Settled Lives, Unsettled Times: Neolithic Violence

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The European Neolithic was a period of enormous cultural, social and economic change affecting subsistence strategies, settlement patterns, technology and population size, as well as ideologies and world views. By its closing stages around 2500 BCE, established lifeways in central and western Europe had been permanently transformed from being based on mobile or semi-mobile hunter-fisher-gatherer groups to settled communities relying on mixed farming economies and extensive trade and exchange networks. The extent and significance of violence within and between communities during this period has been a subject of ongoing debate since the nineteenth century, with prevailing opinions fluctuating over time as to the frequency and importance of such hostilities in relation to other societal changes occurring across this transition. The idea of relative peace and social/economic stability as synonymous with the Neolithic has seen significant revision in the last few decades, including suggestions that violent conflict between groups and individuals might have been a result, by-product or at times even a catalyst for some of the changes and developments observed. In this respect shifting views on the Neolithic can be seen as a microcosm of wider debates regarding the nature and significance of violence as a phenomenon of importance to human societal development in general. The key questions addressed in this chapter focus on changes in general patterns of violence with the onset of the Neolithic, as well as on regional and diachronic variation through the period. Underpinning our approach is a reliance on the evidence of skeletal trauma. While objects interpreted as weapons and structures identified as defences are certainly important lines of evidence, both are fraught with problems in that neither can indicate how much actual violence took place during a given period. In this regard human skeletons offer the only direct and unequivocal evidence for violent acts while also constituting a form of remains that is consistent between human societies and so is directly comparable.

While there is a certain consistency in the kinds of trauma observed among Neolithic burial assemblages, this can be attributed to a degree of shared material culture (e.g. the lack of metal weapons) and social organisation throughout the period. However, we are by no means seeing a completely homogeneous pattern. The manifestations of violence observed throughout the study region and period suggest considerable variation in the contexts and potential roles of conflict. In many respects it may be the case that violent interactions in the Neolithic differed little from those that took place in preceding periods. At the same time, aspects of an increasing scale of conflict – involving larger numbers of participants, with apparently greater levels of organisation than previously seen – imply that something new had indeed happened to facilitate social strategies manifesting hostility in ways that some modern observers would characterise as warfare rather than simply homicide. This chapter also explores possible causative factors of such a far-reaching development.

While the skeletal record for the Neolithic has yielded unambiguous evidence for large-scale violent events for some time (for example, evidence from the Early Neolithic mass grave at Talheim was first published in 1984), this evidence initially had relatively little impact on views of Neolithic society, which tended to emphasise the new productive economy, new material culture, trade and exchange, ideology, ritual and ceremony. More recently, there has been a shift from the idea of peaceful farming societies to a more complex picture involving intra- and inter-group conflicts, with the latter sometimes resulting in mass-fatality events like those seen at Talheim, Asparn-Schletz, Schöneck-Kilianstädten, Wiederstedt, Halberstadt and Eulau.[1] At Talheim, thirtyeight men, women and children appear to have been killed in a single event and buried hastily in a mass grave, while Halberstadt appears to show execution-style killings of adolescent and adult males. While there has now been a shift towards general acceptance that the Neolithic was not always peaceful, there remains considerable debate over the prevalence and scale of conflict, its causes and its wider implications. Recent publications have highlighted instances of extreme lethal violence carried

out against men, women and children,[2] making the period seem increasingly bellicose. But of course, while one can find physical evidence for violence, one cannot point to concrete evidence for peace.

1 See Chapter 14 in this volume.
2 R. J. Schulting and L. Fibiger (eds.), Sticks, Stones and Broken Bones: Neolithic Violence in a European Perspective (Oxford: Oxford University Press, 2012).

Defining Violence

What is violence and how do we recognise it in prehistory? For most of the Neolithic, specialised weapons are generally absent, and while ostensibly fortified sites exist, these may reflect expressions of power and/or community solidarity rather than defence. This chapter therefore focuses primarily on bodily, that is, skeletal signs for violence, as the most direct evidence for its occurrence. We follow a definition of violence as 'physically aggressive behaviour that does or potentially could cause injury or death'.[3] We acknowledge that there are other concepts of violence which entail emotional, psychological, sexual or material damage rather than bodily harm; that physical injury can result in emotional and psychological damage;[4] and probably most importantly, that different cultural norms exist for what actually constitutes physical violence.[5] The latter aspect is important in terms of trying to infer intention and meaning from evidence dating back millennia. While we focus here on violent trauma severe enough to affect the skeleton, osteological analysis also has the potential to provide a degree of insight regarding what is currently termed 'structural violence' and inequality, through skeletal indicators of childhood health and nutritional status. However, many other aspects may not be evident, including the threat of violence and emotional and psychological maltreatment.[6] It is also important to note that skeletal signs of violence provide us with only a minimum number of individuals affected, as not all violent injuries will affect the skeleton.

3 J. Archer, introduction to J. Archer (ed.), Male Violence (London: Routledge, 1994), pp. 1–20.
4 D. Grossman, On Combat: The Psychology and Physiology of Deadly Conflict in War and Peace (PPCT Research Publications, 2004).
5 J. Spencer, 'Violence', in A. Barnard and J. Spencer (eds.), Encyclopedia of Social and Cultural Anthropology (London: Routledge, 2010), pp. 559–60.
6 A. Reza, J. A. Mercy and E. Krug, 'Epidemiology of Violent Deaths in the World', Injury Prevention 7.4 (2001), 104–11.
7 M. J. Smith, M. B. Brickley and S. L. Leach, 'Experimental Evidence for Lithic Projectile Injuries: Improving Recognition of an Under-Recognised Phenomenon', Journal of Archaeological Science 34 (2007), 540–53.

