

The Origins of Warfare and Violence

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Human violence, and especially warfare, is a topic of both deep concern and revulsion. The suffering and deaths over millennia are staggering and almost incomprehensible. Yet, the level of collective action involved in warfare probably exceeds that of any other human endeavour. Many try to wish violence and warfare away; others yearn for a peaceful past in the hope that we can return to such times. We spend considerable time and thought trying to get to grips with the violence and warfare of the last couple of centuries, yet we give comparatively very little thought to these matters in the deep past. Surely, unravelling the origins of violence must be key to our overall understanding of it, and that understanding must likewise be key to its elimination from the human condition. While history and archaeology are not the only kinds of knowledge that can be brought to bear on the question, they no doubt have a central place. Our goal is to understand how to use and develop such information with the wide range of tools now at our disposal.

Darwin's *On the Origin of Species* was a summation of evidence for evolution. It quickly provided the foundation for the study of living organisms. From that point on, once Darwin's work was generally accepted, one had to cast one's thinking, questions and interpretations in an evolutionary framework. If warfare was as prevalent and significant in the past as many now feel, perhaps we are on the cusp in the fields of ancient history and archaeology of having to do much the same thing. In other words, should not our thinking, questions and interpretations always consider the role warfare might have played? This does not mean that all historic outcomes were the result of warfare, but its role should always be considered. From big questions – such as migrations or rapid cultural change – to small ones – such as why a site was on a hill or why there was a multiple burial – should we not, if we believe warfare was common, always consider its potential role? Such an intellectual approach will go far in deepening our knowledge of warfare and violence. This may not be the usual archaeological paradigm, but it can and should be.

Human violence can take many forms from intra-family domestic violence to battles lasting days or months and involving tens of thousands of individuals. In order to understand when and where such violence occurred in the past, much less the reasons for it, it is necessary to examine it in specific detail and depth. That is, we need to have a more fine-grained understanding before we try to formulate sweeping generalities. To lump together an intra-village club fight with the battle of Verdun would seem to be folly at our present level of understanding of either type of violence.

Perhaps the most important distinction with the broadest implications that we can make is that between warfare and intra-societal violence. By 'warfare' I, and many others who study it, generally mean socially sanctioned conflict between independent polities; that is, collective action by one group against another, without there being a larger overarching political entity, the membership of which includes both groups. This concept of warfare allows one to jointly consider forager raiding parties and pitched battles between chiefdoms and states as manifestations of the same general behaviour. This approach gets beyond the often held distinction between 'raiding' and 'true warfare', a false distinction which has hindered rather than enhanced our understanding of the topic. Raiding was every bit as deadly as 'true warfare' and had just as great an impact on people's lives for millennia over much of the world.

Intra-societal violence can include personal violence, such as murder, or less lethal acts perpetrated on members of one's own group. As discussed below, the complication is what is 'one's group'? It can be one's close kin, or it can be all those people who come together for common defence and may number in the thousands.

In the recent past, including the so-called 'ethnographic present', we can define social groups with some notable exceptions. For example, some forager societies have such broad kin networks that it is possible to see all fighting as intra-personal feuding and settling personal disagreements within a social group. At the other extreme in terms of social complexity, in parts of historic Peru communities engaged in almost ritual warfare, with at least the implicit acceptance of the ruling state. Is the social group the community or the state? However, in essentially all these ambiguous instances, strong social sanctions were in place to limit deaths and injuries to members of the social group. A wound would settle a score; a death was not required or often not even allowed. In some instances, such as in the South Pacific, inter-village brawls were carefully managed by the elites. One could throw rocks but could not use a machete. A lot of people could get hurt, but no one was supposed to get killed.

Once we move into the past, such distinctions about social groups and intra-group rules of behaviour are much harder to find and evaluate. Because intra-societal or intra-personal violence covers a vast range of behaviours, and most are very hard to tease out of the archaeological record, such violence is not the central focus here and is considered only briefly.

Warfare is different. While there were often conventions governing how wars were to be fought, for most of human history there were few constraints on individual behaviour. In some places, areas were set aside for trade with no conflict allowed, or universally accepted tokens proclaiming peaceful intent were used by people transiting hostile territory. Such conventions were relatively minor and few, and if an individual or group broke them, there was little recourse, so rogue behaviour was hard to control and a threat even in situations deemed peaceful. Our present concerns about killing prisoners and outlawing certain weapons are developments of the last several centuries. For the most part, warfare has been anarchic. Anything goes: treachery, killing helpless captives, taking captives and killing a few at a time as you retreat so the enemy is discouraged from following you, torturing and mutilating captives, displaying body part trophies so all know how well you fight, killing the children of women you capture, and other such very unpleasant behaviours are known from archaeology and historic accounts. And killing is the goal, along with the capture of women, territory and treasure. Moreover, there are numerous lines of evidence that show how much warfare existed in the past. Warfare can be defined, and it can be studied archaeologically. Like many topics in archaeology, it is not easy to study, but it can be and has been done successfully.

Warfare: Deadly and Pervasive

To anticipate much of what follows, in spite of the limitations of the data and regardless of some opinions to the contrary, I believe it is possible to formulate a good picture of warfare in the past based on archaeology, ethnology and early historical accounts of many societies. The summation of our knowledge of warfare including forager warfare, which is considered in more detail below, is that it was extremely common and very deadly. In fact, acephalous society warfare was probably deadlier than that of more complex societies on the basis of the likelihood of an individual dying from warfare. This is a rather shocking conclusion to many.

