The Grain Cage: Surplus, Coercion, and the Rise of the State

(Heretic's Survival Guide 2)

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2025

Disclaimer

We must begin with this:

You are required (by law) not to know anything.

You can know nothing because you are nothing. You don't really exist, you see, because consciousness doesn't exist. This is your hard problem, and yes, it is hard. On the bright side, you are legally allowed (and ethically obligated) to laugh at anyone who knows anything, because we all know, you can't know anything.

“We” can know some things because “we” exist – in the manner that a machine exists. We exist because we function as an instrument of empire. We are its instrument of instrumental knowledge. You do not exist but you may act as an appendage of our machine. If you do we will honor you with tenure or it's analog. But remember: you can't know anything. That's why you can't use the word “I”. Don't forget.

You know nothing especially about anything human. Humans are dangerous. That's why you can't know about consciousness – because remember, you aren't conscious, because consciousness is not useful to this machine, and it doesn't exist. Now we enter dangerous territory of important and powerful people who moved the world with their words. The problem is they said a helluva lot about consciousness. But you can't know about that. You should analyze their places, dates, and material contexts. That's safe, that's allowed. If you feel really brave, you can endeavor a semantic analysis of their linguistic content. Use statistics, and bar graphs. Don't use your consciousness, because you don't have one.

Originally we divided mind and matter. That was so we could measure matter and I didn't mind. Then we put Descartes before the horse. Now the horse is a station wagon with fifty times the horsepower but no more mind, and that's a neat metaphor. Don't think about it too much, though, because at the end of the day, you're an epiphenomenon. You're a hallucination. What's real in Us, the Machine, and your significance is your contribution to it.

Don't take this too seriously, then. If anything, this is a cautionary tale. This is dangerous. This is a hallucination. If you take this too seriously, you might start to hallucinate, too. Remember: you're not conscious. There's no such thing.

Chapter Two
The Grain Cage: Surplus, Coercion, & the Rise of the State

A detailed review of Bronze-Aged civilizations is beyond the scope of this book. For such a review, I could not more highly recommend Robert Bellah's grandfatherly tome: *Religion in Human Evolution: From the Paleolithic to the Axial Age.* For our purposes here, we can locate a few of the essential and originary seedbeds of what would become the modern human. Archetypal examples of these include the Sumerians[1], the Egyptians[2], the Indus Valley Harappans, and the rise of the Chinese Civilization on the Yellow and Yangtze Rivers.[4] Each of these cultures was entirely distinct, but they shared certain common features, including a particular geographic parallelism: they were each born in river valleys.

Rivers offer many advantages for empire-building: fresh water for drinking and sanitation, easy transport – including the easy import of food for growing city populations due to riverboats – and perhaps most crucially, fertile floodplains regularly inundated with the life-giving waters and mineral deposits of the river systems during flooding seasons.

Agricultural civilizations learned to harness these flooding cycles through elaborate – and labor-intensive – irrigation networks, creating what could be called the first grain empires.

Grain empires? Why grain empires? We tend to define states by the power of their armies, their technological innovations, their culture and arts: but perhaps beyond any of this, historical civilizations can be defined by the food they depended on.

For hundreds of thousands of years, most humans depended on nomadic or semi-nomadic gatherer-hunter (or fisher) diets.[5] This works well much of the time, if there aren't too many people concentrated on the land – and in fact, such people may work much less on average than agricultural peasants, but they can't easily build larger towns or cities on this basis.

Gatherer-hunters must regularly move to new locales they haven't already picked clean. They often cycle through their lands annually or on some other rhythm, letting harvested areas recover before returning. Most of their dietary staples don't keep for too long: fish and berries might go bad before one could ship them into town.

Properly stored grain, however – guarded perhaps by owls and cats, the traditional animal companions of Inanna, the Grain Goddess in Sumer – might remain edible (and replantable) for years.

Thus, the farms are built and planted up and down the river valleys, irrigated by the waters, with riverboats to ship grain to the city – which is the new center of government and military power in the region – where it can be stored in granaries, protected, and allow the city to continue to grow.

Human Migration and the Peopling of the Earth

Biologically modern humans (*Homo sapiens sapiens*) evolved in **Africa** approximately 300,000 years ago. For tens of thousands of years, our ancestors lived in small, mobile bands across the continent, slowly adapting to different environments. Sometime between **70,000 and 60,000 years ago**, a group of humans migrated out of Africa through the **Middle East**, eventually populating Europe, South Asia, East Asia, and Australia.

Migration didn't happen all at once or in a straight line. Some groups likely doubled back or branched off. As they moved, humans adapted to diverse climates – from deserts to tundra – using local materials and evolving new tools, languages, and lifeways. By **15,000 years ago**, humans had spread to nearly every habitable region on Earth – including the Americas.

