# Sapiens

## INTRODUCTION

### BRIEF BIOGRAPHY OF YUVAL NOAH HARARI

Harari is of Eastern European and Lebanese ethnicity, and he was born in Israel. His father was an engineer, and his mother was a clerical worker. As a young man, Harari gained an exemption from mandatory military service in Israel due to his poor health. He studied history and international relations, specializing in medieval history and military history, at the Hebrew University of Israel from 1993 to 1998, before completing a PhD in 2005. Harari met his husband Itzik Yahav in 2002, and they married each other in a civil ceremony in Toronto, Canada. They currently live in a Jewish agricultural settlement named Mesilat Zion, which was built over the Palestinian village of Bayt Mahsir in 1950. Harari has published seven books in total. *Sapiens* was originally published in Hebrew in 2011 (and then in English in 2014). Harari based the book on a series of lectures that he delivered at the Hebrew University of Israel. Although *Sapiens* was criticized in scholarly circles for Harari's tendency to favor sensationalist rhetoric over factual accuracy, it went on to become an international bestseller.

### HISTORICAL CONTEXT

Harari focuses on several key turning points in human history, including the Cognitive Revolution (70,000 years ago) when a random genetic mutation enabled humanity's ancestors (*Homo sapiens*) to imagine and believe things that aren't true, which, Harari argues, had a profound effect on humanity's ability to cooperate in large groups. He also addresses the Agricultural Revolution (10,000 BCE) when humans transitioned from living as foragers in the wild to farmers in more permanent settlements, and the Industrial Revolution (300 years ago), when many agricultural processes were replaced with industrialized technology. Harari then discusses the Scientific Revolution (500 years ago), when humankind began trusting scientific discovery instead of religion for knowledge about the world. Harari focuses at length on European imperialism, especially Christopher Columbus's infamous journey around the world in the 1400s, in which Europe learned about (and subsequently colonized) the Americas. He also discusses Captain James Cook's expedition to the South Pacific in the 1700s, through which the British claimed Australia as a British colony.

### RELATED LITERARY WORKS

Harari wrote a follow-up to *Sapiens* in 2016, called *Homo Deus: A Brief History of Tomorrow*. It picks up where *Sapiens* leaves off (in the present day) and speculates about the future of humankind. Harari cites Jared Diamond's 1997 *Guns, Germs, and Steel: The Fates of Human Societies* as a seminal influence on his writing. In *Sapiens*, Harari discusses several other books, including Charles Darwin's *On the Origin of Species* (1859), which formulates the theory of evolution, and Isaac Newton's *Principia Mathematica* (1687), which postulated the force of gravity and formulated laws of motion that became foundational for modern physics. Other popular nonfiction books that address the broad history of humankind include Bill Bryson's *A Short History of Nearly Everything* (2003), Elizabeth Kolbert's *The Sixth Extinction* (2014), and Mark Kurlanski's *Salt: A World History* (2002).

### KEY FACTS

- **Full Title:** Sapiens: A Brief History of Humankind
- **When Written:** Around 2010
- **Where Written:** Jerusalem, Israel
- **When Published:** 2011 (in Hebrew) and 2014 (in English)
- **Literary Period:** Contemporary
- **Genre:** History, Nonfiction
- **Setting:** Human societies on Earth from 70,000 years ago to the present day
- **Climax:** Harari concludes that despite all of humanity's achievements, life (for both animals and humans) has only grown more miserable as societies have progressed.
- **Antagonist:** Scientists
- **Point of View:** First Person

### EXTRA CREDIT

**Buddhist Meditation.** Harari actively practices a branch of Buddhist meditation called Vipassana, which he claims transformed his life. He praises Buddhist ideals throughout *Sapiens*.

**Vegan Vibes.** Harari is a devout vegan, and he dedicates lengthy portions of *Sapiens* to condemning animal cruelty in the agricultural industry. He thinks industrial farming is "one of the worst crimes in history."

## PLOT SUMMARY

Author and historian Yuval Noah Harari begins *Sapiens* by noting that for 2.5 million years, humans lived as insignificant animals on Earth. Around 70,000 years ago, humans suddenly began dominating the planet. Over the course of the book,

Harari intends to examine several cultural evolutions in human history, including the Cognitive Revolution (70,000 years ago), the Agricultural Revolution (12,000 years ago), and the Scientific Revolution (500 years ago).

He begins by saying that humanity's ancestors, *Homo sapiens*—or, Sapiens—were actually one of at least six human species (including Neanderthals) that all disappeared once Sapiens began settling around the globe.

Harari thinks that 70,000 years ago, a random genetic mutation then enabled Sapiens to suddenly evolve new cognitive capacities. He calls this the Cognitive Revolution. Harari notes that animals in nature can only respond to physical phenomena, but Sapiens learned how to make up fictional ideas and believe in things that aren't actually in the physical world. He gives the modern example of the car brand **Peugeot**, which exists as more of an idea than a thing. Thousands of people rally around the idea of Peugeot—to make cars and work for the company. They effectively cooperate because of their shared belief in the Peugeot brand. Harari thinks such "imagined realities" have immense power.

Harari then considers human societies between 70,000 and 12,000 years ago, when humans lived as foragers in the wild. He speculates that foragers lived relatively comfortable and happy lives. He estimates that they only worked around 35 hours a week to gather food, their work was stimulating, they didn't suffer diseases from living in cramped quarters, and they formed close-knit communities where loneliness was rare. During this time, Sapiens spread around the world, causing widespread animal extinctions wherever they went, including most of Australia's large marsupials (45,000 years ago) and America's large mammals (16,000 years ago). He sees humanity as a giant **human flood** (like the flood in the biblical story of Noah's ark) that kills off animal species, and he worries about a future in which there'll be no large mammals left.

When the Agricultural Revolution happened 12,000 years ago, humans began gathering around areas where crops grew in the wild. They soon began planting more crops and forming more permanent settlements around them. Harari thinks life got really miserable for most human beings around this time—they had to spend many more hours doing hard labor to raise crops, they had to raise more children to help with farm labor, they lived in cramped quarters that spread disease, and they shifted from a nutritious diet of wild fruits and meats to limited diets of one grain, which made them malnourished. He also thinks people in farming societies suffered tremendous anxiety about their crops, and they were generally more miserable overall. Harari thinks that all this effort to make life easier—by shifting to farming—ended up making life harder for most of humanity.

According to Harari, humans began cooperating in large numbers because they learned how to make up stories—myths, legends, religions, and social values, or "imagined orders"—and trust others who also believed in the same myths. Such myths are powerful because people act *as if* they are true, but Harari stresses that they're never actually true—they're made up, and they're not always fair to everyone who believes in them. Once a myth is established, it becomes so entrenched in people's minds that it's hard to escape.

Most imagined orders—like the Hindu caste system, racism, and the patriarchy—establish hierarchies: they argue that some people are inherently superior to others, and that everybody must stick to their place in the social pecking order so that society functions in an orderly fashion. Despite these problems, Harari thinks imagined orders work: they make people cooperate with strangers, which makes human societies flourish. He thinks that three imagined orders with global power—that unite people under the same rules—are money, empires, and religions. He thinks many societies hate each other's values, but they still cooperate by using and exchanging money. To Harari, empires subjugate and kill people, but they also unite people under a common culture, language, and set of social rules. Religions like Christianity and Islam also unite disparate people around the world. Some of the imagined orders that rule the world today include economic systems like capitalism (making, selling, and buying goods to make profits and generate wealth). From Harari's perspective, the imagined orders that humanity has come up with so far aren't necessarily the best ones, and there could be better ones out there.

Before the advent of science, Harari argues, people believed that religious texts already contained all the important knowledge and information about the world. But when the Scientific Revolution happened, humans shifted to a mindset of believing they were ignorant about the world and needed to observe it to learn more. Harari thinks people treat scientific theories like they're true, but really, they're just theories that tell stories in the language of mathematics.

Harari sees science and empire as closely intertwined. European imperialists who conquered the Americas, Australia, and many parts of Asia between the 1400s and 1800s often claimed to be conducting scientific research. For example, Captain James Cook's expedition to Australia was an effort to map Venus's path across the Sun, but he also ended up colonizing Australia for Britain. Harari also thinks science and capitalism are closely connected. When Christopher Columbus wanted to sail westward from Europe to India, he approached many rulers for funding (like an entrepreneur). Queen Isabella of Spain effectively extended credit to Columbus to fund his mission (like a bank or venture capitalist), hoping for a monetary payoff down the line.

Harari thinks about the supposed "progress" in human history since the Agricultural Revolution, and he wonders if it has indeed made humanity happier. It's true that humans are wealthier and healthier than they've ever been, but modern people also have high expectations that their lives will be easy,

happy, and fun, and they spend a lot of time disappointed and discontented when life is hard. He decides that ancient humans had lower expectations about life, so they were probably happier. He worries about scientific efforts to extend human life indefinitely, as he just sees a future of anxious, depressed, immortal people.

Harari thinks more about science and the future. Today, Harari says, governments and corporations fund scientific research when they think it will make them money. He worries about research into cyborg insects that can spy behind enemy lines, cross-breeding DNA to create new species, and artificial intelligence. He sees scientific progress as moving forward at an alarming pace, and he's skeptical about whether such new inventions are actually good for humanity. Harari concludes that humanity has changed dramatically since its foraging days 70,000 years ago—but he's not sure it's gotten better. He thinks humanity's well-being has actually decreased over time, and he concludes that people are more discontent than ever.

## CHARACTERS

### MAJOR CHARACTERS

**Yuval Noah Harari** – Yuval Noah Harari, a professor and historian, is the author and sole voice of *Sapiens*. Over the course of the book, he explores the history of humankind through several turning points, including the Cognitive Revolution (when, he thinks, humans learned to imagine and believe things that aren't true, around 70,000 years ago), the Agricultural Revolution (when humans learned how to farm, around 12,000 years ago), and the Scientific Revolution (when humans switched from believing religions to believing science, around 500 years ago). Along the way, Harari discusses the mechanisms of human society that make people cooperate on a vast scale. He thinks people can cooperate with strangers when they collectively believe in the same ideas and work together because they trust people who follow the same social rules. Such ideas, codes, or rules, or visions about how to live (imagined orders) include religions, empires, and science. Harari weighs the pros and cons of each of these. He thinks, on one hand, that imagined orders unite people and help them cooperate on an unprecedented scale, which is why *Homo sapiens* ended up dominating the planet. On the other hand, he thinks our dominance causes widespread suffering—both to the majority of humanity and to most other animals on Earth. In the end, Harari concludes that humanity *hasn't* been advancing, progressing, or getting better in the transitions from early foraging societies to the global modern age, and he worries about how much more suffering new scientific advances—like prolonging human life by curing diseases and building cyborgs—will cause.

**Hammurabi** – Hammurabi was a Mesopotamian emperor who invented Hammurabi's Code 3,500 years ago. The code argues that people are born into different categories: aristocrats, commoners, and slaves, and that its their duty to fulfil the role they're born into. Hammurabi's Code gives every person in a society a clear role to play—and compels them to stick to that role—thereby facilitating widespread cooperation. Harari thinks Hammurabi's Code is an imagined order, which is a set of rules that lays out how people should cooperate in a society. According to Harari, Hammurabi's code is incredibly effective because it convinces people to cooperate with strangers on a mass scale. However, Harari emphasizes that it's not necessarily true that everyone in society is assigned a clear-cut social role at birth and shouldn't stray from it, nor is this fair to those who are categorized as slaves or even commoners. Through the example of Hammurabi's Code, Harari makes the broader point that imagined orders aren't necessarily true or fair, but people nevertheless believe in them.

**Christopher Columbus** – Christopher Columbus was a merchant who infamously sailed west from Europe to prove that the Earth was spherical rather than flat, accidentally sailing to (and subsequently colonizing) America along the way. For Harari, Columbus's infamous voyage marks the start of the European Empire. He thinks the European Empire was different than previous empires because its conquerors saw themselves as scientists who were exploring, discovering, and learning about the world. The rulers of former empires, Harari thinks, saw themselves as spreading established doctrines and creating unity over disparate people and territories.

**Queen Isabella** – Queen Isabella was the queen of Spain in the 1400s. She funded Christopher Columbus's infamous sailing expedition that resulted in Spain colonizing the Americas. In *Sapiens*, Harari discusses Queen Isabella to show that European rulers of that time period sometimes functioned like capitalist merchants—Queen Isabella effectively extended credit to Columbus, hoping that his voyage would yield wealth for her nation.

**Charles Darwin** – Charles Darwin was a scientist who formulated the theory of evolution. Darwin posited that human beings evolved from other animals, thereby questioning the widespread belief that humans are inherently different from other animals. Harari references Darwin to stress that humans aren't fundamentally different from creatures on Earth: chance events enabled humans to climb to the top of the food chain, but the situation could easily change.

**Noah** – In the Judeo-Christian tradition, Noah is a biblical figure who followed God's prompting and built a massive ark to save the planet's animals from a global flood. Harari discusses Noah to say that humanity's track record with causing extinctions makes humans more like a destructive **human flood** than like the benevolent Noah.

**Charles Green** – Charles Green was a British scientist who

sailed to Tahiti with Captain James Cook in the 1700s. Although Green's purpose was to conduct scientific research, the voyage also resulted in Britain colonizing Australia, New Zealand, and several Pacific islands. Harari discusses Green and Cook to show that the rise of science and European imperialism were closely intertwined.

**King Leopold II** – King Leopold II was a Belgian king who colonized the African Congo basin in the 1800s. The expedition he funded was supposed to be a humanitarian mission aimed at flushing out slavery, but his organization ended up oppressing the local population and forcing them to farm rubber. Harari estimates that between six and ten million people lost their lives during the time that the Congo was under King Leopold II's control.

## MINOR CHARACTERS

**Gilgamesh** – In an ancient Sumerian myth, a ruler named Gilgamesh traverses the globe in pursuit of a way to cheat death, before concluding that death is a human being's destiny. Harari discusses the myth of Gilgamesh to express his worries about contemporary scientific efforts to prolong human life.

**Cyrus the Great** – Cyrus the Great was an ancient ruler of the Persian empire (established 500 BCE). He attempted to unite the Mesopotamian region into one empire.

**Qin Shi Huangdi** – Quin Shi Huangdi founded an ancient Chinese empire in 250 BCE.

**Pharaoh Akhenaten** – Pharaoh Akhenaten converted his Egyptian empire from polytheism to monotheism around 1350 BCE when he declared that one of Ancient Egypt's minor gods (Aten) was the supreme deity. Harari cites Pharaoh Akhenaten to illustrate how monotheism grew out of polytheism.

**Aten** – Aten was a minor god in Ancient Egyptian folklore. Pharaoh Akhenaten declared Aten the supreme deity around 1350 BCE, effectively converting the Egyptian empire from polytheism to monotheism.

**Jesus of Nazareth** – Jesus of Nazareth is the son of God in Christian theology.

**Siddhartha Gautama / Buddha** – Siddhartha Gautama was a legendary prince living in 500 BCE who founded Buddhism. He became the first Buddha, or enlightened being.

**Karl Marx** – Karl Marx was a political theorist who invented Communism, along with his collaborator Friedrichs Engels.

**Friedrichs Engels** – Friedrichs Engels was a political theorist who invented Communism, along with his collaborator Karl Marx.

**Constantine** – Emperor Constantine converted the Roman Empire from polytheism to Christianity, marking the rise of Christianity in Europe.

**Isaac Newton** – Isaac Newton was a scientist who discovered gravity and created the laws of motion, which has dominated humanity's understanding of the physical world ever since he outlined his view in *The Mathematical Principles of Natural Philosophy*, published in 1687.

**Robert Wallace and Alexander Webster** – Robert Wallace and Alexander Webster were Scottish clergymen who created a life insurance fund for widows in 1744. Harari highlights the way they used statistics to develop their business model.

**King Edward I and Queen Eleanor** – King Edward I and his wife, Queen Eleanor, ruled England in the 1200s. Despite their wealth, stature, and resources, most of their children died. Harari discusses King Edward I and Queen Eleanor to highlight the high rate of child mortality in medieval times.

**Captain James Cook** – Captain James Cook sailed to Tahiti on a scientific mission for Britain in the 1700s. On it, he claimed Australia, New Zealand, and several Pacific islands for Britain. Harari discusses Cook to show that the rise of science and European imperialism were closely intertwined.

**Admiral Zheng He** – Admiral Zheng He was a Chinese admiral who explored far reaches of the Indian Ocean in the 1400s. Despite his exploration of numerous new nations, he didn't seek to colonize them for China, unlike later European expeditions helmed by Christopher Columbus and Captain James Cook.

**Hernàn Cortés** – Hernàn Cortés colonized Aztec Mexico in the 1500s by taking Emperor Montezuma hostage upon his arrival.

**Emperor Montezuma** – Montezuma was the emperor of the Aztec Emperor until it was colonized by the Spanish following Hernàn Cortés's expedition to Mexico in the 1500s.

**Francisco Pizarro** – Francisco Pizarro colonized the Incan empire for Spain in the 1500s.

**William Jones** – William Jones was a British imperialist scholar working in India during British rule. He founded the field of linguistics by studying ancient Sanskrit texts.

**Marie le Pen** – Marie le Pen is a French politician. Harari thinks Marie le Pen uses social science to justify her anti-immigration political platform.

**Adam Smith** – Adam Smith was a Scottish economist who wrote the *Wealth of Nations* in 1776. The book articulated early capitalist ideas that productivity, profit, and wealth generation are good for a nation's collective well-being.

**Harry Harlow** – Harry Harlow was an American psychologist who conducted experiments in the 1950s on monkeys' attachment to their mothers. Harari discusses Harlow to show that animals in captivity suffer deep, pathological trauma from being separated from their mothers.

**Eduardo Kac** – Eduardo Kac is a Brazilian artist who paid a scientific lab to genetically engineer a fluorescent rabbit for him, which they made by implanting jellyfish DNA into a rabbit

embryo. Harari discusses Kac to highlight advances in bioengineering, which Harari worries about.

**Henry Rawlinson** – Henry Rawlinson was a British officer who traveled to Persia to help train the Persian army in the 1900s. During his time there, he discovered ancient scripts and conducted research on the Babylonian, Elamite, and Old Persian empires.

## TERMS

Agricultural Revolution – Around 12,000 years ago, nomadic foraging humans began harvesting crops, a movement known as the Agricultural Revolution. This shift from foraging to farming completely changed the face of the Earth: humans began forming permanent settlements and tending to their crops, which eventually grew into towns and cities. Humans also began domesticating animals and claiming permanent territory for human settlements, which dramatically altered life for many other species. Scholars often depict the agricultural revolution as a great leap forward for humankind, but **Harari** disagrees. He thinks that when humans shifted from foraging to farming, they ended up having to work harder, eat less well, live in crowded dwellings that spread disease, and suffer anxiety about their crops. He concludes that the Agricultural Revolution didn't make life better for humanity—it made it worse.

Cognitive Revolution – **Harari** thinks that humanity's ancestors, *Homo sapiens*, evolved a unique ability to imagine and believe things that aren't true around 70,000 years ago, a time known as the Cognitive Revolution. He argues that this ability to collectively believe in (and rally around) the same ideas, stories, rules, and goals enabled Sapiens to cooperate on a much wider scale than any other species on Earth. Harari thinks the Cognitive Revolution marks *Homo sapiens*' rise to the top of the food chain and the beginning of humanity's global domination.

Imagined Order – **Harari** thinks that around 70,000 years ago, *Homo sapiens* (the human species that became humanity's ancestors) evolved a unique ability to imagine and believe things that aren't true, including myths, stories, legends, religions, ideologies, and more. He calls these "imagined orders." Human beings, Harari says, invent such stories—which effectively tell people how to behave in society—and follow the rules because they think the stories are true. In a sense, when humans do this, we collectively believe in the same fictions. Most animal species tend to form small societies (perhaps up to 150 at most) because an animal can only know and trust a limited number of beings. Imagined orders, Harari thinks, enable humans to trust other humans because they believe in the same stories and follow the same rules, even if they don't know them. This trust enables humans to cooperate with strangers on a colossal scale, never before seen in history.

Industrial Revolution – The Industrial Revolution refers to the time when, around 300 years ago, humans discovered that they could burn fuel to heat water, which creates steam, which can physically move things—like pistons, wheels, and turbines. This discovery enabled humans to automate many processes that formerly relied on manual labor. **Harari** considers the Industrial Revolution to be more like a "Second Agricultural Revolution," since most of the new technology was used to automate farming processes. Harari thinks industrial workers have far worse lives than ancient foragers did, so he concludes that the Industrial Revolution was also bad for humanity.

Scientific Revolution – The Scientific Revolution happened when, around 500 years ago, humanity shifted to a worldview in which they realized they could learn about the world from observing it. Before this time, humans tended to trust religious texts for knowledge about the world. **Harari** thinks the Scientific Revolution was unique because it centered on the idea that humans *don't* know much about the world can learn more by observing it. Harari thinks that humanity has become obsessed with trying to achieve progress through science. Harari worries about this obsession because he thinks scientific advancements aren't purely about gaining more knowledge. He argues that somebody—typically, a government or corporation—has to pay for scientific research, and he thinks that they tend to fund research that will make them have more power or more money, rather than funding research that will necessarily benefit humanity. He's deeply skeptical about new technology like advances in medicine, artificial intelligence, and bioengineering.

## THEMES

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### FORAGING, INDUSTRY, AND HUMAN HAPPINESS

In *Sapiens*, author Yuval Noah Harari questions the idea that humans (*Homo sapiens*, or Sapiens) are evolution's biggest success story. Humans are more populous and industrious than we've ever been, which suggests—at least on the surface—that we're thriving as a species. However, Harari contends that most humans suffer as societies expand. Even though ancient foragers faced difficulties like high child mortality rates and fearsome predators, Harari thinks humanity's ancient ancestors actually endured less physical labor and led more emotionally rewarding lives, which made

them more satisfied overall. Harari thus argues that, contrary to popular belief, human history isn't a story of clear upward progress. But that doesn't mean we can—or should—attempt revert to our foraging ways. Rather, Harari concludes that we should question humanity's blind pursuit of population growth and industry when considering our aspirations for the future, because he thinks larger, more industrious societies don't necessarily make us happier.

Harari argues that humans often endure more physical hardship as societies expand, suggesting that population growth and industry aren't necessarily healthy goals for humanity. Harari contends that ancient foraging humans lived in much smaller populations, meaning they didn't have to work as hard to sustain their societies, leaving them physically less exhausted (and therefore better off) than many individuals in the modern world. Harari estimates that foragers needed to work only "thirty-five to forty hours a week" to gather and hunt food and maintain their dwellings. In contrast, modern-day agricultural laborers and industrial workers (who, he argues, make up 90 percent of the human population) typically work over "ten long, mind-numbing hours" a day before they go home to tackle further domestic chores. Harari implies, through this comparison, that the more developed human societies become, the more labor they demand to sustain, and the more exhausting life becomes for the majority of individuals in the society.

Harari also argues that before humans discovered agriculture 12,000 years ago, foraging communities could comfortably survive in nature's wild habitat. Wild food sources (like fruits and meat) were readily available and they provided a varied, nutritious, and wholesome diet. Harari speculates that such foragers experienced fewer ailments and less physical suffering than people in subsequent agricultural and industry-based societies, whose diets were far less nutritious. After the advent of farming—which demands far more labor than foraging—humans began producing more offspring to generate the labor needed to sustain their crops. Larger human populations also needed more food than the natural habitat could offer, so people had to rely on their crops for food. Harari argues that foregoing the nutritious forager diet of wild fruits and meat and restricting the human diet to one particular grain caused widespread malnourishment and demanded more labor from humanity, thereby increasing physical pain and suffering on a day-to-day basis. Harari controversially concludes that farming and industrialization weren't markers of human advancement, but rather setbacks to human progress. This is because laborers—who make up the vast majority of the human population, even today—endure more physical exhaustion, malnourishment, and illness than foragers likely ever did. Harari thus subtly implies that increasing humanity's population and industrial pursuits further might cause even more suffering in the future.

Harari also contends that although agricultural and industrialized societies promise more modern conveniences and easier lives for humans, they actually generate stress and emotional discontent, leaving us psychologically worse off. Harari argues that our future-oriented thinking, which increased with the invention of agriculture, triggers unprecedented worry and stress, causing humans to suffer more daily anxiety. It may seem surprising that Harari thinks workers in agricultural societies faced more stress than their foraging ancestors, who had to worry about being chased and eaten by predators on a daily basis. Nonetheless, Harari maintains that despite such worries, foragers could rely on their natural habitat to replenish its food supply each season and keep sustaining them. In contrast, "the anxious peasant[s]" of farming societies faced ongoing stress over their long-term food supply. Harari notes that "although there was enough food for today, next week, and even next month, [peasants] had to worry about next year and the year after that." Harari thus speculates that agricultural laborers likely experienced more anxiety about their future sustenance, and he assumes they were therefore unhappier on a day-to-day basis.

Harari also thinks that the material luxuries that modern humans relentlessly pursue, as well as our inflated expectations about life, don't facilitate happier lives. Harari argues that modern humans seek out "washing machines, vacuum cleaners, dishwashers, telephones, mobile phones, computers [and] email" to make our lives easier, but we're typically less "relaxed." Harari thinks such conveniences actually make us more "intoleran[t] of inconvenience and discomfort" (which are inevitable in life) so we "suffer from [psychological] pain more than our ancestors ever did." Harari also thinks that mass technology (like social media and billboards) often prompts people to compare their lives to elite individuals, like "movie stars, athletes, and supermodels," which makes people feel disappointed and inadequate when they fail to achieve fame, wealth, and glamour in their own lives. Harari suggests that pursuing luxury, convenience, and success doesn't necessarily make humanity happier, because most people's lives fail to meet such inflated demands, leaving them disillusioned and discontent. Harari concludes that although it's unrealistic to try to turn back the clock on modern living, human societies should at least proceed with more awareness about the day-to-day happiness of the overall population, when considering our species' aspirations for the future.

