

## NEW DATA TO THE RESEARCH ON 10<sup>TH</sup> CENTURY TEXTILES FROM THE HUNGARIAN CONQUEST PERIOD CEMETERY AT DERECSKE–NAGYMEZŐ–DŰLŐ

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### INTRODUCTION

In researching the archaeology of the Hungarian Conquest period, the analysis of organic remains with modern scientific techniques has sparked increasing interest in the past decades.<sup>1</sup> Despite being a rare find – and mostly only fragmentarily preserved – organic remains are an immensely rich source of data. Among them, textile fragments are to be mentioned in the first place. In regard to materials from the 10th century, two categories of textiles could be identified thus far. Linen, of which there was a more dense (better quality), and another, of inferior quality. On the other hand, there has been also a number of silk finds found (a textile often associated with the Hungarians in the written sources), moreover, their different knitting patterns could be also identified. Most of the silk finds recovered thus far were samite (samitum), almost without exception, demonstrating that this was a generally widespread type of fabric in this period. A different type of silk (taqueté) was documented first at Tarpa (in 2012),<sup>2</sup> and then in 2016, at Derecske – both situated in Eastern Hungary. As will be discussed below, this latter find is particularly interesting as it demonstrates that the occurrence of the taqueté fabric was not a unique phenomenon in the 10<sup>th</sup> century. However, there are no examples among the published textile materials from Northern and Western Europe, and it seems that they occur also quite rarely in Byzantium. Nonetheless, the find from Derecske suggests that the conquering Hungarians could have access to silk transports not only through Western Europe (as this could be attested both on the basis of historical and archaeological data), but also had other sources, perhaps through their eastern contacts.

### THE SITE

In September 2016, during rescue excavations prior to the construction of the section of the M35 motorway between Debrecen and Berettyóújfalu, an extensive multiperiod site was recovered at Derecske-Nagymező-dűlő (site ID no.: 61770), where there were three graves found, dating from the period of the Hungarian Conquest. Excavations were conducted jointly by the Salisbury Archaeology Ltd and by the Déri Museum (the municipal museum of Debrecen). Feature 643 was a grave (*Fig. 1–2*), furnished with finds typical for the period,<sup>3</sup> i.e. silver alloy cast earrings with beadrow pendants; gilded, round shaped and rhomboid dress fittings; footwear fittings, square shaped belt fittings, a twisted wire bracelet, which was made of copper alloy, as well as shank buttons (*Fig. 3*). Together with the rich metal finds, a significant amount of textile

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<sup>1</sup> Most recently see: Kissné Bendefy, Márta – Petkes, Zsolt – Türk, Attila: Archaeological evidence for leatherworking in the Hungarian conquest period (Sárbogárd-Tringer-Tanya, Grave 33) (Újabb régészeti adatok a honfoglalás kori bőrművességhez [Sárbogárd-Tringer-tanya 33. sír]). In: *A népvándorlaskor fiatal kutatóinak XXIV. konferenciája Esztergom 2014. november 4–6*. II. Eds. Türk, Attila – Balogh, Csilla – Major, Balázs. *Studia ad Archaeologiam Pazmaniensiae* No. 3.2 – Magyar Őstörténeti Témacsoport Kiadványok 3.2. Budapest–Esztergom 2016, 499–522.

<sup>2</sup> Békési-Gardánfalvi, Magdolna – Hofmann, Tamás – Fehér, Sándor: Pásztázó elektronmikroszkóp energia-diszperzív röntgenanalizátorral (SEM-EDX) anyagvizsgálati módszer alkalmazhatósága régészeti textilek szál- és színezékvizsgálatában I (Application of the SEM-EDX method in analyzing colorants in archaeological textiles I). In: *ISIS. Erdélyi Magyar Restaurátor Füzetek* 17 (2017) 13–21.

<sup>3</sup> DDM ltsz.: 61770.643.01–82.