The consensus among many archaeologists and others who have investigated the issue is that death rates due to warfare were substantial in the past.

Most of these deaths were due to raids and other small encounters where only a few individuals would be killed. However, such encounters were very common, and so the death tolls accumulated. While some have considered raiding, the common type of acephalous warfare, to be almost game playing with few deaths, in fact the opposite is the case. Even though the number of individuals killed in each raid was typically low, such raiding was far more significant than most realise. Raiding could be almost continuous, although it was often seasonal in some climates. One group might be raiding and being raided by multiple other groups. In such small societies, the number of deaths from such raids could become very substantial. Various scholars have tried to estimate the death rates from such raiding, including the occasional massacre.¹ One of the best sets of data is from lowland South America.² Some archaeology has also given us some useful data.³ The somewhat shocking estimates are that between 15 and 25 per cent of males and about 5 per cent of women died from such warfare (about 9 per cent female deaths for South America). Given these high death rates, the term 'warfare' is appropriate because of the consequences, not the methods.

Most men in these societies slept with and never went outside without their weapons. Some told early ethnographers that they had nightmares about being killed in attacks. They located their communities for defence, and they under-utilised vast portions of their territories because it was too dangerous to go there. While groups would try to defend the most productive parts of their territory, there is ample evidence that the dangerous parts had useful resources which were quickly exploited if they became safe – a state of affairs that was the case for foragers but especially true for farmers. This significantly reduced the resources consumed and would have led to deprivation or even starvation or death. Every male you met that was not a close relative or member of your local group was a potential threat. Lives in the past were those of fear, war, worry and hunger.⁴

- 1 Lawrence H. Keeley, *War before Civilization: The Myth of the Peaceful Savage* (Oxford: Oxford University Press, 1996); Samuel Bowles, 'Did Warfare among Ancestral Hunter-Gatherers affect the Evolution of Human Social Behaviors?', *Science* 324 (2009), 1293–8.
- 2 Robert S. Walker and Drew H. Bailey, 'Body Counts in Lowland South American Violence', *Evolution & Human Behavior* 34.1 (2013), 29–34.
- 3 Patricia M. Lambert, 'Patterns of Violence in Prehistoric Hunter-Gatherer Societies of Coastal Southern California', in D. L. Martin and D. W. Frayer (eds.), *War and Society*, vol. 111, *Troubled Times: Violence and Warfare in the Past* (Amsterdam: Gordon & Breach, 1997), pp. 77–110; Patricia M. Lambert and Phillip L. Walker, 'Physical Anthropological Evidence for the Evolution of Social Complexity in Coastal Southern California', *Antiquity* 65.249 (1991), 963–73.
- 4 Steven A. LeBlanc and Katherine E. Register, *Constant Battles: Why We Fight* (New York: St Martin's Press, 2003).

What Does Archaeology Have to Contribute to the Study of Violence?

Archaeology in its various forms provides the bulk of the information available about the deep past with respect to violence in general and warfare in particular. In this conversation, I lump archaeological data together with ancient historical, that is written data, and include settlement pattern data, osteology and relevant past climate data. And while many fear that the archaeological record is so incomplete and so hard to interpret that our inferences from it will always be limited and cloudy, this has not been borne out over time. The discipline continues to develop new methods and interpretive frameworks, and our grasp of the past is ever more detailed and nuanced. Regardless of the possible limitations, archaeology is our only window into the deep past, and it provides the additional benefit of being worldwide in its coverage. We have surprisingly rich information from most places on earth, and we can make quite strong statements about what we know.

So, the question is, are these data good enough to serve as the basis for saying meaningful things about warfare and/or violence in the past? The question may be better phrased like this: how good are archaeological data for determining the presence, absence and degree of warfare in the deep past? Evidence for peace is probably harder to find than evidence for warfare. In any case, as is well known, the further one goes back in the past, the thinner the archaeological record, because both fewer remains survive and there were fewer people to leave remains. Moreover, less complex societies leave less complex remains. We would not expect fortifications for Upper Palaeolithic foragers, much less from pre-anatomically modern humans.

Despite the limitations, we have human remains themselves that can and do have wounds of various types. As George Milner has demonstrated, of arrow wounds inflicted in the historic period, only one case in three results in evidence that a bioarchaeologist can identify on a skeleton.⁵ We are on the cusp of being able to recover ancient DNA evidence of bacterial infections, and so we may soon find another line of evidence for battle wounds. We have indirect evidence of warfare in the form of multiple burials, but these have been little used in evaluating evidence of conflict, with rare exceptions.⁶

5 George R. Milner, 'Nineteenth-Century Arrow Wounds and Perceptions of Prehistoric Warfare', *American Antiquity* 70 (2005), 144–56.

6 See Francis B. Harrold, 'A Comparative Analysis of Eurasian Palaeolithic Burials', *World Archaeology* 12.2 (1980), 195–211.

There are, of course, fortifications. While moats, walls and the like are susceptible to multiple interpretations, we do have the methods to evaluate them.⁷ As is well known, not all excavations extend to the edges of sites where we would most likely find some forms of fortifications, but in such cases, indirect evidence in the form of very tight house spacing may be a means of determining whether communities were bounded by walls, palisades, stockades or other defensive structures. We also have settlement pattern data. This type of information has often been ignored in the search for evidence of warfare, but it can provide useful evidence.⁸ Other lines of evidence such as weapons manufacture also exist or surely can be developed.

