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Short report on the 2014 excavations at Polgár-Csőszhalom

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Abstract
On the basis of the archaeological data gained from the Polgár-Csőszhalom site the space/time configuration and the relevant interpretative evaluations have reached a certain "historical" perspective and a peculiar "evolution" during the last 25 years. The development of the different analytical methods from time to time enabled the creation of increasingly fine-grained reference systems as well as new scales for a historical narrative. Fundamentally new information was provided by a new magnetometer prospection carried out in 2013. First of all it is clear that the extent of the settlement reached beyond the previously reconstructed borders. The preliminary analysis of the measurements resulted in another double enclosure system west of the main tell-enclosure structure. An archaeological test trench exposed the details of this macro-construction in 2014. Altogether this means that the interactions between people, things and places may have been much more sophisticated in the vicinity of the Csőszhalom settlement complex than thought before. All these details could demonstrate that the geophysical prospection cannot provide a clean-cut map about the Neolithic features of the Polgár site, and therefore we are not able to use the relevant data automatically without further consideration.

Research history of the site

I. The research history of Polgár-Csőszhalom began with a very symbolic act in 1929 when V. Gordon Childe registered the site as Polgár on a European site distribution map of the Danubien II civilizations.[1] Furthermore he also identified the "Polgár-culture" and considered it having the closest connection with the Lengyel–Jordansmühl cultural entity. He argued that the distinct feature of the group represented by Polgár was the use of ceramic decoration arranged into vertical panels where the red and white colours were applied after firing. This type of "crusted ware" became a characteristic feature of the Polgár pottery style.[2] Despite of the published textual data about the Polgár site, there was not even an illustration of the discussed material. In connection to Polgár V. Gordon Childe also drew attention to the obsidian, the very special lithic raw material which originated from Northern Hungary and was distributed in Moravia as well as in the Tisza region.

1 Childe 1929, Map III.
2 Childe 1929, 76–81.

Ferenc Tompa, an outstanding Hungarian archaeologist also made contributed greatly to the study of the Polgár-Csőszhalom site in 1929, however the name of the village where the mound was located was officially used in the form as Tiszapolgár for a short time period. This was the reason why the labels Polgár and Tiszapolgár have periodically appeared inconsequently in the archaeological literature. Ferenc Tompa published the first real examples of the characteristic painted pottery from a local private collection and he pointed out the tell character of Tisza culture settlements for the first time. Tompa considered it fundamental that the Polgár painted style in fact was a representative of the Tisza II phase distributed generally across the Great Hungarian Plain.[3]

II. In 1957 Ida Bognár-Kutzián sunk a test trench sized 12 by 2 m in the south-eastern part of the Csőszhalom mound. At the same time this was the first systematic archaeological activity in the locality. The very restricted area of investigations at the site exposed five successive occupation levels and the habitation strata accumulated to 3.5 m. These results clearly supported the idea that the Csőszhalom mound could represent the northernmost Neolithic tell settlement type in Southeast Europe.[4] On the basis of the excavation the terminology of the "Csőszhalom group" was introduced into the scolarly discourse by Bognár-Kutzián and she presented a selection of nine vessels on a plate illustrating the material meaning of this cultural phenomenon.[5] In a wider perspective the Tisza–Herpály–Csőszhalom cultural unit was considered the representative of the Late Neolithic in the Great Hungarian Plain.[6] The final report of this early investigation with the detailed summary of research history eventually appeared in 2007.[7]

