

# Body Modification on Viking Age Gotland

## Filed Teeth and Artificially Modified Skulls as Embodiment of Social Identities

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In recent years, research has provided evidence for permanent body modification in the Viking Age. Based on the current state of research, we identified around 130 male-gendered individuals from Scandinavia and beyond with dental alterations in the form of horizontal furrows, many of them stemming from the Baltic isle of Gotland. We suggest that this custom might have been used as a sign of identification for a closed group of merchants. In contrast, artificial cranial modifications in the Viking Age are so far known from just three female individuals from Gotland. While both forms of body modification have received wide attention in other cultural contexts, the specific expressions of these customs in Viking Age society still lack systematic investigation in terms of their social implications. Based on the archaeological concept of embodiment and modern communication theories, we discuss the perception of modified human bodies as media for the presentation and construction of social identities on Viking Age Gotland.

*Keywords: body modifications, Viking Age, Gotland, tooth filings, artificial skull modification, embodiment, communication theory, medium, social identity, mobility*

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## Introduction

The last decades have brought a renewed interest in the evidence of permanent body modifications in the Scandinavian Viking Age. For a long time, it was assumed that tattoos were the only form of permanent body modifications dating to this period in this cultural area (for example, Ewing 2006:127), based on a comment of the Arab diplomat Aḥmad ibn Faḍlān, in his famous travelogue (Lunde & Stone 2012:46; see also Montgomery 2000), although concrete examples are still missing from the archaeological record. However, proof of two other forms of body modification do exist: filed teeth and artificially modified skulls. The combination of the two forms within a limited cultural region invites new perspectives on the construction of social identities in Viking Age Gotland.

The first cases of tooth modification from the Scandinavian Viking Age featured in Swedish language publications in the early 1990s. It was not until the end of the 2000s, when there was an increasing number of finds, that researchers recognised tooth modification as being part of a hitherto controversially discussed discourse on identity. The second form of (known) permanent body modification in the Scandinavian Viking Age, artificial skull modification, is a rather newly discovered phenomenon that requires intensive research. Although recent aDNA studies suggest that at least one of the three known women with a modified skull was of Gotlandic origin (Rodríguez-Varela et al. 2023), skull modification does not seem to be an autochthonous custom of the Viking Age culture. As accounted for below, it is more likely that this custom originated in (south-)eastern Europe, and came to the North only sporadically, and through individual mobility. Currently, individuals with filed teeth are known from several places in southern and eastern Scandinavia, with a striking concentration on Gotland, while to date, individuals with modified skulls are only known from Gotland.

To understand the social functions and implications of filed teeth and artificially modified skulls, theories of communication and embodiment offer a productive starting point. Modifications can be viewed as signs within an ongoing communication process that formalise in the embodiment of ‘social identity’. The body becomes a ‘medium’, one out of many media in archaeologically-documented communities. In this article, we use a communication-oriented concept of media. Media theories in communication studies deal broadly with interpersonal communication, the communication of people with media (and vice versa) and the functions and significance of media systems for individuals and society/societies (Hoffmann 2014:90–94). Media and communication are closely related, since communication always makes use of a medium (Hickethier 2010:20; Schellmann et al. 2013:18). We refer to the typical, and likely oldest, forms of

interpersonal communication (Schellmann et al. 2013:120), that is, verbal, for instance in the form of sounds and conversations, and non-verbal, in the form of gestures and facial expressions, posture and body position in relation to people. To this we add the human body as a culturally variable and modifiable entity (Lorentz 2003:10).

In what follows, we first present the current state of research on body modifications on Viking Age Gotland and beyond. We then account for theories of communication and embodiment, after which these are put in dialogue with modified human bodies from Viking Age Gotland. After this discussion, conclusions are presented that provide a more nuanced understanding of the functions and meanings of tooth filing and skull modification within processes of communication on a variety of societal levels on the island of Gotland.

## The modified human body in archaeological research: Dental and cranial modifications on Viking Age Gotland and beyond

Dental modifications of the canine teeth are known from different cultures and epochs worldwide (Burnett & Irish 2017) and are still present today (for example, Garve 2011). From Viking Age Scandinavia, dental modifications in the form of single horizontal filed grooves have been known since 1989, when a case was observed on a male individual from the cemetery of Vannahög, Trelleborg in Scania, southern Sweden (Arcini & Jacobsson 2008:12–13). Dental modifications from other archaeological or ethnological contexts consist mostly of sharpening of the teeth or decoration by chipping. In contrast, the Scandinavian examples are characterised by single horizontally filed furrows on the incisors of the upper and partially also the lower jaw (Figure 1). Initially, the filings were regarded as accidental changes caused by specific craft activities (Arcini et al. 1991). However, the use of teeth as tools, such as in textile production,



Figure 1. Incisors with horizontal furrows or deep, crescent-shaped grooves from male individuals from the cemetery of Havor on Gotland (left) and Hammar in Scania (right). © SHM/Johnny Karlsson 2018-05-25/2008-08-12 (CC BY 2.5 SE).

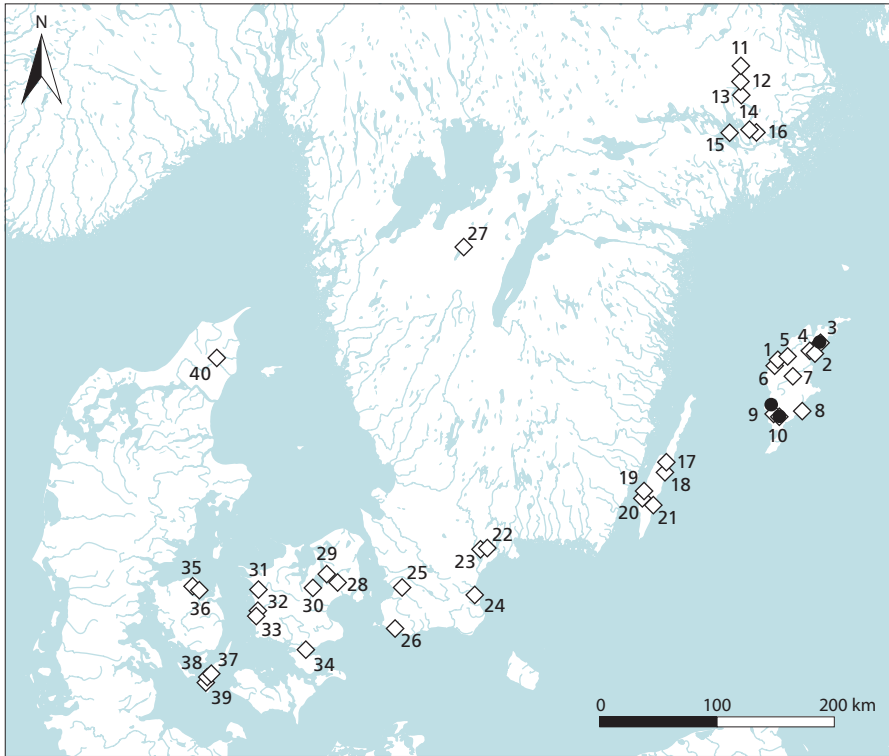


Figure 2. Map of the currently known cases of tooth filings from Scandinavia. The numeration corresponds to the numbers in Table 1 (no. 41: Gnezdovo and no. 42: Ridgeway Hill, Weymouth are not depicted). © Author’s work.

leaves different marks, as demonstrated in examples from Norse Greenland (Scott & Burgett Jolie 2008; see also Alt & Pichler 1998:394–399). This suggests that the increasing cases and large variation in the number and forms of filings are more likely due to intentional causes (Toplak et al. 2021 with references). Modern experiments show that similar filings can be achieved with a file of steel (Arcini 2005:732).

