



A Reductionist History of Humankind

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In his *Confessions*, Jean-Jacques Rousseau tells the story of how he became famous, which is also the story of how he became a philosopher. It involves a road-to-Damascus-style epiphany. Walking to the Château of Vincennes to visit his friend Denis Diderot, who was imprisoned there on the charge of subversion, Rousseau paused to glance at a newspaper he had brought with him to “moderate my pace.” The newspaper contained an advertisement for an essay competition sponsored by the Academy of Dijon on the question of whether “the progress of the sciences and the arts contributed to the corruption or the purification of morals.” Rousseau was seized by inspiration; he suddenly glimpsed not only the essay he would write but also the entire philosophical system he would later construct. “The moment I read these words I saw another universe and I became another man,” he claimed. Rousseau’s essay, which makes the case that the sciences and arts have helped to corrupt morals and which can be read as a secular retelling of the Genesis story, won the competition’s gold medal prize. When it was published as *A Discourse on the Moral Effects of the Arts and*

Sciences in 1750, the previously little-known Genevan became an intellectual celebrity, but a paradoxical one—for Rousseau was himself a composer of music and would go on to contribute to Diderot’s *Encyclopédie*, a project dedicated to the advancement of the arts and sciences.

These days, people tend not to think of the arts as advancing in the same way as the sciences, but the question of whether scientific progress has corrupted or purified our morals—that is, the question of whether such progress is *good*, whether it makes people better as well as happier—is still with us. The question can be asked in a different way: What is history? Is it the story of the advancement and improvement

of the human race, or is it the story of a “fall”? Or perhaps a story of advancement that inevitably involves a fall? Or

is history just “one damn thing after another,” or “a tale told by an idiot, full of sound and fury, signifying nothing”?

“All of the above” seems to be the answer of the Israeli historian Yuval Noah Harari. His book *Sapiens: A Brief History of Humankind* is an effort in the genre of universal history. Like many

*Sapiens: A Brief History
of Humankind*

By Yuval Noah Harari
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such efforts, it does not contain much actual history. Rather, it is a speculative reconstruction of human evolution, supplemented by the author's thoughts on recorded history and the human condition. The book is fundamentally unserious and undeserving of the wide acclaim and attention it has been receiving. But it is worth considering the book's blind spots and flaws—the better to understand the weaknesses of the genre and the intellectual temptations of our age.

In one sense, Harari's telling of the human story is hardly one of obvious moral advancement, deviating as it does from the progressive and conventional trope of boundless optimism in modern enlightenment's overcoming of ancient depravity. In particular, Harari's claim that a "huge gulf is opening between the tenets of liberal humanism and the latest findings of the life sciences, a gulf we cannot ignore much longer," should trouble readers who acknowledge modern science as the highest authority while remaining committed to liberal notions of individual rights, freedom, and equality. Likewise, Harari's account of the roles that war and empire have played in making the modern world, and of the immeasurable cost in human and animal suffering entailed in the Agricultural and Industrial Revolutions, is meant to challenge those for whom history is simply the rise of the human race from barbarism into light. Despite all our

material comforts, we moderns are not even happier than pre-moderns, Harari suggests—though, tellingly, he reaches this conclusion not by contrasting the reality of modern lives with a classical understanding of happiness as the state achieved by those who live good lives in accord with their nature, but from opinion surveys and the findings of the new "science" of happiness.

This reliance on science, or what purports to be science, at the expense of literature, philosophy, or even his own observation, makes Harari's account of human history nevertheless conventional in a decisive sense. The primacy of science—that is, of the modern physical and biological sciences, and their spillover into the social sciences—is the first article of faith for progressives, however skeptical they may be of pure moral progress. Harari is so committed to a scientific view of human history that he never seems to question whether a method invented to understand and master nature is really suited to understanding fully the nature of man himself, and whether man is the same kind of object as many of the others that science studies.

