



# ANTÆUS

34

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*Communicationes ex Instituto Archaeologico  
Academiae Scientiarum Hungaricae*

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Beyond archaeological finds and sites:  
multidisciplinary research projects  
in Hungary

II



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## ABBREVIATIONS

|                  |   |
|------------------|---|
| ActaArchHung     | Acta Archaeologica Hungarica Academiae Scientiarum Hungaricae (Budapest)                            |
| Agria            | Agria. Az Egri Múzeum Évkönyve (Eger)   |
| Alba Regia       | Alba Regia. Annales Musei Stephani Regis (Székesfehérvár)   |
| AmJPhysAnthropol | American Journal of Physical Anthropology (Washington D. C.)  |
| AKorr            | Archäologisches Korrespondenzblatt (Mainz)  |
| Antaeus          | Antaeus. Communicationes ex Instituto Archaeologico Academiae Scientiarum Hungaricae (Budapest)     |
| ArchA            | Archaeologia Austriaca (Wien)   |
| ArchÉrt          | Archaeologiai Értesítő (Budapest)   |
| ArchHung         | Archaeologia Hungarica (Budapest)   |
| Arrabona         | Arrabona. A Győri Xantus János Múzeum Évkönyve (Győr)   |
| BAR IS           | British Archaeological Reports, International Series (Oxford)                                       |
| BBVF             | Bonner Beiträge zur vor- und frühgeschichtlichen Archäologie (Bonn)                                 |
| BMMK             | A Békés Megyei Múzeumok Közleményei (Békéscsaba)  |
| BudRég           | Budapest Régiségei (Budapest)   |
| CommArchHung     | Communicationes Archaeologicae Hungariae (Budapest)   |
| DMÉ              | A Debreceni Déri Múzeum Évkönyve (Debrecen)   |
| FolAnthr         | Folia Anthropologica (Szombathely)  |
| FolArch          | Folia Archaeologica (Budapest)  |
| FontArchHung     | Fontes Archaeologici Hungariae (Budapest)   |
| GSAD             | Glasnik Srpskog Arheološkog Društva (Belgrade)  |
| HevesMRK         | Heves Megyei Régészeti Közlemények (Eger)   |
| HOMÉ             | A Herman Ottó Múzeum Évkönyve (Miskolc)   |
| JAMÉ             | A nyíregyházi Jósa András Múzeum Évkönyve (Nyíregyháza)   |
| JOÖMV            | Jahrbuch des Oberösterreichischen Musealvereines (Linz)   |
| JPMÉ             | A Janus Pannonius Múzeum Évkönyve (Pécs)  |
| JRGZM            | Jahrbuch des Römisch-Germanischen Zentralmuseums (Mainz)  |
| MAA              | Monumenta Avarorum Archaeologica (Budapest)   |
| MBV              | Münchener Beiträge zur Vor- und Frühgeschichte (München)  |
| MhBV             | Materialhefte zur Bayerischen Vorgeschichte (Kallmünz, München)                                     |
| MFME             | A Móra Ferenc Múzeum Évkönyve (Szeged)  |
| MFME StudArch    | A Móra Ferenc Múzeum Évkönyve – Studia Archaeologica (Szeged)                                       |
| MGAH             | Monumenta Germanorum Archaeologica Hungariae (Budapest)   |
| MPK              | Mitteilungen der Prähistorischen Kommission der Österreichischen Akademie der Wissenschaften (Wien) |
| RégFüz           | Régészeti Füzetek (Budapest)  |
| RGZM Kataloge    | Römisch-Germanisches Zentralmuseum – Kataloge Vor- und Frühgeschichtlicher Altertümer (Mainz)       |
| RKM              | Régészeti Kutatások Magyarországon – Archaeological Investigations in Hungary (Budapest)            |
| RégTan           | Régészeti Tanulmányok (Budapest)  |
| RLÖ              | Der römische Limes in Österreich (Wien)   |
| SIA              | Slovenská Archeológia (Bratislava)  |

|          |  |
|----------|--|
| SMK      | Somogyi Múzeumok Közleményei (Kaposvár)                      |
| StudArch | Studia Archaeologica (Budapest)                              |
| Századok | Századok. A Magyar Történelmi Társulat folyóirata (Budapest) |
| SzMMÉ    | A Szolnok Megyei Múzeumok Évkönyve (Szolnok)                 |
| VAH      | Varia Archeologica Hungarica (Budapest)                      |
| VMMK     | A Veszprém Megyei Múzeumok Közleményei (Veszprém)            |
| WMMÉ     | A Wosinsky Mór Múzeum Évkönyve (Szekszárd)                   |
| ZalaiMúz | Zalai Múzeum (Zalaegerszeg)                                  |
| ZGy      | Zalai Gyűjtemény (Zalaegerszeg)                              |
| ZfA      | Zeitschrift für Archäologie (Berlin)                         |

PÉTER LANGÓ – ROZÁLIA KUSTÁR – KITTI KÖHLER – ARANKA CSÓSZ

## A STUDY OF THE TENTH-CENTURY CEMETERY AT HARTA-FREIFELT

**Keywords:** 10<sup>th</sup> century cemetery, horse burials, anthropology, genetic analysis, Conquest Period, Hungary

### *Introduction (Rozália Kustár)*

Harta lies on the left Danube bank, on the boundary of the Solt Plain and the Kalocsa Sárköz region, some 100 km south of Budapest. The broader area of the Harta-Freifelt site is part of the high Danube floodplain, lying at an altitude of 93–95 m a.B.s.l. The area, part of the Kalocsa-Madocsa subsidence, became part of the Danubian floodplain after the Neoholocene. The area's topography incorporates the depressions and meanders appearing after the shifts in the Danube and Nagy-ér channels.<sup>1</sup> The area is covered by a 40–60 cm thick coarse fluvial deposit of Danubian origin overlying the Pannonian sediment.<sup>2</sup>

A 430 m × 500 m large borrow pit covering some 21.73 hectares was opened roughly 1 km from Harta in an area known as Freifelt on the eastern side of the road to Nagykékes when the track of Road 51 between Harta and Dunapataj was modified. Four parallel east to west ridges (marked A to D from south to north) lying 95 m a.B.s.l. on average extend across the area dissected by deeper, intermittently water-filled areas.<sup>3</sup> These represent the area's higher points; the modern settlement was established on the lower-lying areas in the eighteenth century.

The earliest occupation of the site was represented by a late Kisapostag-early Vátya settlement, whose western part fell into Area C. A series of eighth–ninth-century pits yielding a rich animal bone assemblage lay on the southern sloping side of this ridge, on which a ditch system of uncertain date was also uncovered.<sup>4</sup> The remains of a twelfth–thirteenth-century village were principally found across Area A, but a few features of this settlement were

<sup>1</sup> The Pest Management and Soil Conservation Service of County Bács-Kiskun analysed two samples from the Freifelt area in May 2002. Sampling location 1 lay at a higher point, in the area affected by the earth-moving operations (95 m a.B.s.l.), while sampling location 2 lay lower, in the area unaffected by the later earth-moving operations (92 a.B.s.l.), in the one-time riverbed that could be observed in the field. The area was susceptible to alkalisation, meaning that its water and nutrient regime was extremely poor (one of the samples contained sodium). The sample from Location 1 was alkaline (pH/H<sub>2</sub>O/ >8.5) from -65 cm, the one from Location 2 from 0 cm and strongly alkaline from -40 cm. In sum: Location 1 had a meadow chernozem soil, while Location 2 resembled the solonchak-solonetz soils, *Stefanovits – Filep – Füleky 1999*.

<sup>2</sup> The soil mechanic (particle distribution) analyses indicated that the lower level of the sampling locations was fine fluvial sand, overlain by windborne fine sand mixed with coarse silt, covered with clayey coarse silt in areas susceptible to flooding and with coarse silt in higher areas, *Marosi – Somogyi 1990* 45–46, 50.

<sup>3</sup> The salvage excavation directed by Rozália Kustár of the Viski Károly Museum was conducted between May 2002 and May 2003. The Institute of Archaeology of the Research Centre for the Humanities of the Hungarian Academy of Sciences collaborated in the excavation of the tenth-century cemetery through the participation of Péter Langó, *Kustár – Langó 2003; Kustár 2004*.

<sup>4</sup> Since a part of the ditch system uncovered at the Harta-Freifelt site was covered by a secondary alkaline layer, it is possible that the ditches date from the eighth–tenth centuries or from the early Árpáadian Age. Similar ditch systems dating from the same periods have been found in other alluvial areas too, *Takács – Füleky 2001*. For the ditch system, see *Kustár 2004*.

also uncovered in Areas B and C. The village was made up of a few houses with ovens, animal pens and deep pear-shaped pits for storing agricultural produce as well as a workshop in which we uncovered the remains of three linked ovens. One of the few post-medieval features, a rectangular structure that had perhaps functioned as a larder, was dated by a *duarius* coin issued in 1699.

An eighth–ninth-century settlement extended across the western half of Area B in the central part of the borrow pit. The surface finds suggested that this settlement had extended further westward to the other side of the road and that it had covered an area of roughly 50 m × 150–200 m. We uncovered eight sunken houses/workshops and the associated larder, storage and firing pits as well as a few ditches.<sup>5</sup> A plot enclosed within a deep ditch and perhaps a rampart (“manor farm”) lay on the settlement’s highest point: this area had a diameter of *cca.* 50 m and an entrance in the south-east. We found two sunken buildings without ovens and four storage pits in this enclosed area. Three feature clusters associated with ironworking lay on the south-eastern edge of the settlement, which are quite outstanding among the region’s similar relics from the same period.<sup>6</sup>

A W to E oriented solitary burial with the deceased laid on the back and the hands clasped under the chin, without any grave goods (Grave 128), was found near the settlement.<sup>7</sup> The graves of the tenth-century burial ground discussed here lay on the northern slope of ridge B, on the eastern edge of the borrow pit, some 150 m from the settlement features of the eighth–ninth-century settlement (*fig. 1*).

#### *The tenth-century cemetery (Péter Langó)*

A total of twenty-one graves and a tenth-century feature were uncovered in the tenth-century cemetery. We excavated slightly beyond all four sides of the cemetery and we may thus claim that it has been wholly excavated.

Of the cemetery’s three grave rows, the most complete one was a north to south row with a slight break in its middle (Graves 1–2, 4, 7–9, 11, 13–15 and 17–18). To its south lay three burials forming a separate row (Graves 19, 23 and 24), while the third grave row was made up of five burials to the north-west (Graves 3, 5–6, 10 and 22). We did not regard another burial (Grave 25) found some 6 m east of the southern grave row as obviously part of the cemetery in view of its distance from the other burials, the nature of the burial and its slightly differing alignment. However, the radiocarbon dates indicated that this grave too had contained the burial of an individual interred during the same period as the cemetery’s other burials.<sup>8</sup>

The burial ground thus contained twenty-one burials and Feature 12, a structure associated with the burial rite that had been established for commemorative purposes (*fig. 2*).

