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# On the distribution of chocolate flint in the Late Mesolithic of the Vistula basin

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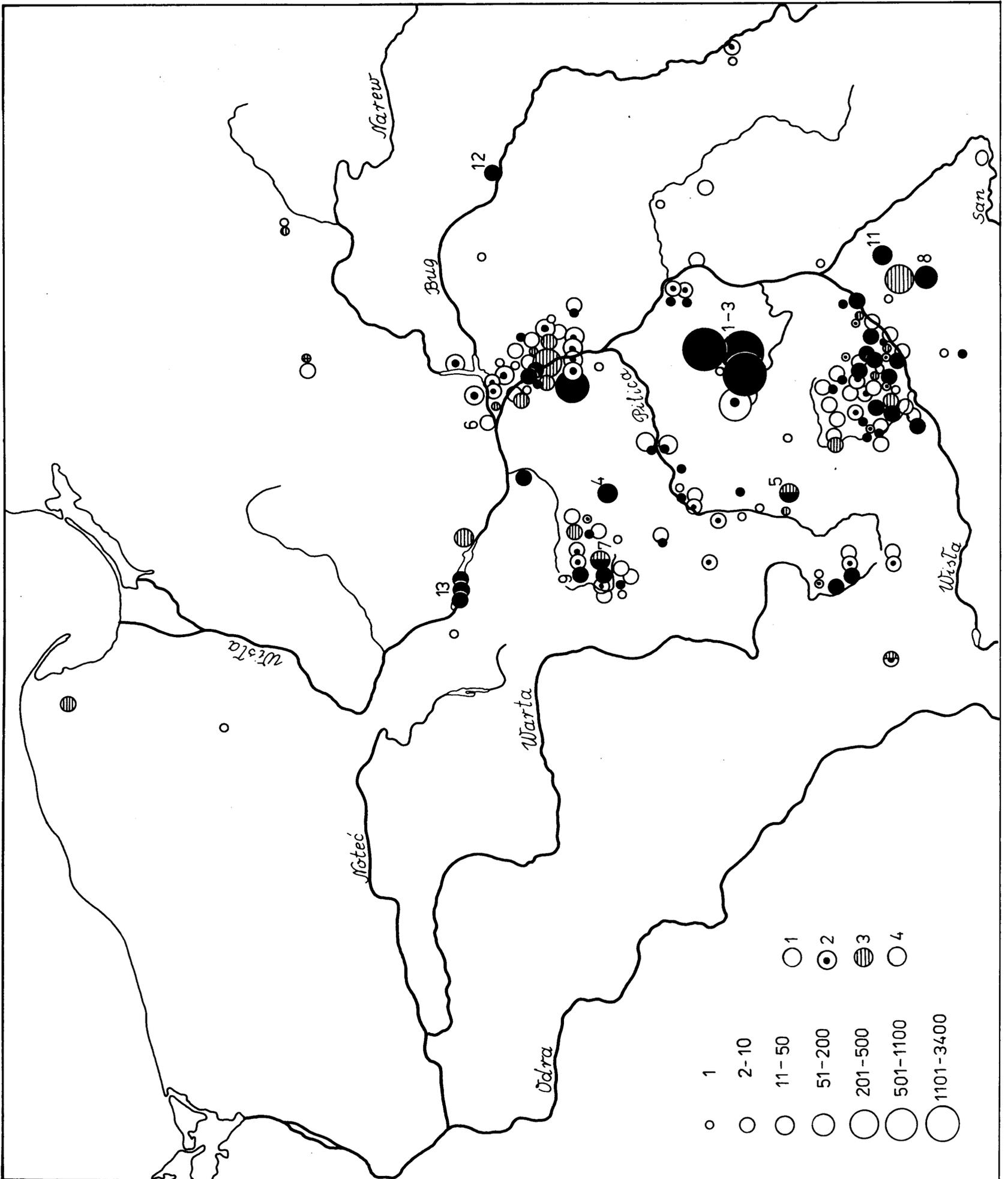
Chocolate flint was popular among the late Mesolithic communities in the Vistula River basin and its neighbourhood. The distribution of this flint is described and an important grave of a Mesolithic miner — flint-knapper at Janisławice is also discussed.