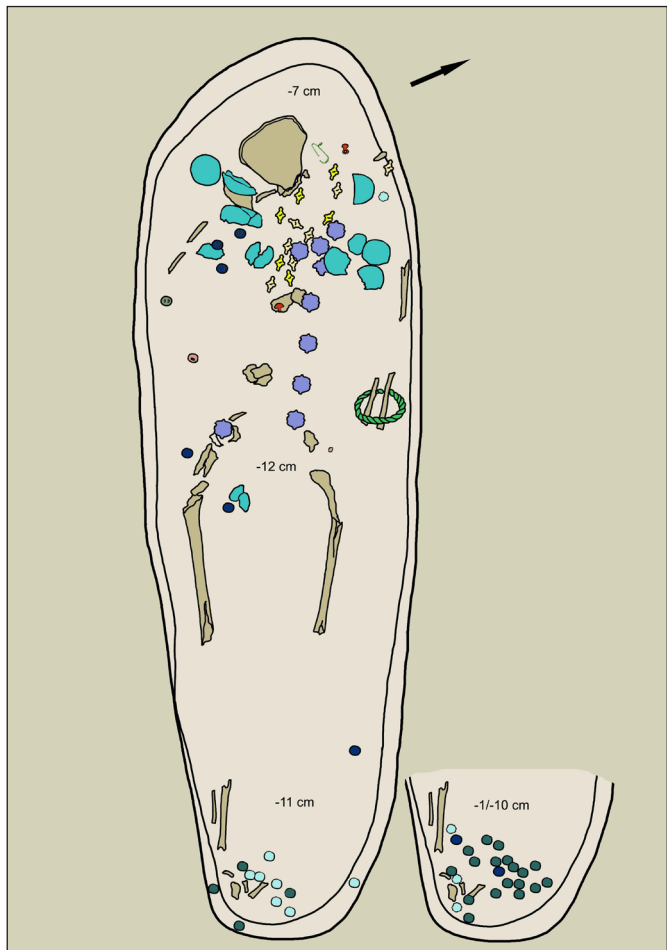


Fig. 1. Derecske–Nagymező-dűlő feature 643, drawing of the grave



Fig. 3. Selection from finds characteristic to the grave

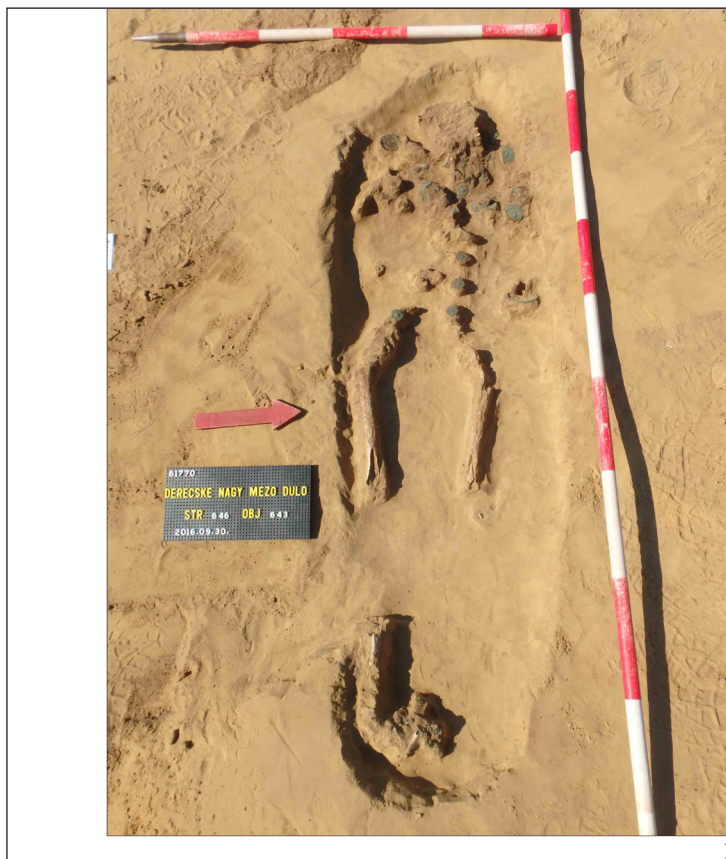


Fig. 2. Derecske–Nagymező-dűlő feature 643, photo of the grave

remains (16 pieces altogether) were also recovered from this 10<sup>th</sup>-century woman's grave.<sup>4</sup> Among them, there were also a few pieces of leather, which were corroded, found together with the silver fittings, as they had been soaked in metal salts. In processing the finds, the Archaeological Institute of the Pázmány Péter Catholic University was cooperating with the Center for Conservation and Conservation Training of the Hungarian National Museum.

### PREVIOUS RESEARCH ON 10<sup>TH</sup> AND 11<sup>TH</sup> CENTURY TEXTILE REMAINS

When discussing the archaeology of the Hungarian Conquest period, already the earliest studies presented evidence for textiles.<sup>5</sup> However, systematic research only began with the analysis of finds from the excavation at Szabadkígyós-Pálliget, directed by Csanád Bálint. For a long time, publications about this site – a series of studies in the proceedings of the County Museum of Békés<sup>6</sup> – remained the most important reference point regarding textiles from this period. As a conservationist Márta T. Knotik has continued the legacy of this research, when she started working on textile bands from the cemetery in Madaras. Her work set another important milestone for the research on textiles and dress reconstruction concerning the period of Conquest.<sup>7</sup>

