

PL 2 Tomaszów I, Radom Province

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PL Poland

PL 1 Orońsko

PL 2 Tomaszów

PL 3 Wierzbica

PL 4 Polany Kolonie II

PL 5 Polany II

PL 6 Krzemionki Opatowskie

PL 7 Ruda Kościelna

PL 8 Borownia

PL 9 Korycizna

PL 10 Gliniany

PL 11 Ożarów

PL 12 Świeciechów-Lasek

PL 13 Maków

PL 14 Jerzmanowice-Dąbrówka I

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PL 16 Bębło

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PL 18 Gorzów Wielkopolski-Chwałęcice

PL 19 Brzoskwinia

PL 20 Rybniki

PL 21 Ropa

PL 2 TOMASZÓW, RADOM PROVINCE

Romuald Schild

The mine of Tomaszów is one of several flint extraction points in the western cluster of the chocolate flint mines. It is the easternmost mine of that cluster. It lies on the upper Jurassic ridge that slope to the north-east toward the Radom Plain and to the south-west toward the Iłża Upland separating the upper and middle Jurassic ridges. Between Wierzbica and Orońsko, the ridge is breached at several places forming a chain of hills. The upper Jurassic limestones containing the chocolate flint are outcropping on the surface or are buried under beds of various Quaternary sediments, mostly tills. The highest of the hills is at Rzeczków where it reaches the height of 236 m asl. The flint mine of Tomaszów occurs on the north-western slope of the Rzeczków hill. The shortest section of the ridge, between Orońsko and Guzów, hosts most of the mines of the western group.

The flint mine of Tomaszów is located on the north-western footslope of the Rzeczków hill, some 5 m above its base, at *ca.* 215 m asl. The site occurs *ca.* 1000 m to the south-west from the village of Syberów, a section of Tomaszów, commune of Orońsko, Radom Province. To the north-west the hill is covered by highly deflated Lateglacial dunes, now covered by a young forest (Fig. 1). Higher parts of the hill, on the other hand, are mantled by the glacial till of Radomka stage (Salle Glaciation). Most of the north-western slope of the Rzaczków hill, including the mine, is today under cultivation. Because of ploughing, no mining morphology is preserved. The surface of the mine is littered with flint artefacts. The forested dunes contain still very numerous concentrations of late Mesolithic artefacts.

The dune sites were discovered in 1935 by Stefan Krukowski who at that time directed the excavations of the nearby Orońsko flint mine. During the field seasons of 1935 and 1946 Krukowski assembled large Mesolithic flint collections, the place of storage of which is unknown. The flint mine of Tomaszów, on the other hand, was discovered in 1968 during a systematic survey of the chocolate flint extraction points directed by Schild (1971). The mine was excavated by the same author during three field seasons in 1973 through 1975 and published in 1985 (Schild, Królik and Marczak 1985).

GENERAL GEOLOGY

The mine at Tomaszów exploited the chocolate flint deposited in beds formed within karstic clays and silts of pre-Quaternary age. The clay and silts were redeposited over the slope of the peltic and marlaceous limestones with rare flint