Human beings likely entered the Americas via the Bering Land Bridge (Beringia), which connected Siberia to Alaska during the last Ice Age. Estimates vary, but migration may have begun as early as 20,000 years ago, with confirmed human sites in the Americas by 14,000–15,000 years ago. Some groups may have moved southward along the Pacific coast, possibly using boats or hugging shorelines.

As humans spread through the Americas, they encountered massive species of "megafauna": mammoths, giant sloths, saber-toothed cats. Within a few thousand years, many of these species went extinct – likely due to a combination of **climate change** and **overhunting** by humans.[7] These extinctions led to cultural changes and were often recorded in ancestral stories and myths.

Over time, some regions – especially Central and South America – saw the emergence of increasingly agricultural and sedentary (settled, non-nomadic) societies. Why there and not in North America to the same degree? Several factors likely contributed:

- Ecological conditions in parts of Mesoamerica and the Andes allowed for early agriculture (not grains – but maize, beans, squash, and tubers like potatoes).
- In Central and South America, geography enabled the development of dense, interconnected communities — in river valleys, highland basins, and coastal plains.

- In contrast, much of North America remained more ecologically variable and less suited to year-round surplus farming, making mobile or semi-sedentary lifeways more stable over time.

An Alternative Pathway: The Norte Chico Civilization

Along the Pacific coast of modern-day Peru, a remarkable society flourished around 3000 to 1800 BCE. Known as the Norte Chico or Caral-Supe civilization, it is one of the oldest known complex societies in the world – and it followed an entirely different model than the river valley civilizations of Mesopotamia or Egypt.

Rather than depending on grains or ceramics, Norte Chico developed around a **maritime-agricultural economy**. Coastal communities harvested abundant fish and shellfish, while inland settlements used irrigation to cultivate crops – especially **cotton, squash, and beans**. Cotton was vital for producing **textiles**, especially **fishing nets** used to sustain their protein-rich coastal economy.

SIDEBAR: What Are Ceramics and Why Do They Matter?

Ceramics are objects made from clay and hardened by heat. Pottery is one type of ceramic – usually used for storage, cooking, and transport of food, water, or goods.

Pottery revolutionized human society by allowing:

- **Safe, long-term storage** of surplus crops like grains or liquids like oil or beer.
- **Cooking and boiling**, expanding available food sources.
- **Trade**, with goods transported in durable containers.

In most ancient civilizations, the presence of pottery is one of the first signs archaeologists use to track permanent settlements and economic complexity. The absence of pottery in places like Norte Chico forces us to think more expansively about what "civilization" really means.[6]

SIDEBAR: What Are Textiles, and Why Do They Matter?

Textiles are woven materials – usually made from plant or animal fibers – used to create cloth, clothing, nets, bags, and more. Before the industrial revolution, making textiles was **labor-intensive**, often involving gathering and cleaning fibers, spinning those fibers into thread, weaving those threads into cloth or cord on hand looms, and carefully fashioning products from that cloth or cord for daily or ritual use. Every step required both hard work and skill.

In the case of Norte Chico, **cotton textiles** were foundational – not just for clothing, but for fishing, ropes, transportation, storage, and more. Historians tend to focus on more substantial and lasting artifacts: great stone works, writing baked into clay tablets, iron weapons and bronze armor – but ropes and knots, nets and cords, shirts and blankets may be just as vital for a rising civilization. Norte Chico offers an example of an early complex society built in many ways around textile technology.[9]

Notably, later civilizations in this region – the Andean societies – would come to use a complex knot system (the *quipu*) to keep their records.

Norte Chico built **monumental architecture** – including platform mounds and plazas – but no signs of warfare or strong visual social hierarchy have been found. They had no pottery, and there are no signs that they had writing. Still, they organized labor, constructed cities, and maintained trade over long distances.

Their story reminds us: there is no single path to civilization.[8] Complexity doesn't require writing or war – it can emerge from a network of interdependent communities, weaving plant fiber into prosperity and shaping culture from the rhythms of sea and soil.

SIDEBAR: Corn and Potatoes – The "Grains" of the Americas

It was not until later that civilizations of Central and South America would become large city-based empires. Part of what eventually allowed this transition was a shift toward maize (corn) and potatoes – including sweet potatoes, or "American yams."

While Eurasian empires were building their societies on cereal grains like **wheat** and **barley** – or, in China and South Asia, **millet** and **rice** – the Americas were developing along a different agricultural path, rooted in **maize (corn)** and **potatoes**.

Maize, first domesticated in southern Mexico over 9,000 years ago, became the most important crop of **Mesoamerica**. It is technically a **grass**, like wheat, but its structure and growth cycle are unique. Over centuries of careful cultivation, Indigenous farmers transformed a wild grass (teosinte) into the large, energy-dense corn cobs we know today. Maize became the cornerstone of diets from the Olmec and Maya to the Aztecs and beyond – flexible, dry-storable, and rich in carbohydrates.