The soil marks indicating the burials differed. Some could be easily identified, while in the case of other burials, the soil marks were very barely visible (Graves 4 and 22) or not at all (Graves 7–9). In most cases, the grave pit was rectangular with rounded corners, except for Grave 25, which had an oval grave pit. Most burials were deposited in niche graves (Graves 10–11, 13 and 15) (*fig. 3*). The grave pits had differing depths: the deepest one (Grave 1) had a

<sup>5</sup> According to the field observations, secondary alkalisation occurred in the area during this period. House 122 lay underneath a roughly 25–30 cm thick grey, compact, secondarily transformed clay layer, which had evolved either as a result of the rise of the water table, or owing to human impact, irrigation or leeching. *Stefanovits – Filep – Füleky 1999*.

<sup>6</sup> According to Béla Török (associate professor, head of the Archaeometallurgical Research Group of the University of Miskolc), the settlement’s occupants were engaged not only in ironworking, but also in iron ore processing. It would appear that the settlement’s occupants had access to nearby deposits of bog iron with a low iron content that was suitable for smelting, which ensured the settlement’s relative prosperity.

<sup>7</sup> The various features uncovered at the site were numbered sequentially. If an excavated feature was a burial, we additionally marked it as “grave”, if it was a house, we marked it as “house”, while other features were labelled “feature”.

<sup>8</sup> The date of Grave 128, found farther from the cemetery, remains uncertain.

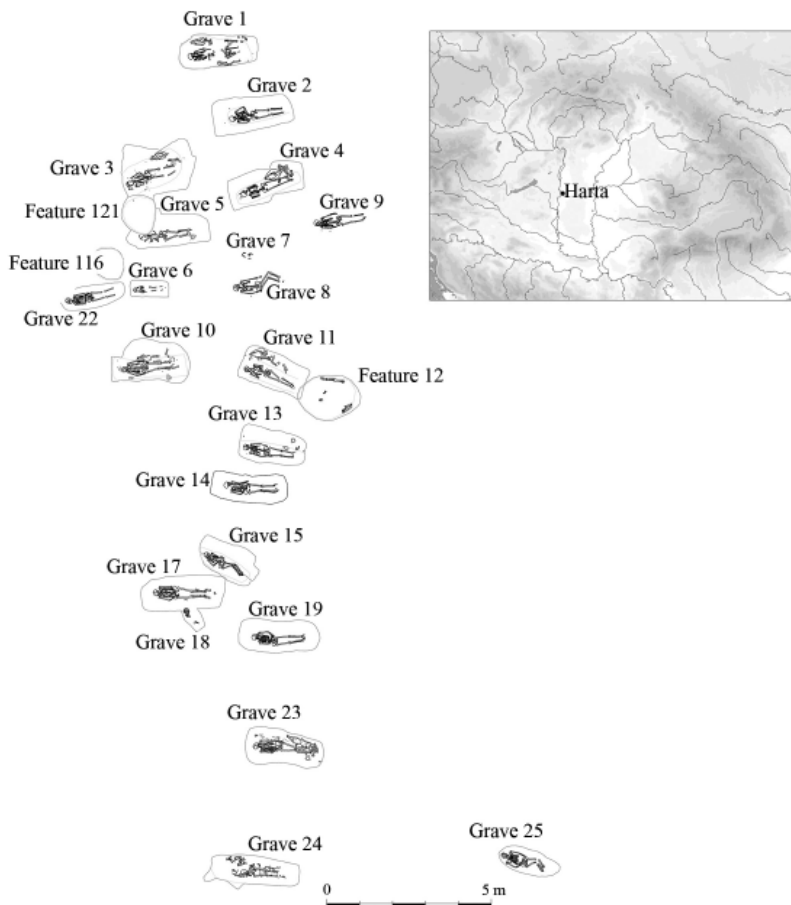


fig 1. Plan of the Conquest period cemetery at Harta-Freifelt

depth of 1 m from the surface after the removal of the humus layer (*fig. 4*), the shallowest one lay no more than 4–7 cm deep (Graves 6–9), with the average grave depth being 20–30 cm. The deceased were generally laid on their back in an extended position, the only exceptions being Graves 8 and 18, in which the dead were laid on the left side, and Grave 25, in which the deceased was interred with the legs drawn up. Conforming to the period's burial rite, the burials were west to east oriented; the single major deviation was recorded for Grave 18, a child burial with a north-west to south-east orientation, that cut Grave 17. The proportion of the sexes was uneven: there were three male, fifteen female and three child burials.

The distance between the graves varied: Graves 1–11, 13–15, 17–19 and 22 lay close to each other, while Graves 23–25 lay farther from the central area and from each other too, in the cemetery's southern part. We examined the area around and between the excavated graves to a depth of 50–70 cm both mechanically and manually, and thus we can claim that we had excavated the entire burial ground. At the same time, it is possible that Grave 128 found several hundred meters farther from these graves had also been part of this cemetery, recalling the observations made at Kiskundorozsma, one of the close parallels of the Harta burial ground.<sup>9</sup>

<sup>9</sup> *Siklósi – Langó 2013* 148–149. For the relation between solitary graves and grave clusters, see *Lőrinczy – Türk 2011* 431; *Lőrinczy – Türk 2016* 43–45. Of the well-known assemblages, mention must be made of the Kenézlő cemeteries, first investigated by András Jósa and later by Nándor Fettich (*Révész 1996b* 150–152, with further

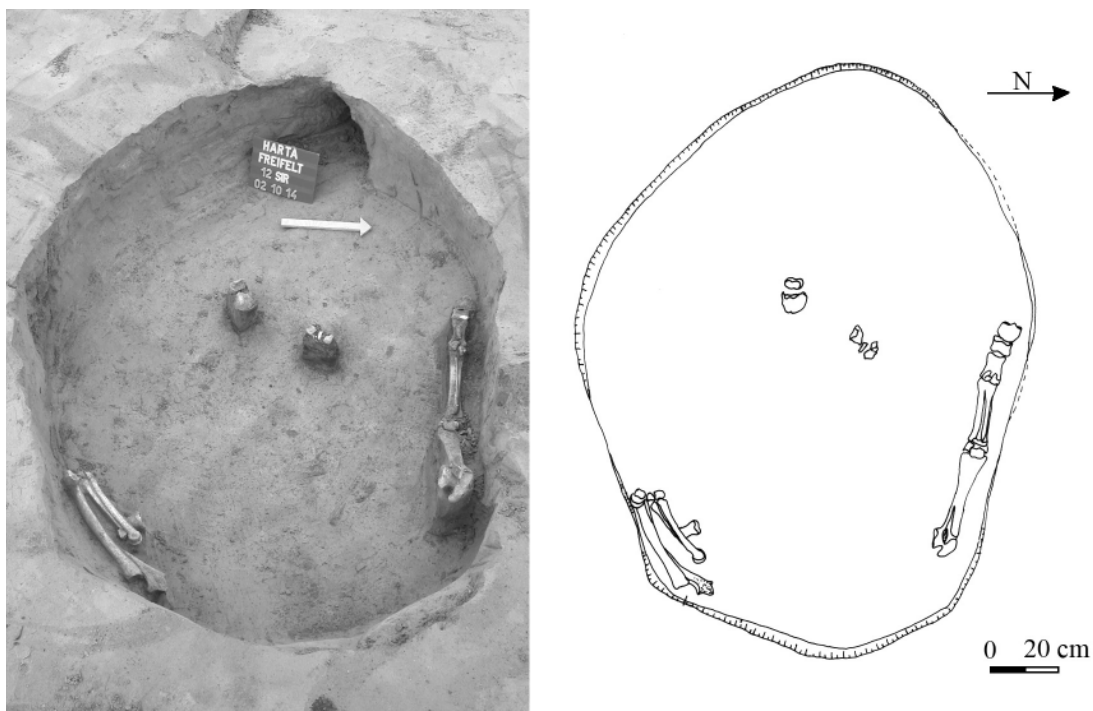


fig. 2. Drawing and photo of Feature 12. Horse leg folded at the joint and a horse leg folded at the patella were found in the round pit. A horse hoof lay in the middle of the pit

The proportion of graves with a horse burial/horse harness was quite high. Six graves contained a horse – all female burials save for one – and three other female burials contained horse harness. There were indications of grave looting and of disturbances in several graves. These disturbances can be divided into two groups. In the case of Grave 1, the grave was disturbed soon after the burial because a horse tibia and fibula dislodged during the disturbance lay quite close to each other, suggesting that the horse skin still retained the bones. The position of the other horse tibia with the articulated heel bone lying in the grave pit's north-eastern end confirmed this observation. It would appear that when the grave was reopened, the horse skin had only decayed to a small extent and that some parts could have become disarticulated and redeposited, but the skin and the tendons still held the articulated bones together (i.e. complete decay had not occurred). Later disturbances could be noted in two other burials (Graves 5 and 24). These had probably been found by the occupants of the Árpadian Age village established later as shown by the fill of Feature 121 that cut Grave 5. The anatomical order of the skeleton was disrupted, a part of the skeleton was destroyed, but neither grave was looted since the silver jewellery and dress adornments were left in the grave. The graves had not been disturbed by grave robbers and no attempt was made to search for other graves with trenches or pits. The cemetery's other burials were undisturbed.

With the exception of Graves 1 and 18, two child burials, and Graves 17 and 25, two male burials, all the burials contained various artefacts and/or dress adornments and metal costume accessories. The dress ornaments and other adornments were mostly made of silver.

The cemetery's most outstanding burial was Grave 3, the burial of a *maturus* age woman laid to rest with a horse, a horse harness and an ornate costume adorned with exceptionally lavish silver gilt mounts (*fig. 5*). The number of articles recovered from this grave totalled

literature), and of the Karos cemeteries published by László Révész (*Révész 1996a* 8–12). Regarding burials lying farther from the cemetery, the Ártánd-Nagyfarkasdomb site must be highlighted (*Mesterházy 1996a* 211; *Mesterházy 2011* 311). For the interpretation of solitary burials, see *Mesterházy 1996b* 773–775.

