GROWING PART I: THE NEOLITHIC REVOLUTION
(AGRICULTURE, SETTLEMENT & NEW TECHNOLOGIES)
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Neolithic stone grinder and palette for grinding grain.

Transition from Paleolithic to Neolithic Periods: The Example of Egypt
During the Paleolithic periods, early humans (Homo Sapiens) and their hominid ancestors, lived in small family groups as nomadic hunter-gatherers. The Paleolithic or “Old Stone Age,” is marked in the archaeological record by the use of early stone tools. This era comprises 99% of human prehistory, from 2.5 million years ago until roughly 13,000 years BCE.

During the Neolithic or “New Stone Age,” stone tools became more complex and humans adopted other new technologies including pottery and early metalworking. The term Neolithic Revolution applies to the most important change, the beginnings of agriculture. Humans began to domesticate plants and animals. Growing crops also required a settled lifestyle, at first in small villages and towns. The food surpluses granted by agriculture lead to rapid population growth, technological specialization and the beginnings of civilization.

Paleolithic stone tools (left). Artist’s impression of an early hominid stone tool maker (right).
Egypt in Transition

During the later Paleolithic Period, between 150,000 and 20,000 BCE, the landscape of north Africa was much different than the modern Sahara Desert. During this period, the region experienced a number of **pluvial periods**, when increased rainfall transformed the Sahara into a savannah-like grassland complete with grasses, trees and various large fauna including antelope, lions, giraffe and elephants. These pluvial periods had a profound effect on human lifeways – all of the people living at this time in North Africa were gather/hunters, the easiest way of life under these climatic conditions, as documented in Paleolithic rock art. With abundant wild game and vegetation as food sources, there was no need to settle or domesticate plants and livestock. Human populations remained very small and scattered. People lived nomadically.

![Ancient Rock art from Libya showing Paleolithic hunters.](image)

The hunter/gatherer economy was based on hunting Ibex, Gazelles, Giraffes, Ostrich, and other numerous animals. These early gather/hunters also fished in the river and the lakes, and gathered edible plants including wild grass seeds. **Petroglyphs** (rock art) have captured these early peoples engaging in these activities.
At the end of the pluvial period, Africa experienced a desiccation of the land. The vast, rainy savannahs dried into desert (into the climate we are familiar with in North Africa today). These desert conditions forced many people to move into the Nile river valley. Except for scattered oases (natural springs of fresh water), the Nile River is the most reliable water source in North Africa suitable for human settlement. The people fished, gathered, and hunted along the riverbanks of the Nile for subsistence, mainly during the dry periods.
Satellite view of the vast Sahara Desert in north Africa. The green equatorial region below contrast sharply with the yellow desert.

At 10,000 BCE, the Nile inundations became higher, and the savannah-like conditions reappeared around the Nile. During this period, the people moved away from the Nile again, and shifted back to a savannah lifestyle. Because there was not much need for new technology, only some technologies, such as stone tools, advanced in the Early Neolithic.

At around 6,000 BCE, another dry period forced the people back into the Nile valley. It is at this point that permanent settlement of Egyptian Nile Valley took root, and agriculture began.

Satellite image of the Nile and the green agricultural land it supplies. Beyond is only desert where nothing grows.
Egypt: “Gift of the Nile”.

The Middle East & Mesopotamia: Transition to food production: @10,000-9000 BCE

Unlike Egypt, farming began much earlier in Middle East, and was sparked by favorable environmental conditions in Syria-Palestine and in the mountainous regions of south Turkey and Mesopotamia. Agriculture began in this area, called the Levant, at the end of the last ice age, around 10,000 BCE.

Fertile Crescent extending from the Levant (west) to Mesopotamia (east).
The Levant is also known as the Fertile Crescent, which is the rain-watered, often mountainous, zone extending from the coast and mountains of Canaan/Palestine up through modern Lebanon, coastal Syria, and extending eastward from Aleppo, Syria to Kirkuk Iraq region.

Between 10,000-7000 BCE, agriculture spread to the Taurus Mountains region of southern Turkey, and moved gradually south-eastward into Zargos mountains of western Iran. Only between 7000-5000 BCE did agriculture spread further into river valleys of Mesopotamia and Egypt. The earliest agriculture was wholly dependent on rainfall in the wetter mountainous regions, as the people in the area had not yet developed artificial irrigation. The earliest agriculture on the mountain slopes was slash and burn, where the plants were cut down and burned. The rich ash would fertilize the soil for the people to plant their crops.

