



Donald Trump meets supporters during his US presidential campaign in 2015.

EVOLUTION

Social dynamics for good or ill

Agustín Fuentes compares three books on the origins, trajectory and implications of human group behaviour.

Humans are animals, mammals, primates — and something distinct. Over the past 2 million years, our genus, *Homo*, has undergone significant changes in bodies, behaviour and ecologies, resulting in the development of a human niche characterized by societal complexity.

No other species creates cash economies and political institutions, changes planet-wide ecosystems in a few generations, builds cities and aeroplanes, arrests and deports its members or drives thousands of other species towards extinction. These are the actions not of individuals, but of societies. Now, three books — by biologist E. O. Wilson, entomologist Mark Moffett and sociologist Nicholas Christakis — argue that the key to understanding our distinctiveness lies in how societies evolved. All showcase solid science engagingly; all share blind spots.

In *Genesis*, Wilson inspires awe with narratives about evolution and animal societies from ants to wasps, cockroaches, naked mole rats, starlings, wolves and chimpanzees, aiming to show how human

Genesis: The Deep Origin of Societies

EDWARD O. WILSON
Liveright (2019)

The Human Swarm: How Our Societies Arise, Thrive, and Fall

MARK W. MOFFETT
Head of Zeus (2019)

Blueprint: The Evolutionary Origins of a Good Society

NICHOLAS A. CHRISTAKIS
Little, Brown Spark (2019)

societies are biological systems that can be described in much the same vein. His message is that selection, at group and gene level, has shaped humans as modified apes with a society that is super-eusocial — characterized by cooperation and division of labour — and layered densely with cultural processes, resulting in increasingly complex alliance, coalition and storytelling.

It's engaging, but contains inaccuracies. Wilson insists that homosexuality is a genetic adaptation for enhanced eusociality, for instance. This obscures the substantial

complexity in human sex, gender and sexuality (described by, for example, psychologist Janet Shibley Hyde and biologist Anne Fausto-Sterling), bonding and caretaking systems. He uses the classifications “Europeans, Africans and Asians” as analogous to biological populations — which they're not. Finally, he ignores increasing fossil and archaeological evidence that chimpanzee society is not the best model for hominin behaviour and evolution. Thus, *Genesis* offers a very traditional view, echoing themes laid out in Wilson's 1975 classic, *Sociobiology*, in the chapter ‘Man: From Sociobiology to Sociology’.

Moffett's *The Human Swarm* is another enticing whirlwind tour of the fascinating patterns of behaviour and structures of societies revealed through the varied lives of people and animals across the globe. Moffett traverses increasingly complex social systems. We see incredible insect societies that require no individual recognition or identity. We meet primates with complex sociality: individuals know their group mates intimately, each has a personality, and see those not of their group as foreign, unknown. Finally, we come to humans, now with societies too large for members to know and recognize one another individually. We depend on markers of identity to spot compatriots — from clothes to languages, habits, cuisines and belief systems.

Moffett remains committed to the position that the evolution of human social complexity has been, in large part, driven by the patterns of selection generated by in-group cohesion and out-group conflict. There is no doubt that intergroup conflict had a role in human evolution, as demonstrated by the fossil and archaeological record. However, the same records cast substantial doubt on whether such conflict is prevalent at the level and pervasiveness that Moffett's stance requires.

He excellently illustrates the myriad psychological and physiological processes that humans deploy in unifying and othering — from disgust to implicit bias. But he does not address crucial data and interpretations that differ from his. Recent work on the emergence of warfare (by anthropologists Marc Kissel and Nam Kim), compassion (by archaeologist Penny Spikins), and decades of study of intra- and intergroup dynamics in primate societies (by anthropologists Karen Strier and Shirley Strum) call into question the idea that deep-seated xenophobia is central to human evolution. Finally, Moffett briefly engages with some of the anthropological data and arguments about the construction of the unscientific concept of race. But he avoids their implications. In my view, historical, political and institutional processes contradict the idea of evolved xenophobia as the core (or even a relevant) explanation for discrimination, slavery and racism.

Christakis, unlike Wilson and Moffett, sees us as genetically predisposed to be good to one another, even beyond our immediate group. *Blueprint* interweaves engaging examples of people, places and events to offer hope that humans can form communities under even the most challenging circumstances, such as the small-scale societies that emerge after shipwrecks. Christakis proposes that a “social suite” of patterns and processes predisposes us to work together to create a “morally good society”, which enhances individual and group fitness.

Although Christakis engages more widely with current anthropological and primatological data and theory than do Wilson and Moffett, he shares their commitment to the idea of evolution as genes using bodies. As he puts it: “Our own genes — and our friends’ genes — seem to be working to build a safer and calmer world.” In my view, this is unlikely, given what we know about how genes and genomic systems function, and the patterns of violence, inequality and instability in human history (and in the present). Fortunately, elsewhere he develops his ‘blueprint’ theme in rich and nuanced ways. He shows, for example, that the increasingly complex social systems of our ancestors — involving deep social networks and bonding, intensive social learning and teaching, the ratcheting up of material and structural complexity — shaped their niche and restructured selection pressures.

But all three books share two elements that restrict insight.

The first is a belief that stories of targeted selection are the key to the rise of our societies. All three proposals would have benefited from engaging with the theories of the extended evolutionary synthesis, which draw on what in my opinion are more accurate representations of developmental, genomic and epigenomic processes. With this, the books might have avoided their second shortcoming: a devotion to an anthropologically naive idea of ‘tribalism’ and its damaging associated assumptions that patterns of evolutionary differentiation underlie and explain forms of severe discrimination.

Today, with extreme inequality, and the massive, ongoing violence of nationalism, religious conflict and racism, how experts parse these systems influences how our societies think about them. Now is a crucial time for scholars to resist familiarity and push themselves to reach across paradigms to obtain the best and most accurate information and interpretation. ■

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The Preaching of St Paul at Ephesus by Eustache Le Sueur.

HISTORY

Lights out: the ebb of scientific authority

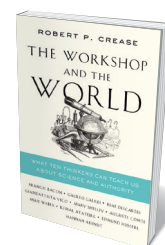
To fight denialism, learn from the shapers of our scientific infrastructure, urges **Robert P. Crease**.

Hanging in the Louvre Museum in Paris is an imposing painting, *The Preaching of St Paul at Ephesus*. In this 1649 work by Eustache Le Sueur, the fiery apostle lifts his right hand as if scolding the audience, while clutching a book of scripture in his left. Among the rapt or fearful listeners are people busily throwing books into a fire. Look carefully, and you see geometric images on some of the pages.

The not-so-subtle message hinges on Galileo Galilei’s famous statement in 1623 that the book of nature is written in mathematical figures — implying that those who decipher it speak as authoritatively as clerics. That was religious heresy. Galileo lived in an era that knew two principal sources of authority: church and state. He attempted to show that scientists had another kind of authority, with

which politicians, clerics and agenda-driven advocates would have to reckon. Galileo did not prevail, at least not at first. He was tried in 1633, convicted and sentenced to house arrest until his death in 1642. But, by the end of the century, European governments began recognizing the authority that Galileo sought to establish, supporting scientific academies, workshops and scientists.

Today, St Paul is making a comeback: the authority of ▶



The Workshop and the World: What Ten Thinkers Can Teach Us About Science and Authority
ROBERT P. CREASE
W. W. Norton (2019)