

ALSO BY YUVAL NOAH HARARI

Homo Deus: A Brief History of Tomorrow

YUVAL NOAH HARARI

Sapiens

A Brief History of Humankind

VINTAGE

History's Biggest Fraud

FOR 2.5 MILLION YEARS HUMANS FED themselves by gathering plants and hunting animals that lived and bred without their intervention. *Homo erectus*, *Homo ergaster* and the Neanderthals plucked wild figs and hunted wild sheep without deciding where fig trees would take root, in which meadow a herd of sheep should graze, or which billy goat would inseminate which nanny goat. *Homo sapiens* spread from East Africa to the Middle East, to Europe and Asia, and finally to Australia and America – but everywhere they went, Sapiens too continued to live by gathering wild plants and hunting wild animals. Why do anything else when your lifestyle feeds you amply and supports a rich world of social structures, religious beliefs and political dynamics?

All this changed about 10,000 years ago, when Sapiens began to devote almost all their time and effort to manipulating the lives of a few animal and plant species. From sunrise to sunset humans sowed seeds, watered plants, plucked weeds from the ground and led sheep to prime pastures. This work, they thought, would provide them with more fruit, grain and meat. It was a revolution in the way humans lived – the Agricultural Revolution.

The transition to agriculture began around 9500–8500 BC in the hill country of south-eastern Turkey, western Iran and the Levant. It began slowly and in a restricted geographical area. Wheat and goats were domesticated by approximately 9000 BC; peas and lentils

around 8000 BC; olive trees by 5000 BC; horses by 4000 BC; and grapevines by 3500 BC. Some animals and plants, such as camels and cashew nuts, were domesticated even later, but by 3500 BC the main wave of domestication was over. Even today, with all our advanced technologies, more than 90 per cent of the calories that feed humanity come from the handful of plants that our ancestors domesticated between 9500 and 3500 BC – wheat, rice, maize (called ‘corn’ in the US), potatoes, millet and barley. No noteworthy plant or animal has been domesticated in the last 2,000 years. If our minds are those of hunter-gatherers, our cuisine is that of ancient farmers.

Scholars once believed that agriculture spread from a single Middle Eastern point of origin to the four corners of the world. Today, scholars agree that agriculture sprang up in other parts of the world not by the action of Middle Eastern farmers exporting their revolution but entirely independently. People in Central America domesticated maize and beans without knowing anything about wheat and pea cultivation in the Middle East. South Americans learned how to raise potatoes and llamas, unaware of what was going on in either Mexico or the Levant. China’s first revolutionaries domesticated rice, millet and pigs. North America’s first gardeners were those who got tired of combing the undergrowth for edible gourds and decided to cultivate pumpkins. New Guineans tamed sugar cane and bananas, while the first West African farmers made African millet, African rice, sorghum and wheat conform to their needs. From these initial focal points, agriculture spread far and wide. By the first century AD the vast majority of people throughout most of the world were agriculturists.

Why did agricultural revolutions erupt in the Middle East, China and Central America but not in Australia, Alaska or South Africa? The reason is simple: most species of plants and animals can’t be domesticated. Sapiens could dig up delicious truffles and hunt down woolly mammoths, but domesticating either species was out of the question. The fungi were far too elusive, the giant beasts too fero-

cious. Of the thousands of species that our ancestors hunted and gathered, only a few were suitable candidates for farming and herding. Those few species lived in particular places, and those are the places where agricultural revolutions occurred.

Scholars once proclaimed that the agricultural revolution was a great leap forward for humanity. They told a tale of progress fuelled by human brain power. Evolution gradually produced ever more intelligent people. Eventually, people were so smart that they were able to decipher nature’s secrets, enabling them to tame sheep and cultivate wheat. As soon as this happened, they cheerfully abandoned the gruelling, dangerous and often spartan life of hunter-gatherers, settling down to enjoy the pleasant, satiated life of farmers.

That tale is a fantasy. There is no evidence that people became more intelligent with time. Foragers knew the secrets of nature long before the Agricultural Revolution, since their survival depended on an intimate knowledge of the animals they hunted and the plants they gathered. Rather than heralding a new era of easy living, the



Map 2. Locations and dates of agricultural revolutions. The data is contentious, and the map is constantly being redrawn to incorporate the latest archaeological discoveries.¹

Agricultural Revolution left farmers with lives generally more difficult and less satisfying than those of foragers. Hunter-gatherers spent their time in more stimulating and varied ways, and were less in danger of starvation and disease. The Agricultural Revolution certainly enlarged the sum total of food at the disposal of humankind, but the extra food did not translate into a better diet or more leisure. Rather, it translated into population explosions and pampered elites. The average farmer worked harder than the average forager, and got a worse diet in return. The Agricultural Revolution was history's biggest fraud.²

Who was responsible? Neither kings, nor priests, nor merchants. The culprits were a handful of plant species, including wheat, rice and potatoes. These plants domesticated *Homo sapiens*, rather than vice versa.

Think for a moment about the Agricultural Revolution from the viewpoint of wheat. Ten thousand years ago wheat was just a wild grass, one of many, confined to a small range in the Middle East. Suddenly, within just a few short millennia, it was growing all over the world. According to the basic evolutionary criteria of survival and reproduction, wheat has become one of the most successful plants in the history of the earth. In areas such as the Great Plains of North America, where not a single wheat stalk grew 10,000 years ago, you can today walk for hundreds upon hundreds of kilometres without encountering any other plant. Worldwide, wheat covers about 2.25 million square kilometres of the globe's surface, almost ten times the size of Britain. How did this grass turn from insignificant to ubiquitous?

Wheat did it by manipulating *Homo sapiens* to its advantage. This ape had been living a fairly comfortable life hunting and gathering until about 10,000 years ago, but then began to invest more and more effort in cultivating wheat. Within a couple of millennia, humans in many parts of the world were doing little from dawn to dusk other than taking care of wheat plants. It wasn't easy. **Wheat**

demanded a lot of them. Wheat didn't like rocks and pebbles, so Sapiens broke their backs clearing fields. Wheat didn't like sharing its space, water and nutrients with other plants, so men and women laboured long days weeding under the scorching sun. Wheat got sick, so Sapiens had to keep a watch out for worms and blight. Wheat was attacked by rabbits and locust swarms, so the farmers built fences and stood guard over the fields. Wheat was thirsty, so humans dug irrigation canals or lugged heavy buckets from the well to water it. Its hunger even impelled Sapiens to collect animal faeces to nourish the ground in which wheat grew.

The body of *Homo sapiens* had not evolved for such tasks. It was adapted to climbing apple trees and running after gazelles, not to clearing rocks and carrying water buckets. Human spines, knees, necks and arches paid the price. Studies of ancient skeletons indicate that the transition to agriculture brought about a plethora of ailments, such as slipped discs, arthritis and hernias. Moreover, the new agricultural tasks demanded so much time that people were forced to settle permanently next to their wheat fields. This completely changed their way of life. We did not domesticate wheat. It domesticated us. The word 'domesticate' comes from the Latin '*domus*', which means 'house'. Who's the one living in a house? Not the wheat. It's the Sapiens.

How did wheat convince *Homo sapiens* to exchange a rather good life for a more miserable existence? What did it offer in return? It did not offer a better diet. Remember, humans are omnivorous apes who thrive on a wide variety of foods. Grains made up only a small fraction of the human diet before the Agricultural Revolution. A diet based on cereals is poor in minerals and vitamins, hard to digest, and really bad for your teeth and gums.

Wheat did not give people economic security. The life of a peasant is less secure than that of a hunter-gatherer. Foragers relied on dozens of species to survive, and could therefore weather difficult years even without stocks of preserved food. If the availability of one species

was reduced, they could gather and hunt more of other species. Farming societies have, until very recently, relied for the great bulk of their calorie intake on a small variety of domesticated plants. In many areas, they relied on just a single staple, such as wheat, potatoes or rice. If the rains failed or clouds of locusts arrived or if a fungus infected that staple species, peasants died by the thousands and millions.

