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Brončano zrcalo s natpisom na mađarskom jeziku

U članku su prikazani rezultati arheološkog, paleografskog i lingvističkog istraživanja brončanog zrcala pronađenog kod Iloka (Vukovarsko-srijemska županija, Hrvatska). Predmet je identificiran kao zrcalo izliveno tehnikom izgubljenog voska. Osim zbog svoje primarne funkcije, zanimljiv je zbog natpisa na poleđini koji sadrži 31 grafem ispisan na staromađarskom jeziku. Prikaz leoparda na poleđini predmeta podsjeća na nalaze iz vremena mađarskog osvajanja (9. – 10. st.). Natpis na stražnjem rubu brončanog zrcala ispisan je na staromađarskom jeziku runskim pismom Karpatske kotline. Značajan je jer je izliven u metalu, što ga čini jedinstvenim među poznatim natpisima runskog pisma Karpatske kotline. Ujedno predstavlja novu inačicu tog pisma jer sadrži nekoliko dosad nepoznatih grafema. Nadalje, neki se grafemi, poput <β>, <l> i <χ>, pojavljuju u dosad nepoznatim varijantama. Simboli u ovom natpisu potvrđuju ranije objavljena čitanja drugih runskih natpisa. Zrcalo i njegov natpis moguće je *promatrati na različitim razinama apstrakcije, pri čemu se suprotstavljaju dobro i zlo te ovaj svijet i zagrobni život.*

Ključne riječi: *brončano zrcalo, runsko pismo Karpatske kotline, prikaz leoparda, natpis, tehnika izgubljenog voska.*

A bronze mirror with an inscription in the hungarian language

This paper presents the results of the archaeological, palaeographic and linguistic investigations of a bronze mirror discovered near Ilok (Vukovar-Srijem County, Croatia). The object has been identified as a mirror cast using the lost-wax technique. Beyond its primary function, the object is particularly remarkable because its reverse bears an inscription consisting of 31 graph that encode a text in the Old Hungarian language. The depiction of a leopard on the back of the object closely resembles motifs known from finds dating to the period of the Hungarian Conquest (9^{th}–10^{th} centuries). The inscription running along the rim of the bronze mirror on its back side is written in Old Hungarian using the Carpathian Basin Rovash scripts. It is of exceptional importance because it was cast in metal, making it unique among the currently known inscriptions in the Rovash script of the Carpathian Basin. Moreover, it represents a new variant of this script, since it contains several previously unknown

* U vrijeme obrade predmeta voditeljica Konzervatorsko-restauratorskog odjela Gradskog muzeja Vinkovci.

graphemes. Furthermore, certain graphemes display hitherto unattested variants, such as the graphemes <β>, <l> and <χ>. The symbols in this inscription likewise corroborate previously published readings of other Rovash inscriptions. Both the mirror and its inscription can be interpreted on multiple levels of abstraction; this duality embodies the opposing concepts of good and evil, as well as the contrast between this world and the next.

Keywords:Bronze mirror, Carpathian Basin Rovash script, depiction of a leopard, inscription, lost-wax technique

UVOD

Metalno zrcalo s natpisom po važnosti parira natpisu na koštanoj iglenici iz Szarvasa i natpisu na zlatnom blagu iz Nagyszentmiklósa. Predmet pronađen kod Iloka može se identificirati kao zrcalo izrađeno tehnikom lijevanja u izgubljenom vosku, a paralele za prikaz leoparda (*Panthera pardus*) na njemu nalaze se među nalazima iz vremena mađarskog osvajanja (9. – 10. st.). Ovaj je natpis drugi najduži natpis ispisan runskim pismom Karpatske kotline, nakon onoga iz Szarvasa[1] koji sadrži 66 grafova, te je znatno duži od natpisa na zlatnom blagu iz Nagyszentmiklósa koji se sastoji od 20 grafova.[2] I natpis iz Szarvasa i naš natpis podijeljeni su na četiri dijela, no dok je natpis iz Szarvasa ispisan u četirima redcima, u našem su slučaju ta četiri dijela odvojena točkama. Važnost našeg natpisa dodatno je naglašena činjenicom da je izliven u metalu, što je s jedne strane jedinstveno među poznatim natpisima runskog pisma Karpatske kotline, a s druge strane osigurava da znakovi, uz zanemariva oštećenja, ostanu gotovo nepromijenjeni u obliku u kojem su nastali tijekom izrade predmeta. Oblici simbola u našem natpisu također potvrđuju prethodno objavljena čitanja drugih natpisa ispisanih runskim pismom Karpatske kotline.[3] U prvom dijelu analize brončani nalaz pronađen kod Iloka proučavamo s arheološkog stajališta. Zatim donosimo strukturnu interpretaciju s runskim grafemima kojima se mogu pripisati grafovi u natpisu te iznosimo čitanje potkrijepljeno lingvističkim i paleografskim argumentima. Slijedi razmatranje prirode i tumačenja natpisa, a potom se natpis pokušava smjestiti na filogenetsku kartu već poznatih runskih natpisa. Radi sažetosti u nastavku će se koristiti sljedeće kratice: CBR za rune Karpatske kotline, SR za stepske rune, SHR za staromađarske (Székely) rune i TR za turske rune. U članku se za predstavljanje glasovnih vrijednosti, koje se navode u uglatim zagradama ([ ]), koristi međunarodna fonetska abeceda (*International Phonetic Alphabet* – IPA), dok se fonemi, omeđeni kosim crtama (/ /), bilježe mađarskim zapisom. Za transliteracijske vrijednosti grafema koji čine natpis koriste se međunarodne oznake u šiljastim zagradama (< >). Povijesne mađarske riječi ispisane su kurzivom prema mađarskom pravopisu latiničnog pisma.

1 Zelliger, Hosszú 2021, str. 410.
2 Zelliger 2019b, str. 14–16.
3 Zelliger 2016; Zelliger 2019b.

INTRODUCTION

The metal mirror and its inscription are comparable in significance to the inscription on the bone needle case from Szarvas and that on the gold treasure from Nagyszentmiklós. The object discovered near Ilok has been identified as a mirror made in the lost-wax casting technique, while the depiction of a leopard (*Panthera pardus*) on its reverse finds close parallels among artefacts dating to the period of the Hungarian Conquest (9th–10th centuries). The inscription is the second-longest known inscription in the Carpathian Basin Rovash script, surpassed only by the 66-grapheme inscription from Szarvas.[1] It is also considerably longer than the 20-grapheme inscription on the gold treasure from Nagyszentmiklós.[2] Both the Szarvas inscription and the inscription presented here are divided into four sections; however, whereas the Szarvas text is written in four separate lines, the four lines of the Ilok inscription are separated by a dot. The significance of the Ilok inscription is further enhanced by the fact that it was cast in metal. On the one hand, this makes it unique among the currently known inscriptions in the Carpathian Basin Rovash script; on the other, it has ensured that the characters of the graphemes have remained virtually unchanged since the artefact's manufacture, apart from a few minor and insignificant instances of damage. The shapes of the symbols in our inscription likewise confirm previously published readings of other inscriptions in the Carpathian Basin Rovash script.[3] The first part of the analysis examines the bronze find discovered near Ilok from an archaeological standpoint. This is followed by a structural interpretation, assigning Rovash graphemes to the graphs that make up the inscription, before a reading supported by linguistic and palaeographic arguments is presented. The subsequent section explores the nature and interpretation of the inscription, after which an attempt is made to position it on the phylogenetic map of the currently known

Rovash inscriptions. For the sake of brevity, the following abbreviations are used throughout the paper: CBR for the Carpathian Basin Rovash; SR for the Steppean Rovash; SHR for the Old Hungarian (Szekely-Hungarian) Rovash; and TR for the Tur-

1 Zelliger, Hosszú 2021, p. 410
2 Zelliger 2019b, pp. 14–16
3 Zelliger 2016, 2019b.

ARHEOLOŠKI OPIS

U jesen 2023. godine g. Nemanja Arsenić u svojstvu posrednika obratio se Gradskom muzeju Vinkovci u vezi s metalnim predmetom pronađenim detektorom metala u blizini Iloka, koji je pronalazač pod uvjetom anonimnosti želio pokloniti Muzeju.

Iako predmet nije bio očišćen, bilo je jasno da je riječ o iznimno zanimljivom nalazu, no njegova obrada i interpretacija nadmašivale su naše mogućnosti. Istodobno je g. Bálint Kövecses 9. listopada 2023. skrenuo pažnju mađarskih istraživača na ovo otkriće. Stoga smo uspostavili suradnju koja je rezultirala ovom publikacijom.

Prvotni pronalazač nije bio voljan dostaviti podatke o mjestu i uvjetima nalaza pa smo posredno saznali jedino da je predmet navodno pronađen u blizini obale Dunava kod Iloka. Zbog jedinstvenosti predmeta prvo smo se zapitali je li riječ o originalu ili krivotvorini.

Preliminarna istraživanja u laboratoriju za metal Konzervatorsko-restauratorskog odjela Gradskog muzeja Vinkovci započela su upravo s tog stajališta, a uključila su makroskopski i mikroskopski pregled te istražno čišćenje kojim je locirana izvorna površina i utvrđeno njezino stanje očuvanosti. Predmet je s obiju strana bio prekriven tankim slojem zemlje i korozijskih produkata bakra. Na prednjoj strani predmeta mjestimično su bili prisutni i tragovi korozijskih produkata željeza, što ukazuje na kontakt sa željeznim predmetom ili predmetima. Međutim, kako nam točan kontekst nalaza nije poznat, nije moguće utvrditi o kojim je predmetima riječ, koliko ih je bilo ni u kakvu su odnosu bili sa zrcalom. Nakon preliminarnih istraživanja uslijedilo je čišćenje, odnosno otkrivanje izvorne površine predmeta. Izvorna površina u potpunosti je očišćena pod mikroskopskim uvećanjem, isključivo mehaničkim metodama, uz pomoć različitih ručnih alata i mikropjeskarenja staklenim perlama (90 μm), čime su detalji natpisa i prikaza postali još jasniji. Tijekom čišćenja nisu uočeni tragovi drugih metala ni organskog materijala. Na površini predmeta nažalost su vidljiva oštećenja nastala djelovanjem pluga – kraći ili dulji te plići ili dublji urezi koji sežu do metalne jezgre – kao i deformacija cijelog predmeta.

Radi dodatnih analitičkih istraživanja konzervatorsko-restauratorska obrada nalaza zaustavljena je nakon ove prve faze čišćenja, koja je potvrdila da je nalaz bez sumnje originalni arheološki predmet te omogućila daljnju interpretaciju predmeta.

kic Rovash. Throughout the paper, the International Phonetic Alphabet (IPA) is used to represent sound values within square brackets (between [and]), while Hungarian notation is used to indicate phonemes enclosed in slashes (between / and /). For the transliteration values of the graphemes that make up the inscription, the international notation in angled brackets (between < and >) is used. Historical Hungarian words are written in italics using the Hungarian orthography of the Latin script.

ARCHAEOLOGICAL DESCRIPTION

In the autumn of 2023, Mr. Nemanja Arsenić contacted the City Museum of Vinkovci on behalf of another party regarding a metal object found with a metal detector near Ilok, which its finder – on condition of anonymity – wished to donate to the Museum.

Although the object had not been cleaned, it was immediately evident that it represented an exceptionally interesting find, but its further analysis and interpretation exceeded our capacities. At the same time, Mr Bálint Kövecses drew the attention of Hungarian researchers to this discovery on 9th October 2023, which ultimately led to a joint collaboration that has resulted in the present publication.

The original finder was unwilling to provide any information on the exact location and circumstances of the discovery. The only indirect information obtained is that the object was allegedly found near the bank of the Danube river in the vicinity of Ilok. Given the uniqueness of the artefact, the first question addressed was whether it represented an original or a forgery.

It was from this standpoint that preliminary investigations began in the laboratory of the Conservation-Restoration Department of the City Museum of Vinkovci. These comprised macroscopic and microscopic examination together with investigative cleaning, by which the original surface and its state of preservation were established. The object was covered on both sides with a thin layer of soil and copper corrosion products. On the front side, traces of iron corrosion products were also present in places, indicating contact with iron object(s); however, since the exact archaeological context is unknown, it is impossible to determine how many and what kind of objects were involved or what their precise relationship to the mirror may have been. The preliminary investigations were followed by the clean-



Sl. 1 - Predmet prije čišćenja (izvor: https://cogniarchae.com/2023/08/31/on-the-mysterious-protohungarian-inscription-from-vukovar-croatia/, pristup: 9. listopada 2023.)

Fig. 1 - The object before cleaning (source: https://cogniarchae.com/2023/08/31/on-the-mysterious-protohungarian-inscription-from-vukovar-croatia/, accessed: 9th October 2023)



Sl. 2 - Predmet prije konzervatorsko-restauratorske obrade (autor: E. Balić)

Fig. 2 -The object before conservation-restoration treatment (author: E. Balić)

Nakon preliminarne konzervatorsko-restauratorske obrade predmet je vraćen arheolozima. Ustanovili smo da je riječ o ukrašenom disku promjera 6,5 – 6,8 cm i mase 41 g, s protruzijom dimenzija 1,5 × 1,5 cm na jednom dijelu. Debljina diska varira: u sredini iznosi 1,63 mm, na središnjoj osi 2,16 mm, na bazi 1,98 mm, na vanjskom rubu 1,48 mm, a na bočnim rubovima 1,34 i 1,37 mm. Pretpostavili smo da je predmet izrezan iz debljeg brončanog lima i da su prikazi naknadno urezani. Na temelju udubljenja u sredini nastavka pretpostavili smo da je nastavak pripremljen za bušenje, a potom je predmet mogao poslužiti i kao privjesak. Istodobno nam je postalo jasno da bi u tom slučaju prikaz na disku bio naopako. Unatoč neobičnom obliku i ukrasima, potvrdili smo da je riječ o autentičnom arheološkom predmetu. Ipak, ni nakon opsežnih istraživanja nije pronađena jasna paralela za ovaj predmet, što je otežavalo utvrđivanje vremena njegova nastanka, namjene i načina uporabe. Postavljalo se i pitanje prirode znakova koji su nalikovali natpisu: jesu li to samo besmislene imitacije slova ili stvarna slova koja čine smislen tekst, odnosno grafemi s glasovnom vrijednošću?

ing of the object, i.e. the uncovering of its original surface. Under microscopic magnification, and exclusively through mechanical methods, using various hand tools and micro-sandblasting with glass beads (90 μm), the original surface was completely cleaned, making the details of the inscription and the depiction even clearer. No traces of other metals or organic materials were observed during the cleaning process. Unfortunately, the surface of the object also shows damages in the form of shorter and longer, shallow and deeper scratches reaching the metallic core, which were caused by a plough, as well as a deformation of the entire object.

For the purpose of further analytical investigations, the conservation and restoration treatment of the find was halted at this first stage of cleaning, which nevertheless enabled further interpretation of the object and confirmed that the find is undoubtedly an authentic archaeological artefact.

Following the preliminary conservation-restoration treatment, the object was returned to the archaeologists. We established that it is an ornamented disc 6.5–6.8 cm in diameter and weighing 41 g, with a projection measuring 1.5 × 1.5 cm in one part. The thickness of the disc varies: 1.63 mm at the centre, 2.16 mm on the central axis, 1.98 mm at the base, 1.48 mm at the outer rim, and 1.34 and 1.37 mm at the lateral edges. Our initial assumption



Sl. 3 - Ukrašena, ispisana strana nalaza nakon čišćenja (autor: E.Balić)
Fig. 3 - The decorated, inscribed side of the find after cleaning (author: E. Balić)



Sl. 4 - Neukrašena strana nalaza nakon čišćenja (autor: E. Balić)
Fig. 4 - The undecorated side of the find after cleaning (author: E. Balić)

Ako je riječ o potonjim, na kojem bi se jeziku mogli čitati i koje bi im bilo značenje? Također, nije bilo jasno kojoj vrsti pripada životinja prikazana samo u obrisima u središtu predmeta, okružena natpisom (sl. 3 i 4). Stoga smo u Gradskom muzeju Vinkovci rado prihvatili stručnu pomoć kolega iz Mađarske pri tumačenju prikaza životinje i samog natpisa.

ARHEOMETALURŠKA ANALIZA BRONČANOG PREDMETA

U nedostatku odgovarajućih paralela koje bi pomogle odgovoriti na pitanja koja postavlja iločki nalaz, osnovne informacije pokušali smo iščitati ponajprije iz samog predmeta, i to sa stajališta njegove proizvodnje i moguće uporabe. Tijekom evaluacije podataka i opažanja uzeli smo u obzir širok raspon mogućih i isključujućih čimbenika te smo time pokušali odrediti funkciju nalaza, ograničiti područje proučavanja unutar kojeg se mogu tumačiti prikaz životinje i natpis te suziti razdoblje u kojem je predmet mogao biti u uporabi.

Tijekom pregleda predmeta optičkim mikroskopom promatrali smo površinske promjene, a ručnim XRF uređajem utvrđivali smo sastav materijala.[4] Nismo imali mogućnost uzimanja uzoraka

was that the object had been cut from a thicker sheet of bronze and the depictions subsequently incised upon it. The depression in the middle of the extension suggested that it had been prepared for drilling, in which case the object might also have served as a pendant. We soon realised, however, that the depiction would then have been upside down. Despite its unusual shape and decoration, the object proved to be of genuine archaeological origin. Nevertheless, in spite of extensive research, no clear parallel for this object was found, which made it difficult to determine when it was made, what it was for and how it was used. Questions also arose concerning the characters that looked like inscriptions: were they merely meaningless imitations of letters, or real letters forming meaningful texts – graphemes with sound values?

If the latter were the case, in what language could they be read, and what would they mean? The species of the animal, rendered only in outline at the centre of the object and surrounded by the inscription, was likewise unclear (Fig. 3 and Fig. 4). The City Museum of Vinkovci therefore gladly accepted the expert assistance of colleagues from Hungary, who helped to interpret both the animal depiction and the inscription itself.

[4] Željeli bismo zahvaliti profesorima Béli Töröku



Sl. 5 - Udubljenje koje dijeli protruziju (autor: G. Szabó)
Fig. 5 - The depression dividing the projection (author: G. Szabó)



Sl. 6 - Dio unutrašnjosti (jezgre) predmeta, vidljiv ispod modernih oštećenja (autor: G. Szabó)
Fig. 6 - Part of the interior (core) of the object, visible beneath modern damages (author: G. Szabó)

pa izmjereni podatci ne odražavaju ukupni sastav predmeta, što treba uzeti u obzir pri njihovu ocjenjivanju.[5]

Prilikom pregleda predmeta postalo je jasno da udubljenje na istaci nije priprema za rupu (sl. 5), već samo ukrasni element koji ukrašeni dio protruzije dijeli na dva dijela koja završavaju u obliku dvostruke ptičje glave (?) (na drugoj strani nema tragova ukrašavanja). Na temelju položaja prikaza životinje u središnjem dijelu diska može se zaključiti da ova protruzija tijekom uporabe nije bila na vrhu predmeta, nego na njegovu dnu, što određuje njegovu pravilnu orijentaciju.

i Péteru Barkóczyju, vodećim arheometrijskim i arheometalurškim istraživačima Sveučilišta u Miskolcu, na njihovoj podršci koja je omogućila provedbu XRF analize te na stručnim i prijateljskim savjetima tijekom redovitih konzultacija.

5 Szabó 1998a; Szabó 1998b; Szabó *et al.* 2019.

ARCHAEOMETALLURGICAL ANALYSIS OF THE BRONZE OBJECT

Due to the lack of suitable parallels to address the questions raised by the find from Ilok, we have primarily sought to derive the basic information from the object itself, particularly with regard to its manufacture and possible use. While evaluating the data and observations, we considered a wide range of contributing and excluding factors, in an attempt to determine the function of the find, to define the field within which the animal depiction and the inscription may be interpreted, and to narrow down the period in which it was likely in use.

Examination under an optical microscope revealed the surface alterations, while the composition of the material was determined with a handheld XRF device.[4] We had no opportunity to take samples, which must be borne in mind when assessing the measured data, since these do not reflect the bulk composition.[5]

During the examination of the object, it became clear that the depression on the object's projection is not a preparation for a hole (Fig. 5), but merely a decorative element, dividing the ornamented part of the projection's body into two sections that terminate in the form of a double bird's head (?) (there is no trace of decoration on the other side). Namely, based on the position of the animal in the central part of the disc, we conclude that the projection was at the bottom rather than the top during use, which constitutes the correct orientation of the object.

In essence, this is an elongated bronze object in the form of a disc. The edges show no sign that the object was cut out of a larger plate. The golden-yellow colour of the inner (core) part of the object, visible in places of surface damage, points to a high content of alloying material (Fig. 6). Its surface on both sides, as well as the recessed lines of the circular inscription and the animal depiction, is everywhere covered with a roughly uniform, greenish-grey patina. It is plainly visible that these are not corrosion products (oxides) but a hard, metallic layer, which also differs substantially in composition from the alloy of the interior, i.e. the core. In

4 We would like to thank Professor Béla Török and Professor Péter Barkóczy, leading archaeometric-archaeometallurgical researchers at the University of Miskolc, for their support, which made the XRF tests possible, and for their professional and friendly advice during our continual consultations.

5 Szabó 1998a, 1998b; Szabó et al. 2019.



Sl. 7. - Podrezani rubovi na ukrašenoj strani, nedostatak rupa (autor: G. Szabó)
Fig. 7 - Bevelled edges on the decorated side; absence of holes (author: G. Szabó)

Riječ je o izduženom brončanom predmetu u obliku diska. Na rubovima nema tragova koji bi upućivali na to da je predmet izrezan iz veće ploče. Zlatnožuta boja unutrašnjeg (jezgrenog) dijela predmeta, vidljiva na mjestima površinskih oštećenja, ukazuje na visok udio legirajućeg materijala (sl. 6). Površinu predmeta s obiju strana, kao i udubljene linije kružnog natpisa i prikaza životinje, posvuda prekriva približno jednolika zelenkasto-siva patina. Jasno je vidljivo da nije riječ o korozijskim produktima (oksidima), nego o čvrstom metalnom sloju koji se i po svojem sastavu znatno razlikuje od legure unutrašnjosti, odnosno jezgre. Ponegdje se mogu uočiti oblici slični dendritskim granama kao i male kuglaste tvorevine ili zrnate čestice koje se čak mogu smatrati precipitatima, što ukazuje na to da je sloj nastao tehnikom taljenja, odnosno lijevanjem i prelijevanjem. Na istaci i na disku, uz njegov donji dio, jasno se vidi da je rub koso podrezan, što je tipično za lijevane predmete jer omogućuje njihovo lakše vađenje iz kalupa (sl. 7). To upućuje na zaključak da je osnova predmeta izrađena lijevanjem.

Već pri srednjem povećanju jasno su vidljiva široka udubljenja nejasnih rubova i neravna dna redaka koji čine ukras i natpis; oni su nepravilni, s povremenim prekidima, a na mnogim su mjestima vidljive i greške u lijevanju i grudice (sl. 8 – gore). Sve to upućuje na zaključak da natpis i prikaz životinje nisu nastali grebanjem ili urezivanjem u brončani predmet (sl. 8 – dolje).

Natpis i prikaz životinje izrađeni su prije lijevanja metalnog diska, za koji je korišten mekši, vjerojatno voštani predložak. Već uočeni podrez na istaci i rubovima diska, koji se proteže cijelom debljinom



Sl. 8a - Tragovi u natpisu koji upućuju na ukrašavanje voštane preforme prije lijevanja, koji isključuju urezivanje (autor: G. Szabó)
Fig. 8a - Traces in the inscription pointing to the decoration of the wax preform before casting, ruling out engraving (author: G. Szabó)

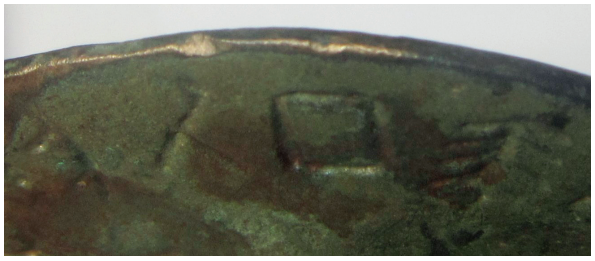


Sl. 8b - Detalj urezanog natpisa na ploči br. 8 blaga iz Nagyszentmiklósa (preuzeto iz: Bühler – FreiBerger 2015, Taf. 222)
Fig. 8b - Detail of the engraved inscription on plate no. 8 of the treasure from Nagyszentmiklós (taken from: Bühler – FreiBerger 2015, Pl. 222)

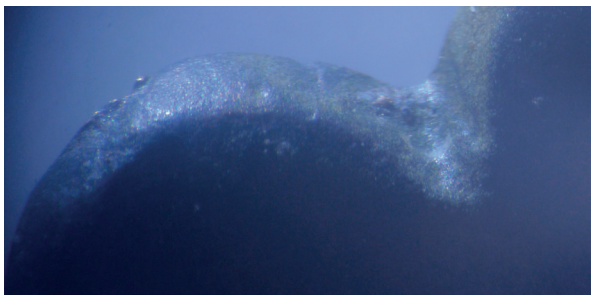
places, shapes resembling dendritic branches can be seen, along with small globular formations/granular particles that may even be regarded as precipitates, indicating that the layer arose through a melting technique, i.e. it was produced by casting and over-pouring. On the projection and at the base of the disc it is clearly apparent that the edge is bevelled, which is typical of cast objects, to facilitate the removal from the mould (Fig. 7). This indicates that the body of the object was made by casting.

Even at medium magnification, the broadly incised, blurred edges and the uneven bottoms of the lines forming the decoration and the inscription are clearly visible; they are irregular, with occasional interruptions, and in many places casting flaws and lumps can also be observed (Fig. 8 – top). All of this indicates that the inscription and the animal depiction were not produced by scratching or engraving into the bronze object (Fig. 8 – bottom).

They were executed before the metal disc was cast, on a softer template, probably of wax. The bev-



Sl. 9a - Tragovi obrade viška voska na rubu ukrašene strane iločkog predmeta
Fig. 9a - Traces of the working of excess wax on the edge of the decorated side of the object from Ilok



Sl. 9b - Tragovi lijevanja na protruziji (autor: G. Szabó)
Fig. 9b - Traces of the casting on the projection (author: G. Szabó)

predmeta sužavajući se prema neukrašenoj strani, olakšavao je vađenje predmeta iz kalupa te upućuje na to da je vosak tijekom izrade predloška izliven u vodoravno postavljen kalup glatke površine. Ukras i natpis naneseni su na izloženu gornju stranu nakon što se posip ohladio. To također znači da je uporabom kalupa za lijevanje voštane pretforme moglo biti izrađeno više sličnih neukrašenih primjeraka te da bi se njihove varijacije mogle pronaći u budućnosti. Natpis i prikaz životinje vjerojatno su zagrijanim metalnim alatom naneseni na gornju stranu diska od sirovog voska prije nego što je izvađen iz krute forme. Na rubovima predmeta i na njegovoj protruziji vide se mali izbočeni dijelovi nalik „čičku“, koji su okrenuti prema ukrašenoj strani predmeta, što pokazuje da je višak voska koji je tijekom izlijevanja zaostao na rubovima plitkog kalupa već tada bio dorađen (sl. 9).

Ovako pripremljen voštani predložak, koji je već postao unikatan, obložen je glinom i/ili pijeskom, nakon čega je predmet izliven postupkom izgubljenog voska. Čini se logičnim pretpostaviti da je protruzija tijekom tog postupka služila i kao uljevni kanal, no na tom području nisu pronađeni površinski tragovi koji bi to potvrdili. Zbog važnosti i cjelovitosti predmeta te radi njegova očuvanja, el already noted on the projection and the edges of the disc, which facilitates the removal of the object from the mould and tapers across the entire thickness of the object towards the undecorated side, also indicates that the wax was poured into a horizontally positioned mould with a smooth surface during the making of the template. The decoration and the inscription were applied to the exposed upper side once the pour had cooled. This also means that several similar, undecorated specimens could have been produced with the mould that was used to cast the wax preform, and it is possible that variations of them will be discovered in the future. The inscription and the animal depiction were probably applied with a heated metal tool to the upper side of the raw wax disc before it was removed from the rigid form. Along the edges of the object and on its projection, small projecting “burr”-like elements can be seen, turned towards the decorated side of the object, showing that the excess wax left on the edges when it was poured out of the shallow mould had already been worked over at that stage (Fig. 9).

