11	10	9	8	5	5
+5	**3**	**4**	6	**1**	11	10	6	12	9	10	10	7	4
+6	**3**	**1**	**2**	**4**	6	6	5	3	9	7	6	7	3

r	n(r) obs.	n(r) theor.
0	0	0.1
1	2	0.8
2	5	3.0
3	12	7.3
4	17	13.5
5	22	19.7
6	21	23.8
7	14	25.0
8	19	23.0
9	14	18.5
10	15	13.5
11	10	8.9
12	7	6.5
13	5	3.1
14	1	1.7
15	3	0.7
16	1	0.3
⩾17	1	0.2

№ 40. $a = 5^h12^m$; $B = -8^0$. $N = 2696$; $w_1 = 10^{14}$; $w_2 = 10^{18}$.

$s_1 = 24$; $\delta_1 = 7.6$; $s_2 = 23$; $\delta_2 = 25.3$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	19	17	19	*31*	*22*	13	*25*	*31*	16	28	11	7	7
−5	18	19	20	19	19	15	16	19	18	14	28	13	12
−4	18	16	16	11	11	**8**	11	15	15	26	20	14	8
−3	20	14	6	17	14	**10**	12	16	22	14	15	21	18
−2	15	16	13	8	12	**8**	**10**	14	17	11	20	24	19
−1	14	14	14	16	**6**	**8**	**8**	**5**	**7**	**10**	18	31	14
0	15	25	15	12	**8**	**9**	**6**	**8**	12	14	25	18	20
+1	16	16	16	10	11	**7**	**10**	**10**	12	9	12	24	14
+2	15	24	15	19	*22*	14	**10**	12	25	12	21	13	11
+3	14	19	*29*	20	*28*	*25*	15	14	21	16	15	13	**8**
+4	*22*	*32*	*26*	*28*	15	*22*	*23*	*22*	14	15	13	12	**6**
+5	16	16	*25*	16	*30*	16	18	20	16	16	**2**	**3**	**6**
+6	*22*	*22*	*24*	22	*26*	*22*	*23*	15	8	10	11	**10**	11

r	n(r) obs.	n(r) theor.
0—1	0	0.0001
2—3	1+1	0.01
4—5	0+1	0.1+0.2
6—7	5+4	0.4+1.1
8—9	10+2	2.1+3.6
10—11	9+9	5.7+8.4
12—13	10+6	11.2+14.0
14—15	16+14	16.2+17.2
16—17	17+3	17.0+15.7
18—19	7+9	13.9+11.7
20—21	7+3	9.4+7.1
22—23	10+2	5.4+3.6
24—25	4+6	2.4+1.5
26—27	3+0	0.9+0.5
28—29	4+1	0.5 (28—33)
30—31	1+3	
32—33	1+0	

№ 41. $a = 5^h 20^m$; $B = -6^0$. $N = 586$; $w_1 = 5$; $w_2 = 6$.

$s_1 = -$; $\delta_1 = -$; $s_2 = -$; $\delta_2 = -$

$+\delta$ \ $+a$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	0	1	2	2	4	2	4	7	7	1	2	2	3
−5	6	2	6	1	2	4	3	3	4	5	4	6	4
−4	6	2	5	6	3	5	4	3	2	4	2	2	2
−3	8	3	8	3	3	1	4	3	6	5	4	5	4
−2	6	4	1	2	2	5	4	2	0	2	3	4	5
−1	5	1	0	7	3	2	1	5	0	3	4	4	9
0	3	7	8	4	8	1	5	2	5	4	8	2	6
+1	6	4	5	7	4	4	2	1	3	3	5	4	1
+2	5	1	2	4	2	4	5	4	3	2	1	4	3
+3	1	3	1	10	0	5	4	4	4	3	3	4	4
+4	1	3	4	3	4	0	1	1	9	2	2	2	4
+5	1	1	5	3	3	2	3	5	1	2	2	4	3
+6	1	4	7	5	3	0	5	3	2	1	3	4	5

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	7	5.4
1	22	18.4
2	30	31.8
3	29	36.8
4	37	32.0
5	21	22.1
6	9	12.6
7	6	6.3
8	5	2.7
9	2	1.1
≥10	1	0.9

№ 42. $a = 5^h 28^m$; $B = -5^0$. $N = 2852$; $w_1 = 10^{19}$; $w_2 = 10^{25}$.

$s_1 = 29$; $\delta_1 = 7.7$; $s_2 = 17$; $\delta_2 = 30.1$

$+\delta$ \ $+a$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	**11**	**9**	19	*28*	*38*	*27*	24	18	18	20	16	12	18
−5	**11**	16	22	26	*29*	18	*39*	*29*	22	21	22	14	11
−4	**6**	17	24	*29*	*21*	*37*	*27*	*31*	21	20	19	19	18
−3	**7**	**10**	21	20	22	16	11	*25*	*30*	22	19	19	14
−2	**5**	18	19	17	21	14	14	12	17	22	13	12	12
−1	**10**	**11**	19	29	14	8	12	17	18	22	27	19	21
0	**5**	16	11	11	23	12	12	16	19	22	10	14	17
+1	**8**	**2**	17	16	16	17	25	15	15	21	19	*29*	*25*
+2	**6**	**6**	**12**	16	16	11	10	15	18	*31*	20	14	*36*
+3	**5**	**10**	**9**	18	18	10	13	12	21	16	26	20	22
+4	**4**	**6**	**8**	13	**11**	14	8	21	23	22	21	10	19
+5	**4**	**7**	**9**	15	**11**	**5**	13	28	13	13	**14**	12	12
+6	**6**	**8**	15	10	12	16	11	21	21	15	21	23	21

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0—1	0	—
2—3	1+0	0.01
4—5	2+4	0.1
6—7	5+2	0.3+0.7
8—9	5+3	1.3+2.5
10—11	8+11	4.0+6.8
12—13	12+6	8.8+11.5
14—15	9+6	13.8+15.5
16—17	11+7	16.3+16.4
18—19	10+11	15.4+13.6
20—21	5+13	11.5+9.3
22—23	10+3	7.0+5.2
24—25	2+3	3.7+2.5
26—27	2+4	1.7+1.0
28—29	2+5	0.6+0.3
30—31	1+2	0.2 (30—39)
32—35	0	
36—37	1+1	
38—39	1+1	

№ 43. $\alpha = 5^h36^m$; $B = -3^0$. $N = 2466$; $w_1 = 130$; $w_2 = 10^8$.

$s_1 = 16$; $\delta_1 = 8.4$; $s_2 = 24$; $\delta_2 = 23.4$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	14	21	15	10	12	13	12	15	9	16	17	9	9
−5	9	10	12	10	14	9	11	10	18	17	12	9	13
−4	16	14	12	15	13	14	11	14	10	15	18	16	14
−3	10	14	11	**8**	**10**	17	7	10	12	16	11	19	7
−2	9	13	13	19	**6**	**8**	**9**	11	12	21	18	*30*	15
−1	14	15	**6**	**4**	**10**	**9**	11	9	16	12	*21*	*26*	*21*
0	**10**	**10**	**10**	14	**9**	11	6	11	14	*24*	*15*	*22*	20
+1	13	16	**8**	20	**9**	**8**	15	11	11	17	*21*	*26*	15
+2	15	*22*	19	9	16	16	21	8	16	20	*22*	*24*	*22*
+3	11	*23*	*26*	*24*	14	23	12	14	8	18	17	*22*	*25*
+4	17	*21*	*21*	18	14	8	14	13	13	*24*	*30*	*25*	16
+5	8	17	12	16	13	15	16	10	14	17	*23*	19	14
+6	17	12	20	16	11	11	12	11	16	10	20	17	14

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 3	0	0.1
4— 5	1+ 0	0.3+ 0.6
6— 7	3+ 2	1.3+ 2.7
8— 9	8+13	3.7+ 7.4
10—11	14+14	10.5+13.6
12—13	12+ 9	16.2+18.1
14—15	17+11	18.0+17.2
16—17	14+10	15.3+12.8
18—19	5+ 4	10.0+ 7.6
20—21	5+ 8	5.4+ 3.6
22—23	5+ 3	2.4+ 1.5
24—25	4+ 2	0.9+ 0.5
26—27	3+ 0	0.2+ 0.1
28—29	0	} 0.1
30	2	

№ 44. $\alpha = 5^h44^m$; $B = -2^0$. $N = 2436$; $w_1 = 6.10^8$; $w_2 = 10^8$.

$s_1 = 23$; $\delta_2 = 6.9$; $s_2 = 19$; $\delta_2 = 24.4$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	8	12	**7**	**9**	**8**	**8**	13	**4**	**8**	**9**	10	6	11
−5	8	10	19	14	13	**6**	12	**7**	10	**5**	15	12	**8**
−4	10	11	14	12	**4**	**7**	11	16	16	12	9	10	**2**
−3	16	9	13	16	**8**	15	18	17	14	18	16	9	10
−2	*26*	13	11	13	19	*25*	*28*	16	*24*	*23*	*22*	15	10
−1	19	21	14	20	19	15	18	17	13	*23*	11	23	16
0	20	16	22	17	15	15	18	11	19	13	19	14	15
+1	17	21	19	16	8	14	9	16	6	13	9	18	15
+2	17	*25*	16	12	21	*29*	18	15	17	20	*29*	18	9
+3	12	*23*	17	11	17	16	13	14	15	17	*25*	14	10
+4	14	20	12	12	11	6	19	17	16	9	12	13	10
+5	20	14	8	15	14	*22*	*22*	14	18	16	**8**	**8**	**6**
+6	12	15	16	*22*	*26*	*24*	*20*	*25*	**8**	**4**	**9**	**9**	**6**

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 1	0	—
2— 3	1+ 0	0.01+0.05
4— 5	3+ 1	0.2 +0.5
6— 7	6+ 3	1.2 +2.4
8— 9	12+11	4.3 + 6.9
10—11	9+ 8	9.8 +13.0
12—13	11+10	15.7+17.8
14—15	12+12	18.1+17.3
16—17	15+10	15.6+13.1
18—19	8+ 8	10.5+ 7.9
20—21	6+ 3	5.7+ 3.9
22—23	5+ 4	2.6+ 1.7
24—25	2+ 4	1.0+ 0.6
26—27	2+ 0	0.3+ 0.1
$\geqslant$28	3	0.1

№ 45. $a = 5^h52^m$; $B = 0°$. $N = 1680$; $w_1 = 350$; $w_2 = 10^{12}$.

$s_1 = 50$; $\delta_1 = 6.2$; $s_2 = 6$; $\delta_2 = 24.8$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	5	11	**3**	11	**4**	10	**8**	10	11	6	7	8	10
−5	11	**8**	**7**	15	9	**7**	**8**	16	15	10	11	14	11
−4	**8**	**2**	**7**	**6**	**6**	**7**	**3**	**8**	12	15	*33*	11	9
−3	**4**	**6**	**5**	**4**	**8**	**6**	9	11	7	11	19	11	7
−2	**8**	**5**	**3**	**6**	**7**	**7**	8	7	11	10	**7**	10	9
−1	13	13	11	**7**	**8**	9	10	12	10	**8**	**7**	**7**	9
0	12	15	8	12	9	11	20	10	**5**	**3**	**8**	**3**	**6**
+1	12	11	10	15	6	11	**7**	**8**	**8**	**5**	12	**8**	**5**
+2	12	10	8	12	8	10	**6**	**3**	**7**	12	17	**9**	**5**
+3	13	9	7	9	7	10	10	12	9	11	13	**8**	**4**
+4	11	12	8	16	*22*	12	13	17	16	10	10	10	15
+5	6	8	13	*21*	8	12	10	12	6	9	10	22	12
+6	9	9	8	13	*23*	*26*	*24*	11	13	18	5	10	9

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 1	0	0.1
2— 3	1+ 6	0.5+ 1.7
4— 5	4+ 8	3.4+ 6.8
6— 7	11+18	11.1+15.7
8— 9	23+15	19.6+21.3
10—11	20+18	20.3+19.1
12—13	15+ 8	15.9+12.1
14—15	1+ 6	8.6+ 5.7
16—17	3+ 2	3.5+ 2.1
18—19	1+ 1	1.1+ 0.6
20—21	1+ 1	0.6
22—23	2+ 1	
24—25	1+ 0	
26—27	1+ 0	
28—31	0	
32—33	0+ 1	

№ 46. $\alpha = 6^h 0^m$; $B = +1^0$.

$s_1 = 13.8$; $\delta_1 = 15.4$;

I. [$N = 1112$; $w_1 = 1700$; $w_2 = 150$.
$s_1 = 2.0$; $\delta_1 = 9.0$; $s_2 = 2.8$; $\delta_2 = 53.9$]

	−6		−5		−4		−3		−2		−1		0
−6	1	4	8	4	5	6	7	9	2	6	8	15	4
	6	4	3	7	9	6	5	7	10	4	1	10	11
−5	8	7	7	4	11	9	4	4	6	11	4	10	10
	3	**1**	**2**	8	4	8	5	8	11	4	8	6	12
−4	**2**	**3**	**3**	4	4	11	6	*14*	9	9	6	9	9
	2	9	9	7	2	6	8	*11*	5	*12*	*13*	4	8
−3	**2**	5	3	4	8	4	6	*11*	7	*12*	8	8	7
	8	6	8	3	7	10	3	10	6	*11*	*18*	*14*	*15*
−2	2	8	5	4	2	7	2	10	9	9	8	*12*	5
	9	5	7	4	4	7	6	4	9	7	6	4	7
−1	8	5	3	7	8	6	4	4	6	8	5	5	7
	3	12	3	3	4	5	7	7	2	5	6	8	5
0	7	9	4	3	5	1	11	7	8	5	5	9	4

r	$n(r)$ obs.	$n(r)$ theor.
0	0	0.3
1	4	1.6
2	10	5.0
3	12	11.3
4	26	19.3
5	17	24.1
6	17	26.5
7	20	24.9
8	21	20.5
9	15	15.1
10	7	9.9
11	9	5.9
12	5	3.3
13	1	1.6
14	2	0.8
15	2	0.4
⩾16	1	0.4

III. [$N = 1473$; $w_1 = 130\,000$; $w_2 = 10^6$.
$s_1 = 2.8$; $\delta_1 = 13.8$; $s_2 = 4.2$; $\delta_2 = 63.0$]

	−6		−5		−4		−3		−2		−1		0
0	4	10	6	**2**	**5**	7	**5**	8	11	*18*	11	6	5
	3	4	6	**4**	**3**	**4**	**3**	8	8	*20*	6	9	5
+1	7	4	7	**4**	**4**	15	**2**	7	8	*14*	12	5	6
	7	12	7	**2**	13	8	7	10	13	6	17	9	4
+2	9	4	5	8	10	10	3	*15*	6	6	10	7	7
	6	2	7	7	12	10	10	*17*	12	6	5	13	5
+3	3	7	6	4	7	11	11	12	13	9	5	4	6
	9	4	5	9	8	10	9	14	7	9	6	12	1
+4	5	5	7	12	8	*16*	5	13	7	*15*	*17*	9	11
	3	6	9	*13*	*16*	*16*	7	15	9	10	11	12	11
+5	6	13	10	11	*18*	*18*	*13*	7	9	13	15	13	8
	5	5	8	*15*	*12*	*15*	8	17	8	13	14	11	10
+6	3	5	4	8	10	11	8	6	9	9	9	13	11
$+\delta$													

r	$n(r)$ obs.	$n(r)$ theor.
0	0	0.04
1	1	0.3
2	4	1.1
3	7	3.1
4	13	6.8
5	16	11.6
6	16	16.9
7	18	21.3
8	14	22.8
9	15	22.5
10	12	19.3
11	11	15.3
12	9	11.2
13	12	7.4
14	3	4.7
15	7	2.7
16	3	1.5
17	4	0.7
18	3	0.3
19	0	0.1
⩾20	1	0.04

$N = 6491$; $w_1 = 10^{49}$; $w_2 = 10^{59}$.

$s_2 = 14.0$; $\delta_2 = 80.0$

II. [$N = 1878$; $w_1 = 10^{13}$; $w_2 = 10^{10}$.

$s_1 = 7.0$; $\delta_1 = 18.6$; $s_2 = 2.5$; $\delta_2 = 83.6$]

0 +1 +2 +3 +4 +5 +6 $+\alpha$

	6	**5**	**5**	**4**	**4**	**6**	**5**	**4**	12	8	**5**	**5**	**2**
−6	9	9	**6**	**6**	**6**	**5**	**2**	8	6	10	15	**5**	**5**
	9	5	13	9	**3**	**5**	10	8	12	4	15	8	**6**
−5	10	10	10	10	9	7	9	13	7	12	10	5	13
	14	13	13	8	10	11	11	13	25	7	15	11	10
−4	8	16	13	5	18	12	16	13	13	15	18	12	11
	5	7	14	10	13	14	13	17	12	11	13	12	13
−3	7	7	9	9	10	12	10	19	14	*19*	*23*	*20*	14
	12	11	7	14	10	16	11	11	15	*20*	13	14	12
−2	**5**	13	9	7	12	8	12	16	*24*	*22*	16	16	15
	6	18	11	7	12	15	17	13	12	*18*	*20*	*21*	7
−1	**5**	**2**	11	15	12	16	8	20	14	*22*	14	12	7
0	**5**	**4**	**3**	10	11	15	9	20	16	16	16	10	14

r	$n(r)$ obs.	$n(r)$ theor.
0— 1	0	0.02
2— 3	3+ 2	0.1+ 0.5
4— 5	5+16	1.7+ 3.6
6— 7	8+11	6.4+10.4
8— 9	8+10	14.3+17.9
10—11	15+11	19.9+20.3
12—13	16+16	18.8+16.2
14—15	10+ 9	12.7+ 9.7
16—17	10+ 2	6.7+ 4.4
18—19	4+ 2	2.7+ 1.5
20—21	5+ 1	0.9+ 0.5
⩾22	5	0.2

IV. [$N = 2028$; $w_1 = 10^{28}$; $w_2 = 10^{40}$.

$s_1 = 2.0$; $\delta_1 = 13.0$; $s_2 = 4.5$; $\delta_2 = 110.0$]

0 +1 +2 +3 +4 +5 +6

0	8	7	7	13	13	12	14	18	8	16	11	15	6
	2	8	6	27	16	7	19	15	16	*21*	11	14	12
+1	7	6	11	8	19	12	14	*22*	*24*	*25*	8	19	16
	2	9	6	10	16	10	*23*	*37*	*33*	*22*	19	11	7
+2	6	11	7	14	17	14	*30*	*35*	*37*	*32*	14	25	14
	5	8	4	14	9	*25*	*29*	*23*	*32*	*21*	15	14	8
+3	6	8	12	11	9	16	12	15	*23*	20	12	16	7
	6	10	4	11	13	10	9	18	15	9	16	7	5
+4	8	5	9	14	11	6	9	12	24	11	11	**4**	**2**
	11	12	10	17	16	11	13	12	6	12	8	**3**	**4**
+5	10	9	17	7	13	10	7	13	8	6	7	8	**4**
	6	11	15	9	7	8	2	7	8	5	6	6	**2**
+6	9	3	7	8	7	7	6	9	5	2	5	**3**	**4**

$+\delta$

r	$n(r)$ obs.	$n(r)$ theor.
0— 1	0+ 0	0.01
2— 3	6+ 3	0.1+ 0.4
4— 5	6+ 6	0.9+ 2.1
6— 7	14+16	4.2+ 7.4
8— 9	15+11	11.1+14.7
10—11	7+13	17.8+19.2
12—13	10+ 6	19.4+17.9
14—15	10+ 6	15.2+12.2
16—17	9+ 3	9.2+ 6.5
18—19	2+ 4	4.3+ 2.8
20—21	1+ 2	1.7+ 0.9
22—23	2+ 3	0.5+ 0.3
24—25	2+ 3	} 0.3
26—27	0+ 1	
28—29	0+ 1	
30—31	1+ 0	
32—33	2+ 1	
34—35	0+ 1	
36—37	0+ 2	

№ 47. $\alpha = 6^h 8^m$; $B = +3^o$.

$s_1 = 21.8$; $\delta_1 = 13.0$;

I. [$N = 1711$; $w_1 = 3.10^8$; $w_2 = 2000$.

$s_1 = 4.0$; $\delta_1 = 12.2$; $s_2 = 3.5$; $\delta_2 = 67.4$]

	−6		−5		−4		−3		−2		−1		0
	6	8	6	4	8	9	9	11	7	7	7	10	7
−6	11	14	8	9	11	13	13	13	16	12	*17*	7	7
	6	12	11	8	13	17	12	10	12	9	9	*18*	6
−5	13	12	10	15	15	12	11	15	*17*	*17*	11	10	8
	9	13	9	14	7	11	9	12	9	10	8	5	10
−4	16	11	12	13	9	12	15	12	12	10	5	**4**	**1**
	6	11	10	11	9	18	14	9	8	3	7	6	7
−3	14	13	16	14	12	14	10	10	13	8	7	9	6
	15	12	*16*	13	12	8	10	13	10	10	**2**	**3**	**4**
−2	*17*	*14*	*17*	12	9	12	11	11	9	**2**	**6**	**2**	**2**
	15	*20*	13	8	8	9	12	7	6	10	6	7	**1**
−1	*17*	9	13	9	14	12	*18*	7	5	6	9	**2**	**6**
	14	16	15	12	*16*	*17*	12	10	6	**2**	**1**	**6**	**4**
0													

r	$n(r)$ obs.	$n(r)$ theor.
0	0	0.05
1	3	0.1
2	6	0.3
3	2	1.2
4	4	3.0
5	3	6.0
6	14	10.1
7	13	14.5
8	11	18.7
9	19	20.8
10	15	21.4
11	12	19.5
12	20	16.6
13	13	13.0
14	9	9.4
15	7	6.3
16	6	3.9
17	8	2.4
18	3	1.3
19	0	0.8
⩾20	1	0.7

III. [$N = 1847$; $w_1 = 6.10^8$; $w_2 = 7.10^9$.

$s_1 = 4.5$; $\delta_1 = 18.4$; $s_2 = 4.5$; $\delta_2 = 80.0$]

	−6		−5		−4		−3		−2		−1		0
0	14	12	*19*	7	15	9	10	9	6	**5**	**3**	**2**	**2**
	15	7	*20*	*20*	14	15	12	8	11	12	**5**	**8**	**3**
+1	*22*	15	*18*	16	14	9	12	10	**4**	**7**	**6**	11	**3**
	20	15	*20*	12	13	9	10	7	**5**	**7**	10	12	10
+2	*30*	*18*	*24*	*20*	15	15	15	12	9	**3**	**8**	**3**	12
	22	*17*	*20*	16	10	15	10	16	10	7	**5**	**4**	9
+3	*18*	*13*	*19*	8	8	10	10	20	11	8	11	8	8
	11	*20*	10	8	13	9	10	12	10	11	10	12	8
+4	14	11	5	7	7	9	12	11	9	10	18	16	9
	10	11	4	10	11	14	15	7	12	15	11	11	4
+5	3	7	13	7	17	11	9	13	8	13	11	11	5
	6	8	9	9	12	6	10	19	12	11	10	5	8
+6	7	6	8	7	8	14	16	14	6	12	7	8	7
$+\delta$													

r	$n(r)$ obs.	$n(r)$ theor.
0—1	0	—
2—3	2+ 6	0.2+ 0.6
4—5	4+ 7	1.9+ 4.0
6—7	6+15	7.1+11.3
8—9	16+13	15.4+18.7
10—11	19+16	20.4+20.3
12—13	15+ 6	18.5+15.6
14 - 15	7+11	12.0+ 9.0
16—17	5+ 2	6.0+ 3.9
18—19	4+ 3	2.4+ 1.3
20—21	8+ 0	0.5+ 0.2
⩾22	4	0.2

$N = 5539$; $w_1 = 10^{21}$; $w_2 = 10^{17}$.

$s_2 = 9.2$; $\delta_2 = 70.9$

II. [$N = 968$; $w_1 = 1000$; $w_2 = 700$.

$s_1 = 6.8$; $\delta_1 = 9.8$; $s_2 = —$; $\delta_2 = —$]

	0		+1		+2		+3		+4		+5		+6 (+α)
	6	6	9	4	5	4	9	10	4	3	11	10	9
—6	9	3	6	**3**	**3**	**1**	**2**	6	7	7	7	3	14
	6	7	**2**	**3**	**1**	**3**	**2**	**3**	8	6	5	6	7
—5	10	10	6	6	5	6	5	7	3	4	2	6	6
	5	**3**	**3**	9	2	12	6	5	7	4	9	6	6
—4	**2**	6	10	4	4	2	6	**2**	**3**	**3**	5	4	5
	5	4	9	5	7	8	5	5	10	**3**	6	3	9
—3	9	5	6	7	7	6	6	**2**	**3**	**1**	7	6	3
	3	7	10	7	6	4	9	6	8	5	5	11	8
—2	4	**2**	**3**	5	9	5	7	7	6	9	7	1	5
	5	**3**	**3**	**3**	5	11	6	11	10	7	3	6	3
—1	7	6	**1**	6	5	8	10	3	3	5	3	8	13
	4	5	**3**	11	3	6	8	11	4	4	4	4	12
0													

r	n(r) *obs.*	n(r) *theor.*
0	0	0.5
1	5	3.1
2	10	8.8
3	29	17.1
4	16	24.7
5	23	28.3
6	30	27.0
7	18	22.2
8	7	15.9
9	12	10.1
10	9	5.8
11	6	3.0
12	2	1.5
13	1	0.6
≥14	1	0.5

IV. [$N = 1013$; $w_1 = 12$; $w_2 = 8$.

$s_1 = 6.5$; $\delta_1 = 13.1$; $s_2 = 1.25$; $\delta_2 = 48.0$]

	0		+1		+2		+3		+4		+5		+6 (+α)
0	**3**	6	**4**	**4**	*11*	*12*	6	5	5	9	11	6	2
	3	**4**	**4**	**2**	*12*	3	9	5	5	6	4	7	7
+1	**4**	8	**4**	7	*11*	*14*	6	7	4	9	6	6	4
	7	5	**3**	7	8	3	8	8	12	6	8	8	8
+2	7	7	9	6	2	7	11	5	8	10	11	9	4
	3	10	3	4	7	4	6	5	7	3	7	6	5
+3	5	6	5	4	6	8	5	5	4	5	11	10	4
	3	**4**	8	9	8	4	6	11	5	7	8	6	4
+4	**4**	**4**	**4**	**3**	5	3	4	6	10	9	5	2	5
	2	5	**4**	**2**	5	10	6	3	6	4	4	3	5
+5	6	5	7	**4**	8	3	6	9	7	5	7	9	4
	7	**3**	**2**	**4**	5	10	7	9	6	12	7	7	6
+6	**2**	**2**	**1**	7	7	2	4	8	7	5	8	4	5
+δ													

r	n(r) *obs.*	n(r) *theor.*
0	0	0.5
1	1	2.5
2	10	7.5
3	15	14.0
4	30	22.4
5	25	27.1
6	22	27.4
7	23	23.6
8	15	17.7
9	10	11.9
10	6	7.2
11	7	3.9
12	4	2.0
13	0	0.9
≥14	1	0.7

№ 48. $\alpha = 6^h16^m$; $B = +5^0$.

$s_1 = 5.7$; $\delta_1 = 4.9$;

I. [$N = 924$; $w_1 = 6$; $w_2 = 120$.

$s_1 = —$; $\delta_1 = —$; $s_2 = —$; $\delta_2 = —$]

	—6		—5		—4		—3		—2		—1		0
—6	4	7	11	7	5	9	7	14	3	4	4	6	8
	6	5	4	13	7	7	9	8	5	6	5	7	1
—5	7	5	8	3	6	8	13	9	3	6	4	7	7
	4	2	6	16	6	8	10	6	4	4	4	10	2
—4	3	7	4	3	6	11	8	10	5	10	7	4	4
	4	5	5	5	4	7	7	4	5	6	5	6	4
—3	3	7	3	8	8	4	4	4	5	4	6	3	4
	0	6	7	4	5	9	6	6	5	8	3	4	3
—2	4	6	12	7	8	4	4	4	1	4	3	5	1
	8	6	2	4	5	2	8	8	7	3	5	1	4
—1	6	5	5	5	7	2	3	5	7	3	3	3	2
	5	3	8	13	3	9	6	3	5	1	4	2	4
	4	5	4	9	4	7	4	2	3	2	6	5	3
0													

r	n'r) obs.	theor.
0	1	0.7
1	5	3.9
2	9	10.6
3	21	19.4
4	36	26.5
5	25	29.1
6	20	26.5
7	20	20.8
8	14	14.2
9	6	8.5
10	4	4.7
11	2	2.4
12	1	1.1
13	3	0.5
⩾14	2	0.2

III. [$N = 799$; $w_1 = 75$; $w_2 = 3.5$.

$s_1 = 3.5$; $\delta_1 = 6.0$; $s_2 = —$; $\delta_2 = —$]

	—6		—5		—4		—3		—2		—1		0
0	6	7	7	5	5	4	5	7	6	4	**2**	**1**	**2**
+1	6	4	2	3	8	6	2	6	5	**2**	**1**	**0**	**2**
	6	5	5	2	2	4	6	1	3	5	**2**	6	6
+2	1	5	8	7	3	4	7	8	4	6	9	7	6
	8	8	9	3	2	3	7	4	3	4	3	6	6
+3	2	6	4	3	4	12	**2**	**2**	4	2	5	6	5
	1	10	5	5	4	5	5	**2**	9	2	5	6	5
+4	2	6	6	7	6	**1**	**0**	**2**	3	6	4	3	6
	6	2	4	5	7	4	5	6	2	4	3	7	6
+5	2	4	3	4	3	4	1	5	3	5	4	6	3
	3	5	12	6	5	3	4	5	7	11	4	7	11
+6	8	5	5	8	4	2	2	3	6	4	4	4	7
	2	2	5	4	8	3	6	4	8	6	5	10	8
$+\delta$													

r	n(r) obs.	theor.
0	2	1.5
1	7	7.0
2	25	16.6
3	19	26.2
4	28	31.1
5	27	29.5
6	29	23.3
7	13	15.8
8	10	9.3
9	3	4.9
10	2	2.3
11	2	1.0
⩾12	2	0.5

$N = 3392$; $w_1 = 20\,000$; $w_2 = 10\,000$.

$s_2 = 0.5$; $\delta_2 = 44.0$

II. [$N = 777$; $w_1 = 1500$; $w_2 = $ —.

$s_1 = 2.2$; $\delta_1 = 3.1$; $s_2 = $ — ; $\delta_2 = $ —]

	0		+1		+2		+3		+4		+5		+6 $+\alpha$
	7	5	8	6	7	5	3	0	2	6	2	1	0
−6	5	7	7	5	4	2	6	6	6	4	1	0	2
	8	6	5	5	5	2	7	7	11	3	4	0	1
−5	5	7	9	1	5	2	4	8	7	7	6	1	4
	5	5	1	7	4	2	4	5	9	5	5	1	3
−4	7	4	4	7	5	1	4	0	6	7	6	3	4
	5	8	0	4	5	3	4	2	7	3	5	5	4
−3	3	6	3	6	8	7	4	7	7	8	7	5	3
	6	0	5	4	3	5	3	0	10	5	9	5	3
−2	3	3	5	2	5	4	3	8	5	7	9	3	6
	3	2	6	4	5	7	3	8	5	3	5	5	2
−1	4	4	4	6	4	2	3	3	9	5	6	3	6
	1	5	2	4	5	2	6	6	10	5	6	5	2
0													

r	$n(r)$ *obs.*	*theor.*
0	8	1.9
1	9	8.0
2	15	18.0
3	22	27.5
4	23	31.6
5	36	29.1
6	20	22.5
7	20	14.7
8	8	8.5
9	5	4.3
10	2	2.0
⩾11	1	1.3

IV. [$N = 892$; $w_1 = 1.5$; $w_2 = 120$.

$s_1 = $ — ; $\delta_1 = $ — ; $s_2 = 0.5$; $\delta_2 = 44.0$]

	0		+1		+2		+3		+4		+5		+6 $+\alpha$
0	3	6	4	7	1	4	9	1	7	5	6	3	2
	3	7	9	6	4	5	9	8	9	5	4	4	7
+1	3	5	5	7	8	5	5	7	10	11	4	4	1
	11	9	7	6	5	5	10	9	4	4	5	2	4
+2	6	6	6	6	5	6	5	4	5	3	1	3	5
	9	5	3	4	6	7	6	8	10	4	9	5	2
+3	5	6	*11*	6	9	2	3	6	3	5	7	7	5
	4	4	*11*	5	4	5	12	7	11	4	4	1	3
+4	4	2	6	4	7	9	5	3	6	5	5	5	2
	8	5	5	5	2	3	5	3	4	8	4	4	3
+5	4	5	7	5	3	4	7	2	8	5	3	4	7
	10	6	1	4	3	14	6	2	3	4	3	9	4
+6	4	4	7	5	6	3	4	4	4	5	1	3	4
$+\delta$													

r	$n(r)$ *obs.*	*theor.*
0	0	0.8
1	7	4.4
2	9	11.4
3	21	21.0
4	35	27.8
5	34	29.5
6	19	26.0
7	16	19 7
8	6	13.0
9	11	7.5
10	4	4.0
11	5	1.9
12	1	0.8
⩾13	1	0.8

№ 49. $a = 6^h 24^m$; $B = +6^0$.

$s_1 = 4.3$; $\delta_1 = 8.5$;

I. [$N = 1203$; $w_1 = 60$; $w_2 = 100$.

$s_1 = 2.8$; $\delta_1 = 7.3$; $s_2 = —$; $\delta_2 = —$]

—6 —5 —4 —3 —2 —1 0

—6	2	1	0	2	5	7	5	8	2	8	2	6	3
	2	2	2	3	5	7	8	9	9	7	5	4	9
—5	3	4	0	4	5	4	5	1	6	7	8	9	11
	6	2	4	4	5	4	4	2	7	8	15	9	8
—4	7	5	5	12	7	7	7	13	8	7	5	7	9
	8	4	5	4	8	8	6	13	8	7	5	6	9
—3	7	5	10	10	9	7	9	10	12	10	9	10	6
	7	10	9	10	7	16	9	13	6	11	14	9	8
—2	6	9	9	11	11	8	6	8	8	13	12	8	16
	11	10	3	8	9	7	7	8	4	8	8	4	4
—1	3	7	10	7	2	8	10	4	9	8	14	5	7
	3	7	9	7	12	9	6	5	10	7	9	10	6
	7	9	9	7	12	6	5	4	7	6	8	5	7
0													

r	$n(r)$ obs.	$n(r)$ theor.
0— 1	2+ 2	0.2+ 1.0
2— 3	10+ 6	3.5+ 8.3
4— 5	15+17	14.5+20.9
6— 7	13+28	24.7+25.2
8— 9	23+22	22.5+17.8
10—11	12+ 5	12.7+ 8.2
12—13	5+ 4	4.9+ 2.7
14—15	2+ 1	1.4+ 0.6
16—17	2+ 0	0.3+ 0.1
⩾18	0	0.1

III. [$N = 1368$; $w_1 = 7$; $w_2 = 72$.

$s_1 = —$; $\delta_1 = —$; $s_2 = —$; $\delta_2 = —$]

—6 —5 —4 —3 —2 —1 0

0													
	6	5	9	7	6	11	7	7	10	8	10	7	11
+1	6	4	5	7	11	6	5	8	5	4	6	7	6
	8	8	9	10	9	8	4	10	5	6	7	4	7
+2	8	4	7	10	12	11	4	7	5	7	13	7	7
	0	4	4	9	7	8	9	11	10	10	8	9	7
+3	9	12	12	9	18	14	11	8	11	5	8	14	9
	3	9	10	16	9	15	8	12	6	10	12	9	6
+4	6	6	8	7	7	21	10	6	12	8	11	12	7
	5	3	4	9	10	14	12	9	8	4	12	9	16
+5	9	8	6	5	6	11	11	12	7	11	10	11	12
	8	4	12	15	7	10	9	10	10	7	7	9	8
+6	3	1	6	6	7	6	6	9	11	11	9	11	10
	4	4	4	5	4	2	3	7	6	4	2	7	7

$+\delta$

r	$n(r)$ obs.	$n(r)$ theor.
0— 1	1+ 1	0.1+ 0.5
2— 3	2+ 4	1.8+ 4.5
4— 5	16+10	9.3+15.1
6— 7	19+26	20.3+23.4
8-- 9	17+20	23.9+21.2
10—11	16+15	17.4+12.7
12—13	12+ 1	8.6+ 5.4
14—15	3+ 2	3.1+ 1.7
16—17	2+ 0	0.8+ 0.4
⩾18	2	0.4

$N = 5708$; $w_1 = 3.10^5$; $w_2 = 10^9$.

