Richard B. Lee
Hunter-Gatherers and Human Evolution
New light on old debates
August 3, 2018

http://libcom.org/history/hunter-gatherers-human-evolution-new-light-old-debates-richard-b-lee

usa.anarchistlibraries.net

Hunter-Gatherers and Human Evolution

New light on old debates

Richard B. Lee

August 3, 2018

Contents

PINKER'S SOURCES: THE BELLICOSE SCHOOL VERSUS THE PEACE AND HARMONY MAFIA 9
A PREHISTORIC VALE OF TEARS? 11
Ethnography of Foraging Peoples: The Historically Nomadic Foragers and Others . . 12
Are There Warlike HNFs [Historically Nomadic Foragers]? 13
WARFARE IN HUNTER-GATHERER PREHISTORY 14
NOT A KILLER APE AFTER ALL? BUILDING BETTER EVOLUTIONARY MODELS WITH HUNTER-GATHERER DATA 17
CORE FEATURES OF HNFs AND THEIR SIGNIFICANCE FOR EVOLUTIONARY RECONSTRUCTION 19
Mobility 19
Territoriality, Kinship, and Residence Patterns 20
Sharing of Food and Work 20
Gender and Division of Labor 21
Conflict Management 21
Child-Rearing Practices 22
BRINGING WOMEN'S WORK AND CHILD-REARING TO THE CENTER OF HUMAN EVOLUTIONARY MODELING 23
CONCLUSIONS 27
APPENDIX 28
PINKER AND THE JU/'HOANSI/!KUNG CASE STUDY 28

LITERATURE CITED 29

Tonkinson R. 1979. *The Mardu Aborigines: Living the Dream in Australia's Desert.* New York: Harcourt
Toussaint S. 1999. Kimberley peoples of Fitzroy Valley, Western Australia. See Lee & Daly 1999, pp. 339–42
Turnbull C. 1973. *The Mbuti Pygmies: Change and Adaptation.* New York: Holt, Rinehart and Winston
Van der Dennen JMG. 2005. Querela pacis*: confession of an irreparably benighted researcher on war and peace. An open letter to Frans de Waal and the 'Peace and Harmony Mafia.'* Open Lett., Univ. Groningen
Wendorf F, ed. 1968. *The Prehistory of Nubia.* Dallas: SMU Press
Wiessner P. 1982. Risk, reciprocity and social influences in !Kung San economics. See Leacock & Lee 1982, pp. 61–84
WobstHM. 1978. The archeo-ethnology of hunter-gatherers, or the tyranny of the ethnographic record. *Am. Antiq.* 43:303–9
Woodburn J. 1968. Stability and flexibility in Hadza residential groupings. In *Man the Hunter*, ed. RB Lee, I DeVore, pp. 103–10. Chicago: Aldine
Woodburn J. 1982. Egalitarian societies. *Man* 17(3):431–51
Wrangham R. 2009. *Catching Fire: How Cooking Made Us Human.* New York: Basic Books
Wrangham R, Peterson D. 1996. *Demonic Males: Apes and the Origins of Human Violence.*New York:Houghton Mifflin
Zihlman A, Tanner N. 1978. Gathering and the hominid adaptation. In *Female Hierarchies*, ed. L Tiger, H Fowler, pp. 163–94. Chicago: Beresford
Zihlman AL. 1978. Women in Evolution Part II. Subsistence and social organization among early hominids. *Signs J. Women Cult. Soc.* 4:4–20

A perennial debate in anthropology has centered around the question of the degree of violence in human history. These discussions are part of a larger philosophical debate about the relative weight of competition/aggression versus cooperation/nonviolence in human evolution and, by implication, in human nature. Adherents of one or another view on this question often invoke evidence from hunter-gatherers, ancient and modern. But the hunter-gatherer data are often misread or twisted to conform to the theorist's preconceived agenda.

In this review article, I approach the issue from two perspectives. First, I examine the evidence, ethnographic and archaeological, for the argument that places hunter-gatherer violence and aggression at the center of theories of human evolution. And second, I take a fresh look at an old debate by drawing on other aspects of hunter-gatherer data that have stimulated exciting and innovative new thinking coming out of the world of human behavioral ecology and evolutionary theory, particularly the work of Hrdy (2009) and Narvaez (2014) and their colleagues and contemporaries.

Hunter-gatherer studies occupy a unique space in anthropology, straddling the borders between social and cultural anthropology, archaeology, and biological anthropology. Practitioners often made forays into adjacent subfields in pursuit of problems not easily contained within subdisciplines. Human evolution has been a particularly fraught problem area for hunter-gatherer specialists. While some scholars have invoked ethnographic data to bolster one or another specific position, others eschewed it on the grounds that placing hunter-gatherers in such comparisons steered dangerously close to the discredited evolutionism of nineteenth-century anthropology. Acutely aware of the pitfalls, I have spent most of my career in anthropology studying hunter-gatherers from strictly ethnographic, ecological, political, and historical perspectives (e.g., Lee 1979, Leacock & Lee 1982, Lee & Daly 1999, Lee 2016). However, crucial questions of human behavioral evolution

continue to draw the hunter-gatherer specialist into exciting but potentially murky waters.

As a cultural anthropology graduate student at the University of California, Berkeley, in the 1960s, it was my good fortune to be exposed to human evolutionary studies with Sherwood L. Washburn, African prehistory with J. Desmond Clark, hunter-gatherer ethnography and archaeology with Robert Heizer, and theories of kinship and social organization with Robert Murphy, later (briefly) a colleague at Columbia University. These diverse influences ensured that I would never be entirely comfortable with the rigid divisions between anthropology's subdisciplines and instead always be open to research problems that required analysts to cross boundaries and draw threads from two or more of these lines of inquiry.

Landing in 1963 in the northern Kalahari Desert with the Ju/'hoansi, then known as the !Kung Bushmen, demanded that I pursue an interdisciplinary approach. In one study, I conducted ethnography along classic Malinowskian lines, with kinship and marriage, subsistence and social organization, and politics and economic life at the center (Lee 1979). At the same time, through Washburn and Clark's influences, I stayed alert to the potential evolutionary significance of the !Kung data. Given that their way of life—hunting of wild game and gathering of wild foods—was once the universal mode of human existence, could the study of the !Kung and other modern hunter-gatherers offer clues and shed light on the conditions under which the human way of life originally evolved? Assessing the relative weight of violence and nonviolence in hunter-gatherers offered a particularly compelling point of entry. In the 1960s, the bio-evolutionary world was shaken by the publication of Konrad Lorenz's (1966) *On Aggression*, which painted a dark picture of mankind's propensity for violence. The gravity of the issues raised is illustrated in the following (true) story.

Senator William Fulbright of Arkansas, a brilliant US legislator in the 1960s and the founder of the scholarship program that

Power C, FinneganM, Callan H, eds. 2017. *Human Origins: Contributions from Social Anthropology*. New York/ Oxford, UK: Berghahn

RivalL. 1993. The growth of family trees:Huaorani conceptualization of nature and society. *Man* 28(4):635–52

RoebroeksW, ed. 2007. *Guts and Brains: An Integrative Approach to the Hominin Record*. Leiden: Leiden Univ. Press

RoksandicM, ed. 2004. *Violent Interactions in theMesolithic: Evidence and Meaning*. BAR Int. Ser. 1237. Oxford, UK: Archaeopress

Rousseau JJ. 2003 (1749). *On the Social Contract*, transl. GDH Cole. New York: Dover

Rowthorn R, Seabright P. 2010. *Property rights, warfare and the Neolithic transition*. IDEI Work. Pap. 654, Inst.

Econ. Ind., Toulouse, Fr. https://www.tse-fr.eu/sites/default/files/medias/doc/wp/io/10-207.pdf

Ryan C, Jetha C. 2010. *Sex at Dawn: HowWe Mate, WhyWe Stray, and What It Means for Modern Relationships*. New York: Harper

Scelza B, Bliege Bird R. 2008. Group structure and female cooperative networks in Australia's Western Desert.

Hum. Nat. 19:231–48 Sollas W. 1911. *Ancient Hunters and Their Modern Representatives*. London: McMillan

Steward J. 1938. *Basin Plateau Aboriginal Sociopolitical Groups*. Bull. Bur. Am. Ethnol. 120. Washington, DC: Smithson. Inst.