The wax model, once prepared in this way and already rendered unique, was encased in clay and/or sand and cast using the lost-wax process. It seems logical that the projection also served as the pouring channel during casting; however, no surface traces of this process were identified in that area. Due to the artefact’s importance, completeness and the need to protect it, only non-destructive analyses, carried out at the City Museum of Vinkovci, were possible during the first phase of material testing. Consequently, for the time being we can only surmise certain stages and the lattice structure of the raw material’s composition on the basis of surface features, our current knowledge and experience, and the results of experimental archaeological research.[6] The data obtained with the portable XRF device on the high-alloy casting – assumed on the basis of the golden-yellow colour visible beneath the modern damages – can be interpreted only to a limited extent, and exclusively for the partially oxidised surface prior to conservation.[7] During the analysis of the composition of the material, eight measuring points were designated, five on the decorated side and four on the other. The object is evenly and entirely covered with a grey-greenish metal-

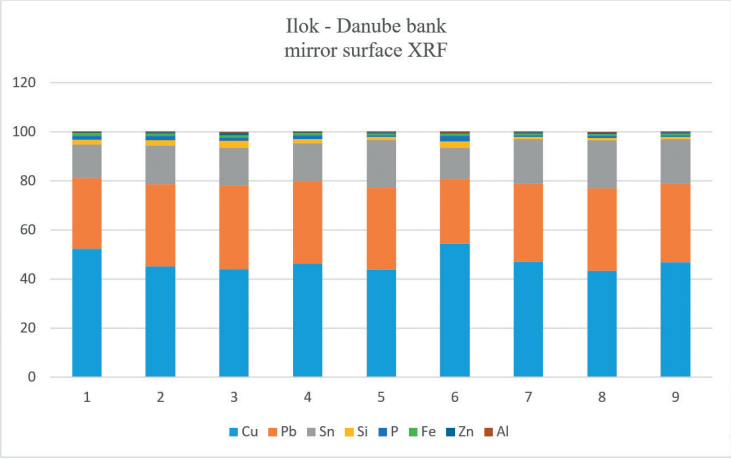
[6] Szabó 2013
[7] Szabó et al. 2019, p. 8; Török, Giumlia-Mair 2022, pp. 163–165

tijekom prve faze ispitivanja materijala u Gradskom muzeju Vinkovci mogli smo primijeniti samo nedestruktivne metode analize. Stoga zasad možemo samo naslućivati pojedine faze i rešetkastu strukturu sirovine na temelju površinskih pojava, dosadašnjih znanja i iskustava te rezultata eksperimentalnih arheoloških istraživanja.[6] Na temelju zlatnožute boje vidljive ispod novijih oštećenja pretpostavljeno je da je odljev visokolegiran. Podatci dobiveni pomoću ručnog XRF uređaja mogu se interpretirati samo u ograničenoj mjeri, i to isključivo u odnosu na djelomično oksidiranu površinu prije konzervacije.[7] Tijekom analize sastava materijala određeno je ukupno devet mjernih točaka, pet na ukrašenoj i četiri na neukrašenoj strani. Predmet je ravnomjerno i u cijelosti prekriven sivozelenkastim metalnim slojem koji sadržava približno polovicu bakra, trećinu olova i šestinu kositra, a korodiran je samo površinski (graf 1 i tablica 1). Sastav unutrašnjosti predmeta, odnosno jezgre, bitno se razlikuje od sastava površinskog sloja, što je vidljivo već po boji. Površinsko obogaćivanje legiranim materijalom može biti posljedica primijenjene tehnologije proizvodnje. Na primjer, pojačani korozijski procesi rezultat su povećane napetosti u strukturi rešetke prouzročene mehaničkom obradom. Međutim, u ovom je slučaju riječ o predmetu lijevanom tehnikom izgubljenog voska, koja prema dosadašnjim rezultatima istraživanja obično ne uzrokuje znatne razlike između sastava unutrašnjosti (jezgre) i površine. Nismo pronašli ni tragove naknadnog gorenja diska, koje bi također moglo rezultirati znatnim obogaćivanjem legirajućim elementima. Sve to upućuje na zaključak da olovno-kositreni sloj s niskim udjelom bakra na površini nije nastao mehaničkom obradom ni korozijskim procesima, nego je namjerno nanesen kao premaz.

U načelu, olovno-kositrena površina može nastati nanošenjem tanke ploče takva sastava, umakanjem diska u rastaljenu smjesu ili nanošenjem te smjese na njegovu površinu. Međutim, sivkasti premaz koji je vidljiv na svim dijelovima predmeta, uključujući protruziju i duboke linije natpisa i prikaza životinje, ima ujednačenu strukturu te je na mjestima novijih ogrebotina jasno povezan s unutrašnjošću, odnosno jezgrom materijala. To upućuje na zaključak da nije riječ o dodatnom elementu odljeva, nego o njegovu

lic layer of high alloy content – roughly one half copper, one third lead and one sixth tin – corroded only superficially (Graph 1 and Table 1). The composition of the interior (core) differs fundamentally from the above, beginning with its very colour, for several reasons. Surface enrichment with alloying material can be a consequence of the production technology employed; increased corrosion processes, for instance, result from increased stress in the lattice structure brought about by mechanical working. In the present case, however, we are dealing with an object cast by the lost-wax technique, which, according to research data available so far, does not usually produce significant differences between the composition of the interior (core) and that of the surface. Nor did we find any signs of subsequent burning of the disc, which could likewise have led to substantial enrichment in alloying materials. All of this indicates that the lead-tin layer with low copper content on the surface did not arise as a result of mechanical working or corrosion processes, but from a deliberately applied coating.

In principle, a lead-tin surface can be created by applying a thin plate of that kind, by dipping the disc into a molten mixture, or by applying the mixture to it. However, the greyish coating visible on every part of the object, including its projection, as well as within the deep lines of the animal depiction and the letters, has a uniform structure and is clearly connected with the interior (core) of the material at the more recent scratches. This indicates that it is not an additional element of the casting



Graf 1: Grafički prikaz XRF rezultata sastava površinskog premaza (autor: G. Szabó)
Graph 1: Graphic presentation of the XRF results for the composition of the surface coating (author: G. Szabó)

[6] Szabó 2013.
[7] Szabó *et al.* 2019, str. 8; Török, Giumlia-Mair 2022, str. 163–165.

No	Fe	Cu	Zn	Sn	Pb	Bi	Location
1	0.9909	52.5179	0.2385	13.8609	28.5184	0.0777	Back centrum
2	0.9482	45.3406	0.1716	15.8462	33.3288	0.0509	Back 12h
3	0.8010	44.2576	0.1633	15.5198	33.9721	0.0827	Back 6h
4	0.8931	51.0841	0.1404	14.3391	33.1569	0.0987	Back9h
5	0.8746	46.4021	0.1628	15.4907	33.5234	0.1035	Front centrum
6	1.0376	43.9677	0.4583	19.5926	33.2673	0.0932	Front 6h
7	1.0312	54.5956	0.3030	12.9362	26.0665	0.0822	Front 9h
8	0.7920	47.1902	0.4569	18.1639	31.7567	0.1099	Front 3h
9	0.8669	43.3923	0.4887	19.5965	33.5874	0.1074	Front 12h

Tablica 1: Tablično prikazani XRF rezultati sastava površinskog premaza (autor: G. Szabó)
Table 1: Tabular presentation of the XRF results for the composition of the surface coating (author: G. Szabó)

neodvojivom dijelu, čime se isključuje mogućnost primjene tanke ploče i sugerira primjena tehnike pri kojoj dolazi do difuzijskih procesa. Naši arheološki eksperimenti pokazuju da se na predmetima s visokim udjelom kositra odgovarajućim odabirom tehnologije može postići površinska precipitacija sastava sličnog ovdje promatranom, i to na dva načina. Zbog različitih tališta i svojstava topljivosti legirajućih elemenata kontroliranjem temperature može se utjecati na nastanak, količinu, pa čak i položaj faza različita sastava koje nastaju tijekom kristalizacije ili taljenja. Tekuće metalne slitine tijekom hlađenja ponašaju se kao tekućine, a iz njih na sličan način kristaliziraju pojedine faze koje se, za razliku od kristala pravih otopina, nazivaju kristaliti. Lijevane arheološke brončane predmete karakterizira dendritska mikrostruktura, no brzina hlađenja uvelike utječe na veličinu i strukturu nastalih kristalita. U uobičajenim uvjetima kristalizacija pri hlađenju započinje stvaranjem čvrste otopine višeg tališta, bogate bakrom, u središtu dendrita, a nastavlja se iz taline nižeg tališta, koja je tada bogatija kositrom. Istodobno se zbog fenomena toplinskog širenja volumen dendritske strukture tijekom hlađenja smanjuje. Ako je talina pri niskoj temperaturi

but an inseparable part of it, which rules out the application of a thin plate and points to the need for a technique that generates diffusion processes. Our archaeological experiments show that, with objects of high tin content, a surface precipitation of a composition similar to the one now under examination can be achieved simply by choosing the right technology, and this in two ways. Owing to the differing melting points and solubility properties of the alloying materials, temperature control makes it possible to influence the development, quantity and even position of phases with differing compositions formed during crystallisation or the melting of the melt. During the cooling process, liquid metal alloys behave as liquids, and individual phases crystallise out of them in a similar manner; these are termed crystallites, in contrast to the crystals of true solutions. Cast archaeological bronze objects are characterised by a dendritic microstructure, but the cooling rate greatly affects the size and structure of the crystallites formed. Under normal conditions, upon cooling, crystallization begins with the copper-rich solid solution of higher melting point at the centre of the dendrite, and continues with the melt of lower melting point, which is then richer in tin.

još prisutna u sustavu, skupljanje dendrita potiskuje je prema površini odljevka kroz nepravilne kanale između njihovih grana. Ta je talina tada već znatno obogaćena kositrom te se na površini skrućuje. Taj se proces naziva obrnuto obogaćivanje kositra, a nakon završetka kristalizacije ostavlja dojam da je na površini odljevka nastao sloj. Sadržaj kositra u bronci i uvjeti kristalizacije važni su za razvoj te pojave, koja se može različito realizirati ovisno o predmetu.[8] Na temelju praktičnih iskustava isto se može postići uklanjanjem kalupnog materijala s odljevka u posljednjoj fazi skrućivanja, kada se predmet već može činiti potpuno čvrst, i njegovim naglim hlađenjem. Tijekom eksperimenta to je značilo da je nakon lijevanja tehnikom izgubljenog voska kalupni materijal odmah uklonjen, a predmet uronjen u veliku količinu hladne vode. Pretpostavlja se da su na isti način postupili i nekadašnji majstori pri izradi diska te da je tako nastao jednoličan sloj bogat kositrom i olovom, uočen na nalazu, koji prekriva cijelu površinu predmeta. Olovo se ne otapa u bakru pa tijekom kristalizacije ostaje u preostaloj talini, a u posljednjoj fazi skrućivanja izdvaja se kao zasebna faza. To objašnjava visok sadržaj olova na površini jer se tijekom obrnutog obogaćivanja i olovo zajedno s talinom izdvajalo na površinu. U literaturi se navode i podatci o intermetalnim fazama koje se tijekom kristalizacije sustava bakar – kositar pojavljuju na površini, uz čvrstu otopinu bogatu kositrom i sadržaj olova. One mogu odrediti i boju i ponašanje sloja. Kuglice jasno vidljive pod mikroskopom na uvećanim snimkama površine također pokazuju da je olovo prisutno u premazu, ali nije otopljeno. Stoga se i ovdje moglo izdvojiti u tom karakterističnom obliku.[9] Međutim, korozija utječe i na udio kositra i olova u predmetu pa nije poznato u kojoj su mjeri korozijski procesi promijenili taj udio. Tijekom korozijskih procesa udio kositra i olova na površini pokazuje tendenciju povećanja, i to u različitoj mjeri ovisno o dodatcima u leguri.

Međutim, površina i unutrašnjost (jezgra) predmeta ne razlikuju se samo po boji i sastavu nego i po mehaničkim svojstvima i tvrdoći. Vanjski je sloj mekši te se lako grebe i obrađuje zbog olova izdvojenog u otopini bakra i kositra. Stoga se nužno postavlja pitanje zašto disk nije ukrašen na kraju postupka. Na mjestima novijih oštećenja i ogreboti-

Meanwhile, owing to the phenomenon of thermal expansion, the volume of the dendritic structure contracts during cooling. If melt is present in the system at a low temperature, the shrinking dendrites press the melt, which by then has a considerable tin content, through the irregular channels between the dendrite branches onto the surface of the casting, where it solidifies. This is known as inverse tin enrichment, and at the end of crystallisation it appears as though a layer had formed on the surface of the casting. The tin content of the bronze and the crystallisation conditions are important in the development of this phenomenon, which can occur depending on the object.[8] Practical experience shows that the same effect can be achieved by removing the mould material from the casting in the final stage of solidification (at which point the object may already appear completely solid) and by rapid cooling. In the experiment, this meant that immediately after casting using the lost-wax technique, the moulding material was removed and the object was plunged into a large quantity of cold water. It is assumed that the then craftsmen used the same procedure when they made the disc, which resulted in a uniform layer rich in tin and lead that has been observed on the find and covers the entire surface. Lead does not dissolve in copper itself, so it remains in the residual melt during the crystallization process and then crystallizes as lead in the final stage of solidification. This explains the high lead content of the surface, since during inverse enrichment the lead was also deposited on the surface together with the melt. The literature likewise contains data on intermetallic phases that appear on the surface during the crystallisation of the copper-tin system, alongside the tin-rich solid solution and the lead content. These can determine both the colour and the behaviour of the layer. Under the microscope, the small globules clearly visible in the magnified images of the surface also show that lead is present in the coating, though not in dissolved form, and it may have been released in this characteristic shape here as well.[9] However, the action of corrosion on the object also affects the tin and lead content, and we do not know to what extent corrosion processes have altered them. In corrosion processes, the tin and lead content of the surface tends to increase, to differing degrees with different additives.

[8] Također zahvaljujemo Péteru Barkóczyju na rasvjetljavanju teorijske pozadine procesa.

[9] Scott 1991, str. 27.

[8] We also thank Péter Barkóczy for clarifying the theoretical background of the process.

[9] Scott 1991, p. 27

na jasno je vidljivo da je površinski sloj vrlo tanak, dok linije slova i prikaza sežu znatno dublje. Bronca s udjelom kositra do oko 12 % može se obrađivati jer do te granice sadržava samo fazu čvrste otopine, koja se može oblikovati.[10] Faze spojeva koje se potom pojavljuju čine brončani materijal krhkim i lomljivim. Drugim riječima, naknadna obrada i rezbarenje sirovog materijala s visokim udjelom kositra od kojeg je disk izrađen bili bi znatno teži zbog njegove tvrdoće i krhkosti. Ta činjenica, proizašla iz uporabe visokolegirane sirovine, opravdala je primjenu tehnologije lijevanja metodom izgubljenog voska pri izradi diska. No što je opravdavalo stvaranje površinskog sloja specifična sastava?

U usporedbi s bakrom drugi su metali u leguri skuplji, a u većim ih je udjelima opravdano upotrebljavati samo za predmete koji zahtijevaju posebna svojstva. Zvona se, primjerice, lijevaju od bronce koja sadržava gotovo četvrtinu kositra. Takva je bronca izuzetno krta, ali ima dobra akustička svojstva i praktički je beskorisna za bilo što drugo.

Mogućnost dodavanja različitih metala (ponajprije As, Sn i Sb) koji crvenu boju bakra približavaju zlatnoj ili srebrnoj uglavnom se iskorištavala za postizanje željene boje nakita i oružja.[11] Primjere upotrebe visokolegiranih i namjerno stvorenih površinskih premaza sličnih premazu na istraživanom predmetu nalazimo u zrcalima.

FORMALNA I FUNKCIONALNA ANALIZA BRONČANOG PREDMETA MOGUĆE PARALELE OBLIKA ZA DEFINIRANJE FUNKCIJE

Među predmetima pronađenim u Bökénymindszentu[12] 1881. godine tijekom izgradnje brane na rijeci Tisi Ferenc Pulszky primijetio je sivkast predmet čija je boja površine bila slična boji našeg nalaza.[13] Nije mogao utvrditi čemu je služio, ali je pretpostavio da je izrađen od tzv. zrcalnog metala, slitine koja sadržava 25 – 30 % kositra i 70 % bakra te je izrazito krta, ali ima sjaj sličan sivom srebru.[14] Kasnija istraživanja identificirala su ovaj predmet kao ostavštinu Gepida s Velike mađarske nizine te su ga klasificirala kao tzv. nomadsko zrcalo. Takva

[10] Scott 1991, str. 11–15.
[11] Meeks 1986; Meeks 1993a; Meeks 1993b.
[12] Danas Magyartés, dio grada Szentesa u županiji Csongrád-Csanád u Mađarskoj.
[13] Pulszky 1881, str. 201.
[14] Pulszky 1881, str. 205.

In terms of properties, however, the surface and the interior (core) differ not only in colour and composition. The difference between them is also considerable in mechanical properties and hardness, namely the outer layer is softer, easily scratched and workable due to the lead separated within the copper-tin solution. This therefore inevitably raises the question of why the disc was not decorated at the end of the process. Alongside the more recent damages and scratches, it is plainly visible that the surface layer is very thin, while the lines belonging to the letters and the depiction reach considerably deeper. Bronze can be worked up to a tin content of about 12%, since up to that limit it contains only the solid-solution phase, which can be shaped.[10] The compound phases that then appear make the bronze material brittle and fragile. In other words, the subsequent working and carving of the high-tin raw material used for the disc would have been far more difficult on account of its hardness and brittleness. This fact, which resulted from the high-alloy raw material used, justified the use of the lost-wax casting technique in the production of the disc. But what justified the formation of a surface layer of a specific composition?

Compared with copper, it is more expensive, and other metals in the alloy that significantly affect the properties of the base metal should be used in higher proportions only for objects requiring special properties. Bells, for example, were cast from bronze containing almost one quarter tin: it is extremely brittle, but it produces a pleasant sound and is practically useless for anything else.

The possibility of adding various metals (above all As, Sn, Sb), which shift the red colour of copper towards gold or silver, was mainly used to control the colour of jewellery and weapons.[11] Similar to the object under study, we also find examples of the use of high-alloy materials and deliberately created surface coatings in mirrors.

FORMAL AND FUNCTIONAL ANALYSIS OF THE BRONZE OBJECT POSSIBLE SHAPE-RELATED PARALLELS FOR DEFINING ITS FUNCTION

Among the objects found at Bökénymindszent[12] in 1881 during the construction of a dam on the riv-

[10] Scott 1991, pp. 11–15
[11] Meeks 1986, 1993a, 1993b
[12] Today Magyartés, part of the town of Szentes in Csongrád-Csanád County, Hungary.

zrcala pojavljuju se u Povolžju od 3./2. stoljeća pr. Kr. nadalje, a njihove različite inačice bile su uobičajen dio grobnog inventara ženskih ukopa sve do 12. stoljeća,[15] osobito na Sjevernom Kavkazu i na Krimu. U grobovima se pronalaze na različitim položajima na pokojnicima, primjerice na vratu, ramenima i zdjelici.[16] Stoga se postavlja pitanje jesu li bila dio nošnje ili su visjela negdje u kući na vrpci provučenoj kroz malu petlju na poleđini, gdje bi imala stalno mjesto. Njihova široka rasprostranjenost može se povezati s kretanjem iranskih (alanskih) naroda.[17] Nažalost, unatoč relativno velikom broju zrcala gotovo da nije bilo analiza materijala od kojih su ti predmeti izrađeni, čak ni prilikom inventarizacije avarskih nalaza. Istraživači su se pozvali na rezultate starije analize zrcala iz Novih Banovaca (65 % bakra, 27 % kositra, 7 % olova i 1 % ostalo).[18] Međutim, i nekoliko podataka dobivenih ispitivanjem dobro odražava opće spoznaje o zrcalnom metalu, *spekulumu*. Zrcala su se od tog metala izrađivala još u antičko doba zbog njegovih specifičnih svojstava. Rimljani su upotrebljavali leguru koja je sadržavala 63,4 % bakra, 19,0 % kositra i 17,3 % olova, dok se u Kini upotrebljavala nešto drukčija legura, koja je sadržavala 80,8 % bakra, 8,4 % antimona i 9,7 % olova.[19] Iz toga je također vidljivo da sastav može varirati ovisno o području i vremenu nastanka, dijelom i zbog dostupnosti pojedinih sastojaka, a da se pritom zadržavaju bitna svojstva legure. Na temelju tehničkih opažanja, površinskih mjerenja sastava i utvrđenih omjera analizirani predmet iz Iloka može se klasificirati kao predmet izliven od visokolegirane kositreno-olovne bronce tehnikom izgubljenog voska. Na temelju načina izrade, sirovine i namjerno induciranog površinskog premaza predmet je prikladan i za korištenje kao zrcalo. Međutim, u neposrednoj blizini iločkog nalaza nema formalno sličnog predmeta koji bi mogao pripadati toaletnom setu. Promatrano u širem kontekstu, zrcala od opsidijana, polirana do glatke i sjajne površine, pojavljuju se u ženskim grobovima oko Çatalhöyüka u Turskoj još u neolitiku, dok prvi primjerci egipatskog metala potječu iz vremena od prije otprilike 4000 godina. Uglavnom okrugle pločice, izrađene od srebra, ba-

[15] Balogh 2013, str. 277; Albegova, Kovalevska 2015.
[16] Istvánovits, Kulcsár 1993, str. 15.
[17] Istvánovits, Kulcsár 1993, str. 15, 20.
[18] Balogh 2013, str. 273, bilj. 364.
[19] *A Pallas nagy lexikona*: „Tükörfém" – 'zrcalni metal'.

er Tisza, Ferenc Pulszky noticed a greyish object whose surface colour resembled that of our find.[13] He could not determine its purpose, but he assumed it was made of so-called speculum metal, an alloy of 25–30% tin and 70% copper, which was extremely brittle yet with a lustre akin to grey silver.[14] Later research identified this object as Gepid heritage from the Great Hungarian Plain, classifying it as a so-called nomadic mirror. Such mirrors appear in the Volga region from the 2nd–3rd centuries BC onwards, and their various versions remained common components of female burials up to the 12th century,[15] particularly in the North Caucasus and the Crimea. In graves they are found in different positions on the deceased (at the neck, the shoulders and the pelvis).[16] The question therefore arises as to whether they formed part of the costume or hung in the house on a cord threaded through the small loop on the back, where they would have had a fixed place. Their wide distribution can be linked to a considerable degree with the movements of Iranian peoples (Alans).[17] Unfortunately, despite the relatively large number of mirrors, there have been hardly any material analyses of these objects, not even during the inventorying of Avar finds. Reference was made to the results of an older analysis of the mirror from Novi Banovci (65% copper, 27% tin, 7% lead and 1% other).[18] Nevertheless, the few test data still reflect well the general knowledge relating to mirror metal, *speculum*. Mirrors were made of this metal as early as antiquity due to its specific properties: for the Romans it was an alloy of 63.4% copper, 19.0% tin and 17.3% lead, while the Chinese used a somewhat different alloy, i.e. of 80.8% copper, 8.4% antimony and 9.7% lead.[19] This clearly shows that, while the essential properties of the alloy were retained, its composition could vary depending on the region and period, partly due to the ingredients available. On the basis of the technical observations and the surface measurements of composition and their ratios, the analysed object from Ilok can be classified as an object cast in high-alloy tin-lead bronze by the lost-wax casting technique. Based on its manner of manufacture, its raw mate-

[13] Pulszky 1881, p. 201
[14] Pulszky 1881, p. 205
[15] Balogh 2013, p. 277; Албегова- Ковалевская 2015
[16] Istvánovits, Kulcsár 1993, p. 15
[17] Istvánovits, Kulcsár 1993, pp. 15, 20
[18] Balogh 2013, p. 273, fn. 364
[19] A Pallas Nagy Lexikona: Tükörfém 'mirror metal'.

kra, a potom i bronce, bile su pričvršćene na dršku uz pomoć malog nastavka. Ovo se pomagalo od početka nije upotrebljavalo samo za uljepšavanje, nego mu se pripisivala i znatna magijska moć. O tome svjedoči i predaja prema kojoj je Mojsije pri izlasku iz Egipta načinio obredni umivaonik od bakrenih zrcala žena koje su služile na ulazu u šator zajednice.[20] Ulaštene ploče daju jasnu sliku samo dok su nove. S vremenom oksidiraju i u dodiru sa zrakom potamne, što je u Bibliji opisano riječima apostola: „Jer sada vidimo samo odraz kao u zrcalu; tada ćemo se vidjeti licem u lice".[21] Kod Grka je zrcalo s drškom postalo atribut božice ljepote Afrodite, odnosno rimske Venere, i simbol ženstvenosti koji se koristi i danas. Na etruščanskim predmetima često se pojavljuje scena povezana s krugom božice mjeseca Menrve, odnosno Minerve, čija mnoga obilježja, kao i obilježja ostalih članova nebeskog trojstva, Uni i Tinije, odnosno Junone i Jupitera, imaju iranske paralele. Među natpisima koji pomažu u razumijevanju tih prikaza jedan navodi da je zrcalo dar Titea Calea njegovoj majci.

Zrcala s drškama postala su popularna i u stepama, posebno među Skitima, dijelom kao grčki import. Međutim, ulomak pronađen kod grada Nemirova u Ukrajini, datiran u kraj 7. stoljeća pr. Kr., sugerira da je zrcalo izrađeno lokalno, u skladu s mjesnim preferencijama.[22] Fotografija ulomka kanelirane drške koja pripada zrcalu jasno pokazuje da je cijela površina predmeta izvorno bila prekrivena jednoličnim, sivkastim sjajnim metalnim slojem, dok se na oštećenom dijelu vidi unutrašnjost (jezgra) znatno drukčije, brončane boje.[23] T. B. Barceva spektralnom je analizom predmeta sa širokog područja bivšeg Sovjetskog Saveza identificirala različite vrste brončanih legura. Među njima su kositrena, kositreno-olovna, kositreno-olovno-arsenska, kositreno-arsenska, arsenska i kositreno-antimonska bronca, dok je osnovni sastojak bakar. Međutim, uobičajena uporabna sirovina bio je nelegirani bakar, koji gotovo da nije sadržavao nikakve kontaminante.[24] Prema njezinim zapažanjima, unutar iste geografsko-kulturne cjeline upotrebljavale su se različite legure. Na temelju obrađenih podataka utvrdila je da je kositar korišten u 25 % predmeta,

[20] Izl 38,8.
[21] 1 Kor 13,12; Jak 1,23; Sir 34,3; Job 37,17.23.
[22] Vakhtina, Kashuba 2016, str. 42.
[23] Vakhtina, Kashuba 2016, sl. 4.
[24] Barceva 1981, str. 9.

rial and its deliberately induced surface coating, it is equally suited to be used as a mirror. Yet in the immediate vicinity of the find from Ilok, there is no formally similar object that might have belonged to a toilet set. Looking more broadly, obsidian mirrors polished to a smooth, glossy surface appear in female graves around Çatalhöyük in Turkey as early as the Neolithic period, while the first examples of Egyptian metal mirrors date back about 4,000 years. These are mostly round discs, made of silver, copper and later bronze, that were fastened to a handle by means of a small extension. This utensil, from the very beginning, was not used solely for beauty, but was attributed significant magical power, as is evident from the tradition that Moses, during the Exodus from Egypt, made a ritual basin from the bronze mirrors of the women who served at the entrance to the Tent of the Congregation.[20] Polished plates provide a clear image only when new; over time they oxidize and, when exposed to air, darken, which is described in the Bible by the apostle in a parable: *For now we see only a reflection as in a mirror; then we shall see face to face*.[21] Among the Greeks, the hand-held mirror became an attribute of the goddess of beauty, Venus, a symbol of femininity that is still used today. On Etruscan objects, scenes often appear that refer to the entourage of the lunar goddess Menrva (Minerva), whose many characteristics have Iranian parallels, as well as those of other members of the celestial triad (Uni, Tinia – Juno and Jupiter). Among the inscriptions that help in understanding these depictions, one states that a mirror was a gift from Titius Calus to his mother.