$s_2 = 4.0$; $\delta_2 = 67.3$

II. [$N = 1591$; $w_1 = 130$; $w_2 = 1800$.

$s_1 = 1.5$; $\delta_1 = 10.7$; $s_2 = 2.2$; $\delta_2 = 69.0$]

0 +1 +2 +3 +4 +5 +6 $+\alpha$

	5	8	5	12	8	5	12	9	6	11	5	**2**	7
−6	6	4	6	10	11	8	7	**3**	7	7	6	9	**3**
	9	9	7	9	6	10	10	8	**3**	**2**	8	9	**3**
−5	4	9	10	4	11	10	5	9	10	7	11	8	6
	7	5	11	10	12	12	8	6	9	10	6	8	7
−4	12	9	9	9	11	7	5	13	8	15	6	7	7
	8	6	6	6	9	13	9	11	*16*	15	7	14	6
−3	9	7	9	12	*14*	*18*	8	14	*18*	*17*	9	13	14
	4	13	5	15	*16*	9	10	9	9	11	12	9	10
−2	16	9	4	7	*17*	8	12	12	3	21	12	*22*	9
	8	11	10	9	9	12	11	13	13	11	7	*17*	12
−1	11	7	9	9	7	7	12	5	16	8	14	14	11
	3	7	12	8	14	15	12	10	15	8	12	16	6
0													

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 1	0	0.1
2— 3	2+ 6	0.6+ 2.0
4— 5	5+ 9	4.5+ 8.4
6— 7	14+19	13.3+18.0
8— 9	16+27	21.0+22.1
10—11	12+13	20.9+17.9
12—13	16+ 6	14.1+10.2
14—15	7+ 5	7.0+ 4.4
16—17	5+ 3	2.6+ 1.4
18—19	2+ 0	0.7+ 0.4
⩾20	2	0.4

IV. [$N = 1546$; $w_1 = 7$; $w_2 = 480$.

$s_1 = —$; $\delta_1 = —$; $s_2 = 1.8$; $\delta_2 = 65.1$]

0 +1 +2 +3 +4 +5 +6 $+\alpha$

0	7	11	10	11	*17*	*16*	10	*17*	***14***	9	9	14	15
	10	8	12	8	11	*17*	*15*	11	*18*	13	8	16	15
+1	7	11	8	5	9	14	7	11	10	9	8	11	12
	5	8	9	6	10	12	6	8	4	10	10	20	11
+2	6	4	18	12	10	4	9	8	7	12	13	7	17
	5	8	5	4	10	10	6	7	15	6	6	6	10
+3	13	7	8	10	5	9	11	8	12	15	8	8	9
	9	11	6	6	15	9	**14**	12	9	10	12	9	9
+4	10	10	9	10	11	11	11	6	7	10	5	11	7
	6	9	14	3	9	5	9	15	12	8	9	6	5
+5	8	7	6	6	9	9	6	3	12	7	8	12	4
	5	6	12	7	12	5	6	7	5	7	10	4	6
+6	6	11	5	7	5	4	4	7	10	3	5	7	5
$+\delta$													

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 1	0	0.2
2— 3	0+ 3	0.8+ 2.3
4— 5	8+14	5.4+ 9.5
6— 7	19+17	14.8+19.4
8— 9	16+20	21.8+22.5
10—11	19+15	20.3+17.0
12—13	13+ 4	13.0+ 9.0
14—15	5+ 7	5.9+ 3.6
16—17	2+ 4	2.0+ 1.1
⩾18	3	0.8

№ 50. $\alpha = 6^h 32^m$; $B = +8^0$.

$s_1 = 4.6$; $\delta_1 = 25.7$;

I. [$N = 2806$; $w_1 = 37$; $w_2 = 180$.

$s_1 = —$; $\delta_1 = —$; $s_2 = 7.5$; $\delta_2 = 87.9$]

	—6		—5		—4		—3		—2		—1		0
	18	18	16	12	16	18	24	20	18	16	20	22	10
—6	14	14	22	13	11	12	24	24	22	19	16	22	11
	16	18	14	18	16	16	12	18	22	16	*26*	18	10
—5	21	9	12	12	17	13	21	*22*	17	*22*	*21*	19	*23*
	11	11	15	16	15	15	15	*21*	*27*	*21*	*21*	*20*	*20*
—4	17	7	10	14	16	19	*20*	*27*	13	*21*	17	18	14
	14	9	*21*	12	15	18	*22*	14	10	10	11	16	14
—3	19	15	*21*	*20*	*20*	14	17	20	21	13	23	9	13
	17	15	*24*	16	16	17	17	18	12	13	12	13	13
—2	*22*	*20*	*28*	*20*	*23*	19	13	15	16	14	17	11	10
	19	17	17	17	*20*	*20*	12	17	15	13	14	3	13
—1	13	25	11	19	*22*	15	14	15	21	13	17	13	11
	8	16	21	15	*23*	*24*	17	15	13	12	10	9	13
0													

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 1	0	—
2— 3	0+ 1	—
4— 5	0	0.1
6— 7	0+ 1	0.3+ 0.7
8— 9	1+ 4	1.5+ 2.8
10—11	7+ 8	4.4+ 7.0
12—13	10+16	9.6+12.3
14—15	12+13	14.5+16.1
16—17	15+15	16.7+16.3
18—19	11+ 7	14.9+13.0
20—21	12+12	10.8+ 8.5
22—23	10+ 4	6.4+ 4.6
24—25	5+ 1	3.2+ 2.1
26—27	1+ 2	1.3+ 0.6
⩾28	1	0.6

III. [$N = 2399$; $w_1 = 280\,000$; $w_2 = 10^7$.

$s_1 = 3.0$; $\delta_1 = 26.3$; $s_2 = 5.2$; $\delta_2 = 89.3$]

	—6		—5		—4		—3		—2		—1		0
0													
	20	*21*	*21*	*24*	19	9	22	14	12	13	13	8	11
	16	18	*23*	17	*29*	13	14	15	12	8	9	10	11
+1	18	*21*	*22*	*24*	*18*	*24*	19	13	21	12	11	14	10
	16	18	*25*	*22*	16	18	20	14	9	14	16	12	11
+2	12	17	12	*24*	*23*	7	16	16	12	13	14	10	7
	10	9	12	*21*	18	20	23	18	15	12	9	18	14
+3	16	13	9	10	10	9	5	15	10	*25*	*20*	11	21
	12	12	12	14	12	11	12	6	10	*25*	19	13	14
+4	13	13	15	16	15	9	16	8	*22*	*20*	14	15	15
	12	13	**7**	**8**	14	11	10	11	16	13	22	15	18
+5	12	11	18	**7**	**7**	23	13	10	12	15	10	11	21
	2	11	11	**7**	16	16	11	9	16	11	16	20	22
+6	**6**	**9**	12	**7**	**7**	**7**	**5**	16	13	22	16	6	17
$+\delta$													

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 1	0	—
2— 3	1+ 0	0.01+0.05
4— 5	0+ 2	0.2 +0.6
6— 7	3+ 9	1.3 +2.7
8— 9	4+10	4.7 +7.5
10—11	11+14	10.5+13.7
12—13	18+13	16.2+18.1
14—15	11+ 9	18.0+17.1
16—17	16+ 3	15.2+12.6
18—19	10+ 3	9.9+ 7.4
20—21	6+ 7	5.3+ 3.5
22—23	7+ 4	2.3+ 1.5
24—25	4+ 3	0.9+ 0.5
⩾26	1	0.4

$N = 10\,246$; $w_1 = 10^9$; $w_2 = 10^{12}$.

$s_2 = 15.2$; $\delta_2 = 88.1$

II. [$N = 2782$; $w_1 = 2.5$; $w_2 = 5$.

$s_1 = 0.8$; $\delta_1 = 32.0$; $s_2 = 0.5$; $\delta_2 = 106.0$]

	0	+1		+2		+3		+4		+5		+6	+α
—6	18	18	12	16	14	14	20	20	14	16	10	12	12
	18	17	12	16	18	17	19	19	21	21	9	**8**	**8**
—5	*27*	*26*	14	16	24	15	24	15	23	11	23	**8**	15
	20	22	12	17	18	12	23	14	17	22	20	10	11
—4	23	14	16	16	28	14	24	16	16	21	21	19	10
	14	14	21	20	21	15	17	11	16	19	20	20	13
—3	14	13	19	14	20	11	16	16	15	18	10	18	18
	18	14	14	15	14	16	15	18	21	15	16	17	11
—2	20	13	18	15	11	26	22	16	19	17	18	15	12
	16	15	16	20	24	20	14	20	20	25	17	13	18
—1	8	12	12	16	18	21	15	19	18	22	17	14	16
	11	14	12	12	8	19	20	18	14	16	16	19	19
0	13	9	9	15	14	13	11	14	28	18	16	20	13

r	*n(r)* *obs.*	*n(r)* *theor.*
0— 7	0	1.3
8— 9	5+ 3	1.6+ 2.9
10—11	4+ 8	4.8+ 7.1
12—13	11+ 7	9.9+12.6
14—15	20+13	14.8+16.3
16—17	21+ 9	16.8+16.2
18—19	17+10	14.8+12.7
20—21	15+ 8	10.6+ 8.3
22—23	4+ 4	6.2+ 4.4
24—25	4+ 1	3.0+ 2.0
26—27	2+ 1	1.2+ 0.7
28	2	0.4
≥29	0	0.3

IV. [$N = 2259$; $w_1 = 100$; $w_2 = 70$.

$s_1 = 0.8$; $\delta_1 = 17.3$; $s_2 = 2.0$; $\delta_2 = 81.0$]

	0	+1		+2		+3		+4		+5		+6	+α
0	11	17	11	15	14	17	19	22	21	14	18	17	20
+1	12	12	13	17	17	17	20	14	13	20	23	16	16
	14	10	11	15	16	10	13	15	*18*	14	15	20	17
+2	5	14	11	12	13	14	17	*22*	*23*	14	12	16	13
	9	21	10	12	13	10	15	*22*	*18*	11	15	12	11
+3	14	9	10	13	8	17	*24*	*16*	*19*	11	18	8	11
	14	14	6	15	15	17	13	11	8	8	10	13	5
+4	8	10	10	9	14	20	10	10	15	17	13	9	12
	19	15	16	15	13	8	17	11	9	11	16	7	9
+5	19	13	17	9	8	13	14	9	10	5	12	13	12
	20	14	12	13	12	12	16	14	18	12	8	11	14
+6	17	13	18	12	10	19	10	13	18	9	11	**5**	6
	18	14	18	14	9	13	10	8	10	9	8	**8**	5

+δ

r	*n(r)* *obs.*	*n(r)* *theor.*
0— 2	0	—
3— 4	1+ 0	0.1+ 0.4
5— 6	5+ 2	0.9+ 2.1
7— 8	1+10	4.3+ 6.8
9—10	11+15	9.8+13.3
11—12	13+14	16.0+18.1
13—14	18+18	18.8+17.4
15—16	11+ 8	15.7+13.3
17—18	14+ 9	10.5+ 7.7
19—20	5+ 6	5.4+ 3.7
21—22	2+ 3	2.3+ 1.4
≥23	3	1.2

№ 51. $\alpha = 6^h 40^m$; $B = +10^\circ$.

$s_1 = 18.2$; $\delta_1 = 24.7$;

I. [$N = 2387$; $w_1 = 100\,000$; $w_2 = 1000$.
$s_1 = 2.8$; $\delta_1 = 25.0$; $s_2 = 1.0$; $\delta_2 = 94.0$]

—6 —5 —4 —3 —2 —1 0

	10	**8**	**6**	**6**	10	9	12	21	19	16	7	9	14
—6	11	14	**6**	10	9	**5**	18	11	**6**	10	12	11	19
	10	13	9	12	14	**7**	**5**	**8**	15	15	14	17	10
—5	10	7	10	7	11	**8**	18	12	21	7	16	8	16
	14	18	11	14	13	**5**	16	16	19	16	*21*	*24*	12
—4	13	15	8	13	17	11	16	16	13	19	*24*	*25*	17
	14	12	19	20	10	15	18	13	19	15	15	18	11
—3	17	13	17	13	20	21	19	10	19	16	15	20	17
	18	13	21	15	14	15	19	17	15	13	7	16	14
—2	23	17	15	21	14	13	16	6	19	15	14	7	10
	18	13	15	17	11	16	11	17	17	7	14	21	8
—1	13	16	21	19	22	19	22	10	15	12	15	16	10
	13	19	15	12	21	16	12	8	20	14	15	16	13
0													

r	n(r) *obs.*	n(r) *theor.*
0—4	0	0.2
5	3	0.6
6	5	1.4
7	8	2.8
8	7	4.9
9	4	7.7
10	13	10.8
11	9	13.9
12	9	16.5
13	15	18 3
14	13	18.0
15	17	17.0
16	16	15 0
17	11	12.5
18	7	9.8
19	13	7.3
20	4	5.1
21	9	3.4
22	2	2.2
23	1	1.3
⩾24	3	1.5

III. [$N = 2145$; $w_1 = 48\,000$; $w_2 = 22\,000$.
$s_1 = 6.8$; $\delta_1 = 25.9$; $s_2 = 2.2$; $\delta_2 = 84.5$]

—6 —5 —4 —3 —2 —1 0

0	13	*19*	16	*23*	*20*	*20*	14	12	22	13	12	5	7
	20	*21*	8	15	14	15	17	11	13	12	10	12	13
+1	11	16	*28*	*19*	*20*	18	12	13	19	19	11	8	10
	22	11	14	8	12	14	10	13	17	21	14	20	15
+2	12	14	11	15	23	15	10	19	8	11	17	18	10
	12	18	10	17	14	23	16	18	14	13	13	12	15
+3	11	9	14	8	18	9	11	12	**5**	**8**	15	19	14
	14	14	9	11	12	14	11	**8**	**8**	13	11	8	14
+4	11	16	10	9	15	16	**7**	13	13	12	20	13	17
	7	12	13	12	12	9	**8**	16	16	14	17	13	11
+5	**10**	**7**	11	18	**5**	**6**	13	**8**	14	14	10	14	14
	6	**7**	**5**	**6**	**10**	**7**	12	**9**	13	17	16	6	9
+6	**3**	**7**	**2**	**3**	**8**	**8**	**2**	**5**	10	9	9	16	14
$+\delta$													

r	n(r) *obs.*	n(r) *theor.*
0— 1	0	—
2-- 3	2+ 2	0.1+ 0.3
4— 5	0+ 5	0.6 + 1.4
6— 7	4 + 7	3.1+ 5.7
8— 9	13+ 9	8.8+12.1
10—11	11+14	15.7 + 17.8
12—13	16 + 16	19.1+18.6
14—15	20 8	16.5+14.1
16—17	9+ 7	11.4 + 8.6
18—19	6+ 6	6.0+ 4.0
20—21	6+ 2	2.7 + 1.6
22—23	2 + 3	0.9+ 0.4
⩾24	1	0.3

$N = 8693$; $w_1 = 10^{17}$; $w_2 = 10^{10}$.

$s_2 = 3.2$; $\delta_2 = 87.5$

II. [$N = 2291$; $w_1 = 25\,000$; $w_2 = 150$.

$s_1 = 2.8$; $\delta_1 = 22.1$; $s_2 =$ --; $\delta_2 =$ —]

	0		+1		+2		+3		+4		+5		+6 +α
−6	18	15	10	7	11	17	10	15	**6**	**5**	**6**	**7**	11
	15	7	17	11	9	9	4	11	11	12	**5**	**7**	**5**
−5	9	14	13	13	12	22	10	13	11	**4**	**4**	**6**	**7**
	17	17	20	10	25	9	11	11	15	12	8	9	8
−4	12	15	24	13	17	9	12	12	12	8	12	16	10
	14	12	14	11	11	15	19	15	18	18	11	6	7
−3	19	14	13	19	15	16	22	14	18	12	12	12	15
	17	15	22	17	19	11	16	16	16	19	16	10	10
−2	17	11	15	15	15	12	10	15	24	14	12	12	5
	15	14	20	10	21	14	13	15	11	11	14	15	15
−1	13	14	11	9	17	13	15	15	7	19	14	23	24
	21	15	14	17	17	16	12	26	15	18	18	13	15
0	15	12	17	13	15	20	14	19	20	19	10	12	10

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 3	0	0.1
4— 5	3+ 4	0.3+ 0.8
6— 7	4+ 7	1.9+ 3.9
8— 9	3+ 7	6.3+ 9.2
10—11	11+16	12.6+15.4
12—13	18+10	17.7 + 18.7
14—15	13+25	17.6+16.1
16—17	7+12	13.8+11.1
18—19	6+ 8	8.2+ 5.9
20—21	4+ 2	4.0+ 2.6
22—23	3+ 1	1.5+ 0.9
⩾24	5	1.0

IV. [$N = 1870$; $w_1 = 600$; $w_2 = 7$.

$s_1 = 5.8$; $\delta_1 = 24.3$; $s_2 =$ —; $\delta_2 =$ —]

	0		+1		+2		+3		+4		+5		+6 +α
	13	16	12	11	12	11	14	19	13	9	15	7	16
+1	11	10	16	14	15	8	19	18	4	15	16	15	12
	14	13	10	12	**7**	14	11	13	11	10	11	11	11
+2	13	16	14	12	12	8	15	11	14	14	18	12	12
	14	13	10	11	10	14	12	15	17	17	14	8	**5**
+3	10	9	19	16	10	7	13	9	16	10	**4**	**5**	**9**
	17	11	12	12	9	14	14	11	9	11	**7**	**12**	**4**
+4	10	6	8	12	15	19	10	14	10	8	**9**	**5**	9
	12	9	15	**4**	13	11	7	16	10	15	**6**	15	10
+5	12	17	13	11	7	8	7	13	10	12	**6**	**6**	**6**
	10	19	17	12	8	7	9	5	11	**5**	10	9	**6**
+6	10	13	10	11	15	12	14	11	11	**7**	10	8	**1**
	5	13	12	11	9	7	**5**	**5**	**6**	**8**	11	**6**	**5**
+δ													

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	0	—
1	1	0.1
2	0	0.3
3	0	0.6
4	4	1.8
5	9	3.8
6	8	6.7
7	10	10.8
8	9	14.8
9	12	18.2
10	19	20.1
11	21	20.3
12	19	18.7
13	12	16 0
14	14	12.4
15	11	9.4
16	8	6.4
17	5	4.2
18	2	2.6
19	5	1.5
⩾20	0	1.8

№ 52. $a = 6^h 48^m$; $B = +12^o$.

$s_1 = 15.8$; $\delta_1 = 10.6$;

I. [$N = 1002$; $w_1 = 700$; $w_2 = 320$.

$s_1 = 4.0$; $\delta_1 = 9.2$; $s_2 = 1.0$; $\delta_2 = 52.0$]

—6 —5 —4 —3 —2 —1 0

	1	**0**	4	3	5	5	8	**3**	**3**	4	**2**	9	6
—6	4	**2**	5	6	4	6	5	**2**	**3**	7	**3**	**3**	5
	2	4	6	4	6	7	6	**3**	5	7	**3**	**1**	4
—5	4	5	8	5	9	4	**3**	**3**	5	3	10	6	9
	6	2	3	5	9	6	8	**2**	4	7	4	6	4
—4	1	3	7	7	4	3	3	12	4	6	3	5	9
	3	4	2	9	10	8	7	3	7	11	10	11	7
—3	6	2	7	6	4	6	5	7	8	7	9	6	5
	5	3	7	8	6	4	5	7	4	4	9	*13*	*12*
—2	3	5	9	6	*12*	7	6	9	8	5	8	10	6
	7	9	8	8	*15*	5	9	4	8	6	6	9	8
—1	3	5	7	5	7	5	8	9	3	7	8	7	14
	3	8	7	6	11	3	8	11	6	3	6	11	5
0													

r	$n(r)$ *obs.*	*theor.*
0	1	0.5
1	3	2.7
2	8	7.9
3	25	15.6
4	20	23.0
5	22	27.6
6	24	27.3
7	21	23.2
8	16	17.1
9	14	11.4
10	4	6.8
11	5	3.7
12	3	1.8
13	1	0.8
14	1	0.3
$\geqslant$15	1	0.2

III. [$N = 1024$; $w_1 = 2$; $w_2 = 10$.

$s_1 = 2.0$; $\delta_1 = 9.5$; $s_2 = 0.8$; $\delta_2 = 52.0$]

—6 —5 —4 —3 —2 —1 0

0													
	5	12	10	8	7	4	4	8	7	4	6	8	12
	6	4	4	8	3	7	3	5	4	5	5	5	7
+1	6	*14*	8	9	8	6	10	1	5	10	9	4	3
	12	*13*	7	4	5	6	3	7	6	9	10	8	6
+2	10	5	4	10	4	8	4	9	8	10	10	5	4
	5	2	3	4	6	6	6	6	6	9	8	2	7
+3	3	4	6	6	9	3	4	9	5	6	11	8	9
	8	3	7	6	8	7	8	7	7	6	5	11	10
+4	2	6	4	5	3	5	9	6	5	5	9	8	5
	2	4	5	6	7	8	7	6	6	9	10	8	6
+5	3	5	**3**	**2**	4	8	7	5	6	7	5	6	13
	3	5	**3**	**3**	5	6	4	6	2	5	3	8	5
+6	2	5	**2**	**3**	**2**	**1**	5	9	5	5	2	4	4
$+\delta$													

r	$n(r)$ *obs.*	*theor.*
0	0	0.4
1	2	2.4
2	10	7.3
3	16	14.6
4	21	22.0
5	29	27.0
6	27	27.4
7	15	23.7
8	19	17.9
9	12	12.1
10	10	7.4
11	2	4.0
12	3	2.1
13	2	1.0
$\geqslant$14	1	0.6

$N = 4043$; $w_1 = 10^7$; $w_2 = 10^7$.

$s_2 = 2.6$; $\delta_2 = 50.8$

II. [$N = 994$; $w_1 = 13$; $w_2 = 2.5$.
$s_1 = 0.8$; $\delta_1 = 5.3$; $s_2 = 0.8$; $\delta_2 = 48.0$]

	0	+1		+2		+3		+4		+5		+6	+α
	4	5	1	3	4	7	2	6	2	3	5	1	7
−6	8	5	4	5	5	10	7	3	6	4	4	1	2
	2	8	5	4	1	7	3	4	5	7	4	3	3
−5	12	8	5	4	4	6	6	10	4	6	2	5	2
	9	5	12	2	7	9	3	4	7	7	6	9	6
−4	8	6	3	5	4	8	8	8	8	5	10	9	5
	2	5	4	7	4	5	4	2	6	6	7	5	5
−3	7	9	8	3	7	6	5	5	7	6	5	7	2
	9	7	8	4	8	10	7	7	8	5	5	5	6
−2	10	7	10	6	2	5	8	9	5	9	4	7	9
	8	6	7	6	8	9	9	9	*11*	9	5	5	2
−1	5	3	6	4	6	9	5	6	*14*	*11*	4	3	5
	6	5	6	8	6	3	8	11	4	7	7	11	1
0													

r	$n(r)$ *obs.*	*theor.*
0	0	0.5
1	5	2.8
2	12	8.1
3	12	15.9
4	21	23.4
5	31	27.8
6	22	27.3
7	22	23.0
8	17	17.0
9	14	11.1
10	6	6.6
11	4	3.5
12	2	1.7
13	0	0.8
⩾14	1	0.5

IV. [$N = 1023$; $w_1 = 720$; $w_2 = 5400$.
$s_1 = 9.0$; $\delta_1 = 11.9$; $s_2 = —$; $\delta_2 = —$]

	0	+1		+2		+3		+4		+5		+6	+α
0	5	8	10	5	8	3	3	13	12	9	11	7	7
	6	5	6	7	6	10	5	6	3	14	3	8	4
+1	6	10	3	8	9	4	6	4	6	8	4	9	6
	6	5	8	7	9	13	8	11	6	5	2	5	8
+2	18	6	4	5	4	6	6	8	10	5	3	8	2
	8	4	6	9	4	4	8	3	4	5	3	3	4
+3	6	16	4	13	7	8	9	8	5	6	7	6	4
	7	10	3	9	4	11	4	4	6	9	5	6	2
+4	8	3	8	9	8	3	7	11	6	4	5	6	2
	7	13	13	7	5	4	8	3	7	5	8	3	5
+5	4	6	7	9	4	1	4	5	4	4	5	7	5
	6	5	6	5	10	3	2	2	3	2	4	0	2
+6	4	4	7	3	5	3	4	10	4	3	3	2	3
+δ													

r	$n(r)$ *obs.*	*theor.*
0	1	0.4
1	1	2.4
2	9	7.3
3	22	14.6
4	28	22.0
5	22	27.0
6	24	27.4
7	14	23.7
8	18	17.9
9	10	12.1
10	7	7.4
11	4	4.0
12	1	2.1
13	5	1.0
14	1	0.4
15	0	0.1
⩾16	2	0.06

№ 53. $\alpha = 6^h 56^m$; $B = +13^0$.

$s_1 = 6.8$; $\delta_1 = 18.4$;

I. [$N = 2092$; $w_1 = 70$; $w_2 = 500$.

$s_1 = 0.8$; $\delta_1 = 18.7$; $s_2 = —$; $\delta_2 = —$]

—6 —5 —4 —3 —2 —1 0

	8	11	12	17	6	12	11	10	9	7	8	9	12
—6	9	10	12	12	16	8	13	7	10	11	18	12	15
	7	13	11	12	17	13	13	15	17	11	13	9	6
—5	13	13	9	10	11	18	14	8	7	6	16	15	5
	14	14	24	10	9	11	24	15	13	12	4	14	7
—4	8	15	18	14	12	11	12	14	18	16	10	13	9
	15	17	23	15	12	16	12	10	12	20	8	16	13
—3	9	14	17	18	17	16	14	16	14	16	11	11	10
	16	18	15	18	10	12	13	12	14	11	9	15	16
—2	16	17	16	13	15	16	16	10	9	9	16	13	10
	15	10	19	18	11	12	13	11	8	14	17	17	9
—1	16	11	**4**	**7**	19	14	13	13	8	9	8	11	6
	14	13	12	**3**	17	6	8	8	9	8	13	9	4
0													

r	*n(r)* obs.	*n(r)* theor.
0—2	0	0.1
3—4	1+3	0.3+0.7
5—6	1+5	1.7+3.6
7—8	6+12	6.4+9.8
9—10	15+12	13.2+16.7
11—12	15+17	18.5+19.4
13—14	18+13	18.3+16.0
15—16	11+16	13.3+10.4
17—18	10+8	7.7+5.2
19—20	2+1	3.5+2.7
21—22	0+0	0.7+0.3
⩾23	3	0.3

III. [$N = 2072$; $w_1 = 260$; $w_2 = 40$.

$s_1 = —$; $\delta_1 = —$; $s_2 = —$; $\delta_2 = —$]

—6 —5 —4 —3 —2 —1 0

0	7	13	14	2	11	15	11	8	10	14	12	10	10
	8	16	12	14	18	9	9	13	11	4	12	8	5
+1	14	10	14	7	11	12	10	7	7	13	16	5	7
	15	7	13	12	12	12	15	16	11	12	7	14	11
+2	9	18	12	11	16	13	12	16	8	13	11	14	15
	8	7	16	10	15	23	15	7	18	16	14	14	9
+3	13	12	10	13	7	20	17	12	14	11	8	18	6
	19	16	7	9	18	10	17	14	8	16	12	12	9
+4	6	12	8	8	11	8	19	7	14	13	11	8	14
	17	11	14	10	9	16	13	11	16	16	10	18	7
+5	12	19	16	10	19	16	6	15	16	11	13	10	15
	11	17	10	6	20	17	18	18	7	16	9	15	7
+6	15	13	9	11	12	14	22	9	25	10	10	21	11
+δ													

r	*n(r)* obs.	*n(r)* theor.
0—1	0	—
2—3	1+0	0.1+0.3
4—5	1+2	0.8+1.8
6—7	4+15	3.8+6.7
8—9	11+10	10.2+13.7
10—11	15+17	17.0+18.8
12—13	17+12	19.4+18.2
14—15	15+10	15.8+13.0
16—17	16+5	10.1+7.3
18—19	8+4	4.9+3.3
20—21	2+1	2.0+1.1
22—23	1+1	0.6+0.3
⩾24	1	0.2

$N = 7336$; $w_1 = 10^6$; $w_2 = 10^6$.

$s_2 = 0.8$; $\delta_2 = 78.0$

II. [$N = 1504$; $w_1 = 13$; $w_2 = 7$.

$s_1 = 3.5$; $\delta_1 = 16.9$; $s_2 = -$; $\delta_2 = -$]

δ	0		+1		+2		+3		+4		+5		+6 +α
	11	11	11	8	**4**	**5**	**5**	10	**4**	6	6	5	8
−6	13	13	6	8	8	6	**3**	10	**5**	7	9	9	6
	19	12	13	13	8	10	**5**	**2**	**4**	7	9	4	3
−5	10	7	11	7	12	13	13	13	7	6	9	7	6
	10	13	5	9	9	8	12	9	6	10	5	10	5
−4	12	8	13	12	6	9	10	10	8	7	7	6	8
	16	11	13	8	15	11	4	10	8	2	7	12	**5**
−3	10	9	8	6	11	15	13	10	10	10	6	6	**4**
	12	10	4	15	9	14	8	6	9	12	8	**3**	**5**
−2	8	9	11	7	16	16	7	9	5	8	7	7	**5**
	11	11	11	5	8	11	13	13	8	11	11	8	10
−1	6	7	14	11	12	14	11	19	12	11	4	6	6
	9	7	11	8	5	10	13	15	5	8	7	9	9
0													

r	n(r) *obs.*	n(r) *theor.*
0— 1	0	0.2
2— 3	2+ 3	1.0+ 2.8
4— 5	8+15	6.2+10.7
6— 7	17+16	16.1+20.6
8— 9	21+16	22.4+22.6
10—11	17+18	19.8+16.0
12—13	10+14	12.0+ 8.0
14—15	3+ 4	5.2+ 3.1
16—17	3+ 0	1.7+ 0.9
≥18	2	0.6

IV. [$N = 1668$; $w_1 = 11$; $w_2 = 12$.

$s_1 = 2.5$; $\delta_1 = 20.4$; $s_2 = 0.8$; $\delta_2 = 78.0$]

+δ	0		+1		+2		+3		+4		+5		+6 +α
0	6	11	4	4	13	5	11	15	6	6	11	9	14
	12	9	14	14	8	10	8	5	17	8	8	7	5
+1	8	13	8	5	10	9	14	14	11	6	8	9	7
	12	16	7	15	13	9	11	11	9	9	**6**	8	**5**
+2	14	13	11	3	10	5	8	4	9	**5**	**6**	**2**	**5**
	13	17	13	13	8	12	6	12	10	11	7	9	**4**
+3	11	14	12	10	6	10	9	10	8	10	11	**6**	**6**
	5	9	12	9	5	18	8	12	6	10	14	11	**6**
+4	10	11	10	11	5	8	10	7	10	15	8	8	8
	11	11	17	18	11	11	11	12	10	13	9	10	7
+5	14	13	13	10	5	6	12	8	10	12	8	8	9
	12	17	9	9	11	12	12	10	7	12	7	11	7
+6	13	7	*22*	*17*	*19*	16	11	9	11	10	12	8	6

r	n(r) *obs.*	n(r) *theor.*
0— 1	0	0.1
2— 3	1+ 1	0.5+ 1.4
4— 5	4+12	3.5+ 6.9
6— 7	14+10	11.3+15.9
8— 9	20+17	19.7+21.4
10—11	19+22	21.3+19.0
12—13	15+11	15.7+11.9
14—15	9+ 3	8.4+ 5.5
16—17	2+ 5	3.4+ 2.0
18—19	2+ 1	1.1+ 0.6
≥20	1	0.5

№ 54. $a = 7^h 4^m$; $B = +15^o$.
$s_1 = 3.2$; $\delta_1 = 15.3$;

I. [$N = 1554$; $w_1 = 40$; $w_2 = 3$.
$s_1 = -$; $\delta_1 = -$; $s_2 = 0.8$; $\delta_2 = 65.2$]

	−6		−5		−4		−3		−2		−1		0
−6	6	11	7	10	10	14	11	14	11	11	9	8	9
	8	10	9	9	10	9	13	2	6	10	8	14	10
−5	7	11	5	6	11	5	6	4	10	3	12	6	5
	7	10	9	3	5	11	3	8	7	10	8	8	8
−4	9	7	12	9	17	11	11	3	9	10	9	3	9
	7	6	9	14	12	11	11	8	10	13	8	4	15
−3	6	7	14	6	14	13	8	11	13	10	13	5	8
	13	14	12	8	11	8	11	7	8	8	8	8	7
−2	11	9	7	6	10	10	15	10	11	9	6	10	8
	10	*16*	10	13	9	19	9	12	7	9	8	6	4
−1	*19*	*14*	12	8	8	13	12	6	11	11	8	7	10
	13	6	10	10	11	6	6	6	4	12	3	5	16
0	8	13	12	7	10	12	14	6	6	11	6	10	3

r	$n(r)$ obs.	$n(r)$ theor.
0—1	0	0.1
2	1	0.7
3	7	2.3
4	4	5.1
5	6	9.3
6	19	14.4
7	13	19.0
8	23	21.6
9	17	22.5
10	23	20.5
11	20	17.3
12	10	13.2
13	10	9.3
14	9	6.1
15	2	3.8
16	2	2.1
17	1	1.2
18	0	0.6
⩾19	2	0.4

III. [$N = 1650$; $w_1 = 12$; $w_2 = 7$.
$s_1 = 1.2$; $\delta_1 = 18.4$; $s_2 = 0.8$; $\delta_2 = 68.0$]

	−6		−5		−4		−3		−2		−1		0
0	6	10	12	17	10	13	9	13	4	8	9	6	2
+1	14	11	10	8	16	8	10	10	11	10	7	7	4
	11	12	14	12	9	10	4	8	11	7	7	6	8
+2	9	10	11	6	11	13	10	10	11	5	6	10	10
	8	8	7	10	9	11	15	15	14	12	7	8	6
+3	13	10	12	7	14	11	14	12	9	10	12	9	9
	10	10	14	16	12	9	13	10	8	14	6	7	8
+4	11	15	8	11	8	11	5	12	14	5	11	5	2
	14	11	11	9	13	15	14	12	12	10	7	15	11
+5	3	**6**	8	8	15	15	9	*22*	10	6	13	11	16
	12	**6**	10	10	9	13	*14*	*15*	6	8	7	10	12
+6	8	**4**	13	7	9	7	9	7	6	14	6	13	7
	6	**1**	7	6	6	7	9	10	6	8	4	9	10
$+\delta$													

r	$n(r)$ obs.	$n(r)$ theor.
0— 1	0+ 1	0.1
2— 3	2+ 0	0.5+ 1.5
4— 5	5+ 4	3.7+ 7.3
6— 7	17+16	11.8+16.4
8— 9	17+16	20.0+21.5
10—11	25+17	21.3+18.8
12—13	13+11	15.3+11.5
14—15	12+ 8	8.0+ 5.3
16—17	3+ 1	3.2+ 1.9
⩾18	1	1.8

$N = 6103$; $w_1 = 10\,000$; $w_2 = 10^6$.

