



**Center for Academic Research & Training in Anthropogeny (CARTA)
Male Aggression and Violence in Human Evolution**

Friday, May 16, 2014 • Public Symposium

Chairs:

**Christopher Boehm, University of Southern California
Richard Wrangham, Harvard University**

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ABSTRACTS

Warfare and Feuding in Pleistocene Societies
Christopher Boehm, University of Southern California

Today's hunter-gatherers are used to portray likely patterns of male aggression among culturally-modern foragers in the Late Pleistocene epoch. Patterns of aggressive behavior are considered at three levels: within groups, between groups of the same ethnicity, and between groups that consider one another strangers.

Intergroup Violence: Chimpanzees and Lions
Anne Pusey, Duke University

Some mammals live in permanent social groups that occupy and aggressively defend the same area for generations. Like many mammals, female lions generally remain for life in their natal pride. Males leave their pride before breeding and attempt to take over another pride by fighting and evicting the resident males, evicting subadults, and killing cubs. Infanticide hastens the resident females' return to sexual receptivity, allowing the new males to sire their own cubs more quickly. Once resident, males assist females in defending the territory, even against females from neighboring prides. In chimpanzees, as in many human societies, males remain for life in their natal community while most females transfer to other communities before breeding. Males actively patrol the group territory, engaging in aggressive contests with neighbors and sometimes killing infants, males, and even adult females. In both lions and chimpanzees, males cooperate in inter-group conflict with group-mates who are often relatives and with whom they maintain close, life-long social bonds. Evidence is mounting that successful intergroup aggression and killing results in better resources for group members in both species.

Neuroendocrine Mechanisms Underlying Male Aggression
Donald Pfaff, Rockefeller University

In free-living animals, aggressive behaviors by males often serve to maintain resources the male will need to attract and protect females. In many human cultures, the frequency of murders of males by unrelated males depends on age. Young men between the ages of approximately 13 and 20 tend to be the most violent. That is, as soon as testosterone arrives in significant concentrations in the brain and for years thereafter, violent aggression is more likely. In this public symposium, I will address two questions: First, how is it possible to increase testosterone-fueled aggressive behaviors? My four levels of answers to this question do not exclude each other: (1) higher testosterone concentrations; (2) higher concentrations of testosterone receptors; (3) adjustment of neuronal nuclear proteins to make testosterone receptors more effective; and (4) hooking up testosterone-facilitated neurons so that they trigger aggression more effectively. Second, what does testosterone do, exactly, in the nerve cell? Answer: it works through two routes in parallel, one route directly affecting gene expression in the nerve cell nucleus, and the other route initiated at the nerve cell membrane. Understanding all of these ways that testosterone fuels aggression may suggest antidotes: pharmacological, psychological and/or cultural.

Bioarchaeological Perspectives on Male Violence in Prehistory
Patricia Lambert, Utah State University

This talk examines the bioarchaeological evidence for violence and warfare in ancient California. Violent injuries in human skeletal remains provide one of the most compelling lines of evidence for violent conflict in prehistory. Injuries recorded in bodies, whether from clubs, spears, arrows or other weapons, enable the identification of victims and, by logical extension, the participants in physical acts of aggression. Using these data, it is possible to reconstruct levels and types of violence, as well as the demographics of those engaging in such activities. In the Santa Barbara Channel area of California, where these patterns are well documented, the injury data show considerable variability in rates of violence across time. This temporal patterning suggests that conditions in the physical and social environment play an important role in human propensity for violent aggression and war. Also evident in these data is a strong sex bias toward male victims, suggesting the differential engagement of adolescent and adult males in both sublethal and lethal forms of aggression. These and related archaeological data help to broaden our perspective on the causes of human violence and enhance our understanding of its evolutionary underpinnings.