What Came Before

If early farming communities have until relatively recently been perceived as having been for the most part peaceful, this applies even more strongly to the hunter-gatherers of the preceding Mesolithic period. Yet to some extent this impression can be argued to be little more than a semantic sleight of hand. Hunter-gatherer social organisation, including community membership, is often portrayed as highly fluid, so that the notion of distinct polities does not apply. This being the case, inter-group conflict, the sine qua non of warfare, becomes impossible, and all conflict is seen as occurring within the group and so is termed 'homicide'. There are a number of problems with this characterisation, the most relevant of which for our purposes is that hunter-gatherer societies are highly variable and exhibit a wide spectrum of social organisation. Group membership was not always so fluid, and indeed there is archaeological and isotopic evidence for territorial behaviours on a relatively small spatial scale. This evidence is complemented by a well-documented body of ethnographic evidence for territoriality and 'sensitivity' to trespass as being extremely common among forager societies.[8] Nor is there any shortage of evidence for violence-related trauma on Mesolithic skeletons; indeed, in some cases it exceeds that known for the Neolithic.[9] There is also possible evidence for large-scale conflict, such as that seen in the 'skull nests' found at Ofnet, Bavaria, where the heads of thirty-four men, women and children, many exhibiting lethal blows, were deposited into two pits in a cave. The presence of the uppermost cervical (neck) vertebrae, a number of which show stone tool cut marks, demonstrates the removal of fleshed heads rather than, for example, the ritual removal of crania once the flesh had decayed. Violence, then, was certainly present before the appearance of farming.

8 S. A. LeBlanc, 'Forager Warfare and Our Evolutionary Past', in M. W. Allen and T. L. Jones (eds.), Violence and Warfare among Hunter Gatherers (Walnut Creek, CA: Left Coast Press, 2015), pp. 26–46.
9 P. Bennike, Palaeopathology of Danish Skeletons (Copenhagen: Akademisk Forlag, 1985). See also Chapter 2 in this volume.

Social Impacts of the Neolithic

It seems increasingly clear that the Neolithic brought with it a significant shift in almost all aspects of society across much of Europe. What are the implications of this in terms of conflict? First, there is no clear evidence of conflict between Mesolithic hunter-gatherers and Neolithic farmers. Mesolithic population density across much of Europe is likely to have been low, with the exception of some particularly rich coastal and riverine habitats. This, in combination with highly variable bone preservation – such that many areas do not have sufficient skeletal assemblages from either period – prevents us from concluding that such conflicts never occurred: they almost certainly did. This is true even if we conceive of the process of Neolithisation as involving a significant element of local adoption of the farming way of life, as it no doubt did in some instances, though, as discussed below, the genetic evidence is increasingly indicating a surprisingly high degree of population replacement coincident both with the start of the Neolithic and with the onset of the Late Neolithic/Chalcolithic.[10] Arguably, conflict may have been even more likely in such situations, given the greater potential for misunderstandings between communities with different backgrounds, initially not speaking the same languages, and the very different ideas concerning ownership and expectations regarding the moral obligation to share, especially foodstuffs, between closely related individuals and families, contrasted with the farmer's imperative to preserve stock and seed grain.[11]

Given the length of the Neolithic period, and the rapidity with which the farming way of life came to dominate the European landscape with a concomitant rapid population rise[12] – which is likely to have been the case despite appropriate misgivings over the use of radiocarbon dates as direct proxies for population[13] – and the propensity to inter the dead in large cemeteries or in monuments, there is considerably more evidence available for the Neolithic. The increase in population, together with evidence for larger social aggregations, brings the potential for much larger-scale violence than seen previously. The large earthwork enclosures of the Early and Middle Neolithic provide evidence for large numbers of people coming together for communal projects. New dating evidence suggests that many enclosures in Britain and Ireland were built over much shorter timescales than previously envisaged,[14] making the number of people that must have been engaged in their construction correspondingly higher. The usual accounts of these projects emphasise their ceremonial character and their role, through the very process of working together, in the creation of a sense of community. They have been seen as places of exchange, gossip and match-making, much like medieval trade fairs. This narrative, while it may be partly apt, is incomplete. If large numbers of people can be mobilised for the creation of these monuments, they can be co-opted for less peaceful pursuits. The creation of a strong sense of community inherently implies boundaries beyond which lie other communities. While relations between these communities will often be amicable, whenever things do go wrong, whatever small differences exist – real or imagined – can lead to an 'us vs. them' scenario. At least some enclosures in Britain show clear evidence of having been attacked by substantial numbers of antagonists, probably in the hundreds, as seen for example at Hambledon Hill, Crickley Hill and Carn Brea in southern Britain.[15] Similar evidence exists from the Continent. That being said, the majority of enclosures do not appear to have been built with defence uppermost in mind. It may be that the general idea of an enclosure was modified into a fortification at certain times and places when outbreaks of violence were anticipated. Ironically, then, projects that initially functioned to bring people together for a common purpose contributed to a situation in which any latent conflicts of the kind that invariably occur in any society (e.g. jealousies, rivalries, accusations of wrongdoing) could be escalated to embroil the entire group in retaliatory actions. Once a community creates a strong identity, its members are subject to social substitutability, in which any member can be held accountable for the actions of anyone in the group.[16] Thus they become legitimate targets for revenge killings, which are by far the most commonly cited motive for inter-group homicides in ethnographic, historical and modern accounts.[17] This is not to say that social substitution did not feature among Mesolithic hunter-gatherer societies, but the scale at which it applied likely increased considerably with the Neolithic. However, the extent to which this suffices as

an ultimate (as opposed to proximate) explanation for conflict is debatable. Revenge is called upon strategically and situationally and there are many contexts in which payment ('blood money') can be substituted for blood vengeance.[18]

10 I. Mathieson et al., 'Genome-wide Patterns of Selection in 230 Ancient Eurasians', Nature 528 (2015), 499–503.
11 E. Cashdan, 'Coping with Risk: Reciprocity among the Basarwa of Northern Botswana', Man 20.3 (1985), 454–74.
12 A. Timpson et al., 'Reconstructing Regional Population Fluctuations in the European Neolithic Using Radiocarbon Dates: A New Case-Study Using an Improved Method', Journal of Archaeological Science 52 (2014), 549–57.
13 D. A. Contreras and J. Meadows, 'Summed Radiocarbon Calibrations as a Population Proxy: A Critical Evaluation Using a Realistic Simulation Approach', Journal of Archaeological Science 52 (2014), 591–608.
14 A. Whittle, F. Healy and A. Bayliss (eds.), Gathering Time: Dating the Early Neolithic Enclosures of Southern Britain and Ireland (Oxford: Oxbow Books, 2011).
15 R. J. Mercer, 'The Origins of Warfare in the British Isles', in J. Carman and A. Harding (eds.), Ancient Warfare, Archaeological Perspectives (Stroud: Allan Sutton, 1999), pp. 143–56.
16 R. C. Kelly, Warless Societies and the Origins of War (Ann Arbor: University of Michigan Press, 2000).
17 K. F. Otterbein, 'Killing of Captured Enemies: A Cross-Cultural Study', Current Anthropology 41.3 (2000), 439–43.

