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AERIAL ARCHAEOLOGY IN THE RESEARCH OF BURIAL TUMULI IN HUNGARY

Presented in this study are the most important findings of the aerial surveys of tumulus cemeteries begun in 2001 in Hungary. The investigation of the already known Iron Age cemeteries in Transdanubia and the probably prehistoric mounds in the Hernád Valley provided an abundance of fresh data. Also discussed are the features indicating perished tumuli on aerial photographs, allowing the identification of previously unknown tumulus cemeteries, together with a comparison of tumuli and ditched graves.

Keywords: *aerial archaeology, cropmarks, prehistoric tumuli, kurgans, ring-ditches*

Introduction

Commissioned by the Office of Environmental Protection of the Ministry of Environment, in 1997 the Institute of Archaeological Sciences of the Eötvös Loránd University began to assemble the register of prehistoric monuments lying in conservation areas as defined by Act LIII of 1996. We first collected the available archaeological and topographical data on prehistoric kurgans and tumulus burials; this was followed by a register of the two hundred known and topographically identifiable prehistoric hillforts, assembled in collaboration with Gyula Nováki in 1998–1999 (NOVÁKI et al. 2006), while the register of tell settlements in the Great Hungarian Plain was completed in 1999–2000 under the direction of Pál Raczky (ANDERS et al. 2008).

Parallel to the creation of these registers, we began the condition assessment survey of prehistoric hillforts using aerial photography in autumn 2000 (CZAJLIK–HOLL 2003; CZAJLIK 2006). This survey was extended to include tell settlements from summer 2001, and burial tumuli from spring 2002. In addition to photographing the already known burial tumuli, our other priority was the location of tumulus cemeteries that could no longer be identified in the field from surface remains and the clarification of the relation between tumulus burials and ditched burials.

The aerial photography of known tumulus cemeteries

Since the register assembled in 1997 contained prehistoric earthen monuments only, one focal point of the research project was the survey of these tumulus

cemeteries. Based on the data contained in the register, we first investigated the areas with several tumuli scattered over a relatively smaller area in order to use the limited funds at our disposal as efficiently as possible. We omitted the burial grounds lying in forested areas, where the potentials of aerial photography are limited, and/or the burial grounds with smaller tumuli, such as the ones at Sopron-Burgstall, the tumulus cemeteries in the Bakony Mts, at Fehérvárcsurgó and in the Pécs area. We did not have the resources for a systematic investigation of the kurgans lying at considerable distance from each other over an extensive area, whose identification from the air often runs into difficulties, and we thus only documented a few of these mounds when we photographed tell settlements.

The primary goal of the research project was topographic data collection: when surveying the known tumulus cemeteries, we strove to record not only the current condition of the tumuli and their exact location, but also to identify the remains of strongly eroded or wholly destroyed burial mounds. Although our data collection is far from complete, we could nonetheless note some striking morphological differences between the tumuli reflecting various phases of destruction from the already available photographs.

Before discussing the findings of the research project, it must be admitted in all fairness that in the case of certain sites, the aerial survey contributed little to our knowledge of the topography and structure of tumuli. These sites were the following: Győrújbarát-Nagybarát, Somlóvásárhely-Halmok, Tihany-Halmok, Vaskeresztes-Diófás-dűlő and Hosszú-földek, Vaszar-Pörösret (Early Iron Age tumuli); Alsószent-

iván-Nekeresdpusztá, Perkáta-Cikolai-halmok, Pusztaszabolcs-Felsőcikola, Szabadegyháza-Vastag-halom (tumulus cemeteries of the Roman Age in Transdanubia); Debrecen-Kamarás-halom, Hortobágy-Nagyszálka-halom, Szegvár-Sáp-halom (kurgans in the Great Hungarian Plain).

The findings of the aerial surveys are presented in the following regional (and chronological) grouping:

1. The Iron Age tumulus cemeteries of Transdanubia: the Sághegy area (Kismező-major, Mesteri, Sándorháza), Süttő-Sáncföldek, Százhalombatta-Százhalom, Zalasántó-Várrét, and the tumulus cemetery at Nagyberki-Szalacska, containing both prehistoric and Roman Age tumuli;

2. The prehistoric mounds in the Sajó and Hernád valleys: Arnót-Halmok, Felsődobsza-Dobszai-halmok, Felsőzsolca-Zsolcai-halmok, Szentistvánbaksa-Halmok;

3. The kurgans of the Great Hungarian Plain: Debrecen-Józsa-Csegei-halom, Dévaványa-Sártó-halom, Szeghalom-Cigányéri-dűlő, Tiszainoka-Fekete-halom, and a description of the Sarmatian tumuli at Vaskút.

1. *Tumulus cemeteries in Transdanubia*

Százhalombatta-Százhalom (the Érd-Batta tumulus cemetery)

Commissioned by the Hungarian National Museum, the first aerial photographs of the tumulus cemetery at Százhalombatta were made by Hungarian Royal Army in 1934. These photographs were apparently forgotten because István Torma and Dénes Virágh identified the tumuli based on a military aerial photograph made by the Cartographic Institute of the Hungarian Army after World War 2. They also prepared an aerial photo map

