1-Page Book Summary of Sapiens

In Sapiens, Yuval Noah Harari uses concepts from physics, chemistry, biology, and history to tell the story of us, Homo sapiens.

Our history is punctuated by four major revolutions: The Cognitive Revolution, the Agricultural Revolution, the Scientific Revolution, and the Industrial Revolution. We'll look at each revolution and how it dramatically redirected the course of human history.
The Cognitive Revolution

2.5 million years ago, *Homo sapiens* was just one of eight human species. The first major revolution for Sapiens was the Cognitive Revolution 70,000 years ago. Before that point, Sapiens weren't particularly special and weren't superior to the other seven human species. The Cognitive Revolution involved the development of three new abilities, all related to language, that helped *Homo sapiens* outpace their fellow humans.

**Ability #1: Flexible Language**

One reason the language of Sapiens was different was that it was more complex. Rather than communicating simple ideas the way green monkeys do ("Careful! A lion!" or "Careful! An eagle"), the language of Sapiens could warn someone about a lion, describe its location, and plan how to deal with it. This allowed them to plan and follow through on complex actions like avoiding predators and working together to trap prey.

**Ability #2: Gossip**

A second distinction of the Sapiens language was its ability to convey gossip. We think of gossip as a bad thing, but using language to convey information about other people is a way to build trust. Trust is critical for social cooperation, and cooperation gives you an advantage in the struggle to survive and pass on your genes. Sapiens could form groups of up to 150 people. They didn't need to know every group member personally to trust them. In a battle, a small group of Neanderthals was no match for a group of 150 Sapiens.

**Ability #3: Fictions**

A third benefit of the Sapiens' language was how it was used to create fictions, also known as "social constructs" or "imagined realities."

Being able to communicate information about things that don't exist doesn't seem like an advantage. But *Sapiens seem to be the only animals who have this ability to discuss things that don't have a physical presence in the world, like money, human rights, corporations, and God.*

**Collective Fictions**

In and of itself, imagining things that don't exist isn't an asset—you won't aid your chances of survival if you go into the forest looking for ghosts rather than berries and deer.

What's important about the ability to create fictions is the ability to create collective fictions, fictions everyone believes. These collective myths allow people who've never met and otherwise would have nothing in common to cooperate under shared assumptions and goals.

Although imagined, these myths are crucial. **Without collective fictions, the systems built on them collapse.** And as we'll see, most of our modern systems are built on these imagined realities. These myths are powerful, and the fact that they're not rooted in objective reality doesn't undermine them.

Collective fictions allowed early Sapiens to cooperate within extremely large groups of people, most of whom they'd never met, and it rapidly changed their social behavior.

The Agricultural Revolution

About 10,000 years ago, between 9500 and 8500 BC, Sapiens started shifting from forager lifestyles to a life revolving around agriculture. This was the Agricultural Revolution. It was so successful for our species that we went from 5-8 million foragers in 10,000 BC to 250 million farmers by the first century AD.

The move from foraging to agriculture wasn't necessarily a conscious choice. Rather, it was a gradual process of small, seemingly insignificant changes. Let's see how those small changes add up to a monumental revolution.

**The Spread of Wheat**

18,000 years ago, **the last ice age retreated, increasing rainfall.** This was great for wheat and other grains, which started to spread. Because there was more wheat, people started eating more of it, taking it back to their campsites to grind and cook. On the way to the campsite, some of the small grains were sprinkled along the path, helping the spread of wheat.

Humans burned the forests to create clearings that attracted animals. This also cleared the area of large trees and bushes that would have competed with the wheat for sunlight and water. Where wheat prospered, nomads would settle for a few weeks,
enjoying the plenty. A few weeks turned into a few more, and over generations, these areas became permanent settlements.

People started storing grain for later and invented stone scythes, pestles, and mortars. Because they saw that wheat grew better when it was buried deep in the soil rather than sprinkled on top, humans began to hoe and plow the fields. Weeding, watering, and fertilizing followed. With all this time spent on tending the wheat, there was less time to hunt and gather. Sapiens had become farmers.

The move toward farming wasn't an obvious benefit, since it led to a number of drawbacks.

- Agriculture was much harder than foraging and hunting for food, and it left farmers more vulnerable to disease and hunger.
- Farmers also had a less nutritious diet than foragers due to its lack of variety.
- When agriculture succeeded, all the extra food they grew resulted in a population boom. More people meant closer living quarters, leading to disease epidemics. Child mortality soared.

Most of the surplus went to the elite, and they probably did live better lives than their ancestors. But the Agricultural Revolution didn't immediately translate to a better life for most individuals.

The Scientific Revolution

In the last 500 years, we've seen unprecedented scientific and technological growth, so much so that a time traveler from 1500 would recognize very little of our world. For instance, since 1500, the world population has grown from 500 million Sapiens to 7 billion. Every word and number in every book in every medieval library could be easily stored on a modern computer. Further, we've built skyscrapers, circumnavigated the earth, and landed on the moon. We've discovered the existence of bacteria and can now cure most diseases caused by it, even engineer bacteria for use in medicines. All of these advances were made possible by the Scientific Revolution.

