

TEXTILE AND FUR REMAINS IN GRAVE 6, TUMULUS 1, FROM PLEŠKA HOSTA AT MOLNIK

OSTANKI TEKSTILA IN ŽIVALSKIH DLAK (KRZNA) V GROBU 6 GOMILE 1 V PLEŠKI HOSTI NA MOLNIKU

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INTRODUCTION

The surviving material culture from the Early Iron Age in Europe is varied. The discussions, however, on grave finds usually comprises artefacts made of clay, stone and metal. Organic materials such as textiles, leather or fur also played a major role in the funeral rites of this period. In the last few decades, studies on organic finds increased, especially in Germany, Switzerland and Austria; some finds from Slovenia have also been recorded so far. The discussion of a find from the site of Molnik near Ljubljana, in central Slovenia, adds important information to our basic knowledge of textile culture in the Eastern Hallstatt area. The find can also be discussed as an expression of status and representation.

TEXTILE REMAINS IN THE GRAVE

Grave 6 is the central grave in Tumulus 1 at Pleška hosta at the site of Molnik (see Chapter 5, Figs. 63 and 65 in this volume). On the bottom of a recent cut (deep 0.80 m) into the centre of tumulus a limestone slab was found encircled by small stones of white and brown sandstone. The slab covered a rectangular grave pit (length 1.40 m; width 0.80 m; depth 0.60 m) that was cut into the sandstone bedrock. The pit was lined with stones and wood (see Fig. 71 in this volume). It was filled with burnt material and small pieces of cremated human bones. The grave goods and the anthropological analysis indicate a cremation burial of at least two persons, a man and a woman. It dates to the beginning of the Early Iron Age (end of 8th century BC).

The object of the interdisciplinary research is a piece of textile attached to a fragment of an iron (two-looped) fibula with a knobbed bow (Inv. No. 4034) that was found in Grave 6. It measures 7 cm in length, 3.4 cm

in width and about 1.2 cm in bow thickness (see Fig. 72 in this volume). Grave 6 also contained other finds including the remains of ceramic situlae and dishes with an inturned rim (see Pl. 40 and 41 in this volume), and fragmented gilded bronze tubes (Fig. 73 in this volume) placed beside the fragment of the iron fibula (Fig. 72) with a piece of mineralized textile and cremated bone remains. There are also a broken iron knife and a bronze winged axe. Even a spinning tool was found in the grave, a globular ceramic spindle whorl. The finds were damaged and also found around the grave, in secondary position, in and above the grave pit. It is assumed that the grave was robbed (Pleška hosta grave plan, Figs. 63 and 65).

THE IRON FIBULA WITH ORGANIC LAYERS

The fragmented iron object under Inv. No. 4034 (Fig. 72) was found covered with multiple organic layers (Fig. 1). At first glance, the mineralised objects are difficult to identify, but through various macro- and microscopic methods some basic information was gained. On one side there are two layers of a textile, and fur can also be identified due to the typical structure (animal hair fibres in tufts).

The stratigraphic position of the textile remains holds important potential for their interpretation. This step of the analysis is called “micro-stratigraphy”. The fur is in direct contact with the iron object, while the textile layers cover the fur (Fig. 1).

Further analyses examined the textile itself. The weave type is recorded as well as technical details (see Walton and Eastwood 1988) such as thread count, yarn diameter, use of plied or single yarn, twist direction (s or z) and weaving errors (see Fig. 2 and Tab. 1). Such measurements of technical details of the textile were