## FICTION, COOPERATION, AND CULTURE

In *Sapiens*, author and historian Yuval Noah Harari argues that humankind's early ancestors, *Homo sapiens*, conquered the world 70,000 years ago because of a newfound ability to imagine—and collectively believe in—fictional realities, which he calls "imagined orders" (e.g., myths, religions, and concepts like "money" or "nation"). To

Harari, believing in the same fictions or stories about how the world works enables people who wouldn't otherwise know or trust each other to cooperate on a mass scale and coordinate their efforts to achieve a common goal (like global domination). Harari also stresses that "imagined orders" work because they successfully make people cooperate—not because they're true or fair to everyone who believes in them. In fact, most imagined orders impose hierarchies that privilege some people and marginalize others, but Harari emphasizes that such hierarchies are neither absolute nor permanently binding. People can thus change their societies (and the power structures within them) by establishing new "imagined orders." As long as the new ideas also facilitate mass cooperation in society and make it function on a large scale, Harari thinks they'll take hold.

Harari argues that humans dominate life on Earth because we're able to believe in shared fictions, or imagined stories about the world. Most animals, Harari explains, can only cooperate in small groups, and even archaic humans could only cooperate in groups of a few hundred people at most. Social groups tend to fracture into smaller factions when they get too large for the group's members to know (and therefore, trust) the other members. Around 70,000 years ago, ancient humans figured out that individuals can "bond" with an idea, story, or myth (like "God" or "money") and trust that others who also believe the story will follow its rules, even if they don't know (or may never meet) each other. To Harari, cooperation with vast numbers of strangers is what makes large societies thrive—and believing in the same fictions thrusts people into cooperating.

Harari argues that myths about the world (like religions or political ideologies) work because people think the stories are true, so they comply. Yet, such myths can also have negative effects (for instance, legitimizing slavery or gender oppression), so it's important to remember that humans can change the "imagined orders" we collectively rally around. Harari argues that although imagined orders pretend to offer true facts about the world, they don't actually have any basis in biological reality. For example, Hammurabi's Code, an archaic Mesopotamian social order, argues that there's a "natural" social order (ordained by the "gods") with aristocracy at the top, followed by commoners, and then slaves. Harari argues that Hammurabi's Code is effective because it makes people believe they have a fixed role in society that they're morally obligated to follow: the set-up successfully facilitates large-scale cooperation, but it's neither true nor fair for everyone who believes in it. For Harari, it doesn't make a difference if an imagined order is unfair or exploitative of some people. The fiction "sticks" if it's "stable," meaning people believe in it and therefore cooperate. Because imagined orders aren't rooted in biological facts, they're highly mutable, meaning human societies can—and often do—change the fictions that unite them. Harari thinks the French Revolution was a case in which one imagined order (the idea that all people are equal and fit to govern themselves) replaced another (the idea that aristocrats are born superior to commoners, and therefore more suited to rule the society). Believing in new myths, thus, can tangibly change societies. Harari subtly implies that any "imagined order" that makes people cooperate will likely stick and make the society function effectively, but humanity should also think about the negative impact that a particular imagined order has on a population if we want to mitigate oppression.

## SCIENCE, WEALTH, AND EMPIRE

*Sapiens* author Yuval Noah Harari thinks that modern humanity puts too much blind faith in science. Harari suggests that many people believe that science is true, unbiased, and progressive because it's rooted in discovering facts about the world, but he disagrees. Harari emphasizes that scientists still have to interpret the data they observe, meaning there's a level of storytelling involved in scientific theories and they don't solely deal in hard facts. He also suggests that "economic, political, and religious interests" impact scientific research. For example, when politicians need better technology to win wars, or corporate executives seek new technology to make money, they fund scientific research that will help them achieve their goals (like developing the atomic bomb), whether or not that research actually helps humanity progress. Harari concludes that the rest of humanity should thus be more wary of science, and he advocates thinking about whether or not scientific advances actually benefit us, rather than blindly trusting in science's findings.

Harari argues that it's a mistake to assume that science is necessarily reliable just because it's rooted in observing facts about the world. Scientists observe the world, but they also "need to connect observations into comprehensive theories." With this, Harari underscores that science isn't just about observing facts and collecting data; it also involves speculation about what those facts say about the world. Scientists are also often wrong, and their theories get replaced with newer theories as science progresses, suggesting there's a significant amount of guesswork in the scientific endeavor. From Harari's perspective, scientific theories aren't actually that different from ancient religious texts, which also offer theories about the world and how it works. Harari thinks the central difference is that "Earlier traditions usually formulated their theories in terms of stories. Modern science uses mathematics." Harari suggests that scientific theories are "stories" that interpret the world, meaning that humanity shouldn't blindly assume scientific theories are reliable just because they're centered on observation and told in the language of mathematics. Harari also points out that scientific research costs money, meaning people with power and money control which research programs get funded. For example, nations with war interests (or desire to expand an "empire") often fund scientific research

into new weaponry. Effectively, powerful people fund the scientific research that will help them achieve a particular goal (like wealth or political expansion). Science is rarely—if ever—neutral.

Harari contends that since scientific advancements typically serve the elite's personal goals (like wealth or expansion of empires), they don't automatically serve humanity's best interest. Research into machine learning is one such example of this, as it's primarily funded by corporations who want to automate their production lines to save money. Harari imagines a future in which computer programs evolve skills that "humans can neither rival nor understand" and start deciding "whom to give a mortgage to and whom to send to prison" without human input. Harari suggests that such technology will help some people get richer, but it might harm humanity in the long run. Similarly, Harari worries about governments who fund cyborg technology to embed computer chips in insects' bodies, for spying behind enemy lines. He imagines a future in which humans embrace the evolving technology without knowing about the "philosophical, psychological, or political implications" of inserting computer chips into our bodies. Once again, Harari suggests that governments fund technological advancements to help their empires amass more power, but that doesn't mean such advancements will be good for humanity. Harari concludes that science's emerging technologies don't necessarily come about with humanity's best interest in mind, and he warns his readers to think about how beneficial a new technology is before blindly accepting it into their lives.

## HUMAN-CAUSED ECOLOGICAL DEVASTATION

In speculating about humanity's ancient past, *Sapiens* author Yuval Noah Harari argues that humans are the Earth's deadliest species. Harari thinks humanity's ancestors, *Homo sapiens*, evolved advanced cognitive skills so suddenly that they jumped to the top of the food chain before the rest of the ecosystem had to time to recalibrate to the new threat. Harari contends that *Homo sapiens* killed off at least six other human species (including Neanderthals), drove more animal species to extinction than any other creature on Earth, and, in modern times, continues to inflict mass cruelty on other animals through the farming industry. Harari concludes that whenever humans spread into a new territory, death and cruelty follow for other animals. Harari suggests that if humans don't curb our cruel and dominating tendencies, we might one day be the only animals left. Harari concludes with a warning for humanity to curb our reckless domination of other species and think more carefully about the devastating effect we have on Earth's ecosystem.

According to Harari, *Homo sapiens* have been responsible for the extinction of nearly all large mammals on Earth for over 70,000 years, showing that we've been the world's deadliest species. When Homo sapiens evolved new cognitive capabilities around 70,000 years ago (the Cognitive Revolution) and began spreading around the globe, they drove at least six other human species (including Neanderthals) to extinction. Harari contends that our ancestors displaced and killed off even the mammals that were most like us, showing that our human species is deadly and combative.

Harari argues that there's a pattern in history: every time Homo sapiens shows up in new territory, large mammals go extinct, suggesting that we are responsible for the most extinctions than any other creature on Earth. Harari thinks the Cognitive Revolution happened so suddenly that other animals didn't have time to develop the instinct to avoid *Homo sapiens*. Many large mammals in isolated ecosystems—like Australia's—didn't fear animals that were smaller than them, because they hadn't had exposure to small, deadly animals before, leaving them unprepared for the havoc that *Homo sapiens* would wreak on their species when they first arrived in Australia 45,000 years ago. *Homo sapiens* ended up killing off 23 out of 24 of Australia's large marsupial mammals within a few thousand years, suggesting our ancestors were nature's deadliest threat in that ecosystem. Australia's mass extinctions weren't an isolated incident: mass extinction of large mammals also followed in other ecosystems when *Homo sapiens* spread to those areas, including the Americas (14,000 years ago), the Caribbean (7,000 years ago), and Madagascar (1,500 years ago). To Harari, the evidence shows that ancient *Homo sapiens* were "ecological serial killers," as they swiftly became the deadliest animals in every environment they inhabited.

Harari thinks that modern humans are even more deadly and cruel to other species than our ancient ancestors were, citing continued extinctions in the wild and cruelty in the farming industry. He warns against continuing on this path, suggesting that humankind could soon be the only animals left. Harari argues that humans continue to cause extinctions as they spread further into the Earth's ecosystems. He thinks the "large animals of the oceans" are next, because "many of them are on the brink of extinction now as a result of industrial pollution and human overuse of oceanic resources." Harari predicts that at the current pace of oceanic pollution, "whales, sharks, tuna and dolphins will follow the diprotodons, ground sloths and mammoths to oblivion." Harari thus stresses that in pursuing our own interests, humans are having a devastating and irreversible impact on the planet. Harari thinks it's a mistake to assume that other species (notably agricultural animals including cows, pigs, and chickens) are thriving in numbers as a result of human industry. He contends that although their populations have never been so large, their lives have also never been so short or miserable. For example, chickens can live for up to 15 years roaming in the wild, but most chickens today are only alive for a few weeks in cages before they're

killed for meat. Harari argues that modern humans are not only deadly, but also pathologically cruel to other animal species on Earth, making us even worse than our archaic ancestors. Harari concludes that humanity's track record with other animal species is deplorable, and he predicts that eventually, there'll be no large animals left except "humans themselves, and the farmyard animals that serve as [our] slaves." Harari thus warns humanity about the dangers of our unchecked domination of other species, arguing we'll regret our actions when we're the only large animals left on Earth.

## SYMBOLS

Symbols appear in **teal text** throughout the Summary and Analysis sections of this LitChart.

### PEUGEOT

Harari uses the example of the Peugeot car brand to symbolize the concept of an imagined order. According to Harari, humans are unique in the animal world because we can imagine and believe things that aren't true or grounded in the physical world—this is what he calls an imagined order. The car brand Peugeot, for example, exists, but it's not tied to any specific part of the physical world. Even if all the Peugeot cars in the world burned and completely disintegrated, the *brand* Peugeot would still exist. In other word, the Peugeot brand is more like an idea than a physical thing (the actual cars).

Harari says ideas like this are fictional entities. Despite the fact that it's just an idea, the Peugeot brand shapes many people's lives: consumers buy Peugeot cars, and employees work together in Peugeot factories. In a sense, all of these people cooperate by rallying around the brand. Throughout *Sapiens*, Harari wants to show that ideas like car brands, concepts like money, or belief in gods are all extremely powerful. They encourage people to trust strangers who also believe in those ideas, which makes people cooperate in vast numbers, enabling human societies to flourish. People also tend to treat fictional entities—like the Peugeot car brand, mythical heroes, or even stories that declare that some people are superior to others—as if they're true. But Harari reminds the reader that these fictional entities, or imagined orders, are always invented, meaning they can be changed.

### HUMAN FLOOD

Harari uses the idea of a "human flood" to symbolize humankind's destructiveness, suggesting that humans wipe out animal species like a flood that sweeps the natural ecosystem, destroying everything in its path. Harari's metaphor of a "human flood references the Judeo-Christian myth of Noah's ark. In the story of Noah's ark, a biblical figure named Noah builds an ark, or boat, to house a pair from each animal species in the world, so that every living species can survive the giant flood that God is about to inflict upon the earth. Harari thinks that humanity's track record shows that we're a lot less like Noah and a lot more like the flood that wipes out living species. He notes that when humanity's ancestors, *Homo sapiens* (or "Sapiens"), started exploring different parts of the world from 70,000 years ago, they caused widespread ecological destruction wherever they settled. Sapiens' arrival in Australian 45,000 years ago correlated with the extinction of nearly all of Australia's large marsupials. Similarly, Sapiens' arrival in the Americas 16,000 years ago correlated with the extinction of most of America's large mammals. So, Harari symbolizes humanity's spread around the globe as a "human flood" that causes widespread death and destruction. Harari intends for the reader to think, through this metaphor, about how humanity abuses its power and fails to protect other animal species.

### MAPS WITH BLANK SPACES

Harari uses the symbol of maps with blank spaces to represent a shift in humanity's outlook around the year 1500 towards a desire to learn, explore, and discover unknown facts about the world. The blank spaces on maps represent knowledge about the world that's yet to be discovered. Before the Scientific Revolution, humans generally assumed that information and knowledge about the world was already known and recorded, and they could find it by reading religious scriptures. For Harari, maps that are completely filled in represent this religious mindset—that all the knowledge about the world is already known and written down in scripture, waiting to be memorized. During the Scientific Revolution, however, humans shifted in their mindset and began thinking they were ignorant about the world, but they could learn about the world by observing it. After Christopher Columbus attempted to sail west from Europe to India in the 1400s, and his fleet accidentally bumped into the Americas along the way, Europeans started drawing maps with blank spaces in them—representing territories, information, and knowledge waiting to be discovered. Harari thinks this new way of thinking about the world fueled European imperialism—because after Columbus landed in the Americas, European imperialists became obsessed with exploring, discovering, and learning about the world, and in doing so, they ended up colonizing many parts of it.

## QUOTES

Note: all page numbers for the quotes below refer to the Harper Perennial edition of *Sapiens* published in 2018.

## Chapter 2 Quotes

Large numbers of strangers can cooperate successfully by believing in common myths.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 32

**Explanation and Analysis**

Here, Harari is explaining the rise of humankind as the dominant species on Earth. He thinks humanity's power is rooted in our ability to make up stories and myths, which he calls "imagined orders."

For Harari, an imagined order is a fictional idea, concept, theory, story, legend, or myth that people believe in. Harari notes that people tend to cooperate with others if they know and trust them. Humans, however, can't personally know or trust more than 150 people or so—our brains don't have the capacity to store more information than that. Imagined orders—or, "common myths"—however, allow people to cooperate with countless people whom they don't personally know. A person who believes in a particular imagined order (say, a particular religion) will tend to trust others who also believe in those same ideas and values. That person can trust that strangers who believe in the same ideas will act in predictable ways, value the same things, and follow the same rules. People can therefore cooperate with complete strangers whom they don't know (and might never meet) if they trust that those strangers also believe in the same things. This trust enables cooperation on a far wider scale than is possible in nature, which enables humans to form immeasurably large societies. Harari thinks this ability to coordinate efforts (or cooperate on a mass scale to achieve a common goal) enabled humanity's ancestors, *Homo sapiens*, to dominate on Earth.

In what way can we say that Peugeot SA (the company's official name) exists? There are many Peugeot vehicles, but these are obviously not the company. Even if every Peugeot in the world were simultaneously junked and sold for scrap metal, Peugeot SA would not disappear. It would continue to manufacture new cars and issue its annual report. [...] Peugeot has managers and shareholders, but neither do they constitute the company. All the managers could be dismissed and all its shares sold, but the company itself would remain intact [...] In short, Peugeot SA seems to have no essential connection to the physical world. Does it really exist? Peugeot is a figment of our collective imagination.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Related Symbols:**

**Page Number:** 29-30

**Explanation and Analysis**

Here, Harari uses the example of the Peugeot car brand to illustrate how humans evolved the unique ability to invent ideas, stories, and imaginary things—which he calls "imagined orders"—and cooperate on the basis of those ideas. The Peugeot car brand is an imagined order because it exists even if no actual Peugeot cars exist. It would also keep existing even if all the existing Peugeot cars were destroyed, or if all the employees working for Peugeot were fired. The Peugeot car brand thus exists even if it doesn't correlate with any specific physical objects or people. In this sense, it's more of an idea than a physical thing, yet countless people organize their lives around this idea: they work for the company, invest in its shares, and remain committed to the brand. In Harari's terms, then, such people follow the imagined order of Peugeot: they rally around an idea, and they cooperate in specific ways based on their belief in that idea, even though it's not a physical object in the world. Harari uses the symbol of the Peugeot car brand to explain that humans often act and behave in certain ways because—unlike other animals—they have the capacity to believe in imaginary things, or imagined orders, rather than just tangible, physical objects (such as trees, food, or predators).

## Chapter 3 Quotes

While people in today's affluent societies work an average of forty to forty-five hours a week, and people in the developing world work sixty and even eighty hours a week, hunter-gatherers living today in the most inhospitable of habitats—such as the Kalahari Desert—work on average for just thirty-five to forty-five hours a week. [...] It may well be that ancient hunter-gatherers living in zones more fertile than the Kalahari spent even less time obtaining food and raw materials. On top of that, foragers enjoyed a lighter load of household chores. They had no dishes to wash, no carpets to vacuum, no floors to polish, no nappies to change and no bills to pay.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 50

**Explanation and Analysis**

Throughout *Sapiens*, Harari argues that, contrary to popular belief, most humans' quality of life actually decreased as history progressed. Over the course of the book, Harari examines what human life probably looked like around 70,000 years ago and works his way up to the present day. When imagining early human societies, he decides that humanity's ancestors lived far better lives than their modern descendants.

In this passage, he compares inhabitants of modern foraging societies to laborers in modern industrial societies. He notes that, compared to modern laborers, foragers worked far fewer hours—in some cases, only half as many hours—to hunt and gather food and maintain their dwellings. Since modern foragers (like those living in the Kalahari Desert) only need to work 35–45 hours a week, he imagined ancient foragers (living between 70,000 and 12,000 years ago) had to work around the same amount, possibly even less if they lived in fertile land where food was easy to come by. He then moves on to suggest that because ancient foragers probably had to work fewer hours than their modern counterparts, they likely had more time for socializing and relaxing, which makes Harari conclude that ancient foragers must have been much happier than modern workers.

> The forager economy provided most people with more interesting lives than agriculture or industry do. Today, a Chinese factory hand leaves home around seven in the morning, makes her way through polluted streets to a sweatshop, and there operates the same machine, in the same way, day in, day out, for ten long and mind-numbing hours, returning home around seven in the evening in order to wash dishes and do the laundry.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 50

**Explanation and Analysis**

Here, Harari is imagining what life might have been like for people living in ancient foraging societies (between 70,000 and 12,000 years ago). He believes that ancient humans had far more enjoyable lives than modern day workers. In this passage, he imagines a day in the life of a modern Chinese factory laborer for comparison. Prior to this passage, he's just noted that foragers worked just three to six hours a day, roaming around, gather food, and maintaining their dwellings. Now, he notes that this ancient work was interesting, varied, and not too demanding. Modern factory workers, in comparison, have endure the same repetitive tasks for hours on end, making their work "mind-numbing." Harari thus thinks that modern workers not only work harder and longer, but they're also far less fulfilled by their work. As such, he argues that the demanding and boring nature of modern-day factory labor makes many modern humans feel unhappier on a day-to-day basis than the ancient foragers likely were. Harari raises this issue to question the widespread idea that life has been getting better for humanity has history has progressed. He thinks most modern workers actually have far worse day-to-day lives than their foraging ancestors.

> The typical peasant in traditional China ate rice for breakfast, rice for lunch, and rice for dinner. If she were lucky, she could expect to eat the same on the following day. By contrast, ancient foragers regularly ate dozens of different foodstuffs. […] This variety ensured that the ancient foragers received all the necessary nutrients.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 51

**Explanation and Analysis**

Here, Harari is imagining what life might have been like for ancient human foragers, who were living between 70,000 and 12,000 years ago. He's just argued that foragers worked less and had more interesting work than their descendants in farming-based and industrialized societies, meaning they endured less mental and physical strain from their working lives on a day-to-day basis. Here, he continues pushing the idea that life was better for ancient foragers by saying that farm laborers experienced more malnutrition, adding to their lower quality of life. An ancient forager's diet of wild fruits and meat was both varied and nutritious, while a typical historical farmer's diet—of one main grain—is far less nutritious. Harari also thinks that eating the same food every day is depressing, which ties back to his previous claim that the repetitive, monotonous nature of modern industrial work (like working on a factory line, for instance) plays a big role in why modern life is so unsatisfying and

even unhealthy. He thus argues that people living in agricultural societies (between 12,000 and 300 years ago) suffered far more than their foraging ancestors: both physically (from malnutrition) and mentally (from the boredom of eating the same food day in and day out).

Moreover, most people in agricultural and industrial societies lived in dense, unhygienic permanent settlements—ideal hotbeds for disease. Foragers roamed the land in small bands that could not sustain epidemics.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 51-52

**Explanation and Analysis**

In this passage, Harari is closing out his discussion on life for ancient human foragers between 70,000 and 12,000 years ago. So far, he's argued that foragers enjoyed a better quality of life overall, because they worked less, did more interesting work, and ate better. Now, he adds one final argument to strengthen his claim that people in foraging societies were better off than the farmers and factory workers who lived in subsequent generations. He notes that foragers were far more nomadic: they lived in smaller, more spread out communities and roamed freely in the wild. Farmers, in contrast, have to settle permanently by their crops, so they can tend to them daily. Farming also requires a lot of manual labor, meaning that humans started having a lot more offspring after farming-based societies became more common.

Factory workers face a similar situation—factories demand labor from lots of people who have to live and work in close quarters on a daily basis. Living and working in close quarters, Harari argues, spreads infectious disease far more easily than living in small, isolated communities like foragers did. Even though there certainly were advances in medicine as history progressed, Harari believes that farmers and industrial laborers suffered more from diseases than their foraging ancestors did, which lowered their quality of life overall. As before, Harari is adamant that life has not improved for humanity as our societies have become more developed.

## Chapter 4 Quotes

[T]he historical record makes *Homo sapiens* look like an ecological serial killer.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 67

**Explanation and Analysis**

Here, Harari is discussing life between 70,000 and 12,000 years ago, when *Homo sapiens*, humanity's ancestors, began exploring the world and settling in different territories. He compares the timeline of humans arriving in different places around the world with the timeline of global animal extinctions, and he thinks the evidence is indisputable: whenever human settled in a new territory, mass extinctions followed, especially for large mammals. For example, 45,000 years ago, *Homo sapiens* arrived in Australia, which is around the time most Australian marsupials went extinct. Then, 16,000 years ago, *Homo sapiens* arrived in America, which is also when most large mammals went extinct. This "historical record"—of the correlation between Homo sapiens global exploration and mass extinctions—makes it look like every time *Homo sapiens* arrived in a new territory, they didn't live in balance with the prevailing ecosystem. Rather, they killed off other potential predators to help themselves survive. Harari think that humans were thus responsible for mass-scale extinctions wherever they settled, which is why he thinks *Homo sapiens* are "an ecological serial killer."

If things continue at the present pace, it is likely that whales, sharks, tuna and dolphins will follow the diprotodons, ground sloths and mammoths to oblivion. Among all the world's large creatures, the only survivors of the human food will be humans themselves, and the farmyard animals that serve as galley slaves in Noah Ark.

**Related Characters:** Yuval Noah Harari (speaker), Noah

**Related Themes:**

**Related Symbols:**

**Page Number:** 74

**Explanation and Analysis**

In this passage, Harari draws on the Judeo-Christian

narrative of Noah's ark to criticize humanity's treatment of other animals. According to the biblical myth, God is preparing a giant flood to sweep the planet and cleanse it. But first, he instructs a man named Noah to build a giant boat, or ark, and fill it with a male and female from every living species. That way, Noah and his family—along with all animal species—will survive the flood rather than go extinct.

To Harari, humanity's track record shows that we've done the exact opposite of Noah saving the animals via his ark—every time humans participate in an ecosystem, we cause widespread extinctions. In this sense, humanity is far more like the flood that kills off animals as it spreads around the world than it is like Noah, who saves them. The "human flood" thus, is a metaphor for the way that humanity has rushed in as the planet's dominant species and destroyed many animal species in the process. The only exceptions are animals that humans breed for farming, but Harari thinks our treatment of these animals is no better, because we treat them like "slaves." Harari warns against continuing on this path, because he thinks that soon enough, the "human flood" will wipe out most, if not all, the large animals on Earth, and he thinks that humans will regret such behavior when there are no other large animals left.

## Chapter 5 Quotes

❝ Why would any sane person lower his or her standard of living just to multiply the number of copies of the *Homo sapiens* genome? Nobody agreed to this deal: the Agricultural Revolution was a trap.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 83

### Explanation and Analysis

Harari has just finished discussing ancient human societies, which existed between 70,000 and 12,000 years ago. In this passage, he's discussing subsequent farming-based societies, which began dominating the globe after the Agricultural Revolution, when humans shifted from hunting and foraging wild food to farming and harvesting crops around 12,000 years ago.

He's already argued that day-to-day life was overall far more miserable for farmers than it was for foragers. Here, he notes that many scientists tend to think a species is thriving when its population soars. This is the view that evolutionary biologists hold, as they argue that species with the most genes in the gene pool are the most likely to survive as life evolves. From this perspective, it seems that the Agricultural Revolution was a good thing for humankind, since the human population boomed and only continued to grow after the advent of farming.

Harari disagrees sharply with this reasoning. He thinks that as, the human population grew, humans' quality of life worsened. In particular, humans needed more food to feed more people, which demanded more labor to sustain crops. And the crops themselves were far less nutritious than the wild food that foragers gathered. Overall, Harari argues that the more populous humans became, the unhappier human societies became. He thinks that happiness should be used to assess whether or not a population is thriving, not "the number of copies of the Homo sapiens genome" in the gene pool (or, the number of humans on Earth). From his perspective, then, the Agricultural Revolution wasn't a giant leap forward for humankind—it was "a trap" that made humanity miserable.

❝ Over the last few decades, we have invented countless time-saving devices that are supposed to make life more relaxed—washing machines, vacuum cleaners, dishwashers, telephones, mobile phones, computers, email. Previously it took a lot of work to write a letter, address and stamp an envelope, and take it to the mailbox. It took days or weeks, maybe even months, to ger a reply. Nowadays I can dash off an email, send it halfway around the globe, and (if my addressee is online) receive a reply a minute later. I've saved all that trouble and time, but do I live a more relaxed life?