Mirrors with handles became also popular in the steppes, especially among the Scythians; partly as Greek imports, although the discovery of a fragment found near the town of Nemirov in Ukraine, dated to the end of the 7th century BC, suggests that it was made locally according to personal preferences.[22] A photograph of the fluted handle fragment belonging to a mirror clearly shows that the entire surface of the object was originally covered with a uniform, greyish-lustrous metallic layer, while the damaged part reveals an interior (core) of markedly different, bronze colour.[23] Through spectral-analytical

[20] Ex 38:8
[21] 1 Cor 13:12; Jas 1:23; Sir 34:3; Job 37:17, 23
[22] Вахтина- Кашуба 2016, p. 42
[23] Вахтина- Кашуба 2016, Рис. 4

dok je na području Ukrajine u jednakom postotku upotrijebljena kositreno-arsenska bronca. Oko jedne sedmine predmeta izrađeno je s dodatkom arsena, a jedna desetina s dodatkom kositra i olova ili kositra, olova i arsena. Samo su četiri od ukupno 124 predmeta sadržavala antimon. U analiziranim predmetima iz regija Sjevernog Kavkaza i Kubana kombinacije kositra i antimona te kositra i olova u potpunosti su izostale. Kositreno-olovno-arsenska varijanta pojavila se u pet od 211 analiziranih predmeta. Istodobno je udio predmeta koji su sadržavali arsen ili leguru kositra i arsena iznosio oko 30 %, dok udio predmeta od kositrene bronce nije dosezao ni 20 %.[25] Kada je riječ o manjim područjima Kavkaza, predmeti koji su sadržavali kositar i arsen ili samo arsen uglavnom su izostajali ili je njihov udio bio zanemariv.[26] U sibirskim studijama također nije zabilježena kombinacija kositra i antimona, a podatak o samo jednom predmetu koji je među 151 analiziranim primjerkom sadržavao kositar i olovo zanemariv je. S druge strane, ističe se udio predmeta od arsenske bronce veći od 60 %. Uz to, udio predmeta od kositrenih legura iznosi desetinu, dok udio onih od kositreno-arsenskih legura ne doseže ni petinu.[27] Iz jedne od naših ranijih zbirki podataka jasno je da se slični zaključci o općoj slici mogu izvesti tek nakon analize podataka o zrcalima. U središnjem i sjevernom Kazahstanu zrcalo iz kurgana br. 15 u Birliku, koje pripada kulturi Tasmola (8. – 5. st. pr. Kr.), sadržavalo je 5 – 7 % arsena i 10 – 14 % kositra.[28] S druge strane, sličan predmet pronađen u grobu br. 2 u kurganu br. 2 na lokalitetu Lugovoe, koji pripada podgornovskoj fazi ranog tagarskog razdoblja u Minusinskom bazenu, nije sadržavao kositar, nego samo 3 – 5 % arsena, ali je istodobno sadržavao iznimno visok udio nikla od 2 – 4 %.[29] U gotovo čistom bakrenom zrcalu iz groba br. 3 u kurganu br. 2 na lokalitetu Žemčužnoe također je utvrđen znatan udio kobalta. U grobu br. 2 u kurganu br. 5 na lokalitetu Katjuškino uočena je primjesa cinka uz udio kositra od 5 – 7 %. Na Altaju je u predmetu koji pripada kulturi Uyuk iz skitskog razdoblja također utvrđena prisutnost arsena, olova, antimona, cinka, nikla, kobalta, željeza, bizmuta i

research across the vast territory of the former Soviet Union, T. B. Barceva identified various types of bronze alloy, among them tin, tin-lead, tin-lead-arsenic, tin-arsenic, arsenic and tin-antimony bronzes, while copper is the primary component. However, unalloyed copper, which contained hardly any contaminants, was a commonly used raw material.[24] According to her observations, different alloys were used within the same geographical-cultural unit. Based on the processed data, she noted that tin was used in 25% of the objects, while tin–arsenic bronze was used at the same ratio in Ukrainian territories; about one-seventh of the objects were made with the addition of arsenic, and one-tenth with the addition of tin–lead or tin–lead–arsenic. Only four out of a total of 124 objects contained antimony. In the North Caucasus and Kuban regions, the tin-antimony and tin-lead combinations were entirely absent from the analysed objects. The tin-lead-arsenic variant occurred in five cases out of 211 analysed objects, while at the same time the proportion of objects containing arsenic and tin–arsenic alloys was about 30%, whereas that of tin bronze did not even reach 20%.[25] In the smaller regions of the Caucasus, objects containing tin and arsenic or arsenic typically did not occur or were negligible.[26] In Siberian studies, tin and antimony are also absent, and the data on a single object of tin and lead among 151 objects are negligible. On the other hand, the share of arsenical bronze, exceeding 60%, stands out, while tin alloys account for one tenth of the objects, and tin–arsenic alloys do not reach even one fifth.[27] From one of our earlier data sets it is clear that similar conclusions can be drawn from the overall picture only after analysing the data on mirrors. In central and northern Kazakhstan, the mirror in Birlik kurgan no. 15, belonging to the Tasmola culture of the 8th–5th centuries BC, contained 5–7% arsenic alongside 10–14% tin.[28] On the other hand, a similar object found in grave no. 2 of Lugovoe kurgan no. 2, belonging to the Podgornovo phase of the early Tagar period in the Minusinsk Basin, contained no tin, only 3–5% arsenic, yet at the same time an exceptionally high quantity of nickel, 2–4%.[29] In the

25 Barceva 1981, sl. 5.
26 Barceva 1981, sl. 11.
27 Barceva 1981, sl. 5.
28 Beisenov, Havrin 2015.
29 Havrin 2001.

24 Барцева 1981, p. 9
25 Барцева 1981, Рис. 5
26 Барцева 1981, Рис. 11
27 Барцева 1981, Рис. 5
28 Бейсенов– Хаврин 2015
29 Хаврин 2001

zlata.[30] Na temelju podataka izmjerenih na našem predmetu, u okviru sadašnjih mogućnosti, predmet se može svrstati u skupinu kositreno-olovnih bronci. Među uobičajenim kontaminantima karakterističnim za brončane predmete iz Karpatske kotline primijenjenom metodom nije utvrđena prisutnost arsena, antimona, srebra ni nikla, nego samo cinka i bizmuta. Malen broj legirajućih elemenata sugerira da predmet nije izrađen od recikliranog materijala, što je bilo uobičajeno u rimsko doba. Također, kontaminanti ne upućuju na tipične alpske ili balkanske izvore rude.[31] Navedeni podatci dobar su pokazatelj koliko bi se važnih informacija, ne samo o načinu lijevanja nego i o podrijetlu korištene sirovine i mjestu proizvodnje, moglo dobiti daljnjim ciljanim i detaljnim analizama. Te bi se analize trebale temeljiti na uzorkovanju cjelokupnog presjeka predmeta, a nadamo se da će biti provedene u budućnosti.

Već u 7. stoljeću pr. Kr. među skitskim zrcalima pojavljuju se primjerci u obliku diska s malim petljastim ušicama na poleđini i karakterističnom ručkom u obliku životinje, koji se mogu smatrati pretečama kasnijih tzv. nomadskih zrcala. Najljepši primjer među njima jest jedinstveno zrcalo od elektrona iz 7. stoljeća pr. Kr., pronađeno u kurganu br. 4 u Kelermesu na sjeverozapadnom Kavkazu. Na poleđini zrcala, koja je podijeljena na osam kružnih polja, prikazani su životinjski motivi koji oživljavaju skitska vjerovanja i mitologiju. Na središnjem mjestu nalazi se maloazijska božica Kibela, koja u rukama drži dva leoparda kao simbole. U stepi se pandanom Kibele smatra božica Argimpasa, božanstvo plodnosti životinjskog i ljudskog svijeta, a prema Herodotu i rodonačelnica Skita. U polju nasuprot božici, promatranom iz perspektive prikaza na našem disku, pažnju privlače pojedinosti držanja mačke koja stoji ispred stabla s podignutim repom.[32] Također je zanimljivo primijetiti da su krajevi ručki zrcala u mnogim drugim slučajevima ukrašeni mačkama,[33] a ponekad i gorgonom, simbolom zaštite od nevolja.[34] Široku uporabu zrcala među Skitima i iranskim narodima potvrđuje činjenica da je na područjima sjeverno od Crnog mora zabilježeno više od 600 različitih primjeraka iz razdoblja

[30] Havrin 2007.
[31] Bray *et al.* 2015, str. 206, sl. 1.
[32] Szabó 2022a, str. 228, sl. 9.
[33] Kuznecova 2002, str. 142, tab. 77–97; Kuznecova 2010, tab. 120.
[34] Kuznecova 2002, str. 88, tab. 32–33.

almost pure copper mirror of grave no. 3 in Zhemchuzhny kurgan no. 2, a significant percentage of cobalt was also found. In grave no. 2 of Katyushkin kurgan no. 5, an admixture of zinc was observed alongside a tin content of 5–7%. In the Altai Mountains, the presence of arsenic, lead, antimony, zinc, nickel, cobalt, iron, bismuth and gold was likewise established in an object of the Uyuk culture of the Scythian period.[30] On the basis of the data measured on our object, within the present possibilities, it can be assigned to the group of tin-lead bronze alloys. Among the usual contaminants typical of bronze objects from the Carpathian Basin, the method employed detected no presence of arsenic, antimony, silver or nickel; only zinc and bismuth were found. The low number of alloying elements suggests that the object was not made of recycled material, as was common in the Roman period. Furthermore, the contaminants do not point to typical Alpine or Balkan ore sources.[31] The data presented above clearly demonstrate how much important information—not only about the casting technique, but also about the provenance of the raw material and the place of manufacture—can be obtained through further targeted and detailed analyses. Such analyses should be based on sampling across the entire cross-section of the object, and it is hoped that they will be carried out in the future.

As early as the 7th century BC, specimens appear among Scythian mirrors in the form of a disc with small loop-shaped eyelets on the back and a characteristic animal-shaped handle, which may be regarded as the precursors of the later so-called nomadic mirrors. The finest piece of the latter group is a unique electrum mirror from the 7th century BC, found in kurgan no. 4 at Kelermes in the north-western Caucasus. On the back of the mirror, which is divided into eight circles, animal motifs are depicted that bring to life Scythian beliefs and mythology. The central place is occupied by the Asia Minor goddess Cybele, holding her symbols in her hands: two leopards. In the steppe, the counterpart of Cybele is considered to be the goddess Artimpasa, the deity of fertility of the animal and human worlds, who according to Herodotus was also the progenitress of the Scythians. In the field opposite the goddess – from the perspective of the depiction on our disc – attention is drawn to certain details of

[30] Хаврин 2007
[31] Bray et al. 2015, p. 206, Fig. 1.

6. – 3. stoljeća pr. Kr.[35] Zapanjujuće je da unatoč velikom broju nalaza ne postoje dva potpuno istovjetna primjerka, što sugerira da su nastojali izraditi jedinstvene predmete zbog magijske moći koja se pripisivala zrcalima i njihove namjene za osobnu uporabu. Zrcala sa skitskim drškama prvi su se put pojavila u Karpatskoj kotlini, no dokazi o njihovoj širokoj uporabi javljaju se tek u rimskom razdoblju. Tada se već koristila olovna bronca s visokim udjelom kositra, za razliku od osnovnog materijala s niskim udjelom kositra koji su upotrebljavali Grci i Etruščani.[36] Kod panonskih je primjeraka reflektirajuća ploča, često ukrašena geometrijskim motivima na poleđini, imala ručku ili dršku prethodno izrađenu odvojeno i naknadno pričvršćenu na stražnju stranu.[37] Osim uvezenih rimskih zrcala Sarmati s Velike mađarske nizine uglavnom su upotrebljavali nomadska zrcala u obliku diska, ukrašena plastičnim rebrima na poleđini, s malom petljom u sredini i promjerom od 6 do 10 cm.[38] Dugo se smatralo da su zrcala ovog tipa, izlivena od zrcalnog metala u glinenom kalupu i ukrašena geometrijskim motivima na poleđini, jedinstvena i izrađivana po narudžbi.[39] Međutim, rezultati računalne analize kamenog kalupa iz Tanaisa[40] kao i analize novijih zbirki građe jasno pokazuju da postoje primjerci izrađeni u istom kalupu, ali i kasnije izrađeni otisci.[41] Uz tehnologiju izrade, ideja osobne privrženosti također je mogla imati ulogu u težnji za jedinstvenošću. To potvrđuje i činjenica da se običaj polaganja razbijenih zrcala u grobove može povezati sa Sarmatima među iranskim narodima.[42] Taj je običaj postao široko rasprostranjen, primjerice u kasnijim avarskim grobovima, te je utjecao i na mnoga današnja vjerovanja.

Inačica nomadskog tipa zrcala iz avarskog razdoblja, koja se ne može datirati prije sredine 7. stoljeća, pronađena je u grobu br. 101 na lokalitetu Hajós-Cifrahegy. Ova je inačica posebno značajna iz našeg gledišta, premda ima drukčiju strukturu.[43] Na ovom primjerku nedostaje petlja na stražnjoj strani. Umjesto nje, disk je izliven s malim nastav-

35 Kuznecova 2002, str. 231–250.
36 Bózsa 2016, str. 55.
37 Bózsa 2019.
38 Istvánovits, Kulcsár 1993.
39 Istvánovits, Kulcsár 1993, str. 9.
40 Kozlovskaya, Ilyashenko 2018, sl. 9, 1.
41 Albegova, Kovalevska 2015, str. 74.
42 Istvánovits, Kulcsár 1993, str. 10.
43 Balogh 2013, str. 278.

the posture of the feline standing before a tree with its tail raised.[32] It is also worth noting that in many other cases the ends of mirror handles are decorated with felines,[33] and occasionally with the Gorgon, a symbol of protection against misfortune.[34] The general use of mirrors among the Scythians and Iranian peoples is confirmed by the fact that more than 600 different specimens from the 6th–3rd centuries have been recorded in the areas north of the Black Sea.[35] It is striking that, despite the great number of finds, no two pieces are completely identical, which suggests that craftsmen aimed to produce unique objects, reflecting the magical power attributed to mirrors and their personal use. Mirrors with handles first appeared in the Carpathian Basin during the Scythian period, although evidence of their widespread use only emerges in the Roman era By then, lead bronze with a high tin content was already in use, in contrast to the low-tin base material employed by the Greeks and Etruscans.[36] In the case of the Pannonian specimens, the reflecting plate, often decorated with geometric motifs on the back, had a handle attached to the rear, which had been made separately beforehand and subsequently assembled.[37] Apart from imported Roman mirrors, the Sarmatians of the Great Hungarian Plain mainly used disc-shaped nomadic mirrors, decorated with plastic ribs on the back, with a small loop in the centre and a diameter of 6 to 10 cm.[38] It was long believed that mirrors of this type, cast from speculum metal in a clay mould and decorated with geometric motifs on the back, were unique and made to order.[39] However, the results of computer analysis of the stone mould from Tanais,[40] as well as of more recent collections of material, clearly show that there are impressions made in the same mould, or later impressions.[41] Alongside the production technology, the idea of personal attachment may also have played a part in the striving for uniqueness. This is also confirmed by the fact that the custom of placing broken mirrors in graves can

32 Szabó 2022b, p. 228, Image 9
33 Кузнецова 2002, p. 142, Табл. 77–97; 2010, Табл. 120
34 Кузнецова 2002, p. 88, Табл. 32–33
35 Кузнецова 2002, pp. 231–250
36 Bózsa 2016, p. 55
37 Bózsa 2019
38 Istvánovits – Kulcsár 1993
39 Istvánovits – Kulcsár 1993, p. 9
40 Kozlovskaya – Ilyashenko 2018, Fig. 9, 1
41 Албегова – Ковалевская 2015, p. 74



Sl. 10 - Zrcalo pronađeno u avarskom grobu br. 101 na Hajós-Cifrahegy i njegove istočnoeuropske paralele (preuzeto iz: Balogh 2013)

Fig. 10 - The mirror found in Avar grave no. 101 at Hajós-Cifrahegy and its eastern European parallels (taken from: Balogh 2013)

kom na kojem se nalazi rupa za provlačenje vrpce, što olakšava njegovo vješanje (sl. 10). Na prikazanoj paraleli iz istočne Europe, s nepoznatog nalazišta, također je jasno vidljiv trag nepravilnosti koji je ostavila sirovina prelivena iz kalupa oko nastavka na rubu prednje strane.[44] Upadljivo velika rupa na protruziji zrcala i dvije uske trake ostavljene na njegovim rubovima nisu prikladne za okomito lijevanje pomoću uljevnog kanala, dok je reflektirajuća strana iznimno glatka. Međutim, važno je napomenuti da su manja zrcala slične strukture, često nazivana sekundarnim zrcalima i smatrana privjescima, već bila uobičajen prilog u sarmatskim grobovima oko Crnog mora.[45] Primjerice, velik broj takvih predmeta pronađen je u gradu Tanaisu.[46] Za razliku od oblika poznatih u Rimskom Carstvu, ovi su primjerci bili ukrašeni tamgama načinjenim kao imitacije kineskih znakova iz razdoblja dinastije Han kako bi se povećala njihova magijska i zaštitna moć.[47]

U Karpatskoj kotlini uporaba zrcala u avarskom razdoblju znatno je rjeđa nego u sarmatsko-rimskom, no i u razdoblju bjelobrdske kulture postoje primjeri sekundarne uporabe zrcala, uključujući ona iz rimskog doba.[48] U stepskim se područjima

44 Balogh 2013, str. 540, sl. 1–3.
45 Baranovka, kurgan br. 1 (Smirnov 1989, sl. 40).
46 Kozlovskaya, Ilyashenko 2018, str. 181.
47 Kozlovskaya, Ilyashenko 2018, str. 182.
48 Majs, grob 772 (Kiss 1983, str. 129).

be associated with the Sarmatians among the Iranian peoples.[42] This custom became widespread, for instance in later Avar graves, and even influenced many beliefs that persist to the present day.

A version of the nomadic type of mirror used in the Avar period, which cannot be dated earlier than the mid-7th century, was found at Hajós-Cifrahegy in grave no. 101. This version is especially significant from our point of view, though of a different structure.[43] This specimen lacks the loop on the back; instead, the disc was cast with a small extension with a hole for threading a cord, making it easier to hang it (Fig. 10). The illustrated parallel from eastern Europe, from an unknown findspot, clearly shows a trace of irregularity left by the raw material overflowing from the mould around the extension on the edge of the front side.[44] The strikingly large hole in the mirror's projection and the two narrow strips left at its edges are unsuited to vertical casting by means of a pouring channel, while the reflecting side is exceptionally smooth. It is important to note, however, that smaller mirrors of similar structure, often termed secondary mirrors and regarded as pendants, were already a common grave good in Sarmatian graves around the Black Sea.[45] Many such objects were found, for example, in the town of Tanais.[46] Unlike the forms known in the Roman Empire, the pieces here were decorated with tamgas, fashioned as imitations of the Chinese characters used during the Han dynasty, with the aim of enhancing their magical power, which served as a magical, protective symbol.[47]

In the Carpathian Basin, the use of mirrors during the Avar period was considerably less common than in the Sarmatian–Roman period; however, examples of the secondary use of mirrors, including those dating to the Roman period, are also known from the Bijelo Brdo culture.[48] In the steppe regions, fragments of mirrors of various shapes, possibly depicting animals, appear sporadically among nomadic mirrors, but in larger numbers only up to the Mongol conquest. Nevertheless, occasional finds, such as those from the Volga Bulgars, are recorded as late as the 14th century. An octagonal

42 Istvánovits – Kulcsár 1993, p. 10
43 Balogh 2013, p. 278
44 Balogh 2013, p. 540, Image 1-3
45 Baranovka 1. kurgan: Смирнов 1989, Рис. 40
46 Kozlovskaya – Ilyashenko 2018, p. 181
47 Kozlovskaya – Ilyashenko 2018, p. 182
48 Majs grave 772: Kiss 1983, p. 129

ulomci zrcala različitih oblika, na kojima su možda prikazane životinje, sporadično pojavljuju među nomadskim nalazima, a u većem se broju bilježe samo do mongolskog osvajanja. Ipak, sporadični nalazi, poput onih kod Povolških Bugara, zabilježeni su sve do 14. stoljeća. Osmerokutno zrcalo s ušicama, pronađeno u katakombi br. 11 na Dmitrijevskom naselju i datirano u razdoblje 8. – 9. stoljeća, izdvaja se od saltovskih nalaza oblikom i vitičastim životinjskim ukrasom na poleđini, čija je paralela poznata samo iz Minusinskog bazena.[49] Među vrlo kasnim predmetima iz 13. – 14. stoljeća s područja sajansko-altajske regije poznato je i zrcalo sa sklopljenim ušicama na poleđini, pronađeno u kurganu br. 5 u Paziriku, na kojem jedna od teško prepoznatljivih životinjskih figura podsjeća na mačku.[50] Kod Povolških Bugara pronađeno je nekoliko zrcala slične građe i starosti koja su ukrašena životinjskim prizorima. Na jednom su prikazane ribe, a na drugom biljojedi u dvama krugovima. Pretpostavlja se da je na potonjem prikazan i grabežljivac koji ih progoni.[51] Nakon razdoblja antike, kada su se izrađivali predmeti s natpisima, uporaba pisma postupno je opadala, a ulomak s runskim natpisom iz 9. ili 10. stoljeća, pronađen na groblju Gilevo u Sibiru, smatra se u tom pogledu posebnim nalazom.[52] U potrazi za formalnim i strukturnim paralelama našem nalazu, na temelju shematskog pregleda građe može se primijetiti da se samo pojedini elementi predmeta koji analiziramo pojavljuju na različitim vrstama zrcala. Predmet je diskoidnog oblika, sličan nomadskim zrcalima, ali ima protruziju koja nije perforirana za vezivanje niti je dovoljno velika da bi se mogla držati ili fiksirati u ruci. Završetak te protruzije oblikovan je kao dvostruka ptičja glava (?), blago je povijen unatrag, a pod mikroskopom su vidljivi tragovi istrošenosti. S vrpcom omotanom oko tog dijela predmet se mogao objesiti na isti način kao i nomadska zrcala. Stoga se protruzija na našem nalazu, s obzirom na oblik i funkciju, može identificirati kao kuka.

Sa strukturnog gledišta, sličnost između izduženog zrcala s bočnom petljom, pronađenog u avarskom grobu br. 101 na lokalitetu Hajós-Cifrahegy, i nalaza iz Iloka upućuje na to da se metoda lijevanja u izgubljenom vosku i pričvršćivanje petljom

mirror with eyelets, discovered in catacomb no. 11 at the Dmitrievsky settlement and dated to the 8th–9th century, stands apart from the Saltovo finds by its shape and by the animal-shaped tendril ornament on its back, whose only known parallel comes from the Minusinsk Basin.[49] Among the very late objects of the 13th–14th centuries in the Sayan-Altai, the Turkic finds of Pazyryk kurgan no. 5, a mirror with folded eyelets on the back is known, on which one of the barely recognisable animal figures resembles a feline.[50] Among the Volga Bulgars, several mirrors of similar composition and age have been found that depict animal scenes; one shows fish, another herbivores arranged in two circles, and it is assumed that a predator pursuing them is represented as well.[51] After antiquity, when objects bearing inscriptions were produced, writing gradually declined, and in this respect the piece with a Rovash inscription found in the Gilevo cemetery in Siberia, dating from the 9th and 10th centuries, is regarded as an exceptional find.[52] In searching for formal and structural parallels to our find, a schematic survey of the material reveals that only individual elements of the object under analysis are reflected in various types of mirror. The object is discoid in shape, similar to the nomadic mirrors, but it has a projection that is not perforated for a chord and is not large enough to be held or fixed in the hand. The end of this projection is shaped as a double bird's head (?), slightly bent backwards and shows traces of wear under the microscope. With a cord wound around this part, it could be hung in the same way as the nomadic mirrors. The projection on our find may therefore be identified as a hook, in view of its shape and function.

From a structural point of view, the similarity between the elongated (side-looped) mirror found in the Avar grave no. 101 at Hajós-Cifrahegy and the find from Ilok indicates that the lost-wax casting method and the loop attachment can be placed functionally in the same category. By its material, shape and structure, the object found near Ilok can be identified as a mirror, specifically, as a particular variant of the nomadic mirrors, which appeared in the Carpathian Basin only in the second half of the 7th century. This type of side loop, with a hanging

[49] Pletneva 1989, str. 104–105, sl. 54.
[50] Pletneva 1981, sl. 73, 16.
[51] Pletneva 1981, sl. 79, 2–3.
[52] Pletneva 1981, sl. 26, 83.

[49] Плетнёва 1989, pp. 104–105, Рис. 54
[50] Плетнёва 1981, Рис. 73, 16
[51] Плетнёва 1981, Рис. 79, 2-3
[52] Плетнёва 1981, Рис. 26, 83

mogu funkcionalno svrstati u istu kategoriju. Prema materijalu, obliku i strukturi predmet pronađen kod Iloka može se identificirati kao zrcalo, odnosno kao specifična inačica nomadskih zrcala, koja su se u Karpatskoj kotlini pojavila tek u drugoj polovini 7. stoljeća. Ovaj tip bočne petlje, s visećom petljom na rubu, dosad nije bio poznat. Međutim, iločko se zrcalo od avarskog nalaza razlikuje po tehnici lijevanja u izgubljenom vosku, prikazu životinje i runskom natpisu, što s tehnološkog gledišta upućuje na donju vremensku granicu njegove izrade. Kasniji primjeri zrcala u obliku životinja, kakva su se upotrebljavala još od skitskog razdoblja, mogu se pronaći na području saltovske kulture te na volškobugarskim i turskim područjima u razdoblju od 8. – 9. do 13. – 14. stoljeća. U pregledanoj građi pronašli smo samo nekoliko paralela za runske natpise iz 9. i 10. stoljeća. Sve to zajedno sugerira starost nalaza u tom kontekstu.

PRIKAZANA ŽIVOTINJA I NJEZINO ZNAČENJE

Jedna od najupečatljivijih značajki novootkrivenog zrcala jest životinjska figura koja zauzima središnji dio poleđine. Zbog jednostavna oblikovanja teško je odrediti o kojoj je životinji riječ i kakvu poruku prenosi. Figura je prikazana bočno, samo obrisnim linijama, no četiri noge jasno su prostorno oblikovane. Riječ je o četveronožnoj životinji s vitkim, povijenim tijelom i dugim, zakrivljenim repom koji se uzdiže, dok je izdužena glava okrenuta unazad. Na vratu se nalaze dvije ukrižene linije, iznad kojih je urez u obliku slova V. Kratka linija povezuje potiljak s istaknutim šiljastim ušima, dok su oči naznačene vidljivim točkicama. Iz otvorenih usta izlaze dvije karakteristične linije. Blago pogrbljene noge prikazane su u širini tijela, pri čemu su stražnje noge ravne, a prednje završavaju kratkom linijom.

Iz navedenog je jasno da su životinjski prikazi korišteni za ukrašavanje zrcala u različitim područjima i razdobljima, a osobito su karakteristični za skitske nalaze. Ti prikazi, koji potječu od drevnih istočnih uzora, u velikoj su se mjeri posredstvom kobanske kulture kasnog brončanog doba prenosili preko Kavkaza prema stepama.[53] U kobanskoj kulturi, oblikovanoj pod utjecajem kasnih hetitskih, asirskih i urartskih tradicija, prikazi često sadrže

[53] Scsiev *et al.* 2020.

loop on the edge, was previously unknown. However, the mirror from Ilok differs from the Avar find in its different lost-wax casting technique, its animal depiction, and its Rovash inscriptions, which indicates that, from a technological point of view, it represents the lower limit of the date of its manufacture. Later examples of mirrors with animal forms, which had been in use since the Scythian period, can be found in Saltovo, Volga Bulgar and Turkic territories from the 8th–9th to the 13th–14th centuries. In the material examined, we found only a few parallels for Rovash inscriptions of the 9th–10th centuries. Taken together, all of this suggests the presumed age of the find within that context.

THE DEPICTED ANIMAL AND ITS MEANING

One of the most striking features of the newly discovered mirror is the animal figure within the central part of the back side. Due to the simplicity of the design, it is difficult to determine which animal is depicted and what message it conveys. In side view, the figure is rendered only in outline, but the four legs are clearly formed in space. It is a quadruped with a slender, curved body and a long, arched tail rising upward, while the elongated head is turned backward. On the neck there are two crossed lines, above which there is an incision in the shape of the letter V. A short line connects the nape to prominent pointed ears, and the eyes are marked by visible dots on the head. Two characteristic lines extend from the open mouth. The slightly hunched legs stand on the ground at a width corresponding to the body, with the hind legs straight, while the front legs end in a small line.

