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Yamnaya and their western neighbours: opposing cultures of conflict?

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Abstract

This article explores how the invasive Yamnaya culture may have been able to assert itself against the established Neolithic populations in southeast Europe. We argue how a clash between a culture of consent – dominant among the local agrarian populations – and a culture of confrontation – prevalent in the Yamnaya culture – may explain the process. The assumption draws on organizational sociology, conflict and resilience theory, and approaches of symbol analysis to argue that the Yamnaya's self-sufficient and adaptable approach to societal self-organization gave them an advantage in critical situations of upheaval, whereas the farmers' interdependent community structures made them more vulnerable. We show that their probably opposing types of conflict management became a crucial factor with regard to resilience and assertiveness. Resilience theory shows that social systems that are geared towards dynamic flexibility are particularly resilient, which made the Yamnaya's culture of confrontation more successful in a clash of conflict cultures. We conclude that the rapid spread of steppe culture and population was a consequence of several factors; this article provides a fresh approach arguing that one of the most influential reasons to Yamnaya's cultural success would have been its different societal outlook and behaviour.

Keywords: Yamnaya, Bronze Age, Neolithic, bio-anthropology, sociology, socio-cultural, cultures of conflict, culture of confrontation, culture of consent, culture of honour, culture of face, resilience theory, symbolism, inter-group behaviour, anthropomorphic stone stelae

5.1 Introduction

Groups derived from populations of the Eurasian steppe were eminently successful in expanding their biological and cultural influence during the later 4th and earlier 3rd millennium BC, as recent paleogenetic and archaeological research – mostly focused on the Yamnaya culture – demonstrates (Anthony 2007; Haak et al. 2015; Papac et al. 2021; Dani et al. 2022). This fact seems indisputable, but the reasons are still a matter of debate. Aspects of climate and environment, ideology, economy, and technology were considered, even the spread of genocidal warfare or epidemic diseases or (Kristiansen et al. 2017; Trautmann 2021; Wilkin et al. 2021; Kondor et al. 2023).

As expected, none of these models proved sufficient on their own: a drastic large-scale change of climate and environment around 3000 BC that would have been detrimental to Late Neolithic agrarian communities in southeastern Europe but aided the steppe pastoralists cannot be proven by palaeoclimatological data (Harper 2019). A possible appropriation of attractive elements of steppe ideology, symbolism and culture by traditional European farmer cultures falls short to explain the spread and partial replacement of former population of steppe population elements, as data in aDNA studies demonstrate. Except for maybe a more competent use of horse and wheel for transport by the steppe people (Trautmann et al. 2023), peculiar technological advantages are not evident. A different impact of contagious diseases on sedentary and mobile communities seems possible, but so far there is limited research into this topic (Fuchs et al. 2019; Trautmann 2021). Finally, Yamnaya ‘invaders’ have been identified as exceptionally warlike and aggressive, but the scarcity of weaponry in burial customs or injuries caused by interpersonal violence from the skeletal record does not support this view (Trautmann in prep.).

Models based on differences in cultural and social systems as factors that may have fuelled the Yamnaya propagation are unfortunately not as often discussed (Müller 2016; Furholt 2021). Of course, relevant evidence regarding social systems is difficult to come by in cultures without written or pictorial documentation and – in the case of the Yamnaya culture – a good settlement record. With mostly only burials available, indirect approaches are necessary. Here, we explore a bio- and socio-anthropological as well as archaeological and sociological approach to reconstruct possible differences in the social systems and mentalities of Late Neolithic farmer communities and Yamnaya steppe herder groups, and how these may have affected their interactions.

5.2 Interpersonal socio-cultural interaction

5.2.1 Bio-anthropological background

Members of the same species (with exceptions in invertebrates) need to meet and interact at least for reproduction – but they also compete for the same and often limited resources. Between these contradictory needs, their behaviour seeks a balance between attraction and aggression, altruism and egoism, cooperation, and confrontation. Different behavioural strategies – and in the case of humans, social systems – evolved to limit conflicts that would prove detrimental to the population as a whole, or to further synergies of group cooperation. A social system is – fundamentally and from a biological point of view – a set of certain behaviours that regulate intra-specific interaction.

Many species display phenotypical features that accentuate or improve behaviour elements of self-presentation, like the colourful plumage of male peacocks or the antlers of cervids. Signalling, i.e. broadcasting information about an individual's characteristics through phenotypical features, is a determining factor for individual appearance. In reverse, certain physical features that are not clearly related to basic survival mechanisms like locomotion

or the ingestion of food can be used to infer information about a species' behaviour.

