

INTRODUCTION

Stephen Macedo

What makes humans special? Is it, as many have argued, our superior intelligence that sets us apart from other species?

In the lectures and discussions that follow, Robert Boyd, a distinguished professor of human evolution and social change, refines the question and rejects the common answer. Putting aside the more familiar question of human uniqueness, Boyd asks why humans so exceed other species when it comes to broad indices of ecological success such as our ability to adapt to and thrive in such a wide variety of habitats across the globe. Ten thousand years ago, humans already occupied the entire globe except Antarctica and a few remote islands. No other species comes close. What explains our outlier status if not our “big brains”?

Humans adapt to a vast variety of changing environments not mainly by applying individual intelligence to solve problems, but rather via “cumulative cultural adaptation” and, over the longer term, Darwinian selection among cultures with different social norms and moral values. Not only are humans part of the natural world, argues Boyd, but *human culture* is part of the natural world. Culture makes us “a different kind of animal,” and “culture is as much a part of human biology as our peculiar pelvis or the thick enamel that covers our molars.”

With his many coauthors, especially Peter Richerson, Robert Boyd has for three decades pioneered an important approach to the study of human evolution that focuses on the population dynamics of culturally transmitted information. (“Cultural group selection” is a subset of this larger approach sometimes called “dual inheritance” or “cultural

evolution.”) That program is summarized, elaborated, and defended in the chapters that follow. Boyd’s framework “provides a picture of human nature with powerful implications for how societies should be organized,” and it “deserves to be much better known among scholars in the social sciences and humanities.” So says the economist Paul Seabright in his contribution below, and I could not agree more. This volume furnishes a superb introduction for those with little or no background in evolutionary studies.

A few words, then, about the overall contours of this volume, which originated as the Tanner Lectures on Human Values at Princeton University in April 2016, organized under the auspices of the University Center for Human Values.

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Robert Boyd marshals an astonishing range of scholarship, colorful vignettes, and anecdotes to argue that humans make use of insights and adaptations that we do not understand. We learn very often not by figuring out how things work but by imitating others who have locally useful “know-how.” Boyd describes the conditions under which selection favors “a psychology that causes most people to adopt beliefs *just because* others hold those beliefs.” Indeed, he argues that “even the simplest hunter-gatherer societies depend on tools and knowledge far too complex for individuals to acquire on their own.” Culture is the storehouse of gradually accumulated, local, and typically tacit knowledge. “Cumulative cultural evolution” is the great and unique advantage of humans.

Not all of the consequences are positive: maladaptive ideas and false beliefs can also spread via blind imitation. But the dominant effect is that, as Seabright puts it, “thanks to a supremely flexible collective intelligence,” we are “collectively smarter than any individuals in the population.” Indeed, thanks to the power of imitative learning, “we do not need to be as intelligent individually as we are collectively.”

In his second lecture, Boyd deploys his account of social learning and cumulative cultural evolution to illuminate how societies adapt to changing environments and develop ever more sophisticated tools and technology. Our ability to learn by imitation and our evolved trusting psychology are used to explain the centrality of social norms, and to explain why and how humans have for so long been “supercooperators.” Even in foraging societies, the extent of human cooperation vastly exceeds that of any other species. Millennia of cumulative cultural evolution have helped create a vast “worldwide web of specialization and exchange.” Humans are unique in that “people cooperate in large groups of almost unrelated individuals to provide public goods.”

Boyd poses the puzzle thus: “Everywhere else in nature, large-scale cooperation is explained by kinship, but in humans it is not.” So, “how could natural selection favor changes in human psychology that led to cooperation among large numbers of unrelated people?”

Cooperation in large groups “requires systems of norms enforced by sanctions.” In larger and more complex societies, cooperation and the provision of public goods depend crucially on coercive sanctioning by third parties: institutions such as police and courts.

Cooperative social norms can take a great variety of forms, and societies have evolved a wide range of different moral codes: rules for marriage and inheritance, for example, and various political systems. Differing societies and cultural groups compete on the basis of these differing codes, which vary in their capacity to survive in a changing environment and prevail in competition with other societies. Christianity may have prevailed over paganism in the Roman Empire, for example, because whereas “paganism had weak traditions of mutual aid,” “solicitous care of the sick” in Christian communities reduced mortality and increased well-being. Roman political institutions, on the other hand, have been adapted and persist.

Boyd acutely points out that evolutionary accounts of social life too often have a libertarian flavor, with society conceptualized as a “network of bilateral bargains among self-interested individuals and nepotistic families.” Boyd rejects this picture and insists that even small-scale cooperation is “regulated by shared norms that are enforced by third-party sanctions,” and that these provide “vital scaffolding in sustaining cooperation” among people in society.