Nor could wheat offer security against human violence. The early farmers were at least as violent as their forager ancestors, if not more so. Farmers had more possessions and needed land for planting. The loss of pasture land to raiding neighbours could mean the difference between subsistence and starvation, so there was much less room for compromise. When a foraging band was hard-pressed by a stronger rival, it could usually move on. It was difficult and dangerous, but it was feasible. When a strong enemy threatened an agricultural village, retreat meant giving up fields, houses and granaries. In many



12. Tribal warfare in New Guinea between two farming communities (1960). Such scenes were probably widespread in the thousands of years following the Agricultural Revolution.

cases, this doomed the refugees to starvation. Farmers, therefore, tended to stay put and fight to the bitter end.

Many anthropological and archaeological studies indicate that in simple agricultural societies with no political frameworks beyond village and tribe, human violence was responsible for about 15 per cent of deaths, including 25 per cent of male deaths. In contemporary New Guinea, violence accounts for 30 per cent of male deaths in one agricultural tribal society, the Dani, and 35 per cent in another, the Enga. In Ecuador, perhaps 50 per cent of adult Waoranis meet a violent death at the hands of another human!³ In time, human violence was brought under control through the development of larger social frameworks – cities, kingdoms and states. But it took thousands of years to build such huge and effective political structures.

Village life certainly brought the first farmers some immediate benefits, such as better protection against wild animals, rain and cold. Yet for the average person, the disadvantages probably outweighed the advantages. This is hard for people in today's prosperous societies to appreciate. Since we enjoy affluence and security, and since our affluence and security are built on foundations laid by the Agricultural Revolution, we assume that the Agricultural Revolution was a wonderful improvement. Yet it is wrong to judge thousands of years of history from the perspective of today. A much more representative viewpoint is that of a three-year-old girl dying from malnutrition in first-century China because her father's crops have failed. Would she say, 'I am dying from malnutrition, but in 2,000 years, people will have plenty to eat and live in big air-conditioned houses, so my suffering is a worthwhile sacrifice'?

What then did wheat offer agriculturists, including that malnourished Chinese girl? It offered nothing for people as individuals. Yet it did bestow something on *Homo sapiens* as a species. Cultivating wheat provided much more food per unit of territory, and thereby enabled *Homo sapiens* to multiply exponentially. Around 13,000 BC,

when people fed themselves by gathering wild plants and hunting wild animals, the area around the oasis of Jericho, in Palestine, could support at most one roaming band of about a hundred relatively healthy and well-nourished people. Around 8500 BC, when wild plants gave way to wheat fields, the oasis supported a large but cramped village of 1,000 people, who suffered far more from disease and malnourishment.

The currency of evolution is neither hunger nor pain, but rather copies of DNA helixes. Just as the economic success of a company is measured only by the number of dollars in its bank account, not by the happiness of its employees, so the evolutionary success of a species is measured by the number of copies of its DNA. If no more DNA copies remain, the species is extinct, just as a company without money is bankrupt. If a species boasts many DNA copies, it is a success, and the species flourishes. From such a perspective, 1,000 copies are always better than a hundred copies. This is the essence of the Agricultural Revolution: the ability to keep more people alive under worse conditions.

Yet why should individuals care about this evolutionary calculus? 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.

The Luxury Trap

The rise of farming was a very gradual affair spread over centuries and millennia. A band of *Homo sapiens* gathering mushrooms and nuts and hunting deer and rabbit did not all of a sudden settle in a permanent village, ploughing fields, sowing wheat and carrying water from the river. The change proceeded by stages, each of which involved just a small alteration in daily life.

Homo sapiens reached the Middle East around 70,000 years ago.

For the next 50,000 years our ancestors flourished there without agriculture. The natural resources of the area were enough to support its human population. In times of plenty people had a few more children, and in times of need a few less. Humans, like many mammals, have hormonal and genetic mechanisms that help control procreation. In good times females reach puberty earlier, and their chances of getting pregnant are a bit higher. In bad times puberty is late and fertility decreases.

To these natural population controls were added cultural mechanisms. Babies and small children, who move slowly and demand much attention, were a burden on nomadic foragers. People tried to space their children three to four years apart. Women did so by nursing their children around the clock and until a late age (around-the-clock suckling significantly decreases the chances of getting pregnant). Other methods included full or partial sexual abstinence (backed perhaps by cultural taboos), abortions and occasionally infanticide.⁴

During these long millennia people occasionally ate wheat grain, but this was a marginal part of their diet. About 18,000 years ago, the last ice age gave way to a period of global warming. As temperatures rose, so did rainfall. The new climate was ideal for Middle Eastern wheat and other cereals, which multiplied and spread. People began eating more wheat, and in exchange they inadvertently spread its growth. Since it was impossible to eat wild grains without first winnowing, grinding and cooking them, people who gathered these grains carried them back to their temporary campsites for processing. Wheat grains are small and numerous, so some of them inevitably fell on the way to the campsite and were lost. Over time, more and more wheat grew along favourite human trails and near campsites.

When humans burned down forests and thickets, this also helped wheat. Fire cleared away trees and shrubs, allowing wheat and other grasses to monopolise the sunlight, water and nutrients. Where wheat became particularly abundant, and game and other food sources were also plentiful, human bands could gradually give up

their nomadic lifestyle and settle down in seasonal and even permanent camps.

At first they might have camped for four weeks during the harvest. A generation later, as wheat plants multiplied and spread, the harvest camp might have lasted for five weeks, then six, and finally it became a permanent village. Evidence of such settlements has been discovered throughout the Middle East, particularly in the Levant, where the Natufian culture flourished from 12,500 BC to 9500 BC. The Natufians were hunter-gatherers who subsisted on dozens of wild species, but they lived in permanent villages and devoted much of their time to the intensive gathering and processing of wild cereals. They built stone houses and granaries. They stored grain for times of need. They invented new tools such as stone scythes for harvesting wild wheat, and stone pestles and mortars to grind it.

In the years following 9500 BC, the descendants of the Natufians continued to gather and process cereals, but they also began to cultivate them in more and more elaborate ways. When gathering wild grains, they took care to lay aside part of the harvest to sow the fields next season. They discovered that they could achieve much better results by sowing the grains deep in the ground rather than haphazardly scattering them on the surface. So they began to hoe and plough. Gradually they also started to weed the fields, to guard them against parasites, and to water and fertilise them. As more effort was directed towards cereal cultivation, there was less time to gather and hunt wild species. The foragers became farmers.

No single step separated the woman gathering wild wheat from the woman farming domesticated wheat, so it's hard to say exactly when the decisive transition to agriculture took place. But, by 8500 BC, the Middle East was peppered with permanent villages such as Jericho, whose inhabitants spent most of their time cultivating a few domesticated species.

With the move to permanent villages and the increase in food supply, the population began to grow. Giving up the nomadic

lifestyle enabled women to have a child every year. Babies were weaned at an earlier age – they could be fed on porridge and gruel. The extra hands were sorely needed in the fields. But the extra mouths quickly wiped out the food surpluses, so even more fields had to be planted. As people began living in disease-ridden settlements, as children fed more on cereals and less on mother's milk, and as each child competed for his or her porridge with more and more siblings, child mortality soared. In most agricultural societies at least one out of every three children died before reaching twenty.¹ Yet the increase in births still outpaced the increase in deaths; humans kept having larger numbers of children.

With time, the 'wheat bargain' became more and more burdensome. Children died in droves, and adults ate bread by the sweat of their brows. The average person in Jericho of 8500 BC lived a harder life than the average person in Jericho of 9500 BC or 13,000 BC. But nobody realised what was happening. Every generation continued to live like the previous generation, making only small improvements here and there in the way things were done. Paradoxically, a series of 'improvements', each of which was meant to make life easier, added up to a millstone around the necks of these farmers.

Why did people make such a fateful miscalculation? For the same reason that people throughout history have miscalculated. People were unable to fathom the full consequences of their decisions. Whenever they decided to do a bit of extra work – say, to hoe the fields instead of scattering seeds on the surface – people thought, 'Yes, we will have to work harder. But the harvest will be so bountiful! We won't have to worry any more about lean years. Our children will never go to sleep hungry.' It made sense. If you worked harder, you would have a better life. That was the plan.