Skeletal remains from Yamnaya burials generally represent extremely tall and robust people, while contemporary neighbouring farmer populations in Europe and the Near East were characterized by a much smaller and gracile phenotype. In fact, they are both close to the respective extreme ends of variation in body size found in Europe within the last 10,000 years (Rosenstock et al. 2019). These differences were confirmed by the examination of c 300 skeletons by one of the authors (Trautmann in prep.) as part of the YMPACT project, about half of them of Yamnaya context, the other half pre-Yamnaya locals from sites in Hungary, Romania and Bulgaria.

Males from Yamnaya-type burials were on the average about 12 cm taller than their non-Yamnaya contemporaries (exact values differ slightly depending on the method used to calculate in-vivo height from bone remains). This difference may not seem huge, but the average height difference of Roman Italians and their 'barbarian' Celtic and Germanic neighbours, which in antiquity were perceived as extraordinary tall, was about 6 cm based on osteological record, as numerous studies demonstrate. Also, facial and post-cranial robustness was much more pronounced in Yamnaya individuals, not

Feature	non-Yamnaya	Yamnaya
tallness	medium small	very tall
bone robusticity	gracile	very robust
muscular bulk	slightly muscled	heavily muscled
face size	medium low and medium narrow	high and medium broad
forehead	steep with weak relief	slightly sloped with strong relief
mid-face	lower prominence and gracile	prominent and heavy
mandible	wide-angled, narrow	narrow-angled, everted gonias
chin	medium high and narrow, prominent	high, broad, and prominent

Table 1. Comparison of macromorphological differences generally observed in Yamnaya-related and non-Yamnaya individuals, based on osteological studies.

only with regard to bony structures, but also soft tissue thickness (Figs. 1–2, Table 1).

These differences are especially pronounced in men, but females show similar tendencies. When compared in more detail, many morphological differences between both populations can be observed, most of them related to growth, size, and robustness. Of course, both populations are genetically different and varied traits are to be expected (Mathieson et al. 2015); but the observed differences are not reflected by a random distribution of characteristics, they rather reflect a directed selection: towards tallness, robustness, and masculine features in the Yamnaya population, and towards a smallish, gracile and paedomorphic appearance in their agrarian neighbours.

The important aspect here is that phenotype is not a random incidence, but the result of evolutionary adaptation. The biological success of a species or other subgroup is reflected by its reproductive success that ensures its long-term survival and propagation. All adaptive selections are towards this end, but strategies may differ. Important permanent traits are encoded in

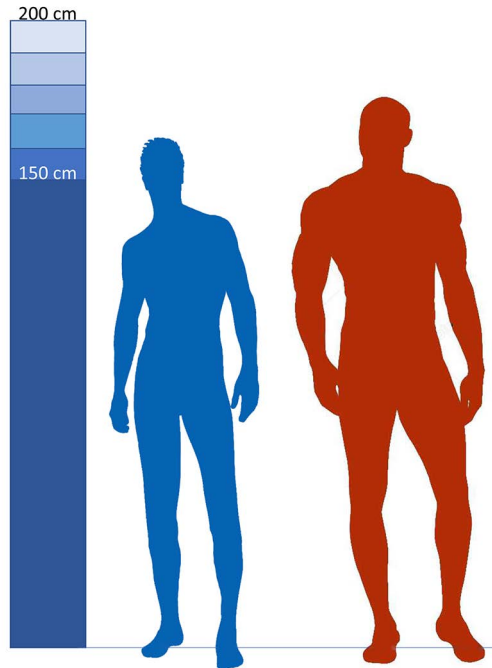


Figure 1. Comparison of reconstructed average body height and build of Late Neolithic farmer (blue) and Yamnaya pastoralist (red) males.