Currently, more than 130 individuals with filed teeth are known from the Scandinavian Viking Age (Ahlström Arcini 2018:76). Half of them have been found on Gotland (Figure 2). Forty-six biologically male individuals with filed teeth were observed in the cemetery of Kopparsvik, south of present-day Visby. The cemetery encompassed some 330 burials, lying in what appear to be two separate areas, most of them dating from around 900 to 1050 CE. In addition to the large number of individuals with filed teeth, two further features stand out. One is the unusually large number of prone burials, with almost 50 cases, and the other is a high percentage (*c.*68 per cent) of male individuals (Toplak 2015, 2016a, b). The distribu-



Figure 3. Skull of a male individual from Gnezdovo, Russia (grave C-140), with horizontal furrows or deep, crescent-shaped grooves on all four upper incisors. © Valerie Elena Palmowski 2020; after Toplak et al. 2021:323, fig. 1.

tion of individuals with filed teeth in Kopparsvik shows a distinct pattern as 90 per cent of the graves were lying in the northern area of the cemetery, in contrast to the southern area, which shows an equal distribution of male and female graves (sexed both archaeologically and osteologically). Of the individuals buried in the northern area, 80 per cent were male. Aside from this concentration, no further patterns in terms of grave structure, arrangement of the deceased or accompanying objects could be observed. The individuals with filed teeth were buried in what was presumably their everyday dress, with penannular brooches, belts and often with knives, in almost the same way as most of the individuals in the surrounding graves (Toplak 2016a:102–105).

Another notable site on Gotland is the Slite cemetery in Othem parish, where thirteen male individuals with filed teeth were discovered (Mortágua 2006; Toplak 2016a:191–192, 235–238). Despite the smaller total number of approximately 40 Viking Age burials in Slite, the proportion of individuals with filed teeth is even higher than in Kopparsvik. Although associated settlement structures have yet to be identified, both cemeteries were likely associated with organized port facilities along the Gotlandic coast, suggesting their role as trading and transshipment centres on a supra-local scale (Toplak 2023c:218–219).

Individuals with filed teeth have also been identified in various other cemeteries on Gotland, as well as in regions beyond. Notable examples include the Swedish mainland in Uppland, where eight or nine individuals from Sigtuna and four individuals from Birka exhibited tooth modifica-

Table 1. List of the currently known cases of tooth filings from Scandinavia.

No.	Cemetery	Region	Country	No. of ind.	Literature
1	Kopparsvik	Gotland	Sweden	46	Arcini 2010; Ahlström Arcini 2018; Toplak 2016a, 2016b
2	Slite torg, Othem parish	Gotland	Sweden	13	Mortágua 2006; Toplak 2016a, 2016b
3	Ire, Hellvi parish	Gotland	Sweden	1	Radon 2019
4	Österby, Othem parish	Gotland	Sweden	1	Radon 2019
5	Gällungs, Väskinde parish	Gotland	Sweden	1	Ahlström Arcini 2018
6	Vibble, Västerhejde parish	Gotland	Sweden	1	Radon 2019
7	Broa, Halla parish	Gotland	Sweden	1	Radon 2019
8	Kullar, När parish	Gotland	Sweden	1	Radon 2019
9	Hallvards, Silte parish	Gotland	Sweden	1	Radon 2019
10	Havor, Hablingbo parish	Gotland	Sweden	1	Arcini 2010; Toplak 2023c
11	Gnista, Danmark parish	Uppland	Sweden	1	Hennius et al. 2016
12	Tuna, Alsike parish	Uppland	Sweden	1	Ahlström Arcini 2018
13	Sigtuna	Uppland	Sweden	8 or 9	Hed Jakobsson et al. 2017; Kjellström 2014; Sahlén & Kjellström 2018
14	Grimsta, Fresta parish	Uppland	Sweden	1	Kjellström 2014
15	Birka	Uppland	Sweden	4	Ahlström Arcini 2018; Kjellström 2014
16	Bromma, Stockholm	Uppland	Sweden	1	Radon 2019
17	Sörby-Störlinge, Gärdslösa parish	Öland	Sweden	1	Radon 2019
18	Folkeslunda, Långlöt parish	Öland	Sweden	2	Arcini & Jacobsson 2008; Sjøvold 1994
19	Vickleby, Vickleby parish	Öland	Sweden	1	Ahlström Arcini 2018
20	Skolgården, Resmo parish	Öland	Sweden	1	Radon 2019
21	Alby, Hulterstad parish	Öland	Sweden	1	Radon 2019
22	Hammar, Nosaby parish	Scania	Sweden	1	Radon 2019
23	Fjälkinge	Scania	Sweden	2	Arcini & Jacobsson 2008
24	Hjälpared, Vitaby parish	Scania	Sweden	2	Radon 2019
25	Trinitatis churchyard, Lund	Scania	Sweden	1	Ahlström Arcini 2018
26	Vannhög, Trelleborg	Scania	Sweden	2	Arcini & Jacobsson 2008
27	Varnhem churchyard	Västergötland	Sweden	1	Kjellström 2014
28	Snubbekorsgård	Zealand	Denmark	4	Alexandersen & Lynnerup 2017
29	Grydehøj	Zealand	Denmark	1	Alexandersen & Lynnerup 2017

No. Cemetery	Region	Country	No. of ind.	Literature
30 Lejre	Zealand	Denmark	2	Alexandersen & Lynnerup 2017
31 Bakkendrup	Zealand	Denmark	2	Alexandersen & Lynnerup 2017
32 Trelleborg	Zealand	Denmark	9	Alexandersen & Lynnerup 2017
33 Forlev	Zealand	Denmark	1	Alexandersen & Lynnerup 2017
34 Bårse	Zealand	Denmark	1	Alexandersen & Lynnerup 2017
35 Galgedil	Funen	Denmark	5	Alexandersen & Lynnerup 2017; Prangsgaard & Bennike 2010; Price et al. 2015
36 Hessum	Funen	Denmark	1	Alexandersen & Lynnerup 2017
37 Kumle Høje	Langeland	Denmark	2	Alexandersen & Lynnerup 2017
38 Bogøvej	Langeland	Denmark	1	Alexandersen & Lynnerup 2017
39 Hesselbjerg	Langeland	Denmark	4	Alexandersen & Lynnerup 2017
40 Bødkergården	Jutland	Denmark	1	Alexandersen & Lynnerup 2017
41 Gnezdovo	Oblast Smolensk	Russia	2	Toplak et al. 2021
42 Ridgeway Hill, Weymouth	Dorset	England	1	Loe et al. 2014

