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# Introduction

HUMAN NATURE CONTAINS THE SEEDS of humanity's destruction. Or so it seemed to popular consumers of evolutionary theory in the late 1960s who maintained that the essential quality distinguishing the human animal from its simian kin lay in our capacity for murder. This startlingly pessimistic view enjoyed wide currency in the United States between 1966 and 1975 and became known, by its critics, as the killer ape theory.

Readers at the time associated the concept of humans as mere animals with three men. Robert Ardrey published The Territorial Imperative in 1966, which leapt off bookshelves across the country. He styled himself an amateur scientist and believed his experience as a playwright gave him unique insights into the composition of human nature. Konrad Lorenz's white-maned visage loaned him a distinguished appearance despite the black rubber boots he favored when showing people around his farm. Lorenz, the author of On Aggression, which appeared in English translation the same year as Ardrey's Territorial Imperative, would later share the Nobel Prize in Physiology or Medicine for his perceptive contributions to the scientific study of animal behavior. Desmond Morris unknowingly capitalized on the success of both authors when he published The Naked Ape the following year. Well known as the host of Granada TV's popular *Zootime* program, based out of the London Zoo, Morris soon gave up scientific work to concentrate on writing scientific nonfiction and refining his surrealist painting. The reading public, including a wide array of budding and established scientists, treated all three men as authoritative voices who used their knowledge of animal behavior to discern unsavory truths of human nature.<sup>1</sup>

Just ten years earlier, their pessimistic vision of humanity would have struck scientists as odd. After the Second World War, liberal American biologists and anthropologists had struggled to make sense of the recent eugenic horrors predicated on the assumption that some human lives were less valuable, less human, than others. In response, they crafted an account

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of humanity's past that emphasized a common evolutionary heritage bonded through continued interbreeding into a universal family of man. They sought out and proselytized the best features of humanity: our quick intelligence and problem-solving skills, our capacity to cooperate with and learn from strangers, and the resulting exponential accumulation of knowledge. We had invented agriculture. We had built pyramids. We orbited Earth and, within a decade, landed on the moon. By working together, humans were capable of creating objects of surpassing beauty and technological complexity.

This book tells the story of how definitions of human nature came to grip the American public with such force and why purported scientific insights shifted, so dramatically and in such a short time, from seeing humanity as characterized by our unique capacity for reasoned cooperation to emphasizing, even lauding, our propensity to violence. By 1971, S. Dillon Ripley, then secretary of the Smithsonian Institution, remarked that despite Americans' remarkable achievement in sending men to the moon, future historians would look back on this period and be struck by the "enormous awakening of public and scholarly interest in what one anthropologist has called 'the humanity of animals and the bestiality of men."<sup>2</sup> "Curiosity about lunar rocks," Ripley continued, would appear alongside the "organized and capricious human violence" that marred the era—from Memphis to Algiers, Los Angeles to My Lai. The deepening quagmire of Vietnam lighting up television screens in homes across the United States fueled broad discontent and, eventually, anger with military adventurism. The slow pace of change produced by the Civil Rights movement, coupled with economic hardship, precipitated urban unrest and riots in Newark, Detroit, Baltimore, and other major American cities. Newspapers carried accounts of political revolutions in Africa, Asia, and Latin America, not to mention the assassinations of President John F. Kennedy, Malcolm X, Martin Luther King Jr., and Robert Kennedy. Popular accounts of human evolution emphasized that the violence of humanity was too widespread to be an aberration and too common to dismiss as being against our better nature.