Not only do we have the potential to recover such information; in reality it is often recovered. It is probably safe to argue that for any period or locality for which we have a reasonable data set, there is at least some evidence that can be interpreted as related to violence or warfare. The archaeological record is far from empty in this regard; it just needs careful evaluation.

On Warfare Origins

It appears that many early archaeologists assumed warfare was common. They tended to work in the recent past and with complex societies, so evidence for warfare was both common and obvious. Notable exceptions, such as the early tendency to ignore evidence for warfare among the Maya, did exist, but they were rare.⁹ There then appears to have been an interval in the history of archaeology when warfare was downplayed or ignored. Why this happened need not be considered here, but it seems that Keeley's *War before Civilization*¹⁰ was a wake-up call to many archaeologists, and from that time onwards there has been a plethora of attempts to consider the problem on a regional or larger scale.¹¹ Although this refocus is more than twenty

7 See Lawrence H. Keeley, Marisa Fontana and Russell Quick, 'Baffles and Bastions: The Universal Features of Fortifications', *Journal of Archaeological Research* 15.1 (2007), 55–95.

8 Curtis N. Runnels et al., 'Warfare in Neolithic Thessaly: A Case Study', *Hesperia* 78.2 (2009), 165–94; Steven A. LeBlanc, *Prehistoric Warfare in the American Southwest* (Salt Lake City: University of Utah Press, 1999).

9 David Webster, 'The Study of Maya Warfare: What It Tells Us about the Maya and What It Tells Us about Maya Archaeology', in J. A. Sabloff and J. S. Henderson (eds.), *Lowland Maya Civilization in the Eighth Century A.D.* (Washington, DC: Dumbarton Oaks, 1993), pp. 415–44.

10 Keeley, *War before Civilization*.

11 M. W. Allen and T. L. Jones (eds.), *Re-examining a Pacified Past: Violence and Warfare among Hunter-Gatherers* (Walnut Creek, CA: Left Coast Press, 2014); Elizabeth N. Arkush and Mark W. Allen, *The Archaeology of Warfare: Prehistories of Raiding and Conquest* (Gainesville: University of Florida Press, 2006); J. Carman and A. Harding

years old, the archaeological consideration of warfare is still quite patchy and often rather innocent in its approaches.

One can see the question of origins as having two different meanings. On the one hand the question can be, what are the reasons for warfare? Are there some broad generalisations about why we fight? On the other hand, it can be a question that assumes there was a time in the past when there was no warfare, and we can therefore ask, when did such behaviours first appear? I believe the first meaning is valid and important, and our goal should be to try to determine what general principles are behind this worldwide phenomenon. If we as humans ever hope to eliminate warfare, then we must understand why it exists. If it has been part of our existence for millennia, then information derived from archaeology is critical to this understanding. One could easily see this as one of the great goals of archaeology: explaining why we have fought.

The second meaning of origins, which implies a worldwide peace or Garden of Eden, is, in my opinion, invalid, as it assumes a state of behaviour that we do not know existed. At best it is a question to be addressed; a peaceful past is not a given. This is a contentious area. There has been considerable opposition to the idea that warfare is an integral part of the human past; there is even more objection to the concept that warfare had any impact on our genes.¹² Most of these objections imply that it began after farming or as the result of colonialism.

There is ample evidence for warfare in the deep past, and the ethnographic evidence that such scholars use to suggest otherwise is largely irrelevant

(eds.), *Ancient Warfare: Archaeological Perspectives* (Stroud: Allan Sutton, 1999); Claudio Cioffi-Revilla, 'Ancient Warfare: Origins and Systems', in M. I. Midlarsky (ed.), *Handbook of War Studies II* (Ann Arbor: University of Michigan Press, 2000), pp. 59–89; Azar Gat, *War in Human Civilization* (Oxford: Oxford University Press, 2006); LeBlanc, *Prehistoric Warfare*; LeBlanc and Register, *Constant Battles*; Ian Morris, *War! What Is It Good For?: Conflict and the Progress of Civilization from Primates to Robots* (New York: Farrar, Straus & Giroux, 2014); G. E. Rice and S. A. LeBlanc (eds.), *Deadly Landscapes: Case Studies in Prehistoric Southwestern Warfare* (Salt Lake City: University of Utah Press, 2001).

12. Some of the more vigorous promoters of the idea of a peaceful past are Douglas P. Fry, *Beyond War: The Human Potential for Peace* (Oxford: Oxford University Press, 2007); Douglas P. Fry, 'Life without War', *Science* 336 (2012), 879–84; and R. Brian Ferguson, 'A Savage Encounter: Western Contact and the Yanomami War Complex', in R. Brian Ferguson and N. L. Whitehead (eds.), *War in the Tribal Zone: Expanding States and Indigenous Warfare* (Santa Fe, CA: School of American Research Press, 1992), pp. 199–227. See also David Fabbro, 'Peaceful Societies: An Introduction', *Journal of Peace Research* 15.1 (1978), 67–83; Andrew Lawler, 'The Battle over Violence', *Science* 336 (2012), 829–30; and Raymond C. Kelly, *Warless Societies and the Origin of War* (Ann Arbor: University of Michigan Press, 2000).

because it is invariably negative evidence such as a lack of identified fortifications, when location or vegetation might have been the major mechanism for defence; or few violent deaths when only a select few were buried in a way that preserved them, and these were very likely to be individuals not killed in warfare. Equally problematic is that just because a particular society was peaceful for some period of time (and ample examples exist), this does not justify the assumption that humans are inherently peaceful and that there once was an Eden-like world. Moreover, such thinking leads to the notion that a peaceful past is something that must be refuted by those who disagree. They feel that the burden of proof lies with those who see warfare as pervasive. Yet, this is a fallacy. Those who claim peace are under just as strong a requirement to demonstrate that peace existed as those who claim ancient warfare existed. Demonstrating peace in the past is very difficult. There are few, if any, examples of a study where all the lines of evidence that can be brought to bear on the issue have been examined and lead to the conclusion that there must have been peace. This has not been accomplished for recent ethnographic cases, much less the archaeological ones.