KEY-WORDS: chocolate flint, distribution of artefacts, grave of miner, Mesolithic, Janisławice, Vistula basin

Due to its high technical quality, chocolate flint was widely used both in the Mesolithic, and throughout the whole of the Stone Age. In comparison with other raw materials, its range of use is comparable with that of Baltic flint (Cyrek 1981a:fig. 20). Among 259 Mesolithic assemblages from the Vistula and Upper Warta basin, 90 contained chocolate flint (Fig. 1).

Chocolate flint, in its erratic and extracted form, was being used by the communities of three main cultures of the Polish Mesolithic (*i.e.*, the Komornica, Chojnice-Pieńki and Janisławice Culture). The erratic type of chocolate flint in the form of small waterworn pebbles, or fragments of big nodules eroded by water from a rock deposit, was more commonly used in the Early Mesolithic, on the Komornica Culture sites. In the Late Mesolithic, however, extracted flint prevailed, especially in the Janisławice Culture, and it appeared in the form of slab-like nodules of high utilitarian qualities. It was obtained through mining, *i.e.*, digging shafts in flint-bearing karstic clays, in the northern foreland of the Świętokrzyskie (Holy Cross) Mountains (Schild, Królik and Marczak 1985). Due to the large variety of types of chocolate flint found on individual sites, it seems to have been obtained in different parts of the above region. Most often, however, bright types of chocolate flint were used (group 6, 7 and 8, according to Schild 1971), from the deposits near Orońsko and Tomaszów. Out of 13 assemblages of the Janisławice Culture from the Vistula basin,

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as many as 11 (Fig. 1) contained chocolate flint specimens (Cyrek 1981a:fig. 2). The assemblages are as follows (in order of percentage):

- Tomaszów 2, concentration B, trench II — 99.91%
- Grzybowa Góra-Rydno VI/59 — 99.84%
- Grzybowa Góra-Rydno XIII/59 — 99.4%
- Janisławice 1 — 97.56%
- Dąbrówka 3 — 86.4%
- Wieliszew XIII/60/62 — 39.94%
- Ciołki-Zagłoba 1 — 27.93%
- Poręby-Dymarskie 2/2-3 — 12.55%
- Witów 1, layer 3 — 16 out of 25 artefacts from chocolate flint, constituting a fragment of a bigger assemblage,
- Ranizów 1 — significant amount of chocolate flint (lack of data in %)
- Gwoździec 9 — 2.15%
- Słochy Ogrodniki — 0.38%
- Wistka Szlachecka III/60 — vestigial amount of chocolate flint.

The above assemblages have undergone a complex analysis, which apart from considering the chocolate flint percentage (mainly dependent on the distance between the site and deposits, as well as upon the presence of other good, raw materials in the vicinity of the outcrop), deals with the technique of material processing, technical and typological structure, assemblage stylistics, and tool morphology, as well as the form in which chocolate flint reached the site and the stage at which its processing was finished (Cyrek 1981a:16-51). The analysis helped to define the role of individual sites in the process of chocolate flint extraction, distribution, and processing. Thanks to this analysis, and a more detailed technical-typological one, an attempt has been made to reconstruct the process of chocolate flint distribution in the Janisławice Culture, in the Vistula basin. Five main links in the distribution have been distinguished:

I — undiscovered, as yet, extraction shafts (Tomaszów I) from which flint, in its raw form, was transported to mining workshops (Schild, Królik and Marczak 1985:152-3).

II — workshops, situated in the close vicinity of shafts, and producing pre-cores and initially struck cores, as well as a certain number of blades and finally treated and used tools (mainly microlithic points). The latter were used on the site, whereas the above mentioned pre-core forms were carried away for use elsewhere. A typical example is provided by the assemblage of Tomaszów II, concentration B, with a big percentage (32%) of core rejuvenation/correction and initial exploitation, abundant waste and chips, as well as the specific technique of core preparation,

characterised by some “carelessness”, most probably resulting from the fact that a large amount of flint was being extracted in the vicinity of the site — a few hundred metres away (Cyrek 1981a:47–8). It is significant that we can find finally treated and used flint forms, which proves that along with extracting and processing flint material, wildlife exploitation was also conducted (Schild, Królik and Marczak 1985:153–4).