Debates over the malleability of human morality had a long tradition. Producers of publicly engaged science in these years—both those who supported and those who abhorred this new vision of humanity as innately aggressive recognized this. Commentators on books by Ardrey, Lorenz, and Morris speculated that these authors had rewritten the battle between brothers at Eden's gate in evolutionary guise (Figure 1).<sup>3</sup> Just as the biblical story in which Cain slew his brother Abel had introduced murder as a human vice, contemporary evolutionists sought to inscribe in human nature the moral depravity of Cain's descendants. Readers noticed, too, that Ardrey had positioned his contention that aggression was ingrained in human nature against Jean Jacques Rousseau's eighteenth-century conviction that humans were born



FIGURE 1. Illustration accompanying Harry F. Guggenheim's editorial, "The Mark of Cain," *Newsday*, 25 September 1967, 33. Drawing on his reading of Robert Ardrey's *Territorial Imperative* and Konrad Lorenz's *On Aggression*, Guggenheim wrote that "man bears an evolutionary mark of Cain"—instinctual aggression. With this essential nature, each harm against Cain would be magnified against his transgressors until presumably the world fell into chaos. Illustration by Ken Crook. © 1967 Newsday. All rights reserved. Used by permission and protected by the Copyright Laws of the United States. The printing, copying, redistribution, or retransmission of the Content without express written permission is prohibited.

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virtuous but corrupted by the society in which they matured.<sup>4</sup> The question of human nature in the 1960s was thus infused with both moral and scientific valence, sketched through evolutionary time. At issue was not merely if men needed to be taught to kill or to compromise, but whether humanity's capacity for interpersonal violence had provided the crucial ingredient that caused our evolutionary lineage to diverge from those of the other great apes, making us truly human.

The question of humanity's biological nature carried implications for the social and political concerns permeating college campuses, from civil rights to the feminist movement. Were race and sex, intelligence and charisma, indelibly etched in our bones, bodies, or genes? The cultural reverberations of such questions contributed to the authority that an evolutionary vision of a universal human nature played in the development of educational programs for American youth, domestic civil legislation, Hollywood movies, and reconfigured research programs across the social and natural sciences. The psychologist Charles Osgood, for example, argued that because the biological tools with which we understand and control our own actions were limited by our Stone Age nature, the pace at which we invented new methods of destruction had long ago outstripped our capacity to deal with these weapons. He echoed the concerns of an entire generation when he wondered, "Perhaps Modern Man, with his head in the sky, still has Neanderthal feet that are stuck in the mire."<sup>5</sup> By understanding our instinctual urges, Osgood and others hoped, perhaps they could alter humanity's self-destructive course.

In the decades after the Second World War, scientific authors became public figures in the United States, trusted as experts on a range of topics from childrearing to death.<sup>6</sup> At the same time, violence emerged as a site of particular concern at every level of American society. In literature, politics, film, and science, writers rethought and re-presented the role of violence in modern life.<sup>7</sup> *Creatures of Cain* traces conceptions of aggression and the human animal through the "colloquial science" literature in these years, calling attention to a new kind of public intellectual who wrote, backed by the authority of science, in a style intended to engage readers only passingly familiar with his (or her) subject.<sup>8</sup> Hailed as experts in their respective fields, and sometimes beyond, Cold War scientists spoke on *The Tonight Show*, wrote best-selling paperbacks, produced regular columns in magazines, starred in documentary films, and served as advisors to the president.<sup>9</sup>

By emphasizing the colloquial language of these scientific books, essays, and films, I avoid locating them along a charged continuum of popular and professional publications.<sup>10</sup> Postwar scientists learned to communicate their work in at least two different registers: a professional language they used

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among peers and a colloquial one used when discussing their work with undergraduates, journalists, family members, and crafting so-called popular publications.<sup>11</sup> When contributing to the technical scientific literature of their field, whether reconstructions of humanity's past or descriptions of chimpanzee behavior in the wild, evolutionary scientists identified specific questions with solidly defensible answers, leaving little space for speculating about larger issues like, what does it mean to be human? Even a middlebrow intellectual magazine like Scientific American, for example, allowed its authors a scant final paragraph relating their research findings to social questions of the day. Colloquial scientific discussions embraced this larger context, including enough technical detail to establish the plausibility of their claims and directly addressing the social or political implications of their work. Put another way, readers enjoyed colloquial scientific works precisely because of the privilege they granted to the expertise of the author and the everyday, accessible language of the publication itself.<sup>12</sup> Drawing a sharp distinction between specialist and nonspecialist audiences would distort the history of ideas about human nature in these decades. After all, scientists read (and reviewed) colloquial scientific publications, too, especially when exploring new ideas outside their immediate expertise.<sup>13</sup>