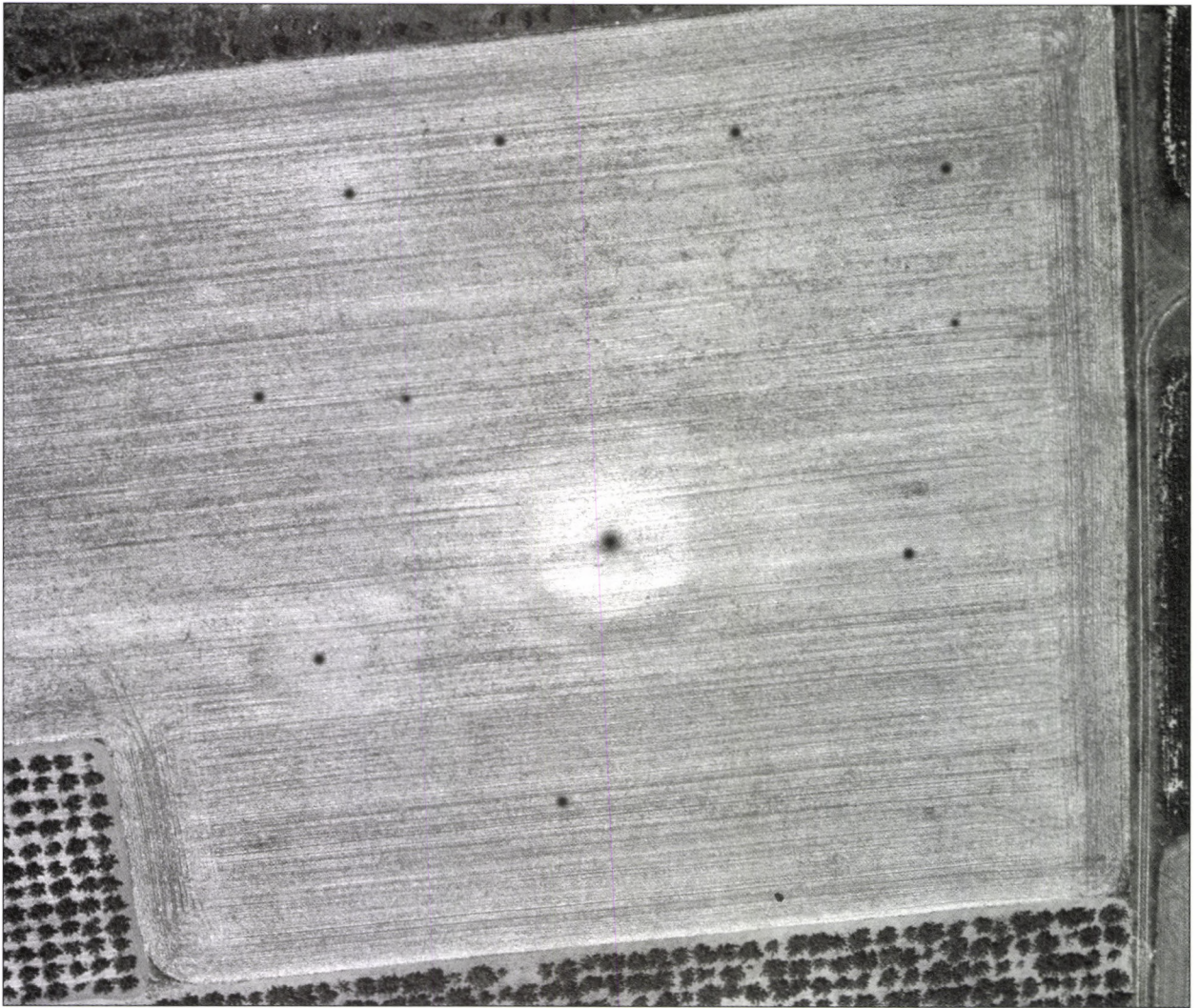


Fig. 1. Százhalombatta-Százhalom: remains of a groups of tumulus burials (Z. CZAJLIK, July 13, 2001)

of the area (MRT 7, 228–231, Fig. 16, Pl. 57). Altogether 122 tumuli are known from the area. The analysis of the aerial photographs made since 2001 revealed a pattern of smaller grave groups made up of a large mound encircled by smaller tumuli (Fig. 1).

Most of the burial mounds appeared as round soil-marks of lighter colour than the surrounding land on earlier aerial photographs of the Batta tumulus cemetery. The recent photographs of the site revealed ring-shaped cropmarks with darker patches in their centre, probably indicating the burial chamber under the mound. During her excavation of the cemetery, Ágnes Holport found that the chamber of Tumulus 74 lay at a depth of 104 cm, while the chamber of Tumulus 75 at a depth of 81 cm below the modern surface (HOLPORT 1985, 26), suggesting that the photographs re-

corded the remains of mounds, which had been severely eroded. The ring-shaped cropmarks can most likely be interpreted as the ring-ditch enclosing the tumulus.

Nagyberki-Szalacska

The Szalacska tumulus cemetery is another one of the few exceptional archaeological sites of which archive aerial photographs made Sándor Neogrády are available. The photographs made in July 1929 show the remains of five larger mounds tilled with horse-drawn ploughs and seventeen smaller mounds cultivated with steam ploughs (NEOGRÁDY 1950, 287, 297, Fig. 7). These tumuli can probably be identified with some of the burial mounds depicted on the map made by Antal Hencz in 1878 on the request of Flóris Rómer (Fig. 2;

