

The System of Providing Flint Raw Materials in the Late Palaeolithic in Poland

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1. The purpose of this paper is to present some problems of extraction, working and distribution of flint raw materials in the Late Palaeolithic of Poland. The results of the research carried by S. Krukowski, 1939-48; R. Schild, 1964, 1971; and B. Ginter, 1969, 1974; serve as the basis here.

2. In the periods preceding the Late Palaeolithic scarce settlements were concentrated in the southern uplands abundant in magnificent Jurassic flint.

3. Along with the foundation of permanent settlement in Polish Plain, in the Allerød period, the existing methods of providing flint raw materials had to undergo radical changes. The reason was that at the Plain mainly a technically poor Baltic flint, occurring in small nodules, was available. Raw materials of higher quality were hardly available in this area and they had to be imported from the south of Poland Fig. 1.

4. The changes in providing the raw materials were, first of all, quantitative, greater demand for raw materials of higher quality, - this in turn evoked some organizational changes as regards the exploitation of deposits, initial preparation of raw materials, finally, their distribution.

5. First true flint mines came into existence in that time - they were concentrated in southern Poland/Wolowice, Brzostkwinia, Gojsc, Trzebca, Oronsk, Polany-Kolonie,

Fig. 1. Map of distribution of the main flint sources in Central Europe. 1 - 'chocolate' flint, 2 - Cracow Jurassic flint, 3 - Świeciechów flint, 4 - Baltic flint, 5 - Slovakian jasp, 6 - Roś flint, 7 - Wolhynian-Dnester flint. Acc. to B. Ginter, 1974.

Tomaszów/. At present three centres of these flint mines are distinguished: the one near Cracow, another one near Częstochowa, and the third one near Radom. From the flint mines near Radom a magnificent 'chocolate' flint, of particular importance in that time, originated/cf. 11/. 6. All the extraction places known to us had an exposure character, nevertheless they were of two kinds:

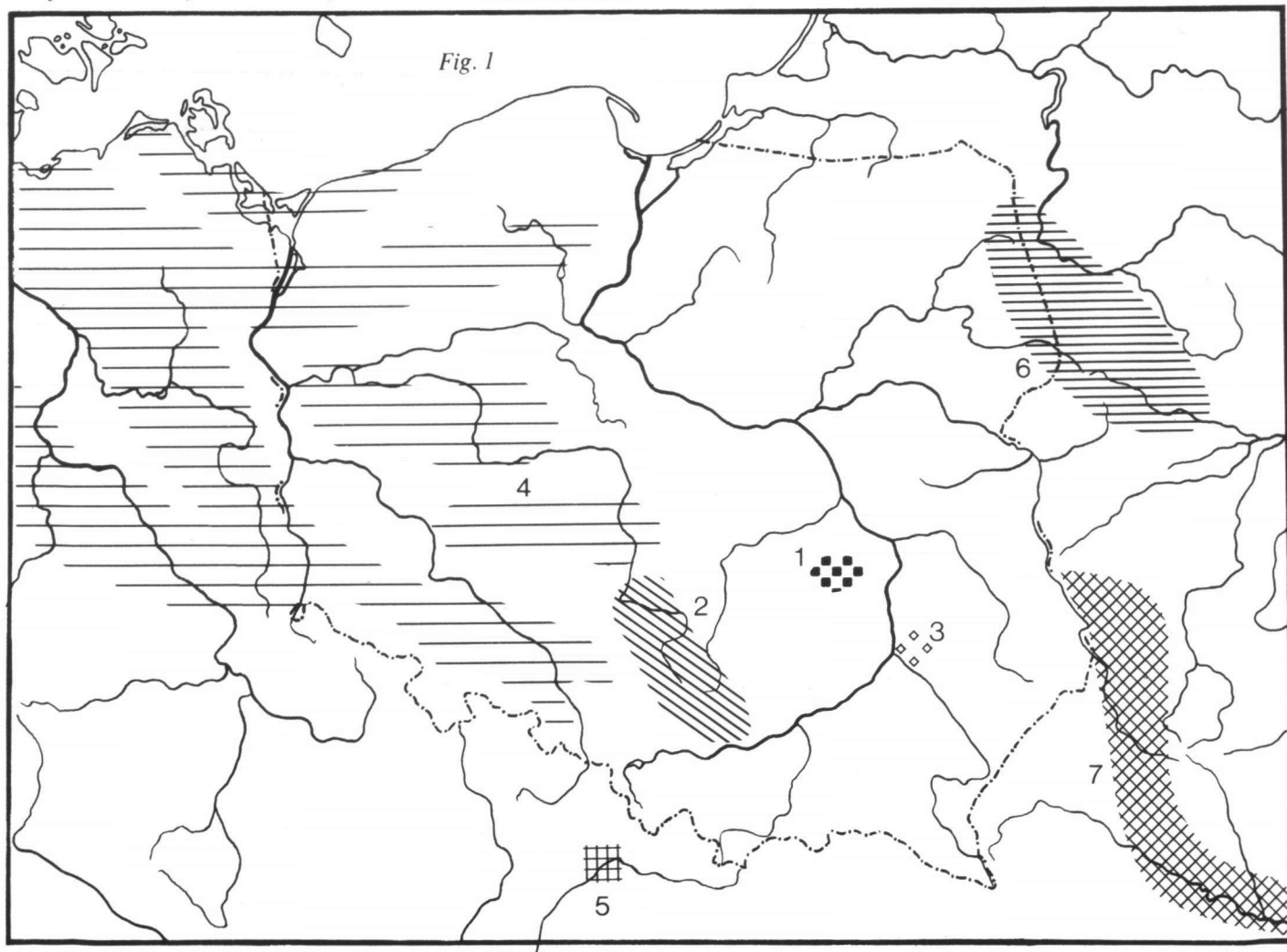
A) these characterized by deep extraction shafts dug in the sediments containing flint nodules,