III. Archaeological interest in the Polgár-Csőszhalom site was to a large extent inspired by its unique location in the Upper Tisza Region approximately 100 km north of the main concentration of the Late Neolithic tell-settlements in the Great Hungarian Plain.[8] A new investigation program began in 1989 with the support of the *Museum für Vor- und Frühgeschichte* (Frankfurt am Main), the Déri Museum (Debrecen) and the Archaeological Institute of the Eötvös Loránd University (ELTE). The first surprising result of the aerial photography survey was the traces of an enclosure system around the tell settlement.[9] The Geophysical Department of the ELTE organised a systematic geophysical survey on the Csőszhalom mound and the investigations led by Balázs Székely and Sándor Puszta outlined a fivefold concentric earthenwork around a central elevation under the surface.[10] The complex structure appeared to have a 180 to 190 m outer diameter, while the internal section could be calculated for 70 to 75 m. The magnetometer surveys mapped four entrances to this rondel. Burned house remains were also detected over an area of 40 m diameter in the central part of the tell. The geomagnetic measurements were also complemented by test borings arranged in the lines of the four cardinal directions in 1989 and 1991. With the help of stratigraphic data from subsurface probing Gábor Rózsa and András Varga presented a 3D approximation of the inner structure of the enclosure complex at Csőszhalom.[11] On the grounds of the comprehensive

3 Tompa 1929, Pl. LIV: 2, Pl. LV–LVII; Tompa 1937, 47.
4 B. Kutzián 1958.
5 Bognár-Kutzián 1966, Abb. 7. 1–9.
6 Bognár-Kutzián 1966, 268–269.
7 Bánffy – Bognár-Kutzián 2007.
8 Makkay 1982; Kalicz – Raczky 1987.
9 Raczky et al. 1994, Pl. V.
10 Raczky et al. 1994, Pl. VI; Raczky 1995, Fig. 2.
11 Raczky et al. 1997a, Fig. 7.

geoarchaeological research we opened our trenches (I–IV). These were aimed at providing a representative picture of the Csőszhalom mound.

The results of successive campaigns conducted between 1989 and 1993 suggested that the Csőszhalom site enclosed by a multiple ditch-palisade system cannot be regarded a settlement resembling the Neolithic tells in the Balkans. We argued that Polgár-Csőszhalom, with the structural unity of the stratified mound and the enclosure system, represents a spatial symbiosis of the Tisza–Herpály as well as Lengyel types of monumental landmarks. Furthermore we tried to interpret the entity of the tell-enclosure structure as a "central place"[12] in accordance with the early ideas of Hermann Parzinger.[13]

IV. In a following research phase micro-regional investigations were conducted in the Polgár area as part of the rescue project preceding the construction of the M3 motorway. An approximately 700 × 400 m large horizontal settlement was estimated in the close proximity of the Csőszhalom mound in 1994. In accordance with the preliminary conclusions, it became evident, that the tell and the newly identified single layer settlement formed an organic functional unit and those historical reconstruction could only be based on a joint space/time evaluation.[14] In terms of its verified 28 ha size the Polgár settlement is a unique phenomenon in the Late Neolithic in the Great Hungarian Plain.

During this phase we tried to outline the precise horizontal extent of the settlement complex. In accordance with this effort aerial photographs were taken by Otto Braasch within the same program in 1993 and 1994 and some new macro-morphological details became visible around the site of Polgár Csőszhalom.[15] In this research program we sought after the integrated application of aerial photography and magnetometer surveys using GIS processing. New magnetometer surveys by the personal implementation of Sándor Puszta revealed a map of the highly aggregated features of the horizontal settlement, however no special architectural details were visible at the technical level applied.[16] The archaeomagnetic survey was conducted with a proton magnetometer of 0.1 nT/m sensitivity and the surveyed area was covered by a 1 × 1 m grid *(Fig. 1.2)*.

In the reconstruction of the Polgár-Csőszhalom settlement complex we tried to integrate different types of archaeometric data compiled a synthetic map of the topographic micro setting of the site.[17] In 1996 we opened a trench (trench V) for the attesting of the north-eastern gate of the Csőszhalom enclosure system.

An approximately 400 m long and 90–100 wide north to south section could be recovered from the horizontal settlement of the Polgár-Csőszhalom site during the rescue program of the M3 motorway between 1995 and 2004.