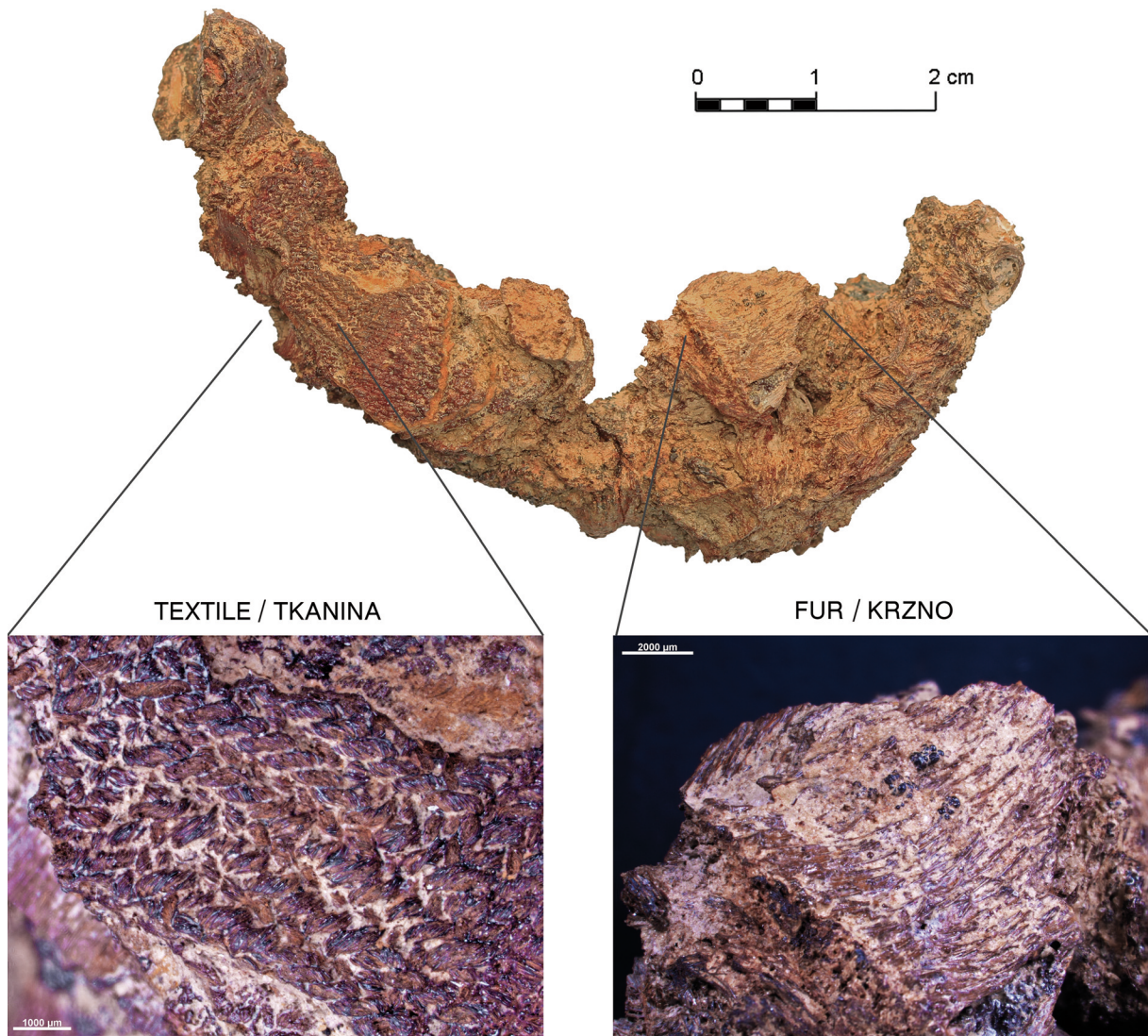


Fig. 1: Two layers of organic material on the iron fibula:
the inner layer consisting of fur, the next layer is fine zigzag twill (see Fig. 2).

Sl. 1: Dve plasti organske snovi na železni fibuli:
notranja plast je krzno, zgornja je fina tkanina v vezavi koničastega kepra (glej še sl. 2).
(Photo / Foto: D. Valoh, Iza ZRC SAZU. Microphotos / Mikrofotografije: A. Kroh, NHMW).

	Thread system 1 / nitni sistem 1	Thread system 2 / nitni sistem 2
Yarn/plied yarn / preja/sukana preja	Yarn / preja	Yarn / preja
Twist direction / smer vitja	s, z	s, z
Twist angle / kot vitja	40–50°	30–40°
Thread thickness / debelina niti	0.2 mm	0.2 mm
Thread count (threads per cm) / gostota niti (niti na cm)	28–30	30–32

Tab. 1: Technical details of the zigzag twill (© K. Grömer, NHMW).
Tab. 1: Tehnični parametri tkanja v vezavi koničastega kepra (© K. Grömer, NHMW).

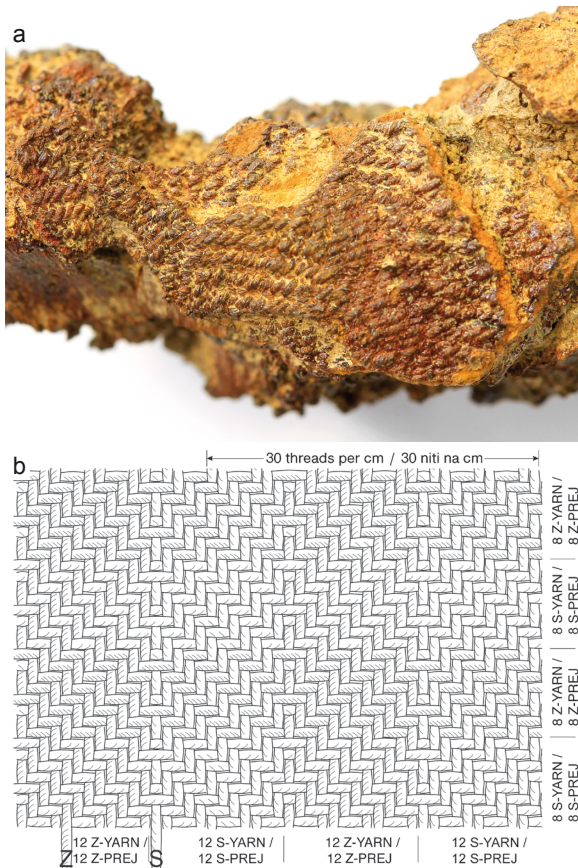


Fig. 2: a – Microphoto of textile remains on a fibula; b – technical drawing of the zigzag twill and spin pattern.

