METEORITIC SHOWER MORASKO

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On the outskirts of Poznań, Poland, nine kilometers from the town, the village called Morasko is located. In the village's beech-oak forest one can find eight closed depressions in the ground. Some of them are filled with water.

For a long time these basins were considered small lakes from the glacial era. In 1914 during the First World War, during digging of the trenches, a block made of iron was found at a depth of five meters. Further discoveries followed. Several blocks, the biggest having a mass of 78 kg, were found on local farms. Today the total mass of pieces of iron that have been discovered amount to 400 kg.

It became evident after all of these discoveries that at one time in the region of Morasko a meteoritic shower took place. No legends about the phenomenon have been preserved. We suppose that the fall took place in prehistoric time, no farther back, however, than 10,000 years ago, in the last glacial era.

The meteoritic shower proved to be made of iron. Strictly speaking, the discovered specimens were classified as coarse-grained octahedrites and from chemical analysis (T. Borowiak, B. Hurnik) the following percentage by weight was found:

Element	Percentage by weight
Fe	92.00
Ni	7.15
Co	0.52
P	0.21
Cu	0.02
other elements	0.10

It is questionable whether the meteoritic shower left any traces on the surface of the earth (Figure 1).

The Morasko meteorite fragments were found in the same region as the above-mentioned closed depressions. During discussion of their origin the association of the depressions with the discovered meteorite pieces can be made.

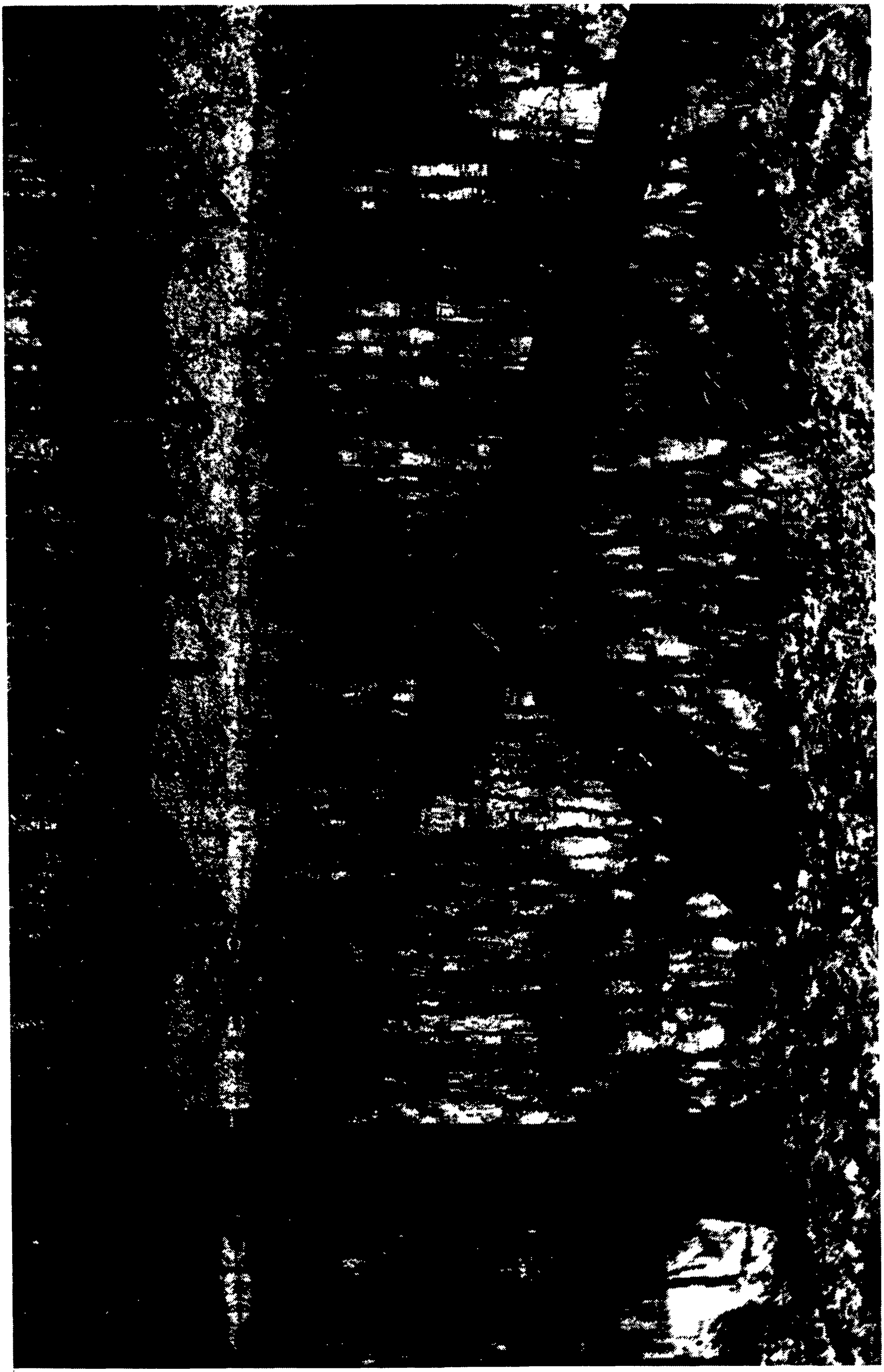

Photo 1 The biggest crater Morasko (photo H. Korpikiewicz).

Photo 2 The biggest crater Morasko (near center Prof. Kwan Yu Chen from the U.S.A. and the author).

Photo 3 The bank of biggest crater (Direction: S →N).