III — workshops situated up to several kilometers from the outcrop relying on pre-cores, and initially struck cores (derived from stage II of the distribution), which were then turned into blades (later taken away from the site), and finished tools used on site. This group of sites includes Rydno VI/59 and Rydno XIII/59.

IV — camps (sites of tool manufacture), with a clearly indicated workshop function, in which pre-cores and initially struck cores (obtained from stage II of the distribution) were turned into blades and tools for domestic use. These are sites situated up to 100 km from the outcrop (Dąbrówka 3, Poręby Dymarskie 2/2–3, Ranizów 1, Wieliszew XIII, Ciołki-Zagłoba 1, Witów 1, trench 3 and Janisławice 1).

The latter, which is an isolated and separate burial, is of particular importance for the problem of chocolate flint distribution (Chmielewska 1954; Cyrek and Cyrek 1980; Cyrek 1978) thanks to its specific assemblage, constituting a grave inventory (Figs 2–4). It contained, among other things: prepared nodules, pre-cores, blades refittable with cores, microlithic points refittable with each other (Cyrek and Cyrek 1978; Cyrek 1981b), a hammerstone, and fragments of horn and bone tools, most probably of mining character. It can be assumed that we are dealing here with a collection of objects selected according to some specified criterion. This might have served to emphasize the role of the dead man in extracting and then transporting chocolate flint in the form of pre-cores and prepared (or checked) nodules. He might have participated in an expedition aimed at providing one of the groups from the middle Vistula basin (?) with supplies of chocolate flint. The presence of mining tools in the inventory with clear traces of intensive use may indicate that the man was personally involved in the exploitation of extraction shafts.

V — camps situated between 100 and 300 km from deposits (*e.g.*, Wistka Szlachecka III/60) with a minimal percentage of chocolate flint, which reached the site in the form of several flakes, blades, and perhaps ready-made microlithic points made in stage III and IV of the distribution.