$s_2 = 4.2$; $\delta_2 = 66.3$

II. [$N = 1476$; $w_1 = —$; $w_2 = 6$.

$s_1 = —$; $\delta_1 = —$; $s_2 = 0.8$; $\delta_2 = 58.8$]

δ \ $+\alpha$: 0 … +6													
	6	8	4	10	2	9	5	10	8	6	10	6	3
−6	16	7	14	8	7	9	10	11	6	2	10	9	8
	8	11	11	12	10	12	9	7	6	12	8	6	7
−5	10	6	4	14	12	14	11	7	11	9	7	9	5
	8	11	7	10	12	9	13	13	6	8	14	14	7
−4	7	7	10	6	10	7	9	11	11	10	8	9	8
	7	5	10	8	10	6	7	10	4	9	16	3	4
−3	10	13	5	7	9	12	7	15	13	11	5	9	9
	6	6	12	10	8	8	9	15	11	10	5	8	5
−2	11	7	5	11	7	9	12	12	10	4	11	9	6
	4	6	8	13	6	6	7	6	11	*16*	5	6	9
−1	2	5	4	11	11	13	7	6	12	*15*	12	6	11
0	7	7	10	6	8	6	14	13	11	*13*	11	9	5

r	$n(r)$ obs.	$n(r)$ theor.
0—1	0	0.3
2	3	1.0
3	2	3.0
4	7	6.7
5	11	11.5
6	22	16.8
7	21	21.3
8	16	22.8
9	18	22.5
10	19	19.3
11	19	15.4
12	11	11.3
13	8	7.4
14	6	4.7
15	3	2.8
⩾16	3	2.7

IV. [$N = 1423$; $w_1 = 160$; $w_2 = 6000$.

$s_1 = 2.0$; $\delta_1 = 13.5$; $s_2 = 1.8$; $\delta_2 = 68.6$]

$+\delta$ \ $+\alpha$: 0 … +6													
0	4	4	6	3	8	7	9	13	5	14	11	16	10
	7	9	8	6	2	7	8	7	12	14	*16*	10	3
+1	6	10	6	7	12	4	10	9	*20*	*17*	*16*	*16*	8
	3	10	8	11	8	11	7	10	12	12	14	4	13
+2	15	6	10	13	17	8	9	6	7	6	11	4	8
	10	6	10	7	8	6	4	11	6	11	9	6	3
+3	9	7	11	9	14	19	5	8	12	6	6	7	6
	7	7	13	8	10	7	7	9	6	6	10	12	13
+4	8	6	8	4	10	4	6	12	7	5	4	5	8
	9	7	11	10	8	8	12	11	8	4	2	3	5
+5	*17*	8	13	12	7	12	8	9	6	5	2	4	4
	18	6	11	3	8	9	7	6	1	6	7	5	4
+6	5	9	8	9	12	5	15	6	4	8	5	9	5

r	$n(r)$ obs.	$n(r)$ theor.
0— 1	0+ 1	0.04+ 0.3
2— 3	2+ 6	1.4+ 3.7
4— 5	14+11	7.9+13.1
6— 7	23+19	18.5+22.4
8— 9	23+14	23.4+22.0
10—11	13+10	18.5+14.1
12—13	11+ 6	9.9+ 6.4
14—15	4+ 2	3.9+ 2.2
16—17	4+ 3	1.2+ 0.6
⩾18	3	0.6

№ 55. $a = 7^h12^m$; $B = +17^0$. $N = 3271$; $w_1 = 14\,000$; $w_2 = 5000$.

$s_1 = 13$; $\delta_1 = 10.2$; $s_2 = 50$; $\delta_2 = 25.7$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	16	*24*	*24*	22	14	16	12	11	14	17	13	21	6
−5	22	*24*	*28*	*27*	16	16	16	24	18	20	16	18	15
−4	*34*	*29*	*25*	*23*	20	19	24	24	**12**	**9**	17	**12**	18
−3	*25*	*18*	*30*	*21*	*27*	21	13	16	18	**13**	**7**	**12**	23
−2	18	*23*	*26*	*24*	*29*	16	17	14	14	**11**	15	20	17
−1	*36*	*21*	*24*	*19*	*28*	20	21	23	18	*25*	*27*	*27*	10
0	*30*	*25*	*26*	*21*	*23*	*29*	12	15	*23*	*26*	20	*23*	15
+1	*36*	*25*	*23*	*27*	18	18	19	19	17	*25*	20	15	23
+2	21	18	*25*	*26*	14	18	*28*	18	*23*	14	23	**10**	16
+3	16	14	*27*	18	20	20	*25*	*27*	*24*	*22*	20	17	**9**
+4	15	24	24	17	22	24	20	16	18	*31*	17	**12**	**10**
+5	10	13	19	23	14	15	20	20	23	17	16	16	**7**
+6	18	17	16	14	18	14	20	17	14	13	15	14	**8**

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 5	0	0.02
6— 7	1+ 2	0.06+0.17
8— 9	1+ 2	0.4+ 0.7
10—11	4+ 2	1.4+ 2.4
12—13	6+ 5	3.9+ 5.8
14—15	12+ 8	7.9+10.4
16—17	14+11	12.4+14.2
18—19	16+ 5	15.1+15.4
20—21	13+ 7	14.9+13.8
22—23	4+13	12.1+10.3
24—25	12+ 8	8.2+ 6.4
26—27	4+ 7	4.8+ 3.4
28—29	3+ 3	2.3+ 1.6
⩾30	6	2.1

№ 56. $a = 7^h20^m$; $B = +18^0$. $N = 2667$; $w_1 = 26\,000$; $w_2 = 10^6$.

$s_1 = 10$; $\delta_1 = 7.1$; $s_2 = 17$; $\delta_2 = 24.2$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	16	11	11	17	12	16	20	8	25	24	**7**	**9**	**9**
−5	14	17	15	15	12	17	*21*	12	18	15	10	**7**	**10**
−4	17	20	19	18	14	*25*	*22*	15	25	18	20	17	**5**
−3	14	20	17	21	14	*27*	18	12	16	22	18	11	16
−2	15	19	20	13	21	19	19	16	12	17	13	13	15
−1	23	8	15	17	13	14	11	*25*	*25*	*21*	17	21	15
0	18	16	20	13	*25*	*27*	19	20	*32*	*22*	14	19	8
+1	12	25	15	21	18	13	16	13	*22*	18	*26*	*21*	14
+2	12	17	13	22	16	20	14	*23*	14	18	10	11	9
+3	14	12	19	13	25	13	11	*25*	*23*	19	17	14	10
+4	10	11	14	12	13	16	19	19	13	15	12	14	9
+5	11	10	10	11	16	22	21	19	13	10	21	15	9
+6	10	7	23	14	17	10	**7**	**7**	**7**	13	**3**	9	8

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 2	0	—
3— 4	1+ 0	0.02+ 0.1
5— 6	1+ 0	0.3 + 0.5
7— 8	6+ 4	1.2 + 2.3
9—10	6+ 9	4.0 + 6.2
11—12	9+11	8.9+11.8
13—14	14+14	14.5+16.6
15—16	11+10	17.4+17.0
17—18	12+ 9	15.5+13.5
19—20	11+ 8	11.3+ 9.0
21—22	9+ 6	6.8+ 4.9
23—24	4+ 1	3.4+ 2.3
25—26	9+ 1	1.4+ 0.8
⩾27	3	0.5

№ 57. $\alpha = 7^h 28^m$; $B = +20^0$. $N = 1557$; $w_1 = 5$; $w_2 = 250$.

$s_1 = 5$; $\delta_1 = 4.0$; $s_2 = 5$; $\delta_2 = 16.8$

$+\delta$ \ $+\alpha$	—6	—5	—4	—3	—2	—1	0	+1	+2	+3	+4	+5	+6
—6	6	9	11	7	10	13	7	15	11	10	10	5	5
—5	5	12	*15*	11	6	12	5	12	10	16	8	6	10
—4	16	7	*18*	*16*	13	6	10	9	12	4	9	6	4
—3	5	15	10	9	10	7	8	8	6	6	11	10	8
—2	5	11	10	13	6	8	7	**5**	10	11	5	12	9
—1	13	11	15	7	6	8	**4**	**4**	11	7	7	16	9
0	9	7	16	11	9	10	6	**3**	**4**	10	4	9	9
+1	12	5	8	7	7	8	6	10	8	8	5	14	7
+2	7	10	14	8	6	8	8	7	7	8	11	14	16
+3	8	9	8	8	11	8	5	11	4	11	5	6	10
+4	8	8	12	11	10	10	9	9	9	10	16	4	8
+5	10	8	14	12	14	7	12	10	10	4	15	8	7
+6	8	8	10	7	*17*	*18*	12	8	14	7	12	10	11

r	*n(r)* *obs.*	*n(r)* *theor.*
0—2	0	0.8
3	1	2.2
4	9	5.1
5	12	9.3
6	13	14.4
7	19	19.1
8	26	21.6
9	14	22.5
10	24	20.5
11	15	17.2
12	11	13.2
13	4	9.3
14	6	6.2
15	5	3.8
16	7	2.1
17	1	1.2
⩾18	2	1.4

№ 58. $\alpha = 7^h 36^m$; $B = +21^0$. $N = 1637$; $w_1 = 10^7$; $w_2 = 10^9$.

$s_1 = 18$; $\delta_1 = 3.4$; $s_2 = 10$; $\delta_2 = 19.8$

$+\delta$ \ $+\alpha$	—6	—5	—4	—3	—2	—1	0	+1	+2	+3	+4	+5	+6
—6	**1**	**5**	**2**	**4**	**4**	**5**	**4**	**5**	11	7	4	9	5
—5	**3**	6	7	9	10	**4**	6	11	7	13	8	12	17
—4	**4**	6	9	10	11	10	11	14	6	13	16	*20*	9
—3	10	7	3	11	9	15	10	14	9	12	*18*	*17*	12
—2	11	13	8	11	4	5	9	12	12	15	12	*19*	11
—1	16	17	7	9	6	6	9	10	10	17	11	10	10
0	10	11	10	7	10	7	11	11	10	11	8	10	9
+1	*21*	*17*	12	10	4	10	10	5	10	7	12	9	10
+2	13	*24*	*18*	15	9	19	10	14	11	9	15	10	7
+3	8	13	*22*	*22*	7	10	4	14	12	12	6	6	2
+4	5	17	12	9	10	5	11	15	10	8	7	7	11
+5	7	8	9	7	10	7	6	15	10	8	12	**5**	7
+6	12	10	10	7	8	**2**	**1**	8	9	**3**	**3**	**5**	**2**

r	*n(r)* *obs.*	*n(r)* *theor.*
0—1	0+ 2	0.1
2—3	4+ 4	0.5+ 1.6
4—5	9+10	3.9+ 7.5
6—7	9+17	12.1+16.7
8—9	9+16	20.3+21.6
10—11	28+16	21.2+18.5
12—13	13+ 5	15.0+11.2
14 - 15	4+ 6	7.8+ 5.0
16—17	2+ 6	3.0+ 1.8
18—19	2+ 2	0.9+ 0.5
20—21	1+ 1	0.2+ 0.1
⩾22	3	0.05

№ 59. $a = 7^h44^m$; $B = +23^0$. $N = 1303$; $w_1 = —$; $w_2 = —$.

[$s_1 = —$; $\delta_1 = —$; $s_2 = 2$; $\delta_2 = 14.5$]

δ \ α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	4	8	8	7	13	11	7	7	5	12	7	8
−5	10	8	6	10	4	6	12	9	15	5	10	5	6
−4	9	9	9	13	11	11	6	6	9	5	8	9	6
−3	12	7	7	10	12	7	3	5	10	9	8	14	12
−2	13	8	6	7	9	8	2	4	7	10	10	11	5
−1	7	6	6	5	9	9	8	8	9	8	10	8	12
0	9	7	7	7	4	6	6	12	7	9	9	5	7
+1	6	5	5	9	6	9	6	6	4	7	7	8	6
+2	7	6	6	5	8	4	3	9	3	5	10	3	5
+3	5	3	6	7	8	7	7	10	11	6	7	14	3
+4	8	14	9	6	11	8	4	9	5	13	9	9	7
+5	4	9	11	11	9	9	*14*	*15*	8	5	9	3	6
+6	7	4	9	9	6	7	11	9	8	7	8	7	0

+α, +δ

r	*n(r)* *obs.*	*n(r)* *theor.*
0	1	0.1
1	0	0.8
2	1	2.4
3	8	5.8
4	9	11.2
5	16	17.3
6	23	22.1
7	27	24.2
8	20	23.7
9	28	20.0
10	10	15.6
11	9	10.8
12	7	7.1
13	4	4.2
14	4	2.3
⩾15	2	2.4

№ 60. $a = 7^h52^m$; $B = +24^0$. $N = 696$; $w_1 = 20$; $w_2 = 40$.

$s_1 = 5$; $\delta_1 = 0.6$; $s_2 = —$; $\delta_2 = —$

δ \ α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	4	6	9	5	5	8	3	6	5	3	1	5
−5	1	4	5	3	3	5	6	5	3	8	2	5	4
−4	4	9	6	8	8	2	3	8	3	9	4	6	5
−3	8	7	9	3	4	3	5	1	6	5	6	7	7
−2	8	3	3	5	2	2	6	10	4	3	7	4	5
−1	5	9	5	6	3	1	2	3	8	4	5	3	4
0	5	6	5	6	8	6	1	2	3	6	4	6	2
+1	4	3	6	6	3	0	4	3	4	5	5	6	6
+2	3	7	7	3	3	1	0	4	2	3	3	3	3
+3	10	2	3	1	3	5	1	1	2	6	2	3	4
+4	4	4	6	6	4	2	5	4	1	2	2	4	1
+5	3	4	2	3	5	4	3	0	2	2	2	4	1
+6	6	1	1	7	1	0	3	3	3	5	2	2	1

+α, +δ

r	*n(r)* *obs.*	*n(r)* *theor.*
0	4	2.8
1	17	11.3
2	20	23.3
3	35	31.8
4	24	33.1
5	24	27.3
6	22	18.7
7	7	11.2
8	9	5.7
9	5	2.6
⩾10	2	1.7

№ 61. $\alpha = 8^h0^m$; $B = +26^0$. $N = 1446$; $w_1 = 20$; $w_2 = 13$.

$s_1 = 7$; $\delta_1 = 3.9$; $s_2 = 6$; $\delta_2 = 16.5$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	**1**	**7**	**2**	**3**	9	8	2	13	9	12	11	9	9
−5	**2**	13	**6**	**6**	13	13	13	11	*14*	*24*	10	6	5
−4	7	9	7	10	9	9	8	*15*	*14*	*18*	12	10	8
−3	8	8	10	6	9	5	4	9	*14*	10	6	7	6
−2	4	7	6	10	9	9	6	9	9	15	11	6	8
−1	7	8	8	4	5	12	4	13	10	10	11	12	10
0	6	5	5	4	7	6	6	10	8	10	10	13	8
+1	11	12	9	8	7	4	11	10	5	7	7	9	7
+2	10	12	6	6	3	7	10	17	9	8	11	14	14
+3	6	6	12	9	8	9	10	14	11	7	7	6	7
+4	7	3	3	5	11	6	7	10	7	12	5	5	11
+5	8	8	6	11	14	6	12	12	14	9	7	10	5
+6	8	5	7	6	6	6	6	7	10	10	10	9	6

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	0	—
1— 2	1+ 3	0.4+ 1.3
3— 4	4+ 6	3.5+ 7.4
5— 6	11+25	12.7+17.9
7— 8	21+16	22.0+23.2
9—10	20+21	22.2+18.8
11—12	11+10	14.5+10.4
13—14	7+ 8	6.4+ 4.2
15—16	2+ 0	2.4+ 1.3
17—18	1+ 1	0.6+ 0.3
⩾19	1	0.3

№ 62. $\alpha = 8^h8^m$; $B = +28^0$. $N = 960$; $w_1 = 12$; $w_2 = 340$.

$s_1 = -$; $\delta_1 = -$; $s_2 = 3$; $\delta_2 = 11.3$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	9	4	9	4	3	4	7	8	3	7	4	2
−5	3	4	8	4	3	4	4	7	4	2	7	13	2
−4	7	9	7	9	2	3	11	6	9	6	5	5	10
−3	2	2	8	6	8	3	10	5	4	3	10	7	3
−2	3	4	6	7	8	3	3	5	5	10	3	7	6
−1	8	9	7	10	4	6	6	2	3	5	5	5	8
0	9	5	4	6	2	2	0	4	5	6	5	11	10
+1	1	4	4	6	5	6	4	3	5	12	5	5	6
+2	9	8	4	3	5	3	4	9	6	5	5	7	6
+3	4	4	4	4	6	6	3	7	4	7	8	3	4
+4	4	14	5	7	10	8	*9*	8	6	6	6	5	0
+5	9	2	11	4	6	7	*12*	*13*	5	1	8	3	3
+6	10	7	3	6	9	5	6	5	4	7	7	4	4

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	2	0.7
1	3	3.3
2	10	9.3
3	21	17.5
4	30	25.0
5	23	28.4
6	22	26.9
7	18	22.0
8	12	15.4
9	12	9.8
10	8	5.6
11	3	2.9
12	2	1.4
13	2	0.6
⩾14	1	0.5

№ 63. $\alpha = 8^h16^m$; $B = +30^0$. $N = 1145$; $w_1 = 1400$; $w_2 = 600$.

$s_1 = 12$; $\delta_1 = 2.1$; $s_2 = 6$; $\delta_2 = 13.5$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	6	3	3	4	5	4	8	6	9	3	6	8	3
−5	12	11	3	2	8	6	7	10	7	6	9	3	6
−4	5	12	7	8	5	8	9	8	9	5	8	8	8
−3	8	9	8	11	4	9	5	8	12	11	5	7	11
−2	4	9	4	6	14	7	8	7	5	7	6	8	6
−1	7	7	11	5	2	9	7	9	7	5	6	9	5
0	*13*	*15*	*12*	6	6	10	9	10	5	4	4	7	6
+1	9	9	7	12	9	10	*13*	10	5	8	7	5	6
+2	7	11	8	10	9	5	*16*	10	5	2	6	8	**1**
+3	3	9	5	10	4	10	*12*	5	12	9	9	5	**2**
+4	4	3	3	4	8	4	10	4	8	6	**2**	7	**5**
+5	3	4	4	8	6	7	4	11	4	4	**2**	**2**	**3**
+6	5	6	2	5	8	8	7	10	**1**	**3**	**1**	**3**	**0**

r	*n(r)* *obs.*	*n(r)* *theor.*
0	1	0.3
1	3	1.4
2	8	4.4
3	13	10.3
4	17	17.0
5	21	23.1
6	18	25.9
7	18	25.2
8	22	21.3
9	18	16.1
10	11	10.9
11	7	6.7
12	7	3.8
13	2	1.9
14	1	1.0
15	1	0.5
⩾16	1	0.5

№ 64. $\alpha = 8^h24^m$; $B = +31^0$. $N = 1231$; $w_1 = 2$; $w_2 = 10$.

$s_1 = -$; $\delta_1 = -$; $s_2 = -$; $\delta_2 = -$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	12	6	6	7	6	4	6	7	5	2	6	4	5
−5	7	8	13	12	6	5	3	4	9	10	9	11	5
−4	7	8	10	8	8	6	6	9	7	4	11	7	5
−3	7	10	6	11	7	4	4	9	5	7	3	8	4
−2	10	10	8	5	8	5	5	3	10	10	6	6	8
−1	12	11	10	5	4	6	4	6	4	11	9	10	7
0	6	11	9	3	9	9	6	4	7	4	3	6	7
+1	10	6	10	9	5	5	4	5	5	5	8	4	7
+2	8	10	12	8	7	12	1	5	7	4	7	2	10
+3	11	8	10	10	11	5	7	4	7	7	12	9	3
+4	6	12	14	8	8	4	5	8	12	9	8	9	2
+5	8	7	10	5	6	7	14	8	11	14	7	10	5
+6	6	6	9	3	13	9	12	7	8	7	10	4	4

r	*n(r)* *obs.*	*n(r)* *theor.*
0	0	0.1
1	1	0.8
2	3	3.1
3	7	7.4
4	19	13.6
5	20	19.8
6	21	23.9
7	24	25.0
8	19	23.0
9	14	18.4
10	18	13.5
11	9	8.9
12	9	5.5
13	2	3.1
⩾14	3	2.6

№ 65. $a = 8^h32^m$; $B = +33^0$. $N = 818$; $w_1 = 60$; $w_2 = 70$.

$s_1 = 14$; $\delta_1 = 1.4$; $s_2 = 13$; $\delta_2 = 8.8$

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6 $+\alpha$
−6	5	5	*8*	6	7	7	6	10	4	1	2	8	1
−5	6	2	*8*	5	*8*	*8*	6	5	*11*	*8*	6	3	2
−4	4	4	*8*	5	*9*	4	4	1	*10*	6	6	8	2
−3	6	6	6	3	3	5	10	4	*8*	7	4	3	5
−2	6	3	4	*12*	4	3	3	4	4	5	5	5	3
−1	3	5	4	*8*	4	7	3	2	5	8	**1**	**1**	5
0	5	6	3	*8*	5	0	2	5	9	5	**2**	4	3
+1	6	2	3	3	4	6	6	5	3	7	7	4	2
+2	8	6	3	7	2	9	**1**	**1**	**2**	**2**	**2**	4	3
+3	**1**	4	2	6	3	7	3	**2**	**1**	4	6	7	10
+4	**1**	**1**	8	7	3	4	4	**2**	5	5	5	5	5
+5	5	3	6	8	7	9	9	13	5	5	3	5	4
+6	2	3	4	6	5	4	9	6	1	5	1	3	5
$+\delta$													

r	*n(r)* obs.	*n(r)* theor.
0	1	1.4
1	13	6.6
2	17	15.6
3	24	25.1
4	24	30.6
5	30	29.8
6	21	24.1
7	11	16.8
8	15	9.9
9	6	5.3
10	4	2.6
11	1	1.2
12	1	0.5
⩾13	1	0.3

№ 66. $a = 8^h40^m$; $B = +35^0$. $N = 862$; $w_1 = 120$; $w_2 = 90$.

$s_1 = -$; $\delta_1 = -$; $s_2 = -$; $\delta_2 = -$

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6 $+\alpha$
−6	4	7	2	10	10	7	5	6	5	6	6	1	5
−5	3	1	12	5	7	3	11	6	9	13	8	7	7
−4	5	4	4	3	7	5	8	3	7	7	9	9	9
−3	2	4	4	2	4	6	10	9	4	8	7	4	5
−2	6	2	2	4	4	7	5	4	5	10	3	7	8
−1	1	3	8	2	4	3	3	2	3	8	6	3	7
0	4	4	4	3	4	3	3	7	3	1	4	6	8
+1	2	3	7	7	3	4	5	5	4	4	2	6	6
+2	6	2	5	8	4	5	6	4	9	4	5	3	4
+3	6	12	7	7	1	7	3	4	3	2	9	3	8
+4	6	6	3	9	3	4	4	2	4	1	3	3	7
+5	5	10	2	12	6	8	4	6	1	9	5	4	4
+6	3	1	5	3	0	6	7	8	4	1	4	2	3
$+\delta$													

r	*n(r)* obs.	*n(r)* theor.
0	1	1.0
1	9	5.3
2	14	13.3
3	27	22.8
4	33	28.9
5	17	30.0
6	18	25.4
7	20	18.7
8	11	11.8
9	9	6.6
10	5	3.4
11	1	1.5
12	3	0.7
⩾13	1	0.5

№ 67. $a = 8^h 48^m$; $B = +37^0$. $N = 765$; $w_1 = 350$; $w_2 = 8$.

$s_1 = 29$; $\delta_1 = 1.6$; $s_2 = 13$; $\delta_2 = 8.0$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	6	6	3	2	11	4	5	7	3	6	7	9
−5	6	8	1	7	2	4	9	8	6	11	12	7	7
−4	9	7	4	3	5	6	4	4	0	3	5	5	7
−3	3	4	3	3	4	4	3	2	3	7	6	5	8
−2	5	6	4	1	8	6	3	5	6	6	8	9	4
−1	2	7	1	2	2	1	5	1	3	7	6	5	5
0	6	7	6	2	2	4	4	1	2	2	4	6	6
+1	6	5	3	2	2	1	1	5	7	2	6	7	9
+2	3	1	6	5	6	4	3	2	2	5	5	2	6
+3	4	5	5	8	2	5	3	1	4	5	6	4	3
+4	2	7	3	6	6	1	1	6	3	6	1	8	6
+5	3	2	3	4	6	6	3	3	7	8	3	4	6
+6	2	4	6	3	3	3	6	7	6	1	1	0	2

r	$n(r)$ obs.	$n(r)$ theor.
0	2	2.0
1	16	8.4
2	20	18.6
3	27	28.0
4	20	31.8
5	19	29.0
6	33	22.2
7	16	14.3
8	8	8.1
9	5	4.1
10	0	1.9
11	2	0.8
⩾12	1	0.7

№ 68. $a = 8^h 56^m$; $B = +39^0$. $N = 674$; $w_1 = 5$; $w_2 = 12$.

$s_1 = 4$; $\delta_1 = 0.5$; $s_2 = -$; $\delta_2 = -$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	6	4	4	5	3	3	3	6	3	5	7	2
−5	6	5	4	5	12	4	3	3	5	4	7	3	3
−4	3	4	2	10	5	3	5	3	8	4	1	7	1
−3	4	4	2	5	2	7	3	6	3	5	1	5	7
−2	4	2	0	4	8	1	4	3	3	4	3	2	5
−1	3	3	4	1	1	10	2	5	4	6	0	4	7
0	5	6	5	7	2	2	3	2	2	2	2	1	6
+1	4	8	5	4	3	3	0	0	1	8	5	3	5
+2	4	5	2	10	2	5	4	1	5	1	4	6	3
+3	4	3	3	7	2	9	2	4	5	6	3	2	2
+4	7	7	3	5	4	6	1	1	6	4	6	3	3
+5	4	4	5	3	7	6	3	4	2	4	4	4	3
+6	0	1	4	4	1	5	5	4	7	2	6	5	3

r	$n(r)$ obs.	$n(r)$ theor.
0	5	3.2
1	14	12.4
2	22	25.0
3	33	33.0
4	34	33.2
5	26	26.6
6	14	17.4
7	12	10.2
8	4	5.1
9	1	2.2
10	3	0.8
⩾11	1	0.6

№ 69. $a = 9^h 4^m$; $B = +40°$. $N = 594$; $w_1 = —$; $w_2 = —$.

[$s_1 = 11$; $\delta_1 = 0.8$; $s_2 = —$; $\delta_2 = —$]

+δ \ +α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	2	4	4	3	4	5	4	5	4	5	5	0
−5	4	3	4	2	4	4	6	0	6	4	4	5	1
−4	7	1	4	5	4	4	1	8	2	6	2	5	4
−3	6	6	6	5	5	4	3	6	9	7	4	3	2
−2	2	9	4	4	7	4	4	6	2	5	1	3	4
−1	4	6	8	2	2	3	3	0	4	2	4	2	5
0	2	5	6	2	4	3	3	4	3	4	1	1	1
+1	2	4	3	3	5	3	3	3	1	0	4	2	6
+2	6	4	6	2	5	3	1	2	0	3	6	0	3
+3	2	2	3	8	3	4	2	2	0	1	1	3	5
+4	4	2	6	4	1	4	3	1	3	2	3	4	5
+5	4	3	3	6	4	3	5	0	2	6	1	5	3
+6	5	6	7	3	4	2	2	2	2	4	1	2	2

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	8	5.1
1	16	17.6
2	30	30.8
3	29	36.6
4	41	32.2
5	19	22.6
6	17	13.2
7	4	6.6
8	3	2.9
9	2	1.2
⩾10	0	1.0

№ 70. $a = 9^h 12^m$; $B = +42°$. $N = 585$; $w_1 = —$; $w_2 = 7$.

$s_1 = —$; $\delta_1 = —$; $s_2 = —$; $\delta_2 = —$

+δ \ +α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	2	3	4	5	2	5	6	4	6	7	0	9
−5	6	3	3	3	5	6	3	2	3	6	1	3	3
−4	8	4	3	3	1	4	3	2	2	5	4	5	1
−3	5	3	4	5	5	5	5	5	3	1	2	3	3
−2	2	8	2	2	2	1	3	3	3	2	8	3	4
−1	2	8	4	1	9	1	5	3	5	2	4	2	3
0	3	2	6	1	3	2	3	5	4	3	3	3	3
+1	4	7	4	5	5	1	2	2	4	2	4	4	2
+2	0	5	4	5	2	2	3	2	5	3	4	2	4
+3	4	6	7	0	4	2	1	3	2	4	3	4	0
+4	5	5	8	3	3	3	3	2	5	1	4	4	1
+5	4	2	6	4	1	0	2	2	1	7	3	2	1
+6	3	4	8	3	5	4	5	2	3	3	1	3	1

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	5	5.5
1	17	18.2
2	32	31.6
3	42	37.0
4	29	32.0
5	24	22.1
6	8	12.8
7	4	6.3
8	6	2.7
⩾9	2	1.7

№ 71. $\alpha = 9^h20^m$; $B = +44^0$. $N = 784$; $w_1 = —$; $w_2 = —$.

$[s_1 = —;\ \delta_1 = —;\ s_2 = 6;\ \delta_2 = 9.0]$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	4	5	6
−6	5	8	6	6	5	4	6	4	5	4	1	6	4
−5	4	3	3	4	4	5	6	6	4	5	5	7	3
−4	4	3	5	1	3	5	6	6	3	4	7	6	3
−3	3	3	2	5	4	5	4	4	3	*7*	*9*	*9*	5
−2	3	6	4	3	3	6	1	2	*11*	*9*	6	*9*	5
−1	3	8	5	3	6	4	2	4	2	4	8	7	6
0	3	4	4	5	3	4	3	4	4	5	8	7	6
+1	8	4	7	3	3	4	4	5	4	4	6	4	4
+2	6	4	5	7	5	4	5	3	3	6	8	11	5
+3	5	1	2	6	3	2	1	4	5	9	7	5	6
+4	5	6	6	3	3	3	5	6	5	6	7	3	5
+5	4	3	3	2	4	7	2	6	4	4	1	5	6
+6	3	3	3	2	6	3	3	4	3	9	3	5	3

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	0	1.8
1	6	8.8
2	9	17.6
3	37	26.0
4	37	31.4
5	29	29.3
6	27	22.9
7	10	15.1
8	6	8.8
9	6	4.5
10	0	2.1
$\geqslant 11$	2	1.6

№ 72. $\alpha = 9^h28^m$; $B = +46^0$. $N = 654$; $w_1 = 40$; $w_2 = 450$.

$s_1 = —;\ \delta_1 = —;\ s_2 = 2;\ \delta_2 = 9.0$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	0	1	5	2	4	5	3	7	5	2	5	2	2
−5	2	3	5	7	1	6	1	3	3	4	4	3	0
−4	4	3	4	6	7	3	5	4	8	5	4	4	2
−3	6	4	6	3	5	5	4	6	7	1	3	4	5
−2	4	5	6	3	6	3	1	2	3	6	11	1	6
−1	7	5	7	4	3	3	6	4	3	6	6	4	3
0	2	6	7	3	3	2	4	3	2	2	3	0	4
+1	3	3	6	3	9	6	0	4	3	6	1	5	0
+2	7	4	4	1	4	1	4	3	5	7	6	10	5
+3	3	6	6	1	0	5	0	*9*	*9*	4	1	7	2
+4	3	3	3	2	6	9	4	5	3	2	2	1	2
+5	2	4	4	4	5	4	1	6	2	3	6	5	3
+6	2	3	2	4	3	1	6	3	2	4	2	2	1

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	7	3.6
1	15	13.8
2	23	26.5
3	35	34.0
4	30	33.1
5	19	25.8
6	23	16.3
7	10	9.1
8	1	4.5
9	4	1.9
10	1	0.7
$\geqslant 11$	1	0.3

№ 73. $a = 9^h36^m$; $B = +48°$. $N = 684$; $w_1 = —$; $w_2 = —$.

[$s_1 = 8$; $\delta_1 = 1.2$; $s_2 = —$; $\delta_2 = —$]

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	3	**2**	**1**	**2**	5	8	5	7	1	4	4	2
−5	4	**1**	**1**	**1**	**1**	8	5	7	5	1	3	8	6
−4	3	**1**	5	4	3	5	7	2	2	8	9	1	4
−3	5	7	5	6	8	2	5	2	4	0	6	5	5
−2	1	4	3	8	5	4	5	4	5	3	5	3	3
−1	6	3	3	3	4	4	3	5	8	7	5	3	4
0	0	6	7	4	4	4	3	2	3	6	7	12	6
+1	4	1	3	3	3	2	5	2	5	5	2	8	8
+2	9	6	6	3	1	3	5	2	2	4	6	4	3
+3	7	2	4	1	4	6	5	3	4	4	5	7	5
+4	2	3	4	3	4	2	10	4	4	0	4	3	3
+5	4	4	6	2	4	5	6	5	3	1	5	3	2
+6	2	3	3	3	4	2	2	6	4	4	3	2	2

r	$n(r)$ obs.	$n(r)$ theor.
0	3	3.0
1	14	11.8
2	24	24.1
3	32	32.3
4	33	33.2
5	27	27.0
6	14	18.1
7	9	10.7
8	9	5.4
9	2	2.4
10	1	1.0
⩾11	1	0.7

№ 74. $a = 9^h44^m$; $B = +49°$. $N = 694$; $w_1 = 4$; $w_2 = 5$.