The first part of the plan went smoothly. People indeed worked harder. But people did not foresee that the number of children would increase, meaning that the extra wheat would have to be shared between more children. Neither did the early farmers understand

that feeding children with more porridge and less breast milk would weaken their immune system, and that permanent settlements would be hotbeds for infectious diseases. They did not foresee that by increasing their dependence on a single source of food, they were actually exposing themselves even more to the depredations of drought. Nor did the farmers foresee that in good years their bulging granaries would tempt thieves and enemies, compelling them to start building walls and doing guard duty.

Then why didn't humans abandon farming when the plan backfired? Partly because it took generations for the small changes to accumulate and transform society and, by then, nobody remembered that they had ever lived differently. And partly because population growth burned humanity's boats. If the adoption of ploughing increased a village's population from 100 to 110, which ten people would have volunteered to starve so that the others could go back to the good old times? There was no going back. The trap snapped shut.

The pursuit of an easier life resulted in much hardship, and not for the last time. It happens to us today. How many young college graduates have taken demanding jobs in high-powered firms, vowing that they will work hard to earn money that will enable them to retire and pursue their real interests when they are thirty-five? But by the time they reach that age, they have large mortgages, children to school, houses in the suburbs that necessitate at least two cars per family, and a sense that life is not worth living without really good wine and expensive holidays abroad. What are they supposed to do, go back to digging up roots? No, they double their efforts and keep slaving away.

One of history's few iron laws is that luxuries tend to become necessities and to spawn new obligations. Once people get used to a certain luxury, they take it for granted. Then they begin to count on it. Finally they reach a point where they can't live without it. Let's take another familiar example from our own time. 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 get 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?

Sadly not. Back in the snail-mail era, people usually only wrote letters when they had something important to relate. Rather than writing the first thing that came into their heads, they considered carefully what they wanted to say and how to phrase it. They expected to receive a similarly considered answer. Most people wrote and received no more than a handful of letters a month and seldom felt compelled to reply immediately. Today I receive dozens of emails each day, all from people who expect a prompt reply. We thought we were saving time; instead we revved up the treadmill of life to ten times its former speed and made our days more anxious and agitated.

Here and there a Luddite holdout refuses to open an email account, just as thousands of years ago some human bands refused to take up farming and so escaped the luxury trap. But the Agricultural Revolution didn't need every band in a given region to join up. It only took one. Once one band settled down and started tilling, whether in the Middle East or Central America, agriculture was irresistible. Since farming created the conditions for swift demographic growth, farmers could usually overcome foragers by sheer weight of numbers. The foragers could either run away, abandoning their hunting grounds to field and pasture, or take up the plough-share themselves. Either way, the old life was doomed.

The story of the luxury trap carries with it an important lesson. Humanity's search for an easier life released immense forces of change that transformed the world in ways nobody envisioned or wanted.

Nobody plotted the Agricultural Revolution or sought human dependence on cereal cultivation. A series of trivial decisions aimed mostly at filling a few stomachs and gaining a little security had the cumulative effect of forcing ancient foragers to spend their days carrying water buckets under a scorching sun.

Divine Intervention

The above scenario explains the Agricultural Revolution as a miscalculation. It's very plausible. History is full of far more idiotic miscalculations. But there's another possibility. Maybe it wasn't the search for an easier life that brought about the transformation. Maybe Sapiens had other aspirations, and were consciously willing to make their lives harder in order to achieve them.

Scientists usually seek to attribute historical developments to cold economic and demographic factors. It sits better with their rational and mathematical methods. In the case of modern history, scholars cannot avoid taking into account non-material factors such as ideology and culture. The written evidence forces their hand. We have enough documents, letters and memoirs to prove that the Second World War was not caused by food shortages or demographic pressures. But we have no documents from the Neolithic culture, so when dealing with ancient periods the materialist school reigns supreme. It is difficult to prove that preliterate people were motivated by faith rather than economic necessity.

Yet, in some rare cases, we are lucky enough to find telltale clues. In 1995 archaeologists began to excavate a site in south-east Turkey called Göbekli Tepe. In the oldest stratum they discovered no signs of a settlement, houses or daily activities. They did, however, find monumental pillared structures decorated with spectacular engravings. Each stone pillar weighed up to seven tons and reached a height of five metres. In a nearby quarry they found a half-chiselled

pillar weighing fifty tons. Altogether, they uncovered more than ten monumental structures, the largest of them nearly thirty metres across.

Archaeologists are familiar with such monumental structures from sites around the world – the best-known example is Stonehenge in Britain. Yet as they studied Göbekli Tepe, they discovered an amazing fact. Stonehenge dates to 2500 BC, and was built by a developed agricultural society. The structures at Göbekli Tepe are dated to about 9500 BC, and all available evidence indicates that they were built by hunter-gatherers. The archaeological community initially found it difficult to credit these findings, but one test after another confirmed both the early date of the structures and the pre-agricultural society of their builders. The capabilities of ancient foragers, and the complexity of their cultures, seem to be far more impressive than was previously suspected.

Why would a foraging society build such structures? They had no obvious utilitarian purpose. They were neither mammoth slaughterhouses nor places to shelter from rain or hide from lions. That leaves us with the theory that they were built for some mysterious cultural purpose that archaeologists have a hard time deciphering. Whatever it was, the foragers thought it worth a huge amount of effort and time. The only way to build Göbekli Tepe was for thousands of foragers belonging to different bands and tribes to cooperate over an extended period of time. Only a sophisticated religious or ideological system could sustain such efforts.

Göbekli Tepe held another sensational secret. For many years, geneticists have been tracing the origins of domesticated wheat. Recent discoveries indicate that at least one domesticated variant, einkorn wheat, originated in the Karacadağ Hills – about thirty kilometres from Göbekli Tepe.⁶

This can hardly be a coincidence. It's likely that the cultural centre of Göbekli Tepe was somehow connected to the initial domestication of wheat by humankind and of humankind by wheat. In

13. Opposite: The remains of a monumental structure from Göbekli Tepe. Right: One of the decorated stone pillars (about five metres high).



order to feed the people who built and used the monumental structures, particularly large quantities of food were required. It may well be that foragers switched from gathering wild wheat to intense wheat cultivation, not to increase their normal food supply, but rather to support the building and running of a temple. In the conventional picture, pioneers first built a village, and when it prospered, they set up a temple in the middle. But Göbekli Tepe suggests that the temple may have been built first, and that a village later grew up around it.

Victims of the Revolution

The Faustian bargain between humans and grains was not the only deal our species made. Another deal was struck concerning the fate of animals such as sheep, goats, pigs and chickens. Nomadic bands that stalked wild sheep gradually altered the constitutions of the



herds on which they preyed. This process probably began with selective hunting. Humans learned that it was to their advantage to hunt only adult rams and old or sick sheep. They spared fertile females and young lambs in order to safeguard the long-term vitality of the local herd. The second step might have been to actively defend the herd against predators, driving away lions, wolves and rival human bands. The band might next have corralled the herd into a narrow gorge in order to better control and defend it. Finally, people began to make a more careful selection among the sheep in order to tailor them to human needs. The most aggressive rams, those that showed the greatest resistance to human control, were slaughtered first. So were the skinniest and most inquisitive females. (Shepherds are not fond of sheep whose curiosity takes them far from the herd.) With each passing generation, the sheep became fatter, more submissive and less curious. *Voilà!* Mary had a little lamb and everywhere that Mary went the lamb was sure to go.

Alternatively, hunters may have caught and 'adopted' a lamb, fattening it during the months of plenty and slaughtering it in the leaner season. At some stage they began keeping a greater number of such lambs. Some of these reached puberty and began to procreate. The most aggressive and unruly lambs were first to the slaughter. The most submissive, most appealing lambs were allowed to live longer and procreate. The result was a herd of domesticated and submissive sheep.

Such domesticated animals – sheep, chickens, donkeys and others – supplied food (meat, milk, eggs), raw materials (skins, wool) and muscle power. Transportation, ploughing, grinding and other tasks, hitherto performed by human sinew, were increasingly carried out by animals. In most farming societies people focused on plant cultivation; raising animals was a secondary activity. But a new kind of society also appeared in some places, based primarily on the exploitation of animals: tribes of pastoralist herders.