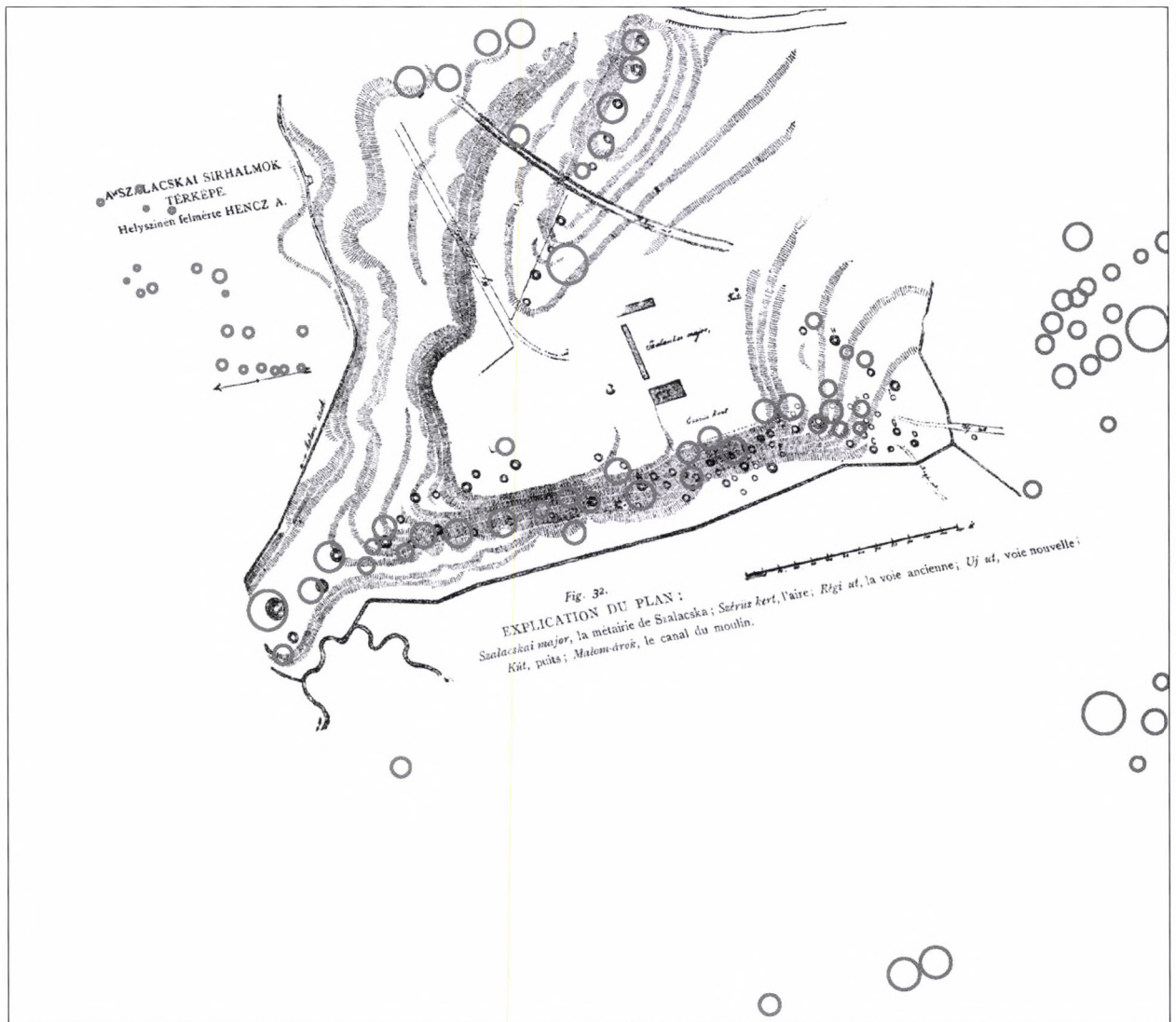


Fig. 2. Nagyberki-Szalacska: Orto-rectification of Antal Hencz's map from 1878 and Sándor Neogrády's aerial photograph from 1929 (B. HOLL)

RÓMER 1878, 116, Fig. 32). We repeatedly attempted an aerial survey of this tumulus cemetery based on the old map and the archival photographs; aside from the orto-rectification of the archive photographs, the largest body of information was gained from the aerial survey in 2005 and 2006, enabling the identification of some 78 mounds shown on Hencz's map and an additional 30 tumuli, which were probably unidentifiable in the 19th century.

The location of the one-time tumuli was indicated by soilmarks on Neogrády's photographs and by soilmarks and cropmarks on the modern photographs, partly because the vegetation covering the eroded mounds was stunted and partly because the vegetation was lusher in the depressions between the closely spaced tumuli (Fig. 3). In contrast to the Százhalombatta site, no positive circular cropmarks could be

identified on these photographs; neither could we observe rectangular cropmarks in the centre of the eroded mounds either on Neogrády's photographs or on the ones made in 2005 and 2006. One possible explanation is that the mound had not been eroded down to the level of the burial chambers; the other, more likely reason is that the burial chambers lay higher than the present surface and that they had been destroyed together with the greater part of the mound. The latter seems more likely because the published drawing of one of the mounds excavated in the 19th century indicates that the burial under the mound was not dug as deep as the present surface (RÓMER 1878, 117, Fig. 31). Similarly, only one of the grave pits in the four tumuli investigated by Tibor Kemenczei in the early 1970s lay below the modern surface by a mere 30–35 cm (KEMENCZEI 1974, 11).

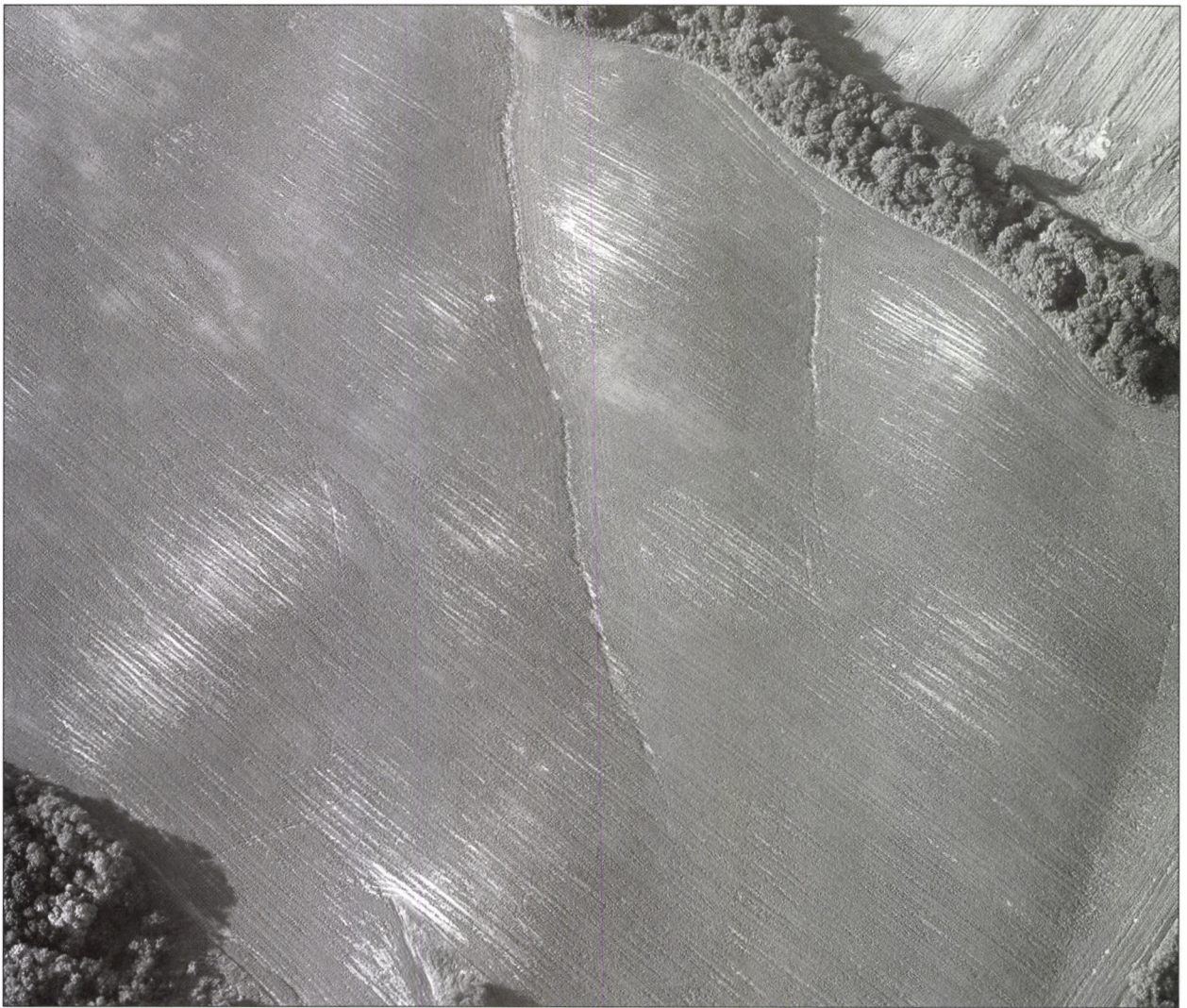


Fig. 3. Nagyberki-Szalacska: eroded tumulus burials (Z. CZAJLIK, June 19, 2005)