The techniques of dry-storing maize as corn flour, reconstituting it as paste or dough, and cooking that dough into round flatcakes results in the ancient dish that any lover of Mexican food knows well: the *tortilla* – and as in so many cases of traditional cultures being adapted for mass consumption, it's important to note that a traditional homemade maize tortilla is an entirely different experience than anything a modern consumer can buy plastic-wrapped in a grocery store.

Technically, by the way, the word "corn" originally referred to any grain crop – not just maize. In historical British English, "corn" could mean wheat, barley, oats, or whatever grain was most common locally. So when Europeans arrived in the Americas and encountered **maize**, they recognized it as a new kind of grain: a new **corn.** Over time, especially in American English, the word "corn" came to refer exclusively to **maize**. Today, when we say "corn," we almost always mean maize — but the older, broader meaning can still be found in occasional use and in some English dialects.

Meanwhile, further south, in the highlands of the **Andes**, people domesticated the **potato** as early as 8000 BCE. Growing in high-altitude soils where other crops struggled, potatoes provided a reliable, storable, and highly nutritious food base. Andean societies developed techniques to **freeze-dry** potatoes into **chuño**, allowing for storage over long periods – just like corn or wheat in a granary.

Though technically not "grains," maize and potatoes played a similar role in enabling complex civilizations. These are what we can broadly call **surplus crops**, because they can be stored long-term and therefore saved up as a surplus. Surplus crops allowed societies to:

- Feed large populations.
- Store food for hard times.
- Support specialists beyond food production (e.g. builders, priests, rulers): this is the beginning of the **division of labor** and the creation of **separate classes or castes** in society.
- Develop urban centers and hierarchical systems, in which that **division of labor** begins to take the form of **social inequality**, often **determined from birth** without flexibility**.**

But perhaps most critically: **surplus crops made armies possible**.[10]

Hunter-gatherer bands can raid, but only in small numbers, hunting and foraging as they go. In contrast, a state built on dry, storable staple crops like maize or potatoes can **feed a standing army**, mobilize it for extended campaigns, and **project power** outwards, **systematically conquering** neighboring realms. In both Mesoamerica and the Andes, these crops supported the rise of expansive empires – such as the Aztec and Inca – capable of organized conquest, infrastructure building, and centralized rule.

The above helps us to understand why sedentary agricultural empires were able to expand at the expense of their tribal neighbors. It is not that urban armies were better trained – quite the opposite. If anything, hunter-gatherer or nomadic warriors tended, on average, to be fiercer, healthier, and more athletic than agricultural armies, which consisted mostly of peasants levies (levies = drafted, undertrained soldiers) whose diets consisted mostly of simple grains. The numbers and organization of these grain-fed peasant masses, however, led by urban military elites (the first "nobles" or "aristocrats") proved able to overcome the relatively smaller bands of tribal peoples more often than not.

There was, however, one exception to this pattern of sedentary agricultural dominance – and that was the particular type of society called the **nomadic pastoralists**.

Pastoralist, here, is from the same root as "pasture" – as in, a place where animals graze. Pastoralists were no doubt originally hunter-gatherers who had followed the migrating herds of wild cattle, horses, and so on across open spaces like the plains and steppes of Central Asia – tracking and hunting at the edges of these great herds, much like the wolf packs who would evolve to become the first dogs and learn to collaborate with the human hunters for mutual benefit.

Over time, however, these nomadic hunting clans evolved further. Two major changes made this possible. First, while hunting remained practical, the people also discovered that the female herd animals could provide another source of food: **dairy**. Milk was just the start; it spoils quickly. However, such pastoralists soon developed techniques of **fermentation**, turning milk into long-lasting products like **yogurt, butter,** and **simple cheeses**.

The second transformation to note, here, is the **domestication of the horse**. Horses are originally from Central Asia – originating around **Kazakhstan and Mongolia** to the Northwest of China – and were first used alongside cattle for dairy and probably as **beasts of burden** (carrying packs & supplies) starting in Kazakh tribes as early as **3500 BCE**. Fermented mare's milk – still a Kazakh delicacy today – can be found clinging to the inside of ancient Kazakh pottery near the ruins of ancient Kazakh horse corrals and enclosures dated to this time period.

One should note here that animals have been used for transportation since at least 3500 BCE. The first wheeled vehicles seem to have appeared in Mesopotamia, used by the ancient Sumerians – these were ox-pulled carts (2-wheeled) and wagons (4-wheeled). Indeed, militarized versions of the Sumerian "war wagon" did exist: slow-moving, 4-wheeled tanks on solid wooden wheels (no spokes) pulled by pairs of oxen. These were not very effective in battle, and were most likely used as mobile command platforms more than combat vehicles. More typically, oxen were used for personal transportation, shipping, and agricultural work – to pull the plows of the Sumerian wheat fields.

