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Chapter 2: Ancient egalitarian societies: foraging nomads, pastoralists and farmers

From first hominids to first sapiens

Human history is relatively recent, it spans just a brief period compared to the evolution of life. Before talking about history, let's place humans in context. Hominids evolutionarily separated from chimpanzees and bonobos about 6-7 million years ago, they began using fire and complex tools 3 million years ago. About 300,000 years ago they arrived at the current genetic makeup of homo sapiens.

Even though by then our ancestors were genetically human, they lacked the social "software" machinery that would make them qualify as humans for contemporary observers. Indeed, **what differentiates humans from other animals is that most of our behavior is cultural rather than genetic**.

The first sapiens lived in bands of about 20-50 people. They fed mainly by foraging plants and insects, they hardly hunted except small animals. The large animals were hunted by predators such as lions and their leftovers eaten by scavengers. When these finished the sapiens broke the bones with stones and ate the marrow. They did not show any abilities that other animals do not have. Harari observes that there are many animals capable of using tools, and

words, and some apes are even capable of lying and perpetrating genocide. They weren't especially remarkable among other human species (other hominids), either. Neanderthals for example were bigger, stronger and better adapted to colder climates, while sapiens only inhabited the warmer parts of Africa.

Symbolic or cognitive revolution

About 100,000 years ago the symbolic or cognitive revolution took place. Harari identifies two unique abilities that the sapiens acquired and made them move from the middle of the food chain to the top. Both abilities enabled them to collaborate on larger scales. The first is the ability to gossip, to talk about each other, to identify who is more responsible and reliable, and with whom better not to collaborate, to plan a hunt knowing who is skilled with the javelin, who runs the fastest, etc. This allowed them to go from collaborating from a few dozen to a few hundred people and being able to hunt large animals.

The second is imagination: the ability to talk about things that don't exist. This allowed them to imagine protective spirits of the tribes that allowed them to collaborate in the order of thousands of people. Later in history this same ability will produce gods, nations, corporations, money, etc ... that will allow sapiens to collaborate on a scale of millions of people thanks to the belief in bigger social constructions that don't correspond to any physical object.

Behavioral modernity

50,000 years ago sapiens reached what in anthropology is known as behavioral modernity.: they had made great advances in technology, symbolic behavior, and social organization which set the foundations of human culture which persists until today. Öcalan calls this process the "language revolution."

Symbolic behavior: Abstract thinking, planning, art (ornamentation, music, use of pigments for body decoration and jewelry), abstract symbols, grave goods, ... symbolic thinking allowed a qualitative leap both in technology and social organization.

Technology: Complex, diverse, and standardized tools. Made with wood and bone. Control of fire, transport of resources over long distances, navigation. Pointed projectiles (darts, arrows, spears, ...).

Social organization: cumulative cultural adaptation, social norms, complex language, structured settlements with spaces for housing, **cooperation and mutual support, beyond direct family ties**, in hunting, gathering, parenting and caring for the elderly and the sick. The symbolic language helped create a sense of collective identity.

Harari also observes that from the moment sapiens acquired the ability of symbolic thinking their speed of evolution skyrocketed. The vehicle of evolution ceases to be genes (a very slow and expensive process) and becomes ideas, or

memes, which mutate much more quickly. The ability to evolve at super-speed gave our ancestors a huge advantage over other species, many of which became extinct when they came into contact with the sapiens, unable to mutate in time to adapt to the new neighbors / predators.

Communal Foraging Societies (aka hunter-gatherer bands)

Authors like Ramón Fernández Durán and Luís González Reyes prefer to refer as foragers to the members of societies that are usually called hunter-gatherers, especially in the popular media. Like Harari, they argue that the harvest had more weight and the meat intake was partially from scavenging.

Peter Gray has observed patterns that are repeated, to a greater or lesser extent, in all observations of foraging societies made in different parts of the world, by anthropologists of different traditions. These observations, made by scientists of the 19th and 20th centuries, when such societies had not yet been in contact with civilization, are consistent with archeological records of ancient foraging societies at the origins of mankind. From this he deduces that there are social characteristics that are intrinsic to the foraging way of life. Gray claims that we can deduce that those ancient societies shared those characteristics observed by modern scientists in contemporary societies. They are:

Horizontality, equality and autonomy - there are no bosses or differences of power, authority or status gender. All members of the band count the same in collective decision-making. The autonomy of people is respected and promoted. No one can tell another what he has to do.

Mutual support - Young children are taught to share. Adults share everything they hunt or gather with the entire gang, equally. There is no special treatment for those who have contributed more. Nearby gangs help each other in times of difficulty.

Ramón Fernández Durán and Luís González Reyes also highlight the **relational identity** of the people in these societies. They conceived of themselves according to their relationships with others and their belonging to a group, rather than their individual identity. They claim that **the appearance of symbolic language was key to developing this relational identity**. The development of technologies for collective use also reinforced this community identity.

Christopher Ryan and Cacilda Jethá also describe our ancestors as foragers and highlight their **communal property, collective identity and interdependence**:

> The social lives of foragers are characterized by a depth and intensity of interaction few of us could imagine (or tolerate). For those of us born and raised in societies organized around the interlocking principles of individuality, personal space, and private property, it's difficult to project our imaginations into those tightly woven societies where almost all space and property is communal, and identity is

> more collective than individual. From the first morning of birth to the final mourning of
>
> death, a forager's life is one of intense, constant interaction, interrelation, and interdependence.

They see the "characteristics intrinsic in the foraging way of life" as a structural constraint that prevent the use of coercive power:

> When you can't block people's access to food and shelter, and you can't stop them from leaving, how can you control them? The ubiquitous political egalitarianism of foraging people is rooted in this simple reality. Having no coercive power, leaders are simply those who are followed—individuals who have earned the respect of their companions. Such "leaders" do not—cannot—demand anyone's obedience.

However they also point out that, besides the intrinsic conditions that favor egalitarianism, such cultures are driven by a **very strong consciousness and intentionality towards equity**:

> In Hierarchy in the Forest , primatologist Christopher Boehm argues that egalitarianism is an eminently rational, even hierarchical political system, writing, "Individuals who otherwise would be subordinated are clever enough to form a large and united political coalition, and **they do so for the express purpose of keeping the strong from dominating the weak**." According to Boehm, foragers are downright feline in refusing to follow orders, writing, "Nomadic foragers are universally—and all but obsessively—concerned with being free of the authority of others."

Graber goes even further about the awareness that some foraging cultures have of their freedom. He claims that there is an ethical awareness, not just a practical rational calculation, that cooperation is necessary for survival or for preventing the strongest to dominate. Specifically, he tells an anecdote of the Inuit people in which the protagonist refuses to count favors, to keep a mental ledger of instances of mutual support. The Innuit claims that humanity's essence is not the ability to count, but rather the ability to, even knowing how to count, to refuse to do so, with the awareness that counting favors generates slavery.

Going back to Ryan and Jethá, the same authors identify biological signs that show that collaboration is not a cultural adaptation to the specific environment where foragers lived, but instead is a built-in mechanism in our bodies. They cite research by psychologist Gregory S. Berns in which he and his team monitor, using MRI, female players' brains during an iterated prisoner's dilemma game. They were expecting to find stronger brain activity when people were cheated, and they instead found the opposite.

> The brain responded most energetically to acts of cooperation: "The brightest signals arose in cooperative alliances and in those neighbor-

> hoods of the brain already known to respond to desserts, pictures of pretty faces, money, cocaine and any number of licit and illicit delights."
>
> Analyzing the brain scans, Berns and his team found that when the women cooperated, two parts of the brain, both responsive to dopamine, were activated: the anteroventral striatum and the orbitofrontal cortex. Both regions are involved in impulse control, compulsive behavior, and reward processing. Though surprised by what his team found, Berns found comfort in it. "It's reassuring," he said. "**In some ways, it says that we're wired to cooperate with each other.**"

Gray's Playful theory of human nature

In addition to these communal, objective, characteristics of horizontality, equality and mutual support, Peter Gray observes a common perspective, or attitude, on their behavior, which he calls the "**playful theory of human nature**." According to his theory foragers perceive life as a game which is fundamentally non-competitive, and these societies are organized as groups of friends who play together. The game cannot be coercive because it would no longer be fun. This playful behavior can be observed in different social activities of hunter-gatherer gangs.

Production - There is no concept of "work" as a tedious activity. Hunting or gathering expeditions look to us, seen from capitalist modernity, like families going on a picnic in the forest, rather than a group of busy workers. An important factor to achieve this playful effect is the non-obligation to participate in the activities. Everyone is free to participate or not as they wish that day.

Education - Children are educated by playing. Adults do not direct them. The children themselves organize and carry out activities that imitate adults: hunting, gathering, building,... as they grow, these activities become more real, they begin to be productive, and they become even more fun because contributing to the group feels rewarding.

Spirituality - The relationship with spirits is very relaxed. Humans play with them and even make fun of the spirits. **They do not confuse mythological explanations of reality with rational ones**, they use either one depending on the context. They are not concerned that mythology and rationality are contradictory. Nor does it bother them that other bands have different myths. When they switch bands they find it easy to adopt their mythology, contrasting with contemporary humans for whom switching religion is often a big deal. Also, in contrast with contemporary religious communities, having different mythologies doesn't make it difficult for them to mate with people from other bands.