In short, the case for peace is not a reasoned argument but simply a position reflecting a desire for it. This issue is dealt with in some depth elsewhere,¹³ but it remains an impediment to honest discussion of this important topic.

Current Issues Surrounding Warfare

Assuming we can get beyond the issue of the existence of significant warfare in the deep past, what are the major questions that we might address? Some of the more obvious ones are as follows. What impact did such warfare have on societies? What caused warfare? Or better put, what caused changes in the intensity of warfare?

Warfare's impact on societies could have been profound. Ian Morris argues, as does Peter Turchin, that as horrible as war is and was, it did produce positive social changes.¹⁴ I have argued that warfare may have been the primary means by which social systems jumped forward in terms of social complexity.¹⁵ To the extent that this type of argument is valid, warfare would

13 Steven A. LeBlanc, 'Warfare and Human Nature', in T. K. Shackelford and R. D. Hansen (eds.), *The Evolution of Violence* (New York: Springer, 2013), pp. 73–97.

14 Morris, *War! What Is It Good For?*; Peter Turchin, *Ultrasociety: How 10,000 Years of War Made Humans the Greatest Cooperators on Earth* (Chaplin, CT: Beresta Books 2016).

15 Steven A. LeBlanc, 'Warfare and the Development of Social Complexity: Some Demographic and Environmental Factors', in. Arkush and Allen (eds.), *Archaeology of*

have been a prime mover in the past for social change, a concept rarely considered for the pre-industrial age. Equally contentious are the causes of warfare. Of the many proposed, one to which archaeology can perhaps bring unique and important information is the role of climate change on changes in warfare intensity. It has long been proposed that changes in the Nile's flooding patterns led to some of the Egyptian kingdom collapses and the social chaos that followed, perhaps exposing Egypt to at least partial conquest. Similar arguments of climate change leading to social disruption and conflict have been made for historic period China.¹⁶ Climate has been implicated in societal collapse in the proto-historic Middle East, with less emphasis on warfare intensity change.¹⁷ Less well known are various arguments that the beginnings of the Little Ice Age in North America led to increased conflict throughout the present-day United States.¹⁸ Climate change has also been implicated in the Classic Mayan collapse, with its attendant increase in warfare.¹⁹ One strongly suspects there are many more such instances of climate impacting on social systems with the consequential intensification of warfare. However, to find such instances, one needs to recognise the existence of warfare, to have good enough climate data to be able to build a convincing argument about the linkage between the two, and to accept the logical relationship between them.²⁰

Warfare and Human Evolution

If warfare was common for very long periods over much of the globe, did it lead to selection for traits that resulted in warfare success? That there could have been Darwinian selection among humans for being good at warfare is

Warfare, pp. 437–68. See also Peter Turchin, 'Warfare and the Evolution of Social Complexity: A Multilevel-Selection Approach', *Structure and Dynamics* 4.3 (2010).

- 16 David D. Zhang et al., 'Climate Change and War Frequency in Eastern China over the Last Millennium', *Human Ecology* 35 (2007), 403–14.
- 17 H. Nüzhet Dalfes, G. Kukla and H. Weiss (eds.), *Third Millennium BC Climate Change and Old World Collapse* (Berlin: Springer, 1997).
- 18 Patricia M. Lambert, 'The Osteological Evidence for Indigenous Warfare in North America', in Richard J. Chadon and Rubén G. Mendoza (eds.), *North American Indigenous Warfare and Ritual Violence* (Tucson: University of Arizona Press, 2007), pp. 202–21; LeBlanc, *Prehistoric Warfare*; George R. Milner, 'Warfare in Prehistoric and Early Historic Eastern North America', *Journal of Archaeological Research* 7.2 (1999), 105–51; Herbert D. G. Maschner, 'The Evolution of Northwest Coast Warfare', in Martin and Frayer (eds.), *Troubled Times*, pp. 267–302.
- 19 Douglas J. Kennett et al., 'Development and Disintegration of Maya Political Systems in Response to Climate Change', *Science* 338 (2012), 788–91.
- 20 Dwight W. Read and Steven A. LeBlanc, 'Population Growth, Carrying Capacity, and Conflict', *Current Anthropology* 44.1 (2003), 59–86.

highly unpalatable to many. Many such knee-jerk objections to there being a genetic component to human warfare are based on a simplistic and naïve understanding of how genes and evolution work. There is often confusion between propensities and deterministic outcomes; that is, males may be prone to violence, but that does not mean all males are violent. While a couple of genes have been proposed as being related to violent behaviour, one even having the unfortunate label of the ‘warrior’ gene, one would expect any genetic factors to involve multiple genes interacting in complex ways, as most behavioural traits do. Nevertheless, arguments relying on warfare in the archaeological record as their basis have been made. Thus, the archaeological record for warfare is of wide and important relevance, and we need to both get it right and make our findings widely and easily available.²¹

Can We Reconstruct Ancient Forager Warfare?