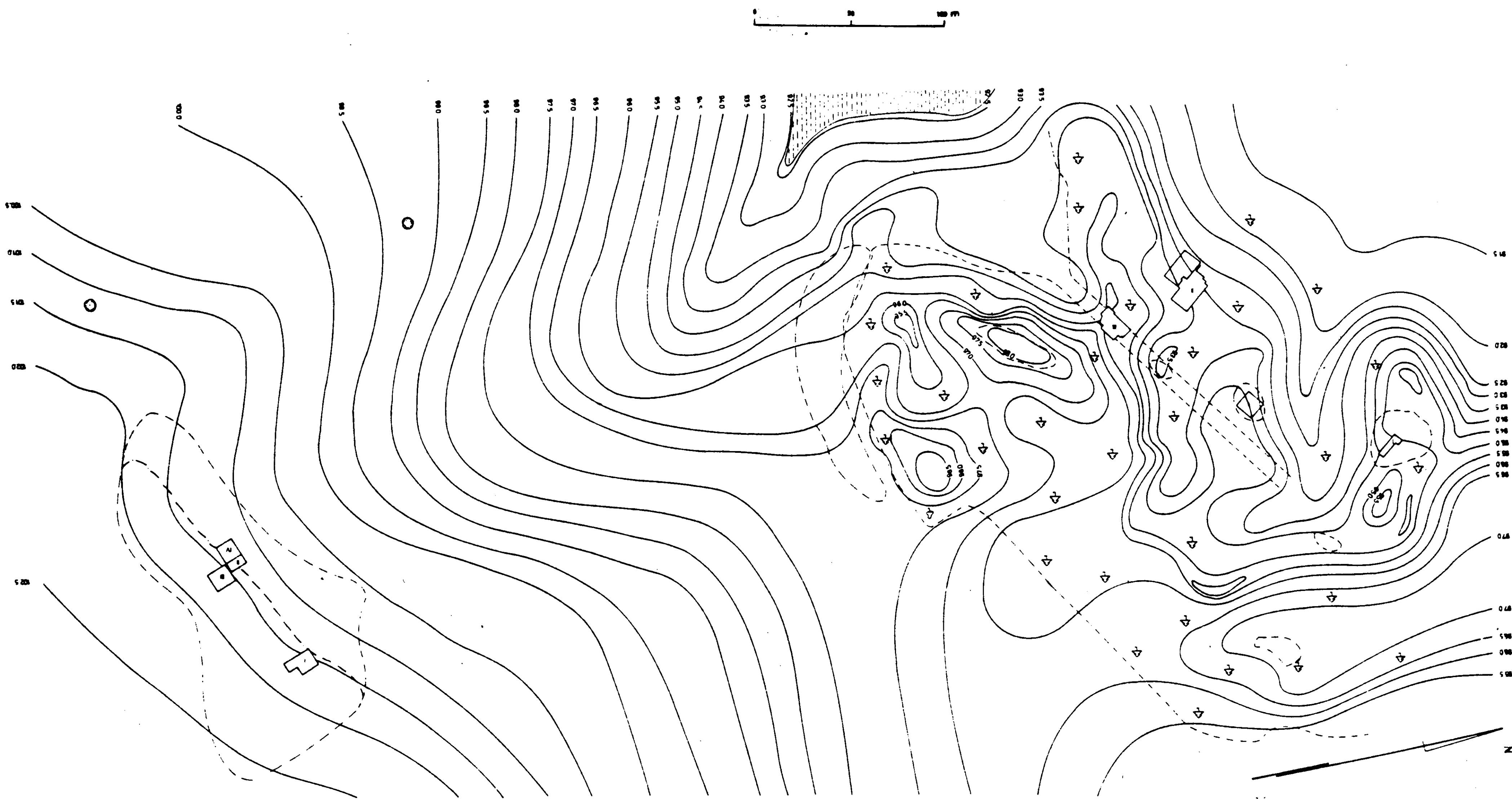


Fig. 1. PL 2 Tomaszów. Map of the mine and dunes. Mining field in the south. Larger area shows distribution of artefacts on the surface. Smaller area indicates possible limits of the mining field.

nodules. The clays and silts are in turn covered by a bed of fine quartzitic sands without feldspar. These sands contain rare flint nodules and marl pebbles. The sands are truncated and separated from the overlying Quaternary series by a pronounced unconformity (Fig. 2). Glacitectonic and cryogenic structures occur throughout the pre-Quaternary sediments.

Quaternary series is composed of interbedded sands and gravel of erratic, Scandinavian origin overlain by a continuous bed of dark brown till with boulders of the Radomka stage. The top of the till is truncated and covered by a bed of slope sediments of the maximum of the Last Glaciation. On top of the pre-Quaternary series and in an under-ice channel are rare, redeposited Lower Paleolithic artefacts.