The hardcover American edition of *Sapiens* weighs two and a half pounds—a little less than the average weight of a *Homo sapiens* brain. This is unusual for something that is neither a reference work nor a coffee-table book, and that runs to

fewer than five hundred pages. The reason for such disproportionate heft is the quality of the paper: the pages are thick like those of a book of prints, crisp white and replete with color illustrations. At any time, but especially in the age of the e-book, such pages in a book with a mass run represent a considerable investment by the publisher. The biography of Harari on the inside jacket boasts that *Sapiens* has “already become an international bestseller” in, among other places, Slovenia, so the confidence of the publisher may well be justified. Certainly, Mark Zuckerberg’s decision to select *Sapiens* for his online book club devoted to “big ideas” won’t have hurt sales.

Books like this meet an appetite for sweeping history written in an accessible style and stressing the role of science and technology in shaping human destiny. Probably the best-known work in this genre is Jared Diamond’s *Guns, Germs, and Steel* (1997). Diamond endorses *Sapiens* on the cover and receives special thanks in the acknowledgments: Diamond “taught me to see the big picture,” Harari writes. But whereas Diamond stressed the role of climate and disease as well as technology in shaping human history, Harari makes the curious claim that it is only when humans have started making things up—imagining entities that do not objectively exist, like gods, ethical principles, and limited liability corporations—that we have made progress toward becoming a

super species. Harari’s vision of history is therefore actually quite different from Diamond’s: while Diamond was really concerned with the influence of the external environment on human culture, or the power of matter over mind, for Harari, history is the story of the gradual triumph of mind over matter.

The basic outline of this story will be familiar to most readers. The genus *Homo* evolved from primates several million years ago, and modern humans emerged, certainly in Africa but also, perhaps, in other parts of the world, several hundred thousand years ago. Around 70,000 years ago, we underwent the first in a series of revolutions, which Harari terms the Cognitive Revolution. The causes of this event, which in his telling is decisive for all of human history, are largely unknown—he makes no bones about the fact that all that remains from this period is, well, bones. But whatever happened, humans began doing things no species had ever done before and spread rapidly across the planet. Around 11,000 years ago, the Agricultural Revolution turned some of us from hunter-gatherers into farmers, which led to a deterioration in diet, longer hours of work, increased susceptibility to disease, and, ultimately, immense power over nature. Around 500 years ago, the Scientific Revolution began. The world we live in today is in large part a product of this latest, and possibly last, revolution.

Along the way, Harari breezes through some other great and mysterious matters, including the development of language, the rise of religion and the gradual triumph of monotheism, the invention of money, and the growth of empires. And he makes a number of striking claims:

- Prior to the start of the Cognitive Revolution around 70,000 years ago, when humans started making things up, they were an unremarkable species in the middle of the food chain; it was only after the Revolution that large-scale social cooperation became possible through fictions.

- Modern science distinguishes itself from all preceding traditions in its “willingness to admit ignorance.” In fact, the “discovery that humans do not know the answers to their most important questions” is what “launched the Scientific Revolution.”

- Humans’ mastery over nature, especially in the form of industry and the market, has freed us from many forms of drudgery but has also helped to alienate us from each other and to bind us to industry and technology. The state and market now act as—often inadequate—replacements for lost communal bonds.

- All behavior and “whatever is possible” is by definition natural, because nothing can go against the laws of nature. Any behavior we might call “unnatural” is so only by virtue of cul-

tural norms, not biology. The distinction between natural and unnatural is an invention of Christian theology.

- Liberal humanism is a religion founded on “monotheist beliefs.”

- The nation-state is declining in power and we are on our way to a “global empire” with one culture.

- Current developments in biotechnology may lead to the end for us *sapiens*: we will replace ourselves with bioengineered post-humans, immortal cyborgs who will be as different from us as we are from other species.

These claims are interesting, if dubious. Much of the book is less interesting. To borrow Oscar Wilde’s phrase, Harari “hunts down the obvious with the enthusiasm of a short-sighted detective.” For instance, we learn that “writing is a method for storing information through material signs” and that it was rather important in the development of civilization; also, people who have more money are not always happier than those who have less. And sometimes, perhaps because his book was originally written in Hebrew before he translated it into English, Harari manages to be unintentionally funny when he is trying to make a serious argument. For instance, when claiming that modern institutions are as much dependent as those of the past on belief in nonexistent entities, he says that “modern businesspeople

and lawyers are, in fact, powerful sorcerers.” Really, *in fact*?