V. In 2006 we received the consent of local landowners for making a mechanized east–west sounding trench through the site thus providing a cross section in a 1000 × 1 m dimension. Taking into consideration the results of this project we gained new spatial information concerning to the horizontal distribution of the Polgár settlement. In accordance with new field

12 Raczky et al. 1994, 234; Raczky 1995, 84–82.
13 Parzinger 1992.
14 Raczky et al. 1997b.
15 Raczky et al. 2002, Fig. 5–6.
16 Raczky et al. 2002, Fig. 7.
17 Raczky et al. 1997b, Fig. 21–22; Raczky et al. 2002, Fig. 8.

research we had to modify estimations concerning the horizontal extension of the site complex to 38 hectares. A new topographic map was published based on a combination of magnetometric surveys, field walks and excavations *(Fig. 1.1)*.[18] During this research period we delivered a very detailed analysis concerning the loci of activity and spatial configuration of the Polgár settlement complex.[19]

VI. In 2013 Gábor Márkus carried out a new type of geophysical survey using the vehicle towed MAGNETO®MX system with a 0.1 nT/m resolution. The multisensor-system in this case contained eight sensors and the distance between the sensors was exactly 0.25 m. The magnetometer survey covered an approximately 33 hectares surface and this project provided very important new details about the spatial affiliations of the horizontal settlement *(Fig. 2.1, 5.1)*. Among others, new geophysical research identified a second enclosure 200 m west of the main tell-enclosure *(Fig. 2.2–3)*, which means a new starting point for the reconstruction of coeval features and activity areas inside the late Neolithic settlement-complex. Furthermore this methodology, applied on wider scale, could contribute to a new research standard used for the analysis of settlement patterns in European archaeology.[20]

The newly gained magnetometer map also posed a scientific challenge in the archaeological identification of the features detected. Therefore a very restricted field program was organized in 2014.

Fieldwork in 2014

1. The second enclosure identified by geophysical research has two concentric ditches. The diameter of the inner circle is approximately 40 m, and the outer is approximately 60 m. In August we opened a 1 m wide and 32 m long trench, oriented north to south cutting through the anomalies of the supposed ditches *(Fig. 2.3)*. Removing the first 20 cm of the humus layer we divided the trench into 1 × 1 m quadrates and continued working in these sections until the level of prehistoric features which first appeared around a depth of 80 cm. We deepened the excavation squares by 20 cm. The soil was dry sieved and the finds of these units are kept under separated stratigraphic numbers *(Fig. 3.1)*.[21] The main archaeological features recovered were as follows:

- Detail of the outer ditch (Feature 1). The V-shaped section of the ditch is 200 cm wide on the top and it narrows down to 40 cm in the bottom at the depth of 195 cm *(Fig. 4.1–2)*.
- Detail of the inner ditch (Feature 2). The V-shaped section of the ditch is 210–180 cm wide on the top and it narrows down to 25–40 cm in the bottom at the depth of 180 cm *(Fig. 4.1, 3)*. The northern section of the ditch's wall narrows step by step.
- Detail of an oval shaped pit (Feature 6): We were able to detect the pit directly above the plough zone. The fill of the pit contained quantities of daub, shards and lithics *(Fig. 3.2–3)*.

18 Raczky – Anders 2010, Fig. 2; Raczky et al. 2011, Fig. 2.
19 Raczky – Anders 2010; Raczky et al. 2011.
20 E.g.: Chapman et al. 2014; Rassmann et al 2014.
21 This method was used also during the excavation of Polgár-Bosnyákdomb: Raczky – Anders 2009.

- Grave (Feature 5). The deceased lay in a rounded oblong-shaped pit on his/her left side, in a slightly contracted position. The skeleton was poorly preserved. Two small vessels have been found near the skull as grave goods *(Fig. 3.3)*.

In addition to these features a pit section (Feature 3) and a detail of a narrow ditch (Feature 4) were explored. With the exception of Feature 3 (probably Iron Age?) all features could be securely dated to the Late Neolithic.