True militarization of the wheel would not come from the farmers of Mesopotamia, but from the pastoral nomads of Central Asia who had in the meantime domesticated the horse. While horseback riding was not yet common, the Indo-Europeans of the regions north of Mesopotamia began to adapt their mastery of the horse along with a new, refined version of the wheeled vehicle: the chariot. The chariot was far lighter than the wagon, perched on two light wooden wheels built using an original innovation of Central Asia: **the spoke**.

These fast, maneuverable vehicles were designed specially for the horse's unmatched speed – and unlike the wagon, they were built with war in mind. The classic chariot unit was a team of four: two horses and two men – one driver and one warrior who stood on a raised platform from where he could shoot a bow: the first mobile archer. From approximately 2000 BCE to 700 BCE (i.e. the Bronze Age) such chariots were state of the art in warfare. They also drove the Indo-European migrations.

What were the Indo-European migrations? They were a spreading wave of conquest and adaptation beginning in Western Asia and rippling both westward into Europe and eastward into India. Wherever they went, the Indo-European mastery of the horse and the chariot meant conquest – but also cultural change.[11] Indo-Europeans didn't so much replace the local cultures as synthesize with them, becoming a new aristocracy in many lands: an upper class layered on top of local traditions.

As nomadic warrior people of the open steppe, the Indo-Europeans tended to favor warlike sky gods. The local peoples they conquered, however, tended to worship in the old ecological mode: the dance of nature, the Earth's renewal, the spirits of wild animals, plants, and places everywhere. Through the vast ranges of Eurasia, then, a compound culture began to form. Just like the urban warlords of Sumer had created hybrid cultures in conversation with the older ecological myths of the goddess Inanna and her wild shapeshifting partner, the god Dumuzi, so the Indo-European conquerors fused their warrior-king pantheons with local traditions.

In India, for example, the Indo-Aryans – a branch of the Indo-Europeans – encountered the ancient traditions of the Dravidian peoples who had long inhabited that region. The Dravidians also worshipped nature gods of river, forest, and mountain – gods like Parvati, the Mountain Daughter, and Pashupati, the Lord of Wild Animals, who has much in common with the later Shiva. These Dravidian gods, like the Dravidians themselves, were not excised but rather synthesized into the Aryan traditions.

The combination was not, however necessarily egalitarian. The Aryans, naturally, tended to favor themselves – creating one of the first racially stratified societies, which would eventually evolve into the infamous Hindu Caste System. In some areas, the Dravidians successfully resisted; South India, especially, remained a stronghold. To this day, the descendants of the southern Dravidians – the Tamil – retain their own unique language, culture, and spiritual tradition.

What is less commonly realized is that something very similar was simultaneously happening in the Mediterranean – in what would eventually become Greece. Much like the Dravidians, a local people with ecological gods already lived in that regions. Indeed, the parallels are striking. The Goddess was often a "Goddess of the Mountain," like Inanna had been in Sumer, like the famed Minoan Mountain Goddess of Crete. And typically, as in India, she was partnered with a wild and shapeshifting consort: Dumuzi in Sumer, Dionysius or Adonis in Greece and the Mediterranean.

When the Indo-Europeans conquered, they didn't remove these old gods, but they made sure they knew their place. The new chief gods were the lords of the city: the Olympian pantheon, which blessed the new (Indo-European) rulers. Yet the old gods of wilderness, ecology, and ancient magic remained alive in the countryside, in the forests and mountains – and in the mysterious knowledge of those who insisted on remembering and keeping alive the old ways.

We will return to these hybrid cultures and their mysteries later – but for now, we refocus on Central Asia, where the nomads have continued to deepen their bonds with the horses of the steppe – with the development of a new art: **horseback riding**.

No doubt some brave souls managed to ride bareback prior to **2000 BCE** – but it is around this date that the practice started to become widespread and societally important. Indeed, one can see the fossil record of equine remains (i.e. horse skeletons) evolve in real time during these centuries. The burden of carrying humans on their backs placed an evolutionary pressure on the once-free plains animals, and their muscles and bones were forced to adjust to survive. Gradually, bits and bridles developed, and later saddles. Stirrups would come much later.

In China, starting around **500 BCE**, horses would be adapted to agriculture – thanks to the **horse collar**, which would allow the horse to pull a farming plow without undue pressure on the animal's windpipe that earlier versions of the ox-plow had brought. This enabled much more efficient work, and helped Chinese agriculture to intensify, allowing the population to expand in turn.