As humans spread around the world, so did their domesticated animals. Ten thousand years ago, not more than a few million sheep, cattle, goats, boars and chickens lived in restricted Afro-Asian niches. Today the world contains about a billion sheep, a billion pigs, more than a billion cattle, and more than 25 billion chickens. And they are all over the globe. The domesticated chicken is the most widespread fowl ever. Following *Homo sapiens*, domesticated cattle, pigs and sheep are the second, third and fourth most widespread large mammals in the world. From a narrow evolutionary perspective, which measures success by the number of DNA copies, the Agricultural Revolution was a wonderful boon for chickens, cattle, pigs and sheep.

Unfortunately, the evolutionary perspective is an incomplete measure of success. It judges everything by the criteria of survival and reproduction, with no regard for individual suffering and happiness. 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. (Why keep feeding a cock for three years if it has already reached its maximum weight after three months?)

Egg-laying hens, dairy cows and draught animals are sometimes allowed to live for many years. But the price is subjugation to a way of life completely alien to their urges and desires. It's reasonable to assume, for example, that bulls prefer to spend their days wandering over open prairies in the company of other bulls and cows rather than pulling carts and ploughshares under the yoke of a whip-wielding ape.

In order to turn bulls, horses, donkeys and camels into obedient draught animals, their natural instincts and social ties had to be broken, their aggression and sexuality contained, and their freedom of movement curtailed. Farmers developed techniques such as locking animals inside pens and cages, bridling them in harnesses and leashes, training them with whips and cattle prods, and mutilating them. The process of taming almost always involves the castration of males. This restrains male aggression and enables humans selectively to control the herd's procreation.

In many New Guinean societies, the wealth of a person has traditionally been determined by the number of pigs he or she owns. To ensure that the pigs can't run away, farmers in northern New Guinea slice off a chunk of each pig's nose. This causes severe pain whenever the pig tries to sniff. Since the pigs cannot find food or



14. A painting from an Egyptian grave, c.1200 BC: a pair of oxen ploughing a field. In the wild, cattle roamed as they pleased in herds with a complex social structure. The castrated and domesticated ox wasted away his life under the lash and in a narrow pen, labouring alone or in pairs in a way that suited neither its body nor its social and emotional needs. When an ox could no longer pull the plough, it was slaughtered. (Note the hunched position of the Egyptian farmer who, much like the ox, spent his life in hard labour oppressive to his body, his mind and his social relationships.)

even find their way around without sniffing, this mutilation makes them completely dependent on their human owners. In another area of New Guinea, it has been customary to gouge out pigs' eyes, so that they cannot even see where they're going.⁷

The dairy industry has its own ways of forcing animals to do its will. Cows, goats and sheep produce milk only after giving birth to calves, kids and lambs, and only as long as the youngsters are suckling. To continue a supply of animal milk, a farmer needs to have calves,

kids or lambs for suckling, but must prevent them from monopolising the milk. One common method throughout history was to simply slaughter the calves and kids shortly after birth, milk the mother for all she was worth, and then get her pregnant again. This is still a very widespread technique. In many modern dairy farms a milk cow usually lives for about five years before being slaughtered. During these five years she is almost constantly pregnant, and is fertilised within 60 to 120 days after giving birth in order to preserve maximum milk production. Her calves are separated from her shortly after birth. The females are reared to become the next generation of dairy cows, whereas the males are handed over to the care of the meat industry.⁸

Another method is to keep the calves and kids near their mothers, but prevent them by various stratagems from suckling too much milk. The simplest way to do that is to allow the kid or calf to start suckling, but drive it away once the milk starts flowing. This method usually encounters resistance from both kid and mother. Some shepherd tribes used to kill the offspring, eat its flesh, and then stuff the skin. The stuffed offspring was then presented to the mother so that its presence would encourage her milk production. The Nuer tribe in the Sudan went so far as to smear stuffed animals with their mother's urine, to give the counterfeit calves a familiar, live scent. Another Nuer technique was to tie a ring of thorns around a calf's mouth, so that it pricks the mother and causes her to resist suckling.⁹ Tuareg camel breeders in the Sahara used to puncture or cut off parts of the nose and upper lip of young camels in order to make suckling painful, thereby discouraging them from consuming too much milk.¹⁰

Not all agricultural societies were this cruel to their farm animals. The lives of some domesticated animals could be quite good. Sheep raised for wool, pet dogs and cats, war horses and race horses often enjoyed comfortable conditions. The Roman emperor Caligula allegedly planned to appoint his favourite horse, Incitatus, to the consulship. Shepherds and farmers throughout history showed affection



15. A modern calf in an industrial meat farm. Immediately after birth the calf is separated from its mother and locked inside a tiny cage not much bigger than the calf's own body. There the calf spends its entire life - about four months on average. It never leaves its cage, nor is it allowed to play with other calves or even walk - all so that its muscles will not grow strong. Soft muscles mean a soft and juicy steak. The first time the calf has a chance to walk, stretch its muscles and touch other calves is on its way to the slaughterhouse. In evolutionary terms, cattle represent one of the most successful animal species ever to exist. At the same time, they are some of the most miserable animals on the planet.

for their animals and have taken great care of them, just as many slaveholders felt affection and concern for their slaves. It was no accident that kings and prophets styled themselves as shepherds and likened the way they and the gods cared for their people to a shepherd's care for his flock.

Yet from the viewpoint of the herd, rather than that of the shepherd, it's hard to avoid the impression that for the vast majority of domesticated animals, the Agricultural Revolution was a terrible catastrophe. Their evolutionary 'success' is meaningless. A rare wild rhinoceros on the brink of extinction is probably more satisfied than a calf who spends its short life inside a tiny box, fattened to produce juicy steaks. The contented rhinoceros is no less content for being among the last of its kind. The numerical success of the calf's species is little consolation for the suffering the individual endures.

This discrepancy between evolutionary success and individual suffering is perhaps the most important lesson we can draw from the Agricultural Revolution. When we study the narrative of plants such as wheat and maize, maybe the purely evolutionary perspective makes sense. Yet in the case of animals such as cattle, sheep and Sapiens, each with a complex world of sensations and emotions, we have to consider how evolutionary success translates into individual experience. In the following chapters we will see time and again how a dramatic increase in the collective power and ostensible success of our species went hand in hand with much individual suffering.

developed a very strong attachment to this structure. This was a far-reaching revolution, whose impact was psychological as much as architectural. Henceforth, attachment to 'my house' and separation from the neighbours became the psychological hallmark of a much more self-centred creature.

The new agricultural territories were not only far smaller than those of ancient foragers, but also far more artificial. Aside from the use of fire, hunter-gatherers made few deliberate changes to the lands in which they roamed. Farmers, on the other hand, lived in artificial human islands that they laboriously carved out of the surrounding wilds. They cut down forests, dug canals, cleared fields, built houses, ploughed furrows, and planted fruit trees in tidy rows. The resulting artificial habitat was meant only for humans and 'their' plants and animals, and was often fenced off by walls and hedges. Farmer families did all they could to keep out wayward weeds and wild animals. If such interlopers made their way in, they were driven out. If they persisted, their human antagonists sought ways to exterminate them. Particularly strong defences were erected around the home. From the dawn of agriculture until this very day, billions of humans armed with branches, swatters, shoes and poison sprays have waged relentless war against the diligent ants, furtive roaches, adventurous spiders and misguided beetles that constantly infiltrate the human domicile.

For most of history these man-made enclaves remained very small, surrounded by expanses of untamed nature. The earth's surface measures about 510 million square kilometres, of which 155 million is land. As late as AD 1400, the vast majority of farmers, along with their plants and animals, clustered together in an area of just 11 million square kilometres – 2 per cent of the planet's surface.² Everywhere else was too cold, too hot, too dry, too wet, or otherwise unsuited for cultivation. This minuscule 2 per cent of the earth's surface constituted the stage on which history unfolded.