Sussman RW. 2013. Why the legend of the Killer Ape never dies: the enduring power of cultural beliefs to distort our view of human nature. See Fry 2013, pp. 97–111

Suttles W, ed. 1990. *Handbook of the North American Indians*, Vol. 7, *Northwest Coast*. Washington, DC: Smithson. Press

Suzman J. 2017. *AffluenceWithout Abundance: The Disappearing-World of the Bushmen*. New York: Bloomsbury

Tanner N. 1981. *On Becoming Human*. Cambridge, UK: Cambridge Univ. Press

Thomas EM. 1959. *The Harmless People*. New York: Knopf

Narvaez D. 2014. *Neurobiology and the Development of Human Morality: Evolution, Culture and Wisdom*. New York: Norton
NarvaezD,Panksepp J, SchoreAN, GleasonTR. eds. 2013. *Evolution, Early Experience and Human Development*. Oxford, UK/ New York: Oxford Univ. Press
Narvaez D, Valentino K, Fuentes A, McKenna JJ, Gray P, eds. 2014. Ancestral Landscapes in Human Evolution:
Culture, Childrearing and Social Wellbeing. Oxford, UK/ New York: Oxford Univ. Press
NeedhamR. 1954. The system of teknonyms and death-names of the Penan. *Southwest. J. Anthropol.* 10:416–31
Nichols RL. 2013. *Warrior Nations: The United States and Indian Peoples*. Norman: Univ. Okla. Press
Oka R, Kissel M, Golitko M, Sheridan SG, Kim NC, Fuentes A. 2017. Population is the main driver of war group size and conflict casualties. *PNAS* 114:E11101–10
Passarge S. 1907. *Die Buschmanner der Kalahari*. Berlin: Dietrich Reimer
Penn N. 2006. *The Forgotten Frontier: Colonist and Khoisan on the Cape's Northern Frontier in the 18th Century*. Athens: Ohio Univ. Press
Peterson JT. 1978. *The Ecology of Social Boundaries: Agta Foragers of the Philippines*. Ill. Stud. Anthropol. 11. Urbana: Univ. Ill. Press
Pike IL. 2004. The biosocial consequences of life on the run: a case study from Turkana district Kenya. *Hum. Organ.* 63(2):221–35
Pinker S. 2002. *The Blank Slate: The Modern Denial of Human Nature*. New York: Viking
Pinker S. 2007. *The surprising decline in violence*. TEDTalk Video, 19min 19 s, TED, New York. https://www. ted.com/talks/ steven_pinker_on_the_myth_of_violence
Pinker S. 2011. *The Better Angels of Our Nature: Why Violence Has Declined*. New York: Viking

bears his name, was just one public figure struggling to come to grips with the import of Lorenz's theses. I vividly remember the late Irven DeVore coming into my office at Harvard University. "I just got off the phone with Senator William Fulbright calling from Washington," DeVore said. "He asked me 'Professor DeVore, if Konrad Lorenz is right, how are we ever to negotiate a nuclear arms reduction treaty with the Soviet Union?'" DeVore reassured Fulbright that Lorenz's views were far from universally accepted among anthropologists, that violence in human history was a variable not a constant, and that its causes and expressions were far more complex than could be explained simply by pure animal instinct. DeVore's disclaimers appeared to calm Senator Fulbright's nerves, and in fact the United States and the Union of Soviet Socialist Republics (USSR) went on to successfully negotiate a series of nuclear arms reduction treaties over the years. Nevertheless, the question of violence in human history continued to animate the debate within anthropology, fueled by Robert Ardrey's "killer ape" hypothesis in his books *African Genesis* (Ardrey 1961) and *The Territorial Imperative* (Ardrey 1966). Interest was sustained by Napoleon Chagnon's (1968) influential ethnography of the "fierce" Yanomamo and more recently by the writings of Wrangham & Peterson (1996), such as *Demonic Males: Apes and the Origins of Human Violence*. I have labeled this persistent thread within anthropology and related disciplines as the "Bellicose School" (Lee 2014).

My own fieldwork in the 1960s and 1970s with the Ju/'hoansi-!Kung San of Botswana drew me into the controversy. As a young fieldworker, I was a great admirer of the Marshall family's work with !Kung people over the border in South West Africa, the ethnographies of Lorna Marshall (1957, 1961), the films of her son John Marshall (1973), and the writings of her daughter Elizabeth Marshall Thomas.

I read with great pleasure Liz Thomas's (1959) classic memoir of her family's time in the field entitled *The Harmless People*. Yet how was I to reconcile the title of her book with the evidence I was

gathering from my own fieldwork on the significant numbers of homicides committed by the !Kung? In all, colleagues and I documented some 25 homicides over a 50-year period. Given the small size of the base population, these numbers translated into homicide rates comparable in magnitude to rates in troubled American cities such as Chicago, Baltimore, and Detroit (Lee 1979, pp. 390–400).

Though no fan of the bellicose school, I was driven by a sense of scientific responsibility to publish these findings and criticize the otherwise admirable work of Marshall Thomas. I am happy to report that Elizabeth and I worked out our differences. She acknowledged the possible misdirection of her title and, as will become evident below, I came to appreciate the deeper truths contained in her reflections on !Kung life (see the Appendix titled 'Pinker and the Ju/'hoansi/!Kung Case Study' for a closer examination of the Ju/'hoansi-!Kung case to place their homicide rates into a broader context).

This controversy within the small community of San ethnographers motivated me to understand better the historical roots of the bellicose school and its critics. The question of violence in hunter-gatherer society has animated philosophical debates since at least the seventeenth century. In Thomas Hobbes's social evolutionary view, life in the "state of nature" was "nasty, brutish, and short" [Hobbes 1969 (1651)], while Jean-Jacques Rousseau launched humanity's trajectory from a baseline of the "noble savage" [Rousseau 2003 (1749)]. Despite the publication of much more accurate data from twentieth-century archaeology and ethnography, the underlying debate has remained.

In a recent book, *The Better Angels of Our Nature: Why Violence Has Declined*, psychologist Steven Pinker (2011), an avowed Hobbesian, added a new twist to the debate. Despite humanity's deep flaws, he argues, there is reason for hope—things are getting better. Like the famous figure of Dr. Pangloss, in Voltaire's eighteenth-century classic *Candide*, Pinker sought to affirm that civilization, if not the best-of-all-possible-worlds, is at least vastly superior to the

Mailhot J. 1997. *The People of Sheshatshit: In the Land of the Innu.* St. John's, Can.: Inst. Soc. Econ. Res.
Marks S. 1972. Khoisan resistance to the Dutch in the seventeenth and eighteenth centuries. *J. Afr. Hist.* 13:55–80
Marlowe F. 1999. Male care and mating effort among Hadza foragers. *Behav. Ecol. Sociobiol.* 46:57–64
Marlowe F. 2010. *The Hadza: Hunter-Gatherers of Tanzania.* Berkeley: Univ. Calif. Press
Marshall J. 1973. *An Argument About a Marriage.* Doc. Video, 18 min., Doc. Educ. Resour., Cambridge, MA
Marshall L. 1957. The kin terminology system of the !Kung Bushmen. *Africa* 27:1–25
Marshall L. 1961. Sharing, talking, and giving: relief of social tensions among the !Kung Bushmen. *Africa* 31:231–49
Marshall L. 1976. *The !Kung of Nyae Nyae.* Cambridge, MA: Harvard Univ. Press
Martin D, Frayer D, eds. 1997. *Troubled Times: Violence and Warfare in the Past.* Philadelphia: Gordon and Breach
Maschner H. 1997. The evolution of Northwest coast warfare. See Martin & Frayer 1997, pp. 267–302
Mathew S, Boyd R. 2011. Punishment sustains large-scale cooperation in prestate warfare. *PNAS* 108(28):11375–80
Mauss M. 1904–1905. Essay sur les variations saisonni'eres des soci´et´es Eskimos. *Ann. Soc.* 9:39–132
Moodie TD. 1840–1842. *The Record, or a Series of Official Papers Relative to the Condition and Treatment of the Native Tribes of South Africa.* Amsterdam: A.A. Balkema
Morgan LH. 1881. *Houses and House-Life of the American Aborigines.*Washington, DC: US Geol. Survey
Morgan LH. 1974 (1877). *Ancient Society.* Gloucester, MA: Peter Smith
Myers FR. 1991. *Pintupi Country, Pintupi Self: Sentiment, Place and Politics Among Western Desert Aborigines.* Berkeley: Univ. Calif. Press