$s_1 = —$; $\delta_1 = —$; $s_2 = —$; $\delta_2 = —$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	2	3	6•	6	2	2	5	6	2	3	0	2
−5	7	4	3	1	7	1	3	2	3	3	3	2	5
−4	2	3	4	1	5	1	5	1	6	7	4	3	4
−3	4	4	2	4	6	6	8	4	4	8	7	2	2
−2	2	5	5	3	5	8	2	5	7	6	3	3	2
−1	1	3	6	3	2	6	8	4	12	4	3	4	2
0	7	4	6	6	4	3	5	5	3	3	2	4	2
+1	7	7	5	5	2	8	6	4	9	5	2	4	4
+2	3	4	7	2	1	4	6	5	3	8	5	4	1
+3	5	5	3	4	4	6	7	6	3	3	3	3	3
+4	3	3	5	4	8	4	2	6	5	6	6	2	4
+5	2	1	3	4	2	8	5	2	11	4	3	5	2
+6	0	2	2	6	2	8	3	7	4	4	4	3	2

r	$n(r)$ obs.	$n(r)$ theor.
0	2	2.8
1	9	11.5
2	31	23.5
3	33	32.0
4	31	33.1
5	21	27.3
6	19	18.6
7	11	11.2
8	9	5.7
9	1	2.6
10	0	1.0
⩾11	2	0.7

№ 75. $\alpha = 9^h52^m$; $B = +51^0$. $N = 747$. —

δ \ α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	2	1	4	2	5	4	6	7	2	4	4	4
−5	2	7	5	6	6	5	7	4	5	3	1	5	3
−4	4	5	3	3	5	5	5	6	4	5	7	7	3
−3	3	3	5	6	1	4	7	7	9	3	5	8	7
−2	0	1	5	4	9	5	4	6	7	3	8	7	3
−1	5	5	5	6	6	4	6	8	4	6	5	2	5
0	5	4	4	3	6	5	3	5	5	3	5	6	3
+1	4	7	11	2	0	2	2	5	4	2	3	3	5
+2	3	1	4	8	7	2	4	3	6	3	4	5	4
+3	7	7	6	4	6	5	6	3	4	3	2	5	5
+4	3	5	3	4	8	2	2	8	1	3	5	4	7
+5	9	2	7	3	3	12	2	4	2	3	5	3	0
+6	2	6	4	5	7	1	7	1	4	3	1	2	5

+α, +δ

r	*n(r)* obs.	*n(r)* theor.
0	3	2.2
1	9	9.2
2	19	20.0
3	29	29.0
4	28	32.3
5	35	28.5
6	17	21.2
7	18	13.4
8	6	7.3
9	3	3.7
10	0	1.6
11	1	0.6
⩾12	1	0.4

№ 76. $\alpha = 10^h0^m$; $B = +53^0$. $N = 325$. —

δ \ α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	1	5	5	1	6	3	3	1	2	0	2	0
−5	2	1	1	2	1	1	2	2	2	3	1	2	1
−4	2	2	1	1	2	3	1	3	1	3	3	3	2
−3	4	4	4	1	1	0	3	2	1	2	3	2	1
−2	0	1	1	1	2	0	1	1	3	2	3	0	1
−1	1	3	1	0	0	2	0	1	1	0	2	0	2
0	4	1	1	3	1	2	0	1	0	1	2	3	3
+1	0	2	1	3	2	1	2	3	1	2	1	1	1
+2	3	3	3	2	2	2	1	5	2	4	2	2	3
+3	3	6	1	4	0	2	2	2	2	3	1	4	1
+4	0	1	4	2	3	3	3	1	1	5	1	2	0
+5	1	2	3	4	2	2	0	1	2	2	2	2	1
+6	0	5	2	4	2	4	6	2	1	0	4	2	1

+α, +δ

r	*n(r)* obs.	*n(r)* theor.
0	20	24.5
1	52	48.2
2	49	46.0
3	28	29.9
4	12	14.5
5	5	5.3
⩾6	3	2.2

№ 77. $a = 10^h 8^m$; $B = + 55^0$. $N = 551$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	1	4	3	3	2	3	2	1	2	3	2	3
−5	2	3	3	1	0	2	4	3	1	2	3	5	3
−4	3	2	2	1	2	6	3	5	4	5	2	1	2
−3	4	5	1	3	7	3	3	4	5	2	4	4	1
−2	0	4	4	3	5	6	3	4	6	2	5	5	1
−1	4	3	2	2	3	3	5	5	4	3	5	4	2
0	5	3	1	1	7	2	3	6	1	2	4	7	2
+1	3	3	1	1	3	6	3	3	6	4	5	5	0
+2	3	5	2	6	3	1	3	5	4	2	5	3	4
+3	6	1	4	0	3	4	7	1	5	3	3	6	1
+4	2	2	1	3	7	2	5	5	3	4	3	5	0
+5	2	1	4	1	2	4	2	9	3	2	7	6	4
+6	4	0	10	2	4	4	4	5	3	3	2	0	3

r	$n(r)$ obs.	$n(r)$ theor.
0	7	6.6
1	21	21.0
2	31	34.2
3	43	37.6
4	27	30.7
5	22	19.9
6	10	11.0
7	6	5.0
8	0	2.1
9	1	0.8
⩾10	1	0.6

№ 78. $a = 10^h 16^m$; $B = + 57^0$. $N = 465$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	4	6	4	3	4	1	2	7	2	3	2	2
−5	4	5	4	7	4	2	3	7	2	2	3	3	1
−4	3	3	5	4	3	2	3	4	2	3	1	2	2
−3	4	4	6	3	1	1	1	4	2	3	6	3	1
−2	4	4	1	1	0	4	3	1	2	5	2	2	3
−1	4	2	2	3	5	3	0	2	3	3	4	4	3
0	6	2	3	4	5	1	2	1	4	1	1	1	2
+1	4	1	3	4	1	0	0	4	0	4	4	2	1
+2	3	4	3	2	3	4	4	2	3	1	3	0	1
+3	5	1	1	2	2	4	2	3	3	3	4	1	6
+4	4	5	4	1	3	5	4	1	0	3	1	2	2
+5	4	4	6	3	3	4	4	0	3	1	1	1	2
+6	1	2	8	1	0	2	0	5	1	5	2	0	2

r	$n(r)$ obs.	$n(r)$ theor.
0	11	11.0
1	33	29.9
2	34	40.8
3	35	37.4
4	36	25.6
5	10	14.5
6	6	6.6
7	3	2.5
⩾8	1	1.3

№ 79. $\alpha = 10^h24^m$; $B = +58^0$. $N = 344$; $w_1 = 20$; $w_2 = 8$.

$s_1 = 57$; $\delta_1 = 0.9$; $s_2 = -$; $\delta_2 = -$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	1	5	1	5	2	1	0	3	0	2	1	3
−5	2	1	3	1	2	1	1	3	2	1	4	4	1
−4	1	2	1	1	2	4	1	1	3	2	3	4	2
−3	2	1	1	2	1	3	5	1	3	5	0	2	5
−2	4	1	1	1	2	3	2	4	2	2	3	3	3
−1	1	1	1	2	4	4	1	2	1	3	6	4	2
0	1	4	3	3	2	2	2	2	1	0	3	4	1
+1	1	1	4	3	4	2	2	3	4	1	1	1	3
+2	0	1	2	3	1	1	1	2	5	1	0	1	3
+3	2	5	1	2	0	1	1	2	3	0	2	2	1
+4	1	2	5	1	4	1	5	4	1	5	2	2	3
+5	0	0	1	1	1	1	4	2	1	2	2	1	0
+6	1	1	3	0	0	2	3	3	0	1	3	1	1

r	$n(r)$ obs.	$n(r)$ theor.
0	14	21.8
1	61	45.6
2	39	46.2
3	27	31.0
4	17	15.6
5	10	6.2
⩾6	1	3.1

№ 80. $\alpha = 10^h32^m$; $B = +60^0$. $N = 446$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	4	3	1	2	4	5	3	5	3	3	3	2
−5	4	3	5	2	3	1	2	4	2	2	6	2	2
−4	4	1	1	1	1	3	1	5	3	4	1	5	5
−3	3	6	3	3	3	1	5	2	3	4	4	2	5
−2	3	3	2	1	4	1	4	2	4	3	3	2	3
−1	4	2	2	3	2	2	1	4	1	2	3	1	2
0	5	3	3	3	2	4	1	1	2	2	1	2	2
+1	2	5	6	5	5	3	3	1	2	2	4	4	6
+2	1	3	0	1	3	3	3	1	0	2	3	1	1
+3	2	1	2	4	3	0	4	7	1	1	1	1	1
+4	3	5	3	3	2	6	5	4	1	1	3	3	0
+5	1	2	7	0	2	0	3	4	0	3	3	4	6
+6	3	1	3	1	2	2	2	1	1	1	2	4	0

r	$n(r)$ obs.	$n(r)$ theor.
0	8	12.3
1	38	32.0
2	37	41.8
3	42	37.0
4	22	24.3
5	14	13.1
6	6	5.8
⩾7	2	2.8

№ 81. $\alpha = 10^h 40^m$; $B = +62°$. $N = 509$; $w_1 = 21$; $w_2 = 7$.

$s_1 = 8$; $\delta_1 = 0.9$; $s_2 = —$; $\delta_2 = —$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	2	3	4	8	5	0	7	2	5	5	1	1
−5	2	2	5	4	2	3	7	3	7	5	4	1	5
−4	5	8	3	2	3	2	3	0	1	3	4	5	1
−3	1	6	4	3	6	0	1	3	5	3	2	3	2
−2	3	4	4	3	3	3	0	1	1	3	2	2	3
−1	3	4	3	2	4	3	5	3	3	4	5	2	1
0	5	1	0	0	2	3	1	3	1	4	2	1	5
+1	2	5	3	4	1	2	5	6	1	5	6	7	4
+2	1	2	1	3	1	5	2	1	2	2	3	5	3
+3	3	2	2	1	4	4	1	3	2	8	3	0	2
+4	3	0	1	1	3	2	3	1	4	4	0	6	4
+5	3	5	5	2	1	6	2	2	1	3	2	3	2
+6	3	1	2	1	5	0	4	5	5	8	4	4	2

r	*n(r)* *obs.*	*n(r)* *theor.*
0	10	8.2
1	29	24.9
2	33	37.2
3	38	38.1
4	22	28.7
5	23	17.5
6	6	8.9
7	4	3.8
⩾8	4	2.2

№ 82. $\alpha = 10^h 48^m$; $B = +64°$. $N = 377$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	1	1	2	2	1	4	2	3	2	4	1	4
−5	1	5	4	3	3	3	2	2	3	2	2	4	2
−4	4	1	4	3	2	2	3	1	2	1	6	3	3
−3	1	1	3	4	5	3	4	2	5	4	1	2	4
−2	2	2	1	5	2	3	4	2	3	3	3	1	0
−1	2	1	3	1	2	1	2	3	1	2	1	5	2
0	1	2	2	4	1	1	0	2	2	2	2	3	3
+1	2	2	2	2	0	2	3	0	1	2	3	0	3
+2	2	0	2	0	2	0	4	1	1	1	2	2	3
+3	0	1	3	0	2	2	1	3	6	2	3	2	4
+4	3	4	2	1	3	5	2	1	1	3	0	4	1
+5	2	1	2	1	3	1	4	2	4	2	1	2	2
+6	2	1	1	1	3	1	1	4	3	2	1	4	4

r	*n(r)* *obs.*	*n(r)* *theor.*
0	11	18.0
1	41	40.6
2	55	45.6
3	32	34.0
4	22	19.0
5	6	8.3
⩾6	2	4.7

№ 83. $\alpha = 10^h56^m$; $B = +66^0$. $N = 435$; $w_1 = -$; $w_2 = -$.

[$s_1 = -$; $\delta_1 = -$; $s_2 = 2$; $\delta_2 = 6.5$]

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	7	4	1	5	1	3	4	4	4	2	3	2
−5	1	2	2	3	1	2	3	3	3	3	2	1	3
−4	5	3	2	3	4	4	1	4	4	1	1	2	1
−3	2	4	1	0	5	0	3	1	5	1	3	2	5
−2	1	0	1	1	2	1	1	0	3	2	4	2	4
−1	5	2	4	3	2	4	2	3	1	2	2	2	2
0	5	3	5	2	2	1	2	2	3	4	2	2	0
+1	0	3	4	0	1	3	1	1	3	3	4	4	2
+2	2	5	4	5	2	2	3	1	3	0	2	3	4
+3	4	4	5	1	3	2	2	1	2	1	4	1	2
+4	4	3	3	4	3	2	0	3	5	3	3	0	1
+5	2	3	4	*7*	*6*	3	3	1	3	0	2	2	2
+6	4	6	4	3	2	3	4	7	2	1	0	1	3

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	12	13.0
1	32	33.0
2	42	42.6
3	38	36.8
4	28	23.5
5	12	12.6
6	2	5.4
⩾7	3	3.1

№ 84. $\alpha = 11^h4^m$; $B = +67^0$. $N = 388$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	1	1	3	2	1	0	2	3	4	4	1	1
−5	2	4	1	3	6	6	4	5	1	3	3	0	1
−4	2	3	0	3	4	1	4	1	2	1	1	3	2
−3	0	2	3	3	3	4	3	2	3	1	1	1	2
−2	4	3	0	2	3	1	1	2	2	2	1	3	1
−1	2	3	2	2	1	0	2	0	0	3	1	4	4
0	2	0	7	2	2	1	3	1	0	1	6	3	1
+1	3	1	2	2	2	2	0	1	5	2	1	5	1
+2	2	3	3	1	5	1	2	1	4	2	3	3	1
+3	1	1	2	2	2	1	2	1	3	3	1	2	3
+4	1	1	4	2	3	4	5	3	3	1	8	3	4
+5	4	3	5	3	2	4	4	4	3	3	3	2	2
+6	1	1	4	3	1	2	2	1	0	3	2	2	2

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	12	16.9
1	45	39.5
2	42	45.3
3	40	34.4
4	19	19.6
5	6	8.8
6	3	3.4
7	1	1.2
⩾8	1	0.5

№ 85. $a = 11^h 12^m$; $B = +69^0$. $N = 307$. —

$-\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	0	1	0	2	0	2	3	2	5	2	2	1	2
−5	0	1	1	0	3	1	1	1	2	4	1	1	5
−4	3	2	1	1	1	4	4	4	1	1	3	4	1
−3	1	2	5	0	2	1	1	3	1	0	2	3	5
−2	1	1	1	2	2	1	1	0	2	1	2	4	0
−1	2	3	0	1	2	2	1	3	3	1	2	0	0
0	2	1	4	1	4	2	1	1	3	2	2	3	2
+1	3	2	1	1	1	1	2	1	1	2	0	6	1
+2	2	0	2	4	3	0	1	2	1	1	4	2	0
+3	2	3	1	2	4	0	1	3	1	4	2	1	0
+4	2	2	1	2	3	2	1	2	4	1	4	0	0
+5	0	2	1	6	1	4	2	1	2	0	1	1	1
+6	2	3	1	1	5	0	2	2	4	2	5	1	1

$+\delta$

r	$n(r)$ obs.	$n(r)$ theor.
0	23	28.0
1	56	50.2
2	50	45.6
3	17	27.6
4	16	12.4
5	6	4.6
⩾6	1	1.9

№ 86. $a = 11^h 20^m$; $B = +71^0$. $N = 392$; $w_1 = 8$; $w_2 = 19$.

$s_1 = 20$; $\delta_1 = 0.55$; $s_2 = 2$; $\delta_2 = 7.0$

$-\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	4	0	2	1	1	2	3	1	1	1	4	1
−5	1	7	3	3	2	2	4	3	5	2	2	1	3
−4	7	1	6	3	1	4	2	6	3	2	4	4	1
−3	4	3	0	1	2	5	3	2	3	2	4	7	2
−2	3	0	5	2	2	4	0	1	3	3	4	7	0
−1	0	0	3	1	1	3	2	1	3	3	3	1	1
0	2	1	1	2	3	4	4	1	0	4	1	2	2
+1	6	2	3	2	5	2	2	1	0	2	1	1	5
+2	1	0	2	2	4	3	2	0	2	4	4	0	3
+3	0	0	1	3	2	3	3	4	2	2	3	3	1
+4	3	1	2	2	1	2	1	1	2	5	3	2	0
+5	1	2	2	1	4	4	4	3	2	0	2	3	1
+6	1	1	0	0	2	1	5	1	6	4	4	2	0

$+\delta$

r	$n(r)$ obs.	$n(r)$ theor.
0	19	16.2
1	40	38.6
2	42	45.0
3	31	35.0
4	22	20.3
5	7	9.3
6	4	3.5
⩾7	4	1.7

№ 87. $a = 11^h 28^m$; $B = +73^0$. $N = 299$; $w_1 = -$; $w_2 = -$.

$[s_1 = -;\ \delta_1 = -;\ s_2 = 2;\ \delta_2 = 7.0]$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	1	1	4	1	1	2	3	0	0	0	2	1
−5	2	2	2	1	3	4	2	6	1	1	1	1	1
−4	2	1	1	1	1	1	3	4	1	2	4	1	2
−3	7	1	3	3	1	4	2	2	3	2	2	1	3
−2	7	1	2	4	1	4	0	0	2	3	1	1	1
−1	1	1	4	1	1	3	0	1	4	1	1	6	4
0	2	2	2	2	0	0	3	3	2	1	3	0	2
+1	1	3	3	1	1	2	3	2	0	0	0	1	1
+2	0	1	2	1	1	1	0	2	0	2	3	1	2
+3	2	2	3	1	1	1	1	1	0	3	1	2	1
+4	1	1	3	0	6	6	0	3	2	1	0	1	3
+5	3	2	3	1	2	2	0	2	1	1	2	1	1
+6	1	2	1	1	2	0	2	2	4	2	2	0	0

r	$n(r)$ obs.	$n(r)$ theor.
0	23	27.6
1	64	50.2
2	42	45.6
3	23	27.4
4	11	12.3
5	0	4.6
6	4	1.5
⩾7	2	0.5

№ 88. $a = 11^h 36^m$; $B = +74^0$. $N = 461$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	4	5	2	1	2	2	3	3	7	0	4	2
−5	1	5	7	3	3	5	2	3	1	1	2	2	1
−4	1	2	3	3	1	2	3	1	4	3	1	5	3
−3	1	2	5	2	2	5	5	5	5	4	1	2	1
−2	2	1	2	3	4	5	3	4	2	3	1	2	4
−1	6	4	5	1	2	4	1	5	1	4	4	0	2
0	0	4	3	3	2	1	0	2	0	0	4	0	4
+1	3	3	2	3	4	2	2	3	1	1	3	2	3
+2	3	3	2	8	1	3	2	2	2	0	2	8	0
+3	2	3	4	2	3	1	2	2	3	2	5	3	2
+4	1	5	2	3	2	2	3	3	0	3	7	4	5
+5	2	2	7	2	1	0	3	4	4	3	5	3	2
+6	0	0	6	5	2	1	2	4	4	5	5	3	2

r	$n(r)$ obs.	$n(r)$ theor.
0	13	11.1
1	26	30.1
2	46	40.9
3	36	37.4
4	21	25.5
5	19	14.1
6	2	6.5
7	4	2.4
⩾8	2	1.2

№ 89. $\alpha = 11^h 44^m$; $B = +76°$. $N = 719$; $w_1 = 15$; $w_2 = 7$.

$[s_1 = -;\ \delta_1 = -;\ s_2 = 2;\ \delta_2 = 11.5]$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	2	3	7	5	1	6	8	1	3	3	2	3
−5	4	4	2	6	5	5	3	1	7	7	3	5	1
−4	4	6	2	4	6	3	6	8	2	1	3	5	5
−3	6	2	4	5	7	4	5	3	4	3	4	4	4
−2	4	6	5	1	5	5	5	4	2	5	6	5	2
−1	3	5	7	8	4	3	5	3	6	3	2	8	3
0	0	4	4	4	7	2	5	7	4	5	5	5	8
+1	5	6	3	7	3	7	4	2	2	5	7	10	5
+2	10	2	1	4	3	5	4	6	6	10	3	7	1
+3	4	5	5	2	4	4	2	3	2	3	5	3	4
+4	5	6	5	6	6	2	*12*	5	5	4	2	3	3
+5	6	0	6	3	4	2	*11*	2	7	4	1	2	0
+6	3	4	3	6	9	5	1	4	1	4	5	2	1

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	3	2.5
1	12	10.4
2	22	21.8
3	28	30.6
4	30	32.8
5	33	28.0
6	18	19.7
7	12	12.2
8	5	6.4
9	1	3.1
10	3	1.3
⩾11	2	0.5

№ 90. $\alpha = 11^h 52^m$; $B = +77°$. $N = 428$; $w_1 = -$; $w_2 = -$.

$[s_1 = 12;\ \delta_1 = 0.9;\ s_2 = -;\ \delta_2 = -]$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	2	5	4	2	3	1	5	1	1	2	1	1
−5	5	1	4	5	3	7	2	1	2	3	5	2	3
−4	3	5	4	1	2	5	2	2	1	3	3	2	3
−3	3	5	2	4	6	2	4	1	0	1	1	1	3
−2	2	2	4	2	4	0	2	1	1	2	0	1	2
−1	5	2	1	4	3	1	2	3	1	1	4	5	1
0	4	4	0	3	4	5	2	2	2	3	2	2	1
+1	7	2	3	4	1	2	3	4	1	3	2	2	1
+2	5	0	2	1	5	4	2	0	2	1	4	3	2
+3	2	2	1	3	2	2	3	2	4	4	4	1	4
+4	4	4	0	3	3	2	2	4	0	2	1	3	1
+5	2	0	2	4	4	2	1	2	5	5	1	1	2
+6	1	0	4	4	2	3	3	5	4	4	3	2	1

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	10	13.6
1	36	34.1
2	49	43.0
3	26	36.4
4	29	23.0
5	16	11.4
6	1	4.8
⩾7	2	2.4

№ 91. $\alpha = 12^h 0^m$; $B = +79^0$. $N = 420$; $w_1 = 8$; $w_2 = 200$.

$s_1 = 18$; $\delta_1 = 0.8$; $s_2 = 2$; $\delta_2 = 7.0$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	3	7	4	0	4	2	1	1	4	4	1	1
−5	3	3	1	3	2	2	2	2	2	5	1	1	0
−4	3	3	3	3	2	0	3	3	1	1	1	3	0
−3	3	7	3	1	3	3	1	1	1	4	3	2	2
−2	0	1	5	0	7	7	1	2	2	4	2	2	5
−1	4	3	3	0	3	1	0	7	2	2	1	3	3
0	3	0	2	5	1	0	3	4	3	2	0	2	3
+1	4	3	3	3	1	3	1	3	2	5	3	1	1
+2	2	1	5	4	2	0	2	1	3	4	5	0	2
+3	4	2	3	1	7	1	2	1	5	7	4	1	3
+4	3	4	6	2	2	3	3	2	2	2	1	7	0
+5	1	3	5	1	3	3	3	2	1	2	5	2	6
+6	3	0	1	3	0	3	2	1	0	5	2	2	1

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	17	14.4
1	37	35.0
2	36	43.6
3	44	36.0
4	14	22.3
5	11	11.1
6	2	4.5
$\geqslant 7$	8	2.3

№ 92. $\alpha = 12^h 8^m$; $B = +81^0$. $N = 403$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	1	3	0	3	2	0	3	6	1	2	4	2
−5	0	2	2	4	4	1	1	1	0	3	3	5	1
−4	2	0	6	1	3	2	0	4	2	4	3	2	5
−3	1	2	1	2	2	2	2	2	2	3	2	5	5
−2	2	4	2	4	3	1	2	6	1	2	5	2	3
−1	4	5	5	1	6	3	4	2	3	1	3	2	2
0	2	5	1	2	6	1	4	2	2	1	3	2	4
+1	4	1	1	1	2	2	3	2	2	1	2	3	3
+2	0	1	2	2	2	5	2	2	2	3	2	5	2
+3	1	3	4	1	2	2	2	0	3	3	1	3	1
+4	3	1	1	1	3	3	3	3	0	2	4	0	2
+5	3	6	3	3	3	2	1	2	2	3	4	5	2
+6	1	1	1	1	2	3	1	0	3	3	3	1	2

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	11	15.2
1	36	37.2
2	54	44.6
3	36	35.4
4	15	21.1
5	11	10.1
$\geqslant 6$	6	5.9

№ 93. $\alpha = 12^h16^m$; $B = +82^0$. $N = 430$; $w_1 = 6$; $w_2 = 50$.

$s_1 = 19$; $\delta_1 = 0.5$; $s_2 = 18$; $\delta_2 = 5.4$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	1	0	0	2	2	1	0	3	2	4	4	2
−5	3	0	1	1	2	3	3	2	5	2	4	4	1
−4	3	4	4	2	0	0	4	1	0	2	4	4	2
−3	1	1	2	0	2	3	4	2	3	4	1	1	2
−2	2	2	3	3	4	3	2	3	3	5	2	0	6
−1	1	2	1	2	1	2	0	4	4	6	5	3	5
0	1	3	1	3	0	1	0	2	3	7	4	2	7
+1	2	4	2	5	1	3	2	6	4	2	4	4	5
+2	6	1	5	1	2	0	0	2	4	2	3	7	2
+3	3	1	0	1	5	5	1	3	1	2	7	5	8
+4	0	2	3	2	4	1	4	4	1	4	1	1	0
+5	1	2	4	4	7	3	4	3	2	2	3	1	1
+6	3	2	4	3	0	2	0	2	1	1	4	1	3

r	$n(r)$ *obs.*	*theor.*
0	19	13.4
1	33	34.0
2	40	43.0
3	28	36.4
4	29	23.0
5	10	11.7
6	4	4.9
7	5	1.8
⩾8	1	0.9

№ 94. $\alpha = 12^h24^m$; $B = +84^0$. $N = 525$; $w_1 = 10$; $w_2 = 1.7$.

$s_1 = -$; $\delta_1 = -$; $s_2 = -$; $\delta_2 = -$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	2	4	1	2	0	1	3	2	2	4	1	5
−5	5	2	4	2	1	5	1	4	2	2	3	3	3
−4	4	3	4	3	3	5	3	0	0	3	3	2	1
−3	2	3	3	4	1	0	5	5	5	1	3	1	2
−2	1	6	2	4	4	1	4	3	1	4	4	4	4
−1	5	7	0	4	1	2	3	4	2	7	4	5	4
0	1	4	2	1	1	4	1	4	2	1	3	5	2
+1	5	5	6	2	2	3	3	3	5	4	2	3	0
+2	5	3	2	2	4	1	0	3	4	7	3	7	4
+3	5	9	0	6	3	3	4	1	7	3	1	2	1
+4	2	0	5	5	5	3	3	3	4	4	5	2	0
+5	5	2	6	4	3	5	1	4	5	2	4	3	4
+6	4	5	6	2	3	3	3	4	1	4	1	2	7

r	$n(r)$ *obs.*	*theor.*
0	10	7.6
1	25	23.5
2	29	36.4
3	34	38.0
4	36	29.5
5	23	18.1
6	5	9.5
7	6	4.3
8	0	1.6
⩾9	1	0.7

№ 95. $\alpha = 12^h 32^m$; $B = +86^0$. $N = 648$; $w_1 = 2$; $w_2 = 30$.

$s_1 = -$; $\delta_1 = -$; $s_2 = 4$; $\delta_2 = 8.5$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	5	2	3	2	2	3	4	2	2	0	3	0
−5	4	3	4	5	4	5	6	5	4	3	1	6	4
−4	2	3	5	2	5	4	6	2	8	1	3	6	1
−3	3	5	10	4	7	1	6	3	2	3	4	2	6
−2	6	5	5	2	5	7	3	4	4	7	5	5	7
−1	7	6	2	5	5	*7*	*11*	*9*	3	6	2	3	1
0	8	6	7	8	4	1	4	1	2	9	4	4	5
+1	3	1	2	3	4	4	4	4	6	4	3	4	3
+2	7	4	4	3	3	4	1	4	3	2	4	9	4
+3	3	1	8	7	5	4	5	3	3	2	2	1	4
+4	1	3	4	2	5	7	1	3	5	6	5	3	1
+5	3	1	2	4	1	4	1	2	3	4	2	3	3
+6	2	4	4	3	4	4	2	3	2	2	8	3	0

r	*n(r)* *obs.*	*n(r)* *theor.*
0	3	3.8
1	17	14.2
2	27	27.2
3	33	34.4
4	37	33.0
5	20	25.5
6	12	15.9
7	10	8.8
8	5	4.3
9	3	1.8
10	1	0.7
⩾11	1	0.5

№ 96. $\alpha = 12^h 40^m$; $B = +87^0$. $N = 691$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	1	1	2	3	3	4	2	3	7	3	0	2
−5	6	4	4	4	5	5	4	6	4	3	5	3	3
−4	7	2	10	5	6	3	2	10	6	5	5	3	6
−3	5	4	5	3	6	5	5	6	4	3	8	3	7
−2	8	6	3	7	3	1	4	7	2	8	3	6	3
−1	3	5	6	5	5	6	3	4	3	4	4	2	3
0	6	6	6	6	2	4	1	2	4	0	3	1	4
+1	2	5	3	5	5	4	4	6	4	5	4	5	3
+2	8	5	9	1	3	2	5	4	8	4	4	4	5
+3	1	6	7	4	4	7	3	3	7	6	4	2	4
+4	5	2	3	1	6	3	5	2	4	4	6	2	0
+5	2	4	7	3	3	6	3	3	4	3	1	4	4
+6	2	3	0	7	2	3	6	3	4	3	1	6	3

r	*n(r)* *obs.*	*n(r)* *theor.*
0	4	2.9
1	10	11.6
2	18	23.7
3	39	32.1
4	34	33.1
5	23	27.3
6	23	18.5
7	10	11.0
8	5	5.6
9	1	2.5
⩾10	2	1.6

№ 97. $\alpha = 12^h 48^m$; $B = +86^0$. $N = 231$. —

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	0	1	1	1	1	1	2	2	1	4	2	1	2
−5	0	0	3	2	3	0	1	2	3	0	2	1	4
−4	1	1	1	2	0	3	1	1	0	0	0	5	0
−3	0	2	0	0	4	1	2	0	3	0	0	0	3
−2	1	1	3	4	0	1	1	1	1	0	1	1	2
−1	0	0	6	1	1	0	2	1	0	1	1	1	2
0	0	1	2	0	1	1	0	1	0	3	1	1	2
+1	0	1	1	1	2	1	4	2	2	2	1	1	2
+2	1	4	1	2	0	2	3	1	2	1	2	1	1
+3	1	2	1	0	0	0	0	1	1	4	0	0	0
+4	0	0	1	3	0	2	4	2	1	4	0	0	3
+5	2	2	3	3	1	2	2	2	0	2	0	1	4
+6	1	3	2	0	2	0	2	2	3	2	0	1	2

$+\alpha$ (right), $+\delta$ (down)

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	46	41.2
1	57	58.8
2	39	40.0
3	15	19.0
4	10	6.5
5	1	1.7
⩾6	1	0.5

№ 98. $\alpha = 12^h 56^m$; $B = +85^0$. $N = 323$. —

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	2	2	1	1	0	1	0	3	2	2	3	0
−5	0	2	1	2	2	2	3	1	2	5	2	2	2
−4	6	2	3	2	2	1	1	1	1	1	3	0	0
−3	2	4	2	2	3	3	3	4	2	0	1	1	3
−2	2	2	1	2	0	2	4	4	1	2	3	5	1
−1	1	3	5	2	1	0	2	4	2	0	2	1	2
0	2	2	1	0	1	1	1	2	2	3	2	1	1
+1	1	4	1	1	1	2	3	1	2	1	5	2	0
+2	1	3	1	0	2	2	0	2	3	3	0	1	2
+3	0	1	1	2	1	5	0	1	2	3	3	2	3
+4	0	4	3	4	1	4	6	0	2	4	1	0	2
+5	1	3	4	1	2	3	4	0	3	1	2	1	4
+6	1	2	4	1	3	0	3	1	1	3	2	1	3

$+\alpha$ (right), $+\delta$ (down)

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	22	24.5
1	49	48.4
2	50	46.0
3	27	29.3
4	14	14.3
5	5	5.2
⩾6	2	3.0

№ 99. $a = 13^h4^m$; $B = 84^0$. $N = 214$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	3	1	3	5	1	0	0	2	1	1	0	0
−5	2	1	0	3	0	0	1	0	0	2	1	2	1
−4	0	0	1	1	1	1	1	2	0	1	3	4	1
−3	1	2	4	3	1	0	1	0	0	0	2	4	1
−2	4	1	0	1	1	4	0	2	2	0	3	2	0
−1	1	2	3	1	1	3	2	1	0	1	1	0	0
0	1	1	0	1	0	1	2	1	2	0	1	3	0
+1	0	0	2	2	0	2	1	1	0	1	1	1	1
+2	0	2	1	0	3	0	1	3	1	0	2	1	1
+3	1	2	3	1	3	4	0	3	0	1	1	3	0
+4	0	2	1	0	1	2	1	0	0	0	1	2	0
+5	0	3	2	0	0	1	3	1	2	2	2	2	2
+6	0	3	2	2	1	0	2	0	2	1	2	1	0

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	51	46.0
1	57	60.6
2	35	38.4
3	18	16.8
4	7	5.2
⩾5	1	1.7

№ 100. $a = 13^h12^m$; $B = +83^0$. $N = 429$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	4	3	2	1	1	5	4	4	3	2	3	3
−5	2	1	4	4	2	5	2	6	2	4	2	3	4
−4	6	3	5	3	2	6	5	5	5	4	6	4	4
−3	6	1	0	1	3	1	3	2	1	1	3	2	1
−2	3	1	0	2	2	3	2	0	5	2	3	2	1
−1	0	3	2	2	1	5	3	3	2	6	3	2	2
0	4	0	2	1	1	2	3	0	0	2	4	2	4
+1	3	3	2	2	2	3	2	2	1	3	2	3	5
+2	0	2	3	2	1	1	3	0	2	4	2	3	4
+3	6	1	1	5	3	2	4	1	3	3	1	3	1
+4	3	3	3	2	1	3	4	1	2	1	2	1	2
+5	2	4	2	1	2	2	3	2	0	1	2	3	3
+6	2	2	3	4	2	6	3	1	2	2	1	5	3

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	10	13.2
1	30	33.5
2	51	42.8
3	41	36.6
4	19	23.3
5	10	12.0
⩾6	8	7.4

№ 101. $a = 13^h 20^m$; $B = +81^0$. $N = 389$; $w_1 = 11$; $w_2 = 20$.

$s_1 = 25$; $\delta_1 = 0.64$; $s_2 = —$; $\delta_2 = —$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	1	0	1	1	3	2	0	0	1	4	0	0
−5	2	4	3	2	2	2	5	3	2	1	3	1	0
−4	3	2	2	3	2	6	0	1	2	1	2	1	0
−3	1	6	2	3	3	1	3	0	3	3	1	4	1
−2	1	2	2	2	1	2	3	3	1	4	3	2	3
−1	3	3	2	4	6	0	3	4	0	4	0	1	3
0	5	4	2	3	2	2	1	2	4	5	9	1	3
+1	2	4	4	2	7	5	2	5	4	0	2	2	4
+2	3	1	3	2	2	2	7	3	7	2	1	3	3
+3	5	2	2	1	2	3	5	4	2	1	2	6	1
+4	1	0	3	2	6	3	3	1	1	0	3	2	1
+5	1	4	1	4	0	1	1	0	1	3	4	2	0
+6	3	2	1	1	1	0	3	1	0	1	1	3	1

r	*n(r)* *obs.*	*theor.*
0	20	16.6
1	41	38.8
2	40	45.2
3	35	34.8
4	17	20.0
5	7	9.1
6	5	3.5
7	3	1.2
⩾8	1	0.6

№ 102. $a = 13^h 28^m$; $B = +79^0$. $N = 353$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	0	1	1	1	2	5	2	2	0	2	3	1	3
−5	2	0	1	2	3	5	3	2	2	5	1	3	3
−4	0	1	1	5	1	4	3	3	4	1	5	0	4
−3	3	1	1	3	1	0	2	3	3	4	2	1	1
−2	4	1	2	1	2	2	2	1	1	1	0	0	1
−1	4	3	3	0	2	2	0	1	1	0	1	5	6
0	1	2	4	0	1	2	2	1	3	0	3	3	1
+1	2	2	2	1	2	1	3	4	1	7	1	3	3
+2	1	1	1	3	2	2	2	2	0	3	1	4	3
+3	4	1	2	3	1	1	2	1	2	3	3	3	3
+4	5	1	2	2	4	2	1	3	3	3	1	1	4
+5	1	1	3	6	2	3	3	3	4	3	1	0	1
+6	1	3	2	3	4	1	0	2	0	1	3	0	3

r	*n(r)* *obs.*	*theor.*
0	18	20.5
1	51	44.3
2	36	46.2
3	40	32.0
4	14	16.7
5	7	6.6
6	2	2.5
⩾7	1	1.3

№ 103. $\alpha = 13^h 36^m$; $B = +78^0$. $N = 464$; $w_1 = 40$; $w_2 = 120$.