2. Some 50 m southeast of the second enclosure geophysical research identified well-structured anomalies, which seemed to be the structural details (posts) of a building of unusual sizes *(Fig. 2.3)*. We opened a verifying trench over the north-eastern corner of the aforementioned structure (measurig 8 × 4 m) in October. Ten postholes were unearthed at this place. They belonged to different architectural constructions whose orientations were indicated an approximately east-west as well as a north-south direction *(Fig. 5.2)*. Some of the postholes contained intensively burnt pieces of daub *(Fig. 5.3)*. On the other hand some postholes showed no sign of burning, but remains of vertically split trunks *(Fig. 5.4)*. We argue that all of the excavated features could be dated to the Late Neolithic period.

During our test excavation different samples were taken for radiocarbon dating, as well as the analysis of sedimentols, plant macro-remains and soil micro-morphology. These provided precise details of the excavated contexts.

Conclusions

On the basis of the archaeological data gained from the Polgár-Csőszhalom site the space/time configuration and the relevant interpretative evaluations have reached a certain "historical" perspective and a peculiar "evolution" during the last 25 years. It is a fundamental experience that understanding a site obviously is a never ending process. The interdisciplinary methods applied in different phases of research have regularly opened new archaeological aspects of settlement study and stimulated new questions concerning previous archaeological approaches. Furthermore the development of different analytical methods from time to time enabled the creation of increasingly fine-grained reference systems as well as new scales for historical narrative. As a result of the aforementioned dialectic relationship, archaeological models repeatedly provoked new questions to be answered.[22]

1. Through the integrated application of aerial photography and geophysical prospection it became clear that Polgár-Csőszhalom was surrounded by a system of concentric ditches and palisades. It has also been suggested that the site represented a special cultural symbiosis between the tell and the enclosure-palisade structures. This hypothesis was also supported by the excavations. In the physical relationships between the stratified mound and the horizontal settlement at Polgár very expressive dichotomy appeared between the different space/time attitudes of the human actors.

2. The horizontal extent of the settlement complex at Polgár-Csőszhalom was modified from 28 to 38 ha on the grounds of new multidisciplinary surveys which represent a very unique dimension within the context of Late Neolithic settlements in the Tisza region.

22 Müller 2010; Kienlin 2012; Mischka 2012; Parkinson – Gyucha 2012; Salisbury 2012.

3. Fundamentally new information was provided by a new magnetometer prospection. First of all it is clear that the extent of the settlement reached beyond the previously reconstructed borders. The preliminary analysis of the measurements resulted in another double enclosure system west of the main tell-enclosure structure. An archaeological test trench exposed the details of this macro-construction. Altogether this means that the interactions between people, things and places may have been much more sophisticated in the vicinity of the Csőszhalom settlement complex than thought before. The same conclusion can be drawn from the new magnetogram in which burnt house structures appeared west of the main mound in the context of the horizontal settlement *(Fig. 5.1)*. Previously we couldn't find any trace of burnt house structures on the excavated part of the horizontal settlement. Another test trench made it clear that some architectural features, such as posts were heavily burnt, while others were not in the same building. This means that only certain selected architectural details could be identified in the magnetogram. We cannot find a direct correlation between features being under the surface and the visual signs of the magnetic anomalies in the case of the Polgár horizontal settlement. Obviously it is a local difficulty that the surface of the Late Neolithic settlement discovered also by densely established Iron Age and Sarmatian settlement features. All these details could demonstrate that the geophysical prospection cannot provide a clean-cut map about the Neolithic features of the Polgár site and therefore we are not able to use the relevant data automatically without further consideration.