This book begins in the years after the Second World War as scientists writing in a colloquial voice from a wide range of disciplines—cultural and biological anthropology, paleontology, primatology, and zoology—crafted a historical trajectory for humanity that was self-consciously anti-eugenic.<sup>14</sup> The best of humanity had not degenerated from living in the artificial constructs of civilization, would not dissolve because of the overbreeding of the lower classes, and could not be corrupted through miscegenation. Instead, these evolutionists (a useful term capturing their shared sense of enterprise) argued that our common past provided evidence of our continued remarkable success as a species. Our diachronic passage from mere ape to fully human rendered humanity the culmination of hardscrabble victories in the unforgiving environment of the open savannah. Behaviorally, we had learned to avoid predators, hunt cooperatively, and share food. We had changed structurally, allowing our ancestors to walk upright and carry weapons. Physiologically, females had developed hidden estrous, and we had become more adept at digesting meat. Linguistically, we spoke to communicate with each other. All of these factors cemented the pair bonds uniting families and, over time, led to a new fully conscious self-articulation of how we differed from other animals. In essence, so these scientists reasoned, our present human nature resulted from the synergy of biology and culture, both in dynamic flux throughout our development as a species.<sup>15</sup> We had become the most recent manifestation of a human lineage destined for even greater things in the future.<sup>16</sup> Through their

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work, an evolutionary perspective wended its way into each discipline perched at the intersection of the natural and social sciences.

Evolutionists felt a duty to communicate their ideas to people lacking expertise in that discipline and to enter into public dialogue about the social and political implications of various theories of human nature.<sup>17</sup> Their imagined readers included laymen (the contemporary term used to describe readers of both sexes without training in any of the sciences), scientists with expertise in other fields, and their colleagues. To reach all of these readers, they adopted authoritative voices crafted to be accessible to nonspecialists. In the words of one anthropologist, "The world of science is now so diverse that an expert in one branch is hardly more than a well-informed layman in another." He continued, "The credulity gap between scientific disciplines is perhaps in ever greater need of bridging than the rapidly shrinking chasm between science and the citizen."18 Aspiring scientists also read and seriously debated books written in colloquial language, including those of Ardrey, Lorenz, and Morris. By the end of the 1960s, changing politics tinged earlier diffusionist models of educating the masses with an arrogant elitism. Some professional scientists imagined that members of an elusive public, with grassroots ideals and commonsense truths, would provide important insights into the proper jurisdiction of scientific expertise. In this climate, nonacademic writers vied for sales and prestige alongside professional zoologists, anthropologists, and paleontologists.19

By the mid-1970s, however—where this book ends—a new generation of evolutionists who called themselves sociobiologists (reflecting their avid interest in biological analyses of social behavior) defined human nature primarily through comparisons with animal behavior. Sociobiologists devoted their research to understanding the inner workings of the mechanisms by which evolution had brought about the great diversity of living forms. How evolution worked became more important than what had happened.<sup>20</sup> In making synchronic comparisons of human behavior with the behavior of baboons, chimpanzees, and other animals alive today, sociobiologists portrayed human nature as static: having arisen in our evolutionary past, it had become fixed when our ancestors achieved full humanness. This shift in perspective granted only minor explanatory heft to other scientists who studied humanity's past or present variation, including the cultural anthropologists, paleontologists, and primatologists who had earlier been key participants in the scientific reconstructions of the human animal. By dispensing with the historical development of human nature as irrelevant to understanding the consequences of its final (i.e., current) form, sociobiological theories of what it meant to be human de-emphasized the sense of progress that had characterized postwar scientists'

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visions of humanity. Stripped of progress, stripped of cultural variation, humans became yet another species of animal.