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 87-88

### Explanation and Analysis

Here, Harari is discussing life since the Agricultural Revolution, when human societies shifted from foraging for food to farming it around 12,000 years ago. He notes that human societies started farming their food to make their lives easier. Presumably, they must have thought that having regular access to farmed crops nearby would be easier than going out in the wild to forage or hunt food. To Harari, however, humans' lives didn't get easier, but harder, because he thinks farming demands a lot more labor than foraging did. Here, he extends this insight to modern day humans. He

notes that humans often invent devices to save labor and make our lives easier—like washing machines and telephones. Harari thinks, however, that such inventions make our lives harder. It's true that many such devices save time (he notes here that it's much quicker to send an email than a letter, for example), but he also thinks all these devices create a lot more day-to-day stress. He implies that many modern luxuries are supposed to make human lives easier by reducing physical labor but actually end up making life harder by increasing people's stress.

❝ Domesticated chickens and cattle may well be an evolutionary success story, but they are also among the most miserable creatures that ever lived. The domestication of animals was founded on a series of brutal practices that only became crueller with the passing of the centuries. The natural lifespan of wild chickens is about seven to twelve years, and of cattle about twenty to twenty-five years. In the wild, most chickens and cattle died long before that, but they still had a fair chance of living for a respectable number of years. In contrast, the vast majority of domesticated chickens and cattle are slaughtered at the age of between a few weeks and a few months, because this has always been the optimal slaughtering age from an economic perspective.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 93

**Explanation and Analysis**

In this passage, Harari is discussing agricultural human societies, which commenced around 12,000 years ago. He's already argued that contrary to popular belief, the Agricultural Revolution—the shift from foraging to farming—was not a step forward for humankind, but a step backwards. This is because most humans' lives got worse rather than better when they stopped foraging and started farming. Here, Harari explains that life not only got worse for humans after this shift, but it also got far worse for animals. With this, Harari further reinforces his overarching point that life hasn't gotten better over time, contrary to popular belief. Evolutionary biologists, for instance, tend to assume that the more populous a species is, the more its thriving. Harari couldn't disagree more with this assessment. He acknowledges that the populations of farm animals (like cows, pigs, sheep, and chickens) have indeed soared since the advent of farming—but he thinks that such animals live shorter and more miserable lives in captivity than they could live in the wild. To Harari, it's misguided to say that domesticated animal species are thriving simply because their populations are much larger than they used to be. From his perspective they're not thriving at all—they're outright suffering.

## Chapter 6 Quotes

❝ Consequently, from the very advent of agriculture, worries about the future became major players in the theatre of the human mind. Where farmers depended on rains to water their fields, the onset of the rainy season meant that each morning the farmers gazed towards the horizon, sniffing the wind and straining their eyes. Is that a cloud? Would the rains come on time? Would there be enough? Would violent storms wash the seeds from the fields and batter down seedlings?

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 101

**Explanation and Analysis**

Here, Harari imagines what a typical day for a farmer might look like in a farming-based society between 12,000 and 300 years ago. He's already argued that the foragers (who lived between 70,000 and 12,000 years ago) enjoyed a better quality of life than farmers did, because they had to work less, their work was more interesting and satisfying, they ate better, and they endured fewer diseases. He then reasons that, compared to farmers, foragers were physically better off as they were healthier and less exhausted. So far in *Sapiens*, Harari has already suggested that modern-day industrial workers suffer mentally because factory work is repetitive and boring. Now, he argues that farmers also suffered more mentally than their foraging ancestors.

Harari explains that farmers had to constantly worry about sustaining their crops in the long term, surmising that this likely made them extremely anxious. In this quote, he imagines the daily worries that must have run through a typical farmer's mind, noting that a forager would never have worried about such things. Although foragers had to be on constant alert against predators, which was likely extremely stressful, Harari believes that foragers were actually less anxious on a day-to-day basis than farmers were. Foragers could rely on the natural ecosystem to replenish itself every season, and they knew that more food would always be available with each passing season. Overall, then, Harari sees the Agricultural Revolution not as a

marker of human progress but of steep decline.

❝ Hammurabi's Code asserts that Babylonian social order is rooted in universal and eternal principles of justice, dictated by the gods.

**Related Characters:** Yuval Noah Harari (speaker), Hammurabi

**Related Themes:** 

**Page Number:** 107

**Explanation and Analysis**

In this passage, Harari is discussing human societies between 12,000 and 300 years ago. During this time, humans began forming more permanent settlements around crops, and their societies grew gradually larger. Earlier in the book, Harari noted that humans can't personally know, trust, and cooperate with more than about 150 people. Yet, the larger societies that begin to crop up following the Agricultural Revolution demanded that more and more people cooperate with each other.

Considering this, Harari thinks that "imagined orders" enabled people to cooperate on the larger social scale. He defines imagined orders as common myths, stories, and ideas that established rules for living together and cooperating. One such order is Hammurabi's Code. Hammurabi was an ancient Babylonian king living in 1750 BCE. Hammurabi's code argues that the "gods" allocate a role for everybody in society, and it's their divine purpose to fulfil that role. When people in a society believe in this idea, they stay in their role, and they trust that others will do the same, which enables society to function smoothly on a large scale—with some people acting as laborers, some people acting as rulers, some acting as merchants, and so on.

Harari points out here that imagined orders only work when people really believe in them, and they really believe that they must follow them. In other words, people treat imagined orders *as if* they are true, or *as if* they are "rooted in universal and eternal principles," when, in fact, they're entirely invented. They work because they convince people to cooperate on a large scale, and not because they're actually true. Many of today's societies, for example, function based on the idea that people can choose their role in a society for themselves, which presents a stark contrast to Hammurabi's imagined order.

## Chapter 8 Quotes

❝ The imagined orders sustaining these networks were neither neutral nor fair. They divided people into make-believe groups, arranged in a hierarchy. The upper levels enjoyed privileges and power while the lower ones suffered from discrimination and oppression. Hammurabi's Code, for example, established a pecking order of superiors, commoners and slaves. Superiors got all the good things in life. Commoners got what was left. Slaves got a beating if they complained.

**Related Characters:** Yuval Noah Harari (speaker), Hammurabi

**Related Themes:** 

**Page Number:** 132

**Explanation and Analysis**

In this passage, Harari is discussing the evolution of human societies between 12,000 and 300 years ago. Human societies grew much larger during this time in history, and greater populations thus demanded that people cooperate with countless strangers whom they don't know. To Harari, "imagined orders" enabled this kind of cooperation. As Harari defines it, imagined orders are stories, myths, and ideas that establish rules for how a person should act in a society. The ancient Babylonian king Hammurabi, for example, established a code in which people were divided into three groups "superiors" (who got to rule the society), "commoners" (who were primarily merchants), and "slaves" (who did all the manual labor). Dividing people into groups and allocating them a role in a society enables the society to function efficiently, but—as Harari notes here—the rules that imagined orders lay out aren't necessarily "fair" to the people who have to follow them. Harari thinks most imagined orders posit hierarchies, meaning they divide people into groups and argue that some are superior to others. Patriarchy, for example, divides society into men and women and argues that men are superior to women (and therefore more suited to fulfilling social roles like being a ruler or a judge). Changing a society, thus, or fighting to change one's role in a society, often entails changing the society's imagined order, or the set of beliefs that organize the society, establish people's social roles, and make people cooperate.

## Chapter 10 Quotes

People continued to speak mutually incomprehensible languages, obey different rulers and worship distinct gods, but all believed in [...] gold and silver coins. Without this shared belief, global trading networks would have been virtually impossible.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 184

**Explanation and Analysis**

In this passage, Harari is discussing different "imagined orders" that exist in human societies. As Harari defines it, an imagined order is an idea, myth or story that a lot of people collectively believe in. Imagined orders work because people tend to trust strangers who believe in the same ideas and share the same values, even if they don't know each other. Here, Harari argues that humanity's most powerful imagined order is money. He argues that even when people disagree about many core ideas and values (like, which god to worship), most, if not all humans on Earth believe in money—they believe that money is valuable, they trust that other people believe money is valuable, and they all agree to trade using money. This shared belief, or agreement, in money, enables billions of strangers around the world to cooperate by trading goods and services for money, no matter what their other differences are. To Harari, this state of affairs suggests that money is a powerful imagined order that unites all of humanity in one global network of mutual cooperation.

## Chapter 14 Quotes

The Scientific Revolution has not been a revolution of knowledge. It has been above all a revolution of ignorance. The great discovery that launched the Scientific Revolution was the discovery that humans do not know the answers to their most important questions. Premodern traditions of knowledge such as Islam, Christianity, Buddhism, and Confucianism asserted that everything that is important to know about the world was already known [...] It was inconceivable that the Bible, the Qur'an or the Vedas were missing out on a crucial secret of the universe—a secret that might yet be discovered by flesh-and-blood creatures.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 251

**Explanation and Analysis**

After discussing life for ancient foragers (70,000–12,000 years ago), farmers (12,000–300 years ago), Harari discusses how the advent of science (500 years ago) changed life for humanity as a whole.

The Scientific Revolution marks a time when humans began thinking that they could learn facts and gain knowledge by observing the world. Harari calls this shift in mentality a "revolution of ignorance." He explains why that's the case in this passage. He thinks that in earlier societies, humans assumed that all the facts they needed to know about the world were already known and written down in religious books. Gaining knowledge, thus, was an exercise in learning and memorizing information that already existed in religious scriptures, like the Bible or the Qur'an. After the Scientific Revolution, however, people began thinking they were *ignorant* about the world and had to gain knowledge by observing and measuring it. The Scientific Revolution, thus, was revolutionary because for the first time in human history, people assumed they approached the world from a perspective of "ignorance," rather than a perspective of religious knowledge.

Mere observations, however, are not knowledge. In order to understand the universe, we need to connect observations into comprehensive theories. Earlier traditions usually formulated their theories in terms of stories. Modern science uses mathematics.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 254

**Explanation and Analysis**

Harari is discussing human life in the last 500 years, after scientific discovery began to dominate the way humans make sense of the world, having previously looked to religious texts and scriptures for understanding. He thinks that many people assume science is inherently good because it discovers the truth, but Harari completely disagrees with this assessment. He admits that part of scientific research entails observing and measuring the

world—discovering objective facts—but he also thinks scientists then have to subjectively connect those observations together and formulate some sort of "theory" about what they mean. To Harari, many such theories are highly speculative: they involve a lot of guesswork, meaning that they're not necessarily *true*.

Harari thinks that religious texts also offer theories about the world, only they use the language of "stories." Science uses the language of "mathematics," which makes science look more technical. He subtly warns the reader not to be seduced by science's more technical language. Harari argues that it's a mistake assume that scientists' claims are is reliable just because they use numbers, formulas, and statistics to tell their "stories," or articulate their "theories."

❝ Throughout most of history, mathematics was an esoteric field that even educated people rarely studied seriously. In medieval Europe, logic, grammar and rhetoric formed the educational core, while the teaching of mathematics seldom went beyond simple arithmetic and geometry. Nobody studied statistics. The undisputed monarch of all sciences was theology. Today few students study rhetoric; logic is restricted to philosophy departments, and theology to seminaries.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 258

**Explanation and Analysis**

In this passage, Harari is discussing human life since the advent of science 500 years ago. He's just warned the reader against believing that scientific claims are wholly reliable or true. He notes that scientists tend to formulate their theories in the language of mathematics, while religious scholars use "rhetoric." Harari knows that mathematics looks more technical on the surface, which makes wrongly assume that science gets closer to the truth. Harari notes here that humans used to formulate their ideas using "rhetoric" (storytelling) for centuries, which is swiftly declining in modern intellectual circles. This bothers Harari because he thinks there's no reason to assume a scientific theory is more reliable than a religious theory just because it's told in mathematical language rather than in rhetoric. Harari's remark subtly clues the reader in to the fact that he's actually trying to do rhetoric in *Sapiens*. He intends to spark the reader's imagination leveraging stories, anecdotes, and lannguage, rather than to communicate facts using numbers, statistics, data, and formulae.

❝ Consider the following quandary: two biologists from the same department, possessing the same professional skills, have both applied for a million-dollar grant to finance their current research projects. [...] Assuming that the amount of money is limited, and that it is impossible to finance both research projects, which one should be funded? There is no scientific answer to this question. There are only political, economic and religious answers.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 273

**Explanation and Analysis**

Here, Harari is discussing human life in the modern age (since the advent of science, 500 years ago). So far, Harari's stressed that modern people put a lot of trust in science. He's already warned his readers not to assume that science necessarily discovers the truth about the world, because scientific theorizing involves a great deal of speculation and guesswork. Now, he argues that it's a mistake to assume that scientific research is a neutral, unbiased enterprise that's solely concerned with discovering objective facts. He uses the example in this passage to stress that scientific research costs money and that scientists often have to compete for funding. This means that whoever controls the flow of money gets to decide which scientific research projects get funded. To Harari, this shows that "political, economic, and religious" interests always sway the direction of science—meaning that the people who have money choose to invest in scientific research that will likely help them gain power or money. This suggests that scientific research is never free from political and economic influences, so its nowhere near as neutral as most people think it is.

## Chapter 15 Quotes

❝ Henceforth not only European geographers, but European scholars in almost all other fields of knowledge began to draw maps with spaces left to fill in. They began to admit that their theories were not perfect and that there were important things that they did not know.

**Related Characters:** Yuval Noah Harari (speaker),

Christopher Columbus

**Related Themes:**

**Related Symbols:**

**Page Number:** 288

**Explanation and Analysis**

In this section, Harari is in the process of discussing life for humanity since the advent of science. Here, he uses the symbol of maps with empty spaces to symbolize how humanity's mentality about the world shifted after the Scientific Revolution 500 years ago. After Christopher Columbus sailed west from Europe in the 1400s and accidentally bumped into the Americas, however, people started drawing maps with blank spaces in them—space for regions and territories that were yet to be discovered.

To Harari, such maps also represent the scientific outlook. Harari argues that before the Scientific Revolution, humans tended to believe that knowledge about the world was already known and written down in religious texts and scriptures. Yet, after they started believing in science (rather than religious knowledge), people shifted to a mentality of believing they were ignorant about the world and had to learn about it by exploring it, observing it, and discovering facts about it. The blank spaces in these newer maps, thus symbolize knowledge that's yet to be discovered. The scientific endeavor, thus, for Harari centers on looking out into the world—or exploring the blank spaces of maps—and learning *new* things that aren't yet known. In contrast, earlier outlooks centered on reading religious books to decipher knowledge that's *already* known and waiting to be learned, which would be more like reading a map that's already filled in, and learning the information that's already noted in the map.

## Chapter 16 Quotes

Scientific research is usually funded by either governments or private businesses. When capitalist governments and businesses consider investing in a particular scientific project, the first questions are usually, 'Will this project enable us to increase production and profits? Will it produce economic growth?' A project that can't clear these hurdles has little chance of finding a sponsor. No history of modern science can leave capitalism out of the picture.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 314

**Explanation and Analysis**

In this passage, Harari is discussing the role of science in modern life. So far in *Sapiens*, he's argued that many people trust science because they think it's a neutral, unbiased endeavor rooted in discovering facts about the world. Harari, however, doesn't see science as purely objective. He strongly believes that scientific progress only happens when scientific research gets funded. This means that powerful people who control the world's money (such as corporations and governments) get to choose which scientific research programs to fund. In the modern world, which is rooted in capitalism (the belief that generating wealth is good for humanity), corporations and businesses tend to fund projects that they think will generate wealth. For example, they'll fund research into new technologies that they can sell for profits. Harari thus thinks that governments and corporations favor scientific research that will help them make money, rather than funding research that's necessarily good for humanity. New technologies may, in fact, harm—rather than benefit—humanity, but Harari emphasizes that governments and corporations will still encourage people to purchase and use such technologies if that makes them richer. Harari warns the reader not to blindly accept new scientific technologies into their lives, because they might actually be harmful.

## Chapter 17 Quotes

Follow-up research showed that Harlow's orphaned monkeys grew up to be emotionally disturbed even though they had received all the nourishment they required.

**Related Characters:** Yuval Noah Harari (speaker), Harry Harlow

**Related Themes:**

**Page Number:** 345

**Explanation and Analysis**

Harari is discussing how life has changed for humanity since the Industrial Revolution around 300 years ago, when societies began automating labor and speeding up production. Here, he looks at how the Industrial Revolution affects animals. He thinks that modern humans are exceptionally cruel to animals because we breed them in factories like products and force them to endure miserable

lives. In particular, Harari discusses scientist Harry Harlow's research into monkeys in captivity in the 1950s. Like animals in factory farming, Harlow's monkeys received all the physical things they needed (like food, water, and heat), but none of the social bonding they're used to in the wild. Harlow's experiment showed that such monkeys grew up to be pathologically disturbed. This suggests that animals in factory farms—who are also deprived of their social and emotional needs by being kept well-fed but socially isolated in cages—suffer tremendous emotional trauma. He suggests that industrialization is harmful to a great many species, and condemns humanity's willful ignorance of such animals' emotional needs as deeply cruel.

## Chapter 19 Quotes

❝ If happiness is determined by expectations, then two pillars of our society—mass media and the advertising industry—may unwittingly be depleting the globe's reservoirs of contentment. If you were an eighteen-year-old youth in a small village 5,000 years ago you'd probably think you were good-looking because there were only fifty other men in your village and most of them were either old, scarred and wrinkled, or still little kids. But if you are a teenager today you are a lot more likely to feel inadequate. Even if the other guys at school are an ugly lot, you don't measure yourself against them but against the movie stars, athletes and supermodels you see all day on television, Facebook and giant billboards.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:** 

**Page Number:** 384

### Explanation and Analysis

Harari has finished discussing the evolution of humanity through foraging societies (70,000 to 12,000 years ago), farming-based societies (12,000 to 300 years ago), and industrial societies (300 years ago to the present day). Although many scholars depict this history as a story of upward progress for humanity, Harari thinks the opposite. He thinks that the more complex societies become, the unhappier their inhabitants are. Harari thinks that modern societies lead people to have very high expectations about what they think they can achieve in life—largely because people constantly compare themselves to humanity's elite, namely, rich and famous celebrities. In reality, however, most people never manage to live up to those lofty expectations over the course of their lives, which leaves them feeling perpetually disappointed and discontented.

This disappointment, to Harari, is in part why modern humans are so deeply unhappy and is also why he thinks that modern humans suffer far emotional pain than our ancestors did.

## Chapter 20 Quotes

❝ It's unclear whether bioengineering could really resurrect the Neanderthals, but it would very likely bring down the curtain on Homo sapiens. Tinkering with our genes won't necessarily kill us. But we might fiddle with *Homo sapiens* to such an extent that we would no longer be *Homo sapiens*.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:** 

**Page Number:** 404

### Explanation and Analysis

Throughout *Sapiens*, Harari has been discussing the evolution of human societies from 70,000 years ago to the present day. Here, he thinks about what might come next in the future. He discusses advances in science and technology—specifically bioengineering (like cross-breeding DNA to create new species), cyborg technology (like implanting computer chips into people's brains), and artificial intelligence (creating inorganic life). He raises these examples because he's afraid of the negative impact they might have on humanity in the future.

Here, he discusses scientific efforts to extract remnants of Neanderthal DNA from the human genome and resurrect Neanderthals (an extinct human species). At the moment, Harari notes, humans are at the top of the food chain, and we dominate the Earth. Harari worries that such scientific developments (like tinkering with our DNA) could create new species that will either take over and subjugate the human species. He also worries, as he notes here, that humans might toy with our DNA so much that we effectively render ourselves unrecognizable in the future as a species. Harari worries that such developments will be disastrous for humanity, and he thus warns his readers against blindly accepting such scientific developments into their lives.

## Afterword Quotes

❝ Unfortunately, the Sapiens regime on earth has so far produced little that we can be proud of. We have mastered our surroundings, increased food production, built cities, established empires and created far-flung trade networks. But did we decrease the amount of suffering in the world? Time and again, massive increases in human power did not necessarily improve the well-being of individual Sapiens, and usually caused immense misery to other animals.

**Related Characters:** Yuval Noah Harari (speaker)

**Related Themes:**

**Page Number:** 415

### Explanation and Analysis

In closing, Harari reflects on how the evolution of human societies from 70,000 years ago to the present day has negatively affected humanity. Many scholars assume that human societies have improved over time, and that humanity is better off now that it's ever been, because humans are more powerful than we've ever been. Harari affirms that the human population is larger than it's ever been, but from his perspective, the majority of humans have grown systematically unhappier as time has progressed. He's argued throughout that each social or cultural breakthrough—farming, industrialization, science, and technology—makes humanity suffer rather than prosper. This is because the more complex our societies become, the harder humans have to work, and the more stress they have to endure on a daily basis.

In this passage, Harari underscores his overarching argument, which is that modern humans have a far lower quality of life than our ancient foraging ancestors did. He also thinks that most animals (especially animals in captivity, like farm animals) also suffer much more than they ever did in the past. Harari thus closes *Sapiens* by warning the reader against humanity's relentless drive to keep growing, producing, and advancing technologically, because he thinks such efforts will only continue to make humanity more miserable.

## SUMMARY AND ANALYSIS

The color-coded icons under each analysis entry make it easy to track where the themes occur most prominently throughout the work. Each icon corresponds to one of the themes explained in the Themes section of this LitChart.

### CHAPTER 1: AN ANIMAL OF NO SIGNIFICANCE

The Big Bang happened 14 billion years ago, creating everything. About 300,000 years later, matter began clumping together into atoms, molecules, and complex structures. Then, 70,000 years ago, humans began forming more complex structures: cultures. Three important cultural "revolutions" happened since then: the Cognitive Revolution (70,000 years ago), the Agricultural Revolution (12,000 years ago), and the Scientific Revolution (500 years ago). Before these "revolutions," human-like animals roamed the planet for 2.5 million years. Their social relations resembled ours today: including worried mothers, combative teenagers, and weary elders. Yet, they were insignificant animals, like all others on Earth.

*Harari begins by outlining the timeline he'll address in the chapters that follow. He plans to explore what changed each time something revolutionized the way humans function in the world. He thinks that the Cognitive Revolution happened when ancient humans evolved advanced mental abilities—specifically, when they learned how to make up stories. The Agricultural Revolution happened when humans learned how to farm, and the Scientific Revolution happened when humans realized they could discover facts about the world by observing it rather than just turning to religious scriptures to understand the world around them. Harari will soon show that he's skeptical about whether the agricultural and scientific revolutions actually improved life for humanity.*

When animals produce fertile offspring, biologists classify them as the same "species." Horses and donkeys are different species because they produce sterile mules. Poodles and terriers, however, are genetically similar enough to successfully interbreed, so they're the same species (dog). If species share a common ancestor, biologists say they come from the same "genus." Humans are "*Homo sapiens*." Our species is "sapiens" (wise), and we come from the genus "Homo" (human). All Homo species evolved from the Southern Ape. About 6 million years ago, a Southern Ape gave birth to two children. One of those children became the ancestor of all chimpanzees. The other became the ancestor of all Homo (human) species.

*Harari makes it clear that humans are animals—just like all other animals on Earth. He wants to show that there's nothing inherently special or different about humans that sets us apart from other animals, because later, he will question why humans treat other animals so badly. To Harari, many people assume that humans are separate from (and fundamentally superior to) other animals in nature, so we're justified in subjugating them. Harari, in contrast, stresses that humans are animals too, and it's a shame that we should treat other similar beings so poorly.*

So far, scientists know about six different human species. *Homo neanderthalsis* (Neanderthals) thrived in Eurasia during the last Ice Age. *Homo soloensis* lived in Java, Indonesia. *Homo erectus* ("upright man") survived in Eastern Asia for almost two million years. Scientists also discovered *Homo floresienis* (a dwarf human species) on Flores island, Indonesia, *Homo denisova* in Siberia, and Homo ergaster ("working man"). Many other as yet unknown human species may also have existed. Scientists think that from about 2 million years ago until 10,000 years ago, at least six human species were alive at the same time on Earth. Harari thinks that since no other human species exists today "incriminates" our species, *Homo sapiens*.

*Harari wants to debunk the idea that humans are completely separate from the rest of the animal kingdom, and therefore entitled to dominate the planet's ecosystem. He stresses that our ancestors* weren't *unique: they were one of several human species, all of whom were animals too. Harari subtly implies that over the course of history,* Homo sapiens *systematically killed off other large mammals—starting with other human species—and he thinks this behavior is criminalizing.*

Human species have very large brains for our bodies (though Neanderthal brains were the biggest). We tend to assume big brains are better, but scientists don't actually know why they evolved. Human brains use up 25% of our energy, leaving less resources for other parts of our bodies like muscles, so our muscles are relatively weak compared to other mammals' muscles. Chimpanzees, for example, can easily rip us apart. Humans are also the only mammals to walk upright, which frees our arms for other purposes. Harari speculates that fine-tuned muscular control of our hands evolved because it gave us the ability to make hand signals and tools, which probably helped us survive in ancient times.

*Harari shows that all human species are physically weak: if it came down to a one-on-one brawl with another large mammal, (say, a chimpanzee), humans would easily lose. This means that it wasn't ancient humans' physical capabilities that enabled them to jump to the top of the food chain, but something to do with humans' brain power. He hints that advanced cognitive capabilities (centering around communicating) had a lot to do with humans' rise to the top.*

Walking upright also comes at a cost. Upright bodies can only accommodate narrow birth canals, increasing the risk of dying during childbirth. Wider birth canals also allow other mammals' offspring to develop more fully in the womb. In contrast, human babies are born relatively prematurely (so they can fit through the birth canal), and they require years of care to become self-sufficient. Evolution thus favored social humans because they tended to outlive antisocial humans (it's much harder for a lone human to successfully forage for food while also tending to offspring). Because human brains aren't fully developed when we're born, we're also much more receptive to learning and education than other mammals.

*Harari thinks that because humans are born with relatively undeveloped brains, we can be molded by exposure to information outside the womb. Later, he'll suggest that the human ability to learn and believe new information (specifically, fictional or imagined stories about how the world works) played central role in enabling humans to advance so far as animals. In bringing up social versus. antisocial humans, he suggests that cooperation (i.e., social behavior) also helped ancient humans to thrive.*

We tend to assume that our tools, learning abilities, and social dynamics make us superior to other animals, but we didn't make much use of these abilities for almost 2 million years. Ancient humans were relatively "weak and marginal" foragers, especially when compared to other carnivores. Ancient humans likely survived on the abandoned leftovers from other predators—by using tools to crack open bones and eat the marrow inside. Back then, we were near the middle of the food chain. Humans rose to the top of the food chain quite suddenly 100,000 years ago, with the rise of *Homo sapiens*.