In many ways, the Scientific Revolution was the result of a shift in the way Sapiens viewed the world and its future.

We post-Scientific Revolution Sapiens understand the world differently than our ancestors:

1. We are willing to acknowledge our ignorance: Today, we assume there are gaps in our knowledge, and we even question what we think we know. This wasn't the norm before the Scientific Revolution.

2. We emphasize observation and mathematics: Rather than getting our knowledge from divine books, we use our senses and the technologies available to us to make observations. We then use mathematics to connect these observations and make them into a coherent theory.

3. We strive for new powers: Knowledge is only valuable in its use to us. We don't develop theories for the sake of knowing more. We use theories to gain new powers — in particular, new technologies.

4. We believe in progress, whereas our ancestors believed that the golden age was behind them.

Judging Findings by Their Usefulness

In the late 16th century, Francis Bacon made the connection between scientific research and the production of technology, but the relationship didn't become really strong until the 19th century. Bacon saw that assessing how “true” knowledge is isn't a good yardstick because we can't assume that any theory is 100% correct. A better yardstick is how useful that knowledge is.

War has developed both science and technology. By WWI, governments depended on scientists to develop advanced aircraft, efficient machine guns, submarines, and poison gases. During WWII, the Germans held on for so long because they believed their scientists were on the verge of developing the V-2 rocket and jet-powered aircraft, weapons that may have turned the tide of the war. Meanwhile, Americans ended the war with a piece of new technology, the atomic bomb.

Our views on the value of technology have strayed so far from those of our ancestors that we now turn to technology to solve our global conflicts. The US Department of Defense is currently investing research money on bionic spy-flies that stealthily track the movements of enemies and fMRI scanners that can read hateful thoughts.

The Industrial Revolution

Economic growth requires more than just trust in the future and the willingness of employers to reinvest their capital. It needs
resources, the energy and raw materials that go into production. **While the economy can grow, our resources remain finite.**

At least, that's what we've thought for centuries. But the energy and raw materials that are accessible to us today have increased as a result of the Industrial Revolution. **We now have both better ways of exploiting our resources and resources that didn't exist in the worlds of our ancestors.**

**The Discovery of Energy Conversion**

Our ancestors were limited in how they could harness and convert energy.

**First, they had limited resources.** Before the Industrial Revolution, humans burned wood and used wind and water power for energy. But if you didn't live by a river, if you ran out of trees in your area, or if the wind wasn't blowing, you were out of luck. The ways people could access energy were limited.

**Second, there was no way to convert one type of energy into another.** For example, they couldn't harness the wind and then turn that energy into heat to smelt iron.

**Breakthroughs in Converting Energy**

The discovery of gunpowder introduced the idea that you could convert heat energy to movement, but this was such an odd concept that it took 600 years for gunpowder to be used widely in artillery.

Another 300 years passed before the invention of the steam engine, which used also converted heat to movement, through the pressure of steam. After this, the idea of turning one type of energy into another didn't seem so foreign. **People became obsessed with discovering new ways to harness energy.** For example, when physicists realized that the atom stores a lot of energy, they quickly devised ways to release it to make electricity (and bombs). The internal combustion engine turned petroleum, previously used to waterproof roofs and lubricate axles, into a liquid that nations fought wars over. Electricity went from being a cheap magic trick to something we use everyday and can't imagine living without.

**The New Problem: Supply Outstrips Demand**

For most of history, goods were scarce. People lived frugally, and frugality was a virtue. In an odd twist, today, we have too much stuff. Rather than supply not meeting demand, demand didn't always meet the supply. We needed buyers.

This prompted the new ethic of consumerism. **Frugality became a bad word, and people were taught by industries that consuming was a positive thing. Self-indulgence is “self-care” and frugality is...**

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**Sapiens Summary Part I: Revolution of the Mind | Chapter 1: An Insignificant Species**

In *Sapiens*, Yuval Noah Harari uses concepts from physics, chemistry, biology, and history to tell the story of us, *Homo sapiens*.

Our history is punctuated by four major revolutions: The Cognitive Revolution, the Agricultural Revolution, the Industrial Revolution, and the Scientific Revolution. Part I (Chapters 1-4) explores the Cognitive Revolution and the events leading up to it.

We'll look at each revolution and how it dramatically redirected the course of human history, but to understand these upheavals, we need to go back to a time when *Homo sapiens* was just one of multiple human species (and not a very distinguished species, at
that).

Multiple Human Species

We think of our own species as the only humans, distinguished from and superior to every other species on earth. But when we, *Homo sapiens*, arrived on the scene 2.5 million years ago, we weren't anything special. We existed in the middle of the food chain, as often prey as we were predators, and we weren't even the only humans.

The Eight Human (Homo) Species

Humans evolved in East Africa from a genus of apes. These early humans settled all over the world, and as the climates and conditions differed from place to place, they acquired different traits and became different species.