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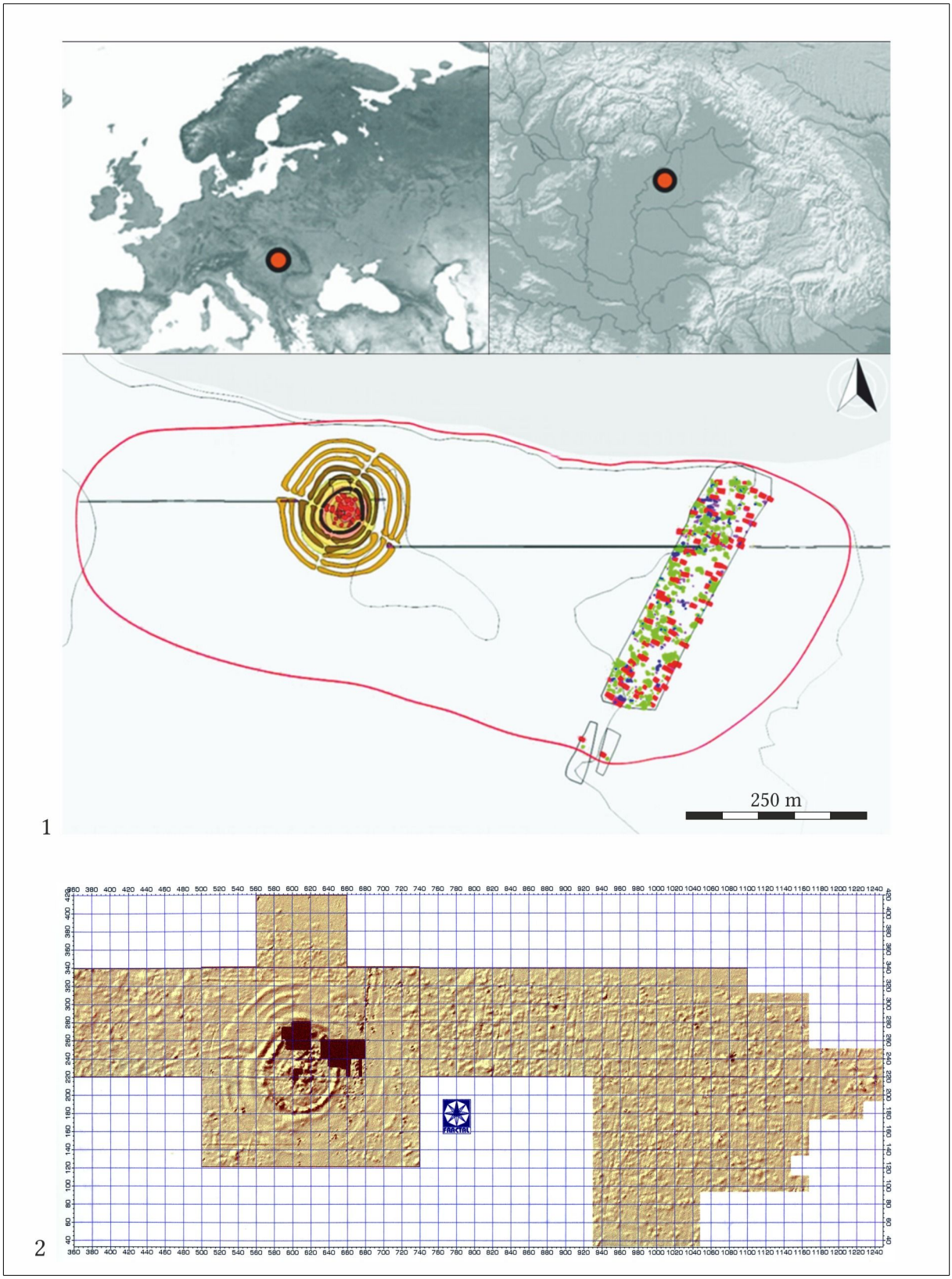

Fig. 1. Polgár-Csőszhalom. 1. The topography of the tell enclosed by a ditch system and the horizontal settlement with the investigated areas, the reconstruction is based on magnetometer surveys, field surveys and excavations (after Raczky – Anders 2010). 2. Polgár-Csőszhalom. Magnetometric plan and excavation trenches (1993–1994: Fractal Ltd.).