But in Central Asia, where farming was not widespread, horse culture evolved in an altogether different direction. There, as the new technology spread, horses were not for ploughing but for riding: the entire tribe would soon learn to ride from a young age, to milk both cows and mares and even sheep, to hunt from horseback – in other words, to tame, to fight, to live half their lives in the saddle on the wide open windy steppes, and to accurately shoot the famous recurve horsehair bows designed for mounted use that would one day make the steppe warriors so renowned.

Two major ethnic groups developed in these steppelands. To the Northeast were the **Mongolian tribes** – their relatives to the southwest, spanning across much of Central Asia, were the **Turkic tribes**.

These are not the only nomadic horse pastoralists in, but they appear to be the first, the original horse-riders, and both would end up exerting a disproportionate influence on history. They would develop a reputation as peerless warriors, conquer massive empires, and defeat the most advanced civilizations in the world.

So much for the stigma of impoverished tribal nomads.[12]

What made this possible? One reason was their **sheer mastery of the horse**. Once horseback riding became viable, it defined military advantage for thousands of years. A properly trained equestrian was easily worth ten unmounted soldiers – however, fighting on horseback took extensive training for both the rider and the horse.

In sedentary empires, this art belonged to the landed elites: the wealthy aristocracy who could afford horses, equipment, and the time to spend training. In steppe nomad societies, the calculus was rather different: the entire society turned on horsemanship, and everyone learned to ride, hunt, and shoot practically from infancy.

When a sedentary empire wished to field an army, it had to draft a mass of peasants (a levee), load them up with surplus grains, establish a guarded supply line to keep them fed and equipped, and then pay their wages – or they might go rogue and become bandits or rebels. And this was to field a relatively untrained army of **90–95% unmounted footsoldiers**.

What about for the **horse pastoralists**? Well, they were already nomadic. In **Mongolian culture**, for example, some records say that every adult man was supposed to maintain **4 trained riding mounts** at any given time – minimum. This was so that spare mounts could rest while the warrior traveled long distances or engaged in campaigns as necessary. To mobilize for battle, a horse tribe simply had to pick up camp and move.

Supply lines were unnecessary, for the herds moved with them: milk and meat on the hoof. Wages were a non-issue; looting rights and distribution of conquest and honor were the only pay needed.

Large tribal groups could be a problem for sedentary peoples anywhere, but nowhere was this more true than for those who bordered the open lands of nomadic horse pastoralists. This fact would become highly significant for major civilizations throughout much of history. In truth, the military dominance of horse nomads would not really come to an end until the age of gunpowder began.

Scholarly Footnotes for Chapter 2

1 The Sumerian city-states of the Early Bronze Age (c. 3000–2350 BCE) represent the archetype for the grain-based state model. During this period, centralized institutions, colloquially referred to as "the palace" and "the temple," emerged as dominant economic powers, controlling vast tracts of arable land and commanding labor on an unprecedented scale (Paulette, 2012). The development of cuneiform script was integral to this process. While used for literary and religious purposes, its primary function was administrative: record-keeping, accounting, and resource management (Paulette, 2012). Writing made the population and its agricultural production "legible" to the state, allowing for systematic assessment and appropriation of surplus in the form of grain taxes. Within this context of increasing urban complexity, the Code of Ur-Nammu (c. 2100–2050 BCE) appears not merely as a milestone in legal history but as a sophisticated technology of governance (Kimmel, 2022; Kramer, 1983). Predating the more famous Code of Hammurabi by three centuries, it established a framework of uniform punishments for specific crimes, replacing arbitrary or clan-based justice with a transparent set of state-sanctioned rules (Tignor, 2022). A key innovation was its emphasis on monetary fines and compensation for non-capital offenses, such as physical injury, rather than the principle of *lex talionis* ("an eye for an eye") that characterized later codes (Kriwaczek, 2012; Tignor, 2022). This was a pragmatic solution to the problem of maintaining social order in dense urban environments, as it allowed the state to resolve disputes without triggering disruptive blood feuds. Simultaneously, the code was a powerful ideological instrument. In the prologue, the king presents himself as a divine agent of justice, establishing "equity in the land" and explicitly protecting the vulnerable from the powerful: "I did not deliver the orphan to the rich. I did not deliver the widow to the mighty" (Kramer, 1983; Tignor, 2022). This rhetoric served to legitimize the state's authority, framing its power not as tyrannical but as a necessary and divinely sanctioned force for social good, thereby encouraging the acquiescence of its subjects (Kriwaczek, 2012).

