

Searching for Celts in Upper Silesia. Verification by excavation of a geophysical survey in Samborowice

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INTRODUCTION

The presented case study is part of a wider research project that concentrates on the recognition of La Tène culture (commonly identified with Celtic tribes known from historical sources) settlement patterns in the Troja and Psina River basin microregion that constitutes a part of a vast mezoregion of the Głubczyce Plateau. According to the current state of knowledge (Jahn 1931; Woźniak 1970: 293–315; Chochorowski 1980), the studied microregion is place to the most intensive La Tène culture settlement activity within Poland's modern boundaries. Site 13 (Polish Archaeological Record project (AZP): zone 102-39/ site 117) in Samborowice, Racibórz district, is presumed to possess the largest cognitive potential in the area. It is located on a high fluvial terrace of the Psina river valley. The mezoregion abounds in spreading patches of excellent loess and loess-like soils which lie over sands and gravels, and have been intensively exploited and densely populated throughout most periods of prehistory. The study area is currently used for agriculture, and was limited by seasonal crops and a dirt road. Despite these drawbacks the area in general was characterized by a high level of ground availability and was suitable for geophysical study.

Based on surface finds, Samborowice site 13 could be classified in three phases associated with Lengyel, Lusatian and La Tène culture settlement activities. Our research project concentrated on registering features associated with La Tène settlement. The difficulty of the task lay in the fact that La Tène rural settlement patterns in the area of Central Europe are known to have a clear dispersion of residential areas, making them difficult to identify and comprehend solely through excavations. The scattering of surface pottery finds also established the extent of the settlement zone, which covered at least 6 ha. This state of things necessitated a large-scale spatial approach with the use of magnetic gradiometry as the fastest and the most cost-effective geophysical technique capable of detecting a wide variety of anthropogenic transformations.

MAGNETIC GRADIOMETRY SURVEY

The survey was conducted with the use of a Fluxgate instrument (Bartington Grad 601-Dual). The overall area of the survey amounted to 4.2 ha (Fig. 1). The survey grid was staked out with the use of a GPS RTK Trimble 5800 and included areas with high concentration of La Tène surface

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Fig. 1. Samborowice, site 13, Racibórz district. Plan of magnetic gradiometry survey ($-2nT/2nT$, light to dark) by P. Dułęba, J. Soida, P. Wroniecki

finds. As a side effect, the results of the survey clearly showed the cadastral divisions due to small field parceling. The acquired geophysical data was visualised in a grayscale convention. Geophysical measurements were processed in the *TerraSurveyor* and *Geoplot 3* software.

Data was subjected to filters (interpolation $0.5\text{ m} \times 0.5\text{ m}$, destripe, low-pass). The results were presented in the form of a visualization in different ranges of the grayscale convention. Magnetic maps derived from geophysical software were georeferenced in an open source GIS application. A polygon vector layer was derived from the magnetic maps with an interpretation of the data. Anomalies indicating the presence of probable archaeological features (such as pits, burnt features

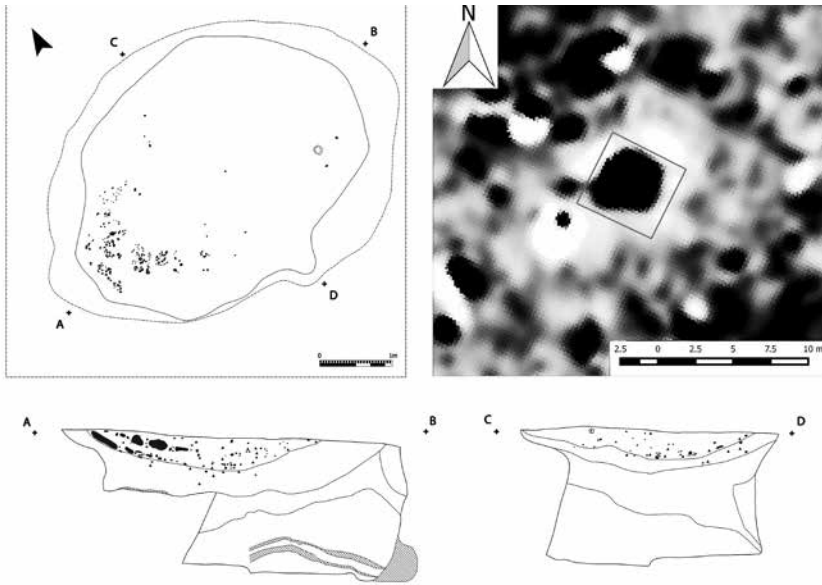


Fig. 2. Samborowice, site 13, Racibórz district. 1: Feature 5 ($-2nT/2nT$, light to dark). Processed by J. Soida

or anthropogenic soil sediments) were also similarly mapped. The geophysical research revealed numerous anomalies thought to be anthropogenic in their essence, manifested as both point and linear shaped increases in the value of the vertical component of the magnetic field. Anomalies of the first type may be associated most often with stratigraphic disturbances, cut features and other forms of soil disturbance, i.e., pits, postholes, foundations and pit-houses. Linear anomalies may be associated with ditch features. The outcome of the magnetic survey was compared with the results of earlier archaeological research, which in turn led to the interpretative model that draws from both non-invasive and excavation data.