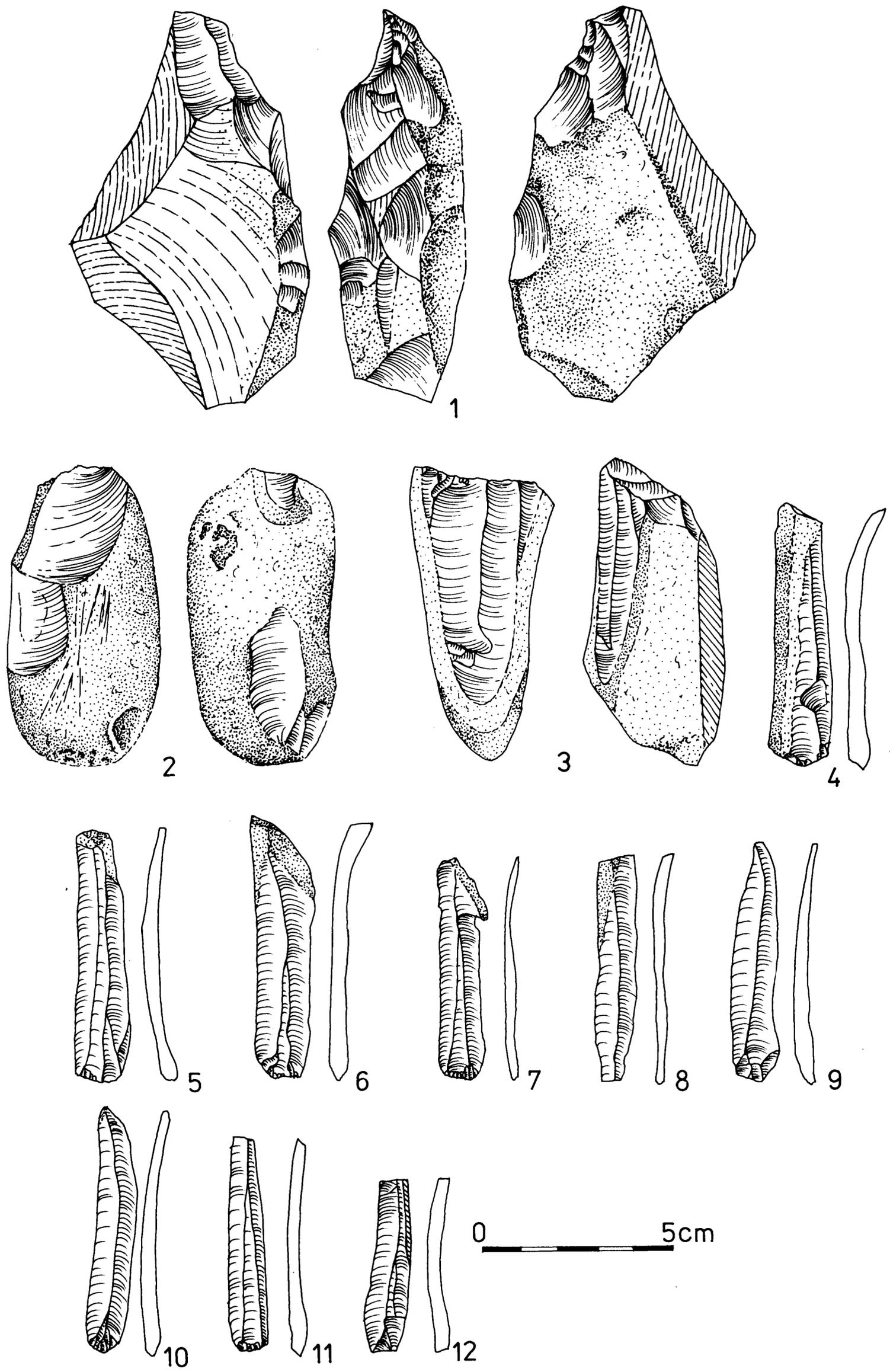


Fig. 2. Janislawice. 1 — pre-core, 2 — flint-nodule, 3-12 — refitted core and blades (from the grave).