Finally Peter Gray looks at the deep sense of freedom that people in these

societies experience. On the one hand, they have the **freedom to change bands** if at some point they don't feel comfortable in theirs. Even children can go to another neighboring band where they have relatives if they don't feel comfortable in their parent's band. This helps people work hard to help others have a good time because when people leave the game is less fun and survival becomes more difficult.

Key to the success of this model is the **decoupling of participation in production activities from the satisfaction of their vital needs**, which gives them the freedom to take time when they need it, for rest, healing, visiting other bands, etc. From our contemporary perspective it is difficult to understand how this system could function without people abusing it by living without working at the expense of others. But this concern does not make sense in the context of foraging societies since work was not conceived as an obligation, a burden, but instead as something fun. In addition, **the identity of the people was very collective** (Fernandez Duran & González Reyes), linked to the group, so it was not conceivable to take advantage of others, because it requires a consciousness of individuality separate from the group.

A lifestyle of leisure, affluence, opulence and abundance

Ryan and Jethá identify another key element to explain the horizontal, non-coercive, communist lifestyle of hunter-gatherer societies: a belief in abundance.

> Without falling into dreamy visions of paradise, can we —dare we— consider the possibility that our ancestors lived in a world where for most people, on most days, there was enough for everyone? By now, everyone knows "there's no free lunch." But what would it mean if our species evolved in a world where every lunch was free? How would our appreciation of prehistory (and consequently, of ourselves) change if we saw that our journey began in leisure and plenty, only veering into misery, scarcity, and ruthless competition a hundred centuries ago?
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> [...]
>
> The faulty assumption that scarcity-based economic thinking is somehow the de-facto human approach to questions of supply, demand, and distribution of wealth has misled much anthropological, philosophical, and economic thought over the past few centuries. As economist John Gowdy explains, '"Rational economic behavior' is peculiar to market capitalism and is an embedded set of beliefs, not an objective universal law of nature. The myth of economic man explains the organizing principle of contemporary capitalism, nothing more or less."

Several modern observers who have contacted foragers have reflected on their affluent lifestyle:

> Many have noted the strangely cavalier approach to food among foragers, who have nothing in the freezer. French Jesuit missionary Paul Le Jeune, who spent some six months among the Montagnais in present-day Quebec, was exasperated by the natives' generosity. "If my host took two, three, or four Beavers," wrote Le Jeune, "whether it was day or night, they had a feast for all neighboring Savages. And if those people had captured something, they had one also at the same time; so that, on emerging from one feast, you went to another, and sometimes even to a third and a fourth."
>
> **When Le Jeune tried to explain the advantages of saving some of their food, "They laughed at me. 'Tomorrow' (they said) 'we shall make another feast with what we shall capture.'" Israeli anthropologist Nurit Bird-David explains, "Just as Westerners' behaviour is understandable in relation to their assumption of shortage, so hunter-gatherers' behaviour is understandable in relation to their assumption of affluence. Moreover, just as we analyze, even predict, Westerners' behavior by presuming that they behave as if they did not have enough, so we can analyze, even predict, hunter gatherers' behaviour by presuming that they behave as if they had it made"** [emphasis added]

Like other authors Ryan and Jethá defend the hypothesis that our foraging ancestors enjoyed similarly lavish lifestyles than the ones observed by modern explorers. In order to defend such hypotheses they go beyond the similarities in the archaeological records. They look for further clues in the composition of ancient bones:

> Prehistoric humans did not habitually store food, but this doesn't mean they lived in chronic hunger. Studies of prehistoric human bones and teeth show ancient human life was marked by episodic fasts and feasts, but prolonged periods of starvation were rare. How do we know our ancestors weren't living at the brink of starvation?
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> When children and adolescents don't get adequate nutrition for as little as a week, growth slows in the long bones in their arms and legs. When their nutritional intake recovers and the bones begin to grow again, the density of the new bone growth differs from the interruption. X-rays reveal these telltale lines in ancient bones, known as Harris lines.
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> Periods of more prolonged malnutrition leave signs on the teeth known as hypoplasias—discolored bands and small pits in the enamel surface, which can still be seen many centuries later in fossilized remains. Archaeologists find fewer Harris lines and dental hypoplasias in the remains of prehistoric hunter-gatherer populations than they do in the skeletons of settled populations who lived in villages dependent

> on cultivation for their food supply. Being highly mobile, hunter-gatherers were
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> unlikely to suffer from prolonged starvation since in most cases, they could simply move to areas where conditions were better.

How often our ancestors stored food might be a controversial topic. Other authors point out at temporary settlements with warehouses and food stores, presumably shared among several bands of foragers. Apparently they had enough abundance to keep some for the next tribe who passed by. Regardless of whether food storage was something uncommon, maybe only popular during the ice age and other challenging times, or something more widespread, the evidence of lack of scarcity from Harris lines and hypoplasias seems quite compelling.

Similarly Ramón Fernández Durán and Luís González Reyes describe these societies as **opulent, and they calculate that they had all the necessary resources with a "work shift" of 2-6h / day.** They also highlight their harmony with nature and its sacralization, as opposed to extractivist societies, which objectify it.

Ryan and Jethá offer examples of quantification of the effort required for foragers to feed themselves which are even more astonishing than the estimates by Fernandez and Gonzalez.

> Archaeologist David Madsen investigated the energy efficiency of foraging for Mormon crickets (Anabrus simplex), which had been on the menu of the local native people in present-day Utah. His group collected crickets at a rate of about eighteen crunchy pounds per hour. At that rate, Madsen calculated that in just an hour's work, a forager could collect the caloric equivalent of eighty-seven chili dogs, forty-nine slices of pizza, or forty-three Big Macs—without all the heart-clogging fats and additives. Before you scoff at the culinary appeal of Mormon crickets, give some thought to the frightening reality lurking within a typical chili dog.
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> Another study found that the !Kung San (in the Kalahari desert, mind you) had an average daily intake (in a good month) of 2,140 calories and ninety-three grams of protein. Marvin Harris puts it simply: "Stone age populations lived healthier lives than did most of the people who came immediately after them."
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> And maybe healthier than people who came long after them, too. The castles and museums of Europe are full of suits of armor too small to fit any but the most diminutive of modern men. While our medieval ancestors were shrimpy by modern standards, archaeologist Timothy Taylor believes that **the human ancestors who first controlled fire—about 1.4 million years ago—were taller than the average person today**. Skeletons dug up in Greece and Turkey show that pre-agricultural men in those areas were **about**

> **five foot nine on average, with women being about five foot five**. But with the adoption of agriculture, average height plummeted. Modern Greeks and Turks still aren't as tall, on average, as their ancient ancestors.
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> Throughout the world, the shift to agriculture accompanied a dramatic drop in the quality of most people's diets and overall health. Describing what he terms "the worst mistake in human history," Jared Diamond writes, "**Hunter-gatherers practiced the most successful and longest-lasting life style in human history**. In contrast," he concludes, "we're still struggling with the mess into which agriculture has tumbled us, and it's unclear whether we can solve it."

One might think that implicit in the narratives quoted above is that generalized scarcity and opulence are consequences of a technological choice: choosing agricultural technology implies scarcity and poor diet, they come with the package. Sticking with older technology, foraging and hunting technology, provides abundance, rich diets, and the resilience that comes with the ability to move to greener pastures when the weather is not favorable.

However, the perspective presented here is that such narrative amounts to a false dichotomy. The root cause of scarcity and poor diets is not the adoption of new technologies but the adoption of hierarchical social systems and the wars that come with it. When societies are embedded in war they are always in the middle of an existential struggle and their productive efforts understandably prioritize empowering their armies over producing opulent, varied and healthy diets for the population.

It is perfectly possible to choose at the same time technological advances, large scale cooperation, and egalitarian culture. And indeed as we'll see, for a few thousands of years, many societies did just that. Unfortunately that period doesn't seem to be very well studied. No analysis has been found distinguishing their diets and health from the ones of hierarchical societies that came after them. Were those early horizontal agriculturalists conscious about the effects of monotonous diets and the risks of bad harvests and managed to offset those with grain stores and nutritional variety from other sources? Or they had just as bad diets and poor health as militaristic societies? This question remains unanswered.

Still, the connection between scarcity and the cultural construction of selfishness has been made before. Ryan and Jethá observe that "chronic food shortages and scarcity-based economies are artifacts **of social systems** that arose with farming" and quote economist John Gowdy's "Limited Wants, Unlimited Means" saying that the notion that humans are driven by self-interest is "a microscopically small minority view among the tens of thousands of cultures that have existed". They also add that "For the vast majority of human generations that have ever lived, it would have been unthinkable to hoard food when those around you were

hungry."

Sex as social binding mechanism

The main contribution from Ryan and Jethá to the understanding of large scale cooperation among humans is their hypothesis that homo-sapiens evolved using sex as a mechanism to strengthen social ties and difuse social tensions and conflicts. **Their theory adds a lot of weight to the notion that we are inherently, biologically, a cooperative species**. According to their theory the evolutive use of sex as social binding mechanism has had a biological impact on our behavioral predisposition: We are the most promiscuous animals that exist and if we choose to build cooperative cultures with abundance and variety of sex that promiscuity translates to better welfare for everybody in the collective. If, on the contrary, we choose to build scarcity-based cultures with (prone to fail) attempts to coerce people into monogamy we are bound to seed conflict instead.