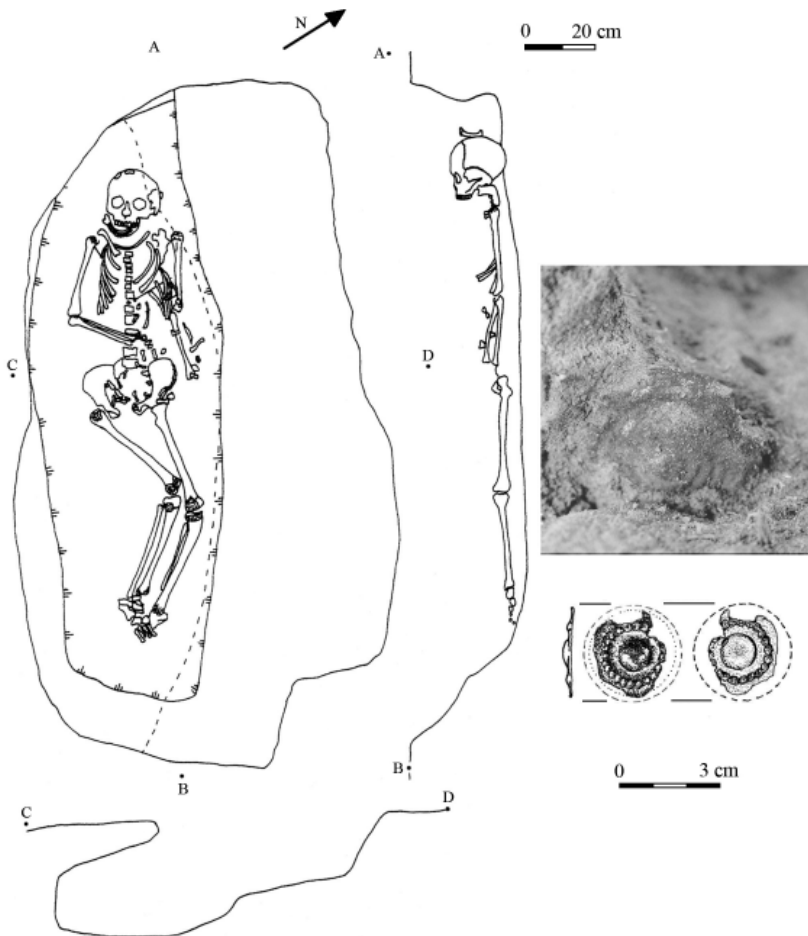


fig. 3. Pressed silver rosettes from Grave 15, a niche grave, during their excavation, and their current condition

almost 150. The wealth of the deceased was indicated by a knop-ornamented gold finger-ring found in an animal burrow underneath the grave (*fig. 6*).<sup>10</sup> The two silver gilt braid discs bear an unmatched design that has no close parallels in the tenth-century material (*fig. 7*);<sup>11</sup> the ribbons once braided into the hair were similarly lavishly adorned and, similarly to Grave 595 of Szeged-Kiskundorozsma, they were found in the position where they were once worn (*fig. 8*).<sup>12</sup>

The ornamental design of the two discs was created from foliate motifs. One is adorned with palmettes rising from central concentric rings unfurling in opposite directions, whose design can be likened to the composition of the Sárbogárd braid ornaments inasmuch the palmettes issuing from the central lozenge motif similarly curl in opposite directions.<sup>13</sup> While a similar pinwheel-like arrangement appears on several tenth-century discs with foliate design,<sup>14</sup>

<sup>10</sup> Horváth 2005. For the tenth-century gold finds of the Carpathian Basin and the Harta finger-ring, see Mesterházy 2013 493.

<sup>11</sup> Tóth 1996; Tóth 2001.

<sup>12</sup> Lőrinczy – Türk 2011 432–433; Lőrinczy – Türk 2016 64–67.

<sup>13</sup> I am grateful to Zsolt Petkes for calling my attention to this parallel. For the braid disc, Éry 1968 Tab. XXX.

<sup>14</sup> A foliate design resembling the ornamentation on the Harta disc can be found on the exemplars from Dunaalmás (Kralovánszky 1988 244–245, 266–267), Biharkeresztes (Nepper 2002 I. 28) and Szolnok-Szanda (Madaras 2003 277–282); a transition between geometric and foliate ornamentation is represented by the discs from Tápé (Széll 1943 177; Bálint 1991 94) and Novi Kneževac (Törökkanizsa, Serbia; Fettich 1937 83; Fodor 1996 355–356), while the disc from Grave 376 of the Čakajovce (Csekej)-Templom-dülő cemetery in Slovakia has a purely geometric design (Rejholcová 1995 Tab. LXI. 2–3).





fig. 4. Plan of Grave 1 and the grave goods of the burial

the palmettes are turned in another direction at one point on the Harta disc.<sup>15</sup> The other disc with a composition arranged around a central motif similarly lacks a close counterpart and can be best compared to the bronze disc recovered from Grave A of Szöreg-Homokbánya,<sup>16</sup> which has a similar design with a petalled flower motif in the centre. However, the Harta disc is of much finer craftsmanship with greater attention to smaller details and a more elaborate composition, reflecting the hand of a highly skilled goldsmith. A more distant analogy can be cited from Grave 269 of Malé Kosihy (Ipolykiskeszi)-Felső Kenderesek (Slovakia), which yielded a pair of bronze braid discs decorated with a five-petalled rosette enclosing concentric circles set within a diamond-shaped frame.<sup>17</sup>

The richness of this burial among the cemetery's graves was perhaps only matched by Grave 10, lying south of Grave 3. The roughly one hundred articles recovered from this burial also included horse harness, a horse burial placed on the deceased's left side, but no rosette-ornamented harness mounts, braid ornaments or a gold finger-ring.<sup>18</sup> The countless

<sup>15</sup> One unique trait of the composition is that the stems of the tendrils unfurling in opposite directions cross each other on one side, while on the other they face each other. This shift does not fall into the disc's horizontal axis, and thus there are three tendrils curling in one direction and five tendril motifs rising in the opposite direction.

<sup>16</sup> *Bálint 1991* 77–78.

<sup>17</sup> *Hanuliak 1994* 56–57, 130, 194.

<sup>18</sup> The small sheet gold fragments found in Grave 10 were probably dress adornments.

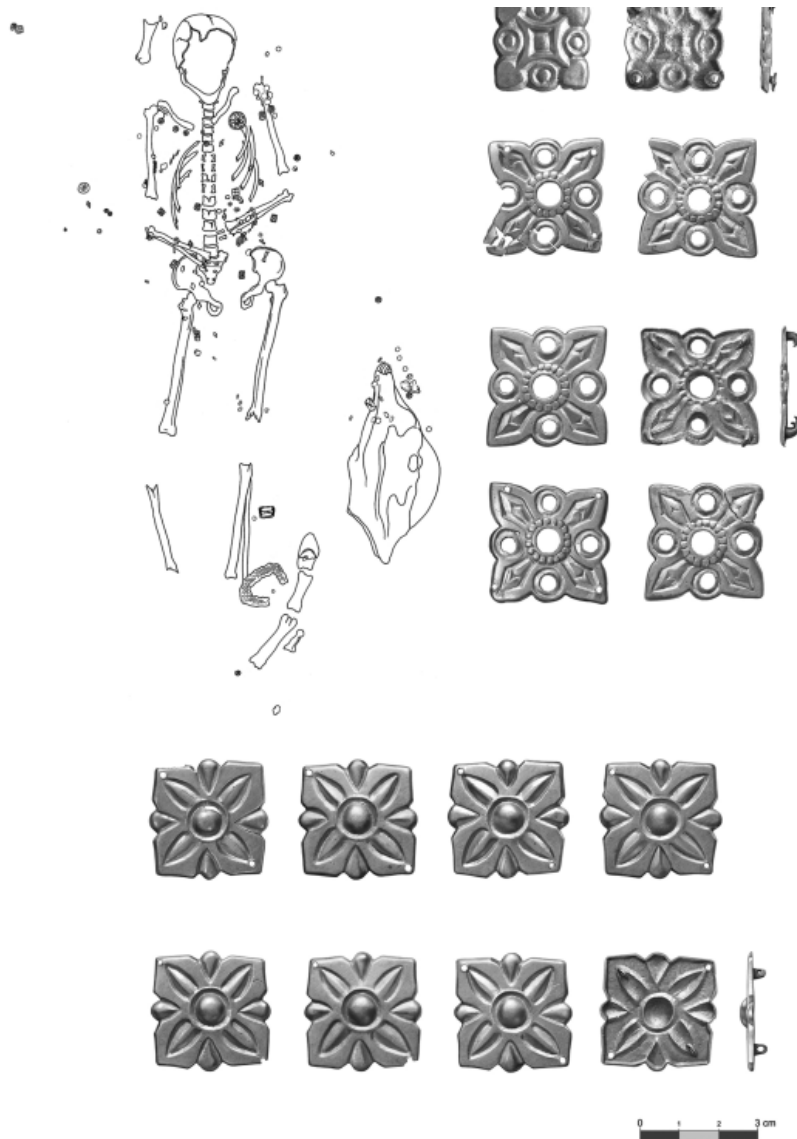


fig. 5. Plan of Grave 3 and dress mounts from the grave

dress ornaments include rectangular pieces resembling the ones from Grave 3 (*fig. 9*). The necklace strung of silver and blue glass beads and the broken silver bracelets indicate that personal jewellery had also been part of the deceased's costume.

The other female burials had more modest grave goods. It is difficult to gauge the one-time wealth of Graves 1 and 5 since these burials had been disturbed. The skull, the arm bones and the greater part of the upper body were missing from Grave 5, a burial disturbed during the medieval period. The mounts found in a secondary position suggest that the costume had been adorned with silver mounts. It was impossible to determine whether the grave had contained a horse burial; horse harness had quite certainly been part of the grave furniture since we found the remains of a strongly corroded iron snaffle-bit and a stirrup with an integral strap loop; the other stirrup and the surcingle buckle were missing. Only the horse bones and the pelvic area and the thighbones of the deceased were disturbed in Grave 1 and it is therefore possible that some articles lying in this region had been removed. The mounts trimming the costume lay *in situ* on the chest as did the two silver earrings on either side of

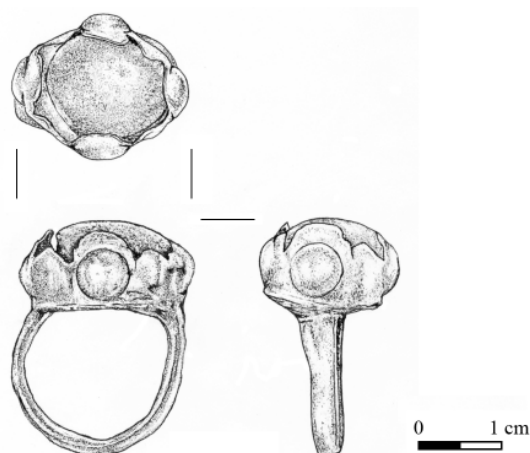


fig. 6. Knop-ornamented gold finger-ring from Grave 3

the skull,<sup>19</sup> implying that unlike in Grave 3, the burial did not contain braid ornaments prior to the disturbance. Still, the elderly woman had been interred in an ornate dress as evidenced by the silver strips embellishing the costume found by the shinbones. The silver strips found in a secondary position by the arm bones suggest that the cuffs of the overgarment had also been trimmed with precious metal.<sup>20</sup> Small strips of precious metal were also recovered from Graves 3–5, 10, 14 and 22, indicating that despite the differences in the richness of the grave inventories, there were some shared elements in the costumes worn by the community burying its dead in the cemetery.

Grave 4 contained a find type that recurred in several other burials too: small beads adorning the costume or veil of the deceased. In this grave, a high number of extraordinarily small white beads (diam. 0.3–0.4 mm) lay in the region above the head.<sup>21</sup> Beads of a similar size are not known from the tenth-century archaeological material of the Carpathian Basin (*fig. 10*),<sup>22</sup> and neither do we know of similarly small-sized pieces among the contemporaneous antiquities of Eastern and Central Europe.<sup>23</sup> Given their size, it seems likely that the beads had been woven into or sewn onto an extraordinarily delicate textile whose fineness and exquisiteness was enhanced by the tiny iridescent beads. The beads from Grave 4 had adorned a veil, while the ones from Graves 3, 10 and 14–15 were placed around the pressed dress mounts, resembling the larger decorative pearls trimming later Byzantine ceremonial costumes<sup>24</sup> and the beaded frame secured with gold wire around the period's Byzantine jewellery.<sup>25</sup> Thus, in addition to the costume trimmed with ornamental metal strips, the bead-ornamented veils too link some of the burials.