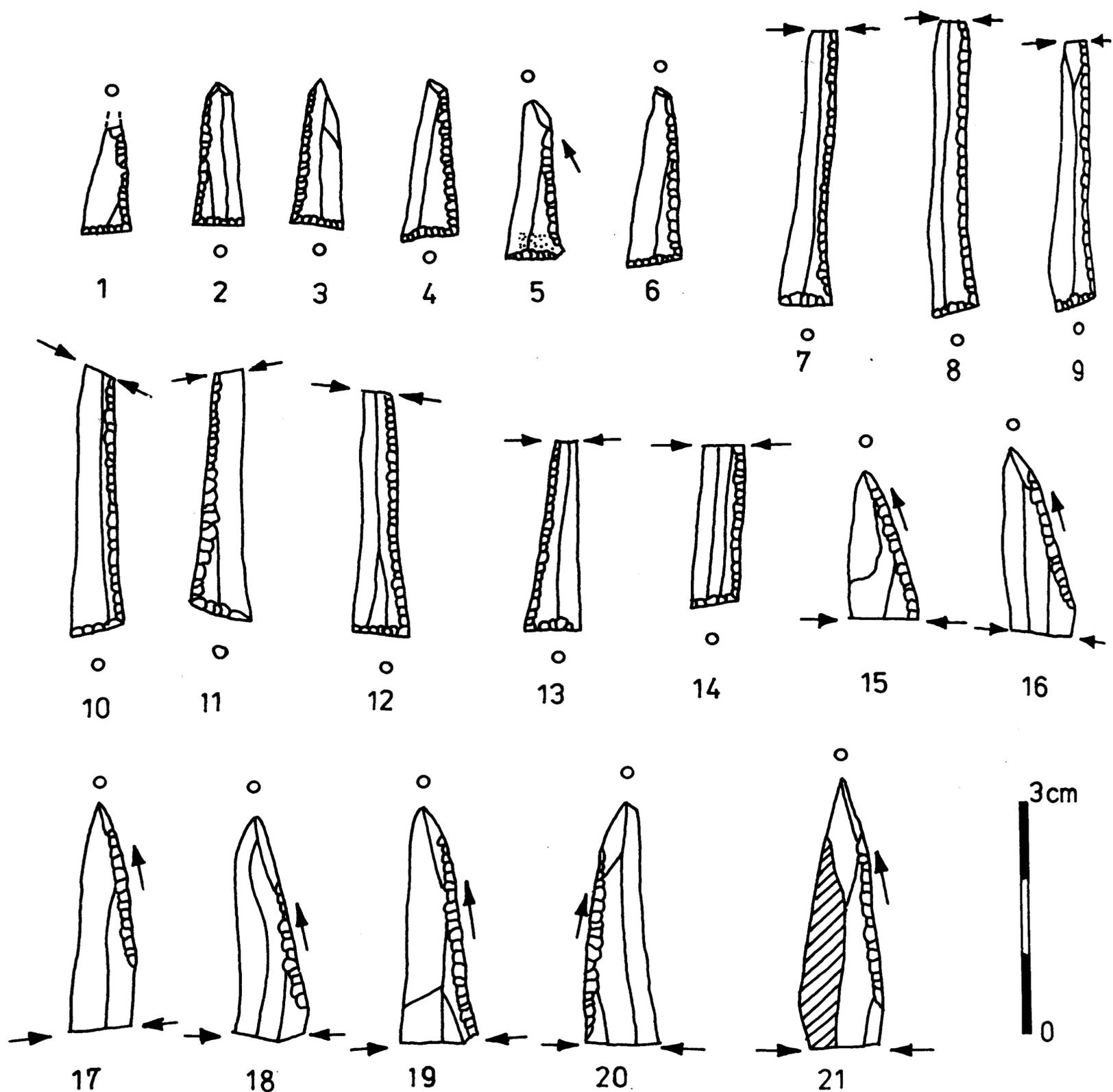


Fig. 3. Janisławice. 1-14 — triangles, 15-21 — points (from the grave).

Considering the radiocarbon dates obtained for Janisławice assemblages (Kozłowski 1989:fig. 10), and particularly the one for Tomaszów —  $4605 \pm 45$  bc (GrN-7051) and also for the post-Janisławice elements from Łykowe — several dates from about 3900 to 3500 bc (Cyrek 1990:292, fig. 3) we can suppose that the above schemes of chocolate flint distribution may have been current between 5000 and 3500 BC. The great importance of chocolate flint in the raw material economy of Mesolithic communities is proved by a cartographic analysis of the problem. A distribution map of chocolate flint artefacts (Fig. 1) indicates the big role of this flint in sites of the three cultural traditions, with a smaller impact of Komornica elements