From the above, it is clear that animal depictions were used to decorate mirrors in different regions and periods, and are especially characteristic of Scythian finds; these motifs, which originate from ancient eastern predecessors, were significantly transmitted by the Koban culture of the Late Bronze Age, via the Caucasus toward the steppe regions.[53] In the Koban culture, which was influenced by late Hittite, Assyrian and Urartian traditions, depictions often contain fairly realistic elements. These elements help in identifying the animal species and in understanding the messages associated with their

[53] Scsiev et al. 2020

prilično realistične elemente. Oni pomažu u identifikaciji vrsta životinja i razumijevanju njihova simboličkog značenja.[54] S obzirom na važnu ulogu iranskih naroda u širenju uporabe zrcala, čini se korisnim istražiti moguće paralele, prethodnike i mogućnosti tumačenja prikaza na našem zrcalu unutar tog konteksta. Ovu pretpostavku dodatno opravdava činjenica da životinjski lik na našem primjerku pokazuje isti raspored kakav se može uočiti u ranim prostornim prikazima brončanodobne kobanske kulture na Kavkazu.[55]

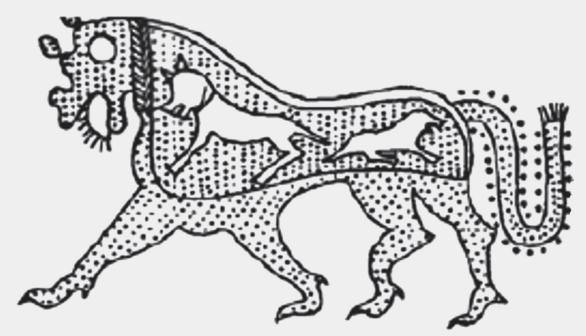
Na temelju stava životinje koja na našem zrcalu gleda unatrag moglo bi se pomisliti i na grubi prikaz jelena. Međutim, na kobanskim prikazima jasno je vidljivo da su biljojedi, uključujući divlje svinje, označeni malim izbočenjem na kraju noge.[56] Na našem zrcalu nema ni rogova ni takvih oznaka na nogama, a rep je dugačak i zakrivljen. Završetak stopala ravnom ili kratkom linijom detalj je karakterističan za mačke na kobanskim nalazima.[57] Isto vrijedi i za visoko postavljen, prema gore zakrivljen rep i otvorena usta. Dvije crte između otvorenih čeljusti mogle bi predstavljati isplažen jezik, ali tomu proturječi činjenica da ih ima više. Iako se donji potez gotovo nastavlja na liniju donje čeljusti, udubljenje koje je izraženije od konture jasno ukazuje na to da pripada zasebnom, sličnom detalju iznad nje. Sličan detalj, označen višestrukim crtama unutar otvorenih usta, može se uočiti i na prikazu kavkaskog leoparda na brončanom pojasu pronađenom na groblju Samtavro u Gruziji (sl. 11), datiranom u razdoblje od kasnog brončanog do starijeg željeznog doba. Taj je detalj važan za određivanje spola jer se pojavljuje četiri puta na prikazima trudnih ženki, prepoznatljivih po mladuncima u utrobi.[58] S druge strane, mužjaci obično imaju jednu uzdužnu crtu koja označava jezik u ustima.[59] Visoko postavljen, dugačak, kovrčav rep ženke leoparda na pojasu iz Samtavra, kao i oznaka nalik ovratniku na njezinu vratu, koja simbolizira snagu i moć, detalji su prisutni i na predmetu koji ovdje analiziramo. Životinja prikazana na našem zrcalu može se identificirati kao mačka, kako po pojedinačnim detaljima tako i po njihovoj ukupnosti, s obilježjima tipičnim

meaning.[54] Given the important role of the Iranian peoples in the spread of mirror usage, it seems useful to examine possible parallels, precursors and interpretative possibilities of the depiction on our mirror within that context. This assumption is further supported by the fact that the animal figure visible on the mirror shows the same arrangement that can be observed in early spatial representations of the Bronze Age Koban culture in the Caucasus.[55]

Based on the animal's posture, with the head turned backward, one might also think of a rough depiction of a deer. However, in Koban representations it is clearly visible that they are herbivores, including wild boars, which are marked by a small protrusion at the end of the leg.[56] On our mirror there are not only no antlers, but also no such markings on the legs, and the tail is long and curved. The end of the foot, which finishes in a straight or small line, is a detail characteristic of felines in Koban finds.[57] The same applies to the high-set, upward-curving tail and the open mouth. The two lines between the open jaws could represent a protruding tongue, but this is contradicted by the fact that there are several of them. Although the lower stroke almost continues the line of the lower jaw, the more pronounced indentation clearly indicates that it belongs to a separate, similar detail above it. A similar feature, marked by multiple lines in open mouths, can also be observed on the depiction of a leopard, i.e. a Caucasian leopard, on a bronze belt found in a Late Bronze Age–Early Iron Age cemetery at Samtavro in Georgia (Figure 11). This detail is significant for the observer and influences the determination of the sex, as confirmed by the repeated appearance of the same motif four times in depictions of pregnant females, identified by the cubs within their bodies.[58] Males, by contrast, usually have a single longitudinal line marking the tongue in their mouths.[59] The high-set, long, curling tail of the female leopard on the belt from Samtavro, as well as the collar-like marking on her neck symbolising strength and power, are details likewise present on the current object of study. The animal depicted on our mirror can be identified as a feline, both by its individual details

54 Szabó 2019; Szabó 2020; Chibirov *et al.* 2021.
55 Castelluccia 2017.
56 Castelluccia 2017, sl. 64, 71, 95.
57 Castelluccia 2017, str. 320 – Tli.???
58 Castelluccia 2017, sl. 90 (290 – Samtavro).
59 Castelluccia 2017, sl. 82 (273 – Treli).

54 Szabó 2019; 2020; Chibirov et al. 2021
55 Castelluccia 2017
56 Castelluccia 2017, Fig. 64, 71, 95
57 Castelluccia 2017, p. 320 - Tli
58 Castelluccia 2017, Fig. 90 (290 - Samtavro)
59 Castelluccia 2017, Fig. 82 (273 - Treli)



Sl. 11 - Prikaz leoparda na brončanom pločastom pojasu kulture Koban (Samtavro, Gruzija. Preuzeto iz: Castelluccia 2017)

Fig. 11 - Depiction of a leopard on a bronze plate-shaped belt of the Koban culture (Samtavro, Georgia. Taken from: Castelluccia 2017)

za ženku leoparda u ikonografiji kobanske kulture. Njezin lokalni, iranski naziv glasi *bars*.

Oseti, koji žive na Kavkazu i čuvaju svoje običaje još od brončanog doba, pripadaju iranskim narodima i do danas su sačuvali mnoge prikaze koji se ističu na nalazima kobanske kulture. Na temelju njihovih običaja i tradicije moguće je osobito dobro protumačiti poruke tih tisućljetnih prikaza.[60] Inačice prikaza mačaka s različitim značenjima iznimno su rasprostranjene i prostorno i vremenski, a uglavnom se pojavljuju u scenama lova i borbi muškaraca. Međutim, kako pokazuju dva leoparda koje drži božica i pretkinja Argimpasa[61] na zrcalu iz Kelermesa – izrađenom u grčkoj radionici prema ukusu skitskog naručitelja i datiranom u drugu polovinu 7. stoljeća pr. Kr. – neke su inačice jasno povezane sa ženama. Kao što je već spomenuto, u polju nasuprot božici nalazi se mačka koja stoji ispred stabla s repom koji se na kraju uvija unazad. To stablo u mezopotamskoj umjetnosti predstavlja „sveto stablo“, simbol plodnosti.[62] Prikaz na brončanoj pojasnoj ploči pronađenoj u grobu br. 350, datiranom u 7. stoljeće pr. Kr. i iskopanom u selu Tli u Sjevernoj Osetiji, podsjeća na legendu o mađarskom čudesnom jelenu.[63] Prikaz je podijeljen na dva dijela, a na svakom se nalazi grabežljiva životinja s kandžama, glavom okrenutom unatrag, otvorenim ustima i ovalnim ušima.[64] Tipično za mačke, repovi su im visoko postavljeni, u početku zakrivljeni, a na kraju

60 Dumézil, Abajev, Csibirov i dr.
61 Herodotus III/59.
62 Komoróczy 1976, str. 571.
63 Szabó 2020.
64 Tehov 2002, str. 17, 20–22.

and by their totality, with features typical of the female leopard in the iconography of the Koban culture. Its local, Iranian name is *bars*.

The Ossetians, who live in the Caucasus and have preserved their customs since the Bronze Age, belong to the Iranian peoples and have preserved to this day many of the depictions prominent on the finds of the Koban culture. On the basis of their customs and traditions, it is possible to interpret particularly well the messages of millennia-old depictions.[60] Various versions of feline representations with different meanings are extremely widespread across both space and time, and are mainly found in scenes of male combat and hunting. However, as shown by the two leopards held by the goddess and ancestress Argimpasa[61] on a mirror made for a Scythian patron in a Greek workshop in Kelermes, dated to the second half of the 7th century BC, some versions are clearly associated with women. As already mentioned, in the field opposite the goddess there is a feline standing in front of a tree, with its tail curling backwards at the end. This tree represents the “sacred tree” in Mesopotamian art, a symbol of fertility.[62] The scene on the bronze belt plate found in grave no. 350, dated to the 7th century BC and uncovered in the village of Tli in North Ossetia, recalls the legend of the Hungarian miraculous deer.[63] This scene is divided into two parts, showing a predatory animal with claws, a backward-turned head, an open mouth and oval ears.[64] Typical of felines, their tails are held high, initially curved and then curling upward at the tip, as well as longer than the body. A narrow band is depicted around the neck, beneath which and along the middle of the body, are rows of dots, while a six-petalled rosette is shown on the haunches, symbolizing the sun. The scene also features round-oval spots on the neck and body, which can likewise be observed on other belts. On the basis of these identifying features, parallels, the combination of attributes, and the local natural environment, the predators depicted on the disc of the aforementioned belt can be more specifically identified as leopards (*Panthera pardus ciscaucasica*), locally named *bars*.[65] We have

60 Dumézil, Abajev, Csibirov etc.
61 Herodotus III/59
62 Komoróczy 1976, p. 571
63 Szabó 2020
64 Техов 2002, pp. 17, 20–22
65 Szabó 2019

uvijeni prema gore te su duži od tijela. Na vratu se nalazi uska vrpca, ispod koje se i po sredini tijela nalaze točkice, dok je na bedrima prikazana rozeta sa šest listova koja simbolizira Sunce. Na prikazu se također vide okruglasto-ovalne mrlje po vratu i tijelu, kakve se mogu uočiti i na drugim pojasevima. Na temelju znakova, paralela, skupa obilježja i lokalnog prirodnog okoliša grabežljivci prikazani na disku spomenutog pojasa mogu se pobliže identificirati kao leopardi (*Panthera pardus ciscaucasica*), lokalno nazivani *bars*.[65] Već smo istaknuli da u znatnom dijelu prikaza iz razdoblja mađarskog osvajanja odjekuju elementi duboko ukorijenjeni u iranski kulturni krug. Nedavna istraživanja pokazala su da se isti drevni simbol plodnosti, povezan s mačkama i svetim stablom, pojavljuje i na diskovima ženskih ukrasa za pletenice.[66] Ti su ukrasi, prema dosadašnjim spoznajama, preneseni u stepska područja posredstvom kobanske kulture, koja ih je preoblikovala u vlastitom stilu.[67] Ranije se smatralo da prikazi tih vitica prikazuju konja koji se kreće prema gornjem svijetu uz stablo života koje mu izrasta iz leđa.[68] Prikazi slična sadržaja na arheološkim i etnografskim predmetima, uz dodatne podatke iz prirodnog okoliša, jasno pokazuju da je riječ o mački. U toj se pozi može promatrati kao zaštitnica i braniteljica na ženskim ukrasima koji osiguravaju plodnost, a u našem slučaju i na zrcalu koje se smatra simbolom ženstvenosti. Među detaljima prikaza na promatranom zrcalu, osim karakterističnog položaja repa i otvorenih čeljusti, možemo primijetiti ovratnik (?) na leopardovu vratu, koji se također pojavljuje na prikazu na pojasu pronađenom u grobu br. 350 u Tliju, kao i na velikom broju diskova za ukrašavanje pletenica iz vremena mađarskog osvajanja. Sličnu poruku vjerojatno nosi i dio vitice koji izlazi iz mačjih usta i dalje se grana u obliku vitica, kao na paru diskova za kosu iz groba br. 47 na lokalitetu Karos-Eperjesszög.[69] No kakvo bi značenje mogla imati ta poruka? Kao što smo već primijetili na kobanskim prikazima, postoji razlika u označivanju isplažena jezika; kod mužjaka se obično pri-

[65] Szabó 2019.

[66] Balatonújlak, Dunamocs, Eger, Ibrány, Jánosszállás, Kalocsa, Karos, Kistokaj, Kunpeszér, Nyíracsád, Sárrétudvari (grob 267), Tiszaeszlár – Bashalom, Vörs.

[67] Szabó 2022a, str. 230–233.

[68] Fodor 1975, str. 256.

[69] Vágó 2015, str. 492, IX. 4.

already pointed out that elements deeply rooted in the Iranian cultural sphere echo through a substantial proportion of the depictions of the Hungarian Conquest period. Recent research has shown that the same ancient fertility symbol, associated with felines and the sacred tree, appears on the discs of women's hair braids.[66] According to ancient history, these braids were transmitted to the steppe regions through the Caucasian Koban culture, which paraphrased them in its own style.[67] (It was formerly held that the depictions of these tendrils showed a horse moving towards the upper world along the tree of life growing out of its back.)[68] Depictions of similar content on archaeological and ethnographic objects, together with additional information from nature, clearly show that a feline is involved. In this pose it can be seen as a guardian and protectress on women's ornaments ensuring fertility—and, in our case, on a mirror regarded as a symbol of femininity. Among the details of the depiction on the mirror under examination, in addition to the characteristic position of the tail and the open jaws, we may note the collar (?) on the leopard's neck, which also appears on the belt depiction found in grave no. 350 at Tli, as well as on a substantial number of the hair-braid discs of the Hungarian Conquest period. A similar message was probably conveyed by the piece of tendril emerging from the feline's mouth and branching into tendrils, as seen on the pair of hair discs from grave no. 47 at the site of Karos–Eperjesszög.[69] But what meaning might this message convey? As we have already observed in the Koban representations, there is a difference in the way the protruding tongue is depicted: in males it is usually shown as a single horizontal line, whereas in females a different feature is used in front of the open mouth.

Like many ancient symbols, pagan customs survived into Christianity. Several parables connected with the leopard can be found in the Bible, where it is portrayed partly as a symbol of an angry god[70] and as a synonym for the inability to change,[71]

[66] Balatonújlak, Dunamocs, Eger, Ibrány, Jánosszállás, Kalocsa, Karos, Kistokaj, Kunpeszér, Nyíracsád, Sárrétudvari grave 267, Tiszaeszlár –Bashalom, Vörs

[67] Szabó 2022b, pp. 230-233

[68] Fodor 1975, p. 256

[69] Vágó 2015, p. 492, IX. 4

[70] Sir 28:23, Hos 13:7: „I will be to them like a lion, like a leopard by the road I will lurk"

[71] Jer 13:23

kazuje vodoravnom crtom, dok se kod ženki upotrebljava drukčije obilježje ispred otvorenih usta.

Poput mnogih drevnih simbola, u kršćanstvu su se održali i poganski običaji. U Bibliji se može pronaći nekoliko prispodoba povezanih s leopardom, koji se dijelom prikazuje kao simbol ljutitog Boga[70] i sinonim za nesposobnost promjene,[71] koju može prekinuti samo dolazak Mesije.[72] Dvojna slika te životinje, koja odražava njezinu žestinu, skriva njezino pravo lice i iznenada privlači one koji joj se usude pristupiti, u srednjovjekovnoj kršćanskoj književnosti i umjetnosti povezana je s njezinom ljepotom i zamamno mirisnim dahom. U razdvajanju dobrih i loših osobina mužjak leoparda, koji se naziva i panterom, poistovjećuje se s grijehom bluda i divljaštvom. S druge strane, ženka leoparda, čiji mirisni dah privlači sve životinje osim zmaja, simbolizira mirotvorni učinak Kristovih riječi i uskrsnuće trećeg dana.[73] Ova podjela prema spolu, vidljiva i na prikazima kobanskih pojaseva, upućuje na to da se razdvajanje dogodilo puno prije, što dodatno sugerira da je kršćanstvo preuzelo mnoge elemente iz iranske kulture i zadržalo ih gotovo nepromijenjene. Mačka s brojnim pjegama može biti simbol đavla obilježena mrljama grijeha, ali i simbol dobrog propovjednika s brojnim vrlinama. Ova se prispodoba često koristi: poput lijepe i graciozne životinje koja privlači biljojede svojom raskošnom ljepotom, a istodobno skriva svoje pravo lice, tako i žena može, nakon što pokaže svoje pravo lice, proždirati vrijeme, novac, tijelo i dušu. Ta mačka stoga postaje simbol ne samo ženstvenosti nego i žene koja želi sve, uključujući i đavla.[74] Gáspár Miskolczi na sličan način opisuje životinju koju naziva panterom u svojem djelu *Divlji vrt*. Osim njezine divlje prirode spominje i kako je pantera spasila čovjeka koji joj je spasio mladunce, usmjerivši ga na pravi put dok je lutao šumom.[75] U tom kontekstu, „možemo s pravom usporediti đavla s panterom (…) Jer, kao što pantera ispušta ugodan miris, tako se i đavao često pretvara u anđela svjetla.“[76]

Parabole povezane s leopardom često su bile omiljena tema u srednjovjekovnim bestijarijima, a

[70] Sir 28,23; Hoš 13,7: „Bit ću s njima kao lav, kao pantera, čekajući kraj puta“.
[71] Jr 13,23.
[72] Iz 11,6.
[73] Ef 2,17.
[74] Vígh 2012; Vígh 2019.
[75] Miskolczi 1702, str. 76–77, I/VIII, 8.
[76] Miskolczi 1702, str. 84, I/VIII, 8.

which only the coming of the Messiah can break.[72] The dual image of this animal, reflecting its ferocity, hidden nature and sudden attack on those who dare approach it, is linked in medieval Christian literature and art with its beauty and its alluringly fragrant breath. By distinguishing between its positive and negative attributes, the male leopard is associated with the sins of lust and savagery, and is often referred to as the panther. The female leopard, on the other hand, whose fragrant breath attracts all animals except the dragon, symbolises the peace-making effect of Christ's words and the resurrection on the third day.[73] (This division by sex, observable in the depictions on the Koban belts, indicates that the separation had occurred long before, which further suggests that Christianity adopted many elements from Iranian culture and preserved them almost unchanged.) A feline with numerous spots may also represent the symbol of the devil, marked by the stains of sin, but equally the symbol of a good preacher endowed with numerous virtues. This parable is frequently used: just as a beautiful and graceful animal attracts herbivores with its sumptuous beauty while concealing its true nature, so too a woman, once she has shown her true face, may devour time, money, body and soul. This feline thus becomes a symbol not only of femininity, but of the woman who wants everything, including the devil.[74] Gáspár Miskolczi similarly describes the animal he calls a panther in his work "The Wild Garden". Besides its wild nature, he also recalls how the panther rescued a man who had saved her cubs, guiding him onto the right path as he wandered through the forest.[75] In this context, "we may justly compare the devil to the panther... For, just as the panther emits a pleasant fragrance, so the devil often disguises himself as an angel of light."[76]

Parables connected with the leopard were favourite themes in medieval bestiaries, which also contain spectacular examples of the oft-mentioned fragrant breath. In a copy of the work of Johannes Cassianus, a 5th-century friar, preserved at Oxford, unsuspecting animals are shown gathered behind a leopard with spotted fur. They do not see its face, but merely sense the delicious scent coming from

[72] Isa 11:6
[73] Eph 2:17
[74] Vígh 2019, 2012
[75] Miskolczi 1702, pp. 76-77. I/VIII. VIII
[76] Miskolczi 1702, p. 84. I/VIII,8

među njima su i spektakularni primjeri često spominjanog mirisnog daha. U prijepisu djela Johannesa Cassianusa, redovnika iz 5. stoljeća, koji se čuva u Oxfordu, prikazane su životinje koje ništa ne slute, okupljene iza leoparda s pjegavim krznom. One ne vide njegovo lice, već samo osjećaju ugodan miris koji dolazi iz njegovih usta.[77] Autor je dah prikazao linijama iscrtanim između otvorenih čeljusti (sl. 12). Da je riječ o dosljedno korištenom ikonografskom elementu, potvrđuje njegovo ponavljanje na stranici kodeksa iz 13. stoljeća, na kojoj životinje okupljene oko pjegavog grabežljivca znatiželjno njuše ugodan miris koji izlazi iz njegovih otvorenih usta.[78] I ovdje autor prikazuje dah linijama iscrtanim između otvorenih čeljusti, baš kao što je majstor kobanske kulture učinio na pojasu iz Samtavra tri tisuće godina prije. Sve to upućuje na zaključak da je kršćanstvo preuzelo simbole i ideje vezane za leoparda iz iranske kulture, učinivši ih sastavnim dijelom svojeg argumentacijskog sustava, kako pisanog tako i slikovnog. Na temelju tih simbola može se tumačiti poruka prikaza koji se ovdje analizira. Leopard prikazan na našem zrcalu simbolizira ženstvenost i plodnost, a njegov mirisni dah izlazi iz raširenih čeljusti, što upućuje na dvojnu prirodu mačke, odnosno žene, koja u svojoj biti predstavlja napast zla, odnosno đavla.

Kao što je već spomenuto, prikaz daha koji izlazi iz usta našeg leoparda vrlo je blisko povezan sa scenom prikazanom na paru diskova za ženske pletenice pronađenih u grobu br. 47 u Karos-Eperjesszögu.[79] Umjesto crta između obraza ovdje se vidi dlakav list sa sitnim crtama koji pripada vitici hmelja i definira cijelu kompoziciju (sl. 13). Sličan prikaz leoparda kojemu iz usta izviruje šiljati dio lista može se vidjeti i na narukvici sa zglobom iz 10. stoljeća iz Szarvasa.[80] Na temelju sličnih detalja može se pretpostaviti da u obama slučajevima ovaj ikonografski element na disku za pletenice, povezan sa ženstvenosti, simbolizira plodnost i odnosi se na zavodljivo dobar leopardov dah. Međutim, dvojbeno je treba li u ovom kontekstu razmatrati temeljno tumačenje đavolskog iskušenja. Na osnovi antičkih primjera može se izvesti značenje slično ulozi gorgone kao zaštitnice od nevolja, koja je također pri-

its mouth.[77] The author rendered the breath by lines drawn between the open jaws (Fig. 12). That this is a consistently used iconographic element is confirmed by its recurrence on a page of a 13th-century codex, where animals gathered around a spotted predator curiously sniff the pleasant scent coming from its open mouth.[78] Here too the author depicts the breath by lines drawn between the open cheeks, exactly as the master of the Koban culture had done on the Samtavro belt three thousand years earlier! All of this indicates that the symbols and ideas associated with the leopard in Iranian culture were also adopted by Christianity, becoming an integral part of its system of argumentation, both written and in pictures. Based on these symbols, the message of the depiction presently under analysis can be interpreted. The leopard shown on our mirror symbolises femininity and fertility, and its fragrant breath emerges from its spread jaws, pointing to the dual nature of the feline – that is, of the female – character, which in essence represents the temptation of evil, the devil.

As already mentioned, the rendering of the breath coming from our leopard shows a very close connection with the scene depicted on the pair of women's hair-braid discs found in grave no. 47 at Karos-Eperjesszög.[79] Instead of lines between the cheeks, a hairy leaf with fine lines is depicted here, which belongs to a hop tendril that defines the whole composition (Fig. 13). A similar depiction of a leopard with a pointed piece of leaf protruding from its mouth can also be seen on a 10th-century hinged bracelet from Szarvas.[80] On the basis of these similar details, it may be assumed that, in both cases, this iconographic element on the braided hair disc, associated with femininity, symbolizes fertility and refers to the leopard's alluring, fragrant breath. However, it is questionable, whether the fundamental Christian interpretation of the devil's temptation should be applied in this context. Drawing on ancient examples, one may instead infer a meaning similar to that of the Gorgon as a protective symbol against misfortune, a motif that is likewise found on mirrors from the Scythian period.[81] In our view, what we are witnessing here are cultural differences. Namely, among certain Iranian peoples in the

77 Bodleian Library MS. Bodl. 602.
78 Bodleian Library MS. Bodl. 764.
79 Vágó 2015, str. 492, IX, 4.
80 Vágó 2015, str. 498, IX, 24.

77 Bodleian Library MS. Bodl. 602
78 Bodleian Library MS. Bodl. 764
79 Vágó 2015, p. 492, IX. 4
80 Vágó 2015, p. 498, IX.24
81 Кузнецова 2002, p. 88, Табл. 32–33



Sl. 12 - Prikaz leopardova daha a) u djelu Johannesa Cassianusa... b) ...i u kodeksu iz 13. stoljeća (preuzeto iz: Bodleian Library MS. Bodl. 602, 764)

Fig. 12 - Depiction of the leopard's breath a) in the work of Johannes Cassianus... b) ...and in a codex from the 13th century (taken from: Bodleian Library MS. Bodl. 602, 764)

kazana na zrcalima iz skitskog razdoblja.[81] Ovdje je, po svemu sudeći, riječ o kulturnim razlikama. Naime, kod nekih iranskih naroda u 10. stoljeću ženka leoparda još je bila povezana s pozitivnim simbolima. S druge strane, u kršćanstvu je, osobito u kontekstu njezina daha, dvojnost postojala puno prije te je leopard postao simbol zla.

U mađarskom svijetu vjerovanja zrcalo je povezano s brojnim običajima i praznovjerjima. Neki od njih, poput iranskih posuđenica u mađarskom jeziku, ušli su u mađarsku kulturu tijekom dodira s iranskim narodima, dok su drugi, kako pokazuju biblijski primjeri, rezultat utjecaja kršćanstva. Nije uvijek moguće utvrditi podrijetlo zabrana, praznovjerja i vjerovanja povezanih sa zrcalom. Na primjer, darivanje zrcala, što potvrđuje etruščanski natpis, nije uvijek bilo zabranjeno, dok se običaj lomljenja i bacanja zrcala u grob javlja isključivo kod Sarmata. U kršćanskom kontekstu zrcalo je atribut tame zbog grijeha taštine te različitih vjerovanja i praznovjerja vezanih za proricanje. Prema tim vjerovanjima zrcalo predstavlja vrata u zagrobni život, čuva dušu svojeg vlasnika, a u njemu se skupljaju i negativne pojave povezane s pokojnikom. Primjerice, ako se netko pogleda u staro zrcalo, može izgubiti ljepotu, mladost i vitalnost, dok slučajno razbijanje zrcala donosi sedam godina nesreće. Mnogi su vjerovali da „vještice imaju zrcalo kroz koje mogu vidjeti sva blaga na zemlji."[82] U područjima naseljenim Mađarima također postoji vjerovanje da nije uputno gledati se u zrcalu nakon zalaska sunca jer

[81] Kuznecova 2002, str. 88, tab. 32–33.

[82] Ipolyi 1854, str. 442.

10th century, the female leopard still retained positive symbolic associations. By contrast, in Christianity, particularly in connection with its breath, the leopard had long since acquired a dual character and ultimately became a symbol of evil.

In the Hungarian world of beliefs, the mirror is connected with numerous customs and superstitions. Some of these, like the Iranian loanwords in the Hungarian language, entered Hungarian culture in the course of relations with Iranian peoples, while others, as biblical examples show, are the result of Christian influence. It is not always possible to determine the origins of the prohibitions, superstitions and beliefs associated with mirrors. For example, the giving of a mirror as a gift, as attested by an Etruscan inscription, was not always considered forbidden, whereas the custom of breaking and depositing mirrors in graves appears to be confined to the Sarmatians. In the Christian tradition, the mirror became an attribute of darkness because of the sin of vanity and its association with various beliefs and superstitions related to divination. According to these beliefs, the mirror serves as a gateway to the afterlife, preserves the soul of its owner and accumulates the negative influences associated with the deceased. For example, it was believed that anyone who looked into an old mirror might lose their beauty, youth and vitality, while accidentally breaking a mirror would bring seven years of misfortune. Many also believed that "*witches possess a mirror through which they can see all the treasures on earth*."[82] In areas settled by Hungarians, there is

[82] Ipolyi 1854, p. 442

onaj tko se tada u njega pogleda vidi đavla ili stražnjicu.[83] Suština ovog podužeg niza primjera jest da je zrcalo osobni predmet magijskih svojstava s kojim vlasnik mora pažljivo rukovati; ne smije ga koristiti bez potrebe, a osobito može biti opasno za druge.

Prema Istvánu Fodoru, većina mađarskih arheoloških spomenika iz doba osvajanja ima svoje paralele u istočnoeuropskim i šumskim stepama.[84] Prethodnike lijevanih, otvorenih inačica diskova za ukrašavanje ženskih pletenica uočio je u probojno lijevanim diskovima sjevernokavkaske alanske i saltovske kulture iz 8. – 9. stoljeća.[85] Taj se tip predmeta prvi put pojavio u naseljima kavkaskih Alana u 6. stoljeću, a značajne skupine Alana doselile su se tridesetih godina 8. stoljeća pred arapskim napadima na područje Dona, što je bio prijelomni trenutak u stvaranju saltovske kulture. Također je primijetio da su se uz Don širili takozvani sunčani amuleti, obično u obliku jednostavna prstena, a ne diskovi ukrašeni figurama konja i jahača kakvi su se upotrebljavali na Sjevernom Kavkazu.[86] S druge strane, smatra da su pločasti ukrasi za pletenice djelo mađarskih majstora u Karpatskoj kotlini, inspirirani istočnjačkim uzorima.[87] Od druge polovine 8. stoljeća amuleti koji predstavljaju Sunce pojavljuju se među značajnim skupinama bugarsko-turskog stanovništva donsko-azovske regije, koja se protezala do područja srednje Volge, kao i među kasnijim Volškim Bugarima. Međutim, od sredine 9. stoljeća ti poganski simboli nestaju iz upotrebe usporedno s jačanjem države i židovske religije na području Hazarije te sa širenjem kršćanstva među Alanima.[88] Jedan od najboljih primjera utjecaja novonastalih svjetskih religija jest pokrovna ploča torbice iz Tiszabezdéda u Mađarskoj, na kojoj se među viticama karakterističnim za umjetnost mađarskih osvajača zajedno pojavljuju bizantski križ i krilata zvijer (*senmurv*), koji upućuju na iranski zoroastrizam, te paun od majolike. Pitanje podrijetla pločastih ukrasa za pletenice, koje su mađarski majstori izrađivali u Karpatskoj kotlini prema istočnjačkim uzorima,[89] daje novo značenje disku pronađenom na lokalite-

[83] Pócs *et al.* 2020.
[84] Fodor 2014, str. 146; Fodor 1980, sl. 8. 2; Fodor 1994, sl. 6. 3.
[85] Fodor 2014, str. 147.
[86] Fodor 2014, str. 148.
[87] Fodor 2014, str. 166.
[88] Fodor 2014, str. 163–164.
[89] Fodor 2014, str. 166.

also a belief that one should not look into a mirror after sunset, because anyone who does will see the devil/the backside.[83] The essence of this lengthy list of examples is that the mirror is a personal object endowed with magical properties, which its owner must handle with great care. It should not be used unnecessarily, and it is considered particularly dangerous to others.