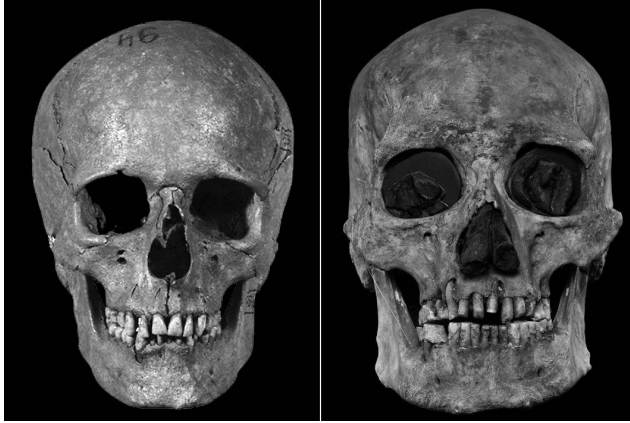


Figure 2. Left: male skull, Baden culture, Budakalász-Luppa (Köhler 2008); right: male skull, Yamnaya culture, Samara Region (Myshkin 2005).

the DNA, useful variation is expressed through epigenetic and developmental plasticity (the potential to create distinct phenotypes from the same genotype in reaction to environmental cues). So why were Yamnaya tall and robust and Neolithic farmers small and gracile? Why were both populations successful over many generations, and why did the Yamnaya-type prevail when contacts intensified around 3000 BC? After a long decline during the Neolithic, there was a marked increase in average height and robustness in most European populations during the Bronze Age and the Iron Age (Fig. 3). This can be understood as an indicator that being taller and more robust became an advantageous trait. But advantageous in which way?

Larger bodies provide advantages in cold climates (Bergmann's rule) and in physical conflicts (hunting or fighting) but demand higher amounts of high-quality food for sustenance. Constrained dietary resources therefore severely limit population growth. Smaller bodies are at a disadvantage in direct physical conflict situations, but lower nutritional needs allow a higher population size and density. Therefore, depending on environmental factors

Human heights over the long-run, 16,000 BCE to 1996

Average human height in the Eastern Mediterranean from the Upper Paleolithic (before 16,000 BCE) period, through to 1996



Figure 3. Diachronic trends of decrease and increase of average human height. Source <https://ourworldindata.org/grapher/human-heights-over-the-long-run>.

and subsistence strategies, a larger-bodied or smaller-bodied predisposition is more advantageous and therefore positively selected. In the case of Yamnaya and their non-Yamnaya neighbours though, it seems questionable that climate or hunting/fighting demands differed enough to induce the observed differences – some other factors must have been more influential.

5.2.2 Socio-anthropological background

Especially in species with complex social interaction, traits that function as signals or are related to social signalling are highly subject to directed selection. Size is one of the most important signals for many animal species, as

are features that are connected to size. A larger size indicates higher strength and toughness and therefore better fighting capability; many animals enhance the effect further by posture and ruffled fur or feathers. Successful displays of might can allow to subjugate competitors or deter attackers without the risks involved in actual combat.

Large relative size is attained by intensive growth during juvenile and adolescent life stages; a human individual's target size is determined by c 70% or more genetically with a probably very complex coding (>12,000 SNP; Yengo et al. 2022), but external factors contribute considerably. Cellular proliferation leading to growth is effected by the output of the peptide-hormone insulin-like growth factor 1 (IgF-1) from the liver and fat tissue, which is regulated by human growth hormone (hGH) produced in the pituitary gland. The pulsatile excretion of hGH is promoted by growth hormone releasing hormone (GhRH), suppressed by somatostatin (SST) and regulated by the hypothalamus. Hypothalamus action is subject to chronological, emotional, dietary and activity influences. Studies show that stress, fasting, HIIT (high-intensity interval training) exercises and high-protein meals increase hGH output, while lack of sleep, LISS (low-intensity steady state) exercises, frequent food intake and high-carb meals decrease hGH output. Furthermore, even a response to expectations of the social environment seems probable (so-called strategic growth adjustment; Blaker & van Vugt 2014; Hermanussen et al. 2022).

A high growth stimulus from hGH not only affects body length in humans, but other features too: it increases bone mass and density, even in the face; it improves muscle mass gain, sugar metabolism and fat tissue mobilization, the immune system, and active and assertive behaviour patterns, but also increases risk of cancer, insulin resistance, fluid retention and heart diseases. The use of hGH as performance-enhancing drug in sports is therefore considered illegal doping.

The tallness, facial and postcranial robustness and muscularity observed in most Yamnaya individuals uniformly reflects a generally high growth stimulus. Since the adolescent growth stimulus normally is stronger in male individuals, the overall appearance is more masculine. Non-Yamnaya Neo-

lithic individuals on the other hand show a trait pattern caused by a lower growth stimulus, which results in a more paedomorphic/juvenile habitus. The detailed influence of different genetic background or lifestyle, diet, and activity of mobile pastoralists vs. settled farmers is difficult to determine and needs dedicated research. However, a selective adaptation towards opposing extremes is evident, since both groups are quite homogenous with regard to their growth morphology.

