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*War may not be in our nature after all*



Do people, or perhaps just males, have an evolved predisposition to kill members of other groups? Not just a capacity to kill but an innate propensity to take up arms, tilting us toward collective violence? The word “collective” is key. People fight and kill for personal reasons, but homicide is not war. War is social, with groups organized to kill people from other groups. Today controversy over the historical roots of warfare revolves around two polar positions. In one, war is an evolved propensity to eliminate any potential competitors. In this scenario, humans all the way back to our common ancestors with chimpanzees have always made war. The other position holds that armed conflict has only emerged over recent millennia, as changing social conditions provided the motivation and organization to collectively kill. The two sides separate into what the late anthropologist Keith Otterbein called hawks and doves. (This debate also ties into the question of whether instinctive, warlike tendencies can be detected in chimpanzees [see sidebar below].)

If war expresses an inborn tendency, then we should expect to find evidence of war in small-scale societies throughout the prehistoric record. The hawks claim that we have indeed found such evidence. “When there is a good archaeological picture of any society on Earth, there is almost always also evidence of warfare.... Twenty-five percent of deaths due to warfare may be a conservative estimate,” wrote archaeologist Steven A. LeBlanc and his co-author Katherine E. Register. With casualties of that magnitude, evolutionary psychologists argue, war has served as a mechanism of natural selection in which the fittest prevail to acquire both mates and resources.

This perspective has achieved broad influence. Political scientist Francis Fukuyama wrote that the roots of recent wars and genocide go back for tens or hundreds of thousands of years among our hunter-gatherer ancestors, even to our shared ancestor with chimpanzees. Bradley Thayer, a leading scholar of international relations, argues that evolutionary theory explains why the instinctual tendency to protect one's tribe morphed over time into group inclinations toward xenophobia and ethnocentrism in international relations. If wars are natural eruptions of instinctive hate, why look for other answers? If human nature leans toward collective killing of outsiders, how long can we avoid it?

The anthropologists and archaeologists in the dove camp challenge this view. Humans, they argue, have an obvious capacity to engage in warfare, but their brains are not hardwired to identify and kill outsiders involved in collective conflicts. Lethal group attacks, according to these arguments, emerged only when hunter-gatherer societies grew in size and complexity and later with the birth of agriculture. Archaeology, supplemented by observations of contemporary hunter-gatherer cultures, allows us to identify the times and, to some degree, the social circumstances that led to the origins and intensification of warfare.

### When Did It Begin?

In the search for the origins of war, archaeologists look for four kinds of evidence. The artwork on cave walls is exhibit one. Paleolithic cave paintings from Grottes de Cougnac, Pech Merle and Cosquer in France dating back approximately 25,000 years show what some scholars perceive to be spears penetrating people, suggesting that people were waging war as early as the late Paleolithic period. But this interpretation is contested. Other scientists point out that some of the incomplete figures in those cave paintings have tails, and they argue that the bent or wavy lines that intersect with them more likely represent forces of shamanic power, not spears. (In contrast, wall paintings on the eastern Iberian Peninsula, probably made by settled agriculturalists thousands of years later, clearly show battles and executions.)

Weapons are also evidence of war, but these artifacts may not be what they seem. I used to accept maces as representing proof of war, until I learned more about Near Eastern stone maces. Most have holes for handles so narrow they could not survive one blow in battle. Maces also symbolize authority, and established rule can provide a way to resolve conflict without resorting to war. On the other hand, it is perfectly possible to go to war *without* traditional weapons: in southern Germany around 5000 B.C., villagers were massacred with adzes that were also used to work wood.

Beyond art and weapons, archaeologists look to settlement remains for clues. People who fear attack usually take precautions. In the archaeological record, we sometimes see people who lived in scattered homes on low flatlands shifted to nucleated defensible villages. Villages across Neolithic Europe were surrounded by mounded enclosures. But not all these enclosures seem designed for defense. Some may mark off distinct social groups.