According to István Fodor, most Hungarian archaeological monuments of the Conquest period have their parallels in eastern European and forest steppes.[84] He recognised the precursors of the openwork cast discs used as ornaments for women's braided hair in the openwork cast discs of the North Caucasian Alan culture and the Saltovo culture of the 8th–9th centuries.[85] This type of object first appeared in the settlements of the Caucasian Alans during the 6th century, while substantial groups of Alans migrated to the Don region in the 730s, fleeing the Arab invasions. This migration marked a turning point in the formation of the Saltovo culture. Fodor also observed that along the Don, so-called solar amulets, usually in the form of simple rings rather than discs decorated with figures of horses and riders, as used in the North Caucasus, became widespread.[86] At the same time, he argued that the disc-shaped ornaments for women's braids were the work of Hungarian craftsmen in the Carpathian Basin, inspired by eastern models.[87] From the second half of the 8th century, amulets representing the sun appear among significant groups of the Bulgar-Turkic population of the Don-Azov region, which extended as far as the middle Volga region, as well as among the later Volga Bulgars. From the mid-9th century, however, these pagan symbols gradually disappeared from use, in parallel with the strengthening of the state and Jewish religion in the territory of Khazaria, and with the spread of Christianity among the Alans.[88] One of the finest examples of the influence of the newly emerging world religions is the Tarsoly cover plate from Tiszabezdéd (Hungary), on which a Byzantine cross and a winged beast pointing to Iranian Zoroastrianism, the *senmurv*, with a majolica peacock, can be seen together

[83] Pócs et al. 2020
[84] Fodor 2014, p. 146; 1980, Figure 8. 2; 1994, Image 6. 3
[85] Fodor 2014, p. 147
[86] Fodor 2014, p. 148
[87] Fodor 2014, p. 166
[88] Fodor 2014, pp. 163–164

tu Andreyevskaya Shhel, koji upućuje na izravnije veze s alansko-kavkaskim područjem.[90] Čak se i detalji scene na vrču br. 2 iz blaga iz Nagyszentmiklósa, zlatnoj posudi koja odražava legendu o nastanku kuće Árpád, mogu u širem smislu tumačiti u okviru iranskog tradicijskog sustava, što također upućuje na bliskost iranskom kulturnom krugu, barem kada je riječ o tom predmetu.[91] Na temelju natpisa na alanskom jeziku na vrču br. 6 iz istog blaga – koji je imao smisla samo ako je netko mogao čitati i razumjeti taj jezik – nužno je razmotriti elemente iranskog govornog područja i kulture prisutne među Mađarima.[92] Uostalom, na to se poziva i mađarska predaja o podrijetlu, prema kojoj su Hunor i Magor, progoneći Čudesnog jelena u močvarama Meotisa, oženili dvije kćeri alanskog princa.[93]

Pregledani prikazi povezani sa životinjskom figurom prikazanom na našem zrcalu jasno upućuju na to da su motivi vezani za predodžbe o prirodi i njihova ikonografska formulacija tisućljećima prenosili slične poruke na širokim prostorima. Također se može primijetiti da su pojedine zajednice, bez obzira na svoju veličinu, često izražavale vlastite interpretacije i poruke naizgled sitnim izmjenama i detaljima, kao što je slučaj s prikazom daha. Prvotni vlasnik nije samo maštovito rasporedio jednostavne dekorativne elemente i scene na predmetu, nego ih je svjesno ispunio osmišljenim sadržajem razumljivim njegovoj zajednici. Da bi to postigao, morao je dobro poznavati svijet te zajednice. Na analiziranom je predmetu to još izraženije. Zlatar je majstorski primijenio tehniku lijevanja u izgubljenom vosku, odabravši najkvalitetnije materijale u skladu s funkcijom predmeta. Tvorac prikaza na zrcalu nije samo preuzeo atribute povezane s iranskim kulturnim krugom i diskovima za ženske pletenice iz vremena mađarskog osvajanja, nego ih je toliko dobro poznavao da ih je mogao preoblikovati, ulazeći u najsitnije detalje vezane za predmet i njegovu funkciju. Ta usklađenost proširuje značenje i vrijednost prikaza te izražava dvojnost „ženske prirode“. Na poleđini nalaza iz Iloka prikazan je vitak leopard, simbol ženstvenosti i plodnosti u iranskoj kulturi, ali i đavao koji iz sjene zrcala mami svojim mirisnim dahom. Ta dva lica odražavaju osobu koja se gleda u zrcalu: sprijeda se pojavljuje slika lijepe

90 Lezsák *et al.* 2018.
91 Szabó *et al.* 2021; Szabó *et al.* 2022.
92 Szabó 2021; Szabó 2022b.
93 *Gesta Hungarorum*, izdanje: Kézai 1862/1282–1285.

amid the tendril ornament characteristic of the art of the Hungarian conquerors. The question of the origin of the disc-shaped ornaments for hair braids, created by Hungarian masters in the Carpathian Basin after eastern models,[89] lends new significance to the disc found at the site of Andreyevskaya Shhel, which points to more direct connections with the Alan-Caucasus.[90] Even the details of the scene depicted on jug no. 2 of the Nagyszentmiklós treasure, i.e. a gold vessel reflecting the legend of the origin of the House of Árpád, can, in a broader sense, be interpreted within the framework of the Iranian cultural tradition, or at least, with regard to the object itself, and also point to close ties with the Iranian cultural sphere.[91] Furthermore, the inscription in the Alan language on jug no. 6 from the same treasure—which would have been meaningful only if someone had been able to read, understand and speak that language—makes it necessary to consider the presence of elements of the Iranian-speaking world and the Iranian culture among the Hungarians.[92] Incidentally, the Hungarian tradition of origin itself alludes to this connection, since according to that tradition, Hunor and Magor, while pursuing the Miraculous Stag through the marshes of Meotis, married the two daughters of an Alan prince.[93]

The reviewed depictions related to the animal figure shown on our mirror clearly indicate that motifs connected to natural conceptions and their iconographic formulations carried broadly similar messages across vast regions over millennia. It can also be observed that even small or large communities were often able to express their own interpretations and messages through seemingly minor modifications and details, such as the depiction of breath. The original owner did not merely place simple decorative elements and scenes on the object in an imaginative way, but deliberately imbued them with a conceived content understandable to his community. To achieve this, he had to be familiar with the worldview of that community. In the case of the analysed object, this is even more pronounced. The goldsmith masterfully applied the lost-wax casting technique, selecting the highest-quality materials

89 Fodor 2014, p. 166
90 M. Lezsák et al. 2018
91 Szabó 2021b; 2022a
92 Szabó 2021a; 2022c
93 Kézai, Simon: Gesta Hungarorum, edition: Kézai 1862 /1282–1285

žene, dok iza nje vreba đavao stvarajući privid privlačnosti.

ODREĐIVANJE ILOČKOG NALAZA, NJEGOVA PRIKAZA I STAROSTI

Na temelju materijala, oblika i strukture analizirani predmet iskopan u blizini Iloka može se smatrati zrcalom; štoviše, pripada tipu zrcala s bočnom petljom koji se u Karpatskoj kotlini pojavljuje tek u drugoj polovini 7. stoljeća. Ovaj primjerak može predstavljati dosad nepoznatu varijantu s visećom petljom na rubu. Zrcalo je izradio zlatar iznimna stručnog znanja, znatno iznad prosjeka, upotrebljavajući voštani predložak s jedinstvenim ukrasima i natpisom te leguru s visokim udjelom kositra i olova. Srebrnast olovno-kositreni sloj s niskim udjelom bakra prekriva cijeli predmet, a majstor ga je izradio namjernom toplinskom obradom kako bi postigao glađu i estetski privlačniju površinu te povećao njezinu reflektirajuću sposobnost u skladu s funkcijom predmeta.

Životinja prikazana na iločkom zrcalu može se odrediti kao mačka, kako prema pojedinačnim detaljima tako i prema njihovoj ukupnosti. Ta figura nosi obilježja karakteristična za ženku leoparda u ikonografiji kobanske kulture, odnosno *barsa* prema iranskom nazivu. Dvije crte vidljive između razjapljenih čeljusti sugeriraju mirisni dah koji izlazi iz usta, što se povezuje s uvriježenim vjerovanjem da leopard može privući druge životinje. U širem kontekstu kršćanstva prije 5. stoljeća to se već povezuje s dualnošću leopardove – i ženske – prirode, koja simbolizira iskušenje zla, odnosno đavla. Na poleđini iločkog nalaza istodobno nas promatra vitak leopard, koji u iranskoj kulturi predstavlja ženstvenost i plodnost, te đavao koji se skriva iza zrcala mameći svojim mirisnim dahom. Funkcija predmeta i prikaz na njemu savršeno su usklađeni, poput dvaju lica osobe koja se gleda u njemu: s jedne strane slika lijepe žene, a s druge primamljiv đavao koji vreba.

Na stranicama 228 i 229 članka Géze Szabóa objavljenog 2022. godine opis životinje nalik kavkaskom leopardu (7. st. pr. Kr., grob br. 350, groblje sela Tli u Sjevernoj Osetiji) gotovo savršeno odgovara prikazu mačke na iločkom zrcalu: otvorena usta, glava okrenuta unatrag, visoko postavljen zakrivljen rep i uska vrpca oko vrata. Na iločku životinju podsjeća i lav prikazan na skitskom zrcalu na stranici 228; u obama slučajevima ipak je riječ o mačkama.[94]

[94] Szabó 2022a.

according to the function of the object. The creator of the depiction on the mirror not only copied and used attributes associated with the Iranian cultural sphere and the discs of women's braids from the time of the Hungarian Conquest, but knew them so well that he was able to reformulate them and go into even the finest details related to the object and its function. This harmony allows for an expanded meaning and value, displaying the duplicity of "*female nature*". The reverse side of the find from Ilok features a slender leopard, a symbol of femininity and fertility in Iranian culture, and a devil who lures from the shadow of the mirror with his fragrant breath. These two faces reflect the person looking into the mirror: in front is the image of a beautiful woman, while behind it, a lurking devil creates an impression of temptation.

THE IDENTIFICATION OF THE FIND FROM ILOK, ITS DEPICTION AND ITS AGE

On the basis of its material, shape and structure, the analysed object uncovered near Ilok can be identified as a mirror, more precisely as a type with a lateral loop, which appears in the Carpathian Basin only from the second half of the 7th century. This specimen may represent a previously unknown variant with a hanging loop on the rim. The mirror was made by a goldsmith of exceptional professional knowledge far above the average, using a wax model with unique ornaments and inscriptions and an alloy of high-content tin-lead bronze. A silvery lead-tin layer of low copper content covers the entire object; the master produced it by intentionally using thermal treatment in order to achieve a smoother and more aesthetically refined surface and to enhance its reflective properties in line with the object's function.

The animal depicted on the mirror from Ilok can be described as a feline, both through its individual features and through their overall combination. This figure bears characteristics typical of a female leopard in the iconography of the Koban culture, or *bars*, according to its Iranian designation. Two lines visible between the open jaws suggest a fragrant breath emerging from the mouth, which is associated with the widespread belief that the leopard can attract other animals. In the broader context of Christianity before the 5th century, this already refers to the duality of the leopard's – and woman's – nature, symbolising the temptation of evil, the dev-



Sl. 13 - Disk za žensku pletenicu s groblja Karos-Eperjesszög iz doba mađarskog osvajanja (preuzeto iz: Vágó 2015)
Fig. 13 - Disc for a woman's hair braid from the Karos-Eperjesszög cemetery from the period of the Hungarian Conquest (taken from: Vágó 2015)

Točna oblikovna i konstrukcijska paralela zrcalu s bočnom visećom ušicom iz Iloka nije poznata, no njegov prikaz i natpis mogu pomoći pri preciznijem datiranju. Životinjska figura na poleđini upućuje na povezanost s prikazima na diskovima za ženske pletenice iz vremena mađarskog osvajanja, koji su također usko povezani s iranskom kulturom. Prikaz ugodna mirisnog daha koji izlazi iz usta životinje osobito je blizak nalazima iz Karosa i Szarvasa, koji se mogu datirati u 10. stoljeće. Na temelju svega navedenog, datacija ovog nalaza, koji predstavlja dosad nepoznatu vrstu predmeta, može se, uzimajući u obzir podatke dostupne arheološkom istraživanju, suziti na razdoblje 9. – 10. stoljeća. Na temelju prikaza na njemu predmet se može svrstati među materijalne spomenike iz vremena mađarskog osvajanja.

ANALIZA GRAFEMA NATPISA

Transliteracija je proces u kojem se svaki graf povezuje s grafemom određenog pisma. Grafem može imati jedan ili više glifova (oblika), transliteracijsku vrijednost te jednu ili više glasovnih vrijednosti. Odnos između grafa u natpisu i glifa grafema je takav da graf predstavlja fizičku realizaciju jednog od glifova grafema u natpisu. Ključna karakteristika grafema je transliteracijska vrijednost, kojom se grafemi jednog pisma zamjenjuju grafemima drugog pisma. Transliteracijski zapis obično

il. On the reverse side of the find from Ilok, we are simultaneously confronted with a slender leopard, which in Iranian culture represents femininity and fertility, and a devil living behind the mirror, luring with its fragrant breath. The function of the object and its depiction are perfectly aligned, like the two faces of the person looking into it: on one side the image of a beautiful woman, and on the other the alluring, lurking devil.

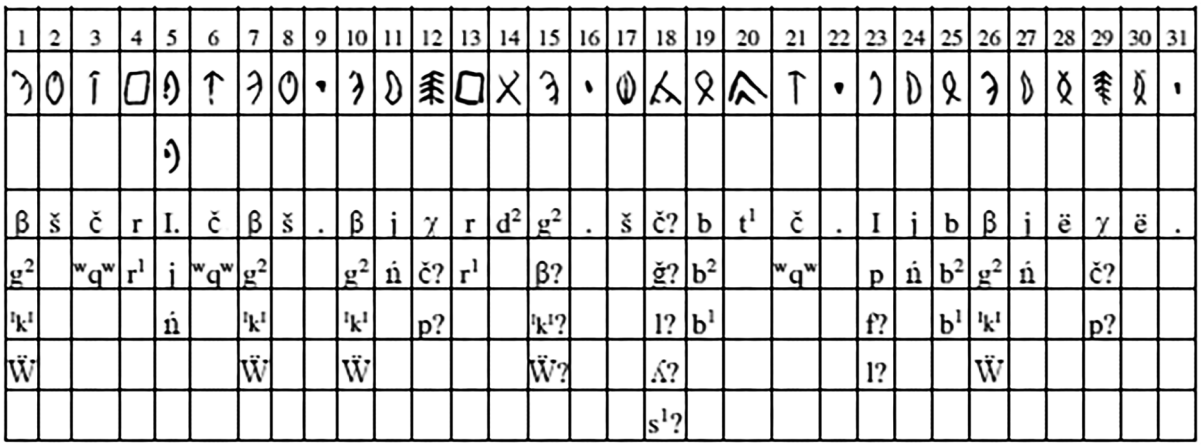
On pages 228–229 of Géza Szabó's article published in 2022, the description of an animal resembling the Caucasian leopard (7th century BC, cemetery of the village of Tli in North Ossetia, grave no. 350) corresponds almost perfectly to the feline depicted here: open mouth, head turned backwards, high-set, curved tail, narrow band around the neck. The lion on the Scythian mirror referenced on page 228 also reminded me of the animal from Ilok; both, after all, are felines.[94]

No exact formal and structural equivalent of the Ilok mirror with its lateral hanging eyelet is known, but its depiction and inscription may help to refine its dating. The animal figure on the reverse suggests a connection with depictions on women's hair-braid discs from the time of the Hungarian Conquest, which is also closely linked to Iranian culture. The depiction of a pleasant, fragrant breath emerging from the figure's mouth shows a particularly close connection with finds from Karos and Szarvas, which can be dated to the 10th century. On the basis of all the above said, the date of this find, which represents a hitherto unknown type of object, can be narrowed down to the 9th–10th centuries, taking into account the data available from archaeological research. It can be classified among the material remains of the Hungarian Conquest based on the imagery depicted on it.

ANALYSIS OF THE GRAPHEMES OF THE INSCRIPTION

Transliteration is the process by which each graph is linked to a grapheme of a particular script. A grapheme may have one or more glyphs (shapes), a transliteration value and one or more sound values. The relationship between a graph in an inscription and a glyph of a grapheme is such that the physical realisation of one of the grapheme's glyphs in the inscription represents the graph. The key character-

[94] Szabó 2022b



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
β	š	č	r	I.	č	β	š	.	β	j	χ	r	d^2	g^2	.	š	č?	b	t^1	č	.	I	j	b	β	j	ë	χ	ë	.
g^2		$^wq^w$	r^1	j	$^wq^w$	g^2			g^2	ń	č?	r^1		β?								p	ń	b^2	g^2	ń		č?		
$^lk^l$				ń		$^lk^l$			$^lk^l$		p?			$^lk^l$?			l?	b^1				f?		b^1	$^lk^l$			p?		
Ẅ						Ẅ			Ẅ					Ẅ?			ʎ?					l?			Ẅ					
																	s^1?													

Tablica 2: Moguća transliteracija grafova Iločkog natpisa (autor: G. Hosszú)
Table 2: The possible transliteration of the graphs of the Ilok inscription (author: G. Hosszú)

se označuje šiljastim zagradama (< >). Iznimka je tablica 2, u kojoj redci 4 – 8 sadržavaju transliteracijske vrijednosti, ali bez znakova < i > zbog ograničena prostora.

Iločki natpis sastoji se od 31 grafa. U tablici 2 ispod precrtanih oblika svakog grafa iločkog natpisa navedene su njihove moguće transliteracijske vrijednosti, pri čemu su manje vjerojatne vrijednosti označene upitnikom. Graf 5 djelomično je oštećen pa su u tablicu 2 uključene dvije moguće varijante njegova precrtana oblika.

Grafemi 1 (), 7 (), 10 () i 26 () mogu predstavljati CBR <Ẅ> /ö, ü/, TR <^{l}k^l> ili TR <g^2>; usp. CBR (Szarvas, prva polovina 8. st.) /ü/; CBR (Kiskundorozsma, posljednja trećina ili kraj 8. st.) ; CBR (Nagyszentmiklós, 8. – 11. st.) , /ü/ <Ẅ>; TR (Talas) , , (Orkhon) [95] <^{l}k^l> /k/; TR (Orkhon, Talas, Yenisey) ;[96] (Yenisej) (*Büyük Larousse* 9, str. 4678); (Talas) , , (Jenisej) , , , [97] <g^2> /g/. Međutim, mogu predstavljati i CBR (Nagyszentmiklós, 8. – 11. st.) <β> /β, v/; SR (Novočerkask, 8. – 10. st.) /v/; SR (Mayatskoe-10, 9. st.) /β/ <β>.[98] U tom smo slučaju pretpostavili pojavu elementarne transformacije obilježja koja se naziva zakrivljenje,[99] odnosno promjenu okomita stabla u zakrivljeno. Tu mogućnost podupiru, s jedne strane, činjenica da graf grafema <β> u drugom retku natpisa iz Szarvasa također ima zakrivljenu osnovu: , a s druge strane činjenica da se zakrivljena osnova javlja i u drugim grafemima. Značajno je da se

[95] Kairžanov 2014, str. 18.
[96] Thomsen 1896, str. 9; Kyzlasov 1994, str. 71.
[97] Kairžanov 2014, str. 17.
[98] Hosszú 2021.
[99] Hosszú 2013b.

istic of a grapheme is its transliteration value, which replaces the graphemes of one script with those of another. The notation of transliteration is usually marked with <>. Table 2 is an exception, where rows 4–8 contain transliteration values but without the characters < and >, due to limited space.

The inscription of Ilok consists of 31 graphs. In Table 2, beneath the outlined shapes of each graph of the Ilok inscription, their possible transliteration values are listed, the less probable transliteration values being marked with a question mark. Graph 5 is partially damaged, so two possible variants of its outlined shape have been included in Table 2.

Graphs 1 (), 7 (), 10 () and 26 () may represent CBR <Ẅ> /ö, ü/, TR <^{l}k^l> or TR <g^2>; cf. CBR (Szarvas, first half of the 8th century) /ü/; CBR (Kiskundorozsma, last third or end of the 8th century) ; CBR (Nagyszentmiklós, 8th–11th centuries) , /ü/ <Ẅ>; TR (Talas) , , (Orkhon) [95]<^{l}k^l> /k/; TR (Orkhon, Talas, Yenisey) ;[96](Yenisey) (BüyükLarousse 9: 4678); (Talas) , , (Yenisey) , , , [97]<g^2>/g/. They may, however, also correspond to CBR (Nagyszentmiklós, 8th–11th centuries) <β> /β, v/; SR (Novocherkassk, 8th–10th centuries) /v/; SR (Mayatskoe-10, 9th century) /β/ <β>;[98] for this, however, we have assumed the occurrence of the elementary feature transformation known as bending,[99] i.e. the vertical stem changes into a curved one. This possibility is supported, on the one hand, by the fact that the graph of the grapheme <β>

[95] Kairžanov 2014, p. 18
[96] Thomsen 1896, p. 9; Kyzlasov 1994, p. 71
[97] Kairžanov 2014, p. 17
[98] Hosszú 2021
[99] Hosszú 2013b

umjesto uobičajenih glifova 𐰃, 𐰉 <I>, koji se nalaze u svim runskim zapisima, pojavljuje zakrivljena inačica <I> u CBR (Nagyszentmiklós, 8. – 11. st.) 𐰾 <I> /í, ï/; SR (Achik-Tash, 8. st.) 𐰾 <I> /i, ï/.[100] Na temelju toga, analizirani grafovi iločkog natpisa mogu predstavljati <β>.

Grafemi 2 (𐰀) i 8 (𐰀) vjerojatno odgovaraju grafemu <š>; usp. CBR (Nagyszentmiklós, 8. – 11. st.) 𐰀, 𐰀 <š>.

Grafemi 3 (𐰇), 6 (𐰋) i 21 (𐰋) mogu se usporediti čak i sa SHR 𐰋 <c> ili TR 𐰋 <k[5], [w]q[w]>, pri čemu transliteracija 'W' u superskriptu znači da je upotreba tog grafema u turskom runskom pismu bila ograničena samo na slogove s glasovnom vrijednošću /o, u/. Međutim, u runskom pismu Karpatske kotline vjerojatno nije bilo sličnog ograničenja u njegovoj uporabi, odnosno mogao se koristiti u bilo kojem slogu.

Grafemi 4 (𐰆) i 13 (𐰆) vjerojatno predstavljaju <r>; usp. CBR (Nagyszentmiklós, 8. – 11. st.) 𐰦, 𐰦 <r> i SR (Achik-Tash, 8. st.) 𐰦;[101] SR (Jitkov, prva trećina 8. st.) 𐰆; SR (Khumara-7, 9. – 10. st.) 𐰦 <r[l]>.[102]

Grafemi 5 (𐰉), 11 (𐰉), 24 (𐰉) i 27 (𐰉) vjerojatno predstavljaju <j> /j/ ili <ń> /ń/. U slučaju grafa 5 može se pojaviti i precrtavanje 𐰉, pri čemu se ono tumači kao dva grafema: CBR 𐰾 <I> i odmah nakon njega · <razdjelnik>. Međutim, ako pogledamo stanje prije restauracije (sl. 1), čini se da je graf bio zatvorena oblika i da je uključivao i točku koja se može tumačiti kao separator, pa se cijeli, djelomično oštećeni oblik može smatrati jednim grafom.

Grafemi 9 (𐰁), 16 (𐰁), 22 (𐰁) i 31 (𐰁) očito imaju značenje · <razdjelnik>. Razdjelnik u obliku točke poznat je u TR, SHR i SR, npr. TR (epitaf Qarï Čor Tegina) · <razdjelnik riječi>, <odjeljak rečeničnog razdjelnika>;[103] SHR (Dombó, kraj 11. – početak 12. st., smjer pisanja LTR) · <oznaka kraja rečenice>;[104] SHR (Konstantinopol, 1515., smjer pisanja LTR) · <razdjelnik riječi>;[105] SR (Novočerkask, 8. – 10. st.) ·; SR (Khumara-6, 9. – 10. st.) · <razdjelnik riječi>.[106] Među CBR natpisima dosad nije pronađen nijedan u kojem je separator središnja točka, ali se na natpisu iz Szarvasa i zlatnom blagu

[100] Vékony 1987, str. 28–29; Vékony 2004, str. 285–297.
[101] Vékony 1987, str. 28–29; Vékony 2004, str. 285–297.
[102] Hosszú 2013a.
[103] Rybatzki, Wu 2015, str. 120–121.
[104] Zelliger, Hosszú 2024.
[105] Zelliger, Hosszú 2014.
[106] Vékony 2004; Hosszú 2013a.

in the second line of the Szarvas inscription likewise has a curved base: 𐰉, and on the other by the fact that a curved base also occurs in other graphemes. Significantly, in place of the usual glyphs 𐰃,𐰉<I> found in all Rovash scripts, a curved version of <I> existed in CBR (Nagyszentmiklós, 8th–11th centuries) 𐰾<I>/í, ï/; SR (Achik-Tash, 8th century) 𐰾<I> /i, ï/.101[100] On this basis, the graphs of the Ilok inscription under examination may represent <β>.

Graphs 2 (𐰀) and 8 (𐰀) probably correspond to the grapheme <š>; cf. CBR (Nagyszentmiklós, 8th–11th centuries) 𐰀, 𐰀<š>.

Graphs 3 (𐰇), 6 (𐰋) and 21 (𐰋) may even be compared with SHR 𐰋<c> or TR 𐰋<k[5],[w]q[w]>, where the superscript 'W' in the transliteration means that the use of this grapheme in the Turkic Rovash script was restricted to syllables with the sound value /o, u/. There was, however, probably no comparable restriction on its use in the Carpathian Basin Rovash script; that is, it could be used in any syllable.

Graphs 4 (𐰆) and 13 (𐰆) probably represent <r>; cf. CBR (Nagyszentmiklós, 8th–11th centuries) 𐰦,𐰦<r> and SR (Achik-Tash, 8th century) 𐰦;[101] SR (Zhitkov, first third of the 8th century) 𐰆; SR (Khumara-7, 9th–10th centuries) 𐰦<r[l]>.[102]

Graphs 5 (𐰉), 11 (𐰉), 24 (𐰉) and 27 (𐰉) probably represent <j> /j/ or <ń> /ń/. In the case of graph 5, the outlining 𐰉 may also apply, in which case it is interpreted as two graphemes: CBR 𐰾<I> followed immediately by · <separator>. If, however, we consider the state before restoration (Fig. 1), the graph appears to have been a closed shape that also incorporated the dot interpretable as a separator, so the whole, partially damaged shape may be regarded as a single graph.

Graphs 9 (𐰁), 16 (𐰁), 22 (𐰁) and 31 (𐰁) evidently denote · <separator>. The dot-shaped separator is known in TR, SHR and SR, e.g. TR (Epitaph of Qarï Čor Tegin)·<word separator>, <sentence-section separator>;[103]SHR (Dombó, end of the 11th – beginning of the 12th century, LTR writing direction) · <sentence-end marker>;[104]SHR (Constantinople, 1515, LTR writing direction) · <word

[100] Vékony 1987, pp. 28–29; Vékony 2004, pp. 285–297
[101] Vékony 1987, pp. 28–29; Vékony 2004, pp. 285–297
[102] Hosszú 2013a
[103] Rybatzki, Wu 2014, pp. 120–121
[104] Zelliger, Hosszú 2025

iz Nagyszentmiklósa kao razdjelnik pojavljuje kratka linija, vrlo slična središnjoj točki: CBR (Szarvas, prva polovina 8. st.) 𐰇; CBR (Nagyszentmiklós, 8. – 11. st.) 𐰇 <razdjelnik riječi>, <razdjelnik odjeljaka>.[107] Važno je napomenuti da su grafemi 16 (𐰇) i 31 (𐰇) iločkog natpisa oblikovani kao kratke okomite crte. Međutim, vjerojatno nisu izvedeni potpuno precizno zbog izazova u primjeni tehnologije pisanja u vosku.

Grafemi 12 (𐰣) i 29 (𐰦) su nepoznati. Najvjerojatnije odgovaraju <χ>; usp. CBR (Nagyszentmiklós, 8. – 11. st.) 𐰣 <χ>.[108] Mogu označavati i <p>; usp. SHR 𐰃, ½ <p>; SHR (Nikolsburg, 1490. – 1526.) *Dtprus* <tprus>[109] i SHR (Kájoni-Ancient, 1673.) 𐰃 <np> /nᵃp/.[110] Može se pojaviti i transliteracija <č>, slično TR 𐰋, 𐰍 <č> i TR 𐰉, 𐰍 <ⁱč, ⁱğ>.