We tend to think of the evolution of humans as a linear progression from *Homo erectus* to Neanderthals to *Homo sapiens*, but at least six human species were alive when our own lived on earth, and others may yet be discovered. The known human species included *Homo soloensis*, *Homo floresiensis*, *Homo denisova*, *Homo rudolfensis*, and *Homo ergaster*. The three that will play the biggest roles in this book are:

1. *Homo neanderthalensis* ("Man from the Neander Valley"): Also known as Neanderthals, these humans lived in western Asia and Europe. They were more muscular than we were and they had bigger brains than we did (or do today). Well see why the Neanderthal species died out, even though Neanderthals were superior to Sapiens in many ways.

2. *Homo erectus* ("Upright Man"): These humans...

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Sapiens Summary Chapter 2: Language, Gossip, and Imagined Realities

The first major revolution for Sapiens was the Cognitive Revolution. Before that point, Sapiens weren't particularly special among animals. Over time, they had evolved the abilities to cross oceans and invent things like bows and arrows, sewing needles, oil lamps, and art. They had become humans that we'd recognize today, with our level of intelligence and creativity. But until the Cognitive Revolution of 70,000 years ago, they weren't superior to other humans.

The Cognitive Revolution

Although the use of fire hastened Sapiens' ascent, it was the Cognitive Revolution that ultimately distinguished Sapiens from other humans.

*What caused the Cognitive Revolution? No one's really sure, but it was probably a chance gene mutation that changed the way the brain was wired.*

The Cognitive Revolution involved the development of three new abilities, all related to language, that helped Homo sapiens outpace their fellow humans.

**Ability #1: Flexible Language**

Their language gave Sapiens a huge advantage over their fellow animals, including their fellow humans.

Language itself isn't particularly special—apes and monkeys communicate vocally, as do elephants, whales, and parrots. **One reason the language of Sapiens was different was that it was more complex.** Rather than communicating simple ideas the way green monkeys do ("Careful! A lion!") or "Careful! An eagle!"), the language of Sapiens could warn someone about a lion, describe its location, and plan how to deal with it. This allowed them to plan and follow through on complex actions like avoiding predators and working together to trap prey.

**Ability #2: Gossip**

A second distinction of the Sapiens language was its ability to convey gossip. We think of gossip as a bad thing, but using language to convey information about other people is a way to build trust. Trust is critical for social cooperation, and cooperation gives you an advantage in the struggle to survive and pass on your genes.

Even today, **most of our communication is gossip**, if we define gossip as talking about other people. If...
Sapiens Summary Chapter 3: The Life of a Forager

We've only been working in offices and, before that, as farmers and herders, for the last 12,000 years. For hundreds of thousands of years before that, the majority of our species' history, we were foragers.

We Don't Know Much About Foragers

Because foragers moved every week, sometimes every day, they had few personal possessions. They only had what they could carry themselves, without the aid of wagons or pack animals. Consequently, Sapiens during the period between the Cognitive Revolution and the Agricultural Revolution left few artifacts. Dependence on the few artifacts discovered creates an incomplete and even misleading picture of our ancestors.

It's also hard to talk about how early Sapiens lived because there was no single way of life (as there isn't now). Still, attempting to piece together how our ancestors lived from 70,000 to 12,000 years ago can give us insight into our modern society.

The Few Things We're Pretty Sure Of

- **There weren't many humans.** The whole human population was smaller than the number of people living in Cairo today.
- **Sapiens lived in bands of up to several hundred individuals.**
- **Neighboring bands cooperated, but also fought.** Each band was likely independent. They traded with each other, but weren't dependent on each other for essentials like fruit and meat. They traded “prestige items” like shells and pigments.
- **There were no permanent homes, towns, or governments.** Sapiens roamed back and forth across their territory, according to animal migrations and changes in the seasons. Fishing villages might be an exception.
- **They ate broadly:** termites, berries, roots, rabbits, bison, and mammoth, among other foods.
- **They had knowledge:** There was little specialization of skills. Everyone needed to know how to make a knife, mend clothing, trap prey, escape lions, and heal snakebites. Sapiens in the forager period were some of the most skilled and informed people in history.

Foragers Had a Good Life

Foragers had many advantages over their descendants.

Short...

What Our Readers Say

This is the best summary of Sapiens I've ever read. I learned all the main points in just 20 minutes.

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Sapiens Summary Chapter 4: Human Migration and Mass Extinction

Before the Cognitive Revolution, humans lived solely on the landmass of Afro-Asia and a few surrounding islands. They didn't alter these environments and ecosystems dramatically. Animals on the African and Asia continents had evolved alongside humans and knew how to avoid them and hold their own.

But as humans migrated to other parts of the world, parts wholly unprepared to face the threat of human beings, this would change. This chapter looks at the ecological impact of human migration to Australia, America, and then the rest of the world.
Human-Caused Extinction in Australia

Somehow, humans managed to cross the sea barrier after the Cognitive Revolution. No one’s really sure how, but the best theory is that Sapiens in Indonesia learned how to build boats and managed to reach Australia. Human colonization of Australia is one of the most important events in history, on par with the moon landing. It was here that Sapiens rose to the top of the food chain and became the deadliest species in Earth’s history.

Before the arrival of humans, Australia was home to many large animals that sound mythical to modern ears. They included:

- A kangaroo that was six feet tall and weighed 450 pounds
- Seven-foot long snakes
- A marsupial lion
- Flightless birds that were twice as big as ostriches

In just a few thousand years, all of these animals, and many more, were gone. 23 out of the 24 animals weighing 100 or more pounds became extinct.