5.2.3 Psychological impact of size traits in human relations

Human social interaction is certainly more than a simple display of physical signals, threats, and instinctive reaction. But still, some of these basic mechanisms do subconsciously influence behaviour, as a number of psychological studies demonstrate (Simpson & Kenrick 1997; Zebrowitz 2004; Willis & Todorov 2006). Especially social dominance seems to be substantially derived from 'intimidating features': tallness, a muscular build with broad shoulders, large and wide faces with robust features of brow, mid-face, jaw, and chin area, as well as a loud and deep voice are generally perceived as more dominant, authoritative, and competent, but also as less trustworthy and more prone to violence (Mazur & Mueller 1996; Oosterhof & Todorov 2008; Kleider-Offut et al. 2021). As expected, persons with paedomorphic traits are more often judged as naïve and less assertive or competent, but as less threatening and more friendly and cooperative. Also, it is well known that a paedomorphic appearance ('Kindchenschema') lowers aggressive disposition by others (Lorenz 1943; Alley 1983; Nevin & Keim 1995; Bogin 1997; Glocker et al. 2009; Nittono et al. 2012).

Studies also show that indeed individuals with features of dominance are often more successful in their careers, attaining higher positions, higher income and higher status (Mazur & Mueller 1996; Todorov et al. 2005; Cheng et al. 2010; Little & Roberts 2012); men with features of dominance are also usually perceived as more attractive by women (Cunningham et al. 1990;

Buss 2015), and status is significantly correlated with reproductive success in pre-modern societies (Majolo et al. 2012; von Rueden & Jaeggi 2016) but not in modern Westernized industrial countries except for military (Mueller & Mazur 2001; Hopcroft 2006). But: ‘Dominance is associated with both coercive and complaisant (gaining influence by pleasing others) social tactics’ (Zeng et al. 2022). This means that social dominance is not identical with physical superiority, actual or perceived, or threats. Populations with weak physical signals of dominance are not necessarily non-hierarchical, but their strategies to garner individual influence, power or dominance would differ.

5.2.4 Socio-anthropological consequences

Yamnaya men generally display an extremely pronounced set of physical features that are commonly perceived as signals of dominance in social interaction. Males of contemporary farmer communities in southeast Europe on the contrary appear rather pedomorphic. The differences are very distinct and do not vary much in each group, therefore a profound directed selective pressure on the genetic and epigenetic level as well as individual adaptation must be assumed. Considering the underlying psychological responses to certain phenotype traits as mentioned above, the Yamnaya male phenotype would have been at an advantage in social environments based on direct competition, intimidation, and dominance behaviour; the non-Yamnaya male phenotype seems more adapted to a social setting of cooperation, appeasement, and signalled equality.

This suggests a phenotypical adaptation to different traditions of social behaviour, possibly shaped by lifestyle and economical constraints. For Yamnaya pastoral herders, we could assume a social system based on individuality, personal prowess, skill, aptitude in conflicts and physical challenges, competition, and constant struggles for rank (Kristiansen et al. 2017). Family success and security was depending on individual ambition and willingness to defend or appropriate contested resources and the deterrence of possible

Culture of consent	Culture of confrontation
cooperation	competition
community	individual
conformity	ambition
sharing	taking
appeasement	deterrence
reconciliation	retribution
conservative	progressive
stable hierarchies	dynamic hierarchies
established rulesets	displays of dominance

Table 2. Defining differences of cultures of consent and confrontation.

challengers. These characteristics seem plausible in a setting with competition over limited pasture and waterholes, wealth that can easily be stolen (herds), and a loose and dispersed social organization that cannot exert much legal coercion.

Late Neolithic farmers in southeast Europe on the other hand lived in permanent and sometimes very large villages with high population density and a local social focus. Resources like wood, water and farmland had to be distributed or worked cooperatively – a necessity during reclamation and clearing of new fields or harvest. Such an environment would logically profit more from a communal-minded and cooperative behaviour; appeasement instead of open confrontation, sharing, group conformity and compliance with traditions and rules as well as the reliance upon others to also follow the rules would be necessary characteristics. Hierarchies would be less based on individual ambition but on networks and alliances and thus be longer-lasting and more stable. It's important to note that such a society is not necessarily peaceful or pacifistic; on the contrary, it may be even more prone to aggressive mob behaviour and large-scale violence against other groups. The defining difference is the method *how* conflict is avoided, managed or channelled, not the frequency or intensity of conflicts.

