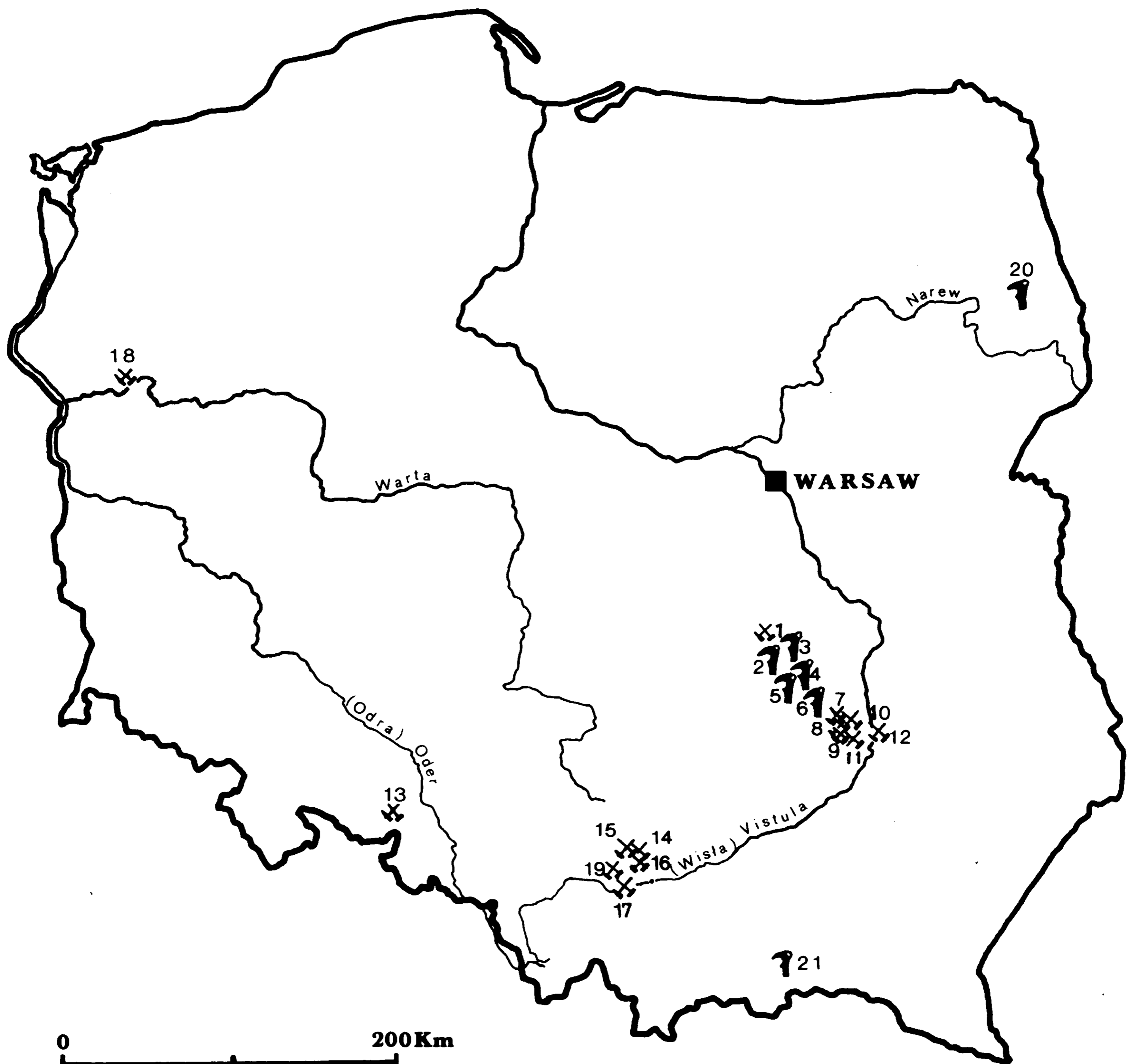


# **PL 4 Polany Kolonie II, Radom Province**

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PL ISSN 0066-5924

<https://rcin.org.pl/dlibra/publication/242311>



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**PL 5 Polany II**

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## PL 4 POLANY KOLONIE II, RADOM PROVINCE