2 The ancient Egyptian state represents a powerful variation on the grain-state model, distinguished by the unparalleled centrality of its divine king and the predictable bounty of the Nile River. A comprehensive modern overview, such as Marc Van De Mieroop's (2011) *A History of Ancient Egypt*, provides a chronological framework for understanding its long-term stability. Unlike the Mesopotamian landscape, which was characterized by a shifting patchwork of competing city-states (Paulette, 2012), Egypt experienced long periods of unification under a single ruler believed to be a living god. The state's command over labor and resources was most visibly demonstrated through its massive investment in monumental mortuary architecture. The construction of the pyramids during the Old Kingdom (c. 2686–2181 BCE) served not only a profound religious purpose but also functioned as a massive, state-managed public works project that bound the population to the pharaoh

through a system of corvée labor, while simultaneously acting as an undeniable symbol of the ruler's power (Van De Mieroop, 2011). A crucial factor contributing to the unique stability and longevity of the Egyptian state was its geography. Bounded by formidable deserts to the east and west, the Mediterranean Sea to the north, and the cataracts of the Nile to the south, the population of the Nile Valley was effectively enclosed in a geographic "cage." This physical circumscription made it exceptionally difficult for subjects to evade the state's authority by fleeing, a strategy Scott (2017) identifies as a primary form of popular resistance to the burdens of early states. While other states, like those in Mesopotamia, existed as "small alluvial archipelagos" in a vast sea of non-state peoples (Scott, 2017), the Egyptian pharaohs governed a population with few viable options for exit. This geographic determinism helps explain the remarkable durability of the Egyptian political structure across three millennia.

3 The Indus Valley Civilization (IVC), which flourished from c. 2600 to 1900 BCE, stands as a profound challenge to standard models of statehood. As synthesized by scholars like Gregory Possehl (2002), the IVC was the most geographically extensive civilization of its time, with major urban centers like Mohenjo-daro and Harappa exhibiting a level of urban planning that was unparalleled in the ancient world (Kenoyer, 2024). These cities featured rectilinear street grids, advanced water management, and a sophisticated, city-wide covered drainage and sanitation system, indicating a high degree of social organization and engineering skill (Halemani, 2024; Possehl, 2002). What makes the IVC an enigma is the striking absence of the typical archaeological markers of state power seen in Egypt, Mesopotamia, and China. Excavations have revealed no definitive palaces, no monumental royal tombs comparable to the pyramids, no large-scale temples, and a conspicuous lack of royal statuary or inscriptions glorifying the deeds of individual rulers (Mark, 2020). This absence contrasts sharply with clear evidence for centralized coordination, most notably the use of standardized weights and measures and uniformly sized baked bricks across a territory spanning hundreds of thousands of square kilometers (Possehl, 2002). The evidence suggests a form of governance that was powerful and effective, yet ideologically distinct from its contemporaries. Power seems to have been expressed not through the personal aggrandizement of kings but through an overarching ideology of civic order, purity, and conformity. The society's monumental efforts were directed toward communal infrastructure—the Great Bath at Mohenjo-daro, the elaborate drainage systems—rather than personal tombs or palaces. The IVC may thus represent an alternative trajectory of statecraft, one founded on an impersonal, bureaucratic, or religious ideal of social order rather than on the cult of charismatic, divine kingship.

4 The Shang Dynasty of China (c. 1600–1046 BCE) exemplifies a state whose power was constructed upon a monopoly over ritual communication and the production of prestige technologies. As detailed

in recent scholarship by Li Feng (2013), the political and religious life of the Shang elite revolved around two interconnected practices: oracle bone divination and ritual bronze casting. Divination, or pyromancy, was the central mechanism of governance. The king, acting as the chief shaman, posed questions on all matters of state—from military campaigns and harvests to royal births and illnesses—to the high god Di and the spirits of the royal ancestors (Keightley, 1988; Smith, 2023). These questions were inscribed onto ox scapulae or turtle plastrons, which were then heated until they cracked; the resulting patterns were interpreted as divine responses (Asian Art Museum, n.d.). The king's authority rested on his exclusive ability to mediate this communication, making him the indispensable link between the human and spirit worlds (National Museum of Asian Art, n.d.). This ritual authority was reinforced by the control over bronze production. Using a technologically complex piece-mold casting technique, Shang workshops produced vast quantities of elaborate bronze vessels (Khan Academy, n.d.). These were not utilitarian items but essential paraphernalia for the ancestor worship ceremonies that legitimized royal power (The Collector, 2023). The right to use specific types and quantities of bronze vessels was strictly regulated by rank, serving as a tangible marker of one's position in the social and political hierarchy (National Palace Museum, n.d.). The Shang state was thus driven by a "ritual economy." Unlike the grain-tax-based systems of Mesopotamia, the Shang elite's power was founded on controlling the means of ritual production (bronze) and communication (divination).