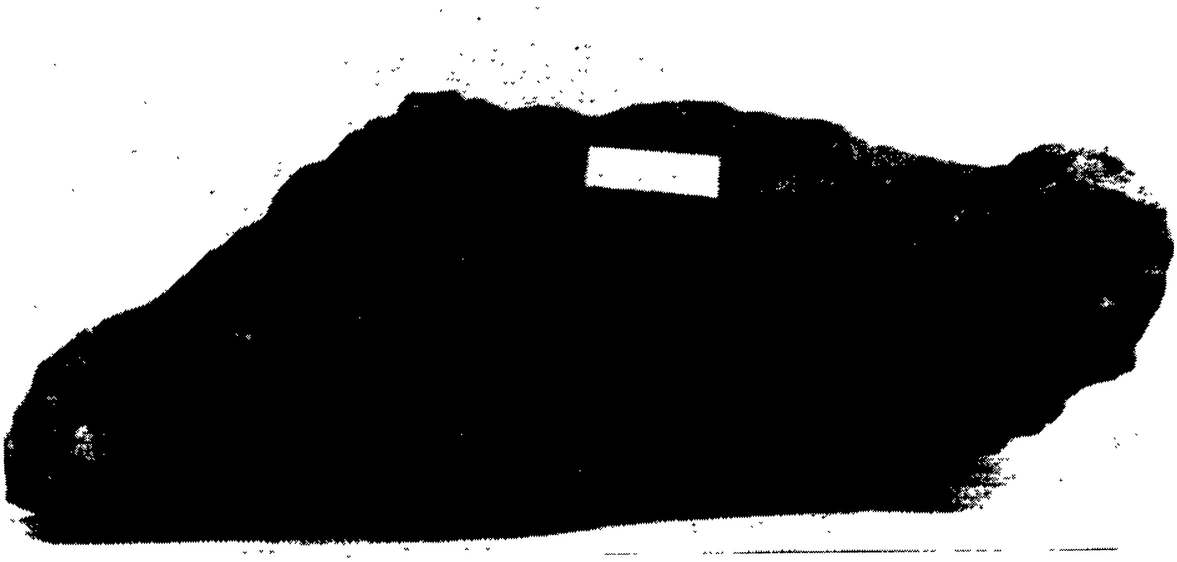

Photo 4 Largest piece of meteorite Morasko (photo H. Korpikiewicz).

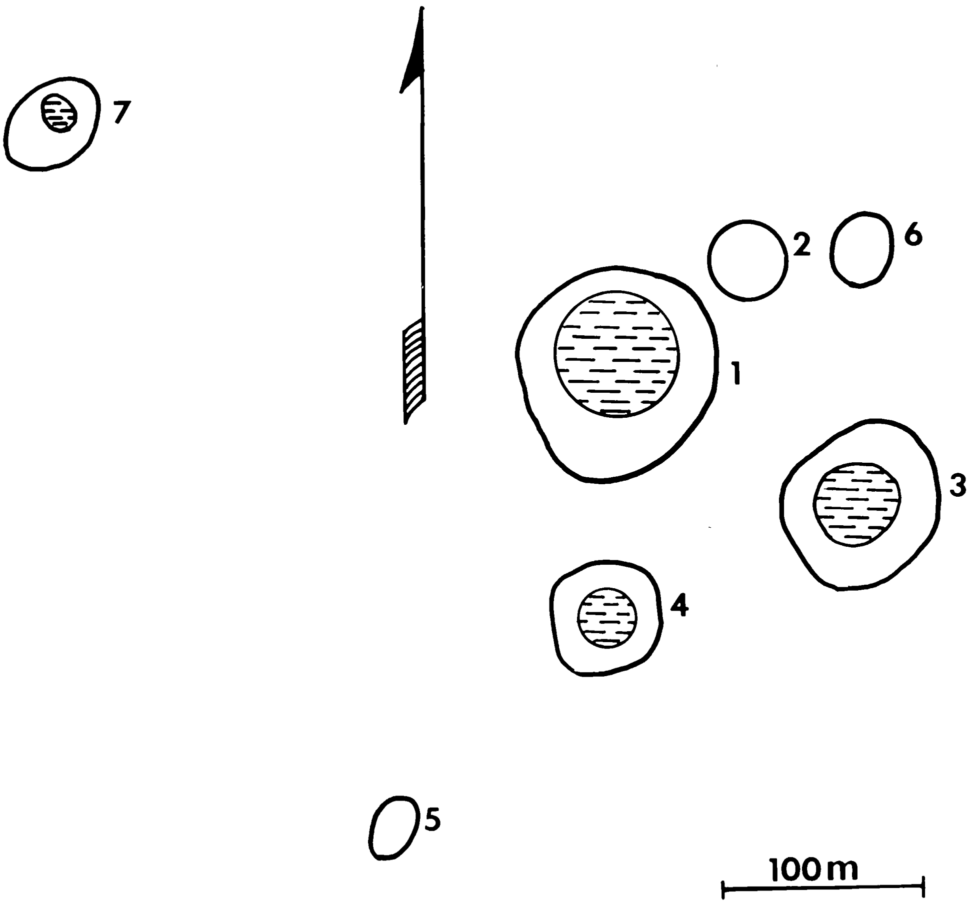

Fig. 1

Table 1 contains the parameters of the closed depressions (craters): the diameter of the ridge and the depth. One must take into account that the diameter in relation to the depth is similar for all the craters and is equal to approximately 8.2.

Figures 2-3 (made by H. Kuźmiński) present a section of the biggest crater. Profiles of all of the closed depressions are similar to each other and are typical for meteoritic craters. All of them have the northern bank higher and southern bank lower.

From the craters' geometrical parameters, horizontal coordinates of the radiant of the meteorite under discussion were estimated as a = 210°, and h = 30°-40° (H. Kuźmiński).

The meteorite fragments found near the lakes, as well as the distribution and geometrical parameters of the closed depressions, gave the hypothesis of an explosive or striking (generally meteoritic) origin.

The best proof is still the meteoric and meteoritic dust which has been found inside the craters.

Analysis of the dust distribution was made by the author. The first samples of the ground collected from the vicinity of the craters showed that the capacity of the magnetic fraction (dust) was much larger than the capacity of the samples collected in the other regions of Poznań.

After the first results were obtained, samples were collected systematically in directions presented in Fig. 4 with regards to the biggest crater, which as far as its dimensions are concerned, could be indicated as an explosive crater.