What Caused the Extinction of Almost All of Australia’s Large Animals?

Some researchers blame the climate, but this is a weak argument for three reasons.

Reason #1: Australia’s climate did change 45,000 years ago, when humans came to Australia, but the climate changes all the time, and this particular change wasn’t especially dramatic. Is it a coincidence that 90% of the large animals in Australia vanished right after humans arrived? The giant diprotodon, for example, had survived at least ten ice ages before humans came.

Reason #2: Climate change usually affects land and sea creatures...

Sapiens Summary Part II: Revolution of the Land | Chapter 5: Farming

Part Two details the second major upheaval of the Sapiens’ way of life: The Agricultural Revolution. Chapter 5 charts the advent of farming while also introducing a concept that we’ll return to throughout the rest of the book: the idea that success isn’t the same thing as happiness.

Sometimes, our evolutionary success is at odds with our well-being and happiness. Evolutionary success is pretty easy to judge and quantify—the more individuals of your species that survive, and the more copies of your DNA in existence, the more successful you are. Happiness, on the other hand, is harder to quantify. (We’ll spend a whole chapter, Chapter 19, breaking down the meaning and theories of happiness.)

Another recurrent theme, explored in the previous chapter, is that Sapiens isn’t the only species that matters. As we examine their history, we should also look at how the success of Sapiens affected other species.

The Success (and Suffering) of People During the Agricultural Revolution

About 10,000 years ago, between 9500 and 8500 BC, Sapiens started shifting from forager lifestyles to a life revolving around agriculture. This was the Agricultural Revolution. It was so successful for our species that we went from 5-8 million foragers in 10,000 BC to 250 million farmers by the first century AD.

This gradual movement started independently in the Middle East, China, and Central America, areas that had plants and animals, like wheat and sheep, that were easy to domesticate. The movement had a monumental impact on not only the way we live today but on our diet. 90% of the calories in the modern diet comes from plants domesticated by our ancestors, like wheat, rice, and potatoes.

Progress?

Many people have suggested that the Agricultural Revolution was the product of a species that was becoming more intelligent, but there’s no evidence of this. The move toward farming isn’t necessarily common sense.
For example, agriculture was much harder than foraging and hunting for food, and left farmers more vulnerable to disease and hunger. Farmers also had a less...

Sapiens Summary Chapter 6: The Rise of Anxiety and the Political Order

Prior to the Agricultural Revolution, people didn't live in houses. They roamed, following herds of animals or finding areas of more plant growth. With domestication of plants and animals, humans began living in houses (the word "domesticate" comes from the Latin for "house").

The home, a new concept, measured a few dozen feet. It represented a separation from the rest of your band. Whereas nomads lived together, with the development of the house we became more individualistic, self-centered animals.

We also separated ourselves from the rest of nature. We cleared forests and fields, planted trees and proclaimed them "ours," fenced off "our" land, and eliminated pesky weeds and animals. We were the masters of our individual universes, but this came with a lot of responsibility and the anxiety that attends it.

Anxieties About the Future

Nomadic foragers hadn't given too much thought to what the future had in store. They were mostly focused on what they did and had in the present. There was little they could do to influence future events, so they didn't worry about it. This saved them a lot of anxiety.

But the Agricultural Revolution required a focus on the future. There were three reasons:

Reason #1: Agriculture depends on seasonal cycles that last a year. If you're in the harvest season and you're not thinking ahead about the next cultivation season, you won't have a harvest next year. What farmers do today affects what happens next year, or even years from now.

Reason #2: Agriculture is risky. Droughts, floods, and pestilence, among other calamities, could take out a farmer's entire harvest. If farmers didn't plan ahead, building up reserves, they starved. Consequently, farmers were always anxiously looking at the sky, trying to anticipate storms, dry periods, and floods.

Reason #3: Unlike their nomadic ancestors, farmers could actually do something today to influence events tomorrow. For example, they could sow more seeds, dig another canal, and plant more trees. The responsibility to plant the seeds that wouldn't yield for...

Sapiens Summary Chapter 7: The Invention of Writing

The social orders and cooperative systems of some species are maintained because the information for their maintenance is encoded in their DNA. For example, the behavior that makes a female bee fulfill her role as either a worker or queen is programmed into her genes.

But imagined systems aren't encoded in our DNA, so we have to memorize the roles and behaviors they require. This worked for Sapiens for a while, but our systems became complex and required more information than one brain could hold.

Limits of the Brain

The brain isn't good at storing information. It has a limited storage capacity and it doesn't last forever. When humans die, so do their brains. All the information contained in a single brain is lost. Transmitting information to other brains is possible, but how much can be transmitted is limited, and what is transmitted may be muddled and distorted.

Further, the brain has evolved to store some types of information better than others. We're good at remembering information about the qualities and behavior patterns of plants and animals, information about topography, and information about social ties.
This information was crucial to the survival of our ancestors. For example, they needed to know which mushrooms were good to eat and which near-identical mushrooms would kill them, so they got adept at observing and memorizing subtle visual signs.