Skeletal remains would seem ideal for determining when war began, but even these require careful assessment. Only one of three or four projectile wounds leaves a mark on bone. Shaped points made of stone or bone buried with a corpse are sometimes ceremonial, sometimes the cause of death. Unhealed wounds to a single buried corpse could be the result of an accident, an execution or a homicide. Indeed, homicide may have been fairly common in the prehistoric world—but homicide is not war. And not all fights were lethal. In some burial sites, archaeologists frequently find skulls with healed cranial depressions but few that caused death. The findings suggest fights with clubs or other nonlethal resolution of personal disputes, as is common in the ethnographic record. When the skulls are mostly from females, fractures may reflect domestic violence.

The global archaeological evidence, then, is often ambiguous and difficult to interpret. Often different clues must be pieced together to produce a suspicion or probability of war. But dedicated archaeological work—multiple excavations with good material recovery—should be able to conclude that war is at least suspected.

TRACES of war more than 5,000 years ago appear in an enhanced image of rock-shelter art found on the Iberian Peninsula. Credit: "Identification of Plant Cells in Black Pigments of Prehistoric Spanish Levantine Rock Art by Means of a Multi-Analytical Approach: A New Method for Social Identity Materialization Using *Chaîne Opératoire*," by Esther López-Montalvo et al., in *PLOS ONE*, Vol. 1, No. 2, Article No. E0172225; February 16, 2017

On balance, though, are there really indications that humans have been waging war for the entire history of the species? If your sample consists of cases known for high frequencies of perimortem wounds (those occurring at or near the time of death), the situation looks pretty bad. That is how figures such as 25 percent of deaths by violence are derived. Misconceptions result, however, because of cherry-picking by popular media. Any discovery of ancient killings grabs headlines. The news items ignore innumerable excavations that yield no signs of violence. And a comprehensive screening of reports from a particular area and time period, asking how many, if any, show even hints of war, paints an entirely different picture. War is hardly ubiquitous and does not go back endlessly in the archaeological record. Human warfare did indeed have a beginning.

## The First Hostilities

Many archaeologists venture that war emerged in some areas during the Mesolithic period, which began after the last Ice Age ended around 9700 B.C., when European hunter-gatherers settled and developed more complex societies. But there really is no simple answer. War appeared at different times in different places. For half a century archaeologists have agreed that the multiple violent deaths at Jebel Sahaba along the Nile in northern Sudan occurred even earlier, around 12,000 B.C. There severe competition among settled hunter-gatherer groups in an area with once rich but declining food sources may have led to conflict.

At a slightly later time, settlements, weapons and burials in the northern Tigris suggest war involving settled villages of hunter-gatherers between 9750 and 8750 B.C. Nearby, the earliest known village fortifications occurred among farming people in the seventh millennium, and the first conquest of an urban center took place between 3800 and 3500 B.C. By that date, war was common across Anatolia, spread in part by conquering migrants from the northern Tigris.

In stark contrast, archaeologists have found no persuasive evidence in settlements, weapons or skeletal remains in the southern Levant (from Sinai to southern Lebanon and Syria) dating to before about 3200 B.C. In Japan, violent deaths from any cause are rare among hunter-gatherer groups from 13,000 to 800 B.C.

With the development of wet rice farming around 300 B.C., violent fatalities became apparent in more than one in 10 remains. In well-studied North American sites, some very early skeletal trauma seems the result of personal rather than collective conflicts. A site in Florida contained evidence of multiple killings about 5400 B.C. In parts of the Pacific Northwest, the same occurred by 2200 B.C., but in the southern Great Plains, only one violent death was recorded before A.D. 500.