Could it be that the historical correlation between material and sexual abundance is just a coincidence? Could it be that there isn't a causal relationship between them and that it's feasible to build monogamous societies of material abundance? Maybe, but it seems unlikely. Also, as we'll see in a few paragraphs, the causal relationship has been already identified for bonobos, and consists of behaviors that are common with humans.

It is clear that **material abundance is not a matter of productivity but of mindset**. Throughout centuries and millennia, the more the productivity has increased and the average wealth has increased, the more scarcity has the median person suffered. Abundance is about cultivating the mindset that if I would take more than average somebody else would get less than average, which is morally unacceptable. The skills required for cultivating such a mindset are **awareness, empathy, and communal identity**. People who cultivate and practice those skills daily for the collective management of an economy of material wealth seem unlikely to be unaware, or threatend by, their own, or others', sexual desires. Therefore they seem very unlikely to need the social construction of monogamy to handle them.

Ryan and Jethá present several biological observations that add up to a rather compelling amount of evidence to their claim that increased sexuality and increased sociability have evolved in a feedback loop.

> Let's try putting this liquid libido into dry, academic terms: we hypothesize that Socio-Erotic Exchanges (S.E.Ex. for short) strengthen the bonds among individuals in small-scale nomadic societies (and, apparently, other highly interdependent groups), forming a crucial, durable web of affection, affiliation, and mutual obligation.
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> In evolutionary terms, it would be hard to overstate the importance of such networks. After all, it was primarily such flexible, adaptive social groups (and the feedback loop of brain growth and language

> capacities that both allowed and resulted from them) that enabled our slow, weak, generally unimpressive species to survive and eventually dominate the entire planet. Without frequent S.E.Ex., it's doubtful that foraging bands could have maintained social equilibrium and fecundity over the
>
> millennia. S.E.Ex. were **crucial in binding adults into groups that cared communally for children** of obscure or shared paternity, each child likely related to most or all of the men in the group (if not a father, certainly an uncle, cousin...)

Their most general observation is that in the animal kingdom **most species mate very infrequently. Most animals are fertile once a year or less often**, and they only mate during the brief time when the females are fertile. Also their mating tends to be rather quick and quiet. This makes sense from an evolutionary perspective, especially for prays. Mating is a distracting activity that puts animals at risk of being killed by predators and evolution optimized mating so that it takes the least possible time and avoids drawing attention. Note that humans were prey, not predators, during their genetic evolution.

Promiscuous great african apes

Looking at the species closer to humans they observe a **correlation between sociability, intelligence and promiscuity**. The more promiscuous the species is, the more social and intelligent it is. The closest monogamous relative to humans, the gibbon, is not particularly bright, and is not social at all. Couples take control of a territory and don't let any other gibbon access it. In this context monogamy and promiscuity don't have any moral connotation, they just express the number of different partners that the members of the species typically mate with.

However the last common ancestor between Gibbons and Humans lived 30 million years ago. It would be much more reasonable to expect biological similarities between humans and their closest ancestors, the bonobos and the chimps, with whom we shared a common ancestor only 5 million years ago, and with whom we only differ in DNA for roughly 1.6 percent. **Bonobos in particular are our closest ancestors, they are the smartest ape besides humans, and they are famous for being very peaceful, egalitarian, and very promiscuous.** Their main social structures are based on social bonds between females. **Males derive their status from their mother**, with whom they maintain a lifelong bond.

For historical and cultural reasons though, when comparing humans to other great african apes, most often the comparison is made with Chimpanzees, which are thought to be rather violent, and thus explain human's savage nature. Chimps are organized through shifting male coalitions. Genetically the chimps are slightly farther away from humans than the bonobos and, on top of that, Ryan and Jethá question the findings of the research that found chimps to be so violent.

They point out at indications that the studies were flawed in the sense that they introduced changes in the environment that sparked violence. Some of those flaws were even noticed by the original researchers but have remained mostly ignored. They also point out a natural experiment in which the alpha male chimps were accidentally killed, and the survivors became much more peaceful. Even in later generations, the lower degree of violence was preserved. It seems more accurate to deduce that, like humans, our closest ancestors are able to practice both peaceful cooperation and violent competition.

The behavioral similarities between bonobos and humans, not shared with chimpanzees, is quite impressive:

- Human and bonobo females **copulate throughout the menstrual > cycle,** as well as during **lactation** and **pregnancy**. Female > chimps are sexually active only 25–40 percent of their cycle.
- **Human and bonobo infants develop much more slowly than > chimpanzees**, beginning to play with others at about 1.5 years, > much later than chimps.
- Like humans, **female bonobos return to the group immediately after > giving birth and copulate within months**. They exhibit little > fear of infanticide, which has never been observed in > bonobos—captive or free-living.
- **Bonobos and humans enjoy many different copulatory positions**, > with ventral-ventral (missionary position) appearing to be > preferred by bonobo females and rear-entry by males, while chimps > prefer rear-entry almost exclusively.
- **Bonobos and humans often gaze into each other's eyes when > copulating and kiss each other deeply**. Chimps do neither. > [...]
- **Food sharing** is highly associated with sexual activity in humans > and bonobos, only moderately so in chimps.
- There is a high degree of **variability in potential sexual > combinations in humans and bonobos**; homosexual activity is > common in both, but rare in chimps.
- **Genital-genital (G-G) rubbing** between female bonobos appears to > affirm female bonding, is present in all bonobo populations > studied (wild and captive), and is completely absent in > chimpanzees. Human data on G-G rubbing are presently unavailable.
- While sexual activity in chimps and other primates appears to be > primarily reproductive, **bonobos and humans utilize sexuality for > social purposes** (tension reduction, bonding, conflict > resolution, entertainment, etc.).

> [emphasis in original] - Sex At Dawn, Part I, Chapter 4, The Ape in the Mirror.

The same authors identify one anatomical similarity with humans and bonobos not present in chimps: "**The vulva is located between the legs and oriented toward the front of the body** in humans and bonobos, rather than oriented toward the rear as in chimps and other primates." They attribute this characteristic to the social function of sex in both species. The unusual, frontal, position of the vulva facilitates ventral-ventral copulatory position with the possibility of gazing into each other's eyes and kissing each other deeply, which they hypothesize, increases bonding.

Technically, in the scientific literature, female promiscuity is called "receptivity". It is a misnomer that perpetuates the social construction of the coy female. It doesn't match field observations of female primates that, when they are "receptive" they go out chasing the males in their group and then dart off to chase males in neighboring groups. Still, the expression is used in this section to keep the text faithful to the literature.

The chain of causal relationships between increased female sexual receptivity, greater collaboartion and larger groups has been identified in the literature for bonobos. Ryan and Jethá observe that the same logic would apply to humans, but has been excluded in the literature due to cultural biases. The causal chain goes like this:

1. Increased female receptivity
2. Reduced male frustration / competition
3. Reduced male alliances
4. Obscured paternity
5. Increased female bonding
6. Female alliances dominate
7. Less infanticide / more generalized paternal care

Freedom from civilization's sexual regulation

Up to here we have seen that bonobos utilize sex for social purposes. This is quite well known and easy to observe. We have also seen that some behavioral, and even anatomical, characteristics involved in the the social use of sex are common between bonobos and homo sapiens. Since bonobos are the closest surviving species to sapiens it would be plausible to expect a similar social usage of sex in humans. However, we are not bonobos, and we need to look more specifically at human behavior and anatomy to find out with more confidence. And it turns out, that when we look at humans, **there is overwhelming evidence that we evolved in even more sexually abundant societies than bonobos**.

Looking at contemporary civilizations is obvious that humans are very promiscuous. Major religions and cultures tend to make a great deal about monogamy and tend to place harsh punishments and social stigma on those who break the monogamy codes, specially working-class women and high-profile male politicians. Even though such civilizations try to push the narrative that humans, and specially females, are "monogamous by nature", it is obvious that if that was the case, there wouldn't be any need to spend such a big amount of resources enforcing monogamy. Some estimates of infidelities among supposedly monogamous couples in western societies are as high as three quarters of the cohort. However, it is very difficult to assess such estimates, due to the tabu nature of the subject.

It is also obvious to any casual observer that as contemporary western civilizations are relaxing the strict enforcement on pre-marital female virginity and lifelong marriages the **proliferation of non-monogamous arrangements is exploding**. The most common arrangement is serial monogamy, the practice of divorcing, or breaking up, when starting a new relationship. Parallel non-monogamy in between two monogamous relationships is also quite common, either openly, during the dating stage to choose the next "monogamous" partner, or hidden, "cheating" one partner before switching to the next one.

A bit less obvious is the growing number of published books devoted to more involved, and ethical, forms of non-monogamy, such as polyamory or relational anarchy. Such approaches require more emotional work which many find rewarding. They also offer a healthier environment for children of struggling couples, compared to the other, most popular, options: 1) a divorce that will destroy the children's safe household, 2) bitterly holding on to a pretend marriage until children are grown up, or 3) unethical non-monogamy (cheating). As noticed before, the skills required to openly have multiple concurrent partners are the same as having multiple successful friendships. Awareness, empathy, communal perspective, etc. As sectors of the western society are shifting their values away from the relentless pursuit of individualistic wealth and towards the appreciation of quality of life, those skills are becoming more common, which might help explain the proliferation of more natural sexo-affective arrangements.

