

BOOKS

A Bold New Theory Proposes That Humans Tamed Themselves

A leading anthropologist suggests that protohumans became domesticated by killing off violent males.

MELVIN KONNER MARCH 2019 ISSUE

The Goodness Paradox: The Strange Relationship Between Virtue and Violence in Human Evolution

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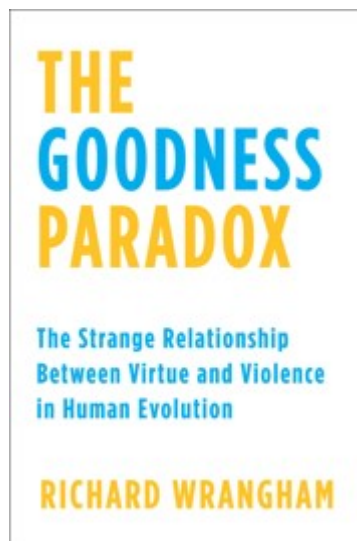
WHEN I WAS STUDYING for my doctorate, in the late 1960s, we budding anthropologists read a book called *Ideas on Human Evolution*, a collection of then-recent papers in the field. With typical graduate-student arrogance, I pronounced it “too many ideas chasing too little data.” Half a century and thousands of fossil finds later, we have a far more complete—and also more puzzling—view of the human past. The ever-growing fossil record fills in one missing link in the quest for evidence of protohumans, only to expose another. Meanwhile, no single line emerges to connect these antecedents to *Homo sapiens*, whose origins date back about 300,000 years. Instead, parallel and divergent lines reveal a variety of now-extinct hominids that display traits once considered distinctive to our lineage. For example, traces of little “Hobbits” found in Indonesia in 2003 show that they walked upright and made tools; less than four feet tall, with brains about a third the size of ours, they may have persisted until modern humans arrived in the area some 50,000 years ago.

As data pile up, so do surprises. Microscopic methods indicate that certain marks on 2.5-million-year-old bones were probably made by sharp stone tools; scientists had previously assumed that such tools came later. The dental tartar caked on the teeth of Neanderthals suggests that the brawny, thick-boned people (almost-humans on one of the parallel lines) probably ate cooked barley along with their meat; these famously carnivorous folks were really omnivores, like us. DNA from tiny fragments of bone—for instance, the tip of a pinkie many thousands of years old—has brought to light a whole new humanlike species that once interbred with us, as Neanderthals did. Charles Darwin drew evolution as a bush, not a tree, for a reason.

The study of human evolution is by now about much more than bones and stones. In 1965 a remarkable book—Irven DeVore’s collection *Primate Behavior* (which led me to study with DeVore)—made what then seemed a radical claim: We will never understand our origins without intensive study of the wild world of our nonhuman relatives. A handful of scientists, including Jane Goodall, set up tents in distant jungles and savannas. Following monkeys, apes, and other creatures in their habitats, these scientists turned their notes and observations into voluminous,

quantitative data. DeVore and others devoted themselves just as rigorously to the remaining human hunter-gatherers, found on every habitable continent except Europe—our biological twins, living under conditions resembling the ones we evolved in.

The multifaceted effort was new and ambitious, but the idea was old. DeVore had hanging in his office an 1838 quote from Darwin’s notebook: “Origin of man now proved ... He who understands baboon would do more towards metaphysics than Locke.” It’s an aphorism that calls to mind one of my favorite characterizations of anthropology—philosophizing with data—and serves as a perfect introduction to the latest work of Richard Wrangham, who has come up with some of the boldest and best new ideas about human evolution.



Pantheon

In his third book, *The Goodness Paradox: The Strange Relationship Between Virtue and Violence in Human Evolution*, he deploys fascinating facts of natural history and genetics as he enters a debate staked out centuries ago by Thomas Hobbes and Jean-Jacques Rousseau (among other philosophers), and still very much alive today: how to understand the conjunction of fierce aggression and cooperative behavior in humans. Why are we so much less violent day-to-day within our communities (in pretty much all cultures) than our closest primate relatives, chimpanzees, are within theirs? At the same time, how is it that human violence directed toward perceived enemy groups has been so destructive?

WRANGHAM, WHO TEACHES biological anthropology at Harvard, was mentored by both Goodall and DeVore. He was in a sense working toward this latest venture in his two previous books, which explore the opposing

poles of behavior. Renowned for his meticulous fieldwork, especially with chimps in Uganda's Kibale National Park, Wrangham showed just how common chimp brutality is. Goodall had acknowledged with frank regret that her beloved chimpanzees could be quite violent. One mother and daughter killed the infants of other females in their group. Males often coerced and beat females, and would sometimes gang up and attack a chimp from another group.

At Kibale, large groups of chimps range together, and aggression escalates accordingly. Wrangham observed as these bigger parties of males got excited and went out on "patrol" in what looked like an organized way: They walked along their territorial border, attacking lone chimps from neighboring communities when they came across them en route. In his 1996 book, *Demonic Males*, co-authored with Dale Peterson, Wrangham recapped this and other evidence to draw a dire portrait of humanity (the male version) as inherently violent by evolutionary legacy. Here was vivid support for a Hobbesian view of human nature, rooted in genetics.

Wrangham's 2009 book, *Catching Fire: How Cooking Made Us Human*, pursued a very different hypothesis. Based on archaeological evidence, he made the case that our ancestors mastered fire much earlier than most of us had believed—perhaps closer to 2 million rather than 800,000 years ago—which changed everything for them. In particular, cooking made possible a much more diverse diet, by allowing the consumption of fruits, leaves, and other plant foods with toxic potential when eaten raw. It made meat, too, safer and easier to digest. As a major bonus, fire extended the day into the night. Given how important we know conversations and stories told around the fire are to human hunter-gatherers, it's easy to see how this process could have accelerated the evolution of language—an essential ingredient for less physically aggressive interactions.