Samples of the ground were dug up from a depth of approximately 50 centimeters. After drying, each sample was mechanically pulverized, sifted through a plastic sieve and poured into the specific apparatus to obtain the magnetic fraction. Their magnetic dust was examined under a microscope and

Table 1

Number of crater	Depth	Diameter
1	13 m	100 m
2	3,1	25
3	5	63
4	4,5	35
5	0,9	15
6	2,5	24
7	4,9	50
8	4,5	35

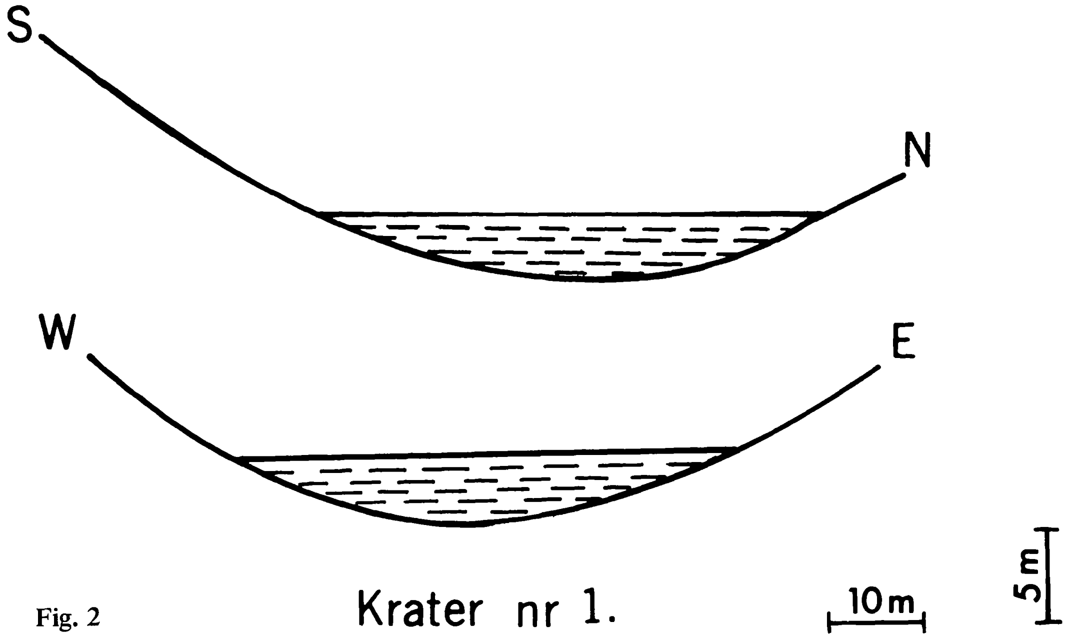

Fig. 2

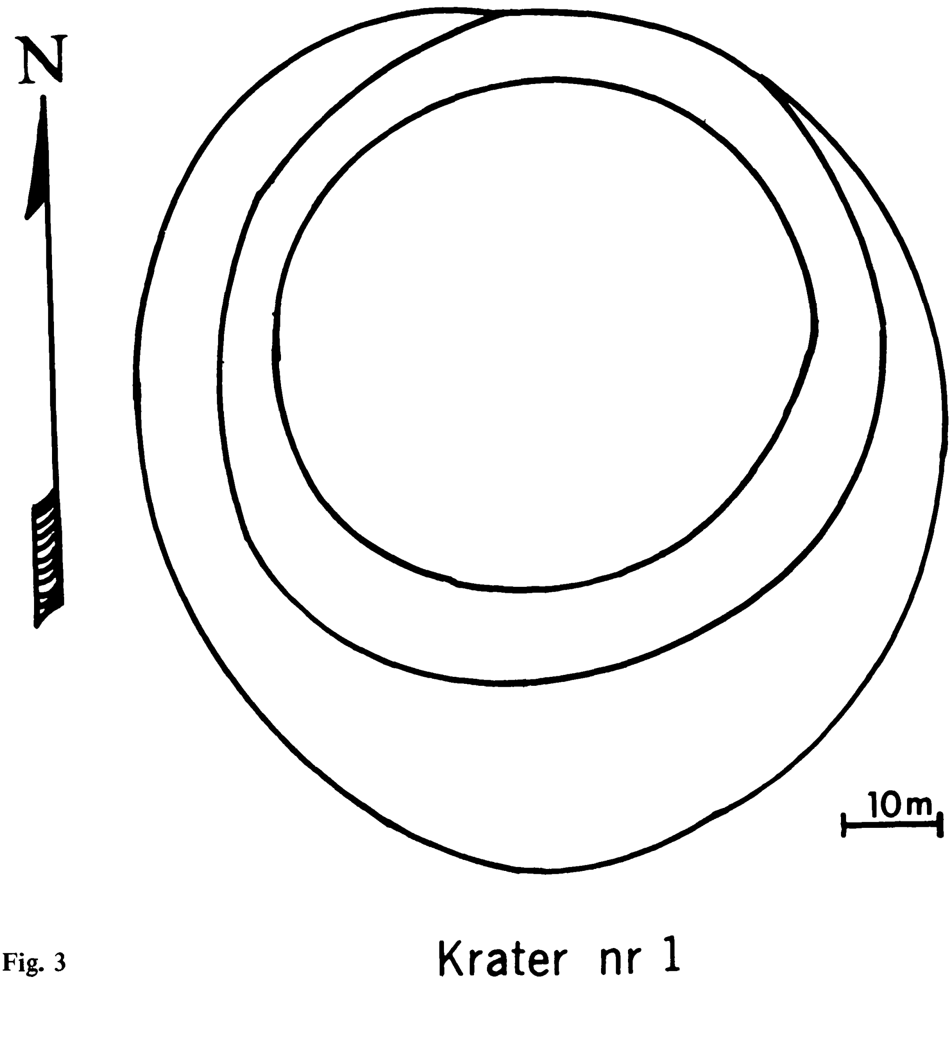

Fig. 3

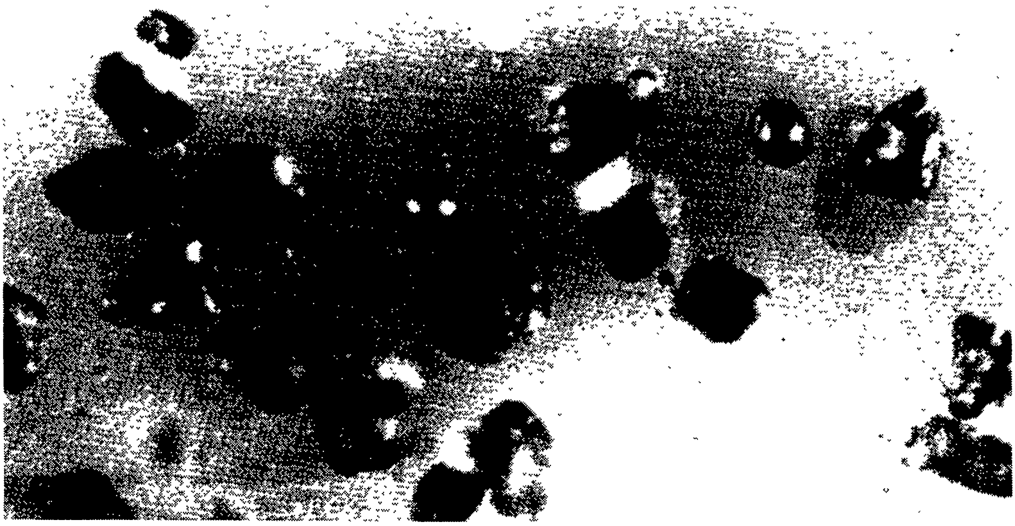

Photo 5 Meteoric and meteoritic dust "Morasko" (80 ×) (photo H. Korpikiewicz).