### Romuald Schild

The mine of Polany Kolonie II is one of several flint extraction points in the central cluster of chocolate flint mines that extend along the upper Jurassic ridge on the north-eastern periphery of Kielce Upland. It lies on the south-western slope of an elongated, low hill, immediately south of the village Polany Kolonie, commune of Wierzbica, Radom Province. The hill is a part of the cuesta that marks the northern bank of the Upper Iłzanka Valley.

The site is under cultivation and has been most probably since Medieval times. Its surface is littered with white, patinated artefacts brought to the surface by ploughing. An abandoned farmers' quarry of limestone touches the mine on its north side.

The site was probably found by Stefan Krukowski in 1922 during his first survey of the chocolate flint outcrops and named Polany II and lumped together with other sites in the nearest vicinity (Krukowski 1923:69). The surface materials, most probably from Polany Kolonie II, were later published by the same author as collected at Wierzbica I between 1922 and 1934 (1939:99). Wierzbica I was considered by Krukowski to be the major site of his Łysogóry (Holy Cross Mountains) cycle of industries and the main locality of the Wierzbica industry typologically dated to early Holocene.

The site was again found in 1968 during a systematic survey of chocolate flint mines directed by Schild (1971:5) and ear-marked for further excavations. The surface by materials from the new collection were published as probably associated with the Micoquian-like assemblages of Poland (Schild 1971:55). The site was excavated by Schild in the 1971–1972 seasons (Schild, Królik and Mościbrodzka 1977).

## GENERAL GEOLOGY

The flint-bearing limestones at Polany Kolonie occur just under a thin layer of residual Quaternary sands topped by a degraded rendzina. Toward the north and east the limestones plunge under karstic clays, glacial tills and slope sediments. Down the slope, toward the Iżanka Valley, the limestones are covered with glacial tills of the Radomka stage (Saale Glaciation), redeposited karstic clays and slope deposits of the maximum of Last Glaciation (Fig. 1).