Essentially, these herder and farmer cultures seem to represent two very different, even antagonistic systems of societal self-organization; based on the central spirit of each system, we suggest the terms *culture of confrontation* and *culture of consent*, in reflection of the respective dominant modes of regulating intra-group aggression and conflict management. Generally, we see the main strategy in cultures of consent in trying to avoid or mitigate intra-group conflict while in cultures of confrontation individuals rather strive to deter or dominate intra-group challenges. Further defining differences are listed in Table 2.

The question is, can archaeological finds representing the defining material cultures of steppe herders and farming communities support these conclusions? Was Yamnaya a confrontational culture, based on competition and dominant behaviour? Were the Neolithic local groups characterized by cultures of consent, based on cooperation and reconciliation?

5.3 Intra-group Socio-cultural Interaction

5.3.1 Cultures of honour

When considering specific cultural logics and behaviour models regarding a typological differentiation of modes of interaction and internal conflict management, two rather well-known sociological approaches are to be mentioned. These two modes are named *culture of honour* and *culture of face* (hereafter COH and COF). In both, a group, community, or society is characterised by reciprocal patterns of behaviour and action involving cooperation, competition, and social stratification.

In the system of COH, honour is seen as individual credit of morality and reputation where aggressive (direct or indirect) defence of one's honour against threats and insults is considered permissible (Nisbett & Cohen 1996; Hayes & Lee 2005: 601; O'Dea et al. 2017). It is relevant to note, however,

that the aggressive defence of honour is not always a necessary or legitimate act since it can disrupt intragroup relations and lead to demoralisation (Rodriguez Mosquera 2016: 432–433); it is in defence of own kin against external threats that should be acted upon more aggressively. While relying on the overt display of power over its individuals, in a sense, COH ideology is based on individual prestige, prowess, and retribution (Nisbett & Cohen 1996). The concept of honour has been described as a social representation of one's identity which is primarily expressed publicly (Bourdieu 1977). It is usually power and prowess that are displayed publicly in COH. This is done with varying demonstrations – depending on culture, time, and place – which can be done in different ways. In addition, honour can be gained, lost, and even stolen from others, for example by stealing another's wealth. In the context of mobile pastoral economies, the most notable phenomenon would be cattle raiding of adjacent groups (e.g. Lincoln 1981).

COH is generally most strongly present in pastoral groups, soldiers, military groups, and organized crime (e.g. Moritz 2008; Rodriguez Mosquera 2016) – and further, where the presence of state and jurisdiction of law is absent (Nisbett & Cohen 1996; Uskul & Cross 2019: 44). In prehistoric societies, especially among mobile pastoralist societies, the absence of law is self-evident. COH as behavioural logic can also incite competition between members of the same group. Moreover, there may be a competition of equals, and after all, intragroup competition can serve as a great way to demonstrate individual power and prowess in order to gain more intragroup and even intergroup honour. As Leung and Cohen (2011: 4) note, COH works best in an environment that is competitive. In conclusion, honour can be related to status, reputation, and power in social interactions (Baldry et al. 2013). COH is certainly one very typical expression of the cultures of confrontation category.

COF has a few similarities to COH, yet there are differences that stand out. A person or group can possess a certain quality and level of reputation and can gain more or lose it by their own actions, but it cannot be stolen from others like honour can (Leung & Cohen 2011). Face is valued externally, and it is the respectability and deference that an individual can claim from

others (Ho 1976: 883). In a way, face is the image of value of an individual or a group (Qi 2017) as seen by others. Certain behaviour as expected by the community is enforced by the fact that losing one's face is a serious matter (Leung & Cohen 2011: 4). Essentially, inside the system, members are supposed to respect hierarchy, display humility, and not overreach status claims (Leung & Cohen 2011), to be reliable and rules-conform. Altogether, COF displays elements that define it as good example of a culture of consent.