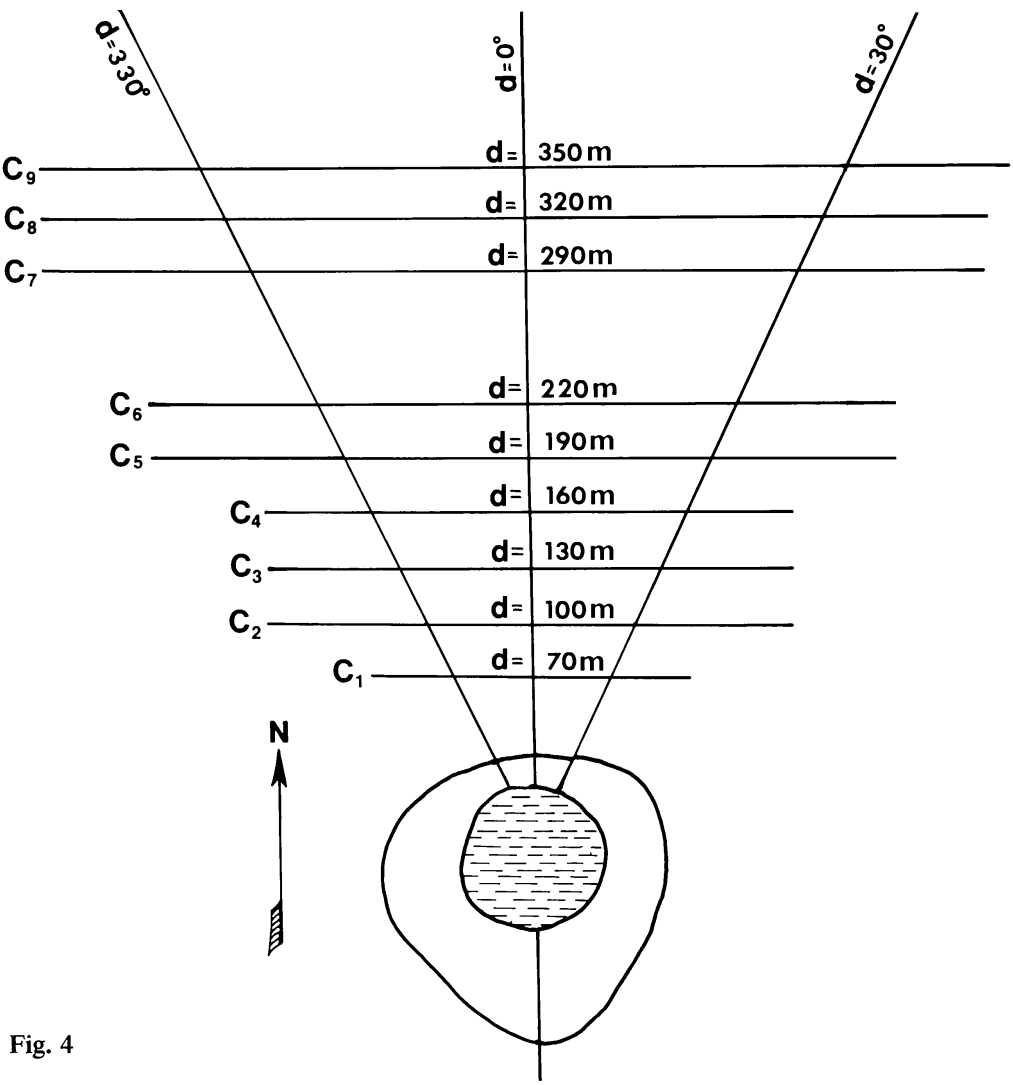

Fig. 4

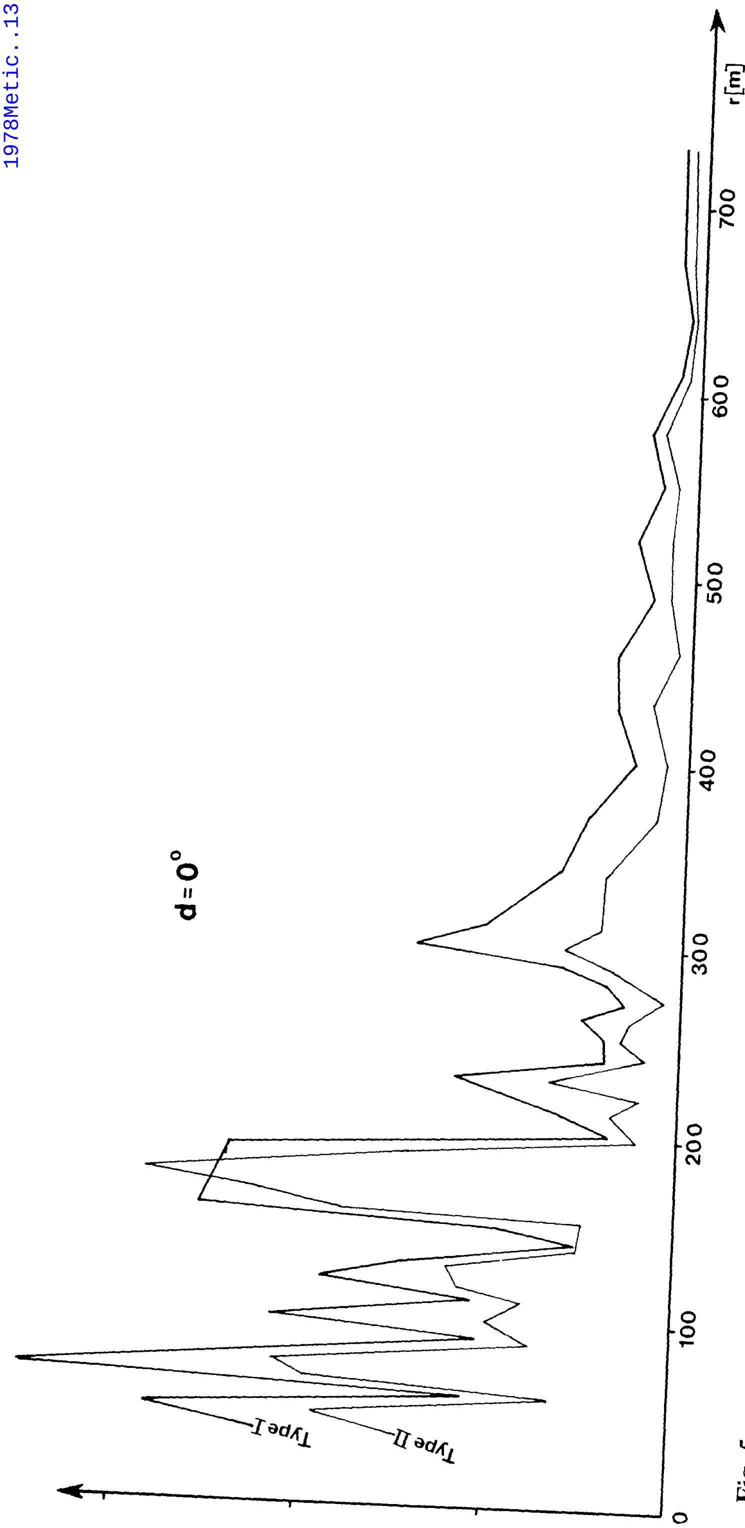

Fig. 5

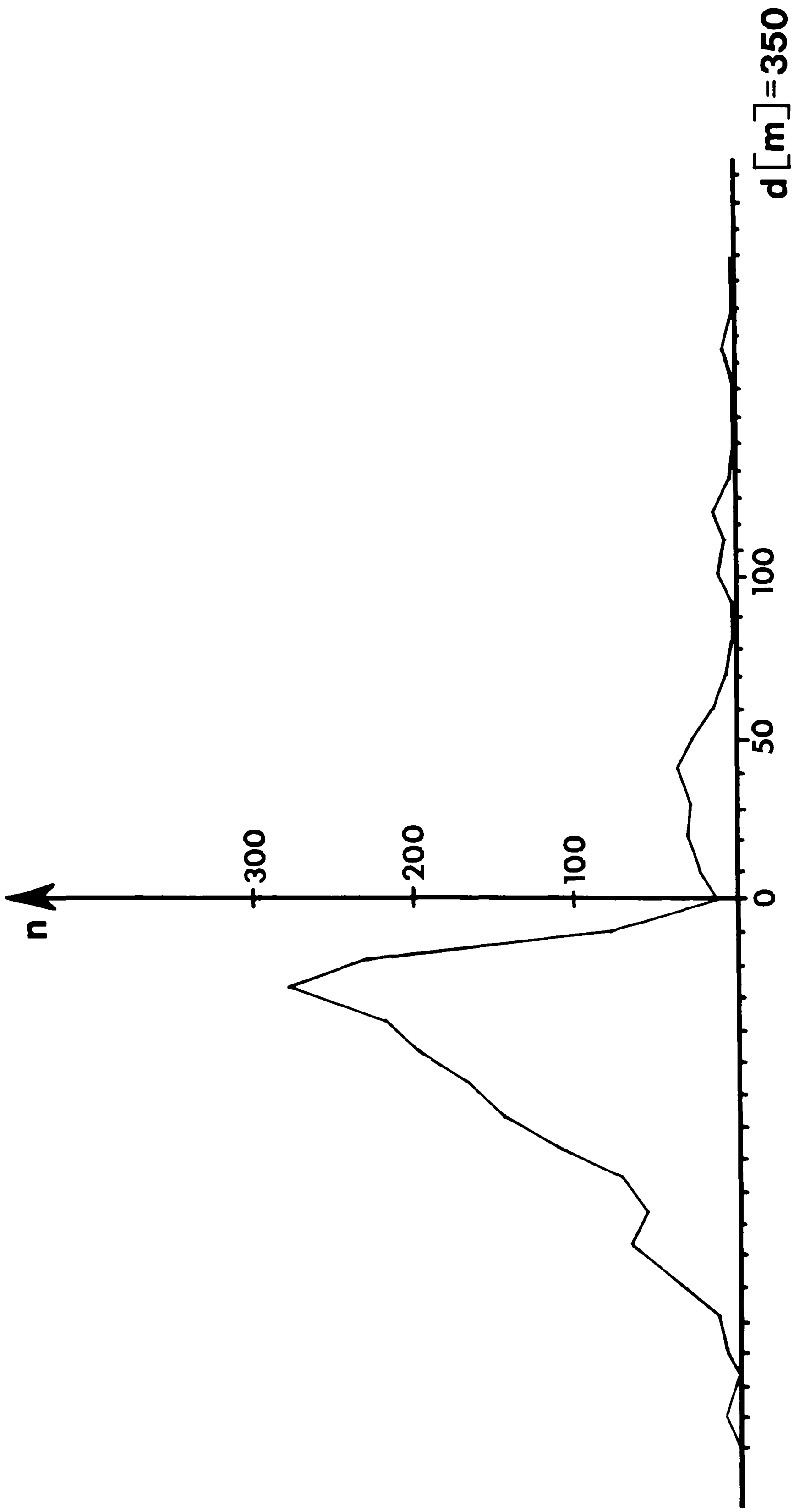

Fig. 8

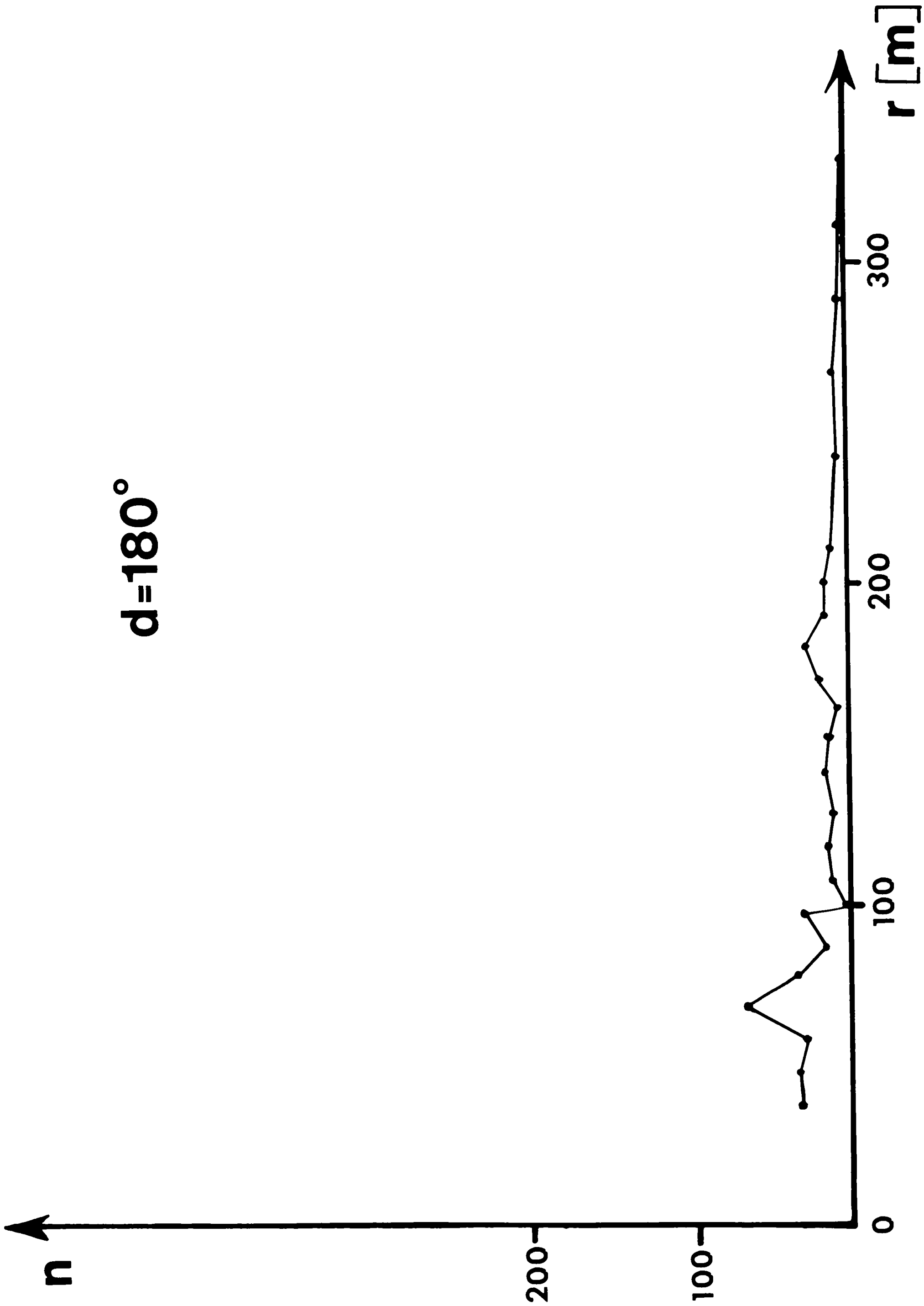

Fig. 9

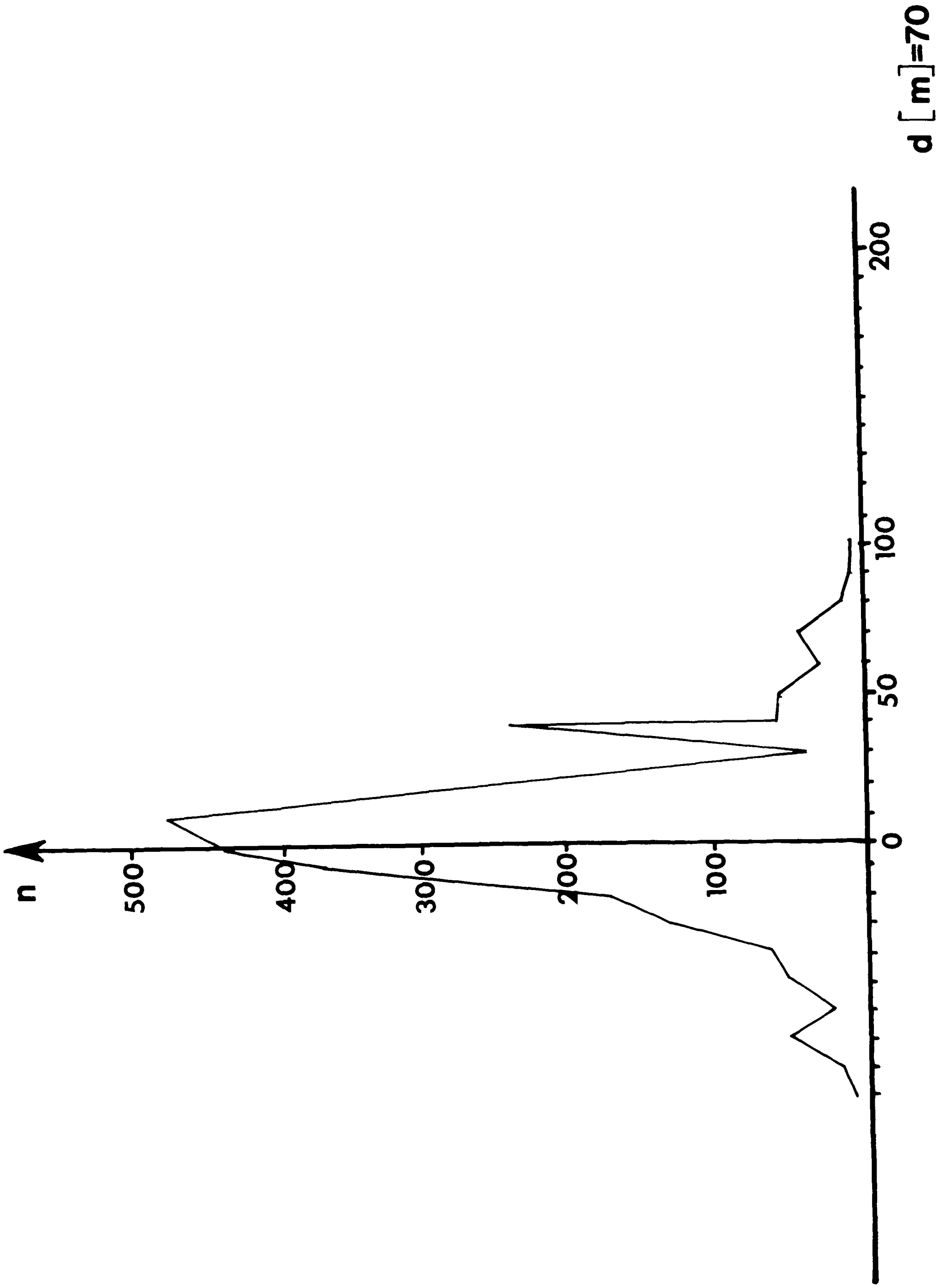

Fig. 6

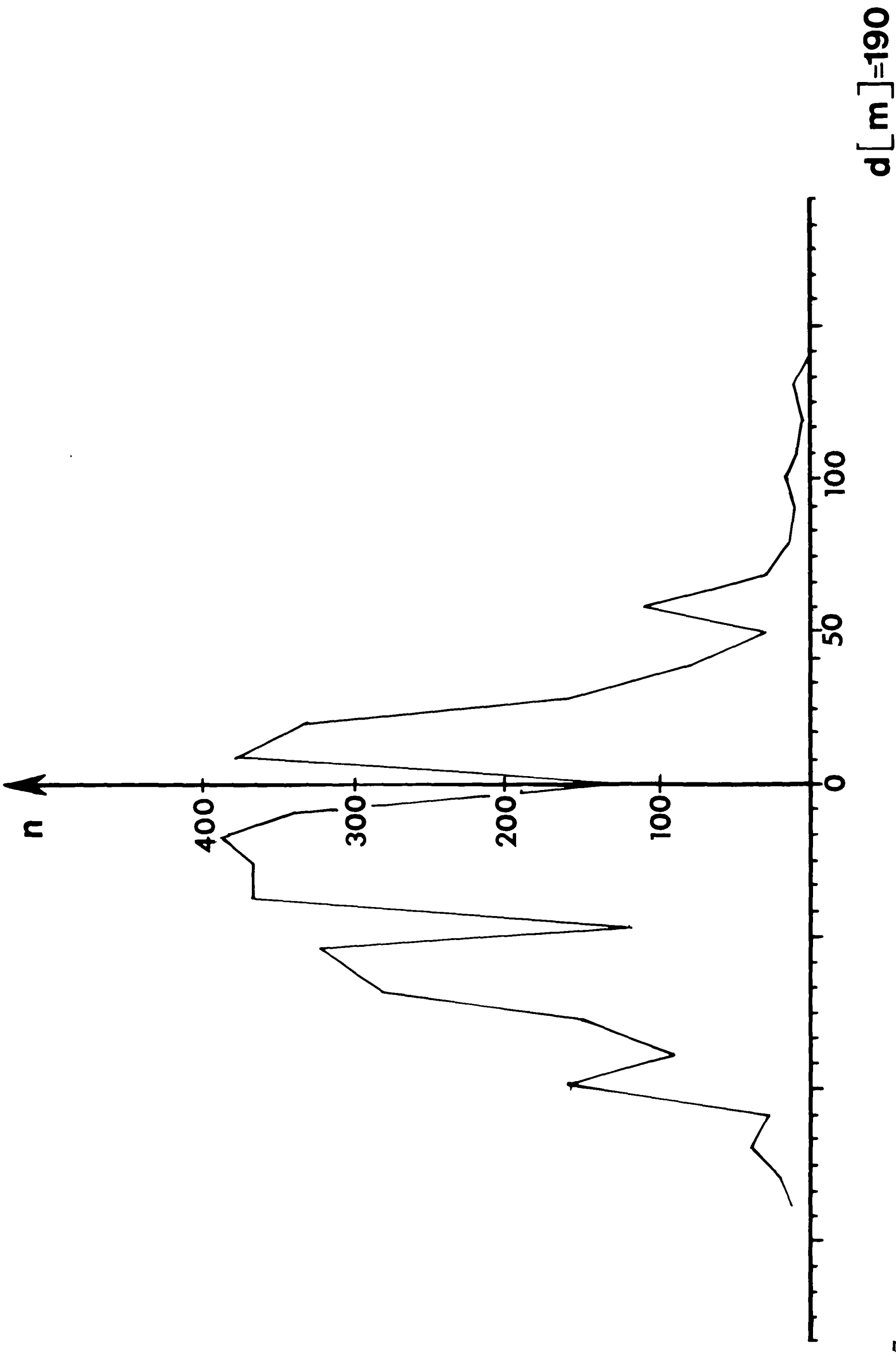

Fig. 7

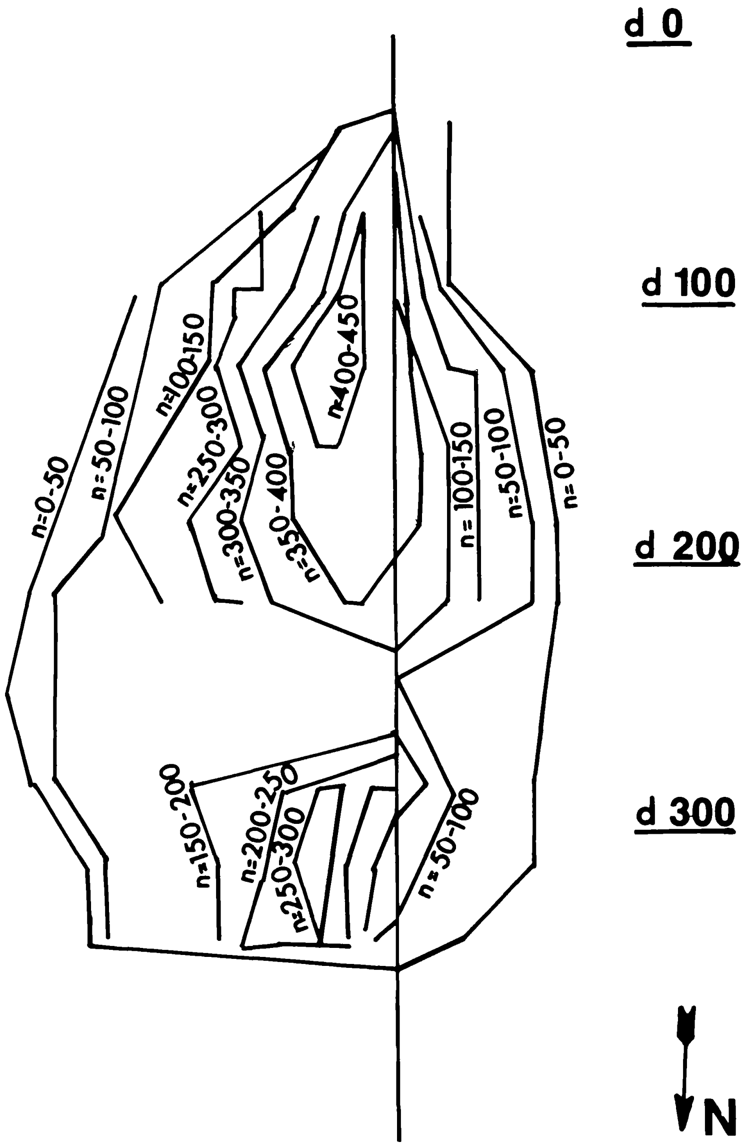

Fig. 10

analyzed from the quantitative and qualitative point of view.