$s_1 = 9$; $\delta_1 = 0.67$; $s_2 = -$; $\delta_2 = -$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	2	4	1	3	5	3	3	4	1	4	1	1
−5	4	4	5	5	8	**0**	2	3	4	2	7	3	1
−4	0	3	5	4	3	**1**	**0**	**1**	2	2	2	7	1
−3	1	2	10	3	2	3	**1**	**1**	**0**	3	2	0	2
−2	0	2	4	2	2	3	**1**	**1**	5	4	1	1	8
−1	5	5	1	3	0	3	2	3	1	5	3	3	1
0	6	1	1	2	3	4	2	2	3	3	3	4	3
+1	3	3	0	3	3	1	2	1	0	2	3	9	0
+2	3	3	5	1	1	1	3	6	2	3	6	2	1
+3	5	2	3	2	4	3	0	2	0	5	5	2	3
+4	1	5	3	1	1	5	3	5	4	6	3	3	2
+5	0	3	7	5	2	4	4	2	7	3	5	0	4
+6	1	2	2	6	1	2	1	3	2	2	1	1	1

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	14	11.0
1	36	29.6
2	33	40.7
3	40	37.4
4	16	25.8
5	17	14.3
6	5	6.6
7	4	2.5
8	2	0.9
$\geqslant 9$	2	0.4

№ 104. $\alpha = 13^h 44^m$; $B = +76^0$. $N = 492$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	2	8	4	1	4	1	2	4	1	3	3	2
−5	1	2	5	3	1	4	4	3	2	1	0	3	4
−4	6	2	3	6	4	4	3	0	3	5	4	2	2
−3	0	7	1	5	0	1	0	1	4	2	2	2	3
−2	5	5	3	2	0	3	3	3	5	5	2	4	2
−1	4	4	3	1	3	1	5	6	3	2	1	2	1
0	6	6	3	0	2	2	2	2	0	3	3	4	4
+1	7	2	4	3	1	6	4	1	2	4	1	1	2
+2	2	1	3	2	2	2	1	1	4	7	4	3	2
+3	4	3	4	2	4	2	9	2	1	3	1	3	7
+4	1	2	2	3	3	2	3	2	4	1	0	3	6
+5	0	7	2	7	4	4	5	5	4	2	4	1	1
+6	2	2	3	2	4	5	2	2	5	4	3	4	1

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	10	8.6
1	27	25.3
2	42	37.6
3	32	38.0
4	32	28.3
5	11	17.0
6	7	8.3
7	6	3.5
8	1	1.3
$\geqslant 9$	1	0.8

№ 105. $a = 13^h52^m$; $B = +75^0$. $N = 478$; $w_1 = —$; $w_2 = —$.

[$s_1 = —$; $\delta_1 = —$; $s_2 = 2$; $\delta_2 = 8.0$]

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6 $+\alpha$
−6	4	0	1	3	2	2	3	4	3	5	2	2	2
−5	1	5	6	2	1	3	2	2	3	8	4	2	1
−4	3	3	3	1	3	2	1	5	5	8	4	4	2
−3	1	4	4	2	5	3	4	2	2	2	2	2	5
−2	1	3	1	5	1	1	4	3	1	5	2	4	0
−1	3	1	3	1	3	2	1	3	7	5	2	2	1
0	5	5	1	6	1	3	4	2	2	1	5	2	4
+1	2	3	2	3	2	6	5	4	1	5	2	2	2
+2	2	4	3	0	6	4	1	1	2	5	4	1	2
+3	1	7	2	5	2	2	4	4	5	4	3	1	3
+4	1	6	4	3	5	4	1	3	4	1	3	4	1
+5	0	2	0	5	2	2	3	2	2	0	4	1	2
+6	1	2	1	6	2	6	3	2	2	3	2	3	1

$+\delta$

r	$n(r)$ *obs.*	*theor.*
0	6	10.2
1	33	28.4
2	46	40.0
3	30	37.6
4	24	26.5
5	19	15.3
6	7	7.2
7	2	2.8
⩾8	2	1.5

№ 106. $a = 14^h0^m$; $B = +73^0$. $N = 482$. —

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6 $+\alpha$
−6	1	1	4	6	4	6	5	2	5	4	2	1	2
−5	1	2	4	4	1	3	2	4	5	4	4	1	7
−4	2	2	1	1	4	2	4	2	2	4	2	3	4
−3	0	3	3	9	3	1	1	1	4	4	3	4	1
−2	1	2	4	4	1	2	0	3	6	5	3	5	3
−1	2	3	0	1	0	3	1	3	3	1	2	3	3
0	2	3	1	4	4	2	0	1	2	4	4	3	6
+1	1	2	4	2	3	3	4	1	4	2	4	4	3
+2	1	2	3	3	4	5	3	3	3	4	0	3	7
+3	1	4	2	2	3	1	2	3	3	4	2	1	2
+4	4	4	2	3	4	9	2	1	2	3	4	6	2
+5	0	2	3	3	3	3	3	3	4	6	2	2	1
+6	3	2	1	4	5	3	5	2	4	0	1	5	3

$+\delta$

r	$n(r)$ *obs.*	*theor.*
0	8	9.7
1	29	27.2
2	36	39.1
3	40	37.9
4	37	27.0
5	9	15.8
6	6	7.5
7	2	3.0
8	0	1.0
⩾9	2	0.6

№ 107. $\alpha = 14^h8^m$; $B = +71^0$. $N = 559$; $w_1 = -$; $w_2 = -$.

$[s_1 = 3$; $\delta_1 = 0.33$; $s_2 = -$; $\delta_2 = -]$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	2	5	3	2	1	5	2	6	4	2	1	5
−5	0	9	2	5	3	5	4	3	2	2	2	2	4
−4	4	5	1	2	7	2	1	4	1	7	1	9	2
−3	5	2	5	1	2	3	3	3	0	0	4	5	2
−2	7	3	4	4	1	6	6	3	4	2	3	0	4
−1	2	3	4	3	4	2	2	3	1	4	3	8	3
0	2	4	1	9	1	3	3	8	3	6	3	3	4
+1	4	3	3	4	1	3	2	3	4	4	3	2	2
+2	0	7	3	2	1	2	2	3	5	1	4	4	4
+3	1	5	2	2	5	4	2	4	2	7	5	4	4
+4	6	4	5	0	5	3	4	7	2	3	5	1	4
+5	4	1	5	2	1	1	3	5	3	2	1	3	1
+6	4	3	3	5	6	4	8	6	1	5	4	3	1

r	$n(r)$ obs.	$n(r)$ theor.
0	6	6.2
1	24	20.8
2	33	34.0
3	34	37.6
4	33	31.0
5	20	20.3
6	7	11.3
7	6	5.3
8	3	2.2
⩾9	3	1.5

№ 108. $\alpha = 14^h16^m$; $B = +69^0$. $N = 389$; $w_1 = 3$; $w_2 = 1.8$.

$s_1 = -$; $\delta_1 = -$; $s_2 = -$; $\delta_2 = -$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	3	2	2	0	2	4	1	1	1	0	1	0
−5	2	3	3	2	1	1	2	2	1	3	3	2	1
−4	5	0	4	3	5	2	4	3	5	1	0	3	3
−3	1	6	0	6	3	5	4	3	2	6	1	5	3
−2	0	4	4	3	5	3	1	2	3	2	4	2	1
−1	3	2	4	2	3	1	1	1	1	4	3	3	1
0	3	3	2	3	3	3	1	2	2	3	1	2	5
+1	2	1	2	0	1	0	2	4	3	3	4	3	0
+2	2	6	2	3	2	2	1	1	4	2	3	1	1
+3	3	1	3	4	3	3	3	4	2	5	4	2	1
+4	0	6	0	2	2	4	3	5	3	1	0	5	2
+5	5	0	2	0	2	3	0	0	0	3	2	0	0
+6	3	3	2	2	0	1	1	3	1	2	1	3	1

r	$n(r)$ obs.	$n(r)$ theor.
0	21	16.6
1	35	38.8
2	38	45.0
3	43	34.8
4	16	20.0
5	11	9.1
⩾6	5	5.2

№ 109. $\alpha = 14^h 24^m$; $B = +68^0$. $N = 361$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	3	2	1	1	7	3	2	5	1	1	2	0
−5	2	3	3	3	4	1	4	3	3	3	2	1	1
−4	3	3	4	3	3	1	2	2	1	4	4	3	2
−3	2	2	3	1	2	1	1	1	6	2	1	3	1
−2	1	1	2	1	4	4	2	3	3	2	4	3	1
−1	4	0	0	3	3	3	2	0	4	2	2	4	2
0	1	3	2	2	1	1	0	0	1	2	0	2	4
+1	2	1	6	1	0	1	1	3	5	3	3	4	2
+2	0	0	1	5	1	2	2	0	3	2	1	0	4
+3	2	0	4	2	1	0	3	3	2	2	3	0	1
+4	3	4	3	2	4	0	1	1	2	1	4	1	2
+5	0	1	0	5	0	0	1	2	3	2	3	4	2
+6	3	2	5	2	3	3	2	3	2	0	4	0	0

r	*n(r)* *obs.*	*n(r)* *theor.*
0	23	20.2
1	38	43.2
2	42	46.0
3	37	32.8
4	21	17.9
5	5	7.4
6	2	2.7
⩾7	1	1.3

№ 110. $\alpha = 14^h 32^m$; $B = +66^0$. $N = 411$; $w_1 = 14$; $w_2 = 150$.

$s_1 = -$; $\delta_1 = -$; $s_2 = 11$; $\delta_2 = 5.5$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	2	2	3	3	0	3	1	2	2	2	1	1
−5	0	2	4	4	0	2	4	0	3	1	0	2	1
−4	1	2	4	1	1	2	3	2	0	2	3	1	2
−3	3	2	2	2	3	1	4	3	2	4	2	2	3
−2	3	1	4	1	1	2	1	3	1	3	1	1	1
−1	2	2	1	1	1	1	2	2	1	2	1	6	5
0	1	4	3	1	4	2	2	3	4	5	4	4	1
+1	4	2	0	3	4	0	0	2	0	0	2	5	1
+2	0	3	4	4	1	4	3	8	4	4	4	0	1
+3	1	0	0	2	8	2	5	3	4	2	6	1	2
+4	1	2	2	1	4	3	3	4	2	4	3	4	1
+5	4	3	1	3	1	1	2	8	6	5	4	5	0
+6	0	0	2	6	5	2	6	4	2	6	7	1	1

r	*n(r)* *obs.*	*n(r)* *theor.*
0	18	14.9
1	40	36.3
2	41	44.3
3	25	35.7
4	28	21.5
5	7	10.4
6	6	4.1
7	1	1.4
⩾8	3	0.5

№ 111. $a = 14^h 40^m$; $B = +64^0$. $N = 541$. —

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	2	2	5	2	1	4	1	3	2	1	1	1
−5	5	2	4	5	3	6	2	4	3	0	5	1	3
−4	3	6	3	4	4	4	3	3	5	5	2	1	1
−3	4	4	1	3	3	2	3	2	3	2	3	4	4
−2	1	1	2	3	4	5	3	3	4	3	2	2	3
−1	6	5	6	3	3	3	5	3	3	3	4	2	7
0	5	2	3	2	2	2	5	6	4	5	3	4	1
+1	4	5	6	2	0	4	2	9	5	3	8	2	4
+2	2	5	3	3	1	7	2	2	1	7	6	5	1
+3	2	3	5	6	2	7	3	4	3	1	3	2	6
+4	5	1	4	6	3	3	5	1	3	3	4	4	2
+5	3	1	4	2	2	1	6	3	1	1	2	4	7
+6	1	2	3	4	4	4	2	0	3	2	1	2	2

$+\alpha$ (columns); $+\delta$ (rows)

r	$n(r)$ *obs.*	*theor.*
0	3	7.0
1	25	22.0
2	36	35.0
3	41	37.9
4	27	30.3
5	19	19.3
6	11	10.4
7	5	4.8
8	1	1.9
⩾9	1	1.1

№ 112. $a = 14^h 48^m$; $B = +62^0$. $N = 652$; $w_1 = —$; $w_2 = 6$.

$s_1 = —$; $\delta_1 = —$; $s_2 = —$; $\delta_2 = —$

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	3	2	1	4	2	5	3	4	3	1	1	3
−5	2	4	5	5	4	2	3	3	7	3	2	4	2
−4	4	3	5	3	6	1	2	4	2	2	2	3	5
−3	3	4	5	2	3	8	3	8	4	5	7	2	6
−2	0	3	1	3	3	3	5	4	6	4	4	3	3
−1	2	6	1	3	5	6	3	7	3	10	4	1	2
0	3	2	2	7	6	7	9	7	5	6	2	5	2
+1	3	6	1	4	8	5	6	4	5	3	2	7	2
+2	3	4	4	4	5	5	6	2	10	5	6	2	4
+3	5	6	4	5	4	10	3	4	3	7	6	3	4
+4	2	6	3	7	6	3	5	7	4	7	1	1	1
+5	3	4	5	7	7	2	8	3	1	3	4	3	2
+6	0	3	1	2	2	1	4	3	0	3	5	2	2

$+\alpha$ (columns); $+\delta$ (rows)

r	$n(r)$ *obs.*	*theor.*
0	3	3.6
1	15	13.7
2	29	26.5
3	38	34.0
4	27	33.1
5	21	25.8
6	15	16.6
7	13	9.1
8	4	4.4
9	1	1.9
⩾10	3	1.1

№ 113. $a = 14^h 56^m$; $B = +60°$. $N = 571$. —

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	1	1	1	5	2	5	4	3	3	4	4	5
−5	4	3	3	1	3	5	5	5	3	4	1	1	2
−4	4	4	2	3	7	5	5	5	3	4	2	2	3
−3	3	7	1	1	3	4	2	2	6	3	2	4	1
−2	2	2	2	2	1	3	2	6	3	3	2	2	5
−1	3	2	2	3	2	4	3	2	6	2	3	5	2
0	4	3	3	2	3	4	1	3	2	2	2	5	3
+1	6	4	4	3	2	2	0	8	3	5	2	7	3
+2	1	8	3	2	2	1	6	4	6	1	4	5	3
+3	3	5	6	2	6	5	3	7	6	5	3	2	3
+4	9	3	2	6	6	3	7	1	1	3	3	2	2
+5	4	4	1	3	5	3	6	3	3	4	4	6	5
+6	2	2	6	3	2	5	5	3	2	6	2	2	2

$+\alpha$

$+\delta$

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	1	5.8
1	17	18.8
2	43	32.2
3	43	37.1
4	21	31.8
5	21	21.8
6	15	12.5
7	5	6.1
8	2	2.5
⩾9	1	1.7

№ 114. $a = 15^h 4^m$; $B = +59°$. $N = 593$; $w_1 = —$; $w_2 = 18$.

$s_1 = —$; $\delta_1 = —$; $s_2 = 2$; $\delta_2 = 9.5$

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	4	4	5	3	4	4	1	3	5	2	1	1
−5	3	2	4	4	7	*11*	*8*	4	1	3	6	1	2
−4	1	4	3	6	9	2	4	6	3	3	5	1	0
−3	7	2	5	2	3	3	2	5	3	1	1	6	2
−2	4	6	4	5	3	4	3	2	2	3	2	5	3
−1	2	3	11	6	1	4	5	4	5	5	4	2	2
0	6	3	6	7	3	4	1	8	3	10	8	7	2
+1	5	6	6	5	4	5	3	3	2	3	3	2	2
+2	5	2	6	7	1	5	1	6	3	4	3	1	4
+3	2	2	5	2	3	2	2	2	3	3	2	0	4
+4	2	2	2	3	3	4	3	6	3	5	6	2	5
+5	6	4	5	3	3	2	3	1	2	0	4	1	1
+6	2	5	3	5	3	2	1	1	3	2	2	2	2

$+\alpha$

$+\delta$

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	4	5.2
1	18	17.7
2	39	31.0
3	37	36.6
4	23	32.2
5	21	22.6
6	15	13.2
7	5	6.5
8	3	2.9
9	1	1.2
⩾10	3	0.6

№ 115. $a = 15^h12^m$; $B = +57^0$. $N = 716$; $w_1 = -$; $w_2 = -$.

$[s_1 = -;\ \delta_1 = -;\ s_2 = 2;\ \delta_2 = 10.0]$

$+\delta$ \ $+a$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	1	1	2	3	4	2	4	7	3	4	3	4
−5	1	4	5	4	5	2	6	3	5	2	3	6	1
−4	4	2	6	3	4	*10*	*10*	2	7	7	3	3	5
−3	7	3	2	7	4	7	2	5	4	5	6	5	2
−2	7	5	3	5	6	4	4	5	8	6	6	4	1
−1	3	4	9	4	5	5	8	3	6	5	3	2	5
0	6	2	4	5	6	6	6	2	5	7	1	10	4
+1	2	3	7	2	5	3	5	3	5	4	3	5	6
+2	2	7	6	2	3	5	7	8	7	4	2	4	6
+3	1	4	5	3	8	5	2	6	6	5	6	3	4
+4	2	4	2	8	4	5	10	4	3	4	2	4	3
+5	3	1	3	5	4	6	4	3	5	3	1	3	2
+6	1	2	4	1	2	5	3	8	2	3	1	6	3

r	*n(r)* *obs.*	*n(r)* *theor.*
0	0	2.6
1	12	10.4
2	25	22.0
3	31	30.6
4	30	32.8
5	28	28.0
6	20	19.7
7	12	12.0
8	6	6.4
9	1	3.1
⩾10	4	2.1

№ 116. $a = 15^h20^m$; $B = +55^0$. $N = 746$. —

$+\delta$ \ $+a$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	3	6	3	1	6	2	5	10	7	9	3	4
−5	7	5	5	1	6	8	6	0	2	2	5	3	3
−4	2	4	5	7	5	3	7	5	6	3	4	6	4
−3	3	3	10	2	1	8	9	3	5	4	5	9	3
−2	5	2	4	1	2	3	6	4	2	7	5	7	4
−1	5	6	5	3	2	1	3	1	5	5	8	4	5
0	10	6	8	8	4	2	6	4	2	5	4	7	8
+1	5	9	3	3	1	3	1	4	2	3	2	3	3
+2	4	7	4	1	6	3	5	5	7	7	6	4	4
+3	5	4	2	3	2	3	2	4	7	3	2	6	5
+4	4	4	4	3	5	6	4	5	6	4	3	2	3
+5	3	5	5	8	6	4	7	3	2	4	6	6	4
+6	7	4	5	5	2	3	8	4	6	3	5	1	4

r	*n(r)* *obs.*	*n(r)* *theor.*
0	1	2.1
1	10	9.1
2	20	19.9
3	32	29.1
4	30	32.3
5	29	28.6
6	19	21.1
7	13	13.3
8	8	7.3
9	4	3 7
⩾10	3	2.4

№ 117. $a = 15^h 28^m$; $B = +53°$. $N = 725$; $w_1 = —$; $w_2 = —$.

[$s_1 = —$; $\delta_1 = —$; $s_2 = 2$; $\delta_2 = 10.0$]

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	6	3	7	2	2	3	6	0	3	5	4	1
−5	3	1	4	8	5	3	1	6	3	6	6	5	5
−4	6	4	4	2	4	3	4	4	2	4	4	4	5
−3	9	6	0	1	1	4	3	7	8	5	2	7	6
−2	6	4	7	3	4	3	2	9	5	9	8	8	4
−1	5	7	3	5	1	2	3	4	6	2	5	3	*11*
0	10	3	6	5	7	3	1	1	2	6	2	6	*9*
+1	3	3	4	5	5	3	3	4	1	5	3	6	7
+2	4	5	8	4	3	5	4	4	4	2	1	2	5
+3	5	3	3	4	3	3	5	6	4	7	6	5	6
+4	3	3	9	4	1	2	3	5	5	5	9	4	6
+5	7	3	4	2	6	6	3	5	8	1	4	2	4
+6	1	5	4	4	8	3	4	5	4	0	2	4	3

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	3	2.4
1	13	10.1
2	16	21.3
3	32	30.2
4	35	32.7
5	26	28.2
6	20	20.3
7	9	12.5
8	7	6.6
9	6	3.3
10	1	1.4
⩾11	1	1.1

№ 118. $a = 15^h 36^m$; $B = +51°$. $N = 730$; $w_1 = 40$; $w_2 = 120$.

$s_1 = 2$; $\delta_1 = 0.5$; $s_2 = 4$; $\delta_2 = 9.5$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	6	4	7	3	2	5	2	4	5	2	6	3	1
−5	4	4	8	7	8	8	5	5	3	1	5	2	4
−4	4	9	5	4	4	1	3	4	4	3	2	4	3
−3	3	5	5	2	6	3	3	4	4	4	4	5	1
−2	11	2	6	3	10	4	3	3	8	3	7	4	2
−1	3	*9*	*12*	5	6	3	6	5	5	2	4	8	5
0	2	2	*8*	*9*	2	8	1	1	7	2	5	6	3
+1	3	7	3	1	4	1	3	4	2	3	2	6	3
+2	7	4	6	0	5	4	2	0	3	0	9	8	1
+3	4	4	2	3	4	1	7	3	6	7	1	7	6
+4	5	8	7	8	2	4	3	5	2	1	5	5	3
+5	2	9	5	5	6	4	6	9	1	3	3	5	3
+6	2	3	5	9	3	6	5	3	6	2	7	2	4

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	3	2.3
1	13	9.8
2	23	21.0
3	32	30.0
4	28	32.6
5	24	28.3
6	15	20.4
7	11	12.6
8	10	6.8
9	7	3.3
10	1	1.4
11	1	0.6
⩾12	1	0.2

№ 119. $\alpha = 15^h 44^m$; $B = +50^0$. $N = 461$; $w_1 = -$; $w_2 = -$.

[$s_1 = -$; $\delta_1 = -$; $s_2 = 6$; $\delta_2 = 6.0$]

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	4	0	6	4	2	5	4	5	2	2	0	1
−5	0	4	3	3	3	4	3	5	1	2	1	2	5
−4	2	2	1	5	4	1	6	6	6	5	1	3	3
−3	1	4	5	4	3	4	3	4	5	7	2	2	0
−2	3	5	2	3	2	4	0	4	3	6	5	4	2
−1	0	4	1	3	4	2	2	3	4	3	1	5	4
0	2	3	3	2	3	2	1	2	2	2	6	1	3
+1	2	3	3	1	2	2	3	0	2	2	1	1	1
+2	5	3	5	0	3	2	3	3	2	2	3	4	0
+3	3	5	3	1	0	1	1	3	2	4	2	3	2
+4	1	2	6	2	3	1	3	1	2	3	4	5	3
+5	3	2	1	2	1	4	4	5	3	5	1	3	4
+6	2	4	3	2	1	1	1	5	1	1	1	3	0

r	*n(r)* obs.	*n(r)* theor.
0	11	11.2
1	30	30.0
2	38	40.9
3	40	37.4
4	24	25.6
5	18	14.3
6	7	6.5
⩾7	1	3.6

№ 120. $\alpha = 15^h 52^m$; $B = +48^0$. $N = 848$. —

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	2	3	5	1	3	4	3	3	4	6	4	3
−5	3	6	3	7	5	7	8	5	4	3	1	3	4
−4	6	4	12	5	4	8	2	4	3	6	5	4	6
−3	3	1	6	5	4	4	5	5	6	7	8	4	4
−2	3	2	4	5	7	6	2	3	5	3	4	2	8
−1	8	7	4	6	6	9	4	4	4	4	3	8	7
0	2	7	3	8	3	8	3	4	3	11	7	6	4
+1	4	8	7	7	1	5	6	7	5	5	5	6	8
+2	8	2	1	5	4	7	1	6	4	6	5	6	7
+3	5	6	4	4	4	8	8	9	4	10	8	7	8
+4	5	5	6	5	7	5	7	4	2	6	4	4	1
+5	4	5	10	6	5	7	3	9	5	5	5	9	4
+6	2	6	2	4	5	5	4	10	3	5	11	3	0

r	*n(r)* obs.	*n(r)* theor.
0	1	1.2
1	8	5.7
2	10	14.0
3	22	23.5
4	36	29.5
5	29	30.0
6	21	24.9
7	17	18.1
8	15	11.1
9	4	6.2
10	3	3.1
11	2	1.4
⩾12	1	0.8

№ 121. $a = 16^h0^m$; $B = +46^0$. $N = 445$; $w_1 = —$; $w_2 = —$.

[$s_1 = 18$; $\delta_1 = 0.94$; $s_2 = —$; $\delta_2 = —$]

$+\delta$ \ $+a$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	3	3	1	5	4	5	2	3	2	1	2	0
−5	1	4	3	4	4	3	4	2	2	4	2	1	1
−4	5	1	7	3	0	1	1	2	5	1	1	6	2
−3	3	1	5	3	2	0	4	5	2	3	3	2	4
−2	2	3	5	2	0	3	0	2	0	4	5	1	1
−1	4	4	0	3	2	0	1	1	1	3	2	3	1
0	1	4	5	2	1	3	0	0	3	1	0	0	1
+1	5	0	3	3	2	1	2	2	2	6	4	2	2
+2	2	4	2	3	6	3	5	3	0	2	3	3	2
+3	5	8	5	3	4	3	1	5	5	4	3	2	2
+4	4	1	4	3	3	4	2	3	3	3	6	2	1
+5	6	3	3	2	3	5	1	1	2	3	1	2	2
+6	1	2	2	4	3	5	4	3	1	3	3	4	0

r	$n(r)$ obs.	$n(r)$ theor.
0	15	12.3
1	30	32.2
2	37	41.9
3	41	37.0
4	22	24.3
5	17	13.1
6	5	5.7
7	1	2.0
⩾8	1	1.1

№ 122. $a = 16^h8^m$; $B = +44^0$. $N = 461$; $w_1 = 120$; $w_2 = 360$.

$s_1 = 20$; $\delta_1 = 0.80$; $s_2 = —$; $\delta_2 = —$

$+\delta$ \ $+a$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	5	2	3	2	0	2	1	4	4	2	2	2
−5	4	6	2	1	4	1	6	2	1	0	1	2	1
−4	9	1	4	2	2	3	2	6	1	1	1	3	4
−3	3	3	4	6	0	4	7	4	6	5	4	6	1
−2	2	0	4	2	2	4	3	1	5	1	2	4	2
−1	3	3	1	3	4	3	0	1	6	4	3	2	5
0	0	1	5	0	1	1	1	3	1	3	0	6	3
+1	1	3	4	3	3	2	2	0	1	5	1	2	1
+2	3	5	8	2	2	4	3	1	0	4	5	3	1
+3	0	4	2	4	0	3	1	3	0	3	5	3	4
+4	2	1	1	3	4	1	5	2	5	4	1	9	3
+5	1	2	2	5	4	4	1	0	7	4	5	1	1
+6	1	0	5	3	4	5	1	5	4	2	0	1	2

r	$n(r)$ obs.	$n(r)$ theor.
0	16	11.2
1	38	30.1
2	31	40.7
3	27	37.4
4	28	25.7
5	16	14.2
6	8	6.5
7	2	2.4
8	1	0.8
⩾9	2	0.4

№ 123. $\alpha = 16^h 16^m$; $B = +42^\circ$. $N = 718$; $w_1 = 360$; $w_2 = 1500$.

$s_1 = 8$; $\delta_1 = 1.1$; $s_2 = 17$; $\delta_2 = 7.7$

+δ \ +α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	3	1	5	3	4	*10*	3	8	4	1	4	4
−5	2	1	2	2	4	5	*10*	*7*	5	4	5	9	7
−4	5	3	3	5	*8*	*9*	*8*	3	4	5	6	0	4
−3	5	1	4	2	0	2	3	5	6	2	4	3	3
−2	5	4	1	6	6	3	4	3	2	2	5	5	6
−1	2	5	4	4	3	2	2	5	3	*7*	*7*	*7*	1
0	9	3	4	2	11	5	4	4	3	2	*7*	*8*	2
+1	2	0	6	1	2	6	1	5	4	*8*	*6*	*7*	*7*
+2	2	1	6	6	4	5	2	2	8	5	0	4	4
+3	3	5	3	3	4	7	3	2	5	4	4	5	2
+4	6	3	9	4	5	6	*10*	*8*	2	2	3	6	5
+5	0	2	4	8	4	3	5	1	2	4	6	7	5
+6	1	1	3	5	3	3	7	7	6	8	4	10	5

r	$n(r)$ obs.	$n(r)$ theor.
0	6	2.4
1	12	10.2
2	25	21.6
3	26	30.4
4	29	32.7
5	27	28.1
6	14	20.0
7	12	12.4
8	9	6.6
9	4	3.2
10	4	1.4
⩾11	1	0.8

№ 124. $\alpha = 16^h 24^m$; $B = +41^\circ$. $N = 1362$; $w_1 = 230$; $w_2 = 100$.

$s_1 = $ —; $\delta_1 = $ —; $s_2 = 4$; $\delta_2 = 15.8$

+δ \ +α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	7	11	9	11	9	12	6	6	5	3	10	7	8
−5	8	16	10	12	10	10	7	7	4	5	6	4	12
−4	1	10	11	14	13	8	8	16	8	5	12	3	10
−3	4	4	3	9	8	3	7	4	12	9	8	8	7
−2	5	8	5	8	13	5	9	8	6	11	6	8	5
−1	8	4	8	5	7	7	6	10	8	8	4	9	10
0	8	4	6	6	3	5	8	12	8	15	11	4	5
+1	8	7	7	5	4	5	9	4	7	5	10	5	11
+2	5	4	14	9	12	10	7	8	2	9	14	6	7
+3	4	6	3	6	9	11	7	8	6	5	13	10	10
+4	8	8	10	9	10	5	5	9	5	7	6	7	5
+5	8	7	10	*24*	9	8	17	9	9	9	12	14	8
+6	11	*13*	*13*	*13*	5	19	6	10	9	5	5	13	4

r	$n(r)$ obs.	$n(r)$ theor.
0	0	0.1
1	1	0.5
2	1	1.8
3	6	4.6
4	14	9.4
5	23	15.2
6	14	20.4
7	17	23.5
8	27	23.9
9	17	21.1
10	16	17.3
11	8	12.5
12	8	8.5
13	7	5.3
14	4	3.0
15	1	1.6
⩾16	5	1.6

№ 125. $a = 16^h 32^m$; $B = +39^0$. $N = 550$; $w_1 = -$; $w_2 = -$.

$[s_1 = 26;\ \delta_1 = 1.6;\ s_2 = 3;\ \delta_2 = 8.3]$

δ \ α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	2	4	6	3	4	4	5	0	5	3	3	2
−5	0	5	2	4	3	4	1	4	4	1	4	4	3
−4	1	3	5	2	5	2	3	3	2	5	5	6	4
−3	3	2	1	2	2	3	1	2	2	2	3	2	1
−2	3	2	4	6	2	1	2	4	6	2	3	7	4
−1	2	1	1	2	2	1	3	2	6	3	4	5	8
0	2	0	3	1	3	0	2	2	2	3	3	7	11
+1	1	5	1	1	2	1	3	1	2	2	4	3	4
+2	2	0	0	6	0	4	3	3	2	1	8	6	6
+3	3	4	2	2	0	4	3	4	4	1	5	2	4
+4	3	3	3	2	5	4	3	3	2	3	5	10	7
+5	4	3	3	7	9	4	4	2	0	3	4	2	4
+6	4	4	3	3	9	6	7	3	1	7	1	5	7

+α, +δ

r	n(r) obs.	n(r) theor.
0	9	6.7
1	20	21.6
2	38	34.6
3	37	37.8
4	30	30.6
5	13	19.8
6	9	10.9
7	7	5.0
8	2	2.0
9	2	0.7
⩾10	2	0.4

№ 126. $a = 16^h 40^m$; $B = +37^0$. $N = 788$; $w_1 = 3$; $w_2 = 13$.

$[s_1 = 5;\ \delta_1 = 1.0;\ s_2 = 7;\ \delta_2 = 9.0]$

δ \ α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	2	5	6	3	9	6	8	3	6	8	5	1
−5	8	4	4	6	5	1	4	7	3	8	4	5	5
−4	6	5	4	5	4	5	6	6	5	3	5	10	4
−3	3	3	8	6	4	4	5	3	1	4	4	13	7
−2	5	6	6	5	3	3	7	8	7	5	9	9	4
−1	2	8	7	7	6	3	2	5	0	2	7	8	5
0	8	9	2	4	3	1	3	5	3	6	3	5	7
+1	5	6	6	4	3	1	2	3	4	8	3	5	2
+2	4	3	7	7	3	2	6	4	4	3	4	7	5
+3	2	4	3	3	4	3	2	5	1	7	4	0	5
+4	6	5	5	15	3	1	2	2	5	3	4	2	6
+5	3	4	6	2	7	5	2	5	4	7	1	1	3
+6	9	6	5	4	7	6	8	4	7	3	1	4	1

+α, +δ

r	n(r) obs.	n(r) theor.
0	2	1.7
1	11	7.6
2	15	17.4
3	29	26.8
4	28	31.4
5	29	29.3
6	20	22.8
7	16	15.2
8	11	8.8
9	5	4.6
10	1	2.1
11	0	0.9
⩾12	2	0.4

№ 127. $a = 16^h48^m$; $B = +35^0$. $N = 1243$; $w_1 = 2400$; $w_2 = 6000$.

$s_1 = 12$; $\delta_1 = 2.1$; $s_2 = 12$; $\delta_2 = 13.2$

$+\delta$ \ $+\alpha$	—6	—5	—4	—3	—2	—1	0	+1	+2	+3	+4	+5	+6
—6	7	10	6	6	10	**1**	5	9	4	8	9	7	2
—5	*12*	5	8	4	9	**3**	7	9	11	8	4	6	8
—4	*12*	8	7	9	3	9	6	10	8	12	9	8	9
—3	*14*	7	4	9	9	7	6	8	8	11	9	5	4
—2	*12*	6	4	7	12	3	*12*	*14*	*14*	9	3	6	7
—1	*14*	9	6	7	7	9	3	*14*	5	6	*12*	8	5
0	7	9	12	8	10	7	12	10	9	11	*12*	*16*	10
+1	9	6	10	12	11	12	7	5	15	7	10	5	11
+2	6	11	8	4	7	10	10	5	3	3	7	11	6
+3	**1**	**3**	10	8	9	5	6	5	8	7	8	7	6
+4	**1**	7	6	8	7	6	8	7	12	8	2	6	4
+5	**1**	7	6	5	8	8	9	4	4	4	5	**1**	6
+6	**3**	**2**	4	3	5	7	6	14	6	**3**	**3**	**3**	4

r	n(r) obs.	n(r) theor.
0	0	0.2
1	5	0.8
2	3	3.0
3	13	7.1
4	13	13.3
5	13	19.5
6	21	23.6
7	23	25.0
8	20	23.1
9	19	18.6
10	11	13.8
11	7	9.2
12	13	5.7
13	0	3.2
14	6	1.8
15	1	0.8
⩾16	1	0.7

№ 128. $a = 16^h56^m$; $B = +33^0$. $N = 408$; $w_1 = 3$; $w_2 = 11$.