Quantifying Violence: Assessing the Prevalence of Trauma

The last decade or so has seen a shift from case-based to regional studies that apply a large-scale, population-based approach to the question of prevalence of violent interaction. This has, for the first time, allowed researchers to put local data into a broader context, to identify patterns and to characterise regional and national evidence for violence within a broader European context (see Map 3.1).[19] This 'big picture' approach is also important because it draws attention to normative funerary contexts, that is, places that reflect the largest proportion of the skeletal assemblages of the period but are often neglected in narratives in favour of the more spectacular mass graves sites. Rather than reflecting one-off, larger scale violent events, these assemblages provide insights into 'day-to-day' violence within society and are probably more representative of the lived experience of most individuals during the Neolithic.

Neolithic chronology varies regionally, such that the data on healed and unhealed cranial trauma summarised in Table 3.1 range from the mid sixth millennium BCE in Germany to the early second millennium BCE in Scandinavia. This does not include projectile injuries, which will always be under-represented in skeletal remains, with many striking soft tissue only and so leaving no detectable traces on bone.[20] Thus, for example, while only one cranium from the Late Neolithic site of San Juan ante Portam Latinam (SJAPL) is reported as exhibiting an unhealed fracture, another six individuals have embedded arrowheads with no evidence of healing, while many others have broken arrowheads in close association with the skeleton, many of which were likely also implicated in the cause of death.[21] Injuries to the head may also have a significant impact on the individual without necessarily resulting in fractures. Thus, estimates of the prevalence of violence-related trauma in skeletal remains should be considered as very conservative.

18 Kelly, Warless Societies.
19 L. Fibiger et al., 'Patterns of Violence-Related Head Trauma in Neolithic Southern Scandinavia', American Journal of Physical Anthropology 150.2 (2013), 190–202; R. J. Schulting, 'Skeletal Evidence for Interpersonal Violence: Beyond Mortuary Monuments in Southern Britain', in Schulting and Fibiger (eds.), Sticks, Stones, pp. 223–48; M. J. Smith, 'The War to Begin all Wars? Contextualizing Violence in Neolithic Britain', in C. J. Knüsel and M. Smith (eds.), The Routledge Handbook of the Bioarchaeology of Human Conflict (London: Routledge, 2014), pp. 109–26.
20 Smith, Brickley and Leach, 'Experimental Evidence', 540–53.
21 J. I. Vegas et al., 'Prehistoric Violence in Northern Spain: San Juan Ante Portam Latinam', in Schulting and Fibiger (eds.), Sticks, Stones, pp. 265–302.
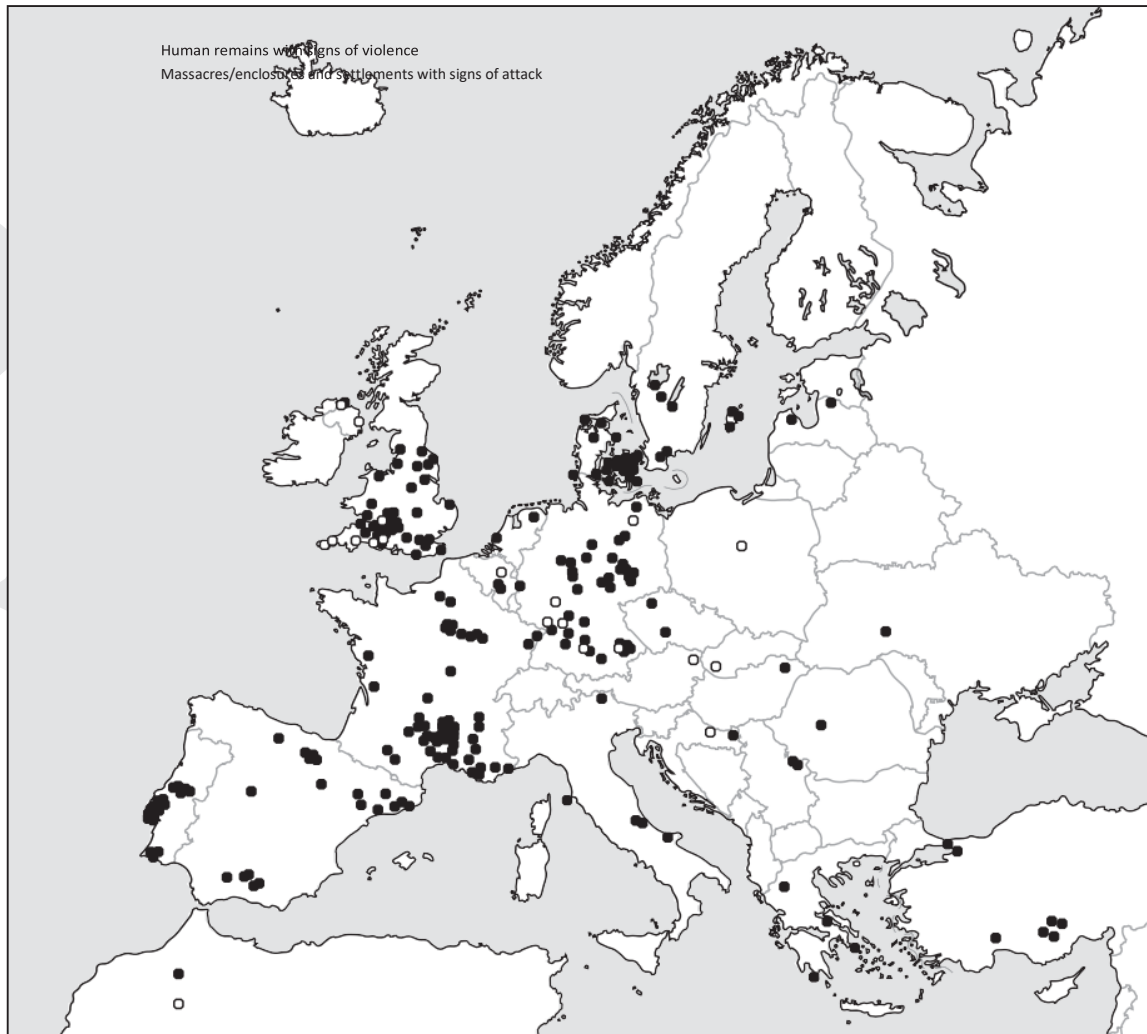22 W. Lorkiewicz, 'Skeletal Trauma and Violence among the Early farmers of the North European Plain: Evidence from Neolithic settlements of the Lengyel Culture in Kuyavia, North-Central Poland', in Schulting and Fibiger (eds.), Sticks, Stones, pp. 51–76.
23 R. J. Schulting and L. Fibiger, 'Violence in Neolithic North-West Europe: A Population Perspective', in A. Whittle and P. Bickle (eds.), Early Farmers: The View from Archaeology and Science (London: British Academy, 2014), pp. 281–306.
24 M. Smith, Mortal Wounds: The Human Skeleton as Evidence for Conflict in the Past (Barnsley: Pen & Sword, 2017), p. 93.
25 L. Fibiger, 'Conflict and Violence in the Neolithic of North-Western Europe', in M. Fernández-Götz and N. Roymans (eds.), Conflict Archaeology: Materialities of Collective Violence in Late Prehistoric and Early Historic Europe (New York: Taylor & Francis, 2018), pp. 13–22.
26 A. M. Silva et al., 'Skeletal Evidence of Interpersonal Violence from Portuguese Late Neolithic Collective Burials', in Schulting and Fibiger (eds.), Sticks, Stones, pp. 317–40.