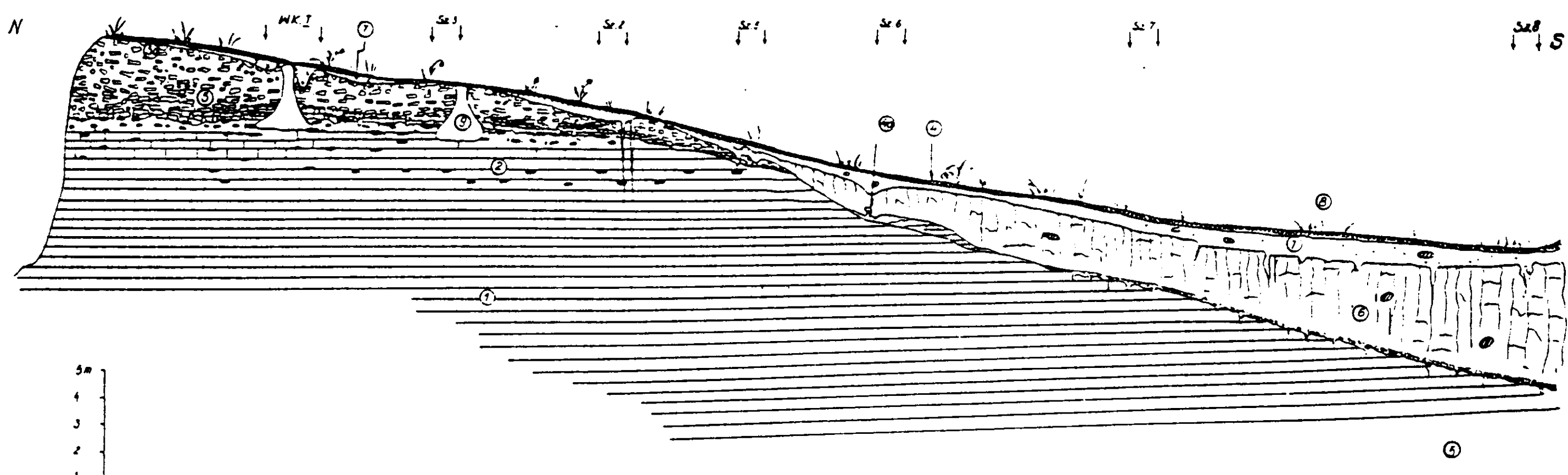


Fig. 1. PL 4 Polany Kolonie II. General cross-section. Key: 1 — platy limestones; 2 — bands of chocolate flint; 3 — rubble horizon; 3a — karstic clay in the top of rubble horizon; 4 — karstic clay redeposited by solifluction; 4a — involutions; 5 — limestone sand and pea gravel; 6 — redeposited till; 7 — slope sands and gravel; 8 — humic horizon; 9 — mine shafts. Profile R. Schild.

Under the arable soil and thin residual sands is the limestone rubble horizon in a limestone sand matrix. A thin karstic clay developed in the top zone of the weathered limestone bed. The rubbles grade down into platy limestones with bands of flattish, small nodules or small slabs of the chocolate flint.

The limestones had been for a long time classified as formed during upper Astartian (Samsonowicz 1934; Pożaryski 1948; Dembowska 1967; Karaszewski 1960). The changes in the formal subdivision of the upper Malm shifted the former upper Astartian to the late Oxfordian (Malinowska 1967).

## EXCAVATIONS AND ELEMENTS OF THE MINE

The limited excavations at Polany Kolonie II consisted of four test trenches and the main cut (Cut I) measuring 10 by 10 m (Fig. 2). Four other test trenches were sunk outside the mining field, down the cuesta slope. Two trenches and Cut I exposed nine shafts of which only one was entirely excavated (Shaft 1).