If we want to consider the evolutionary impact of ancient warfare then we must consider forager warfare. For most of human history humans were foragers or were organised into small non-hierarchical societies with no hereditary or permanent leaders, which are also known as acephalous societies. Humans were mobile, stored few resources for any length of time, and group sizes were small. Adult males in the group were usually related to one another, but the adult females much less so. If there is a genetic component to warfare, it most likely evolved while we were foragers. Thus, understanding the frequency, nature, and outcomes of forager warfare is critical to developing a framework for thinking about warfare and human evolution. It turns out that there are some societies that farm but that otherwise are organised very much like true foragers – or at least not very differently from them. An example is the Yanomamo of South America.²² There are other societies that are organised still more complexly but are not classified as complex societies, such as the Dani of New Guinea.²³ These societies can provide additional relevant comparative information on warfare in acephalous societies.

21 See Steven A. LeBlanc, ‘Forager Warfare and our Evolutionary Past’, in Allen and Jones (eds.), *Re-examining a Pacified Past*, pp. 26–46.

22 Napoleon A. Chagnon, *Yanomamo: The Fierce People* (New York: Holt, Rinehart & Winston, 1968).

23 Karl G. Heider, *Grand Valley Dani: Peaceful Warriors* (New York: Holt, Rinehart & Winston, 1979).

Our forager society data comes from two sources: recent foragers for whom we have historic and ethnographic information, and prehistoric foragers for whom we have only the archaeological record. We have some ethnographic information from most continents about such peoples as the Bushmen, pygmies and Hadza in Africa, all societies of Australia, some societies in New Guinea, a few in South East Asia, a few in India, and a number in the Americas from the Eskimo in the north to the Fuegians in the south. The challenge in using the information on these foragers relates to when it was obtained. In many instances, by the time they were studied by anthropologists, their numbers had been decimated, they had access to metal tools and guns, and they were no longer highly mobile. Equally problematic are the data describing small societies surrounded by farmers. Teasing out what we know about such peoples as actual foragers where their neighbours were also foragers (which is the relevant model for our deep past) is difficult though not impossible.

An important question here is whether we can use historic data on recent foragers as models for earlier human behaviour concerning warfare. Equally important is how relevant are data from recent foragers who live surrounded by farmers and state-level societies? This issue is further complicated by those who feel that our closest primate relatives, the chimpanzees, provide a useful analogue for very early humans in their warfare-like behaviours. This is outside our concern here, but the chimpanzee data are very intriguing.²⁴ If we can use these various types of data, it would greatly enhance our ability to have more than just the very limited direct data from the deep past at our disposal. I think the answer is yes, we can use such information, but we must be extremely careful to understand the quality and relevance of such information and how valid such analogies might be.

For example, ethnographic data on foragers suffer from two major drawbacks. First, virtually all such studies have been of people who no longer had the potential for unfettered warfare due to the presence of, and control by, more complex societies, so what information was obtained about warfare

24 Michael L. Wilson and Richard W. Wrangham, 'Intergroup Relations in Chimpanzees', *Annual Review of Anthropology* 32 (2003), 363–92; Richard W. Wrangham, 'Chimpanzee Violence is a Serious Topic: A Response to Sussman and Marshak's Critique of "Demonic Males: Apes and the Origins of Human Violence" [Wrangham and Peterson 1996]', *Global Nonkilling Working Papers* 1 (2010), 29–47; Richard W. Wrangham and Luke Glowacki, 'Intergroup Aggression in Chimpanzees and War in Nomadic Hunter-Gatherers: Evaluating the Chimpanzee Model', *Human Nature* 23.1 (2012), 5–29; Richard W. Wrangham, Michael L. Wilson and Martin N. Muller, 'Comparative Rates of Violence in Chimpanzees and Humans', *Primates* 47 (2006), 14–26.

was from stories about the past rather than direct observation. Also, virtually all forager societies that have been studied by ethnographers have had their numbers drastically reduced due to diseases and other impacts. They have also obtained new tools such as metal knives, guns, axes and cooking vessels. These two factors greatly changed their relationship to their carrying capacities: lower numbers and more efficient tools made them much less near the carrying capacity compared with pre-contact times.

By the time ethnographies of virtually all foraging societies were done, there had been a shift in their carrying capacities either through reduced population or by access to new technology. If warfare is the result of, or strongly related to, competition over resources, then the picture of warfare that emerges in these ethnographies is not at all the same as what it would have been when these foragers were living only among other foragers.

Examples occur in Australia, California, and among non-complex farmers such as the Mountain Arapesh of New Guinea. In the classic case of the Mountain Arapesh, Margaret Mead maintained they were and had been peaceful, yet there is solid evidence that no more than a generation earlier they had engaged in substantial warfare, thus demonstrating the problem that arises involving warfare with all such studies.²⁵ Thus research by university-trained anthropologists of the twentieth century is much less useful for understanding forager warfare than the early accounts of explorers, missionaries and patrol officers. Such early historic and ethnographic data on the Alaskan Iñupiaq and Aboriginal Australians can be extremely enlightening.²⁶ These early accounts have the potential for bias and lack of completeness and must be used with caution, but such is the case with all data. It appears that the failure to comprehend the problems with recent, twentieth-century ethnographic studies renders the opinions of people like Douglas Fry and Brian Ferguson about peaceful societies virtually worthless.