*Harari stresses that humans spent millions of years scraping by in the middle of the food chain. He wants to emphasize, as before, that humans are just animals, like all the other animals on Earth, in order to question why we treat other animals so badly. Harari also thinks that a chance event (a genetic mutation that changed the way humans used their brains) catapulted humans to the top of the food chain very suddenly. This means that it's just a matter of blind chance (not destiny) that humans began dominating in nature—so we shouldn't be too arrogant about our supposed superiority over other animals.*

Other animal rose in the food chain over millions of years, allowing their ecosystems to calibrate around them so that those animals didn't wreak havoc on their environments. Gazelles, for example, evolved to run faster as lions grew deadlier. Earth's ecosystem didn't have as much time to adjust for humans, because we rose to the top of the food chain so suddenly. We also didn't have enough evolutionary time to evolve past the inherent fear and anxiety that help prey stay alert to predators. Harari thinks our fearful dispositions make us "doubly cruel and dangerous," causing many "historical calamities, from deadly wars to ecological catastrophes."

*Harari thinks that humans' innate fear of more fearsome predators originally helped ancient humans survive in the wild by alerting them to threats and enabling them to either fight or flee. Harari thinks this fear-based instinct still lingers in modern humans. He argues that it motivates us to cruelly subjugate all other creatures in nature, and often each other as well, which leads to disastrous results like wars. Harari also thinks the innate fear of predators manifests in modern humans as stress and anxiety, which makes us deeply unhappy. He'll expand more on this idea as the book goes on.*


Scientists think the domestication of fire had a lot to do with humans' rise to the top. Some human species used fire as early as 800,000 years ago. By 300,000 years ago, *Homo erectus* and Neanderthals regularly used fire. It provided a reliable source of warmth and light, and a weapon against predators. It also enabled cooking, which allowed human species to eat many things that can't be consumed raw, like wheat, and digest food much more quickly while using less energy. Scientists think the advent of cooking allowed humans to evolve shorter intestines, smaller teeth and jaws, and bigger brains. Harari thinks the domestication of fire was "a sign of things to come."

*Harari uses the example of fire to show that when humans acquire a new skill or tool (as our ancestors did when they learned how to control and use fire) we tend to use it to relentlessly dominate in our habitat. It might seem like this is a good thing (using fire enabled humans to protect themselves from predators, for example) but Harari doesn't think so. When Harari hints about "things to come," he subtly suggests that humans tend to use the tools at our disposal selfishly, and we rarely think about the long-term effects of the damage we cause.*

Scientists don't know when *Homo sapiens* evolved, though most agree that around 150,000 years ago, *Homo sapiens* were populous in Africa. 70,000 years ago, *Homo sapiens* began spreading into other regions. Two competing theories address what happened next. The "Interbreeding Theory" argues that sapiens bred with each other local human species as they spread, meaning that Eurasians were part Sapiens, part Neanderthals, while East Asians were part Sapiens, part Erectus. The "Replacement Theory" argues that interbreeding between different human species would have produced sterile offspring, meaning Sapiens either outlived or killed all other human species, meaning we're all 100 percent *Homo sapiens*. Replacement Theory is more popular, partly because it claims that all races are genetically identical, thereby discouraging racism.

*Harari shows that scientists often disagree about the data they collect, and they often attempt to piece together theories based on sparse data. He suggests that science is full of speculation: when scientists try to say something about what happened to the other human species that disappeared (like Neanderthals), the same data yields two conflicting theories. Harari often emphasizes that there's a lot of guesswork involved in scientific theorizing because he doesn't think science is that reliable, and he wants to encourage the reader to be somewhat skeptical about science, too, especially when there isn't much data to go off.*

However, in 2010, geneticists discovered that up to four percent of Eurasian human DNA contains Neanderthal genes, while up to six percent of aboriginal Australian DNA contains Denisovan genes, suggesting that Sapiens *did* mate with other human species. It seems Neanderthals and Denisovans were genetically close enough to Sapiens to yield fertile offspring (suggesting that Sapiens, Neanderthals, and Denisovans were at the borderline point between being the same and different species). However, the percentages are so low that Sapiens likely dominated the other Homo species' habitats and drove all other Homo species to extinction, but also mated with a tiny fraction of them. It's also possible that Sapiens committed genocide and intentionally murdered the other Homo species.

*Harari shows how new data often exposes scientific claims as wrong, thus further emphasizing that there's a great deal of speculation in scientific theorizing. He thinks the data suggests that ancient humans drove other human species to extinction. Harari even suggests that* Homo sapiens *may have intentionally massacred them. He wants to emphasize that* Homo sapiens *are an inherently violent and deadly species that tends to kill off other large mammals when they spread to new territory—even species that are very similar to themselves.*

Harari notes that we humans like to think of ourselves as unique. When Charles Darwin proposed that *Homo sapiens* are just another kind of animal, people were outraged. Some still deny it today. The truth is, however, that as *Homo sapiens* spread around the world, other human species went extinct. Harari wonders what kinds of cultures, political systems, and religions would have evolved if the other Homo species still coexisted with us. For the last 10,000 years, Sapiens have been the last surviving human species (that we know of).

*Hariri emphasizes, once more, that humans aren't special or different from other animals. Harari thinks that humans were propelled to the top of the food chain by chance, but to him, that's not necessarily a good thing. He laments* Homo sapiens' *tendency to cause widespread extinctions in every ecosystem they inhabit, because he thinks it leads to tremendous losses for humanity—both in the past, and in the modern day.*

## CHAPTER 2: THE TREE OF KNOWLEDGE

Although Sapiens that looked identical to modern humans already populated Africa 150,000 years ago, scientists think that their brains had different internal structures, causing them to have far more limited cognitive abilities (e.g., learning, remembering, and communicating). However, around 70,000 years ago, Sapiens "started doing extraordinary things." They invented "boats, oil lamps, [and] bows and arrows." The earliest pieces of evidence of "art […] "religion, commerce, and social stratification" also date back to this time period. Scientists speculate that a random genetic mutation enabled Sapiens' brains to function differently, causing a massive cognitive leap forward. Harari calls this the Cognitive Revolution.

*Once again, Harari undermines the idea that humans are inherently superior to other animals and therefore destined (or entitled) to rule the world. He thinks that* Homo sapiens *advanced to the top of the food chain entirely by chance when a random genetic mutation caused them to evolve new cognitive capabilities. Harari calls this moment in history the "Cognitive Revolution," because it revolutionized, or completely changed, the way that humans functioned in the world, enabling them to climb to the top of the food chain.*

All animals know how to communicate. Many animals communicate vocally like Sapiens, and some have equal or superior vocal abilities to humans (including parrots and some whales), so what makes Sapiens' language unique? Harari thinks we have the unique ability to connect limited sounds into infinite meanings. A monkey can yell "Danger! Lion!" but Sapiens can tell each other exactly when and where they saw a lion, how dangerous it looked, and so on. Sapiens can also gossip—meaning they can discuss which other Sapiens in their social groups are honest and which are cheaters, enabling more sophisticated social cooperation.

*Harari stresses that after Sapiens' brains suddenly evolved, they learned to communicate in much more sophisticated ways, which consequently enabled them to form more complex social bonds. But to Harari, this isn't the whole story. He actually thinks that humans learned to imagine and believe things aren't true* and *communicate these ideas to each other. He's going to expand on this theory in more detail for the rest of this chapter.*

Harari thinks what makes Sapiens truly unique is our ability to communicate about "fictions"—things that can't be observed in the physical world—like "Legends, myths, [and] gods." Harari thinks our ability to imagine things "collectively" gives us an evolutionary advantage because it enables us to cooperate with countless strangers on the basis of shared ideas and beliefs. Ants can also cooperate collectively in vast numbers, but only with their close relatives. Wolves can cooperate collectively with non-relatives, but only in small groups. Harari thinks Sapiens' ability to cooperate and act collectively with countless other Sapiens is why we "rule the world."

*Most animals in nature can't cooperate in large groups (unless they're genetic siblings or clones, like ants in a colony). Humans, too, can only know and trust a limited number of individuals at a given time. Harari thinks that humans learned to make up stories and ideas (like the concept of gods), and trust people who believed in the same ideas—enabling them to cooperate with countless strangers on an unprecedented scale. Harari thinks this large-scale cooperation gave humans an edge in nature.*

Chimpanzees form complex social groups and hierarchies. Those vying for the "alpha male" position gather supporters, and they tend to dominate based on the loyalty they foster, up to a threshold of about 150 individuals. Beyond that threshold, there are too many strangers, and the group tends to split into two distinct communities. Harari thinks ancient *Homo sapiens* functioned in the same way until the Cognitive Revolution enabled them to cooperate in much larger groups.

*Harari uses the example of chimpanzee societies to reinforce his claim that animals can only personally know (and therefore trust) a limited number of other individuals. Harari thinks ancient humans were no different until the Cognitive Revolution. When Sapiens realized they could make up stories, spread them far and wide, and make other Sapiens believe them too, they realized they could convince large groups of people to rally around the same ideas and beliefs and act in accordance with those ideas. This meant that they could cooperate even if they didn't personally know each other.*

Some entities in the world don't exist as physical objects, but exist in another sense. The car brand **Peugeot**, for example, enables 200,000 people to cooperate and produce millions of cars each year. If all those people leave the company and all those cars burn in a fire, Peugeot would still exist. Yet, if a judge dissolves the company, it ceases to exist. Lawyers call these legal (rather than physical) entities "legal fictions." Harari thinks people create corporations in the same way that "priests and sorcerers" created "Gods and demons"—by telling stories and convincing others to believe them. Such complex stories allow "imagined realities" like the company Peugeot to exist and collate immense power.

*Harari uses the symbol of the Peugeot car brand to illustrate what he means by fictions that humans invent. To Harari, animals in nature can only react and respond to things that they can physically sense (like food or other animals). Humans, however, can create ideas that aren't connected to any specific physical phenomena. The idea of Peugeot, for example, would still exist even if no actual Peugeot cars or Peugeot employees existed. In that sense, it's a fiction—the brand is an idea that makes people cooperate in specific ways, but it exists above and beyond actual physical phenomena. Harari thinks the idea of God is similar—people can believe that there's such a thing as a God, even though it's an idea that's not specifically connected to actual things in the physical world.*

Harari thinks "imagined realities" aren't the same as lies, because the people participating in the stories believe them. A liar who pretends there's a lion by the river doesn't actually believe there's a lion there. Yet priests really do believe that God exists, and **Peugeot** employees believe they're working at a "real" company. Sapiens, thus, have occupied a dual reality since the Cognitive Revolution. Harari thinks our imagined reality even controls our physical one, since "the very survival of rivers, trees, and lions depends on the grace of imagined entities such as the United States and Google."

*Harari underscores that the fictions (or "imagined realities") that humans create are incredibly powerful: people really believe them, and they treat them as if they're concrete and real, rather than abstract concepts that could change. Once again, he uses the Peugeot car brand to symbolize an abstract idea that people treat as a real thing. Harari also shows that fictional entities (like a nation or a company) are so powerful that they often dictate how the human population functions in the physical world—much more so than tangible, physical entities like the natural ecosystem, which used to dictate the way humans functions before the capacity to invent fictions emerged with the Cognitive Revolution.*

Harari believes that changing our "fictions" can change the way humans cooperate. For example, in 1789, the French population switched from believing kings had a divine right to rule to believing the people should rule themselves. Other animal species can't change their typical social behavior without a genetic mutation. Chimpanzees can't just decide to abolish the alpha male and establish a different social hierarchy without a mutation that enables such behavior. Harari thinks that's why early Homo species functioned in the same way (with the same tools, communication signals, and social hierarchies) for so long.

*For Harari, it's crucial to remember that because fictions, imagined realities, and the concepts humans create have such power over how societies function, changing a society often demands changing the fiction (or guiding concepts) that organize it in a particular way. For example, during the French Revolution, the overarching collective belief in a divine human hierarchy was replaced by a new collective belief—that people are born equal, and therefore not pre-ordained to rule the country.*

Archaic humans' behavioral patterns remained fixed for thousands of years, but since the Cognitive Revolution, *Homo sapiens* can "transform social structures" in mere decades. Harari thinks this gave Sapiens the edge over Neanderthals, even though Neanderthals were physically stronger. Sapiens can coordinate large groups, rally other Sapiens around a cause (like taking Neanderthal territory), and adapt their behavior swiftly to accommodate unforeseen challenges.

*Harari continues emphasizing the power in being able to make up and believe fictions. He thinks the capacity to invent new ideas to rally around gave* Homo sapiens *the unique ability to adapt quickly to new threats and territories. Harari also emphasizes that only* Homo sapiens *evolved this capacity to invent, believe, and change ideas that they rallied around (the Cognitive Revolution), thus giving them an advantage over other human species, even those who were physically stronger (like Neanderthals).*

Harari argues that the wide range of imagined realities and associated behaviors that *Homo sapiens* engage in comprise what we call "culture." We are still conditioned by our biology, which explains our social behavior (as it does for all animals) in small groups. However, according to Harari, the ability to invent fiction allows humans to function culturally in large groups, which is unique to Sapiens. This is why, Harari thinks, we need to look at our cultural (as well as biological history) to understand our nature.

*Harari reminds the reader that inventing fictional ideas helps people cooperate in large groups (because people can trust strangers who believe in the same ideas and follow the same rules, even they don't know each other). Harari reminds the reader that such ideas are often positioned* as if *they're inherent, natural, or biological facts (e.g., the imagined idea that one gender or race is superior to another). In fact, they're just made up—meaning they can be changed, which is how cultures evolve.*

## CHAPTER 3: A DAY IN THE LIFE OF ADAM AND EVE

Until about 10,000 years ago, Sapiens foraged for food. Our tendency to binge on sugary foods today is a remnant of our ancient foraging past. Sweet fruits are a good source of energy. It benefitted ancient Sapiens to gorge on fruits (before other animals got to them) whenever they crossed paths with fruit trees. Theorists also attempt to connect modern social dynamics with our ancient history. Some think ancient Sapiens mated with multiple partners and raised their children communally, like chimpanzees do. Others argue that monogamy and the nuclear family are intrinsic to our nature. Harari will explore Sapiens' history between the Cognitive Revolution (70,000 years ago) and the Agricultural Revolution (12,000 years ago) to offer his own insights.

*Harari compares early human hunter-gatherer societies (70,000–12,000 years ago) with subsequent farming-based societies (12,000–10,000 years ago). For Harari, the invention of agriculture radically changed the way humans functioned in the ecosystem: they stopped living nomadically and gathering food in the wild, and they started forming permanent settlements and farming crops. The shift from foraging to farming impacted the entire animal ecosystem, which why Harari deems it another "revolution." Harari brings up human societies before and after the Agricultural Revolution because he (controversially) thinks ancient foragers were happier and better off than their farmer descendants.*

It's hard to speculate about the hunter-gatherer period of Sapiens' history because there are so few artifacts from that time period (in contrast to modern Sapiens life today, which is littered with artifacts like cars, clothes, phones, books, art, trash, and more). Some theorists look at modern forager societies, but Harari thinks there are too many differences to account for. First, agriculture influences modern hunter-gatherer societies. Second, most modern hunter-gatherers live in terrain that's inhospitable to farming. Third, modern hunter-gatherer societies are so varied that it's hard to generalize based on their cultures. For example, when European colonists first arrived in Australia, they met some Aboriginal Australian tribes that were patriarchal and others that were matriarchal.

*Harari emphasizes that comparisons between early farming societies and earlier forager societies is highly speculative: there's not much data (and few artifacts) from that time, and modern forager societies are incredibly diverse, meaning it's hard to make generalizations about them and project them onto the past. Harari still intends to piece together a story about how ancient foragers enjoyed a higher quality of life than subsequent agricultural societies, but he wants the reader to remember his suggestions involve a lot of guesswork.*

Many theorists debate over the "natural way of life" in ancient Sapiens hunter-gatherer societies. However, Harari thinks that there's no such thing. He argues that—like modern hunter-gatherer societies—ancient Sapiens' lifestyles were very ethnically and culturally diverse, partly because the Cognitive Revolution (and the ability to imagine fictional realities) enabled a wide diversity of norms and lifestyles, based on the myths people believed in.

*Harari reinforces the idea that his claims about foragers are highly speculative by restating that ancient foraging societies were likely incredibly diverse, and organized in a myriad of ways. This is likely because different forager communities rallied around different myths and organized their societies differently.*

Harari does offer *some* generalizations about pre-agricultural era Sapiens societies. He suggests they lived in small, mostly human bands—in which "loneliness and privacy were rare"—ranging from a few dozen to a few hundred people, along with some dogs (the only animals Sapiens domesticated before the Agricultural Revolution). They cooperated with some bands (notably, when they shared common myths and values) and competed with others. They traded pigments, shells, and information, but not food. They tended to roam within the same general territory. Once in a while, some bands split off to explore new territory, triggering Sapiens' worldwide expansion. More permanent villages cropped up where food sources where consistent, such as alongside seas and rivers.

*Harari paints a picture of ancient foraging societies based on the sparse data that is available about life in that time. In stressing that "loneliness and privacy were rare," he subtly hints that agricultural (and subsequent industrial) societies are much more isolating, suggesting that a laborer's life in an agricultural or industrial society is actually unhappier than the life of a forager. Harari also notes that foraging societies were more nomadic than farming societies. He brings this up because he thinks permanent settlements harbor more disease, which also made life worse off for farmers.*

Foragers needed intimate knowledge of food sources in their home territory. They also needed razor-sharp alertness to handle predators, and fine-tuned motor skills to manipulate stone and wood into tools. Harari contends that foragers' knowledge about their habitats was deeper and more abundant than ours today. He even suggests that Sapiens' brain size *decreased* after the foraging era ended—because modern humans don't need to know much about our natural surroundings to survive, and we depend much more heavily on others than foragers did.

*Harari wants to question the idea that more developed societies are necessarily better than simple, ancient foraging societies. He thinks it's a mistake to assume ancient foragers were simpler and dumber than their modern counterparts. Harari thinks ancient foragers (living between 70,000 and 12,000 years ago) had rich and rewarding connections to their natural habitat, which left them better off than their descendants who lived in farming-based societies.*

Harari also argues that foragers lived relatively comfortable and happy lifestyles, averaging 35 or so hours per week of communal (social and friendly) roaming, food-gathering, and dwelling-oriented tasks. In comparison, laborers in developing countries clock an average 60–80 hours a week, doing mind-numbing, isolating, and repetitive work each day. Compared to farmers in the agricultural era, ancient diets were more varied, nutritious, and less susceptible to famines from disasters that wiped out a particular crop. Foragers also suffered fewer infectious diseases (which, in agricultural societies, tended to be passed from domesticated animals to humans and spread to other humans living close together in cramped, permanent settlements).

*Harari wants to argue that life wasn't necessarily tougher and harder for ancient foragers living without modern conveniences. He suggests that modern-day laborers suffer more than ancient foragers did—both physically and mentally. Physically, he thinks modern laborers work more hours each week, which leaves them more tired, and they suffer from more food insecurity, meaning they're likely more malnourished and therefore likely suffer more disease. Mentally, he thinks a forager's work is much more interesting and satisfying than industrial labor, suggesting that modern-day laborers not only work harder, but their work is more boring, which makes them unhappy.*

Despite foragers' wholesome diets, short work weeks, and the scarcity of infectious disease, Harari warns against idealizing their lifestyles. Their lives also involved a lot of hardship. Infant mortality rates were very high, minor accidents could be deadly, and people who didn't get along within their bands must have "suffered terribly" from mocking and hostility. Foragers also likely abandoned or slayed people who couldn't keep up (like unwanted children or burdensome elders). Harari discusses the nomadic Aché people of modern Paraguay, who also slay their elders and abandon their weak. On the other hand, they enjoy sexual freedom and are unburdened by the pursuit of wealth or possession.

*Harari acknowledges that ancient foragers suffered some physical hardships as well—like having no access to modern medicine and enduring high death rates. He also thinks they must have faced painful emotional and mental hardships as well—like worrying about shunned or abandoned by their communities and dying in the wild. Nonetheless, Harari still believes that ancient foragers had better lives than laborers in farming and industrial societies overall. He also suggests that modern people tend to think people in foraging societies are worse off because they don't typically have access to modern conveniences. However, Harari thinks modern foragers (like the Aché people in Paraguay) are actually better off because they don't base their lives around acquiring possessions. Harari implies that modern conveniences aren't benefits, but detriments to a person's quality of life. He'll expand on this idea as the chapter develops.*

Harari wonders about ancient hunter-gatherers' spiritual and mental lives. Many scholars argue that archaic Sapiens were "animists," meaning they believed that all physical phenomena (including rocks, streams, and living things) were alive, and that they could communicate with other entities through song, dance, and rituals. Harari is cautious about make assumptions about the inner mental lives of ancient Sapiens. He believes such claims merely expose modern theorists' biases, rather than say anything substantive about our ancient ancestors. For Harari, we simply don't know what ancient Sapiens believed, what festivals they celebrated, and what stories they told—it's one of the "biggest holes in our understanding of human history."

*Although Harari has already made substantive claims about the mental lives of foragers in pre-agricultural societies—namely, that they were happier overall—he also reminds the reader that his claims are wildly speculative. He's alluding to the fact that a lot of modern theorizing is based on data* plus *substantive interpretation, meaning it's not rooted solely in facts and it can get things wrong, especially in contexts where there's very little data available, such as speculating about very early human societies.*


For Harari, it's also difficult to speculate about social hierarchies in hunter-gatherer societies. Scholars can't even agree on basics like monogamy and family structure. Harari thinks some societies may have been hierarchical and competitive (like chimpanzee communities), while others may have been relaxed and peaceful (like bonobo communities). Ancient Sungir burial remains (from 30,000 years ago show) children's bodies adorned with thousands of ivory beads: this could suggest that they'd inherited a high rank, but it could also suggest that the children were decorated as sacrifices. It's hard to know more beyond wild speculation.

*Harari uses the example of Sungir burial remains to show how the same data (e.g., children's bodies adorned with beads) can prompt two completely different theories about what actually went on in ancient societies. He thus underscores his claim that data-based theories aren't rooted solely in facts—there's a lot of guesswork involved. He hints here that the reader shouldn't assume a theory is reliable just because it's based on data or evidence. He'll explore this idea more fully when he addresses modern science later in his argument.*

Harari thinks it's also difficult to know if hunter-gatherer societies were typically peaceful or violent. Contemporary hunter-gatherer societies (in the Kalahari Desert and Australia) *do* engage in armed conflict, but they've also been impacted by European imperialism, so it's difficult to speculate about the past from their activities. Archaeologists also discovered 400 ancient human remains in the Danube Valley, five percent of which had cracked skulls (suggesting they died from blows to the head), but this case could have been a one-off anomaly. Harari thinks that ancient forager communities engaged in different levels of violence, meaning some were peaceful, and others were violent, just like humans in the world today.

*Once again, Harari stresses how interpreting data involves a lot of speculation and guesswork to show the reader that theories involve both facts* and *interpretation: and the interpretations might be wrong. In this case, the "data" is cracked skulls, and the "interpretation" is that foragers were more violent than modern humans. Harari wants to question the popular idea that ancient foragers lived in violent communities and therefore had worse lives. This subtly reinforces his own speculation about ancient foragers living better—rather than worse—lives than their descendants did.*

To Harari, there's a tangible blind spot surrounding many aspects of ancient foraging Sapiens communities, which spans tens of thousands of years. He suggests that many complex and fascinating political dramas might have unfolded in our early history (for example, between Sapiens and Neanderthal humans). We simply lack access to evidence from this time period, but that doesn't mean nothing important happened.

*Harari questions the idea that ancient societies (70,000 s–12,000 years ago) were necessarily more primitive, unsophisticated, and generally worse than the subsequent agricultural and industrial societies that emerged in the last 12,000 years. He suggests they might have been far superior in many ways, but humanity will never know, because there's little data from that time.*

## CHAPTER 4: THE FLOOD

Before the Cognitive Revolution, all species of humans lived in the Afro-Asian landmass. Other land masses, like Australia and Madagascar were completely isolated ecosystems. After the Cognitive Revolution, Sapiens learned how to build boats, and they began exploring farther into the planet's ecosystems—initially from East Asia to Australia. Harari argues that the moment Sapiens set foot on Australia, they jumped to the top of the food chain and "became the deadliest species ever in the four-billion-year history of life on Earth." Within a few thousand years, many of Australia's marsupial species (like giant koalas and marsupial lions) were extinct.

*Harari thinks* Homo sapiens *are the "deadliest species ever" seen in the "history of life on Earth," because of how many extinctions humans have caused in the last 70,000 years. He notes that every time humanity's ancestors attempted to spread and settle in new terrain (like Australia), widespread extinctions followed, suggesting that Sapiens act recklessly when they inhabit a new ecosystem. Harari addresses this topic because he worries about the way humans treat the planet (and other animals within its ecosystems), and he wants to warn against continuing on this path.*

Some scholars blame marsupial extinctions on climate change (like ice ages), but Harari thinks Sapiens are responsible, because archaeological evidence suggests ancient marsupials survived many ice ages. In addition, sea life—where Sapiens couldn't dwell—saw hardly any extinctions in the time period when Sapiens began exploring Australia. In addition, mass extinctions around the globe typically coincide with Sapiens' arrival on those land masses. New Zealand's wildlife weathered 45,000 years of climate change, but 60 percent of the birds went extinct after Sapiens first arrived there about 800 years ago. Harari contends that "the historical record makes *Homo sapiens* look like an ecological serial killer."