Another groundbreaking step was done by a team of researchers (Katalin E. Nagy, conservationist, Ádám Bíró, Ádám Bollók, László Költő, Péter Langó and Attila Türk archaeologists), who comprehensively analysed the large textile piece which had been recovered from a (possibly solitary) grave in Fonyód. They produced the first reliable assessment on colorants used in the Hungarian Conquest period<sup>8</sup> and to this date the most comprehensive collection of textile finds from the Carpathian Basin was also published by this team (*Textile remnants in the archaeological heritage of the Carpathian Basin from the 10<sup>th</sup>–11<sup>th</sup> centuries*). Based on historical data, the authors comprehensively studied the use of silk in context of the Hungarian population and the period of the Conquest and found Eastern and Byzantine parallels, which was a significant contribution.<sup>9</sup>

### TEXTILE FINDS FROM FEATURE NO. 643 (GRAVE) AT DERECSKE-NAGYMEZŐ-DŰLŐ

Organic remains from the grave included textile fibers of both animal and plant origin, i.e. remains of composite weft fabrics (silk and linen). Similarly to other linen fragments found in 10<sup>th</sup> century graves, this piece of linen was also made from flax plant fibers.<sup>10</sup> Most of the textile pieces survived because they were

<sup>4</sup> When inventorizing the textile fragments, they were no separate finds no. registered with them, but they were simply referred under the number of the respective metal find. They were classified as follows: weft-knitted composite fabrics: DDM 61770.643.27., DDM 61770.643.28.; *samite*: DDM 61770.643.01., DDM 61770.643.26., DDM 61770.643.73., DM 61770.643.36.; *taqueté*: DDM 61770.643.07., DDM 61770.643.02., DDM 61770.643.09., DDM 61770.643.17.; small silk fragments observed on the fittings: DDM 61770.643.42., DDM 61770.643.20., DDM 61770.643.24.; linen: DDM 61770.643.17., DDM 61770.643.80; unidentified: DDM 61770.643.28.

<sup>5</sup> Hampel, József: A honfoglalási kor hazai emlékei: *A magyar honfoglalás kútfoi*. (Hungarian relics from the Conquest Era. Sources on the Hungarian Conquest) Eds. Pauler, Gyula – Szilágyi, Sándor (Magyar Tudományos Akadémia, Budapest 1900.)

<sup>6</sup> Bálint, Csanád: X. századi temető a szabadkígyósi-pálligeti táblában (Tenth century cemetery in the Pálliget plot of Szabadkígyós). *A Békés Megyei Múzeumok Közleményei* 1 (1971) 49–88; T. Knotik, Márta: A szabadkígyósi X. századi sírok textil-maradványainak vizsgálata (Examination of the textile remains of the 10th century cemeteries at Szabadkígyós). *A Békés Megyei Múzeumok Közleményei* 1 (1971) 105–114; Gulyás, Sándor: A szabadkígyós-pálligeti táblában feltárt X. századi sírok leleteinek botanikai elemzése (Botanical analysis of the finds excavated from the 10 th century graves in the Pálliget plot of Szabadkígyós). *A Békés Megyei Múzeumok Közleményei* 1 (1971) 115–126.

<sup>7</sup> Köhegyi, Mihály – T. Knotnik, Márta: A madarasi (Bács-Kiskun m.) honfoglaláskori temető textilpántjainak vizsgálata (Textile bands from the Conquest period cemetery at Madaras). *Cumania* 7 (1982) 191–200.

<sup>8</sup> E. Nagy et al.: Byzantine silk fragments from a tenth-century grave at Fonyód New data on a garment in the tenth-century Carpathian Basin. *Ars Decorativa* 27(2009) 21–49.

<sup>9</sup> Bollók et. al.: Textile remnants in the archaeological heritage of the Carpathian Basin from the 10th–11th centuries. *Acta Archaeologica Academiae Scientiarum Hungaricae* 60 (2009) 147–221.

<sup>10</sup> Bollók et. al.: Textile remnants in the archaeological heritage of the Carpathian Basin from the 10th–11th centuries. *Acta Archaeologica Academiae Scientiarum Hungaricae* 60 (2008) 154.

„protected” by the large silver discs placed on the upper body. Mainly due to their good preservation and the fast and professional conservation, the textile fragments could be separated from the disks and kept intact. At first it seemed at that the disc plates were used as braid discs, however, the analysis revealed that they had no rear plates – as braid discs would have. Nonetheless, the remains of the outer garment were observed on the back sides of the discs, and one could also observe that instead of faux rivet bumps<sup>11</sup> sewing holes were used to fasten the discs. Considering their large number, one could exclude the possibility that they were braid discs.