tions. Single instances are known from smaller cemeteries in Uppland, Scania and Öland. While some of the early graves in Uppland, such as Bj A129 at Birka, and A29 in Bollstanäs, date back to the early Viking Age, most cases can be attributed to the later Viking Age. The most recent instance of tooth modification, dating to the eleventh or twelfth century, was found in the Varnhem monastery cemetery in Västergötland, Sweden (Kjellström 2014:50–51). Several cases provide evidence against a religious background for this form of body modification. They are found both in burials, which, based on dating and expression, indicate a pre-Christian background, such as the early graves from Birka and Bollstanäs, and in later burials, which must be seen in a Christian context, such as Sigtuna (Kjellström 2014:49) or Kopparsvik (Toplak 2016:316–319, 322–324). From Denmark, thirty-four individuals with tooth modifications are currently known. Nine cases stem from Trelleborg and four cases from Snubbekorsgård, both on Zealand. Five cases are known from Galgedil on Funen, and there are four cases from Hesselbjerg on Langeland as well as a number of single cases from different burial grounds. In addition, two male individuals with filed teeth were observed in a cemetery in Gnezdovo near Smolensk, Russia (Figure 3), and a single instance in the mass grave at Ridgeway Hill near Weymouth in Dorset, England. Table 1 lists the currently known cases of tooth filings from Scandinavia.



Figure 4a. Skull of a male individual with filed teeth and healed fracture from grave 25, Slite, Othem parish, Gotland. © SHM/Gabriel Hildebrand 2011-12-09 (CC BY 2.5 SE).

Although the overall distribution of the known cases probably reflects the state of research, rather than the actual prevalence of this custom in the Viking Age, evidence for this custom is still lacking from Norway, probably due to the bad preservation of bone. The clear concentration on Gotland must be taken into consideration when interpreting this custom. According to strontium analyses on a small series of individuals with filed teeth from Gotland, most of the analysed individuals also came from the island





Figure 4b. Detail of the filed teeth from the male individual in grave 25 from Slite, Othem parish, Gotland. © SHM/Lisa Hartzell SHM 2007-06-13 (CC BY 2.5 SE).

(Ahlström Arcini 2018:100–101). Together with the concentration of the distribution of filed teeth on Gotland, this might indicate that Gotland was the centre of this custom, even though the two earliest currently known cases come from Scania and Uppland on the Swedish mainland (Ahlström Arcini 2018:79). It can only be speculated whether these earlier cases of filed teeth were the impetus – or inspiration – for certain social groups on Gotland to adopt this form of body modification. However, variations and differences in the form and intensity of the tooth filings can be identified from different geographical areas such as Gotland/Scania, Uppland or Denmark (Alexandersen & Lynnerup 2017:84; Kjellström 2014:51–52), suggesting that there may have been different groups and intentions behind them. According to Arcini (2020:142), despite some individual variations, most filings on the teeth of individuals from Gotland and Scania (including the single case from England) show striking resemblances, suggesting that they were executed by one and the same person or at least from a very small group of persons. The grooves on the teeth of many individuals from Denmark, in turn, differ from the Gotlandic material, so that Alexandersen & Lynnerup (2017:86) suggest a divergent etiology. Furthermore, some filings are so shallow that even their intentional character is doubtful (Alexandersen & Lynnerup 2017:86; Kjellström 2014:53).

The Gotlandic tooth filings and the cases of artificially modified skulls, which appear together in at least two cemeteries, Ire and Havor, make

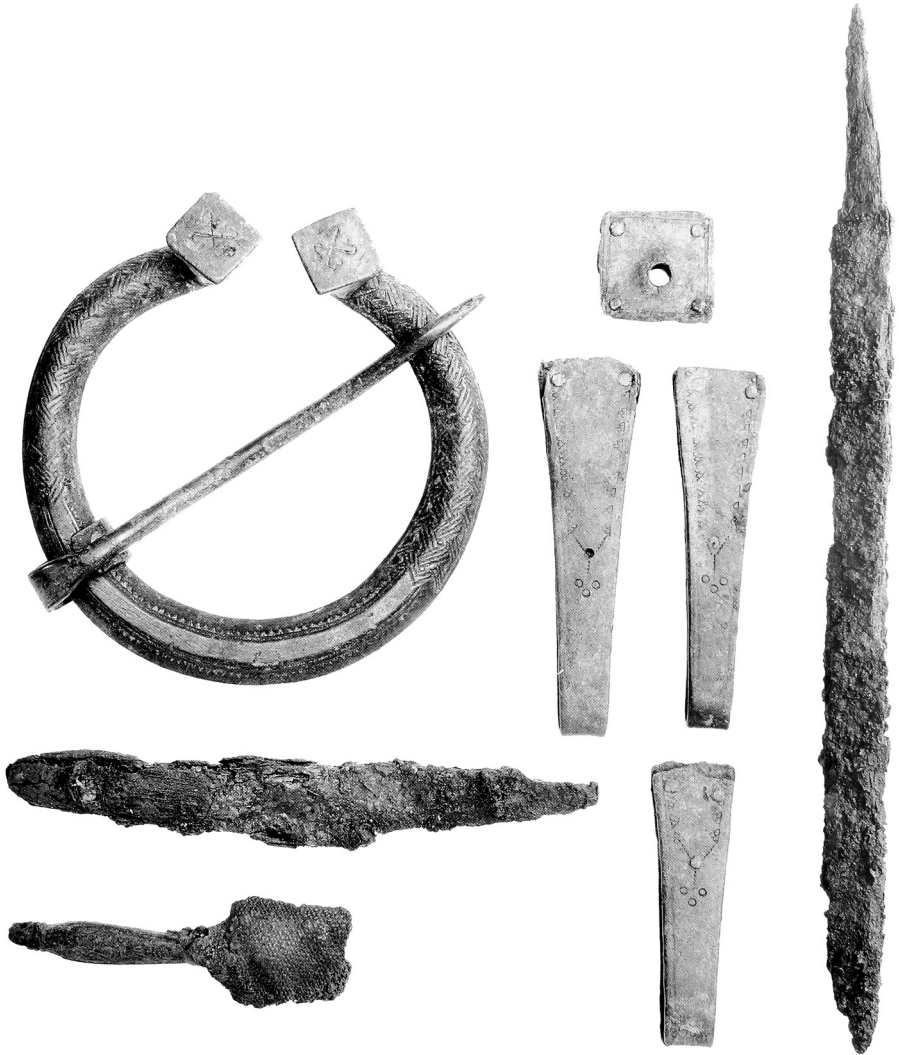


Figure 4c. Penannular brooch, belt fittings, weapon knife and key from grave 25 from Slite, Othem parish, Gotland. © Thunmark 1995, fig. 254; reworked by authors.

Gotland, as a geographically clearly defined study area, an interesting case study for understanding body modification in the Viking Age. Since the first observation of filed teeth, various interpretations have been put forward. As mentioned above, the filings were initially interpreted as the result of handicraft activities which may have used teeth as tools (Alexandersen & Lynnerup 2017:87). A later and more spectacular interpretation regarded the filings as markers of a warrior elite who wanted to show both their bravery and resistance to pain, while also appearing more fearsome to their ene-

mies (Arcini 2005:733; Williams 2014:80). Support for this interpretation was also taken from the tooth filing of one of the decapitated individuals found in the well-known mass grave at Ridgeway Hill, in England, which at first was interpreted as a mass grave of Scandinavian warriors or raiders (Score 2010; cf. Loe et al. 2014:233). Very few of all currently known individuals with filed teeth, however, have been buried with weapons (Ahlström Arcini 2018:77–78; Toplak et al. 2021:325). Furthermore, few individuals show traces of (healed or lethal) weapon-inflicted traumata on the skeletal remains that would indicate participation in armed conflicts (Ahlström Arcini 2018:78) (Figure 4a–c). In addition, the filings would have been scarcely visible beneath upper lips and potential moustaches, even if they had been coloured with some kind of black paste, perhaps made of soot (Arcini 2005:732).