But the brain did not evolve to memorize numbers, which would become important during the Agricultural Revolution. Hunter-gatherers didn't need to know how much fruit was on a tree. Because of the brain's limitations for memorizing numbers, societies remained relatively small for thousands of years after the dawn of the Agricultural Revolution. They just couldn't store the data needed to grow their societies. But kings needed to collect taxes to support their widening kingdoms, and this involved numbers.

The Invention of Writing

The solution was writing. Although today we connect the word “writing” with “literature,” early writing was used to record tax payments, debts, and...

Sapiens Summary Chapter 8: The Imagined Reality of Justice

As we've seen, Sapiens evolve genetically to organize themselves into large groups, so they formed societies through the use of imagined orders and writing.

Imagined Hierarchies

We require these imagined orders to function, but they're not equitable or impartial. They result in systems that discriminate some and privilege others. In fact, there's no known society that doesn't discriminate.

Hierarchies have a purpose: they let us know how to interact with others without actually knowing them, which in theory is more efficient and lets us function in large societies. For instance, a woman selling flowers doesn't know all her customers personally. To figure out how to divvy up her energy and time, she uses the social cues dictated by each person's place in the hierarchy—such as the way he's dressed, his age, and, often, his skin color—to determine who is the executive, likely to buy a lot of expensive roses, and who is the messenger boy, only able to afford daisies.

Almost all hierarchies are imagined (we'll look at a possible exception, the hierarchy of males and females, at the end of this chapter). But we usually claim that they're natural. For example, capitalists believe that the rich are wealthy because they have better business sense, make better choices, and are smarter and harder working. They earn their wealth and the high-quality health care, education, and nutrition that come with it. But (according to Harari) it's proven that most rich people are wealthy because their parents were wealthy, and that most poor people are poor because their parents were poor. Wealth is rarely purely "earned."

Just because our hierarchies are imagined doesn't mean there isn't diversity in our biological aptitudes and abilities. Some people are smarter or more skilled than others. But we don't succeed or fail based on these aptitudes alone. Society still largely determines who wins and who loses by dictating whose abilities are nurtured and who get what opportunities.

How Hierarchies Are Formed

Imagined societies are generally propped up...
Sapiens Summary Part III: The Creation of a Global Society | Chapter 9: The Direction of Cultural Evolution

Culture is the “network of artificial instincts” that connect us, myths so ingrained that we take them for granted. As we’ve seen, these myths allow us to cooperate and thrive in large groups.

Cultures aren’t static. They may have values and norms based on tradition, but they’re still in constant flux. Chapter 9 looks at how cultures evolve, whether that evolution is linear, and where our cultures are headed.

The Value of Cognitive Dissonance

Cultural changes may be a result of pressures from external factors like the environment or neighboring cultures. Or they may be the product of internal factors like the contradictions inherent in every culture. Psychologists call these contradictions cognitive dissonance. **Cognitive dissonance occurs when we hold two or more thoughts or beliefs that are incompatible with one another.**

Every single culture contains contradictions that lead to cognitive dissonance, and they’re actually beneficial. This is because cultures continually attempt to resolve and reconcile the contradictions in their myths. This leads to change, allowing for a more creative and dynamic species. Contradictions in our beliefs force us to examine them and reassess, and this moves culture forward.

For example, in the West, we prize both equality and individual freedom, but we can’t have them both.

- **Equality**: In order for everyone to have the same opportunities and freedoms, the opportunities and freedoms of some need to be limited and transferred to those who lack them.
- **Individual freedom**: If you prioritize everyone being free to do what they want, some people will lose their freedoms while others will gain a disproportionate amount of freedom. Equality disappears.

In America, **Democrats favor equality**. They’re willing to sacrifice the individual freedoms of a few (such as raising taxes for the rich) to make a more equitable society. **Republicans, on the other hand, favor individual freedom.** They don’t believe that others should be able to tell them how to spend their money, for instance, and they aim to increase...

Sapiens Summary Chapter 10: The Monetary Order

The first unifier of humankind is money. Money is a relatively recent invention. Hunter-gatherers didn’t have money because they found, killed, or produced everything they needed to survive. They shared what they had in their small bands in return for favors.
For instance, if you gave your band member a piece of your meat, you expected her to give you some of her berries in return.

Economies of Favors and Bartering

Even at the start of the Agricultural Revolution, there was little need for money. Villages were self-sufficient, and what they couldn't provide for themselves they bartered for in other villages. Although some individuals had expertise in an area like shoemaking or medicine, villages were too small for anyone to have a full-time occupation other than farming.

This changed with the growth of societies and improving transportation. In large cities where there were many people in need of your goods or services, it made sense to specialize in shoemaking, medicine, law, or carpentry, and depend on the reciprocity of your customers for your other needs. Specialization also allowed individuals to grow their expertise, which benefited the entire community.

The Limitations of an Economy of Favors and Bartering

The problem with an economy of favors is that it only works when you know people well. If you provide a free service to a stranger, that stranger may never reciprocate. This makes an economy of favors ineffective for cooperation in large groups.

Bartering also poses problems:

Problem #1: Bartering forces participants to repeatedly reevaluate exchange rates for a variety of commodities.