Among the textile remains, there are examples for both types of weft-knitted composite structures, i.e. twill weave fabrics (*samite*), which were dominant among the textile materials in the period of the Hungarian Conquest (*Fig. 5*), and plain weave fabrics (*taqueté*) (*Fig. 4*). Both types were woven on drawlooms, and this technology spread throughout the territory of the Roman Empire from the 3<sup>rd</sup> c. on and became common also in Byzantine workshops later.<sup>12</sup>

The *taqueté* technique – observed first at Tarpa and then at Derecske – can be evidenced already in the Late Antique Period in the Eastern Mediterranean, however, for textiles made primarily of wool.<sup>13</sup> In regard to the period under study, polichrome silk *taqueté* finds are known only from Iran.<sup>14</sup> From the Northern Caucasus (published from Moschevaja Balka),<sup>15</sup> we know also of undecorated silk fragments (of Chinese origin), which had been prepared with a similar technique.

On one of the *taqueté* fragments from Derecske, a small geometric pattern (*Fig. 6*) could be observed, which is a very rare occurrence in the period of the Hungarian Conquest. A fragment with similar decoration was found the last time in 1875 at Nagyteremia (brought in by a local wine-grower).<sup>16</sup> On the fragment from Derecske, two colors were identified: blue and red. These were popular colors in our period, but since organic colorants decompose, they can be very rarely observed.<sup>17</sup> In case of Byzantine textiles, the most common colorant was madder (*Rubia tinctorum*), which is attested by chemical analysis,<sup>18</sup> however, the so called fake crimson color could be also produced when mixing madder with other plants containing indigotine.

Some of the silk fragments were found underneath the square shaped fittings of the belt (*Fig. 7*). Their positions on the body – similarly to what has been observed in case of the Karos cemetery (also dating from this period) – suggest that the belt was not hanging from the waist, but it was folded up to the shoulder (*Fig. 1*).<sup>19</sup>

<sup>11</sup> We thank hereby Ádám Strohmayr, silversmith, for the above observations. The use of faux rivet bumps instead of real ones is yet another technique of decoration, which developed from originally functional elements.

<sup>12</sup> Bollók et. al.: Textile remnants in the archaeological heritage of the Carpathian Basin from the 10<sup>th</sup>–11<sup>th</sup> centuries. *Acta Archaeologica Academiae Scientiarum Hungaricae* 60 (2008) 153; K. Burnham, Dorothy: *A Textile terminology. Warp and Weft*. (Routledge & Keagan Paul, London and Henley, 1980) 180.

<sup>13</sup> Petra Linschied: *Die frühbyzantinischen Textilien des Römisch-Germanischen Zentralmuseums* (Verlag des Römisch-Germanischen Zentralmuseums, Mainz 2016) 20, 131–132. Similar textile remains from the 4<sup>th</sup>-5<sup>th</sup> century are in the collection of the Museum of Applied Arts, Budapest (inv. nos 52.3534.1 and 8626). A piece of Egyptian wool *taqueté*, presumably dateable to the the 10<sup>th</sup>-12<sup>th</sup> century, is also held by the same museum (inv. no. 8627a–b).

<sup>14</sup> <http://www.clevelandart.org/art/1975.45> (last accessed 28.11.2018)

<sup>15</sup> Bollók et. al.: Textile remnants in the archaeological heritage of the Carpathian Basin from the 10<sup>th</sup>-11<sup>th</sup> centuries. *Acta Archaeologica Academiae Scientiarum Hungaricae* 60 (2008) 155. One may often observe in case of textiles that the appearance of a new material is followed by the emergence of a new technique. This may have been the case with the *taqueté*, as after they had started to use the silk as a raw material, the *samit* weaving appeared and replaced it. See further: John Becker: *Pattern and loom. A practical study of the development of weaving techniques in China, Western Asia and Europe* (Rhodos, Copenhagen 1987), 123.

<sup>16</sup> Hampel, József: A honfoglalási kor hazai emlékei: *A magyar honfoglalás kútjövi*. Eds: Pauler Gyula – Szilágyi Sándor (Magyar Tudományos Akadémia, Budapest 1900), 668.

<sup>17</sup> Most recently, in 2009, the colorants of silk textiles found at Fonyód were identified by E. Nagy et al.: Byzantine silk fragments from a tenth-century grave at Fonyód: New data on a garment in the tenth-century Carpathian Basin. *Ars Decorativa* 27 (2009) 25.

<sup>18</sup> Anna Muthesius: *Byzantine Silk Weaving AD 400 to AD 1200* (Verlag Fassbaender, Wien 1997) 29–31.

<sup>19</sup> Révész, László: *A karosi honfoglalás kori temetők. Régészeti adatok a Felső-Tisza-vidék X. századi történetéhez. (Die Gräberfelder von Karos aus der Landnahmezeit. Archäologische Angaben zur Geschichte des oberen Theißgebietes im 10. Jahrhundert)* (Miskolc 1996) 26.

