

MAKING THE INVISIBLE VISIBLE – RECONSTRUCTIONS FROM THE BRONZE AGE

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*Authentic archaeological reconstructions are essential for depicting the lives of past people. In the book *Bronze Age Life Stories in Hungary (3rd–2nd millennia BC)*, published in the *Hereditas Archaeologica Hungariae* series, a key focus was to present these stories not through bones and graves, but by placing people in settings that reflect everyday life. Accordingly, the women and men who lived in the first half of the Bronze Age in the Carpathian Basin (dating from 2600/2500 to 1500/1400 BC) were depicted wearing clothing and engaged in activities appropriate to the period (Kiss 2025).*

Keywords: archaeological reconstruction, clothing, organic materials, lifeways, Bronze Age

Even in our modern world, characterised by the extensive use of plastics, we are surrounded by numerous everyday objects made of organic materials, including garments made from plant and animal materials, as well as furniture, furnishings, and tools carved from wood or woven from wicker. During the Bronze Age, alongside tools made of copper or bronze and stone, objects and items of clothing made from organic materials were of even greater significance. However, learning about them is difficult because, without the preservative effects of special conditions, they easily decompose in the soil in the climatic conditions of temperate Europe. Owing to favourable circumstances, we know of examples of wooden tool handles, coffins, and boats, as well as textile fragments of varying sizes and building components preserved by water, ice, acidic environments, or metal salts (GRÖMER 2016, 20–32). Even with this evidence available, numerous aspects of prehistoric material culture—and, within that, Bronze Age material culture—have become invisible today, and we can draw conclusions about them only on the basis of indirect evidence. Therefore, creating authentic archaeological reconstructions poses a serious challenge for researchers (GRÖMER et al. 2013). This study examines the possibilities and difficulties of presenting Early and Middle Bronze Age attire and presumed activities.

SOURCES FOR RECONSTRUCTIONS OF PREHISTORIC CLOTHING

Grave finds and depictions

Reconstructions of prehistoric clothing may draw on a variety of sources. The depiction of burial garments and jewellery often relies on burials of high-status members of the one-time society, who were typically interred with an above-average number of grave goods. In addition, depictions, such as Neolithic or Bronze Age ceramic figurines representing females or males, can also provide information on garments, hairstyles, jewellery fashion (SCHUMACHER-MATTHÄUS 1985), and possibly even depict certain details of body painting or tattoos.

In the last decades, two detailed reconstructions have been produced based on a synthesis of the available data from Hungary concerning late Neolithic ceremonial and/or funerary clothing of women (P. BARNÁ 2007; ANDERS 2009). Drawing on earlier observations based on hundreds of painted and incised figurines from the Lengyel culture and on an analysis of recently discovered pieces from Sormás, Judit P. Barna reconstructed complex hairstyles and details of attire presumably worn during rituals. According to this reconstruction, priestesses of the era wore multi-row bead necklaces, a belt, a loincloth or skirt, an apron, and boots. The dress generally left the upper body uncovered, but there are also references to V-neck tunics, which, in addi-

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Fig. 1. Front and back of a Middle Bronze Age ceramic figurine depicting jewellery, clothing, and hairstyle. Lower Danube region, Serbia (Kiss 2025, Fig. 16; after V. Szabó 2015, III. 84. Photo by Ádám Vágó)

the pottery, the reconstruction also suggests diamond patterns painted in red. The find assemblage consisting of red ochre lumps, Spondylus beads, and perforated deer canine beads found in front of the face was interpreted as the contents of a pouch offered to the woman of distinguished social status for her final journey (ANDERS 2009, Fig. 1–2).

Anthropomorphic ceramic figurines characteristic of the Early to Late Bronze Age from the Carpathian Basin may provide data for reconstructing the attire of the period not only through the more frequently depicted women's clothing, jewellery, and hairstyles, but also through the depiction of armour or even hairnets (Fig. 1; for a summary, see KIRÁLY et al. 2014; KISS 2017; 2019). The reconstructed image of the period's attire is further enriched by Late Bronze Age bronze figurines from Scandinavia and the Mediterranean (VANDKILDE et al. 2022), as well as by Scandinavian rock carvings and wall paintings in Greek palaces in the Aegean (e.g., Pylos in Greece and Akrotiri on Thera Island; PAPADOPOULOS 2009; RICHARD et al. 2020).