One of the most notable features of Boyd’s work generally and of the lectures that follow is, as I have noted, the breadth of the scholarly approaches and resources he draws upon. He and his students do fieldwork in Fiji and elsewhere, as cultural anthropologists, but he also engages in mathematical modeling, uses rational choice theorizing, and draws on any number of other scientific and social-scientific insights and methods. As he modestly puts it in his response in chapter 7, speaking of his long collaboration with Richerson, “Our research style was, and still is, to read widely in anthropology, psychology, and economics looking for promising empirical problems and then tackle those problems with theory derived mainly from population biology.” Sounds simple, but few scholars approach his range and rigor.

“Cultural group selection” is not to be confused with moral or any other form of progress: Boyd’s theory is social scientific and positive, not ethically normative. And yet no society can do without social norms and extensive cooperation, so there is no doubt that the ideas developed here are of great interest to anyone concerned with human nature and the social and institutional underpinnings of good and just societies.

Boyd concludes by reiterating his core thesis that “the evolution of cultural adaptation” was the “essential ingredient” in our “ecological success and our ability to cooperate.” Humans are outliers in the natural world because “no other creature is able to create so many different local adaptations” that are “beyond the inventive capacities of individuals.”

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Robert Boyd's two lectures are followed by four critical comments written by distinguished scholars from a variety of disciplines.

H. Allen Orr, a general evolutionary biologist who studies speciation and adaptation and also writes for wider audiences, raises two large and interesting questions about Boyd's model of cultural learning. He wonders, first, whether Boyd exaggerates the contrast between the "Big Brain" model, which emphasizes cognitive explanations for human success, and the imitative model that Boyd prefers. Successful imitation often requires considerable "neuronal firepower," argues Orr. In addition, Orr usefully describes the partial convergence of Boyd's view with that advanced by the well-known free-market economist and social theorist Friedrich Hayek. Hayek also emphasized that social success and progress depend on the use of tacit and dispersed local knowledge, culturally transmitted social norms and ethical mores, and institutions that are the product of social evolution. Orr wonders whether scientists and social scientists pay less attention to Hayek than they should because of Hayek's politics.

Kim Sterelny, a prolific philosopher of science and especially of evolutionary biology, endorses, like our other commentators, the main contours of Boyd's argument: humans are outliers in our capacity to adapt to many environments. But, like Orr and Seabright, Sterelny asks whether Boyd goes too far in reducing the role of "our distinctive human intelligence" in explaining our ecological adaptability. He at least partly defends the "library" or "Big Brain" model that Boyd argues against. Tacit, practical know-how is a form of knowledge. In addition, Sterelny argues that Boyd relies too heavily on a simple and "conformist" or "trusting social learning heuristic." As a final point, Sterelny wonders whether and how social learning has changed across "domains and across time."

Ruth Mace, who is, like Boyd, an anthropologist but whose approach is known as human evolutionary ecology,

applauds Boyd's multidisciplinary approach to the study of human evolution, while stressing her own belief in the importance of empirical testing. She points out that many questions remain about how norms arise, why they vary, "how they are maintained, and how easily they change." In a more critical vein, Mace suggests that some of the behaviors that Boyd attributes to social norms and sanctions might better be explained based on individual benefits, including the decision to participate in warfare. She describes her own empirical research on intergroup conflict in Northern Ireland and raises the question of whether "competition and conflict between groups, such as interethnic warfare, leads to parochial altruism (that is, altruism directed only within the group)."

Paul Seabright, an unusually wide-ranging and influential economist, argues that there is a "darker dimension to what makes us human," which Boyd largely leaves aside. If we are "the most ecologically adaptable and massively cooperative species," argues Seabright, we are also "the most spectacularly and violently competitive, and the most deviously manipulative." Seabright contends that "a much larger part of the communication that takes place around norms in most societies is about individuals manipulating other individuals" than one would think from Boyd's examples.

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In his reply at the conclusion of the volume, Robert Boyd expresses appreciation for the commentators' thoughtful disagreements, all of which "accept the value of trying to understand how culture evolved."

Boyd notes one broad point of contention, shared by Mace, Sterelny, and Seabright, which is that he does not "give people enough credit for making smart, well-informed decisions." Boyd stands his ground, arguing that individual choice matters but people's basic beliefs come from their social context.

With respect to the related comments by Orr and others, suffice it to say that Boyd expresses agreement that “cognitive abilities and cultural learning are mutually reinforcing.”

Boyd ably defends his model against all four commentators and concludes by offering a pointed defense, against Seabright, of his own more optimistic view, closing with a most humorous observation that I will not spoil.

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The program of research that Robert Boyd has pioneered along with Peter Richerson and their various coauthors, including Joseph Henrich and Sarah Mathew, provides a basis for reconsidering fundamental questions concerning human nature, social order, and human progress. The fascinating and astonishingly wide-ranging scholarship on display in the essays that follow is deeply suggestive for contemporary questions of institutional design and reform. Specific reform proposals await further scholarly inquiry which, I hope, this rich volume will help stimulate.