Kramer KL. 2010. Cooperative breeding and its significance to the demographic success of humans. *Annu. Rev. Anthropol.* 39:417–36

Kramer KL, Greaves RD. 2011. Postmarital residence and bilateral kin associations among hunter-gatherers: Pum´e foragers living in the best of both worlds. *Hum. Nat.* 22:41–63

Leacock E. 1982. Relations of production in band societies. See Leacock & Lee 1982, pp. 159–70

Leacock E, Lee R, eds. 1982. *Politics and History in Band Societies*. Cambridge, MA: Cambridge Univ. Press

LeBlanc S, Register KE. 2003. *Constant Battles: The Myth of the Peaceful, Noble Savage*. New York: St Martins Press

Lee RB. 1979. *The !Kung San: Men, Women and Work in a Foraging Society*. Cambridge, UK/New York: Cambridge Univ. Press

Lee RB. 2014. Hunter-gatherers on the best-seller list: Steven Pinker and the Bellicose School's treatment of forager violence. *J. Aggress. Confl. Peace Res.* 6:216–28

Lee RB. 2016. "In the bush the food is free": The Ju/'hoansi of Tsumkwe in the twenty-first century. See Codding & Kramer 2016, pp. 61–87

Lee RB, Daly RH, eds. 1999. *The Cambridge Encyclopedia of Hunters and Gatherers*. Cambridge,UK: Cambridge Univ. Press

Lee RB, DeVore I, eds. 1976. *Kalahari Hunter-Gatherers: Studies of the !Kung San and Their Neighbors*. Cambridge, MA: Harvard Univ. Press

Leonard WR, RobertsonML. 1994. Evolutionary perspectives on human nutrition: the influence of brain and body size on diet and metabolism. *Am. J. Hum. Biol.* 6:77–88

Lorenz K. 1966. *On Aggression*. New York: Harcourt Brace

MacKinnon KC, FuentesA. 2005. Reassessing male aggression and dominance: the evidence from primatology. In *Complexities: Beyond Nature and Nurture*, ed. S McKinnon, S Silverman, pp. 83–105. Chicago: Univ. Chicago Press

state of humanity during its long history of hunting and gathering. In *The Better Angels* and elsewhere, Pinker (2002, 2007) draws on recent studies that assert a baseline of primordial violence by prestate peoples. Pinker cites these as the clincher for the Hobbesian view.

Just how accurate is Pinker's reading of human history and prehistory? Does it survive the serious scrutiny to which all truth claims should be subjected? In the current era of fake news and alternative facts, it is particularly urgent to approach this issue in the spirit of scientific integrity. Our task here is finite and doable: to document the levels of violence in hunter-gatherer societies, recent and prehistoric, and understand their causes and consequences.

When we have a good grip on the empirical evidence, then we can go on to the bigger question: How does the presence or absence of violence and warfare in hunter-gatherer societies—past and present—impact the construction of plausible theories of the evolution of human behavior?

PINKER'S SOURCES: THE BELLICOSE SCHOOL VERSUS THE PEACE AND HARMONY MAFIA

In *The Better Angels of Our Nature*, Pinker attempts to trace the contours of violence all the way from our primate ancestors through prehistory and history up to the present day. He argues that, despite the history of modern slaughters and advanced weaponry, the world is actually getting more peaceful. To make this case even remotely plausible, however, he has to posit inordinately high rates of violence for the earliest time periods.

In supporting the latter thesis, and drawn more or less directly from Hobbes's [1969 (1651)] classic *Leviathan*, Pinker draws heavily on several modern sources from within anthropology: American archaeologists Lawrence Keeley (1996) and Steven LeBlanc (LeBlanc & Register 2003), and especially Richard Wrangham. In

Demonic Males, Wrangham & Peterson (1996) draw a direct line between evidence for chimpanzee males killing male conspecifics, through the purported violence in *Homo erectus* and archaic *Homo sapiens* and on to the undisputed evidence for warfare in historical human societies. As Wrangham & Peterson (1996) starkly put it, "[M]odern humans [are] the dazed survivors of a continuous 5-million-year habit of lethal aggression" (p. 63).

Keeley and LeBlanc offer the evidence for extensive warfare in tribal and chiefly societies in prehistory and inordinately high fatality rates. LeBlanc, in particular, attempts to universalize their findings with statements such as "we need to recognize and accept the idea of a non peaceful past for the entire time of human existence" and "from overwhelming evidence warfare has indeed shaped human history" (Le Blanc & Register 2003, p. 8).These views provide the ammunition for Pinker's thesis for an unbroken line of aggression from primatological, through hominid, to premodern human societies. Pinker adopts from van der Dennen (2005) the phrase "Peace and Harmony Mafia" to label critics who challenge the primordial violence thesis (see also Bowles 2009). Is the primordial violence thesis accurate? Long-term trending toward declining violence is, in some respects, a plausible thesis. We recognize that in earlier centuries Genghis Khan and Attila the Hun killed many thousands, not to mention the slaughterhouses of the Columbus, Cortex, and Pizarro expeditions to the New World, but is it fair to characterize all of human history this way?

As comforting and reassuring as it is, Pinker's thesis of a steady decline in violence from prehistory to the present suffers from a serious flaw. By arguing for high death rates from warfare throughout history and prehistory, in band and tribal societies, as well as continuing into the era of states and empires, Pinker ignores or bypasses a large body of anthropological literature on the wide variability in war making throughout history; most important, he misses the crucial significance of the Neolithic Revolution.

Hrdy SB. 1981. *The Woman that Never Evolved.* Cambridge, MA: Harvard Univ. Press

Hrdy SB. 1999. *Mother Nature: A History of Mothers, Infants, and Natural Selection.* New York: Pantheon

Hrdy SB. 2005. Comes the child before the man: how cooperative breeding and prolonged post-weaning dependence shaped human potential. See Hewlett & Lamb 2005, pp. 65–91

Hrdy SB. 2009. *Mothers and Others: The Evolutionary Origins ofMutualUnderstanding.* Cambridge,UK: Belknap Press

Ingold T. 1999. On the social relations of hunter-gatherer bands. See Lee & Daly 1999, pp. 399–410

Ingold T, Riches D, Woodburn J, eds. 1988a. *Hunters and Gatherers*, Vol. I: *History, Evolution and Social Change.* Oxford, UK: Berg

Ingold T, Riches D, Woodburn J, eds. 1988b. *Hunters and Gatherers*, Vol. II: *Property, Power and Ideology.* Oxford, UK: Berg

Kaplan H, Hill K, Hawkes K, Hurtado A. 1984. Food sharing among Ach´e hunter-gatherers of eastern Paraguay. *Curr. Anthropol.* 25:113–15

Keeley LH. 1996. *War Before Civilization: The Myth of the Peaceful Savage.* New York: Oxford Univ. Press

Keeley L. 1997. Frontier warfare in the early Neolithic. See Martin & Frayer 1997, pp. 303–20

Kelly RC. 2000. *Warless Societies and the Origin of War.* Ann Arbor: Univ. Mich. Press

Kelly RL. 2013. *The Lifeways of Hunter-Gatherers: The Foraging Spectrum.* New York: Cambridge Univ. Press

Knauft B, Abler RS, Betzig L, Boehm C, Dentan RK, et al. 1991. Violence and sociality in human evolution. *Curr. Anthropol.* 32(4):391–428

Konner M. 1976. Maternal care, infant behaviour and development among the !Kung. See Lee & DeVore 1976, pp. 218–45

KonnerMJ. 2005. Hunter-gatherer infancy and childhood: the !Kung and others. See Hewlett & Lamb 2005, pp. 19–64