*To Harari, scientific records of animal extinctions over the last 70,000 years show a clear correlation between Sapiens arrival in a new territory and evidence of extinctions. He knows that scientific theories involve data and interpretation and the interpretations might be wrong—but in this case, he thinks there's* so much *evidence that it's hard to ignore the correlation. Harari wants to emphasize how much death occurs when humans inhabit an ecosystem to make the reader question why humans continue to act in such destructive ways.*

Some scholars suggest that the mass extinctions happened because Australia's giant marsupials had no prior exposure to humans and didn't realize they were a threat (unlike large mammals in Afro-Asia, who'd lived with Sapiens for two million years). Others argue that humans' use of fire to clear land radically altered Australia's ecosystem and rendered many species extinct. Some think that climate change *did* alter Australia's ecosystem around 45,000 years ago, but it wasn't able to regain balance with Sapiens in the ecosystem as well. Even though many scholars still blame climate change for such extinctions, Harari thinks Sapiens are ultimately responsible—because mass mammal extinctions in the Americas *also* align with Sapiens' arrival, around 16,000 years ago.

*As before, Harari highlights several conflicting theories about what caused Australia's widespread extinctions 45,000 years ago. In doing so, he intends to show that there's a great deal of speculation involved in scientific theorizing—meaning that prevailing scientific theories might be wrong. He wants to sow doubt about theories that claim Sapiens* didn't *cause extinctions so that he can make room for his own view that Sapiens* did *cause widespread extinctions every time they spread to a new territory. Harari's keen to push this line of argument because he wants to warn his readers about the dangers of killing off so many animal species, something he thinks modern humans still do.*

Harari concludes that early Sapiens' global colonization—or the "First Wave Extinction"—was a colossal ecological disaster. Large mammals were most affected, and the only ecosystems spared were those that remained uncolonized until relatively recently, like the Galapagos islands. The "Second Wave extinction" followed with the advent of farming, and modern humans are part of the "Third Wave Extinction" today. Harari thinks the last remaining large mammals on Earth—which are mostly in the oceans—will be next to go, and it saddens him that only humans (and our farmyard animals) might be the only large creatures left on Earth as the "**human flood**" continues.

*Harari suggests that humans never stopped causing widespread ecological damage. He thinks humans act selfishly and recklessly in every ecosystem we inhabit, and that we'll regret such behavior when there are no other animals left. Harari inverts the metaphor of Noah's ark to emphasize how destructive humanity's behavior is towards animal species. In the original Noah's ark myth in Judeo-Christian traditions, a man named Noah saves two of each animal species on Earth from a global flood by building a giant ark for them. Harari inverts this idea, suggesting that the "flood" is actually humans (not water) and we're drowning (rather than saving) all the other species alive with our relentless drive for human expansion.*

## CHAPTER 5: HISTORY'S BIGGEST FRAUD

Humans fed on wild plants and hunted wild animals without interfering in their breeding for over two million years. About 10,000 years ago, however, Sapiens began manipulating their environments by sowing plant seeds (including wheat, rice, maize, potatoes, legumes, olive trees, and grapevines) and domesticating animals for labor or food (especially goats, sheep, pigs, and horses). This "Agricultural Revolution" occurred independently in the Middle East, Central America, and China. Modern Sapiens still live on a small handful of plant and animal species that were domesticated between 10,000 and 2,000 years ago.

*Harari revisits the Agricultural Revolution, which happened sometime between 12,000 and 10,000 years ago—he uses both numbers throughout* Sapiens. *He thinks the invention of farming was significant because humans stopped foraging for wild food, and began manipulating their habitats to "domesticate" (or breed) plants and animals themselves. This shift radically changed the face of the Earth's land-based habitats and affected many living species, which is why Harari calls the invention of farming a "revolution."*

Many scholars depict the Agricultural Revolution as a giant leap forward for humankind, but Harari disagrees. In fact, he calls the Agricultural Revolution "history's biggest fraud." Harari thinks hunter-gatherers had more knowledge of their natural environment, and they lived more satisfying lives. He even suggests that Sapiens didn't domesticate plants like wheat. Rather, the plants domesticated *us*. Harari argues that before the Agricultural Revolution, Sapiens lived comfortable, free lives as wandering hunter-gatherers with varied diets. After it, however, humans toiled endlessly, clearing land to farm wheat and building homes near their crops.

*Harari reminds the reader about his controversial opinion that life for humans (and many animals) got a lot* worse *after the Agricultural Revolution. He thinks the idea of farming as a great leap forward for humankind is actually "history's biggest fraud." He'll spend the rest of the chapter outlining why he thinks peasants and laborers (who make up 90 percent of the human population, both historically and today) suffer much more than foragers did, both physically and emotionally.*

Harari argues that the Agricultural Revolution trapped hunter-gatherers to lives of endless labor (which was needed to clear land and tend crops), violence (through battles for land to raise crops), poorer nutrition (from diets that were restricted to one crop), and food insecurity (because a bad season or natural disaster could trigger a famine). Harari thinks the Agricultural Revolution aimed to keep more people alive in much poorer conditions, and that doesn't seem so great to him.

*Harari stresses again that early farmers endured more suffering—both physical and mental—than foragers living before 12,000 years ago did. He thinks farming is much more labor intensive, and its primary crops (like rice or wheat) are far less nutritious than wild fruits and meats, leaving farmers physically more exhausted and malnourished than foragers. Harari also thinks that foragers were happier on a day-to-day basis, because they knew their natural habitat provided an ongoing food supply, and they didn't face anxiety about their long-term food supply the way farmers did.*

Harari explains that the shift from foraging to farming happened gradually. At first, roaming foragers camped for a few weeks and gathered wild wheat to help them survive the winters. As they gathered wheat, they dropped more seeds, which made more wheat grow. Wheat became more abundant, and humans started settling for longer periods of time around wheat fields. They eventually learned how to make more wheat grow (by planting seeds instead of letting them drop, by watering them, and so on). Foraging humans also reared fewer children, because it was harder to keep children alive in roaming communities. As Sapiens began living more sedentary lives (to be near the wheat crops), they began having more children, which increased their dependency on wheat.

*Harari subtly implies here that overpopulation is one of humanity's biggest problems: the more humans there are, the more food and resources they need, the more they mine the Earth's ecosystems, and the more labor they have to take-on to provide for everyone on Earth. Harari thus argues that a large population doesn't indicate that a species is thriving, because the individuals in the larger population don't necessarily live better lives.*

For Harari, the effort to live easier lives (by settling near wheat fields) inadvertently ended up making life harder. Sedentary communities suffered more infectious disease, and growing populations demanded more labor to feed. He also thinks the same insight applies today: we devote endless labor to pursue education, work, homes, cars, and it takes us longer and longer to reach a point when we can stop working and enjoy our lives. Harari also thinks the "luxuries" humans invent to make our lives easier—like washing machines and the internet—actually cause us more stress and make us less relaxed in life.

*As before, Harari argues that smaller, roaming, forager communities were less exhausted and sick than early farm laborers, suggesting that farm laborers endured a poorer quality of life than foragers did. To Harari, modern life is no better—it also demands a lot of labor to sustain. He even thinks modern conveniences (like washing machines and the internet) cause a lot of mental stress—they're expensive, and they make people live life at a much faster pace, which he thinks makes people anxious and impatient. Harari thus suggests that both modern-day workers and early farmers endure more physical strain and less emotional peace than early foraging humans did.*

Many scholars assume that the Agricultural Revolution enabled more sophisticated cultures to evolve. They argue that as people settled, they began expanding their cultural horizons and building temples. Harari, in contrast, argues that the discovery of a 10,000-year-old temple (called Göbekli Tepe) predates evidence of wheat farming in that area, suggesting that foragers started building the temple first, and then needed to settle and start farming to enable them to complete it.

*Harari attempts to debunk the idea that farming-based societies were necessarily more culturally sophisticated (and therefore provided more cultural enjoyment) than early foraging societies. He speculates that ancient foragers* already *had rich cultural lives, implying that he thinks foragers were happier overall, because they enjoyed perks of being part of a rich culture without enduring the stress of a farming-based society.*

The Agricultural Revolution also radically altered life for many animals. At first, humans began following wild herds and killing more aggressive individuals to stop them breeding, thereby gradually taming the herd. Today, we control every aspect of domesticated animals' breeding. In evolutionary terms, it seems like domesticated animals (like sheep and chickens) are thriving, since they're far more numerous in the modern world than they would have been in the ancient wild. Harari disagrees. He argues that domesticated animals lead shorter, more miserable lives. For example, a wild chicken can live for years, but most domesticated chickens are slaughtered within a few weeks of being born.

*Harari argues that the invention of farming made life worse for many animal species, not just humans. He thinks agricultural animals suffer tremendously and endure far worse lives than they would in the wild, suggesting that since the advent of farming, humans have treated countless other animals with abject cruelty. He wants the reader to take pause and question why humanity thinks it's okay to cause so much suffering to other animals, because to him, such behavior is highly unethical.*

Admittedly, not all animals suffered in agricultural societies. Pets and racehorses, for example, could wind up with quite luxurious lives. Historically, humans valorized the image of shepherds lovingly tending their flocks, but Harari thinks that if we look at the situation from the flock's perspective, the Agricultural Revolution was catastrophic. Harari thinks that many plants thrived as a result (like wheat, which is now ubiquitous in the world), but when it comes to creatures with complex emotional lives (like animals and humans), the Agricultural Revolution shows us that larger populations often increase "individual suffering." Harari concludes that the more powerful Sapiens become, the more individual suffering we cause.

*Harari thinks that the invention of farming caused widespread unhappiness among both humans and domesticated animals, so he concludes that the Agricultural Revolution wasn't a leap forward, but a huge step backwards. Scientists often assume that a large population is a sign of a thriving species, suggesting that the Agricultural Revolution was a success because it enabled human and many animal populations to rapidly expand. Harari contends that if the individuals in the species are unhappy or are outright suffering, they're not thriving. He suggests that humanity should be cautious about pursuing more population growth as a species—he thinks that will cause widespread unhappiness, leaving both humanity and many animal species worse off.*

## CHAPTER 6: BUILDING PYRAMIDS

Some scholars argue that the Agricultural Revolution enabled humankind to prosper and thrive. Others think it disconnected us from nature and made us greedy and unhappy. Harari thinks that either way, there's no going back, because our populations increased so rapidly that foraging became unsustainable. Around 12,000 years ago, there were five to eight million foraging humans in the world. Just 2,000 years ago, there were 250 million farmers. Permanent settlements also changed humankind: we've grown used to claiming a portion of nature for ourselves, altering our natural environment to build small structures that we claim as our own, and fencing our habitats off from the wild (and others).

*Harari doesn't think humanity should attempt to go back in time and start foraging again, even if the shift to farming caused widespread unhappiness. The human population is so large that the natural environment won't sustain us the way it did for ancient foragers living over 12,000 years ago. As before, Harari subtly questions humanity's impulse to keep expanding as a population. He suggests that humanity already over-taxes the Earth's resources, and the situation will only get worse as the human population expands.*

Harari argues that foragers focused on life in shorter interludes, thinking from season to season. Peasant farmers, in contrast, had to worry about the long-term longevity of their crops, triggering stress and anxiety about their future economic security. They toiled harder to collect surplus crops (in case of a bad season in the future). Subsequently, elite rulers began springing up and living off these surpluses, denying the peasant farmers the security they craved. Harari notes that the stories of the world's few elites—and their achievements in art, philosophy, and culture—fill history books. Meanwhile, most human beings spent their lives endlessly laboring to plough fields.

*Harari suggests, once more, that early farm laborers dealt with more day-to-day anxiety about their ongoing food supply than their foraging ancestors did, meaning they were unhappier overall. He also wants to undermine the opposite view (that life improved for humanity after the Agricultural Revolution) by suggesting that life only got better for the world's few elites. Harari thus concludes that the average human being lived a better life before the advent of farming.*

Surplus farming and transportation provided food pipelines that enabled increasingly urban settlements. Urbanization happened so quickly, however, that humans didn't have time to evolve a biological capacity for mass cooperation. Harari thinks myths—circling around "great gods [and] motherlands"—played a crucial role, because they connected vast numbers of strangers on an unprecedented scale. In 8500 B.C.E., the largest settlements (like Jericho) contained a few hundred people. Just 1500 years later, parts of Turkey had populations of 10,000 people. By 1000 B.C.E. the Persian, Babylonian, and Assyrian empires had millions of subjects. Harari warns against glorifying human cooperation, noting that a lot of it was—and still is—exploitative (for example, slavery, prisons, and concentration camps).

*Harari revisits his earlier claim that* Homo sapiens *jumped to the top of the food chain when they evolved the capacity to invent stories, myths, and ideas, enabling them to trust others who also believed those myths, and rally around the same causes, beliefs, and goals. He stresses that such myths work because they make people cooperate to achieve shared goals, but they're not necessarily fair or good to everyone who believes in them.*

To Harari, historical "cooperation networks" aren't rooted in biological instincts or personal familiarity. They're rooted in "shared myths." For example, 3500 years ago, the Mesopotamian emperor Hammurabi established Hammurabi's Code. The Code argues that the "gods" decree a strict hierarchy in which some people are naturally better than others (the highest being a ruler, followed by aristocracy, commoners, and slaves). The Code promises that if people accept their place in the hierarchy, their society will flourish. Another example, the Declaration of Independence, argues that a "Creator" decrees basic human rights like equality, freedom, and the pursuit of happiness. Harari argues that both sets of principles are fictions.

*Harari explains that "cooperation networks"—the myths that set out rules for how a society should function—work because people think they're true, so they comply with the rules, even if the rules are unfair to them. Hammurabi's Code, for example, makes people believe the gods chose their place in society and the gods will punish them if they deviate from their assigned role. This encourages the society's citizens stay in their social place and cooperate, which keeps the society running smoothly—even if the individuals at the bottom of the hierarchy suffer. Harari stresses that such myths are* always *invented and* never *grounded in facts or reality, even though people need to treat them as if they are true for them to work.*

It's easy to dismiss Hammurabi's hierarchy as unnatural. Harari thinks it's harder to say that equality and basic human rights are also fictions. Nonetheless, Harari thinks "rights" don't exist in biology—birds don't fly because they "have a right to fly." They fly because "they have wings." He also thinks, even though this sounds outrageous, that in biological terms, we simply aren't born equal. Harari prefers to say that believing in a "myth" that we're all equal helps us cooperate with each other. Admittedly, Hammurabi could just as easily argue that believing in his myth, that some people are better than others, helps them cooperate, too.

*Harari emphasizes that* all *imagined hierarchies are made up—even the ones that seem appealing to modern readers, say, by positing that all human beings are born equal and have inalienable rights. To Harari, a myth works if it makes people cooperate, not if it's true. He stresses, as before, that there's no biological basis for the myths, stories, and hierarchies that humans invent, which reminds the reader that myths can be changed—and when they do change, societies change too.*

Harari notes that myths are fragile, and they stop working if people don't believe in them. Some aspects of an "imagined order" can be enforced by coercion (like laws and punishments). Overall, however, Harari thinks that myths have the most power when people believe they're true. He argues that Christianity has lasted for 2,000 years because people really believe it's true. He also thinks bankers and investors, similarly, believe in capitalism. Harari wonders how someone can make others believe in an "imagined order" like Christianity or capitalism.

*Harari reminds the reader that even though "imagined orders" (myths or stories about how a society should be structured) are made up, they only work when people actually believe in them. Once again, he stresses that such fictions have no basis in physical or biological reality, but people tend to treat them as if they're real and true—otherwise the myths won't work, and social cooperation will break down.*

To Harari, myths retain their power because people posit them as objective facts—and not fictions. The imagined order is also deeply entrenched in the material world. For example, architecture reinforces the belief in individual freedom through dwellings with discrete rooms, allowing people privacy to do what they want behind closed doors without being watched. Harari also thinks the imagined order controls our personal desires, shapes our individual dreams, and transcends our personal beliefs. For example, if I stop believing in money, it won't make money cease to exist. To Harari, myths are like prisons—they're hard to escape.

*Harari thinks that because people really do believe in the myths around which they structure their lives, they can be hard (but not impossible) to change. Societies often shift when collective beliefs, myths, or "imagine orders" shift, but that's no easy feat to accomplish. Harari uses the metaphor of prisons to emphasize how difficult it is to break out of beliefs, ideas, and myths that are entrenched in people's minds.*

## CHAPTER 7: MEMORY OVERLOAD

Many animals that cooperate on a large scale in nature (like ants and bees) have "rules" embedded in their DNA. Humans don't. Unlike social insects—which are genetically programmed to be worker bees or queen bees—Hammurabi's hierarchy of aristocracy, commoners, and slaves *isn't* embedded in the human genome: Social rules have to be learned, enforced, and passed on. Harari thinks it's easy to remember rules on a small scale (say, in a local community), but in large societies, it's much harder to know all the rules and make sure others are following them. Harari thinks the evolution of large societies demands a new skill that our brains aren't hardwired for—retaining massive amounts of data.

*Harari re-emphasizes that myths and stories (or imagined orders) about how a society should function aren't innate, permanent, or real. They tend to invent rules that people need to follow in order to facilitate large-scale cooperation. In this chapter, he'll stress that writing (or the invention of scripts) plays a large role in enabling that to happen. He'll also bring up the invention of numbers—which he thinks play a large part in establishing science's power as dominant myth (or imagined order) in the modern world.*

To get around our limited capacity for retaining data in our minds, ancient societies invented ways of storing information *outside* the brain—like writing, which Sumerians invented in 3500 B.C.E. Early writing was limited to mathematical data, like tracking payments and taxes. Over the next thousand years, Sumerians added more symbols to their script (extending beyond data tracking symbols), which enabled more complex written communication—like royal decrees, personal correspondence, recipes, and poetry. In truth, Sapiens invented scripts all around the world, but to Harari, several stood out (notably Sumerian, Chinese, Egyptian, and Incan scripts) because their societies also created efficient methods of cataloguing, organizing, and retrieving the data they wrote down.

*Harari thinks that writing is essential to establishing myths because it enables people to keep track of a society's rules* and *log who's following or breaking the rules. This is why Harari thinks the languages that were the most effective at logging and retrieving data fared the best. This also explains why mathematical scripts are so powerful in large societies: they efficiently document transactions between people, enabling cooperative practices like trade on an unprecedented scale.*

Harari thinks the invention of writing made humans think in more compartmentalized ways, thereby changing how we see the world. In the 9th century, Hindu cultures invented a numeral script, which Arabic empires spread globally as the Arabic numeral system, and humans around the world still use it today. Harari thinks the language of numbers dominates the world today. An "even more revolutionary system" that evolved from the language of numbers is binary code, which is the language computing. Harari thinks as computers get more sophisticated, they'll use binary code in ways that humans won't understand, and become the new "ruler of the world."

*Harari warns the reader that although scripts—and numerical scripts in particular—seem like a huge success for humanity because they reinforce prevailing social orders and track people's cooperation, they're not necessarily always for the best. Harari anticipates that humanity's newest script, binary code (the language of computers), might even end up subjugating humanity in the future. Harari thus reminds the reader that as entrenched, ongoing, and permanent our systems of communication feel, they change and evolve (just like myths do), and when this happens, societies change.*

## CHAPTER 8: THERE IS NO JUSTICE IN HISTORY

Harari revisits imagined orders, saying they make humans cooperate in large numbers, but they're "neither neutral nor fair." Hammurabi's Code argues that aristocracy are innately superior to commoners and slaves, meaning aristocracy get to live much better lives under that imagined order. The Hindu caste system also establishes some groups of people as innately superior. White supremacists believe that white people are genetically superior, so their imagined order marginalizes people of color. Capitalism celebrates the wealthy and characterizes the poor as indolent or lazy. Harari thinks it's important to remember "these hierarchies are all the product of human imagination." No "known biological difference" exists between slaves and aristocracy, and there's no biological evidence connecting race to intelligence or moral aptitude.

*Harari reasserts his claim that myths, stories, and "imagined orders" (which structure human societies) work because they make people cooperate, not because they're true, "neutral," or fair to everyone who believes in them and follows their rules. Such myths tend to stick because people* think *they're true (or somehow rooted in biology), but Harari emphasizes that they're invented. This suggests that human beings can change their societies (and the hierarchies they establish) by changing the myths they rally around.*

To Harari, it seems that large, complex societies rely on discrimination to work: people create order in their societies by dividing people into categories, which makes cooperation more efficient. Strangers don't have to get to know each other personally. Instead, they make assessments about how to interact on the basis of obvious social cues (like markers of wealth, gender, or race). The downside of this, to Harari, is that not everyone gets the chance to discover their individual potential, especially if they're treated poorly for being low in the hierarchy. Imagined orders, thus, make societies flourish, but they also rig the game in favor of some groups of people.

*Harari reminds the reader that imagined orders work because they segregate people, assign them different roles in a society, and keep people in their social place, enabling the society to run efficiently on a large scale. These systems keep societies running, but they often exploit individuals who are lower down in the hierarchies. As before, Harari thus suggests, that it's possible to change the structure of a society by changing the myths that society rallies around.*

Harari thinks all societies are based on imagined hierarchies, but he wonders why the actual hierarchies differ between societies. He thinks hierarchies come about by historical happenstance. He suggests the Hindu caste system (which determines which job a person can have in society) came about when Indo-Aryans invaded the Indian subcontinent in 2000 B.C.E and subjugated the local population. The rulers likely created a story that "cosmic forces" established *them* as the priests and warriors (high castes), and the local population as servants (low castes). They also argued that the castes had to stay separate, because the local population (or lower caste) were "impure." This kept the society in order but marginalized the local population in the long term.

*Harari uses the example of the Hindu caste system to emphasize that imagined orders often claim to be true, but that's not why they work: imagined orders work because they separate individuals into categories, assign them specific roles (like being a servant or a ruler), and they establish ways of keeping those people separate to ensure they keep doing the same job in the long-term. This consequently enables all the necessary roles to be filled in society, so that it can keep running. Once again, Harari stresses that these systems work because they make people cooperate, not because they're true or fair.*

Harari thinks convenience determined the United States's racial hierarchies. European conquerors imported slaves from Africa and not East Asia because transport costs from Africa was lower. They also avoided Latin American slaves because of a widespread malaria outbreak at the time. These circumstances led early American leaders to create a caste system of their own. They imagined white people were biologically smarter and more moral than Black people. They also argued that Black people spread disease to prevent intermingling and keep the hierarchy in place. Even after slavery was abolished, the stigma stuck—many saw Black people as lazy, unintelligent, and innately less prone to succeed in life, even though poverty and lack of opportunities actually limited their chances.

*Harari uses racial segregation in the United States to emphasize that imagined orders often claim to be rooted in biology (for example, white supremacists think they're genetically superior to Black people), but in fact, they come about by chance. Despite the fact that such systems are completely invented, they work because people actually believe them, meaning it's hard for an individual to break out of a myth once it's become established. This is why, Harari suggests, racism still persists in the United States. Harari thus emphasizes how powerful and entrenched myths can become in a society, even though they're not rooted in facts or biology.*

Although it seems like humanity should realize imagined hierarchies are myths, the prejudices they establish create "vicious circles" that keep people disenfranchised. After slavery was abolished, social prejudices prevented access to education for Black people, which made others believe they really were less intelligent, prompting them to establish *more* discriminatory laws to prevent intermingling, thereby reinforcing, rather than dismantling the original imagined hierarchy. Harari thinks imagined hierarchies can persist for centuries and even millennia, even though they're rooted in chance events.

*Harari continues discussing racism in the United States to show why myths are hard to break out of. When people believe that they are innately superior to others, and they think that they'll lose their high social status by interacting with those who are lower in the hierarchy, they tend to create more ways to segregate themselves, thereby entrenching themselves deeper in the myth. As before, Harari shows that such myths persist because they're socially reinforced, not because they're true or fair.*

Harari recalls that different societies adopt different imagined hierarchies. Race matters in the United States, but it wasn't so important in medieval Muslim societies. Caste matters in India but not in many other societies. One hierarchy that prevails across societies, however, is the one between men and women. Harari wonders if there's a biological justification for societies that privilege men over women. Harari thinks the question get murky because human beings tend to isolate biological differences (like having a womb) and use them to keep people in a marginalized social place. Harari also thinks about modern human societies that claim homosexuality is unnatural—noting that ancient societies (like Ancient Greece) believed the opposite.

*Harari continues arguing that about the myths and stories humans create to segregate themselves from each other are completely invented, and not rooted in any biological truth. He's going to tackle gender and sexuality next. Many people assume that they can rely on biological differences to categorize people when it comes to gender and sexuality, but Harari disagrees. To Harari, people do have biological differences, but when human societies connect those differences to rules about what a person can or can't do in a society, they're creating myths, not stating biological facts.*

Harari thinks that culture, and not biology, is responsible for creating rules that limit human activity. For example, biology enables women to have children, and it enables men to enjoy having sex with other men. Culture puts limitations on these activities—for example, by dissuading women from staying childless, or prohibiting men from realizing their capability to enjoy sex with other men. Culture tends to say it prohibits things that are "unnatural," but to Harari, nothing is unnatural in biology: things are only possible or impossible. He thinks this idea of "natural" and "unnatural" activities actually comes from Christian theology, and he argues that Christian doctrine considers person's behavior natural when they do what God wants, and unnatural otherwise.

*To Harari, the cultural idea that some behaviors are "natural" and "unnatural" is a fiction, or a myth that humans invent. He stresses that, in nature, there are no rules about what behavior permissible or acceptable. Things are either* possible *(e.g., getting enjoyment from same-sex sexual activity) or* impossible *(e.g., humans flapping their arms and flying). Rules about what kind of behavior is* permissible *or* acceptable *are, thus, entirely invented, and not rooted in biological facts.*

Harari decides it's silly to say that it's "natural" for women to give birth and "unnatural" for people to be homosexual. Although biological differences do exist between people—some have XX chromosomes, ovaries, and less testosterone, while others have XY chromosomes, testicles and more testosterone—there's no biological evidence connecting these differences with social capabilities like being smart enough to vote. Gendered concepts like masculinity and femininity are typically socially—rather than biologically—enforced, and they tend to fluctuate across societies and time periods.