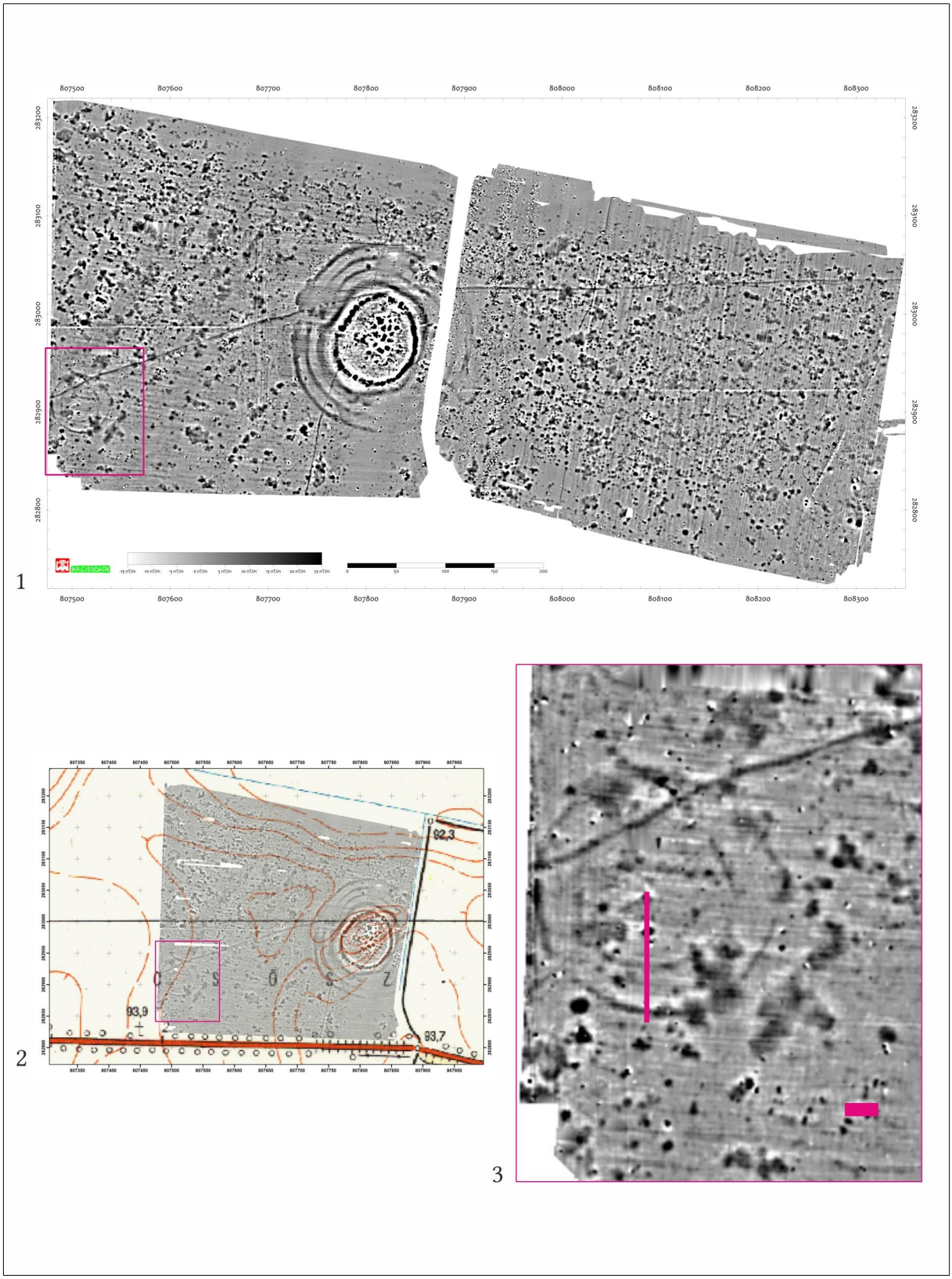

Fig. 2. Polgár-Csőszhalom. 1. Magnetometric plan, –15 nT/m–25 nT/m (2013: Archeodata 1998 Ltd.). 2. Detail of the magnetometric plan and the excavation trenches in 2014. 3. Magnetometric plan on the 1:10 000 scale contour map (L. Rupnik).