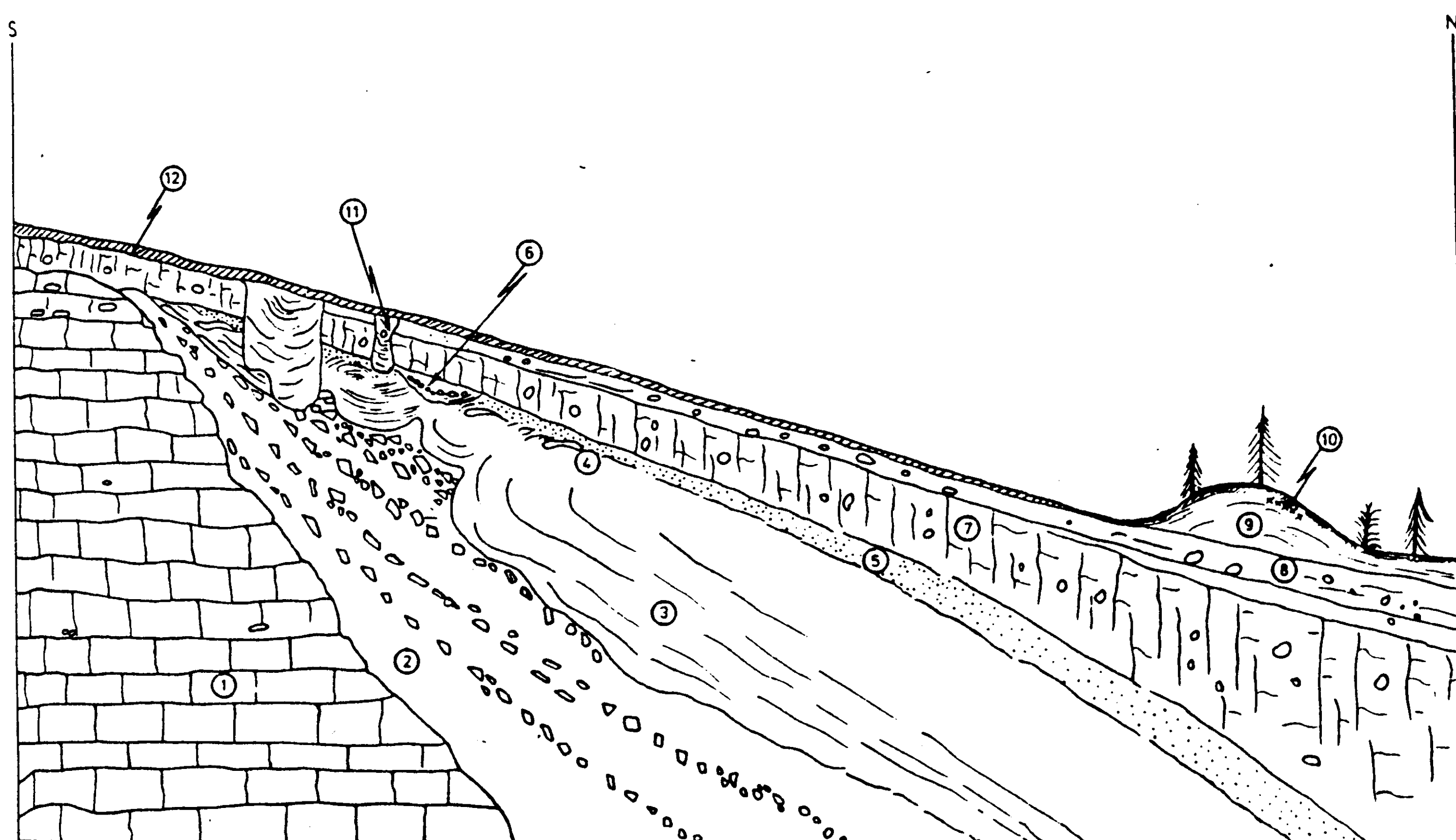


Fig. 2. PL 2 Tomaszów. Schematic cross-section through the mine, not to scale. Key: 1 — limestones; 2 — karstic clays and silts with flint beds; 3 — pre-Quaternary sands; 4 — solifluction; 5 — silty sands; 6 — channel; 7 — boulder clay (glacial till); 8 — slope sands with boulders; 9 — dunes; 10 — Mesolithic workshops in B horizon; 11 — Early Neolithic shafts; 12 — ploughed zone.

EXCAVATIONS AND ELEMENTS OF THE MINE

During three field seasons a total area of 385 sq. m was opened in four cuts. The excavated surface, however, makes up only ca. 4.2% of the total mine field evaluated on the base of surface finds and excavations at about 9000 sq. m.

The outlines of 24 shafts were exposed. Of these eight shafts were fully cross-sectioned and three only partially. Horizontal outlines of the shafts show a variety of

shape reflecting their architectural proprieties. There are at least four types of the horizontal outlines of shafts (Figs 3–4). The shafts with rounded and pear-like openings are concentrated in the south-western portion of the mine (Cuts II–IV) while very large, trench-like excavations are located in the north-east section.

The shafts cut through the Quaternary series and reach the karstic clays and sands