<sup>19</sup> For parallels to the earrings, see *Révész 1988* 152–153.

<sup>20</sup> *Langó 2000* 37.

<sup>21</sup> We found and lifted over sixty beads while excavating the grave; however, owing to their tiny size, it is possible that some had been missed. Sadly, owing to their fragility, it is virtually impossible to restore them after conservation.

<sup>22</sup> For a survey of the bead types of the Carpathian Basin, *Szilágyi 1994*; *Szilágyi 1997*.

<sup>23</sup> For a comprehensive treatment of the bead types of the broader region, see *von Freeden – Wieczorek 1997* 211–274. Beads of roughly similar size are known from Grave 21 of the Zeytinli Bahçe-Birecik site, but these pieces are later and, unlike the beads from Harta, they were not dress ornaments, but had been strung among the larger beads of a bracelet, *Dell'Era 2012* 401.

<sup>24</sup> *Elkina 1991* 274–275; *Parani 2003* 12–13; *Muthesius 2004*; *Albani 2010* 193; *Bréhier 2010* 197.

<sup>25</sup> Good examples are the beaded borders of some pieces of the Preslav Treasure (*Totev 1982*), the Thessalonica Treasure and the Cretan Treasure: *Bosselmann-Ruickbie 2011*. For the background and symbolism of the use of beads, see *Bosselmann-Ruickbie 2011* 79–80.

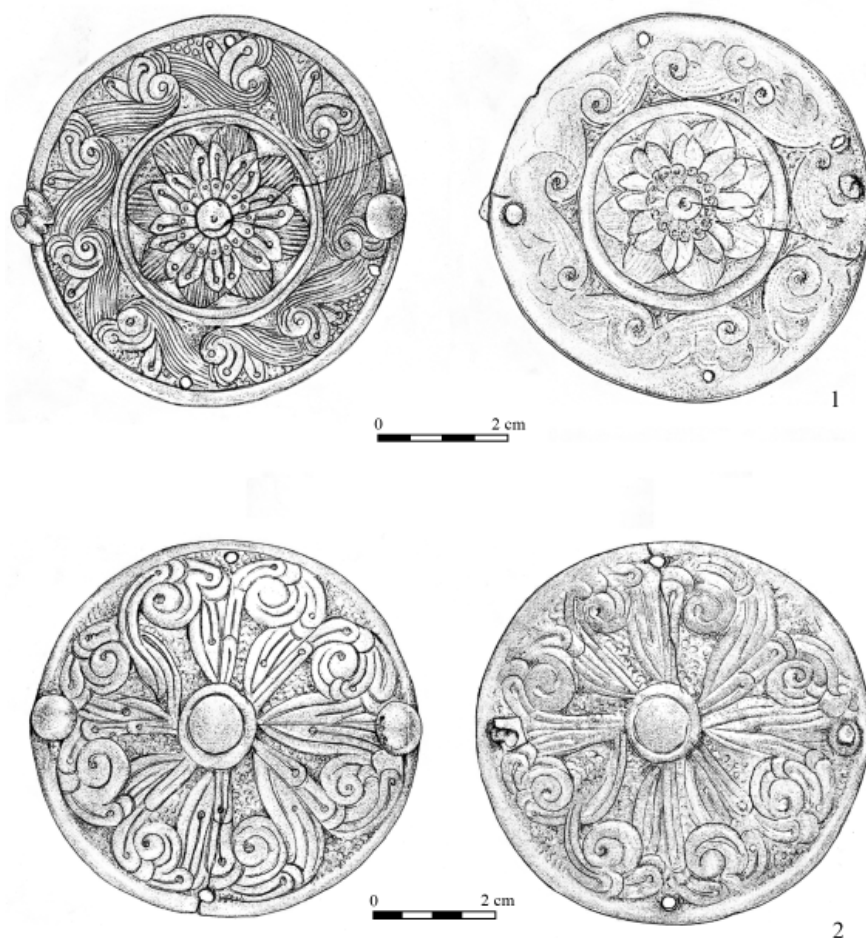


fig 7. Braid discs (front and back) from Grave 3

The deceased interred in Grave 22, lying between Graves 3 and 10, occupied the third level of the cemetery's "hierarchy" (fig. 11–13). The grave contained neither a horse burial, nor horse harness. The deceased woman's headdress was trimmed with silver mounts, her overgarment with a row of pendent dress mounts,<sup>26</sup> round, delicate silver gilt mounts and cowry shells. On her right ring finger she wore a glass-inlaid finger-ring,<sup>27</sup> on her left a bronze finger-ring bearing a pentagram.<sup>28</sup> Grave 9, lying east of Grave 4, was even more modest: although the overgarment was trimmed with pendent mounts, the caftan was also adorned with pendent mounts instead of sheet silver ornaments (fig. 14).<sup>29</sup> Although the lower half of one mount had broken off, it was not replaced with a similar intact piece or another one bearing a different design.

Grave 11 had more modest grave goods: in addition to a partial horse burial, the burial contained a horse bit, an iron knife and an iron buckle. The adult woman interred in Grave 13 was provided with horse harness, but not a horse, her jewellery was made up of a pair

<sup>26</sup> The pendent dress mounts can be assigned to Bálint's Type 1e, *Bálint 1991* 126, 128.

<sup>27</sup> The best parallels to the finger-ring can be cited from South-East Europe; the type itself appears already during the Avar period in the Carpathian Basin, *Garam 2001* 84–87.

<sup>28</sup> For an overview finger-rings with a pentagram engraved on the bezel, *Keszi 1999*; *Langó 2016*.

<sup>29</sup> *Bálint 1991* 132–138.

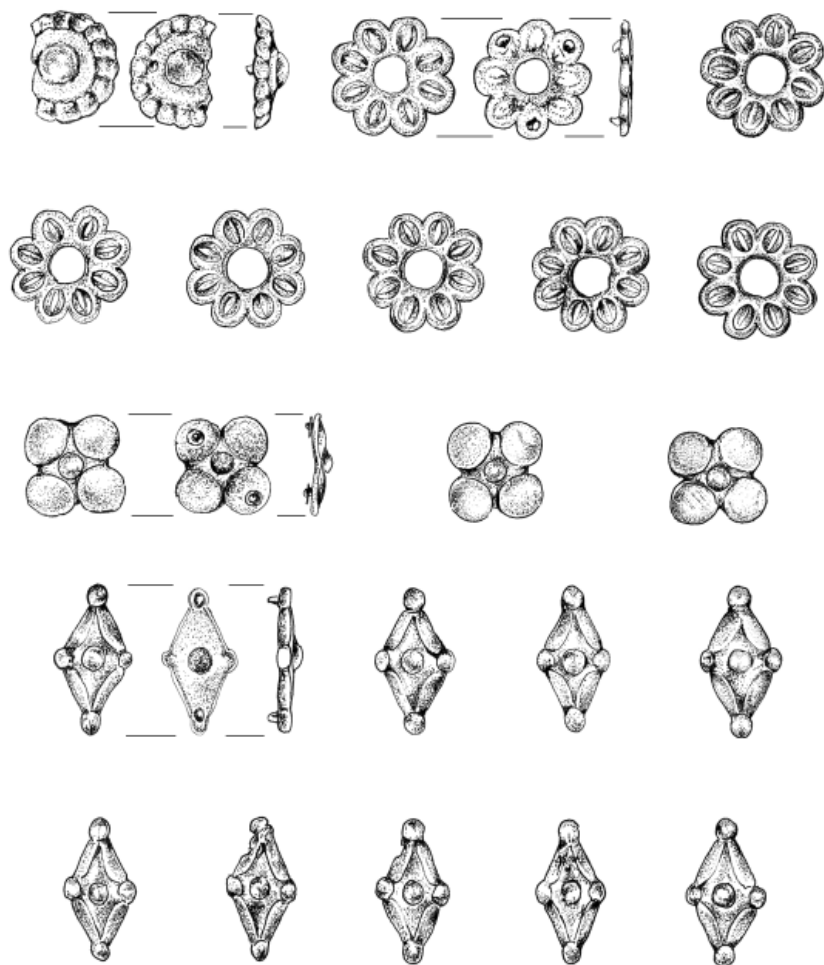


fig. 8. Dress mounts and mounts decorating the ribbons of the braid discs from Grave 3

of earrings with bead-row pendants and chain bracelets.<sup>30</sup> The comparison of the graves offers some interesting conclusions: one contained jewellery and horse harness, the other was exactly the opposite: a horse burial, but no adornments. There may have been several reasons behind the differential selection of the grave goods accorded to two members of the same community: different age or the diverse economic background and social contacts of the families.<sup>31</sup> Obviously, this point can also be raised in connection with the cemetery's other burials too: for example, neither did Graves 9 and 22 contain a horse burial or horse harness, but the deceased were evidently interred in a much more ornate costume than the females in Graves 11 and 13.

Grave 14 in the cemetery's southern part contained shift mounts and a broken earring, while the costume adornments from Grave 15 were similar mounts and ball buttons as well as a slender silver wire finger-ring and an iron knife. Although some of the grave goods deposited in these burials differed, the grave inventory itself reflects a roughly similar richness.

<sup>30</sup> For the chain bracelets, *Horváth 2010*.

<sup>31</sup> The age-at-death of the female in Grave 11 was 15–16 years, while that of the woman in Grave 13 was 50–60 years, suggesting that there was no correlation between age and the deposition of a horse in the burial. Of the female burials with a horse, the women in Graves 1 and 3 were 40–60-year-olds, the female in Grave 4 was 24–28 years old, while the woman in Grave 10 was 54–60 years old.