Human remains with signs of violence
Massacres/enclosures and settlements with signs of attack

Map 3.1 Distribution map showing locations throughout Europe of Neolithic human remains bearing injuries consistent with violence, with a second category of locations including settlements and enclosures with signs of being attacked and mass burials consistent with massacres. On one hand this distribution is significant in that it corresponds broadly with the distribution of excavated human remains from Europe in general. However, on the other hand, the relative sparsity of locations in eastern Europe are more likely to reflect differences in the level of attention given to this issue to date and the issue of the respective publications and reports failing to reach a wider international audience. We suspect that many more examples are yet to be recognised from these latter regions and will be brought to wider attention in years to come.

Table 3.1 Skeletal trauma dating from the European Neolithic

Region	% of individuals with cranial trauma			N	Source
	non-lethal	lethal	total		
Denmark	12.6	4.6	16.9	261	Fibiger et al., 'Patterns of Violence-Related Head Trauma'
Sweden	6.8	2.6	9.4	117	Fibiger et al., 'Patterns of Violence-Related Head Trauma'
N. Spain (SJPL)	11.5	0.5	12.0	208	Vegas et al., 'Prehistoric Violence
Poland	8.3	3.7	11.9	109	Lorkiewicz 2012[22]
Britain	5.0	6.2	11.2	545	Schulting & Fibiger 2014;[23] Smith 2017[24]
Germany	4.4	3.5	7.6	634	Fibiger 2018[25]
France	4.2	3.2	7.4	687	Schulting n.d.
Portugal	5.0	0.4	5.4	500	Silva et al. 2012[26]
AVERAGE	7.5	3.0	10.4	2866	

With the exceptions of Portugal and northern Spain, there is remarkable consistency in the prevalence of lethal cranial trauma, ranging between around 3–5 per cent of the population. Including the above-mentioned unhealed projectile trauma at SJAPL would place it in the same category. What would these numbers have meant for people at the time? Considering that we are dealing with small-scale societies with settlements consisting of extended family groups or clans, the death of just three individuals in a community of a hundred would be the proportional equivalent of 3,000 deaths in a city of 100,000. This provides a context for sites like Talheim (38 individuals), Asparn-Schletz (67+ individuals) and Kilianstädten (26 individuals) (see Chapter 14 in this volume), which take on the character of genocide, potentially involving the elimination of entire communities or substantial portions thereof. Such events would have had long-lasting repercussions, and in the absence of a strong central political authority, the responsibility for what would be perceived as 'justice' falls into the hands of the surviving kin and allies of those killed.[27] While retaliation may be delayed, to forego it altogether would be a dangerous sign of weakness. The wider economic, social and political circumstances are crucial factors in whether, when and how the memories of past injuries and insults are brought into play.[28]

In-group versus Out-group

One of the more difficult aspects of dealing with the evidence for traumatic injury in the prehistoric archaeological record is differentiating between violence occurring within the group and that occurring between two groups. It is the latter, of course, that defines warfare. That large-scale conflict did occur is seen in the evidence from the above-mentioned enclosures as well as the mass killings at Talheim, Asparn-Schletz, Kilianstädten and other sites. Given the number of victims, these events are very unlikely to have taken place within the local community. Rather, they approach the size of entire local communities. In the case of Talheim, the age and sex distribution of the thirty-eight individuals recovered is consistent with that of a living community, while at both Asparn-Schletz and Kilianstädten young women are under-represented, suggesting that they may have been taken as captives (see Chapter 14 in this volume). This is taken to its extreme at Halberstadt, where the nine individuals present in a mass grave are all adolescent or adult males (ibid.). A similar demographic is seen at Wayland's Smithy I chambered tomb in southern England, where eleven of the fourteen individuals found were adult males. One individual has the tip of an arrowhead embedded in the pelvis and two others had broken arrowheads in close association, but in this

case there were no signs of cranial trauma. Whether this is a mass grave is thus uncertain, though Bayesian modelling of the radiocarbon dates suggests that the burial deposit accumulated over a short period of time.[29] In both cases, the killing of so many males from what were presumably single communities (chambered tombs are usually interpreted as the burial places for local groups) implies that the survivors – disproportionately females and children – would be severely compromised in terms of their ability to defend themselves. The ethnographic literature attests that the capture of young women is both a common practice and a motivation in warfare in small-scale societies.[30]