When reconstructing clothing or the interiors of buildings, the analysis of pottery decoration can provide further information regarding possible textile patterns (RICHTER 2005; RACZKY et al. 2007). In his analysis of motifs on the pottery of Bell Beaker phenomenon and the Transdanubian Encrusted Pottery culture from Transdanubia, László Gucsi suggested that the decoration of some vessels evokes patterned fabrics, indicating the existence of such textiles in the Bronze Age (Fig. 2; GUCSI 2011, Fig. 5. 7; GUCSI 2024, Fig. 1–2, Fig. 17). Depictions on anthropomorphic stelae excavated at the Le Petit Chasseur site near Sion, Switzerland, also imply a fashion for geometric-patterned textiles (HARRISON & HEYD 2007). Besides using coloured threads, 'artisans' of the period could create fabric patterns by combining different weaving techniques, achieving a light-and-shadow effect even with monochrome textiles (e.g., through twill weaving). Plant-based materials could be processed into threads in various shades by subjecting them to different drying methods (RICHTER 2005). Furthermore, according to currently available data, brown, blue, yellow, and red plant dyes

tion to jewellery, were presumably complemented by body painting and tattoos (P. BARNA 2004; 2007). In her case study on the interpretation of finds from Neolithic graves of the same Late Neolithic period, the Tisza–Herpály cultures in the Great Hungarian Plain, Alexandra Anders selected Feature 836, the burial of a woman with the richest grave goods excavated at the Polgár-Csőszhalom site (ANDERS 2009). She reconstructs the garment based on the circumference of the bracelets and the belt chain, likely made of a thin fabric with simple tailoring. In addition, the woman was adorned with a necklace strung with large Spondylus beads and a bead belt, complemented by three Spondylus bracelets on each upper arm, a simple bone ring on the right hand, and boots or sandal-like shoes decorated with shell beads on the feet. Based on patterns typical of

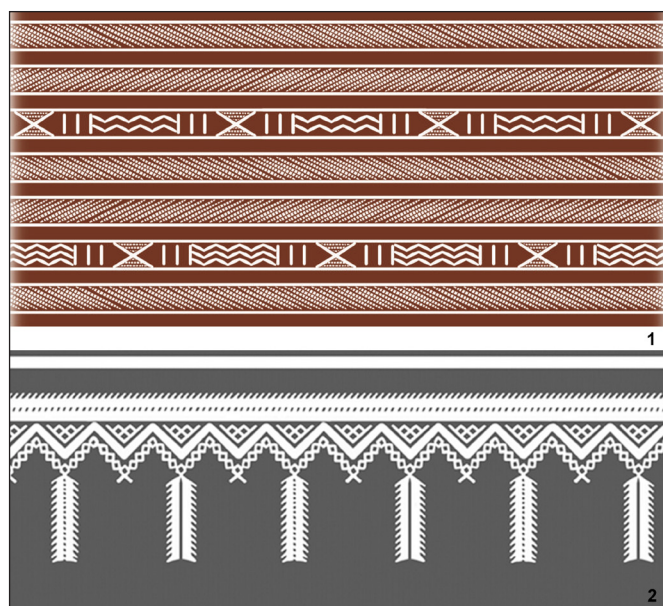


Fig. 2. 1. Tököl (GUCSI 2024, Fig. 2); 2. Győr–Ménfőcsanak–Road 83, rollout of the pattern of a bowl from Grave 12 (GUCSI 2011, Fig. 5)

were used at least from the Central European Middle Bronze Age onwards. The use of dyed yarns of various colours and variations in weaving techniques presumably allowed the creation of diverse patterns; embroidered fabrics are also known from pile dwellings in Switzerland and Italy (GRÖMER 2016, 201, Fig. 117). Several costume reconstructions have incorporated textiles with patterns adapted from pottery (e.g., GARRIDO-PENA 2007).