Heizer RF, ed. 1978. *Handbook of the North American Indians*, Vol. 8, California. Washington DC: Smithson. Press
Helm J. 1961. *The Lynx Point People: The Dynamics of a Northern Athapaskan Band.* Ottawa: Nat. Mus. Can.
Henriksen G. 1973. *Hunters of the Barrens: The Naskapi on the Edge of the White Man's World.* St. Johns, Can.: Mem. Univ., Inst. Soc. Econ. Res.
Hewlett BS. 1989. Multiple caretaking among African Pygmies. *Am. Anthropol.* 91:270–76
Hewlett BS. 1991. *Intimate Fathers: The Nature and Context of Aka Pygmy Paternal Infant Care.* Ann Arbor: Univ. Mich. Press
Hewlett BS, Lamb M, eds. 2005. *Hunter-Gatherer Childhoods: Evolutionary, Developmental and Cultural Perspectives.* New Brunswick, NJ: Aldine/Transaction
Hewlett BS, Winn SL. 2014. Allomaternal nursing in humans. *Curr. Anthropol.* 55:200–29
Hill K. 2002. Altruistic cooperation during foraging by the Ach´e and the evolved human disposition to cooperate. *Hum. Nat.* 13:105–28
Hill K, HurtadoM. 1996. *Ach´e Life History: The Ecology and Demography of a Foraging People.*New York: Aldine
Hill K, Walker RS, Bozicevi´c M, Eder J, Headland T, et al. 2011. Co-residence patterns in hunter-gatherer societies show unique human social structure. *Science* 331:1286–89
Hobbes T. 1969 (1651). *Leviathan.* London: Routledge and Kegan Paul Holmberg A. 1985 (1950). *Nomads of the Longbow: The Siriono of Eastern Bolivia.*ProspectHeights, IL: Waveland
Press Howell N. 2000. *Demography of the Dobe !Kung.* New York: Aldine DeGruyter. 2nd ed.
Howell N. 2010. *Life Histories of the Dobe !Kung: Food, Fatness, and Well-Being Over the Life Span.* Berkeley: Univ. Calif. Press
Hrdy SB. 1977. *The Langurs of Abu: Female and Male Strategies of Reproduction.* Cambridge,MA: HarvardUniv. Press

A PREHISTORIC VALE OF TEARS?

In his detailed exposition of warfare in nonstate societies, Pinker (2011, pp. 40–56) conflates all prestate societies under a general heading and glosses over a very well documented and durable tenet of anthropology, namely that, with a few exceptions, warfare, as commonly understood, is rare or uncommon in many hunting and gathering societies. Evidence for it and its dire effects becomes prevalent only with the dramatic changes brought about by the Neolithic Revolution. The domestication of plants and animals, the transition from nomadic to sedentary living, and the subsequent growth of population and of fixed property brought profound changes to human societies, including rising rates of intergroup conflict and its deadly consequences. Classic accounts of the Mesolithic and Neolithic and warfare are provided by Haas (1993) for the Anasazi of the American Southwest, Roksandic (2004) for the European Mesolithic, and Flannery & Marcus (2012, pp. 367–76) for the valley of Oaxaca. Other authorities who have addressed this issue include Harris and William Divale (Divale &Harris 1976), Cohen (1977), Kelly (2000), Ferguson (1997, 2006), Ferguson & Whitehead (1992), Rowthorn & Seabright (2010), and Fry (2006, 2013). Keeley (1997) himself has contributed to this topic through his own research, documenting the intensification of intergroup violence in the LBK (Linear b and keramik) cultures as Neolithic farmers succeeded Mesolithic hunters at the Mesolithic-to-Neolithic transition across Northern Europe.

What sets foragers apart from farmers? In marked contrast to early farmers, their foraging predecessors lived more lightly on the land, and, although violence was present, they had other ways of resolving conflict. Living at very low densities, foragers had fewer things to fight over and, with little or no fixed property, could easily vote with their feet and disperse to diffuse conflict (Lee 1979, pp. 370–400).

The distinction between prefarming and postfarming societies is not a trivial one. For 95% of human history we lived as hunter-gatherers, and the archaeological record, despite investigators' attempts to cherry-pick exceptions, demonstrates, if not the complete absence of deadly conflict, its statistically far lower levels.

At the empirical heart of this question is the evidence for and against high rates of violent death at the hands of other humans in human populations in the absence of agriculture. Here, we take two approaches: first, the evidence for warfare in recorded hunting and gathering societies; and second, the archaeological evidence for warfare in prehistory prior to the advent of agriculture.

Ethnography of Foraging Peoples: The Historically Nomadic Foragers and Others

For this analysis I am indebted to the work of Ferguson (2013a,b), Ferguson & Whitehead (1992), and Fry (2006; 2013, pp. 6–12). Some studies purport to show high rates of violence in historic hunter-gatherer societies (Keeley 1996, Le Blanc & Register 2003, Bowles 2009). But which groups do they include under the rubric of hunter-gatherer? **Historically nomadic foragers (HNFs)**, small in scale, mobile, and egalitarian, reflect most closely the characteristics of ancient foragers, a point emphasized by Fry (2006, 2013). But the bellicose school loads their sampling procedures with groups that depart sharply from this pattern.

Mounted foragers of the American Great Plains (De Maillie 2000) and sedentary nonegalitarian foragers of California (Heizer 1978) and the north west coast of North America (Suttles 1990; Flannery & Marcus 2012, pp. 66–87; Daly 2014) all demonstrated significant levels of war-like behaviors. Yet, horse transport on the plains and stockaded settled villages on the west coast are completely absent from the archaeological record of pre-Neolithic foragers. But at least these are examples of hunter-gatherers.

Gardner P. 2000. *The Paliyan: Persistent Hunter-Gatherers of South India.* Lewiston, NY/Toronto: Edwin Mellen Press

Glowacki L,Wrangham RW. 2013. The role of rewards in motivating participation in simple warfare. *Hum. Nat.* 24(4):444–60

GowdyJ, ed. 1998. *LimitedWants,Unlimited Means:AReader onHunter-Gatherer Economics and the Environment.* Washington, DC: Island Press

Griffin PB, Estioko-Griffin A, eds. 1985. *The Agta of Northeastern Luzon: Recent Studies.* Hum. Ser. 16. Cebu City, Philipp.: San Carlos

Haas J. 1993. *Stress and Warfare Among the Kayenta Anasazi of the Thirteenth Century A.D.* Chicago: Chicago Nat. Hist. Mus.

Haas J, ed. 2000. *The Anthropology of War.* Cambridge, UK: Cambridge Univ. Press

Haas J, Piscitelli M. 2013. The prehistory of warfare: misled by ethnography. See Fry 2013, pp. 168–90

Haraway DJ. 1990. *Primate Visions: Gender, Race, and Nature in the World ofModern Science.* London: Routledge

Hawkes K, O'Connell JF, Blurton Jones NG. 1995. Hadza children's foraging: juvenile dependency, social arrangements and mobility among hunter-gatherers. *Curr. Anthropol.* 36:688–700

Hawkes K, O'Connell JF, Blurton Jones NG. 1997. Hadza women's time allocation, offspring provisioning and the evolution of post-menopausal lifespans. *Curr. Anthropol.* 38:551–77

Hawkes K, O'Connell JF, Blurton Jones NG. 2001. Hunting and nuclear families: some lessons from the Hadza about men's work. *Curr. Anthropol.* 42:681–709

Hawkes K, O'Connell JF, Blurton Jones NG. 2018. Hunter-gatherer studies and human evolution: a very selective review. *Am. J. Phys. Anthropol.* 165:777–800

Hawkes K, O'Connell JF, Blurton Jones NG, Alvarez H, Charnov EL. 1998. Grandmothers, menopause and evolution of human life histories. *PNAS* 95(3):1336–39

Endicott K. 1979. *Batek Negrito Religion: The World-View and Rituals of a Hunting and Gathering People of Peninsular Malaysia*. Oxford, UK: Clarendon

Endicott KM, Endicott KL. 1986. The question of hunter-gatherer territoriality: the case of the Batek in Malaysia. In *The Past and Future of !Kung Ethnography: Critical Reflections and Symbolic Perspectives; Essays in Honour of Lorna Marshall*, ed. M Biesele, R Gordon, R Lee, pp. 137–62. Hamburg, Ger.: Helmut Buske Verlag

Endicott KL, Endicott KM. 2014. Batek childrearing and morality. See Narvaez et al. 2014, pp. 108–25

Falk D, Hildebolt C. 2017. Annual war deaths in small-scale versus state societies scale with population size rather than violence. *Curr. Anthropol.* 58:805–13

Ferguson RB. 1997. Violence and war in prehistory. See Martin & Frayer 1997, pp. 321–46

Ferguson RB. 2006. Archaeology, cultural anthropology, and the origins and intensifications of war. In *The Archaeology of Warfare: Prehistories of Raiding and Conquest*, ed. EN Arkush, MA Allen, pp. 469–524. Gainesville: Univ. Press Fla.