Spread of early agriculture in the Ancient Near East 9000-3000 BCE.

**Farming:**

We have some idea of how this early agricultural system functioned in the Neolithic Period. Even while farming was developing, gathering/hunting continued. Women had a prominent role in this new system, since they still did more gathering than men. The gatherers developed a preference for low effort (i.e., easy to gather) plants like wild grains. These wild grains were slowly domesticated by the people, who chose varieties that did not easily shed seeds when plucked. The advent of farming resulted in food surpluses and rapid population growth, but hunting and gathering was still an important source of food. Early farming allowed for a semi-settled life, because fields gave out after a few years. Later farmer cultures developed with higher population densities and permanent settlements.
Differences between wild wheat (left) and domesticated wheat (right). Domesticated wheat is entirely dependent on humans to complete its life cycle.

Artist’s impression of Neolithic grain farmers in the Ancient Near East.
Animal Domestication:

The population pressure from early farming communities killed off surrounding wildlife. Therefore, animal domestication was developed in order to keep animals to meet human needs. More docile species were chosen for husbandry, such as wild cattle and goats. More rambunctious species were impossible to domesticate, such as rhinos, or giraffes. Domesticated animals like cattle and sheep were more valuable to their owners alive than slaughtered. A slaughtered animal provided meat, bone and skins for leather, but only once.

Domestication of animals also created a use of new resources from living livestock, including milk and cattle blood, but wool may have been harvested from sheep and goats before domestication. Selective breeding encouraged docility – in effect, the animals were selected for their mild temperaments, much like dog breeding today. Herder cultures were similar to the modern “cattle cultures” such as the Massai in central East Africa.
Among the earliest domesticated animals, sheep and goats remain important to many cultures in Europe, Asia and Africa.

A calm temperament, docility, is an important characteristic of domesticated animals and is encouraged by selective breeding.

Domestication led to interdependency:
Human populations grew as a result of these dependable food sources, and came to rely on them for food production. Domesticated plants and animals also
depended on human care for their survival, as they were no longer able to survive on their own.

Humans and their animals and plate domesticated became mutually dependent for their survival.

Neolithic Revolution: What Was its Impact on Humans?
Ironically, recent anthropological studies suggest that farmers work harder than hunter gatherers to earn their food. Agriculture doesn’t provide easier food, so why farm?

Upside:
There were many benefits to an agricultural lifestyle. A settled lifestyle was advantageous to pregnant women and small children, who, for the first time, were living in stable conditions, as they don’t travel well. Imagine taking a pregnant woman or infant on a permanent “camping trip!” In addition, people experienced a steady and increased food supply, which exceeded the natural limits on population growth caused by reliance on wild game and plants. Domesticated plants and animals were grown in much larger and denser quantities.

These larger populations of humans were more likely to meet one another and exchange ideas and technology. There was also more of a possibility for craft specialization and organization of labor for technological and cultural advances, such as pottery (invented to store grain and other food stuffs). The invention of the plough also made field farming possible. Therefore, a sedentary lifestyle was facilitated by these new farming techniques.
The nomadic lifestyle took a heavy toll on women and children before humans began settling.

**Downside:**
However, there were some disadvantages to a settled agricultural lifestyle. For example, concentrated populations were subject to epidemic disease. Indeed, it was hard work in order to make a living. Larger populations also competed for resources, even leading to organized violence—War!

Agriculture was harder work than hunter-gatherer lifestyles, but the payoff was stability and agricultural surpluses leading to rapid population growth.

**New Technologies: Prerequisite Skills Needed for Civilization:**

**Planning:** Farming required careful planning. People needed to save enough seeds to grow next year’s crops while keeping enough to ensure their food supply until the next harvest.
Time keeping:
People had to decide when to plant. In the Middle East, crops were planted in the
fall, before the winter rains. Harvest was in the late spring and early summer, before the
long, hot dry season when temperatures often exceeded 100 degrees.

But when is the Planting Season?
The early Egyptians counted the months by the lunar cycles (the monthly phases
of the moon), as did the Babylonians, Hebrews, and Greeks. The Egyptians also used a
solar calendar, based on the annual cycle of the sun. The Egyptians also noticed that
there was an approximately 365 day interval between the Nile river floods, which
corresponded calendrically with three yearly seasons of four months each (twelve
months total), which is more in line with a solar agricultural year.