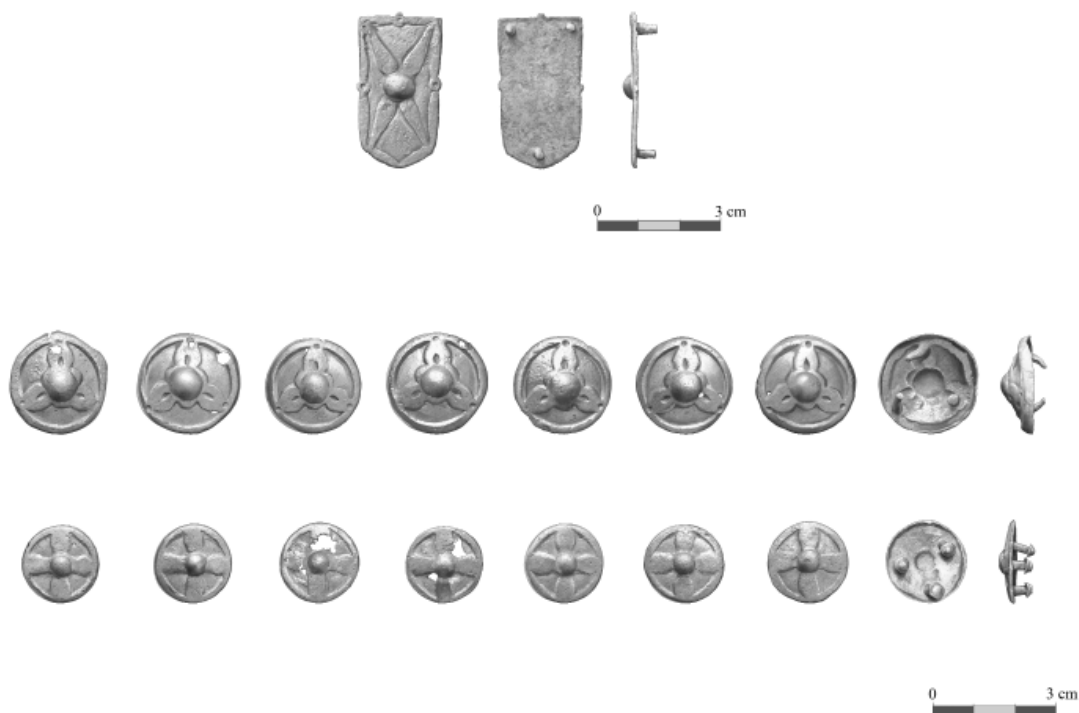


fig. 9. Rosette-ornamented harness mounts from Grave 3

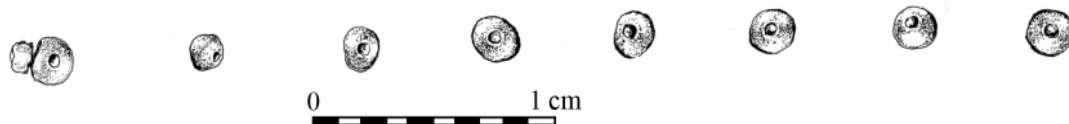


fig. 10. Small beads from Grave 4

The cemetery's poorest female burials were Grave 8, containing a round-sectioned bronze wire bracelet with tapered terminals by the right arm, and Grave 19 with a round-sectioned plain ring on the left side of the head, as well as Grave 24, a disturbed burial yielding a bronze bracelet with coiled terminals found in a secondary position.

The three male burials (Graves 18, 23 and 25) can be assigned to the cemetery's poorly-furnished or unfurnished graves. Grave goods were only deposited in Grave 23: in addition to the horse burial and horse harness placed by the feet, a quiver with a bone lid containing nine arrowheads, and a sheep humerus, a food offering, made up the grave furniture. The horse harness comprised a snaffle-bit with large rings, an iron surcingle buckle and a pair of stirrups with integral strap loops (*fig. 15*).

The cemetery also contained three child burials. Grave 18 did not contain any grave goods, Grave 7 yielded a poorly preserved broken silver mount and Grave 6 the lower part of a pendent dress mount.<sup>32</sup>

<sup>32</sup> The mount fragments could have come from a necklace (cp. *Szőnyi – Tomka 1985* 115–116), although it is also possible that they had been sewn onto the clothing without the upper part (*Langó – Türk 2011*). Photos and plans of figs 4–10 and 14 are works of László Czifrák and Krisztián Balla.

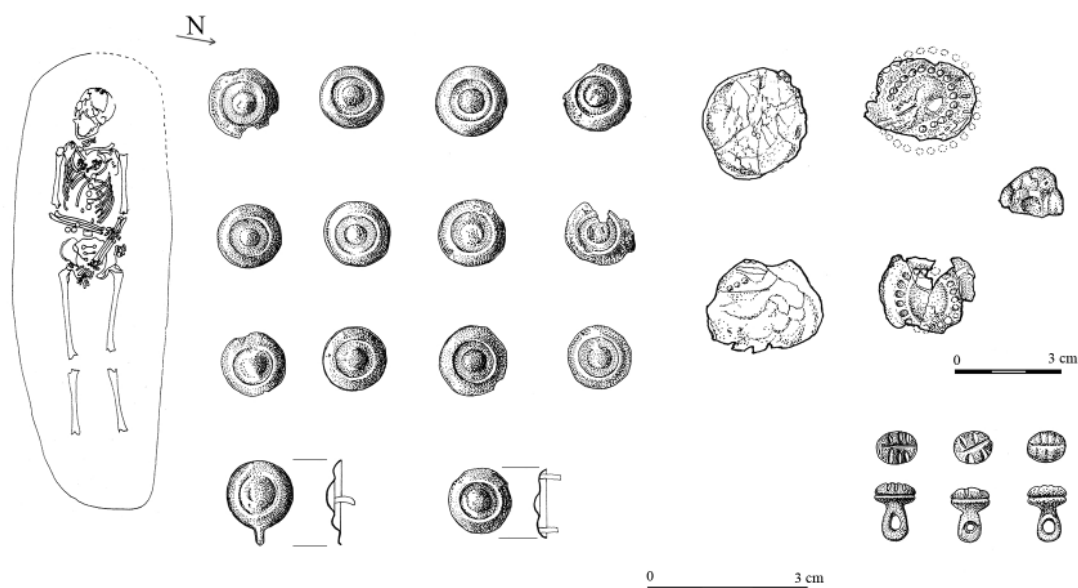


fig. 11. Plan of Grave 22 and the round dress mounts, fragments of pressed silver rosettes and ball buttons found in the grave

*The anthropology of the cemetery population (Kitti Köhler)*

The skeletal remains of the Harta series are medium-well preserved and fragmentary, which partly complicated the anthropological investigation. Age-at-death was estimated using a combined method (tooth attrition, cranial suture closure, changing of the surface of the facies auricularis and the facies symphyseos, inner structure of the proximal end of the femur and the humerus, and the overall condition of the skeletons).<sup>33</sup> The determination of morphological sex was based on the works of Kinga Éry, László Harsányi and János Nemeskéri.<sup>34</sup> During the recording of the metric and morphological data, we used the method elaborated by Rudolf Martin and Karl Saller, while classification was based on the categories set up by Valery P. Alekseev and Georgy F. Debets.<sup>35</sup> The stature was estimated by the method of Torstein Sjøvold.<sup>36</sup> The individual data are presented in *Table 1*, the skull measurements and indices in *Table 2*. We describe the pathological changes and the dental status.<sup>37</sup>

After the anthropological analysis was completed, the skeletal material was deposited in the collection of the Károly Viski Museum in Kalocsa.

The so-called Sexualisation Index (SI) refers to well pronounced sexual dimorphism in the case of both sexes. The demographic characteristics indicate that the Harta community had unrealistic mortality parameters. There is a definite surplus of females: the series consists of fifteen females, three males and three children. According to the age-at-death, there were more mature-aged individuals in both sexes, which is not typical for females. The explanation of this phenomenon is unclear because mortality peaks generally occur in the earlier, adult-aged group among females. The surplus of females can be explained with more frequent deaths due to pregnancy in their case. The other highly striking feature is the virtual absence of children (the Infant II age group is wholly lacking).

Despite the small size of the sample, two male and six female skulls were suitable for morphometric analysis. Based on these, meso- and brachycranial individuals dominated the

<sup>33</sup> Nemeskéri – Harsányi – Acsádi 1960; Miles 1963; Perizonius 1981; Meindl – Lovejoy 1985.

<sup>34</sup> Éry – Kralovánszky – Nemeskéri 1963.

<sup>35</sup> Martin – Saller 1957; Alekseev – Debets 1964.

<sup>36</sup> Sjøvold 1990.

<sup>37</sup> Aufderheide – Roldíguez-Martin 1998; Ortner 2003.

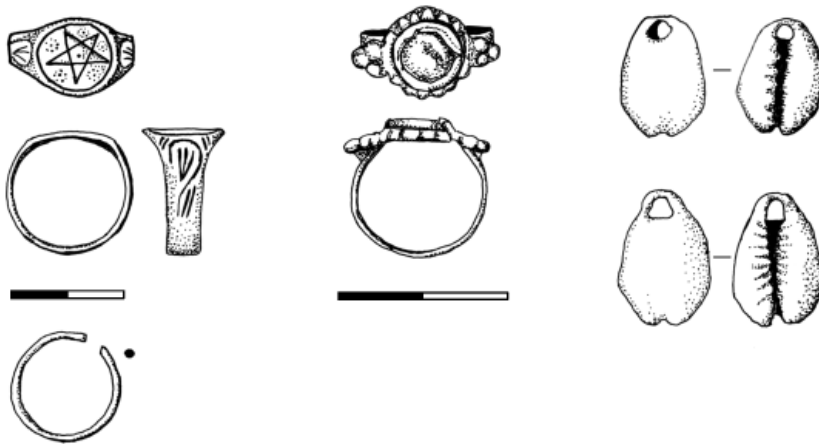


fig. 12. Finger-rings, round jewellerys and cowry shell from Grave 22.

population; there were no dolichocranic individuals. The taxonomic characteristic of the population is definitely europicid. There was only a single exception, where the traits of the Mongoloid taxon such as *torus mandibularis*, *sulcus prenasalis* and paddle-shaped incisors can be recognised.

The calculated body heights show that males are tall, while among females the medium and the tall body height categories also occur.

The results of the palaopathological analysis indicate that battle injuries do not occur. The most frequent alterations are spondylosis deformans (osteophyte formation) on the spine (especially on the lumbar vertebral section) and, more rarely, enthesopathia on the calcaneus and patella. The dental health shows severe attrition, ante mortem tooth loss and caries in some cases.