Ferguson RB. 2013a. Pinker's list: exaggerating prehistoric war mortality. See Fry 2013, pp. 112–31

Ferguson RB. 2013b.The prehistory of war and peace in Europe and the Near East. See Fry 2013, pp. 191–240

Ferguson RB, Whitehead NL, eds. 1992. *War in the Tribal Zone: Expanding States and Indigenous Warfare*. Santa Fe, NM: Sch. Am. Res.

Flannery K, Marcus J. 2012. *The Creation of Inequality*. Cambridge, MA: Harvard Univ. Press Fry D. 2006. *The Human Potential for Peace: An Anthropological Challenge to Assumptions About War and Violence*. Oxford, UK: Oxford Univ. Press

Fry DP, ed. 2013. *War, Peace and Human Nature: The Convergence of Evolutionary and Cultural Views*. Oxford, UK: Oxford Univ. Press

To these anomalous cases, some analysts of the bellicose school add the famous war-like South American Yanomamo and Jivaro, as well as the war-like pig-raising farmers of Highland New Guinea. All are included under the rubric of hunter-gatherers; all are war-like, and yet as practicing farmers (and for New Guinea, pig raisers as well), they are emphatically not hunters and gatherers. With sampling procedures such as these, the apparent level of warfare is artificially jacked up. In a widely circulated TED Talk, Pinker (2007) put up a slide showing the alleged high kill rates for seven allegedly "hunting and gathering" societies with male deaths from violence ranging from 8% to 58%. The sample included four horticulturalists from Highland New Guinea, the Mae Enga, Dugum Dani, Huli, and Gebusi; two from lowland South America, the Yanomamo and Jivaro; and only one actual foraging group, the Murngin (Yolngu) of northern Australia (Ryan & Jetha 2010, pp. 183–85). In his 2011 book, Pinker does address the differences between foragers and farmers, but he still loads his sample with cases that are not representative of HNFs [Historically Nomadic Foragers]. For example, in his table "Rate of Death in Warfare in Nonstate and State Societies" (Pinker 2011, figures 2–3, p. 53), the 27 nonstate cases are heavily loaded with New Guinean and nearby farming societies (12 of 27) and Californian and Plains Indians (5 of 27); only 5 of 27 of the cases remotely qualify as HNFs.

Are There Warlike HNFs [Historically Nomadic Foragers]?

But what about examples of small-scale nomadic hunter-gatherers who do exhibit high rates of war-like behavior? From my own area of study, there are historic southern African San/Bushman groups who did wage war. The nineteenth-century Nharo San of the Ghanzi district in what is now Botswana, and their cousins in the northern Cape province of South Africa, were famous in colonial history for their fighting prowess (Moodie 1840–1842,

Passarge 1907). Their fierceness in defense of their land was admirable, but their military posture, far from being an expression of innate aggression, was largely an artifact of their historical positioning, pressured by predatory bands of encroaching colonial settlers (Marks 1972, Penn 2006, Adhikari 2010).

The tribal zone thesis of Ferguson & Whitehead (1992) accounts for high rates of militarism and violence observed in nonstate societies by their positioning, caught in the dire circumstances of colonial history. Kelly's (2013, pp. 205–9) otherwise careful assembly of hunter-gatherer homicide/ warfare data at times conflates HNF and non-HNF examples. However, he also correctly points out that some or all alleged forager "homicide" statistics are erroneously inflated by including the murders of indigenes by colonial settlers (see also Fry 2013, p. 17).

Some analysts of intergroup violence in "small-scale societies" do continue to support the bellicose thesis (e.g., Pike 2004, Mathew & Boyd 2011, Glowacki & Wrangham 2013). However, on closer examination, the societies in question are East African pastoral nomads, such as the Turkana and Datoga, from a semiarid zone of chronic intergroup violence and emphatically not HNFs. When the latter are examined in aggregate, and in the absence of colonially driven pressures, they consistently exhibit significantly lower levels of violence than herders and horticulturalists.

WARFARE IN HUNTER-GATHERER PREHISTORY

Ultimately, the evidence on warfare from recent hunter-gatherers may suffer from a major methodological conundrum. How seriously has the behavior of modern hunter-gatherers been shaped by the colonial forces surrounding them, and does this compromise their utility as a window on prehistoric conditions? Beginning with the landmark paper by Martin Wobst (1978) on "the tyranny

Brosius JP. 1991. Foraging in tropical rainforests: the case of the Penan of Sarawak, east Malaysia (Borneo). *Hum. Ecol.* 19(2):123–50

Chagnon NA. 1968. *Yanomamo: The Fierce People.* New York: Holt, Rinehart andWinston

Codding BF, Kramer KL, eds. 2016. *Why Forage? Hunter-Gatherers in the Twenty-First Century.* Santa Fe, NM: Sch. Adv. Res. Press

CohenMN. 1977. *The Food Crisis in Prehistory: Overpopulation and the Origins of Agriculture.* New Haven, CT: Yale Univ. Press

Crittenden AN, Marlowe FW. 2008. Allomaternal care among the Hadza of Tanzania. *Hum. Nat.* 19:249–63

Daly RH. 2014. War, peace and Northwest Coast complex hunter-gatherers. *J. Aggress. Confl. Peace Res.* 6:240–54

Damas D, ed. 1969. *Contributions to Anthropology: Band Societies. Proceedings of the Conference on Band Organization, Ottawa, August 30 to September 2, 1969.* Nat. Mus. Can. Bull. 229. Ottawa: Natl. Mus. Can.

De Maillie RC, ed. 2000. *Handbook of the North American Indians.* Vol. 13. *Plains.*Washington, DC: Smithson. Press

Divale W, HarrisM. 1976. Population, warfare, and the male-supremacist complex. *Am. Anthropol.* 78:521–38

Draper P. 1976. Social and economic constraints on child life among the !Kung. See Lee & DeVore 1976, pp. 199–217

Draper P. 1978. The learning environment for aggression and anti-social behavior among the !Kung. In *Learning Non-Aggression*, ed. A Ashley-Montagu, pp. 31–53. New York: Oxford Univ. Press

Dunsworth H, Eccleson L. 2015. The evolution of difficult childbirth and helpless hominid infants. *Annu. Rev. Anthropol.* 44:55–69

Dussart F. 1999. TheWarlpiri. See Lee & Daly 1999, pp. 362–66

Eickelkamp U, ed. 2011. *Growing Up in Central Australia: New Anthropological Studies of Aboriginal Childhood and Adolescence.* Oxford, UK/New York: Berghahn

Arcand B. 1976. Cuiva food production. *Can. Rev. Soc.* 13(4):387–96

Arcand B. 1977. The logic of kinship: an example from the Cuiva. In *Actes Du Congres Des Americanistes*, pp. 19–34. Paris: Soc. Am.

Ardrey R. 1961. *African Genesis: A Personal Investigation into the Animal Origins and Nature of Man.* New York: Bantam Books

Ardrey R. 1966. *The Territorial Imperative: A Personal Inquiry into the Animal Origins of Property and Nations.* New York: Atheneum

Asch M. 1988. *Kinship and the Drum Dance in a Northern Dene Community.* Edmonton, Can.: Boreal Inst. For North. Stud.

Barnard A, ed. 2004. *Hunter-Gatherers in History, Archaeology and Anthropology.* Oxford, UK: Berg

Barnard A. 2011. *Social Anthropology and Human Origins.* Cambridge, UK: Cambridge Univ. Press

Beckett L. 2014. Why don't we know how many people are shot each year in the US? *Truthout*, May 18. https://truthout.org/articles/why-dont-we-know-how-many-people-are-shot-...

Bicchieri MG, ed. 1972. *Hunters and Gatherers Today.* New York: Holt, Rinehart andWinston

Biesele M. 1993. *Women Like Meat: The Folklore and Foraging Ideology of the Kalahari Ju/'hoan.* Bloomington: Indiana Univ. Press

Bird-David N. 1990. The giving environment: another perspective on the economic system of gathererhunters. *Curr. Anthropol.* 31:189–96

Blurton Jones NG. 2016. *Demography and Evolutionary Ecology of Hadza Hunter-Gatherers.* Cambridge, UK: Cambridge Univ. Press

Bowles S. 2009. Did warfare among ancestral hunter-gatherers affect the evolution of human social behavior? *Science* 324:1293–98

Briggs JL. 1971. *Never in Anger: Portrait of an Eskimo Family.* Cambridge, MA: Harvard Univ. Press

of the ethnographic record," some archaeologists have argued that the ultimate arbiter of the presence, absence, and frequency of warfare in the past must be the archaeological record. A recent volume *Violence and Warfare Among Hunter-Gatherers* (Allen & Jones 2014) focuses on the archaeology and finds evidence of violence in various cases but fails to rigorously sample the material.