Genetic Consequences of Warfare

Given the current limitations on our ability to understand the evolutionary impact of ancient warfare, are evolutionary inferences currently somewhat

25 Paul Roscoe, 'Margaret Mead, Reo Fortune, and Mountain Arapesh Warfare', *American Anthropologist* 105 (2003), 581–91.

26 Ernest S. Burch Jr, *Alliance and Conflict: The World System of the Iñupiaq Eskimos* (Lincoln: University of Nebraska Press, 2005); John Morgan, *The Life and Adventures of William Buckley: Thirty-Two Years a Wanderer* (1852) (Canberra: Australian National University Press, 1979).

limited? What should be the most obvious but in fact is often overlooked are the differences between males and females that are likely attributable to their different roles in warfare. The obvious difference of sexual dimorphism, usually attributed to mate competition, is equally explained by male inter-group conflict. In addition, there are also behaviour differences of some magnitude. Behavioural differences are considered by Joyce Benenson, who argues that males are genetically programmed for fighting and competing, as well as cooperating with small groups of other males. In contrast, females are programmed to survive in a dangerous world and are especially focused on ensuring their children will survive. These two evolutionary responses reflect different selective pressures.²⁷

There are alleles for a few genes that might have had their frequencies selected due to warfare. The most obvious and famous is the unfortunately named 'warrior' gene. No studies of such potential genetic impacts have been taken very far, and none to my knowledge has looked at such genes through time using ancient DNA. This is an area of research that is likely to see great changes in the not too distant future. We can hope that the researchers will be careful in their interpretations and that society in general is sophisticated about such research and does not condemn it out of hand for failing to be 'politically correct'.

Another question is to what extent is warfare rational, innate or irrational? Overall, we find several lines of evidence for very rational behaviour in leaderless warfare; for example, there is evidence that warfare can end quite abruptly when conditions change. In particular, the intensity of warfare does correlate with climate. This is best seen in the archaeological record where there is significant time depth. A very good example is from North America. Here, conditions favouring population growth seem to have existed during the Medieval Warm Period, and the carrying capacity appears to have been substantially reduced during the subsequent Little Ice Age. The result was a great increase in warfare over most of the continent, with a population crash in the American south-west and with intense warfare in the south-east that involved large, empty buffer zones between polities.²⁸ Thus, we have evidence that some component of warfare is innate based on different genetic propensities between men and women best explained by male-focused warfare as discussed above; some is rational as we can see from the climate change data, and we all know of its irrational aspects.

27 Joyce F. Benenson, *Warriors and Worriers: The Survival of the Sexes* (New York: Oxford University Press, 2014).

28 LeBlanc, *Prehistoric Warfare*; Milner, 'Warfare'.

Intra-societal Violence versus Warfare

As noted, it is hard sometimes to distinguish between intra-societal violence and inter-group warfare among small-scale societies. For such societies, we have considerable ethnographic evidence but not much information derived from early contact. Archaeological evidence of intra-societal violence (almost solely in the form of skeletal trauma) is hard to separate from evidence for warfare. Ethnographic evidence is almost always collected in an environment in which there is no warfare. Thus, intra-societal conflict appears to be the dominant form of conflict in more modern ethnographies. This can be seen for foragers such as the !Kung or the Netsilik Eskimo, for which ethnographies contain considerable evidence for intra-societal conflict but do not discuss warfare because it had ceased before the ethnographers were on the scene.²⁹

Most early historic accounts do not benefit from writers having had the close interactions that ethnographers do, and so they almost always describe inter-group violence. As a result, they provide us with little useful information on intra-group violence. For example, William Buckley discusses warfare extensively among Australian Aborigines, but barely mentions intra-societal conflict.³⁰ Similarly, Burch, in his reconstruction of Iñupiaq conflict before meaningful European contact, focuses on inter-group fighting but sees any intra-societal conflict as not nearly as important.³¹

These differences are probably extremes. The Yanomamo exhibit an interesting mix. There is ample real warfare with the usual high death rates. There are conflicts between allied groups where presumed allies are invited to feasts, then attacked and killed. Which is this: warfare or intra-societal conflict? Then there are axe fights where fighting among the men of the same village takes place and heavy dangerous blows are exchanged. Yet, there is a strong attempt to make sure no one gets killed. Murders seem to be impulsive and not pre-planned; or, at least, not hidden. Thus, where the information is rich, like among the Yanomamo, one finds useful information on actual warfare, on conflict between groups that is not quite warfare, and on intra-community-controlled violence.

29 Asen Balikci, *The Netsilik Eskimo* (Garden City, NY: Natural History Press, 1970); Irenäus Eibl-Eibesfeldt, 'Aggression in the !Ko-Bushmen', in M. A. Nettlehip and R. Dale Givens (eds.), *War, Its Causes and Correlates* (The Hague: De Gruyter Mouton, 1975), pp. 281–96; Richard Borshay Lee, *The !Kung San: Men, Women and Work in a Foraging Society* (Cambridge: Cambridge University Press, 1979); Knud Rasmussen, *The Netsilik Eskimos: Social Life and Spiritual Culture*, Report of the Fifth Thule Expedition 8.1–2 (Copenhagen: Gyldendalske Boghandel, Nordisk Forlag, 1931).