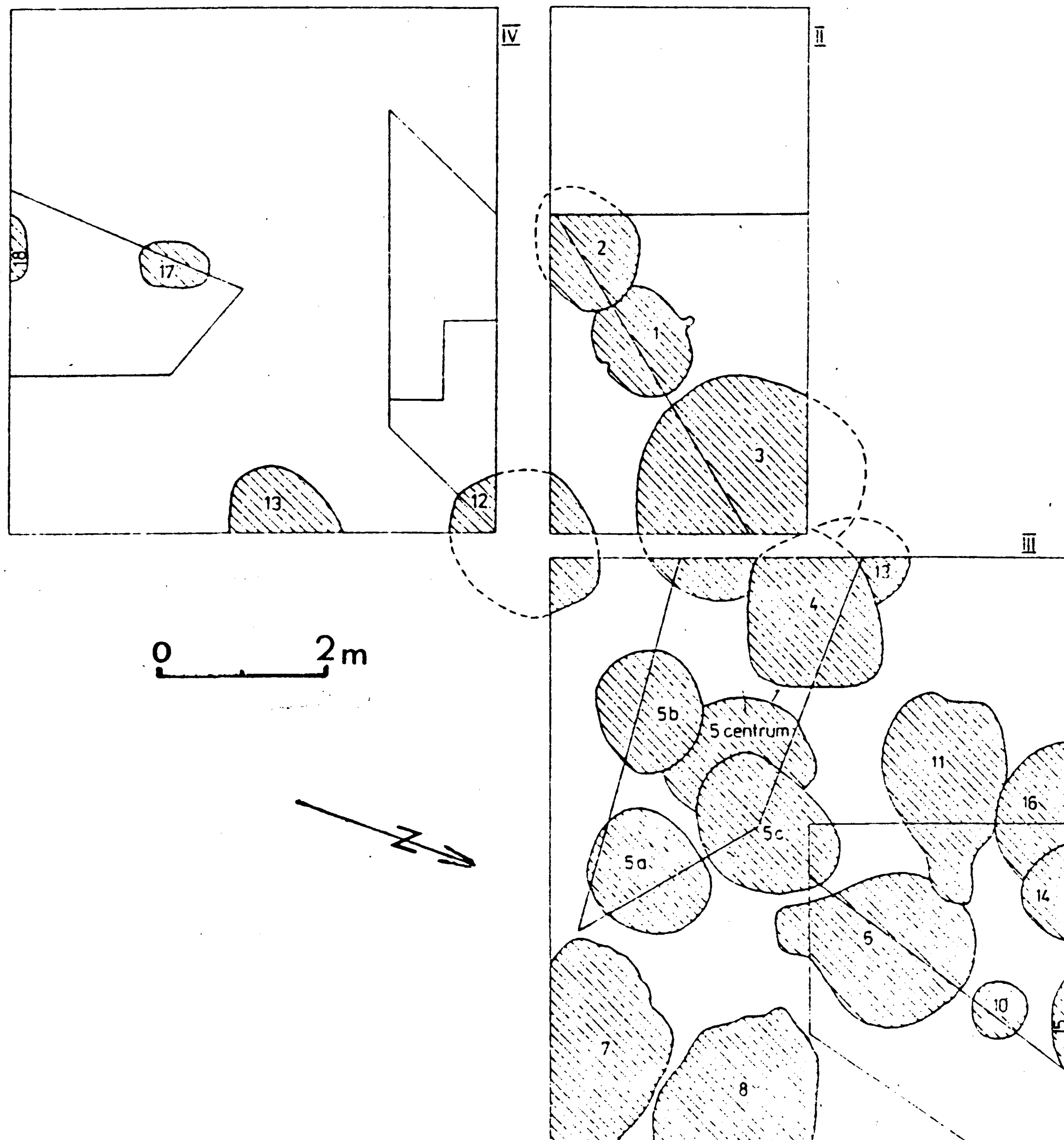


Fig. 3. PL 2 Tomaszów. Cut I.

with redeposited flint bands. Because of the glacitectonics the flint beds are often upthrown or downthrown, therefore the depths at which the flint could have been reached vary quite considerably. The finished shafts are from 4.20 to 3.35 m in depth. Two shafts (1 and 17) did not reach the flint-bed.

In cross-section the shafts are either narrow, well like with a small exploitation niche at the bottom, at the level of the flint bed, or wide with an evident

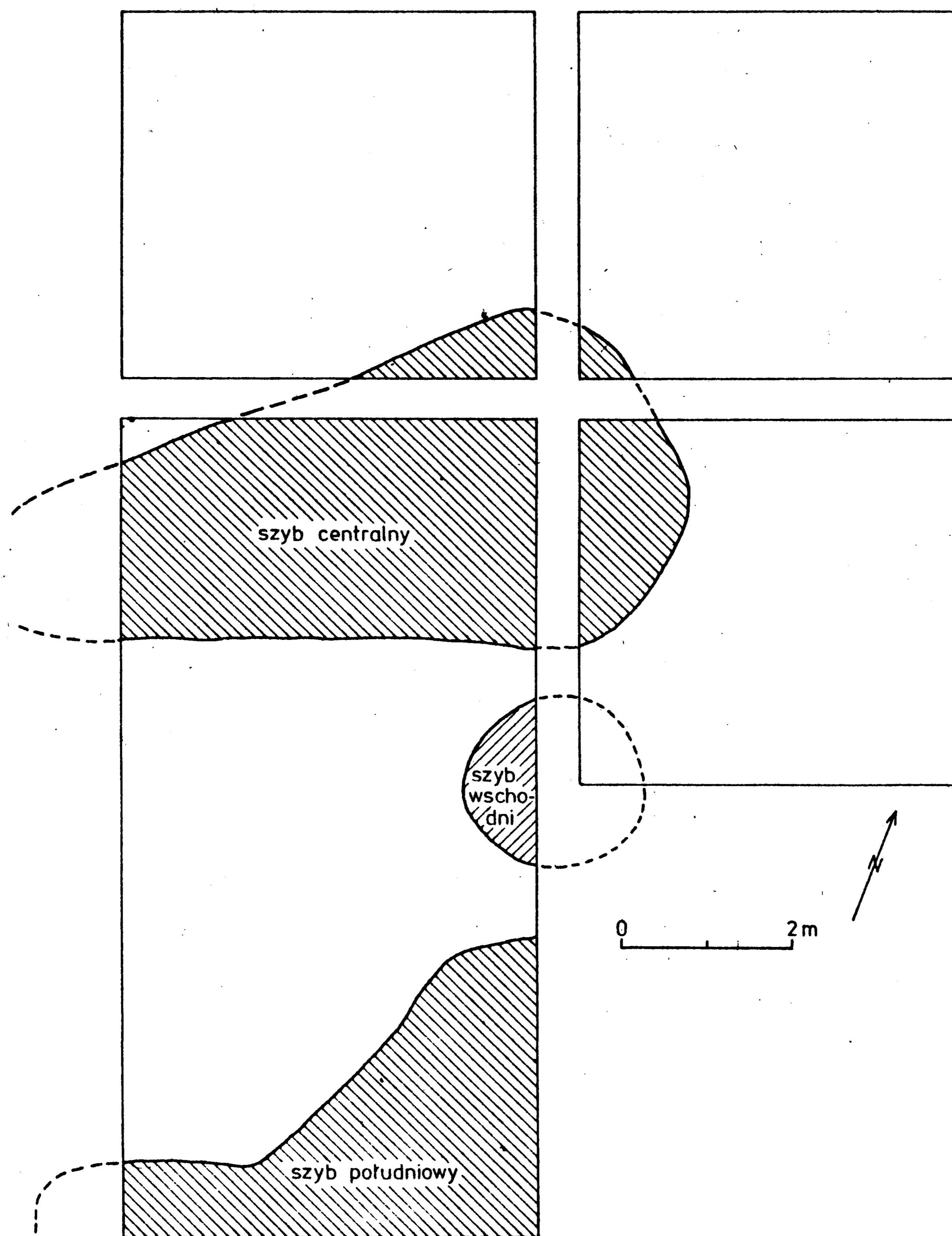


Fig. 4. PL 2 Tomaszów. Cuts II–IV. Scale as in Fig. 3.

transportation shelf in the middle (Figs 5–6). The walls are smooth, sometime showing traces of digging with a hoe.