Harari’s emphasis on the power of ideas to shape history is curious because it seems to be in conflict with his commitment to explaining this history, including human behavior and ideas themselves, using biology. For instance, attempting to explain why the idea of human equality is a myth, Harari translates the famous line from the Declaration of Independence “into biological terms”: “We hold these truths to be self-evident, that all men evolved differently, that they are born with certain mutable characteristics, and that among these are life and the pursuit of pleasure.” The difference between these biological facts and the Declaration’s actual wording shows, Harari thinks, that people do not believe in human equality or any other “imagined order” because it is objectively true—it obviously is not—but because belief in it makes for a more functional society.

Similarly, in a section on happiness, Harari asserts that

nobody is ever made happy by winning the lottery, buying a house, getting a promotion or even finding true love. People are made happy by one thing and one thing only—pleasant sensations in their bodies. A person who just won the lottery or found new love and jumps from joy is not really reacting to the money or the

lover. She is reacting to various hormones coursing through her bloodstream, and to the storm of electric signals flashing between different parts of her brain.

This is remarkably stupid. What persons feel and experience is not the same as what the hormones and electric signals in their bodies do, any more than the idea this sentence conveys is the same as the makeup of its black squiggles. Unfortunately, a total eclipse of the human person is central to Harari’s argument, and his book is suffused with such crudely materialistic, mechanistic assertions.

Harari’s tendency to reduce everything to physical explanations often results in strange and ludicrous passages. For instance, in discussing how the Agricultural Revolution changed human habits of labor and living, Harari suggests we look at it “from the viewpoint of wheat,” which domesticated *us* “rather than vice versa.” Wheat, he explains, “didn’t like rocks and pebbles....didn’t like sharing its space, water and nutrients with other plants....got sick....was attacked by rabbits and locust swarms....was thirsty” and nevertheless was able to “convince *Homo sapiens*” to drastically change its lifestyle—for the worse, Harari concludes.

Ultimately, Harari asserts, we will understand life in terms of non-life, *sans* teleology. But a result of this way of thinking can be that one ends up smuggling in the teleology

through the back door, ascribing consciousness and goal-seeking behavior to mindless matter in a manner reminiscent of a primitive animist. A notorious example: the Australian philosopher David Chalmers has suggested that a thermostat “has experiences” and is “conscious” in some sense. And the English philosopher Galen Strawson is one of today’s better known “panpsychists.” (For a discussion of Chalmers and Strawson, see Raymond Tallis’s essay in these pages, “What Consciousness Is Not,” Fall 2011.)

To be fair to Harari, he doesn’t go quite this far. But he takes for granted that the right way to go about understanding the world is to reduce the high to the low. One would even think that Harari might prefer to avoid talking of minds and beliefs, and of culture as distinct from biology, that he would consider “mind” just another “inter-subjective” creation of the human imagination, one that only exists because people collectively believe in it, just like “law, money, gods, nations,” and companies. Of course, the hard-core physicalist would say that the belief in mind is itself physical—a configuration of neurochemical structures and processes in the brain. Yet Harari never says any such thing. So while he wants to use biology, and evolution specifically, to talk about human history, including what the human mind does and believes, he wants at the same time to show how ideas actu-

ally matter, with the result that a metaphysical haziness runs through the book—a sense that perhaps there is something more than biological “facts” underlying all these mental “fictions.”

Similarly, the choice of the title *Sapiens* signals a claim to scientific status; to treat humans as a species is, supposedly, to treat them scientifically, that is, in a clear-eyed way, without illusions, like we try to treat any other species. But it may be that to treat humans as if they were a species just like any other is to ignore what common sense as well as science broadly understood—that is, good thinking supported by evidence—tell us about them. In spite of the many things we share with other animals, humans appear to be exceptional. Harari himself of course stresses some of the ways humans are unique (such as our ability to talk about things that do not exist); he just seems not to realize that his bottom-up approach will have a hard time accounting for this uniqueness.