For a more rigorous examination of the evidence, we turn to the work of Haas, also an archaeologist with a strong track record in the prehistory of warfare (Haas 1993, 2000). In a major analysis of the problem of hunter-gatherer violence, Haas & Piscitelli (2013, pp. 168–90) take the bold step of disqualifying all ethnographic sources as appropriate models for illuminating warfare in deep prehistory. Whether we agree with this position, these authors do present compelling evidence for the absence of warfare in prehistory. Instead of cherry-picking sites purporting to show high rates of violence, they embark on inventorying all early *H. sapiens* sites across Europe, Asia, and Africa prior to 8,000 BCE.

Among the osteological evidence commonly adduced for signs of violent human-to-human conflict, Haas & Piscitelli (2013) cite the following: evidence of skull fractures indicating a blow sustained; evidence of healed or unhealed "parry" fractures of the forearm indicating warding off a blow; arrow points or spear tips embedded in bone or associated with a burial. The authors also discuss ambiguous fragments of evidence from rock art (pp. 178–81).

In terms of the skeletal evidence, Haas & Piscitelli (2013) ambitiously surveyed 400 Paleolithic sites with 2,930 skeletons, gleaned from a review of more than 75 published sources on skeletal remains in Europe, Asia, and Africa. They report that, in a vast array of prehistoric sites, there is scant evidence of warfare. Clear evidence of some violence is found in two Italian and two Ukrainian sites with individual skeletons that indicated embedded points. Only a single site—the Jebel Sahaba ossuary—on the Upper Nile (Wendorf 1968),with 24 of 58 skeletons showing serious evidence of violent death, supports the bellicose thesis. In marked

contrast, more than 390 of the 400 sites across the Old World (97.5%) are completely lacking in such signs (Haas & Piscitelli 2013, p. 181).

Haas & Piscitelli (2013) state,

> Rather than demonstrating the commonness of ancient warfare among humans, consideration of the entire archaeological data set shows the opposite … Comparing the total number of known individuals [skeletal remains] before 8,000 B.C. to the small sample showing signs of violence demonstrates the infrequency of conflict in the ancient past. *The archaeological record is not silent on the presence of warfare in early human history. Indeed the record shows that warfare was the rare exception prior to the Neolithic pressures of population densities and insufficient resources for growing populations.* (pp. 182–83, emphasis added)

Given the confident statements of Keeley, LeBlanc, Wrangham, and Pinker, the actual empirical basis for these flat-out assertions is surprisingly shaky. What is the conclusion derived from the actual science behind these ambitious laundry lists of sites and cases claiming to show constant battles of war-like hunter-gatherers? We can state with some confidence that the case for primordial bellicosity has not been vindicated. Closer to the consensus is Kelly's statement: "Warfare is not an endemic condition of human existence but an episodic feature of human history (and prehistory) observed at certain times and place but not others" (Kelly 2000, p. 75, cited in Haas & Piscitelli 2013, p. 168). This conclusion raises serious caveats about the grand evolutionary theory asserted by Wrangham and others. The evidence indicates that early humans, rather than being "killer apes" in the Pleistocene and early Holocene, lived as relatively peaceful hunter-gathers for

creased in recent years, there's a debate over whether this reflects a drop in the total number of shootings, or an improvement in how many lives emergency room doctors can save" (Beckett 2014). Second, the 25 listed killings represented all the !Kung homicides that our research group collected. The !Kung waged no wars in the twentieth century, and the Americans and other modern nations did (and still do). Adding to twentieth-century totals the deaths on both sides from the World Wars, Korean War, Vietnam War, and many other smaller conflicts more than triples the modern violent death rates, which I estimate for Europeans in the period 1914–1945 at close to 100 per 100,000 population (Lee 1979, p. 399), 2.5 times that of the !Kung. For other recent critiques of Pinker's figures, see Falk & Hildebolt (2017) and Oka et al. (2017).

LITERATURE CITED

Adhikari M. 2010. *The Anatomy of a South African Genocide: The Extermination of the Cape San Peoples.* Cape Town, S. Afr.: Univ. Cape Town Press

Aiello LC. 2007. Notes on the implications of the expensive tissue hypothesis for human biological and social evolution. See Roebroeks 2007, pp. 17–28

Aiello LC, Wheeler P. 1995. The expensive-tissue hypothesis: the brain and the digestive system in human and primate evolution. *Curr. Anthropol.* 36:199–221

AllenMW, JonesTL, eds. 2014. *Violence and Warfare Among Hunter-Gatherers.*Walnut Creek, CA: Left Coast Press

Alvarez HP. 2004. Residence groups among hunter-gatherers: a view of the claims and evidence for patrilocal bands. In *Kinship and Behaviour in Primates*, ed. B Chapais, CMBerman, pp. 420–42. Oxford,UK: Oxford

Univ. Press

tions from Social Anthropology from British scholars (Power et al. 2017). I hope that the present review article is a modest step in the same direction.

Hrdy's work represents a major step from the biological wing. She is far from alone in this emerging rapprochement. The writings on contemporary HNFs, which have been cited in this review—from such observers as Bird, Blurton Jones, Crittenden, Draper, the Endicotts, Hawkes and O'Connell, Hewlett, Hill and Hurtado, Howell, Konner, Kramer, Lamb, Marlowe, Marshall, and Wiessner—have offered a rich tapestry for synthesis by Hrdy, Narvaez, and others. Collectively, this body of research on hunter-gatherers provides a productive baseline for building more coherent models of human behavioral evolution.

APPENDIX

PINKER AND THE JU/'HOANSI/!KUNG CASE STUDY

The HNFs, Historically Nomadic Foragers, are not nonviolent. They fight and sometimes kill, but there is an enormous distance between that statement and the canonical assertion of the bellicose school that 5%, 15%, or even 50% of all hunter-gatherer deaths are due to interpersonal violence. In *The Better Angels of Our Nature: Why Violence Has Declined*, Pinker (2011) examined the !Kung data specifically and set the !Kung homicide death rate at 40.0/100,000 (p. 55); these levels are comparable to the high US urban homicide rates, which, for 1972, were 36.8 for Baltimore and 40.1 for Detroit (Lee 1979, pp. 397–98). Despite the apparent magnitude of the Ju/'hoan/!Kung homicide rate, these still represent only 1.0–1.6% of overall deaths, compared to the 8–58% figure referenced in Pinker's TED Talk. There are crucial differences to consider. First is the question of US assault victims—unlike the !Kung—having access to excellent emergency room and trauma center facilities. Beckett recently asked, "While the number of gun murders has de-

some 15,000 generations, from the emergence of modern *Homo sapiens* up until the invention of agriculture, roughly from 300,000 to 8,000 years BCE. Therefore, there is a major gap between the purported violence of our chimp-like ancestors and the documented violence of post-Neolithic humanity. This finding is clearly anticipated by Knauft et al. (1991), who spoke of a "U-shaped evolutionary trajectory … of human violence … with the trough of the curve persisting through most of *Homo sapiens* evolution" (p. 391). For Knauft, simple human societies constitute a major anomaly when compared with rates of violence seen in chimpanzees and state-level and modern warfare (Knauft et al. 1991, p. 391).

NOT A KILLER APE AFTER ALL? BUILDING BETTER EVOLUTIONARY MODELS WITH HUNTER-GATHERER DATA

The first of our goals in this review has been to evaluate the hunter-gatherer data from ethnography and archaeology for the light that this body of evidence sheds on the theses put forward by the bellicose school. The clear rarity of the evidence for humans killing humans in deep prehistory leads us to conclude, in essence, that the violent ways observed in post-Neolithic, premodern, and modern societies are products of our recent history, under conditions of population pressure unique to the history of the last 10,000 years and therefore cannot be seen as an unbroken inheritance from our primate evolutionary past.

This finding leaves an enormous lacuna in theory building and modeling of the prime movers in human evolution. The competition and aggression model is supported by neither the contemporary ethnographic picture of HNF hunter-gatherers nor the archaeological evidence of Pleistocene hunter-gatherers. If the selective pressures favoring competition and aggression are not at the cen-

ter of human evolutionary evidence, then how can we build better models that more accurately reflect what we do know?

