

# Surface exploitation of the Jurassic flints in the Iwanowice microregion

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The article contains a brief description of Jurassic flint, variant B<sub>2</sub>, and its geology. It was explored in the Iwanowice settlement microregion in the Early Bronze Age. Surface collection of flint — far from settlements — may suggest a connection with livestock rearing.

KEY-WORDS: Jurassic flint, Iwanowice microregion, flint exploitation

The territory of an intensive surface exploitation of the Jurassic flints, variant B<sub>2</sub> (Kaczanowska and Kozłowski 1976:207), is located on the border between the Kraków-Częstochowa and the Little Poland Uplands (Figs 1–2). It is a plateau, limited to the East by the Dłubnia valley (19° 52'–20° 00' E and 50° 02'–50° 12' N). The area is covered by thick loess mantle overlying limestone. The loess is covered by brown soils (Kadrow 1991:16–8).

Flooded terrains in the valleys of the Dłubnia and Minożka and the lower parts of slopes were previously covered with alder, ash and elm carris (from the *Alno-Padion alliance*). The higher slopes on valley edges and dry plateau were the habitat of subcontinental forests (*Tilio-Carpinetum*). The dry areas of watersheds could be also covered to some degree by continental mixed oak-pine forest (*Pino-Quercion*). The rocky parts were a biotope of warm scrub and xerothermic oakwood (*cf.* Kruk and Przywara 1983). In the Early Bronze Age, in the time of the exploitation of local flint deposits, quite large parts of watersheds could be deforested as a result of economic activities of the Corded Ware and Mierzanowice Culture populations (Kruk 1973:224).

Beginnings of archaeological investigations in the Iwanowice settlement microregion are dated back to the first years of the 20th century (Machnik, Machnik and Kaczanowski 1987:12–8). Special attention to flint materials was paid by Leon

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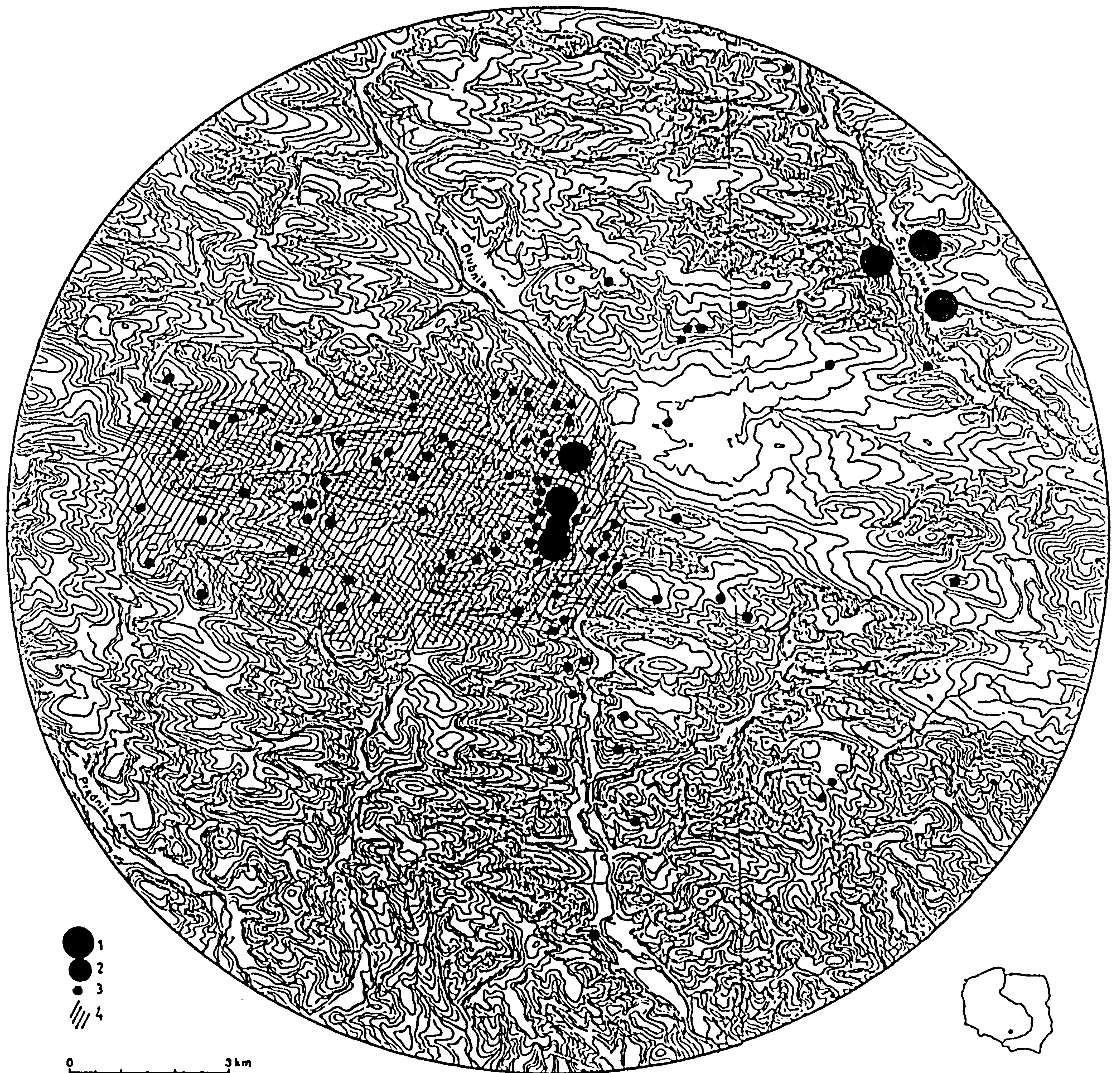