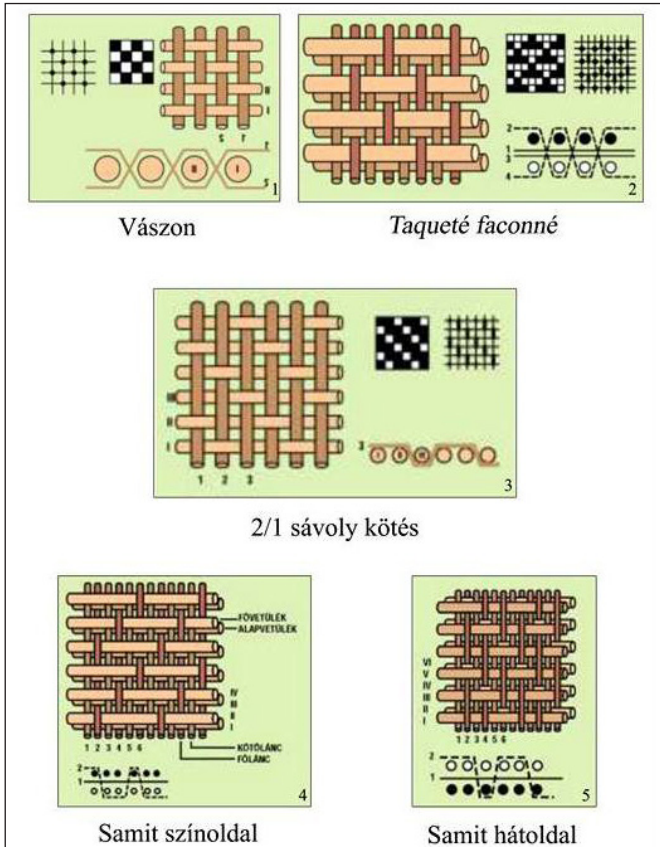


Fig. 4. Synopsis of knittings of the textile finds of the period of Hungarian conquest