## Why Did It Happen?

The preconditions that make war more likely include a shift to a more sedentary existence, a growing regional population, a concentration of valuable resources such as livestock, increasing social complexity and hierarchy, trade in high-value goods, and the establishment of group boundaries and collective identities. These conditions are sometimes combined with severe environmental changes. War at Jebel Sahaba, for one, may have been a response to an ecological crisis, as the Nile cut a gorge that eliminated productive marshlands, eventually leading to human abandonment of the area. Later, centuries after agriculture began, Neolithic Europe—to take one example—demonstrated that when people have more to fight over, their societies start to organize themselves in a manner that makes them more prepared to go ahead and embrace war.

There are limits, however, to what archaeology can show, and we must seek answers elsewhere. Ethnography—the study of different cultures, both living and past—illustrates these preconditions. A basic distinction is between “simple” and “complex” hunter-gatherer communities.

Simple hunting and gathering characterized human societies during most of humanity's existence dating back more than 200,000 years. Broadly, these groups cooperate with one another and live in small, mobile, egalitarian bands, exploiting large areas with low population density and few possessions.

Complex hunter-gatherers, in contrast, live in fixed settlements with populations in the hundreds. They maintain social rankings of kin groups and individuals, restrict access to food resources by lines of descent and have more developed political leadership. Signs of such social complexity first appeared during the Mesolithic. The appearance of complex hunter-gatherers can sometimes but not always mark a transitional stage to agriculture, the basis for the development of political states. These groups, moreover, often waged war.

The preconditions for war are only part of the story, however, and by themselves, they may not suffice to predict outbreaks of collective conflicts. In the Southern Levant, for instance, those preconditions existed for thousands of years without evidence of war.

Why, though, was there an absence of conflict? It turns out that many societies also have distinct preconditions for peace. Many social arrangements impede war, such as cross-group ties of kinship and marriage; cooperation in hunting, agriculture or food sharing; flexibility in social arrangements that allow individuals to move to other groups; norms that value peace and stigmatize killing; and recognized means for conflict resolution. These mechanisms do not eliminate serious conflict, but they do channel it in ways that either prevent killing or keep it confined among a limited number of individuals.

If this is so, why then are later archaeological findings, along with explorers' and anthropologists' reports, so full of deadly warfare? Over millennia preconditions of war became more common in more places. Once established, war has a tendency to spread, with violent peoples replacing less violent ones. States evolved

around the world, and states are capable of militarizing peoples on their peripheries and trade routes. Environmental upheavals such as frequent droughts aggravate and sometimes generate conditions that lead to war, and peace may not return when conditions ease. Particularly notable was the intensification of the Medieval Warm period, from roughly A.D. 950 to 1250, and its rapid transformation into the Little Ice Age beginning around A.D. 1300. In that period war increased in areas across the Americas, the Pacific and elsewhere. In most of the world, war was long established, but conflicts worsened, with mounting casualties tallied.

Then came European global expansion, which transformed, intensified and sometimes generated indigenous war around the world. These confrontations were not just driven by conquest and resistance. Local peoples began to make war on one another, drawn into new hostilities by colonial powers and the commodities they provided.

Interaction between ancient and recent expanding states, and the ensuing conflicts, encouraged formation of distinctive tribal identities and divisions. Areas still beyond colonial control underwent changes impelled by longer-distance effects of trade, disease and population displacement—all of which led to wars. States also stirred up conflict among local peoples by imposing political institutions with clear boundaries rather than the amorphous local identities and limited authorities they often encountered in their colonial forays.

Scholars often seek support for the idea that human willingness to engage in deadly group hostilities predated the rise of the state by looking for evidence of hostilities in “tribal zones,” where “savage” warfare seems endemic and is often seen as an expression of human nature. But a careful examination of ethnographically known violence among local peoples in the historical record provides an alternative perspective.

Hunter-gatherers of northwestern Alaska from the late 18th through the 19th centuries demonstrate the fallacy of projecting ethnography of contemporary peoples into humanity's distant past. Intense war involving village massacres lingers in detailed oral traditions. This deadly violence is cited as evidence of war by hunter-gatherers before disruption by expanding states.