*Harari stresses that human beings often pick out a biological difference (like whether or not a person possesses a womb)* and *attach a social rule to that difference (like whether or not a person with a womb can vote). Individuals who are entrenched in an imagined order (say, they believe that men are superior to women) tend to* think *their beliefs are rooted in biology and facts, but they're actually not. To Harari, every single rule that determines how a person should act in a society is invented.*

Although social rules vary widely across societies and time periods, nearly all human societies since the Agricultural Revolution have been patriarchal—they tend to place men at the top of their social hierarchies. Harari says there are many theories suggesting that men are biologically superior to women, but he's not convinced by any of them. One theory suggests that men are physically stronger, and they used their physical power to suppress women. Harari doesn't agree. He thinks there's no necessary correlation between being strong and being in charge, noting that any societies privilege their elderly, despite their physical frailty.

*Patriarchal myths assume men should rule societies because of their biological capabilities (such as greater physical strength), but Harari disagrees. Harari argues that there's no connection between having a biological capability (such as more muscle power) and being more suited to rule a society. He thus underscores that biological differences have no connection with the social roles a person should inhabit in society.*

Another theory suggests that men are more violent and aggressive, and they use their aggression to assert dominance. Harari agrees that men's hormones *do* make them more aggressive, but to him, that means men make good soldiers, not good leaders. Yet another theory suggests that biological differences (such as childbearing) made women evolve to be dependent on men to survive, but Harari thinks women in history could have just as easily relied on help from other women, so there's nothing substantive in that claim either.

*Harari looks at aggression and childrearing to argue, as before, that there's no reason why these capabilities should determine a person's role in a society. As before, he emphasizes that rules about social roles are entirely invented and never rooted biology. To Harari, a myth may be pervasive (like patriarchy) but that doesn't make it true.*

## CHAPTER 9: THE ARROW OF HISTORY

Harari notes that large-scale cooperation happens when people in a society believe in the same myths and follow the same rules. This picture implies that societies remain relatively consistent and stable, but in fact, cultures often contain competing myths which conflict with each other. Medieval Europeans, for example, believed in both Christianity and chivalry. Harari thinks Christianity encourages people to avoid conflict, while chivalry encourages defending one's honor when it's threatened—which encourages conflict. Modern societies, too, privilege individual freedom, but they also want people to pay taxes (which, Harari says, technically limits individual freedom). Harari thinks such contradictions are inevitable, and they keep cultures in flux.

*Until now, Harari has stressed that imagined orders have a lot of sticking power—they tend to become entrenched in societies and keep people acting in certain ways. Here, however, he highlights that the actual picture is more complicated, because people can believe in more than one set of rules (or one imagined order) at a time. He emphasizes this to show, again, that the stories, rules, and systems that people believe in* seem *true—and therefore seem fixed and permanent—but they're actually not.*

Even though cultures are complex, conflicting, and constantly in flux, Harari thinks they're tending towards unity. Historical societies were far more isolated from each other. People in the Afro-Asian world, for example, didn't even know that Mesoamerican societies (in the Americas) existed until somewhat recently. As distinct human societies merge, however, their cultures absorb different value systems and seek to eradicate conflict (to facilitate greater cooperation on a global scale), so Harari thinks humanity is tending towards unity by consolidating many different imagined orders into fewer ones. To Harari, the idea of separate, "authentic" cultures is a bit misleading. For example, tomatoes (which are now considered a part of "authentic" Italian cuisine) originated in the Americas.

*Harari underscores that, despite differences between cultures, large-scale cooperation often relies on believing in the same ideas and following the same rules. Harari suggests that although there is a lot of cultural diversity in the world (including different sets of beliefs about how people should live in society), human society is actually already deeply globalized, and it already shares a lot of the same ideas and guiding principles. For example, the concept of a nation state is widely accepted around the globe, even if actual nation states disagree with each other.*

Animals in nature don't typically try to unite their entire species. Harari thinks the Cognitive Revolution enabled *Homo sapiens* to do so. He thinks three global ideas (or imagined orders) began to circulate among humans around 1,000 B.C.E.: money (enabling global trade), imperialism (fueling attempts to conquer and unite territories), and universal religions like Christianity, Buddhism, and Islam (which imagined the entire human race being governed by a "universal set of principles"). Harari thinks that of the three, money is the world's most unifying concept today, and he wants to find out why.

*Harari highlights three possible contenders for a unifying global idea or "universal set of principles" (that all of humanity understands, believes, and follows) to show that humanity's current organizing principles are neither permanent nor necessary. Money happened to make people cooperate on an unprecedented global scale, but something else could do so in the future. Harari thus continues to stress that despite being deeply entrenched, universal concepts like money are entirely fictional, and therefore changeable.*

## CHAPTER 10: THE SCENT OF MONEY

Harari discusses wars—for example, between the Christians and Muslims in the 1200s—to show that despite vast ideological differences, conflicting societies universally accepted and traded with money (specifically, gold coins). During the crusades, Christians even happily used coins embossed with Islamic messages, and North-African Muslims accepted taxes in the form of gold coins imprinted with pictures of the Virgin Mary. Earlier foraging societies (from 70,000 to 12,000 years ago) had no money (and few, if any, possessions). Even early farmers lived in isolated villages and tended to barter goods rather than trade in money. Harari thinks the rise of money as a globally unifying system emerged when people started establishing larger settlements, like cities.

*Harari stresses that even warring societies agreed that they could trade in money, showing that money had universal appeal long before other potential imagined orders (like a set of religions values) did. Harari discusses humanity's history before the invention of money to reinforce the idea that money (like religions, political ideas, and concepts like nations) is a fiction. It's an idea that humans invented to facilitate mass-cooperation, which comes with its own set of rules that everybody agrees to follow (e.g., the idea that gold is worth a lot).*

Even on a small, isolated scale, bartering has its drawbacks, Harari notes that an apple grower might struggle to calculate how many shoes (from the cobbler) a basket of apples is worth, and the two may disagree about how to make that calculation. Harari thinks money, in contrast, is a much more efficient way to facilitate trade and exchange. To Harari, it was "a purely mental revolution," in which people realized they can use something (including shells, salt, cigarettes, coins, promissory notes, and more) to represent the value of something else. Harari thinks ninety percent of today's money only exists on computer servers. To Harari, money unifies humanity because everybody trusts in the idea that everybody else wants money.

*Harari emphasizes once more that money is a "purely mental" (but very powerful) human invention by showing that any object can be used as money as long as people agree on its value. This reinforces the idea that money is more of an idea than an actual thing, because it shows that the objects (like coins or shells) change, but the concept persists. Nonetheless, money is an effective fiction: it convinces all of humanity to agree that something is valuable and trust that everybody else will too. This, to Harari, facilitates mass cooperation and establishes money as the world's most powerful imagined order.*

Universal trust in the value of money enabled diverse and distinct human cultures to morph into a unified economic domain. Harari thinks money is so powerful as a unifying global idea because it's a simple one. Religions demand that people believe in a complex set of codes, while money, as a concept, only asks people to agree that something—anything, whether its gold or electronic transactions—is universally valuable. Even though many people consider money to be "the root of all evil," Harari thinks it represents widespread human tolerance. It does, however, have a dark side. Money doesn't encourage people to trust other humans, but to trust money itself—which leads them to do things like sell people into slavery.

*Harari emphasizes that money, like all fictions, establishes hierarchies aren't necessarily fair to the people who believe in and rally around their rules. Yet even people who acknowledge this (by calling money "evil") still use it and abide by the global economy's rules. Harari subtly hints that if people don't want to be oppressed by the world's prevailing imagined orders, they need to invent a new imagined order that will make people cooperate on the global scale as effectively as money does.*

## CHAPTER 11: IMPERIAL VISIONS

Harari argues that the Romans were used to losing battles. Empires, he notes, persist if they can sustain blows and losses. In 134 B.C.E., a small Iberian Celtic town called Numantia successfully resisted Roman conquest until they were surrounded by Roman troops. The citizens burned their town to the ground and killed themselves to avoid becoming Roman slaves. Numantia later became a symbol for Spanish independence. Yet, Spaniards in subsequent centuries celebrated Numantia in Spanish (a Latin language), rather than Celtic, showing that the Roman empire prevailed, even though the town of Numantia was never conquered.

*Having discussed one imagined order (money), Harari now switches to another (the concept of empire). Harari stresses that empires exist even when their actual territories change, to show that empires, like money, aren't grounded in reality. Rather, they're powerful fictions invented by humans to facilitate widespread cooperation. Harari stresses how powerful and pervasive the concept of an empire is by showing that even people who think they reject a particular empire actually follow the rules it lays out for cooperation (for example, by adopting an empire's language).*

Harari characterizes empires in a few distinct ways: empires connect people in diverse cultures under universal rule, they have flexible borders, and they're potentially unlimited in size. Empires need not emerge from military conquest (the Athenian empire was a voluntary enterprise, while the Hapsburg Empire was formed by a string of aristocratic marriages). Empires can also be tiny. The Aztec empire was smaller than modern-day Mexico, but it consolidated 371 different tribes.

*Harari underscores that "empire" is a mental invention, and not a concrete thing, by stressing that empires have few unifying features grounded in actual reality (like being a specific size). Harari cites the Aztec empire to stress that members of an empire are able cooperate on a mass scale because they believe they're part of the same entity (e.g. the Aztec empire), and they can trust countless strangers to follow the same rules, even if they come from diverse, unknown cultures.*

Many people in the world think that empires don't work in the long term, and they exploit people. Harari disagrees; he sees empires as the "world's most common" and "stable" form of political organization. Empires consolidate different cultures into one larger culture. He thinks Jewish people in modern Israel, for example, owe a lot of their cultural practices (like their clothing and food) to the empires they lived under for over 2,000 years. Admittedly, empires use ruthless tactics like wars, slavery, and genocide to establish themselves, but to Harari, that doesn't mean they're necessarily evil—he thinks they leave behind good things like languages that many people share.

*Harari acknowledges that empires—like all imagined orders—can be unfair. For example. they can force people into following rules (for example, through slavery). Despite these problems, Harari still thinks that humanity benefits from empires (like all imagined orders) because they facilitate widespread cooperation (through unified languages and shared cultural practices). Harari thinks powerful imagined orders are ultimately good, because they unite people and help to facilitate global cooperation.*

The Persian empire (established around 500 B.C.E.), for example, sought to unite people in the Mesopotamian region, and its ruler Cyrus the Great often proclaimed that he was establishing a unified empire for his subjects' benefit. To Harari, this vision presents a stark contrast with ethnic segregation and "us" and "them" thinking. Harari thinks another empire founded on the vision of global unity was the Chinese empire (founded by Qin Shi Huangdi around 250 B.C.E.). Harari thinks such visions depart significantly from the modern "Western" view that a "just world is composed of separate nation states."

*Harari suggests that many modern human beings tend to dislike the concept of an empire because it's been replaced by a newer imagined order that pictures the world as a fairer (or more "just") place when it's divided into "separate nation states." Harari suggests that this new vision isn't necessarily better than older imagined orders (like empires), meaning he thinks that humanity doesn't necessarily improve as people replace old imagined orders with new ones.*

Harari thinks empires unify people by making it easier for them to share language, goods, and currencies. An empire's imperial elites usually genuinely think they're doing something good by enabling others to share in the benefits of their culture. Harari thinks that the modern-day American empire's elites similarly think they need to spread democracy and human rights, even if they do it with bombs and weapons. Harari thinks that assimilating into an empire can be tough. He imagines an Iberian Celt in the Roman empire who follows all the rules but is still treated like an outsider. Eventually, Harari thinks, the Celt's desire to fit in will make him demand equality, which will cause the empire to evolve.

*One thing Harari likes about empires is that they're far-reaching imagined orders, or ways of organizing a society to make people cooperate). He thinks that even though some people are oppressed in empires, or find it hard to integrate into pre-existing empires, being in an empire nevertheless makes people share a common language, currency, values, and identity, which makes it more likely that they'll cooperate with others in the empire. As before, Harari stresses that cooperating with strangers is the core reason why societies flourish.*

Many modern cultures, says Harari, even owe a debt to their "imperial legacies." British imperialists killed, imprisoned, and subjugated many Indians, but Harari thinks they also laid the groundwork for creating a unified Indian state by uniting warring regions and tribes and creating infrastructure. He imagines many Indians today enjoy cricket, even though the sport is a remnant of British rule. Harari thinks modern day societies share increasingly global threats (like climate change), and he wonders if a new empire will emerge that can make people cooperate on global issues. He also worries about scientific developments like artificial intelligence, and he wonders how they'll change the face of the world in the future.

*Harari acknowledges that empires can be brutally oppressive when they spread into new territories. Harari makes the controversial claim that empires are a good thing, because they're imagined orders (values and rules for a society) that unite disparate regions and make people cooperate on a vast scale, which makes societies flourish—even if many of those people are forced to cooperate or get pushed to the bottom of the empire's hierarchy. Harari also clues the reader in to the fact that he's very skeptical about scientific developments in modern society. He'll explore this issue at length from Chapter 14 onwards.*

## CHAPTER 12: THE LAW OF RELIGION

Harari imagines a medieval market in Syria, full of exotic wares from around the globe. Then he thinks about Mecca, Islam's holy shrine, where strangers from all over the world gather to pray together. He decides that religion is the third great unifier in the world—like money and empires. Harari defines religion as a set of values based on "a belief in a superhuman order." He also thinks religions unify people when they're "universal" and "missionary," like Islam and Buddhism. Before the first millennium B.C.E, however, most ancient religions, he argues, were "local and exclusive."

*Harari sees religions as "imagined orders" because they offer rules that tell people how to cooperate, and they're based on a "belief" in something beyond the physical world. He thinks older religions are imagined orders that function on small, limited scales: they only try to make limited groups of people cooperate (they're "local"), and they don't seek to recruit new members and expand the group size ("exclusive"). Harari thinks such religions can't be global unifiers, because they're not oriented towards getting everybody in the world to believe in the same ideas. Many newer religions seek to include all humans (they're "universal") and attempt to spread to everyone in humanity (they're "missionary"). In other words, such religions seek to make everybody in the world believe in the same imagined order, and therefore cooperate on an unprecedented scale.*

Before the Agricultural Revolution, Harari argues, foragers tended to believe in animism—they believed objects, plants, and animals had spirits, and an "equal status," and they tried to cooperate with them, believing this would enable them to thrive in their local ecosystems. After the Agricultural Revolution, however, Harari says a "religions revolution" happened because human beings began treating animals and plants more like property. Harari thinks this prompted early farming societies to conceive of gods as supernatural beings that would help them keep their livestock and crops flourishing. Human beings, he says, began to see themselves as superior to animals under such early polytheistic religions.

*Harari suggests that forager societies saw themselves as equals among animals and plants, and their spiritual lives were centered on maintaining equilibrium with their habitats. Subsequent farming-based societies (which emerged after the Agricultural Revolution, around 12,000 B.C.E) evolved new "imagined orders" (collective ideas, values, and beliefs) in which the gods were at the top of the hierarchy, followed by humans, and then animals. Harari thinks that this religious transition was instrumental in encouraging humans to abuse other animals on Earth—something that he finds deplorable. He's already argued that humans generally lived happier lives before the advent of farming. Here he argues other animals did too.*

Polytheistic religions believe in one supreme force or energy governing all existence. For the Ancient Greeks, this overarching power was "Fate." For Hindus, it's "Atman." The overarching principle or power isn't concerned with the mundane aspects of human lives, so humans pray to supernatural beings ("gods") with "partial powers" for day-to-day help in their lives. To Harari, this makes polytheism fundamentally open-minded, since it tolerates all sorts of gods, even gods in other cultures or religions. He thinks monotheistic religions, like Christianity, are much more rigid. Harari also thinks they're more violent. He claims that the polytheistic Romans killed some Christians, but Christians killed far more Christians in subsequent disputes between Catholics and Protestants.

*Harari compares different sorts of religions to suggest that human culture isn't necessarily getting better with time. He's just argued that ancient foragers' beliefs were better for animals. Now, he argues polytheistic religions (12,000 years ago to today) are more tolerant and less violent than monotheistic religions (which started cropping up around 1350 B.C.E). All religions, for Harari, are imagined orders, and they tend to be replaced with newer ones as societies develop. Here, he suggests that newer imagined orders aren't necessarily better than older ones.*

According to Harari, monotheistic religions evolved when some polytheists drifted into believing their local deities were the only ones. This first happened in Ancient Egypt around 1350 B.C.E, when Pharaoh Akhenaten "declared" that a minor god named Aten was the supreme power ruling the universe. Harari thinks Christianity evolved in a similar way. He argues that a Jewish sect decided that Jesus of Nazareth was God, and they sought to make other people in the world believe that too. They were so successful, that they took over the Roman Empire. Harari also points out that Christianity still includes some aspects of polytheism, since Christians often pray to different saints (who also have "partial powers" relative to an all-encompassing power).

*In discussing the rise of different religious orders, Harari thinks about how imagined orders replace each other. In suggesting that aspects of polytheism still surface in monotheistic religions, Harari implies that imagined orders get so deeply entrenched into human consciousness that they're hard to completely eradicate, even when they're replaced by new contenders. Harari also suggests that new belief systems (imagined orders) often borrow from, or are inspired by, older ones.*

Harari thinks about Siddhartha Gautama, a legendary prince who lived in 500 B.C.E. and founded Buddhism. Gautama noticed that people constantly crave things, which makes them suffer because they're never satisfied. So, he developed a meditation technique to help detach himself from that feeling, achieved enlightenment (or, became the Buddha). Harari thinks Buddhism isn't really focused on individual gods, but many people who practice it still pray to gods from other religions (like Shinto gods in Japan) or enlightened beings (like Buddha).

*Harari reinforces his idea that prevailing values, beliefs, and behaviors (imagined orders) are difficult to shake off with the example of Buddhism. He suggests that although Buddhism doesn't revolve around a central god figure, many Buddhists still weave in god-worshipping practices. Harari wants to show how entrenched ideas like god-based religions can be once they've had sway in human culture.*

The last 300 years have been more secular, but Harari thinks that worldviews like "liberalism, Communism, capitalism, nationalism, and Nazism" are similar to religions. He calls them "natural-law religions." Harari thinks Communism, for example, also has "holy scripts and prophetic texts," like *Das Kapital* (written by Karl Marx and Friedrich Engels), holidays (celebrating important dates in its history), and attempts to "guide human actions". Harari thinks some of his readers will find his claims uncomfortable, but he feels strongly about this. He thinks capitalism is the most successful of the "modern religions," though he's going to discuss humanism first.

*Harari compares political ideologies (like capitalism or Communism) to religions because he wants to stress that they're very similar—they both dream up pictures of the world that tell people how to cooperate in vast numbers. To Harari, religions and political ideologies are so similar because they're both imagined orders: they're sets of rules telling people how to behave. In both cases, people tend to trust strangers who believe in the same ideas, which makes them cooperate.*

Humanism, to Harari, includes any belief system that claims *Homo sapiens* are special, unique, sacred, or different from other animals in nature. Liberal humanists think that being a free individual is humanity's goal. Socialist humanists think that being an equal part of a community is humanity's best expression. Harari also discusses evolutionary humanists like the Nazis. They believed that humans could evolve into better humans if they cleansed "inferior" populations from the gene pool. Harari thinks similar thinking existed among "elites" in the United States and Australia in the 1930s, many of whom published papers arguing that white people were more intelligent than Africans or Indians. Harari thinks that white supremacy remained popular in both countries until the 1960s.

*Humanism is an imagined order that puts humans at the top of its hierarchy, and it tells people to cooperate by making life as good as possible for humanity. While this might sound compelling to the reader, Harari is skeptical about this imagined order, partly because it justifies treating animals poorly. Harari also thinks humanism is a dangerous imagined order because some people (like Nazis and white supremacists) think that only certain races fit at the top of the hierarchy, and this makes them want to get rid of people from other races whom they think drag humanity down. Harari thus worries about humanism because it justifies not only treating animals badly, but it also can be used to treat other humans badly as well.*

Harari thinks that people no longer talk about exterminating other races, but scientists today *do* talk about using science to enhance human bodies. From Harari's perspective, this is also a form of evolutionary humanism. He also thinks that many scientists today think genes are responsible for many human behaviors. He thinks that such research "thoroughly undermine[s]" the emphasis on individual freedom in liberal humanism.

*Harari is deeply skeptical about scientific advances that are intended to advance humanity. He worries that they'll actually be bad for humanity in the long run, and he begins raising those concerns here. Here, worries about genetic profiling. Later, he'll explore this idea in more depth.*

## CHAPTER 13: THE SECRETS OF SUCCESS

Humanity, says Harari, united because of "commerce, empires, and universal religions." He wonders what different kinds of global societies there could have been. Harari thinks about the emperor Constantine, who converted the Roman empire from polytheism to Christianity, though he can't say more about why, exactly Constantine chose Christianity above polytheism or other religions. Harari also thinks about what's going to happen in the future. He wonders if China will become the world's superpower, or if humanity will destroy its ecosystem. Harari thinks that scholars can make predictions, but there's always room for surprises—because there are so many factors to consider.

*Harari thinks that many of the world's prevailing imagined orders came about by chance. He stresses this because he doesn't think the ones that humanity has had so far are necessarily the best—they're more like accidents of history. He's subtly encouraging the reader to think about what sets of beliefs they want to rally around in the future—particularly because the imagined orders that humanity had so far have caused widespread damage to other animal species and the natural ecosystem.*

One thing that's certain to Harari is that historical choices "aren't made for the benefit of humans." He doesn't think there's any evidence that adopting Christianity was good for human kind, or that the Arab empire was better than the Persian empire. Harari thinks cultural ideas "emerge accidentally" and then "infect" the human population—almost like the way memes spread, but there's no reason to assume those ideas are the best ones. The path of history could have easily been very different.

*Harari reinforces his idea that imagined orders tend to stick because they make people cooperate effectively, and not because they're fundamentally good for humanity. Harari subtly encourages the reader to think about different imagined orders that they would prefer to live by, other than the ones that already dominate humanity.*

## CHAPTER 14: THE DISCOVERY OF IGNORANCE

The world has changed dramatically in the last 500 years. A modern battleship could shred Columbus's ships in a matter of seconds. A single computer can store all the data from the medieval world with room to spare. In 1500, cities averaged 100,000 residents; today, they house millions. Scientists in 1600 didn't know anything about microbes. Harari thinks the detonation of the atomic bomb in 1945 was the most important moment in this 500-year history. All these changes, Harari thinks, happened because of the Scientific Revolution. He argues that in the last 500 years, humans have increasingly put their faith in scientific research, and he wonders why.

*Harari compares technology in the present to technology 500 years ago to warn the reader that science and technology are developing at an alarming pace—he thinks scientists often mess around with new technologies without thinking about the effects on humanity. He wants the reader to be more skeptical of science in general, and he's going to spend the next few chapters explaining his reasoning.*

The Scientific Revolution, Harari explains, was unique in its approach to understanding the world. Science is based on the ideas that humans don't know the rules, they must discover them by observation, and they can use these insights to gain power. Harari thinks earlier traditions (like religions) claimed to know the important things about the world, and that humans could learn those things by reading ancient texts like the Bible or the Qur'an. Modern-day science, in contrast, assumes that humans *don't* know what's important about the world. Harari thinks that Darwin, for example, didn't claim to "solve the riddle of life once and for all." Today's scientific theories also often conflict and compete with each other.

*Harari thinks that science is a new imagined order that's quite different from religions. Religions argue that knowledge about the world is already transmitted to humans from God, and it's documented in religious books. The scientific outlook, however, assumes that humans are ignorant about the world—and we have to discover knowledge by observing the world ourselves. Harari notes that many scientific theories conflict because he wants to stress that scientific theories contain a lot of guesswork, and they're often wrong, so the reader shouldn't be too quick to trust them.*

Harari thinks many scientific theories are taken as true, but everyone still agrees that new evidence might prove them false. He thinks science has given humanity the tools to create many new technologies, but it presents humanity with a new problem. Myths have held societies together and made humans cooperate for millennia, but science tells humans not to believe them. Harari thinks this means that people who want to stabilize societies either have to claim that a scientific theory is the absolute truth, or they ignore science and live with a different conception of absolute truth. Harari thinks modern social orders are held together by a "an almost religious belief" in technology and scientific research.

*Harari has repeatedly stressed that human beings often actually believe imagined orders are true—and that's why they follow their rules. Science, to Harari, is no different. People need to believe that science tells them the truth and that they should live according to the knowledge that science gives them. Harari, however, disagrees. He stresses that scientific theories are often wrong to convince the reader that they should be more skeptical about scientific knowledge.*

According to Harari, science combines empirical observations about the world with mathematical tools. He thinks people tend to disregard old knowledge and focus on looking for new evidence from the world instead. But to Harari, observations aren't knowledge. Observations have to be described by theories. He thinks older traditions also formulated theories, that they told as stories. Modern science, in contrast, formulates theories in the language of mathematics. The Bible and the Qur'an didn't have equations and graphs, but they still articulated general laws about the world. When Isaac Newton published *The Mathematical Principles of Natural Philosophy* in 1687, he did the same thing, but he used mathematics.

*Harari argues that religious texts communicate theories about the world in the language of rhetoric: compelling stories and tales. Science, to Harari, looks like it communicates the truth because it's more technical, but in fact, it's just doing the same thing in a different language. He thinks science communicates theories about the world in the language of mathematics. He subtly warns the reader not to trust in science just because it's communicated in technical terms.*

Harari thinks it's harder to communicate biology, economics, and psychology in the language of mathematics, but scholars still try, using statistics. In 1744, two Scottish clergymen named Robert Wallace and Alexander Webster decided to create a life insurance fund for widows. They didn't pray to God to tell them how much money to allocate per widow. They used statistical data and probabilities to figure out an appropriate sum. Evolutionary biologists too, use probabilities to predict the likelihood of various genetic mutations spreading in a population. Historically, rhetoric was the most powerful language. Today, it's mathematics. Harari thinks this would have really "bewildered" ancient figures like Buddha and Jesus.