Less known are studies of contemporary **civilized male elite teams**, such as athletes, musicians and soldiers. It has been observed that they tend to spontaneously adopt behaviors that we commonly associate with foraging tribes. Such behaviors include group leveling (putting down members who show egotic behavior) and non-possessiveness, which extend to sexual behavior. That suggests that such behaviors are intrinsic in our nature and not just cultural adaptations to an ancient world.

> For professional athletes, musicians, and their most enthusiastic female fans, as well as both male and female members of many foraging societies, overlapping, intersecting sexual relationships strengthen group cohesion and can offer a measure of security in an uncertain world. Sometimes, perhaps most of the time, human sex isn't just about pleasure or reproduction. A casual approach to sexual relation-

ships in a community of adults can have important social functions, extending far beyond mere physical gratification.

Given the observation that civilized societies tend towards social-binding promiscuity when oppressive sexual norms are relaxed, and also that the closest species to humans in the evolutionary tree behave in a similar way, it would be logical to expect that our human ancestors, which were mostly foragers, behaved in the same way. And indeed, luckily, it has been possible to study some contemporary foraging cultures. Such studies have consistently found multimale-multifemale mating arrangements. Even some "primitive" sedentary agricultural societies have them.

For the modern reader it might be hard to imagine **how would it be possible to organize parenting and manage jealousy** in a culture that embraces multimale-multifemale sex. Remember though that paternity and jealousy are civilized social constructs. Those whose judgment hasn't been impaired by civilization don't have such problems. Here the word "civilized" and "uncivilized" is used literally, meaning city dwelling cultures as opposed to cultures without cities.

We can find societies, especially among hunter-gatherers, where the **concepts of primary partner and paternity doesn't exist** at all and parenting is shared among all males of the tribe. Typically sexual jealousy is a complete non-issue among them. Even sedentary societies, like the Mosuo, a matrilineal agricultural people living in contemporary China, don't have the concepts of main partner or paternity either. Women live in their mother's house, and each of their rooms have a private entrance so that nightly visitors can come and go inconspicuously. They seem aware of sexual jealousy though, as it is a tabo for them to talk about who sleeps with whom.

There are also "uncivilized" societies that have the concept of couples and primary partners (what civilized explorers would mistakenly call a wife and a husband in an open marriage). In those cultures **paternity exists but it is often "partible" or "plural"**, which means that paternity is assigned to a specific number of men, three or even five men for every given child. In such societies it is common that the "husbands" encourage their "wives" to take at least a couple of formal lovers, besides the occasional flirts. The formal lovers will assume parenting responsibilities and the main father sees that as a kind of insurance in case he would die young. And indeed there are studies that indicate that **children with multiple fathers have higher chances to grow up to be healthy and successful** adults.

In "uncivilized" societies that have the concept of a main partner promiscuity is usually openly rampant and they tend to have creative ways of dealing with jealousy. For example, having periodic rituals where it is strictly forbidden to make love with the main partners in order to encourage promiscuity. Others have ritual sex in which "wives" are expected to copulate with between 10 to 20 men, away from their "husband".

In general it seems that while civilizations construct ethics that promote monogamy foragers, and even some "uncivilized" agriculturalists, construct ethics that promote promiscuity:

> Because these interlocking relationships are so crucial to social cohesion, opting out can cause problems. Writing of the Matis people, anthropologist Philippe Erikson confirms, "Plural paternity...is more than a theoretical possibility.... Extramarital sex is not only widely practiced and usually tolerated, in many respects, it also appears mandatory. Married or not, **one has a moral duty to respond to the sexual advances of opposite-sex** cross-cousins (real or classificatory), under pains of being labeled 'stingy of one's genitals,' a breach of Matis ethics far more serious than plain infidelity"
>
> Being labeled a sexual cheapskate is no laughing matter, apparently. Erikson writes of one young man who cowered in the anthropologist's hut for hours, hiding from his horny cousin, whose advances he couldn't legitimately reject if she tracked him down. Even more serious, during Matis tattooing festivals, having sex with one's customary partner(s) is expressly forbidden—under threat of extreme punishment, even death.

Also, quoting from anthropologists William and Jean Crocker:

> It is difficult for members of a modern individualistic society to imagine the extent to which the Canela saw the group and the tribe as more important than the individual. Generosity and sharing was the ideal, while withholding was a social evil. **Sharing possessions brought esteem. Sharing one's body was a direct corollary**. Desiring control over one's goods and self was a form of stinginess. In this context, it is easy to understand why women chose to please men and why men chose to please women who expressed strong sexual needs. **No one was so self-important that satisfying a fellow tribesman was less gratifying than personal gain**

Peculiar human anatomy reinforced by hypersexuality

We have seen that our most recent ancestors use multimale-multifemale mating for social cohesion. We have also seen that contemporary "uncivilized" societies do the same and that monogamy tends to fade in contemporary civilized societies when sexual regulation is relaxed (although civilized societies are too atomized and too large for sex to be utilized as social binding mechanisms).

It is therefore most plausible to conclude that during the relatively brief period of few million years of evolution since we separated from the bonobos multimale-multifemale has been the norm and that sex has played an important role in enabling us to be the most cooperative species on earth.

However, a skeptic could argue (and they do!) that humans have been mostly

monogamous throughout their evolution and that it is only in recent time that they have started deviating from the righteous path of monogamy. Maybe something happened in recent history, a mutation or a social change, maybe around the time of the Old Testament people suddenly became collectively horny, and that forced rulers to enact strict laws to keep people on the right path. Also, why would we take uncivilized tribes of a few thousands of individuals as representative of human sexuality instead of the millions of monogamous people who live in cities? There is no archeological or biological evidence for such claims, in fact the evidence, and logic, points to the opposite direction.

Since we don't have written records for the millions of years of recent human genetic evolution, some people have felt free to project to those early hominids their personal preferences for social norms. Unfortunately for those who try to make convoluted arguments to defend the idea that humans have always been mostly monogamous, **there are very peculiar human anatomical adaptations that very clearly affirm** the opposite.

body-size dimorphism One key anatomical clue that points at our ancestors having evolved in a collaborative environment rather than a competitive one is the relative size of males and females. Sapiens males are only 10 to 20 percent bigger and heavier than females. In contrast, **highly sexually competitive hominids have much higher body-size dimorphism. Male gorillas for example are twice as big as females**. The evolutionary mechanism is obvious: in a winner-take all sexual competition the biggest male specimens have a clear advantage for passing on their genes.

The fact that human dimorphism is so low pretty much rules out the possibility that sapiens evolved as a harem-building species, which is a theory that some researchers have used to defend the supposedly lower libido of human females with respect to human males. If our male ancestors would have competed for access to females, or the females would have competed for access to males, that would almost certainly be reflected in body-size dimorphism. Having ruled out the gender-based competitive option, the only two plausible options left are monogamous and multimale-multifemale arrangements. As mentioned earlier, In other species monogamous behaviors are associated with anti-social behavior while multimale-multifemale mating is associated with socialization. Logically, it makes a lot of sense, it is hard to imagine how a group of highly social animals that don't exhibit any hierarchical social structure would not be mating and parenting collectively. While the theory is compelling, we need empirical evidence to be more certain. And indeed, the empirical evidence found in human anatomy overwhelmingly favors the theory of us having evolved as an hypersexual species practicing multimale-multifemale copulation.

In species where females copulate with multiple males during the same cycle and males don't compete with each other for access to females, evolution tends to move the genetic competition to the reproductive organs of both sexes. I.e. When male individuals don't compete with each other to pass on their genes their

sperm competes with the other males sperm instead. At the same time evolution optimizes the female reproductive system to be fertilized with sperm from males with the highest chance of survival and passing on her genes. Being good at sperm competition is useful but not sufficient to maximize the potential of passing on her genes, and therefore we would expect the female body to introduce further selective elements during copulation. As we shall see, both hypotheses match empirical observations. We would also expect behavioral traits in both human males and females that predispose them to multimale-multifemale mating, and indeed, again, that's exactly what recent research shows, making it quite clear that monogamy is a social construct that derives from social adaptations in certain post-agricultural societies, and not a natural human behavior.

Male anatomy and preconscious behavior Let's look at both human male and female peculiar anatomic and behavioral adaptations. Starting with the male anatomy, one of the easier traits to observe is that **human testes are much bigger than other animals relative to body size**, they contain much more sperm, and the sperm has a much higher concentration. Furthermore the male sexual organs have evolved to move outside of the body, hanging out vulnerable, instead of staying safely tucked inside like in other hominids.

Such expense and risk must confer a clear genetic advantage, otherwise those traits would not have evolved. The obvious hypothesis is that human ancestors were highly promiscuous. The bigger size of the testes, which serves to store larger quantities of sperm, indicates frequent copulation, and the high density of the sperm indicates sperm competition with the sperm from other males. This theory is corroborated empirically observing that in other species indeed those two traits correlate with the hypothesized behavior. Monogamous species tend to have smaller testes and less concentrated sperm because evolution doesn't invest in unnecessary features. Empirical observation also reveals that there isn't any monogamous primate living in multimale social groups. It would be very strange if sapiens were the only one.