The halcyon years of colloquial science were also drawing to a close by the mid-1970s. Especially in the evolutionary sciences, books that had been hailed as respectable paperbacks a decade earlier were now denigrated as sensational popularizations. Contemplating the centrality of scientists to public discussions of political and social issues, Rae Goodell in 1977 used the term "visible scientists" to refer to figures who had been willing to venture into the public eye, such as Barry Commoner, Paul Ehrlich, Margaret Mead, Linus Pauling, Carl Sagan, and B. F. Skinner.<sup>21</sup> After the Second World War, scientists had welcomed colloquial discussions of their research in order to gain a wide audience for their ideas and out of a sincerely felt obligation to improve the science literacy of all Americans-not just schoolchildren. Some succeeded in attaining significant public visibility because of four factors, she suggested: they had embraced controversy; they communicated in clear, quotable language; their public reputation had been bolstered by professional recognition; and they had exhibited unabashed charisma in person, on screen, and on the page. However, Goodell worried that the visibility of these scientists no longer depended on the persuasive power of their research but simply on their willingness to engage in "the messy world of politics and controversy."<sup>22</sup> More specifically, evolutionists began to dismiss colloquial scientific publications as "popular" potboilers wrapped in scientific covers. Both sociobiologists and their critics blamed the media for extolling books by authors like Ardrey, Lorenz, and Morris that drove nonscientific enthusiasm for evolutionary theories of humanity, accusing journalists of repeating salacious details to sell copy at the expense of scientific accuracy. When the paleontologist Stephen Jay Gould—young, charismatic, willing to court controversy, and poised to become a scientific celebrity himself-contemplated his career that same year, he self-consciously harkened back to the golden years of science popularization of the late nineteenth century.<sup>23</sup> He would, he told an interviewer, write both for his colleagues and for a general audience.<sup>24</sup> It never occurred to him that these audiences might enjoy identical books or essays.

Between these two endpoints lies the rise and fall of the killer ape theory of humanity, its fate determined by two intertwined transformations: one in evolutionary conceptions of humanity's essential nature and the other in the texture of American intellectual life during the Cold War. Did humanity's capacity for violence explain our exceptional success as a species? Why was that a question worth asking? How did evolutionists become trusted experts on questions of humanity's fundamental essence? What evidence did readers find persuasive? Why did scientists and their readers eventually turn to other

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conceptions of human nature? These questions occupy the pages of this book. In its broadest scope, *Creatures of Cain* demonstrates that understanding the historical fate of any scientific vision of human nature requires attending to the political and social concerns that endowed that vision with persuasive power (or undermined it). It also illustrates the centrality of scientists and their colloquial engagements to the intellectual fabric of the country during the Cold War.

In the tumultuous atmosphere of the later 1960s and early 1970s, anthropologists, paleontologists, and zoologists did not shy away from public engagement, even though they rarely intervened in policy, manufactured weapons, or received funding from the Department of Defense. (Physicists and politicians had created a structure for discussing science policy-the President's Science Advisory Committee, or PSAC—but no one highlighted in this book ever served on it.<sup>25</sup>) During this decade, both molecular and organismal biologists struggled for authority, defining themselves as the cutting edge, potentially providing key answers to social difficulties besetting the country.<sup>26</sup> Cybernetics captured the attention of social scientists and, especially, molecular biologists looking to ground their discipline in the authority of reductionism.<sup>27</sup> Rather than analogizing life with machines, evolutionists imagined human nature as continuous with animal behavior. With the juggernaut of molecular biology nipping at their heels, they insisted that their fields, too, were modern and politically relevant, even if their research had not solved the structure of DNA or decoded the genetic language comprising the basic building blocks of life. Evolutionary theory could speak to a more fundamental question—what did it mean to be human? In terms of research money, positions at universities, and new departments, the molecular biologists won.<sup>28</sup> In other arenas, however, we cannot say that organismal biologists lost. They maintained a visible presence in the intellectual life of the country through a sustained insistence that because humans were by nature animals, studying animal behavior allowed a fuller understanding of what it meant to be human.<sup>29</sup> During these same years, anthropologists witnessed the cultures they studied in Africa, Asia, and Latin America transformed by decolonization and war. As a result, they increasingly distanced themselves from the goal of defining the universal characteristics shared by all peoples. Of course humans shared a common nature, anthropologists insisted, but variations between cultures and the intricacies of traditional customs better explained how and why humans act the way we do—that was where they concentrated their research, before these cultures vanished in the face of Westernization.<sup>30</sup> Primatologists similarly questioned models of human behavior that relied on comparisons with a single species.<sup>31</sup> These positions, these scientists believed,