For example, if an apple grower wants to barter his apples for a new pair of shoes, the shoemaker needs to decide how many apples to ask for, dependent on the quality of the apples in question, the relative time and cost of making the particular shoes requested, and whether or not he really wants the apples. And it doesn't stop with apples. **The shoemaker has to do these mental calculations for every other commodity he might come into contact...**

Sapiens Summary Chapter 11: The Imperial Order

Money has brought the disparate worlds on Earth into one global community, but the market doesn't always win. We can't view human history solely through the lens of economy. While gold and silver had a huge impact in shaping our world, steel did as well.

The second unifier of humankind is empire. An empire is a political system that meets 2 requirements:

1. It rules over a large number of people living in distinct areas and of distinct cultural heritages. For example, the Roman Empire was comprised of diverse cultural communities in Europe, North Africa, and parts of Asia.

2. It can take in increasingly more territories without changing, in any fundamental way, the overall functioning, structure, and identity of the system. This distinction is a little subtler. Let's compare Great Britain today and the British Empire of the past. Great Britain has definite borders. To extend or alter them would change Great Britain's basic structure and identity. Great Britain isn't an empire. In contrast, a century ago, the British Empire encompassed territories all over the world and still retained its British identity. The fact that it could maintain its identity while expanding made it an empire rather than a nation.

These two requirements have given empires the ability to unite diverse groups and territories under one government. This unification is also one of the reasons that the world today is much less diverse than it was before the rise of empires.

Critiques of Empire

In modern times, “empire” and “imperialism” are bad words. They’re accused of destroying and exploiting local resources and ways of life. The establishment and maintenance of many of the most successful empires did involve destruction and violence, including war, enslavement, and genocide. But as well see throughout this chapter, empires have shaped the world in positive ways as well, and in fact, much of our human culture is based on the legacies of empire.

Benevolent Imperialism

As discussed in Chapter 9, Sapiens have evolved the survival instinct to distinguish...
The third unifier of humankind is religion.

Today, we often think of religion as something that divides rather than unites. Yet religion has a crucial role in supporting our other imagined orders, orders that have led to our success as a species.

Because the social orders on which our societies are founded are imaginary, they're fragile. Religion's role is to give "superhuman legitimacy" to these orders, making them hard to challenge. This makes social orders more stable.

But not all religions unify, and not all belief systems are religions. Let's look first at the definition and requirements that make a belief system a religion, and then we'll look at the additional requirements that give particular religions their unifying function.

**To be a religion, a system has to meet two requirements:**

1. **The system has to be predicated on the belief in a “superhuman” order.** As used here, “superhuman” is defined as “not the product of human actions.” For instance, professional soccer shares a lot in common with religion: it contains rituals, rites, and laws. But because these rituals and laws are determined by humans (in this case, FIFA), professional soccer isn't a religion.

2. **The system must establish norms and values**, like modesty in dress or showing compassion. Many people believe in ghosts, but these beliefs don't give us moral standards to meet, so they don't constitute a religion.

The religions that revolutionized the world and led us toward a more global empire have two more requirements.

1. **The system must be universal.** Believers must believe that their system is true everywhere and applicable to everyone.
   
   Below, we'll look at how local religions like animism gave way to universal religions like Christianity.

2. **The system must be missionary.** Believers must be fanatical about spreading the universal truth of their system to everyone on earth.

Religions that are both universal and missionary appear relatively recently in history. These religions have the power to bolster our imagined social orders and unify humanity on a grand...

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**Sapiens Summary Chapter 13: Success and Alternate Paths of History**

The creation of a global society was probably inevitable, but not the type of global society. For instance, the language of our global society is English. Why is English so prevalent and not, say, Danish? Why are we a society dominated by monotheistic religions and not dualistic ones?

We don't know the answers to these questions, but there are two things we can say about history: 1) It isn't predictable and 2) Its progress doesn't necessarily benefit humans.

**History Isn't Predictable**

The hindsight fallacy (or hindsight bias) is the human tendency to believe that events that have already happened were more predictable than they actually were. Looking back, we think we could have predicted how history would unfold—it seems obvious in hindsight. But **while today we can describe how history has unfolded so far, we can't say why it's turned out the way it has.**

For example, we can detail the events leading up to Christianity's take-over of the Roman Empire, but we can't determine the causal links between these events. We don't know why Emperor Constantine chose to convert to Christianity when he could have continued to practice his own polytheistic religion. He also could have converted to Manichaeism, Zoroastrianism, Judaism, or Buddhism, all of which were available to him at the time. But he chose Christianity, which, as we'll see, was actually an unlikely choice.
The less we know about a historical period, the more we tend to think that the events of that period were inevitable. The more we learn, the more we see all the roads untaken, some of which were more probable. History often takes unexpected turns—what seems inevitable now was seen as extremely unlikely at the time.

For instance, if you were to suggest in AD 306 that Christianity, an obscure sect of Judaism, would become the religion of the Roman Empire, your contemporaries would laugh at you. Similarly, no one could have reasonably predicted that a tiny Russian faction called the Bolsheviks would take over their country in a matter of years. It’s not that anything is...