Almost all of the shafts were filled by natural processes resulting from surface wash, sliding and/or surface flow reflecting major stages (up to three) of pit filling.

W

szyb 5c

szyb 6

szyb 10

E

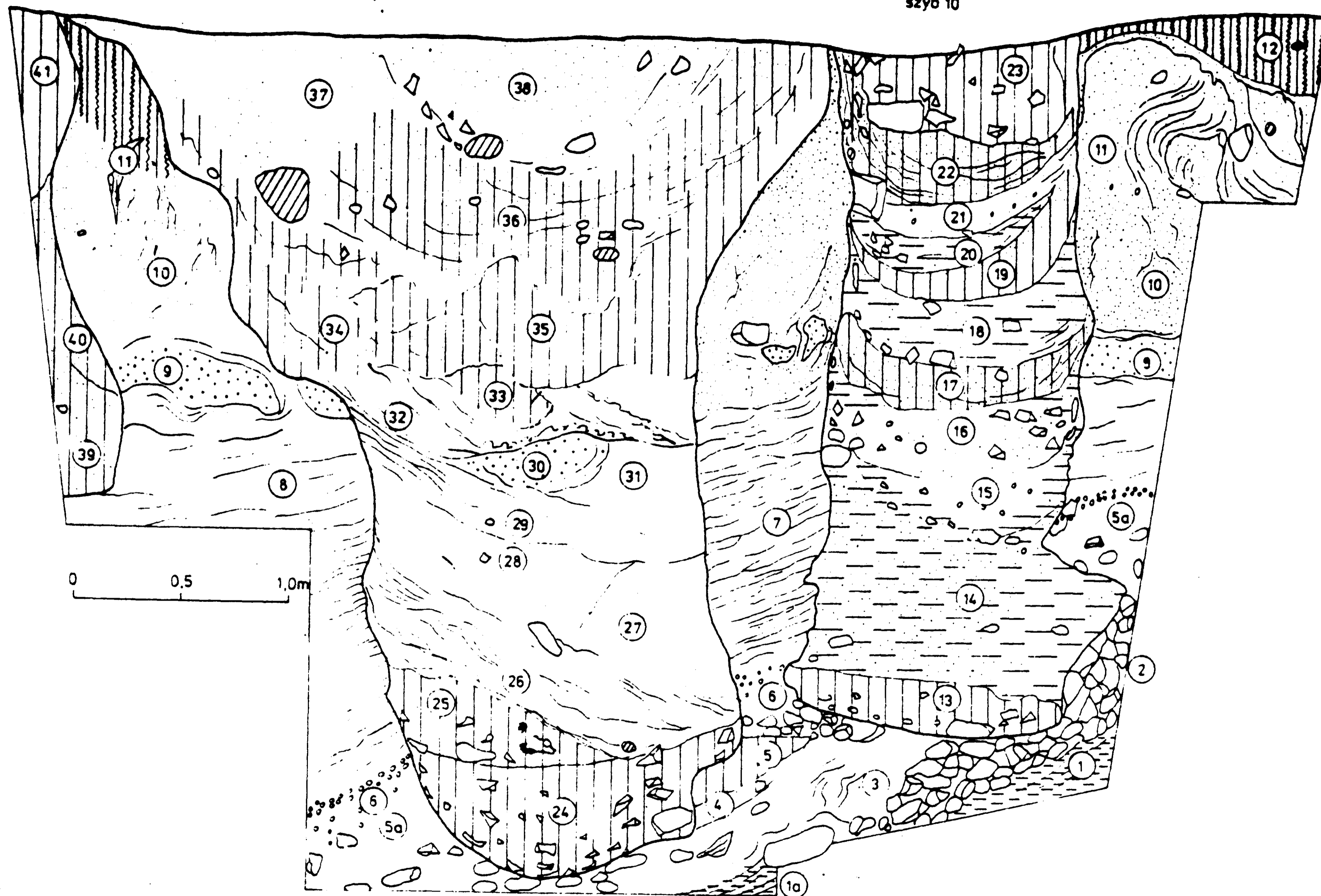


Fig. 5. PL 2 Tomaszów. Cross-section of Shafts 5c, 6 and 10 showing various fills composed of clays and sands. Flint bed in clayey matrix disturbed by glacitectonics at the base of cross-section.