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necessitated educating lay and scientific audiences alike as to the relevance of their research for interpreting the latest iterations of the human dilemma.

In seeking to define the characteristics of a universal human nature, postwar evolutionists wanted to know more than just what extinct "prehuman" individuals, or "hominids," in the convention of the time, had looked like.<sup>32</sup> They also sought to understand how they had behaved and interacted with one another. Doing so required triangulating between several kinds of evidence: the fossilized remains of extinct hominids, contemporary studies of hunter-gatherer cultures, and careful observations of animal behavior in the wild.<sup>33</sup> Fossils offered the most direct access to our ancestors' lives. Skulls and jaws provided insights into what they might have eaten, from the size of the sites where jaw muscles attach to the skull to the shapes and wear patterns of teeth. The orientation of hips, the length of femurs, and even foot shape (although this was rarely preserved) could indicate whether an individual had favored walking on two legs or four. Paleontologists could analyze shoulder joints to see if the creature brachiated, that is, swung from branch to branch, or had already abandoned the trees for the flat savannah. In short, fossilized bones contained an endless series of clues to the ecological environment fossil hominids favored, how they moved, and what they ate.

Although paleontologists in these years had access to a great many more fossils than had scientists fifty years earlier, the rarity of paleoanthropological specimens left enormous gaps in the fossil record. Almost every new find led to a plethora of interpretations, and it could take years, even decades, for paleoanthropologists to reach a consensus about its implications. Fickle preservation meant that when paleontologists unearthed fossilized bone from the surrounding sediment, they recovered only fragments: a partial skull here, a scapula there. This is why Donald Johanson and Maurice Taub's discovery of Lucy in 1974 made such news—they had recovered an astounding 40 percent of her Australopithecine skeleton. Additionally, determining if a fossil had been left by a member of a stable species—one that persisted for a long period of time across a wide geographic range—required many fossils of the same type. With only a few specimens, it remained possible that a new find might have preserved a fleeting transitional form. Paleontologists fought hardest, however, over the question of whether any given fossil represented a direct ancestor of modern humans or an extinct offshoot to the human lineage.<sup>34</sup>

Anthropologists believed that additional clues to how early hominids behaved could be inferred from the careful study of contemporary huntergatherer societies and perhaps also from the study of primate species in the wild. Certain human cultures, from the !Kung San of the Kalahari Desert to the Mbuti pygmies of the Congo region, lived in environments quite similar to those that evolutionists conjectured were occupied by the earliest humans.<sup>35</sup>

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In the absence of direct evidence from paleoanthropological excavations, these living communities seemed to offer one of the only sources of information on how early humans might have organized their social lives. Many studies from the late 1960s and early 1970s emphasized the gentle cooperation of human societies before the intrusion of agriculture and notions of ownership, reinforcing assumptions of humanity's essentially cooperative nature. Other cultural anthropologists, however, had turned their attention to cultures in which interpersonal violence and warfare were far more common.<sup>36</sup> In the resulting morass of conflicting signals, cultural anthropologists rarely drew simple connections between the study of any one group of people and understanding humanity as a whole—they were far more interested in documenting diversity.