In his new book, Wrangham grapples fully for the first time with the paradox of the title. Over the decades during which he has focused mostly on the dark side of human nature, evidence has steadily accumulated that humans, from early on in their development, are the most cooperative species in the primate world. Put apes and humans in situations that demand collaboration between two individuals to achieve a goal, as a variety of experimenters have done, and even young children perform better than apes. Meanwhile, classic work on chimps has been complemented by new studies of bonobos, our other close relative. No more removed from us genetically than chimps are, they are a radical contrast to them,

often called the “make love, not war” species. Some of our nonhuman kin, such fieldwork has revealed, can live and evolve almost without violence.

Wrangham draws on this trove of material as he pursues yet another ambitious hypothesis: “Reduced reactive aggression must feature alongside intelligence, cooperation, and social learning as a key contributor to the emergence and success of our species.” (By *reactive aggression*, he means attacking when another individual gets too close, as opposed to tolerating contact long enough to allow for a possible friendly interaction.) He also applies his evolutionary logic to studies of a wider array of animals. He dwells in particular on some marvelous experiments that explore the taming of wild foxes, minks, and other species by human-directed artificial selection over many generations.

Such breeding efforts, Wrangham notes, have produced “the domestication syndrome”: a change in a suite of traits, not just the low reactive aggression that breeders have deliberately singled out. For instance, in a fox study begun in Russia in the early 1950s, the pups in each litter least likely to bite when approached by humans were bred forward. Yet a variety of other features appeared in tandem with docility, among them a smaller face with a shortened snout and more frequent (less seasonally circumscribed) fertile periods, as in some other similarly domesticated species.

Enter the bonobos, to whom Wrangham turns as he considers how diminished aggression may have been selected for in the evolution of humans. Once thought to be a type of chimpanzee, bonobos are now known to be a different species. The standard view holds that they separated from chimps 1 to 2 million years ago, and were isolated south of a bend in the Congo River. Female bonobos form strong coalitions—partly based on sex with each other—that keep a lid on male violence. The “trust hormone” oxytocin is released during female sex: You could say that the partners are high, in both senses of the word, on trust. Because females run things, males don’t attack them, and even male-on-male violence is extremely limited. Bonobos also display the other traits common to the domestication syndrome, which suggests—as in the case of the foxes—a broad genetic dynamic at work.

Wrangham accepts the consensus that the difference between bonobos and chimps is fundamental, genetic, and evolutionary. His distinctive explanation of the divergence reflects his training in ecology: He has learned that over many

generations, ecological realities create species-specific behavior. In the case of bonobos, he suggests, a lush habitat in which they were protected from competition with either chimps or gorillas gave them the luxury of decreasing their own reactive aggression. Other examples of nonhuman self-domestication in the wild exist—for instance, the Zanzibar red colobus monkey diverged from the mainland African red colobus in similar ways during its island isolation—but bonobos are the closest and most relevant to us.

IN FACT, WRANGHAM'S NOTION of human evolution powered by self-domestication has an ancient lineage: The basic idea was first proposed by a disciple of Aristotle's named Theophrastus and has been debated several times since the 18th century. This latest version, too, is bound to provoke controversy, but that's what bold theorizing is supposed to do. And Wrangham is nothing if not bold as he puts the paradox in his title to use. In his telling, the dark side of protohuman nature was enlisted in the evolution of communal harmony.

Central to his argument is the idea that cooperative killing of incurably violent individuals played a central role in our self-domestication. Much as the Russian scientists eliminated the fierce fox pups from the breeding pool, our ancestors killed men who were guilty of repeated acts of violence. Certainly all-male raiding parties have operated in some groups of humans, seeking out and killing victims in neighboring villages (which recalls the patrolling chimps that Wrangham reported on earlier in his career). The twist in his current theory is that such ambushes are turned inward, to protect the group from one of its own: They serve as a form of capital punishment. Wrangham cites a number of examples of anthropologists witnessing a group of men collaborating to kill a violent man in their midst.

The idea is intriguing, and it is indeed true that human hunter-gatherers, whose societies exist without governments, sometimes collectively eliminate bad actors. But such actions are rare, as the Canadian anthropologist Richard Lee emphasized in his extensive studies of the !Kung, which include the report of an unusual case: After a certain man killed at least two people, several other men ambushed and killed him. My own two years with the !Kung point to a more robust possible selection process for winnowing out aggression: female choice. Women in most hunter-gatherer groups, as I learned in the course of my experience in the field, are closer to equality with men than are women in many other societies. Evolutionary logic suggests that young women and their parents, in choosing less violent mates

through the generations, could provide steady selection pressure toward lower reactive aggression—steadier pressure than infrequent dramas of capital punishment could. (Female bonobo coalitions would seem primed to serve a similar taming function.)

Although he downplays such a comparatively domestic story of self-domestication, Wrangham has nonetheless highlighted a puzzle at the core of human evolution, and delivered a reminder of the double-edged nature of our virtues and vices. “Human nature is a chimera,” he concludes, evoking both the hybrid monster of mythic lore and the biological phenomenon of genetically hybrid organisms. In a closing meditation on a 2017 visit to Poland, he writes, “I walked around Auschwitz. I could feel the chimera at its best and worst.” Violence and virtue, he recognizes, are not opposites but powerful, not always reliable allies. “So much cooperation,” he notes of the smoothly operating human machinery of mass murder—“it can be for good or bad.” To protect us from danger, which now arises mainly from our own inclinations and actions, clear-eyed wisdom like that is surely what we need.

This article appears in the March 2019 print edition with the headline “How Humans Tamed Themselves.”

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