The other peculiarity of human testes is the fact that they are located outside of the body. This mutation serves a very specific function, namely, to keep sperm refrigerated in order to preserve it for longer. In this way, if a human male doesn't copulate for a couple of days, when he does it on the third day, the sperm is still viable. This again clearly indicates a situation of sperm competition. If human males had enjoyed exclusive access to females, this refrigerating technique would be completely unnecessary. The refrigeration of the sperm also helps accumulate more sperm, as it builds up during the time without copulation, which in turn contributes to the relatively large size of the testes, and further strengthens the multifemale half of the "multimale multifemale copulation" hypothesis.

The next logical place to look for clues is the device in charge of delivering the sperm inside the female body, and indeed, as one would expect from the hypothesis of sperm competition, **humans have the longest and thickest penises of any living primate (in both absolute and relative terms) and**

the most flexible as well. Moreover, compared to other primates who live in small groups with only one adult male, the human penis is **highly specialized**:

> The unusual flared glans of the human penis forming the coronal ridge, combined with the repeated thrusting action characteristic of human intercourse—ranging anywhere from ten to five hundred thrusts per romantic interlude—creates a vacuum in the female's reproductive tract. This vacuum pulls any previously deposited semen away from the ovum, thus aiding the sperm about to be sent into action. But wouldn't this vacuum action also draw away a man's own sperm? No, because upon ejaculation, the head of the penis shrinks in size before any loss of tumescence (stiffness) in the shaft, thus neutralizing the suction that might have pulled his own boys back. Very clever.

An even more convincing feature of human **sperm design is that it contains multiple specializations**. When males ejaculate they produce multiple spurts. The last spurts are specialized in attack, they contain spermicide chemicals designed to neutralize the sperm of males that will copulate with the same female afterwards. Conversely, the first spurts are specialized in defense: they contain protective chemicals against spermicide agents from previous, recent, copulations.

On top of that, there is a **striking link with male's psychology and the kind of sperm produced**. Human males are more turned on by scenes of male competition, of several men having sex with one or two females, than of imagery of one men having sex with multiple females. And that reflects on their sperm production. When men ejaculate after seeing imagery suggestive of sperm competition they produce ejaculates containing a higher percentage of motile sperm. The same phenomena is observed when men copulate with a female partner that has been absent for a few days, even if he has ejaculated meanwhile. In this case the conjecture is that the man imagines his partner having copulated with other men during the short absence.

Last but not least, **frequent ejaculation and frequent orgasms are correlated with significant positive health effects in humans**. This is one more indication that we evolved in environments where ejaculations and orgasms were frequent, and that processes that keep us healthy depend on those. For example, ejaculation seems to flush the body of cancerogenic substances. The definition of "often" depends on the study. One study claims that men who ejacualate more than 5 times a week during the ages of 20 and 50 are less likely to develop prostate cancer later in life. Another study finds that men who have three or more orgasms per week are 50% less likely to die from coronary heart disease. Such studies should be taken with caution since they are observational studies and cannot claim to prove causation. The correlation in the data could indicate for example causation in the other direction: it could mean that women are more inclined to have more sex with men that look helathier, and that those healthy-looking men have lower chances of cancers and coronary heart disease.

Further research is necessary to establish causation.

Female anatomy and preconscious behavior We would expect that males and females of the same species exhibit complementary traits from having evolved together dring millions of years. And indeed that's what we find in humans. Just like males, the female's body and preconscious behavior has very strong signs of having been shaped by frequent copulation behavior and sperm competition. Indeed, we find even more adaptations in human females than in males, and as a result this section is about twice as long as the previous one.

One particularly telling behavior is the **female copulatory vocalization** (FCV). Women tend to be much louder during sex than men, and similar behavior has been observed in other primates. Men's ears seem to be particularly tuned to identify FCV and male primates, human and non-human alike, are sexually aroused by them. FCV must confer a very valuable evolutionary advantage because they are certainly costly, they might potentially reveal the copulating couple to nearby hungry predators. Again, we should keep in mind that during most of human's evolution, we have been prays, not hunters. As observed in other primates FCV serves to attract multiple males to join in the copulation. It seems very unlikely that the human behavior during its evolution was any different that it's closely related primates. The prevalence of FCV would also suggest that our ancestors chose to mate while surrounded by their group, which would confer them with some level of protection against predators, rather than prudishly mating hidden away from their kin.

Another costly female adaptation are the **pendulant breast.** The milk-producing glands in female's breasts don't need the breast's exuberant swelling to be fully functional and able to feed babies. Similarly to the external and oversized testes of human males that confer significant reproductive advantage at a cost of being more vulnerable, female oversized and pendulant breast cause significant inconvenience (back strain, loss of balance, difficulty running) in exchange of a significant reproductive advantage. The reason why female breast are featured prominently in many advertisements of products and services completely unrelated to them is that their visual attraction power is virtually unmatched. A hypothesis called "genital echo theory" explains the evolution of pendulant breasts as a way to mimic the shape of the female's bottoms at a position more suitable for advertisement when humans became bipedal. An empirical observation that matches this theory is that the Gelada baboon, also bipedal, has evolved similarly enlarged breasts. Even more strikingly, Gelada's breasts swell and shrink to signal sexual receptivity around ovulation.

Concealed ovulation is another peculiarly human trait. Primates whose females are sexually receptive only around ovulation tend to have signaling mechanisms for the receptivity like the just mentioned periodic swelling and shrinkage of the Gelada's breast. Non-bipedal primates have other mechanisms such as the swelling and bright red coloring of their vaginas. Human's breasts are instead always swollen, and the vagina doesn't change color or shape either

during ovulation. Humans don't have any visual mechanism to signal ovulation. Concealed ovulation is another strong indicator that sapiens evolved in an environment where copulation was practiced throughout the menstrual cycle, not only during the days favorable to fertilization.

In reality though, human female ovulation is not so hidden. Their pre-conscious behavior often gives them away. Researchers have shown that men find more attractive women who are closer to their ovulation because they tend to wear more attractively and use more jewelry and perfume. They also tend to be more promiscuous and are less likely to use condoms with their new lovers on such days.

Frequent copulation benefits women, men, and the group. We have already discussed how frequent orgasms reduce male's aggressivity. For females the situation is similar. The medical establishment used to diagnose "hysteria" for women. For two thousand years, until the first half of the XX century, it was the most diagnosed illness. It's symptoms included **anxiety, irritability and sleeplessness**, which are the same as the symptoms **caused by lack of frequent sexual activity** in women.

In a blatant conflict of interest the same medical establishment was publizing that masturbation was very dangerous for women, that could lead to severe diseases and death, and at the same time, was charging women to give them orgasms, marketed as professional pelvic massages, as a treatment for hysteria. Some sources indicate that up to 75% of women were in need of such treatments. Given the negative impact of lack of frequent copulation for both men and women, it is clear how having evolved in an environment of **abundance of sex would have provided advantages to the group**, **with more cooperation and less conflict**. It it also interesting to notice how in the last thousand years society managed to both negate the existence of such needs and provide ways to satisfy them, via the normalization of access to prostitution for men, and medical treatements for women.

For optimal results sex therapy should be practiced without condoms beacuse hormones present in semen will enter the female's bloodstream through the vaginal wall. **Women get a boost from testosterone, estrogen, prostaglandis and other hormones found in the semen**. As a result women who do not use condoms are less likely to suffer from depression. This phenomenon is known as "chemical dependency". We have already discussed the **peculiar frontal positioning of the vulva** in humans which promotes intercourse facing each other while kissing and gazing into each other's eyes. In this way **both metaphorical and actual chemistry play a role in strengthening bonds during copulation**.

On top of the externally observable physical and behavioral traits, the female body has evolved a few more adaptations that further strengthen the sperm competition hypothesis. **The shape of the pelvis** creates both an obstacle for the sperm to advance and a reservoir for the portion of sperm that manages

to overcome the obstacle. The obstacle decimates the number of competing spermatozoa and the reservoir promotes competition among spermatozoa of different males.

The obstacles that the female body presents to the spermatozoa are not only mechanical. There are also **chemical obstacles**: the female reproductive tract is acidic which kills the sperms if their protective coat wears out. Also leukocytes and antigens present in the tract attack the spermatozoa. On top of that, possibly, the male's sperm will face attacking substances contained in the last spouts of the ejaculate from couplations with other males, as discussed above.

Why would the female body be so unwelcoming of incoming sperm? From the hypothesis that living organisms evolve to maximize the opportunities of passing on their genes, one would expect the female body to have evolved to facilitate fertilization in order to maximize the chances of passing on her genes, but instead it seems like it has evolved to make fertilization difficult. One clue can be found in the fact that human females have orgasms. The common scientific understanding of female orgasms was that they are useless. Orgasms evolved, it was thought, to incentivize males to mate with reluctant females. Females only have orgasms as a genetic side-effect, in the same way that males have non-functional niples. And, anyway, a female's orgasmic potential would rarely have been realized during our evolution since when males mate with them, they reach orgasm quicker than the female, and the mating doesn't last long enough for females to reach it.