ANOMALY VERIFICATION

Excavations in 2013–2014 covered an area of 330 m². Their aim was to verify various magnetic anomalies. Five trenches were opened, their layout and size conforming to the shapes distinguished by the geophysical survey. All point anomalies registered during the magnetic survey were confirmed to be archaeological features. The shape of these features coincided almost exactly with the outlines of registered magnetic anomalies. Undoubtedly, the presence of a loess soil cover proves to be an advantage for magnetic prospection research, because this type of aeolian sediment generates large contrasts with the magnetized fills of archaeological features.

In trench 1/14, an oval pit was registered (feature 5) with dimensions of 4.70 m x 3.56 m at the distinction level, which gave a very strong magnetic response (Fig. 2). This intensity could have been caused by the presence of highly burnt daub, most likely destructs of some structure that existed

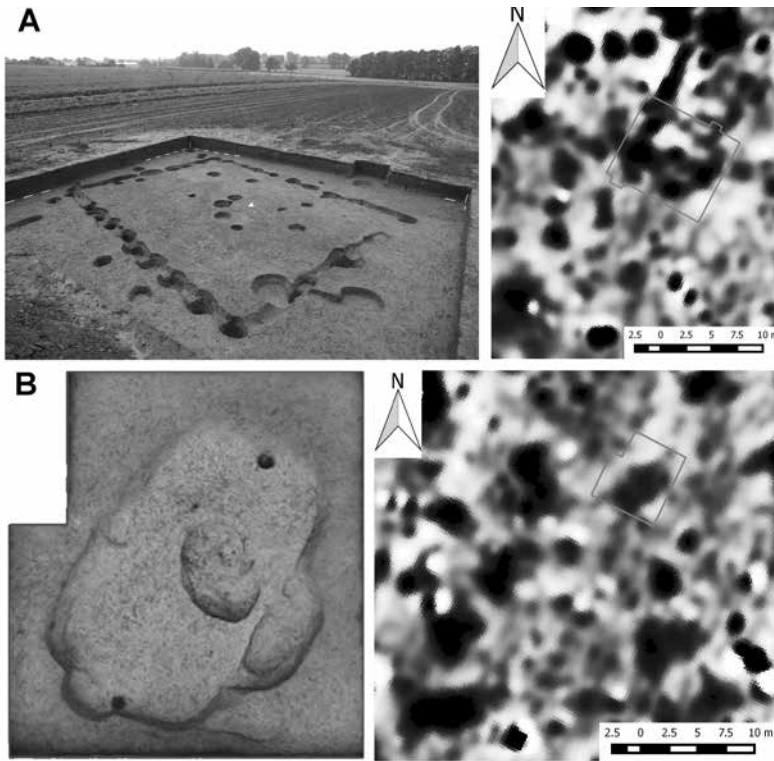


Fig. 3. Samborowice, site 13, Racibórz district. A: Posthole structure recorded in trench 2/14 (-2nT/2nT, light to dark). B: Feature 40. Processed by J. Soida

above or in the pit's vicinity. Feature 5 was characterized also by a relatively thick stratigraphic fill. In its eastern part a wide niche was found, 1.96 m deep. This feature may be interpreted as a storage pit.

In trench 2/14, a number of features that represent the structure of a long hut (post-hole construction) were uncovered (Fig. 3:A). The analysis of this type of architecture shows that most likely only a part of the hut was included in the trench (Pavúk 2012: Fig. 1-7). At the level of the distinction, a foundation ditch was noticed (7.82 m x 6.20 m), under which the relics of numerous posts were discovered that constituted the structure of the hut. On the basis of radiocarbon dating and archaeological material (pottery, stone tools, flint artifacts), feature 5 and the posthole structure of trench 2/14 should be dated to the Neolithic period and associated with the Lengyel culture.

Feature 40 was revealed in the eastern part of the site. It was a relic of a pit-house, 5.66 m by 4.30 m (Fig. 3:B). It had a flat floor, two postholes in the middle of both gable walls and two oval niches: one in the central part (which was probably a kind of "cellar") and another along the southern flank. The magnetic anomaly that pointed to the feature differed substantially from the anomalies associated with Neolithic deep-seated pits, such as feature 5. The intensity of this anomaly was much

weaker, owing probably to fill that was only 0.42 m thick. Radiocarbon analysis and archaeological finds (pottery, metal artifacts) date feature 40 to the middle La Tène period.

CONCLUSIONS

Feature 40 is similar to many congruent dwelling structures found on the settlements of La Tène culture in Central Europe (Meduna 1980: 193–199, list 1). The function of such pit-houses has been the subject of debate, but the prevailing opinion is that these features were not typical residential buildings (Meduna 1980: 61). In Samborowice, similar anomalies are located near feature 40 (Fig. 1). If their source are also analogous structures, then such a cluster may be interpreted as traces of a farmstead. Based on an archaeological interpretation of the magnetic gradiometry data, it is possible to recognize at least two or three supposed farmsteads, scattered over a relative large area (Fig. 1). Such an extensive spatial arrangement is the dominant settlement pattern in the La Tène Period.

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