30 Morgan, *Life and Adventures of Buckley*. 31 Burch, *Alliance and Conflict*.

A final form of intra-societal violence that is very significant is the collective killing of one male by the other males of the group. The rationale for such killings seems to be that the male singled out for killing has become so violent and dangerous that he must be eliminated in order to protect the group from further episodes of unnecessary intra-group violence or dominating behaviour. As far as one can tell, such individuals are typically very good warriors. They seem to authenticate their value to the community by displaying their fighting ability. They bully and injure or kill other males in the group, they likely access other men's women (although that is likely played down in the accounts of such incidents to the recorders), and their behaviour is so intolerable that they become more dangerous to the community than their value as a good warrior warrants. Because they are dangerous, killing them needs to be done carefully. Moreover, if not done properly, their relatives may feel it was unjust and seek revenge. In some cases, the community instructs the individual's close relatives to kill him in order to eliminate any basis for revenge. In others, it is a community act. There is one account given to me directly by a Yanomamo tribesman visiting the United States of a Yanomamo dangerous warrior who, it is decided, must be killed. He is tricked into climbing a tree, and by necessity leaves his weapons behind. As he climbs down, weaponless, he is beset by all the males and killed.

Feuding

Posing great danger to a society are family or lineage feuds.³² These feuds seem to take place in societies larger than forager bands. They are most common among tribally organised groups. Since tribes can split and reform, feuds tend to be intermediate forms of conflict. What might begin as an intra-group feud or revenge situation might evolve into a social split in which the original unit becomes two competing units. Feuds can last over generations and obviously weaken the overall society's ability to repel external enemies. Thus, mechanisms will exist to control or eliminate them. One solution is to force the payment of indemnity for past violence in order to end a feud. This is a large topic that is not covered further here, but it is an example of violence that tends to bridge the gap between personal violence and warfare.

³² Christopher Boehm, *Blood Revenge: The Enactment and Management of Conflict in Montenegro and Other Tribal Societies* (Philadelphia: University of Pennsylvania Press, 1986).

In all these cases, the goal of the society at large is to minimise intra-group violent behaviour. On the one hand, others may fear getting involved or becoming victims, and, obviously, dead males and males that are prone to violence against each other do not make for a strong defence. This is important because among small-scale societies offensive action is usually undertaken by part of the group, whereas defence is undertaken by all. Every effort would be made to maximise each individual's defensive abilities, since failure to do so jeopardises all. Thus, male intra-group violence is an existential threat to all.

Finding Violence in the Deep Past

The further one goes back in time, the more difficult it becomes to make these distinctions between intra-group violence and warfare. On the one hand, the only evidence one recovers for intra-group violence is evidence of wounds, so it must be grossly underestimated. Warfare among complex societies generates evidence such as shields, armour and site locations. Members of less complex societies are not very likely to bring bodies killed in warfare away from the community back to the community for burial. Shields and armour would have been made from perishable materials in such societies. Thus, our ability to recognise violence in the past diminishes as societies become less complex. This is even more the case for warfare deaths than it is for intra-societal violence. The famous Ötzi Tyrolean Iceman mummy was killed almost certainly in warfare, was not buried, and was preserved only by extreme circumstances. Little of his weaponry would have been preserved in a typical archaeological context. Similarly, the famous Kennewick Man of North America, who had a spear-point in him, was also not buried within a community and most likely was not formally buried at all. In contrast, an individual who suffered various non-lethal wounds inflicted either as the result of warfare or intra-societal violence but who died from another cause and was buried in the community would be likely found by archaeologists.

The unavoidable errors associated with being unable to recognise all warfare deaths in skeletal remains and studying only skeletal remains of individuals who were buried compound to result in an underestimation of warfare. This underestimation is further compounded as we go back in time, as skeletons are less complete and a smaller number of people had formal burials. Thus, as we go back in time, the evidence for violence suggests it was less lethal and less likely the result of warfare.

A similar problem exists with ambiguous skeletal evidence of violence in female remains. There is evidence of intra-community violence among women who held low social status.³³ There is also other evidence of violent deaths among women that seem to be from warfare, for example in California.³⁴ In these cases, the incidence always seems to be lower than that for men, which is not surprising given that most inter-community warfare is between men, and women are often captured and not killed in warfare. In fact, one of the goals in some warfare is to capture women for wives. However, some women are killed in warfare, and so again the presence of skeletal evidence of violence does not necessarily demonstrate unequivocally either the existence of warfare or intra-societal violence.

The Future of Research

Where do we go from here? Often in the field of archaeology particularly well-developed case studies can provide the type of in-depth analysis and interpretation that can lead to the proposal of new models and the posing of new questions. These cases do not have to be definitive, but they can be useful if they lead to further testing and alternative model building. Keeley's argument for warfare between foragers and Linearbandkeramik (LBK) farmers in northern Europe at the beginning of the Neolithic is a good example.³⁵ Just laying out the case for warfare and the nature of the extant data can, in some areas, be a useful advance, an example being exploring the evidence for warfare in the early Greek Neolithic.³⁶ A number of recent edited volumes have taken this approach.³⁷ However, it appears that some of these papers do not provide enough data to convince researchers that these directions should be pursued, or they do not become mainstream examples read by students at large. This is a fertile field for which much evidence has not yet been pulled together.