Fig. 1. The Iwanowice settlement microregion: 1 — main settlements; 2 — other settlements; 3 — single finds; 4 — zone of intensive flint exploitation (probably areas of pasturing).

Kozłowski (1914). During the time between 1967 and 1981 Jan Machnik supervised large-scale Polish-American excavations there. Numerous flint artifacts were obtained during this expedition (Kopacz 1976, 1978; Juskowiak 1976). The preliminary, macroscopic description of the local Jurassic flint was carried out by Małgorzata Kaczanowska and Janusz Krzysztof Kozłowski. They distinguished a variant (B<sub>2</sub>) of this flint, and sketched some elements of its characteristics and geology (Kaczanowska and Kozłowski 1976:204–7). This was supplemented by microscopic features (Kaczanowska, Kozłowski and Pawlikowski 1979:185–6). New proposals in relation

to geology and methods of identification of various types of Jurassic flints were made by Lech (1980:194–222).

The Jurassic flint (variant B2) was collected from the surface of the ground. It was found in outcrops of weathered Tertiary clays (Kopacz 1976:86–8; Lech 1980:204). Isolated points of these outcrops can be found in the whole territory between the rivers Dłubnia and Prądnik, and their fields in the so-called Iwanowice Basin and more to the West on the Kraków-Częstochowa Upland (Fig. 2).