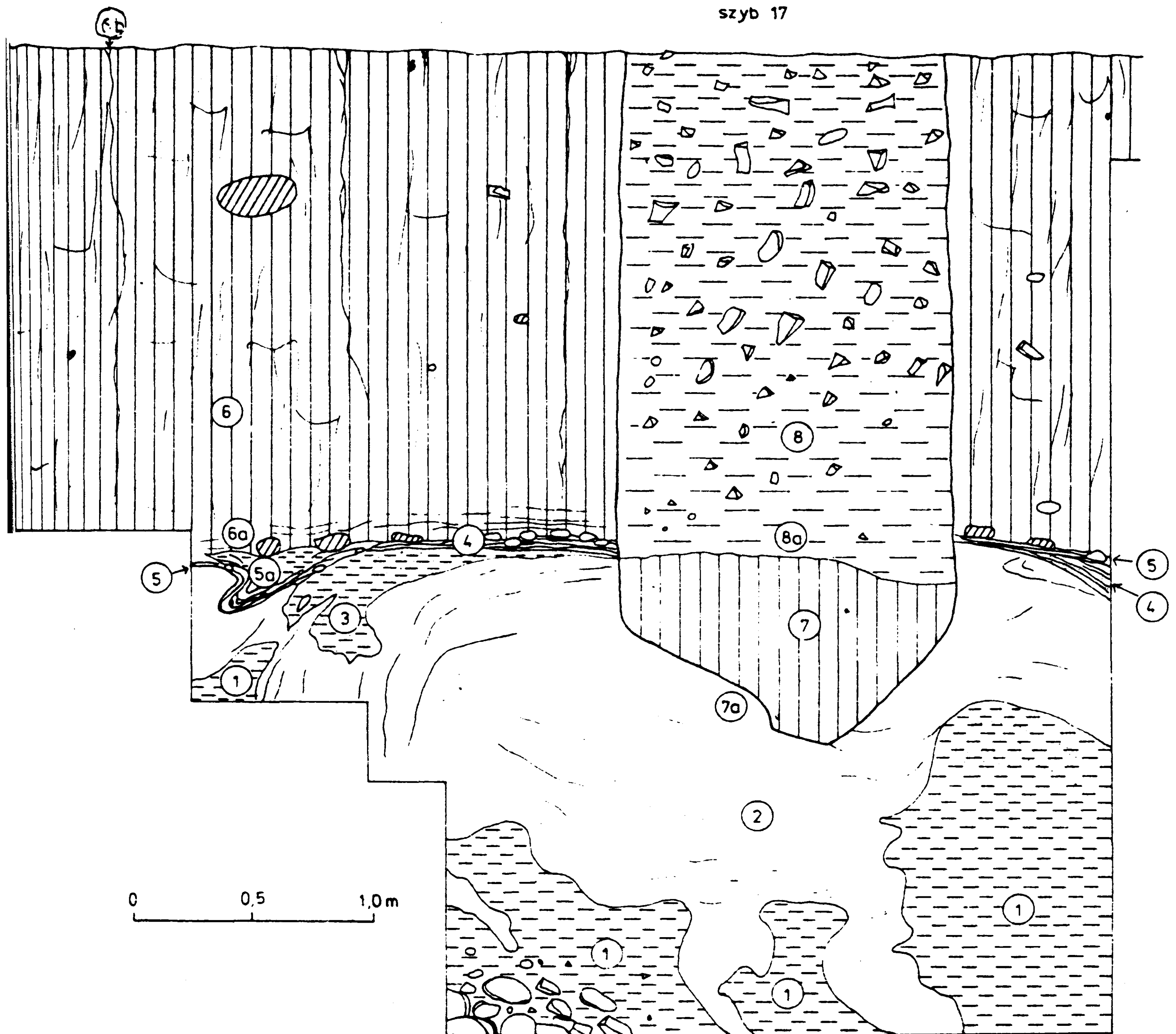


Fig. 6. PL 2 Tomaszów. Abandoned Shaft 17 with dumped clay with unsuitable flint chunks from the excavation of a nearby shaft.

Some sections of the shafts, on the other hand, show dumped clays excavated from another, probably nearby pit. Only the lithics occurred in the shafts. Some of them yielded large assemblages of artefacts, usually particularly rich in the sediments of the last phase of filling.

Seven radiocarbon age estimates, (all uncalibrated), on charcoal, were obtained from the exploitation pits at Tomaszów. The oldest came from Shaft 3 and is of 6260 ± 210 uncalibrated years BP (Gd-4166). Shaft 6 showed an age of 6145 ± 70 years BP (GrN-7591). Shaft 10 yielded two ages of 5990 ± 110 years BP (GrN-7592E, alkali extract) and 5715 ± 65 years BP (GrN-7592R, alkali residue). Shaft 1 gave an age of 5895 ± 40 years BP (GrN-7050); a sample from Shaft 4 measured 5700 ± 70 years BP (GrN-7590), while the charcoal from near the long trench-like excavations in the north-eastern section of the mine was 3230 ± 40 years BP (Gd-5196) old (Fig. 7).