Grafem 14 (𐰗) predstavlja <d>, uspoređujući s TR 𐰗 <d²> /d/. Moguće je i da predstavlja SHR, CBR i SR 𐰗 <b>, no s obzirom na to da natpis sadržava 𐰘 <b/b²/bˡ> (vidi dolje), malo je vjerojatno da ovaj grafem također označava <b>. Kratka dodatna crta u gornjem desnom kutu grafema 14 (𐰗) može se pripisati nesigurnosti pri pisanju. Budući da je natpis izvorno ugreban u voštanu ploču, moguće su bile nepravilnosti u oblikovanju slova. I ostali znakovi natpisa sadrže manje pogreške koje su očito nenamjerne. Na primjer, blago iskrivljen graf 29 (𐰦) zapravo predstavlja isti grafem kao i pravilnije izveden graf 12 (𐰣).

Grafem 15 (𐰁) sličan je grafemima 1 (𐰁), 7 (𐰁), 10 (𐰁) i 26 (𐰁), s tom razlikom što grafem 15 (𐰁) ima tri bočne grane. Na temelju sličnosti, grafem 15 (𐰁) mogao bi odgovarati bilo kojem od grafema CBR, SR 𐰃 <β>; CBR <Ẅ> /ö, ü/; TR <ˡkˡ> ili TR <g²>. Međutim, od njih je samo za TR <g²> poznato da ima tri bočne grane; usp. TR (Yenisey) Ï;[111] (Talas) ⍳, ⍜; (Yenisey) ⍐, ⍥, ⍄, ⍦; (Orkhon) Gᛏ[112] <g²>. Među njima su glifovi Ï i 𐰁 vrlo slični grafemu 15 (𐰁), premda su zrcalno okrenuti, no TR <g²> često se koristio u zrcalnom obliku. Orijentacija i broj grana glifa TR (Chaa-Khol IV) 𐰁 <g²>[113] isti su kao kod grafema 15 (𐰁), samo gornja linija glifa 𐰁 nedostaje ili nije savijena.

Grafem 17 (𐰩) vjerojatno označava <š>; usp. separator>;[105] SR (Novocherkassk, 8th–10th centuries) ·, SR (Khumara-6, 9th–10th centuries) · <word separator>.[106]Among the CBR inscriptions none has so far been found in which the separator was a central dot, yet in the Szarvas inscription and on the gold treasure of Nagyszentmiklós a short line very similar to a central dot occurs as a separator: CBR (Szarvas, first half of the 8th century) 𐰇; CBR (Nagyszentmiklós, 8th–11th centuries) 𐰇 <word separator>, <section separator>.[107] It should be noted that graphs 16 (𐰇) and 31 (𐰇) of the Ilok inscription are shaped as short vertical strokes. They are, however, probably not entirely precise due to the challenges of applying the writing technology in wax.

Graphs 12 (𐰣) and 29 (𐰦) are unknown. Most probably they correspond to <χ>; cf. CBR (Nagyszentmiklós, 8th–11th centuries) 𐰣<χ>.[108]They may also denote <p>; cf. SHR 𐰃, ½<p>; SHR (Nikolsburg, 1490–1526) 𐰃*tprus*<tprus>[109] and SHR (Kájoni-Ancient, 1673) 𐰃<np> /nᵃp/.[110] The transliteration <č> may also apply, similarly to TR 𐰉, 𐰍 <č> and TR 𐰉, 𐰍<ⁱč, ⁱğ>.

Graph 14 (𐰗) represents <d>, by comparison with TR 𐰗<d²> /d/. It is also possible that it is SHR, CBR, SR b<b>, however, since the inscription contains 𐰘<b/b²/bˡ> (see below), it is unlikely that this grapheme also denotes <b>. The short additional stroke in the upper right corner of graph 14 (𐰗) may be attributed to unsteadiness of the hand. Given that the inscription was originally scratched into a wax plate, irregularities in letter shapes were possible. The other characters of the inscription also contain minor errors that are evidently unintentional. For instance, the slightly distorted graph 29 (𐰦) obviously represents the same grapheme as the more regularly drawn grapheme 12 (𐰣).

Graph 15 (𐰁) resembles graphs 1 (𐰁), 7 (𐰁), 10 (𐰁) and 26 (𐰁), with the difference that graph 15 (𐰁) has three lateral branches. On the basis of this similarity, graph 15 (𐰁) could correspond to any of the graphemes CBR, SR 𐰃<β>; CBR <Ẅ> /ö, ü/; TR <ˡkˡ> or TR <g²>. Of these, however, only TR <g²> is known to have three lateral branches; cf. TR (Yenisey) Ï;[111](Talas) ⍋, ⍲, (Yenisey) ⍱, ⍲, ⍋, ⍲,

[107] Vékony 1987.
[108] Vékony 1987.
[109] Németh 1934; Jakubovich 1935, str. 1–17.
[110] Sebestyén 1915, str. 124–126.
[111] Radlov 1893, T. LXXX, 1a, M. M. I.
[112] Kairžanov 2014, str. 17.
[113] Vasil'ev 1976, str. 71–81; Kyzlasov 2015, str. 199.

[105] Zelliger, Hosszú 2014
[106] Vékony 2004; Hosszú 2013a
[107] Vékony 1987
[108] Vékony 1987
[109] Németh 1934; Jakubovich 1935, pp. 1–17
[110] Sebestyén 1915, pp. 124–126
[111] Radlovim 1893, Table LXXX 1 a, M. M. I

SHR (Nikolsburg, 1490. – 1526.) *úus*[114] <š> i CBR (Nagyszentmiklós, 8. – 11. st.) 𐰺, 𐰺 <š>. Zanimljivo je da se inačica ss ovog grafema pojavljuje na još dvama mjestima u natpisu; vidi gore grafeme 2 (𐰺) i 8 (𐰺).

Grafem 18 (𐰴) je nepoznat. Na temelju sličnosti oblika moguće su sljedeće vrijednosti: TR (Yenisey) ã, (Orkhon, Talas, Yenisey) â; (Kalbak-Tash II, 8. st.) 𐰼; (Sary-Koby) 𐰼; (Khentii, druga polovina 8. – početak 9. st.) 𐰼; (rukopis) 𐰾[115] <č, ğ>; CBR (Szarvas, prva polovina 8. st.) 𐰇, 𐰼 <l> ili SHR (Székelyderzs, 1490.) 𐰀; (Nikolsburg, 1490. – 1526.) *Ol*; (Rugonfalva, 16. – 17. st.) 𐰋; (Bonyhaijev primjer, oko 1627.) 𐰽; (Bonyhaijev alfabet, 1627.) 𐰃 <l>. Oblik grafema 18 (𐰴) podsjeća i na naopako zrcalni glif TR 𐰸 <s[1]> /s/, što znači da se ni ta mogućnost podudaranja ne može isključiti. Konačno, moguće je da je glif 𐰴 nastao iz glifa drugog grafema kako bi označio glas koji se prije nije bilježio. Takav bi glas mogao biti palatalni lateralni aproksimant, koji se u Međunarodnoj fonetskoj abecedi (IPA) označuje simbolom [ʎ]. Taj je glas blizak glasu /l/, a u mađarskom se pravopisu latiničnog pisma označuje dvoslovom *ly*. Stoga je moguće zamisliti da je glif 𐰴 oblikovan od CBR 𐰇, 𐰼 <l> radi označavanja glasa [ʎ], slično nastanku inačica glifa SHR 𐰀, 𐰀, 𐰋, 𐰉, 𐰃 <l>. Moguće je i da grafem 18 (𐰴) označava <l> /l/, a da je njegov glif 𐰴 varijanta CBR 𐰇, 𐰼 <l>.

Grafemi 19 (𐰚) i 25 (𐰚) najvjerojatnije odgovaraju jednom od sljedećih: CBR (Nagyszentmiklós, zdjela br. 6, 8. – 11. st.) 𐰆 <b> /u̯/ i TR (Orkhon) 𐰆, 𐰆;[116] (Küli Čur, 719. –724.) 𐰚[117] <b[2]> /b, u̯/. U TR-u se ovaj glif gotovo uvijek pojavljuje u palatalnom slogu, no postoje i iznimke: TR (Orkhon) 𐰆 <b[1]> /b/.[118]

Grafem 20 (𐰾) predstavlja općepoznati grafem TR 𐰾 <t[1]> /t/. Taj se grafem u TR-u pojavljuje isključivo u velarnim slogovima, dok se u CBR-u vjerojatno može pojaviti u objema vrstama slogova, palatalnim i velarnim.

Grafem 23 (𐰉) može odgovarati grafemu CBR ili SR 𐰉 <I> /i, ï/. U orhonskoj inačici TR-a grafem <I> označavao je i /ë/,[119] no to je u našem slučaju malo vjerojatno s obzirom na grafeme 28 (𐰛) i 30 (Orkhon) 𐰞[112]<g[2]>. Of these, the glyphs Ï and 𐰞 are very similar to graph 15 (𐰍), albeit only in mirror image; yet TR <g[2]> was frequently used in mirrored form. The orientation and number of branches of the glyph TR (Chaa-Khol IV) 𐰍<g[2]>[113] are the same as those of graph 15 (𐰍); only the upper line of the glyph 𐰍 is missing or is not bent.

Graph 17 (𐰺) probably denotes <š>; cf. SHR (Nikolsburg, 1490–1526) *úus*[114]<š> and CBR (Nagyszentmiklós, 8th–11th centuries) 𐰺, 𐰺<š>. Interestingly, the 𐰺𐰺 variant of this grapheme appears in two other places in the inscription; see graphemes 2 (𐰺) and 8 (𐰺) above.

Graph 18 (𐰴) is unknown. On the basis of similarity of the shapes, the following options are possible: TR (Yenisey) ã, (Orkhon, Talas, Yenisey) â; (Kalbak-Tash II, 8th century) 𐰼; (Sary-Koby) 𐰼; (Khentii, second half of the 8th – beginning of the 9th century) 𐰼; (manuscript)𐰾[115]<č, ğ>; CBR (Szarvas, first half of the 8th century) 𐰇, 𐰼<l> or SHR (Székelyderzs, 1490) 𐰀; (Nikolsburg, 1490–1526) 𐰀*l*; (Rugonfalva, 16th–17th centuries) 𐰋; (Bonyhai's example, c. 1627) 𐰽; (Bonyhai's alphabet, 1627) 𐰃<l>. The shape of graph 18 (𐰴) recalls the upside-down mirrored glyph TR 𐰸<s[1]> /s/, which means that this matching option cannot be excluded either. Finally, it is possible that the glyph 𐰴 was formed from the glyph of another grapheme in order to represent a sound not previously in use. Such a sound could be the liquid lateral palatal, whose symbol according to the International Phonetic Alphabet (IPA) is [ʎ]. This sound is close to /l/; in the Hungarian orthography of the Latin script, for example, it is denoted as *ly*. It is therefore conceivable that the glyph 𐰴 was formed from CBR 𐰇, 𐰼<l> to denote [ʎ], analogously to the generation of glyph variants from SHR 𐰀,𐰀,𐰋, 𐰉, 𐰃<l>. Finally, it is also possible that grapheme 18 (𐰴) denotes <l> /l/, and that its glyph 𐰴 is a variant of CBR 𐰇, 𐰼<l>.

Graphs 19 (𐰚) and 25 (𐰚) most probably correspond to one of the following: CBR (Nagyszentmiklós, bowl no. 6, 8th–11th centuries) 𐰆 /u̯/ and TR (Orkhon)𐰆, 𐰆; [116](Küli Čur, 719–724)𐰚[117]<b[2]> /b, u̯/. In TR this glyph almost always appears in a pala-

[114] Németh 1934.
[115] Von Gabain 1941.
[116] Kairžanov 2014, str. 17.
[117] Tekin 2003, str. 22.
[118] Kairžanov 2014, str. 17.
[119] Kara 1996, str. 537.

[112] Kairžanov 2014, p. 17
[113] Vasil'ev 1976, pp. 71–81; Kyzlasov, I. L. 2015, p. 199
[114] Németh 1934
[115] von Gabain 1941
[116] Kairžanov 2014, p. 17
[117] Tekin 2003, p. 22

(ᛟ), koji vjerojatno označavaju <ë>, što ćemo razmotriti u nastavku. Međutim, ako smo u slučaju grafema 1 (ᚿ), 7 (ᛇ), 10 (ᛈ) i 26 (ᛉ) pretpostavili mogućnost pojave elementarne transformacije obilježja poznate kao zakrivljenje, ne možemo je isključiti ni ovdje. Prema toj pretpostavci grafem 23 (ᛁ) može odgovarati grafemu <p> u TR-u, SHR-u, CBR-u i SR-u ili grafemu <l[1]> u TR-u. Primjeri za <p>: TR (Orkhon, Talas, Yenisey) ᛂ,[120] (Yenisey) ᛂ;[121] (Dunhuang Letter) ᛅ <p>;[122] SHR (Dombó, kraj 11. – početak 12. st., smjer pisanja LTR) ᚴ, ᛂ <p>;[123] CBR (Kiskőrös-Vágóhíd, posljednja trećina 7. st.) ᛂ <p>; SR (Jitkov, prva trećina 8. st.) ᛂ <p>. Primjeri za <l[1]>: TR (Yenisey) ᚴ, ᛦ, ᚳ <l[1]>.[124] U slučaju <p> može se dogoditi da ne označava /p/, nego (također) /f/. CBR (Szarvas, prva polovina 8. st.) ᛆ <f> /f/ vjerojatno je povezan s CBR ᛂ <p>, SHR ᛯ <p> ili SR (Achik-Tash, 8. st.) ᛯ <p>,[125] odnosno <f> zabilježen na iglenici iz Szarvasa mora potjecati od <p>. Na temelju toga grafem 23 (ᛁ) može označavati i grafem <f> /f/.

Grafemi 28 (ᛝ) i 30 (ᛝ) nesumnjivo predstavljaju grafem <ë> /ë/; usp. TR (Talas, Yenisej) ᛝ;[126] (Yenisey) ᛝ, ᛝ, ᛝ;[127] (Chaa-Khol IV [E-16]) ᛝ <ë>; SHR (Vargyas, 12. – 13. st.) ᛝ /ē/; (štapni kalendar, oko 15. st., sačuvan u prijepisu iz 17. st.) ᛝ /ë/; (Csíkszentmihály, 1501.) ᛝ /e/ <ë>; SR (Achik-Tash, 8. st.) ᛝ <ë>.[128] Gornje kratke linije grafema 30 (ᛝ) prisutne su i nakon restauracije, ali ih je teško razaznati (sl. 3). Međutim, jasno su vidljive na slici 1, snimljenoj prije čišćenja.

JEZIČNA PROBLEMATIKA NATPISA PITANJA ČITANJA RELIKVIJE

Natpis na izgrebanoj površini zrcala podijeljen je na četiri dijela. Ti dijelovi nisu jednake duljine i odvojeni su oznakama u obliku točke. Prvi dio sadržava osam runskih grafova, drugi šest, treći pet, a četvrti ponovno osam. S obzirom na broj znakova, malo je vjerojatno da svaki odjeljak predstavlja jednu riječ. Moguće je da se radi o složenicama ili ob-

120 Kyzlasov 1994, str. 71.
121 *Büyük Larousse* 9, str. 4679.
122 Clauson 1970, str. 75.
123 Zelliger, Hosszú 2025.
124 Kairžanov 2014, str. 18.
125 Turčaninov 1971, XXVII–XXVIII; Vékony 1987, str. 28–29; Vékony 2004, str. 285–297.
126 Kyzlasov 1994, str. 71.
127 Kairžanov 2014, str. 17.
128 Vékony 1987, str. 28–29; Vékony 2004, str. 285–297.

tal syllable, though exceptions exist: TR (Orkhon) ᛒ<b[1]> /b/.[118]

Graph 20 (ᛏ) represents the well-known grapheme TR ᛏ <t[1]> /t/. This grapheme ᛏ<t[1]> occurs exclusively in velar syllables in TR, whereas in CBR it could probably appear in both types of syllable (palatal and velar).

Graph 23 (ᛁ) may correspond to the grapheme CBR or SR ᛁ<I> /i, ï/. In the Orkhon variant of TR, the grapheme <I> also denoted /ë/,[119] but in our case this seems unlikely, given graph 28 (ᛝ) and 30 (ᛝ), which probably denote <ë>, as will be discussed below. If, however, in the case of graphs 1 (ᚿ), 7 (ᛇ), 10 (ᛈ) and 26 (ᛉ) we considered the occurrence of the elementary feature transformation known as bending conceivable, we cannot exclude it here either. Based upon this assumption, graph 23 (ᛁ) may correspond to TR, SHR, CBR, SR <p> or TR <l[1]>. Examples of <p>: TR (Orkhon, Talas, Yenisey) ᛂ,[120] (Yenisey) ᛂ;[121] (Dunhuang Letter) ᛅ<p>;[122]SHR (Dombó, end of the 11th – beginning of the 12th century, LTR writing direction) ᚴ, ᛂ<p>;[123]CBR (Kiskőrös-Vágóhíd, last third of the 7th century) ᛂ<p>; SR (Zhitkov, first third of the 8th century) ᛂ<p>. Examples of <l[1]>: TR (Yenisey) ᚴ, ᛦ, ᚳ<l[1]>.[124] In the case of <p> it may be that it denotes not /p/ but (also) /f/. CBR (Szarvas, first half of the 8th century) ᛆ<f> /f/ is probably related to CBR ᛂ<p>, SHR ᛯ<p> or SR (Achik-Tash, 8th century) ᛯ<p>;[125] that is, the <f> attested on the needle case from Szarvas must derive from <p>. On this basis, graph 23 (ᛁ) may also denote the grapheme <f> /f/.

Graphs 28 (ᛝ) and 30 (ᛝ) undoubtedly represent the grapheme <ë> /ë/; cf. TR (Talas, Yenisey) ᛝ,[126](Yenisey) ᛝ, ᛝ, ᛝ;[127](Chaa-Khol IV [E-16]) ᛝ<ë>; SHR (Vargyas, 12th–13th centuries) ᛝ /ē/; (Stick calendar, c. 15th century, preserved in a 17th-century copy) ᛝ /ë/; (Csíkszentmihály, 1501) ᛝ /e/ <ë>; SR (Achik-Tash, 8th century) ᛝ<ë>.[128] The upper short

118 Kairžanov 2014, p. 17
119 Kara 1996, p. 537
120 Kyzlasov 1994, p. 71
121 BüyükLarousse 9, p. 4679
122 Clauson 1970, p. 75
123 Zelliger, Hosszú 2025
124 Kairžanov 2014, p. 18
125 Turčaninov 1971, XXVII–XXVIII; Vékony 1987, pp. 28–29; Vékony 2004, pp. 285–297
126 Kyzlasov 1994, p. 71
127 Kairžanov 2014, p. 17
128 Vékony 1987, pp. 28–29; Vékony 2004, pp. 285–297

licima osnovne riječi s nekoliko nastavaka (tvorbena osnova + oznaka + afiks). Na temelju glasovnih vrijednosti grafema ti dijelovi nisu se mogli identificirati. U nastavku će se svaki odjeljak smatrati retkom. Naša je preliminarna pretpostavka da se redci sastoje od gramatički i semantički povezanih riječi te da četiri retka čine jedan koherentan tekst. Ove pretpostavke služe kao osnova za daljnje čitanje i dešifriranje natpisa.

Granice riječi u ovoj fazi dešifriranja nisu jasno definirane i mogu se proizvoljno mijenjati prema pokušajima dešifranta. Na temelju karakteristika runskog pisma riječi koje treba dešifrirati mogu se formirati od zabilježenih suglasnika i samoglasnika koji zajedno čine riječ, ali često nedostaju u natpisu pa ih je potrebno pretpostaviti. Samoglasnik se tako može nalaziti na početku riječi, ali riječ može započeti i suglasnikom. Prema našim pretpostavkama riječ se može sastojati od jednog ili dvaju slogova koji sadržavaju od 1 do 3 suglasnika i od 1 do 2 samoglasnika.

Da bismo dešifrirali tekst, potrebno je znakove povezati s određenim jezikom. U početku smo uzeli u obzir sve jezike koji su bili prisutni u Karpatskoj kotlini u vrijeme nastanka predmeta. Mađarski jezik, kao mogući jezik sjećanja, izdvojio se od ostalih kada je ocrtana prva riječ koja se sa sigurnošću može pročitati na mađarskom. Posljednja tri grafema drugog dijela, čitana slijeva nadesno, jesu [r + d + g]. Kada dodamo samoglasnike, možemo zaključiti da se radi o riječi ördög ‘đavao’, prema njezinu današnjem glasovnom obliku.[129] Sljedeći korak u dešifriranju bio je usmjeriti pažnju na odgovarajuće fonetske i leksičke elemente uzimajući u obzir stanje mađarskog jezika u razdoblju 9. – 10. stoljeća. Na toj je razini bilo potrebno analizirati brojne moguće riječi u svakom retku, uzimajući u obzir moguće fonetske varijacije, te na temelju semantičkih, dijalektoloških i etimoloških aspekata odabrati vjerojatnije mogućnosti. Transliteracija, čitanje (fonemska transkripcija) i značenje natpisa redak po redak prikazani su u tablici 3.

Budući da se natpis čita na mađarskom jeziku, u transliteraciji pojedinih grafema izostavljene su oznake fonetskog podudaranja, odnosno vokalne

[129] Ovdje i u nastavku, na temelju arheološke analize (9. – 10. st.), izostavljeni su visoki korijenski samoglasnici (fonetski bliski samoglasnici) na kraju riječi, ali to ne umanjuje važnost informacije s obzirom na tadašnje jezično stanje.

lines of graph 30 (ᛦ) are still present after restoration, though difficult to identify (Fig. 3); they are, however, clearly visible in Fig. 1, taken before cleaning.

LINGUISTIC ISSUES OF THE INSCRIPTION QUESTIONS OF READING THE RELIC

The inscription on the scratched surface of the mirror is divided into four parts. These parts are not of equal length and are separated by a dot-shaped marker. The first part contains 8 Rovash graphs, the second 6, the third 5, and the fourth again 8 Rovash graphs. Given the number of characters, it is unlikely that each section represents a single word. They may be compounds, or the form of a base word with several affixes (derivational + sign + affix). Based on the sound values of the graphemes, these parts could not be identified. In what follows, each section will be treated as a line. Accordingly, our preliminary assumption is that the lines consist of words grammatically and semantically connected, and that the four lines form a single coherent text. These assumptions serve as the basis for the further reading and decipherment of the inscription.

At this stage of the decipherment, word boundaries are not clearly defined and may be changed according to the hypotheses of the decipherer. On the basis of the characteristics of the Rovash scripts, the words to be deciphered can be formed from the recorded consonants and vowels that together make up a word, but which are often missing from the inscription and must therefore be assumed. Thus, a word may begin with a vowel, but it may equally begin with a consonant. According to our working assumptions, a word may consist of one or two syllables, containing one to three consonants and one to two vowels.

To decipher the text, the characters must be linked to some language. At the outset, we took into account all the languages present in the Carpathian Basin at the time the object was made. The Hungarian language, as the possible language of memory, stood out from the others once the first word that can be read with certainty in Hungarian was outlined. The last three graphemes of the second part, from left to right, are [r + d + g]. By adding vowels, we may conclude that the word is ördög “devil”, according to its modern phonetic form. (Here and below – on the basis of the archaeological analysis, 9th–10th centuries – we have omitted the high root

Transliteration with international notation	Phonemic transcription with Hungarian notation	Meaning of inscription per line
⟨β š k r j k β š⟩	/^{a}β^{a}s kr^{a}j kü^{e}βs/	'The edge of the dense forest is stony.'
⟨β j χ r d g⟩	/β^{á}j χ^{u} ^{ü}rdüg$^{(ü)}$/	'Ouch! Hu! Devil!'
⟨š l b t k⟩	/s^{ü}l b^{e}t^{e}k/	'Sick with *süly*!'
⟨f j b β j ë χ ë⟩	/^{i}fj^{á}b^{b} β^{á}j éχé/	'The younger! Alas, the younger's hunger!'

Tablica 3: Transliteracija, transkripcija i značenja Iločkog natpisa redak po redak (authori: E. Zeliger & G. Hosszú)

Table 3: The transliteration, transcription and meanings of the Ilok inscription, line by line (authors: E. Zeliger & G. Hosszú)

harmonije (sinharmonizma). Glasovne vrijednosti prilagođene su glasovima mađarskog jezika, ali su zabilježene prema međunarodnom standardu. Na primjer, grafem koji odgovara grafu 20 (𐰴) ne označuje se kao <t^{1}>, kako je uobičajeno u TR-u, nego kao <t>. Slično tomu, grafemi koji odgovaraju grafovima 3 (𐰃), 6 (𐰆) i 21 (𐰆) nisu prikazani kao <^{w}q^{w}> u TR-u, nego su označeni kao <k>, u skladu s mađarskom fonetskom vrijednosti. Istodobno je transliteracija grafema koji odgovara grafovima 2 (𐰀), 8 (𐰀) i 17 (𐰋) <š>, prema međunarodnom standardu.

Što se tiče posljednje riječi natpisa, primjetno je da u cijelom tekstu nema grafema koji označuju samoglasnike, dok su u njoj označena oba samoglasnika. Objašnjenje za to nalazimo u pravilima runskog pisma: dugi samoglasnici uvijek su se ispisivali. Ta praksa potječe iz aramejskog pisma, u kojem su se gotovo u svim slučajevima označivali samo dugi samoglasnici. To se obilježje prenijelo u nekoliko pisama,[130] uključujući srednjoiranska pisma. Primjerice, u manihejskom sogdijskom pismu, koje pripada srednjoiranskoj skupini pisama, dugi se samoglasnici također uvijek ispisuju.[131] Jedan od prethodnika runskog pisma pripada skupini srednjoiranskih pisama. U našem natpisu samo posljednja riječ sadrži duge samoglasnike (usp. tablicu 3), zbog čega su oni i ispisani.

OBJAŠNJENJE RIJEČI

Pojam *avas*, koji označava 'gustu šumu' ili 'zabranjenu šumu', može se pronaći u srednjovjekovnim poveljama. Prvu poznatu potvrdu tog pojma nalazimo u nazivu mjesta na granici Keszija u okru-

[130] Erdal 2004, str. 44.

[131] Skjærvø 1996, str. 519.

vowels (phonetically close vowels) at the ends of words, but this does not diminish the importance of the information in view of the linguistic state of the period.) The next step in the decipherment was to focus on the corresponding phonetic and lexical elements, taking into account the state of the Hungarian language in the 9th–10th centuries. At this stage, it was necessary to analyse numerous words in each line, thereby taking into account possible phonetic variations, and to select the more probable options on semantic, dialectological and etymological grounds. The transliteration, reading (phonemic transcription) and meaning of the inscription, line by line, are presented in Table 3.

Since the inscription is read in Hungarian, the transliteration of the individual graphemes is presented without the superscript referring to phonetic matching (vowel harmony, i.e. synharmonism). The sound values are adapted to the sounds of the Hungarian language but are recorded according to the international standard. For example, the grapheme corresponding to graph 20 (𐰴) is not denoted by <t^{1}>, as is customary in TR, but by <t>. Similarly, the graphemes corresponding to graphs 3 (𐰃), 6 (𐰆) and 21 (𐰆) are not presented as <^{w}q^{w}> in TR, but are marked with <k>, in accordance with the Hungarian phonetic value. At the same time, the transliteration of the grapheme corresponding to graphs 2 (𐰀), 8 (𐰀) and 17 (𐰋) is <š> according to the international standard.

In terms of the last word of the inscription, it is notable that throughout the text there are no graphemes denoting vowels, yet here both vowels are marked. The explanation is to be found in the rules of Rovash writing: long vowels are always written. This practice derives from the Aramaic script, where almost exclusively only the long vowels were marked. This feature was transmitted to sever-

gu Gömör. U dokumentu iz 1232. godine spominje se: „ad Occ. ad locum (…) Iwanus*auasa*“.[132] Također se može pronaći u *Rječniku povijesti riječi iz Transilvanije*, iako se uglavnom odnosi na podatke o imenima mjesta (I, 509–510). Kao imenica taj je pojam zabilježen i u rječnicima mađarskih dijalekata, MTsz. i ÚMTsz., s podatcima iz Székelylanda. U *Mađarskom velikom rječniku* nalaze se podatci o njegovoj uporabi kao imenice. U dokumentu iz 1782. godine stoji: „megegyeztünk (…) az falu tilalmas *Avassából* minden embernek (…) egy-egy terhe fát (osztani)“, dok se 1881. godine spominje: „Egy szarvast nyomoztam ott a mély *avasban*“. Iz Jókaijevih djela potječu podatci o njegovoj upotrebi kao pridjeva u književnom jeziku. Godine 1846. zabilježeno je: „Gyakran látták őt (…) vad, *avas* erdők között“.[133] Prema dostupnim podatcima, riječ *avas* potječe iz starojezične faze, a danas se koristi isključivo kao dijalektalni izraz na ograničenom području.[134]

Karaj ~ karéj ~ karé označava ‘rub, granicu nečega’. Najstariji dosad poznati zapis tog izraza potječe iz 1517. godine: „In latere cuiusdam Silue Ewry *karay* vocate“.[135] Iz našeg natpisa možemo zaključiti da je ta riječ u mađarskom jeziku postojala mnogo prije nego što su to sugerirali dosadašnji podatci.