Sl. 2: a – Mikrofotografija tekstilnih ostankov na fibuli; b – shematski prikaz vezave in vzorčenja s pomočjo preje različnih smeri vitja. (Photo / Foto: D. Valoh, Iza ZRC SAZU; Drawing / Risba: © K. Grömer, NHMW).

carried out with the DinoLite Digital Microscope and light microscope (Zeiss SteREO DiscoveryV20). There is no colour information because of the mineralised conditions of the artefact. Nevertheless, it is possible to identify pattern types which are based on floating threads or differences in thread twist direction. Also seams and hems could be studied when surviving on the small fragments.

The textile from Molnik can be described as a very fine zigzag twill (other term: lozenge twill with point repeat), as can be seen on the technical drawing (Fig. 2, Tab. 1). The thread thickness and thread count are listed in Table 1. In the overall appearance the textile from Pleška hosta Grave 6 is of a very fine and well balanced kind with a dense surface.

The colour is now rust-brown due to the preservation conditions as a mineralized item on an iron object. The textile itself covers an area of about 3.2 x 1.2 cm of

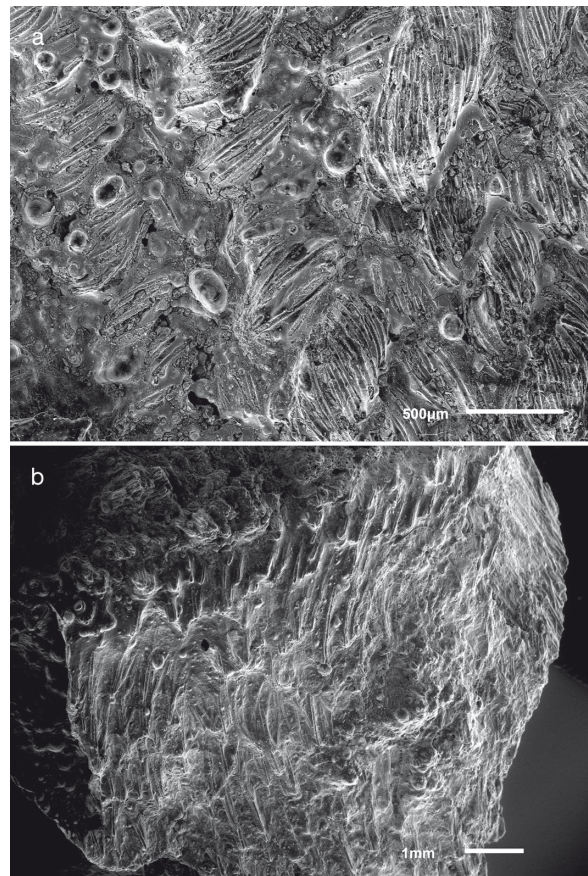


Fig. 3: a – Textile surface, covered with consolidants; b – fur (also see Fig. 1)

Sl. 3: a – Površina tekstilne najdbe, prepojena z utrjevalci ali stabilizatorji; b – ostanek krzna (glej tudi sl. 1). (SEM photos / SEM fotografije: D. Topa, Central Research Labs, NHMW).

the iron object. No selvedge survived and it is therefore not possible to identify warp and weft of the woven fabric. To differentiate the horizontal and vertical threads, they are named thread system 1 and thread system 2.

As already mentioned, the weave type of the textile can be identified as zigzag twill; the count repeat of the zigzag structure seems to follow a regular scheme, it changes after each 12 threads (see Fig. 2).

Additionally, a specific pattern type can be recognized – spin patterning, which is a sophisticated tone-on-tone pattern. By arranging alternating groups of s- and z-twisted yarn in a textile, a striped pattern is visible under appropriate lighting. The use of such alternating groups of threads in both warp and weft would result in a fine checked pattern. On the Pleška hosta find, spin pattern is visible in both thread directions (thread systems 1, 2 in Tab. 1). In direction of the zigzag twill it follows the repeat of the twills: 12 s- and 12

z-yarns (thread system 1) were taken alternately. In the other direction the spin pattern is a change of 8 s- and 8 z-yarns each (thread system 2).

NOTES ON CONSERVATION TREATMENTS

Organic materials such as textiles, leather or wood usually disintegrate when buried in the soil, because of the wet and unstable climate conditions in Central Europe. Under favourable conditions, textiles can survive as tiny fragments on artefacts of metal, such as bronze, iron or silver. After excavation, they are very fragile and they have to be treated with various conservation methods to stabilize them. In that case it is of importance to notice that analysis of micro-structures like fibre analysis should be performed before the surface of the object is covered by consolidants.

For Molnik, we attempted to analyse the fibres with a Scanning Electron Microscope (JEOL, JSM-6610LV) at the Central Research Laboratories, Natural History Museum Vienna, but were not successful (see *Fig. 3*). The problem was that the iron object was excavated in 1996 and subsequently treated with unknown consolidants during conservation activities at the museums in Ljubljana (the City Museum and the National Museum of Slovenia). The SEM images demonstrate that the consolidants built a layer with a bubbly surface (see *Fig. 3*) covering the organic material making detailed fibre analyses impossible (see *Figs. 1* and *3*).