*Harari uses the example of insurance to suggest that scientific thinking, rooted in the language of mathematics, permeates all aspects of human society—meaning it extends into social sciences like economics, and it deeply shapes the way humanity tends to function. He wants to show that scientific thinking is pervasive in human culture nowadays, and that it's taken over aspects of human culture that used to be driven by storytelling (or, rhetoric). Harari is not entirely sure that this global shift to scientific thinking—and away from rhetoric—is a good thing.*

Harari thinks that most modern people find mathematical language difficult to digest. Nonetheless, science gives human beings "new power." Scientists don't think new theories are necessarily true, but they think new theories are valuable if they enable humans to do new things. Harari thinks that most people think science is important because it enables humans to build new technologies. He also thinks that science and technology weren't as closely connected as they are now before 1500. To Harari, historical rulers spent money on educational institutions that would spread knowledge and reinforce "the existing order." Today's rulers spend money on scientific research to develop new technologies, especially weapons.

*Harari expands on his idea that humans should be more skeptical of science than we tend to be. He wants to highlight that science isn't just a blind, neutral endeavor that's solely centered on learning, knowledge, and discovery. Harari suggests that powerful people pick and choose scientific advancements that generate more power and more wealth for them. To Harari, science just reinforces their position at the top of the hierarchy, much like other imagined orders reinforced the position of historical rulers at the top of their social hierarchies (for example, belief in the divine right of kings to rule).*

Scientific research was central to World War I, as governments funded research into aircrafts, poisons, tanks, and guns. In World War II, German, American, British, and Soviet governments thought they could win the war when they had new technology. When the Americans invented the atomic bomb and detonated it in Japan, the Japanese surrendered and the war was over. Today, people think that terrorism can be solved with nanotechnology like "bionic spy-flies." Harari even wonders if scientists are developing brain scanners that can detect hateful thoughts in people's minds.

*Harari reinforces his claim that scientific research often functions to cement people's power by showing that governments often fund research into science and technology that will create weapons, which they use to exert power in the world. He also worries that human societies mistakenly think that science can solve all their problems—because he thinks science often causes more harm than good.*

Harari thinks the human obsession with military technology is relatively recent. When the Arabs and Sassanid Persians fought, the Arabs didn't win because they had better technology. In many historical cases, those with inferior technology actually won their wars. Even the Roman empire was powerful because of its manpower, not its technology. Back then, Harari says, generals didn't obsess over developing new weapons. He thinks that "science, industry, and military technology" intertwined through capitalism, and this changed the world.

*Harari notes that scientists focus a lot of their efforts on developing new technologies. Harari worries about humanity thinking that a good society is one with more technology, because he's not sure that new technologies (like advanced weapons) are necessarily good for humanity. He reminds the reader that many advances in science and technology are designed to make some people richer, rather than make humanity better as a whole.*

Before the Scientific Revolution, Harari says, humans thought the past was a "golden age" and societies were getting worse. Many faiths predicted a Messiah would come and save humanity from its ever-worse societies, and they thought inventing new tools and technologies would anger the gods. As science grew more dominant, people began to think they could improve their societies themselves. Harari thinks that today, humans see most social problems—like poverty—as technical problems that can be solved.

*Harari thinks that the Scientific Revolution (which happened 500 years ago when humans started trusting their own observations of the world over religious knowledge about the world) encourages people to think they can improve humanity with more science and more technology. He's not so sure that more technology is the answer. In fact, he often thinks new technologies cause more harm than good.*

One problem that humans try to solve with technology is mortality. Harari tries to imagine a world without death. He thinks about the ancient Sumerian myth about a king named Gilgamesh. According to legend, Gilgamesh saw a worm crawl out of his dead friend's nose and resolved to live forever. He traveled around the world searching for a way to conquer death before realizing death is humanity's destiny. Harari thinks today's scientists think death is a "mere technical problem" that can be solved. They constantly try to prolong life with medications, artificial organs, and new treatments. Harari strongly feels that the whole point of the Scientific Revolution is to seek eternal life (a goal which he nicknames "the Gilgamesh project").

*Harari reinforces his claim that humanity's relentless pursuit of new technology (through the avenues of scientific research) is a bad idea with the example of Gilgamesh, who sought immortality. Harari thinks that modern scientists, like Gilgamesh, also seek to prolong life—and ultimately cheat death. He's going to spend the rest of the chapter explaining why he thinks this a terrible idea. Most of all, he doesn't think that living forever will make people any happier.*

Science has already achieved things that seemed nearly impossible a few hundred years ago. People used to die from infections, and doctors would cut off limbs without anesthetics. Now, they have pills, injections, and operations to cure illnesses that would have once been deadly. Harari thinks about the English rulers King Edward I and Queen Eleanor, who lived in the 1200s. They had every technological luxury of the time at their disposal, but 10 of their 16 children died before reaching adulthood. Harari thinks that's inconceivable for modern humans. He wonders how long the Gilgamesh project will take to complete. Some scientists estimate that by 2050, it will be theoretically possible to extend human life indefinitely.

*Here, Harari wants to show that advances in science have been centered on prolonging life for quite some time. He uses the example of King Edward and Queen Eleanor to show that scientists have progressed leaps and bounds in that effort—the level of child mortality that humanity's wealthiest rulers endured less than 900 years ago is unimaginable to a modern human being. Harari wants to stress that scientists are closing on their goal to extend human life—and he worries that it's happening so quickly that humanity hasn't really spent much time thinking about whether or not that's a good thing.*

Many modern humans assume that science and technology can solve all of humanity's problems, but Harari doesn't think that science isn't some special, superior enterprise. He thinks that—like all cultural practices—it's shaped by other interests. Harari thinks about how expensive science is. Without extensive financing, he says, many scientific discoveries would never have happened. He thinks it's naïve to believe in "pure science" for the sake of science. People fund research because they want to achieve a political, economic, or religious goal. In the 16th century, for example, kings financed geographical expeditions so that they could conquer new territory.

*Harari revisits the connection between scientific research and the social, political, and economic goals of powerful people. To Harari, many people assume that science is a neutral effort to learn more about the world, but he feels strongly that the opposite is true: rich and powerful people tend to fund scientific research that will bolster their wealth or power. Harari thinks that most scientific discoveries benefit the elite, but they don't necessarily serve humanity's goals.*

Harari thinks it would be impossible to remove outside interests from the scientific endeavor. There are always scientists with different research programs competing for funding, and somebody has to decide which program to choose. Harari strongly believes that there are always political, economic, or religious motivations behind such choices. If a society values milk production, it's unlikely to fund research into the mental anguish of calves being separated from their mothers. He thinks, in fact, that science can never set its own agenda. So, he decides to look at capitalism and imperialism next, to see how they affect scientific progress.

*Harari thinks science will* never *be a neutral endeavor. Somebody always has to foot the bill for scientific research, and whoever does that gets to dictate which research projects go ahead. Such people likely won't fund research that might make them lose money in the long run. Harari, thus, thinks that the pursuit of wealth and power underscore all scientific research, meaning that the reader shouldn't just blindly assume that scientific discoveries are true, good, or fair for humanity as a whole.*

## CHAPTER 15: THE MARRIAGE OF SCIENCE AND EMPIRE

In the 1700s, governments sent expeditions around the globe to measure the transit of Venus passing between the sun and the Earth, so that they could calculate Earth's distance from the sun. The Royal Society sent Charles Green to Tahiti, on a boat captained by Naval Officer Captain James Cook. In those days, many sailors died of scurvy. Cook encouraged his sailors to eat fruits and vegetables when the boat docked, and none of his sailors died. During that expedition, Cook also claimed Australia and several South Pacific Islands for British occupation. Within a century, Australia and New Zealand were colonized by Europeans. The Aborigines "never recovered."

*In this chapter, Harari will argue that efforts to learn scientific information about the world often masked efforts to colonize the world. Many European colonists thought they were serving the needs of science, but actually, they were serving the goals of empire-building. For example, Charles Green's scientific expedition to measure the transit of Venus across the Sun from the South Pacific ended up making Captain Cook seize Australia and New Zealand for British rule.*

Cook also claimed Tasmania, which had been isolated for 10,000 years. European settlers killed and imprisoned the natives and converted the survivors to Christianity. Meanwhile, dead Tasmanians' corpses were used for scientific research and put on display in museums. Harari wonders if Cook's expedition was a "scientific expedition protected by military forces, or a military expedition with a few scientists tagging along." He thinks science and empire are two sides of the same coin.

*Harari continues talking about Cook's "scientific expedition" to emphasize how much of it was actually focused on colonizing other territories to create a British empire. He stresses this to show that historical scientific expeditions weren't just neutral efforts to learn more about the world, so that he can bolster his claim that the scientific endeavor often serves the goals of empire building.*

During the Roman Empire, Western Europe was a "distant backwater" that nobody thought much of. By 1750, Western Europeans colonized many parts of the world. Even then, Asia dominated 80 percent of the global economy. By 1950, Western Europe and the United States accounted for over half the global economy. Harari thinks a "new global order" emerged from these shifts. He argues that even people who don't like Europeans are European in their dress, tastes, and thinking. Harari argues that many people credit scientists—and the technologies they developed, like railroads and machine guns—for the rise of European culture.

*Once again, Harari stresses that scientific research isn't neutral—it always serves a political or economic goal. He thinks that a lot of scientific research centers on developing new technologies, like railroads and machine guns, and that powerful people use those new technologies to dominate other societies. Harari encourages his readers to worry about the uses to which science was put in the past, so that they'll think more critically about the goals that science will serve in the future—and hopefully think more about whether or not those goals actually benefit them.*

Harari wonders why the British built the first railroad and not the Chinese or Persians. They clearly had the technology for steam engines too. Harari thinks the Chinese and Persians lacked the "values, myths [...] and sociopolitical structures" to push the agenda of industry. Specifically, Harari thinks Europeans favored science and capitalism, which gave them the edge. He thinks that even if Europe no longer rules the world, their values, centered on science and capitalism, do.

*Harari stresses that the pursuit of wealth (capitalism) often motivates scientific research. He even suggests that it often looks like science is driving humanity, but really, capitalist goals (making money) are driving the scientific endeavor behind the scenes. Harari (controversially) thinks that other societies outside Europe around the 1700s didn't have such capitalistic goals, so they didn't push the agenda of science as strongly as Europeans did.*

Scholars from many places made scientific contributions, but Harari thinks that the European imperial elites collated those insights. Harari thinks that European imperialists wanted to "explore" the world and learn things they didn't know. In 1831, the Royal Navy sent the H.M.S. *Beagle* to chart South America's coasts for military purposes. They took along Charles Darwin, who discovered the theory of evolution on that trip. Harari thinks about a story in which a Native American tribesman gives astronauts a message to take to the moon. When the astronauts translate the message, they realize it reads "Don't believe a single word these people tell you. They have come to steal your lands."

*Harari reinforces his idea that capitalism (the desire for profit and wealth) and empire (the desire for power and territory) actually drive scientific discoveries. He stresses, once more (leveraging the example of the H.M.S.* Beagle*) that many 19th-century "explorers" were fulfilling scientific and imperial goals at the same time. Harari uses the example of the Native American message to stress that humanity shouldn't trust the scientific endeavor—it's often empire-building in disguise.*

Before Christopher Columbus's voyage to the Americas, cartographers used to draw full and detailed maps of the Earth, according to their knowledge. After Christopher Columbus arrived in the Americas, Europeans began drawing **maps with blank spaces** in them, and traveling to places to fill them in. Harari thinks that other historical voyagers (like Chinese Admiral Zheng He, who explored the Indian Oceans at length), were different because he didn't try to conquer the countries he visited. Harari notes that the Romans never tried to conquer India, the Persians never tried to conquer Spain, and the Chinese didn't attempt to conquer Africa. The difference with Europeans is that they were driven by the desire to explore the world, and also to conquer it.

*Harari uses the symbol of maps with empty spaces to represent the scientific mentality. Before the Scientific Revolution, people assumed that religious scriptures already contained all the knowledge that humans needed (which Harari symbolizes with maps that are completely filled in, with no space set aside for uncharted lands). After the Scientific Revolution, people assumed that they were ignorant about the world and needed to acquire knowledge by exploring and observing it. For Harari, blank spaces in maps represent knowledge that's yet to be discovered. He subtly implies here that blank spaces in maps also represent territory to be conquered—showing that Europeans had a hard time separating their pursuit of science from their pursuit of empire.*

Harari thinks about Hernàn Cortés, who conquered Aztec Mexico in the 1500s. Spanish colonists had already committed genocide in most of the Caribbean, but the Aztecs didn't know about this. When Cortés arrived, the first Aztecs he met thought that Cortés was a peaceful visitor and they led him to Emperor Montezuma, whom Cortés took hostage. Cortés began controlling the Aztec empire through Montezuma. After several months, the Aztec elite rebelled against Cortés's rule, but Cortés convinced many other indigenous people to side with him. They thought Cortés would liberate them from Aztec rule, but they soon found themselves controlled by Spain, in a far worse regime.

*Although Harari has spent a lot of time arguing that empires are good for humanity because they unite people under a common social order, thereby facilitating widespread cooperation, he offers another picture of empires here. He emphasizes—through Cortés's efforts to seize power over the Aztec Empire—that empire-building is often fraught with brutal oppression. He also suggests that had the Americas already been a united empire, the Aztecs would have known what was coming (based on what Spanish colonists did to the Caribbean). Harari tries to show here that—for good or bad—empires tend to win out when they're competing with isolated societies.*

Then, 10 years later, Francisco Pizarro conquered the Incan Empire based on what he learned from Cortés's expedition. The Incans, who knew nothing about what had happened to the Aztecs, had no idea what was coming. Meanwhile, no Asian nations sent expeditions to the Americas. Harari thinks they were relatively unconcerned by the Europeans' conquests, until Europeans started infiltrating Asia. By the time Asian nations realized what the Europeans were up to, it was too late. Harari thinks that the only time other nations could defeat European rule was when their plights became globalized—like Vietnam's fight against the Americans. Harari wonders how Montezuma might have fared if he'd know about other nations and reached out for support against the Spanish.

*Harari stresses once more that empires tend to win out when they compete with isolated societies. He stresses that the Europeans' empire-building enterprise managed to defeat small isolated societies in the Americas, and it also infiltrated many established nations in Asia. Harari also thinks that Asian nations (who were already in contact with the European world) assumed that European explorers were just trying to do scientific research, so they didn't think of the Europeans as a threat. He suggests here, as before, that scientific projects often mask more sinister goals.*

Harari thinks that for modern Europeans, setting up empires and doing scientific research were deeply intertwined. When the British conquered India, they quickly scouted all the gold mines, but they also conducted biological surveys, discovered lost ruins, and deciphered ancient scripts. To Harari, the British imperial vision was marked by scientific curiosity. Harari thinks about British officer Henry Rawlinson, who went to Persia to help train the Persian army and also discovered ancient inscriptions in Old Persian, Elamite, and Babylonian carved into a cliff face, enabling him to "unlocked the secrets" of these ancient Empires. Harari thinks that without European imperialists, humanity wouldn't know about all these ancient empires.

*So far, Harari has focused on his worries about being too trusting of science. Many scientific projects actually serve other purposes—like making people rich or expanding nations' empires. Curiously, Harari changes tack here to argue that empire-building often yields scientific knowledge, which he depicts as a good thing. He suggests that British scientists were able to learn a lot about history from their imperial activities in Persia, and he suggests that it was beneficial for humanity overall.*

Another imperialist scholar, William Jones, discovered connections between Sanskrit, Greek, and Latin, and developed a methodology for linguistics. Harari thinks such pursuits of knowledge gave imperialists an advantage in their empires. Harari thinks the pursuit of scientific knowledge also made imperialists feel that their conquests were justified. Harari also thinks imperialists used their thirst for scientific knowledge for "sinister" purposes, like arguing that Europeans were superior to other races. The idea of European (or Aryan) racial superiority fueled many right-wing agendas in Europe, including the Nazi regime. Harari thinks modern Europeans are no different. He thinks about French politician Marie le Pen, who argues that Muslim cultures have backwards attitudes towards gender equality, and she uses the social sciences to justify her position.

*Harari continues weighing up the pros and cons of scientific discoveries that arose during European imperialism. On one hand, he thinks William Jones's research was good for humanity. But he also condemns research that tried to privilege some races over others. Harari thinks that modern politicians (like Marie le Pen) don't argue that some races are superior, but they do argue that some cultures are superior, and—like their predecessors—they use social scientific theories to back up their claims. Harari wants to show that scientific research is still being used to service political goals today.*

Harari thinks that without scientists, the European imperial project would not have been so successful. He also thinks that without imperialists, science wouldn't have developed as quickly as it did. Harari wonders about other factors that influenced the rise of science, like capitalism, which he's going to address next.

*Harari thinks that capitalism (the pursuit of profit and wealth) also influences the direction that science takes, and he worries about this too. He's going explain why in the following chapter.*

## CHAPTER 16: THE CAPITALIST CREED

Now considering modern economies, Harari notes that banks in the United States can give loans for 10 times the amount of money that's actually in their vaults. Harari calculates that ninety percent of the money in people's bank accounts around the world isn't actually covered by coins and notes. It seems like this sort of set up is a big fraud, but to Harari, it looks more like an exercise in human imagination. He thinks the "entire enterprise is [...] founded on trust in an imaginary future." The system of giving credit works because banks and people trust that they'll earn money in the future, to pay back loans. It essentially enables people to spend their future income today.

*Here, Harari looks at how capitalism creates wealth. It centers on the system of lending credit to entrepreneurs and then taking a cut of their profits later. Harari emphasizes here that capitalism is an imagined order—it's a system in which people trust that businesses will generate wealth in the future, so they cooperate by investing in new ventures in the present. As before, Harari stresses that capitalism (like all imagined orders) works because it makes strangers cooperate.*

Credit has existed in human cultures for a long time, but Harari thinks that in the past, humans didn't trust in the future as much, so they were more cautious about extending it. This meant that it was harder for poor people to finance their ideas for future wealth. To Harari, the Scientific Revolution made people believe that humans don't know things, but they can learn them and improve, which made them believe in progress. This idea, he thinks, also had force in economic circles. People began trusting in the future, extending credit, and allowing businesses to grow.

*Harari thinks that the scientific attitude of building knowledge by exploring, learning, and discovering facts about the world made humanity shift into a mindset of believing the future would be better than the past. This belief, he thinks, encourages lenders to trust in the future and feel more confident about extending credit to businesses. He stresses this to show that scientific thinking bleeds into all aspects of society, like economic practices.*

In 1776, Scottish economist Adam Smith published *The Wealth of Nations*. Smith argued that when businesses make more profits, they can expand their businesses, and therefore generate more wealth for everyone. This is the basic principle of capitalism. Of course, Smith assumed that people would use their profits to invest in society, not hoard the money for themselves. To Harari, this idea of reinvesting profits and increasing productivity is a very modern idea. Harari thinks that capitalism began as a theory but it soon grew into an "ethic—a set of teachings about how people should behave, educate their children, and even think." Harari sees capitalism as a "new religion."

*Harari argues here that capitalism is an imagined order. He stresses that Smith's book,* The Wealth of Nations, *sets out a set of rules that tell people how to cooperate so that society can flourish. The book, in a sense, functions like a religious text or scripture—it centers on a belief that amassing money through trade will make societies flourish, and it encourages societies to organize themselves around that principle. Harari thinks that since the book's publication, many societies have shifted towards organizing themselves to maximize earning wealth from trade, so much so that it affects all aspects of modern living—it even shapes what students study, the kind of work that people in a society do, and the goals that they work towards. Harari, thus, thinks that capitalism is an extremely powerful imagined order.*

Capitalism, says Harari, has a profound influence on modern science. Private businesses often fund scientific research when they think it will improve their profits and help their businesses expand. He thinks capitalism also depends on science—banks keep pumping credit into the economy, desperately waiting for scientists to come up with the next big money maker before their credit-bubble bursts.

*Harari stresses that businesses and corporations often fund scientific research when they think its discoveries (like new technologies) will allow them to gain wealth. As before, Harari argues that science is never just a neutral endeavor centered on learning about the world. Here, he emphasizes that science often serves economic goals like the pursuit of wealth.*

Harari thinks that before the 18th century, when Asian societies dominated in the global market places, kings looked down on merchants, and they funded their efforts through taxes. In Europe, however, which was poorer, kings had to think more like merchants, and invest in lucrative ventures to generate wealth. Columbus, for example, needed a financer for his grand plan to sail around the world, and he pitched the idea like an entrepreneur to several kings and queens. Queen Isabella of Spain took the gamble, and she ended up generating wealth for all of Spain by conquering the Americas. Subsequent generations extended even more credit—because they trusted that investing in the Americas would pay off.

*Harari underscores capitalism's power as an imagined order (a set of rules for how societies should function) by showing how it began to infiltrate pre-existing imagined orders (like the divine right of royalty to rule). He shows that Queen Isabella shifts from acquiring wealth by seizing taxes from her subjects (based on the belief in a God-given right to do so) to investing in a potentially lucrative project—showing that her choices mirrored the way that capitalism works.*

In the 16th century, the Netherlands was a small "swamp" under Spanish control. The Dutch revolted in 1568, and within 80 years, they'd built an empire that surpassed Spain's. Harari thinks the Dutch's secret was credit. They financed their armies and fleets by convincing other rich kings and queens to bankroll them in exchange for future profits. Harari wonders why the Dutch were so good at getting others to trust them. He says they were known for repaying debts in full, and on time. Dutch laws also protected individual property against the whims of the Dutch king. This enabled private Dutch entrepreneurs to use their property as leverage to strike deals, meaning the merchants—and not the kings—built this empire.

*Harari shows that capitalist thinking shaped a bourgeoning nation (the Netherlands) in the 1500s. He emphasizes that capitalism is a powerful imagined order. By seeking credit to fund new business ventures, the Dutch managed to cooperate (with each other and with other nations) on a grand scale, effectively made their society flourish into a colossal empire. The rise of the Dutch empire made many nations in Europe shift to a similar model. As before, Harari notes that imagined orders tend to stick when they're effective at facilitating cooperation and making societies thrive, not because they're fundamentally true or fair.*

The Dutch stock company Vereenigde Oostindische Compagnie (VOC) even hired armies and built forts, effectively colonizing Indonesia, solely for commercial purposes (to trade goods from Indonesia with Europe). Another Dutch company, the Dutch West Indies Company (WIC) colonized a part of the Americas for trade purposes. Their land eventually fell to the British, and became New York. The Mississippi Company (a French company) also colonized part of the Americas (creating New Orleans) purely for commercial purposes—the company sold shares to finance its efforts, but ended up causing a huge stock market crash when people lost confidence in the project, which sent the entire French nation into a recession. Many British imperialist exploits were also privately funded commercial initiatives.

*Harari expands on the activities of the Dutch (and other European nations) to show that once capitalist thinking became entrenched in the human populace, it began to take over as the dominant imagined order. In the past, individuals in a society would help their ruler to conquer territory because they believed it was their ruler's divine right to do so. Here, individuals start investing in companies that conquer territory because they think it will make them rich. Harari thus shows how capitalism (and faith in businesses) began to replace monarchies (and faith in kings and queens).*

Companies and corporations also gained power on their home turf, Harari explains, noting that they even convinced governments to fight wars for commercial reasons. After the Chinese government banned opium trafficking in the 1840s, they began seizing private British drug merchants' opium supplies. The merchants lobbied the British government to declare war on China—and they did, thereby seizing control of Hong Kong until 1997. In the 1800s, Greeks seeking independence form the Ottoman Empire also sold bonds on the London Stock Exchange to finance their rebellion. They eventually gained independence, but became indebted to Britain for decades as a result.

*Harari continues explaining how capitalism displaced other imagined orders by showing how capitalist interests began to shape government activities. Here, he shows how governments begin making choices (and even starting wars) to protect the interests of businesses that generated wealth for the nation. Harari wants to stress that capitalist thinking is so pervasive that it has completely shaped the modern world—it even establishes nations on the basis potential monetary gains.*

Harari thinks about people who believe in the free market, and they argue that governments shouldn't regulate, tax, or otherwise interfere with trade. Harari thinks this a really naïve perspective. Harari thinks capitalism only works if people don't cheat the system—because cheating, lying, and defrauding people causes a lack of trust, which makes markets crash. He believes that governments should intervene in the market to ensure that people can still trust the system. Another thing that governments can do is make sure profiteers don't exploit their workers. He thinks about the African slave trade, which Europeans used in their new plantations in the Americas—all to make more profit.

*Harari discusses some of the social problems that capitalism has caused—like creating the African slave trade for monetary gain—to show, as before, that imagined orders (rules for how a society should function) tend to work because they're effective at making people cooperate, and not because they're good for humanity. He thinks every imagined order tends to privilege some people and oppress others, and he argues that capitalism is no different in this regard.*

Harari thinks about a Belgian "humanitarian" mission to the Congo. King Leopold II of Belgium set up an organization to flush out the slave trade in the Congo, but his organization ended up seizing 1.4 million square miles of the Congo basin, and forcing the locals to farm rubber in exchange for protection from slavery. When the locals didn't produce enough rubber, the organization punished them by chopping off their arms or killing them. Harari thinks that capitalism, like the Agricultural Revolution, might turn out to be a "colossal fraud"—the economy keeps expanding, but people are more miserable.

*Harari uses another example (the Belgian subjugation of the Congo) to reinforce his claim that capitalism, like all imagined orders, is effective at getting people to rally around an idea (like gaining wealth through trade) and cooperate, but it's not necessarily good for humanity. He emphasizes the persecution of native communities in the Congo to show that capitalism also posits a hierarchy—one in which business owners thrive, but workers are often forced to cooperate, and they're badly exploited.*

## CHAPTER 17: THE WHEELS OF INDUSTRY

Modern industrialization creates a wealth of new raw materials for capitalists to invest in, like titanium and plastic, which didn't exist before the world shifted from farming to industry. Farming-based societies also relied on manual labor to move things around—to carry sacks, water crops, and so on. Then people discovered that heat creates steam, and steam can move things. It literally pushes lids off pots of boiling water, for example. People started inventing machines that burn fuel to boil water and generate steam, which pushes pistons and creates motion, like the steam engine. Eventually, humans realized that using steam to rotate copper coils surrounded by magnets creates electricity. When steam-powered motion took replaced manual labor, the Industrial Revolution happened.