Süttő-Sáncföldek

Twelve larger and six smaller, strongly eroded burial mounds forming four clusters of the Early Iron Age tumulus cemetery at Süttő-Sáncföldek were known in the 1980s (VADÁSZ 1983, 19–20, Fig. 1). Most of the mounds and their remains could be identified on the aerial photographs made in 2008. The two strongly eroded mounds of Group 2 were indicated by negative vegetation cropmarks (light round patches) on the photographs taken during early summer. The light coloured soilmarks in the maize field marked the tumuli of Group 3, as well as the remains of one or two mounds lying to the north of the already known tumuli.

The Sághegy area

An excellent topographic map of the one-time burial mounds in the Sághegy area (Kismező-major, Mesteri, Sándorháza) was made by Jenő Lázár in 1951 (LÁZÁR 1951). A new tumulus was identified by Gábor Ilon in 2003 at Celldömölk-Sasházi dűlő (ILON et al. 2006, 301). The area's systematic survey yielded modest results: the tumulus at Sándorháza-Mesteri-Egyes-halmi-dűlő could be observed on a single occa-

sion in 2003 (Fig. 4), alongside the uncertain traces of the other burial mounds at Celldömölk. Positive cropmarks indicated a narrow ring-ditch around the Sándorháza tumulus lying in a ripening wheat field (on the photograph, but there was no trace of the grave (burial chamber) uncovered by Lázár (LÁZÁR 1951, 40). Neither could we identify the stone rings published by him (LÁZÁR 1951, Pl. XXII. 2). The section of the tumulus published by Lázár suggests that the burial chamber was not dug into the prehistoric humus, with the obvious implication that only the patch of the mound or the contours of the possible ring-ditch around it can be identified using aerial photography, assuming that the other tumuli had a similar structure.

Zalaszántó-Várrét (the tumuli in the Tátika area)

Rómer counted a total of 90 mounds forming loose groups around Mt. Tátika on the outskirts of Zalaszántó (RÓMER 1878, 106). This figure was later corrected by Bálint Kuzsinszky, according to whom there 13 and not 7 tumuli in the area known as Várrét (KUZSINSZKY 1920, 114), meaning that there had originally been 96 tumuli in that area. Unfortunately, the burial mounds were not identified individually

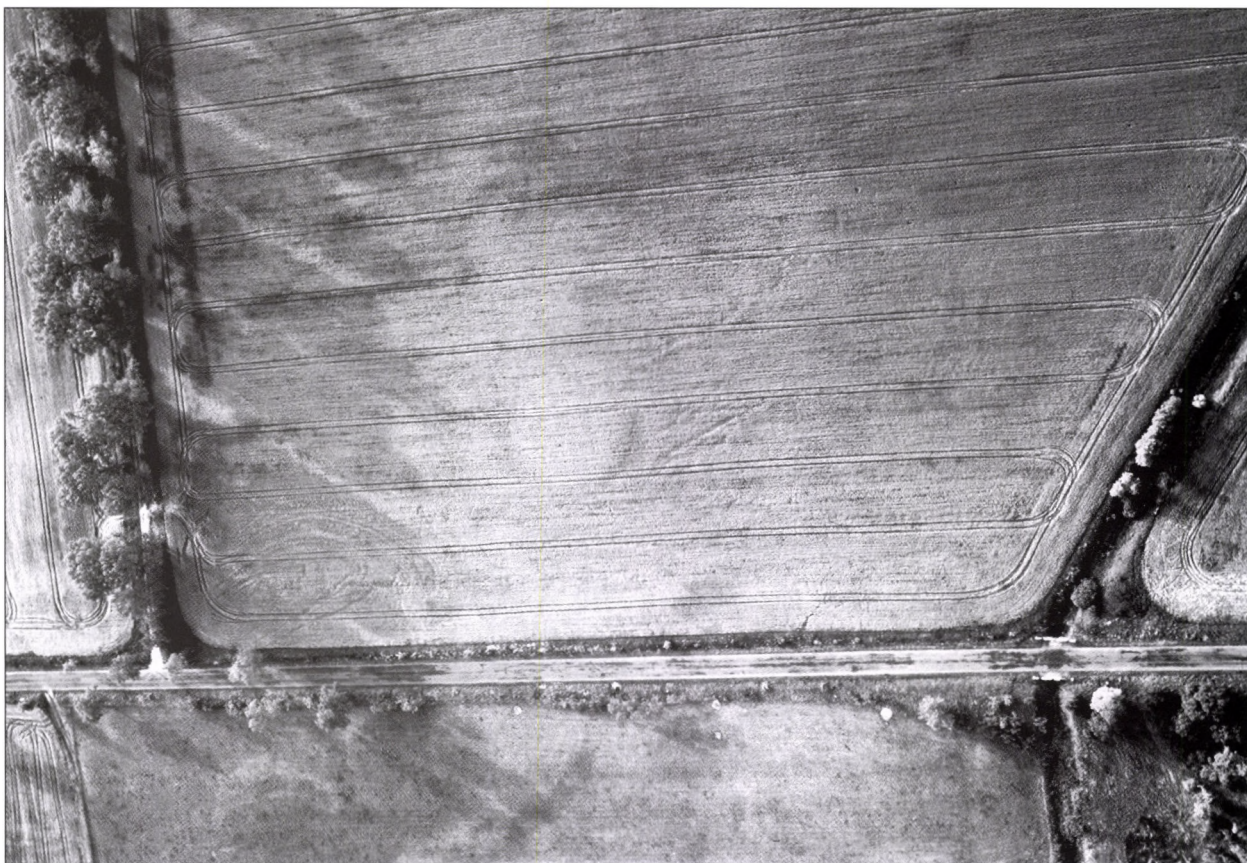


Fig. 4. Sándorháza (Mesteri-Egyes-halmi-dűlő I): strongly eroded tumulus (Z. CZAJLIK, June 17, 2002)