DISCUSSION

COMPARABLE FINDS

We have a good overview of the textile finds from the graves of the Hallstatt culture. From Germany we know of outstanding items deriving from aristocratic graves such as those at Eberdingen-Hochdorf (Banck-Burgess 2012), Swiss and Austrian finds have also been published in recent years (Rast-Eicher 2008; Grömer 2012). Additionally there are catalogues of the grave finds from the Eastern Hallstatt culture: Hungary, Slovenia (Banck-Burgess 1999, 222–223; Bender Jørgensen 2005, 140–145; Kavkler 2016), the Czech Republic and Slovakia (Belanová-Štolcová 2012, 310–311). They allow us to understand the textile types and qualities used in Central Europe between 800 and 400 BC and how the Pleška hosta find compares.

The textile attached to the iron fibula from Grave 6 at Pleška hosta is a zigzag twill with a spin pattern. Generally, twill and twill variants are among the most common types in the Early Iron Age, but there are distinct differences between the Eastern and the Western Hallstatt cultures (Bender Jørgensen 2005, *Fig. 1*). In

the west, especially in southern Germany and Switzerland, fine twills were usually woven with plied yarn in one thread system and a single yarn in the other. In the east, e. g. eastern Austria, Hungary and Slovenia, a textile type with a single yarn, twill and spin pattern is the most characteristic. In this light, the Molnik textile is a perfect example of the textile production in the Eastern Hallstatt culture. Nevertheless, it is outstanding in its quality. The Molnik textile is among the very fine specimens of woven fabrics known from the Hallstatt period. The threads are finely and regularly spun, as the measurements of 0.2 mm demonstrate. Also the density of the web, counted as threads per cm, point in the same direction. The fabric is quite balanced, both thread systems have more or less the same thread count which lies between 28 and 32 threads per cm.

There are only a few twill textiles from the Hallstatt culture of such quality – no others are currently known from Slovenia (Bender Jørgensen 2005, 143–145, and *Fig. 7*). The finest twill from Vače has a thread count of 20 by 22 threads per cm. On a belt plate from Magdalenska gora, Grave 57, a twill is attached with 20 threads per cm in both directions (Bender Jørgensen 2005, Cat. Nr. 114 and 98).

A comparison with the organic textile finds from the salt-mine at Hallstatt (Grömer et al. 2013, catalogue, e. g. HallTex 50, 69, 71, 72, 74, 90, 91, 198) may demonstrate what the Molnik textile looked like before it ended up as a mineralized and corroded item attached to an iron fragment (*Fig. 4*). Nevertheless, as can be seen in the graph, only a few of the finest twills from Hallstatt reach this fineness (also see Grömer et al. 2013, *Fig. 20*).

The Molnik textile is among the highest quality products of the Hallstatt period. In this context it is important to understand that textile work is very time-consuming (Grömer 2016, 134, 444). The finer the threads and the higher the number of threads per cm are, the more time is needed to spin and weave the item.

FUNCTION OF TEXTILES IN GRAVE CONTEXTS

We know various textiles from the Early Iron Age cemeteries, but not all of them belonged to the garments of the deceased. Even in graves, woven fabrics served various functions. Often, textiles were used as wrappings of grave goods or even as covering of the cremated bones (see e. g. Gleba 2014; Grömer 2016, 296–302). From Eberdingen-Hochdorf wall hangings and floor covers have also been identified (Banck-Burgess 2012).

From an interpretative perspective, there are distinct differences between inhumation and cremation graves. For example, a textile found on an iron belt plate located in the pelvic area of a skeleton may have belonged to a garment that was belted. A similar textile



Fig. 4: Comparison between the Molnik textile (in the centre) with twills from Hallstatt salt-mine (different colours, patterns and qualities). All objects at the same scale, each box is a 2 x 2 cm detail of an original find (© K. Grömer, NHMW).

Sl. 4: Primerjava tekstila z Molnika (v sredini) s tkaninami v keprovi vezavi (koničasti in križasti keper) iz rudnika soli v Halls-tattu (razlike v barvi, vzorcih in kvaliteti). Vsi predmeti so v merilu, vsak razdelek prikazuje 2 x 2 cm detajl originalne tekstilne najdbe (© K. Grömer, NHMW).

on an iron plate from a cremation grave cannot primarily be identified as a garment. In that case it is more likely that the textile was a wrapping for the iron object.

The Molnik find – a fragment of an iron fibula – was placed in the grave beside pottery, a bronze axe, an iron knife (see *Pls. 40, 41*) and gilded bronze tubes (*Fig. 73*). Some fur was attached to the iron object and a very fine twill textile served as the outer layer. As it was found in

a cremation grave, the textile could have been a cover or wrapping for the iron object. It is also possible that the textile was part of a burial gift, a piece of cloth or garment, deposited along with the other objects (like pottery and other items) and was accidentally placed on the iron object and the piece of fur (see *Fig. 1*).

Whatever it was, it is proof that textiles and fur played a role in funeral rites.