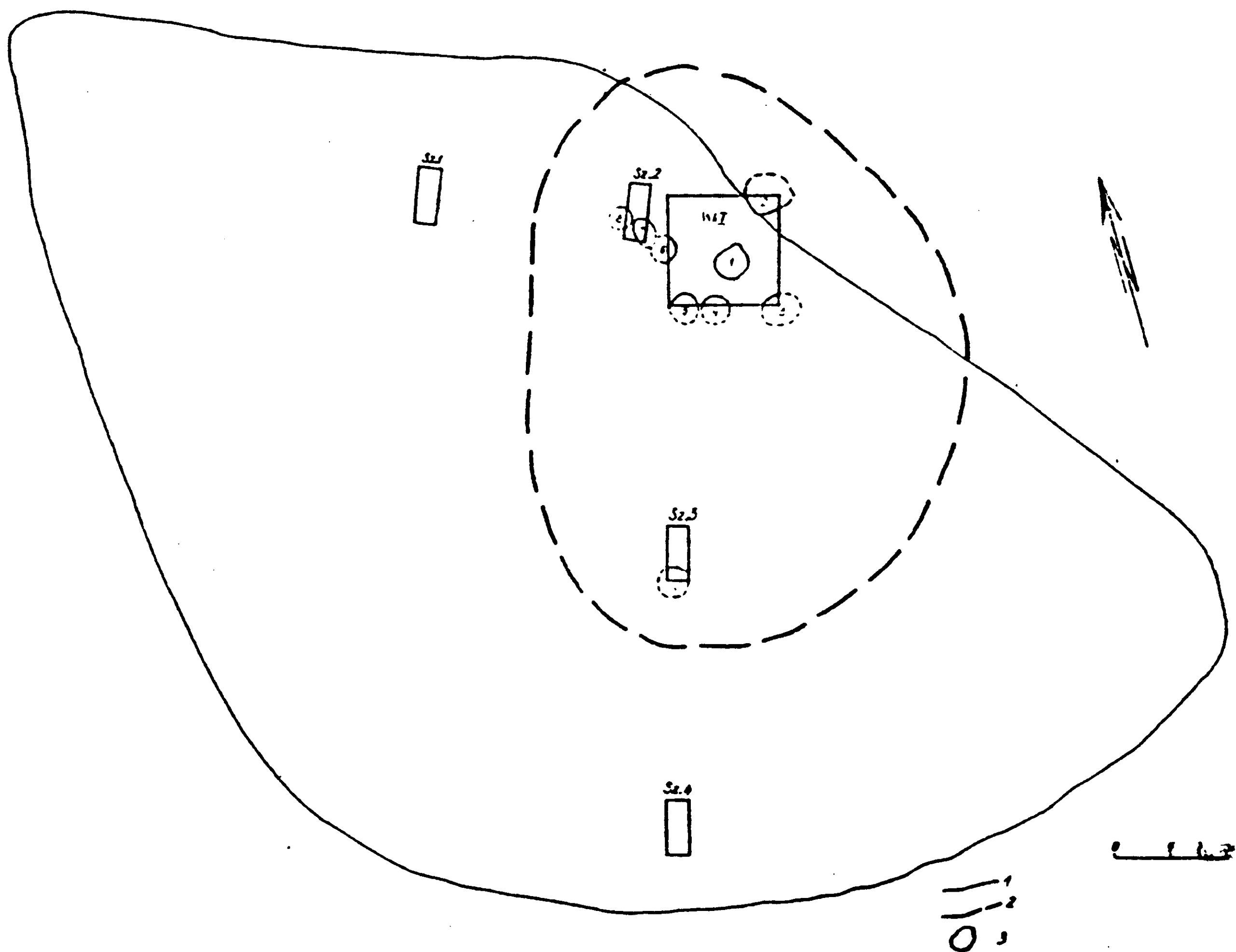


Fig. 2. PL 4 Polany Kolonie II. Key: 1 — lithics on surface; 2 — probable extent of mining field; 3 — shafts. Trenches and Cut 1 shown by rectangles and a square.

The excavations permitted the definition of the approximate area of the Polany Kolonie II mine as measuring around 1600 m<sup>2</sup>. It contained between 20 and 60 shafts (Schild, Królik and Mościbrodzka 1977).

Shaft 1 (Fig. 3) was a pear-like, bell-bottomed structure with a near circular opening measuring 3.30 by 3.00 m. It was 2.40 m deep. The shaft cut through the rubble horizon into the upper 20 to 40 cm of platy limestones. Nine short exploitation niches extended into the limestone (Fig. 4). The band of small flattish nodules was the main objective of the mining.



Fig. 3. PL 4 Polany Kolonie II. Shaft 1.