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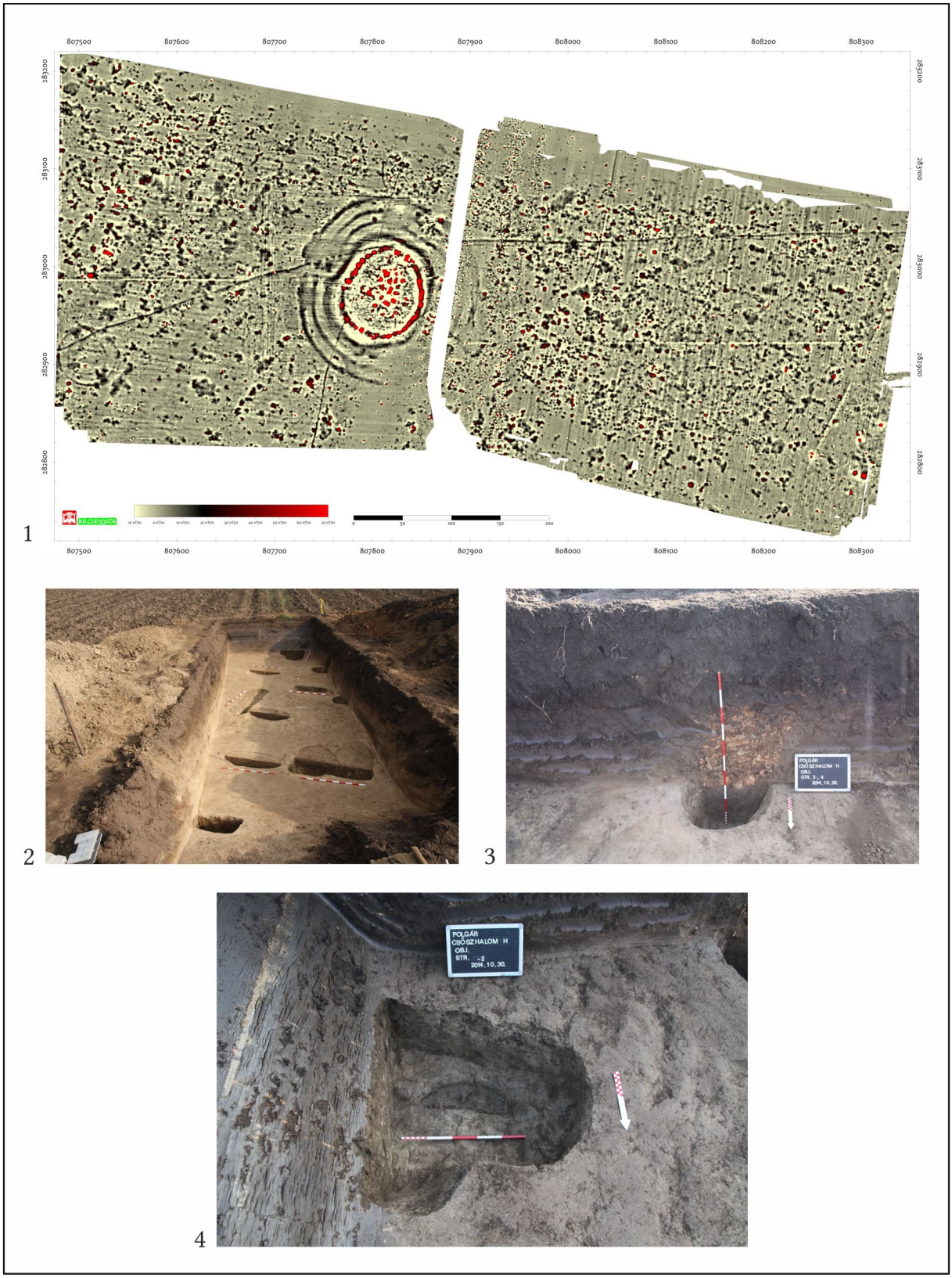
Fig. 3. Polgár-Csőszhalom, Trench I in 2014. 1. field work. 2–3. Feature 6. 4. Feature 5 (Photo: P. Raczky).

Fig. 4. Polgár-Csőszhalom, Trench I in 2014. 1. The view of Trench I. 2. Feature 1. 3. Feature 2 (Photo: P. Raczky).



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