People found it difficult to leave their artificial islands. They could not abandon their houses, fields and granaries without grave

6

Building Pyramids

THE AGRICULTURAL REVOLUTION IS ONE of the most controversial events in history. Some partisans proclaim that it set humankind on the road to prosperity and progress. Others insist that it led to perdition. This was the turning point, they say, where Sapiens cast off its intimate symbiosis with nature and sprinted towards greed and alienation. Whichever direction the road led, there was no going back. Farming enabled populations to increase so radically and rapidly that no complex agricultural society could ever again sustain itself if it returned to hunting and gathering. Around 10,000 BC, before the transition to agriculture, earth was home to about 5–8 million nomadic foragers. By the first century AD, only 1–2 million foragers remained (mainly in Australia, America and Africa), but their numbers were dwarfed by the world's 250 million farmers.¹

The vast majority of farmers lived in permanent settlements; only a few were nomadic shepherds. Settling down caused most people's turf to shrink dramatically. Ancient hunter-gatherers usually lived in territories covering many dozens and even hundreds of square kilometres. 'Home' was the entire territory, with its hills, streams, woods and open sky. Peasants, on the other hand, spent most of their days working a small field or orchard, and their domestic lives centred on a cramped structure of wood, stone or mud, measuring no more than a few dozen metres – the house. The typical peasant

risk of loss. Furthermore, as time went on they accumulated more and more things – objects, not easily transportable, that tied them down. Ancient farmers might seem to us dirt poor, but a typical family possessed more artefacts than an entire forager tribe.

The Coming of the Future

While agricultural space shrank, agricultural time expanded. Foragers usually didn't waste much time thinking about next month or next summer. Farmers sailed in their imagination years and decades into the future.

Foragers discounted the future because they lived from hand to mouth and could only preserve food or accumulate possessions with difficulty. Of course, they clearly engaged in some advanced planning. The creators of the cave paintings of Chauvet, Lascaux and Altamira almost certainly intended them to last for generations. Social alliances and political rivalries were long-term affairs. It often took years to repay a favour or to avenge a wrong. Nevertheless, in the subsistence economy of hunting and gathering, there was an obvious limit to such long-term planning. Paradoxically, it saved foragers a lot of anxieties. There was no sense in worrying about things that they could not influence.

The Agricultural Revolution made the future far more important than it had ever been before. Farmers must always keep the future in mind and must work in its service. The agricultural economy was based on a seasonal cycle of production, comprising long months of cultivation followed by short peak periods of harvest. On the night following the end of a plentiful harvest the peasants might celebrate for all they were worth, but within a week or so they were again up at dawn for a long day in the field. Although there was enough food for today, next week and even next month, they had to worry about next year and the year after that.

Concern about the future was rooted not only in seasonal cycles of production, but also in the fundamental uncertainty of agriculture. Since most villages lived by cultivating a very limited variety of domesticated plants and animals, they were at the mercy of droughts, floods and pestilence. Peasants were obliged to produce more than they consumed so that they could build up reserves. Without grain in the silo, jars of olive oil in the cellar, cheese in the pantry and sausages hanging from the rafters, they would starve in bad years. And bad years were bound to come, sooner or later. A peasant living on the assumption that bad years would not come didn't live long.

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? Meanwhile, in the valleys of the Euphrates, Indus and Yellow rivers, other peasants monitored, with no less trepidation, the height of the water. They needed the rivers to rise in order to spread the fertile topsoil washed down from the highlands, and to enable their vast irrigation systems to fill with water. But floods that surged too high or came at the wrong time could destroy their fields as much as a drought.

Peasants were worried about the future not just because they had more cause for worry, but also because they could do something about it. They could clear another field, dig another irrigation canal, sow more crops. The anxious peasant was as frenetic and hard-working as a harvester ant in the summer, sweating to plant olive trees whose oil would be pressed by his children and grandchildren, putting off until the winter or the following year the eating of the food he craved today.

The stress of farming had far-reaching consequences. It was the

foundation of large-scale political and social systems. Sadly, the diligent peasants almost never achieved the future economic security they so craved through their hard work in the present. Everywhere, rulers and elites sprang up, living off the peasants' surplus food and leaving them with only a bare subsistence.

These forfeited food surpluses fuelled politics, wars, art and philosophy. They built palaces, forts, monuments and temples. Until the late modern era, more than 90 per cent of humans were peasants who rose each morning to till the land by the sweat of their brows. The extra they produced fed the tiny minority of elites – kings, government officials, soldiers, priests, artists and thinkers – who fill the history books. History is something that very few people have been doing while everyone else was ploughing fields and carrying water buckets.

An Imagined Order

The food surpluses produced by peasants, coupled with new transportation technology, eventually enabled more and more people to cram together first into large villages, then into towns, and finally into cities, all of them joined together by new kingdoms and commercial networks.

Yet in order to take advantage of these new opportunities, food surpluses and improved transportation were not enough. The mere fact that one can feed a thousand people in the same town or a million people in the same kingdom does not guarantee that they can agree how to divide the land and water, how to settle disputes and conflicts, and how to act in times of drought or war. And if no agreement can be reached, strife spreads, even if the storehouses are bulging. It was not food shortages that caused most of history's wars and revolutions. The French Revolution was spearheaded by affluent lawyers, not by famished peasants. The Roman Republic

reached the height of its power in the first century BC, when treasure fleets from throughout the Mediterranean enriched the Romans beyond their ancestors' wildest dreams. Yet it was at that moment of maximum affluence that the Roman political order collapsed into a series of deadly civil wars. Yugoslavia in 1991 had more than enough resources to feed all its inhabitants, and still disintegrated into a terrible bloodbath.

The problem at the root of such calamities is that humans evolved for millions of years in small bands of a few dozen individuals. The handful of millennia separating the Agricultural Revolution from the appearance of cities, kingdoms and empires was not enough time to allow an instinct for mass cooperation to evolve.

Despite the lack of such biological instincts, during the foraging era, hundreds of strangers were able to cooperate thanks to their shared myths. However, this cooperation was loose and limited. Every Sapiens band continued to run its life independently and to provide for most of its own needs. An archaic sociologist living 20,000 years ago, who had no knowledge of events following the Agricultural Revolution, might well have concluded that mythology had a fairly limited scope. Stories about ancestral spirits and tribal totems were strong enough to enable 500 people to trade seashells, celebrate the odd festival, and join forces to wipe out a Neanderthal band, but no more than that. Mythology, the ancient sociologist would have thought, could not possibly enable millions of strangers to cooperate on a daily basis.

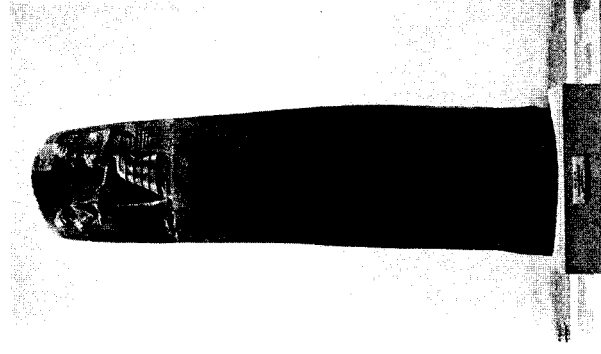
But that turned out to be wrong. Myths, it transpired, *are* stronger than anyone could have imagined. When the Agricultural Revolution opened opportunities for the creation of crowded cities and mighty empires, people invented stories about great gods, motherlands and joint stock companies to provide the needed social links. While human evolution was crawling at its usual snail's pace, the human imagination was building astounding networks of mass cooperation, unlike any other ever seen on earth.

Around 8500 BC the largest settlements in the world were villages such as Jericho, which contained a few hundred individuals. By 7000 BC the town of Çatalhöyük in Anatolia numbered between 5,000 and 10,000 individuals. It may well have been the world's biggest settlement at the time. During the fifth and fourth millennia BC, cities with tens of thousands of inhabitants sprouted in the Fertile Crescent, and each of these held sway over many nearby villages. In 3100 BC the entire lower Nile Valley was united into the first Egyptian kingdom. Its pharaohs ruled thousands of square kilometres and hundreds of thousands of people. Around 2250 BC Sargon the Great forged the first empire, the Akkadian. It boasted over a million subjects and a standing army of 5,400 soldiers. Between 1000 BC and 500 BC, the first mega-empires appeared in the Middle East: the Late Assyrian Empire, the Babylonian Empire, and the Persian Empire. They ruled over many millions of subjects and commanded tens of thousands of soldiers.