[$s_1 = 15$; $\delta_1 = 0.47$; $s_2 = —$; $\delta_2 = —$]

$+\delta$ \ $+\alpha$	—6	—5	—4	—3	—2	—1	0	+1	+2	+3	+4	+5	+6
—6	1	1	4	1	2	5	3	4	3	4	0	3	4
—5	2	3	1	1	5	4	2	1	6	2	4	6	6
—4	1	3	3	2	3	1	2	0	1	5	2	2	3
—3	3	0	1	3	3	1	3	2	3	4	2	2	1
—2	5	3	1	5	1	2	1	4	**0**	3	3	6	1
—1	1	2	3	1	0	2	3	5	**0**	2	4	2	4
0	8	3	2	2	4	**1**	**0**	**0**	**1**	2	3	6	4
+1	1	3	1	**0**	**0**	**1**	**0**	**0**	**1**	1	2	3	6
+2	6	2	5	2	2	2	**0**	**2**	**1**	4	0	5	1
+3	2	6	2	3	2	3	2	2	3	2	4	4	3
+4	2	2	2	1	1	4	2	3	2	1	2	1	2
+5	0	4	5	2	0	2	4	2	2	2	3	1	2
+6	2	0	1	3	3	3	5	1	1	4	4	3	1

r	n(r) obs.	n(r) theor.
0	17	15.0
1	36	36.8
2	45	44.3
3	32	35.6
4	20	21.3
5	10	10.2
6	8	4.1
7	0	1.4
⩾8	1	0.5

№ 129. $a = 17^h 4^m$; $B = +32^0$. $N = 677$; $w_1 = 5$; $w_2 = 60$.

$s_1 = 29$; $\delta_1 = 1.8$; $s_2 = 6$; $\delta_2 = 10.7$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	4	5	4	6	6	8	*7*	*12*	4	4	2	5
−5	4	5	4	4	**2**	5	6	*14*	6	7	7	4	3
−4	3	**3**	**1**	**2**	**0**	**2**	8	7	2	3	5	6	5
−3	4	**1**	**4**	**3**	**0**	**2**	**3**	4	4	3	2	2	2
−2	4	**1**	**2**	**2**	**3**	**1**	**2**	**2**	3	4	4	2	1
−1	**1**	**3**	**2**	**3**	**1**	**1**	**3**	**0**	3	2	6	*12*	5
0	6	5	2	5	3	3	**1**	**2**	4	6	3	*10*	5
+1	3	5	1	2	1	4	4	4	2	5	1	*9*	5
+2	4	2	8	4	7	4	2	2	7	5	7	4	7
+3	6	4	5	2	3	3	3	2	6	4	4	3	4
+4	4	3	10	5	1	3	3	4	6	2	5	**3**	6
+5	5	3	3	3	3	4	9	7	3	1	9	2	5
+6	4	3	**4**	6	3	3	4	7	6	5	5	6	2

r	$n(r)$ obs.	$n(r)$ theor.
0	3	3.2
1	14	12.2
2	29	24.7
3	33	32.9
4	33	33.2
5	21	26.7
6	15	17.5
7	10	10.4
8	3	5.1
9	3	2.3
10	2	0.9
≥11	3	0.5

№ 130. $a = 17^h 12^m$; $B = +30^0$. $N = 1121$; $w_1 = 26$; $w_2 = 3$.

$s_1 = 12$; $\delta_1 = 3.0$; [$s_2 = 9$; $\delta_2 = 11.8$]

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	8	6	10	7	6	9	*10*	*12*	4	4	7	5
−5	4	2	8	6	12	6	7	8	*12*	8	13	**3**	3
−4	10	11	11	8	7	7	7	*10*	*12*	4	11	6	7
−3	6	8	7	9	6	4	7	3	8	11	7	5	6
−2	5	2	9	4	5	4	6	5	9	8	8	**3**	6
−1	12	11	5	5	6	8	5	6	5	4	5	**3**	**3**
0	10	9	5	7	4	3	5	3	7	4	**3**	**3**	4
+1	10	9	10	7	7	7	7	4	5	6	**2**	7	7
+2	6	8	6	6	9	4	**3**	**3**	**3**	**4**	**3**	4	8
+3	3	11	8	6	9	4	6	6	*10*	**3**	9	9	9
+4	**3**	8	11	6	6	4	7	7	*18*	*12*	*10*	8	5
+5	4	7	9	10	7	5	8	6	6	8	4	2	4
+6	8	4	10	8	10	5	5	2	8	9	5	6	9

r	$n(r)$ obs.	$n(r)$ theor.
0	0	0.3
1	0	1.5
2	6	4.8
3	17	10.9
4	21	17.8
5	18	23.6
6	24	26.3
7	22	25.0
8	20	20.9
9	14	15.5
10	12	10.4
11	7	6.2
12	6	3.5
≥13	2	3.5

№ 131. $a = 17^h 20^m$; $B = +28^0$. $N = 658$; $w_1 = 350$; $w_2 = 14$.

$s_1 = 21$; $\delta_1 = 1.1$; $s_2 = —$; $\delta_2 = —$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	2	5	3	5	2	3	7	3	7	2	1	4
−5	3	1	4	1	6	7	3	6	5	10	5	3	5
−4	2	5	4	1	7	3	0	5	4	3	6	8	2
−3	3	2	4	2	2	2	1	3	6	7	3	6	10
−2	2	4	5	1	3	3	3	7	3	5	2	6	6
−1	2	2	3	4	3	**0**	**2**	**2**	**1**	2	5	2	4
0	3	3	**0**	**0**	**1**	**1**	**1**	**2**	**2**	5	6	8	10
+1	5	3	4	3	**2**	**1**	**1**	**0**	**2**	3	1	7	4
+2	4	5	3	2	**2**	**1**	**0**	**0**	**2**	2	3	10	3
+3	7	7	4	1	3	3	2	4	2	3	5	4	5
+4	8	5	5	8	2	6	4	7	3	5	8	4	6
+5	2	3	7	3	9	7	4	2	4	6	4	5	4
+6	6	12	6	6	7	8	2	7	4	6	2	4	2

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	7	3.5
1	15	13.5
2	33	27.0
3	31	31.2
4	23	33.0
5	19	27.7
6	15	19.2
7	14	11.6
8	6	6.1
9	1	2.9
10	4	1.2
⩾11	1	0.8

№ 132. $a = 17^h 28^m$; $B = +26^0$. $N = 635$; $w_1 = 4$; $w_2 = 6$.

$s_1 = —$; $\delta_1 = —$; $s_2 = —$; $\delta_2 = —$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	3	1	3	5	3	4	5	3	4	4	2	3
−5	3	5	4	8	4	1	4	4	12	7	2	7	2
−4	9	1	5	6	6	6	4	5	6	3	5	5	5
−3	6	5	2	4	6	3	1	5	2	3	2	4	1
−2	4	3	0	2	5	5	4	2	3	4	2	4	3
−1	2	4	1	3	1	2	2	5	3	5	5	4	9
0	4	6	5	5	3	4	3	5	9	6	5	2	4
+1	6	3	2	1	2	1	3	2	4	6	3	4	3
+2	5	3	4	3	1	2	1	4	4	6	5	3	3
+3	5	3	2	7	2	1	2	3	3	5	5	2	4
+4	4	5	2	6	3	1	1	8	5	5	5	4	3
+5	2	4	4	8	4	3	5	3	1	4	3	4	1
+6	2	1	4	5	7	6	7	2	5	3	3	1	1

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	1	4.0
1	20	15.0
2	25	27.8
3	34	34.8
4	33	32.9
5	31	24.9
6	13	15.5
7	5	8.4
8	3	3.9
9	3	1.6
10	0	0.6
11	0	0.2
⩾12	1	0.05

№ 133. $\alpha = 17^h 36^m$; $B = +25^0$. $N = 1023$; $w_1 = 1700$; $w_2 = 400$.

$s_1 = 14$; $\delta_1 = 2.2$; $s_2 = 8$; $\delta_2 = 10.8$

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	5	5	6	8	11	5	4	7	8	5	5	**2**	6
−5	6	7	9	5	4	6	4	7	**3**	**3**	**3**	**3**	**2**
−4	5	8	6	7	6	6	7	14	**3**	10	4	**1**	4
−3	3	2	5	10	10	3	4	4	4	7	4	7	7
−2	5	6	3	5	2	4	6	2	2	6	8	12	6
−1	6	14	3	8	4	1	6	6	7	8	4	8	2
0	6	6	6	7	5	4	**3**	6	**1**	**2**	12	9	12
+1	3	5	8	6	2	8	**0**	5	7	**3**	6	5	11
+2	5	6	10	9	8	8	**2**	5	6	9	8	6	7
+3	4	7	6	13	4	9	*11*	5	6	14	3	7	8
+4	2	8	9	3	7	*10*	*13*	*6*	9	8	5	8	6
+5	5	4	3	7	*12*	*11*	5	*11*	*12*	6	6	5	8
+6	3	3	6	4	10	6	8	1	7	5	3	1	9

+α

+δ

r	*n(r)* *obs.*	*n(r)* *theor.*
0	1	0.4
1	5	2.4
2	11	7.3
3	18	14.7
4	17	22.1
5	22	27.4
6	31	27.0
7	17	23.7
8	18	17.9
9	8	12.1
10	6	7.4
11	5	4.0
12	5	2.1
13	2	0.8
⩾14	3	0.6

№ 134. $\alpha = 17^h 44^m$; $B = +23^0$. $N = 587$; $w_1 = —$; $w_2 = —$.

[$s_1 = 15$; $\delta_1 = 1.5$; $s_2 = —$; $\delta_2 = —$]

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	3	2	2	4	5	2	6	2	6	4	6	1
−5	3	3	2	4	2	2	5	4	1	2	4	6	4
−4	3	5	2	4	2	9	3	3	5	4	2	2	1
−3	4	4	3	4	4	**0**	**1**	4	7	4	5	5	3
−2	6	5	2	4	**2**	**4**	3	2	3	5	2	5	2
−1	3	2	5	**0**	**2**	**0**	3	2	1	1	1	1	7
0	3	3	**0**	**2**	**3**	**3**	2	4	2	2	5	2	2
+1	4	3	**1**	**2**	**1**	**2**	3	4	3	4	1	8	5
+2	5	7	3	4	3	2	4	0	4	2	6	7	4
+3	4	5	4	4	1	3	3	5	5	2	3	3	3
+4	4	5	7	5	4	5	3	4	3	3	5	3	2
+5	4	7	5	5	11	2	7	5	7	1	4	6	4
+6	1	7	3	4	4	2	3	3	2	2	1	4	5

+α

+δ

r	*n(r)* *obs.*	*n(r)* *theor.*
0	5	5.3
1	15	18.1
2	36	31.4
3	33	36.8
4	37	32.0
5	24	22.1
6	7	12.9
7	9	6.4
8	1	2.8
9	1	1.1
⩾10	1	0.6

№ 135. $\alpha = 17^h 52^m$; $B = +22^0$. $N = 1773$; $w_1 = 18000$; $w_2 = 400$.

$s_1 = 33$; $\delta_1 = 5.6$; $s_2 = 42$; $\delta_2 = 15.6$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	10	**7**	**6**	12	9	**6**	9	14	3	12	9	7	12
−5	**7**	**6**	**7**	9	12	**6**	10	11	11	8	12	11	10
−4	**7**	**7**	**4**	11	**4**	**5**	11	**1**	9	9	7	8	6
−3	**7**	10	14	11	12	12	**6**	**5**	9	12	8	*25*	12
−2	**8**	**6**	**3**	10	10	**6**	10	9	12	10	*18*	*18*	*18*
−1	8	8	**6**	**3**	12	**8**	**6**	12	8	12	12	*17*	*18*
0	**6**	**7**	**7**	10	10	**3**	10	6	11	12	10	*14*	9
+1	*15*	13	**4**	**6**	11	**4**	9	10	9	10	*14*	*18*	7
+2	*14*	8	*15*	9	10	**7**	**4**	*15*	10	*14*	*13*	*19*	*14*
+3	*15*	11	*14*	*17*	10	*14*	*19*	*14*	*18*	*12*	*16*	*17*	12
+4	*10*	*15*	*12*	*17*	*16*	*15*	12	7	*14*	*12*	*15*	9	10
+5	10	13	*20*	*15*	10	*15*	7	9	*16*	*14*	7	14	8
+6	15	10	11	7	13	*15*	9	8	5	10	8	12	6

r	*n(r)* obs.	*n(r)* theor.
0— 1	0+ 1	0.06
2— 3	0+ 4	0.2+ 0.8
4— 5	5+ 3	2.4+ 5.0
6— 7	14+16	8.7+13.0
8— 9	12+15	17.2+19.9
10—11	23+10	21.2+20.0
12—13	21+ 4	17.7+14.2
14—15	13+11	10.6+ 7.5
16—17	3+ 4	4.9+ 3.0
18—19	6+ 2	1.7+ 1.0
⩾20	2	1.0

№ 136. $\alpha = 18^h 0^m$; $B = +20^0$. $N = 2121$; $w_1 = 30$; $w_2 = 30$.

$s_1 = 5$; $\delta_1 = 5.8$; $s_2 = 2$; $\delta_2 = 21.5$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	9	11	14	14	14	14	12	9	15	14	7	13	8
−5	**5**	**7**	**5**	11	16	13	14	13	14	15	13	11	8
−4	**5**	**7**	15	12	11	14	11	20	*21*	16	11	14	16
−3	18	10	8	11	7	9	14	16	*23*	11	16	15	15
−2	12	21	18	8	12	11	17	15	18	18	13	16	7
−1	14	16	10	15	10	10	16	10	10	21	20	10	14
0	10	11	17	14	12	19	23	8	10	11	9	12	18
+1	9	9	18	14	17	13	9	12	11	15	23	16	16
+2	17	15	15	14	15	14	9	13	10	17	14	12	16
+3	15	11	12	11	14	6	14	9	8	17	20	14	14
+4	9	7	7	18	16	10	15	7	15	8	6	7	8
+5	11	8	9	10	8	12	19	8	13	13	11	14	7
+6	10	6	12	10	13	12	12	14	9	12	10	8	8

r	*n(r)* obs.	*n(r)* theor.
0— 4	0	1.0
5— 6	3+ 3	1.5+ 3.3
7— 8	10+13	6.0+ 9.2
9—10	12+15	12.6+16.1
11—12	16+14	18.0+19.2
13—14	10+23	18.5+16.3
15—16	14+12	13.8+10.9
17—18	6+ 7	8.1+ 5.6
19—20	2+ 3	3.8+ 2.5
21—22	3+ 0	1.4+ 0.8
⩾23	3	0 5

№ 137. $a = 18^h 8^m$; $B = +18^0$. $N = 1775$; $w_1 = 9$; $w_2 = 440$.

$s_1 = 18$; $\delta_1 = 5.2$; $s_2 = 12$; $\delta_2 = 17.2$

$+\delta$ \ $+a$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	9	9	14	8	11	12	23	15	8	14	8	9	11
−5	5	6	8	11	12	19	11	10	9	12	14	4	9
−4	17	14	12	13	15	9	8	15	11	11	8	14	12
−3	9	10	12	15	11	**4**	**2**	10	11	11	12	12	*17*
−2	9	**5**	**4**	**6**	**4**	**6**	10	7	11	*16*	*17*	*18*	*12*
−1	8	12	9	**4**	**6**	**8**	9	7	6	10	*20*	13	10
0	8	10	**4**	**7**	**7**	**4**	10	**4**	7	9	*17*	*22*	12
+1	13	15	12	9	12	**6**	**5**	**7**	8	16	8	*18*	*15*
+2	9	9	9	11	4	9	14	14	7	13	13	*20*	*15*
+3	10	14	14	16	9	10	16	7	9	11	10	10	9
+4	9	9	10	8	12	11	8	6	15	10	14	15	8
+5	12	12	11	10	11	9	8	12	15	11	7	15	7
+6	11	6	8	15	15	8	6	16	9	8	7	5	6

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 1	0	0.04
2— 3	1+ 0	0.3+ 0.9
4— 5	9+ 4	2.5+ 5.1
6— 7	10+11	8.8+13.2
8— 9	18+23	17.3+20.0
10—11	15+17	21.2+20.0
12—13	17+ 5	17.6+14.1
14—15	10+13	10.6+ 7.4
16—17	5+ 4	4.8+ 3.0
18—19	2+ 1	1.7+ 1.0
20—21	2+ 0	0.6+ 0.3
≥22	2	0.3

№ 138. $a = 18^h 16^m$; $B = +16^0$. $N = 2129$; $w_1 = 22$; $w_2 = 10^7$.

$s_1 = 6$; $\delta_1 = 6.7$; $s_2 = 11$; $\delta_2 = 21.4$

$+\delta$ \ $+a$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	7	12	5	15	14	8	10	13	19	9	10	7	12
−5	5	9	11	18	7	9	12	9	10	12	12	10	12
−4	14	11	11	11	14	10	11	8	7	14	*25*	10	13
−3	12	16	17	11	14	11	16	9	14	14	*19*	12	6
−2	20	16	15	8	12	15	**7**	**5**	13	*22*	*15*	*20*	11
−1	16	12	14	8	10	13	**8**	**8**	12	16	12	11	19
0	20	11	16	7	13	12	**7**	9	16	10	18	21	17
+1	18	15	8	12	9	10	**5**	10	11	15	15	20	11
+2	17	13	*25*	12	11	12	16	10	12	10	*21*	12	11
+3	6	10	*19*	11	14	13	14	15	14	11	*22*	*25*	15
+4	13	8	10	9	14	14	18	19	14	14	*22*	7	13
+5	12	8	10	10	11	16	15	11	7	8	15	13	9
+6	7	7	8	11	11	11	13	16	10	13	15	16	19

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 4	0	1.0
5— 6	4+ 2	1.5+ 3.3
7— 8	11+11	5.9+ 9.1
9—10	9+17	12.5+16.0
11—12	21+19	18.0+19.2
13—14	12+15	18.6+16.4
15—16	12+11	13.8+11.0
17—18	3+ 4	8.2+ 5.7
19—20	6+ 4	3.8+ 2.5
21—22	2+ 3	1.5+ 0.8
23—24	0	0.3+ 0.1
≥25	3	0.05

№ 139. $\alpha = 18^h 24^m$; $B = +15^0$. $N = 979$; $w_1 = 1200$; $w_2 = 2400$.

$s_1 = 36$; $\delta_1 = 2.6$; $s_2 = -$; $\delta_2 = -$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	6	8	5	**3**	13	4	11	5	2	9	10	9
−5	7	5	10	**4**	**2**	**2**	5	10	8	12	8	10	**4**
−4	7	2	8	7	**3**	**1**	7	6	12	7	9	8	10
−3	**4**	7	6	8	11	**2**	5	**3**	5	10	9	9	3
−2	12	6	**2**	**3**	**4**	**1**	**4**	**2**	6	1	4	7	7
−1	6	10	**3**	**3**	**3**	**1**	5	5	5	4	9	5	17
0	10	7	7	**2**	**3**	5	5	**3**	8	10	4	9	7
+1	13	3	4	5	4	**4**	**2**	**2**	4	5	5	4	5
+2	5	4	4	4	**3**	**5**	2	6	4	9	9	4	6
+3	5	4	**4**	7	5	**2**	**2**	**2**	4	**3**	5	4	7
+4	3	6	4	8	**2**	**2**	7	6	7	8	6	**4**	4
+5	5	3	3	4	8	**4**	**2**	5	7	8	3	4	8
+6	9	11	7	11	8	7	**2**	9	8	7	10	14	8

r	*n(r)* obs.	*n(r)* theor.
0	0	0.6
1	4	3.0
2	19	8.8
3	17	16.8
4	29	24.1
5	23	28.0
6	11	27.2
7	19	22.6
8	15	16.4
9	11	10.5
10	10	6.1
11	4	3.2
12	3	1.6
13	2	0.7
⩾14	2	0.6

№ 140. $a = 18^h 32^m$; $B = +13^0$. $N = 2006$; $w_1 = 10^9$; $w_2 = 10^8$.

$s_1 = 11$; $\delta_1 = 3.9$; $s_2 = 20$; $\delta_2 = 20.0$

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6 $+\alpha$
−6	*19*	12	16	10	*26*	12	12	16	8	20	10	8	**5**
−5	*21*	16	10	*18*	11	*19*	*20*	*20*	9	14	5	8	**2**
−4	15	13	*17*	*26*	*17*	13	15	16	11	14	10	12	7
−3	*24*	*17*	*21*	*25*	15	15	12	11	14	18	20	15	14
−2	*19*	13	*17*	*17*	14	17	12	11	17	13	15	13	12
−1	9	20	14	6	12	15	5	12	15	10	12	*18*	*22*
0	14	12	5	14	10	14	10	11	11	8	12	*18*	13
+1	6	8	10	15	**4**	6	7	11	12	12	13	12	7
+2	8	9	10	**2**	12	17	7	5	14	13	18	14	11
+3	9	14	5	12	**5**	**2**	10	6	11	10	11	12	10
+4	9	15	13	7	12	**5**	12	10	11	8	6	9	7
+5	8	11	10	11	10	19	11	4	7	10	8	**6**	**5**
+6	13	8	11	11	19	8	10	7	10	**4**	**3**	**4**	8

$+\delta$

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 1	0	0.01
2— 3	3+ 1	0.1+ 0.3
4— 5	4+ 9	1.0+ 2.3
6— 7	6+ 8	4.6+ 7.8
8— 9	12+ 6	11.6+15.3
10—11	18+16	18.2+19.6
12—13	20+10	19.4+17.7
14—15	12+10	14.9+11.9
16—17	4+ 8	8.8+ 6.2
18—19	5+ 5	4.1+ 2.6
20—21	5+ 2	1.5+ 0.8
22—23	1+ 0	0.5+ 0.2
$\geqslant$24	4	0.2

№ 141. $\alpha = 18^h40^m$; $B = +11^0$.

$s_1 = 10.0$; $\delta_1 = 10.4$;

I. [$N = 1142$ —.]

	−6		−5		−4		−3		−2		−1		0
	4	4	3	8	5	9	2	6	9	11	6	6	9
−6	6	3	2	6	8	6	6	9	3	9	12	7	6
	2	4	5	8	3	5	5	4	6	5	5	12	6
−5	4	1	6	2	8	7	5	1	6	3	7	5	12
	5	5	6	7	8	4	**4**	4	7	5	11	8	9
−4	8	5	6	6	3	12	8	4	8	7	13	7	8
	4	9	5	4	5	6	5	7	5	6	10	8	9
−3	3	8	11	12	10	9	8	8	9	9	5	5	9
	5	3	6	8	8	9	13	7	5	9	6	9	8
−2	6	8	4	6	5	11	6	9	9	10	2	5	12
	3	6	6	7	5	7	3	11	6	9	5	8	14
−1	8	10	8	5	13	5	1	7	11	11	7	4	10
	3	8	7	7	12	10	8	4	10	7	4	8	6
0													

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	0	0.3
1	3	1.4
2	5	4.5
3	11	10.3
4	15	17.0
5	26	23.2
6	26	25.9
7	16	25.2
8	24	21.3
9	18	16.0
10	7	10.8
11	7	6.6
12	7	3.8
13	3	1.9
⩾14	1	2.0

III. [$N = 1152$; $w_1 = 37$; $w_2 = 120$.

$s_1 = 2.8$; $\delta_1 = 13.4$; $s_2 = 2.5$; $\delta_2 = 53.6$]

	−6		−5		−4		−3		−2		−1		0
0	7	4	6	*12*	*17*	*14*	*12*	6	9	7	4	4	5
	9	5	9	11	*13*	8	*13*	6	8	12	10	6	9
+1	5	5	8	9	8	5	7	6	3	10	5	5	9
	3	4	4	10	9	10	9	11	9	8	7	6	9
+2	5	7	4	7	7	13	9	9	5	*13*	7	7	8
	4	3	8	2	7	5	4	9	*13*	*12*	9	11	10
+3	3	9	6	10	12	3	10	4	*15*	10	5	8	4
	6	7	4	10	7	8	4	8	6	7	10	11	5
+4	**4**	**2**	5	9	10	8	6	7	3	3	7	0	9
	3	**3**	5	10	5	6	5	10	5	4	6	4	8
+5	**4**	**6**	**3**	4	6	2	3	5	5	7	8	10	3
	4	**3**	7	4	8	5	8	8	3	3	5	4	10
+6	**2**	**3**	4	6	8	2	6	4	7	7	5	7	6
+δ													

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	1	0.2
1	0	1.2
2	5	4.1
3	16	9.8
4	22	16.1
5	22	22.3
6	17	25.5
7	20	25.3
8	17	21.8
9	17	16.7
10	15	11.5
11	4	7.2
12	5	4.2
13	5	2.1
14	1	1.1
15	1	0.5
⩾16	1	0.5

$N = 4430$; $w_1 = 50\,000$; $w_2 = 10^6$.

$s_2 = 7.5$; $\delta_2 = 48.9$

II. [$N = 1107$; $w_1 = 30$; $w_2 = 380$.

$s_1 = 2.2$; $\delta_1 = 9.0$; $s_2 = 3.2$; $\delta_2 = 47.7$]

0 +1 +2 +3 +4 +5 +6 +α

	7	5	2	4	10	5	4	6	6	5	5	**2**	**2**
−6	5	5	4	5	4	3	6	8	4	5	**2**	**2**	4
	8	9	9	10	9	7	6	3	6	5	**2**	**3**	**3**
−5	9	5	10	7	3	5	3	6	3	6	7	**2**	4
	9	4	9	10	5	10	5	10	5	4	7	**2**	4
−4	13	3	*13*	2	10	7	*11*	6	4	1	7	5	5
	8	7	*11*	4	7	6	*9*	*10*	7	12	9	1	6
−3	6	8	*15*	7	12	7	5	*10*	7	8	6	6	3
	3	11	7	6	4	8	9	*10*	5	5	8	11	3
−2	5	10	9	7	8	9	7	*14*	9	7	6	5	3
	3	2	7	7	7	6	7	9	5	9	6	7	4
−1	12	5	5	9	*9*	*18*	3	10	9	7	4	6	6
	9	13	7	*15*	*10*	5	9	4	6	6	8	3	3
0													

r	n(r) obs.	n(r) theor.
0	0	0.3
1	2	1.6
2	10	5.2
3	16	11.6
4	16	18.6
5	25	24.4
6	21	26.6
7	24	24.8
8	9	20.4
9	19	14.9
10	13	9.7
11	4	5.8
12	3	3.2
13	3	1.5
14	1	0.7
15	2	0.3
⩾16	1	0.2

IV. [$N = 1029$; $w_1 = 180$; $w_2 = 300$.

$s_1 = 5.0$; $\delta_1 = 9.4$; $s_2 = 1.8$; $\delta_2 = 44.4$]

0 +1 +2 +3 +4 +5 +6 +α

0	12	5	*10*	*10*	*10*	6	9	11	6	4	8	6	5
	7	4	5	*11*	*15*	5	3	5	5	6	6	**2**	4
+1	5	14	5	4	4	13	8	7	5	8	6	**4**	**2**
	8	4	5	6	10	5	5	9	14	5	6	**3**	4
+2	8	8	9	4	5	2	8	1	8	7	9	**3**	4
	12	*10*	9	6	9	6	7	6	6	3	5	**2**	5
+3	9	4	9	4	10	7	9	3	7	7	4	**3**	**3**
	10	8	10	7	8	11	3	6	9	4	7	1	**3**
+4	11	9	6	12	8	7	2	10	**3**	**3**	7	7	**1**
	8	6	10	6	2	4	5	10	**1**	7	**3**	6	5
+5	9	6	3	10	2	5	8	4	**0**	**3**	**2**	**4**	**1**
	2	5	8	6	6	4	5	7	4	5	5	8	4
+6	4	6	6	8	4	4	6	3	5	6	3	7	5

+δ

r	n(r) obs.	n(r) theor.
0	1	0.4
1	5	2.4
2	9	7.2
3	16	14.5
4	23	21.9
5	25	26.9
6	24	27.4
7	15	23.8
8	16	18.0
9	12	12.3
10	12	7.5
11	4	4.1
12	3	2.1
13	1	1.0
14	2	0.4
⩾15	1	0.3

№ 142. $\alpha = 18^h 48^m$; $B = +9^o$.

$s_1 = 33$; $\delta_1 = 11.7$;

$+\alpha$

	—6	—5	—4	—3	—2	—1	0	+1	+2	+3	+4	+5	+6
—6	18	13	12	19	16	12	17	17	**14**	**8**	**9**	**9**	**12**
—5	15	17	26	19	17	19	18	13	21	**12**	**11**	**12**	**6**
—4	19	20	*38*	*30*	16	25	22	21	18	23	16	**15**	**10**
—3	*29*	22	*33*	*27*	26	21	9	15	19	20	23	*35*	22
—2	*28*	*26*	*25*	*27*	*32*	13	18	*30*	*30*	*33*	*32*	*33*	12
—1	21	*32*	*28*	21	14	14	18	18	22	25	*30*	*33*	*32*
0	23	20	*32*	11	20	26	12	*32*	*24*	*29*	*40*	*29*	*29*
+1	17	17	*28*	23	**15**	**15**	23	20	23	18	*39*	26	*30*
+2	**14**	**15**	**11**	**13**	**12**	20	*30*	20	22	18	24	23	19
+3	**10**	**12**	**7**	18	22	23	*28*	*33*	20	22	23	24	15
+4	**13**	**10**	19	17	29	23	21	22	26	29	29	23	19
+5	**7**	**13**	**10**	21	26	**14**	19	18	29	**23**	22	16	16
+6	**11**	**15**	**14**	**12**	**15**	**10**	23	22	13	11	14	17	12

$+\delta$

$N = 3426$; $w_1 = 10^{14}$; $w_2 = 10^{14}$.

$s_2 = 34$; $\delta_2 = 30.8$

r	$n(r)$ obs.	$n(r)$ theor.
0— 5	0	—
6— 7	1+ 2	0.03+ 0.1
8— 9	1+ 3	0.3+ 0.5
10—11	5+ 5	0.8+ 1.6
12—13	11+ 7	2.8+ 4.3
14—15	7+ 9	6.0+ 8.3
16—17	5+ 8	10.5+12.5
18—19	10+ 9	13.8+14.8
20—21	8+ 7	15.0+14.5
22—23	10+13	13.4+12.0
24—25	3+ 3	10.1+ 8.0
26—27	7+ 2	6.3+ 4.7
28—29	4+ 8	3.4+ 2.3
30—31	6+ 0	1.6+ 1.1
32—33	6+ 5	0.7+ 0.4
34—35	0+ 1	0.2+ 0.1
⩾36	3	0.2

№ 143. $\alpha = 18^h56^m$; $B = +8^0$.

$s_1 = 7.2$; $\delta_1 = 9.7$;

I. [$N = 1194$; $w_1 = 4$; $w_2 = 12$.

$s_1 = 2.0$; $\delta_1 = 10.5$; $s_2 = 5.5$; $\delta_2 = 44.7$]

	−6		−5		−4		−3		−2		−1		0
−6	5	2	5	7	3	4	4	9	8	3	4	6	4
	6	8	4	5	3	3	8	2	4	7	*12*	8	11
−5	6	5	5	8	4	6	*10*	*12*	*8*	*10*	*11*	8	10
	7	7	5	4	2	5	3	5	*11*	*12*	9	6	5
−4	6	7	11	4	10	13	8	9	*10*	*10*	6	*10*	*13*
	5	7	6	9	8	9	6	**7**	**4**	6	7	*11*	*11*
−3	*12*	*14*	*13*	6	5	3	6	4	9	5	6	9	*11*
	11	*10*	8	5	10	6	5	7	12	7	6	6	*12*
−2	8	*12*	6	7	10	6	6	7	10	9	8	8	6
	6	8	3	10	8	6	9	5	**7**	**1**	**6**	13	4
−1	11	5	10	5	15	7	6	7	10	9	**2**	**1**	5
	6	7	6	9	5	6	7	7	6	4	**3**	**2**	**3**
	7	10	10	6	7	7	8	9	5	5	7	**3**	7
0													

r	n(r) obs.	n(r) theor.
0	0	0.2
1	2	1.1
2	5	3.6
3	10	8.6
4	13	15.0
5	21	21.2
6	29	24.9
7	23	25.3
8	16	22.4
9	12	17.5
10	16	12.4
11	9	8.0
12	7	4.7
13	4	2.5
14	1	1.3
⩾15	1	1.0

III. [$N = 1262$; $w_1 = 3$; $w_2 = 37$.

$s_1 = -$; $\delta_1 = -$; $s_2 = 1.2$; $\delta_2 = 56.9$]

	−6		−5		−4		−3		−2		−1		0
0	8	13	12	6	9	5	10	7	5	7	5	10	12
+1	6	6	8	7	7	5	2	9	8	5	3	2	5
	6	14	9	7	6	8	5	9	9	5	8	4	12
+2	9	7	8	8	10	9	11	6	3	10	7	7	8
	4	6	7	10	13	9	6	6	9	5	5	2	6
+3	11	9	6	10	9	3	10	4	3	5	6	13	5
	4	6	8	4	12	9	8	5	6	4	3	9	6
+4	6	6	7	9	12	7	6	7	*18*	10	3	13	15
	5	8	6	7	9	12	11	*12*	*14*	7	6	8	6
+5	6	6	6	8	13	4	11	10	*14*	8	12	8	9
	3	5	5	4	8	10	7	4	*13*	7	11	8	8
+6	4	5	4	4	11	4	6	9	8	6	8	8	7
	8	2	4	6	5	4	9	5	8	7	7	12	10
+δ													

r	n(r) obs.	n(r) theor.
0	0	0.2
1	0	0.8
2	4	2.7
3	7	6.6
4	15	12.7
5	19	18.8
6	27	23.2
7	19	24.7
8	23	23.3
9	18	19.1
10	11	14.4
11	6	9.6
12	9	6.2
13	6	3.5
14	3	1.9
15	1	0.9
⩾16	1	0.7

$N = 4437$; $w_1 = 200$; $w_2 = 10^6$.

$s_2 = 11.2$; $\delta_2 = 46.2$

II. [$N = 929$; $w_1 = 70$; $w_2 = 10$.

$s_1 = 5.2$; $\delta_1 = 9.4$; $s_2 = 1.5$; $\delta_2 = 44.0$]

0 +1 +2 +3 +4 +5 +6 +α

	7	8	5	9	7	7	5	8	**3**	**3**	**2**	**1**	**1**
−6	10	4	8	6	6	5	4	**3**	**3**	**3**	**1**	**3**	**2**
	6	7	6	2	4	6	**3**	**2**	**2**	5	6	6	**2**
−5	7	6	7	3	6	**2**	**3**	**4**	**2**	4	2	3	9
	3	9	6	4	5	**2**	5	5	**2**	4	3	6	5
−4	10	6	10	7	7	8	7	7	8	6	4	5	2
	6	3	7	5	8	6	7	5	7	1	6	6	4
−3	6	6	10	8	9	6	*12*	*10*	*11*	*10*	0	9	6
	4	5	7	8	3	7	*12*	*11*	7	6	8	5	10
−2	8	3	6	10	8	4	5	6	7	10	5	3	6
	5	4	6	6	3	6	6	9	6	4	4	4	3
−1	4	6	4	3	5	7	5	6	5	6	4	3	4
	11	2	7	2	4	4	7	6	7	4	3	5	6

0

r	*n(r)* *obs.*	*theor.*
0	1	0.8
1	4	3.8
2	14	10.5
3	21	19.2
4	22	26.2
5	20	29.0
6	35	26.6
7	21	21.0
8	11	14.4
9	6	8.7
10	9	4.9
11	3	2.5
⩾12	2	1.6

IV. [$N = 1052$; $w_1 = —$; $w_2 = 380$.

$s_1 = —$; $\delta_1 = —$; $s_2 = 3.0$; $\delta_2 = 46.0$]

0 +1 +2 +3 +4 +5 +6 +α

0	7	4	4	5	3	6	6	4	8	6	7	5	5
	8	4	4	4	6	6	8	13	9	6	8	8	3
+1	6	5	4	9	6	5	6	7	9	9	8	6	6
	4	16	7	*11*	4	9	10	9	6	3	5	5	5
+2	8	5	4	*11*	*11*	*11*	*11*	6	6	5	7	4	0
	7	5	5	3	6	9	6	6	5	11	3	6	7
+3	4	6	7	9	2	9	6	7	1	8	4	4	3
	5	14	4	7	5	6	7	6	3	8	3	3	5
+4	6	5	6	*11*	6	3	4	6	7	9	7	4	5
	10	5	8	*11*	10	1	6	4	9	5	8	4	2
+5	*11*	7	*13*	*9*	4	5	6	8	4	4	6	3	2
	12	*16*	6	3	5	7	5	5	5	11	5	7	4
+6	6	7	8	4	4	4	3	2	4	8	5	6	5

+δ

r	*n(r)* *obs.*	*theor.*
0	1	0.4
1	2	2.1
2	4	6.5
3	13	13.6
4	27	20.7
5	28	26.2
6	32	27.4
7	17	24.1
8	14	18.8
9	12	13.2
10	3	8.1
11	10	4.6
12	1	2.4
13	2	1.2
14	1	0.5
⩾15	2	0.3

№ 144. $\alpha = 19^h 4^m$; $B = +6^0$. $N = 3059$; $w_1 = 10^{21}$; $w_2 = 10^{14}$.