*Harari begins addressing another turning point in human history—the Industrial Revolution. He suggests that industrial societies are very similar to farming-based societies: they effectively just do more of the same thing, but much faster. He also thinks that many of his claims about human and animal suffering in farming-based societies also apply to industrial societies. He'll spend this chapter arguing that, like farming-based societies, industrial societies don't make life happier for humans or animals, meaning they're not better than ancient foraging societies, but worse.*


Harari thinks the Industrial Revolution was revolutionary in discovering new energy sources. Humans can now use fossil fuels, solar, water, gravitational, and nuclear energy. During the Industrial Revolution, people realized that there are near-infinite energy resources in the world. In searching for new energy sources, chemists discovered new materials like plastic and aluminum. In World War I, the Germans even discovered a way to create explosives using ammonia generated out of thin air.

*Harari explains that the Industrial Revolution oriented humans towards seeking energy from the natural environment. Similarly, the Agricultural Revolution (the advent of farming) oriented humans towards seeking food (crops) from the natural environment. Both approaches center on taking things from the habitat to increase resources for humans. Overall, Harari thinks this attitude makes humans exploit the ecosystem and other creatures in it, which he'll explain next.*

The Industrial Revolution, Harari explains, shifted humanity into a world brimming with "cheap and abundant" energy and raw materials, leading to a colossal expansion in "human productivity." Many of the first machines invented were used to automate farming processes, so Harari likes to think of the Industrial Revolution as the Second Agricultural Revolution. Today, humans even mass produce animals as if they are objects on a production line, and their quality of life is entirely determined by profit and loss tables, not their psychological needs.

*Harari thinks that humans began automating the way they derive resources from the ecosystem after the Industrial Revolution—but that even animals were considered resources. He finds it deplorable that humans treat animals like mass-produced objects, particularly because this attitude ignores animals' well-being and makes them suffer tremendously. He thus argues that the Industrial Revolution (like the Agricultural Revolution) made life much worse for many animals on Earth.*

Harari thinks about egg-laying hens, who have instinctive urges to forage and peck, yet egg companies lock them in cages so small that they can't even flap their wings, let alone forage. Farmed pigs too, which are almost as intelligent as great apes, often spend their lives in cages so small that they can't turn around. Harari thinks cows are treated like machines with mouths that take in food and udders that produce milk. He thinks it's a shame that creatures with inner mental lives have to experience so much physical and psychological discomfort.

*Harari uses examples of hens, pigs, and cows in factory farming to show how cruelly humans treat them—it bothers him that humans don't ever think about such animals' happiness or emotional well-being. He suggests here that modern humans are extremely cruel and abusive to such animals, and he finds this unacceptable because animals are intelligent, and suffer psychological trauma when they're treated so poorly.*

Harari notes that calves have instinctive urges (driven by evolution) to bond with their mothers. In the wild, such instincts are necessary because they help keep animals alive. In the modern agricultural industry, the calves won't die without such bonding, but Harari thinks they must suffer immeasurably. American psychologist Harry Harlow devised an experiment in which monkeys were raised by metal imitation-monkeys that dispensed milk. Despite having their food needs met, the monkeys grew up to be disturbed and couldn't reintegrate into monkey societies. Harari thinks about the millions of animals that are separated from their mothers in the farming industry, and he notes that 50 billion animals are slaughtered in the farming industry every year.

*Harari cites scientific studies to prove that animals suffer deep emotional trauma when they're kept in captivity in factories. As before, he thinks humans are cruel and abusive in depriving farmed animals of their basic social and emotional needs, and he suggests that life is far worse for such animals than it was when humans were foragers. He thus stresses that the Agricultural and Industrial Revolutions were not steps forward for the world's living ecosystem, but steps backwards, because they cause tremendous suffering—not only for humans, but for animals too.*

Harari notes that modern capitalism keeps pushing to produce more—but somebody also has to buy the things that companies produce. Historically, he thinks, living frugally was highly valued. Today, consumerism is far more highly valued. Consumerism teaches people that being indulgent is "good for you." Harari says that in the past, the rich lived extravagantly and the poor lived frugally. Today, he thinks the rich take care to manage their assets while those who are less wealthy go into debt to buy things they don't need. Harari thinks the capitalist-consumerist ethic is a complete break with the past—historical religions told people they would reach paradise if they were modest and unselfish. Consumerism tells people they'll be happy if they indulge themselves.

*Harari explains that capitalist societies tell humans that indulging themselves, purchasing, and consuming, products is "good for [them]" because it will make them happy. This is a relatively new idea that gained popularity with the rise of capitalism as an imagined order. People effectively cooperate with countless other strangers by working hard to earn money to buy things, which keeps the society flourishing. Harari actually thinks this way of life makes people suffer. He underscores that imagined orders tend to stick when they make people cooperate, but they're don't necessarily make people happier.*

## CHAPTER 18: A PERMANENT REVOLUTION

Harari thinks about how the world has changed since the Industrial Revolution. He thinks humans cut down forests, built skyscrapers, and changed the ecosystem into a "concrete and plastic" shopping mall. He also thinks Sapiens keep increasing in population, while wild animals dwindle. He imagines a future in which humans keep finding new energy sources while destroying the natural ecosystem and making "most other species" go extinct. He even wonders if the pollution, global warming, and ecological destruction that humans cause will end up endangering *Homo sapiens* survival, too. At the moment though, it seems like we just keep growing in numbers. In the last 300 years, the human population has grown from 700 million to almost 7 billion.

*In this passage, Harari revisits the idea that humans are deadly creatures who wreak havoc on the ecosystem and destroy countless plant and animal species. He explains here that industrialization made humans radically alter the natural landscape, which upsets many living ecosystems and drives animals to extinction. He warns against continuing on this path of relentless population growth and industrial production because he thinks such behavior is reckless—it might even end up causing humanity to go extinct.*

People in industrialized societies view time differently than people in agricultural societies did. Farmers thought about natural seasonal cycles, which Harari thinks are somewhat loose. Factory workers, in contrast, regulate every minute of their day with precision. To Harari, the industrialized world seems increasingly concerned with timetables on a global scale—to get people to work on time, or enable trades on the international stock exchange. Clocks are everywhere, and a typical person checks the time constantly throughout their day. Although the Industrial Revolution profoundly changed the way humans deal with time, Harari thinks its biggest impact is on the role of family and community in modern life.

*Harari suggests that people in agricultural societies lived with a looser, more relaxed sense of time. Industrialized workers (and people in modern societies in general), in contrast, are constantly policed by time—every minute of a modern human being's day is regulated or controlled by time. He thinks this makes people stressed and unhappy, and he suggests that earlier times in history caused people far less stress. He effectively thinks that as cultures develop and get more complex, people get unhappier, and they suffer more.*

Harari pictures life before the Industrial Revolution. Daily life, he thinks, revolved around the family and the local community—they took care of each other's work, health, education, disputes, and more. If somebody got sick and needed help, their neighbors would pitch in without demanding payment, and the sick person would return the favor down the line. Rulers didn't intervene in the daily lives of peasants, and they even encouraged them to manage their own disputes. Harari also thinks some people must have suffered if they had mean family or community members, and they had no other support system if they lost all their family or were shunned by their community.

*Harari argues that people lived in much more closely knit communities before industrialization. He weighs up the pros and cons of living in a tight community, and he ultimately decides that most people who lived in close communities had strong support systems, which made them feel nurtured. Harari raises these issues because he's about to argue that modern societies fracture communities to privilege individual freedom. Then he'll compare the two approaches to life, to see which makes people happier.*

Life looks very different today. Harari thinks states encouraged people to "Become individuals," in order to disrupt the power of family and community. States promised people the freedom to marry who they wanted, do the work they wanted, and have pensions, healthcare, and security without needing their communities. Some people, however, feel isolated by this newfound individual freedom. Harari thinks that in many cases, the state exploits and persecutes people instead of protecting them. He's amazed that the "deal" works, considering we've spent millions of years evolving to favor communities.

*Modern societies tend to celebrate the idea of "individuals" who are free to do whatever they want in life, and societies incentivize humans to abandon their community networks by promising them that the state (rather than their communities) will take care of their needs. But Harari is not sure that this shift from communities to individual freedom actually increases human happiness.*

Harari thinks the state and market took over many roles that families and communities would fulfil. People no longer court each other in their parents' living rooms and exchange dowries, they court each other in bars and exchange money with waiters. The state can even take children away from their parents. They do this by creating "imagined communities" of people that don't really know each other, but they imagine that they tied together by national bonds. National symbols and myths make people imagine that they're tied together as one community. National borders—like those between Syria, Iraq, and Lebanon—are decided by diplomats, not community ties, which is why Kurdish people are dispersed across borders.

*Harari suggests that nation states impose a new imagined order on individuals that replaces the model of community. The state encourages people abandon their local communities and increasingly see themselves as members of one national community. As before, Harari stresses that the idea (or imagined order) of a "nation state" is invented, and it tends to work because it makes people cooperate. Again, Harari notes that every imagined order posits a hierarchy (fractured communities and stateless people suffer the most under imagined orders that slice up the human populace into nation states).*

People who don't know each other also create imagined communities through consumerism—like being fans of a certain singer or sports team. Social structures like family units are far more rigid than such commercial tribes. Harari thinks today's social orders are much more "malleable" in nature, and most people today assume that social orders are flexible, and that they can be changed for the better. Before, Harari says, people saw social orders as than rigid structures focused on preserving the past. Rigid social orders often collapse into violence when they're threatened, but malleable social orders accommodate change. Harari thinks this makes modern society less violent than earlier societies.

*Harari suggests that consumerism (buying things) is also an imagined order (a way of connecting disparate people under a common set of values). People who don't know each other at all will tend to trust each other if they like the same singers or sports teams, which makes them more likely to cooperate. Although Harari has mostly argued that humans are generally unhappier than they were in the past, he admits here that modern societies are less violent than earlier societies, which might make life better off for some people. Despite this, Harari will ultimately decide that overall, humans are unhappier than they used to be.*

Many people assume the world is more violent than it used to be, but Harari disagrees. He says that people no longer go to sleep feeling fearful that a neighboring tribe will burn down their village. The decline in violence, he says, is directly connected to the rise of the state. Kingdoms and empires rein in violence and stop local feuds. Harari acknowledges that state security forces do kill, imprison, and torture people, though. Nonetheless, he thinks only one or two percent of a population suffers like this.

*Harari continues discussing violence in human societies to reinforce the idea that violence has actually decreased over time, and that human societies are far more peaceful than they used to be. Although he suggests here that some aspects of human society are indeed getting better as time progresses, he'll eventually conclude that humanity is overall worse off than it used to be.*

Harari even thinks that empires have been relinquishing global control without a fight since 1945. He thinks there was a lot violence in the British withdrawal from India, but he decides that overall, it was a relatively peaceful affair. The collapse of the Soviet empire in 1989 also caused a lot of regional conflicts in the Balkans, but Harari thinks the Soviets retreated from power somewhat peacefully once they realized their Communist economy had collapsed. Harari thinks that nations also no longer seek to conquer territory or invade each other the way they used to. He can't imagine Germany and France going to war in the foreseeable future, for example. Harari wonders why this is the case.

*As before, Harari stresses that the world is less violent than it used to be. Harari believes that conflict between nation states is lower than in the past because the world is uniting under more common imagined orders (networks of connection through which people cooperate). People tend to cooperate by trade goods and services globally, for example, which them less inclined to instigate conflicts with other nations.*

War, Harari explains, isn't as profitable as it used to be. In the past, nations amassed wealth by invading other nations and physically stealing their gold. Today's wealth, in contrast, is tied up in technological entities like Google. Harari finds it hard to imagine China invading California to steal Google. Global commerce, he thinks, makes people in different nations more connected, which makes them less inclined to wage wars on each other. Harari thinks a global empire is forming, and that means world peace is likely. Nonetheless, Harari acknowledges that the future could still go either way.

*Harari suggests that capitalism (producing and selling goods and services to generate wealth) is uniting the world into one global community that cooperates by trading goods and services to generate wealth. This replaces the need for nations to attack each other and steal their wealth. Harari even speculates that capitalism might become so powerful as an imagined order that it makes the whole world cooperate to such an extent that wars will become a thing of the past.*

## CHAPTER 19: AND THEY LIVED HAPPILY EVER AFTER

Harari thinks the world has changed dramatically since the Scientific Revolution, but he wonders if people are actually happier as a result. He thinks about earlier periods in history, and he wonders if ancient foraging Sapiens were happier. He thinks most current ideologies don't think about human happiness properly. Capitalists think the free market will make people happy. Communists think the opposite. Most scholars assume that modern humans have achieved so much, so we must be happier than people in hunter-gatherer societies, but Harari's not convinced. He thinks that peasants had to work harder than foragers, but they got less nutritious food and more disease out of it.

*Although many scholars argue that life has been improving over time for humankind, Harari disagrees. He thinks that the more societies progress, the unhappier people become. In this chapter, Harari is going to discuss multiple ways of measuring happiness to show that in each case, the modern human is much unhappier than humanity's ancestors were—even though humans today live wealthier, more luxurious lives than our ancestors did in the past.*

Some scholars romanticize the past and think that a comfortable middle-class person could never be as happy as a forager enjoying the thrill of the wild. Harari is hesitant to over-romanticize the past. He recalls that child mortality rates are much lower and humans have modern medicine nowadays. But he also thinks about famines, which plagued modern societies until the 1950s, and the miserable lives of nineteenth century coal miners. Then he thinks about ecological destruction and the misery of other animals. He thinks it's a mistake to only think about human happiness, or the happiness of the upper classes.

*Harari acknowledges that ancient foragers' lives were not free from suffering—child mortality rates were much higher, and modern medicine was nonexistent. Nonetheless, he still thinks that as history has progressed and human societies have evolved, humans have consistently grown unhappier. Harari also thinks that the more powerful humans become, the more other animals suffer. Overall, thus, Harari thinks the present is not better than the past, but worse.*

Now, humans tend to be richer and healthier than they were in the past, but Harari's not sure if those qualities makes people happier. He wonders if rich people feel alienated and bored. He also wonders if people living in small, tight-knit communities felt more content than people in large nations. He decides he needs a way to measure happiness, so he can figure out how to weigh all this up. Harari thinks about psychological studies into "subjective well-being" (surveys that assess how positive people feel about their lives). Such studies generally conclude that money increases happiness and illness decreases it, but Harari's not so sure that's true.

*Some scholars argue that wealth, health, and strong communities make people happy. Here, Harari disagrees. He thinks that having low expectations about life makes people happy, and that modern humans have over-inflated expectations about life, which makes us deeply unhappy. He's going to look at various methods of measuring happiness to show wealth, health, and community don't affect a person's happiness—so, to Harari, such factors are irrelevant.*

Money will definitely help people who struggle financially feel better, Harari explains, but he thinks that once a person is already wealthy, more money doesn't make them happier. He also decides that illness causes short-term unhappiness, but people with chronic conditions still live happy lives. Psychological studies also show that family and community have a deep impact on human happiness. Harari wonders if the collapse of the family and community in the last 200 years offsets the happiness that wealth and medicine provide. Harari thinks about this a bit more, and he decides that happiness doesn't actually depend on external factors like "wealth, health, and community." He thinks happiness depends on a person's expectations.

*Harari thinks that wealth and health do affect a person's happiness to some degree, but not enough to make a substantive difference to their overall well-being: he thinks that many rich people are unhappy, and many sick people don't let their diseases make them unhappy. He also thinks that a person can be happy in a community and on their own. He decides that what really matters is a person's expectations. Effectively, Harari thinks that people who want too much out of life end up unhappy. He'll unpack this idea a bit more in the following sections.*

Harari thinks that a peasant who wants a new cart and gets one will be happy, while a person who wants a Ferrari but can only afford a Fiat will be unhappy. He decides that "when things improve, expectations balloon," which can leave people unsatisfied. He decides that modern humans have "an arsenal" of resources like painkillers and modern conveniences, but we have high expectations that our lives will be easy and fun, and we don't tolerate inconveniences well, so we're probably unhappier than our ancestors were.

*Harari thinks that modern humans have very high expectations that our lives will be easy, fun, and painless, but real life is often difficult—and when it is, that makes us feel disappointed and discontented. Harari thinks that ancient humans had more realistic expectations about enduring hardship in their lives, so they coped with it better, leaving them happier overall.*

Harari suggests that mass media and advertising also inflate human beings' expectations, leaving us discontent. He thinks a teenager in a village 5,000 years ago would probably think they're good looking, because they'd be comparing themselves to others in the village, most of whom would be old and wrinkly. He imagines teenagers today comparing themselves to movie stars and supermodels on Facebook and feeling miserable. Harari wonders if the quest for immortality will leave humans discontented. He imagines science curing all diseases—then he imagines a bunch of angry poor people who can't afford the new treatments, and a bunch of anxious, rich, disease-free people who are terrified to take risks in case they die by accident.

*Harari uses the example of teenagers comparing themselves to movie stars on Facebook to suggest that modern humans constantly compare themselves to the world's elite, which gives them inflated expectations that they too can be rich and powerful. In actuality, the vast majority of people won't achieve fame and riches in their lives, but if they expect that they will, they'll spend their lives disappointed. Harari thus suggests that modern humans (unlike our foraging ancestors) have unrealistic expectations about life, which causes deep unhappiness.*

Biologists also conduct surveys on human happiness. To them, houses, cars, and true love don't make people happy. Hormones do. Evolution has molded humans to feel sensations of pleasure when we do things that help us survive (like eat or mate), but only for a short while—so that we keep doing those things and stay alive. Some people also have better biochemical luck—their bodies generate more of the pleasure-inducing hormone (serotonin) than others. Harari thinks that a person without enough serotonin will never be happy, no matter how rich they are.

*Harari explores another approach to measuring happiness. A biochemical approach suggests that a person feels happy when they have a lot of serotonin in their body. Harari brings up serotonin because he thinks there's no reason to assume that modern humans have more serotonin in their bodies than ancient humans, so there's no reason to believe that they're any happier.*

Harari compares a medieval French peasant who lives in a mud hut next to a pigsty and a modern Parisian banker who lives in a luxury apartment on the Champs-Elysées. Intuitively, it seems like the banker would be happier, but Harari disagrees. When the peasant finishes building his house, his brain secretes serotonin, making him happy. When the banker pays for his luxury apartment, his brain also releases serotonin—but Harari thinks there's no reason to think the banker's brain secretes more serotonin. That's why, Harari thinks, companies invest in research into products like Prozac, which makes people's brains produce more serotonin.

*Harari underscores his claim that modern humans don't have more serotonin in their bodies than ancient ones. He argues that whether a person builds a mud-hut or buys a penthouse, once they finally have a dwelling, they'll experience a serotonin rush. To Harari, there's no reason to believe that one experience releases more serotonin than the other. In other words, even though it looks (from the outside) that a peasant living in a mud-hut life looks like they have a more miserable life than a rich banker living in a penthouse, there's no reason to assume that the peasant is actually unhappier on the inside.*

Harari thinks the situation with happiness isn't so cut and dry. He wonders if happiness is more like feeling your life is meaningful. Medieval people, for example, had tough lives overall, but were typically religious, meaning they believed their lives had meaning because they were working towards heavenly bliss, even though they were deluded. He thinks many modern, secular people probably feel like life is a lot more meaningless. Harari thinks all attempts to ascribe meaning to one's life are somewhat delusional. He wonders if happiness depends on self-delusion.

*Harari also suggests that there are many secular people living in modern societies, while people in the past tended to be more religious. Harari thinks that many modern, secular people feel like their lives are meaningless, because they have no afterlife to look forward to. So, as before, even though from the outside, the medieval peasant's life looks more miserable than the modern, affluent, secular person's life, the peasant might actually be better off emotionally. This means that the modern person is not necessarily happier than their impoverished ancestor's life, even if modern life looks more comfortable from the outside.*

Harari thinks that modern society privileges the individual, and tells people to trust their inner voices. Historical religious societies, in contrast, told people *not* to trust their inner urges and control their desires. Buddhists argue that the cycle of emotions makes people suffer. They think people are freed from suffering when they learn that feelings are impermanent, stop constantly craving them, and feel serene and calm instead. Harari considers all of these approaches to defining happiness, and he decides that many of them conflict with each other—it's not even clear if people should trust their own feelings or not. He concludes that scholars have a lot more work to do to figure out this happiness business.

*Harari argues that it's actually really difficult to pin down exactly what happiness is, and there are lots of different views about it. This means that it's difficult to assess happiness levels in the human population—both historically and in the modern day. Despite his hesitations, Harari will still ultimately conclude that ancient foragers were happier than modern people, mostly because he thinks ancient foragers didn't have such high expectations in life, and therefore felt less disappointment on a day-to-day basis.*

## CHAPTER 20: THE END OF HOMO SAPIENS

Harari thinks about the future of *Homo sapiens*. He thinks our species has long tinkered with nature—our ancestors, for example, realized that they could breed fat hens with slow cocks and yield fat, slow offspring that were easier to catch. Today, scientists in laboratories are engineering living beings. Brazilian artist Eduardo Kac even paid a laboratory to breed him a fluorescent rabbit. The lab did it by implanting fluorescent jellyfish DNA into a rabbit embryo. Harari thinks about three types of biological engineering: biological enhancement (such as mixing DNA), cyborgs (adding inorganic parts to organic beings), and artificial intelligence (inorganic life).

*In this chapter, Harari will discuss new scientific experiments that may seem exciting, but actually terrify him. He's deeply worried about scientists who play around with altering the human body. Harari ultimately wants his readers to be cautious about accepting such new technologies into their lives, because to Harari, they all look quite dangerous, and he thinks they might not be good for humanity in the long run.*

Biological engineering is quite common in human societies. Humans even used to castrate young men so they'd have soprano singing voices. Nowadays, however, scientists can do a lot more. They even engineered a mouse with a human ear growing on its back. Harari worries about governments who might try to genetically engineer superior beings that can subjugate the rest of humanity. He also worries about animals being mistreated in laboratory experiments. Geneticists are even trying to extract Neanderthal DNA from the human genome and resurrect the Neanderthals. Harari wonders why they want to do this. He also worries about geneticists tinkering with human DNA so much that they turn *Homo sapiens* into something else entirely.

*Harari discusses efforts to revive extinct species like Neanderthals, and he also discusses efforts to enhance human bodies by altering our DNA. Both types of experiments terrify Harari: he worries that tinkering with human DNA might end up creating new species that will usurp humanity's position at the top of the food chain. He warns the reader to be cautious about supporting such scientific experimentation, because it might end up causing humanity to suffer, or even go extinct.*

Cyborgs are living creatures whose bodies are enhanced with artificial technology. For example, DARPA (a U.S. military research agency) is currently funding research into insects embedded with computer chips, so that they can fly behind enemy lines and transmit information back to the US government. Harari ponders cyborg technology like hearing aid implants and thought-controlled detachable bionic limbs. Scientists are also working on a way for brains and computers to directly interface. He imagines people linking their brains up through interfaces that let them experience other people's memories. Harari suggests that such changes would be so radical, it's hard to anticipate how they might affect humanity.

*Harari discusses government's efforts to plant computer chips inside insects for surveillance purposes. Here, Harari reminds the reader that powerful people (governments and corporations) tend to fund scientific research that will help them amass money or power—often without thinking about whether or not such research is actually good for humanity. He thinks it's dangerous to create new technologies that might fundamentally alter the way humanity functions—since they might end up making life worse for many people on the planet.*

Harari thinks about machine learning and artificial intelligence next. He imagines remarkable machines that can play chess or invest in the stock market far better than humans can. Then he imagines technology that allows people to upload their brains to a hard drive. He wonders if the digital brain would have thoughts and feelings too. Harari thinks it's foolish to overlook the possibility of intelligent, inorganic beings being part of the world in the future.

*Harari also worries about scientific research into artificial intelligence. He worries about a future in which artificially intelligent computers take over humanity's position at the top of the food chain, and they end up enslaving humans, making life worse for humanity overall.*

Harari worries about the "breakneck speed" of developments in bioengineering, cyborg technology, and artificial intelligence. He worries about employers asking prospective candidates to send their DNA samples instead of their CVs, and whether this would lead to genetic profiling. He also worries about companies fiddling with bioengineering and creating entire new species of animals for profit. He worries about advances in medicine that create a "superhuman elite" who might subjugate the rest of humanity. He wonders if *Homo sapiens* are on the precipice of a new dawn—an age of machines that will take over the world and eclipse our status at the top of the food chain.

*Here, Harari restates his position about emerging technologies: his central concern is that scientific experiments that alter human DNA, change human bodies, or increase machine intelligence might end up creating a new species (or, a biologically or mechanically advanced "superhuman elite") that will subjugate the rest of humanity and cause widespread misery. In other words, Harari is worried that life (for both humans and other animals) will only keep getting worse as science progresses.*

Harari knows that a lot of what he says is speculation, and he doesn't want to alarm his readers. But he does wonder about what the future will look like with new beings in it that surpass Sapiens. He wonders what political and ethical systems such beings would adopt. Most scientists say they're doing research to cure disease or save lives. Harari worries about this, and he thinks that the rest of humanity should try and influence the direction that scientists take, before it's too late.

*In Harari's mind the scientific future doesn't look bright—it looks terrifying. He wants people to be cautious about embracing emerging technologies, especially when such technologies alter the human body. He encourages the reader to be more active in speaking up against such technologies before they take over and make humanity miserable.*

## AFTERWORD: THE ANIMAL THAT BECAME A GOD

Sapiens used to be one animal among many, living in a remote corner of Africa 70,000 years ago. Today, Sapiens almost function like gods: creating new life-forms, seeking immortality, and ruling the world. Harari thinks that so far, Sapiens have done a lot more damage than good. Humans have built empires, but he's not sure they've improved humanity's well-being. Harari concludes that humans are more discontent than ever, and we don't know what we want, which ultimately makes us a danger to ourselves.

*In the Afterword, Harari considers the entire range of human history that he's covered so far, starting with human life 70,000 years ago to the present day. Although many scholars assume that human societies have progressed with time and that humanity is thriving because we're so populous and advanced as a species, Harari disagrees. He's convinced that humans have been getting consistently unhappier as our societies have become more complex. He also thinks that humans have made life increasingly miserable for other animals as we've become more powerful. In the end, the project of humanity looks to Harari like a failure, because he thinks that there's more unhappiness in the world now than there likely was in the ancient past.*

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