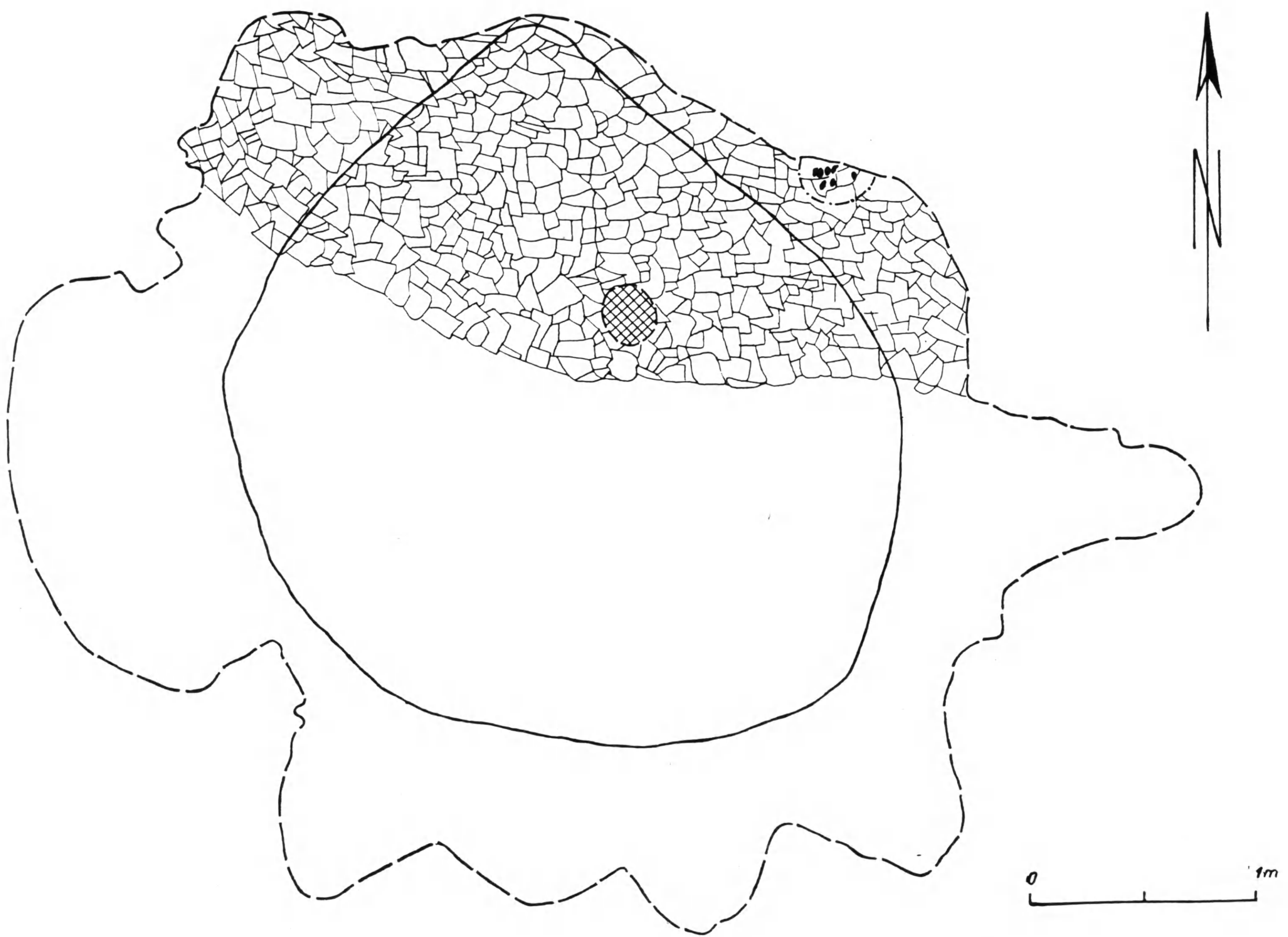


Fig. 4. PL 4 Polany Kolonie II. Map of Shaft 1 showing heap of limestone slabs, hearth under the slabs and cache against the northern wall.

The shaft contained sediments from three phases of filling (Fig. 5) and a heap of broken limestone slabs piled against northern wall and filling three of the northern niches. There was a pair of mining tools deposited on the floor of the shafts (lever and hammer). Both were made of red deer antler (Figs 6 and 7). A cache of 10 nodules was found between the limestone slabs in the limestone heap. Two hearths were found in Shaft 1. One is on the floor and the second in the concavity in the top of the first phase of filling. The lower one gave a radiocarbon age estimate of  $4005 \pm 35$  uncalibrated years BP (GrN-6833) and the upper one of  $3990 \pm 40$  uncalibrated years BP (GrN-6834).

Two other  $^{14}\text{C}$  age estimates, on charcoal, are obtained at Polany Kolonie II. One, of  $4460 \pm 90$  uncalibrated years BP (Gd-2886) is from Phase II of filling of Shaft 1. It is obviously a redeposited older hearth. The second of  $3500 \pm 90$  uncalibrated years BP (Gd-133) comes from the third phase of filling of Shaft 7.