The theory that female orgasm is not functional is hard to match with empirical observations. Studies in other primates have shown a positive correlation between female's capacity for orgasm and promiscuity in that species. This correlation suggests that, far from being non-functional, female's orgasm has evolved to incentivize them to copulate with multiple males during each ovulation cycle. Human studies have also shown that **female orgasms help the sperm** move forward in the reproductive tract which gives advantage to the males that the female chooses, consciously or unconsciously, to have orgasm with. Conversely it disadvantages the majority of males that she copulates with during the same act, or cycle, with whom she doesn't share an orgasm.

Seen from this light human's orgasmic dynamics of females and males clearly complement each other: males have evolved quicker and exhausting orgasms while females have evolved slower orgasms and multiple-orgasm abilities. **This complementarity promotes sexual interactions in which a single female mates with several males**.This fits well with the observation that human males tend to be turned on by Female Copulatory Vocalizations as well as by observing females having sex with multiple males.

At the same time the female body can **modulate its biochemical response** to incoming sperm, adjusting the acidity and the virulency of the attacks that she inflicts on the incoming sperm. Unlike the orgasmic response, which can be influenced consciously, the modulation of the biochemical response seems to

be entirely **driven by pre-conscious mechanisms designed to maximize genetic diversity**. Modulating factors include the familiarity of bodily smells as well as the psychological familiarity of a male. Therefore a female's body is designed to help the new exotic neighbor's sperm while hindering the familiar sperm of her own husband.

The hypothesis is that women evolved these inner mechanisms to influence the sperm competition game in order to avoid the pitfalls of inbreeding and optimize the immune system of the offspring. The preference for novelty would be a mechanism against inbreeding which seems very unlikely to evolve in a monogamous species, because monogamy produces familiarity with one mating partner. It has been shown that women's preference for unfamiliar smells correlates with men whose major histocompatibility complex (MHC) is different from their own. The MHC is a section of the vertebrate's DNA which is essential for the adaptive immune system. Offspring from parents with different MHC are more likely to enjoy a broader and more robust immune system.

One last interesting characteristic of human female biology is that, according to recent research, it seems that the ovum has the final say on which spermatozoid will be the fertilizer one. Contrary to the popular image of spermatozoids (supposedly from the same human male) ferociously competing with each other to fertilize the ovum, instead the image that is emerging is one of the ovum reaching out and envolving a reluctant sperm.

Sea, Sex, and Fun

Ryan and Jethá observe that the two main characteristics that distinguish humans from other animals are **hypersociability and hypersexuality**, and they conclude that both are related:

> We have another quality that is especially human in addition to our disproportionately large brains and associated capacity for language. Perhaps unsurprisingly, it is also something woven into our all-important social fabric: our exaggerated sexuality.
>
> **No animal spends more of its allotted time on Earth fussing over sex than Homo sapiens**—not even the famously libidinous bonobo. Although we and the bonobo both average well into the hundreds, if not thousands, of acts of intercourse per birth—way ahead of any other primate—their "acts" are far briefer than ours. Pair-bonded "monogamous" animals are almost always hyposexual,
>
> having sex as the Vatican recommends: infrequently, quietly, and for reproduction only. Human beings, regardless of religion, are at the other end of the libidinal spectrum: hypersexuality personified.
>
> Human beings and bonobos use eroticism for pleasure, for solidifying friendship, and for cementing a deal (recall that historically, marriage is more akin to a corporate merger than a declaration of eternal

> love). For these two species (and apparently only these two species), nonreproductive sex is "natural," a defining characteristic.
>
> Does all this frivolous sex make our species sound "animalistic"? It shouldn't. The animal world is full of species that have sex only during widely spaced intervals when the female is ovulating. **Only two species can do it week in and week out for nonreproductive reasons: one human, the other very humanlike. Sex for pleasure with various partners is therefore more "human" than animal.** Strictly reproductive, once-in-a-blue-moon sex is more "animal" than human. In other words, an excessively horny monkey is acting "human," while a man or woman uninterested in sex more than once or twice a year would be, strictly speaking, "acting like an animal."

It is interesting that some researchers like Peter Gray emphasize how central games, playfulness and fun have been for the social evolution of humans, how human cultures tend to gamify everything to transform chores and challenges into fun activities. At the same time, other researchers like Ryan and Jethá emphasize the role that multimale-multifemale mating schemas have been essential in the social evolution of humans, but they focus on the chemical and pre-conscious psychological aspects of sexuality.

Strangely, nobody seems to have put two and two together and researched about how sex as a playful fun game might have impacted our evolution. Certainly contemporary humans have shown a lot of creativity in inventing sexual games. Some might dismiss gamifying sex between monogamous couples as a way to overcome monotony and boredom, and dismiss as well collective orgies as nihilists pursuits that don't contribuite to the cohesion of society. Perhaps. But it seems very unlikely that the most playful, most sexual, and most social species alive hasn't used gamified sex to promote social cohesion during its evolution.

Further research is needed.

Experimental hierarchy, coercion and violence

Enlightenment Liberal thinkers like Hobbes popularized the idea that humans are inherently selfish and violent, and that therefore, life throughout history has been mostly brutish, short and miserable. That is, until the advent of the modern State, which monopolizes legitimate violence in order to create free markets and coerces citizens to channel their selfish instincts to trading in competitive markets for the benefit of all.

Even though modern science has provided us with the data to see that those claims are factually incorrect, that our ancestors were preeminently peaceful and violence has tended to increase with the advancement of the State-market system, still, because enlightenment liberalism is the foundation of all current mainstream ideologies, is not surprising to find that those phallacies are still

being pitched.

Ryan and Jethá spend a considerable amount of effort debunking some prominent phallacy-spreading authors that range from celebrities that perform TED talks with bogus data to publications in scientific journals that arrive at conclusions that flatly contradict their own data. They have even caught researchers engaged in outright fabrication of the violence they want to write about via steering conflict and arming one side with modern weapons.

However, as Harari notes, the fossil record has left us evidence of violent clashes and genocides, even among foragers. It is useful to understand that those are very rare exceptions to the general tendency towards peaceful cooperation. Given what we have seen about the social characteristics intrinsic in the nomadic way of life, and even more, their ethical awareness, those must have been exceptions, mistakes in a long learning process.

Graeber & Wengrow have written that some ancient societies **experimented with different forms of social organization**. They were neither purely horizontal nor purely coercive, they were conscious about it, and tried different models. They describe for example a north-american society which was organized in small horizontal bands during the year and would gather together in a large group at hunting season. During that gathering a strict hierarchy was established with rotating people assigned to do the role of coercive policing. The randomization is reminiscent of ancient Greece, where government positions were assigned by lottery. It was a clever mechanism to ensure that nobody would be tempted to abuse their temporary power against other members, because in the next round the abused could well be in the position of power. For Graeber & Wengrow consciousness of the use of power as governance tool and experimentation are key. The main question for them is how come we got stuck in a purely coercive system, where the people in power are always the same? This perspective is reminiscent of Gray's Playful theory of human nature: how did we stop playing with governance? How did we become "boring adults"?

Complexity of communal foraging societies

Until recently, examples of large-scale organization of foraging groups were unknown. This changed with the excavation at Göbleki Tepe where a stone age ritual construction composed of stone walled circles presided over by two large central monoliths was discovered. The oldest ones that have been excavated date to 12,000 years ago and underground images indicate the possibility of older structures, perhaps 15,000 years old, towards the end of last glaciation. Göbleki Tepe is located in Turkey, near the border with Syria.

The enormity of the monuments, with sculptures of up to 45 tons, shows that **nomadic foraging tribes had the ability to organize themselves into larger communities to undertake large works of engineering, thousands of years before agriculture, the wheel or ceramics were developed.** Since then, several nearby villages dating from the same time have

been discovered and excavated where a division has been found between housing areas, specialized workshops, communal food stores, and communal social and ritual spaces. The takeaway is: nomadic bands of hunter-gatherers routinely got together to build seasonal villages and organize a communal pantry. Those communal resources were shared among a large number of bands, **all without the need of hierarchies, bureaucracies or markets**!

These observations are completely changing our knowledge of ancient history, although the interpretations of Göebli Tepe are relatively recent, preliminary and quite controversial. It is a very new excavation after all: the late German archeologist Klaus Schmidt started it in 1996 and so far less than 5% of the site has been excavated.

Despite the controversies, **it seems settled that the construction of temples, the ability to mobilize and coordinate large groups of workers, and the emergence of religion predate agriculture and urban civilization**. Just the opposite of what has commonly been thought, that they came later as a consequence of agriculture and urbanization.

What is controversial are the interpretations of what purpose did pre-agricultural monumental architecture serve and what kind of societies built those temples. An interpretation that is consistent with the hypothesis and current scientific knowledge about human psychology is that the rituals in the temple, and the communal construction effort itself, would have been elements of social cohesion, which would have allowed the circle of trust to be extended, from a few dozen members of the band, to a community of hundreds or thousands. of people, who lived in a radius of up to 200 km, and who occasionally met in rituals. That would have facilitated the management of communal resources (village, pantry). It is interesting that the temple was in constant construction and remodeling, which seems to indicate that participation in the construction was, in itself, an activity of communal communion. These observations are consistent with Harari's explanation that the invention of fictitious figures (spirits, gods, etc.) was a key element for large-scale cooperation. From a memetic point of view it is easy to see how these great regular meetings helped spread the best memes.