during the region's archaeological site survey and it is therefore not known which of the burial mounds were still visible in the 1960s (MRT 1, 178–179). We could securely identify 12 of the 13 mounds in the Várrét area during the aerial survey of the area in 2002; the twelve surviving mounds were covered with trees and shrubs, and even the location of the thirteenth mound, which can no longer be seen in the field, could also be precisely recorded. The location of the latter was indicated by a negative cropmark (a round patch) of lighter colour in the meadow used as hayfield. Erzsébet Patek excavated two Early Iron Age mounds in 1972, both of which can be observed in the field. The published section of the investigated mounds suggests that these tumuli had burial chambers dug into the soil to a shallow depth (PATEK 1974–1975). It is quite obvious that the identification of eroded or destroyed mounds in areas not affected by intensive agricultural cultivation using aerial photography is no easy task and neither is it mere chance that aside from the Várrét area, it proved impossible to record the presence of similar mounds in other areas (e.g. at Hamvaserdő).

2. Prehistoric burial mounds in the Sajó and Hernád valleys (Fig. 5)

The probably prehistoric burial mounds in the Sajó and Hernád valleys have until now been neglected by modern prehistoric research. In order to remedy this situation, we conducted an aerial survey in co-operation with the Herman Ottó Museum of Miskolc. The aerial reconnaissance of the area between 2002 and 2004 was in part funded by the museum.

Felsőzsolca-Zsolcai halmok

The two imposing burial mounds near Onga on the outskirts of Felsőzsolca are known as the Onga mounds. The remains of a third tumulus, a former earthwork of roughly the same size as the other two, were identified south-east of the already known two mounds during the aerial survey conducted in 2002 (CZAJLIK 2004a, 165, Fig. 4). The remains of the third burial mound were indicated by a soilmark of lighter colour than the surrounding land on the photographs made in early spring.

Arnót-halmok

Similar light coloured patches, probably marking the site of perished tumuli, were noted on the outskirts of Arnót, not far from the previous location. Together with Károly Tankó, we identified several mounds used for sand-mining by the locals at Ónod-Halomdűlő near the former and current bed of the River Sajó based on the maps of the First Ordnance Survey and

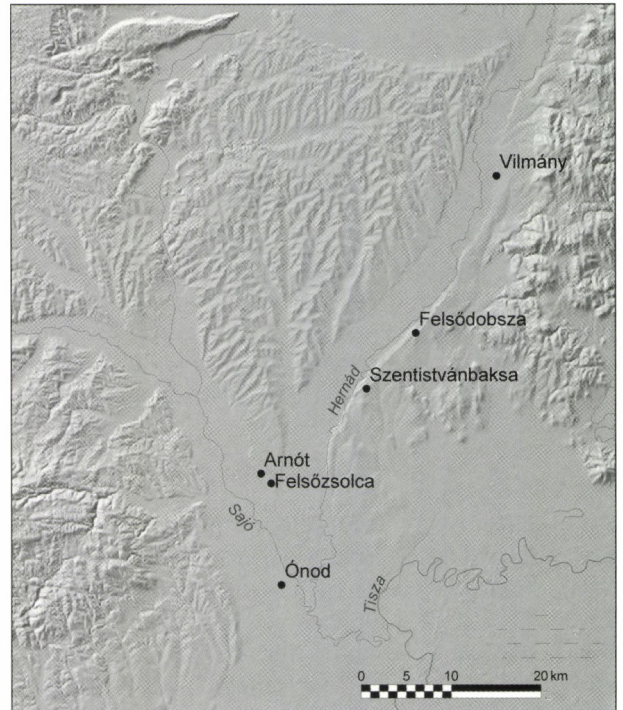


Fig. 5. Prehistoric(?) mounds in the Sajó and Hernád valleys (B. HOLL)

the observations made in the field (CZAJLIK–TANKÓ 2004, 101).

Szentistvánbaksa-Baksai halmok

Only one large, relatively intact burial mound survives of the Baksai tumuli. We identified the remains of four other tumuli arranged in an arc on the terrace overlooking the River Hernád during the aerial survey conducted in 2002 (Fig. 6). The mounds were indicated by wide, ring shaped, dark cropmarks with blurred edge. A positive cropmark, probably marking the grave or burial chamber dug into the soil, could be noted in the centre of one of the mounds, whose size was more or less identical to the single still standing tumulus. Although Rómer's section of the burial chamber constructed from stone and wood suggested that burial chamber did not lie under the soil (RÓMER 1878, Fig. 49), his earlier description of the site does not exclude this possibility (RÓMER 1870, 61). It is striking that Rómer consistently speaks of a remarkable, imposing mound, meaning that the mounds whose remains were identified in 2002 had not been visible in the field in the 19th century. Rómer's excavation and the findings of the aerial survey suggest that the Baksai tumuli had been ringed by a ditch and that the burial chambers under the two larger mounds had been dug into the soil.



Fig. 6. Szentistvánbaksa-Baksai-halmok: intact mound and the remains of perished mounds (Z. CZAJLIK, March 31, 2004)