Kő ~ köves može se upotrebljavati i kao opća riječ i kao dio imena mjesta u najstarijim dokumentima. Prve dvije riječi drugog retka uspjeli smo poistovjetiti s onomatopejskim izrazima kojima autor izražava čuđenje nakon navodnog prepoznavanja đavolskog djela. Istraživanje paralela predmeta potvrđuje naše uvjerenje da je zrcalo moglo imati kultnu funkciju te da je i đavao u tome imao ulogu. U posljednjem retku također smo prepoznali motivacijsku riječ.

Samoglasnici u riječi ördög, u značenju ‘zao, štetan duh’, mogu biti otvoreniji: ürdüg ~ ördög. Ta riječ, u kombinaciji s prikazom životinje na naličju zrcala, ne upućuje samo na kultnu prirodu teksta. S jedne strane upućuje na kontrast u prirodi između bogate vegetacije guste, zabranjene šume i neplodnog, kamenitog krajolika koji je okružuje, a s druge se strane povezuje s naglom promjenom kože čovjeka oboljelog od bolesti *süly*, što se također može

132 Györffy 1987, str. 515.
133 Nszt. II, 1495.
134 Usp. Bába, Nemes 2014.
135 OklSz.

al scripts,[129] including the Middle Iranian scripts. In Manichaean Sogdian, for instance, which belongs to the Middle Iranian family of scripts, long vowels are likewise always written.[130] One of the precursors of the Rovash scripts belongs to the Middle Iranian script. In our inscription only the last word contains long vowels (cf. Table 3), which is the reason they are written out.

EXPLANATION OF THE WORDS

The term *avas*, denoting a “dense forest” or “forbidden forest”, can be found in medieval charters. The first known record of this term appears as a place name on the boundary of Keszi in Gömör County: in 1232, a document mentions ad Occ. ad locum… Iwanus*auasa*.[131] It can also be found in the Historical Dictionary of Words from Transylvanian, though it relates mainly to information on place names (I, 509–510). As a noun, this term is likewise recorded in the dictionaries of Hungarian dialects, MTsz. and ÚMTsz., with data from Székelyland. The Comprehensive Dictionary of the Hungarian Language contains data on nouns: in 1782, a document states megegyeztünk […] az falu tilalmas *Avassából* minden embernek […] egy-egy terhe fát (osztani), while in 1881 we read Egy szarvast nyomoztam ott a mély *avasban*. From Jókai comes evidence of its use as an adjective in the literary language: in 1846, the following is recorded: Gyakran látták őt … vad, *avas* erdők között.[132] According to the data, the word *avas* derives from the Old Hungarian linguistic phase, and today is used exclusively as a dialectal expression within a limited geographical area.[133]

Karaj ~ karéj ~ karé denotes “the edge or border of something”. The oldest date so far known relating to this expression dates from 1517: In latere cuiusdam Silue Ewry *karay* vocate.[134] According to the testimony of the Ilok Inscription, the word was in the Hungarian language earlier than the previous data. Its origin is a Slavic loanword, cf. Old Church Slavonic krajь ‘edge, rim, border, end of something; country, landscape’..

Kő : köves can be used both as a common word and as part of a place name in the earliest written re-

129 Erdal 2004, p. 44
130 Skjærvø 1996, p. 519
131 Györffy 1987, 2, p. 515
132 Nszt. II, 1495
133 Cf. Bába, Nemes 2014
134 OklSz

smatrati đavolskim djelom. Takva slika đavla ukorijenjena je u pretkršćanskim vjerovanjima, a dodatno je potkrijepljena činjenicom da u tekstu nema ni traga kršćanskim elementima bajalica koje su se izgovarale radi zaštite od bolesti.

Süly se u mađarskom jeziku koristi kao naziv za mnoge bolesti, uključujući kožne bolesti, čireve, iscjedak, otekline, sifilis, skorbut i druge. Ta riječ, bogata inačicama, proširila se gotovo na cijelo mađarsko govorno područje. Prva zabilježena uporaba (1138./1329.) odnosi se na osobna imena: „In villa Vten hec sunt nomina servorum (…) *Suhul*"; „in villa Hedekcut (…) *Suuledi*".[136] Ta su imena mogla pripadati osobama koje su bolovale od navedene bolesti. Kao opća riječ često se javlja u 16. stoljeću: 1500.: „Filix: paprag: valet *Swly*, Rosmarinvs: Valet de swl"; oko 1560.: „Aluini: dicti sűnt: qui aluo languescunt: kynek *sűly* vagion az alfeleben"; 1590.: „Polypus: Azorraban valo *sűl*" (gl.).[137]

Süly se, kao i drugi nazivi bolesti poput íz, fene i *franc*, pojavljuje u različitim psovkama, osudama i kletvama: *a süly egye(n), verje(n) meg, a süly essen beléd* itd.[138] Iz podataka u glosama može se zaključiti da su se određene vrste bradavica liječile ljekovitim biljem, ali i anti*sülyjem*, uz bajanja poznata iz 16. stoljeća. Njegov tekst objavio je Kálmán Szily,[139] a ovdje donosimo mađarski tekst prema današnjem pravopisu koji odražava vjerojatni izgovor:

„Contra szül

Szül, én tenéked mondom, Atya vizeljen, Fiú gyulasszon, Szentlélek malasztja száz gyükeredet százzá szakassza, Szent Illés próféta itt ne leljen! Ter dicas ad szül."

Čini se da je izraz *ifjabb* u značenju 'mlađi' interpretativni atribut povezan s bolesnikom iz prethodnog retka. Ako je to točno, možemo uspostaviti gramatički dokazivu vezu između trećeg i četvrtog retka.

Izraz éhe, koji se prevodi kao 'njezina/njegova glad', može označavati nešto željeno ili nešto čemu se osoba nada, osobito u kontekstu bolesnikova ozdravljenja. Pri svakoj pojavi riječi éhe ~ éhes (ne samo kada se izravno odnosi na hranu) izražava se potreba za posjedovanjem nečega. Primjerice, u

[136] Fehértói 1983, str. 325, 328.

[137] 1500.: citat iz Casanateove glose i *Herbolarium Vincetiae*; oko 1560.: citat iz Gyöngyösijeva rječnika; 1590.: citat iz Szalkaijeve glose.

[138] NéprLex.

[139] Szily 1913, str. 87.

cords. The first two words of the second line could be identified as onomatopoeic expressions conveying emotion, expressing the author's astonishment upon what was apparently perceived as the work of the devil. The study of parallels for the object reinforces our view that the mirror may have had a cultic function and that the devil also played a role in this context. In the final line, we were likewise able to identify a motivational word.

The vowels of the word ördög, meaning "evil, harmful spirit", may occur in a more open form: ürdüg ~ ördög. In combination with the animal depicted on the reverse of the mirror, this word refers not only to the cultic character of the text, but also links the natural imagery on the one hand with the contrast between the lush vegetation of a dense, forbidden woodland and the barren, rocky landscape surrounding it. On the other hand, it is associated with the sudden skin changes of a person suffering from the disease *süly*, which could likewise have been regarded as the work of the devil. Such an image of the devil is rooted in pre-Christian beliefs, and is further corroborated by the fact that the text contains no trace of the Christian elements typically found in incantations intended to protect against disease.

Süly is used in the Hungarian language as the name of a wide range of diseases, including skin diseases, ulcers, discharge, swellings, syphilis, scurvy and others. This word, with its numerous variants, became widespread throughout almost the entire Hungarian-speaking area. The earliest recorded occurrence is related to the use as a personal name: in 1138/1329, In villa Vten hec sunt nomina servorum […] *Suhul*; in villa Hedekcut […] *Suuledi*.[135] These names may have belonged to individuals suffering from the disease in question. As a common word, it frequently appears in the 16th century: 1500: Filix: paprag: valet *Swly*, Rosmarinvs: Valet de *swl*; c. 1560: Aluini: dicti sűnt: qui aluo languescunt: kynek *sűly* vagion az alfeleben; 1590: Polypus: Azorraban valo *sűl* (Gl.).[136]

Süly, like other names for diseases such as *íz, fene, franc*, appears in numerous curses, imprecations and maledictions: *a süly egye(n), verje(n) meg, a süly essen beléd*, etc.[137] Evidence from gloss-

[135] Fehértói 1983, pp. 325, 328

[136] 1500: citation from the Casanate gloss and Herbolarium Vincetiae; c. 1560: citation from the Gyöngyösi dictionary; 1590: citation from the Szalkai gloss

[137] NéprLex

stihu pjesnika Endrea Adyja iz pjesme *Csák Máté földjén* stoji: „Éhekenyérnek, éhe a Szónak, Éhe a Szépnekhajttiteket". *Veliki rječnik mađarskog jezika* donosi više primjera uporabe u značenju 'želja za nečim': „A' Pénz ehe tellyességgel megrontotta őket" (1808.); „a' rosz akarat olly sovár éhhel merűl önkeblébe" (1842.); „Asszonyra való éhet" (1914). Kako bismo se približili rješenju, potrebno je istražiti dodatne okolnosti povezane s konkretnom bolesti koju označava *süly*, kao i njezine simptome. Iz iločkog natpisa ne možemo iščitati kontekst koji bi odredio na što se odnosi izraz éhe 'njezina/njegova glad', pa se možemo usredotočiti isključivo na konkretne aspekte povezane s hranom, gladi i nedostatkom apetita, koji se mogu dovesti u vezu s bolesti *süly*. *Rječnik mađarskog regionalnog jezika Moldavije* sadrži podatak iz Szabófalve (rumunjski Săbăoani, okrug Neamț, Rumunjska) koji sugerira rješenje: riječ *szul* ovdje znači 'tumor u želucu'.[140] U medicinskoj se literaturi mogu pronaći podatci o bolesti koja se očituje kombinacijom vanjskih i unutarnjih simptoma. Prema tim podatcima rak želuca može uzrokovati rijetku kožnu promjenu poznatu kao *Papuloerythroderma of Ofuji* (PEO).[141] Prema izvješću objavljenom u kineskom časopisu za istraživanje raka, tipične manifestacije te bolesti su difuzne crvene papule (male izbočine na koži), infiltracije, otekline i deskvamacija (ljuštenje kože), koje se pojavljuju gotovo po cijelom tijelu, a osobito na licu.[142] Osim kože, bolest može zahvatiti i sluznicu, kožne adnekse (žlijezde znojnice, dlake, folikule dlaka, nokte, mliječne žlijezde) i limfne čvorove. Bolest obično prati i svrbež. Osim promjena na koži, prvi znakovi raka želuca uključuju gubitak apetita, naglo mršavljenje, bolove i nelagodu u trbuhu, otežano gutanje, nadutost i učestalo podrigivanje.[143] Na temelju navedenih obilježja i oblika riječi *süly* zabilježenih u pojedinim područjima možemo pretpostaviti da se sadržaj iločkog natpisa može objasniti arhaičnim mađarskim dijalektalnim podatcima iz Moldavije.

[140] Péntek 2017, str. 319 – *sulya*.
[141] Lewis *et al.* 2024.
[142] *Chinese Journal of Cancer Research*, https://cjcr.amegroups.org/ [konzultirano 2. 4. 2024.].
[143] *Egészségkalauz* („Health Guide"), 11. 2. 2024., https://www.egeszsegkalauz.hu/betegsegek/daganatos-betegsegek/gyomorraktumor-daganat-korai-tunete-arc-duzzanat/s55ee9n [konzultirano 2. 4. 2024.].

es indicates that certain types of warts were treated not only with medicinal herbs but also with the use of anti-*süly* remedies, accompanied by incantations known from the 16th century. The text of one such incantation was published by Kálmán Szily;[138] Below is the Hungarian text in modern orthography, reflecting its probable pronunciation:

„Contra szül

Szül, én tenéked mondom, Atya vizeljen, Fiú gyulasszon, Szentlélek malasztja száz gyükeredet százzá szakassza, Szent Illés próféta itt ne leljen! Ter dicas ad szül."

IIn the text on the mirror, ifjabb ('younger') appears to express the realization that the süly-patient mentioned in the preceding line is the younger one..

The term éhe, translated as "her/his hunger", may denote something desired or hoped for, especially in the context of the patient's recovery. In every occurrence of the word éhe ~ éhes (not only when it refers directly to food), it expresses the need to possess something; for example, in the verse of the poet Endre Ady from the poem "Csák Máté földjén" we read: "Éhe kenyérnek, éhe a Szónak, Éhe a Szépnek hajt titeket". The Comprehensive Dictionary of the Hungarian Language offers several examples of the meaning "desire for something": "A' Pénz ehe tellyességgel megrontotta őket" (1808); "a' rosz akarat olly sovár éhhel merűl önkeblébe" (1842); "Asszonyra való éhet" (1914). In order to come closer to a solution, it is necessary to examine additional circumstances regarding the specific disease of suly and its symptoms. From the Ilok inscription, we cannot derive a context pointing to éhe as "his/her hunger," and therefore we may focus solely on concrete aspects related to food, hunger and loss of appetite, which are associated with the disease süly. The Dictionary of the Hungarian Regional Language of Moldavia contains information from Szabófalva (Romanian: Săbăoani in Neamț County, Romania) that suggests a solution: the meaning of szul here refers to a "tumour in the stomach".[139] Medical literature contains descriptions of diseases that combine external and internal symptoms. According to this information, stomach cancer can cause a rare skin lesion known as papuloerythroderma of Ofuji (PEO).[140] The characteristic manifestations of this condition include diffuse erythematous papules (small raised skin lesions), infiltration,

[138] Szily 1913, p. 87
[139] Péntek 2017, p. 319 *sulya*
[140] Lewis et al. 2024

PRIRODA I TUMAČENJE ILOČKOG NATPISA

Ako iločki natpis želimo opisati kao jezični proizvod, zbog njegovih formalnih obilježja – četiriju redaka približno jednake duljine – možemo ga smatrati strukturiranim pjesničkim tekstom, iako se u njemu prema današnjim kriterijima ne prepoznaju rima ni ritam. Sadržajno se u početnom prikazu prirode naslućuje utjecaj mađarskih narodnih pjesama, u kojima suprotnost između šume i kamenitog krajolika također može biti djelo vraga. S druge strane, i bolest *süly* može biti vražje djelo. Ako pretpostavimo da je riječ o nekoj kožnoj bolesti, osip i ulceracije na tijelu bolesnika mogu se usporediti s tim početnim prikazom. Posljednji redak jasno izražava oporavak od bolesti kao cilj. Iako se cijeli tekst ne može smatrati bajalicom, njegov je cilj uklanjanje bolesti pa mu možemo pripisati svojevrsnu zaštitnu ulogu.

Na temelju navedenog transkripcija i interpretacija natpisa prikazane su u tablici 4, koja se temelji na tablicama 2 i 3. U tablici 4 nalaze se fonetska transkripcija teksta u IPA notaciji i fonemska transkripcija u mađarskoj notaciji.

U vrijeme nastanka brončanog zrcala, kao i u stoljećima koja su mu prethodila, prednja i stražnja strana zrcala imale su specifične vizualne i funkcionalne uloge. Sadržaj tih dviju strana se razlikuje, što se može i simbolički tumačiti, kao što je prikazano na slici 14.

Natpis se može podijeliti na dva logična dijela. Prvi dio (redci 1 – 2) opisuje vanjski svijet, u kojem se najprije pojavljuje prikaz prirode, a zatim i mistična opasnost. Drugi dio (redci 3 – 4) donosi opis konkretne situacije, usredotočujući se na trenutačne okolnosti i bolest u obitelji, što je prikazano na slici 15.

Kao što je prikazano na slici 15, natpis se prema redcima može podijeliti na dva dijela, pri čemu prva polovina obuhvaća retke 1 – 2, a druga retke 3 – 4. Brončano zrcalo pronađeno kod Iloka, zajedno s natpisom, ilustrira dualnost (dihotomiju) na nekoliko razina apstrakcije, pri čemu se ističu suprotnosti dobro – zlo i ovaj svijet – onaj svijet.

Prva polovina prvog dijela, koja se odnosi na krajolik opisan u retku 1, nosi simboličku vrijednost: gusta šuma predstavlja život, dok stjenoviti dio na njezinu rubu simbolizira beživotnu prirodu, odnosno smrt. U retku 2 ta se tema povezuje s pojavom vraga. O ulozi vraga u pretkršćanskoj mađarskoj mitologiji imamo samo neizravne podat-

swelling and desquamation (skin peeling), occurring over almost the entire body, especially on the face, as reported in a study published in the Chinese Journal of Cancer Research.[141] Besides the skin, it may also affect the mucous membrane, the skin appendages (sweat glands, hair, fur, hair follicle, nail, mammary gland) and the lymph nodes. The disease is usually accompanied by itching as well. Apart from the changes to the skin, the first signs of stomach cancer include loss of appetite, sudden weight loss, abdominal pain, abdominal discomfort, difficulty swallowing, bloating and frequent belching.[142] On the basis of these characteristics, together with the forms of süly recorded in particular regions, we may assume that the content of the Ilok inscription can be interpreted in light of archaic Hungarian dialectal evidence from Moldavia.

THE NATURE AND INTERPRETATION OF THE ILOK INSCRIPTION

If we wish to characterize the Ilok inscription as a linguistic product, it may be regarded as a structured, poetic text because of its formal organization (four lines of approximately equal length), although neither rhyme nor rhythm is recognizable according to modern standards. In terms of content, the influence of Hungarian folk songs may be sensed in the opening natural image (the contrast between the forest and the stony edge), which may likewise be the work of the devil. Similarly, the disease *süly* may also be understood as the work of the devil. If we assume that the text refers to a skin disease, the patient's rash and ulcerations may be compared with this opening image. The final line clearly expresses recovery from the illness as the intended outcome. Although the text as a whole cannot be classified as an incantation, its purpose is the removal of disease, and it may therefore be regarded as having an apotropaic, or protective, function.

On this basis, the transcription and interpretation of the inscription are presented in Table 4, which is based on Tables 2 and 3. Table 4 contains both the phonetic transcription of the text using the International Phonetic Alphabet (IPA) and the phonemic transcription using Hungarian notation.

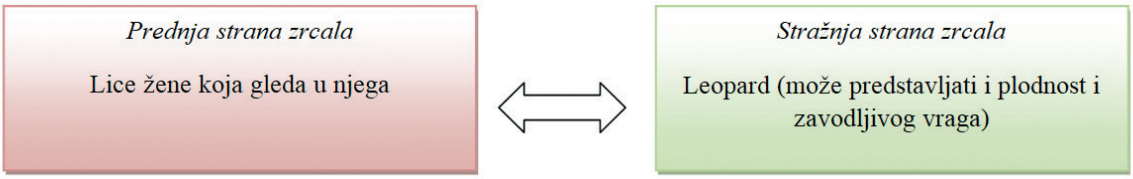
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[141] Chinese Journal of Cancer Research (https://cjcr.amegroups.org/ , accessed: 2nd April 2024)

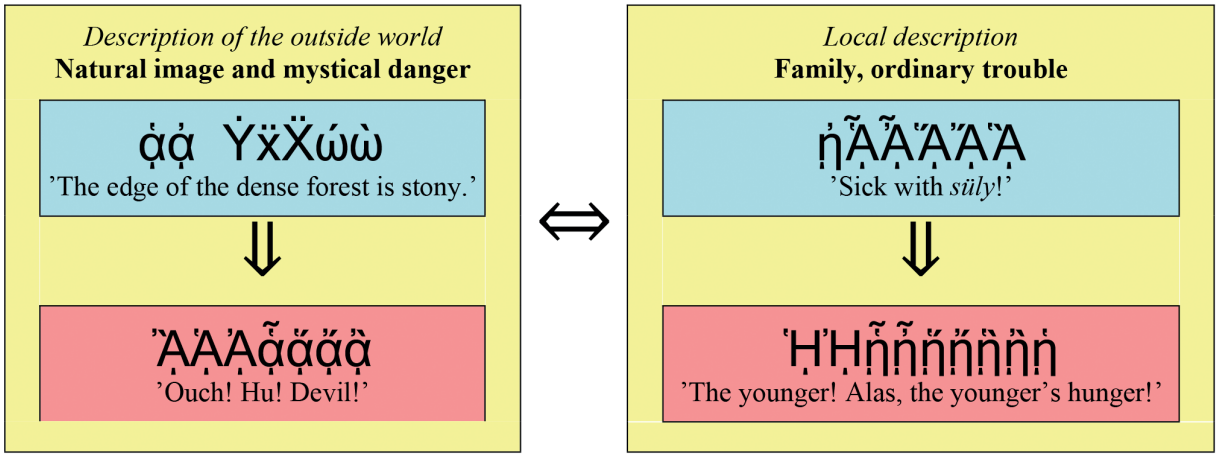
[142] *Egészségkalauz* ('Health Guide') 11th February 2024. https://www.egeszsegkalauz.hu/betegsegek/daganatos-betegsegek/gyomorraktumor-daganat-korai-tunete-arc-duzzanat/s55ee9n, accessed: 2nd April 2024

Presentation (right-to-left writing versus)	ˈḢ ˈḢ ḭ̃ ḭ̃ ḭ̈ ḭ̈ ḭ̃ ḭ̃ ḭ̈ ḭ̈ Ą̃ Ą̃ Ą̈ Ą̈ Ą̈ Ą̈ Ą̇ Ą̇ ą̃ ą̈ ą̈ ą̇ ą̇ ą̇ Ẏ ẍ Ẍ ώ ὼ
Transliteration (left-to-right writing versus)	⟨β š k r j k β š . β j χ r d g . š l b t k . f j b β j ë χ ë .⟩
Phonetic transcription with IPA notation	[ᵃβᵃʃ krᵃj kʸβᵉʃ βᵃj xᵘ ʸrdʸg⁽ʸ⁾ ʃʸl bᵉtᵉk ⁱfjᵃbᵇ βᵃj e:xe:]
Phonemic transcription with Hungarian notation	/ᵃβᵃs krᵃj kᵘβᵉs. βᵃj χᵘ ᵘrdᵘg⁽ᵘ⁾. sᵘl bᵉtᵉk. ⁱfjᵃbᵇ βᵃj éχé./
Meaning (interpretation with today's wording) in Hungarian	*Sűrű erdő széle köves.* *Jaj! Hu! Ördög!* *Sülybeteg!* *Az ifjabb! Jaj az éhe!*
Meaning (interpretation with today's wording) in English	’The edge of the dense forest is stony. Ouch! Hu! Devil! Sick with *süly!* The younger! Alas, the younger’s hunger!’

Tablica 4: Sažetak dešifriranja Iločkog natpisa (autor: G. Hosszú)
Table 4: Summary of the decipherment of the Ilok inscription (author: G. Hosszú)



Sl. 14 - Glavna strukturna podjela iločkog brončanog zrcala odnosi se na njegovu predmetnu prirodu (autor: G. Hosszú)
Fig. 14 - The principal structural division of the bronze mirror from Ilok according to its object-related characteristics (author: G. Hosszú)



Sl. 15 - Strukturna podjela natpisa na poleđini iločkog brončanog zrcala (autor: G. Hosszú)
wFig. 15 - The structural division of the inscription on the reverse of the Ilok bronze mirror (author: G. Hosszú)

ke. S jedne strane, oni potječu od likova iz svijeta vjerovanja, kao što su vještice, vile, *táltosi* (slični šamanima), vilenjaci i drugi. S druge strane, postoje i fraze povezane s vragom, poput „dao vrag“, „u liniji s vragom“, „demonska dosadna baba“ i „stara babica je vražji poručnik“. Ti jezični elementi oblikuju ulogu vraga kao suprotnost dobru.[144] Vražje zlo objašnjava reakciju koju pripovjedač u drugom retku izražava uzvicima. Kameniti krajolik opisan u prvom retku može se smatrati djelom vraga, dok se stanje bolesnika u trećem retku također može povezati s njegovim djelovanjem. Četvrti je redak usko povezan s trećim i objašnjava da je riječ o mlađoj osobi. Ujedno sugerira da u pretpostavljenoj zajednici, pa čak ni u obitelji, ne pati samo jedna osoba, nego da pripovjedača zanima samo jedna od njih – ona mlađa. Nije slučajno što je prikaz leoparda postavljen na stražnju stranu zrcala uz runski natpis. U kontekstu opisanog slučaja mačka se može tumačiti kao simbol đavolskog djelovanja ali i kao zaštitnica bolesnika.

ILOČKI NATPIS U EVOLUCIJI RUNSKOG PISMA

Kao što je prethodno opisano, brončano zrcalo s natpisom na runskom pismu Karpatske kotline potječe iz 9. – 10. stoljeća i pronađeno je kod Iloka, na obali Dunava. Cilj nam je smjestiti iločki natpis u evoluciju runskog pisma (TR, SHR, CBR i SR). U ovom smo istraživanju obuhvatili samo manji dio poznatih runskih natpisa: 17 natpisa TR-a, 21 natpis SHR-a, 8 natpisa CBR-a i 15 natpisa SR-a (tablica 5), a podatci o njima prikupljeni su iz različitih literaturnih izvora.[145]

[144] Usp. Ipolyi 1854/1987, str. 43–56.

[145] Aydemir 2002a, 2002b; Benkő 1972a, 1972b, 1981, 1991, 1994a, 1994b, 1994c, 1996a, 1996b, 1996c, 1997, 2020; Benkő *et al.* 2021; Berta 2004; Bíró, Katona-Kiss 2022; Erdélyi 1991; Fehér 2020, 2021, 2022; Förköli, Tubay 2015, str. 443; Förköli, Tubay 2017, str. 89–98; Göbl, Róna-Tas 1995; Hosszú 2013a, 2013b; Hosszú, Zelliger 2014a, 2014b, 2019; Jakubovich 1935; Kairžanov 2014; Katona-Kiss, Bíró 2020, 2021; Klyashtorny, Vásáry 1987; Konkobaev *et al.* 2015; Kormushin 1997, 2008; Kubarev 2016; Kyzlasov 1994, 2015; Malov 1952; Németh 1934; Radlov 1893; Róna-Tas 1980, 1985, 1987, 1991, 1992, 1998, 2017; Sándor 1991a, 1991b, 1992, 2014a, 2014b; Sebestyén 1909, 1913, 1915; Selmeczi 1992; Szigethy 1930; Stanojev 2010; Tekin 2003; Thomsen 1896; Turčaninov

At the time the bronze mirror was made, as in the centuries that preceded it, the front and back of the mirror had their own specific visual and functional roles. The content differs between the two sides, which can also be interpreted symbolically, as shown in Fig. 14.

The inscription can be separated into two logical parts. The first part (lines 1–2) describes the external world, in which a natural image appears, followed by a mystical danger. The second part (lines 3–4) offers a local description, focusing on the immediate situation and a family illness, as shown in Fig. 15.

As shown in Fig. 15, the inscription can be divided into two parts by lines, with the first and second halves comprising lines 1–2 and 3–4, respectively. The bronze mirror discovered in Ilok, together with its inscription, illustrates duality (dichotomy) on several levels of abstraction, most notably the oppositions of good versus evil and this world versus the other world.

The first half of the first part, referring to the landscape in line 1, carries symbolic meaning: the dense forest represents life, whereas the rocky area at its edge symbolizes lifeless nature, or the personification of death. In line 2, this theme is connected with the appearance of the devil. Our knowledge of the devil's role in pre-Christian Hungarian mythology is only indirect. On the one hand, it derives from figures in the traditional belief system, such as witches, fairies, táltos (shaman-like figures), elves and others. On the other hand, it is reflected in idiomatic expressions associated with the devil, such as "the devil gave it," "in line with the devil," "a devilish old hag," and "the old midwife is the devil's lieutenant." These linguistic expressions establish the devil as the embodiment of the opposite of "good."[143] The devil's malevolence explains the reaction expressed by the narrator through exclamations in the second line. The rocky landscape described in the first line may be understood as the work of the devil, while the condition of the patient mentioned in the third line can likewise be attributed to his influence. The fourth line identifies the person concerned as the younger one and suggests that not just one person in the presumed community, or even in the family, is suffering, but that the narrator is concerned with only one of them, the younger. It is no accident that the image of the leopard was placed on the back of the mirror alongside

[143] Cf. Ipolyi 1854/1987: 43–56.