fig. 13. Photo of the pendent dress mounts from Grave 22



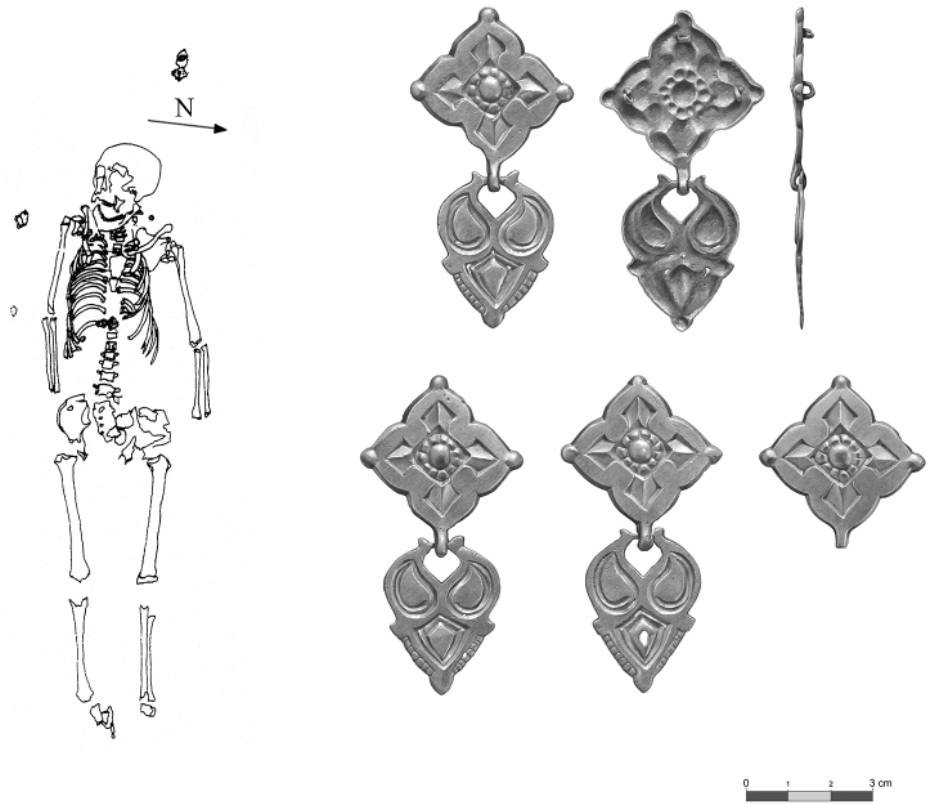


fig. 14. Plan of Grave 9 and the pendent caftan mounts from the burial

| Grave no. | Sex        | Sexualisation index | Number of examined features | Estimated age-at-death |
|-----------|------------|---------------------|-----------------------------|------------------------|
| 1         | female     | -1.07               | 13                          | 40–60                  |
| 2         | female     | -0.87               | 16                          | 23–40                  |
| 3         | female     | -1.20               | 10                          | 40–60                  |
| 4         | female     | -0.80               | 15                          | 24–28                  |
| 5         | female     | (-1.66)             | 3                           | 23–x                   |
| 6         | child      | –                   | –                           | 3–4                    |
| 7         | child      | –                   | –                           | 1–3                    |
| 8         | female     | -1.11               | 18                          | 40–60                  |
| 9         | female     | -1.00               | 14                          | 30–40                  |
| 10        | female     | -0.36               | 22                          | 54–60                  |
| 11        | female (?) | -0.88               | 9                           | 15–16                  |
| 13        | female     | -0.36               | 19                          | 50–60                  |
| 14        | female     | -0.34               | 23                          | 48–56                  |
| 15        | female     | -0.42               | 14                          | 18–20                  |
| 17        | male       | +0.94               | 16                          | 53–59                  |
| 18        | child      | –                   | –                           | 2,5–3                  |
| 19        | female     | -0.59               | 22                          | 61–67                  |
| 22        | female     | -1.25               | 12                          | 18–19                  |
| 23        | male       | +1.00               | 23                          | 34–40                  |
| 24        | female     | -0.94               | 18                          | 46–52                  |
| 25        | male       | +0.92               | 13                          | 45–55                  |

Table 1. Individual data of sex and age in the Harta-Freifelt series

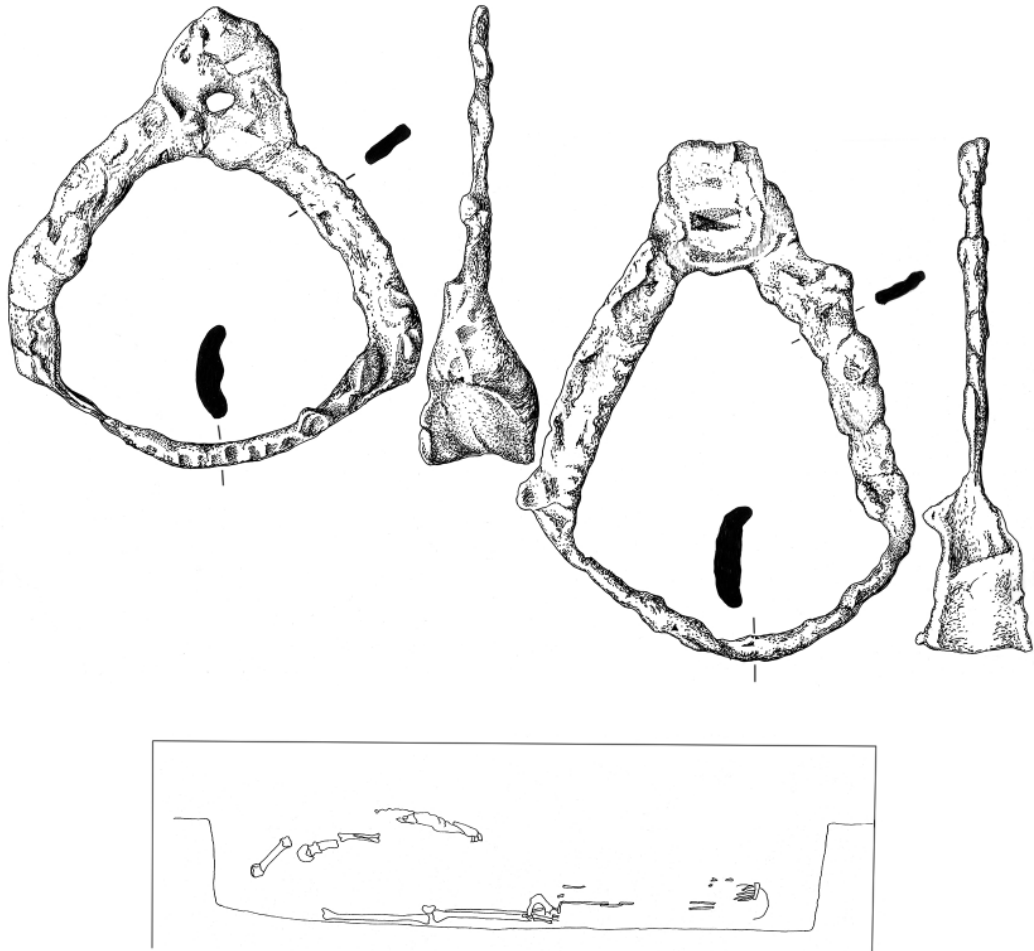


fig. 15. Plan of a male burial with horse bones and stirrups

| Grave no.<br>Martin no. | 17<br>male | 23<br>male | 1<br>female | 4<br>female | 8<br>female | 9<br>female |
|-------------------------|------------|------------|-------------|-------------|-------------|-------------|
| 1                       | 172        | 172        | 172         | 172         | 165         | –           |
| 5                       | 100        | 104        | 96          | 95          | 99          | –           |
| 8                       | 133        | 145        | 140         | 134         | 141         | 144         |
| 9                       | 91         | 99         | 90          | 94          | 90          | 95          |
| 10                      | 115        | 122        | 115         | 112         | 117         | 119         |
| 11                      | 119        | 128        | 126         | 121         | 110         | 123         |
| 12                      | 105        | 114        | 107         | 109         | 103         | –           |
| 17                      | 130        | 136        | 129         | 121         | 136         | 127         |
| 20                      | 109        | 111        | 108         | 106         | –           | –           |
| 23                      | 510        | 510        | 500         | 495         | 500         | 515         |
| 40                      | 101        | 97         | –           | (86)        | –           | –           |
| 43                      | 103        | 105        | 101         | 102         | 101         | 99          |
| 44                      | 97         | 98         | 97          | 95          | –           | –           |
| 45                      | 126        | 137        | –           | 125         | –           | –           |
| 46                      | 93         | 92         | –           | 94          | –           | –           |
| 47                      | –          | 103        | –           | 108         | –           | –           |
| 48                      | 55         | 60         | –           | (64)        | –           | –           |
| 51                      | 40         | 40         | 41          | 38          | –           | –           |
| 52                      | 30         | 32         | 31          | 35          | –           | –           |

| Grave no.<br>Martin no. | 17<br>male   | 23<br>male  | 1<br>female     | 4<br>female  | 8<br>female  | 9<br>female  |
|-------------------------|--------------|-------------|-----------------|--------------|--------------|--------------|
| 54                      | 25           | 25          | 23              | 48           | –            | –            |
| 55                      | 45           | 43          | 47              | 20           | –            | –            |
| 60                      | 57           | 56          | –               | 48           | –            | –            |
| 61                      | –            | 60          | –               | 57           | –            | –            |
| 62                      | 51           | 45          | –               | 44           | –            | –            |
| 63                      | –            | 39          | –               | 37           | –            | –            |
| 65                      | 117          | 125         | 108             | 115          | –            | 114          |
| 66                      | 90           | 95          | 91              | 95           | –            | 87           |
| 68                      | 75           | 80          | 77              | 78           | –            | 79           |
| 69                      | –            | 27          | 26              | 27           | –            | 30           |
| 70                      | 75           | 69          | 57              | 56           | –            | 61           |
| 71                      | 30           | 33          | 33              | 34           | –            | 34           |
| 72                      |              | 94          | –               | 102          | –            | –            |
| 75                      |              | –           | –               | –            | –            | –            |
| 75/1                    |              | –           | –               | –            | –            | –            |
| 79                      | 111          | 113         | 133             | 116          | –            | 121          |
| 38                      |              |             |                 |              | –            | –            |
| 8:1                     | 77.3         | 84.3        | 81.4            | 77.9         | 85.4         | –            |
| 17:1                    | 75.6         | 79.1        | 75.0            | 70.3         | 82.4         | –            |
| 20:1                    | 63.4         | 64.5        | 62.8            | 61.6         | –            | –            |
| 17:8                    | 97.7         | 93.8        | 92.1            | 90.3         | 96.4         | 88.2         |
| 20:8                    | 81.9         | 76.5        | 77.1            | 79.1         | –            | –            |
| 9:8                     | 68.4         | 68.3        | 64.3            | 70.1         | 63.8         | 66.0         |
| 47:45                   | –            | 75.2        | –               | 86.4         | –            | –            |
| 48:45                   | 43.6         | 43.8        | –               | (51.2)       | –            | –            |
| 52:51                   | 75.0         | 80.0        | 75.6            | 92.1         | –            | –            |
| 54:55                   | 55.5         | 58.1        | 48.9            | 41.7         | –            | –            |
| 61:60                   | –            | 93.3        | –               | 118.7        | –            | –            |
| 63:62                   | –            | 86.6        | –               | 84.1         | –            | –            |
| Norma verticalis        | ovoid        | pentagonoid | sphenoid (romb) | ovoid        | pentagonoid  | pentagonoid  |
| Norma occipitalis       | house shaped | bomb shaped | bomb shaped     | house shaped | house shaped | house shaped |
| Glabella                | 4            | 3           | 1               | 2            | 1            | –            |
| Prof. occip. ext.       | 1            | 1           | 0               | 0            | 1            | 0            |
| Fossa canina            | 2            | 3           | 2               | 2            | –            | –            |
| Spina nasalis ant.      | 4            | 4           | –               | –            | –            | –            |
| Prognathia alv.         | –            | 1           | –               | 2            | –            | –            |
| Apertura pir.           | 3            | 3           | 3               | 3            | –            | –            |
| Profile of occiput      | 2            | 2           | 2               | 1            | 2            | 2            |
| Lambdoid flatness       | 1            | 1           | 1               | 1            | 0            | 1            |