Figure 5 presents the distribution of the spherical magnetic fraction along a direction: from the megacentrum of the explosion (i.e., the centrum of the biggest crater) to the north.

Type I concerns the brilliant balls, type II concerns the matted balls.

Figure 4 shows the directions along which similar anslyses of the spherical magnetic fraction were made.

In view of the apparent similarity between the dust distribution of type I and II, no partition of the two kinds of balls was further considered.

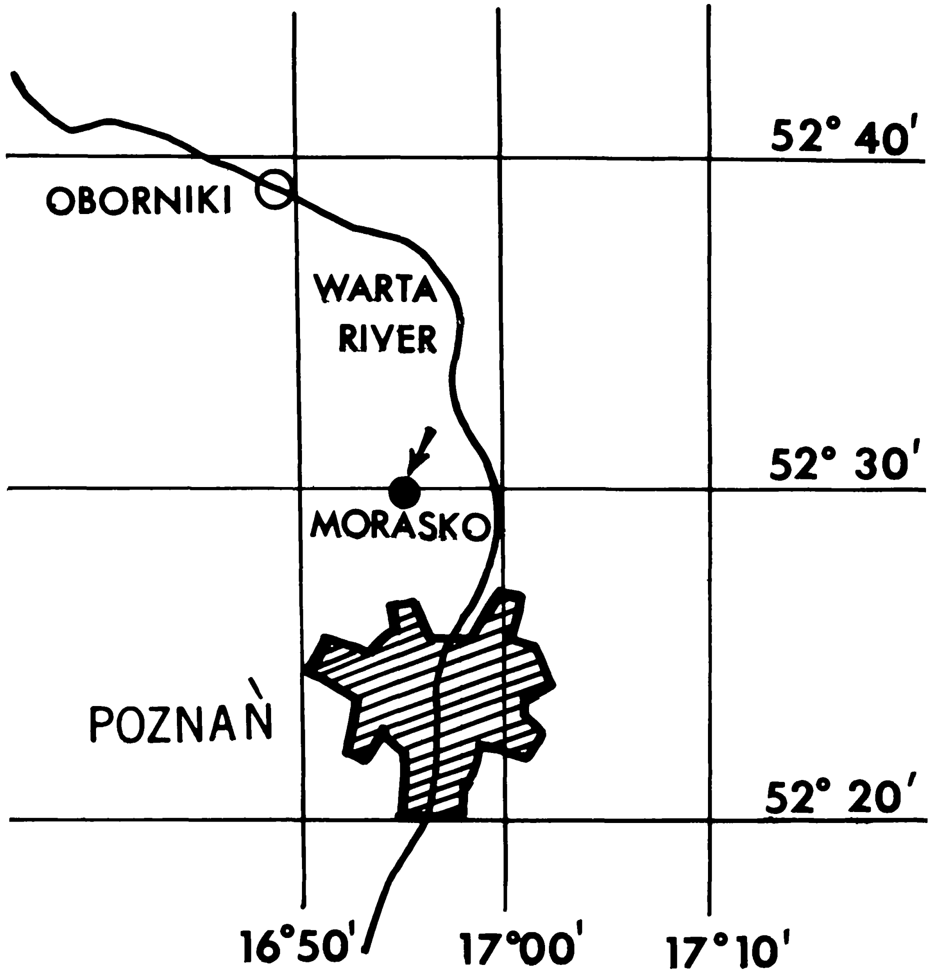

Fig. 11

Figures 6, 7, and 8 present the results of counting balls along the directions of C_1, C_5, C_9. Figure 9 shows this distribution along the 180° azimuth (counted from the north).

The lines of equal quantities are called izopleta (Greek). The izopletes for equal quantity of dust are shown by Fig. 10. The investigations (mainly the analysis of the meteoric dust) indicate that the Morasko closed depressions are of meteoritic origin.

Analysis of the distribution of the dust allows us to draw a conclusion about the direction of the shower pass. The radiant's azimuth was found to equal about 190° to 200°.

The values are consistent with the assumptions from the craters' geometrical parameters. Two maxima of dust distribution indicate the existence of two main explosions above the earth's surface. From the height of the radiant, equal to 30°, we can assume the height of the explosions under discussion as equal to 220 m and 130 m.

Since 1974 solications have been made to recognize the Morasko meteoritic fall region as a sanctuary of nature. They were successful. since May 2, 1976 on maps of Poland the new 53,79 ha Sanctuary Meteorite Morasko can be found.

Manuscript received 11/23/77