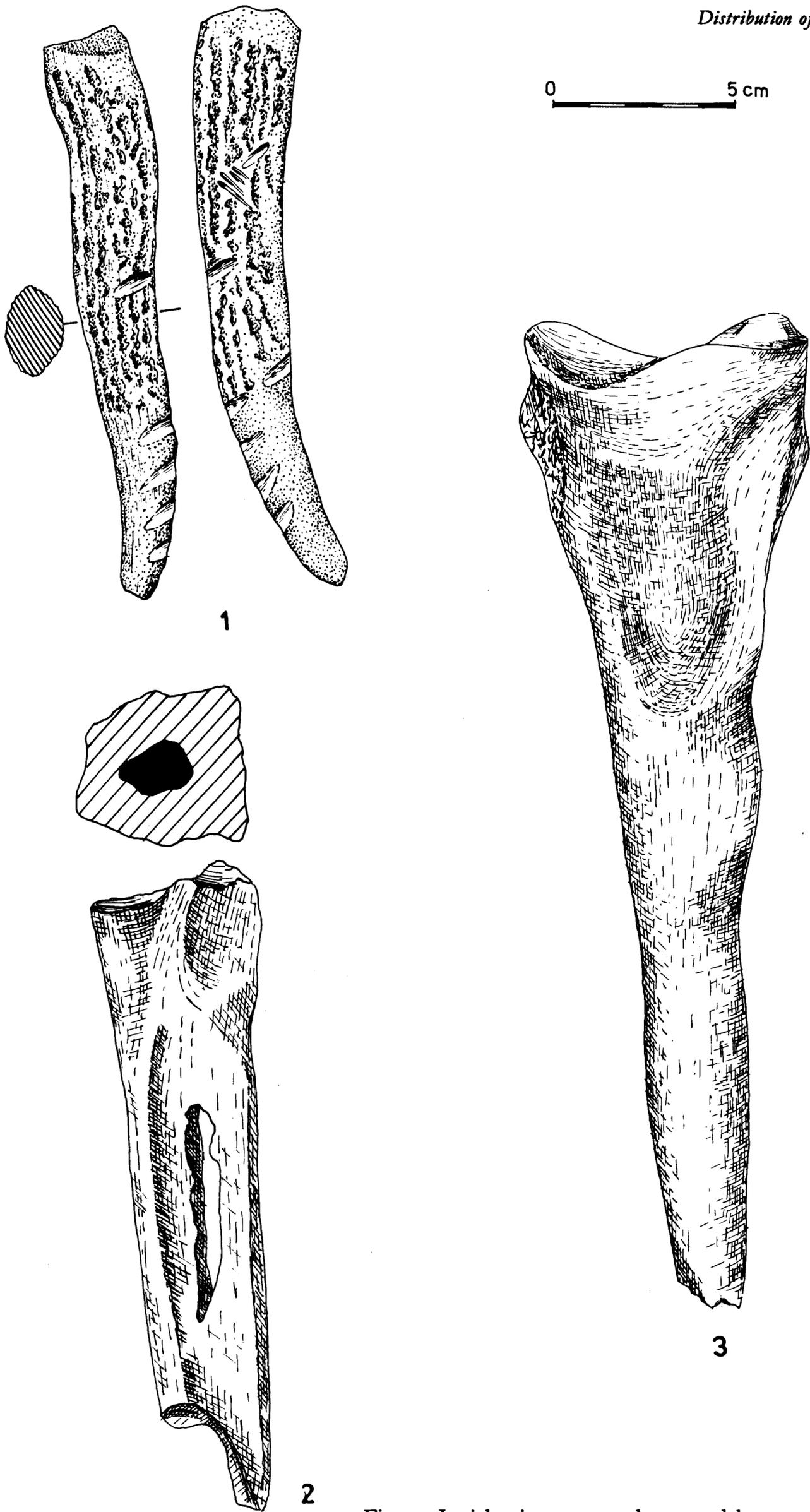


Fig. 4. Janisławice. 1-3 — bone and horn tools from the grave.

than the ones of the Janisławice and Chojnice-Pieńki Cultures. The range of its influence comprises the whole territory occupied by the above cultures in the basin of the Vistula and Upper Warta. The Komornica Culture from Eastern Pomerania is an exception, since it did not make use of the flint, relying solely on local chalk flint. Where the flint was found the farthest from its deposits (about 450 km), it is linked with the Chojnice-Pieńki Culture. It is characteristic that the Janisławice Culture range of influence, and particularly its west and north-west border, overlaps with the chocolate flint occurrence.