Prehistoric clothing remains in textile and other materials from before the end of the 2nd millennium BC

As a result of textile research in recent decades, the range of sources available for clothing reconstruction has expanded. We now have extensive data on prehistoric textile remains made from plant-based (e.g., flax, hemp, nettle, and bast) and animal-based (wool) materials. The earliest plant fibres with S- and Z-twists,³ dating to the 52nd–41st millennia BC, were preserved adhering to a stone tool associated with the Neanderthal population in present-day France (HARDY et al. 2020). Early twined textiles were made from bast and grasses; such fabrics were found, for example, at Tell Halula in Syria (7600–7300 BC). The footwear and cape of Ötzi, the Alpine Copper Age man who lived between 3300 and 3100 BC, were also twined (BENDER JØRGENSEN & GRÖMER 2012). Based on current data, the earliest textiles woven from flax date to the European Neolithic period and can be traced back in Europe to the 6th millennium BC (e.g., Hessenrode, Germany, Linear Pottery culture). Most remains are known from Alpine lakeside settlements dating from the 4th to 2nd millennia BC and were preserved in waterlogged conditions (GRÖMER 2016, 26).

Scanning electron microscope analyses conducted over the past decade have revealed that, during the Neolithic and Bronze Ages in the Near East and Europe, yarns were often produced not by spinning but