Contemporaneously, new details of the behavior of animals in the wild (especially primates) gained considerable traction as a foil against which to define humanity. In the 1960s, National Geographic lovingly adorned its pages with colorful images of Jane Goodall and chimpanzees. A decade later, her articles were joined by Dian Fossey's accounts of mountain gorillas, Biruté Galdikas's explorations of the life of orangutans, and Shirley Strum's engaging stories of baboons. This new generation of experts on animal behavior also included university-based scientists, such as baboon expert Irven DeVore and Edward O. Wilson, a zoologist with extensive knowledge of the social behavior of ants. Most scientists who incorporated animals as models of early human behavior emphasized the importance of either a shared environment (both baboons and early hominids lived in an environment that bridged the open savannah and nearby stands of trees) or a shared genetic history (chimpanzees were the closest living relatives to Homo sapiens). Only a few voices from inside the academy, or from very near it, gained a recognizable public voice as experts on human nature, but together they called attention to the rise of animal behavior as a discipline of note in the postwar life sciences.<sup>37</sup> By securing intellectual space for expertise in the evolution of different forms of behavior-territoriality, mating habits, foraging patterns, etc.-these evolutionists generalized from their species-specific knowledge to theorizing the role of behavior in all animals, including humans.

Postwar assumptions that humanity was by nature altruistic simultaneously gave way to a darker vision of humans as innately aggressive. In the 1950s and into the early 1960s, American scientists had largely believed that humans were instinctually cooperative. Just think, for example, of Edward Steichen's iconic *Family of Man* exhibit that opened at the Museum of Modern Art in New York in 1955 that depicted the so-called nuclear family as the heart of all human cultures.<sup>38</sup> These scientists struggled to comprehend how human groups could be capable of the incredible prejudice and slaughter evidenced

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in the Second World War internationally and the violent clashes of the struggle for civil rights at home. They sought to understand, and by understanding, prevent, the aberration of human violence in our otherwise peaceful lives. Given the changed political reality of the following decade, in contrast, a new generation of evolutionists instead conceptualized human nature primarily through comparisons with other animals in order to understand our unusual capacity for cooperation. Sociobiologists sought to understand why humans (or other animals) ever behaved unselfishly.<sup>39</sup> Using a new set of tools from mathematical and economic game theory, they emphasized the importance of maximizing individual genetic contributions to the next generation. From this perspective, it struck sociobiologists as deeply puzzling that individuals sometimes sacrificed their own well-being and genetic future to protect others.<sup>40</sup> By asking how such altruism could have evolved, sociobiologists naturalized violence as essential, but not unique, to human nature. The image of humanity bearing the mark of Cain thus enjoyed a brief but influential life, helping set the groundwork for how scientists conceptualize human nature today.

Constructed as a series of chronologically overlapping episodes, *Creatures of Cain* explores the racialized, gendered, and political landscapes in which conversations about human nature took place in the United States between 1955 and 1975. In seeking to reach nonspecialist audiences, publications exploring the nature of humanity often contained illustrations depicting the theories under discussion or scientists hard at work and deep in thought. The visual styles of these striking images reflected the artistic conventions of the era and call attention to the intellectual work required to sustain the plausibility of the scientific theories they depicted.<sup>41</sup> Visual depictions of humanity's evolutionary past required artists, like scientists, to triangulate between different forms of evidence to reconstruct the ecology, behavior, and physical appearance of fossil species as they had lived. For these reasons, the book includes a wide range of artists' illustrations. They convey the highly visual nature of colloquial scientific publications and individually offer glimpses into the changing fate of the human animal in these two decades.