CONCLUSION

The textile specialist Lise Bender Jørgensen (2005, 143–145) lists 40 textile finds from the Hallstatt period cemeteries in Slovenia. To those sparse finds we can add the organic material found in the Pleška hosta cemetery at Molnik, which is important for our understanding of contemporary material culture. The textile from Tumulus 1/Grave 6 is a twill, woven with a single yarn and spin pattern and thus comparable to other textile finds from the same period and region. The fine threads, the spin pattern and the balanced, regular appearance points to a skillful person who made it.

In general textiles – similar to other items of material culture from the Hallstatt period – served basic needs as well as representative ones. Grave finds are an especially good hint of such behaviour. A good example is the princely tomb at Eberdingen-Hochdorf, where golden jewellery and prestigious objects like a huge bronze vessel and a bronze *kline* were found (Biel 1985). The textiles in this grave (Banck-Burgess 2012) also fit the picture of a high status person. High quality textiles,

some of them dyed with precious dyestuffs such as insect dyes, also time-consuming, and elaborated tablet woven bands are also representative.

It is difficult to understand the value of textiles in the Iron Age (see e. g. Grömer 2016, 443–444), but in the case of Molnik it has to be stated that the fineness and quality of the item is outstanding. Even the amount of time needed to make such a fine textile with 30 threads per cm is higher than for an average quality textile. The fine quality, the spin pattern and the advanced twill type (diamond twill) place the fabric from Molnik among the extraordinary ones within the Hallstatt culture.

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- BANCK-BURGESS, J. 1999, *Hochdorf IV. Die Textilfunde aus dem späthallstattzeitlichen Fürstengrab von Eberdingen-Hochdorf (Kreis Ludwigsburg) und weitere Grabtextilien aus hallstatt- und latènezeitlichen Kulturgruppen*. – Forschungen und Berichte zur Vor- und Frühgeschichte in Baden-Württemberg 70.
- BANCK-BURGESS, J. 2012, *Instruments of Power. Celtic Textiles / Mittel der Macht. Textilien bei den Kelten*. – Stuttgart.
- BELANOVÁ-ŠTOLCOVÁ, T. 2012, Slovak and Czech Republic. – In / V: M. Gleba, U. Mannering (eds./ur.), *Textiles and Textile Production in Europe from Prehistory to AD 400*. – Ancient Textiles Series 11, 306–333.
- BENDER JØRGENSEN, L. 2005, Hallstatt and La Tène Textiles from the Archives of Central Europe. – In / V: P. Bichler et al. (eds./ur.), *“Hallstatt Textiles” Technical Analysis, Scientific Investigation and Experiment on Iron Age Textiles*, British Archaeological Reports Int. Series 1351, 133–150.
- BIEL, J. 1985, *Der Keltenfürst von Hochdorf*. – Stuttgart.
- GLEBA, M. 2014, Wrapping Up for Safe Keeping: “Wrapping” Customs in Early Iron Age Europe. – In / V: S. Harris, L. Douny (eds./ur.), *Wrapping and Unwrapping Material Culture*, Institute of Archaeology Publications 64, 135–146.
- GRÖMER, K. 2012, Austria: Bronze and Iron Ages. – In / V: M. Gleba, U. Mannering (eds./ur.), *Textiles and Textile Production in Europe from Prehistory to AD 400*, Ancient Textiles Series 11, 27–64.
- GRÖMER, K. 2016, *The Art of Prehistoric Textile Making. The development of craft traditions and clothing in Central Europe*. – Veröffentlichungen der Prähistorischen Abteilung 5, Vienna.
- GRÖMER, K., A. KERN, H. RESCHREITER, H. RÖSEL-MAUTENDORFER (eds./ur.) 2013, *Textiles from Hallstatt. Weaving Culture in Bronze and Iron Age Salt Mines*. – *Archaeolingua* 29, Budapest.
- KAVKLER, K. 2016, Naravoslovne preiskave ostankov tkanine na železnem suličnem kopitu z najdišča Čadrg-Laze I. – In / V: M. Mlinar, M. Turk, *Prapoti skozi praproti, Arheološka topografija dolin Tolminke in Zadlaščice*, Katalog razstave 2016, Tolmin, 76–81.
- RAST-EICHER, A. 2008, *Textilien, Wolle, Schafe der Eisenzeit in der Schweiz*. – *Antiqua* 44, *Archäologie Schweiz*, Basel.
- WALTON, P., G. EASTWOOD 1988, *The Cataloguing of Archaeological Textiles*. – London.

OSTANKI TEKSTILA IN ŽIVALSKIH DLAK (KRZNA) V GROBU 6 GOMILE 1 V PLEŠKI HOSTI NA MOLNIKU

UVOD

Ostanki materialne kulture iz starejše železne dobe v Evropi so raznovrstni. Razprave o grobnih pridatkih običajno zajemajo predmete iz gline, kamna in kovine, vendar so tudi organski ostanki, kot so tkanine, usnje ali krzno, igrali pomembno vlogo v grobnem ritualu tistega časa. O organskih najdbah je v zadnjih nekaj desetletjih nastalo veliko študij, zlasti v Nemčiji, Švici in Avstriji, obravnavane so bile tudi nekatere najdbe iz Slovenije. Razprava o najdbi z Molnika pri Ljubljani prispeva k našim temeljnim raziskavam vzhodnohalštatske tekstilne kulture nekaj pomembnih informacij. Obravnavati jo je mogoče tudi v smislu reprezentančnosti in izražanja statusa.