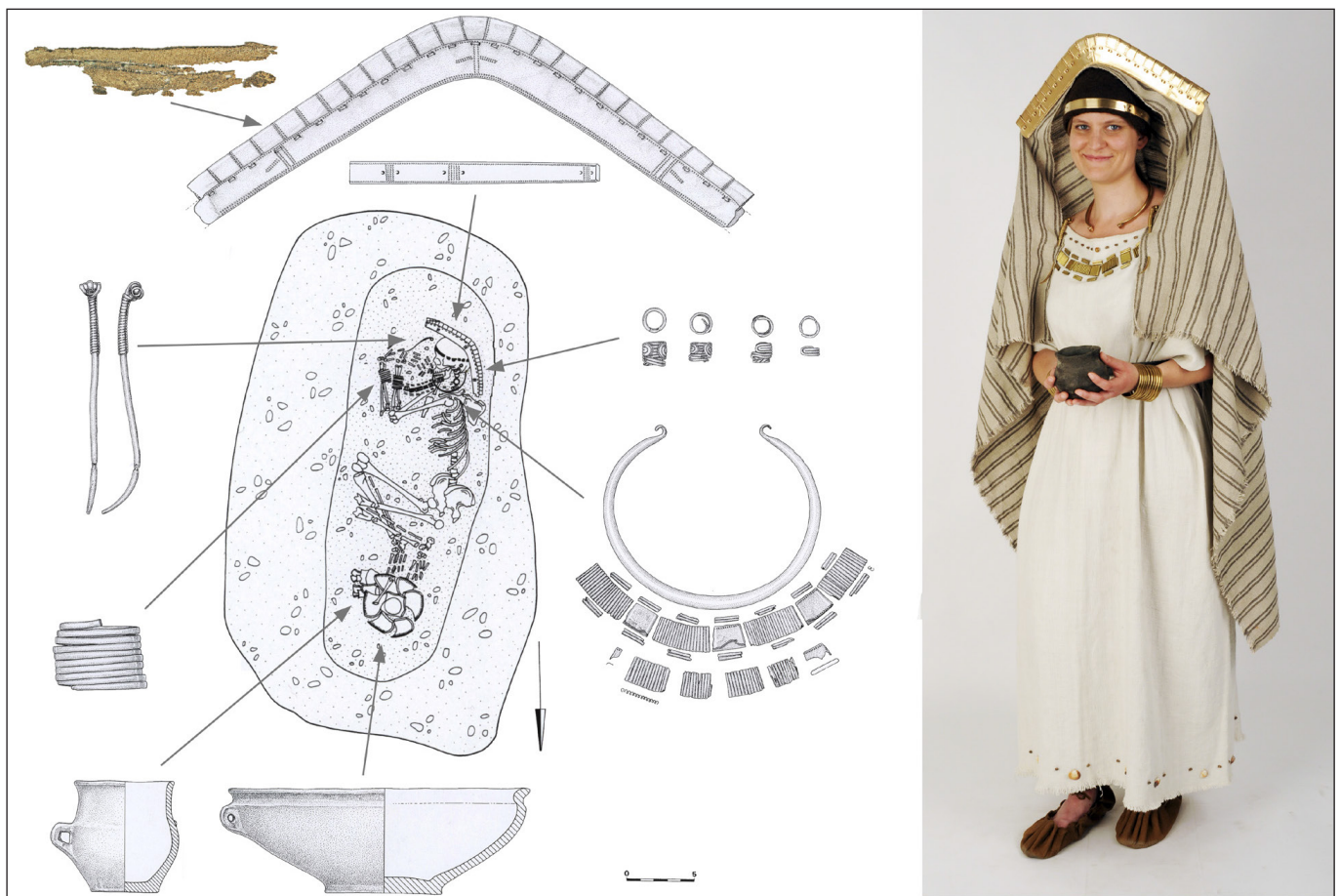


Fig. 3. Clothing reconstructed based on textile remnants and metal clothing ornaments found in a Bronze Age burial, Grave 110 in Franzhausen, Austria (KISS 2025, Fig. 17; after Grömer–Hofmann-de Keijzer 2018, Fig. 4. 3)

³ 'S-twist' refers to yarn with a clockwise, while 'Z-twist' to one with a counterclockwise twist.

by a technique known as ‘splicing’. A characteristic feature of this technique is that shorter plant fibres are twisted together to form yarn. According to Margarita Gleba and Susanna Harris, disc- or lens-shaped spindle whorls, used in the Neolithic and the first half of the Bronze Age, are better suited to this technique, while cylindrical or biconical spindle whorls typical of later periods indicate the emergence of wool use (GLEBA & HARRIS 2019). The linen fabric remains recovered from a settlement pit of the Bell Beaker culture at the Brodek u Prostějova site in the Czech Republic were also spliced; they had been used to cover an amphora before it was buried (GRÖMER et al. 2017). These techniques were used simultaneously (MAZÁRE 2014, Fig. 1.22; GRÖMER 2016). Recent excavations at the Late Bronze Age settlement of Must Farm in England also brought to light fishing nets and mats made from bast (HARRIS & GLEBA 2024).

The finest example of plant-based textile remains from the Early and Middle Bronze Age in the Danube Basin (2500–1500 BC) is a fragment of a striped, dyed linen and wool textile found in Grave 110 at the Franzhausen cemetery in Lower Austria (21st–20th centuries BC), corroded onto a metal headdress (Fig. 3; GRÖMER 2016; GRÖMER & HOFMANN-DE KEIJZER 2018). In Grave 15 in the Middle Bronze Age (19th–17th centuries BC) cemetery excavated at Zseny, western Hungary, and attributed to the Gáta–Wieselburg culture, flax fibres from the clothing were preserved by the patina of a bronze neckring (NAGY 2013, Pl. 41). Textile impressions can be observed on the surfaces of numerous pottery fragments from tell settlements of the same period in eastern Hungary (PÁSZTÓKAI-SZEŐKE et al. 2017). According to an analysis by Judit Pász-tókai-Szeőke, the textile-patterned pottery sherds excavated from the settlement at Füzesabony-Öregdomb, inhabited between the 18th and 16th centuries BC, preserved traces of textiles made from plant materials using the twining technique (PÁSZTÓKAI-SZEŐKE et al. 2017; SZATHMÁRI ET AL. 2020; see also SCHAEFER-DI MAIDA & KNEISEL 2019).

Although sheep are among the earliest domesticated animals, their wool achieved the more uniform quality we know today only through a long process of selective breeding. According to an earlier theory, this change may have occurred during the Late Copper Age as part of the so-called ‘secondary products



Fig. 4. Women's and men's woollen garments from Bronze Age oak coffin graves at the Egtved and Trindhøj sites, Denmark (KISS 2025, Fig. 14; original images: National Museum of Denmark. Photos: CC BY-SA, Roberto Fortuna, Kira Ursem, Lennart Larsen)