Sapiens Summary Part IV: Revolution of Science | Chapter 14: Knowing We Don’t Know

In the last 500 years, we’ve seen unprecedented scientific and technological growth, so much so that a time traveler from 1500 would recognize very little of our world. For instance, since 1500, the world population has grown from 500 million Sapiens to 7 billion. Every word and number in every book in every medieval library could be easily stored on a modern computer. Further, we’ve built skyscrapers, circumnavigated the earth, and landed on the moon. We’ve discovered the world of bacteria, can now cure most diseases caused by it, and even engineer bacteria for use in medicines.

All of these advances were made possible by the Scientific Revolution.

Changes in the Way We Understand the World

In many ways, the Scientific Revolution was the result of a shift in the way Sapiens viewed the world and its future. We post-Scientific Revolution Sapiens understand the world differently than our ancestors:

1. We are willing to acknowledge our ignorance: Today, we assume there are gaps in our knowledge, and we even question what we think we know. As we’ll see below, this wasn’t the norm before the Scientific Revolution.

2. We emphasize observation and mathematics: Rather than getting our knowledge from divine books, we use our senses and the technologies available to us to make observations. We then use mathematics to connect these observations and make them into a coherent theory.

3. We strive for new powers: Knowledge is only valuable in its use to us. We don’t develop theories for the sake of knowing more. We use theories to gain new powers, new technologies in particular.

4. We believe in progress, whereas our ancestors believed that the golden age was behind them.

Let’s look at the history of each of these features of the scientific mind.

Ignorance

Man’s acknowledgment of his own ignorance was the breakthrough that launched the Scientific Revolution. This awareness of ignorance leads to experiments that take us closer to knowledge. For instance, today, biologists readily admit that they don’t know how our brains produce...

Sapiens Summary Chapter 15: The Quest for Knowledge...and Land

As we know, those in power rarely seek knowledge for knowledge’s sake. As Europeans set out to conquer the world in the 18th century, imperialism and the Scientific Revolution became not only inseparable but indistinguishable. Expeditions had the dual purpose of colonizing new territories and making scientific discoveries, and each goal aided the other.

Before we explore how science and empire tied the knot, we need to ask a crucial question: Why were the Europeans the ones who took over the world?
European Dominance

Cortes only had 550 men. Yet he managed to conquer an empire of millions, the Aztecs. Similarly, England was a tiny, inconsequential island in the 18th century, yet Captain Cook's arrival in Tasmania led to the near extermination of Tasmania's native population, who were hunted and driven off the land by the new settlers. Although it seems almost inevitable in hindsight, it wasn't obvious that England would defeat Tasmania. How did Europe, such a tiny part of the world, come to dominate it? Prior to Cook's expeditions, Britain and western Europe were negligible influences on the world stage.

Asia was the more likely world power. The Ottoman Empire, Safavid Empire, Mughal Empire, and the Ming and Qing dynasties were all extremely powerful. Asia accounted for 80% of the world's economy in the late 18th century. Until 1850, the military strength of Asian and European nations was relatively equal: there was no significant scientific, military, or technological gap between the two.

Europeans rose to dominance only when they conquered Asian territories in a series of wars between 1750 and 1850. Scientific and technological gaps started to appear, and almost as soon as they appeared, they widened.

For example, commercial railroads opened in 1830, and by 1850, there were 25,000 miles of railroads in the West, but only 2,500 miles in all of Asia, Africa, and Latin America. China's first railroad, built by Europeans, didn't open until 1876, and the Chinese destroyed it a year later.

Why did it take the East so long to catch up to the...
Sapiens Summary Chapter 17: Revolution of Industry

Economic growth requires more than just trust in the future and the willingness of employers to reinvest their capital. It needs resources, the energy and raw materials that go into production. While the economy can grow, our resources remain finite.

At least, that's what we've thought for centuries. But the energy and raw materials that are accessible to us today have increased as a result of the Industrial Revolution. We now have both better ways of exploiting our resources and resources that didn't exist in the worlds of our ancestors.

For instance, over 300 years humans built increasingly more advanced vehicles, from carts and wagons to trains, cars, jets, and spaceships. In 1700, the vehicle industry relied almost entirely on wood and iron, so its resources were limited. But since 1700, humans have invented or discovered new materials such as plastic, rubber, aluminum, and titanium. We also have new energy sources. The industry relied on muscle power in 1700, but today factories use petroleum combustion engines and nuclear power stations to manufacture their vehicles.

As long as science keeps making discoveries, our resources are, if not infinite, at least not finite.

The Discovery of Energy Conversion

Our ancestors were limited in how they could harness and convert energy.

First, they had limited resources. Before the Industrial Revolution, humans burned wood and used wind and water power for energy. But if you didn't live by a river, if you ran out of trees in your area, or if the wind wasn't blowing, you were out of luck.

Second, there was no way to convert one type of energy into another. For example, they couldn't harness the wind and then turn that energy into heat to smelt iron.

The only machine that could convert one type of energy into another was the body. For instance, animals get their energy from plants. Plants get their energy from the sun. Because animals were so efficient at converting food (whose energy originated as solar energy) into movement, muscle power was the main method of production. Humans used...