Like the tendency to reduce the high to the low, the idea that man is simply an animal has a long pedigree, and is hardly novel or shocking. And yet Harari refers to the fact that “we are members of a large and particularly noisy family called the great apes” as something that “used to be one of history’s most closely guarded secrets.” Guarded by whom? And are the great apes really particularly noisy? Chimpanzees, perhaps, but

gorillas are rather stately, and we have nothing on many other species when it comes to noise. Such snarky asides are sprinkled throughout *Sapiens*, the more irritating because they generally don't hit the mark, and so aren't funny.

Harari is constantly comparing humans to animals in a manner he intends to be unflattering to humans, and which therefore does justice to neither. Caitrin Nicol Keiper has suggested in the pages of this journal that, for various historical reasons, including the fact that very smart animals such as elephants and higher-order primates are not native to Europe, animals are underrated in the Western tradition. The result of this is that when people working in this tradition—as Harari undoubtedly is—view man as an animal, they tend to underrate man as well. Descartes's notorious claim that all animal behavior can be explained mechanistically is one example of such a low view of animals, and he only saved himself from claiming the same for humans by making a strict, if problematic, separation between matter and mind, the latter of which he thought only humans had. Harari's consistent preference for biological explanations over any others for human behavior has certain parallels with how Descartes viewed animals. Harari still maintains a sense of human uniqueness by invoking the fictions of the mind, but he never strays far from presenting these merely as products

of the necessity for cooperation, the pursuit of pleasure, or the drive for biological success in the form of survival and reproduction.

Since Harari considers natural science to be the final word on reality and all cultures to be “imaginary orders,” it is no surprise that he considers morality, too, to be entirely a fictional invention.

Here also his explanation of our world contradicts our ordinary experience—and not persuasively. Harari's account would seem to place every moral claim on an equal footing, and to deny that disagreement about matters of justice or morality can be rationally settled. (His account also runs contrary to an older understanding of science; recall Thomas Jefferson's famous line that “the general spread of the light of science has already laid open to every view the palpable truth that the mass of mankind has not been born, with saddles on their backs, nor a favored few bootied and spurred, ready to ride them legitimately, by the grace of god.”) In comparing the position of the Declaration of Independence with the Code of Hammurabi—a set of ancient Babylonian laws written by the “wise king Hammurabi,” who, ruling his people by the grace of Marduk, issued such decrees as that anyone aiding in the escape of slaves shall be put to death—Harari asserts that “in fact, they are both wrong.” Harari takes evident glee in mocking

the piety of liberals who think that science supports their belief in human equality; they fail to recognize the truth that equality is a “religious” doctrine, and one with no greater validity than the religious doctrines of the ancient Babylonians.

But Harari’s relativism, too, is inconsistent, and like many people who preach that morality is an illusion, Harari has a moralizing streak. Several times throughout the book he upbraids the human race for its treatment of the natural environment and of other species. We rule over the planet like “a banana republic dictator,” he says, and “if we knew how many species we’ve already eradicated, we might be more motivated to protect those that still survive.” “Modern industrial agriculture,” he writes, “might well be the greatest crime in history.”

Why? Given Harari’s assumptions, what could motivate us to preserve other species, apart from a concern for our self-interest or some kind of aesthetic preference, which would not apply on many occasions and would hardly amount to a moral imperative in any case? Only the notion that humans are in some sense the stewards of the Earth could provide such an imperative, and only a lingering sense of sin can account for Harari’s judgment on the human race.

One of the themes of *Sapiens* is how religious ideas are carried on more or less unconsciously by

modern people who do not consider themselves religious. It is therefore ironic that Harari’s depiction of the human conquest of the Earth echoes the Genesis story. The original Cognitive Revolution is the story of Adam and Eve eating of the fruit of the Tree of Knowledge, with ambiguous results. The Agricultural Revolution is the story of Cain and Abel: the first person to till the soil committed a crime that overshadows the world to this day. The Scientific Revolution is the story of the Tower of Babel: humans reached for the sky with dangerous consequences. Today, humans are “self-made gods” who are “irresponsible” and “discontented,” and, at best, no happier than their hunter-gatherer ancestors who lived in Edenic natural ignorance.