5.3.2 Stelae and kurgans: signals of status and symbols of dominance?

Now, if we were to find reflections to previously mentioned societal systems, one could examine the burial rituals of the Yamnaya horizon for reflections of individual status indicators and power displays. The most observable aspect of Yamnaya burial ritual is the distribution of Yamnaya kurgans across the Eurasian steppe zone. Kurgans are at the same time a commemorating monument for the dead, a religious site for further rituals and most importantly, a representation of the individual and cultural power of the buried elite (Anthony 2007: 331–334; Frînculeasa 2019: 145). Besides kurgans, the anthropomorphic stone stelae left by the Yamnaya are also a major part of the burial ritual, yet the overall number of unearthened stelae – when considering the elaborate ones – is quite scarce since only 34 units are known (Kuljukka 2022). According to Telegin and Mallory (1994), the stone stelae most likely represent the same elites for whom the kurgans were built; for example, chiefs, warriors, priests, the combination of these or even heroic figures (e.g. Harrison & Heyd 2007; Vassilkov 2011). Therefore, kurgans and stone stelae – as well as the overall burial rites and grave goods such as battle axes, hair rings and perforated canine tooth pendants – are for our knowledge material representations of power, wealth, and status display.

The anthropomorphic stone stelae seem to mostly depict certain iconographic patterns that can be seen as status signals. The three most frequently

Figure 4. Kernosivsky idol. Photo Wikipedia (public domain).

appearing symbols are the belt (79%), weapons (59%), nudity and ornaments (such as necklaces or body apparels), the last two mentioned coming as a shared third place with 50% (Fig. 4). The singular belt, appearing in all the intact stelae is most likely a symbol of leadership and warrior status (Kuljukka 2022).

Among the Indo-Iranian warrior tradition, upon the completion of their initiation rite, warriors were given the symbols of the warrior band: a mace and a belt or girdle (Lincoln 1981: 128). Similarly, the *vratyas*, and oathbound warrior group in the Vedic texts wore an ornamented belt (Kershaw 1997: 338–341). In both traditions the belt symbolised their unity and bond to the warrior god – to Mithra, Rudra or Indra (Lincoln 1981: 128). Wearing a ‘power-belt’ is also associated with Germanic warfare or the nakedness of Celtic *gaesatae*, who were said to wear only a belt, neck-torc and helmet in battle (Green 1986: 107; Speidel 2002). Therefore, the symbolism of the belt is indeed similar among Indo-European warrior traditions and can be seen as a demonstration of individual importance and status.

Weapons, in this case mostly axes, were also quite valued as a symbol by the stelae carvers and are good indicators towards a display of warrior elite status (Telegin & Mallory 1994). Nudity, as discussed, also points towards a reasoning that the carvers valued certain aesthetics and the display of the naked body, can also be seen as status signal – as with the *gaesatae*, the *berserker*



warriors in the Nordic traditions (Speidel 2002) or the depictions of naked heroes and gods in Greek art (McDonell 1991). Altogether, the display of a naked body in connection to other recurring symbols very probably is a symbolic display of physical prowess, status and possibly power.

5.4 Inter-group socio-cultural interaction

The differentiation between a culture of consent and a culture of confrontation, and, to a certain extent, their manifestation in cultures of honour and face, plays a central role in this contribution's question of how the Yamnaya were able to assert themselves against the established Neolithic populations in southeast Europe. Against the outlined bio- and socio-anthropological as well as psychological backgrounds, we assume, in contrast to the explanations commonly used so far, that it is precisely these cultures and their collision that can provide an account for the phenomenon of the successful spread of the Yamnaya: a clash of 'conflict cultures'? Central to this argument is an interplay of organizational sociology, conflict and resilience theory, and symbol analytical approaches.

5.4.1 Organizational-sociological perspectives

From an organizational-sociological perspective, we are dealing with quite different types of societal self-organization among Neolithic populations and the Yamnaya: resident Neolithic populations formed – in contrast to the Yamnaya – comparatively large communities with a certain degree of (somehow functional) differentiation. Such differentiation is a necessary condition for the survival of communities of this extensive kind. Obviously, this does not mean a degree of differentiation as in modern societal constellations; but especially in contrast to other communities of the period under

consideration, it is quite plausible to speak of at least some approaches of differentiation.

With this type of societal self-organization, agrarian Neolithic populations proved to be very efficient in stable circumstances that are known to and reliably expected by the actors and are thus institutionalized accordingly. In the case of unexpected and exceptional situations, however, this rigidity oriented towards the 'normal case' functions as a disadvantage at the same time: more extensive coordination necessities, dependence on other actors in the community, hierarchies that must be observed, rules and norms that must be followed, as well as a fundamentally conservative orientation – to take up only a selection of the aforementioned traits – lead to the vulnerability of the community in critical situations of upheaval. This is because the possible sources of disruption are more extensive to such horizontally as well as vertically interconnected communities, and more time is needed to react to them – time that is critical and only available to a limited extent.