As well as these mass graves, however, evidence for violent death is also found within the cemeteries, caves and mortuary monuments that constitute the normative burial practice for that time and/or region. The context in these cases is more difficult to interpret. Many could represent killings taking place within the group. Most of the lethal injuries that have been recorded are the result of blows to the head, with either a blunt instrument such as a wooden, stone or antler club, an axe or a sling shot. Since the actual weapons are not found in association, there is nomeans of using stylistic criteria to distinguish ingroup versus out-group conflict. In cases where embedded projectile points are present, this does become possible at least in theory. Arrowhead styles were generally shared across large regions that would have contained multiple communities and polities, however these are defined, but there are some hints; for example, the flint arrowhead shot into a body at the Linearbandkeramik (LBK) cemetery of Mulhouse-Est was not of a type known locally, suggesting that this may have been the victim of a raid by a party coming from some distance.[31] Further experimental work is addressing the issue of better identification of implements used from trauma patterns alone,[32] but the bigger question remains as to what a given violent act signified.

27 R. J. Schulting, 'War without Warriors? The Nature of Interpersonal Conflict before the Emergence of Formalised Warrior Élites', in S. Ralph (ed.), The Archaeology of Violence: Interdisciplinary Approaches (Albany, NY: SUNY Press, 2013), pp. 19–36.
28 I. W. Schröder and B. E. Schmidt, introduction to B. E. Schmidt and I. W. Schröder (eds.), Anthropology of Violence and Conflict (London: Routledge, 2001), pp. 1–24.
29 A. Whittle, A. Bayliss and M. Wysocki, 'Once in a Lifetime: The Date of the Wayland's Smithy Long Barrow', Cambridge Archaeological Journal 17.1 (2007), 103–21.
30 K. F. Otterbein, 'Killing of Captured Enemies: A Cross-Cultural Study', Current Anthropology 41.3 (2000), 439–43.
31 C. Jeunesse et al., 'Unusual Funeral Practices and Violence in Early Neolithic Central Europe: New Discoveries at the Mulhouse-Est Linearbandkeramik', Antiquity Project Gallery (2014), http://journal.antiquity.ac.uk/projgall/jeunesse342.

Implications for Understanding Neolithic Society: Violence as Communication

Any analysis of the past suffers the burden of ideologies, moralities and expectations shaped by present experience. Most people today would probably evaluate the use of physical force against others as a last resort, while throughout much of human history physical violence would have been seen as an acceptable and societally integrated course of action. This does not mean its detrimental consequences for the individual and the group – from impairment to death, from economic hardship to loss of personal or political independence – were experienced less profoundly, though on the flipside others would have benefited. The final phases of the Linearbandkeramik at the end of the sixth millennium/beginning of the fifth millennium BCE provide a good case study to illustrate the difficulties faced when trying to integrate disparate data sets and theories while trying to ascribe origins and meaning to individual and collective incidences of violence.

While the normative skeletal record for the Linearbandkeramik does not provide evidence for an increase in violent interaction, the previously mentioned mass fatality sites certainly do, since most or all date to the closing stages of the LBK period (see Chapter 14 in this volume). This has in turn evoked the notion of a large-scale crisis, sometimes supported by other destructive acts accompanying some of these instances of interpersonal violence (such as the deliberate smashing of artefacts seen at Herxheim). There is agreement that neither climatological data (which, at any rate, cannot be chronologically fine-tuned to be convincingly correlated with individual mass graves) nor socio-economic data (which do not indicate discontinuity when compared to the earlier LBK) can serve as a single catalyst or explanation. Violence, whether against people (and other animals?) or things, may also be viewed as societally sanctioned, planned and executed, another argument for considering it within societal norms at the time, whether resulting from a perceived crisis or not.

More importantly, though, societal norms change and adapt to lived experience, and widespread physical manifestations of violence, like those seen in a number of late LBK mass graves, or indeed the endemic levels of violence seemingly present throughout the Middle and Late Neolithic of Denmark, did not exist in a vacuum. The late LBK mass fatality sites form a distinct and unusual temporal and to some extent geographically constrained cluster, while the Danish evidence suggests more stable levels of small-scale acts of violence over time, though this picture could change in future with a single find of a 'massacre' site. Whether or not resulting from an ideological or otherwise constituted crisis or perceptions of what constitutes the accepted norm in terms of violent interaction may not be as important as the fact that evidence for real, physical violence does exist. In the case of the LBK, larger-scale violent events were arguably more prevalent than in the immediately preceding and succeeding periods.

32 M. Dyer and L. Fibiger, 'Understanding Blunt Force Trauma and Violence in Neolithic Europe: The First Experiments Using a Skin-Skull-Brain Model and the Thames Beater', Antiquity 91.360 (2017), 1515–28.