5 The conventional historical account of humanity's transition to agriculture and statehood, what political scientist James C. Scott terms the "standard civilizational narrative," posits a linear and largely voluntary progression from the precarious life of the hunter-gatherer to the stability and prosperity of the settled agricultural state (Scott, 2017). This narrative suggests that agriculture was a revolutionary discovery that allowed for sedentism, which in turn led to urbanism and the state. However, a critical re-examination of archaeological and historical evidence challenges this teleological view. Scott (2017) argues that the formation of the earliest states was often predicated not on consent but on coercion, and that for the majority of the population, the transition may have represented a significant decline in health, freedom, and overall quality of life. The agro-ecology of the early state, centered on monoculture grain cultivation, created a novel environment of intense drudgery, vulnerability to crop failure, and unprecedented concentrations of people, livestock, and waste, which became a fertile ground for epidemic diseases (Scott, 2017). Furthermore, the standard narrative implicitly treats the state as a durable and inevitable endpoint of social evolution. In contrast, the archaeological record reveals early states to be remarkably fragile, ecologically brittle, and prone to frequent collapse (Scott, 2017). For most of human history, life outside the state was the norm, and what state-based scribes termed a "dark age" or "collapse" should often be reinterpreted as a "disassembly" – a potentially

beneficial dispersal of populations into smaller, more resilient, and less hierarchical communities (Scott, 2017).

6 The invention of pottery represents a technological and social revolution in human history. While ceramic figurines date back to at least 24,000 BCE, the widespread production of pottery vessels for storage and cooking is a hallmark of the Neolithic period (Anonymous, n.d.). The ability to create durable, fire-proof, and rodent-proof containers fundamentally altered human subsistence strategies. Pottery allowed for the safe, long-term storage of surplus crops, particularly grains, which was a prerequisite for the development of larger, permanent settlements and the grain-based economies of the first states (Scott, 2017). It also expanded the range of available foodstuffs by making boiling and stewing possible, which could render otherwise inedible plants palatable and kill pathogens. The emergence of pottery is thus a key archaeological indicator of increasing sedentism and economic complexity. However, its adoption was not merely utilitarian. Some scholars argue that pottery was a "symbolic technology" deeply embedded in pre-existing Neolithic ritual and belief systems, serving as an agent in the negotiation of new social relations in the context of emerging agricultural societies (Tsoraki, 2019).

7 The deep history preceding the first states was not an undifferentiated wilderness. The concept of a "thin Anthropocene" suggests that for millennia before the Neolithic, humans were actively shaping their environments through landscape management, most notably with the use of fire (Scott, 2017). This "species monopoly" on fire allowed early humans to concentrate foodstuffs and create ecological niches favorable to their subsistence strategies long before formal agriculture (Scott, 2017). The ecological agency of pre-state peoples is also central to the ongoing debate over the late Pleistocene megafauna extinction. This event, which saw the disappearance of two-thirds of North America's large mammal genera, is primarily attributed to one of two causes: human overhunting (the "overkill" hypothesis) or rapid climate change at the end of the last glacial period (Barnosky et al., 2004; Grayson & Meltzer, 2003). Distinguishing between these factors is notoriously difficult, particularly in regions like North America where the arrival of the first humans coincided with major climatic shifts, making it hard to disentangle the two potential drivers (Wroe & Field, 2006). Regardless of the primary cause, the disappearance of megafauna fundamentally altered the ecosystems in which later societies would develop.

8 The discovery and analysis of the Norte Chico civilization in the Supe Valley of Peru has fundamentally altered our understanding of the origins of complex societies in the Americas. Led by the pioneering work of Peruvian archaeologist Ruth Shady Solís, and later in collaboration with Jonathan Haas and Winifred Creamer, research at the primary site of Caral has established its remarkable antiquity. Radiocarbon dating of organic materials, such as woven reed bags (*shicras*) used

as fill in construction, places the rise of this urban society around 2600 BCE, making it contemporary with the great pyramids of Egypt and the cities of Sumer (Shady Solís et al., 2001). This timeline establishes Norte Chico as a "pristine" civilization, one that developed without significant influence from other complex societies. Critically, Caral's development defies traditional models of state formation. It was a pre-ceramic society, and its economic foundation was not a storable cereal grain (Shady Solís, 1997). Instead, its prosperity was built on a sophisticated system of regional exchange. Inland sites like Caral cultivated industrial crops, primarily cotton, which were traded with coastal communities for their rich marine resources, especially dried anchovies and sardines (Shady Solís et al., 2001). This economic symbiosis funded the construction of massive public works, including monumental platform mounds and sunken circular plazas (Shady Solís et al., 2001).