The Yamnaya, on the other hand, were characterized by a different type of societal self-organization. They tended to form smaller associations, which may have been less structured and correspondingly less efficient in stable circumstances, but which at the same time were also very flexible and able to adapt quickly to changing external circumstances, both thanks to their dynamic, less rigid structures, and their more progressive attitude. In contrast to the Neolithic populations, there was no need for slow, time-consuming coordination processes, but decisions could be made more quickly in critical phases, if necessary, by one dominant individual.

Obviously, speed is not a general criterion for success, and empirical evidence shows that the opposite is often the case. Fast is not always right. But particularly with regard to questions of conflict resolution between different types of societal self-organization, each with different cultures of conflict, it becomes clear that reaching crucial thresholds or tipping points at critical junctions is of central importance for the resilience and success of communities.

5.4.2 Conflict cultures and resilience theory

Against this background, the conflict cultures differentiated above can also be understood as different types of conflict management. Again: while Neolithic populations were rather oriented toward a culture of consent, which is characterized by (more or less) clearly regulated forms of conflict resolution and is based on cooperation, appeasement, and reconciliation, the Yamnaya's culture of confrontation is typologically different: in contrast, the logics of competition, deterrence and retribution are dominant here. Whereas the former culture aims to a certain extent at the (re)production of homogeneity, heterogeneity is the central moment for the latter.

If these cultures now clash and a conflict of conflict cultures arises, then considerations of resilience theory prove to be highly productive in order to examine which culture tends to prevail in this conflict. In this regard, the question of equilibria and dynamic stabilities is of central importance for socio-ecological (e.g. Gunderson & Holling 2002) and sociological resilience approaches (Rampp et al. 2019; Endreß et al. 2020). The guiding assumption in this context is that two communities characterized by different conflict cultures each find themselves in their own, differently shaped equilibria, which are irritated as soon as they clash. In this situation, the challenge of dynamically establishing a new equilibrium arises – both for the individual communities themselves and for the newly emerging constellation that spans both communities.

Against the background that the question of conflict management is decidedly not based on an absolute conception of power, but in contrast firstly on a relational constellation of mutual 'power balances' and 'power differentials' (Elias 1978) and secondly on the availability of context- and situation-relevant power (context matters!) in very specific, sometimes extremely short phases, it is a question of overcoming critical thresholds in such a situation faster than the counterpart, in order to shape the form of the new equilibrium. This then tips the balance of one community toward a new, comparatively more dominant and resilient status, while the balance of

the other community threatens to become permanently unhinged – with the potential ultimate consequence of its failure. Across the board, this means a new (meta-)balance between the two communities with the dominance of the ‘winner’ at this critical juncture.

From the perspective of resilience theory, systems or actors that are not geared to rigidity and efficiency in the ‘normal case’ but to dynamic flexibility even in the face of disruptive exceptional situations prove to be particularly resilient (see e.g. the model of the ‘adaptive cycle’, Gunderson & Holling 2002: 40; Fath et al. 2015) – not least because they succeed in activating the necessary resources more quickly in these critical circumstances. This is much more true for a culture of confrontation than for a culture of consent, which, due to its law enforcement and abiding orientation, cannot fall back on sufficiently flexible instruments to deal with these unexpected challenges in the case of emergency in a comparably productive way. Against this background, it was the Yamnaya who potentially reached critical thresholds faster than Neolithic populations and thus was able to influence the power balance in their favour.

5.4.3 The symbolic dimension

It is obviously possible to achieve such thresholds by violently asserting one’s own interests. But this is an explanation we excluded at the beginning of this article based on the empirical findings as not very plausible. Which resource was it, then, that the Yamnaya were able to fall back on in comparison to Neolithic populations, in order to reach the necessary tipping points so quickly? Again, we assume that the use of physical force cannot be a satisfactory answer to this question. And in view of the bio- and socio-anthropological as well as psychological backgrounds outlined before, we furthermore believe that the physical exercise of violence was neither required nor even necessarily purposeful for the Yamnaya to prevail against Neolithic populations. In a certain sense, however, a specific dimension of violence is certainly of importance here: the symbolic dimension.