According to a second interpretation, the tooth filings could be regarded as a marker of slaves (Zachrisson 2014:78–80; cf. Raffield et al. 2021:39). This was initially based on two males with filed teeth that were either executed or sacrificed, and on the connection between tooth filings and prone burials at the cemetery of Kopparsvik. Due to their disproportionately high number, the carefully arranged interment of the deceased and the objects in the graves, this form of burial could rather be seen as a variation of the norm with a presumably religious significance. According to archaeological as well as historical sources, a burial in prone position might indicate a special Christian gesture of humility towards God (Toplak 2016a:308–324, 2018a). Since then, possible intentional tooth filings have been observed on further individuals in so-called ‘deviant burials’ from Denmark, possibly linked to the sacrifice of slaves (Alexandersen & Lynnerup 2017:83–84). However, in the case of the individuals from Gotland, this explanation is less convincing, as most of the individuals were buried with grave goods such as elaborate belt sets, knives and jewellery (Toplak 2016a:102–105). The same is true for the deceased in chamber graves in Birka, and in a grave from Gällungs, Väskinde parish on Gotland, who were buried with weapons, elaborate dress accessories, horses and riding equipment (Arbman 1943:143–144, 344–346; Toplak 2023a) (Figure 5). Therefore, such an interpretation as a marker of slaves must be considered unlikely as a general explanation for the custom of tooth filing in Viking Age Scandinavia.

The only clear pattern so far is the restriction of tooth filings to individuals that could be sexed as (social) gendered males due to the archaeological material, often confirmed by anthropological analyses, and to an age of at least 20 years onwards (Ahlström Arcini 2018:77; Arcini 2020:142). An exception to this rule are three cases from Denmark, where both the sex of the deceased and the actual intentionality of the filings is unclear (Alexandersen & Lynnerup 2017:83–84, 88).

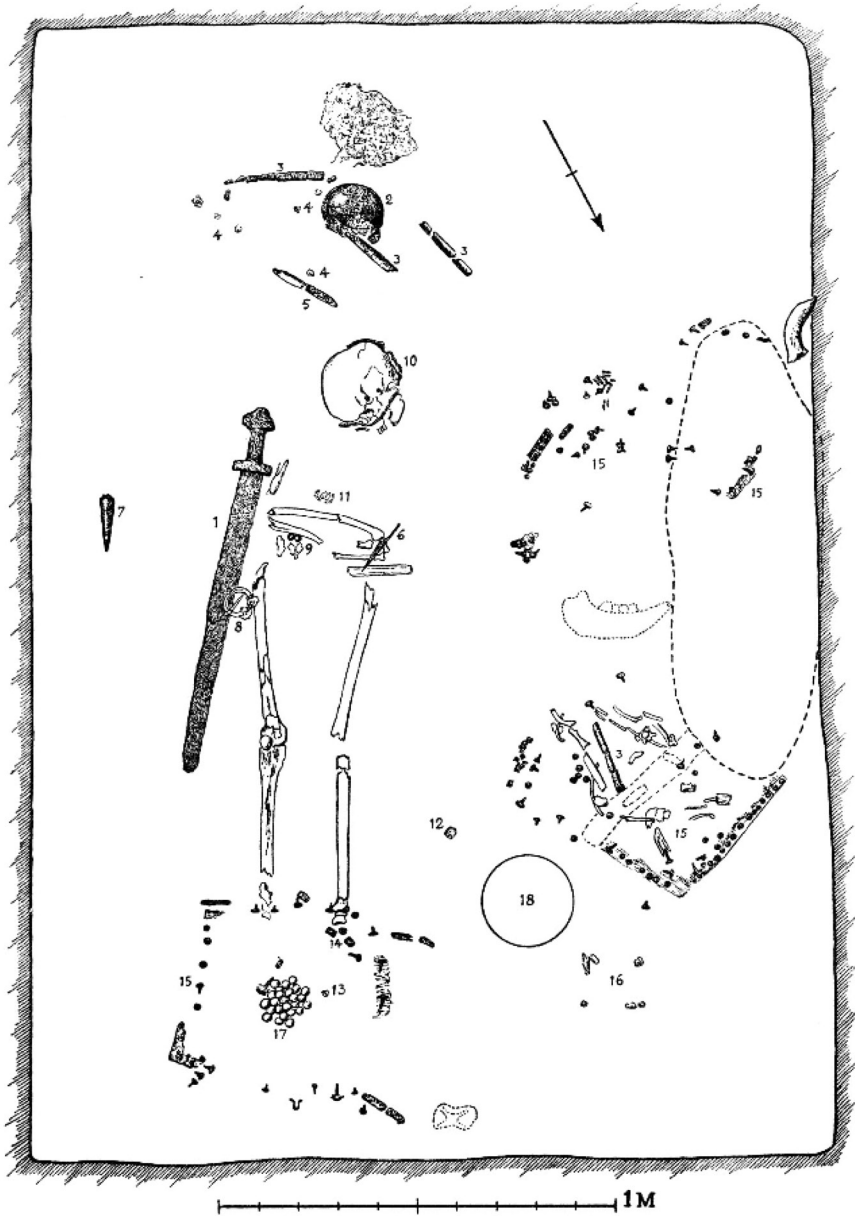


Figure 5. Drawing of grave Bj 886 from Birka, burial of a male individual with filed teeth, equipped with sword, shield and gaming board. © Arbman 1943:345, fig. 291; reworked by authors.

The custom of skull modifications is known in particular from Mesoamerica and South America, as well as from the Migration Period in Central Europe, the Caucasus and parts of Eurasia (Toplak 2019 with references).



Figure 6. Map of the currently known cases of tooth filings (black circles mark the cemeteries with females with modified skulls). © Author's work.

From the Middle Ages, a few modified skulls are known from Central and south-eastern Europe. They are from late Viking Age Wolin in Poland, from Slovakia and especially from Bulgaria, and they date to the period between the ninth and eleventh centuries. According to the reports given by several Arab scholars and diplomats, skull modification occurred in Central Asia until the twelfth century (Toplak 2019:106–107).