In 221 BC the Qin dynasty united China, and shortly afterwards Rome united the Mediterranean basin. Taxes levied on 40 million Qin subjects paid for a standing army of hundreds of thousands of soldiers and a complex bureaucracy that employed more than 100,000 officials. The Roman Empire at its zenith collected taxes from up to 100 million subjects. This revenue financed a standing army of 250,000–500,000 soldiers, a road network still in use 1,500 years later, and theatres and amphitheatres that host spectacles to this day.

Impressive, no doubt, but we mustn't harbour rosy illusions about 'mass cooperation networks' operating in pharaonic Egypt or the Roman Empire. 'Cooperation' sounds very altruistic, but is not always voluntary and seldom egalitarian. Most human cooperation networks have been geared towards oppression and exploitation. The peasants paid for the burgeoning cooperation networks with their precious food surpluses, despairing when the tax collector wiped out an entire year of hard labour with a single stroke of his imperial pen. The famed Roman amphitheatres were often built by

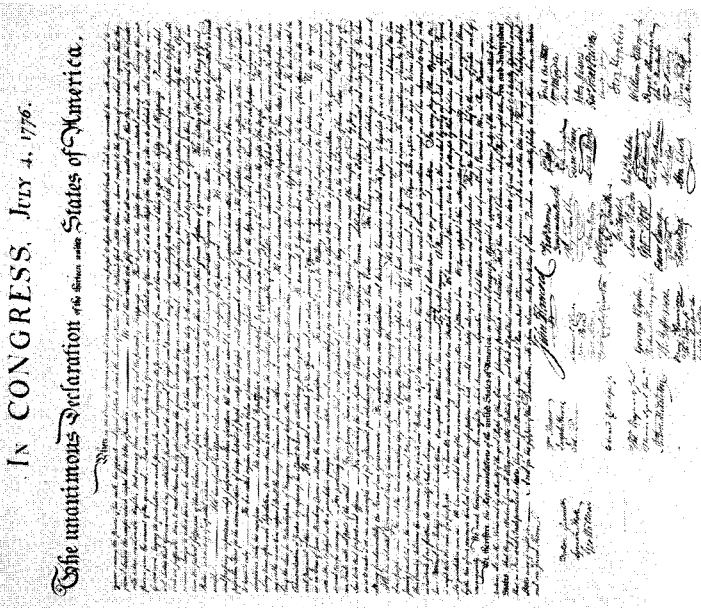
16. A stone stela inscribed with the Code of Hammurabi, c.1776 BC.



slaves so that wealthy and idle Romans could watch other slaves engage in vicious gladiatorial combat. Even prisons and concentration camps are cooperation networks, and can function only because thousands of strangers somehow manage to coordinate their actions.

All these cooperation networks – from the cities of ancient Mesopotamia to the Qin and Roman empires – were 'imagined orders'. The social norms that sustained them were based neither on ingrained instincts nor on personal acquaintances, but rather on belief in shared myths.

How can myths sustain entire empires? We have already discussed one such example: Peugeot. Now let's examine two of the best-known myths of history: the Code of Hammurabi of c.1776 BC, which served as a cooperation manual for hundreds of thousands of ancient Babylonians; and the American Declaration of Independence of



17. The Declaration of Independence of the United States, signed 4 July 1776.

AD 1776, which today still serves as a cooperation manual for hundreds of millions of modern Americans.

In 1776 BC Babylon was the world's biggest city. The Babylonian Empire was probably the world's largest, with more than a million subjects. It ruled most of Mesopotamia, including the bulk of modern Iraq and parts of present-day Syria and Iran. The Babylonian king most famous today was Hammurabi. His fame is due primarily to the text that bears his name, the Code of Hammurabi. This was a collection of laws and judicial decisions whose aim was to present Hammurabi as a role model of a just king, serve as a basis for a

more uniform legal system across the Babylonian Empire, and teach future generations what justice is and how a just king acts.

Future generations took notice. The intellectual and bureaucratic elite of ancient Mesopotamia canonised the text, and apprentice scribes continued to copy it long after Hammurabi died and his empire lay in ruins. Hammurabi's Code is therefore a good source for understanding the ancient Mesopotamians' ideal of social order.³

The text begins by saying that the gods Anu, Enlil and Marduk – the leading deities of the Mesopotamian pantheon – appointed Hammurabi 'to make justice prevail in the land, to abolish the wicked and the evil, to prevent the strong from oppressing the weak'.⁴ It then lists about 300 judgments, given in the set formula: 'If such and such a thing happens, such is the judgment.' For example, judgments 196–9 and 209–14 read:

196. If a superior man should blind the eye of another superior man, they shall blind his eye.

197. If he should break the bone of another superior man, they shall break his bone.

198. If he should blind the eye of a commoner or break the bone of a commoner, he shall weigh and deliver sixty shekels of silver.

199. If he should blind the eye of a slave of a superior man or break the bone of a slave of a superior man, he shall weigh and deliver one-half of the slave's value [in silver].⁵

209. If a superior man strikes a woman of superior class and thereby causes her to miscarry her fetus, he shall weigh and deliver ten shekels of silver for her fetus.

210. If that woman should die, they shall kill his daughter.

211. If he should cause a woman of commoner class to miscarry her fetus by the beating, he shall weigh and deliver five shekels of silver.

212. If that woman should die, he shall weigh and deliver thirty shekels of silver.

213. If he strikes a slave-woman of a superior man and thereby causes her to miscarry her fetus, he shall weigh and deliver two shekels of silver.

214. If that slave-woman should die, he shall weigh and deliver twenty shekels of silver.⁶

After listing his judgments, Hammurabi again declares that:

These are the just decisions which Hammurabi, the able king, has established and thereby has directed the land along the course of truth and the correct way of life . . . I am Hammurabi, noble king. I have not been careless or negligent towards humankind, granted to my care by the god Enlil, and with whose shepherding the god Marduk charged me.⁷

Hammurabi's Code asserts that Babylonian social order is rooted in universal and eternal principles of justice, dictated by the gods. The principle of hierarchy is of paramount importance. According to the code, people are divided into two genders and three classes: superior people, commoners and slaves. Members of each gender and class have different values. The life of a female commoner is worth thirty silver shekels and that of a slave-woman twenty silver shekels, whereas the life of a male commoner is worth sixty silver shekels.

The code also establishes a strict hierarchy within families, according to which children are not independent persons, but rather the property of their parents. Hence, if one superior man kills the daughter of another superior man, the killer's daughter is executed in punishment. To us it may seem strange that the killer remains unharmed whereas his innocent daughter is killed, but to Hammurabi and the Babylonians this seemed perfectly just. Hammurabi's Code was based on the premise that if the king's subjects all accepted their positions in the hierarchy and acted accordingly, the empire's

million inhabitants would be able to cooperate effectively. Their society could then produce enough food for its members, distribute it efficiently, protect itself against its enemies, and expand its territory so as to acquire more wealth and better security.

About 3,500 years after Hammurabi's death, the inhabitants of thirteen British colonies in North America felt that the king of England was treating them unjustly. Their representatives gathered in the city of Philadelphia, and on 4 July 1776 the colonies declared that their inhabitants were no longer subjects of the British Crown. Their Declaration of Independence proclaimed universal and eternal principles of justice, which, like those of Hammurabi, were inspired by a divine power. However, the most important principle dictated by the American god was somewhat different from the principle dictated by the gods of Babylon. The American Declaration of Independence asserts that:

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable rights, that among these are life, liberty, and the pursuit of happiness.

Like Hammurabi's Code, the American founding document promises that if humans act according to its sacred principles, millions of them would be able to cooperate effectively, living safely and peacefully in a just and prosperous society. Like the Code of Hammurabi, the American Declaration of Independence was not just a document of its time and place – it was accepted by future generations as well. For more than 200 years, American schoolchildren have been copying and learning it by heart.

The two texts present us with an obvious dilemma. Both the Code of Hammurabi and the American Declaration of Independence claim to outline universal and eternal principles of justice, but according to the Americans all people are equal, whereas according to the Babylonians people are decidedly unequal. The Americans would, of course, say that they are right, and that Hammurabi is

wrong. Hammurabi, naturally, would retort that he is right, and that the Americans are wrong. In fact, they are both wrong. Hammurabi and the American Founding Fathers alike imagined a reality governed by universal and immutable principles of justice, such as equality or hierarchy. Yet the only place where such universal principles exist is in the fertile imagination of Sapiens, and in the myths they invent and tell one another. These principles have no objective validity.