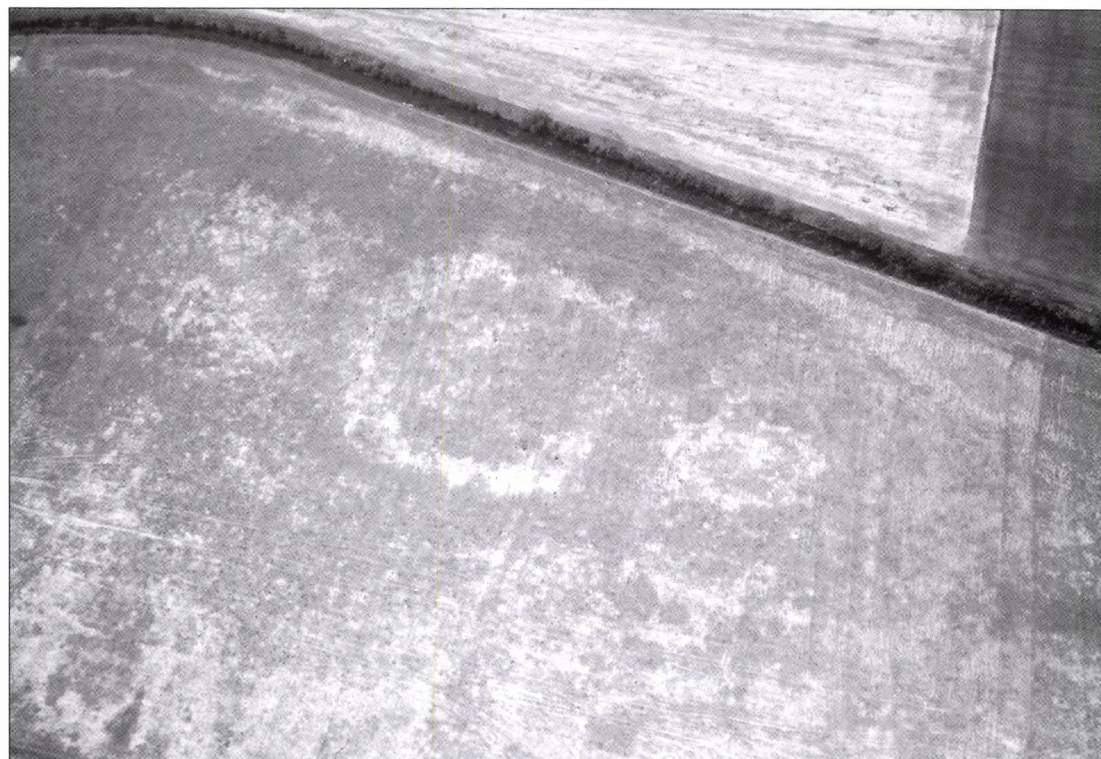


Fig. 7. Szeghalom-Cigányéri-dűlő: Bronze Age tell settlement with the remains of perished tumuli on both sides (Z. CZAJLIK, June 16, 2001)

Felsődobsza-Dobszai-halmok (Perei-halmok)

The three, relatively well preserved mounds at Felsődobsza are part of the chain of mounds extending from Ónod through Felsőzsolca, Arnót and Szentistvánbaksa along the edge of the Sajó and Hernád floodplain and on the Hernád terrace. According to Ferenc Szilágyi's report published in 1870, the burial chamber of stone and timber was found when one of the mounds was investigated in 1835 (SZILÁGYI 1870). Knowing that the landowner forbade the excavation of the mound after the burial chamber had been found, as well as the investigation of the other mounds, the large depressions appearing on the top of the tumuli on the aerial photographs should not necessarily be interpreted as the remains of a shaft dug by grave robbers. The field observations allow another explanation: the depressions may mark the earth infilling the void left after the collapse of the burial chamber.

The chain of tumuli in the Sajó and Hernád valley continues northward. Magdolna Hellebrandt noted the remains of a ditch around the relatively well preserved tumulus known as Kollár-halom on the outskirts of Vilmány (HELLEBRANDT 2003, Fig. 9).

3. The kurgans of the Great Hungarian Plain

We identified several earlier unknown mounds during the aerial surveys in the Great Hungarian Plain. A round patch of lighter colour was identified on the photograph of the kurgan at Debrecen-Józsa-Csegeihalom (ECSEDY 1979, 129) meaning that it had originally been a double burial mound. Round soilmarks of a lighter colour than the surrounding land were noted on both sides of the well-known Bronze Age tell settlement at Szeghalom-Cigányéri-dűlő (Fig. 7), where a perished kurgan was documented during the area's survey (MRT 6, 175). A similar light coloured patch indicated the one-time presence of a mound at Tiszainoka-Fekete-halom (ECSEDY 1979, 135), while no traces whatsoever remained of the kurgan at Dévaványa-Sártó-halom (MRT 6, 38).

The Vaskút mounds

The Vaskút burial mounds were first mapped by Rómer in 1868. He later published the map of the tumulus cemetery (KÖHEGYI-VÖRÖS 1999, Fig. 3. 2–3, Fig. 4. 2; RÓMER 1878, 132, Fig. 53). While there are smaller divergences between the drawings and the map regarding the topographical position of the tumuli, it is quite clear that the 12 burial mounds formed two larger groups. Four tumuli were investigated in the 19th century and another one in the inter-war period. During her field survey of the area in 1989, Valéria Kulcsár found that only the three north-

ernmost mounds could be seen (KULCSÁR 1989). We could observe the three surviving mounds, the traces of two other mounds indicated by darker circular cropmarks and blurred traces of what was perhaps the ring-ditch of a larger tumulus during the area's aerial survey in 2004. Our findings confirmed the accuracy of Rómer's map, on which the tumuli are depicted as forming an arc, suggesting that they had perhaps surrounded a larger tumulus as at Szentistvánbaksa.

Indications of perished tumuli on aerial photographs

It is quite obvious from the examples quoted in the above that circular and round cropmarks and/or soilmarks noted in the broader area of known tumulus burials can be taken as an indication of similar perished mounds. The map of the Százhalombatta tumulus cemetery was based on the information gained from aerial photographs and an interpretation of the features long these lines. The identification of one-time tumuli and kurgans too was based on the above observation.

The comparison of the aerial photographs provided further insights regarding the location of the burials under the mounds and the identification of ditches ringing the tumuli.

Perished tumuli, and especially kurgans, are generally indicated by more or less regular circular patches, whose colour is almost without exception lighter than that of the surrounding land, indicating that the mound was raised from the lighter soil underlying the darker soil with higher humus content, as shown by the tumulus remains at Felsőzsolca, Debrecen-Józsa and Szeghalom. The fact that remains of the actual mound have survived, even if in a strongly eroded condition, indicates that these remains still rise above the surrounding area even if to a minimal extent. The same holds true for the strongly eroded mounds at Süttő and the newly identified ones at Szalacska. The successive phases of mound erosion, in whose last phase the location of the one-time tumulus can only be identified from soilmarks, could best be observed at Szalacska. At Szeghalom and Szalacska, the location of the tumuli was indicated by both cropmarks and soilmarks. The vegetation covering the former tumuli was stunted, while the plants growing over the depressions between the mounds at Szalacska were lush.