On the basis of the above analysis, the directions and extent of the flint distribution have been noted (Cyrek 1981a:fig. 22; Schild, Królik and Marczak 1985:fig. 140; Kozłowski 1989:fig. 4). Apart from the circle with a radius of several kilometres in which only chocolate flint can be found, there is a circle of up to 160 km, which deserves our attention. On all of the sites within this circle, to a lesser or larger extent (depending on the vicinity of other raw materials and cultural attachment) chocolate flint was used. The directions of its hypothetical distribution have been marked on the basis of the tendencies in the location of the sites with the biggest chocolate flint contribution, and also along some of the river valleys. The most important seems to have been the track along the Pilica valley, north-west of the deposits, forking into two arms: one leading to the region of the upper Bzura basin, and the other in the direction of the middle course of the Vistula. Smaller quantities of the raw material were exported in a south-east direction, possibly because of competition from Świeciechów flint. The analysis of flint assemblages proves that on all Mesolithic sites, distant from chocolate flint deposits, this raw material was clearly used carefully. Having small quantities of the material, people made the most efficient use of it, making tools (these were often ready-made forms), or even treating single blades as tools. The more detailed analysis of the technique of flint processing in the Mesolithic (Cyrek 1981a:84–8) made it possible to distinguish certain technical elements, typical for chocolate flint flint processing, and independent of cultural attachment. These are: more pre-core preparation, more rejuvenated/corrected cores, and specific regularity of microlithic points. Also, in cases where several types of raw material are present it is chocolate flint which was used for making blades (Cyrek 1981c:134).

Based on the stages of raw material distribution in the Late Mesolithic, as reconstructed above, and relying on the assumption that so-called local groups and nuclear families were functioning in the period, it was possible to undertake an economic interpretation of how the Mesolithic stone materials were obtained, distributed, and used (Cyrek 1981a:99–105). Four model schemes seem plausible (Fig. 5).