The radiocarbon age estimates from Polany Kolonie II indicate three periods of the exploitation of the mine. The earliest is probably associated with younger Funnel Beaker Culture. Two younger samples from Shaft 1 suggest ages close to Corded Ware and the sample from Shaft 1 indicate association with the early Bronze Age Mierzanowice Culture.

## PRODUCTION

The removal of limestone slabs and extraction of flint at Polany Kolonie II were facilitated by the use of levers and hammers made of red deer antler. In total 23 antler tools were found of which 17 occurred in Shaft 1. Most of the levers were made of royal antlers. There were also characteristic flint tools called bihorned pieces. It is believed that they were used to manufacture wooden tools needed for mining.

The analysis of stone artefacts indicates a technological structure in which the production of bifaces was the dominant one. Rare unfinished products at various stages of reduction indicate that small oval celts, bifacial points and sickles of the Mierzanowice Culture were the main goal of production. There were also globular, changed orientation cores, possibly of the same association. Very rare axes at an early stage of reduction could be assigned to the Funnel Beaker Culture. A few single platform small blade cores bring to mind the Corded Ware Culture.

The mined flint from Polany Kolonie II dominates the lithic assemblage from the Middle Palaeolithic kill site at Zwolen (Schild and Sulgostowska 1988). It is therefore possible that the classic bifacial *Prondnik* knives of the surface collection are indeed of Middle Palaeolithic origin.