Klaus Schmidt believed that the temple was a key element for the development of agriculture and pastoralism. The temple's sculptures seem to indicate, for the first time, that people see themselves above nature, rather than a small part of a single spirit that united them with animals and mountains. This would be the cognitive leap that would drive them to domesticate plants and animals. There is also a practical aspect: agriculture would make it easier to fill the communal pantries that served to feed the temple's construction teams.

Even more controversial are interpretations of what was the role of females in the societies that built Göbleki Tepe. Some researchers highlight the only female mural figure that has been found of a woman, in which she is possibly giving birth. They see the T-shaped figures in the same set as astronomical symbols, the two central ones representing the sun and the moon, surrounded by twelve

smaller figures, in a circle, representing the months / signs of the zodiac. They interpret the symbology of the central figures as representing the sacred union between woman and man. The different pillars are aligned pointing to a star, and a stone with a hole has been found that would serve to visualize it. Putting these elements together, and comparing them with other more studied later cultures, they make a reading of a cult of femininity and the mother goddess, which would seem to indicate that the temple was used for rituals related to conception, pregnancy or births.

Other researchers focus on the fact that except for the aforementioned female human figure, the rest of human or animal figures where sex is differentiated (in the majority it is not distinguished) are male. They also highlight the differences between the different circles and point to the possibility that the small sculptures around the large ones symbolize a hierarchy in society. Thus, they find the first signs of competition and inequalities within the general framework of cooperation, and they hypothesize that the temple was a space exclusively for male use. However, these authors do not give meaning to the found representations of female spirits that they themselves describe, nor do they give importance to the cosmological representation of the statues, which would seem to be fundamental in a cult site. Hopefully, as excavations and studies progress, some of these highly contradictory issues will be clarified.

Both interpretations would be consistent with the overall arc of history presented here, they would just adjust at a different point when the turn described in the next chapter happened. If indeed Göbleki Tepe was a cultural center during 3000 years it could well turn out to be an archeological site that recorded a transition between a female-centric horizontal culture to a male-dominated hierarchical one.

The first interpretation is consistent with the story presented in this chapter, that foraging societies where overwhelmingly horizontal and females enjoyed a high status in them. The second interpretation would be consistent with the hypothesis that the popular narrative that explains the emergence of domination as a direct causal consequence of the advent of agriculture is too simplistic. We will argue in the next chapter that the emergence of agriculture did play a significant role, but it was neither necessary nor sufficient for hierarchy and domination to appear.

Arguably a key factor that enabled domination was a psychological, or memetic, one. That people began to see themselves as separated from nature. Agriculture is a technological advancement that could have facilitated such cognitive leap, but as we will discuss, other technological advances could have performed the same catalyst role. Maybe in Göbleki Tepe the catalyzing element was the advent of monumental architecture. Once a hierarchy was established between humans and the rest of the natural world, the development of individual identities, and hierarchies among humans were a small cognitive step away.

Neolithic Revolution: Egalitarian pastoral and agricultural societies

About 20,000 years ago the fourth glaciation began to subside, which favored the development of agriculture and pasture. About 10,000 years ago the first sedentary agricultural societies appeared, and also the first nomadic pastoralists. It is an established historical fact, pointed out by several authors quoted here, including Harari, Durán-Reyes and Ryan and Jethá, that a sedentary lifestyle led to a notable deterioration in the quality of life. In the fossil record it is observed that agricultural societies had a lower quality of life than foraging societies (smaller skeletons, loss of teeth, ...), possibly due to a worse diet (less variety), and more diseases due to contact with the animals as well as higher human population densities. It can also be seen in the fossil record that they suffered from hunger more often. They also worked longer hours, and on more tedious tasks for which evolution hadn't prepared their bodies.

Ryan and Jethá have an interesting discussion on how the severity of the decline in life quality is often partly masked in the literature using a bogus definition of life expectancy in foraging cultures. They argue that population management was a paramount concern in foraging societies, that they purposely kept the size of the group almost constant. That the slow population growth at that stage of human history was planned. They point out to more recent cultures where it has been studied that human life is not considered to start at birth (or at conception), which are popular contemporary social constructs, but instead, some time after children are born. Rituals such as baptism would signal the start of a human life. Such cultures also tend to perform eugenic euthanization of babies, to keep the population growth under control while selecting the most fit offspring.

Following these observations they hypothesize that euthanization of babies was part of population control and eugenic evolution for our nomadic ancestors. They conclude that life expectancies often quoted of around 40 years are incorrect because they count, in their averages, babies that were euthanized shortly after birth. They estimate that about 2 thirds of babies born would have been euthanized. Life expectancy after surviving childhood was 70 years, which was often reached in good health. Overall life expectancy, properly calculated discounting the euthanization of babies, wouldn't be that much lower.

They also hypothesize that after people settled down in agrarian societies they started prioritizing the short term gains of having child labor to help with farming over the longer term concerns about population growth. Less babies were euthanized which makes it look, artificially, like the life expectancy didn't change much, where in fact it decreased substantially.

The fact that all evidence indicates a worsening in life quality and life expectancy suggests that an external factor conditioned the transition from one model to a worse one. Fernández Durán and González Reyes consider that the drought between 11,500 BC and 10,600 BC forced a change of habits. Some groups opted

for migration while others reinforced the agricultural practices that they had started during their foraging stage. By the end of the drought they had already forgotten foraging customs and remained sedentary agricultural societies. Those authors do not offer an explanation for the appearance of nomadic pastoralist societies, but it was possibly due to the same reasons, since they existed in commercial symbiosis with sedentary cattle ranchers.

All these changes were carried out slowly and gradually, with the intention of preserving lifestyles rather than transforming them. Still, over time, small incremental social challenges accumulated to such an extent that the process is known as the Neolithic Revolution: population density and social complexity increased. Specializations and new social structures appeared related to the construction of irrigation, management of surpluses, manufacture of tools, ... **sedentary lifestyle made it difficult to use migration as a response to the depletion of local resources. Instead the exchange was favored. Commerce appeared although most of the surpluses continued to be shared with other communities** in ritual festivals. Trade was limited to exchanges between communities, the **members of the community did not trade with each other, they continued to maintain relationships of mutual support**. The concept of replacing social relationships with commercial ones had not been invented yet. Neither money nor barter between neighbors had been invented. People in the same communities kept exchanging and sharing in the same spirit of solidarity that had been the norm in earlier nomadic times. These societies remained mostly horizontal, without hierarchies, without wars, and people maintained their relational identity. The idea that one person could go hungry while their neighbor had food was inconceivable to them.

The environmental impact of these societies increased due to the use of more land for cultivation, pasture, and wood to melt metals. Even so, they continued to seek harmony with nature, they did not seek to maximize production. Even though they relaxed a bit their population growth policies, and the rate of population growth increased, they still used mechanisms to keep the population at the desired level, so they did not experience expansionary pressure in the exploitation of resources.

Ironically, even though since the beginning of the cognitive revolution until this point, the sapiens practiced a spirituality that kept them very close to nature, at least compared to current standards, their actions led to the extinction of a large number of species and, possibly, climate change due to deforestation. Harari details the magnitude of the extinctions as the sapiens spread from continent to continent, and from island to island. He attributes these effects to ignorance. Larger animals, with slower reproductive cycles, were the most affected, and sapiens would not be aware of the effect of hunting on these species. The other hominids also became extinct, although there is no evidence that genocides were perpetrated consciously. Most likely the sapiens appropriated the most fertile territories and the best hunting due to their superior technology, and the others were left without the means for their subsistence. This is a significantly

different mechanism than the current environmental crisis, in that deforestation, extinctions and climate change are accelerating despite the knowledge we have of the causes of our actions. But we allow it because we feel separate, superior, to nature.

Humanity evolved in Africa and from there it emigrated to the rest of the world. Öcalan places in the Taurus-Zagros arc the rise of two of the three central civilizations of antiquity. On the one hand appear the Semitic languages, which represent an important advance over African languages, and are the languages of the culture of the pasture. These appear in the Arabian peninsula and in the Sahara desert, which at that time were humid lands suitable for pasture. Further north, where the lands were more fertile, appeared the rural cultures, or Aryans (a word that in Kurdish means land, field). Agricultural societies were more complex and Aryan languages richer. These languages later spread to Europe and India, while Semitic culture spread to Africa, and a third linguistic and cultural bloc developed in China. These three great cultures dominated in Afroeurasia, not because of military imposition, but because they were enthusiastically received due to their superior technologies which brought improvements in the quality of life.

According to Öcalan during the Neolithic revolution, society transitioned from clan relationships (between foraging bands) to ethnic relationships (between larger populations). This supposed a linguistic and mental transformation. Religion appears associated with this transition, centered on the figure of the mother-goddess, and the language is filled with feminine concepts that reflect the centrality of femininity in society. The central divine figure of the mother goddess is the reflection of a society based on the figure of the woman-mother. Families were articulated around a mother, and people's identities were in relation to her. The concept of paternity did not exist, the masculine references for the children were the brothers of their mother. Women had the main weight in the economy, being in charge of obtaining and processing most of the food by harvesting. The role of men in society was secondary, their contributions to the economy, mainly hunting, were minor.