$s_1 = 24$; $\delta_1 = 8.2$; $s_2 = 22$; $\delta_2 = 30.0$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	**9**	**8**	16	20	20	16	12	19	17	22	**11**	**7**	**8**
−5	**10**	23	23	19	15	16	24	19	14	18	16	**5**	**7**
−4	**12**	15	28	15	16	22	22	23	15	16	13	15	13
−3	**11**	20	22	*36*	15	15	9	9	12	18	23	17	14
−2	22	23	25	24	26	16	12	13	13	18	10	12	18
−1	21	17	16	15	**8**	**11**	15	16	18	**8**	14	14	14
0	27	22	15	17	**10**	**12**	**6**	21	19	**8**	**10**	14	7
+1	23	22	15	23	18	**7**	16	15	19	17	13	19	14
+2	18	15	24	19	11	17	15	17	12	22	15	16	10
+3	26	19	22	15	*36*	*36*	*33*	*26*	*32*	*29*	21	25	18
+4	27	18	26	23	*27*	*32*	*31*	*35*	*28*	23	24	24	**5**
+5	16	17	25	23	*28*	*29*	*29*	*27*	*29*	22	17	**12**	**5**
+6	21	17	13	*27*	*26*	*29*	*28*	*27*	18	11	14	**6**	**3**

r	$n(r)$ obs.	$n(r)$ theor.
0— 2	0	0.001
3— 4	1+ 0	0.01
5— 6	3+ 2	0.05+ 0.1
7— 8	4+ 5	0.3+ 0.6
9—10	3+ 5	1.4+ 2.5
11—12	5+ 8	4.0+ 6.0
13—14	6+ 8	8.4+10.7
15—16	16+12	13.1+14.7
17—18	10+10	15.9+16.0
19—20	8+ 3	15.0+13.7
21—22	4+10	11.9+ 9.7
23—24	10+ 5	7.5+ 5.7
25—26	3+ 5	4.1+ 2.9
27—28	6+ 4	2.0+ 1.3
⩾29	13	1.5

№ 145. $\alpha = 19^h 12^m$; $B = +5^0$. $N = 1571$; $w_1 = 160\,000$; $w_2 = 240\,000$.

$s_1 = 17$; $\delta_1 = 5.3$; $s_2 = 9$; $\delta_2 = 18.0$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	8	16	14	8	11	12	8	3	4	8	3	4
−5	5	8	19	10	13	6	4	9	6	9	9	5	6
−4	14	13	6	13	5	8	7	6	7	5	4	4	7
−3	13	10	5	11	14	4	8	7	6	5	4	11	10
−2	9	10	5	7	8	5	5	6	11	8	5	7	8
−1	11	12	5	7	4	7	6	11	11	1	5	7	4
0	9	6	6	9	11	8	7	7	8	10	7	11	9
+1	11	12	11	4	9	9	8	13	9	5	21	10	9
+2	11	10	10	14	5	11	12	15	9	4	8	13	12
+3	10	17	14	15	6	12	16	11	5	17	15	9	12
+4	17	6	11	13	7	20	19	9	5	8	12	9	12
+5	9	6	8	9	10	14	14	19	10	12	17	22	8
+6	7	3	5	7	19	18	10	12	8	11	10	9	10

r	n(r) obs.	n(r) theor.
0	0	0.01
1	1	0.1
2	0	0.6
3	3	2.2
4	12	5.0
5	17	9.1
6	13	14.2
7	15	18.9
8	18	21.5
9	18	22.4
10	14	20.6
11	16	17.4
12	11	13.4
13	7	9.5
14	7	6.3
15	3	3.9
16	2	2.2
17	4	1.2
18	1	0.6
19	4	0.3
⩾20	3	0.3

№ 146. $\alpha = 19^h 20^m$; $B = +3^0$. $N = 3072$; $w_1 = 10^{54}$; $w_2 = 10^{46}$.

$s_1 = 30$; $\delta_1 = 6.6$; $s_2 = 44$; $\delta_2 = 29.2$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	4	11	15	8	4	3	3	11	12	9	6	10
−5	6	6	6	7	4	10	9	6	12	13	9	15	2
−4	8	8	13	13	8	7	13	16	14	10	21	10	5
−3	14	19	28	15	28	22	15	11	10	20	16	9	8
−2	16	16	20	23	24	19	21	22	12	4	20	15	11
−1	8	12	21	23	11	23	13	13	25	8	7	11	14
0	15	16	20	17	15	17	11	16	30	15	18	16	10
+1	15	17	10	20	32	24	23	24	24	18	29	22	20
+2	17	26	19	26	29	30	23	24	24	20	26	23	19
+3	12	18	34	26	25	26	28	28	31	26	33	20	21
+4	9	24	36	32	29	27	32	37	34	35	32	24	31
+5	17	18	17	33	36	29	23	28	25	31	44	19	11
+6	11	11	19	15	19	27	26	22	22	32	25	14	10

r	n(r) obs.	n(r) theor.
0— 1	0	—
2— 3	1+ 2	0.001
4— 5	5+ 1	0.02+0.05
6— 7	5+ 3	0.1+ 0.3
8— 9	7+ 5	0.6+ 1.3
10—11	8+10	2.4+ 3.8
12—13	5+ 6	5.6+ 8.0
14—15	4+10	10.3+12.8
16—17	7+ 6	14.4+15.7
18—19	4+ 7	16.0+15.1
20—21	8+ 4	13.9+12.2
22—23	5+ 7	10.0+ 7.9
24—25	8+ 4	5.9+ 4.4
26—27	7+ 2	3.1+ 2.2
28—29	5+ 4	1.4+ 0.9
30—31	2+ 3	0.5+ 0.3
⩾32	14	0.3

№ 147. $a = 19^h28^m$; $B = +1^0$. $N = 3489$; $w_1 = 10^{59}$; $w_2 = 10^{38}$.

$s_1 = 57$; $\delta_1 = 11.4$; $s_2 = 42$; $\delta_2 = 33.1$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	**9**	**14**	*34*	23	**15**	20	21	**14**	**10**	19	17	**6**	**6**
−5	**12**	**7**	24	**11**	**11**	17	25	21	**15**	19	19	**12**	**10**
−4	**10**	**9**	**11**	21	21	*47*	*32*	*36*	*30*	*28*	24	22	16
−3	**7**	**9**	**12**	18	*30*	*37*	*42*	27	*29*	*32*	26	25	15
−2	**13**	**13**	**13**	**14**	*29*	*28*	*28*	17	20	*42*	26	*32*	23
−1	**10**	**9**	**6**	**8**	**8**	25	20	*32*	*23*	*33*	*41*	*25*	25
0	**15**	**15**	**8**	**8**	**7**	26	21	19	27	*25*	*38*	*29*	27
+1	21	17	**14**	**8**	**6**	**13**	**15**	**14**	**13**	*43*	25	18	24
+2	19	25	*38*	21	19	26	24	**8**	**13**	**11**	22	22	21
+3	20	27	*39*	*34*	27	*43*	*28*	24	**13**	**20**	**14**	18	18
+4	*28*	*36*	*33*	*28*	*31*	*37*	*40*	*28*	18	19	**20**	**15**	**15**
+5	20	*29*	21	*31*	15	25	*33*	*29*	17	20	**16**	**5**	19
+6	20	**15**	**12**	**13**	19	15	15	20	21	19	27	**14**	**10**

r	*n(r)* obs.	*n(r)* theor.
0— 4	0	0.005
5— 6	1+ 4	0.01+0.04
7— 8	3+ 6	0.1+ 0.3
9—10	4+ 5	0.5+ 0.9
11—12	4+ 4	1.6+ 2.9
13—14	8+ 7	4.4+ 6.1
15—16	12+ 2	8.4+10.7
17—18	5+ 5	12.7+13.9
19—20	10+10	14.9+15.0
21—22	10+ 3	14.5+13.3
23—24	3+ 5	11.9+10.0
25—26	9+ 4	7.9+ 6.2
27—28	6+ 7	4.6+ 3.3
29—30	5+ 2	2.3+ 1.6
31—32	2+ 4	1.0+ 0.6
33—34	3+ 2	0.4+ 0.2
⩾35	14	0.3

№ 148. $a = 19^h36^m$; $B = 0^0$. $N = 3358$; $w_1 = 10^{62}$; $w_2 = 10^{68}$.

$s_1 = 44$; $\delta_1 = 9.5$; $s_2 = 32$; $\delta_2 = 34.2$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	**6**	**8**	**5**	**9**	15	19	24	22	21	25	*42*	20	15
−5	**11**	16	16	28	22	22	*31*	22	21	*29*	*45*	*28*	7
−4	**13**	22	22	22	*46*	*43*	*24*	*31*	*33*	20	20	21	15
−3	22	19	23	*36*	*26*	23	**10**	21	21	21	24	28	17
−2	22	27	23	*32*	26	22	**10**	22	**12**	**11**	**10**	**13**	20
−1	17	*30*	19	23	21	13	21	21	18	**12**	**9**	**11**	16
0	27	*33*	*26*	15	22	15	17	18	17	*36*	14	**12**	**10**
+1	8	25	*37*	*39*	25	19	**5**	16	23	20	18	19	**11**
+2	20	21	*34*	*40*	*32*	**13**	**13**	15	17	18	13	24	14
+3	15	23	*30*	*41*	*41*	14	19	24	25	**12**	15	**10**	**12**
+4	**7**	**11**	25	22	*33*	*46*	*32*	*30*	15	**12**	**13**	**11**	**8**
+5	**3**	16	19	23	*28*	*28*	25	20	14	**9**	**8**	**10**	**5**
+6	**11**	**12**	**11**	15	26	*31*	24	**11**	**6**	**11**	**8**	**7**	**7**

r	*n(r)* obs.	*n(r)* theor.
0— 3	0+ 3	0.0006
4— 5	0+ 3	0.003+0.012
6— 7	2+ 4	0.04+ 0.1
8— 9	3+ 3	0.3+ 0.5
10—11	6+10	1.0+ 1.9
12—13	7+ 7	3.2+ 4.9
14—15	4+10	6.8+ 9.2
16—17	5+ 5	11.4+13.3
18—19	4+ 7	14.4+15.2
20—21	7+10	15.0+14.3
22—23	13+ 7	12.9+11.3
24—25	6+ 6	9.3+ 7.3
26—27	4+ 2	5.7+ 4.1
28—29	5+ 1	2.9+ 2.0
30—31	3+ 3	1.3+ 0.8
32—33	3+ 3	0.5+ 0.3
34—35	1+ 0	0.2+ 0.1
⩾36	12	0.1

№ 149. $\alpha = 19^h44^m$; $B = -2^0$. $N = 3232$; $w_1 = 10^{11}$; $w_2 = 10^{11}$.

$s_1 = 46$; $\delta_1 = 11.4$; $s_2 = 13$; $\delta_2 = 34.3$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	*30*	28	14	24	29	18	23	18	26	24	26	23	15
−5	*33*	17	16	17	28	17	11	26	17	20	32	23	23
−4	*31*	25	**12**	**10**	23	22	23	*34*	23	26	16	26	23
−3	*32*	26	**9**	**9**	**9**	15	15	27	23	27	22	*30*	*30*
−2	14	*31*	*41*	22	**11**	16	19	**13**	**12**	**11**	18	23	*36*
−1	15	22	*44*	29	**12**	**11**	**13**	**16**	**14**	21	18	**14**	17
0	16	15	*30*	18	15	**9**	**13**	17	22	18	24	**10**	**11**
+1	20	13	15	18	17	**12**	**12**	16	23	16	16	18	**15**
+2	22	18	*44*	22	23	20	16	18	23	24	19	**12**	**14**
+3	**9**	18	23	23	25	19	19	14	22	17	21	**16**	**11**
+4	**14**	18	**14**	25	25	23	25	24	25	21	19	**12**	17
+5	**12**	**10**	**14**	**13**	26	22	27	21	24	16	**10**	**10**	**3**
+6	**8**	**6**	**9**	16	20	16	**12**	**13**	**14**	19	**14**	**10**	**5**

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 2	0	—
3— 4	1+ 0	0.01
5— 6	1+ 1	0.1
7— 8	0+ 1	0.2+ 0.4
9—10	6+ 6	0.8+ 1.5
11—12	6+ 9	2.6+ 4.2
13—14	6+11	6.2+ 8.4
15—16	8+13	10.8+12.9
17—18	9+12	14.5+15.3
19—20	6+ 4	15.4+14.7
21—22	4+ 9	13.5+11.7
23—24	16+ 6	9.8+ 7.8
25—26	6+ 7	5.9+ 4.4
27—28	3+ 2	3.1+ 2.1
29—30	2+ 4	1.4+ 0.9
31—32	2+ 2	0.5+ 0.3
⩾33	6	0.3

№ 150. $\alpha = 19^h52^m$; $B = -3^0$. $N = 2406$; $w_1 = 10^7$; $w_2 = 10^7$.

$s_1 = 13$; $\delta_1 = 6.8$; $s_2 = 14$; $\delta_2 = 24.1$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	21	19	21	19	15	17	20	12	16	14	*21*	8	13
−5	11	15	16	24	16	21	14	17	14	*22*	*21*	15	7
−4	17	15	*31*	16	17	23	17	13	*23*	*24*	19	14	10
−3	*22*	18	*29*	17	17	18	12	13	14	16	13	10	7
−2	*23*	*27*	*19*	18	9	11	16	11	12	12	15	7	10
−1	12	14	18	**8**	**7**	**8**	11	11	10	9	12	18	15
0	6	8	15	**6**	**7**	**5**	12	8	7	10	17	22	18
+1	14	11	15	14	11	**8**	**7**	11	13	9	18	12	5
+2	9	14	**8**	**3**	**9**	**5**	14	11	12	20	15	16	10
+3	15	13	17	**7**	12	10	9	10	22	12	4	18	19
+4	13	17	12	**14**	12	9	17	21	13	17	18	11	13
+5	13	14	13	12	14	18	21	17	*25*	13	14	8	7
+6	11	14	21	22	20	17	15	*22*	*28*	12	10	10	8

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 1	0	—
2— 3	0+ 1	0.06
4— 5	1+ 3	0.2+ 0.5
6— 7	2+ 9	1.3+ 2.6
8— 9	9+ 7	4.7+ 7.4
10—11	10+11	10.4+13.6
12—13	15+12	16.2+18.1
14—15	15+11	18.0+17.1
16—17	7+14	15.2+12.7
18—19	10+ 5	10.0+ 7.5
20—21	3+ 8	5.4+ 3.6
22—23	6+ 3	2.4+ 1.5
24—25	2+ 1	0.9+ 0.5
⩾26	4	0.6

№ 151. $\alpha = 20^h0^m$; $B = -5^0$. $N = 930$; $w_1 = 6000$; $w_2 = 700\ 000$.

$s_1 = 11$; $\delta_1 = 1.6$; $s_2 = 13$; $\delta_2 = 12.2$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	4	6	6	4	4	6	5	5	3	5	5	4
−5	5	4	3	3	9	3	14	3	5	3	2	4	3
−4	1	7	6	8	4	3	2	5	5	6	13	4	5
−3	4	3	7	1	5	6	6	4	4	7	5	8	6
−2	6	3	1	5	7	6	2	1	6	5	4	1	5
−1	6	6	4	6	**3**	**2**	**3**	3	4	6	6	6	2
0	10	7	**1**	**1**	**1**	6	**2**	**1**	4	4	6	7	6
+1	3	3	6	5	5	**2**	**1**	3	5	11	5	7	4
+2	8	5	7	3	4	**1**	2	4	1	3	4	8	11
+3	*11*	*14*	7	7	8	6	4	4	2	5	6	11	7
+4	5	*16*	*13*	*12*	6	5	4	5	6	6	6	7	5
+5	7	*12*	*11*	8	8	*11*	7	8	4	1	7	7	7
+6	6	8	*10*	*15*	*13*	*9*	*11*	3	5	5	7	5	6

r	$n(r)$ obs.	$n(r)$ theor.
0	0	0.6
1	13	3.8
2	10	10.3
3	19	19.1
4	24	26.2
5	27	29.0
6	29	26.6
7	18	21.0
8	9	14.4
9	2	8.7
10	2	4.9
11	7	2.4
12	2	1.1
13	3	0.5
⩾14	4	0.4

№ 152. $\alpha = 20^h8^m$; $B = -6^0$. $N = 1607$; $w_1 = 40$; $w_2 = 50$.

$s_1 = -$; $\delta_1 = -$; $s_2 = 2$; $\delta_2 = 17.5$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	6	4	*19*	*16*	10	6	10	9	12	10	12	6
−5	6	4	5	13	11	14	12	14	13	16	8	12	12
−4	8	12	7	8	5	12	10	14	11	14	13	4	16
−3	10	7	9	7	7	12	11	8	9	6	6	8	10
−2	5	7	11	9	6	7	9	7	9	5	7	8	10
−1	13	5	9	7	7	8	11	13	18	7	8	5	16
0	10	11	8	6	4	11	9	7	9	16	13	17	10
+1	14	10	12	2	7	4	10	5	11	10	4	9	10
+2	9	19	13	7	6	7	5	8	10	10	11	15	15
+3	11	11	10	8	7	4	16	10	12	13	5	8	8
+4	9	15	16	10	8	13	7	11	10	13	7	14	7
+5	9	9	11	14	10	13	12	16	14	12	5	6	4
+6	5	10	5	9	12	7	7	8	6	6	7	9	9

r	$n(r)$ obs.	$n(r)$ theor.
0—1	0	0.1
2	1	0.6
3	0	1.8
4	9	4.3
5	12	8.3
6	12	13.1
7	22	17.7
8	15	20.9
9	17	22.0
10	21	20.9
11	13	18.0
12	13	14.2
13	11	10.3
14	8	7.1
15	3	4.4
16	3	2.6
17	1	1.5
18	1	0.8
⩾19	2	0.7

№ 153. $a = 20^h16^m$; $B = -8^0$. $N = 2387$; $w_1 = 10^{24}$; $w_2 = 10^{17}$.

$s_1 = 54$; $\delta_1 = 7.6$; $s_2 = 33$; $\delta_2 = 24.2$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	10	8	17	13	20	12	10	18	18	*27*	*30*	*20*	12
−5	11	15	**10**	**4**	14	14	15	11	18	*25*	*41*	*28*	*24*
−4	7	16	**10**	**11**	**9**	**11**	**6**	23	16	*27*	*32*	*28*	*22*
−3	12	16	12	**9**	**12**	**5**	**9**	12	13	*21*	*24*	*19*	14
−2	14	17	14	12	**5**	**6**	**8**	16	15	15	18	*24*	19
−1	19	*23*	**10**	**10**	**2**	**5**	**12**	**6**	**8**	**10**	**10**	*20*	*20*
0	*29*	*19*	17	**5**	**2**	**11**	**5**	**5**	**11**	20	14	17	*20*
+1	*21*	*19*	12	**8**	**2**	**6**	**10**	**8**	**10**	**10**	*27*	16	*25*
+2	*21*	*27*	13	16	**6**	**9**	**5**	**10**	13	18	10	13	*23*
+3	*20*	17	11	13	**3**	14	11	**9**	19	16	14	7	11
+4	15	**9**	**10**	**12**	**6**	**6**	13	16	9	11	14	13	19
+5	**5**	**5**	12	15	**7**	**6**	15	7	*21*	19	12	18	18
+6	**5**	**9**	17	13	**10**	*27*	16	*20*	*22*	15	18	11	14

r	*n(r)* *obs.*	*n(r)* *theor.*
0— 1	0	0.002
2— 3	3+ 1	0.07
4— 5	1+10	0.2+ 0.6
6— 7	8+ 4	1.4+ 2.9
8— 9	5+ 8	5.0+ 7.8
10—11	15+11	10.9+13.9
12—13	12+ 9	16.5+18.3
14—15	10+ 8	18.0+17.0
16—17	9+ 6	14.9+12.4
18—19	8+ 8	9.7+ 7.2
20—21	8+ 4	5.1+ 3.4
22—23	2+ 3	2.2+ 1.3
⩾24	16	1.8

№ 154. $a = 20^h 24^m$; $B = -9^0$. $N = 2888$; $w_1 = 10^9$; $w_2 = 10^8$.

$s_1 = 33$; $\delta_1 = 9.7$; $s_2 = 38$; $\delta_2 = 25.5$

$+\delta$ \ $+a$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	**7**	15	17	14	17	**9**	16	14	16	*24*	20	21	8
−5	15	*34*	*26*	18	17	**9**	19	**11**	16	*24*	*30*	*27*	12
−4	18	*23*	*25*	18	**10**	**11**	15	**7**	16	16	*35*	17	20
−3	12	*23*	*27*	22	**5**	**12**	13	16	19	17	*29*	*26*	20
−2	18	*23*	20	19	**10**	**5**	**12**	**12**	13	*25*	*27*	22	17
−1	*25*	*25*	*24*	**10**	**11**	**10**	**6**	**12**	14	*29*	*26*	*29*	19
0	15	*26*	13	13	**11**	**12**	**4**	**11**	15	*23*	15	16	10
+1	18	*21*	*24*	19	19	**6**	**11**	**14**	**10**	*30*	*20*	*24*	14
+2	14	*23*	*24*	**12**	**9**	**8**	**9**	**12**	**12**	15	18	*24*	12
+3	9	15	*21*	21	**8**	**9**	16	18	9	22	19	10	14
+4	14	*25*	*24*	18	22	13	14	20	16	22	18	16	20
+5	*23*	*35*	22	16	23	21	21	22	18	13	16	21	22
+6	14	*23*	15	15	17	20	12	13	11	21	19	14	8

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 2	0	—
3— 4	0+ 1	0.1
5— 6	2+ 2	0.2
7— 8	2+ 4	0.5+ 1.0
9—10	7+ 7	2.0+ 3.5
11—12	8+13	5.4+ 7.7
13—14	7+11	10.3+12.8
15—16	10+12	14.7+15.8
17—18	7+10	16.5+15.8
19—20	6+ 8	14.2+12.4
21—22	8+ 8	10.2+ 8.0
23—24	8+ 8	6.0+ 4.3
25—26	5+ 4	3.0+ 2.1
27 —28	3+ 0	1.4+ 0.9
$\geqslant$29	8	1.0

№ 155. $\alpha = 20^h 32^m$; $B = -11^0$. $N = 2485$; $w_1 = 10^{10}$; $w_2 = 10^{11}$.

$s_1 = 40$; $\delta_1 = 8.0$; $s_2 = 29$; $\delta_2 = 23.7$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	11	19	19	16	23	8	16	17	*25*	18	17	12	9
−5	17	17	15	19	10	16	*28*	12	*22*	*28*	16	21	11
−4	**6**	21	21	15	23	13	**10**	**10**	16	12	**10**	18	10
−3	**7**	18	16	12	**5**	**8**	**8**	**9**	13	**9**	**10**	15	15
−2	*21*	19	11	13	14	15	**9**	**5**	15	12	**10**	**9**	**7**
−1	*25*	*23*	13	15	**9**	**5**	**8**	**10**	17	11	15	**9**	**8**
0	18	12	17	12	**5**	**6**	**8**	13	**8**	12	14	**10**	**8**
+1	*29*	*20*	20	15	11	**8**	12	**8**	**9**	14	13	**8**	**5**
+2	19	*22*	*24*	19	11	11	9	18	**10**	**8**	16	16	**7**
+3	7	*24*	*19*	17	17	15	20	11	**9**	15	21	13	12
+4	14	14	*25*	*24*	*19*	*22*	16	*23*	*25*	14	16	10	8
+5	13	*24*	*27*	20	18	15	*29*	*22*	*18*	*26*	13	22	15
+6	8	10	12	15	*22*	*22*	15	*23*	*25*	16	**7**	**9**	**4**

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 3	0	0.05
4— 5	1+ 5	0.2+ 0.5
6— 7	2+ 5	1.0+ 2.0
8— 9	14+11	3.8+ 6.2
10—11	12+ 8	9.0+11.9
12—13	11+ 9	14.8+17.2
14—15	6+15	18.1+17.5
16—17	11+ 8	16.1+13.7
18—19	7+ 8	11.3+ 8.7
20—21	4+ 5	6.5+ 4.6
22—23	7+ 5	3.1+ 2.1
24—25	4+ 5	1.2+ 0.7
26—27	1+ 1	0.4+ 0.2
≥28	4	0.2

№ 156. $\alpha = 20^h 40^m$; $B = -12^0$.

$s_1 = 4.9$; $\delta_1 = 5.9$;

I. [$N = 960$; $w_1 = 7$; $w_2 = —$.

$s_1 = 1.5$; $\delta_1 = 4.7$; $s_2 = 3.0$; $\delta_2 = 39.7$]

—6 —5 —4 —3 —2 —1 0

—6	6	2	5	3	4	3	10	4	6	4	5	5	4
	6	2	3	5	4	4	1	4	8	6	*8*	*12*	4
—5	4	7	**3**	**1**	7	6	8	5	6	*12*	*12*	4	4
	8	**4**	**1**	9	5	6	5	8	5	*10*	*9*	*10*	*9*
—4	8	9	**1**	6	4	3	6	11	9	2	*11*	*8*	6
	8	5	8	5	4	5	7	**7**	4	6	*8*	*10*	6
—3	6	4	5	3	6	6	5	6	6	5	5	9	10
	8	5	5	6	6	2	5	7	6	7	7	8	4
—2	8	6	3	6	4	5	6	**1**	4	5	9	5	6
	1	7	3	7	5	6	5	**0**	5	9	4	3	6
—1	6	8	5	3	2	6	5	2	4	4	6	1	3
	8	9	8	5	7	3	5	7	6	5	8	7	4
	8	6	5	13	6	5	4	5	6	8	7	3	3

0

r	n(r) obs.	n(r) theor.
0	1	0.7
1	7	3.3
2	6	9.3
3	14	17.5
4	24	25.0
5	32	28.4
6	33	26.9
7	13	22.0
8	19	15.5
9	9	9.8
10	5	5.6
11	2	2.9
12	3	1.4
⩾13	1	1.1

III. [$N = 1197$; $w_1 = 170$; $w_2 = 7$.

$s_1 = 1.2$; $\delta_1 = 12.0$; $s_2 = 1.2$; $\delta_2 = 50.5$]

—6 —5 —4 —3 —2 —1 0

0	4	10	10	4	7	5	4	5	4	5	2	7	6
+1	6	**3**	9	7	7	8	3	10	6	3	5	7	3
	7	**3**	4	8	7	0	4	3	3	8	5	9	6
+2	9	**3**	7	11	9	5	5	3	6	6	6	**7**	4
	11	**3**	**3**	15	7	5	7	8	7	1	9	5	7
+3	9	8	10	11	12	6	11	2	5	9	2	6	5
	9	13	9	12	7	6	7	4	7	6	5	7	8
+4	7	5	8	10	9	9	9	8	7	10	7	5	1
	11	10	8	10	10	*15*	*13*	*12*	6	11	8	10	6
+5	5	10	14	12	12	10	*12*	*11*	7	11	5	6	11
	12	8	6	7	10	5	6	9	5	4	10	5	9
+6	8	9	6	**4**	9	6	9	8	3	2	9	4	6
	4	2	6	9	7	8	7	10	3	4	9	5	11

$+\delta$

r	n(r) obs.	n(r) theor.
0	1	0.2
1	2	1.1
2	5	3.6
3	13	8.5
4	13	14.8
5	20	21.1
6	20	24.9
7	24	25.3
8	14	22.4
9	20	17.6
10	15	12.5
11	10	8.1
12	7	4.8
13	2	2.6
14	1	1.3
⩾15	2	1.0

$N = 3967$; $w_1 = 10^6$; $w_2 = 10^4$.

$s_2 = 7.2$; $\delta_2 = 44.6$

II. [$N = 933$; $w_1 = 4$; $w_2 = -$.

$s_1 = -$; $\delta_1 = -$; $s_2 = 0.5$; $\delta_2 = 50.0$]

0		+1		+2		+3		+4		+5		+6	+α
−6	7	4	5	6	6	3	3	5	7	8	9	3	1
	3	8	3	3	3	6	4	2	7	4	7	4	4
−5	9	6	*12*	5	4	9	4	2	4	3	3	4	1
	7	7	*13*	3	4	8	6	8	6	2	3	6	5
−4	8	6	9	6	4	2	7	6	7	6	4	5	3
	12	10	7	7	5	8	9	8	2	2	4	6	3
−3	5	8	4	6	8	6	6	8	2	9	0	6	5
	8	4	7	9	4	7	7	13	7	3	4	6	3
−2	8	8	10	5	5	8	11	7	9	2	7	7	5
	5	5	7	5	7	7	6	5	7	10	6	5	3
−1	2	3	3	6	1	7	7	4	5	7	3	8	4
	6	7	5	5	3	5	3	6	6	4	4	6	4
	7	4	5	4	3	4	5	7	6	5	2	6	1
0													

r	n(r) *obs.*	*theor.*
0	1	0.7
1	4	3.7
2	10	10.2
3	22	18.8
4	25	26.0
5	23	28.9
6	26	26.7
7	27	21.1
8	15	14.6
9	8	8.9
10	3	5.0
11	1	2.5
12	2	1.2
⩾13	2	0.7

IV. [$N = 877$; $w_1 = 330$; $w_2 = 3200$.

$s_1 = 2.2$; $\delta_1 = 3.6$; $s_2 = 2.5$; $\delta_2 = 46.4$]

0		+1		+2		+3		+4		+5		+6	+α
0	9	7	5	5	6	10	5	4	4	4	3	0	5
+1	4	8	6	5	6	0	4	4	4	4	4	4	2
	9	7	2	3	3	7	6	5	4	5	3	4	3
+2	7	5	7	5	6	2	8	7	**1**	4	5	5	4
	4	4	6	2	4	5	3	8	**1**	**3**	7	2	3
+3	3	7	*12*	*12*	6	7	4	6	7	3	7	4	2
	4	5	4	6	10	5	5	5	0	5	4	4	**0**
+4	11	8	2	*11*	4	5	3	6	6	4	7	3	**0**
	4	7	2	*11*	*13*	7	9	4	4	3	4	4	3
+5	*12*	*10*	7	5	*8*	*15*	6	4	4	1	5	5	4
	12	8	10	8	9	9	10	5	3	5	4	2	3
+6	7	7	6	5	6	5	7	4	5	7	4	3	4
	7	5	4	9	4	3	8	4	**0**	**2**	**2**	**1**	**1**
+δ													

r	n(r) *obs.*	*theor.*
0	6	1.0
1	5	4.9
2	11	12.4
3	18	22.0
4	40	28.4
5	27	29.8
6	14	25.7
7	20	19.7
8	8	12.4
9	6	7.0
10	5	3.6
11	3	1.7
12	4	0.7
13	1	0.4
⩾14	1	0.2

№ 157. $a = 20^h48^m$; $B = -13^0$. $N = 2241$; $w_1 = 150\,000$; $w_2 = 700\,000$.

$s_1 = 25$; $\delta_1 = 6.3$; $s_2 = 12$; $\delta_2 = 23.2$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	15	10	8	11	19	16	18	15	11	15	17	**6**	**7**
−5	12	17	*21*	11	9	**9**	9	16	12	12	16	12	**7**
−4	15	18	*22*	11	11	12	**8**	12	8	16	10	13	22
−3	15	19	11	**5**	**7**	**6**	**10**	12	9	12	16	21	12
−2	18	11	16	21	12	**6**	8	9	9	13	15	15	13
−1	14	16	10	9	**8**	**6**	**6**	**7**	14	11	11	*21*	17
0	17	14	11	12	10	**7**	9	**7**	12	11	10	*23*	17
+1	13	15	16	**4**	**5**	**6**	11	**8**	11	13	11	17	17
+2	23	14	11	14	**7**	15	9	**14**	**13**	16	14	23	8
+3	19	12	17	15	9	14	11	15	22	16	*21*	11	16
+4	15	*22*	*22*	16	17	15	9	15	12	20	*21*	18	11
+5	10	18	*22*	*33*	*23*	16	17	15	7	13	17	11	**6**
+6	12	11	12	*28*	20	10	11	10	11	17	**8**	**2**	**2**

r	*n(r)* obs.	*n(r)* theor.
0— 3	0+2+0	0.2
4— 5	1+ 2	0.4+ 1.1
6— 7	7+ 8	2.3+ 4.6
8— 9	8+11	7.2+10.3
10—11	9+22	13.7+16.3
12—13	16+ 7	18.3+18.8
14—15	8+15	17.3+15.4
16—17	13+12	13.0+10.2
18—19	5+ 3	7.4+ 5.1
20—21	2+ 6	3.5+ 2.2
22—23	6+ 4	1.2+ 0.7
⩾24	2	1.0

№ 158. $a = 20^h56^m$; $B = -15^0$. $N = 1563$; $w_1 = 4000$; $w_2 = 200$.

$s_1 = 9$; $\delta_1 = 3.9$; $s_2 = 5$; $\delta_2 = 17.6$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	6	6	8	**3**	9	15	5	5	9	3	12	6
−5	3	6	9	11	**5**	10	**16**	6	11	13	9	5	6
−4	4	15	6	**2**	**6**	**3**	8	13	4	6	11	10	6
−3	12	9	12	7	**5**	12	7	8	6	6	18	13	8
−2	**2**	**3**	**6**	8	15	5	7	10	9	11	9	7	9
−1	17	7	8	9	11	10	7	10	9	11	8	8	12
0	15	11	11	5	3	8	6	5	5	12	5	8	14
+1	6	6	10	8	8	6	11	10	7	10	6	15	7
+2	8	3	7	13	8	11	14	7	15	11	10	12	14
+3	5	10	3	10	6	9	11	6	11	11	8	12	12
+4	11	*17*	*21*	13	12	12	10	14	11	11	10	12	9
+5	11	12	13	12	14	13	13	12	*20*	*15*	6	6	4
+6	5	12	8	11	12	18	12	13	10	*15*	10	7	5

r	*n(r)* obs.	*n(r)* theor.
0—1	0	0.2
2	2	0.7
3	8	2.2
4	4	5.0
5	13	9.1
6	22	14.2
7	11	18.8
8	16	21.5
9	12	22.4
10	15	20.5
11	19	17.4
12	18	13.4
13	9	9.5
14	5	6.3
15	8	3.9
16	1	2.2
17	2	1.2
18	2	0.6
19	0	0.3
⩾20	2	0.2

№ 159. $a = 21^h 4^m$; $B = -16^0$. $N = 2633$; $w_1 = 800$; $w_2 = 1400$.