revolution', when domestic animals were no longer kept solely for their meat but were also recognised for other uses (such as draught capacity) (SHERRATT 1981). More recent research now tends to link the increase in sheep body size to developments in domestication during the Copper Age. The emergence of a sheep breed with a more uniform fleece—replacing earlier varieties characterised by a greater difference between the structure and quantity of guard hair and downwool—can be dated to the Bronze Age based on Sumerian cuneiform and Greek Linear B texts, as well as surviving wool fabric fragments (GRÖMER & SALIARI 2018; SABATINI & BERGERBRANT 2019; SABATINI et al. 2019; HAUGHTON et al. 2021).⁴ Indirectly, the significance of wool is also indicated by the relatively high proportion of bones from older sheep—animals kept primarily for their wool rather than their meat—at the tell site of the Vatyá culture in Százhalombatta (VRETEMARK & STEN 2005; SOFAER 2010). Wool was likely still hand-plucked during this period, as sheep shears do not appear until the Iron Age (HAUGHTON et al. 2021). Since wool textiles are considered rare finds in the Bronze Age, it is presumed that primarily the elite of the era could afford such fabrics.

For example, a fragment of a Bronze Age textile woven from wool has been preserved in the corrosion layer of a bronze bracelet characteristic of the Únětice culture at the Tursko site in the Czech Republic (18th–17th centuries BC) (VYKOUKOVÁ et al. 2007; BENDER JØRGENSEN & RAST-EICHER 2015). The most significant wool textile finds are a blanket dating from 1520–1410 BC, found in a burial mound excavated at Pustopolje, Bosnia, as well as fabric remains recovered from the Mitterberg and Hallstatt mines (1500–1200 BC; GRÖMER 2016; GRÖMER & SALIARI 2018).

Slightly younger are the complete woollen garments, such as women's 'tops' and short or long skirts, that have survived in the graves of the Danish Bronze Age elite (buried between 1500 and 1300 BC), owing to the acidic environment created by the oak coffins. Men were buried in short garments fashioned by wrapping a piece of woollen fabric around the body, cloaks, hoods, and leggings or leg warmers (*Fig. 4*; BERGERBRANT 2007, *Fig. 36*; BENDER JØRGENSEN & RAST-EICHER 2015; FREI et al. 2015; FREI et al. 2017; GRÖMER 2016). Based on these complete garments, information is also available on the cut of tops, skirts, and tunics (BERGERBRANT 2007; DERUSHIE 2024). In the case of Bronze Age textile finds from Denmark, the warp threads were generally Z-twisted, while the weft threads were S-twisted (DERUSHIE 2024). Ötzi, the Copper Age man found in the Alps had leg warmers, similar to the woollen pieces worn by the Danish Bronze Age elite, however, his leg warmers were made of leather or fur (O'SULLIVAN et al. 2016). These findings provide evidence that trousers were an innovation that emerged after the period in question during the Bronze Age.

The earliest known pair of trousers comes from contexts radiocarbon-dated to between the 13th and 10th centuries BC in western China (BECK et al. 2014), which calls into question the relevance of trousers reconstructed as part of garments from earlier periods (e.g., LÜNING 2005).

Textiles were sometimes complemented with leather and fur; for example, Ötzi's striped coat was made of white and brown goat hair, and he wore a bearskin cap. A cloak decorated with brown bear fur was discovered in the grave of a Bronze Age woman buried between 1730 and 1600 BC at Whitehorse Hill in Scotland (O'SULLIVAN et al. 2016; JONES 2017).

NEW RECONSTRUCTIONS FROM THE BRONZE AGE – CLOTHING AND ACTIVITIES

In the following, we present a reconstruction based on the grave of a woman from the end of the Early Bronze Age and the burial of a man from the Middle Bronze Age from present-day Hungary.

Excavations preceding the construction of a biogas factory at Bonyhád (SW-Hungary) yielded cremains of a 20- to 40-year-old adult woman and a seven-month-old foetus in Grave 80 of a Bronze Age cemetery. The human remains were buried in a pottery urn with a conical neck, decorated with wrapped-stick impressions characteristic of the Kisapostag or earliest Encrusted Pottery culture. The grave of the pregnant woman, who lived at the end of the Early Bronze Age (around 2000 BC; KISS et al. 2019), also

⁴ For this reason, it is unlikely that woollen garments and felt hats were worn during the Neolithic period, contrary to J. Lüning's reconstructions (LÜNING 2005).



Fig. 5. Possible reconstruction of a grinding scene with the adult (20–40-year-old) pregnant woman buried in Grave 80 in Bonyhád-Biogas factory (Kiss 2025, Fig. 45)

of a simple T-shaped tunic and a belt; her hair is adorned with a textile ribbon with small sewn-on metal ornaments (Fig. 5).