Runsko pismo	Runski natpisi
TR	Almay II, Bichiktu Boom III, XV, Bilge Khagan, Chaa-Khol IV, Kalbak Tash II/XV, Koytubek, Kul Tegin, Kuljabasy I, II, Kurgak I, Mendur Sokkon I, Tamgaly, Tuva III, Urkosh, Yabogan, Zhon-Aryk
SHR	Bágy, Bél, Bodrog-Alsóbű, Bonyhai, Bögöz, Constantinople, Csíkszentmihály, István Csulyak, Dombó, Farkaslaki, Homoródkarácsonyfalva, Kájoni-Ancient, Karcag, Nikolsburg, Patakfalvi, Rudimenta, Stick Calendar, Szamosközy, Székelyderzs, Vargyas, Wolfenbüttel
CBR	Jánoshida, Kiskőrös-Vágóhíd, Kiskundorozsma, Környe, Nagyszentmiklós, Ozora-Tótipuszta, Szarvas, Ilok
SR	Achik Tash, Algyő, Homokmégy-Halom, Jitkov, Kermen Tolga, Kievan Letter, Khumara 6, 7, 8, Mayaki, Mayatskoe 1, 2, 5, 10, Novocherkassk

Tablica 5: Runski natpisi uključeni u ovu studiju (autor: G. Hosszú)
Table 5: The Rovash inscriptions included in this study (author: G. Hosszú)

Prema dosadašnjim istraživanjima, runsko pismo potječe s Altaja.[146] Pojednostavljeni model za analizu prostornog i vremenskog razvoja runskog pisma možemo dobiti usporedbom udaljenosti svakog mjesta nalaza natpisa od Altaja i približne starosti tih natpisa. S obzirom na to da natpisi nisu pronađeni na samom Altaju, kao hipotetska početna točka uzet je njegov najviši vrh, planina Beluha, od koje se mjeri udaljenost do mjesta nalaza svakog natpisa. Slika 16 sadržava samo one od 61 runskog natpisa analiziranog u ovoj studiji za koje su poznati i starost i mjesto nastanka. Dijagram raspršenosti ne uključuje one natpise SHR-a koji, iako su nastali izvan Székelylanda, predstavljaju izravnu emanaciju kulture pisanja SHR-a iz Székelylanda, poput natpisa iz Béla, Carigrada, Karcaga i Nikolsburga.

U filogenetskoj analizi primjenjujemo fenetičku metodu, a ne kladističku. Fenetika se temelji na usporedbi svih *objekata*, odnosno *taksona*, prema svim njihovim svojstvima. Rezultat te analize je *fenogram*, stablo proučavanih objekata koje predstavlja *filogenetsko stablo* (*filogenija*). U našem slučaju objekti su pisma ili natpisi. Fenetičke metode daju svojevrsnu aproksimaciju filogenetskog stabla koje odražava stvarnu evoluciju, pri čemu su pojedinačna obilježja jednako važna.[147] Ako među analiziranim natpisima postoji jedan koji je nastao u prijelaznom razdoblju, on može biti od velike važnosti za razumijevanje evolucije pisma. Natpis na bronci iz Iloka upravo je takav natpis.

1964, 1971; *Türik Bitig*; Vásáry 1972, 1973, 1974; Vasil'ev 1976, 1983, 1992, 1994, 2005; Vavulin 2017; Vékony 1985, 1987, 1992, 1999, 2004; Zelliger 2016, 2019a, 2019b, 2019c, 2020, 2021a, 2021b; Zelliger, Hosszú 2014, 2021, 2024; Zsupos 2019, među ostalima.

146 Hosszú 2021.

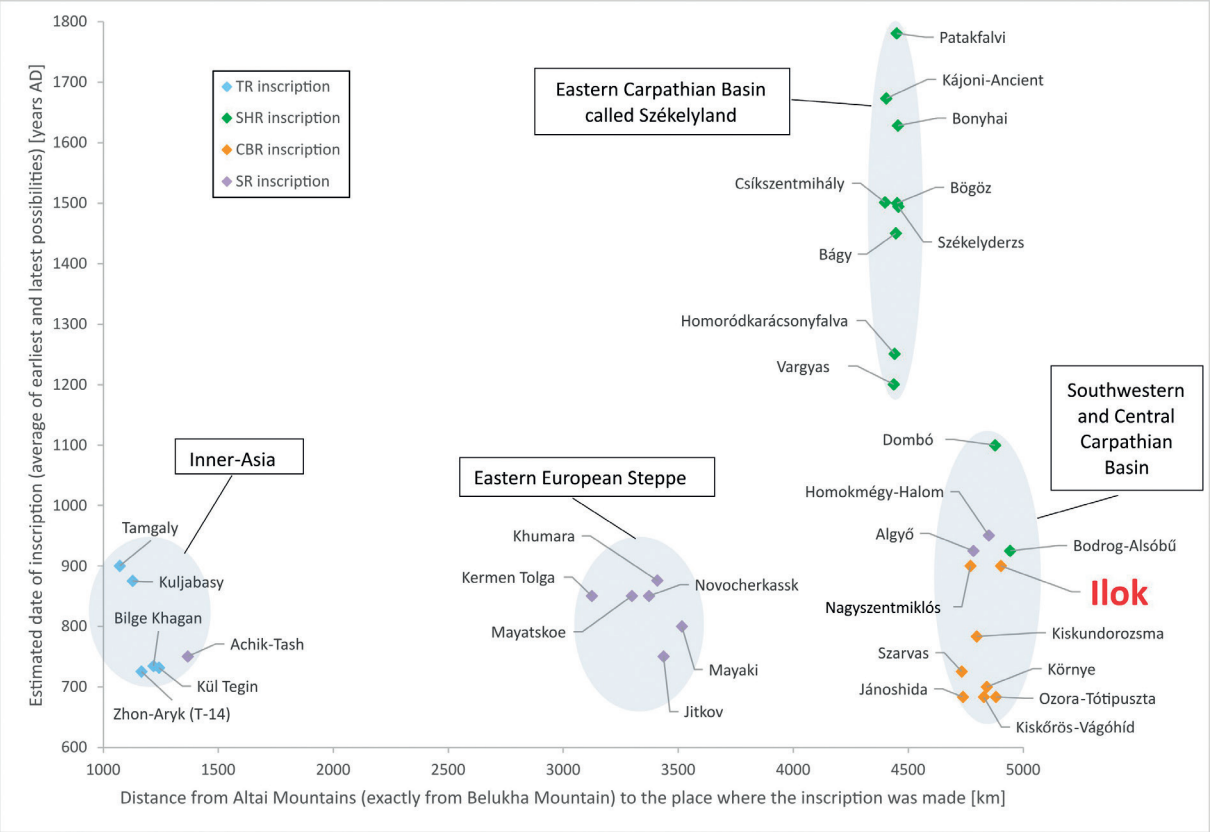
147 Sokal 1961, str. 70.

the Rovash inscription. In the context of the case described, the feline can be interpreted as a symbol of the devil's work and as fulfilling the dual role of protecting the patient.

THE ILOK INSCRIPTION IN THE EVOLUTION OF THE ROVASH SCRIPTS

As described above, the bronze mirror with the inscription in the Carpathian Basin Rovash script dates from the 9th–10th centuries and was found in Ilok, on the bank of the Danube River. Our aim is to place the Ilok inscription within the evolution of the Rovash script (TR, SHR, CBR and SR). We have included only a small part of the known Rovash inscriptions in this study: 17 TR inscriptions, 21 SHR inscriptions, 8 CBR inscriptions and 15 SR inscriptions (Table 5), the data for which were compiled from various published sources.[144]

144 Aydemir 2002a, 2002b; Benkő 1972a, 1972b, 1981, 1991, 1994a, 1994b, 1994c, 1996a, 1996b, 1996c, 1997, 2020; Benkő et al. 2021; Bíró, Katona-Kiss 2022; Erdélyi 1991; Fehér 2020, 2021, 2022; Berta 2004; Förköli, Tubay 2015, p. 443; Förköli, Tubay 2017, pp. 89–98; Göbl, Róna-Tas 1995; Hosszú 2013a, 2013b; Hosszú, Zelliger 2014a, 2014b, 2019; Jakubovich 1935; Kairžanov 2014; Katona-Kiss, Bíró 2020, 2021; Klyashtorny, Vásáry 1987; Konkobaev et al. 2015; Kormushin 1997, 2008; Kubarev 2016; Kyzlasov 1994, 2015; Malov 1952; Németh 1934; Radlovim 1893; Róna-Tas 1980, 1985, 1987, 1991, 1992, 1998, 2017; Sándor 1991a, 1991b, 1992, 2014a, 2014b; Sebestyén 1909, 1913, 1915; Selmeczi 1992; Szigethy 1930; Stanojev 2010; Tekin 2003; Thomsen 1896; Turčaninov 1964, 1971; Türik Bitig; Vásáry 1972, 1973, 1974; Vasil'ev 1976, 1983, 1992, 1994,



Sl. 16 - Distribucija runskih natpisa prikazana je prema njihovoj starosti i udaljenosti od vrha Beluha na Altaju (Kazahstan i Rusija), mjerena zračnom linijom (autor: G. Hosszú)

Fig. 16 - The distribution of the Rovash inscriptions is shown according to their age and their distance from the peak of Belukha in the Altai (Kazakhstan and Russia), measured as the crow flies (author: G. Hosszú)

nim objektima ne postoji očit odnos predak – potomak, kladistika nije prikladna za modeliranje njihovih međusobnih odnosa pa se primjenjuje fenetika.[148] U našem smo istraživanju primijenili metodu grupiranja susjeda (*neighbor-joining*, NJ), postupak aglomerativnog klasteriranja koji se temelji na matrici udaljenosti i predstavlja vrstu filogenetskog zaključivanja zasnovanog na udaljenosti.[149] Iako se metoda grupiranja susjeda (NJ) temelji na načelu štedljivosti, ne mora nužno rezultirati minimalnim filogenetskim stablom. Cilj metode NJ jest da razlike unutar filogenetskog stabla što vjernije odražavaju izvorne razlike među analiziranim objektima. Njezina je prednost u tome što ne pretpostavlja da se sve loze razvijaju jednakom brzinom, za razliku od tradicionalnijih metoda klasteriranja zasnovanih na udaljenosti, poput metode neponderirane skupine parova s aritmetičkom sredinom (*unweighted pair group method with arithmetic mean*, UPGMA) i metode ponderirane skupine parova s aritmetič-

According to previous research, the Rovash script originated in the Altai region.[145] A simplified model for analysing the spatial and chronological development of the Rovash scripts can be obtained by comparing the distance of each inscription site from the Altai region with the approximate age of those inscriptions. Since no inscriptions have been found on the Altai itself, the highest peak of the Altai Mountains, Mount Belukha, is used as a hypothetical point of origin. Accordingly, the distance from the findspot of each inscription to Mount Belukha was measured. Fig. 16 contains only those of the 61 Rovash inscriptions analysed in this study for which both the age and the place of origin are known. The scatter diagram does not include those SHR inscriptions which, although produced outside Székelyland, represent a direct emanation of the

[148] Podani, Morrison 2017.

[149] Saitou, Nei 1987, str. 406.

2005; Vavulin 2017; Vékony 1985, 1987, 1992, 1999, 2004; Zelliger 2016, 2019a, 2019b, 2019c, 2020, 2021a, 2021b; Zelliger, Hosszú 2014, 2021, 2024; Zsupos 2019, among others

[145] Hosszú 2021

kom sredinom (*weighted pair group method with arithmetic mean*, WPGMA).[150] Među metodama zasnovanim na udaljenosti NJ se smatra jednom od najboljih.[151] Ta se metoda može primijeniti na različite vrste podataka o evolucijskoj udaljenosti i generira odgovarajuće filogenetsko stablo za brojne zadatke.[152]

Prvi korak u procesu grupiranja uključuje odabir odgovarajuće mjere udaljenosti ili različitosti za matricu podataka koja opisuje karakteristike objekta. Na temelju te mjere NJ u prvom koraku stvara matricu udaljenosti. Važno je napomenuti da se termin *matrica udaljenosti* koristi i za mjere koje matematički ne zadovoljavaju kriterije udaljenosti, nego se odnose samo na različitosti jer ne zadovoljavaju nejednakost trokuta, kao što je prikazano u izrazu (1).

$$\forall \boldsymbol{x_i}, \boldsymbol{x_j}, \boldsymbol{x_k}: d(\boldsymbol{x_i}, \boldsymbol{x_k}) \leq d(\boldsymbol{x_i}, \boldsymbol{x_j}) + d(\boldsymbol{x_j}, \boldsymbol{x_k}), i, j, k \in \{1, \ldots, n\} \quad (1)$$

Pritom su $\boldsymbol{x_i}, \boldsymbol{x_j}, \boldsymbol{x_k}$ $(i, j, k \in \{1, \ldots, n\})$ objekti prikazani kao vektori karakteristika, primjerice xi = $[x^1_i, x^2_i, \ldots, x^f_i]$, $l \in \{1, \ldots, f\}$, a $f = 119$ označava broj objekata. U našoj analizi objekte opisujemo pomoću ovih karakteristika, koje odgovaraju skupinama značajki sličnosti utvrđenim u prethodnoj studiji.[153]

Razlike između pojedinih objekata (pisma ili natpisi) mogu se izračunati na temelju njihovih značajki. Značajka može biti simbol, sintaktičko pravilo ili pravilo oblikovanja. U ovom su istraživanju značajke predmeta kategorizirane prema tome jesu li prisutne u objektu ili nisu. Kvantifikacija binarne vrijednosti jedna je od metoda usporedbe objekata koji se mogu opisati kategoričkim značajkama.[154] Ta se metoda oslanja na činjenicu da kategorička obilježja imaju dva stanja: 1 ili 0. Kada analiziramo pisma, broj objekata iznosi $n = 4$, dok je kod natpisa taj broj $n = 61$. Učestalost podudarnih i nepodudarnih vrijednosti značajki objekata $\boldsymbol{x_i}$ i $\boldsymbol{x_j}$ $(i, j, k \in \{1, \ldots, n\})$, definiranih binarnim značajkama, određena je takozvanom uključenom tablicom nepredviđenosti. Broj podudaranja prikazan je vrijednostima *a*, *b*, *c* i *d* u tablici 6, pri čemu vrijedi $a + b + c + d = f$.

Usklađivanje stupnja diferencijacije s postojećom strukturom podataka može znatno utjecati na

[150] Sokal, Michener 1958.
[151] Barbançon *et al.* 2013.
[152] Mihaescu *et al.* 2009.
[153] Hosszú 2021, str. 53–206.
[154] Tan *et al.* 2018.

SHR writing culture from Székelyland, such as Bél, Constantinople, Karcag and Nikolsburg.

In the phylogenetic analysis we use the phenetic method rather than the cladistic one. Phenetics is based on comparing all *objects* (that is, *taxa*) according to all of their characteristics. The result of this analysis is a *phenogram*, a tree of the objects studied that represents a *phylogenetic tree* (*phylogeny*). In our case, the objects are scripts or inscriptions. Phenetic methods provide a kind of approximation of the phylogenetic tree that reflects actual evolution, in which the individual characteristics are of equal importance.[146] If no obvious ancestor-descendant relationship exists among the analysed objects, cladistics is unsuitable for modelling their interrelationships, and phenetics is used instead.[147] In our research we used the neighbour-joining (NJ) method, a procedure of agglomerative clustering based on a distance matrix and representing a kind of distance-based phylogenetic inference.[148] Although the NJ method is based on the principle of parsimony, it does not necessarily result in a minimal phylogenetic tree. The aim of NJ is for the differences within the phylogenetic tree to reflect as faithfully as possible the original differences among the analysed objects. The advantage of NJ lies in the fact that it does not assume that all lineages evolve at the same rate, unlike the more traditional distance-based clustering methods, such as the *unweighted pair group method with arithmetic mean* (UPGMA) and the *weighted pair group method with arithmetic mean* (WPGMA).[149] Among the distance-based methods, NJ is considered one of the best.[150] This method can be applied to various types of evolutionary-distance data and produces an appropriate phylogenetic tree for many tasks.[151]

The first step in the clustering process involves selecting an appropriate measure of distance or dissimilarity for the data matrix describing the object's characteristics. On the basis of this measure, NJ will create a distance matrix in the first step. It is important to note that the term *distance matrix* is also used for measures that do not mathematically satisfy the distance criterion but refer only to dis-

[146] Sokal 1961, p. 70
[147] Podani – Morrison 2017
[148] Saitou – Nei 1987, p. 406
[149] Sokal – Michener 1958
[150] Barbançon et al. 2013
[151] Mihaescu et al. 2009

	Broj stanja značajki od 1 u objektu x_i	Broj stanja značajki od 0 u objektu x_i
Broj stanja značajki od 1 u objektu x_i	a (broj stanja značajki od 1 u oba objekta, x_i i x_j)	b (broj stanja značajki od 1 u objektu x_i i od 0 u objektu x_j)
Broj stanja značajki od 0 u objektu x_i	c (broj stanja značajki od 0 u objektu x_i i od 1 u objektu x_j)	d (broj stanja značajki od 0 u oba objekta, x_i i x_j)

Tablica 6: Tablica nepredviđenosti objekata (autor: G. Hosszú)
Table 6: Contingency table of the objects (author: G. Hosszú)

rezultat analize. Sličnost i razlika između objekata x_i i x_j mogu se opisati različitim mjerama.[155] Jedna od njih je Sørensen-Diceov koeficijent,[156] koji naglašava koegzistenciju karakterističnih stanja, kao što je prikazano u formuli (2).

$$S_{SD}(x_i, x_j) \frac{2a}{2a + b + c}, i, j \in \{1, \ldots, n\} \quad (2)$$

gdje $S_{SD}(x_i, x_j)$ predstavlja Sørensen-Diceov koeficijent za objekte x_i i x_j. Prednost tog koeficijenta leži u naglašavanju učinka koegzistencije svojstava (a), što je relevantno za skup podataka koji istražujemo. S obzirom na to da je broj mogućih obilježja $f = 119$ znatno veći od broja obilježja sadržanih u pojedinom pismu, a osobito od broja obilježja sadržanih u pojedinačnim natpisima, u analizi ćemo upotrebljavati Sørensen-Diceov koeficijent, točnije njegov diferencijski oblik (3).

$$d_{SD}(x_i, x_j) = 1 - S_{SD}(\mathbf{x_i}, \mathbf{x_j}), i, j \in \{1, \ldots, n\} \quad (3)$$

gdje $S_{SD}(x_i, x_j)$ predstavlja Sørensen-Diceov koeficijent za objekte x_i i x_j. Važno je napomenuti da Sørensen-Diceova različitost ne predstavlja udaljenost jer ne zadovoljava nejednakost trokuta, kao što je prikazano u formuli (1). Ipak, to ne ograničava njezinu primjenu u metodi NJ. Filogram NJ koji obuhvaća četiri runska pisma prikazan je na slici 17, dok je filogram NJ koji obuhvaća 61 runski natpis prikazan na slici 18.

Pri tumačenju slika 17 i 18 važno je istaknuti da ova studija može pružiti samo grubu procjenu stvarnog razvoja runskih pisama. U istraživanju se oslanjamo na vrlo mali broj natpisa te pretpostavljamo da između pojedinih razvojnih grana nije bilo veza ni djelomičnog prijenosa obilježja. S druge strane, tijekom povijesti euroazijskih stepa često je dolazi-

similarities, because they do not satisfy the triangle inequality, as shown in (1).

$$\forall x_i, x_j, x_k: d(x_i, x_k) \leq d(x_i, x_j) + d(x_j, x_k), i, j, k \in \{1, \ldots, n\} \quad (1)$$

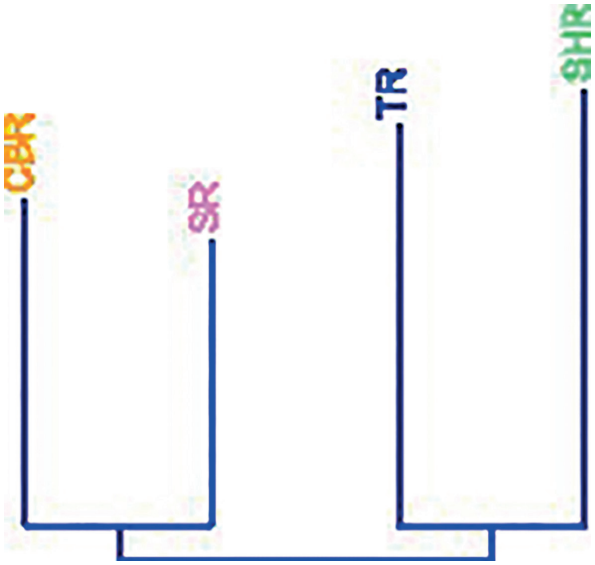
where x_i, x_j, x_k $(i, j, k \in \{1, \ldots, n\})$ are objects represented as feature vectors, e.g. xi = $[x^1_i, x^2_i, \ldots, x^f_i]$, $l \in \{1, \ldots, f\}$, and f = 119 denotes the number of objects. In our analysis we describe the objects using these characteristics, which correspond to the groups of similarity features established in a previous study.[152]

The differences between individual objects (scripts or inscriptions) can be calculated on the basis of their features. A feature may be a symbol, a syntactic rule or a layout rule. In this research, the features of the objects are categorised: they are either present in the object or not. The quantification of the binary value represents one of the methods for comparing objects that can be described by categorical features.[153] This method relies on the fact that categorical features have two states; the state of a feature may be 1 or 0. When we analyse scripts, the number of objects is $n = 4$, whereas for inscriptions the number is $n = 61$. The frequency of matching and non-matching feature values of objects x_i and x_j $(i, j, \in \{1, \ldots, n\})$, defined by binary features, is determined by the so-called included contingency table. The number of matches is shown by the values a, b, c and d in Table 6, where $a + b + c + d = f$.

Matching the degree of differentiation with the existing data structure can significantly affect the result of the data analysis. The similarity and difference between objects x_i and x_j can be described by various measures.[154] One of these is the Sørensen–

[155] Hosszú 2024, str. 8–9.
[156] Podani 2000.

[152] Hosszú 2021, pp. 53–206
[153] Tan et al. 2018
[154] Hosszú 2024, pp. 8–9



Sl. 17 - Filogram runskih pisama stvorenih susjedskim spajanjem (autor: G. Hosszú)
Fig. 17 - Phenogram of the Rovash scripts created by neighbour-joining (author: G. Hosszú)

lo do miješanja različitih populacija, što je moglo rezultirati hibridizacijom njihovih pisanih kultura.

Istodobno, rezultati fenetičke analize temeljene na metodi grupiranja susjednih pisama pomažu postaviti svako runsko pismo i svaki natpis u međusobni odnos unutar evolucijskog sustava runskog pisma. To može pomoći u dešifriranju novih natpisa koji će biti otkriveni u budućnosti.

SAŽETAK

Natpis na brončanom zrcalu, koji se sastoji od 31 grafema i datira u 9. – 10. stoljeće, važan je iz više razloga. Prvo, to je drugi najduži natpis ispisan runskim pismom Karpatske kotline, nakon natpisa iz Szarvasa koji se sastoji od 66 grafema. Njegova cjelovitost također je vrijedna pažnje. Osim toga, natpis na brončanom zrcalu pronađenom kod Iloka može se tumačiti na više razina, pri čemu se suprotstavljaju dobro i zlo te ovaj svijet i zagrobni život. Natpis se sastoji od četiriju redaka jednake duljine, odvojenih točkama, te nalikuje pjesmi bez rime. Tekst, napisan na mađarskom jeziku, započinje živopisnim opisom šume i njezinih kamenitih granica, aludirajući na mađarske narodne pjesme i uvodeći temu mogućeg djelovanja đavla. U nastavku se spominje bolest *süly* (stari naziv za čireve i druge bolesti), za koju se vjerovalo da je uzrokovana nadnaravnim silama. Cilj teksta jest uklanjanje bolesti, a mogao je imati i zaštitni učinak.

Dice coefficient,[155] which emphasises the coexistence of feature states, as shown in formula (2).

$$S_{SD}(\boldsymbol{x}_i, \boldsymbol{x}_j) \frac{2a}{2a + b + c}, \; i, j \in \{1, \ldots, n\} \quad (2)$$

where $S_{SD}(\boldsymbol{x}_i, \boldsymbol{x}_j)$ represents the Sørensen–Dice coefficient for objects $\boldsymbol{x}_i$ and $\boldsymbol{x}_j$. The advantage of this coefficient lies in emphasising the effect of the coexistence of properties (a), which is relevant to the data set we are examining. Since the number of possible features $f = 119$ is considerably greater than the number of features included in a single script, and especially the number of features included in individual inscriptions, in the course of our analysis we use the Sørensen–Dice coefficient, more precisely its difference form (3).

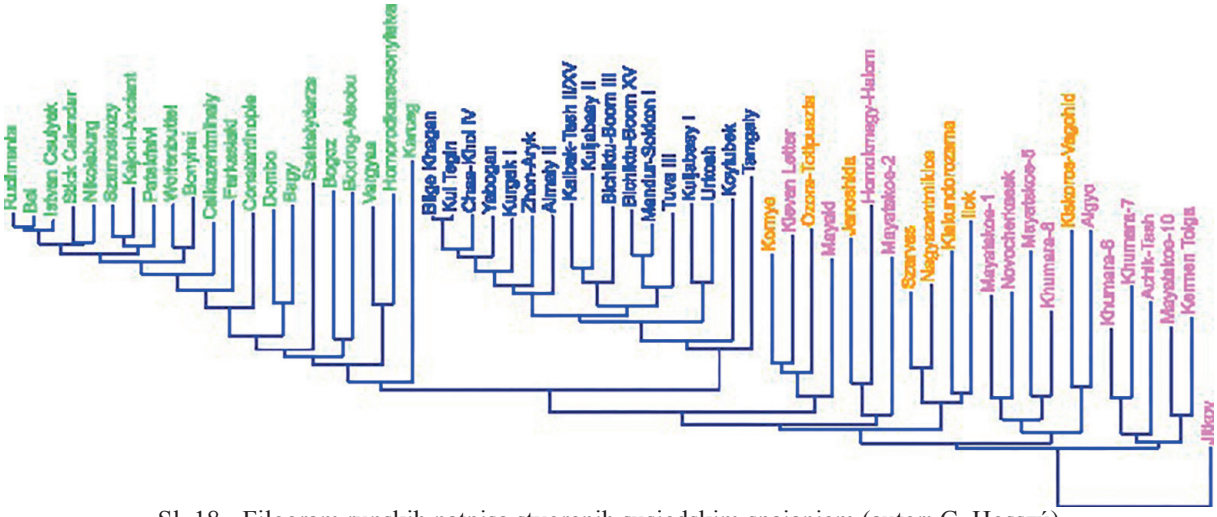
$$d_{SD}(\boldsymbol{x}_i, \boldsymbol{x}_j) = 1 - S_{SD}(\mathbf{x}_i, \mathbf{x}_j), \; i, j \in \{1, \ldots, n\} \quad (3)$$

where $S_{SD}(\boldsymbol{x}_i, \boldsymbol{x}_j)$ represents the Sørensen–Dice coefficient for objects $\boldsymbol{x}_i$ and $\boldsymbol{x}_j$. It is important to note that the Sørensen–Dice dissimilarity does not represent a distance, since it does not satisfy the triangle inequality, as shown in (1). This nevertheless does not limit its applicability to NJ. The NJ phenogram comprising the four Rovash scripts is shown in Fig. 17, while the NJ phenogram comprising the 61 Rovash inscriptions is shown in Fig. 18.

When evaluating Figs. 17 and 18, it is important to stress that this study can provide only a rough estimate of the actual course of the evolution of the Rovash scripts. In the course of the research we rely on a very small number of inscriptions, and we also assume the absence of any link or partial transmission of features between the individual branches of descent. On the other hand, throughout the history of the Eurasian steppes, there was frequent mixing of different populations, which may have resulted in the hybridisation of their written culture.

At the same time, the results of the phenetic analysis based on the neighbour-joining of scripts help to place each Rovash scripts and each inscription in relation to one another within the evolutionary system of the Rovash script. This may assist in deciphering new inscriptions that will be discovered in the future.

[155] Podani 2000



Sl. 18 - Filogram runskih natpisa stvorenih susjedskim spajanjem (autor: G. Hosszú)
Fig. 18 - Phenogram of the Rovash inscriptions created by neighbour-joining (author: G. Hosszú)

Važnost ovog natpisa proizlazi iz činjenice da je izliven u metalu, što ga izdvaja od ostalih runskih natpisa Karpatske kotline. Osim toga, metal je kao materijal pridonio očuvanju izvornog oblika slova, uz samo manja oštećenja. Ovaj natpis predstavlja jedini poznati primjer dosad neotkrivene inačice runskog pisma u Karpatskoj kotlini, a sadržava i grafeme koji su prethodno bili nepoznati.



Sl. 19 - Crtež ogledala (autor: N. Ostović)
Fig. 19 - Drawing of the mirror (author: N. Ostović)

SUMMARY

The inscription on the bronze mirror, consisting of 31 graphemes and dating from the 9th to the 10th century, is of great significance for several reasons. First, it is the second-longest inscription in the Carpathian Basin Rovash script, after the Szarvas inscription, which consists of 66 graphemes. Its completeness is likewise noteworthy. In addition, the inscription on the bronze mirror found in Ilok can be interpreted on several levels, opposing good and evil, as well as this world and the afterlife. The inscription consists of four lines of equal length, separated by dots, resembling a poem without rhyme. The text, written in Hungarian, begins with a vivid description of a forest and its stony borders, alluding to Hungarian folk songs and introducing the theme of a possible influence of the devil. It goes on to mention the disease '*süly*' (an old name for ulcers and other diseases), which some believe to be caused by supernatural forces. The text aims to eliminate the disease and may have a protective effect.

The significance of this inscription lies in its unique metal casting, which sets it apart from the other Rovash inscriptions of the Carpathian Basin. Moreover, the metal as a material contributed to the preservation of the original shape of the letters, with only minor damage. This inscription represents the only known example of a hitherto undiscovered version of Rovash inscriptions in the Carpathian Basin, and it contains various graphemes that were previously unknown.

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