| Grave No.<br>Martin No. | 10<br>female | 14<br>female | 15<br>female | 19<br>female | 24<br>female |
|-------------------------|--------------|--------------|--------------|--------------|--------------|
| 1                       | 170          | 178          | 174          | 174          | 175          |
| 5                       | 102          | 97           | 101          | 98           | 103          |
| 8                       | 141          | 139          | 133          | 135          | 133          |
| 9                       | 99           | 97           | 98           | 92           | 93           |
| 10                      | 123          | 125          | 117          | 117          | 118          |
| 11                      | 130          | 122          | 122          | 114          | 116          |
| 12                      | 109          | 111          | 103          | 105          | 106          |
| 17                      | 132          | 126          | 136          | 127          | 131          |
| 20                      | 113          |              | 114          | 109          | 107          |

| Grave No.<br>Martin No. | 10<br>female | 14<br>female | 15<br>female | 19<br>female | 24<br>female |
|-------------------------|--------------|--------------|--------------|--------------|--------------|
| 23                      | 515          | 522          | 500          | 515          | 497          |
| 40                      | –            | 92           | 95           | 95           | 96           |
| 43                      | 110          | 103          | 104          | 98           | 102          |
| 44                      | –            | 95           | 95           | 93           | 90           |
| 45                      | –            | 127          | 130          | 123          | 123          |
| 46                      | –            | 85           | 94           | 87           | 87           |
| 47                      | –            | 109          | 105          | –            | –            |
| 48                      | –            | 61           | 60           | 59           | 66           |
| 51                      | 42           | 38           | 40           | 38           | 37           |
| 52                      | 31           | 33           | 30           | 30           | 30           |
| 54                      | –            | 21           | 26           | 25           | 22           |
| 55                      | –            | 48           | 45           | 46           | 49           |
| 60                      | –            | –            | 50           | 54           | –            |
| 61                      | –            | –            | 56           | –            | 59           |
| 62                      | –            | –            | 40           | 45           | (43)         |
| 63                      | –            | –            | 41           | –            | 38           |
| 65                      | 129          | 108          | 109          | 117          | –            |
| 66                      | 96           | 94           | 97           | 86           | –            |
| 68                      | 81           | 78           | 69           | 76           | –            |
| 69                      | 30           | 27           | 29           | 28           | –            |
| 70                      | 58           | 58           | 55           | 64           | –            |
| 71                      | 32           | 33           | 30           | 32           | –            |
| 72                      | –            | –            | 92           | 95           | 95           |
| 75                      | –            | –            | –            | 121          | 129          |
| 75/1                    | –            | –            | –            | –            | –            |
| 79                      | 125          | 118          | 130          | 123          | –            |
| 38                      |              |              |              |              |              |
| 8:1                     | 82.9         | 78.1         | 76.4         | 77.6         | 76.0         |
| 17:1                    | 77.6         | 70.8         | 78.2         | 73.0         | 74.8         |
| 20:1                    | 66.5         | –            | 65.5         | 62.6         | 61.1         |
| 17:8                    | 93.6         | 90.6         | 102.2        | 94.1         | 98.5         |
| 20:8                    | 80.1         | –            | 85.7         | 80.7         | 80.4         |
| 9:8                     | 70.2         | 69.8         | 73.7         | 68.1         | 69.9         |
| 47:45                   | –            | 85.8         | 80.7         | –            | –            |
| 48:45                   | –            | 48.0         | 46.1         | 47.9         | 53.6         |
| 52:51                   | 73.8         | 86.8         | 75.0         | 78.9         | 81.1         |
| 54:55                   | –            | 43.7         | 57.8         | 54.3         | 44.9         |
| 61:60                   | –            | –            | 112.0        | –            | –            |
| 63:62                   | –            | –            | 102.5        | –            | 88.3         |
| Norma verticalis        | pentagonoid  | ovoid        | ellipsoid    | pentagonoid  | ovoid        |
| Norma occipitalis       | bomb shaped  | bomb shaped  | tent shaped  | bomb shaped  | house shaped |
| Glabella                | 3            | 2            | 1            | 2            | 2            |
| Prot. occip. ext.       | 1            | 0            | 0            | 0–1          | 1            |
| Fossa canina            | 2            | 3            | 3            | 2            | 4            |
| Spina nasalis ant.      | –            | –            | –            | 2            | 4            |
| Prognathia alv.         | –            | 2            | 3            | 2            | 2            |
| Apertura pirif.         | –            | 3            | 3            | 3            | 3            |
| Profile of occiput      | 2            | 2            | 2            | 2            | 2            |
| Lambdoid flatness       | 1            | 1            | 1            | 1            | 1            |

Table 2. Individual cranial measurements, indices and morphological features of the Harta-Freifelt series

*The genetic analysis of the cemetery's burials (Aranka Csősz)**Mitochondrial DNA analysis*

Mitochondria are organelles participating in cellular energy production that contain hereditary material. Depending on the cell type, this mitochondrial hereditary material can mean several hundred or even several thousand DNA molecules. The high number of copies greatly eases the analysis of archaeological organic matter that has a low or minimal DNA content. The extraction of the information contained in the mitochondrial hereditary material is thousandfold more efficacious than the analysis of nuclear DNA markers, of which there are only two copies coded into the nucleus. Therefore, most genetic analyses of archaeological samples target the hereditary material in the organelles of this cell. The other unique trait of mitochondrial DNA (mtDNA) is that it is inherited maternally, which enables the tracing and mapping of maternal hereditary lines.

These properties and its high mutation rate made mtDNA the principal marker of population genetics. We too conduct analyses of this DNA in our laboratory. Our analyses target the hypervariable segment (mtDNA HVS) and the polymorphism of the coding segment that play a prominent role in the study of population genetics. The results of the analysed samples are compared to a reference sequence and are then assigned to a haplogroup based on the divergences (mutations) from the reference sequence. Each haplogroup is characterised by its mutations. These mitochondrial haplogroups/clusters evolved several thousand years ago and have a distinctive geographic distribution. With the passing of time, these groups undergo further differentiation owing to the increase of mutations, leading to the emergence of subgroups and variants within these subgroups. If two samples can be assigned to the same haplogroup, but the mutational positions are not wholly identical, they represent two different haplotypes within that particular group. A direct maternal descent can be assumed between two samples/sequences if their mtDNA is wholly identical (correlation on the haplotype level). The greater the divergence between the mitochondrial pattern of two individuals, the greater the distance between them in the shared maternal line. Although mitochondrial analyses are in themselves unsuitable for establishing blood ties and family relations, they are suitable for rejecting a maternal lineage and, in cases of very rare haplotypes, for confirming direct family/lineage connections.

*Autosomal DNA analyses*

Autosomal hereditary material enables the identification, or exclusion, of kinship on the individual level and of blood ties (parents-children, siblings). These properties of autosomal markers are used in forensic science too. The more markers are included in a comparison of the autosomal hereditary material of two individuals, the greater the chances of establishing the genetic kinship of the analysed individuals.

The little DNA that survives in archaic samples is usually of poor quality. Given that there are only two copies of autosomal hereditary markers in body cells, the analysis of this DNA is more problematic than of mitochondrial hereditary material. The markers we selected are virtually identical with the ones used in forensics for DNA profiling and are suitable for our purposes for several reasons. On the one hand, they are short enough to be successfully used in poorly preserved archaic samples, and on the other, they are sufficiently polymorphic.

*The genetic analysis of the cemetery population*

The physical anthropological analyses indicated that the sex distribution of the deceased in the Harta-Freifelt cemetery was three males, fifteen females and three children. In view of the dominance of females, it seemed prudent to begin our analysis with mitochondrial typisation as a kind of preliminary screening and to determine whether there was a need for additional autosomal analyses based on the results.

Nineteen of the twenty-one skeletons were preserved in a condition that was suitable for analysis. The two other skeletons represented the remains of infants that could not be sampled owing to the crumbling condition of the bones. We were also unable to amplify a sufficient amount of DNA segments of suitable quality from the samples taken from Graves 23 and 25. Thus, we extracted the DNA profile necessary for assignment to mitochondrial groups (haplo-categorisation) in the case of seventeen individuals.

Where the preservation of DNA allowed this, we also performed the genetic sex determination of the samples as well as the analysis of autosomal markers in some cases. We then tabulated the results provided by the analyses of the samples.

The results indicated that the mitochondrial haplotype composition of the samples varied, meaning a high incidence of different maternal lines. Only two samples (Graves 5 and 22) yielded wholly identical sequences regarding the examined section. Thus, a direct maternal descent cannot be excluded in the case of these two individuals among the seventeen analysed individuals. However, these patterns corresponded not only to each other, but also to the Cambridge Reference Sequence,<sup>38</sup> which is the most frequent haplotype in modern European populations.

Our findings are interesting from several aspects:

- The disproportionate dominance of females in the cemetery suggested a more homogenous maternal line. We did not find the maternal line for the single child burial suitable for analysis. The mtDNA of the 2.5–3-year-old child could be assigned to the rare N1a haplogroup, of which this child was the single representative in the cemetery.
- Surprisingly enough, the presence of expressly Asian haplogroups was outstandingly high in the Harta cemetery compared to the other tenth-century cemetery populations examined to date.<sup>39</sup>

The samples from Graves 5 and 22 with identical polymorphic positions were further analysed for autosomal markers in order to determine whether there was a mother-child, grandmother-grandchild or sibling relation between them.

#### *Autosomal analysis and sex determination*

The more markers we analyse when examining family ties, the greater the probability of confirming/rejecting blood ties between particular individuals. We attempted to extract eight autosomal markers from the samples from Graves 5 and 22. In the case of Grave 22, we could identify three markers (TPOX, TH01, D3S), while in the case of Grave 5, only one marker (TH01). However, we were unable to confirm the allele values with a successfully repeated test in a single case. The allele values of the autosomal analyses have been included in the table, although these should be seen more as initial steps in this field than as results enabling meaningful conclusions.

We determined chromosomal sex with the amelogenin marker. We could determine the genetic sex of eight of the seventeen analysed individuals, which in all cases confirmed the physical anthropological identification.

| Samples  | mtDNA haplogroup (Hg) | Haplotype level complete similarity with other samples from the cemetery | Genetical sex | Autosomal markers yielding results |   |   |
|----------|-----------------------|--|---------------|------------------------------------|---|---|
|          |                       |  |               |                                    |   |   |
| Grave 14 | H                     | –  | XX            | –                                  | – | – |
| Grave 17 | H                     | –  | XY            | –                                  | – | – |
| Grave 10 | H                     | –  | XX            | –                                  | – | – |
| Grave 1  | Non-determined        | –  | –             | –                                  | – | – |
| Grave 2  | V                     | –  | –             | –                                  | – | – |
| Grave 4  | D                     | –  | –             | –                                  | – | – |
| Grave 8  | C                     | –  | XX            | –                                  | – | – |
| Grave 9  | A                     | –  | –             | –                                  | – | – |

<sup>38</sup> Andrews et al. 1999.