In conceptualizing symbols as a specific kind of signals in human social interaction, domination can build on symbolic, indirect forms of violence (e.g. Bourdieu 2001; Burawoy 2019; on the concept of structural violence, see Galtung 1969). A violence that does not have to be realized in a physical-bodily way in order to become effective, but that achieves impact through the mere reference to the potentiality of physical coercion and through the signalling and demonstration of one's own superiority – whether in social, cultural, or material (and thus also: physical) terms. An impact that is sometimes even more difficult to counter than that of physical violence, because it does not depend on any specific, in principle defensible actions at all, but comes to the fore through mere presence. That such symbolic dimensions of violence are just as 'real', perceived as 'real' and effective, as is the case with physical violence, is shown by classical sociological analyses in general as well as by the social-constructive sociology of knowledge in particular (Berger & Luckmann 1966). In this context, the central finding of the Thomas theorem must be considered: 'If men define situations as real, they are real in their consequences' (Thomas & Thomas 1928: 572).

The fact that the symbolic dimension played a central role, especially in the conflict between Yamnaya and Neolithic populations, is due, first, to the respective types of societal self-organization and the associated cultures of conflict management and their particular reciprocity: on the one hand, the offensive character of the culture of confrontation, which demonstratively emphasizes the ever-present possibility of a physical way of resolving conflicts, and, on the other hand, the defensive approach of the culture of consent, which, in contrast, focuses rather on the avoidance of (physical) conflicts. And secondly, the effectiveness of such symbolic forms of violence is based on the underlying physical conditions of these cultures themselves, whose difference is so obviously perceptible that a practically realized comparison of the respective potentials is not even necessary in order to come to a common 'definition of the situation' (Park & Burgess 1921: 764; Thomas 1923: 42) – the (context-specific) superiority of the Yamnaya.

Against this background, it is reasonable to assume that the Yamnaya were able to successfully assert themselves against Neolithic populations even without the use of physical violence. Within the analytical framework of a multi-level approach to resilience based on dialectical processes (on this multilevel perspective, see e.g. Rampp 2020), a remarkable paradox arises: it is precisely the short-term and discontinuous character of the culture of confrontation of the Yamnaya that enables their long-term assertion and continuity; and it is, *vice versa*, the long-term and continuity-oriented culture of consent of the Neolithic populations that ultimately leads to their failure and discontinuity.

5.5 Conclusion

The decline of Late Neolithic and Chalcolithic cultural traditions in south-eastern Europe with a rapid displacement and partial substitution by steppe populations and culture elements was probably a consequence of numerous factors; in our opinion, one of the more influential would have been differences in societal outlook and behaviour. There are good reasons to assume that the mobile steppe herders' society was based on a type of culture of confrontation, while the sedentary farming communities followed established traditions of a culture of consent.

Cultures of confrontation are marked by displays of dominance and individual ambition, while cultures of consent rely more on cooperation and appeasement and rituals that reinforce this behaviour. Cultures of consent are stable and economically efficient due to factors of synergy and common efforts as long as everybody plays by the rules. These rules were presumably alien to and possibly scorned by the bands of ambitious young men from the steppe, who brought a totally different mindset of renown, competitiveness and urge to dominate. Well-adapted to dominance fights and at a confrontational advantage due to inherent human psychological response to physical appearance and behavioural display, they did well in subduing local

residents in physical, psychological and social conflict situations, destabilizing traditional hierarchical structures and establishing themselves in elite positions. More often than not, this may have happened based on 'signal- or symbol-based force' than actual violence.

With such changes in leadership, a shift to a new *Leitkultur* can be expected. In a direct clash of these two different strategies of societal organization and conflict management, the complex consent approach proved to have lower systemic resilience, surrendering biological and cultural dominance to the simpler and more adaptable confrontational behaviour of the steppe people. In demographic terms, this would easily explain the rapid repression of local competing male lineages by the steppe newcomers without genocidal violence.

We have shown that it is a twofold relational perspective that is necessary to understand and explain a possible promoter of success of the mobile Yamnaya *vis-à-vis* their sedentary neighbours. On the one hand, biological, bio- and socio-anthropological, psychological, socio-structural, and symbolic factors must be analytically integrated and examined in their dialectical relationship and mutual reinforcement. On the other hand, the success of the Yamnaya can only be explained in a relational perspective on the reciprocity of the two identified types of societal self-organization and the associated conflict cultures. In our view, such a relational and multi-perspective approach opens a variety of new possibilities for the analysis of (pre-)historical as well as contemporary processes of conflict resolution and resilience. An analysis that not only relies on an inter- and transdisciplinary approach but benefits extraordinarily from that very approach.

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