With the empirical basis for the bellicose view unsupported, let us start by stating the question once again: What do the studies of recent hunter-gatherers tell us about basic human patterns of social behavior, without the complications and distortions brought about by plant and animal domestication, settled life, and the vast increases in scale and complexity of human society? Instead of making the data fit into a preconceived framework imported from elsewhere, what do the findings of a century of careful ethnographic research tell us about HNFs from the Arctic to Australia to Asia to the Americas to Africa?

Seeking common elements from geographically and historically diverse cultures reveals some remarkably consistent aspects of kinship, social organization, subsistence, economic relations, and conflict management. This picture is built up by the work of a variety of ethnographers with a range of methodological and theoretical starting points. What common themes do these observers offer, for example on such core behaviors as mobility, territoriality and kinship, food sharing, modes of conflict resolution, and child-rearing?

We draw on the research from five of the world regions where hunter-gatherers are found.

— Asia: on the Batek of peninsular Malaysia, Endicott & Endicott (2014, Endicott 1979); from south India, Gardner (2000) on the Plain and Bird-David (1990) on the Nayaka; Needham (1954) and Brosius (1991) on the Penan of Borneo; and Griffin & Estioko-Griffin (1985) and Peterson (1978) on the Philippine Agta.

— North America: Briggs (1971) on the Inuit, Steward (1938) on the Shoeshine, Leacock (1982), Henriksen (1973) and Mailhot (1997) on the Montagnais-Neskapi, and Helm (1961) and Asch (1988) on the Dene.

— South America: in Venezuela, Arcand (1976, 1977) on the Cuiva and Kramer & Greaves (2011) on the Pume; Rival (1993) on the Huaorani of Ecuador; Holmberg [1985 (1950)] on the Bolivian

resources faced by the Ju/'hoansi/!Kung, the only viable survival strategy, Howell argues, is for the !Kung to practice widespread sharing and labor within the group and maintaining near and distant social networks for reciprocal access to resources (see also Blurton Jones 2016).

CONCLUSIONS

All these initiatives build on the central finding of this article, that although warfare and deadly conflict are part of human history, they are conspicuously rare in pre-8,000 BCE cultures. The highest frequency of warfare is observed in Neolithic and post-Neolithic cultures and societies. Therefore, there is a sharp discontinuity between warfare as we know it and the behavior of our putative prehuman and archaic human ancestors.

This finding strengthens the argument that the key to human evolution is the necessity of moving away from the aggressive behaviors of our primate ancestors to provide an environment suitable for raising infants of an unprecedented degree of helplessness. The evolutionary payoff of these radical shifts gave our species a host of adaptive advantages, the human brain, and, with it, quantum leaps in intelligence. This level of intelligence has been an absolute prerequisite for humanity's subsequent accomplishments.

Regardless of where one stands on the philosophical debates going back to Hobbes and Rousseau, this more gendered treatment of human evolution makes for a better fit with the observed facts, documenting, first, the rarity of violence in the archaeology of hunting and gathering pre-Neolithic *Homo sapiens* (Haas & Piscitelli 2013) and, second, the ethnographies of the core features of HNFs.

The field of anthropology has long harbored an uneasy tension between the sociocultural and bioevolutionary wings of the discipline. There are promising signs that this antipathy is being overcome, for example in the recent volume *Human Origins: Contribu-*

alities in hunter-gatherer infant and child-rearing practices (Hrdy 2009, pp. 73–82). Elsewhere, she states that the investments in cooperative child-rearing and provisioning that gave rise to human intelligence are ultimately the foundations upon which humanity's subsequent social and cultural evolution has depended, including the rise of cities, states, complex organizations, and advanced technologies.

Hrdy's work offers a powerful rejoinder to the bellicose school and poses a fundamental challenge to the assertion that "humans [are] the dazed survivors of a continuous 5-million-year habit of lethal aggression" (Wrangham & Peterson 1996, p. 63). And she has built on and acknowledges important insights from other anthropologists working in the field of human behavioral ecology (e.g., Hawkes et al. 1998, Hill 2002, Alvarez 2004, Scelza & Bliege Bird 2008, Kramer 2010; see also Hawkes et al. 2018).

Evolutionary psychologist Darcia Narvaez at University of Notre Dame has also convened a large group of experts and collaborators in three recent volumes that focus in part on hunter-gatherer cultural ecology and organization with an emphasis on child-rearing practices (Narvaez et al. 2013, 2014; Narvaez 2014). She labels the hunter-gatherer mode of child-rearing as "the evolved developmental niche." In her coedited volume, *Ancestral Landscapes in Human Evolution: Culture, Childrearing and Social Wellbeing*, Narvaez et al. (2014) draw heavily on the insights of hunter-gatherer anthropologists and other specialists, such as Crittenden (Hadza), Endicott and Endicott (Batek), Fry (conflict and peace studies), Fuentes (ethnoprimatology), Hewlett (Efe Pygmies, childhood), Konner (!Kung, hunter-gatherer childhood), and McKenna (cosleeping). Sociologist/demographer Nancy Howell, in *Demography of the Dobe !Kung* (Howell 2000) and *Life Histories of the Dobe !Kung* (Howell 2010), reaches conclusions that support Hrdy's and Narvaez's overall theses. Howell focuses on adult adaptive behaviors rather than child-rearing but arrives at a similar end-point. Given the spatial and temporal variability in

Siriono; and Hill, Hurtado, Kaplan, and colleagues (Hill & Hurtado 1996, Kaplan et al. 1984) on the Ach´e of Paraguay.

— Australia: in the western desert, Tonkinson (1979) and Bliege Bird on the Mardu (Scelza & Bliege Bird 2008) and Myers (1991) on the Pintupi; Toussaint (1999) on the Kimberleys of northwest Australia; and Dussart (1999) on the Walpiri of the central desert.

— Africa: on the Mbuti and Efe Pygmies, Turnbull (1973) and Hewlett (1989); Marshall (1976), Biesele (1993),Wiessner (1982), Draper (1976, 1978), Konner (1976, 2005), Howell (2000, 2010), Lee (1979), and Suzman (2017) on the Ju/'hoansi-!Kung; and Woodburn (1968, 1982), Hawkes, O'Connell, and Blurton Jones (Hawkes et al. 1995, 1997, 2001), Blurton Jones (2016), and Crittenden & Marlowe (2008, Marlowe 1999, 2010) on the Hadza of Tanzania.

Attempts to synthesize this vast corpus have been made by Damas (1969), Bicchieri (1972), Ingold et al. (1988a, 1988b), Gowdy (1998), Ingold (1999), Kelly (2013), and Barnard (2004, 2011) (see also Leacock & Lee 1982, Lee & Daly 1999). But all this synthesis is lost when the bellicose school attempts to squeeze recalcitrant data to fit their preconceived theories (see also MacKinnon & Fuentes 2005, Sussman 2013).

CORE FEATURES OF HNFs AND THEIR SIGNIFICANCE FOR EVOLUTIONARY RECONSTRUCTION

What, then, are some of the core features of this diverse body of research drawn from five continents?

Mobility

HNF groups rely on movement in the course of the annual round, moving 3–6 (or more) times per year. These movements take place both within the traditional "territory" (see below) and with visits

to kin in adjacent localities. Most exhibit an annual cycle of dispersal and of aggregation, a pattern first recognized more than a century ago by Mauss (1904–1905). A key corollary of this mobility is the basic fact that groups' social world extends far beyond their home territory, and a second corollary is the necessity of maintaining a low accumulation of material property. Ease of movement is important in dealing with conflicts.

Territoriality, Kinship, and Residence Patterns

The vast majority of these foragers do recognize ownership of land with varying levels of defining and demarcating boundaries (Kelly 2013, pp. 151–65; Endicott & Endicott 1986). But, crucially, all have kin and/or affines in neighboring groups, and all have mechanisms to allow reciprocal access to resources (Mailhot 1997). Postmarital residence patterns are flexible, often bringing together unrelated but compatible individuals (Alvarez 2004, Hill et al. 2011). Given seasonal and local variability in resources, this pragmatic approach to land ownership and residence—contra Ardrey's (1966) "territorial imperative"—confers far greater evolutionary fitness than would a system of strictly defended, kin-based territories.