Some of the resemblance to the Genesis account was clearly intentional, with chapter titles such as “The Tree of Knowledge,” “A Day in the Life of Adam and Eve,” and “The Flood.” But if Harari’s sense of religion were not so crushingly literal, the resemblance between his account of human history and those found in the Bible and other religious texts might have caused him to reflect on the nature of religion and its “fictions.” Harari takes it for granted that religion can be understood entirely in terms of its social and political functions, and that all of its theological and metaphysical claims are simply false. Nonetheless, his version of human history involves moral judgments

that suggest he is not so thoroughly reductionist, or as cynical about the human condition, as he appears to be at first glance. In addition to his moralizing about the environment, for example, he also concedes that not all social and political hierarchies are “morally identical.”

Harari is skeptical of progress and rejects the claim that humans are beings possessing unique dignity. The belief that “every individual has a sacred inner nature, indivisible and immutable... which is the source of all ethical and political authority,” is not derived from science, but is a “reincarnation of the traditional Christian belief in a free and eternal soul.” Indeed, he believes that the scientific worldview is increasingly incompatible with the liberal worldview that is in turn derived from the Christian worldview, because “scientists studying the inner workings of the human organism have found no soul there,” and “they increasingly argue that human behavior is determined by hormones, genes and synapses, rather than by free will.”

Harari no doubt has a point about the historical origins of liberalism. And an understanding of human behavior as entirely determined by “hormones, genes and synapses” is certainly incompatible with a belief in free will. But have scientists really discovered there is no soul? They were hardly likely to find it under a microscope or on an MRI, given the presumably immaterial quality of the

soul. Even so, the current tendency in biology to attempt to understand life in terms of information and complex systems, confused and faddish as it may be at times, perhaps indicates that the high point of reductionism in the sciences themselves (as opposed to the literary genre of pop-science journalism that purports to be based on science) might already have passed. When scientists suggest that the keys to life and mind might be found not in the “hardware” of organisms but in the “software” or information-processing systems that somehow transcend different levels within an organism, or even transcend organisms themselves, they seem to be moving toward something vaguely resembling Aristotle’s understanding of the soul as the “form” or organizing principle of the body.

Harari’s scientific criticism of liberalism and progress commits him to the weird dualism behind the doctrine that all meaning is invented rather than discovered. Reality, this dualism asserts, is the play of particles, or a vast storm of energy in constant flux, mindless and meaningless; the world of meaning is an illusion inside our heads. But if only the material is real, what is the source of the illusion of meaning? Well, the materialist might say, the material itself; mental events *are* physical events. But putting aside the host of problems with this claim, why say meaning is an illusion when everything, including meaning, is supposedly material?

This brings us back to the problems with Harari's distinction between the real world and the world of "fictions" that humans supposedly invented after the Cognitive Revolution. Harari assumes that to be objective, something has to be outside the mind, and so only what is outside the mind really exists. This view has deep roots in early modern philosophy, as Matthew B. Crawford has argued in his recent book *The World Beyond Your Head* (reviewed elsewhere in this issue), but it suffers from insuperable problems and has had the counterintuitive result of helping to unleash subjectivism on the modern world. If everything in my head is subjective, why care if it accords with reality or what anyone else thinks?

An older, and more reasonable, understanding of how we apprehend reality involves perceptions and ideas, and so also meaning and values, whose truth or falsity can be discussed because they can correspond to something outside our minds. Of course, this position entails that the mind really exists and is not an illusion, which has implications for Harari's claim that nature has no moral content and that the natural is simply whatever is possible. For if mind is a part of nature, and it naturally values things, is not value a part of nature?