Fig. 5. Samit fragment from the grave at Derecske

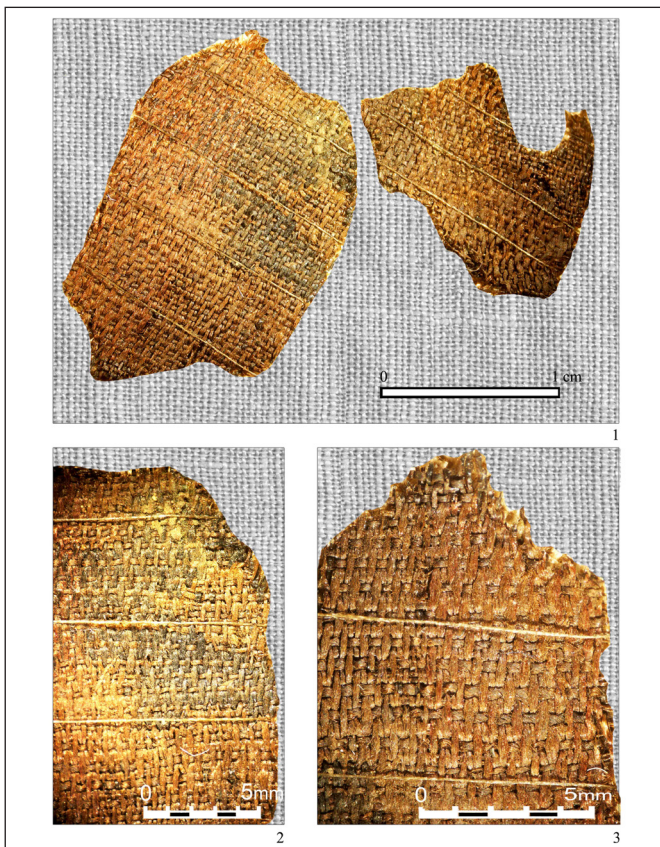


Fig. 6. Fragment of patterned and polychrome taqueté from the grave at Derecske

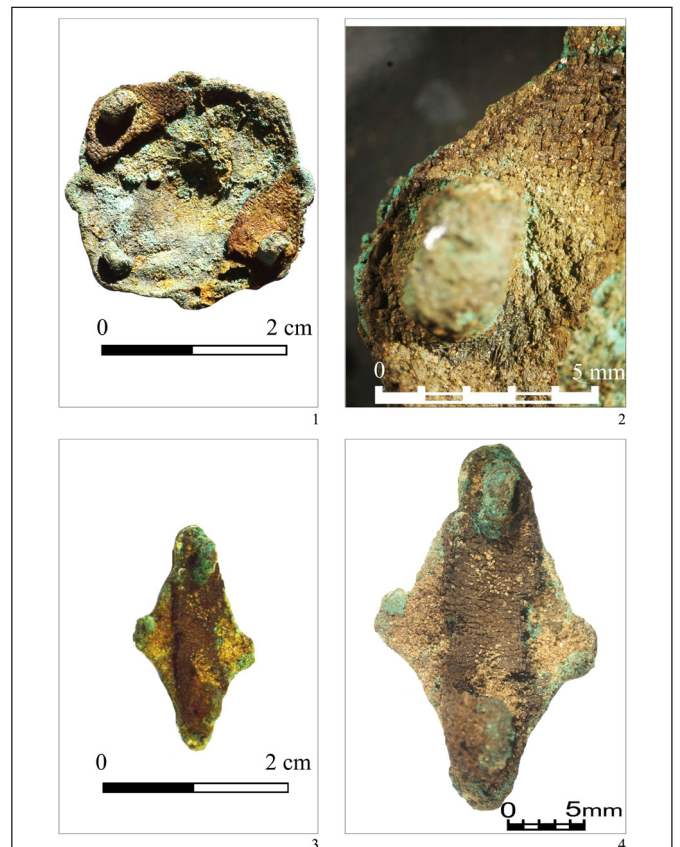


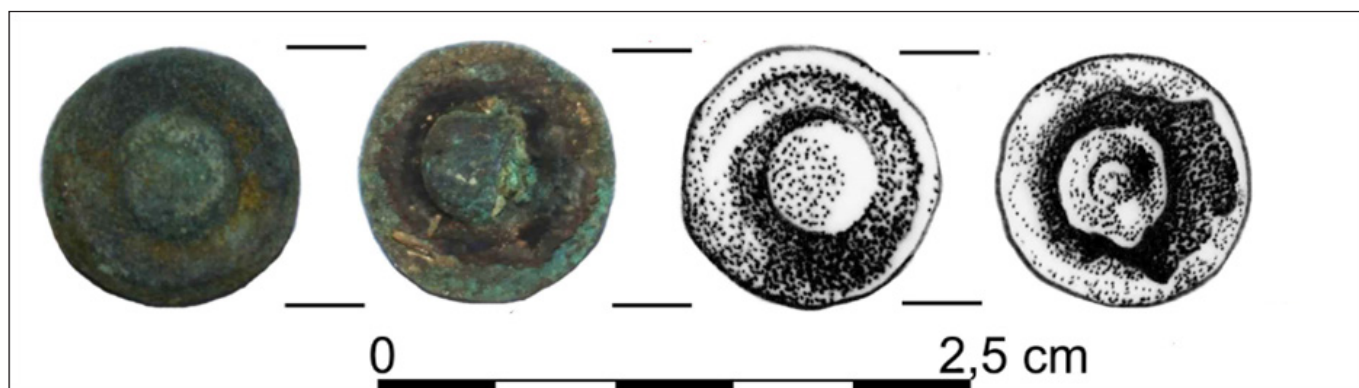
Fig. 7. Silk fragment observed on the back-side of a rectangular belt fitting and a rhombic shaped raiment fitting

Other dress accessories found – i.e. the rhomboid and round shaped fittings – were likely decorating the undergarment. On the back side of one of the rhomboid pieces there was also a small piece of silk preserved (*Fig. 7*), which suggests that silk had a role also in the design of the undergarment. Theoretically, there are two possibilities: silk was used only for the hem of the garment, or for the whole garment. Among the archaeological finds from the Carpathian Basin, dating from the period of the Hungarian Conquest, there are examples for both and there are also other parallels from Eastern Europe and from the Northern Caucasus region in the 8<sup>th</sup> to 10<sup>th</sup> centuries.<sup>20</sup>

The same points apply to the upper garment, fragments of which were of a different type of silk, preserved on the back sides of the silver alloy discs. A piece of linen remained on the front side of one of the discs, which suggests that the whole upper garment was made probably of linen, and only the hem of the garment was silk. The discs were fitted on the hem with sewing holes punched through the plates.

### NEW DATA TO THE RESEARCH ON 10<sup>TH</sup> CENTURY FOOT-GEARS

The very small (only a few millimeters large) piece of textile that preserved on the back side of one of the fittings of the foot-gear is particularly important (*Fig. 8.*), as it demonstrates that foot-gears were also lined with silk. Silk lined foot-gears (without fittings) are known from Sogdiana and China, dating from the 8<sup>th</sup> to 10<sup>th</sup> centuries.<sup>21</sup> From the region of the Caucasus, however, we only know of such footgear, of which certain parts – i.e. the edges or the upper part – were lined, but not the top of the feet.



*Fig. 8. Silk fragment observed on the back-side of a footgear fitting*

Regarding finds from the Conquest period associated with the Hungarian population, the lining and decorating of shoes with silk is not unprecedented. It has been documented and observed in detail by Ukrainian archaeologists in case of Grave 2 at Dmitrievka, which is one of the Subbotsi-type sites associated with the Hungarian settlement in Etelköz.<sup>22</sup> The tiny fragment from Derecske demonstrates that even the smallest piece of organic remain can be extremely informative. Therefore, a great deal of attention is required when excavating graves and professional conservation is also indispensable – best done by a conservator, who is ideally on site and also takes part in the excavation of the graves.