B) those characterized by not very deep extraction pits.

7. The extraction process was most frequently connected with the early phases of initial formation of the extracted raw materials. This initial formation was done either in the mine or in its neighbourhood. The evidence for it / particularly clearly marked in the Swiderian Culture / are special workshops located on and at the mines, in which pre-cores and cores to be exported were formed / Fig. 2 /. These workshops were characterized by a high index of flakes; these numerous flakes originated in the initial phase of core formation / Fig. 3 - see explanation of the flint working in the Swiderian Culture/. The evidence for the export of pre-cores and initial cores - even the far reaching one - are, among others, the deposits of pre-cores and cores found at a great distance from the mines / e.g. Swidry Wielkie I/.

8. On the areas with mines there also existed the workshops producing blanks/blades/. The characteristic feature of these workshops is the existence of numerous flakes/of the initial phase of core-formation/, as well as the existence of numerous blades which were not approved by the producers / Fig. 4/.

Fig. 2. Gojść, site 1, district Pajęczno, Poland. Swiderian workshops located on the mine of the Cracow Jurassic flint. 1 - cores and pre-cores, 2 - hammerstones, 3 - workshop and extraction tools. Acc. to B. Ginter, 1974.



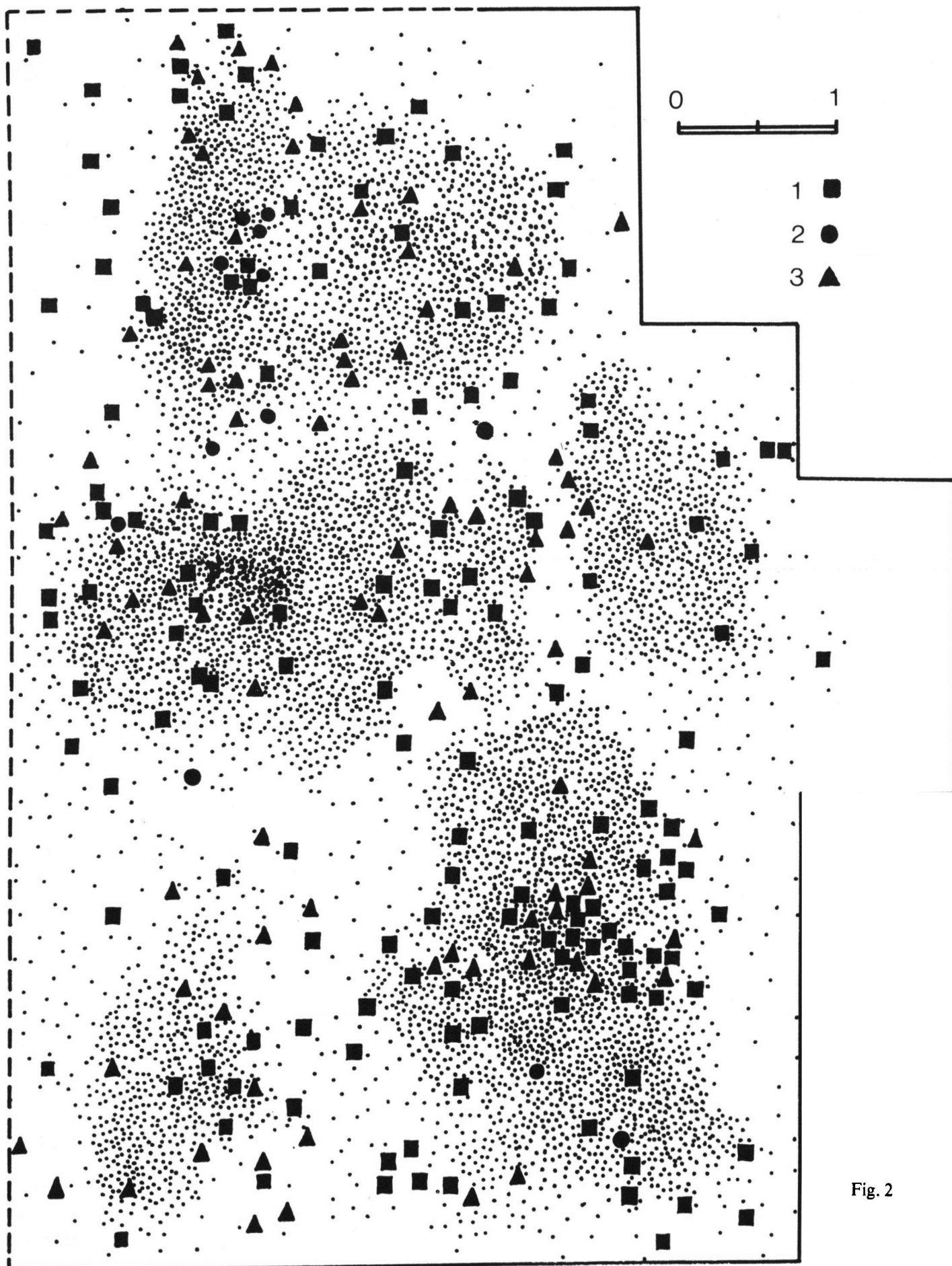


Fig. 2

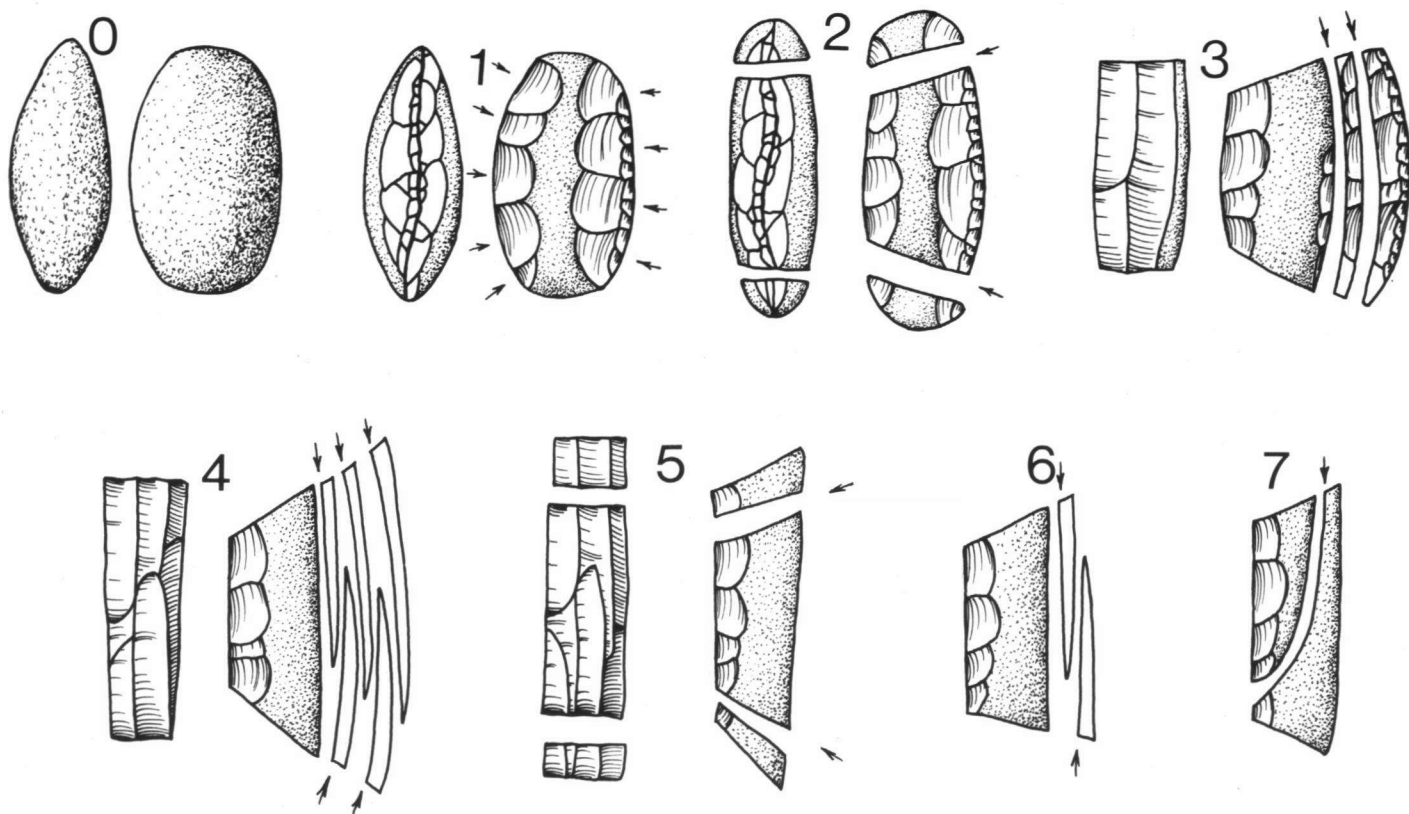


Fig. 3. The main stages of preparation, exploitation and rejuvenation of the Swiderian core. 0 - nodule, 1 - initial formation of pre-core, 2 - formation of striking platforms, 3 - formation of striking surface, 4 - production of blades, 5 -

rejuvenation of striking platforms, 6 - production of blades, 7 - 'death' of core. The Swiderian workshops - depending of their function/production of pre-cores, cores, blanks or tools/ contain various percentage/0-80/ of pieces of each stage.