The Genetic Evidence for Population Migrations

There is increasing genetic evidence for significant incoming populations across large parts of Europe at least twice during the Neolithic, first with its initial appearance, and secondly with the arrival of people with steppe ancestry.[33] Much detail concerning these movements still remains to be resolved, but they provide the impetus for a (re)consideration of the degree to which these apparently large-scale incursions brought conflict. While evidence has been found for traumatic injuries to skeletons of the early Linearbandkeramik, the cultural horizon representing the earliest Neolithic in central Europe, there appears to be little indication of large-scale conflicts at this time. However, Lawrence Keeley and colleagues have long argued that a number of enclosures along the 'western frontier' in Belgium were constructed with defence in mind, given the presence of V-shaped ditches backed by palisades.[34] As this was the limit of early LBK expansion, defence would have been against hunter-gatherers further to the west. Interpretation of these sites is not unambiguous and has been contested,[35] and there is little direct evidence for conflict, and certainly none that could be attributed to a confrontation between farmers and hunter-gatherers. The situation is quite different for the late LBK, as reflected in the previously mentioned mass fatality sites of Talheim, Asparn-Schletz and Schöneck-Kilianstädten.

The second major population immigration event identified is placed at the end of the fourth millennium BCE and is marked by the appearance of the Late Neolithic Corded Ware culture (CWC) in central Europe, by people with steppe ancestry.[36] In contrast to the beginning of the Neolithic, the CWC may well exhibit heightened levels of violence. Comparisons of the prevalence of skeletal trauma across such a large area and time span are far from straightforward, however, and at present we can only say that the evidence tentatively suggests an overall increase.[37] It is important to emphasise that this trend was identified before the results of the ancient DNA studies became available. While population movements have been implicated previously for the CWC, this has been heavily contested, as no doubt the genetic data will be.[38] The CWC is also associated with the first appearance of formal weaponry in the form of stone 'battle-axes'. Although their uses can be debated, they are clearly not functional as woodworking tools (unlike earlier Neolithic polished stone axe-heads, though even these too were clearly sometimes also used as weapons). While they were no doubt symbols, they were not arbitrary; their form makes it clear that one of the things being symbolised was the potential for lethal violence.

However, as with the Mesolithic–Neolithic transition, it may be difficult to find direct evidence of conflict between the now indigenous earlier Neolithic farmers, and those who entered central Europe in the Late Neolithic. Nor is it yet clear on what scale we should be envisaging this population movement, or over what timescale. Needless to say, the distinctive material culture of the CWC need not be a marker for an ethnic group, as it may have been widely adopted even if originally introduced from outside. There may also have been knock-on effects, with conflict extending beyond the sphere of the CWC itself. Sites in northern Spain and southern France appear to show

increased levels of violence in the Late Neolithic/Early Chalcolithic (c. 3000 BCE), specifically in the number of individuals with arrowhead injuries.[39] As elsewhere in Europe, these appear to affect mainly males, suggesting a different context for violence than that seen in the Neolithic of central and north-western Europe. There, males often tend to show more healed injuries but unhealed injuries affected males and females to virtually the same extent.

33 I. Mathieson et al., 'Genome-wide Patterns of Selection in 230 Ancient Eurasians', Nature 528 (2014), 499–503.
34 M. Golitko and L. H. Keeley, 'Beating Ploughshares Back into Swords: Warfare in the Linearbandkeramik', Antiquity 81.312 (2007), 332–42.
35 B. Vanmontfort, 'Forager–Farmer Connections in an "Unoccupied" Land: First Contact on the Western Edge of LBK Territory', Journal of Anthropological Archaeology 27.2 (2008), 149–60.
36 W. Haak et al., 'Massive Migration from the Steppe is a Source for Indo-European Languages in Europe', Nature 522(2015), 207–11.
37 C. Meyer et al., 'The Eulau Eulogy: Bioarchaeological Interpretation of Lethal Violence in Corded Ware Multiple Burials from Saxony-Anhalt, Germany', Journal of Anthropological Archaeology 28.4 (2009), 412–23.
38 M. Vander Linden, 'Population History in Third-Millennium-BC Europe: Assessing the Contribution of Genetics', World Archaeology 48.5 (2016), 714–28.
39 Vegas et al., 'Prehistoric Violence in Northern Spain', pp. 265–302.

Conflict and Inequality

A central question raised by Neolithic violence is whether anything 'new' is in evidence or whether such behaviours simply become more visible from this time onwards. As noted above, in terms of the types of implements available for use as weapons and the specific nature of violent acts at the level of individuals, the Neolithic did not differ substantively from the times that preceded it. There are no obvious differences between the types of violent injury that have been identified on Neolithic remains and those recognised in Mesolithic skeletons.[40] There are also various examples of lethal violence between groups that predate the advent of domestication and presumably of sedentism by several millennia, though the latter point is open to further research. We have no reason to assume that the mindset of the participants in such actions was any different from later periods (regarding any member of an opposing group as representative of the whole and therefore a legitimate target). Nor are forager groups necessarily any less territorial than more settled communities; in fact, the former have commonly been observed to be highly sensitive to trespass.[41] In this respect it can reasonably be argued that the behaviour exhibited by groups of Mesolithic people raiding and feuding may have not have differed significantly from their Neolithic successors. What had changed, however, is the scale at which such hostilities were conducted. The various aforementioned enclosures with signs of massed assaults followed in several cases by massacres constitute the earliest evidence from Europe and possibly the world, of large, coordinated groups of individuals acting collectively to attack similar sized groups within substantive fortified structures. The significant undertaking involved in constructing such defences elsewhere, especially where additional defensive features such as palisades were subsequently added, it has been argued, indicate a perception of predictable external threat, at least in the immediate and mid-term future on the part of the builders. This latter point might suggest that the frequency of violent interactions had increased along with the numbers of potential participants.

The implied increase in the scale, frequency and degree of organisation involved in warfare then raises further questions: first, regarding what had changed to make these developments possible in practical terms; and second, regarding the nature of the underlying social drivers that caused such new patterns of hostility to manifest at this time. As has been noted, there is often little convergence between proximate and ultimate causes for conflict between groups, and the overall consistency with which warfare appears to have intensified following the shift to domesticated resources (even taking regional variation into account) would suggest that much of the answer likely lies in the economic base on which these new societies relied. Subsistence by foraging tends to keep group sizes small, with limited potential for material inequalities to emerge between individuals, while marriages among hunter gatherers tend to be monogamous with relatively low levels of polygamy. This latter observation, based on a sample of 190 recently observed forager groups, is suggested to have also held true in the past on the basis of phylogenetic analysis of hunter-gatherer populations.[42] Should conflict arise in such a society consisting of scattered bands of mobile foragers, the

opportunities to call upon the support of others to join one's cause would be relatively limited, as would the potential rewards for joining such a fight. Consequently, while there is certainly evidence for hostility between groups during the Mesolithic, with the potential for brutal massacres of one band by another, as at Ofnet, we have no reason to think that such actions ever exceeded the scale of perhaps a few dozen participants on either side.