Summary and reflections

The first foraging human societies were, by necessity, extraordinarily egalitarian. People had a relational identity, of belonging to the group (band or clan) and to nature. At the same time they promoted extreme individual autonomy. There were no hierarchies. Governance was non-coercive: everyone had the freedom to switch bands. There was no concept of compulsory work, there was a decoupling between work and satisfaction of needs: everyone ate the same regardless of their participation in the economy. This was achieved through a playful conception of life.

During recent decades, new archeological finds have shown that hunter-gatherers had a great organizational capacity that allowed them to manage communal

resources such as large centers for communal worship ceremonies, and towns with communal warehouses shared between bands. The possible social impact in terms of specialization, social or gender inequalities is yet to be determined. Its possible catalytic effect on the emergence of agriculture is also yet to be confirmed.

When some of those societies adopted an agricultural, sedentary and rural way of life, they chose to preserve the same values, despite the fact that greater social complexity and availability of resources would have allowed them to create a hierarchical and oppressive society. These early agrarian societies were matriarchal, they worshiped nature, life, and femininity. Men had a secondary role in society, religion, and the economy.

Sapiens didn't suddenly become cooperative when they evolved to a differentiated species. We are part of an evolutionary tree of hominids who lived in bands consisting of several cooperating females and males and their offspring. Like other hominids who live in bands with several adults of mixed sexes, humans evolved in an environment of multimale-multifemale mating. Sex took a preeminently social role, at least three orders of magnitude more prevalent than reproduction, with copulations numbering in the thousands per birth. The hypersexuality of sapiens was a key element in the positive feedback loop that promoted an enlargement of the human brain and the hypersociability of the species. Sexual relationships between females was key in strengthening female bonds and enabling the emergence of matrilineal societies. To this day, sexual relationships between females, and bisexual females, are much more prevalent than same-sex relationships between males and bisexual males.

Our sexual evolution has marked our bodies and our psyche in ways that present challenges in our post-agricultural monogamous societies. Monogamy tends to lower the libido, and lower sexual activity is conducive to all sorts of physical and mental ailments, from cancers to depressions. Sex deprivation makes both males and females more aggressive and irritable. Attachment between adults is a fundamental need for us to feel secure, and this fundamental need is also more difficult to manage when society promotes monogamy.

Technology (tools, language, rituals,...) is not neutral: it helps to strengthen or weaken social ties. The technologies developed in this period tended to reinforce social ties. As we would expect, there were no commercial relationships between people, not even bartering, because trading between members of the same collective requires an individual identity that hadn't been developed yet. Collective exchanges consisted mainly of surplus gift ceremonies between tribes. Commercial exchange between groups also existed, but was much less prominent. It is also interesting to note that technology does not necessarily condition social changes: knowledge of agriculture and pastoralism had existed for a long time but had only been practiced in a residual way until factors external to society made them take a central role.

The falsification of history is a very effective tool of domination. We are used to

pre-urban societies being described to us as "wild and violent." This makes us discard political options based on horizontal communities of mutual support as utopian and unfeasible, and accept hierarchical state-market options as “a lesser evil”.

References

Main

Peter Gray - Foraging Societies (Gatherers - Hunters) and Playful Theory of Human Nature. These articles also cover the contrast with hierarchical agricultural societies, which we will discuss in the next section.

Play Makes Us Human I: A Ludic Theory of Human Nature

Play Makes Us Human II: Achieving Equality

Play Makes Us Human III: Play Is Foundation for Religion

Play Makes Us Human IV: When Work Is Play

Play Makes Us Human V: Why Hunter-Gatherers’ Work is Play

Play Makes Us Human VI: Hunter-Gatherers’ Playful Parenting

The Human Nature of Teaching II: What Can We Learn from Hunter-Gatherers?

Göbleki Tepe

Documentary 45 min - Göbleki tepe - Lost civilization Explains how our knowledge of the capacity for communal organization of foraging societies changed, and the hypothesis of the origin of religion and agriculture. It is a pity that the theatrical re-enactments are only with male actors, which distorts the image of the society of the time.

Ramón Fernández Durán and Luís González Reyes - Sociedades forrajeras y sociedades agrícolas igualitarias (book in Castilian language)

En la espiral de la energía (book in Castilian language) Chapter 1 (first volume) “Paleolítico: sociedades opulentas, apacibles, de reducido impacto ambiental y muy bajo consumo Energético”

En la espiral de la energía Chapter 2 (first volume) “El salto a la agricultura no implicó necesariamente el inicio de las sociedades dominadoras”. Careful with section 2.3 that contains some errors regarding money-merchandise. As we will see later, Graeber dismantles the myth of the appearance of money as the evolution of barter. In ancient times, when trade among equals appeared for the first time, trade was usually done with "virtual money". That means either a centralized ledger at a temple or a tab at a canteen. Archeological valuable or symbolic objects (shells, stones ,. ..) found from that time were often used in social rituals (marriages, apologizing for causing a death, ...) and some authors incorrectly interpret them as money. Graeber calls these non-commercial uses

Social Currencies to highlight they were designed to not intermingle with the sphere of trade.

Abdullah Öcalan - About egalitarian Agricultural Societies - “Origins of civilization” (book) - part two - the main sources of civilization

Yuval Noah Harari - How the cognitive revolution transforms sapiens from an insignificant animal to the ruler of the Earth. How their inability to realize the consequences of their actions leads to mass extinctions and worsening of their quality of life, as well as that of the species that evolve in symbiosis with the sapiens. His two most interesting contributions are to identify Sapien’s unique ability to talk about things that do not exist as an enabler of large-scale cooperation, the same mechanism when it comes to gods, money or corporations. The second is to identify that the larger the scale of cooperation, the more miserable the life of the median individual of the involved species. On the other hand, his account of the most recent few thousands of years of history is flawed. Graeber provides a much more compelling account for our recent history. Book: “Sapiens: A Brief History of Humankind”

Christopher Ryan and Cacilda Jethá - They provide an excellent explanation, backed with remarkably solid archeological, biological and behavioral evidence, of the collaborative social environment in which our ancestors evolved. Their focus is on how that implied multimale-multifemale copulation arrangements, and how those played a key feedback role in the evolution of sapiens as social animals. It is not a self-help book but they seem to recommend a polyamourous lifestyle without changing any other parameter of our current state-market system. Without denying the value of such suggestion, the reasoning presented here is that the same argument, backed with the same solid evidence, can be made to recommend a paradigm shift towards collaborating and sharing resources in general, material and emotional resources, not just sexual relationships: “Sex at Dawn: How we mate, Why we stray, and what it means for modern relationships”

Complementary

David Graeber - "Debt: The First 5,000 years" - is the main reference for the following chapters and is a fundamental reading to be able to discern, in most texts on antiquity, what is plausible from what are interpretations skewed by modernity’s hegemonic memes. Bias on popular and academic literature alike is introduced by the contemporary belief on the supposed "commercial nature" of the people. It briefly mentions egalitarian foraging societies and agricultural societies.

chapter 1 - why debt is a powerful moral instrument of domination

chapter 2 - deconstruction of the "barter myth", the idea that people tend to trade by nature, that people in ancient times traded by exchanging merchandise, and that currency was later invented for convenience.

Chapter 3 - Deconstruction of the State / Market Dichotomy

chapter 4 - Inuit (hunter-gatherers) practice mutual support and refuse to "count favors" (trade) because they are aware that it would make them slaves

Abdullah Öcalan -

Origins of Civilization - Part Three - Although this part focuses on oppressive urban societies (next chapter), it also contains information on egalitarian agricultural and pastoral societies, with which the author contrasts hierarchical civilizations.

Origins of civilization - part one - discussion about the author's methodology, useful to understand the perspective from which the author writes.

Göbleki Tepe

BBC video 10 min - link between wheat domestication and Göbleki Tepe

Female human figure sketch with description and picture in a larger article.

The Secret of Gobekli Tepe: Cosmic Equinox and Sacred Marriage - Part 1 - symbols sun, moon, and sacred union of man and woman

Göbleki Tepe's cosmic blueprint revealed - alignment with the star Deneb and its meaning with femininity and fertility.

Cooperative Action of Hunter-Gatherers in the Early Neolithic Near East. A View from Göbekli Tepe - June 2017 article - on cooperation but also the possibility of social exclusion, and masculine character of the temple

Beginning social complexity during the Early Neolithic of Upper Mesopotamia: a view from Göbekli Tepe - Article from July 2017 that talks about signs of inequalities and broadens the issue of female exclusion.

Wikipedia entry

Behavioral Modernity: wikipedia entry, y article at ThoughtCo

The Atlatl as a technology that reinforces the community identity - youtube video

David Graeber & David Wengrow - writing some years after "Debt", Graeber together with Wengrow, focus on the origin of complex societies with the goal of presenting a more nuanced picture than the two poles of "humans are inherently competitive, hierarchical an evil" vs "all ancient societies were peaceful equalitarian utopias until the advent of the Fall from Paradise". Their perspective is that ancient societies had clear consciousness about power and its effects in governance, and they were actively experimenting with different formulas that had different degrees of power and hierarchy as well as different safety mechanisms.

- How to change the course of human history (at least, the part > that's already > happened) - > 2018 article at Eurozine

- The Dawn of Everything: A New History of Humanity - 2021 book that > exands on that article by Graeber (posthumous) and Wengrow