Archaeology, however, combined with the history of the region, provides a very different assessment. There are no hints of war in early archaeological remains in the simple cultures of Alaskan hunter-gatherers. The first signs of war appear between A.D. 400 to 700, and they are probably the result of contact with immigrants from Asia or southern Alaska, where war was already established. But these conflicts were limited in size and probably intensity.

With favorable climatic conditions by A.D. 1200, a growing social complexity developed among these whale hunters, with denser, more settled populations and expanding long-distance trade. After a couple of centuries, war became common. War in the 19th century, however, was much worse, so severe that it caused decline of the regional population. These later conflicts—the ones that show up in oral histories—were associated with state expansion as a massive trade network developed out of new Russian entrepôts in Siberia, and they led to extreme territoriality and centralization of complex tribal groups across the Bering Strait.

## **Not A Fact of Life**

Debate over war and human nature will not soon be resolved. The idea that intensive, high-casualty violence was ubiquitous throughout prehistory has many backers. It has cultural resonance for those who are sure that we as a species naturally tilt toward war. As my mother would say: “Just look at history!” But doves have the upper hand when all the evidence is considered. Broadly, early finds provide little if any evidence suggesting war was a fact of life.

People are people. They fight and sometimes kill. Humans have always had a capacity to make war, if conditions and culture so dictate. But those conditions and the warlike cultures they generate became common only over the past 10,000 years—and, in most places, much more recently than that. The high level of killing often reported in history, ethnography or later archaeology is contradicted in the earliest archaeological findings around the globe. The most ancient bones and artifacts are consistent with the title of Margaret Mead's 1940 article: “Warfare Is Only an Invention—Not a Biological Necessity.”

## **What About Our Chimp Cousins?**

Anthropologists are looking at whether closely related primates show an instinctive propensity toward group killing

Delving into the question of human predisposition to war often involves looking beyond our species to examine the experiences of our chimpanzee relatives. This is a topic I have been studying for many years, and I am now finishing the writing of a book about it, *Chimpanzees, "War," and History*. I put quotes around "war" because intergroup conflict among chimps, though sometimes collective and deadly, lacks the social and cognitive dimensions essential to human war.

Human warfare involves opponents that often include multiple local groups that may be unified by widely varying forms of political organization. War is fostered by culturally specific systems of knowledge and values that generate powerful meanings of "us versus them." These social constructs have no primate analogies. Despite these distinctions, some scientists have argued that chimpanzees demonstrate an innate propensity to kill outsiders, inherited from the last common ancestor of chimps and people—an impulse that still subliminally pushes humans as well into deadly conflicts with those outside their communities.

My work disputes the claim that chimpanzee males have an innate tendency to kill outsiders, arguing instead that their most extreme violence can be tied to specific circumstances that result from disruption of their lives by contact with humans. Making that case has required my going through every reported chimpanzee killing. From this, a simple point can be made. Critical examination of a recent compilation of killings from 18 chimpanzee research sites—together amounting to 426 years of field observations—reveals that of 27 observed or inferred intergroup killings of adults and adolescents, 15 come from just two highly conflicted situations, which occurred at two sites in 1974–1977 and 2002–2006, respectively.

The two situations amount to nine years of observation, tallying a kill rate of 1.67 annually for those years. The remaining 417 years of observation average just 0.03 annually. The question is whether the outlier cases are better explained as evolved, adaptive behavior or as a result of human disruption. And whereas some evolutionary biologists propose that killings are explained as attempts to diminish the number of males in rival groups, those same data show that subtracting internal from external killings of males produces a reduction of outside males of only one every 47 years, fewer than once in a chimpanzee's lifetime.

From comparative case studies, I conclude that "war" among chimpanzees is not an evolved evolutionary strategy but an induced response to human disturbance. Case-by-case analyses will show that chimps, as a species, are not "killer apes." This research calls into question as well the idea that any human tendency toward bellicosity might be driven by an ancient genetic legacy from a distant ancestor of chimpanzees and humans.