The switch to reliance on domesticated plants and animals also prompted a range of social developments with implications that went far beyond a change in diet. In considering the wider basis of human sexual relationships, Matt Ridley noted that this shift brought new opportunities for personal advancement of a kind that had not previously existed.[43] Unlike previous lifeways, farming and herding offer considerable rewards for those with the greatest aptitude. The skilful herder who breeds more cattle and the most adept farmer who grows more crops are in a position to generate substantial surpluses. This latter development would place such individuals in the previously unknown position of being able to buy the labour of others less successful than themselves. In this respect not only did the Neolithic see the appearance of substantive economic inequalities, but also the first manifestations of the now familiar axiom, 'wealth generates more wealth'. Furthermore, the new economy also had far-reaching implications for family life. Whereas group sizes had previously been largely limited by the carrying capacity of the wild resources available in local environments and the difficulties of maintaining mobility with multiple small children, a life based on domesticates both facilitated and rewarded larger families. This change led to a population explosion popularly termed the Neolithic Demographic Transition,[44] after which a return to foraging was no longer feasible. But what may have been an even more far-reaching change to familial relations was that the most successful and 'wealthy' individuals were now in a position to support more than one spouse.

Studies of recent pastoralists repeatedly concur in noting that in such societies marriages are exogamous and patrilocal and also polygynous, with the most powerful and successful men having the greatest number of wives.[45] Given that the ratio of men to women will normally be roughly equal, in a society practising polygyny some men will never be able to marry. Such disparity is further heightened within a generation or two when polygynous men generate large numbers of descendants, with wealth (in the form of cattle) owned and inherited down the male line further reinforcing and increasing inequality over time. Customs like these could lead to the emergence of very powerful patriarchs who were in a position to command the allegiance of many more individuals through family ties than they could ever have done as a member of a small-scale band of foragers. These new social networks would also have created larger groups of related individuals who by being less mobile also became more territorial regarding the smaller area over which they now ranged. Rather than the stable, egalitarian society imagined by many not so long ago, the Neolithic might in fact be more accurately characterised as an unequal and inherently unstable society, which may explain the signs of violence apparent in human remains from this period. There was now more to fight over in terms of livestock and harvested crops to steal, and grazing and cleared arable land to move into, but a further target of raiding may have been other people. In a situation where wealth and the opportunity to marry were now unevenly distributed, those with the most to gain would also have the least to lose. Such inequalities may therefore explain the unusual demographic compositions among the skeletal assemblages at Talheim, Asparn-Schletz, Schöneck-Kilianstädten, Halberstadt and Wayland's Smithy.

40 M. Roksandic et al., 'Interpersonal Violence at Lepenski Vir Mesolithic/Neolithic Complex of the Iron Gates Gorge (Serbia-Romania)', American Journal of Physical Anthropology 129.3 (2006), 339–48.
41 LeBlanc, Violence and Warfare, pp. 26–46.
42 R. S. Walker et al., 'Evolutionary History of Hunter-Gatherer Marriage Practices', PLoS ONE 6.4 (2011), https://doi.org/10.1371/journal.pone.0019066.
43 M. Ridley, The Red Queen: Sex and the Evolution of Human Nature (New York: Viking, 1993).
44 J.-P. Bocquet-Appel, 'When the World's Population Took Off: The Springboard of the Neolithic Demographic Transition', Science 333.6402 (2011), 560–61.
45 M. Borgerhoff Mulder et al., 'Pastoralism and Wealth Inequality: Revisiting and Old Question', Current Anthropology 51.1 (2010), 35–48.

Conclusions

The body of recognised evidence for Neolithic violence across Europe has increased markedly over the last few decades. This increased appreciation of the presence of violence has in turn led to much greater attention being accorded to this aspect when analysing human skeletal remains both from recent and older excavations, leading to further discoveries. In some cases, a clear context for violence is discernible, most notably with the massacre sites of the late LBK. In other cases, however, the contexts for violence are ambiguous, and could reflect within-group conflict, up to and including homicide, as well as conflict between groups. While this certainly presents great challenges in understanding particular instances of conflict, it is possible to suggest some plausible scenarios for the broader setting. The scale of community cooperation required for the construction of large enclosures in the Neolithic was a novel development of the period, but could be co-opted for less peaceful ends. The increasing evidence for the targeting of males in lethal violence suggests a pattern in which women (and possibly children) may sometimes have been taken as captives. Cattle were likely also a prime target for raids, as they invariably represent a major source of wealth and status in those societies keeping them in any numbers, a situation which certainly describes the Neolithic across much of central and northern Europe. For much of the period there is an absence of material culture overtly glorifying warriorhood or at least none that is recognisable archaeologically. It would appear, therefore, that most men acted in this capacity when it was deemed necessary (or desirable), using weapons that were not too dissimilar from the tools used for quotidian tasks. A powerful motivation would have been revenge for real or imagined past injustices. Since such impulses are not always acted upon, and other avenues to their resolution are always possible (e.g. through compensation payments), it is possible that leaders (e.g. family or clan heads) drew upon and manipulated past events to their own ends, a well-trodden pathway to power. Thus, it seems probable that the increased scale of conflict seen in the Neolithic went hand in hand with increased socioe-conomic and socio-political inequality, though this need not imply any unidirectional progression. As has been outlined, a great many of the insights described remain relatively novel. A major task now facing researchers in this aspect of the Neolithic is to obtain a more developed sense of the spatiotemporal variability in inequality in the European Neolithic and how this impacted on the scale and expression of violence. We would argue that the importance of the Neolithic in the development of organised violence in particular among human societies is hard to overestimate, and understanding this variation may shed more light on the conditions that promote peace as well as those that result in outbreaks of conflict.