So far, three cases of artificial skull modification are known from the Scandinavian Viking Age. They are from cemeteries in Kvie, Eksta parish, Ire, Helli parish and Havor, Hablingbo parish, all on Gotland (see Figure 6). The bodies have been archaeologically and anthropologically assessed



Figure 7. Artificially modified skull from the female individual in grave 192 from Havor, Hablingbo parish, Gotland. © SHM/Johnny Karlsson 2008-11-05 (CC BY 2.5 SE)

as females (Kiszely-Hankó 1974; Toplak 2019), presumably buried in the second half of the eleventh century (Toplak 2019) (Figure 6). Kiszely-Hankó (1974:45) has estimated the modification of the skulls to be very moderate, and especially in the case from Kvie as ‘minor-medium’ (1974, 42–43). While the index of the skull from Kvie might lie within the normal variation as similar indices of a few skulls from the Migration Period cemeteries at Vallhagar on Gotland (Stenberger & Klindt-Jensen 1955:760–763) suggest, the cranial index of the skull from Ire and the dimensions and the shape of the skull from Havor do indicate an intentional, artificial modification of the head. Both cemeteries, Ire and Havor, were almost completely excavated at the end of the nineteenth and the middle of the twentieth century (Stenberger 1961; Toplak 2023c) (Figure 7). The individual from Kvie comes from a small group of half a dozen burials. They were uncovered by chance during gravel extraction in the early 1930s, and the excavation was documented in only a few, short letters by the finders (Thunmark-Nylén 2000:130). There were few artefacts, none datable, in this grave, but the artefacts from the surrounding graves indicate a late Viking Age date, similar to the two graves from Havor and Ire (see Thunmark-Nylén 2000:130–131). Both the female individual from Ire, grave 503, who died at an age of approximately 25–30 years, and the female individual from Havor, grave 192, who died at an age of 55–60 years (Kiszely-Hankó 1974:40–45), were buried according to local burial traditions and with rich jewellery and



Figure 8. Drawing of the grave of the female individual with an artificially modified skull in grave 192 from Havor, Hablingbo parish, Gotland (right) and artistic reconstruction of the burial (left). © ATA/Riksantikvarieämbetet, Excavations G. Gustafson 1884–1887; reworked by author (right); Mirosław Kuźma/Matthias Toplak 2019 (left).

accessories which are characteristic of the Gotlandic female attire (Figure 8). The female from Havor was even buried with four animal-head brooches, a type that is both unique to, and characteristic of, Gotland. The usual female attire consists of either a single brooch, or a pair of brooches. In a few instances you can find a pair, and a single brooch. Such an exaggerated number of brooches is only known from two other graves (Toplak 2019:101) (Figure 9a–b). Interestingly, the typical Gotlandic box brooches were absent in all three graves (see Thedéen 2012). None of the three graves allows secure conclusions about the religious background of the burials. All three women seem to have been buried in their dresses, but without real



Figure 9a & b. Typical Gotlandic dress accessories from the grave of the female individual with an artificially modified skull in grave 192 from Havor, Hablingbo parish, Gotland. © a/b: SHM/Bertha Amaya/Elisabet Pettersson 2006-11-29/2006-12-04 (CC BY 2.5 SE); reworked by authors.



grave goods. This is a custom that prevails even on the earliest churchyards on Gotland (Thunmark-Nylén 1995). Together with the dating to the later Viking Age, this cautiously signals an early Christian context. The existence of a Christian community can be assumed, at least for the cemetery of Havor, as the discovery of a cross pendant in the grave of a male, next to that of the woman with the modified skull, suggests (Toplak 2023c:176–177, 204–205). As indicated by aDNA analyses on the two individuals from Havor and Kvie, the female from Havor was of Gotlandic origin, while the female from Kvie came from the eastern Baltic area, possibly Lithuania (Rodríguez-Varela et al. 2023).

The custom of skull modification probably originated in south-eastern Europe, based on investigations of similar findings from the Migration Period and on the contemporaneous custom of skull modification mentioned above. It was predominantly, but not exclusively, connected with biological females (Beňuš et al. 1999:268; Enchev et al. 2010:6). Close trade contacts between Scandinavia or Gotland and eastern Europe down to the Black Sea are well documented archaeologically (see for example Bjerg et al. 2013; Minaeva & Holmquist 2015). It remains unclear how the custom of skull modification reached Gotland. Either the three females from Havor, Ire and Kvie were born in south-eastern Europe, perhaps as children of Gotlandic or East Baltic traders, and their skulls were modified there in the first years of life. Or the modifications were made on Gotland or in the eastern Baltic, respectively, and thus represent a cultural adoption long unknown to the Scandinavian Viking Age. A common background of the three females can be assumed due to the close chronological dating of the three burials, and especially due to the very similar execution of the skull modifications (Kiszely-Hankó 1974:42–44).

## The modified human body as a medium of communication

The human body both is and represents a medium of communication. It has an ability to produce communication in a functionally complex structured way (for example, Hickethier 2010:21–30). The medial tendency to accumulate functions is immanent in the human body. By artificial modification, and hence the inscription of culturally determined messages, it is both a storage medium (a carrier of information, messages, content, etc.) and a transmission medium (communicating information, messages, content, etc.).

Media are defined by three central and interrelated aspects. They are their mediality, their technology and their use (Hickethier 2010:25). Medi-

ality refers to, on the one hand, a property that is determinant for all media in the same way, and on the other, a set of properties that are regarded as 'typical', that is as historically bound to a cultural situation. In relation to the human body as a communicative medium, a permanent body modification is genuinely media-specific and at the same time constitutive of its mediality. The medial properties are generated by technology in the form of procedure, apparatus (for example tool or implement) and energy input. Finally, the last aspect of media, their use within a society, forms the context in which meanings, themes and contents are prepared and conveyed in a media-specific way.

Theories of interpersonal communication, that is social communication or face-to-face communication, usually focus on language as a medium of communication (Hoffmann 2014:90). Language is conventionally divided into semantics (the content), syntactics (the structure) and pragmatics (the occasion, the goal). It is regarded as a sign system as well as a special way of acting. In addition to verbal signs (speech and writing), interpersonal communication usually also depends on non-verbal signals which are essential for understanding the communication and interaction process. The centre of consideration is a sender who conveys a message to a receiver (Hoffmann 2014:90). A concise and all-encompassing definition of interpersonal communication is hardly possible, due to its multifaceted complexity. However, definitions from the field of communication studies may prove helpful in the context of archaeological questions. For instance, Beck (2020:33) has provided a definition whose key points can be summarised as follows:

- Human communication is to be understood as a sign process, which can develop from the mutually interrelated and intentional communicative action of at least two people (communicants).
- Based on material or immaterial transmission of signals, a meaning (social construction of sense) is conveyed.
- The basic prerequisite for this is a common biological heritage (cognitive system) as well as a socialisation and enculturation (education and learning process) of the communicants who thereby construct sufficiently similar information, have a common conventionalized set of signs (icons, symbols) and thus communicate and share their knowledge with each other.