Sharing of Food and Work

Within the local group, there are strong injunctions about food sharing, a key characteristic of egalitarian societies (Woodburn 1982). Gathered food moves on a daily basis within and between family groups (Hill 2002). Particular care is taken to equitably share game meat (Tonkinson 1979). Stinginess is considered the most egregious of faults and is answered with gossip, ridicule, and if necessary ostracism (the problem of the free-loader). Intergroup relations, so essential to the rational use of land and reciprocal

In this perspective, the evolution of hunting for subsistence, tool making, and the mastery and control of fire, as important as they are in previous theories of human evolution, may be best seen as playing a crucial but subsidiary role in preserving, nurturing, and protecting the lives of the helpless infant and its caregivers. One could argue (as does Hrdy 2005) that the very future of humanity was riding on the success of cooperative breeding and allo-parenting adaptation. The consequences of these dramatic changes in behavior and subsistence are the core of Hrdy's reforming of human evolutionary cause and effect. The helplessness of the infant required major increases in parental and allo-parental investment. One key development was the extension of the postmenopausal life span for females, adding grandparents as caregivers (Hawkes et al. 1998). However, the long delay in the maturity of the human infant had even more revolutionary consequences. The long dependence of infants, children, and adolescents created a new psychology of social communication between adults and children and between adults. This quantum leap in what Hrdy calls "the evolutionary origins of mutual understanding" involved and necessitated a complex process of socialisation that sharply curtailed aggression. And this development ultimately led to a species of animal that can exist without incident, pressed in close quarters, 400 at a time, for hours, on an airplane.

To emphasize the point, the growth of human intelligence demands a radical departure from the impulsiveness of our chimp-like ancestors in favor of a level of cooperation unparalleled in the primate world. Hrdy argues persuasively that prioritizing sharing over competition for resources is the only viable way to sustain the rapid evolution of human intelligence. These crucial characteristics of child-rearing, food sharing, reciprocal access to resources, and modes of conflict resolution are abundantly documented in the ethnographic literature on HNFs.

In documenting the links between her theory and this body of literature, Hrdy draws directly from her reading on the common-

between ourselves and our so-called closest relatives. Thus, she shifts the main question in human evolutionary synthesis away from a narrow reading of Darwinian fitness, which focused on evolution through competition, power, and aggression, toward evolution through cooperation and collective child-rearing (Hrdy 1999, 2005). Hrdy's insights in the capstone of her work *Mothers and Others* (2009) pose the question, what is the central biological development in human evolution that underlays all the changes—language, culture, technology, complex social organization—that made *Homo sapiens* unique in the animal kingdom? The answer is the evolution of the human brain and human intelligence.

However, the powerful selection pressures leading to increased brain size were achieved at a steep evolutionary cost. Gaining rapid evolution in brain size and capacity could be achieved only by a corresponding sacrifice in short-term evolutionary fitness: the unprecedented helplessness of the human infant (Dunsworth & Eccleson 2015). To counter this undeniable vulnerability to survival, hominin ancestors had to develop a far more collective infant and child-rearing system than any other primate had. This necessary adaptation had ramifications not only in new infant and child care behaviors, but also in subsistence, hence the importance I have attached to the phenomenon of allo-parenting.

Aiello and her associates (Aiello 2007, Leonard & Robertson 1994, Aiello & Wheeler 1995, Roebroeks 2007) developed the expensive tissue hypothesis to explore more deeply the subsistence implications of human brain evolution. These researchers observed that the large and expanding brain is a demanding organ in terms of energy, requiring up to 25% of total caloric intake. Over the course of human evolution, they argue, as the brain expanded, the additional requirements were met by procurement of higher-quality foods such as meat and underground tubers and the additional caloric yields provided by harnessing fire and cooking. These twin innovations may have been key to meeting the expanding brain's energy requirements (see also Wrangham 2009).

access to resources, are lubricated with elaborate forms of gift exchange such as the Ju'hoansi "hxaro" (Wiessner 1982).

Gender and Division of Labor

Men hunting and women gathering are widely observed in practice and deeply embedded in religion, mythology, and worldview (Biesele 1993). In energy terms, apart from the Arctic, women's subsistence work also tends to provide the bulk of the calories (Lee 1979). Most observers report the markedly higher status of women in hunter-gatherer society, when compared to women's status in tribal, chiefly, and state-level societies (Leacock 1982). In the latter, observers note that the rise of patriarchy and male dominance are closely associated with the post-Neolithic increases in warfare and social complexity (Divale & Harris 1976, Rowthorn & Seabright 2010).

Conflict Management

Fighting is uncommon (by cross-cultural standards), but it certainly does occur and intensifies in areas of colonial pressure (Ferguson & Whitehead 1992). However, with a few exceptions (for example, Ach´e and some Australian groups), nomadic foragers rarely glorify the warrior or confer any special status. On the contrary, the peacemakers are regarded as specially valued individuals. HNFs practice modes of conflict resolution, including song duels and other forms of ritualized combat, and especially group fission as a means of separating parties in conflict. These practices contrast sharply with those of some of the non-HNF groups such as the Indians of the Plains, California, and the Northwest Coast, for whom, as we have seen, raiding and warfare became historically important cultural values (Maschner 1997, Nichols 2013).

Child-Rearing Practices

In a pioneering ethnography, Briggs (1971) describes the permissive and cooperative child-rearing practices of the Inuit, in terms closely analogous to the observations on the Ju/ʻhoansi by Draper (1976, 1978), with similar observations by the Endicotts on the Batek of Malaysia (Endicott & Endicott 2014), by Hewlett (1991) on the Pygmies, and by Eickelkamp (2011) on Australia. Physical punishment of children is very rare. Konner (2005) presents a thorough-going synthesis of child-rearing practices for six HNF people groups: the Ju/ʻhoansi-!Kung, the Hadza, the Efe and Aka Pygmies, the Ach´e of Paraguay, and the Philippine Agta. These show a surprising series of commonalities among hunter-gatherers on different continents, a conclusion reached as well by other authors assembled in Hewlett & Lamb (2005).

One of the common threads through this literature is the phenomenon of allo-parenting, care of children by individuals other than the parents. The practice is ubiquitous, especially in the areas of provisioning and food sharing (e.g., Hawkes et al. 1998, Kramer 2010, Hewlett & Winn 2014). This phenomenon, universal in HNFs, is in sharp contrast to most nonhuman primates and represents a key finding in constructing novel theories of human behavioral evolution. As a crucial point, if these central themes were found in only one or two of the HNF societies, it would be difficult to generalize from them. However, when themes are observed again and again among HNFs on different continents, the observations that we are truly witnessing characteristics that must have deep roots in time and in culture gain credibility. These findings provide a platform of empirical data for considering the evolutionary sources of these commonalities.

BRINGING WOMEN'S WORK AND CHILD-REARING TO THE CENTER OF HUMAN EVOLUTIONARY MODELING

What insights can be drawn from this body of work and applied to some of the core issues in human behavioral evolution? Many of these common features of hunter-gatherer life have been documented for decades, for example Morgan [1974 (1877), 1881], Sollas (1911), Bicchieri (1972), and Ingold (1999).With noteworthy earlier attempts at evolutionary synthesis (e.g., Zihlman 1978, Zihlman & Tanner 1978, Tanner 1981, Haraway 1990), momentum has been building for more systematic incorporation of gender into human behavioral evolutionary modeling (see also Hawkes et al. 2018).

We turn now to the work of Hrdy who has drawn heavily on hunter-gatherer ethnography for her insights, reframing the question of gender and child-rearing in human evolution in novel ways. Hrdy (1977, 1981), an acclaimed primatologist and sociobiologist, is part of a movement within evolutionary psychology and human evolutionary anthropology to question the privileging of aggression and competition in building models of human evolution. The work of psychologist Darcia Narvaez and her colleagues provides another center of activity in this area.

Hrdy's famous thought experiment "apes on a plane" makes a powerful argument for the radical discontinuity between our closest relatives and ourselves (Hrdy 2009, pp. 1–4). Every day, she observes, thousands of human beings board aircraft to sit in extremely close quarters, packed 300 or 400 at a time, on flights ranging from 8 to 10 or 12 hours in duration and do so without incident. Now try to imagine 400 chimpanzees in similar circumstances on a plane. Could this happen without major mayhem breaking out—without bloodshed, nipped fingers, and pandemonium? Hrdy offers this thought experiment to highlight and drive home just how enormous is the evolutionary distance that exists