Bibliographic Essay

Notions of a peaceful, egalitarian Neolithic were prevalent in the processual views of 1960s and 1970s, but by the close of the century accepted paradigms were beginning to shift. Lawrence Keeley's War before Civilisation: The Myth of the Peaceful Savage (Oxford: Oxford University Press, 1996) had significant impact in deconstructing the 'pacified past' that had characterised previous consensus. New considerations of evidence for prehistoric violence reflected an invigorated debate and a willingness to reassess old material that had been previously overlooked or dismissed. This includes important chapters in J. Carman and A. Harding (eds.), Ancient Warfare: Archaeological Perspectives (Stroud: Allan Sutton, 1999) and also J. Guilaine and J. Zammit's Le Sentier de la Guerre (Paris: Éditions du Seuil, 2001), the latter focusing largely on France, with an English translation in 2008. Raymond Kelly's Warless Societies and the Origin of War (Ann Arbor: University of Michigan Press, 2000) had important theoretical ramifications, particularly in summarising the now oft quoted 'Theory of Social Substitution', characterising the internal logic of group conflict and offering an alternative to simply studying violence on a behavioural level.

Much of the evidence for Neolithic violence emerged piecemeal over successive decades as individual cases of skeletal injuries arose. These are too numerous to usefully list here, although key examples include Christopher Knüsel, 'The Arrowhead Injury to Individual B2', in Don Benson and Alasdair Whittle (eds.), Building Memories: The Neolithic Long Barrow at Ascott-under-Wychwood (Oxford: Oxbow Books, 2006), pp. 218–220; and the section on violence in Martin Smith and Megan Brickley's People of the Long Barrows (Stroud: History Press, 2009), pp. 102–112. John Robb's study 'Violence and Gender in Early Italy', in Debra L. Martin and David W. Frayer (eds.), War and Society, vol. III, Troubled Times: Violence and Warfare in the Past (Amsterdam: Gordon & Breach, 1997), pp. 111–44, importantly noted a high prevalence of violence in Neolithic Italy compared to the Bronze Age in the same region. Rick Schulting and Mick Wysocki's focused study of Neolithic crania provided much needed quantification of this phenomenon in Britain in 'In this Chambered Tumulus were Found Cleft Skulls …', Proceedings of the Prehistoric Society 71 (2005), 107–38.

The possibility of misidentification and the need for reliable Middle Range Theory also prompted several experimental studies. M. J. Smith, M. B. Brickley and S. L. Leach tested the effects of Neolithic period arrows on animal bone: 'Experimental Evidence for Lithic Projectile Injuries: Improving Identification of an Under-recognised Phenomenon', Journal of Archaeological Science 34 (2007), 540–53; and Meghan Dyer and Linda Fibiger tested blunt weapons of Neolithic date, using plastic spheres designed to act as synthetic 'skulls' for forensic tests, in 'Understanding Blunt Force Trauma in Neolithic Europe: The First Experiments using a Skin-Skull-Brain Model and the Thames Beater', Antiquity 91.360 (2017), 1515–28.

Further insights have been provided by publications presenting evidence for attacks on enclosures and settlements, including apparent massacres of significant numbers of people, the first and best known of which is Joachim Wahl and Hans König's 'Anthropologisch-traumatologische untersuchung der menschlichen skeletresste aus dem bandkeramischen massengrab bei Talheim, Kreiss Heilbronn', Fundberichte aus Baden-Württemburg 12 (1987), 65–193, with the most recent case being Christian Meyer et al., 'The Massacre Mass Grave of Schöneck-Kilianstädten Reveals New Insights into Collective Violence in Early Neolithic Central Europe', Proceedings of the National Academy of Sciences 112.36 (2015), 11217–22.

The most comprehensive text to address the issue of hostilities in Neolithic Europe at a continent-wide level is Rick Schulting and Linda Fibiger (eds.), Sticks, Stones and Broken Bones: Neolithic Violence in a European Perspective (Oxford: Oxford University Press, 2012). This was followed by the publication of C. Knüsel and M. J. Smith (eds.), The Routledge Handbook of the Bioarchaeology of Human Conflict (London: Routledge, 2014). This work has been viewed as significant because of its specific focus on the social contexts of violent acts (Debra Martin, book review in International Journal of Palaeopathology 14.1 (2016), 60–1). Chapters covering the Neolithic include a summary of evidence for Britain as well as an important chapter on western Asia and a chapter focusing on children, who are often left out of the violence narrative.

The recent publications cited above have appeared against a background of more general works on the bioarchaeology of violence. For key examples see the following: Phillip Walker, 'A Bioarchaeological Perspective on the History of Violence', Annual Review of Anthropology 30 (2001), 573–96; Frayer and Martin (eds.) Troubled Times; T. Otto, H. Thrane and H. Vandkilde (eds.), Warfare and Society: Archaeological and Social Anthropological Perspectives (Aarhus: Aarhus University Press, 2006); D. L. Martin and C. P. Anderson (eds.), Bioarchaeological and Forensic Perspectives on Violence (Cambridge: Cambridge University Press, 2014); and Rebecca Redfern Injury and Trauma in Bioarchaeology (Cambridge: Cambridge University Press, 2017). For an up-to-date overview of ethnographic and ethnohistorical approaches to pre-state violence, see Mark W. Allen and Terry L. Jones (eds.), Violence and Warfare among Hunter-Gatherers (Walnut Creek, CA: Left Coast Press, 2014). Lastly a work presenting the bioarchaeology of violence to a non-specialist readership was provided by Martin Smith's Mortal Wounds: The Human Skeleton as Evidence for Conflict in the Past (Barnsley: Pen & Sword, 2017). This work includes a chapter on the Neolithic considering the extent to which this period indicates a new trajectory for human hostilities that differs from what went before.