Applying these key points to body modification, it can be described as the signal of an immaterial transmission of meaning which can be understood accordingly by the members of a socio-cultural community based on a common conventionalised set of signs. Both tooth modification and artificial skull modification have a primarily symbolic character in the sense that they refer to something that is culturally coded. As possible iconic signs

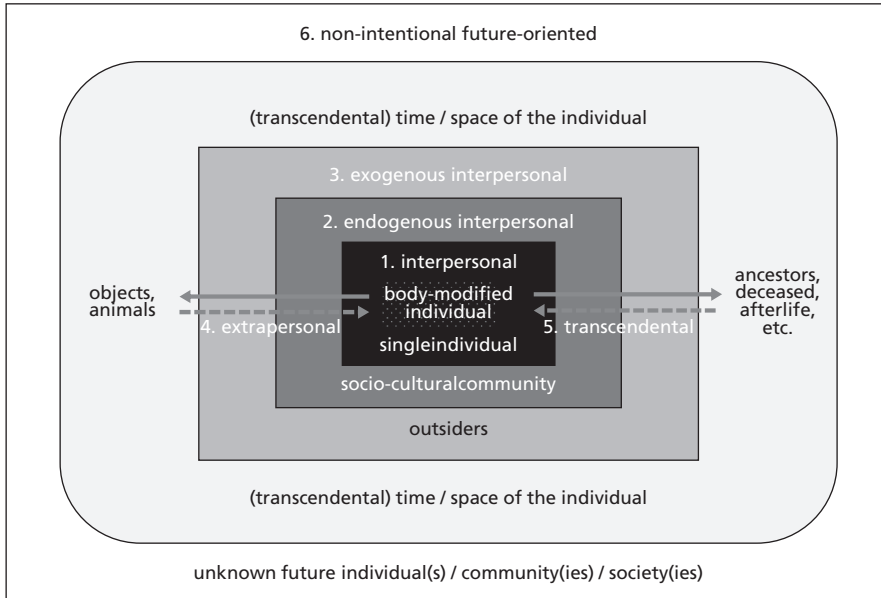


Figure 10. Diagram showing the different levels of communication. © Author's work.

they may refer to something in an abstract form. Among permanent body modifications, tattoos are most likely to be iconic signs, since what is pictorially depicted may well be an image of what is represented, or at least have a resemblance to what is depicted. In addition to interpersonal communication, further types of communicative action are conceivable. They require an expansion of the concept of communication. Against this background, six possible levels of communication can be distinguished (Figure 10):

1. interpersonal communication (face-to-face communication),
2. endogenous interpersonal communication (communication with the community),
3. exogenous interpersonal communication (communication with outsiders),
4. extrapersonal communication (communication with objects and animals),
5. transcendental communication (communication with ancestors, deceased, the afterlife, supernatural forces, nature, etc.),
6. non-intentional future-oriented communication (communication with an unknown future individual or an unknown future community/society).

Taking this classification into account, along with the assumption that body modifications are first and foremost symbolic signs, it is essential to criti-

cally reflect upon the possible statements that can be transmitted by the human body as a communicative medium. To overcome a purely descriptive view, and to focus on questions such as possible reasons for the application as well as the (social) functions and meaning of the body modifications, it must be clarified to what extent useful conclusions can be drawn about the original circumstances. Based on the theoretical framework of the modified human body as an independent medium of communication, the concept of embodiment offers new approaches to the social implications of tooth filing and skull modification.

## The modified human body as an embodied social identity

People communicating with each other within social groups use signs that are associated with social meanings (Hickethier 2010:20). Whether defined by familial, ethnic, religious, cultural, political or geographical affiliations, or by social status or function, ‘social categorisation’ represents a basic human need to locate the individual within the surrounding world and demark boundaries to external groups (Tajfel 1975). Social identity is often expressed through physical appearance. Using elements that function both internally and externally as distinctive features or ‘signs’ for a specific social group, such as clothing, jewellery and other special manifestations of the respective material culture, hairstyles and body modifications, identity can be presented and/or (re)constructed (for example, Schildkrout 2004). Classification, that is the perception and recognition of socio-cultural groups by outsiders (Jenkins 2000), is one of the central aspects for the attribution of a social identity (Kelly & Kelly 1980), along with self-perception within a specific group. Following the approach of embodiment, the human body forms an additional medium for non-verbal, often action-related communication between individuals and groups (Tiesler 2014:13–17). The human body acts as an interface between the psyche, the physical materiality of the body and the social culture surrounding it, and the reciprocal interaction of these elements (for example, Hamilakis et al. 2002). As a medium it becomes a social construct for the representation and (re)construction of social, ethnic or religious group affiliations. As such, it can be utilised by an actor to present ideas of a certain identity, which is thereby simultaneously reconstructed or modified depending on situation and context.

The dynamic process of constructing identity is always subject to external perception, depending on effects of including and excluding certain phenomena. The perception is further based on certain expectations, prejudices, empirical values and the situated contextualisation, for instance.

Therefore, the reception of a specific identity constructed by embodiment is not necessarily congruent with the identity or the meaning which was originally intended by the actor. Embodiment thus creates two levels of identity: an internal identity based on the actor's intentional self-representation and self-perception, reflected by interpersonal communication; and an external identity based on the more dynamic, situated and contextual perception from the outside. These capture both the habitus of the individual and the social group ascribed through embodiment, and its reception, as part of endogenous interpersonal communication within the social group as well as exogenous interpersonal communication of the social group with the outside community. Through a common marker of distinction of a social identity, this perception of the social group can be intensified and manipulated or controlled from the outside. This leads to the possibility of constructing or reinforcing an intended external effect, for example when respected persons or larger groups present themselves as members of a social group by means of a specific embodiment or when the affiliation to a distinct, closed social group is conveyed by means of an unusual, particularly conspicuous and/or permanent embodiment. Identity presented by embodiment is thus not a purely internal construction, but is in constant interaction with both, the external perception of this embodiment and the external identity attributed to it.

In the analysis of identity discourses in prehistoric and early historic social groups, archaeology is limited to a few forms of markers of distinction. Most of these are temporary and no longer detectable in the archaeological record, such as hairstyles, clothing or tattoos, all of which could have a symbolic or iconic meaning at the time. Jewellery and dress elements, on the other hand, which are often perceived in the burial context as clearly distinguishing features of a specific, often ethnically or regionally interpreted identity, and which are usually preserved in the archaeological record, do not necessarily reflect the real dress (and thus the concrete identity) of the individual or of a social group. They must primarily be regarded as elements of an intentionally constructed and multi-causally conditioned scenery in which various aspects, such as the identity of the individual and his/her relatives during their lifetime, the identity of the dead, ideas of the after-life and the circumstances of death can mutually define (or contradict) and superimpose each other (see for example Williams 2006 with references). A special case occurs, however, when body modifications are used as a distinguishing feature that result in a permanent alteration of the bone structure, such as tooth filing or skull modification. Such a specific identity, encoded in the corporeal signs manifested as body modifications, remain constant throughout life and also in the archaeological record. Despite this permanence, body modifications can be re-contextualised and re-interpreted by

societies within the framework of endogenous and exogenous interpersonal communication. An example is a form that is foreign to the local community, such as the skull modification, but since it cannot be changed like dress elements, it forces a reaction and interaction. This aspect also highlights the difficulty of interpreting body modifications in archaeologically documented communities. The archaeological evidence does not necessarily show the actual (final) identity of the deceased individual during his lifetime, but through the immutability of the body modification, it shows how the local community in the burial context interacted with this marker of distinction and the identity (known or foreign) communicated with it.

## Discussion

The following section discusses the role of tooth filings and artificial skull modifications on Gotland as a case study for Viking Age Scandinavia. Starting with the three females with modified skulls from Gotland, their burials do not give any reliable indication of the original intentions for the skull modification. But they do show how these three females and the skull modification, as a marker of distinction for a certain identity, were perceived and contextualised by the local community. In the regions where skull modifications were still a common practice in the tenth and eleventh centuries, this distinctive embodiment was presumably intended to increase the prestige, and possibly also the social status, of the individual. It further defined the individual as a member of a certain social class or a specific ethnically, geographically or culturally defined group (see for example Tobias et al. 2010:298), even though indication of a higher social rank of individuals with skull modifications can only be found in isolated cases (for example, Alt 2006:118; Schmölzer 2016:69–70).