Organization of labor:
Social stratification also starts around this time. Labor in the ancient world was
mainly organized by a small elite group of leaders who directed the labor of the large
majority of peasant farmers and workers (the beginnings of government). In a stratified
society, At the top of the society were a small group of elite rulers, who concentrated
both labor and resources to do their bidding. Their privilege place in society was
reflected in the much richer grave goods found in their tombs as compared to the tombs
of the poor majority. This can be seen in the Egyptian Nagada II period graves (ca.
3500-3200 BCE). The elites organized large projects for the community’s benefit, and
to maintain their own wealthy and privileged lifestyles. Cities and irrigation systems
became prevalent at this time, and monumental architecture became important.
Monumental architecture is a prominent feature of all early civilizations world wide, and
can be seen throughout the Mediterranean.
The “Standard of Ur” form ancient Sumer (Mesopotamia). At the top of society a small group of elite rulers controlled the agricultural surpluses produced by peasant farmers.
Fine pottery like these Egyptian Nagada II Period (3500-3200 BCE) pots, and other luxury goods were reserved for the small elite in socially stratified societies of early civilizations.

**Craft Specialization & new material technologies:**
With the growth of sedentary lifestyle, professions and village roles developed. From there, these specialized jobs, a social stratification developed. Metal working began, especially with copper, which occurs in naturally in its metal form. Limited amounts of gold and other metals were worked as well. The surface collection of the metals led to underground mining, which led to regional copper industries in south-east Europe and in parts of the Near East, including the Sinai in Egypt.

Gold, prized for its softness and beauty, was prized by humans from ancient times. These Egyptian gold vessels date to roughly 2700 BCE.
Around 7,000 BCE, pottery first appeared, and revolutionized human societies. Pottery allowed for easy portability and long term storage, as well as for the processing and serving of food and liquids. Liquids (such as beer and water) could be easily transported. Grain was stored in ceramic vessels to keep it dry and resist pests like insects and rodents. Because ceramics can withstand high heat, cooking certain foods became easier as well.

Pottery revolutionized the transport, storage and preparation of foodstuffs and liquids, thereby transforming human societies.

**Sedentary lifestyles to Urbanization:**
The new style of sedentary life created towns during the Neolithic, and a bit later developed into early cities in the Ancient Near East. The two earliest examples of proto-cities in the area were Chatal Huyuk, located in southeast Turkey, dating to between 6500-4500 BCE, and Ancient Jericho, dated to about 6000 BCE.

Artist's impression of the early Neolithic settlement of Chatal Huyuk in southern Turkey, the ancestor of cities.
The design of a contemporary village in Afghanistan is similar to ancient Chatal Huyuk.

**Domestic Architecture:**
When humans were nomadic or semi-nomadic, shelters were built of organic materials like wood, reeds and animal skins. These could be abandoned or even taken with populations on the move. With permanent settlement, more durable materials were preferred. In the arid climates of Egypt and the Near East, mud brick was a cheap and reliable building material. Rough field stones cemented with mud, clay or plaster mortar were also used. Mud brick provided dry and cool dwellings. Early housing was small, with only one or a couple of rooms, and densely packed for mutual defense and to leave space for nearby fields, and doubtless because humans are social animals who preferred the advantages that living in close proximity provided to them.

Reconstruction of a one-room house at Chatal-Huyuk.
Contacts with other communities and long distance trade:

Early communities, contrary to popular belief, did not live in isolation without contact between them. Even in prehistoric times, there is evidence of trade. A good example of this is the trade in obsidian (volcanic glass). This material produced strong and incredibly sharp blades and cutting edges when fractured. Natural deposits occur in southwestern and eastern Turkey. Yet man-made obsidian objects dating to the Neolithic period have been found as far away as southern Israel and southern Iraq near the Persian Gulf. They can only have gotten there by long-distance trade. Seashells and objects made from shell found far from the sea are another example of early trade.

Early Trade: Obsidian (volcanic glass) from Anatolia (modern Turkey) was traded throughout the Levant and Mesopotamia as far as the Persian Gulf.

Map showing sources (triangles) and find spots (circles) attesting to the trade in obsidian in the Neolithic period.