<sup>20</sup> For an example of a 10<sup>th</sup> century dress completely made of silk see: E. Nagy et al.: Byzantine silk fragments from a tenth-century grave at Fonyód New data on a garment in the tenth-century Carpathian Basin. *Ars Decorativa* 27 (2009) 34–36; fragments of a linen dress with silk hem were found in the Madaras cemetery, see more on this: Köhegyi Mihály – T. Knotnik, Márta: A madarasi (Bács-Kiskun m.) honfoglaláskori temetőtextilpántjainak vizsgálata (Textile bands from the Conquest period cemetery at Madaras). *Cumania* 7 (1982) 191–200. Both variants are known from Alan cemeteries in the Northern Caucasus region: Иерусалимская, А. А.: *Мошевая Балка* (Санкт-Петербург 2012) Ил. 54а, Ил. 116.

<sup>21</sup> Watt, J. C. Y. – E. Wardell, A.: *When Silk Was Gold. Central Asian and Chinese Textiles* (The Metropolitan Museum of Art, New York 1997). Another similar piece is preserved in China: *Pair of Woman's Boots with Tying Ribbon* (<https://www.artic.edu/artworks/153627>, last accessed: 2018.10.28). The piece from Sogdia showed up at an auction of Sotheby's a few years ago. Currently, however, it cannot be traced – it is perhaps in a private collection.

<sup>22</sup> Маєвська, С. В.: Залишки текстильних виробів з давньоугорських поховань неподалік с. Дмитрівки на Нижньому Пселі. In: *Мадари в Середньому Подніпров'ї*. Археологія і давня історія України 7 (2011) 125–129.

## RADIOCARBON AND ARCHAEOLOGICAL DATING OF THE DERECSEKE GRAVE

<sup>14</sup>C analysis of the human remains has been done in the research lab of the Hungarian Academy of Sciences in Debrecen (MTA ATOMKI) (Fig. 9). Unfortunately, the date of death of the individual could be only broadly defined, on the basis of the „plateau” of the calibration curve ranging over the period of the 9<sup>th</sup> century. There is, however, a 93,5 % probability that the individual was interred before 895 AD. Based on the two-sigma values, a probable period would be the years between 925 and 940 AD, thus, it is possible to argue that the grave belongs to the first generation, however, the results should be corroborated by the radiocarbon dating of the other two graves. The early date seems to fall in line with the dating of other (10<sup>th</sup> century) graves with textiles, including those associated with the Subbotsi horizon. Yet, this result contradicts the suggestion of Csanád Bálint, who argued that Hungarians had access to silk transports only from the 950s, when trade contacts also began to intensify due to Byzantine Christian missions<sup>23</sup>

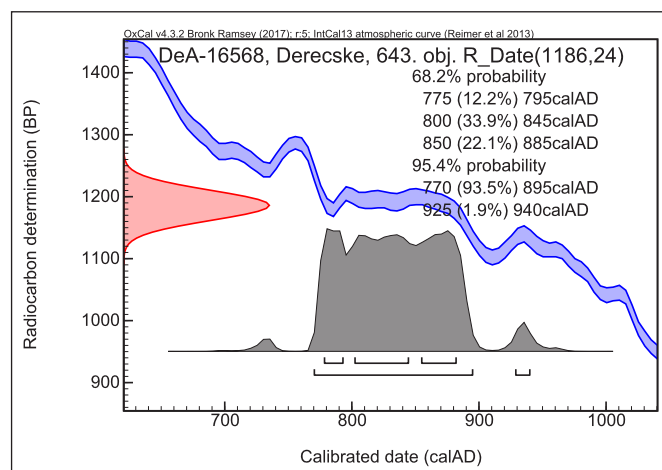


Fig. 9. Result of calibrated radiocarbon dating of the grave at Derecske

## SUMMARY

The above discussed finds from the grave of a female individual in Derecske match well with our current knowledge of the period. We know of more than a hundred textile finds from the 10<sup>th</sup> century and the number of silk finds already stands out. On the other hand, similarly to the Derecske grave, one could frequently observe different types of textiles in the same grave. The colorful and patterned silk fabrics and other textiles correspond to the description in written sources about the conquering Hungarians. On the basis of the available archaeological finds, however, it seems likely that the use of silk was even more widespread than suggested earlier. Byzantine sources point to the function of this colorful and popular textile as a measure of value.<sup>24</sup>

Parallels of the *taqueté* fabric found in Derecske are known from Iran. This type of silk was much less common than *samite*.<sup>25</sup> In case of wool textiles, *taqueté* fabric occurs more frequently, but such finds date primarily to the Late Antique Period.<sup>26</sup> Whereas silk finds (predominantly *samite*) can be evidenced throughout the whole Europe, *taqueté* silk remains absent in Western Europe or among the famous Viking finds in Northern Europe.<sup>27</sup> All this suggests that Hungarians had access to different

<sup>23</sup> Bálint, Csanád: X. századi temető a szabadkígyósi-pálligeti táblában (Tenth century cemetery in the Pálliget plot of Szabadkígyós). *A Békés Megyei Múzeumok Közleményei* 1 (1971) 73.