It is easy for us to accept that the division of people into 'superiors' and 'commoners' is a figment of the imagination. Yet the idea that all humans are equal is also a myth. In what sense do all humans equal one another? Is there any objective reality, outside the human imagination, in which we are truly equal? Are all humans equal to one another biologically? Let us try to translate the most famous line of the American Declaration of Independence into biological terms:

We hold these truths to be self-evident, that all men are **created equal**, that they are **endowed** by their **Creator** with certain **unalienable rights**, that among these are life, **liberty**, and the pursuit of **happiness**.

According to the science of biology, people were not 'created'. They have evolved. And they certainly did not evolve to be 'equal'. The idea of equality is inextricably intertwined with the idea of creation. The Americans got the idea of equality from Christianity, which argues that every person has a divinely created soul, and that all souls are equal before God. However, if we do not believe in the Christian myths about God, creation and souls, what does it mean that all people are 'equal'? Evolution is based on difference, not on equality. Every person carries a somewhat different genetic code, and is exposed from birth to different environmental influences. This leads to the development of different qualities that carry with them different chances of survival. 'Created equal' should therefore be translated into 'evolved differently'.

Just as people were never created, neither, according to the science of biology, is there a 'Creator' who 'endows' them with anything. There is only a blind evolutionary process, devoid of any purpose, leading to the birth of individuals. 'Endowed by their Creator' should be translated simply into 'born'.

Equally, there are no such things as rights in biology. There are only organs, abilities and characteristics. Birds fly not because they have a right to fly, but because they have wings. And it's not true that these organs, abilities and characteristics are 'unalienable'. Many of them undergo constant mutations, and may well be completely lost over time. The ostrich is a bird that lost its ability to fly. So 'unalienable rights' should be translated into 'mutable characteristics'.

And what are the characteristics that evolved in humans? 'Life', certainly. But 'liberty'? There is no such thing in biology. Just like equality, rights and limited liability companies, liberty is something that people invented and that exists only in their imagination. From a biological viewpoint, it is meaningless to say that humans in democratic societies are free, whereas humans in dictatorships are unfree. And what about 'happiness'? So far biological research has failed to come up with a clear definition of happiness or a way to measure it objectively. Most biological studies acknowledge only the existence of pleasure, which is more easily defined and measured. So 'life, liberty, and the pursuit of happiness' should be translated into 'life and the pursuit of pleasure'.

So here is that line from the American Declaration of Independence translated into biological terms:

We hold these truths to be self-evident, that all men evolved differently, that they are born with certain mutable characteristics, and that among these are life and the pursuit of pleasure.

Advocates of equality and human rights may be outraged by this line of reasoning. Their response is likely to be 'We know that people are not equal biologically! But if we believe that we are all

equal in essence, it will enable us to create a stable and prosperous society.' I have no argument with that. This is exactly what I mean by 'imagined order'. We believe in a particular order not because it is objectively true, but because believing in it enables us to cooperate effectively and forge a better society. Imagined orders are not evil conspiracies or useless mirages. Rather, they are the only way large numbers of humans can cooperate effectively. Bear in mind, though, that Hammurabi might have defended his principle of hierarchy using the same logic: 'I know that superiors, commoners and slaves are not inherently different kinds of people. But if we believe that they are, it will enable us to create a stable and prosperous society.'

True Believers

It's likely that more than a few readers squirmed in their chairs while reading the preceding paragraphs. Most of us today are educated to react in such a way. It is easy to accept that Hammurabi's Code was a myth, but we do not want to hear that human rights are also a myth. If people realise that human rights exist only in the imagination, isn't there a danger that our society will collapse? Voltaire said about God that 'There is no God, but don't tell that to my servant, lest he murder me at night'. Hammurabi would have said the same about his principle of hierarchy, and Thomas Jefferson about human rights. *Homo sapiens* has no natural rights, just as spiders, hyenas and chimpanzees have no natural rights. But don't tell that to our servants, lest they murder us at night.

Such fears are well justified. A natural order is a stable order. There is no chance that gravity will cease to function tomorrow, even if people stop believing in it. In contrast, an imagined order is always in danger of collapse, because it depends upon myths, and myths vanish once people stop believing in them. In order to safeguard an imagined order, continuous and strenuous efforts are imperative.

Some of these efforts take the shape of violence and coercion. Armies, police forces, courts and prisons are ceaselessly at work forcing people to act in accordance with the imagined order. If an ancient Babylonian blinded his neighbour, some violence was usually necessary in order to enforce the law of 'an eye for an eye'. When, in 1860, a majority of American citizens concluded that African slaves are human beings and must therefore enjoy the right of liberty, it took a bloody civil war to make the southern states acquiesce.

However, an imagined order cannot be sustained by violence alone. It requires some true believers as well. Prince Talleyrand, who began his chameleon-like career under Louis XVI, later served the revolutionary and Napoleonic regimes, and switched loyalties in time to end his days working for the restored monarchy, summed up decades of governmental experience by saying that 'You can do many things with bayonets, but it is rather uncomfortable to sit on them.' A single priest often does the work of a hundred soldiers – far more cheaply and effectively. Moreover, no matter how efficient bayonets are, somebody must wield them. Why should the soldiers, jailors, judges and police maintain an imagined order in which they do not believe? Of all human collective activities, the one most difficult to organise is violence. To say that a social order is maintained by military force immediately raises the question: what maintains the military order? It is impossible to organise an army solely by coercion. At least some of the commanders and soldiers must truly believe in something, be it God, honour, motherland, manhood or money.

An even more interesting question concerns those standing at the top of the social pyramid. Why should they wish to enforce an imagined order if they themselves don't believe in it? It is quite common to argue that the elite may do so out of cynical greed. Yet a cynic who believes in nothing is unlikely to be greedy. It does not take much to provide the objective biological needs of *Homo sapiens*. After those needs are met, more money can be spent on building

pyramids, taking holidays around the world, financing election campaigns, funding your favourite terrorist organisation, or investing in the stock market and making yet more money – all of which are activities that a true cynic would find utterly meaningless. Diogenes, the Greek philosopher who founded the Cynical school, lived in a barrel. When Alexander the Great once visited Diogenes as he was relaxing in the sun, and asked if there were anything he might do for him, the Cynic answered the all-powerful conqueror, 'Yes, there is something you can do for me. Please move a little to the side. You are blocking the sunlight.'

This is why cynics don't build empires and why an imagined order can be maintained only if large segments of the population – and in particular large segments of the elite and the security forces – truly believe in it. Christianity would not have lasted 2,000 years if the majority of bishops and priests failed to believe in Christ. American democracy would not have lasted 250 years if the majority of presidents and congressmen failed to believe in human rights. The modern economic system would not have lasted a single day if the majority of investors and bankers failed to believe in capitalism.

The Prison Walls

How do you cause people to believe in an imagined order such as Christianity, democracy or capitalism? First, you never admit that the order is imagined. You always insist that the order sustaining society is an objective reality created by the great gods or by the laws of nature. People are unequal, not because Hammurabi said so, but because Enlil and Marduk decreed it. People are equal, not because Thomas Jefferson said so, but because God created them that way. Free markets are the best economic system, not because Adam Smith said so, but because these are the immutable laws of nature.

You also educate people thoroughly. From the moment they are born, you constantly remind them of the principles of the imagined order, which are incorporated into anything and everything. They are incorporated into fairy tales, dramas, paintings, songs, etiquette, political propaganda, architecture, recipes and fashions. For example, today people believe in equality, so it's fashionable for rich kids to wear jeans, which were originally working-class attire. In the Middle Ages people believed in class divisions, so no young nobleman would have worn a peasant's smock. Back then, to be addressed as 'Sir' or 'Madam' was a rare privilege reserved for the nobility, and often purchased with blood. Today all polite correspondence, regardless of the recipient, begins with 'Dear Sir or Madam'.