Male Violence Among Aché and Hiwi Hunter-Gatherers
Kim Hill, Arizona State University

In order to understand how warfare and violence have shaped the natural history of our species, and perhaps favored adaptations that respond to this important life threat, we need to document what types of violence were common in our

ancestors and what were the levels of violent death in the past. Archeology has allowed us to detect some fraction of violent deaths in ancient people, and assign a rough percentage of all deaths due to violence. Observation on modern hunter-gatherers, who live under conditions similar to our ancestors, provides another important source of information. However, because we can directly observe and interview living hunter-gatherers, we are able to obtain much more precise estimates of violent death rates than can be obtained via archeological interpretation. Currently, there are five hunter-gatherer tribes from around the world whose death rates have been systematically studied. We worked with two of these tribes, the Aché of Paraguay and the Hiwi of Venezuela. We found that crude death rates from violence approached 1% per year, and that a third to a half of all deaths in these societies were due to human violence. Because many killings involve coalitions of individuals in conflict with other coalitions, the threat of violent death may be a major force in favoring mechanisms of cooperation within human groups.

Resource Unpredictability, Socialization, and War
Carol Ember, Yale University

Until we understand the conditions that increase or decrease the likelihood of conflict, it is difficult to imagine how we would create a more peaceful world that many yearn for. The research I describe today is the culmination of decades-long research that tested a variety of theories about warfare and other forms of violence in a sample of 186 societies. Many of the theories of warfare assumed to be plausible fell short, such as the idea that war becomes more likely with agriculture and political complexity. Resource scarcity, particularly unpredictable scarcity such as drought, is a particularly strong predictor of more warfare. Warfare is not an isolated form of violence; indeed warfare is correlated with many other types of violence. There is suggestive evidence that warfare may be central to this pattern by not only legitimizing violence, but also by encouraging young boys to be aggressive to prepare them for their future as warriors. Are these results relevant to the world today? Much of the violence today is ethnic violence and some recent analyses of contemporary violence in eastern Africa support the link between conflict and resource scarcity.

Violence: What's Culture Got to do With It?
Polly Wiessner, University of Utah

All humans have the capacity for aggression and reconciliation. However, it is cultural institutions that harness aggression by shaping cognition, corresponding emotions and defining appropriate responses. A central question then arises: How do different societies devise cultural institutions to channel aggression and how these institutions work to their benefit or detriment in the long run? After all, management of violence has been a crucial factor in the rise and fall of groups throughout human evolution. In this talk, cultural institutions related to aggression and violence and their outcomes will be compared between two very different societies: Ju/'hoan hunter-gatherers of the Kalahari and Enga horticulturalists of Papua New Guinea. I will try to show "what culture has to do with it" and demonstrate real consequences.

The Parallel Evolution of Humanity and Savagery
Richard Wrangham, Harvard University

Human male violence is paradoxical. On the one hand, within social groups there is a strong tendency for avoidance of direct conflicts such that confrontations between angry individuals or groups normally end without serious harm. On the other hand, our species has a consistent history of intense deliberate violence, ranging from planned homicides and low-level and long-lasting warfare among nomadic hunter-gatherers to massive intermittent conflicts among states. A common interpretation of this two-fold system holds that while low-level confrontational aggression is an understandable consequence of our biology, deliberate violence comes from non-evolutionary sources such as evil individuals or ideologies, novel contexts, or cognitive failures. Here, by contrast, I show that the combination of aggression styles is better understood as being due to two neurobiologically distinct patterns that have been subject to contrasting selective regimes. By comparison with chimpanzees, reactive (or 'hot', impulsive) aggression is down-regulated in humans, whereas proactive (or 'cold', premeditated) aggression has been subject to positive selection. I suggest specific explanations for each trend. The combination of these two styles of aggression makes humans well adapted for both war and avoidance of war.

Do Hunter-Gatherers Tell Us About Human Nature?
Robert Kelly, University of Wyoming

When many people want to discover the core of human nature, they turn to those people who allegedly are or represent humanity's original condition, hunter-gatherers. Do hunter-gatherers have a special ability to reveal human nature? We will examine this question by focusing on the issue of violence: do hunter-gatherers say that we are inherently predisposed to violence, or to peaceful cooperation? Trying to answer this question raises a more general one: is there such a thing as human nature?