Sapiens Summary Chapter 18: Revolution of Society

The Industrial Revolution caused many upheavals to society, including urbanization, the rise in power of the common person, the decline of patriarchy, and democratization. But the two biggest upheavals to society were artificial time and the replacement of family and community with state and market.

Major Change #1: Artificial Time

The Industrial Revolution brought the industrialization of time, our turn away from natural time to mechanized time.

Agricultural v. Industrial Time

Most societies in history couldn't make accurate measurements of time, and it didn't really matter. Time was dictated by the day and the seasons. This was "agricultural time." The sun told you when to wake up and go to work and when to go home and go to sleep, and it also told you when to harvest your crops and when to plant new ones. You didn't need a more accurate measure of time than where the sun was in the sky.

But with the rise of the Industrial Revolution, precise time started to matter. Let's see why: if you're a shoemaker in medieval times, you make every part of the shoe, from the sole to the buckle. If another shoemaker shows up late for work, it doesn't affect you. But if you work in a factory that makes shoes today, and your job is to work the machine that makes the sole, others depend on you to do your role promptly. If you're late for work, and the soles don't get made, it holds up the process for everyone else.
Businesses needed a way to keep everyone on the same schedule, so they mandated that every worker come to work at the same time (regardless of where the sun was in the sky), eat lunch at the same time (regardless of whether they were hungry), and leave at the same time (regardless of whether they'd finished their project).

Timetables Take Over
These schedules became the model for almost everything we do in our day-to-day lives, even those things that don't involve coordinating with other workers.

The railway system played a large part in popularizing the use of timetables. In Britain in 1784, each city had its own local time,...

Sapiens Summary Chapter 19: Theories of Happiness
The Agricultural, Cognitive, and Industrial Revolutions have merged nations, creating a global empire. Further, these revolutions have grown our economy, giving us “superhuman” powers. Have these revolutions increased our happiness, as well? If they haven’t, what was the point? Can we call ourselves successful if we're not happier today than we were yesterday?

Many researchers have used “subjective well-being” as a stand-in for happiness. This implies that happiness is a feeling, either one of pleasure in the moment or one of contentment in the long term. This theory depends on the assumption that we can judge people’s happiness by asking them how they feel. Although we can't ask our ancestors how they felt, we can take current findings and apply them retroactively. To determine the progress of happiness, we'll look at four theories of happiness: the “expectations” theory of happiness, the biological theory of happiness, the “finding meaning” theory of happiness, and the “present moment” theory of happiness.

The “Expectations” Theory of Happiness
The most significant finding in the study of happiness is that long-term happiness is based on the gap between our expectations and reality. If the gap is large and reality is far from meeting your high expectations, you're unhappy. If the gap is small or nonexistent, you're happy. For example, if you expect to get an ox cart from your father when you come of age and you get an ox cart, you're happy. But if you expect to get a new Ferrari on your 16th birthday and you get a used Toyota, you're unhappy.

Solving this problem isn't as easy as just lowering our expectations. When our lives get better, we expect more. So the more we get, the more we want.

We can find evidence of the wealth or health of our ancestors, but it's hard to measure the expectations people had in the past. This complicates the task of answering the question, “are we happier now than we were then?” For example, we have less pain than our ancestors did because we have more painkillers and tranquilizers. But because we expect less...

Sapiens Summary Chapter 20: The Birth of a New Species
So far, we've discussed the history of *Homo sapiens*. But what about its future?

The future of our species may be relatively short, not because we cause ourselves to go extinct, but because we become an entirely new species.

For almost 4 billion years, species have evolved according to the principles of natural selection. For example, proto-giraffes who had longer necks than their contemporaries could reach higher branches and access more food. Therefore, they had a better chance of survival and passing on their genes. According to science, this wasn't the product of intelligent design. It was the product of surviving animals passing on the characteristics that led to their survival.

For the last 4 billion years, species, including Sapiens, have been constrained by these laws of natural selection, but today,
we're on the brink of replacing natural selection with intelligent design.

With the Agricultural Revolution came a huge leap forward in the move from natural selection to intelligent design. This is when Sapiens started mating animals. Rather than merely wishing for slow, fat chickens, a sapiens could mate a fat hen with a slow cock to produce, fat, slow offspring. In this way, Sapiens sped up the natural selection process, manipulating what characteristics it selected. Still, Sapiens had no way to give entirely new traits to chicken offspring. They had to work only with the traits that arose naturally in chicken.

Today, scientists can introduce new traits into species, traits that species didn't contain in the wild. For instance, in 2000, French scientists implanted a gene from a fluorescent green jellyfish into a rabbit embryo to create a fluorescent green rabbit.

All the revolutions discussed in this book, from the Cognitive Revolution to the Industrial Revolution, have been momentous, but none except the Scientific Revolution has altered our biology. This may be the most important revolution in our biology in the history of life on earth.

The Future of Intelligent Design

In the future, intelligent design could replace natural selection...

**Shortform Exercise: Reflect on Sapiens**

Sapiens is full of counterintuitive ideas and new ways to view our history. Which ones impacted you the most?

What are your key takeaways from the book? In what ways do you see the world differently now than before reading the summary?