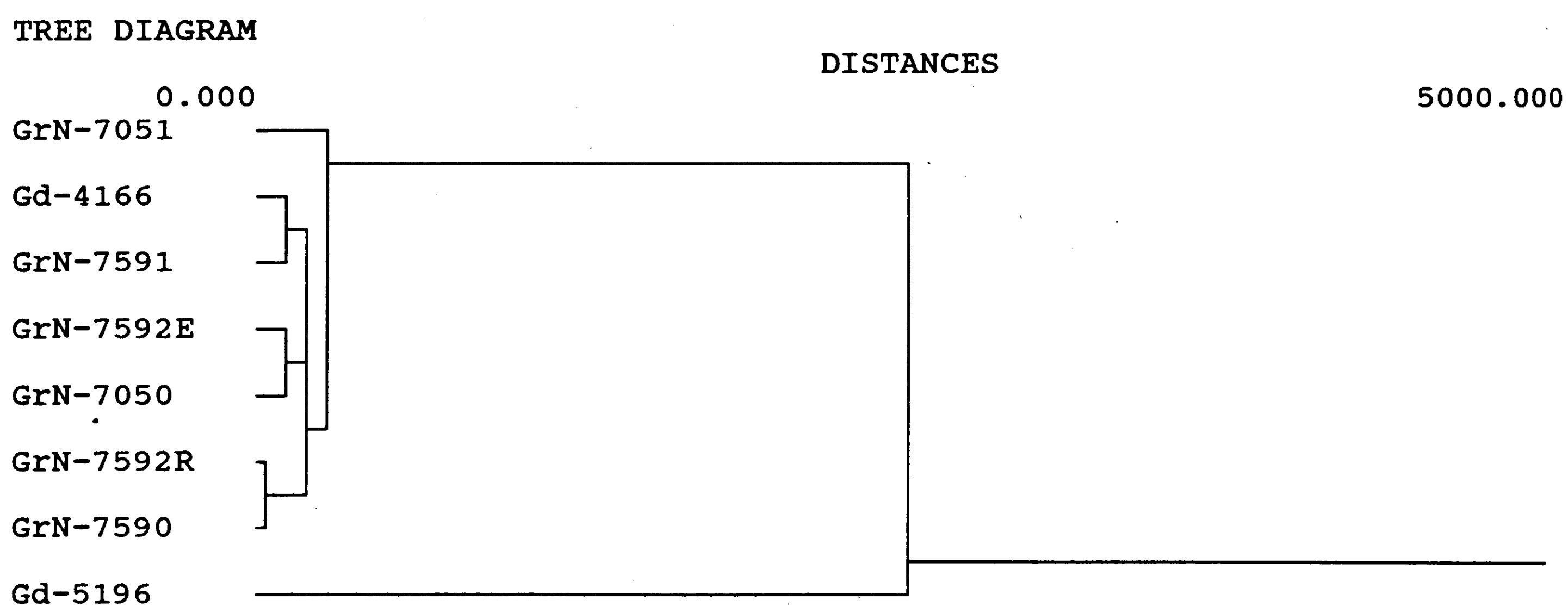


Fig. 7. PL 2 Tomaszów. Clustering of radiocarbon age estimates from Tomaszów. Mesolithic sample at the top; Bronze Age estimate at the base.

The earlier radiocarbon age estimates from the mine of Tomaszów cover the time span of late Linear pottery, as well as Stroke Ornamented and early Lengel styles. The measurement from the north-east section of the mine, on the other hand, is of Trzciniec age.

PRODUCTION

The lithic assemblages recovered from the Neolithic shafts show two basic ways of production (Schild, Królik and Marczak 1985) reflected in their technological structures. The first mode indicates a stress on the manufacturing of pre-cores and initial cores (Fig. 8). The second, represented only in Shaft 12, suggests an on-the-spot production of blades. Common use of flakes, household tools and pottery are not present. A large flake adze (hoe) and a few flint picks are associated with shaft digging. A series of use retouched flakes match the traces on the cortex of cores and pre-cores resulting from the removal of clay with a hard sharp object. The inven-