<sup>39</sup> Csősz et al. 2016.

| Samples  | mtDNA haplogroup (Hg) | Haplotype level complete similarity with other samples from the cemetery | Genetical sex | Autosomal markers yielding results |                 |              |
|----------|-----------------------|--|---------------|------------------------------------|-----------------|--------------|
| Grave 11 | T                     | –  | –             | –                                  | –               | –            |
| Grave 19 | U5a1a                 | –  | –             | –                                  | –               | –            |
| Grave 22 | H                     | Grave 5  | –             | TH01 (6/6)                         | D3S1358 (15/16) | TPOX (11/11) |
| Grave 24 | H                     | –  | XX            | –                                  | –               | –            |
| Grave 15 | D                     | –  | XX            | –                                  | –               | –            |
| Grave 3  | A                     | –  | XX            | –                                  | –               | –            |
| Grave 5  | H                     | Grave 22   | –             | TH01 (9.3/9.3)                     | –               | –            |
| Grave 13 | U                     | –  | XX            | –                                  | –               | –            |
| Grave 18 | N1a                   | –  | –             | –                                  | –               | –            |

### *Conclusion (Péter Langó)*

Ethnographers have studied funerary rites and traditions since the later nineteenth century.<sup>40</sup> In archaeological scholarship, Gyula László was the first to examine patterns in the spatial organisation of cemeteries: his seminal book, published in 1944, was in part based on these ethnographic studies.<sup>41</sup> He believed that the sequence of the graves arranged in rows was not random and that kinship relations could be assumed between individual burials since “conforming to their beliefs of the otherworld, the family had the same organisation as in this world.”<sup>42</sup> He argued that the spatial layout of cemeteries was “a reflection of the extended families of the ancient Hungarians”,<sup>43</sup> a claim that was almost immediately challenged.<sup>44</sup> However, his view became widely accepted with time, not least because of the renowned professor’s educational activities, and “the extended family organised along blood ties became an unarguable tenet among his students, which was subsequently embraced by historians in an unchanged form.”<sup>45</sup> The assumption of a burial order conforming to family and kinship ties seemed logical enough and ethnographic studies in this field regarded this order as a continuous tradition well before archaeological analyses. Research on periods from which documentary sources were also available too seemed to confirm that this was a general custom in both space and time.

Gyula László’s students modified his views in several respects.<sup>46</sup> It was soon noted in cemetery analyses that there were several cases when there were only solitary graves or a handful of burials at a particular site, and Béla Szőke raised the possibility that these perhaps represented the burials of nuclear families.<sup>47</sup> István Dienes, one of Gyula László’s closest students, interpreted the Szakony burial ground of six graves and the Bana, Karancslapujtő and Perbete cemeteries along the same lines.<sup>48</sup> The spatial organisation of cemeteries according to nuclear families was underpinned by the palaeoserological analyses performed by Imre

<sup>40</sup> Kunt 1990 67.

<sup>41</sup> László 1944. Gyula László’s views were fundamentally influenced by László K. Kovács’s work on the burial customs and beliefs of the community living in the Hostat quarter of Kolozsvár (1944), a study that remained incomplete owing to the world war, and the studies by ethnographers Miklós Mattyasovszky (1904) and Károly Tagányi (1919), who described this organisational form as “an institution more ancestral than the conquest [of the Carpathian Basin]” (for a critical discussion of research history, Fodor 2001 191–196). There was an upsurge of interest in the extended family organisation at the time, as shown, for example, by Edit Fél’s earlier doctoral thesis on the ethnography of Harta written during the same period: Fél 1943; Fél 1944. For a comprehensive treatment of the relationship between archaeology and ethnography, Boldog 2014 128–129.

<sup>42</sup> László 1944 166–225.

<sup>43</sup> László 1950 137.

<sup>44</sup> Fettich 1947; Banner 1954; Fehér 1959.

<sup>45</sup> Bóna 1997.

<sup>46</sup> Bóna 2001 311, for the overall impact of this theory, Révész 2014.

<sup>47</sup> Szőke 1962 21.

<sup>48</sup> Dienes 1972 13.

Lengyel.<sup>49</sup> László Révész similarly argued for a general “nuclear family” model as opposed to the “extended family model” of the large cemeteries. He noted that caution should be exercised in the general application of the latter model because there were several problems with the cemeteries analysed by Gyula László, among them the uncertain sex determination of the deceased and the low number of female burials. The Karos-Eperjesszeg II and III burial grounds uncovered and published by László Révész, suggested that the members of nuclear families interred their dead beside each other.<sup>50</sup>

Gyula László’s studies were a major influence not only on archaeological scholarship, but also on ethnographic research. There was an upsurge of interest in mortuary studies, as a result of which a detailed picture could be drawn of the historical background and organisation of extended families.<sup>51</sup> Most scholars accepted the view that the existence of extended families, assumed to have been a continuous tradition since the tenth century, could not be confirmed for the Conquest period because this kinship organisation, involving the co-residence of several generations, “had appeared after the Ottoman period, mainly for family reasons.”<sup>52</sup> Obviously, this does not exclude the possibility that a kinship organisation resembling extended families had not existed during this early period, but this form of group formation, even if part of “colourful daily life”, was not reflected in the archaeological record.<sup>53</sup> While the exact nature of Hungarian communities could not be reconstructed from the information contained in the written sources of the Árpáadian Age, the documentary evidence did attest to the diverse range of communities among various groups and its members.<sup>54</sup>

Imre Lengyel’s palaeoserological analyses were performed simultaneously with archaeological research, on which they had a major impact following the wider acceptance of the nuclear family burial model. Archaeologists expected Lengyel’s studies to provide a conclusive answer as to which burials contained the members of the same family, which would offer some anchors for addressing the issue of a cemetery’s internal chronology. Following Imre Lengyel’s death, it proved impossible to continue and reproduce his analytical procedure in other laboratories, while expectations regarding an objective historical assessment were dampened by his findings that ran counter to archaeological chronology. The most heated debate erupted over one of the grave groups in the Vörs-Papkert B cemetery, in whose case not only was a direct link assumed between the Avar period and the tenth-century burials, but it was also suggested that the parents of a child buried with Avar-period artefacts had been interred with finds of the Conquest period.<sup>55</sup> The debate over the identification of the families of the early Árpáadian Age cemetery uncovered by László Kovács at Szabolcs-Petőfi utca and also analysed by Imre Lengyel provided a clear indication that this analytical procedure would not provide a reliable framework for archaeological analyses.<sup>56</sup>

By illustrating its potentials, the genetic analysis of the burials in the Harta cemetery can contribute to the creation of criteria for an objective cemetery analysis in addition to traditional archaeological assessments. The lack of maternal descent lines between the cemetery’s burials does not mean a rejection of a mortuary order based on nuclear families<sup>57</sup>

<sup>49</sup> The tenth–twelfth-century cemeteries analysed by Imre Lengyel were Aldebrő-Mocsáros, Békés-Povádzug, Dunaalmás-Tatai úti homokbánya, Kál-Legelő, Letkés-Téglaégető, Sárbogárd-Tringer-tanya, Sőshartyán-Zúdo-tető, Szakony-Tsz homokbánya, Szob-Kiserdő, Tengelic, Tiszaezzlár-Bashalom and Tiszanána-Csehtanya: *Lengyel 1975* 69–91.

<sup>50</sup> *Révész 1991*.

<sup>51</sup> For burials, see *Hoppál – Nováki 1982; Balassa 1989; Kunt 1990* 67–101, for research on extended families, *Penavin 1981*, for the cultural and historical background, *Husz 2000*.

<sup>52</sup> *Róna-Tas 1996* 121.

<sup>53</sup> *Mesterházy 1996b* 777.

<sup>54</sup> The evidence regarding the tenth-century Hungarian cemeteries and the period’s social organisation has been surveyed in greatest detail by *Mesterházy 1996b* 772–796.

<sup>55</sup> *Költő et al. 1992*.

<sup>56</sup> *Kovács 1994* 145–181; *Kovács 2011*.

<sup>57</sup> For example, the genetic analysis of the Balatonújlak cemetery seems to confirm the kinship of some individuals along the maternal line, *Csösz et al. 2016*.



since these analyses are unsuitable for demonstrating conjugal relations between the males and females interred in the cemetery. However, it does raise the possibility that the spatial layout did not conform to kinship ties. The sex distribution of the deceased (three males, fourteen females and three children) differs substantially from the usual proportions in other cemeteries and we found that the females were not related. Assuming a family organisation, this would mean that the females were the wives of the males interred in the cemetery (István Dienes had assumed polygyny in the case of the Szakony cemetery).<sup>58</sup>

Is there another feasible interpretation? In our view, the cemetery's internal chronology might provide some clues. Taking the archaeological finds as our starting point, we could note some patterns that provided information on the chronology of the burials relative to each other and thus aided the cemetery's interpretation.

- None of the burial yielded coins or any other finds that would provide a secure anchor for dating.
- The radiocarbon dates suggest that the burials were roughly contemporaneous and that there were no major temporal differences between them.
- The grave goods reflect a shared costume tradition: several female burials contained similar pressed caftan mounts and five burials yielded small beads of a similar type. The size and the nature of these beads as well as their location within the burials suggest that they did not originate from necklaces, but had adorned a finely spun textile whose filmy fabric was enhanced by the silvery glitter of these tiny beads. According to our present knowledge, only Byzantine luxury industry<sup>59</sup> or a similarly sophisticated craft industry<sup>60</sup> was capable of producing such fine textiles. The community had either obtained the textile used for creating the costume enhanced with tiny beads and pressed mounts on one occasion and had then divided it among its members, or they had a continuous supply. The latter seems unlikely because no comparable finds have been reported from other sites, suggesting the rarity of this textile. In the case of a single acquisition, we may perhaps also assume that the textile was either used for special funerary costumes or, judging from the delicateness of the fabric, that little time had elapsed between the death of the individuals wearing this costume, since otherwise they would have had to replace this exquisite fabric with another one.<sup>61</sup> Since there is no evidence for a special funerary costume either in the contemporaneous literary sources or in the archaeological record, this also implies the brief use-life of the cemetery.
- None of the finds can be dated earlier or significantly later than the middle third of the tenth century.

The above would suggest that the Harta cemetery was used by a larger community for a brief period of time only and that many family members and relatives whose kinship could be demonstrated by genetic analyses did not pass away and were not interred here. This would imply that not all cemeteries with several burials should be interpreted as having a spatial layout conforming to a family organisation. It is quite natural that the campsite and village cemeteries used by long-time sedentary community was populated jointly by its families and their members. However, we cannot exclude the possibility that the smaller burial grounds were opened by communities that were much more mobile during the tenth century than the ones who had settled permanently.<sup>62</sup>

<sup>58</sup> Dienes 1972 14.

<sup>59</sup> For similar costume elements in Byzantine fashion, Parani 2003 11–100; Bréhier 2010 196–197; Effenberger 2010 84.

<sup>60</sup> E.g. the workshop in the Papal court in central Italy, Giannichedda – Mannon – Ricci 2001.

<sup>61</sup> For a general discussion of tenth-century costume, see Sudár – Petkes 2014.

<sup>62</sup> Kovács 2011 98.

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