OSTANKI TKANINE V GROBU

Grob 6 je zavzemal centralno lego v gomili 1 v Pleški hosti na Molniku (*sl.* 63, 65). Na dnu 0,80 m globokega recentnega vkopa je bila odkrita apnenčasta plošča, obdana z manjšimi kamni iz belega in rjavega peščenjaka. Prekrivala je oglato grobno jamo (dolgo 1,4 m, široko 0,8 m in globoko 0,6 m), ki je bila vklesana v živo skalo iz peščenjaka in obložena s kamni in lesom (*sl.* 71). Zapolnjena je bila z žganino in drobcji sežganih kosti. Grobni pridatki in antropološka analiza kažejo na žgan pokop moškega in ženske z začetka železne dobe oz. s konca 8. st. pr. n. št.

Predmet interdisciplinarne raziskave je v grobu 6 najden košček tkanine, sprijet s fragmentom železne (dvoankaste) vozlaste fibule (inv. št. 4034). Fragment fibule meri 3,4 x 7 cm, debelina loka znaša okoli 1,2 cm (*sl.* 72). Grob 6 je vseboval še druge pridatke, med njimi črepinje lončenih situl in latvic (*t.* 40, 41A), fragmente bronastih cevčic s pozlato (*sl.* 73), razlomljen železen nož in bronasto sekuro z dvostranskimi plavutmi. Najden je bil tudi pripomoček za tkanje, tj. glinast kroglast vijček. Najdbe so bile poškodovane, nekaj jih je bilo raztresenih okoli groba in nad njim, torej v sekundarni legi, kar bi kazalo na to, da je bil grob oplenjen (*sl.* 63 in 65).

ŽELEZNA FIBULA Z ORGANSKIMI OSTANKI

Na fragmentiranem železnem predmetu z inv. št. 4034 (*sl.* 72) je ohranjena večplastna organska snov (*sl.* 1). Na prvi pogled so mineralizirani ostanki težko razpoznavni, toda z različnimi makro- in mikroskopskimi postopki smo lahko pridobili nekaj osnovnih podatkov o njih. Identificirali smo dve plasti tekstila in krzno, ki je prepoznavno po tipični strukturi, tj. šopih živalskih dlak.

Za interpretacijo je stratigrafska lega tekstilnih ostankov pomembna. Ta korak analize tekstila imenujemo "mikrostratigrafija". Na železni fibuli iz Pleške hoste na Molniku je krzno v neposrednem stiku z njo, prekrivata pa ga dve plasti tekstila (*sl.* 1), ki je predmet nadaljnje analize

Nadaljnja analiza zajema sam tekstil. Poleg načina tkanja so zabeleženi še naslednji konstrukcijski parametri (glej Walton in Eastwood 1988): gostota niti, premer preje/niti, vrsta preje (sukana, enojna), smer vitja (S ali Z) in napake pri tkanju (glej *sl.* 2 in *tab.* 1). Analize tekstila so bile izvedene s stereomikroskopom DinoLite in optičnim mikroskopom Zeiss SteREO DiscoveryV20. O barvi tekstila ni mogoče sklepati, ker je najdba mineralizirana. Kljub temu smo lahko identificirali vezavo/vzorec tkanine, ki temelji na načinu prepletanja/flotiranja niti ali na vzorčenju z vitjem preje. Če bi se na tako majhnem koščku ohranili šivi in robovi, bi jih bilo prav tako možno analizirati.

Tkanino z Molnika lahko opišemo kot fino tkano v vezavi koničastega kepra, kar je razvidno z risbe (*sl.* 2, *tab.* 1). Premer preje in gostota niti sta podana v *tabeli* 1, predvsem pa daje tkanina iz groba 6 v Pleški hosti videz finega enakomerno gostega tkanja.

Ker se je tkanina ohranila na železnem predmetu, je zdaj rjasto rjave barve. Ostanek tkanine je velik pribl. 3,2 x 1,2 cm. Robovi tkanine se niso ohranili, zato se ne da določiti smeri osnove ali smeri votka. Za razločevanje horizontalne in vertikalne smeri niti (smeri osnove in votka) smo ju poimenovali kot nitni sistem 1 in nitni sistem 2 (glej *tab.* 1), ki kažeta na vezavo koničasti keper, pri katerem se smer žarka spremeni na vsakih 12 niti (glej *sl.* 2).