The skeleton of a 35–40-year-old man laid to rest in a crouched position was found in Pit 1106 at a settlement excavated at Érd-Hosszúföldek (Central Hungary). The pit burial could be dated to the early phase of the Vátya culture (20th–18th centuries BC) based on radiocarbon results and a small cup discovered near the head (Kiss 2025, Fig. 99). Bioanthropological analysis of the skeletal remains has revealed that the man's lower limbs, particularly his right leg, were abnormally thin and underdeveloped (PAP et al. 2008; LÁSZLÓ et al. 2010; SZEVERÉNYI et al. 2020, Tab. 2), probably due to poliomyelitis or a backbone injury he had suffered long before death.⁵ The man, who was impaired and had limited mobility, required assistance, but his remains indicate that he lived into adulthood, so he undoubtedly participated in community life. The muscle attachment sites on his upper limbs suggest that he had used his arms intensively, probably to move around but perhaps also for work. He is depicted in the reconstruction image sitting and performing an activity he could have done: crafting an antler sickle with inlaid stone blades. Sickle-shaped, serrated stone blades are common finds at Vátya culture sites; they are typically made of Buda chert (HORVÁTH 2009,

contained a coiled copper wire spiral bead, indicating her relatively high social status. Similar tubular beads, twisted from wire or sheet metal, have been found in the neck or head area in inhumation graves; originally, they were likely sewn onto clothing or a headdress (SOMOGYI 2007; SZABÓ 2010). Bioarchaeological studies of skeletal remains from European Neolithic and Bronze Age burials, including those from Hungary, have revealed that the arms of prehistoric women were even more toned and muscular than those of today's oarswomen, probably partly because of grinding grain between two stones (MACINTOSH et al. 2017). In our reconstruction, the pregnant woman is depicted engaged in this strenuous task, with grindstones, a ceramic pot, a bowl, and a woven basket next to her. Her attire consists



Fig. 6. Possible reconstruction of a middle-aged (35–40-year-old) man with atrophied legs buried in Feature 1106 at Érd-Hosszúföldek (Kiss 2025, Fig. 100)

⁵ Poliomyelitis (infantile paralysis) is caused by a viral infection. Another Bronze Age evidence of the occurrence of this disease is a stele from the time of the 18th dynasty of Egypt (1403–1365 BC; PAUL 1971), which depicts a man who likely suffered from poliomyelitis; https://hu.wikipedia.org/wiki/J%C3%A1rv%C3%A1nyos_gyermekb%C3%A9n%C3%A1s, [last accessed on 14 January 2026].

Fig. 7).⁶ He is wearing the short-cut clothing and leg warmers known from Danish male burials (Fig. 6). We depicted the man with his legs bound together, a practice used to prevent deformities. In reconstructing the dog lying at the man's feet, we also sought to incorporate the findings of studies on Bronze Age remains of dogs: a small, robust-boned breed with a shoulder height of ca. 40 cm, identified as 'bog spitz' (*Canis familiaris palustris*; BARTOSIEWICZ 2002), are frequent finds; in addition, specimens of a medium-sized breed, the so-called prehistoric 'shepherd dog' (*Canis familiaris matris optima*), with a shoulder height of 53.2 cm, are also known from, for example, the Bronze Age settlement at Jászdózsza-Kápolnahalom (VÖRÖS 1996). Recently, based on a 4,500-year-old find from Scotland, a 'facial reconstruction' of a collie, resembling a wolf, was also created.⁷ A medium-sized, slender (i.e., somewhat underfed) dog was included in our reconstruction.

The aim of our reconstructions was to present the woman and the man buried in the Early and Middle Bronze Age, respectively, not in their graves but engaged in activities they could have carried out during their lives, in authentic attire and environment.

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⁶ A hornstone mine is located in the territory of the Vátya culture, in Farkasrét, Denevérvölgy (Bat Valley). The Bronze Age mining activity is confirmed by a radiocarbon dated antler tool (HORVÁTH 2009, 421–422).

⁷ <https://www.historicenvironment.scot/about-us/news/forensic-reconstruction-reveals-face-of-man-s-ancient-four-legged-friend/> [last accessed on 14 January 2026]

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