Part 1, "The Ascent of Man," explores how, after the Second World War, an influential group of liberal anthropologists and biologists together articulated a non-teleological and progressive vision of transformations in the organic world, anchored in the ascent of humanity out of a bestial past. In this context, the concept of innate aggression posed a grave difficulty. Evolutionists like Loren Eiseley and Theodosius Dobzhansky invoked an unlimited anti-racist future for humanity and ascribed to evolution the capacity to explain the quantum emergence of human culture. Against the background of the Civil

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Rights movement, anthropologists and biologists strove to change the American public's understanding of race by emphasizing the essential unity of humanity. Writing to convince lay audiences, they dismissed humans' capacity to regularly and brutally murder other members of their own species as the result of psychological or cultural deviance. For both Eiseley and Dobzhansky, imparting their scientific knowledge to members of the general public constituted a moral obligation and a form of intellectual activism.

In the developing Cold War, and especially after the Soviet Union's successful launch of the Sputnik satellite in 1957, dismantling the cultural divide between the sciences and the humanities seemed imperative for building the country's social future.<sup>42</sup> Congress set aside new pockets of money to fund innovative science curricula, and high-profile scientists, including the psychologist and pedagogue Jerome Bruner, joined the national effort to improve science education. The program Bruner directed—Man: A Course of Study (or MACOS)—hailed film as an exciting new medium through which to reach new audiences, including schoolchildren. Capturing animal behavior and human rituals on camera meant audiences could virtually experience the excitement of observing baboons on the savannah or watching Louis Leakey uncover fossils from the comfort of their home or classroom. MACOS, its designers believed, mobilized anthropological and biological knowledge in the service of training citizens to think like scientists, even if as adults they never ventured into a laboratory or museum.

This progressive postwar consensus unraveled in the later 1960s, as elucidated in Part 2, "Naturalizing Violence." By following the publication and immediate reception of Ardrey's *Territorial Imperative*, Lorenz's *On Aggression*, and Morris's *Naked Ape*, these chapters track the rise of a new view of human evolution that presented male aggression as not only natural but also as making possible the continued social evolution of humanity. Each book approached the question of the human animal from a different analytical angle, incorporating insights from recent work in ethology, psychobiology, and human sexology. Yet their confluence led readers to identify a shared assertion that studies of animal behavior provided crucial information for understanding human nature. Scientists read and reviewed these books; so too did captains of industry like the philanthropist Harry Frank Guggenheim. Caught by the passion of these authors' prose, Guggenheim planned to provide private support for such research through his foundation devoted to solving the problem of "man's relation to man."

Scientific audiences greeted the books with more skepticism than had Guggenheim. Eiseley, for example, suggested that their insistence on the animalistic nature of humanity failed to take into account the transcendence of human culture. At the same time, other scientists appreciated the popular at-

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tention Ardrey, Lorenz, and Morris brought to the field of animal behavior. This recognition came with increased funding (thanks to patrons like Guggenheim) and opportunities to showcase their research in magazines and commercial films. By emphasizing comparative behavior as the key source of reliable evidence of humanity's essential nature, these books began the process of transmuting the progressive postwar model of human evolution into synchronic comparisons between humanity and our living primate relatives.

Part 3—"Unmaking Man"—turns to the expansion of economic and biological agency to females in evolutionary models of the late 1960s. In both the postwar progressivist and the ascendant killer ape models of human evolution, women stayed at home to raise their offspring and gather food while the men hunted. When scientists began to question the idea that women and men possessed different natures, they complicated the role of cooperation and competition within biological notions of family. If males and females united for conflicting evolutionary reasons, then social cooperation could not emerge from a cultural-biological nexus defined by the family unit. At the same time, cultural anthropologists began to distance themselves from the question of a universal human nature, exploding the notion that Western family structures were to be found among all human cultures. Cultural anthropologists now largely agreed that variations between cultures and the intricacies of traditional customs better explained how and why humans act the way we do than did an abstract human nature.