Prepoznali smo tudi posebno obliko vzorca, tj. vzorčenje s pomočjo različnih smeri vitja preje. Tako dobimo prefinjen "tone-on-tone" vzorec oz. različne nianse (odtenke) na površini tkanine, kar daje sofisticiran in subtilen videz. S konstrukcijo in vključevanjem izmenično ponavljajočih se grupiranih niti z različno smerjo vitja (enkrat s S-vitjem, drugič z Z-vitjem) dobimo črtast vzorec, ki je lepo viden pod določenim kotom. Z navedeno tehniko izmenično uporabljenih prej različnih smeri vitja, tako po votku kot tudi po osnovi, lahko dobimo vzorec šahovnice oz. karo vzorec. Na najdbi iz Pleške hoste je viden vzorec, narejen s pomočjo preje različnih smeri vitja, ki se kaže v obeh nitnih sistemih (nitni sistem 1 in nitni sistem 2 – *tab. 1*). Pri sistemu 1 si sledi 12 niti s S-vitjem in 12 z Z-vitjem, pri sistemu 2 pa 8 niti s S-vitjem in 8 z Z-vitjem preje.

ZABELEŽKE O KONSERVACIJSKIH POSTOPKIH

V zemlji zakopani organski ostanki, kot so tekstil, usnje ali les, zaradi klimatskih razmer v srednji Evropi običajno razpadejo. Tkanina se v arheoloških kontekstih ohrani le izjemoma, velikokrat v manjših koščkih na kovinskih predmetih, npr. bronastih, železnih ali srebrnih. Po izkopu postanejo tekstilni ostanki na zraku zelo krhki, za njihovo obstojnost je zato treba uporabiti razne konservatorske postopke. Ob tem kaže poudariti, da je treba analizo mikrostruktur, denimo analizo vlaken, opraviti pred konservacijo, se pravi, preden predmet prepojimo ali premažemo s stabilizatorji.

Pri tekstilni najdbi z Molnika smo poskušali analizirati vlakna pod elektronskim mikroskopom (JEOL, JSM-6610LV) v centralnem laboratoriju Naravoslovnega muzeja na Dunaju, vendar žal neuspešno (glej *sl. 3*). Glavna ovira je bila konservacija železnega predmeta iz Pleške hoste, ki je bil kmalu po odkritju leta 1996 v celoti prepojen z neznanimi substancami (glej Tolar, Rastlinski makroostanki) v okviru konservacijskih postopkov, izvedenih v muzejskih delavnicah (Mestni muzej Ljubljana in Narodni muzej Slovenije, Ljubljana). Z elektronskim mikroskopom (SEM) posnete slike kažejo, kako so stabilizatorji zgradili čvrsto, mehurčkasto plast, ki prekriva površino organske najdbe in tako zakrili mikrostrukturo tkanine (glej *sl. 3*). Detajlna analiza vlaken tako danes ni več mogoča (glej *sl. 1 in 3*).

DISKUSIJA

PRIMERLJIVE NAJDBE

O tekstilnih najdbah iz grobov halštatske kulture imamo na voljo dober pregled – iz Nemčije poznamo izjemne predmete, ki izvirajo iz aristokratskih grobov z najdišča, kot je Eberdingen-Hochdorf (Banck-Bur-

gess 2012). V zadnjih nekaj letih so bile objavljene tudi švicarske in avstrijske najdbe (Rast-Eicher 2008; Grömer 2012). Na voljo so prav tako katalogi grobnih pridatkov z območja vzhodne halštatske kulture: Madžarske, Slovenije (Banck-Burgess 1999, 222–223; Bender Jørgensen 2005, 140–145; Kavkler 2016), Češke in Slovaške (Belanová-Štolcová 2012, 310–311). Te objave nam omogočajo razumeti vrste in kakovost tkanin, ki so bile v uporabi na območju srednje Evrope v času med 800 in 400 pr. n. št., in s katerimi lahko primerjamo najdbo iz Pleške hoste.

Tkanina na železni fibuli iz groba 6 v Pleški hosti je vzorčena s pomočjo preje različnih smeri vitja. V splošnem spadajo tkanine v keprovi vezavi in njegovih izpeljankah med najbolj tipične tekstilne najdbe iz starejše železne dobe, vendar se kažejo očitne razlike med izdelki vzhodne in zahodne halštatske kulture (Bender Jørgensen 2005, *sl. 1*). Na zahodu, še zlasti v južni Nemčiji in Švici, so fine keprove tkanine navadno tkane s sukano prejo v enem sistemu in enojno prejo v drugem. Za vzhodne, npr. iz vzhodne Avstrije, Madžarske in Slovenije, pa je značilnejša uporaba keprove tkanine z enojno prejo in vzorčenjem z različno smerjo vitja preje. V tem pogledu je tekstilna najdba z Molnika vzorčni primer tekstilne produkcije vzhodnohalštatske kulture, izstopa pa po kakovostni izdelavi. Gre za fino in enakomerno vito prejo premera 0,2 mm. Analiza gostote je pokazala, da je tkanina dokaj enakomerna, saj je gostota obeh nitnih sistemov približno enaka, in sicer med 28 in 32 niti/cm.

Iz halštatskega obdobja poznamo le še nekaj tako dovršenih in kakovostnih tkanin v keprovi vezavi, toda nobene z območja Slovenije (Bender Jørgensen 2005, 143–145, in *sl. 7*). Najfinejša keprova tkanina z Vač ima npr. gostoto od 20 do 22 niti/cm, ostanek ohranjen na pasni sponi iz groba 57 z Magdalenske gore, pa 20 niti/cm v obeh smereh (Bender Jørgensen 2005, *kat. št. 114 in 98*).