The location of the tumuli was marked by light patches on both the archive photographs and the ones made during the recent aerial survey. In many cases, a darker ring could be observed around the former mound and on the more recent photographs, only the

dark ring showed up. The latter were interpreted as ring-ditches enclosing the tumuli; the “independent” presence of these rings indicates the final destruction of the tumulus, when the mound itself is completely eroded and only the deeper-lying features of the mound complex can be observed. The possible traces of the one-time grave or burial chamber of the tumulus could sometimes be identified at these sites: in accordance with the observations made during the excavation of tumulus burials, the grave or burial chamber was partially or wholly dug into the underlying prehistoric soil. A similar phenomenon could be noted at Vaskút and Szentistvánbaksa, where virtually nothing survived of the one-time mound. The rings can hardly be interpreted otherwise than as indications of the ditch ringing the tumulus, from which a part of the earth used for raising the mound was perhaps extracted. The rings are without exception closed, without any indication of an entrance. A dark patch of the same colour as the ring and with similarly blurred contours lay in the centre of one such ring at Szentistvánbaksa and perhaps at Vaskút. The patch under the one-time tumulus (and the former surface) can hardly be interpreted otherwise than as marking the grave or burial chamber. It is noteworthy that a patch of this type could not always be observed in the centre of the identified rings, suggesting that the grave or burial chamber was not dug into the soil in all cases.

The aerial survey thus provided information on the current condition of the tumuli, the presence or absence of the mound itself and, in some cases, of the ditch ringing the tumulus, as well as the position of the grave or burial chamber relative to the modern surface. It must here be noted that soil-marks provide the most useful information about eroded or perished burial mounds in the case of known tumulus cemeteries and that only at Szalacska and Sándorháza did cropmarks indicate the presence of strongly eroded, barely prominent mounds in the ripening wheat field.

Ring-ditch structures in areas called “halom” [mound]

Toponyms often reflect the presence of burial or other mounds. One case in point is the site at Sándorháza-Egyes-halmi [“single mound”]-dűlő, whose name suggests that the by now strongly eroded solitary tumulus was the single mound known to the locals. The site at Ónod-Halom-dűlő (cf. CZAJLIK–TANKÓ 2004, 101) now only has “negative” mounds owing to the destruction of the mounds by sand-mining, even though an 18th century map, the toponym, and the human skeletal remains found

during the area’s field survey clearly indicate that there had once been “positive” mounds in the area. The cropmarks outlining a narrow ring-ditch at Táp-szentmiklós-Halomszeri-dűlő (CZAJLIK et al. 2007, 122, Fig. 3) had more definite contours than the previous mound remains, and even though no traces of a mound could be identified at this site, the one-time presence of a tumulus may be assumed on the basis of the ring-ditch and the toponym. The same holds true for grave uncovered at Baracs, possibly enclosed within a ditch, which lay in an area known as Dudáshalom (CZAJLIK et al. 2007, Fig. 4).

Ditched graves and tumulus burials

At some of the tumulus sites described above, the presence of the one-time tumuli was only indicated by rings standing out from the surrounding land by their darker colour. Several cemeteries with ditched burials, which share morphological similarities with tumuli, have been described in the preliminary reports of the aerial surveys published since 2002 (CZAJLIK 2004a, 162, Figs 5–6; CZAJLIK 2005, 122–123, Taf. 2, Abb. 2–4; CZAJLIK–BÖDŐCS 2006, 151–152, Abb. 4). A few differences between the two structure types must nonetheless be pointed out. The first of these is that while the patch of the usually rectangular grave pit can generally be observed east of the Danube, only the contours of the narrow ditch could be identified at most Transdanubian sites. It must also be emphasized that ring-ditches around tumulus remains usually appear as soilmarks; at the same time, we did not observe any cropmarks indicating features resembling graves ringed with narrow ditches during non-vegetation periods. While most of the cemeteries with ditched graves, often containing a high number of burials, identified during the aerial survey of the regions east of the Danube can be linked to the Sarmatians, a few can probably be dated to the Late Bronze Age Tumulus culture (e.g. Jánoshida-Berek; CSÁNYI 1980). The burials in these cemeteries generally had a rectangular grave pit enclosed within a narrow ring-ditch, which was in a few cases interrupted by a gap most likely marking the entrance, a phenomenon which could not be observed in the case of the ditches ringing tumuli.

The presence of classical tumuli can hardly be assumed in the case of the above-described cemeteries with ring-ditched burials, even though an interpretation of the observed features along these lines is possible at some sites. At Acsa-Csélin-tető, for example, we observed soilmarks taking the form of wide rings (Fig. 8) resembling the features found beside the

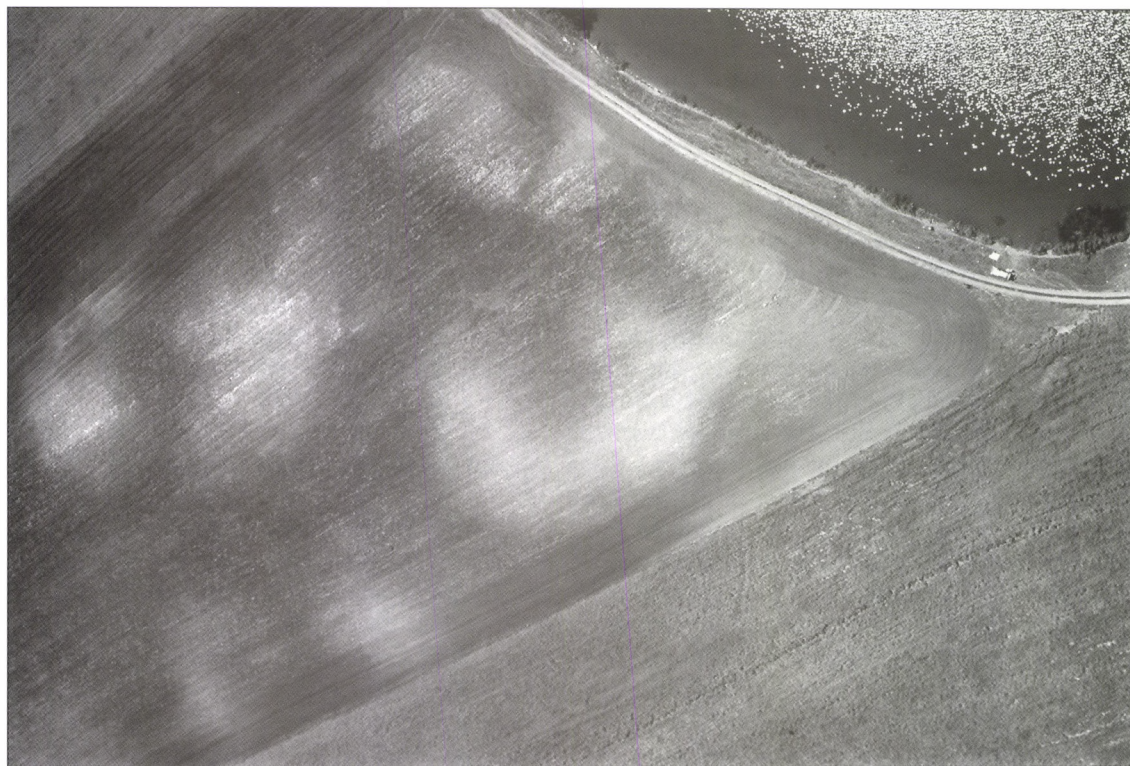


Fig. 8. Acsa-Cselin-tető: possible remains of perished tumuli (Z. CZAJLIK, June 15, 2002)