The humanities and social sciences devote most of their energies to explaining exactly how the imagined order is woven into the tapestry of life. In the limited space at our disposal we can only scratch the surface. Three main factors prevent people from realising that the order organising their lives exists only in their imagination:

a. **The imagined order is embedded in the material world.** Though the imagined order exists only in our minds, it can be woven into the material reality around us, and even set in stone. Most Westerners today believe in individualism. They believe that every human is an individual, whose worth does not depend on what other people think of him or her. Each of us has within ourselves a brilliant ray of light that gives value and meaning to our lives. In modern Western schools teachers and parents tell children that if their classmates make fun of them, they should ignore it. Only they themselves, not others, know their true worth.

In modern architecture, this myth leaps out of the imagination to take shape in stone and mortar. The ideal modern house is divided into many small rooms so that each child can have a private space, hidden from view, providing maximum autonomy. This private room almost invariably has a door, and in many households it is

accepted practice for the child to close, and perhaps lock, the door. Even parents are forbidden to enter without knocking and asking permission. The room is decorated as the child sees fit, with rock-star posters on the wall and dirty socks on the floor. Somebody growing up in such a space cannot help but imagine himself 'an individual', his true worth emanating from within rather than from without.

Medieval noblemen did not believe in individualism. Someone's worth was determined by their place in the social hierarchy, and by what other people said about them. Being laughed at was a horrible indignity. Noblemen taught their children to protect their good name whatever the cost. Like modern individualism, the medieval value system left the imagination and was manifested in the stone of medieval castles. The castle rarely contained private rooms for children (or anyone else, for that matter). The teenage son of a medieval baron did not have a private room on the castle's second floor, with posters of Richard the Lionheart and King Arthur on the walls and a locked door that his parents were not allowed to open. He slept alongside many other youths in a large hall. He was always on display and always had to take into account what others saw and said. Someone growing up in such conditions naturally concluded that a man's true worth was determined by his place in the social hierarchy and by what other people said of him.⁸

b. The imagined order shapes our desires. Most people do not wish to accept that the order governing their lives is imaginary, but in fact every person is born into a pre-existing imagined order, and his or her desires are shaped from birth by its dominant myths. Our personal desires thereby become the imagined order's most important defences.

For instance, the most cherished desires of present-day Westerners are shaped by romantic, nationalist, capitalist and humanist myths that have been around for centuries. Friends giving advice often tell

each other, 'Follow your heart.' But the heart is a double agent that usually takes its instructions from the dominant myths of the day, and the very recommendation to 'follow your heart' was implanted in our minds by a combination of nineteenth-century Romantic myths and twentieth-century consumerist myths. The Coca-Cola Company, for example, has marketed Diet Coke around the world under the slogan 'Diet Coke. Do what feels good.'

Even what people take to be their most personal desires are usually programmed by the imagined order. Let's consider, for example, the popular desire to take a holiday abroad. There is nothing natural or obvious about this. A chimpanzee alpha male would never think of using his power in order to go on holiday into the territory of a neighbouring chimpanzee band. The elite of ancient Egypt spent their fortunes building pyramids and having their corpses mummified, but none of them thought of going shopping in Babylon or taking a skiing holiday in Phoenicia. People today spend a great deal of money on holidays abroad because they are true believers in the myths of romantic consumerism.

Romanticism tells us that in order to make the most of our human potential we must have as many different experiences as we can. We must open ourselves to a wide spectrum of emotions; we must sample various kinds of relationships; we must try different cuisines; we must learn to appreciate different styles of music. One of the best ways to do all that is to break free from our daily routine, leave behind our familiar setting, and go travelling in distant lands, where we can 'experience' the culture, the smells, the tastes and the norms of other people. We hear again and again the romantic myths about 'how a new experience opened my eyes and changed my life'.

Consumerism tells us that in order to be happy we must consume as many products and services as possible. If we feel that something is missing or not quite right, then we probably need to buy a product (a car, new clothes, organic food) or a service (housekeeping, relationship therapy, yoga classes). Every television commercial is another



18. The Great Pyramid of Giza. The kind of thing rich people in ancient Egypt did with their money.

little legend about how consuming some product or service will make life better.

Romanticism, which encourages variety, meshes perfectly with consumerism. Their marriage has given birth to the infinite 'market of experiences', on which the modern tourism industry is founded. The tourism industry does not sell flight tickets and hotel bedrooms. It sells experiences. Paris is not a city, nor India a country – they are both experiences, the consumption of which is supposed to widen our horizons, fulfil our human potential, and make us happier. Consequently, when the relationship between a millionaire and his wife is going through a rocky patch, he takes her on an expensive trip to Paris. The trip is not a reflection of some independent desire, but rather of an ardent belief in the myths of romantic consumerism. A wealthy married in ancient Egypt would never have dreamed of solving a relationship crisis by taking his wife on holiday to Babylon. Instead, he might have built for her the sumptuous tomb she had always wanted.

Like the elite of ancient Egypt, most people in most cultures dedicate their lives to building pyramids. Only the names, shapes and sizes of these pyramids change from one culture to the other. They may take the form, for example, of a suburban cottage with a swimming pool and an evergreen lawn, or a gleaming penthouse with an enviable view. Few question the myths that cause us to desire the pyramid in the first place.

c. **The imagined order is inter-subjective.** Even if by some super-human effort I succeed in freeing my personal desires from the grip of the imagined order, I am just one person. In order to change the imagined order I must convince millions of strangers to cooperate with me. For the imagined order is not a subjective order existing in my own imagination – it is rather an inter-subjective order, existing in the shared imagination of thousands and millions of people.

In order to understand this, we need to understand the difference between 'objective', 'subjective', and 'inter-subjective'.

An **objective** phenomenon exists independently of human consciousness and human beliefs. Radioactivity, for example, is not a myth. Radioactive emissions occurred long before people discovered them, and they are dangerous even when people do not believe in them. Marie Curie, one of the discoverers of radioactivity, did not know, during her long years of studying radioactive materials, that they could harm her body. While she did not believe that radioactivity could kill her, she nevertheless died of aplastic anaemia, a disease caused by overexposure to radioactive materials.

The **subjective** is something that exists depending on the consciousness and beliefs of a single individual. It disappears or changes if that particular individual changes his or her beliefs. Many children believe in the existence of an imaginary friend who is invisible and inaudible to the rest of the world. The imaginary friend exists solely in the child's subjective consciousness, and when the

child grows up and ceases to believe in it, the imaginary friend fades away.

The **inter-subjective** is something that exists within the communication network linking the subjective consciousness of many individuals. If a single individual changes his or her beliefs, or even dies, it is of little importance. However, if most individuals in the network die or change their beliefs, the inter-subjective phenomenon will mutate or disappear. Inter-subjective phenomena are neither malevolent frauds nor insignificant charades. They exist in a different way from physical phenomena such as radioactivity, but their impact on the world may still be enormous. Many of history's most important drivers are inter-subjective: law, money, gods, nations.

Peugeot, for example, is not the imaginary friend of Peugeot's CEO. The company exists in the shared imagination of millions of people. The CEO believes in the company's existence because the board of directors also believes in it, as do the company's lawyers, the secretaries in the nearby office, the tellers in the bank, the brokers on the stock exchange, and car dealers from France to Australia. If the CEO alone were suddenly to stop believing in Peugeot's existence, he'd quickly land in the nearest mental hospital and someone else would occupy his office.

Similarly, the dollar, human rights and the United States of America exist in the shared imagination of billions, and no single individual can threaten their existence. If I alone were to stop believing in the dollar, in human rights or in the United States, it wouldn't much matter. These imagined orders are inter-subjective, so in order to change them we must simultaneously change the consciousness of billions of people, which is not easy. A change of such magnitude can be accomplished only with the help of a complex organisation, such as a political party, an ideological movement, or a religious cult. However, in order to establish such complex organisations, it's necessary to convince many strangers to cooperate with one another. And

this will happen only if these strangers believe in some shared myths. It follows that in order to change an existing imagined order, we must first believe in an alternative imagined order.

In order to dismantle Peugeot, for example, we need to imagine something more powerful, such as the French legal system. In order to dismantle the French legal system we need to imagine something even more powerful, such as the French state. And if we would like to dismantle that too, we will have to imagine something yet more powerful.

There is no way out of the imagined order. When we break down our prison walls and run towards freedom, we are in fact running into the more spacious exercise yard of a bigger prison.