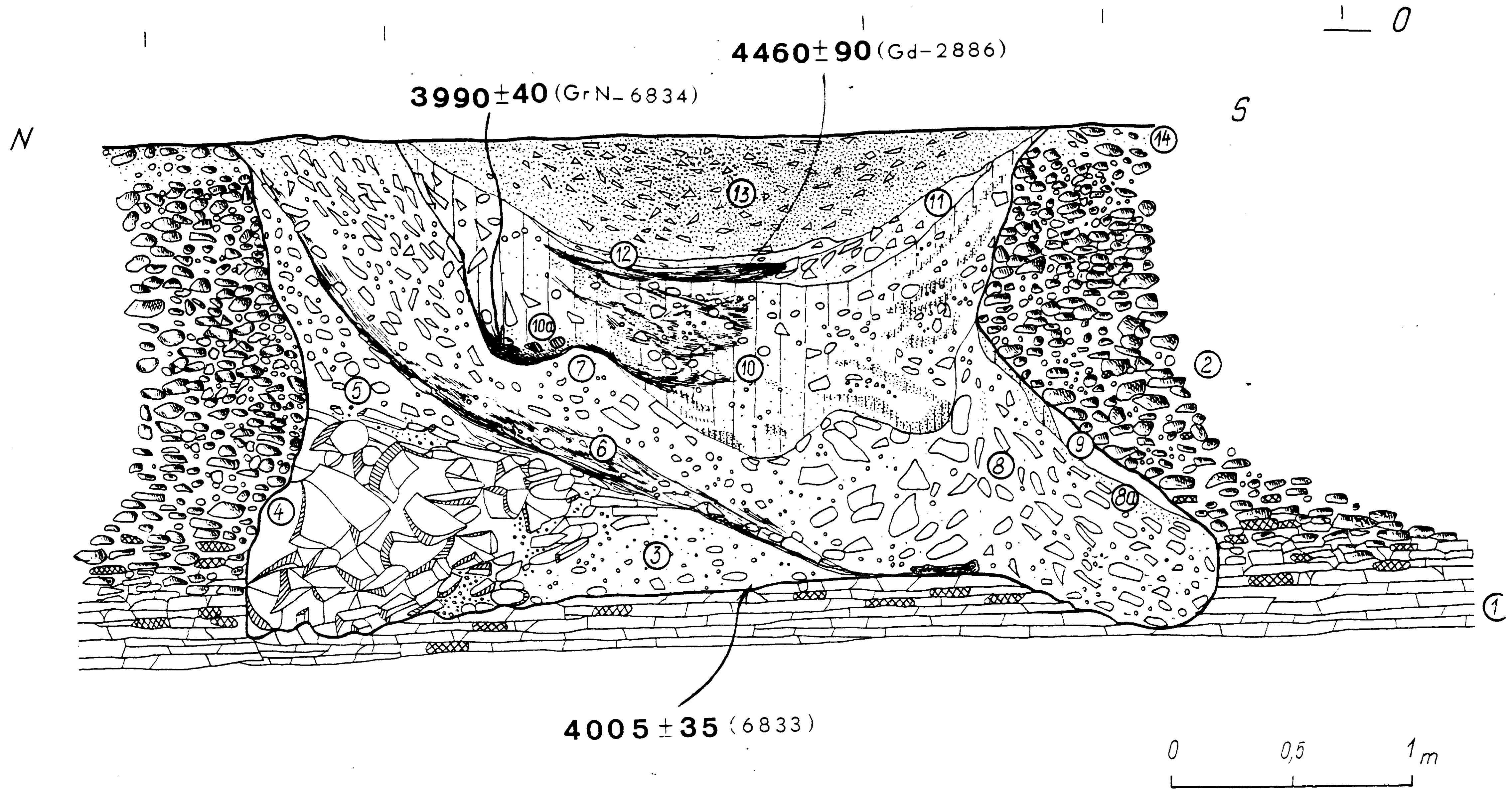


Fig. 5. PL 4 Polany Kolonie II. Cross-section of Shaft 1. Key: 1 — limestone; 2 — rubble horizon; 3-5 — limestone slabs and rubble; 6-9 — first phase of filling; 10-12 — second phase of filling; 13 — third phase of filling resulting from ploughing; 14 — karstic clay.