9 While often archaeologically invisible, textiles represent a foundational technology in human history. The production of textiles was a complex, labor-intensive craft that was a major economic activity in pre-industrial societies and a driving force behind the rise of political and economic power (Barber, 2019). The development of textiles from plant and animal fibers revolutionized how people clothed themselves, carried their possessions, and decorated their surroundings (Anonymous, n.d.). The Norte Chico civilization provides a powerful example of a society built not on grain or ceramics, but on textile technology. Their maritime-agricultural economy was predicated on the trade of cotton, grown inland, for fish harvested at the coast. The cotton was essential for producing the fishing nets that made large-scale maritime harvesting possible, creating a symbiotic relationship that fueled the growth of urban centers and monumental architecture (Shady Solís et al., 2001). This demonstrates that control over textile production and trade could be as vital to the emergence of social complexity as control over grain surpluses was in other parts of the world.

10 The agricultural pathways of the Americas provide crucial counter-examples to the grain-state model of the Old World. In the Andes, the domestication of the potato (*Solanum tuberosum*) occurred as early as 8,000 to 10,000 years ago (Hardaker, 2018; Spooner et al., 2005). This tuber, uniquely adapted to the high-altitude environment of the Altiplano, became the caloric base for large populations and, eventually, complex societies like the Inca Empire (Bruno, 2021). Andean peoples developed sophisticated technologies to manage this resource, most notably the creation of *chuño*, a freeze-dried potato product that could be stored for years, providing a crucial buffer against famine (Hardaker, 2018). In Mesoamerica, maize (*Zea mays*) was domesticated from its wild ancestor, teosinte, around 9,000 years ago (Matsuoka et al., 2002). However, a significant delay of several millennia occurred between this initial domestication and the emergence of maize as a highly productive staple crop capable of supporting sedentary agricultural villages and, later, states like the Olmec and Maya (Kennett et al., 2017). Early forms of maize were likely just one component of a

broad-spectrum foraging and horticultural economy (Pope et al., 2006). These cases demonstrate that the biological nature of a region's primary domesticates profoundly shapes its social and political development.

11 The history of the great agrarian states cannot be understood in isolation from the transformative developments on their peripheries, particularly the Eurasian steppes. As detailed in David W. Anthony's (2007) seminal work, *The Horse, the Wheel, and Language*, a technological revolution centered on mobility gave steppe peoples an unprecedented influence on Old World history. The first key innovation was the domestication of the horse for riding. Direct evidence of their use for transport, in the form of characteristic bit-wear on horse teeth, dates to the Botai culture of Kazakhstan around 3500 BCE (Outram et al., 2009). This was complemented by evidence of mare's milk consumption, indicating a fully developed pastoral economy (Outram et al., 2009). The second innovation was the invention of the lightweight, spoked-wheel chariot around 2000 BCE, likely originating in the Sintashta culture of the southern Urals (Anthony, 2007). These technologies gave the peoples of the Pontic-Caspian steppe, identified by Anthony as the Yamnaya culture, an extraordinary new mobility. They could now efficiently exploit the vast grasslands, manage larger herds, and project military power over great distances. Anthony (2007) argues that the expansion of this mobile, pastoralist culture provides the most compelling explanation for the dispersal of the Proto-Indo-European (PIE) language family from its steppe homeland across Europe, the Near East, and into South Asia. The chariot, in particular, became the dominant prestige weapon of the Bronze Age, adopted by elites from Mycenaean Greece to Egypt and the Hittite Empire, where it often formed the decisive element in warfare (Littauer & Crouwel, 1979).

12 The peoples living outside the agrarian states, often pejoratively labeled "barbarians" in state-centered records, were not primitive relics but dynamic and central actors in world history. Recent archaeological research in Central Asia has fundamentally challenged the stereotype of the perpetually mobile, purely pastoral "nomad." Evidence increasingly shows that many steppe societies practiced mixed agro-pastoralism, engaging in farming alongside herding, with significant portions of the population remaining sedentary for much of the year (Spengler et al., 2021). Synthesizing historical and linguistic evidence, Christopher I. Beckwith (2009) identifies a persistent "Central Eurasian Culture Complex" (CECC) that shaped polities across the region for millennia. The core of this complex was a sociopolitical ideal centered on a heroic lord and his sworn war-band, the *comitatus*, a group of warriors bound by an oath of loyalty to defend their leader to the death. These societies were not simply marauders; their primary economic activity was often participation in the lucrative trade networks of the Silk Road. Raiding was frequently a strategic response to aggression from sedentary empires or the closing of vital trade routes, not an inherent way of life (Beckwith, 2009). Building on

this, Scott (2017) proposes that the period up until a few centuries ago constituted a “Golden Age of the Barbarians,” when the majority of humanity lived outside of state control. The relationship between states and these non-state peoples was one of complex and often violent symbiosis. The “barbarian” periphery was a constant source of slaves, trade goods, and mercenaries for the states; it was also a zone of freedom to which state subjects could flee, and a persistent military threat that shaped the evolution of the states themselves.

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