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Diversity in Human Behavioral Ecology

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Abstract

As befitting an evolutionary approach to the study of human behavior, the papers in this special issue of *Human Nature* cover a diversity of topics in modern and traditional societies. They include the goals of hunting in foraging societies, social bias, cooperative breeding, the impact of war on women, leadership, and social mobility. In combination these contributions demonstrate the utility of selectionist's thinking on a wide variety of topics. While many of the contributions employ standard evolutionary biological approaches such as kin selection, cooperative breeding and the Trivers-Willard model, others examine important human issues such as the problems of trust, the cost of war to women, the characteristics of leaders, and what might be called honest or rule-bound fights. One striking feature of many of the contributions is a novel reexamination of traditional research questions from an evolutionary perspective.

Keywords: Trivers-Willard, Hunting and evolution, Warfare, Cooperative breeding, Fosterage, Social mobility, Aggression, Warfare, Trust

A major strength of evolutionary approaches to the study of human behavior is the willingness of researchers to directly confront practices that, at first glance, appear to be maladaptive or puzzling. One of the first to do so was Daly and Wilson (1984). Given that infanticide is common in human societies, why would parents apparently reduce their fitness by killing an offspring at birth? Using an evolutionary perspective they hypothesized that infanticide could be fitness-enhancing under three conditions: doubtful paternity, serious congenital defects, and the negative impact that caring for a newborn would have on current offspring. After combing through the HRAF they found that these conditions were the ones that overwhelmingly led to infanticide. Similarly, but in the context of cooperative breeding, Scelza and Silk (2014) examine fosterage by asking why parents would foster their young children to others who are less likely to provide them with high-quality care. The answer is complex, but they test a suite of hypotheses that revolve around benefits to parents, whether foster parents are likely to be close kin, and the welfare of fostered children. In general they find support for the adaptiveness of fostering

even though it has some negative effects on the growth and development of fostered children. This paper is important because it fruitfully extends our ideas about the importance of cooperative breeding.

In one of the earliest tests of kin selection among humans, Chagnon (1975) demonstrated that after a village splits, individuals in the two new villages were more closely related to one another than they were in the pre-fissioned village. He argued that as village size increased so did disputes, while relatedness decreased, leading to a situation where chronic disputes could not be easily settled by kinship mechanisms. The new villages created by fissioning had higher degrees of relatedness, thus reducing disputes and allowing them to be settled through kinship mechanisms. To sharpen our understanding of fission dynamics Walker and Hill (2014) develop a “kin assortment index” and a “lineage assortment index” and thereby make a very useful contribution to understanding the dynamics of group fissioning in acephalous societies. They correctly reason that when a group fissions, families and extended families tend to cohere, which positively biases the tendency of relatedness in the two new, post-fission villages. The kin assortment index is a more appropriate null hypothesis to evaluate the relationship between fissioning and kin relatedness. In a small sample of societies, they find that while relatedness increases post fission, as expected, few societies achieve high levels of lineal assortment. They suspect that marriage ties linking different families tend to prevent this possibility in many cases. The interesting social evolutionary issue is identifying the conditions that lead to weak and strong lineal fissions and, by extension, strong lineages. They hypothesize that intensity of warfare and maintenance of access to concentrated and defendable resources may be key.

Two of the contributions deal with violence and warfare. Scalise Sugiyama (2014) asks the simple question: what are the fitness costs of warfare for women? This question is seldom directly considered and is of great interest because women rarely directly engage in warfare yet, as she shows, they bear significant costs. Of course, if they are on the winning side, there may be benefits to women, such as a superior resource base and security. Men also achieve the same benefits, but they also gain benefits women cannot, such as high status as a warrior and perhaps the capture of an additional wife. The methodological approach she employs is unconventionally based on oral traditions which are descriptions of past historical events presumed to be broadly accurate. One may object that such information is suspect. But perhaps not. In point of fact most ethnographers who write on warfare rarely witness the events they describe and instead rely on informants. The advantage an ethnographer has is that informants can be closely questioned and their accounts can be cross-checked. I have done this myself and found that certain elements (who killed whom, location and manner of death) are consistent across multiple informants but details regarding historic and immediate events that preceded the violence and assignment of responsibility can differ dramatically.

Romero et al. (2014) usefully extend our understanding of violence by comparing rules of combat in play fighting, status contests, warfare, and anti-exploitative violence. Personally, it is one of the most interesting things I have read on violence in some time. While many studies of aggression exist, they are not put in the context of the full range of physical combat humans employ, which leads one to consider how they are interrelated. In many ways this experimental research is incomplete because the scenarios used to elicit responses have shortcomings that the authors self-critically expose. Nevertheless, I think they do manage to demonstrate that humans have

socially sanctioned implicit rules of combat that check escalation of the lethality of violence. Part of the attractiveness of this piece is the linkage of ritual fighting in animals with human status contests.

Clark and Cummins (2014) examine a dimension of social mobility in the context of admissions to Oxford and Cambridge universities from 1170 to 2012, a span of 28 generations at 30 years per generation. They use data from census, probate, and university records to track social status of English surnames. Their finding of an intergenerational correlation of social status in the range of 0.70 to 0.90 indicates that social status is even more strongly inherited than height. And they found no appreciable change in levels of social mobility after the Industrial Revolution, or even since the education system was reorganized in the 1980s. This research has obvious implications not only for understanding social mobility, but for public policy as well.