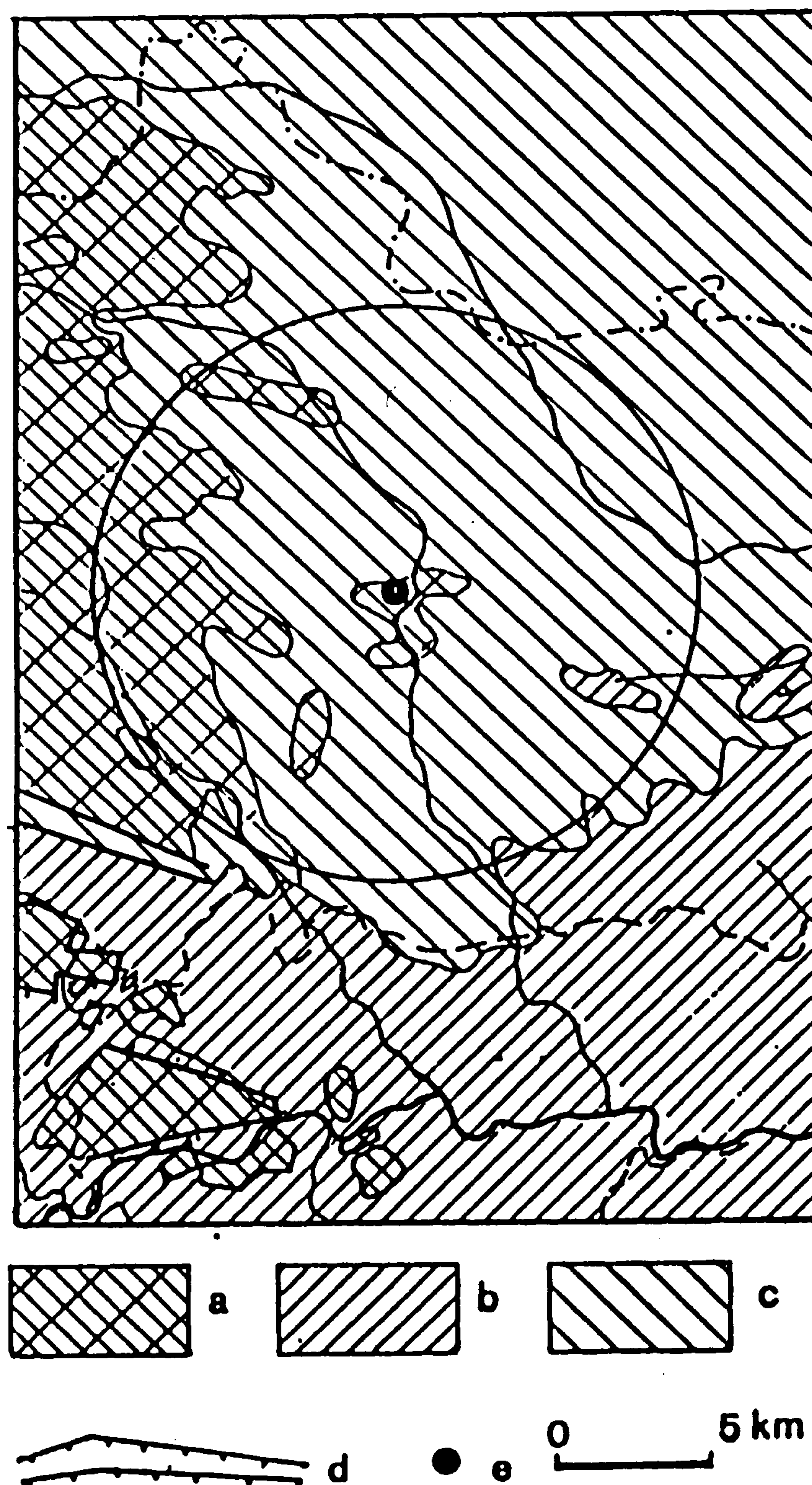


Fig. 2. The geological map of Iwanowice neighbourhood without Quaternary deposits: a — Jurassic rocks; b — Tertiary; c — Cretaceous rocks; d — upcasts; e — Iwanowice.

The variant B2 of the Jurassic flint usually has a cortex of a medium thickness, rough, coarse and with small hollow “bites”. The passage between the cortex and the flint mass is not too sharp, with a somewhat lighter silica strip under the cortex. The flint mass has a faint transparency, dark blue to grey in colour.

The territorial range of this flint exploitation was determined as a result of a long-term surface survey, which started in the 1960s (Kruk 1969:362–5) and was

continued later within the so-called Archaeological Survey of Poland. Variant B2 was explored mainly in the Early Bronze Age by a population of the Mierzanowice Culture (2300 — 1600 cal BC; *cf.* Kadrow and Machnik 1993; Kadrow 1994). Sporadically it was also in use in the Palaeolithic and in the Neolithic (Kaczanowska and Kozłowski 1976:210).

Analysis of settlement traces, usually in the form of single finds of flint artifacts, characteristic for the Early Bronze Age industry, shows the vast zone of their dispersion (Fig. 1) directly to the West of the Iwanowice settlement microregion. In accordance with the rule of the minimisation of effort (Johnson 1977:489), people should have carried out flint exploitation in the close vicinity of their settlements. The undertaking of flint-related activities quite far from settlements may suggest a connection with another important sphere, that of husbandry. Exploration of these more distant areas was unavoidable in the case of rearing livestock. If this assumption is permitted, the spatial distribution of single flint finds determines the range of pastures used (Fig. 1). Their surface areas reached about 30 square kilometres (Kadrow 1994). It corresponds with the relative concentration of the flint processing on the settlement at the Babia Góra site in the classic phase of its evolution, *i.e.*, in the period of its smaller population and smaller herds of animals (*cf.* Kadrow 1995). It was a time of a considerable reducing of areas for pasturing and a concentration of animal breeding in the close neighbourhood of the settlements. In the late, and especially in the early phase, when the settlements were more populated, when the inhabitants bred larger animal herds and when pasture areas were greater than ever, we may observe a decrease in flint processing on the settlements. It is obvious that at these times exploitation and preliminary forms of flint processing took place in pasturing areas. The whole flint industry in the Iwanowice settlement microregion was exclusively based on this local raw material.

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