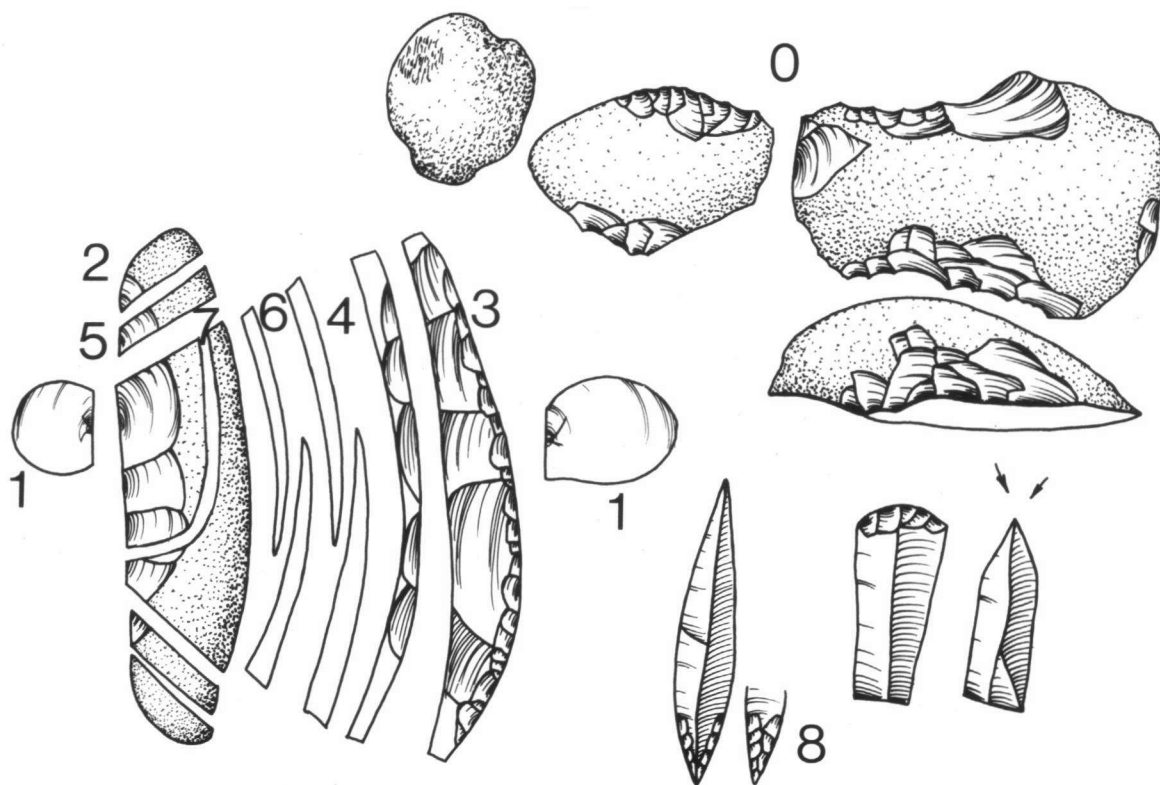


Fig. 4. Full process of flint production in the Swiderian Culture. 0 - mine and workshop tools - pics, axes, side-scrapers, denticulates, hammerstones/they are numerous in the workshops located on or at the mines/, 1-2 - flakes from the formation of pre-core/they are especially numerous in the workshops located on or at the mine/, 3 - blades coming from

the formation of striking surface/more numerous in the 'home' workshops, as well as in the workshops located 'on the road' from mine to home/, 4, 6 - blanks/especially numerous at home and on the road from mine to home/, 5 - core rejuvenation flakes, 7 - final form of core, 8 - 'home' tools/numerous in the 'home' workshops/.

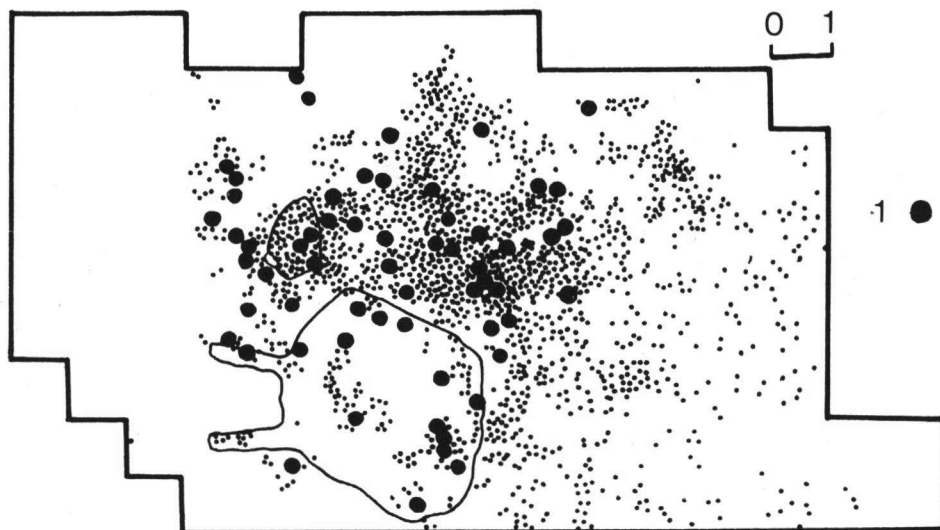


Fig. 5. Grzybowa Góra, site IV/57, districts Starachowice, Poland. 'Home' workshop of the Swiderian Culture. The concentration of flint artifacts is connected with hut. 1 - 'home' tools. Acc. to R. Schild, 1964.

9. The statistical and technical structure of the workshops working on mine raw materials but outside the mine was different. The initial phase of formation of cores is poorly represented and the phase of exploitation of cores dominates. This phenomenon is reflected in the increase of the index of blades of the first series and the index of blanks. The exploitation of cores often took place 'on the way' home from the mine. It was also done in 'home' workshops/supplied in 'home' tools/.

10. Apart from the statistical and technical differentiation described above, some differences in the types of workshops due to functional differentiation of sites of the Swiderian Culture can be traced back:

A) workshops located on the extraction places are characterized by the presence of extraction tools and practically complete lack of tools characteristic of 'home' workshops,

B) the characteristics of the scattered pattern of not 'home' workshops / Fig. 2 /, differ much from the characteristics of the workshops on 'home' sites / Fig. 5 /; in the former clusters of artifacts are small but dense and in the latter the clusters are bigger but artifacts are scarce.

11. The raw materials of southern Poland were distributed relatively far to the north, particularly the 'chocolate' flint which, e.g. in the assemblages of the Swiderian Culture, dominated even at a distance of 200 kilometres far from the mine / Fig. 6/.

12. It might be assumed, however, that such a situation, as regards raw materials, of course, could not exist for ever and, in fact, in the Early Holocene the demand for the southern raw materials diminished due to the microlithisation of artifacts and more stabil style of life.

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Fig. 6. Map of distribution of 'chocolate' flint in the Late Palaeolithic cultures in Poland. Mines marked by cross. Acc. to R. Schild, 1971.