$s_1 = 19$; $\delta_1 = 8.8$; $s_2 = 25$; $\delta_2 = 23.1$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	10	12	14	13	9	15	10	10	12	11	18	13	16
−5	15	19	12	17	12	18	11	18	19	19	12	18	12
−4	**12**	19	16	*26*	*20*	19	14	14	18	12	20	15	11
−3	**12**	19	19	17	14	13	13	18	*22*	19	17	11	8
−2	**12**	15	16	*26*	16	18	22	19	*25*	*22*	15	14	13
−1	**8**	18	15	*20*	9	14	18	19	21	11	15	19	13
0	**9**	21	*29*	15	13	14	12	11	15	10	16	11	13
+1	16	16	*23*	*22*	*18*	14	*28*	14	14	12	18	14	17
+2	**8**	15	18	16	*25*	*20*	*22*	15	*22*	12	20	17	16
+3	**8**	15	12	21	*26*	*26*	20	15	*20*	*24*	13	15	14
+4	**6**	**10**	19	16	*23*	20	21	13	17	14	17	10	15
+5	**9**	**8**	*22*	*25*	*20*	17	22	19	**12**	**8**	13	11	11
+6	**9**	14	*22*	16	10	16	**5**	**5**	**10**	**8**	**9**	14	11

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 3	0	—
4— 5	0+ 2	0.1+ 0.2
6— 7	1+ 0	0.5+ 1.4
8— 9	7+ 6	2.5+ 4.4
10—11	8+10	6.6+ 9.4
12—13	15+11	12.3+15.0
14—15	15+15	17.0+17.6
16—17	12+ 8	16.9+15.2
18—19	12+13	13.1+10.9
20—21	9+ 4	8.5+ 6.3
22—23	9+ 2	4.5+ 3.1
24—25	1+ 3	2.0+ 1.3
26—27	4+ 0	0.7+ 0.4
⩾28	2	0.4

№ 160. $a=21^h 12^m$; $B=-18^0$. $N=1784$; $w_1=200\,000$; $w_2=100\,000$.

$s_1 = 17$; $\delta_1 = 4.8$; $s_2 = 14$; $\delta_2 = 18.0$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	7	8	7	6	13	11	12	8	5	14	8	3
−5	11	7	8	11	13	*23*	*15*	13	*18*	*17*	*21*	12	5
−4	5	12	12	15	10	*15*	13	12	8	*15*	*15*	*16*	9
−3	5	6	15	15	17	11	9	12	13	*18*	7	10	6
−2	6	8	7	10	8	11	12	8	9	4	12	10	13
−1	9	7	18	4	10	**4**	**4**	**6**	14	11	10	18	11
0	**6**	7	12	16	7	9	11	9	9	14	14	14	5
+1	**3**	9	4	9	**5**	**4**	**5**	12	16	9	16	8	9
+2	**6**	**6**	8	10	10	11	10	*21*	11	13	12	9	**5**
+3	**5**	13	9	5	12	9	13	*17*	8	8	20	8	**6**
+4	**2**	14	10	15	9	9	14	12	11	9	13	15	**7**
+5	**6**	14	11	*25*	11	15	19	12	15	8	13	12	**4**
+6	8	12	9	*16*	10	12	16	15	13	9	16	6	7

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 1	0	0.04
2— 3	2+ 2	0.3+ 0.9
4— 5	7+10	2.4+ 5.0
6— 7	11+10	8.7+13.1
8— 9	15+19	17.2+19.9
10—11	11+13	21.2+20.0
12—13	17+12	17.6+14.3
14—15	8+12	10.6+ 7.5
16—17	7+ 3	4.9+ 3.0
18—19	4+ 1	1.7+ 1.0
20—21	1+ 2	0.5+ 0.3
⩾22	2	0.2

№ 161. $\alpha = 21^h20^m$; $B = -19^0$. $N = 1328$; $w_1 = 60$; $w_2 = 20$.

$s_1 = 7$; $\delta_1 = 2.9$; $s_2 = 11$; $\delta_2 = 13.4$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	**3**	**1**	10	6	16	5	7	12	7	10	11	6	5
−5	7	**4**	11	8	8	7	9	11	*12*	9	10	8	9
−4	6	10	17	6	8	10	10	7	*14*	*13*	9	12	11
−3	5	6	7	7	2	5	5	6	8	8	6	6	8
−2	10	12	7	4	6	4	4	8	10	11	9	6	4
−1	12	12	9	4	6	8	8	7	2	14	10	7	13
0	10	8	5	7	7	3	5	14	4	6	9	13	5
+1	6	10	8	8	3	11	6	3	8	9	8	9	6
+2	6	6	3	10	7	10	10	8	4	6	5	8	4
+3	5	12	11	5	9	8	6	8	10	9	4	9	10
+4	8	8	10	*13*	6	7	7	7	*12*	11	10	2	6
+5	8	7	5	*15*	*16*	*12*	9	*13*	*14*	10	7	7	**3**
+6	3	8	2	10	11	*13*	4	7	7	8	**2**	**4**	**3**

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	0	0.1
1	1	0.6
2	5	2.2
3	8	5.2
4	12	10.5
5	12	16.5
6	21	21.5
7	21	23.9
8	24	23.9
9	13	20.5
10	20	16.4
11	9	11.5
12	10	7.7
13	6	4.6
14	3	2.6
15	1	1.3
16	2	0.7
⩾17	1	0.7

№ 162. $\alpha = 21^h28^m$; $B = -20^0$. $N = 1476$; $w_1 = 120$; $w_2 = 160$.

$s_1 = 14$; $\delta_1 = 4.2$; $s_2 = -$; $\delta_2 = -$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	7	9	10	14	9	7	13	10	10	7	9	8	6
−5	10	12	10	13	6	8	10	6	7	13	12	12	2
−4	11	11	6	13	6	7	22	9	6	5	12	6	8
−3	9	9	15	14	10	7	9	5	11	7	11	12	10
−2	6	9	8	11	**5**	**6**	16	11	14	8	13	3	9
−1	**7**	19	8	10	**4**	**1**	**5**	**5**	7	7	5	9	4
0	15	12	10	**2**	**4**	**4**	**3**	**4**	**6**	11	17	**7**	14
+1	12	10	11	7	**5**	**5**	11	7	7	6	6	12	9
+2	10	8	14	8	8	14	3	11	8	11	12	10	4
+3	18	12	10	8	4	9	5	8	12	9	6	8	4
+4	4	15	11	10	10	**10**	12	8	8	14	10	6	6
+5	8	6	10	6	8	10	11	10	15	12	8	6	6
+6	4	5	8	8	9	6	10	8	3	5	9	4	5

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0— 1	0+ 1	0.04+ 0.2
2— 3	2+ 4	1.1+ 3.1
4— 5	11+12	6.7+11.5
6— 7	20+14	16.8+21.3
8— 9	21+15	22.8+22.5
10—11	22+13	19.3+15.4
12—13	13+ 5	11.3+ 7.5
14—15	7+ 4	4.8+ 2.8
16—17	1+ 1	1.5+ 0.7
18—19	1+ 1	0.4+ 0.2
⩾20	1	0.1

№ 163. $\alpha = 21^h 36^m$; $B = -22^0$. $N = 1653$; $w_1 = 130$; $w_2 = 120\,000$.

$s_1 = -$; $\delta_1 = -$; $s_2 = 7$; $\delta_2 = 19.3$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	6	7	7	12	10	8	5	6	10	8	14	4	8
−5	11	2	11	10	11	11	8	6	12	5	17	12	8
−4	7	8	11	7	11	8	10	3	14	10	10	*17*	12
−3	9	9	7	9	5	6	11	3	7	11	9	*17*	*17*
−2	8	9	4	4	8	6	5	9	7	12	12	*22*	10
−1	12	7	11	6	4	5	11	5	6	14	12	10	14
0	7	13	12	8	6	6	8	9	11	7	12	11	11
+1	13	8	10	9	9	7	6	6	8	9	3	12	12
+2	10	3	11	*23*	8	7	12	12	10	4	15	10	12
+3	7	5	9	16	10	6	16	13	7	8	4	21	10
+4	7	15	11	8	16	11	20	9	10	12	7	9	5
+5	8	13	*19*	*20*	16	14	17	8	9	15	8	9	11
+6	4	13	10	11	15	12	12	13	11	5	12	11	5

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0—1	0	0.1
2—3	1+4	0.5+1.5
4—5	7+10	3.7+7.2
6—7	12+16	11.7+16.3
8—9	19+15	20.0+21.5
10—11	16+20	21.3+18.8
12—13	19+6	15.4+11.6
14—15	5+4	8.1+5.3
16—17	4+5	3.2+1.9
18—19	0+1	1.0+0.5
20—21	2+1	0.3+0.1
⩾22	2	0.1

№ 164. $\alpha = 21^h 44^m$; $B = -23^0$. $N = 2070$; $w_1 = 180000$; $w_2 = 50000$.

$s_1 = 5$; $\delta_1 = 4.0$; $s_2 = 4$; $\delta_2 = 22.8$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	10	9	**4**	11	16	8	9	15	12	12	9	7
−5	17	7	10	**4**	16	13	18	18	8	9	5	16	6
−4	13	11	12	19	19	12	21	8	*23*	*20*	17	13	12
−3	16	16	10	13	10	15	12	14	13	12	10	10	14
−2	17	7	10	18	20	9	9	*24*	12	10	12	10	12
−1	10	21	13	12	7	8	9	5	16	12	17	12	11
0	10	15	13	16	**3**	12	**4**	14	13	20	13	17	10
+1	16	19	10	12	8	13	**5**	16	16	12	22	10	15
+2	11	12	8	11	5	22	13	9	8	11	10	17	14
+3	18	18	*24*	11	14	6	10	11	16	16	20	10	11
+4	12	14	8	22	14	15	7	12	12	10	11	12	7
+5	6	11	11	15	11	12	9	13	23	13	10	9	9
+6	5	5	13	10	12	12	12	16	10	11	9	9	8

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0—1	0	—
2—3	0+2	0.05+0.2
4—5	3+6	0.7+1.9
6—7	3+6	3.8+6.8
8—9	9+13	10.3+13.8
10—11	21+14	17.1+18.8
12—13	25+14	19.4+18.2
14—15	7+6	15.8+13.0
16—17	13+6	10.0+7.3
18—19	5+3	4.9+3.2
20—21	4+2	2.0+1.1
22—23	3+2	0.6+0.3
⩾24	2	0.2

№ 165. $a = 21^h52^m$; $B = -25^0$. $N = 2427$; $w_1 = 480$; $w_2 = 400\,000$.

$s_1 = 4$; $\delta_1 = 7.8$; $s_2 = 29$; $\delta_2 = 21.4$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	10	13	9	14	9	11	15	14	20	12	15	12	**8**
−5	16	8	15	12	18	11	10	10	14	10	18	14	**9**
−4	10	17	15	14	15	14	6	15	8	*21*	*20*	16	**7**
−3	9	19	15	12	13	13	21	9	*24*	*22*	14	11	**7**
−2	7	13	10	13	11	12	9	10	16	18	15	13	11
−1	11	14	20	12	14	14	12	14	14	*22*	*19*	*26*	13
0	19	15	9	18	23	14	13	12	13	*20*	15	15	9
+1	11	*21*	13	14	15	11	14	7	*22*	14	20	18	14
+2	15	*24*	*24*	18	12	15	9	10	*21*	14	16	17	15
+3	7	*21*	*17*	13	*21*	*20*	17	13	*21*	*28*	*20*	14	6
+4	11	17	*20*	*20*	*18*	18	8	9	14	*20*	*20*	15	14
+5	8	12	15	17	14	13	*20*	14	10	*23*	9	13	6
+6	6	12	12	12	9	11	*25*	*21*	14	17	18	6	12

r	*n(r)* *obs.*	*n(r)* *theor.*
0— 5	0	0.9
6— 7	5+ 5	1.4+ 2.7
8— 9	5+12	4.8+ 7.5
10—11	9+10	10.6+13.7
12—13	14+14	16.3+18.2
14—15	24+17	18.0+17.1
16—17	4+ 7	15.2+12.6
18—19	9+ 3	10.0+ 7.4
20—21	12+ 8	5.3+ 3.6
22—23	3+ 2	2.3+ 1.4
≥24	6	2.0

№ 166. $a = 22^h0^m$; $B = -26^0$. $N = 1010$; $w_1 = —$; $w_2 = 24$.

$s_1 = —$; $\delta_1 = —$; $s_2 = 11$; $\delta_2 = 10.9$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	5	3	4	4	9	6	7	4	4	4	7	3	5
−5	6	11	7	11	5	11	7	5	7	8	10	4	4
−4	4	5	8	7	1	5	8	5	5	6	3	7	8
−3	4	5	7	4	6	*12*	*13*	5	4	3	4	9	5
−2	7	2	5	2	5	7	7	4	7	7	3	8	6
−1	12	4	12	7	4	2	5	4	5	4	3	8	7
0	4	6	8	4	4	3	0	4	3	8	6	4	5
+1	6	7	5	5	4	6	3	6	4	6	9	3	6
+2	6	7	5	7	4	3	4	4	6	4	7	4	5
+3	7	6	4	6	4	5	10	7	9	6	4	3	6
+4	7	*10*	*10*	*11*	9	7	6	2	8	6	5	4	4
+5	3	*11*	*10*	*12*	*10*	6	11	10	5	6	6	5	6
+6	5	*10*	6	9	*11*	5	7	9	6	5	5	7	2

r	*n(r)* *obs.*	*n(r)* *theor.*
0	1	0.5
1	1	2.6
2	5	7.7
3	13	15.3
4	34	22.8
5	28	27.4
6	26	27.4
7	25	23.4
8	9	17.4
9	7	11.5
10	8	6.9
11	7	3.7
12	4	1.9
≥13	1	1.3

№ 167. $\alpha = 22^h 8^m$; $B = -27^0$. $N = 1552$; $w_1 = 700\,000$; $w_2 = 160$.

$s_1 = 22$; $\delta_1 = 3.7$; $s_2 = 39$; $\delta_2 = 13.8$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	5	11	9	8	7	8	4	8	10	6	**5**	**4**	**1**
−5	5	9	*12*	*15*	7	4	7	14	3	12	**3**	**2**	**2**
−4	5	*14*	*12*	*12*	*14*	11	14	10	7	11	9	**4**	**3**
−3	10	10	11	*13*	*14*	9	11	15	9	**5**	14	11	8
−2	*12*	*12*	*12*	*12*	9	11	12	15	**5**	**5**	**5**	**5**	**1**
−1	*17*	*12*	*18*	*14*	9	7	6	7	8	6	**5**	**4**	7
0	9	9	11	9	5	7	8	9	4	11	**5**	11	8
+1	8	11	5	4	7	10	11	*12*	11	9	8	10	7
+2	6	10	7	9	6	10	8	*12*	*14*	10	*12*	9	4
+3	6	*17*	10	11	*14*	*14*	*17*	*16*	6	6	*14*	*15*	*19*
+4	9	*15*	*16*	*15*	*12*	11	*15*	*12*	7	16	8	9	4
+5	10	*12*	*12*	*14*	*12*	11	7	8	**2**	11	9	**4**	9
+6	10	3	*12*	11	7	9	10	10	**5**	10	6	**3**	**2**

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	0	0.01
1	2	0.1
2	4	0.7
3	5	2.1
4	10	4.9
5	14	9.0
6	9	14.0
7	14	18.7
8	12	21.4
9	19	22.3
10	15	20.6
11	18	17.5
12	19	13.5
13	1	9.5
14	12	6.4
15	7	4.0
16	3	2.3
17	3	1.3
18	1	0.7
⩾19	1	0.8

№ 168. $\alpha = 22^h 16^m$; $B = -28^0$. $N = 1235$; $w_1 = 28$; $w_2 = 1500$.

$s_1 = 4$; $\delta_1 = 1.8$; $s_2 = -$; $\delta_2 = -$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	5	4	6	8	5	4	10	7	8	4	6	4
−5	3	3	9	12	8	6	14	12	9	10	10	12	11
−4	7	6	6	11	8	7	2	7	13	6	5	13	6
−3	8	7	7	3	7	5	13	11	10	17	10	7	11
−2	8	4	9	11	9	10	4	15	6	6	7	7	9
−1	4	8	13	6	4	12	3	10	10	10	7	5	6
0	12	4	9	4	3	5	6	4	10	6	7	6	5
+1	9	7	6	9	7	6	8	5	7	5	5	5	7
+2	9	8	6	3	9	11	8	10	7	5	3	6	6
+3	7	14	5	5	10	7	16	8	5	12	4	8	7
+4	7	8	8	4	16	6	8	9	5	3	10	6	**0**
+5	3	8	7	3	9	6	11	15	6	9	6	8	**3**
+6	2	3	5	10	7	8	5	11	5	5	6	**4**	**4**

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	1	0.2
1	0	0.9
2	2	3.1
3	12	7.4
4	16	13.6
5	20	19.8
6	25	23.9
7	23	25.0
8	18	23.0
9	13	18.5
10	14	13.5
11	8	9.0
12	6	5.5
13	4	3.1
14	2	1.7
15	2	0.7
16	2	0.3
⩾17	1	0.2

№ 169. $a = 22^h 24^m$; $B = -29^0$. $N = 802$. —

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6 $+\alpha$
−6	0	4	3	3	1	4	5	3	3	4	4	3	2
−5	8	7	8	2	6	4	3	4	1	4	8	5	4
−4	5	4	4	7	7	3	1	4	3	8	4	6	1
−3	2	9	6	7	3	6	4	3	8	7	6	4	5
−2	4	9	9	6	6	3	6	3	1	5	5	5	6
−1	3	7	6	1	4	4	6	7	8	6	7	5	6
0	8	4	10	2	2	5	5	3	3	7	3	7	4
+1	4	10	5	2	2	6	10	3	3	6	5	5	11
+2	6	8	6	1	5	8	2	4	5	5	3	5	6
+3	8	9	6	4	5	7	3	4	3	4	5	7	5
+4	5	4	6	5	10	7	1	6	7	2	5	5	5
+5	7	4	2	6	1	5	3	2	4	3	4	5	2
+6	1	6	2	3	4	4	5	5	3	2	5	5	4

$+\delta$

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	1	1.5
1	10	7.0
2	14	16.4
3	25	26.0
4	31	31.0
5	31	29.6
6	23	23.5
7	15	15.9
8	10	9.4
9	4	4.9
10	4	2.4
$\geqslant 11$	1	2.1

№ 170. $a = 22^h 32^m$; $B = -30^0$. $N = 806$; $w_1 = 10$; $w_2 = 5$.

$s_1 = 13$; $\delta_1 = 1.7$; [$s_2 = 3$; $\delta_2 = 10.0$]

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6 $+\alpha$
−6	2	2	8	4	8	3	4	3	4	9	6	2	2
−5	5	6	9	8	8	3	8	5	5	9	3	5	8
−4	5	1	3	6	3	8	3	6	7	9	7	5	6
−3	4	2	4	2	5	4	7	6	1	6	5	6	8
−2	4	5	3	4	4	**2**	3	10	6	4	5	8	7
−1	5	5	7	**2**	**2**	**2**	**2**	3	2	7	2	6	7
0	6	1	3	7	**0**	**1**	4	3	5	3	7	4	2
+1	3	*13*	*10*	7	7	**2**	4	4	6	8	7	2	3
+2	5	*7*	3	6	**2**	**2**	**2**	4	3	6	2	7	7
+3	6	6	7	4	**1**	4	**2**	3	4	3	5	3	2
+4	5	8	8	6	4	6	4	4	5	5	6	4	3
+5	4	4	7	3	3	6	5	6	2	8	4	9	3
+6	5	4	5	3	5	5	2	5	6	4	10	6	1

$+\delta$

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	1	1.4
1	6	6.9
2	24	16.2
3	25	26.0
4	27	31.0
5	24	29.6
6	23	23.6
7	17	16.0
8	13	9.5
9	5	5.0
10	3	2.4
11	0	1.1
12	0	0.4
$\geqslant 13$	1	0.2

№ 171. $a = 22^h 40^m$; $B = -31°$. $N = 1574$; $w_1 = 20\ 000$; $w_2 = 100$.

$s_1 = 16$; $\delta_1 = 3.8$; $s_2 = 8$; $\delta_2 = 15.6$

+δ \ +α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	4	8	9	12	9	11	*17*	11	11	5	**3**	**3**	**6**
−5	9	10	9	7	*17*	*14*	*15*	12	8	17	**2**	7	**2**
−4	5	11	9	7	*14*	*17*	*15*	*14*	10	11	**2**	12	7
−3	10	10	14	6	10	5	4	9	8	15	9	14	6
−2	8	13	12	12	5	8	13	10	19	11	9	10	3
−1	11	14	9	7	6	10	14	11	10	10	13	7	8
0	8	9	11	4	11	9	9	6	11	8	6	13	**5**
+1	10	13	4	10	14	5	11	12	10	14	14	10	**5**
+2	12	16	12	6	9	7	7	9	15	7	10	6	**5**
+3	14	8	5	5	9	11	13	8	15	10	11	10	**3**
+4	7	9	11	9	9	12	15	15	11	7	6	**5**	**2**
+5	12	11	11	12	6	8	7	12	10	12	**4**	**6**	7
+6	7	8	3	10	8	11	9	14	9	7	**5**	**1**	6

r	n(r) *obs.*	n(r) *theor.*
0	0	0.01
1	1	0.1
2	4	0.7
3	5	2.1
4	5	4.8
5	12	8.9
6	12	13.9
7	15	18.5
8	13	21.4
9	20	22.3
10	19	20.2
11	19	17.5
12	13	13.6
13	6	9.7
14	12	6.5
15	7	4.1
16	1	2.3
17	4	1.3
⩾18	1	1.4

№ 172. $a = 22^h 48^m$; $B = -32°$. $N = 875$; $w_1 = 500$; $w_2 = 600$.

$s_1 = 15$; $\delta_1 = 1.3$; $s_2 = 7$; $\delta_2 = 10.6$

+δ \ +α	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	1	4	5	2	7	6	8	7	7	*13*	4	5	6
−5	6	2	5	12	3	*10*	*11*	*10*	7	*10*	*10*	3	4
−4	5	4	5	7	8	*10*	4	7	5	5	6	10	8
−3	7	3	5	8	7	6	7	7	7	7	10	4	3
−2	8	4	4	4	4	5	7	9	4	7	5	8	6
−1	4	5	5	7	5	1	6	5	4	3	9	6	5
0	10	3	5	3	1	3	5	6	4	5	**1**	**1**	4
+1	7	5	3	1	5	4	2	3	4	5	9	**3**	4
+2	6	11	5	4	5	5	4	2	3	**4**	**1**	**0**	**0**
+3	6	3	9	3	6	3	5	4	4	**2**	5	5	**3**
+4	4	5	8	7	11	3	5	3	3	**1**	4	**0**	**3**
+5	7	8	3	8	4	11	6	9	4	**0**	4	**0**	5
+6	4	6	4	3	4	6	8	2	6	4	10	**1**	4

r	n(r) *obs.*	n(r) *theor.*
0	5	1.0
1	9	5.0
2	6	12.6
3	22	22.1
4	33	28.5
5	30	29.9
6	16	25.7
7	18	19.2
8	10	12.3
9	5	7.0
10	9	3.6
11	4	1.7
12	1	0.7
⩾13	1	0.5

№ 173. $\alpha = 22^h 56^m$; $B = -33^0$. $N = 981$; $w_1 = 50$; $w_2 = 8$.

$s_1 = -$; $\delta_1 = -$; $s_2 = -$; $\delta_2 = -$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	5	6	8	8	4	4	4	5	5	4	5	5	2
−5	3	5	12	6	5	11	8	7	8	3	3	9	1
−4	7	9	7	9	8	7	7	6	5	5	5	6	6
−3	5	6	8	6	5	4	9	4	3	7	6	7	4
−2	9	5	7	8	7	7	2	8	5	8	11	5	4
−1	8	5	7	4	4	5	5	4	7	9	8	6	3
0	3	9	14	2	5	7	6	8	5	4	5	7	6
+1	5	7	2	8	8	9	5	8	7	2	4	5	3
+2	2	3	6	14	10	10	6	7	4	4	3	7	10
+3	8	5	3	4	12	11	7	10	8	4	7	5	5
+4	2	3	12	5	9	8	7	6	5	6	6	3	1
+5	2	4	6	11	7	7	6	3	4	7	1	3	4
+6	1	5	3	0	7	5	3	3	6	3	3	2	5

r	*n(r)* *obs.*	*n(r)* *theor.*
0	1	0.6
1	4	3.0
2	9	8.6
3	19	16.5
4	20	24.0
5	32	28.0
6	19	27.2
7	25	22.7
8	18	16.5
9	9	10.7
10	4	6.2
11	4	3.3
12	3	1.6
13	0	0.7
⩾14	2	0.6

№ 174. $\alpha = 23^h 4^m$; $B = -34^0$. $N = 981$; $w_1 = 5$; $w_2 = 17$.

$s_1 = -$; $\delta_1 = -$; $s_2 = 8$; $\delta_2 = 11.0$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	5	3	5	6	3	6	6	5	6	5	3	2
−5	6	1	6	3	12	2	7	12	6	3	4	3	6
−4	8	7	9	5	4	2	4	3	2	6	10	7	3
−3	8	8	4	4	7	3	2	7	6	4	6	12	6
−2	4	6	10	6	9	5	6	6	2	6	7	8	8
−1	4	1	10	7	1	5	4	4	5	5	*11*	5	5
0	7	8	6	2	7	6	8	3	*10*	*10*	*11*	*11*	6
+1	5	4	2	4	6	3	3	5	*15*	7	4	*10*	*10*
+2	6	4	10	6	4	4	3	6	6	7	10	8	7
+3	4	4	7	10	6	5	8	5	1	5	7	7	3
+4	3	5	9	8	7	8	6	3	8	4	7	1	7
+5	5	8	7	9	7	4	6	5	4	4	6	3	9
+6	1	8	5	7	4	7	4	5	10	7	8	6	4

r	*n(r)* *obs.*	*n(r)* *theor.*
0	0	0.6
1	6	3.0
2	8	8.5
3	18	16.5
4	25	23.9
5	21	27.9
6	30	27.2
7	23	22.7
8	15	16.5
9	5	10.6
10	11	6.2
11	3	3.3
12	3	1.6
13	0	0.7
⩾14	1	0.5

№ 175. $\alpha = 23^h 12^m$; $B = -34°$. $N = 679$; $w_1 = -$; $w_2 = -$.

[$s_1 = 4$; $\delta_1 = 0.8$; $s_2 = -$; $\delta_2 = -$]

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	1	1	2	4	2	3	2	2	6	1	1	6
−5	2	4	6	5	4	2	2	7	6	8	7	8	3
−4	3	3	3	5	5	4	5	2	6	3	4	1	4
−3	7	7	7	8	3	2	2	9	2	6	11	6	2
−2	5	7	4	2	4	3	1	3	4	4	5	2	4
−1	3	3	0	7	4	3	4	3	4	7	4	5	2
0	6	2	3	4	1	3	4	5	4	3	7	2	5
+1	4	8	5	3	0	4	0	0	3	7	3	1	3
+2	3	3	7	4	5	2	2	1	3	5	5	4	7
+3	4	1	4	3	3	6	7	5	5	3	4	5	5
+4	2	6	9	3	1	5	3	3	2	5	5	6	2
+5	1	5	5	3	5	4	3	4	4	4	3	6	5
+6	3	4	6	10	6	5	4	4	6	6	1	4	6

r	$n(r)$ obs.	$n(r)$ theor.
0	4	3.2
1	13	12.3
2	23	25.0
3	33	33.0
4	33	33.2
5	25	26.6
6	17	17.4
7	13	10.2
8	4	5.1
9	2	2.2
10	1	0.9
⩾11	1	0.7

№ 176. $\alpha = 23^h 20^m$; $B = -35°$. $N = 1213$; $w_1 = 100$; $w_2 = 33$.

$s_1 = 9$; $\delta_1 = 2.6$; $s_2 = 4$; $\delta_2 = 13.2$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	3	12	10	4	1	8	5	3	5	6	10	4	6
−5	8	5	7	5	7	7	6	6	10	4	4	12	3
−4	3	11	6	11	3	7	7	7	8	6	12	6	2
−3	9	5	7	11	9	6	8	8	8	11	4	5	6
−2	2	9	9	10	6	9	5	10	8	15	6	7	7
−1	7	10	6	12	8	8	10	8	4	8	11	3	3
0	5	11	6	10	5	7	7	8	9	6	8	4	1
+1	2	11	4	6	11	8	10	7	8	11	14	8	4
+2	8	15	16	10	10	7	11	12	9	8	5	10	2
+3	9	9	8	8	4	8	10	12	15	4	7	4	0
+4	9	5	7	4	2	8	12	6	5	11	7	7	2
+5	6	7	5	6	12	5	5	10	5	5	5	4	8
+6	5	7	1	9	8	9	8	5	5	8	5	8	7

r	$n(r)$ obs.	$n(r)$ theor.
0	1	0.1
1	3	1.0
2	6	3.3
3	7	8.0
4	14	14.2
5	22	20.5
6	18	24.4
7	21	25.2
8	27	22.7
9	12	18.0
10	14	13.0
11	11	8.4
12	8	5.1
13	0	2.9
14	1	1.5
15	3	0.7
⩾16	1	0.5

№ 177. $\alpha = 23^h 28^m$; $B = -36^0$. $N = 1064$; $w_1 = 6$; $w_2 = 13$.

$s_1 = -$; $\delta_1 = -$; $s_2 = -$; $\delta_1 = -$

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	5	9	1	6	10	8	3	3	4	10	4	5	4
−5	7	5	7	6	4	9	4	7	4	6	3	9	4
−4	8	5	4	6	5	6	9	11	5	1	4	6	5
−3	7	9	7	6	8	6	6	5	11	4	6	7	8
−2	11	7	11	8	6	7	4	5	6	5	4	9	6
−1	5	5	5	4	3	4	8	5	4	4	8	12	6
0	3	0	8	3	8	9	9	12	7	4	11	7	6
+1	9	6	7	6	5	7	2	7	3	2	11	10	5
+2	11	4	4	6	4	7	6	2	6	4	7	11	7
+3	4	8	7	6	10	8	6	5	1	5	10	6	6
+4	12	5	9	9	5	10	6	6	10	5	3	8	5
+5	7	9	8	6	6	5	3	5	2	6	7	3	3
+6	8	9	8	11	12	6	11	5	5	4	7	9	4

r	$n(r)$ obs.	$n(r)$ theor.
0	1	0.3
1	3	2.0
2	4	6.2
3	11	13.2
4	24	20.3
5	26	25.8
6	30	27.2
7	20	24.3
8	15	19.3
9	14	13.6
10	7	8.5
11	10	4.9
12	4	2.6
⩾13	0	2.1

№ 178. $\alpha = 23^h 36^m$; $B = -36^0$. $N = 1022$; $w_1 = 5$; $w_2 = 2.5$.

[$s_1 = 3$; $\delta_1 = 1.3$; $s_2 = -$; $\delta_2 = -$]

$+\delta$ \ $+\alpha$	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6
−6	2	8	5	5	3	7	5	5	5	6	8	3	7
−5	6	2	5	12	9	6	5	7	2	1	5	4	2
−4	8	11	7	2	5	6	8	3	4	6	5	4	2
−3	9	5	13	3	7	5	6	8	4	3	4	7	5
−2	7	8	10	11	6	5	7	12	9	3	8	3	6
−1	9	6	3	6	9	3	6	6	9	7	7	13	8
0	5	8	5	13	5	5	2	6	4	10	9	10	5
+1	8	3	4	7	7	5	7	6	9	5	6	6	7
+2	11	10	8	7	2	3	9	7	7	4	8	3	8
+3	3	7	4	10	4	10	6	11	9	7	8	7	3
+4	7	5	11	11	4	7	9	7	6	8	4	4	5
+5	1	1	5	4	5	2	10	6	8	6	8	6	4
+6	4	2	4	6	5	4	1	3	4	5	6	6	4

r	$n(r)$ obs.	$n(r)$ theor.
0	0	0.4
1	4	2.5
2	10	7.5
3	15	15.0
4	20	22.4
5	27	26.9
6	25	27.0
7	22	23.3
8	17	17.5
9	11	11.8
10	7	7.2
11	6	4.0
12	2	2.0
13	3	1.0
⩾14	0	0.5

№ 179. $a = 23^h 44^m$; $B = -37^0$. $N = 1310$; $w_1 = 25$; $w_2 = -$.

$s_1 = -$; $\delta_1 = -$; $s_2 = -$; $\delta_2 = -$

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6 $+\alpha$
−6	4	8	7	6	6	4	4	8	10	5	6	8	6
−5	5	8	8	5	11	10	8	4	6	14	7	10	9
−4	11	8	11	8	10	8	11	11	8	11	5	8	7
−3	15	11	6	11	10	9	11	10	7	8	4	10	10
−2	9	11	7	9	9	5	6	7	4	11	10	7	3
−1	13	8	7	6	12	9	10	4	4	5	4	8	8
0	10	9	9	10	5	5	3	10	3	4	17	6	6
+1	9	12	7	12	8	4	11	6	1	5	7	7	6
+2	6	12	8	10	7	7	2	3	8	6	6	12	6
+3	8	11	10	7	7	6	11	7	10	9	6	5	4
+4	5	11	9	14	11	2	4	9	13	9	6	3	3
+5	11	13	13	15	9	9	8	4	5	7	1	14	8
+6	5	7	7	8	6	10	8	8	3	10	8	5	1

$+\delta$

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	0	0.2
1	3	0.8
2	2	2.4
3	7	5.6
4	14	11.2
5	14	17.3
6	20	22.0
7	19	24.2
8	25	23.7
9	15	20.0
10	18	15.7
11	17	10.8
12	5	7.1
13	4	4.2
14	3	2.3
15	2	1.2
16	0	0.6
⩾17	1	0.6

№ 180. $a = 23^h 52^m$; $B = -38^0$. $N = 908$; $w_1 = -$; $w_2 = 40$.

$s_1 = -$; $\delta_1 = -$; $s_2 = 4$; $\delta_2 = 10.8$

	−6	−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5	+6 $+\alpha$
−6	5	4	3	5	8	5	5	5	3	3	3	7	5
−5	6	8	5	3	5	4	6	4	8	10	3	3	1
−4	4	5	3	4	3	4	4	2	4	2	4	7	10
−3	4	9	7	4	8	5	11	8	6	7	6	7	5
−2	4	3	6	4	6	5	6	4	4	7	2	4	4
−1	5	7	8	1	4	4	3	7	3	7	2	3	5
0	6	6	6	2	6	4	5	2	5	6	7	6	6
+1	4	8	6	5	5	4	3	8	4	6	3	8	5
+2	12	8	3	5	5	4	4	5	3	9	4	7	3
+3	4	5	9	8	3	5	10	6	2	5	5	10	5
+4	2	7	6	*11*	*12*	3	2	6	7	2	9	4	9
+5	8	8	8	*10*	6	4	4	8	4	2	5	2	2
+6	6	3	9	*10*	8	11	2	5	4	4	11	7	4

$+\delta$

r	$n(r)$ *obs.*	$n(r)$ *theor.*
0	0	0.8
1	2	4.2
2	14	11.2
3	21	20.3
4	34	27.2
5	29	29.3
6	21	26.3
7	14	20.3
8	16	13.6
9	6	8.0
10	6	4.4
11	4	2.1
⩾12	2	1.6

Erratum.

On page 37, *Ch.* 52.

for	$w_1 = 17$	*read*	$w_1 = 7$,
„	$s_1 = 4$	„	$s_1 = 16$,
„	$\frac{s_1 \Delta_1}{169} = 0.02$	„	$\frac{s_1 \Delta_1}{169} = 0.14$,
„	$s_2 = 1$	„	$s_2 = 3$, and
„	$\frac{s_2 \Delta_2}{169} = 0.01$	„	$\frac{s_2 \Delta_2}{169} = 0.03$