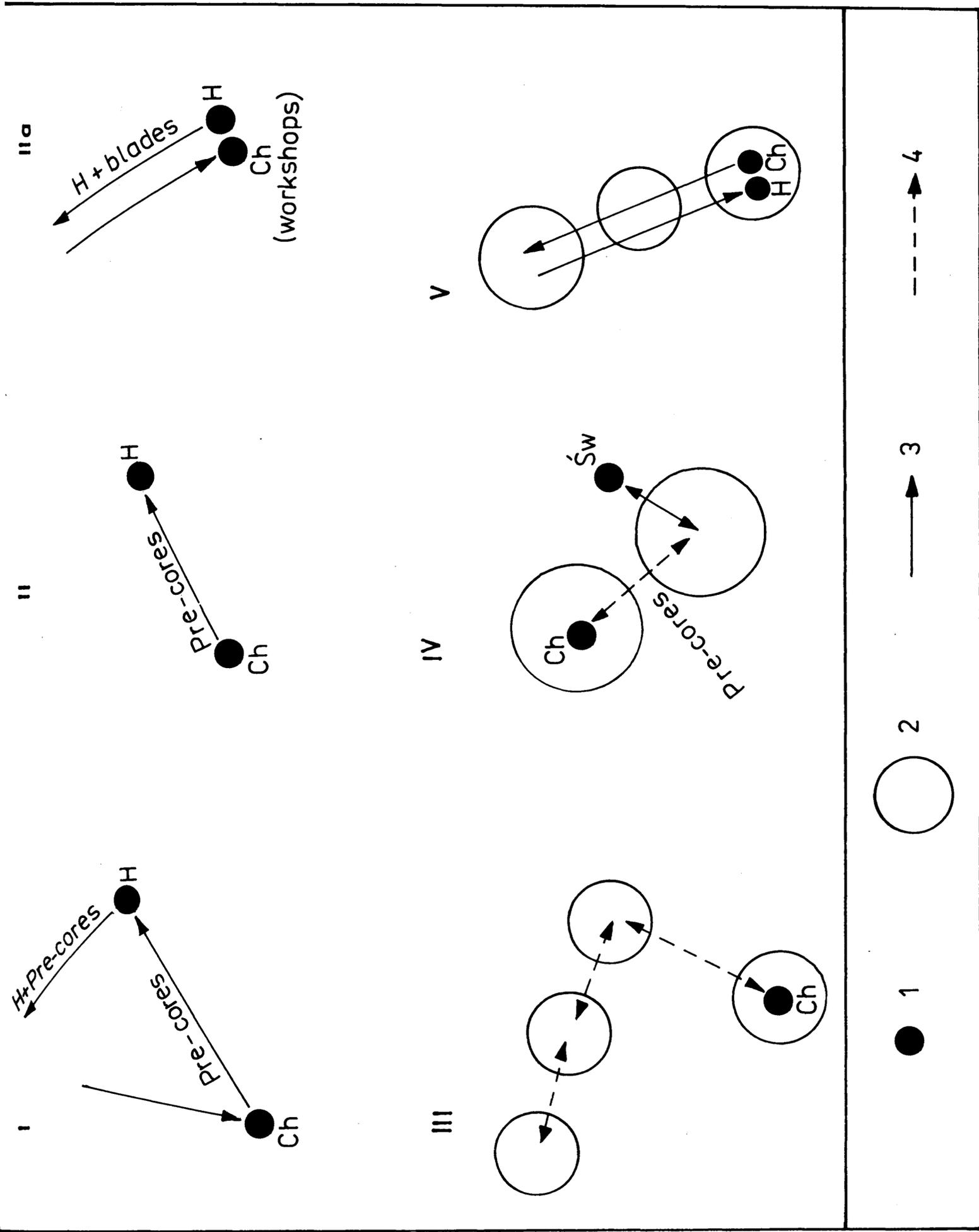


Fig. 5. Socio-economic models of distribution of certain raw materials: 1 — deposits of raw material, 2 — local group, 3 — migration of a human group, 4 — “migration” of flint as a result of inter-group contacts, H — haematite, Św — Świeciechów flint, Cz — chocolate flint.

One of them (I) assumes that groups from faraway places came to the mining workshop in Tomaszów, and through barter obtained pre-cores, only turning them into blades and tools on sites of stage IV of the distribution (Wieliszew XIII or Dąbrówka 3). The proof that such expeditions may have taken place is the site of Janisławice and the big percentage of chocolate flint on the above sites, so far away from its deposits, which excludes the possibility of indirect trade (through other groups or territories). We also have to bear in mind the attachment of the Janisławice Culture to good raw materials, which motivated its members to set off on long expeditions, in cases where they could not find similar materials at home. Such long journeys were undoubtedly difficult, and consequently undertaken rarely, only in cases of the lack of good flint supplies. An expedition would have involved several men (?), and could provide the group not only with chocolate flint, but also with commonly used haematite (Sulgostowska 1990:321). The find from Janisławice, and above all, the presence of mining tools in the grave inventory, may suggest a less constrained use of chocolate flint deposits by groups from faraway territories (model V).

The next plausible model (II) refers to sites of stage III of the distribution (Rydno VI and Rydno XIII). Here people probably extracted haematite on a large scale, which they bartered for chocolate flint, to judge by their territorial vicinity and possible attachment to the same cultural group as the chocolate flint miners. We cannot, however, rule out the possibility that the material was obtained in the form of pre-cores made on workshop sites like the ones in Tomaszów II. Perhaps some blades made on sites of Rydno type reached faraway communities, which used sites of stage V of the distribution (*e.g.*, Wistka Szlachecka III/60), while obtaining haematite (also during expeditions?) — model IIa. Single blades and tools made of chocolate flint may have reached sites situated far from chocolate flint deposits, thanks to inter-group contacts (in the form of gifts, as an equivalent of barter). It was a kind of indirect barter, which included communities dwelling close to the outcrop (model III).

On the other hand, groups penetrating neighbouring territories (the region between the Vistula and the San), and having at their disposal big quantities of local Świeciechów flint, could obtain chocolate flint in the form of pre-cores (*e.g.*, Gwoździec 9 and Poręby Dymarskie 2/2–3), through barter with groups inhabiting the area of the chocolate flint outcrop (model IV). Indirect evidence is provided by single finds of Świeciechów flint tools on sites in the Rydno region.

The problems of extraction and distribution of chocolate flint, due to its technological importance for Stone Age communities, as revealed in its wide geographical use, create an opportunity to tackle the social organisation of the

economy, normally so difficult for an archeologist to determine. This article is an example of such an attempt with regard to the Late Mesolithic in the Vistula and Upper Warta basin, an attempt in its very nature controversial (considering the specific character of the topic).

*Translated by Agata Kasprzyk-Maryniak and Bogusław Maryniak*

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