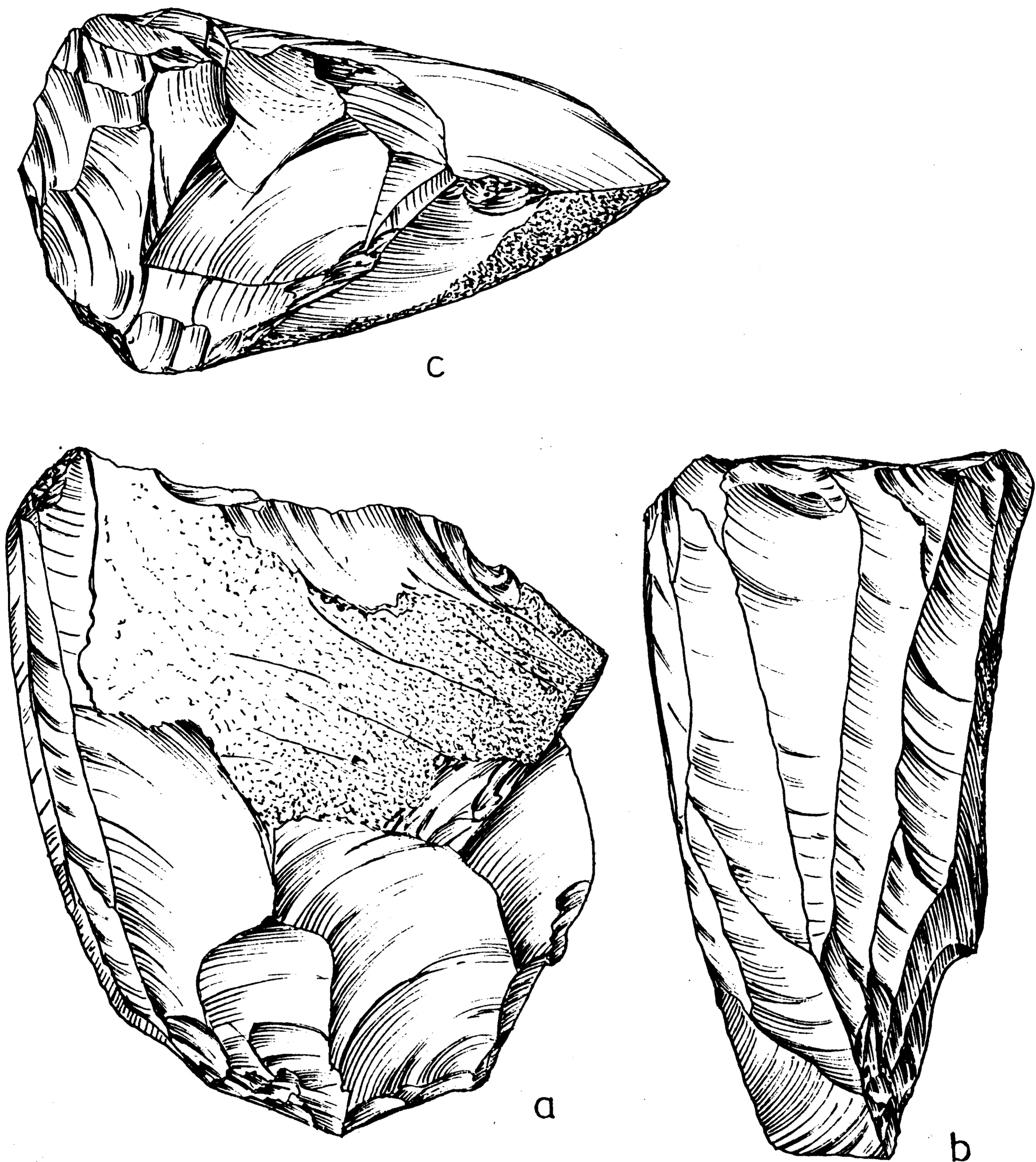


Fig. 8. PL 2 Tomaszów. Shaft 1. Single platform, blade core.

ories recovered from the Bronze Age pits include pieces showing reduction strategies toward bifacial tools.

Probabilistic evaluation as to the total number of Neolithic pits indicates that the mine contains 428 ± 173 shafts ($p = 0.05$). In spite of the fact that volumes of the individual shafts differ from ca. 16 m^3 (Shaft 3) to ca. 7 m^3 (Shaft 1), the volume of the

extracted flint-bearing sediment and flint nodules is much more uniform ranging from *ca.* 0.5 m³ to 0.7 m³.

Computation of the yield per shaft roughly fluctuates between *ca.* 100 and 200 cores or pre-cores. This amount of final products to be transported from the mine gives a weight of 50 to 130 kgs. The carriage of such a volume to a distant village, *e.g.*, in Kujawy (Kuyavia), might have required four to five people.

The possibilities of flint extraction in all Neolithic shafts were never exhausted. This indicates that rather the logistics and the number of people involved limited the production of cores and pre-cores per shaft. Therefore, a shaft was one event unit exploited by a single task party during its entire stay at the mine.

The distribution of the chocolate flint from Tomaszów is very little known. It certainly occurs in the Kuyavian complex of Lengel sites. It is also known from the Lengel site at Złota. A cache of pre-cores and initial cores is also known from Korytnica located almost midway between Tomaszów and the southern cluster of Linear pottery and Lengel sites.

There are several indications that the mine of Tomaszów was not methodically exploited. Crowding of the pits in the areas where traces of preceding quarrying were still apparent suggest that the miners constantly feared loosing the flint bed and did not know the geology of the mine too well. This, together with observations on distribution and limitation of production, may be explained by the fact that the mine was not controlled by any particular social entity and was accessible to various social or political units.

MESOLITHIC EXPLOITATION

There were no Mesolithic shafts found at the mine; however, excavations (Cuts I–III) on the nearby dunes yielded several late Mesolithic lithic concentrations almost entirely made of the mined Tomaszów flint. A charcoal sample associated with one of the concentrations in Cut II gave a radiocarbon age estimate of 6555 ± 45 uncalibrated years BP (GrN-7051). The stylistic characteristic of the assemblages locates them within the Vistulian cycle (Janisławice Culture).

The technological structure of late Mesolithic assemblages shows significant dominance of the groups of early core preparation as well as very low indices of tools. The indices are characteristic for flint workshops treating newly extracted flint.

The flint processing at late Mesolithic Tomaszów was dominated by manufacturing of pre-cores for single platform blade cores of the Montbani type. In strong contrast to the Neolithic assemblages found at the mine, a number of blanks were made into regular, settlement tools that were used during the period of site occupation. The type range of these tools is identical with the inventories recovered at camp sites.

The structuring of late Mesolithic assemblages reflects the contrast between the Neolithic and Mesolithic flint procurement. The Mesolithic acquisition of flint was operating from a camp that also served all possible purposes of a living site. It is probable, therefore, that the social structure of the flint mining camps was similar to that found at base camps. It is most likely that the occupation units were made up of nuclear families and that the late Mesolithic flint procurement was basically a nuclear family business.

The distribution of the chocolate flint among the late Mesolithic societies was very significant. The sites dominated by the chocolate flint are confined to an area within a radius of *ca.* 50 km from the source. This limited distribution may suggest that the most intense flow of the chocolate flint was taking place within the range of a territorial group.

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