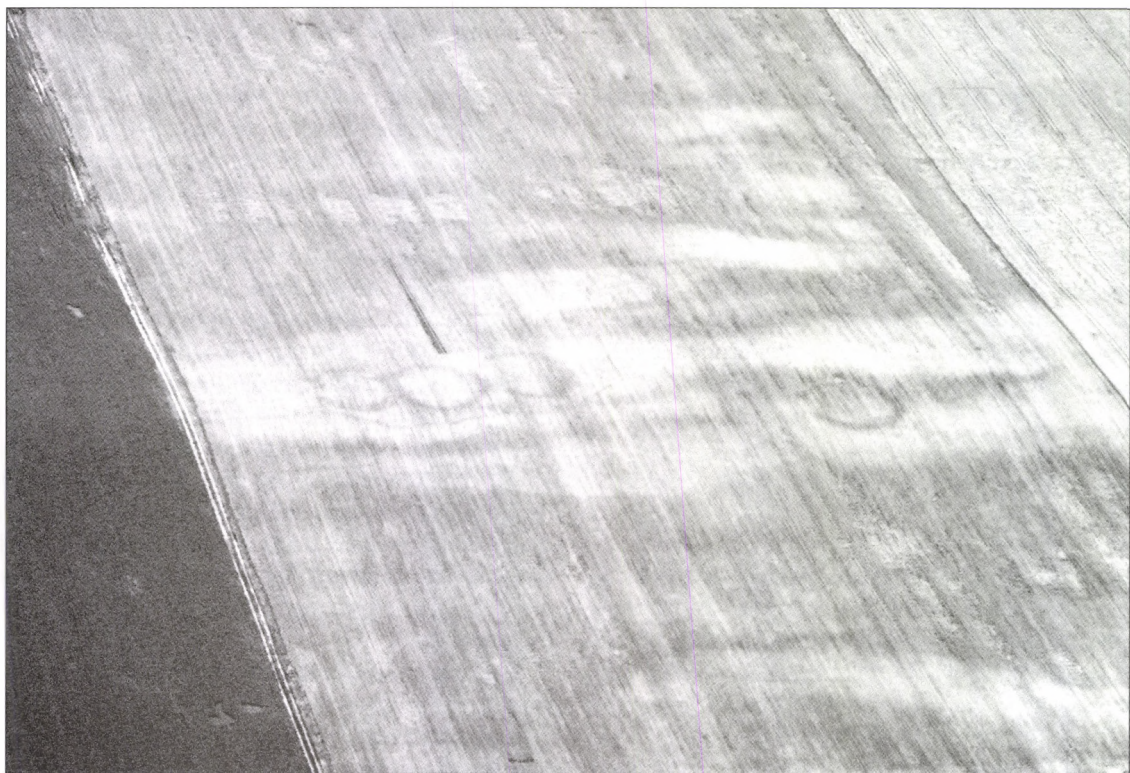


Fig. 9. Perkáta area: remains of Roman Age tumuli (RENÉ GOGUEY, June 24, 1999)

probably prehistoric tumuli at Szentistvánbaksa. Cropmarks indicating ring-ditches of a larger and wider type than the ones found elsewhere could be identified in addition to the ring-ditched graves at Jászapáti-Kakukk-dűlő. The rectangular patches indicating the burial were also larger than at other sites (CZAJLIK 2005, Fig. 3).

A relatively high number of similar ring-ditches have been recently identified in Transdanubia too, at Nagybajcs/Kisbajcs (GOGUEY-SZABÓ 1995, 38, 68, Fig. 59), Veszény (CZAJLIK 2004b, 113), Ercsi, Szabadegyháza-Zichyújfalu (CZAJLIK 2005, 123, Abb. 5), Baracska, Tordas, Kömlőd, Győr-Gyirmót, Mezőörs, and Pér. However, very few of these had patches indicating the presence of a burial in their centre (two notable exceptions being the ditches at Mezőörs and Baracs). Similarly to the ones east of the Danube, these ring-ditches were indicated by cropmarks. Another major difference between these features and the tumulus remains dating from the Iron Age is that they usually formed smaller groups made up of a few ring-ditches only.

Albrecht Jockenhövel's study on the ditched burials of Central Europe reveals that good formal analogies

can be quoted from among the Middle Bronze Age burials in Central Germany (JOCKENHÖVEL 1999, Abb. 2). Comparable burials in Transdanubia were brought to light during the recent investigation of the Bell Beaker cemetery at Budakalász-Csajerszke (OTTOMÁNYI-CZENE 2006, 70–71). It seems likely that the smaller ring-ditches indicated by cropmarks can be interpreted as the remains of probably Bronze Age graves without a central burial.

Larger than average ring-ditches could be observed at Tápszentmiklós (CZAJLIK et al. 2007, 122–123, Fig. 3). The site's name too indicates the possible presence of a tumulus cemetery. The same holds true for the Écs-Petkevár site, where similarly large ring-ditches were identified on the aerial photographs made by Otto Braasch. Móni Winkler found several eroded tumuli and tumulus remains during her field survey of the area (WINKLER 2006, 59–60). Finally, a wide, larger than average ring-ditch identified by René Goguey near Perkáta in 1996 must also be mentioned (Fig. 9). We collected finds suggesting the presence of Roman Age tumulus burials during our field survey of the area in spring 2008.¹

Notes

1 I would here like to thank Tibor Kemenczei for his valuable comments on the draught of this study. Translated by Magdaléna Seleanu. Our research was generously

funded by OTKA and NK (grants OTKA T043762. NK 68824 and NKA 2731/0050).

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