Harari is at his best when criticizing the shibboleths of modernity. For instance, he says that the

spiritual individualism that guides so many modern lives, and which finds expression in popular maxims like "do what feels good" or "follow your heart," is neither natural nor obvious; rather, it is an inheritance from the sentimental literature of past centuries, filtered through advertising. Also, he claims that the average ancient human was no less knowledgeable than the average person today; indeed, pound for pound, our ancestors were more capable and may even have had larger brains. (They had deep and varied knowledge of their natural environments, whereas even a rocket scientist has only a narrow field of expertise.) And, *pace* Steven Pinker, there is no guarantee that the current peace between great powers in the post-World War II period will persist; there have been similar periods in history before, and the lack of another major war has had more to do with nuclear weapons than with the "escalator of reason"—Pinker's theme-park-style name for the supposed progress of humanity toward enlightenment.

More questionable are Harari's claims that nationalism is "fast losing ground" as "states are fast losing their independence," and that artificial selection and bioengineering may soon bring an end to human history as we know it.

Regarding the first claim, it may already be out of date. One might point to recent events in Greece as evidence that national governments

increasingly take orders from supranational organizations, but the country's real discussions took place not with the European Union but with Germany. There is also a movement for the United Kingdom to leave the European Union, and indeed for Scotland to become independent of the United Kingdom. Outside Europe, the United States is not about to cede its sovereignty to the United Nations, and Russian, Chinese, and Indian nationalism are, arguably, on the rise. The Westphalian system of nation-states does not seem to be on shaky ground. The claim that we are on our way to one "world culture," with ruling elites who have more in common with elites in different countries than with their fellow nationals, is more plausible, but elites have always been more cosmopolitan, and while the existence of a single world culture would obviously have political implications, the facts of geography alone mean these would not necessarily take the form of world government.

Harari's claim that has drawn the most media attention is that we may be on the cusp of an era of super- (or possibly sub-) humans, with newspapers running such sensationalistic headlines as "Humans 'will become God-like cyborgs within 200 years'" and "The age of the cyborg has begun." He seems to believe that the "Singularity" is a certainty; that some "Dr. Frankenstein" will likely create "something truly superior to us, something that will look at us as

condescendingly as we look at the Neanderthals." But here again there are practical and technical obstacles that Harari overlooks. As Steven Pinker, of all people, has recently pointed out, most features of organisms, including senescence, are built deep into their genomic structure. If there were easy fixes to mortality and many other conditions, they would have been low-hanging fruit for natural selection, which will always prevail in the long run over the kind of "intelligent design" Harari envisions us undertaking in the near future.

Harari tends to think that it's onward and upward for the modern project to master nature through technology, though he doubts whether the trajectory is really "upward" in the sense of involving genuine improvement in the human condition. But it may be that the golden age of technological progress has already passed. As Peter Thiel and others have observed, the development of new technology has arguably slowed in recent decades, a fact disguised by the dissemination of old technology in the form of consumer goods like personal computers and smart phones.

Still, Harari is right to suggest that scientific advancement potentially threatens much of what we now hold dear, including our humanity as we traditionally understand it. He is also right to point out that questions about the moral character of scientific

experimentation always meet with the response that it is being done to “cure diseases and save human lives.” Harari says that “nobody can argue with” such a response. He is right, up to a point: given the value that modern societies put on health, it can be very difficult to question research conducted in the name of medicine. But arguments can still be made against some forms of experimentation and “enhancement.” One could also point out that science itself provides no reason to save human lives or care about curing diseases, whereas moral principles do. One might also ask whether physical health and longevity are the highest goods.

But *Sapiens* provides us with no resources for answering questions about the moral implications of sci-

entific and technological change. A commitment to a reductionist, mechanistic view of *Homo sapiens* may give us some insight into some of the aspects of our past most tied to our material nature. But Harari’s view of culture and of ethical norms as fundamentally fictional makes impossible any coherent moral framework for thinking about and shaping our future. And it asks us to pretend that we are not what we know ourselves to be—thinking and feeling subjects, moral agents with free will, and social beings whose culture builds upon the facts of the physical world but is not limited to them.

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