Primerjava z organskimi tekstilnimi najdbami iz rudnika soli v Hallstattu (Grömer et al. 2013, katalog, npr. HallTex 50, 69, 71, 72, 74, 90, 91, 198 in *sl. 20*) bi lahko kazala, kakšna naj bi bila tekstilna najdba z Molnika, preden se je spremenila v mineraliziran in korodiran ostanek na železnem predmetu (*sl. 4*).

Kot rečeno, lahko tekstilno najdbo z Molnika prištevamo med najkakovostnejše izdelke iz halštatske dobe. Ob tem je treba upoštevati, da je ročna izdelava tekstila zelo dolgotrajen postopek (Grömer 2016, 134, 444); bolj je preja fina in večja je gostota niti/cm, več časa zahtevata priprava preje in tkanje.

FUNKCIJA TEKSTILA V GROBOVIH

Z grobišč starejše železne dobe poznamo raznovrstne tkanine, vendar niso vse ostanki oblačil pokojnikov, kajti tkanina je imela v grobovih različne funkcije. Uporabljala se je tudi za ovijanje grobnih pridatkov ali celo za

prekrivanje sežganih kosti (glej npr. Gleba 2014; Grömer 2016, 296–302). Na najdišču Eberdingen-Hochdorf je bilo ugotovljeno, da je tkanina visela na stenah grobnice in prekrivala tla (Banck-Burgess 2012).

Za interpretacijo je pomemben razloček med skeletnimi in žganimi grobovi. Tkanina, najdena denimo na pasni sponi na predelu medenice skeleta, je lahko pripadala oblačilu s pasom, medtem ko podobne tkanine na železni pasni sponi iz žganega groba ne moremo prvenstveno pripisati oblačilu. V tem primeru je bolj verjetno, da je bil železen predmet vanjo zavit.

Molniška najdba – fragment železne fibule – je bila pridana v grob poleg lončenine, bronaste sekire, železnega noža (glej t. 40, 41) in bronastih cevčic s pozlato (sl. 73). Ostanek krzna je z železno fibulo sprijet, medtem ko tkanina tvori zunanji sloj na njem. Glede na to, da je bil ta železni predmet najden v žganem grobu, bi bilo možno, da je bil prekrit ali ovit s tkanino. Prav tako bi bilo možno, da je bila priložena kot daritveni predmet, kot kos oblačila zraven drugih predmetov (lončenine in drugih pridatkov) in se je naključno sprijela z železno fibulo in krznom (glej sl. 1). Karkoli že, prisotnost tkanine in krzna v grobu dokazuje njuno vlogo v pogrebnih ritualih.

ZAKLJUČEK

Raziskovalka arheološkega tekstila Lise Bender Jørgensen (2005, 143–145) navaja 40 tekstilnih najdb z grobišč halštatskega obdobja na območju Slovenije. K tem redkim najdbam lahko sedaj prištejemo še primerke z Molnika (Pleška hosta), ki pomembno prispeva

k vedenju o tedanji materialni kulturi. Mineraliziran ostanek tkanine na železni fibuli iz gomile 1/grob 6, ki je tkan v keprovi vezavi in iz enojne preje ter vzorčen s pomočjo preje različnih smeri vitja, je primerljiv z drugimi tovrstnimi najdbami iz tega časa in prostora. Finost preje, vzorčenje z različno smerjo vitja preje in enakomerno tkanje kažejo na večino in znanje osebe, ki je tkanino izdelala.

V splošnem priča tekstil – podobno kot druge najdbe materialne kulture iz halštatske dobe – tako o osnovnih potrebah kot tudi o reprezentančnem značaju teh najdb. V tem smislu so še posebej zgovorne grobne najdbe. Dober primer je knežji grob z najdišča Eberdingen-Hochdorf, v katerem so bili najdeni zlat nakit in drugi dragoceni predmeti, kot sta ogromen bronast kotel in bronasto ležišče – *kline* (Biel 1985). Skladne s to podobo osebe visokega statusa so tudi tekstilne najdbe v tem grobu (Banck-Burgess 2012). Na visok družbeni položaj kažejo zelo kakovostne tkanine, nekatere so obarvane z žlahtnimi barvili, kot so barvila insektov; njihova izdelava je bila zelo zamudna. K osebi visokega statusa pa sodijo npr. tudi trakovi, tkani s pomočjo ploščic z luknjicami (t. i. tkanje s karticami).

O vrednosti, ki jo je imel tekstil v železni dobi, je težko soditi (glej npr. Grömer 2016, 443–444), toda o najdbi z Molnika lahko govorimo kot o zelo fini in kvalitetno izdelani tkanini. Vložek časa, potreben za ročno izdelavo tako fine tkanine z visoko gostoto (30 niti/cm), je veliko večji kot za izdelavo tkanine povprečne kvalitete. Zaradi visoke kakovosti, vzorčenja s pomočjo preje različnih smeri vitja in vezave (koničasti keper) lahko tkanino z Molnika uvrstimo med izjemne halštatske izdelke.