Nearly any form of collective action beyond a couple of individuals entails some form of leadership. Effective leaders coordinate the activities of group members to insure that the activity is done effectively and efficiently. The importance of leaders in egalitarian societies and their attributes have been well studied qualitatively by ethnographers. In an attempt to refine the qualities of leaders more rigorously, von Rueden et al. (2014) creatively interweave ethnographic, modern management, and evolutionary psychological theory in the context of experimental cooperative games. They show how key character traits of elected Tsimane' leaders (knowledge, age, physical dominance, generosity, and trustworthiness) and social traits (kinship connections) affected cooperative performance. Unlike modern CEOs, traditional leaders do not take more of the benefits in collaborative activities than their coworkers.

The so-called pathogen theory of xenophobia or group bias (e.g., Fincher et al. 2008) has drawn a great deal of scholarly attention. Researchers using large, general cross-national surveys have found that high levels of local pathogens lead societies to be more collectivistic, in-group oriented, and xenophobic. Hruschka et al. (2014) collected original data using an experimental Resource Allocation Game (RAG) to measure in-group and out-group bias. They found that level of pathogen stress did not predict bias, but a nation's food security and trust in governmental institutions (quality of social services and government infrastructure) did. Of course, this will not be the last chapter in our understanding of in-group favoritism or collectivism-individualism, but it introduces a new tool to more precisely measure bias. Finally, in the discussion section they suggest that this approach may help us understand the strong emphasis placed on sharing in many non-market economies that has confounded those using dictator and ultimatum experimental approaches to exchange.

Song (2014) methodologically and statistically sophisticated investigation of the devastating Chinese famine of the late 1950s to early 1960s brought on by Mao's Great Leap Forward is used to examine the utility of the Trivers-Willard model of differential mortality by sex while controlling for rural and urban differences in the proportion of women in good and poor condition. This is one of the few pieces of research on the topic that attempts to understand whether the physiological mechanism responsible for sex ratio biasing is differential implantation or fetal loss.

Finally, the last two contributions deal with the goals of men's hunting among the Hadza in particular and the hunter-gatherers in general. This is a key issue in the study of human family evolution. In the 1990s Hawkes et al. (1997) made the unconventional claim that Hadza hunters focus on large game to enhance their status in contrast to using

a foraging strategy emphasizing a mix of resources that could more efficiently provision their families. In the process they productively documented the importance of grandmotherly assistance to daughters and daughters' children as a key component of human cooperative breeding and proposed a theory for the evolution of menopause and lengthy life-spans. In an earlier article published in *Human Nature*, Wood et al. (2013) provided perhaps the best data to date on the amounts and kinds of foods procured by men in a hunting-and-gathering society and the proportions allocated to their own families and to other families in the local band. In this issue, Hawkes et al. (2014) critically reexamine Wood and Marlowe's Hadza data and add some of their own among the Hadza to test the proposition that men are actually big-game specialists. Again, the conclusion drawn is that they are big-game specialists and that successful big-game hunting is designed as form of male-male status competition by "showing off" hunting skills. Wood and Marlowe (2014: Table 2) respond with new focal follow data that clearly show that Hadza hunters are not big-game specialists even though from a diet breadth model big game provide the highest rates of return per unit handling time relative to other resource types. Hadza men target other resources as well because by doing so they probably maximize their net rate of return while foraging. Since large game have lower encounter rates, focusing solely on them would lower the net rates of return. Finally, Wood and Marlowe's extensive sharing data show that while non-family members benefit by receiving shares from successful hunters, the families of successful hunters receive more.

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In this issue (11 articles)

[Diversity in Human Behavioral Ecology](#)

[Raymond Hames](#) Pages 443-447

[Download PDF \(104KB\)](#) [View Article](#)

[Fosterage as a System of Dispersed Cooperative Breeding](#)

[Brooke A. Scelza](#), [Joan B. Silk](#) Pages 448-464

[Download PDF \(412KB\)](#) [View Article](#)

[Causes, Consequences, and Kin Bias of Human Group Fissions](#)

[Robert S. Walker](#), [Kim R. Hill](#) Pages 465-475

[Download PDF \(263KB\)](#) [View Article](#)

[Fitness Costs of Warfare for Women](#)

[Michelle Scalise Sugiyama](#) Pages 476-495

[Download PDF \(326KB\)](#) [View Article](#)

[The Implicit Rules of Combat](#)

[Gorge A. Romero](#), [Michael N. Pham](#), [Aaron T. Goetz](#) Pages 496-516

[Download PDF \(1187KB\)](#) [View Article](#)

[Surnames and Social Mobility in England, 1170-2012](#)

[Gregory Clark](#), [Neil Cummins](#) Pages 517-537

[Download PDF \(703KB\)](#) [View Article](#)

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[Christopher von Rueden](#), [Michael Gurven](#), [Hillard Kaplan](#), [Jonathan Stieglitz](#) Pages 538-566

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[Impartial Institutions, Pathogen Stress and the Expanding Social Network](#)

[Daniel Hruschka](#), [Charles Efferson](#), [Ting Jiang](#), [Ashlan Falletta-Cowden](#),... Pages 567-579

[Download PDF \(305KB\)](#) [View Article](#)

[Malnutrition, Sex Ratio, and Selection](#)

[Shige Song](#) Pages 580-595

[Download PDF \(321KB\)](#) [View Article](#)

[More Lessons from the Hadza about Men's Work](#)

[Kristen Hawkes](#), [James F. O'Connell](#), [Nicholas G. Blurton Jones](#) Pages 596-619

[Download PDF \(384KB\)](#) [View Article](#)

[Toward a Reality-Based Understanding of Hadza Men's Work](#)

[Brian M. Wood](#), [Frank W. Marlowe](#) Pages 620-630

[Download PDF \(175KB\)](#) [View Article](#)

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