As a function of these discussions, feminist and masculinist interpretations of human evolution co-emerged in the late 1960s. When some anthropologists, primatologists, and paleontologists began to challenge the emphasis that older evolutionary theories had given to hunting in early human groups, others redoubled their arguments that the sexes possessed different biological natures.<sup>43</sup> In writing in a colloquial register about science, men and women faced disparate challenges. Female writers found it difficult to be taken seriously if they also tried to be funny. Feminist readers enjoyed the BBC Radio writer Elaine Morgan's biting treatment of existing narratives of human evolution, for example, but found it difficult to take seriously her alternative hypothesis positing an aquatic phase in hominid evolutionary history. In the fraught sexual politics of the early 1970s, Morgan's critics called her a radical feminist, while she in turn considered scientists who asserted the necessity of a biological perspective on sex difference to be reactionary conservatives. These dynamics never divided cleanly by sex, however; female scientists contributed vociferously to both sides of the nature-nurture debates.

Evolutionary conceptions of humanity came under fire in the early 1970s from two distinct directions, as described in Part 4—"Political Animals." Scientists on the New Left questioned the reduction of human experience to any

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biological explanation (whether environmental, genetic, or evolutionary), as this appeared to deny individual agency and reified social prejudices in biological language. Seeking to redress racial discrimination, these anthropologists argued that evolutionary theories were determinist and therefore inconsistent with an egalitarian vision of human diversity. Part of their concern came from the widespread attention evolutionary perspectives were receiving in Hollywood. Evolutionary accounts of human nature had spread far beyond university halls, as directors and screenwriters transformed popular scientific visions into images on the silver screen—from Stanley Kubrick's 2001: A Space Odyssey to Sam Peckinpah's Straw Dogs three years later.<sup>44</sup> Directors defended the violence of their films by invoking Ardrey's killer ape hypothesis and suggesting that their recreations of fistfights, shoot-outs, and even rape reflected the truth of human nature. On the New Right, conservative Catholics and Evangelicals agreed that the violence of secular humanism, writ in evolutionary theory, constituted a fundamental threat to moral order. Mobilized by their concerns with the violent content of the educational movies created by MACOS for use in grade-school classrooms, religious conservatives objected to anthropology's association with evolution and the redemptive possibility of science without reference to a Christian God. Caught in the middle, postwar progressive visions of the ascent of humanity unraveled from both ends of the political spectrum.

Part 5—"Death of the Killer Ape"—examines the final collapse of the remaining support for the idea that humanity's capacity for interpersonal violence was linked to our success as a species. The contentious reception of Edward O. Wilson's Sociobiology, a rearticulation of human social behavior as the result of evolution, broke the sympathetic alignment of evolutionary perspectives in anthropology, paleontology, and zoology that had characterized visions of the human animal in earlier decades.<sup>45</sup> Sociobiologists in the mid-1970s rebranded and professionalized their discipline so as to dismiss "popular" writers (especially Ardrey, Lorenz, and Morris) as having fundamentally misunderstood the mechanics of evolutionary theory. Unfolding in these same years, Jane Goodall's research team at Gombe Stream National Park observed a series of chimpanzee attacks that resulted in the extermination of one chimpanzee group at the hands and teeth of their neighbors. Humans were not unique; we shared our violent tendencies with at least our closest simian relatives. Whereas earlier writers assumed that the evolutionary process within humans operated at the level of the family group, sociobiologists instead traced the effects of natural selection on individuals. In the process of cleansing human evolution of the last dregs of support for the killer ape account, contemporary evolutionists also severed the interdisciplinary alliance

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that had bound descriptions of universal human nature to nuanced accounts of its development. Human nature became unmoored from its past.

In the maelstrom of the social, cultural, and political transformations that characterized the American home front in the Cold War, scientific theories of the human animal provided powerful tools for sorting the bewildering violence of the world into sensible order. Long-standing questions about violence and human nature took on an outsized importance, opened colloquial science to new participants, and sustained novel critiques. That readers granted evolutionists the power to settle these questions was neither inevitable nor obvious.

We are still living with this legacy.

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