In late Viking Age Gotland, the social identity expressed by skull modifications probably lost its original significance. Regardless of whether the skull modifications were actually executed on Gotland, the presence of the three women does not seem to have led to an impetus, either fashionable or socially conditioned, for the adoption of this distinctive form of embodiment on the island. So far, only these three cases of skull modifications are known from Viking Age Scandinavia. Considering the narrow time frame in which the three women must have lived (or rather in which they must have been buried) on Gotland and the lack of burials of infants with modified skulls, taking into account parallel findings from Migration Period cemeteries in southern Germany (see for example Hakenbeck 2018:491), it is probable that the custom of skull modification was a foreign tradition

to Gotland, or indeed Scandinavia, and never came to be adopted into the culture of Viking Age Gotland.

Among the potential explanations for this, two stand out as particularly compelling to us. On the one hand, the practice of artificial skull modification requires enormous knowledge and experience, as well as time and effort in order to achieve the desired permanent change of the shape of the head (Tiesler 2014:18) while avoiding physical or psychological impairments (Gadison 2015:16–33). The skull of new-borns and small children can be modified from birth to the third year of life by means of permanent compression of the elastic skull bones that have not yet grown together at the sutures (O’Loughlin 2004). This knowledge of how to modify an infant’s skull might have required community involvement and could not simply be passed on between isolated individuals (Lorentz 2003:10). It might have been considered a particular form of knowledge that was not passed on from mother to daughter until the birth of the first child or certain individuals were responsible for this practice, such as the child’s grandmother (see Hakenbeck 2018:493–494) or a few initiated ‘skilled practitioners’. If the skull modifications were executed on the three females in south-eastern Europe, it could be possible that they returned to Gotland without having transferred this knowledge or without such ‘skilled practitioners’, thus being unable to perform this practice on their own offspring. If the skull modifications were undertaken on Gotland, it was probably only a small community of people that valued this form of embodiment, and only few people were able to perform a skull modification, otherwise more evidence for the practice would be expected in the archaeological record.

In such a small community, the untimely death of the person(s) responsible for executing the modification would have disrupted the *chaîne opératoire*, so that the knowledge would thus be lost. Furthermore, it is also conceivable that skull modifications could not be carried out on the offspring for other reasons, for example because the females had no children, the children died early or certain circumstances prevented the practice. On the other hand, the decision not to adopt this practice may have been conscious. It may not have been valued by the local society, or the females themselves may have chosen not to transmit this practice. The identity constructed and communicated through the skull modifications was possibly no longer significant for the three females (or might even have been rejected by them as a link to traditions of a certain cultural region to which they no longer had any bonds). At least when it comes to their children, they may have refrained from this ostentatious and permanent marking. The embodiment of this foreign identity would thus have lost all value in the local community since the affiliation to a certain social group which was signalled by the skull modification was either not understood by the

rest of the local community, or was meaningless to it. This presentation of 'otherness' could have been regarded as undesirable by the local society, as it represented a break with the idea of a collective identity. This could depend on the circumstances under which the skull modifications came to Gotland and its associations as perceived by the local society.

Were the women's relatives respected members of the local community who had come into contact with the custom of skull modifications in south-eastern Europe? Or, were there in fact foreigners who had married into the women's families that were responsible for this embodiment? Due to the close chronological dating of the three burials, and especially due to the very similar execution of the skull modifications, we presume that they once belonged to one community. Did they belong to local merchant families, and were thus associated with successful trading voyages, far-reaching contacts, and thus with positive connotations? Or were they regarded as outsiders whose unusual appearance was seen less as an expression of a positively associated foreign culture than as a curiosity that made them special and different?

We can only speculate that the lives of the three females on Gotland must have challenged their conception and understanding of identity. They were always marked as different by the permanent and clearly visible body modification, and at the same time, they did not pass on this distinctive aspect of their identity to their own children. Potential children would have been visually part of their new Gotlandic culture, whereas the mothers with the physical manifestation of a foreign identity would have remained outsiders, even if the females were buried in local attire, which they presumably also wore during their lifetime (Thunmark-Nylén 2000:303). At the same time, the presence of the three females and the confrontation with such a distinct form of embodiment of a social, and inevitably also ethnic affiliation, must at least indirectly have had an impetus on the cultural and social understanding of identity in Gotlandic society. The skull modifications were not an indigenous cultural tradition on Gotland, and would thus manifest 'otherness' which, however, in a society as clearly focused on trading activities as that of the Gotlandic Viking Age, was certainly associated with far-reaching contacts and mercantile success. While on the individual level of the three females, their embodiment of a social identity might have become worthless due to the lack of contextualization, a shift in meaning, or rather a 're-contextualization' of the embodiment, can be hypothesized on a social level. The perception of the embodiment as 'affiliation', as opting-in from the females' perspective, could have shifted to 'otherness' as opting-out from the perspective of the Gotlandic society.

The interaction with the females with modified skulls could be regarded as the socio-political use of certain immaterial aspects of this embodiment



of ‘otherness’, positively connoted foreign culture, far-reaching (trade) contacts, mercantile success or membership of a supra-regional (cross-cultural) elite, in order to construct or legitimize a prominent position or claim to leadership, for example in trade activities, similar to the use of rare and thus prestigious imported goods as status symbols. As the public burial ritual functions as a medium of multidimensional socio-religious communication between relatives and society, it is suitable for constructing or manipulating social identity and social relations (Toplak 2018b, 2021, 2023c). The burials of these three females as members of the local Gotlandic society, especially in the case of the strikingly rich attire of the female from Havor, are a clear combination of the embodiment of a social identity, here in the form of the affiliation to the Gotlandic society through the use of local dress and burial customs, and the use of the resource ‘otherness’ as status symbols for far-reaching and prestigious contacts. In this context, both constructions of identity, the skull modification as an affiliation to a certain ethnic or social group and the burial as a member of the local community, and the resulting signals of ‘affiliation’ and ‘otherness’, respectively, are beyond the control of the persons concerned. In both cases it is the external imposition of a social identity.

The skull modification thus points to a non-verbal communication that was certainly subject to change over time, and even went beyond the death of the three females on Gotland. First and foremost, the skull modification as a form of body modification is a mark of the individual that is beyond his or – in this specific case – her own control. Because this body modification was tied to early childhood, the decision to perform it was in the hands of the community to which the individual belonged. It was this community that, based on its set of signs, ascribed a (symbolic) meaning to the young individual by means of the body modification, which remained permanent and visible for life and beyond. There remains the possibility that the local population on Gotland possessed the same, or at least a similar, conventionalised set of signs and was thus able to decipher the meaning immanent in the cranial modification at the interface between endogenous and exogenous interpersonal communication. However, due to divergent sets of signs, the Gotlandic society would not have understood the original meaning. The body modification may have been perceived as an exotic or foreign trait which did not prevent the individual from being integrated into the community and its prevailing burial customs. This can also be observed in almost all cases of Migration Period women with modified skulls in the ‘western group’ defined by Hakenbeck (2009:74). It must always be taken into account that these women could also express themselves through the medium of language, and if they spoke the same language as the local population, they could communicate the actual meaning of their skull modifi-

cation to the community – if they knew it themselves. At the same time, a reinterpretation of the original meaning of the skull modification by the new socio-cultural community on Gotland probably took place. Furthermore, the skull modification possibly also functioned as a constant reminder of their own origins within the framework of interpersonal communication. The case of the artificially modified skulls on Gotland thus probably illustrates a re-coding of an alien and incomprehensible sign whereby the three foreign females and their embodied social identities could be integrated into the local society of the Gotlandic Viking Age.