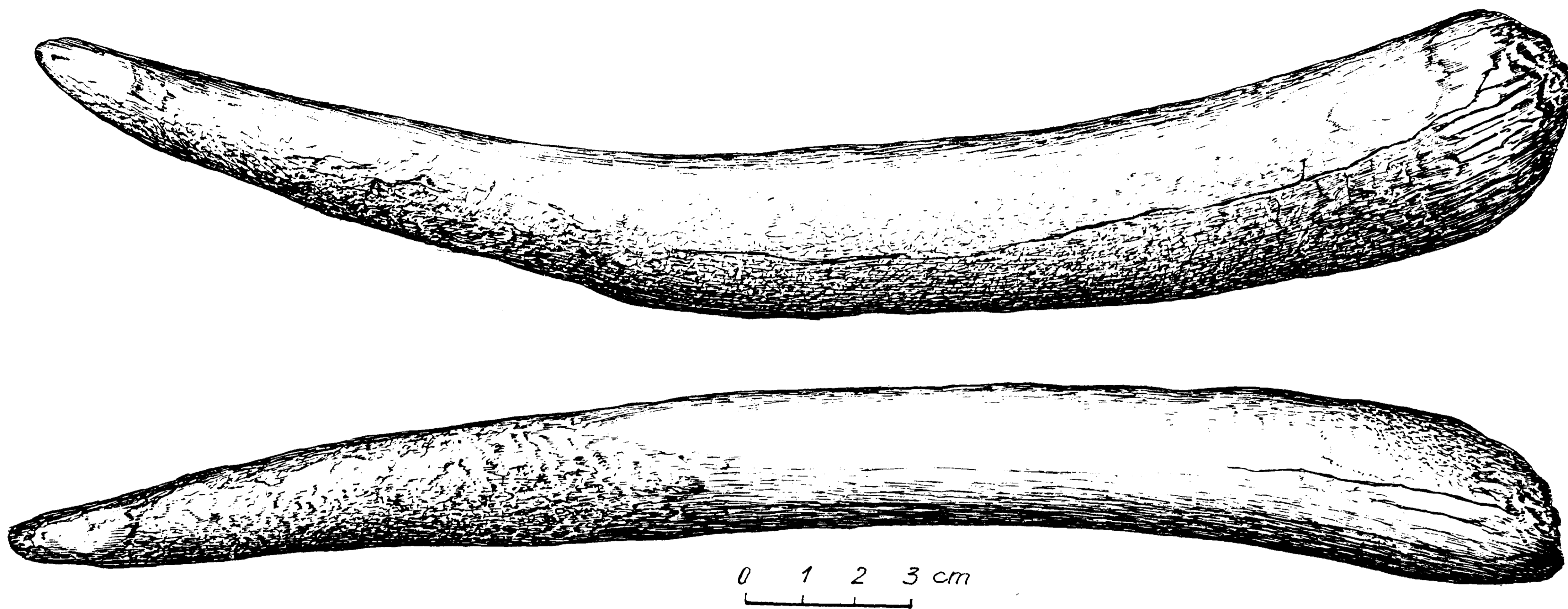


Fig. 6. PL 4 Polany Kolonie II. Lever from the floor of Shaft 1.

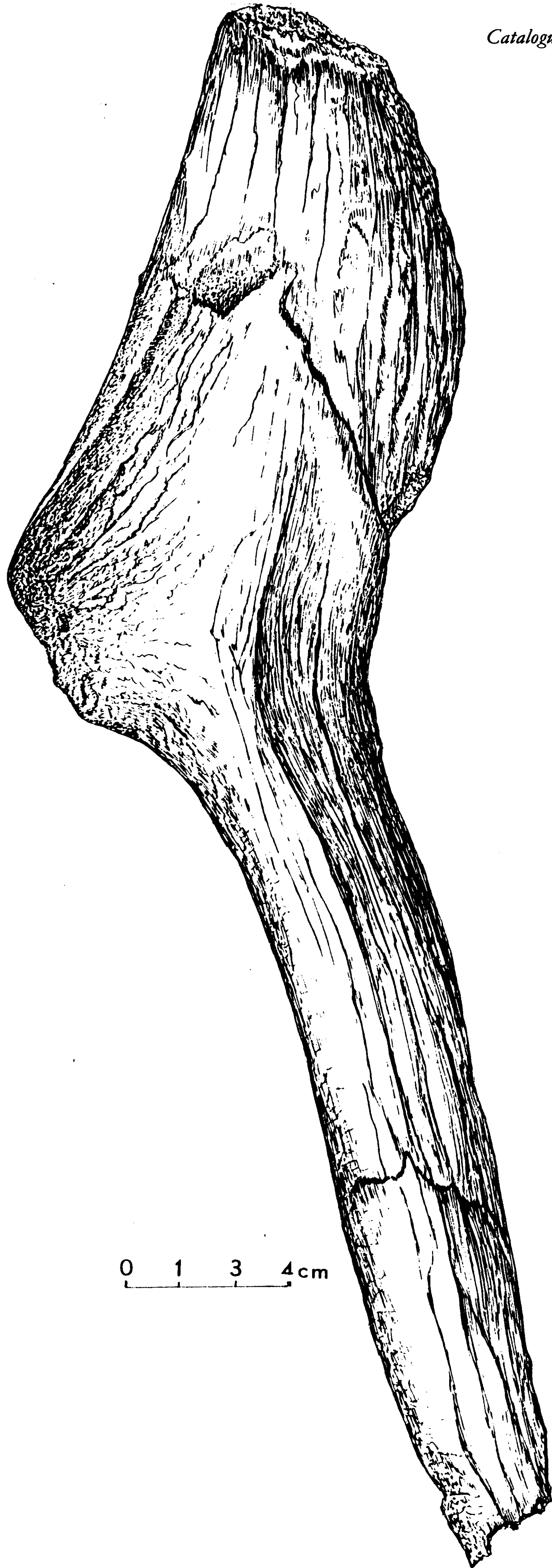


Fig. 7. PL 4 Polany Kolonie II. Hammer from the floor of Shaft 1.

## CONCLUSIONS

Polany Kolonie II was a small mine with limited quantities of output. Most of its production is likely to be associated with the Mierzanowice Culture. Because of the size of production it is believed that it belonged to a single village; however, no settlement containing larger amounts of the characteristic Polany Kolonie II flint has yet been found.

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