<sup>24</sup> One may rely here primarily on data from the Book of the Eparch.

<sup>25</sup> *Taqueté* fragments dating from the 10th to 12th centuries are currently preserved at the Cleveland Museum of Arts. Cf. *Taqueté fragments with winged lions in roundels, 899–1160* ([http://www.clevelandart.org/art/1975\\_45](http://www.clevelandart.org/art/1975_45), last accessed 2018. 10. 28).

<sup>26</sup> Becker, John: *Pattern and Loom. A practical study of the development of weaving techniques in China, Western Asia and Europe* (Rhodos International Publishers, Kopenhagen 1986) 85–88; 108–109; Linschied, Petra: *Die frühbyzantinischen Textilien des Römisch-Germanischen Zentralmuseums* (Verlag des Römisch-Germanischen Zentralmuseums, Mainz 2016) 19–20. Apart from this, *taqueté* textiles are known from Moschevaja Balka, but these are undecorated – probably made in China or in East Turkestan: Bollók et. al.: Textile remnants in the archaeological heritage of the Carpathian Basin from the 10th–11th centuries. *Acta Archaeologica Academiae Scientiarum Hungaricae* 60 (2008) 156.

<sup>27</sup> The most comprehensive work on Viking textiles does not include such type of silk. Cf. Vedeler, Marianne: *Silk for the Vikings* (Oxbow Books, Oxford–Philadelphia 2014). One of the most notable experts on silk, who surveyed medieval textiles in Western Europe does not mention any evidence regarding the 10th century use of this type of silk fabric. See: Muthesius, Anna: *Studies in Byzantine and Islamic Silk Weaving* (The Pindar Press, London 1996).

source(s) of silk in the 10<sup>th</sup> century – as there is no way that this material could be taken as booty from the western raids.<sup>28</sup>

The new finds also illustrate similarities with well-known 8<sup>th</sup>–10<sup>th</sup> century finds from the Northern Caucasus region, thus, one may use these assemblages more confidently (yet, still with some reservations) as parallels when studying the very fragmentary textile remains from the Conquest period and reconstructing dress. There is solid archaeological proof that the eastern contacts of the Hungarians settling in the Etelköz remained uninterrupted following the 895 conquest of the Carpathian Basin. Since post-Subbótsi horizons can be observed in various 10<sup>th</sup> century assemblages in Eastern Europe – from the Volga to the Dniester, and from the Rus to the Northern Caucasus –,<sup>29</sup> the broader Eastern European context should not be ignored when analyzing textiles from the Conquest period and interpreting the historical background.

### ACKNOWLEDGMENTS

The authors wish to thank József Hoffmann (Salisbury Ltd.) and János Dani (Déri Múzeum, Debrecen) for the excavation of the Derecske grave and for the coordination of the project, as well as Krisztina Szabó (Salisbury Ltd.) for the professional conservation of the textile remains. The analysis of the finds was carried out by Anna Zsámbéki (Center for Conservation and Conservation Training of the Hungarian National Museum) and we would like to offer our special thanks also to Andrea Várfalvai for the microscopic analysis of the fabrics. For the calibration of radiocarbon dates, we thank Krisztián Oross (Archaeological Institute of the Hungarian Academy of Sciences), and for the illustrations, Edit Ambrus.

The research has been financed by the TÁMOP 4.2.4. A/1-11-1-2012-0001 „Nemzeti Kiválóság Program”, the Bolyai+ (ÚNKP-18-4-PPKE-25) Fellowship Program, and by the MÖT 28.317/2012 project of the Hungarian Academy. The present study was supported by the János Bolyai Fellowship Program of the Hungarian Academy.

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<sup>28</sup> In case of the Fonyód find, a connection to the Italian raids is possible, considering the results of radiocarbon dating and the coin found in the grave. See more on this: E. Nagy et al.: Byzantine silk fragments from a tenth-century grave at Fonyód: New data on a garment in the tenth-century Carpathian Basin. *Ars Decorativa* 27 (2009) 21–49.

<sup>29</sup> *Olekszj Komar: A korai magyarság vándorlásának történelmi és régészeti emlékei* (Historical and archaeological traces of the migration of ancient Hungarians (Magyars)) *Studia ad Archaeologiam Pazmaniensia* 11. – Magyar Őstörténelmi Témacsoport Kiadványok 5. Szerk.: Türk A. – Budai D. (Budapest 2018) 202–237.



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