In contrast to the situation of the females with artificially modified skulls from Gotland, the known Gotlandic tooth filings can be interpreted as a cultural anchor that manifests itself in the marking of individuals, and thus their integration into a community, hence as an intentional and desired embodiment of a certain social identity within the socio-cultural framework of Viking Age Gotland (and beyond). We argue that it is an intentionally performed display of a certain identity, and thus as a marker of mutual identification within a limited group of people. As almost all individuals with filed teeth could be sexed as (social) males, often confirmed by anthropological investigations (Ahlström Arcini 2018; Toplak 2016), the custom of tooth modification was clearly related to perceptions of gender. However, it remains unclear if the tooth filings were regarded as an active expression of a male gender identity, such as male members of a certain social group in ostentatious distinction from possible female participants, or if the precondition for the affiliation to this social group was being of male gender, so that the tooth filings were merely a passive sign within a gender discourse.

The application of the modification marked the transition into a social association by way of a rite of initiation, and henceforth acted as a sign of identification. Despite its permanence, the body modification could be concealed, in contrast to cranial modification, which gave it a certain exclusivity with regard to its communicative aspect. If necessary, tooth filings could be shown, but they could also remain hidden. Thus, they presumably functioned primarily within the endogenous interpersonal communication of a closed social group. The exact role of the different forms of tooth filings within the context of an immaterial transmission of meaning cannot be reconstructed clearly. It is only possible to speculate about the true nature of this social group, but the distribution of dental modifications reveals one possible pattern. Many cases are known from early trading places such as Kopparsvik and Slite on Gotland, as well as Birka and Sigtuna, and all individuals with filed teeth seem to have been adult men. Furthermore, most of the men with filed teeth from Kopparsvik were buried in the northern area of the cemetery, which could cautiously be interpreted as a cemetery for non-local individuals that stayed at Kopparsvik only seasonally, with-

out their families due to the striking underrepresentation of females in this part of the cemetery. We therefore theorize that the custom of tooth filing might have been linked to trading activities of larger groups of professional merchants. According to this theory, they might have functioned as a rite of initiation and sign of identification for a closed group of merchants, as some kind of precursor to the later guilds. The existence of trading communities or early guilds in late Viking Age Scandinavia has been shown by the so-called ‘Gildesteine’ in Sigtuna and Östergötland, where rune stones explicitly mention ‘Frisian gilds’ and ‘gild brothers’ (Jesch 2001:241). Following this theory, the members of this closed group of merchants could have identified themselves through the tooth filings and may thus have received commercial advantages, protection or other privileges which were relevant to the development of the concept of trading guilds in high medieval times (Toplak 2016a:328–331).

The varying numbers, depth, and shape of the grooves, however, give the tooth modifications a symbolic character that suggests a conventionalized set of signs, which was possibly readable by the members of the community as assigning an individual to a particular field of activity, function, or status within the corresponding group. Based on the differences and variations in the forms of the tooth filings between, for example, Gotland and Uppland or Denmark, it could furthermore be theorized that they actually reflect different circles of distribution (Kjellström 2014:51–52). Thus, it could be speculated that the tooth filings on Gotland were deliberately used as a marker of a certain identity, while a similar custom may have had a completely different meaning in other regions. This suggests that the sign code of the tooth filing was not unknown within the larger regional sphere of the Scandinavian Viking Age and could be decoded and re-contextualized. It is even possible that one and the same tooth filing was used as a medium of endogenous and exogenous interpersonal communication. While the full meaning of the tooth filing as a signal of a symbolic sign process was known in detail to one’s own community, it was perhaps sufficient that outside of this community the recipient(s) knew only part of this more complex meaning. Furthermore, a few men with filed teeth were buried in a way that suggests they were ritually killed during the funeral ceremony, perhaps as slaves or convicts (Toplak 2023b). This might indicate that this embodiment of a social identity, presumably the affiliation to a specific social group, did not prevent these respective individuals from having had a dramatic change in their social identity. It is quite conceivable that a person with filed teeth went through changing social identities in the course of their life due to external circumstances, for example from merchant to slave or human sacrifice, whereby the body modification could theoretically have been applied at any stage of life.

## Conclusion

Tooth filings and skull modification from the Scandinavian Viking Age illustrate two different approaches to the concept of body modification as the embodiment of social identities in interpersonal communication. The modified individuals' bodies possessed a medial function in the Viking Age, and thanks to the irreversibility, and hence permanence of the modifications, they have a medial function also today. The signals inscribed through the body modifications are subject to the interpretation of the contemporary observer, but we presume that the modified human bodies were subject to various levels of communication and understanding. They could also have been charged with new meanings by members of other or different socio-cultural communities of the time.

The society of Viking Age Gotland utilised the custom of tooth filings as an internal sign system in their social communication. As a conscious and actively chosen embodiment of adults, predominantly male, we have argued that tooth filings were primarily intended for endogenous interpersonal communication – members of a certain social group could identify each other. At the same time, exogenous interpersonal communication always took place when individuals with this type of body modification interacted with people outside this social group. However, since this interaction took place within a common geographical and cultural space, mainly the Baltic west coast, it can be considered as an 'exogenous interpersonal communication expressing otherness'. By this we mean a special sign that was used only in a closed group, although not completely unintelligible to outsiders, as the general meaning of tooth filings was probably also known to people outside the social group.

The skull modification, on the other hand, was imposed on the three females during their earliest childhood to express their affiliation to a certain social group. This embodiment also expressed a form of endogenous interpersonal communication, that is as communication within a larger cultural group. On Gotland, however, this sign was probably unknown to the wider society, to the extent that it must have been interpreted as an 'alien exogenous interpersonal communication'. As such, it would require a re-coding.

By incorporating communication theory approaches and the concept of embodiment, the exciting examples of permanent body modifications on Gotland discussed here demonstrate that the combined use of different theoretical approaches and concepts can contribute to a better understanding of the function of reshaping the human body and tooth filing and allow insights into central questions of social identity and social communication in Viking Age society, in particular on Gotland. In both cases, the

body modifications were an embodied signal that should have communicated a certain meaning to the community. However, our analysis equally illustrates how these embodied signals were re-decoded and re-valourised in different contexts. Examples include instances when their original meaning is unknown, as with the artificially modified skulls from Gotland, or when dramatic changes in the social identity of an individual emerged, as with the example of filed teeth outside of Gotland. Even if the exact meanings of tooth filings and skull modification cannot be reconstructed, the approach of combining communication theory with the concept of embodiment highlights the corporeal dimension of gender, prestige, social status, affiliation, otherness, and so forth, and their ongoing, fluid and dynamic entanglement with the modification of the human body.

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