At the same time, there have been few studies that look at regional or temporal transects of warfare. While such research is hard to carry out, it will be vital in helping to fix warfare's role in human history. We need more well-controlled time sequences. If we want to determine the role of climate

33 Debra L. Martin 'Violence against Women in the La Plata River Valley (AD 1000–1300)', in Martin and Frayer (eds.), *Troubled Times*, pp. 45–76.

34 Lambert, 'Patterns of Violence'.

35 Lawrence H. Keeley and Daniel Caben, 'Early Neolithic Forts and Villages in NE Belgium: A Preliminary Report', *Journal of Field Archaeology* 16.2 (1989), 157–76.

36 Runnels et al., 'Warfare in Neolithic Thessaly'.

37 Allen and Jones, *Re-examining a Pacified Past*; Arkush and Allen, *Archaeology of Warfare*.

change or socio-political shifts in increases or decreases in warfare, we need to have long enough time sequences where we can estimate the level of warfare. This has been attempted for periods for which we have written records, and it has proved difficult enough.³⁸ It has been attempted for prehistoric areas in California and perhaps among the Maya, but for most areas of the world the prehistoric record has not been dealt with in a systematic enough way to allow for meaningful comparisons over long time spans.

Finally, and perhaps most importantly, we need to get beyond arguments around whether or not there was warfare. Once one defines a time frame that is long enough to allow meaningful statements (anything less than 100 to 200 years simply does not allow for very meaningful statements), and defines an area large enough to contain a society and its neighbours, the answer is, yes, there was warfare. Even the Egyptian kingdoms had warfare on their boundaries and fell into chaos with conflict between kingdoms. And Egypt was an exception for its level of peacefulness, just as Japan was for several centuries in the Tokugawa period. It is why warfare essentially ceased in such cases as these that is of interest. It is only by looking at a time frame long enough to see a change from warfare to peace (and too often, or almost always) back to warfare again, that we can move our understanding ahead. Simply to note that peace did prevail in a short time or space tells us nothing we do not know about the human condition.

Bibliographic Essay

Early suggestions that the past was not as peaceful as was typically portrayed were put forward by Irenäus Eibl-Eibesfeldt in 'Aggression in the !Ko-Bushman', in Martin A. Nettle and R. Dale Givens (eds.), *War, Its Causes and Correlates* (The Hague: De Gruyter Mouton, 1975), pp. 281–96, and *The Biology of Peace and War: Men, Animals and Aggression* (New York: Viking, 1979); and by David Webster in 'Warfare and the Evolution of the State: A Reconsideration', *American Antiquity* 40. 4 (1975), 464–70. Recent thinking about prehistoric warfare really began with Lawrence H. Keeley and his book *War before Civilization: The Myth of the Peaceful Savage* (Oxford: Oxford University Press, 1996).

This rethink spawned a number of more specific studies, such as those in Mark W. Allen and Terry L. Jones's edited volume, *Violence and Warfare among Hunter-Gatherers* (Walnut Creek, CA: Left Coast Press, 2014), and Patricia M. Lambert's 'The Archaeology of War: A North American Perspective', *Journal of Archaeological Research* 10.3 (2002), 207–41. Several new syntheses of the extent, great time depth, deadliness and relevance of ancient warfare also appeared, including Azar Gat's extensive *War in Human Civilization*

³⁸ Turchin, 'Warfare'.

(Oxford: Oxford University Press, 2006) and my own more general treatment (with Katherine E. Register), *Constant Battles: The Myth of the Peaceful, Noble Savage* (New York: St Martin's Press, 2003).

New data and their interpretation have given rise to approaches exploring the evolution of altruism (Samuel Bowles, 'Did Warfare among Ancestral Hunter-Gatherers Affect the Evolution of Human Social Behaviors?', *Science* 324.5932 (2009), 1293–8) and modelling social change (Peter Turchin, 'Warfare and the Evolution of Social Complexity: A Multilevel-Selection Approach', *Structure and Dynamics* 4.3 (2010), 1–37, and *War and Peace and War: The Life Cycles of Imperial Nations* (New York: Pi Press, 2005), as well as Paul Roscoe, 'Intelligence, Coalitional Killing, and the Antecedents of War', *American Anthropologist* 109.3 (2007), 485–95).

It has also opened new interest by evolutionary psychologists: Joyce F. Benenson with Henry Markovits, *Warriors and Worriers* (New York: Oxford University Press, 2013); Todd K. Shackelford and Randal D. Hansen (eds.), *The Evolution of Violence* (New York: Springer, 2014) and led to provocative comparisons with chimpanzee conflict (Dale Peterson and Richard Wrangham, *Demonic Males: Apes and the Origins of Human Violence* (Boston: Houghton-Mifflin, 1997)).

Several anthropologists have offered different interpretations of the time depth, universality and deadliness of warfare in the past: Raymond C. Kelly, *Warless Societies and the Origin of War* (Ann Arbor: University of Michigan Press, 2000); R. Brian Ferguson and Neil L. Whitehead (eds.), *War in the Tribal Zone: Expanding States and Indigenous Warfare* (Santa Fe, CA: School of American Research Press, 1992); Keith F. Otterbein, *How War Began* (College Station: Texas A&M University Press, 2004); Douglas P. Fry, *Beyond War: The Human Potential for Peace* (Oxford: Oxford University Press, 2007) and more recently Douglas P. Fry, 'Life without War', *Science* 336.6083 (2012), 879–84. This debate is far from finished.