

CHAPTER 3

OF POTTERS AND POTS, PLOWMEN AND PLOWS

TECHNOLOGY AND THE FIRST CITIES

“ TWO POTS
FROM IRAQ

In ancient times, pots had hundreds of uses. Mesopotamians used them for storing grain, carrying water, shipping fruit (mostly dates), and cooking a stew over the fire for dinner. People drank from pottery cups and ate from pottery bowls. Sometimes they even buried their dead in pots. Archaeologists discovered these two clay pots:



A potter crafted one of them in 4500 BCE. The other was made a thousand years later, around 3500 BCE. Can you guess which is which?

Surprisingly, the painted one with the smoother surface (we'll call it Pot A) was made before the plainer one (Pot B). But why would the older pot be fancier and more carefully made than the later one? The person who made Pot A probably learned how to make pots from his father, who learned from his father, and so on. Potter A made pots completely by hand. First, he rolled the clay into thin ropes that he coiled into the shape he wanted. Then, using his fingers,

“ Pots from Iraq, around 4500 (left) and 3500 BCE

Modern potter's wheels are very similar to those the Mesopotamians invented. Some are powered by electricity, but many potters still turn their wheels with their feet.

he made the bumpy sides thin and smooth. Afterward he painted the pot with detailed patterns and baked it in a hot kiln. The finished product was beautiful, but making it took a long time.

Then someone invented a new technology—a different way to make pots, using the **potter's wheel**. With this new method, a craftsman could spin a lump of clay on a flat wheel, which he probably turned with his feet. As the clay spun around, the potter could gather the lump between his palms, press with his thumbs to make a bowl, and then use his fingers to shape it. An expert could make many more pots than before in the same amount of time. Perhaps when it became possible to make pots so quickly, potters stopped spending so much time making them beautiful.

We can never name the inventor of the potter's wheel. We'll never know exactly when or where the invention happened either. Writing hadn't been invented yet, so we have no records.

The earliest potter's wheels were almost certainly made from wood. Because wood disintegrates in the soil, no wooden wheels have survived. We know that the potter's wheel was invented around 3500 BCE because the pots themselves tell us through tell-tale markings that appear on some pots, but not others. When a pot is spinning on the wheel, the potter's fingers trace a pattern that isn't found on coiled pots. A potter leaves a second clue when he slides a thin string under the finished pot to cut it from the still-spinning wheel. The string leaves a line on the clay. Archaeologists have found Mesopotamian pots made as early as 3500 BCE with markings that show that they were created on a wheel. This proves that potters had begun



A potter would have turned this clay wheel with his feet, leaving his hands free to shape the pot as the wheel spun.

to use wheels by 3500. Chemical tests also give information about when a pot was made. Scientists can figure out the age of the pot itself or any remains of food found inside it.

The potter who used a wheel probably didn't need to spend much time farming. Many of his customers would have been farmers, so he could sell or trade his pots for food. The farmers, too, had a new technology that made their lives easier: the plow, a tool for cutting, breaking up, and turning the soil to prepare it for planting. Improved farming methods meant that farmers could grow enough food not only for their own families, but also to sell or trade with others.

Archaeologists believe that the plow was invented around the same time as the potter's wheel—between 3800 and 3100 BCE. But because early plows also must have been made of wood, none have survived. Before plows were invented, farmers used ordinary sticks to break up the soil. The first plows were just pieces of sharpened wood attached to a wooden frame, which oxen dragged through a field. But wooden plows broke easily in Mesopotamia's hard, clay soil. Farmers needed something stronger. Copper worked well for earrings and bracelets but was too soft for plows.

The big break came when someone melted copper and tin together and created a brand-new metal: bronze. Was this someone's brilliant idea or an accident? Bronze objects found in tombs and temples from this period show that wealthy people used this strong, gleaming metal not only for plows, but also for bowls, pitchers, spearheads, daggers, and statues of their gods. Wealthy Mesopotamians developed a taste for the beautiful and useful things that skillful artists made from bronze—and silver, too, which was even more expensive.

There was no copper, tin, or silver to be found in Mesopotamia, so the Mesopotamians needed something to trade



Even the gods had to farm in ancient Mesopotamia. The god behind holds the plow, while the one in front drives a team (a lion and a dragon!) with his left hand.

Historians and archaeologists study the days, years, and centuries that have passed, exploring even the events that happened thousands and thousands of years ago. They call each one-thousand-year block a millennium.

with the people who lived where these metals could be mined. Pretty much all they had in their river valleys was mud and clay and what grew or grazed on it. But foreign traders weren't interested in trading semiprecious stones and fancy metals for pottery, which is, after all, nothing but baked clay. So what could the Mesopotamians offer? They needed to be creative—and they were.

By the fourth millennium (the 3000s) BCE, Mesopotamian spinners and weavers were producing beautiful cloth made from the wool of their many sheep. They traded their cloth for other luxury goods. None of these ancient fabrics survive because, like wood, cloth disintegrates in the soil. But we know that cloth was the Mesopotamians' main export for centuries because, once writing was invented, lots of documents tell us about its production. An 18th-century BCE list recorded 384 workdays spent in the creation of "one fine [wool] . . . robe." It must have been richly designed and embroidered.

Most spinners and weavers were women. Like potters and metalworkers, they became professionals—people who specialize in a certain kind of work, perhaps trading with others for goods or services. Mesopotamian professionals no longer did everything for themselves. Instead, some people did nothing but make pots, while others made cloth or became traders.

Trade depends on transportation. The earliest Mesopotamian traders used donkeys to carry their goods. They also used boats. And once again, an unknown inventor changed the world. This person had probably seen a potter's wheel. Perhaps he was a potter himself. In a brilliant leap of imagination, this inventor took two wheels, set them on their edges, and attached them to opposite ends of a pole, which led to the creation of the first cart.

When someone thought of adding two more wheels, the first wagon came into existence. Pulled by donkeys or oxen, wagons could hold heavier loads than a man or woman could lift—and more than a donkey could carry on its back. The first wagon may have been built as early as 3100 BCE. Now it was much easier for a craftsman to transport his goods.

64 List, Iraq, 18th century BCE



Someone who wanted to sell or trade something needed a way to label the goods. Let's say, for example, that a Mesopotamian date grower wanted to ship his fruit to another town. He needed to identify his own jars, but he also wanted to make sure that no one stole any fruit before it reached the buyer. So he filled a large jar with dates and covered it with cloth or a baked-clay lid. Then he wrapped a string around the rim of the jar and pressed a blob of soft clay against the string. Finally, he made a label with a cylinder seal—a tube of carved stone or baked clay that could be rolled across the clay, creating a one-of-a-kind design. These designs were often beautiful, but they weren't just for show. They identified the owner of the goods and sealed the shipment against the greedy fingers of thieves.

All these new technologies were part of an even bigger change that was going on in southern Mesopotamia. The towns were growing larger all the time. By 3500 BCE, some of them can be called cities. One sprawling city, Uruk,

Donkeys pull a chariot with four solid wheels made of wood (top row).

TOWNS AND
TECHNOLOGIES**5000 BCE**First towns in
southern Mesopotamia
settled**3800 BCE**

“Uruk period” begins

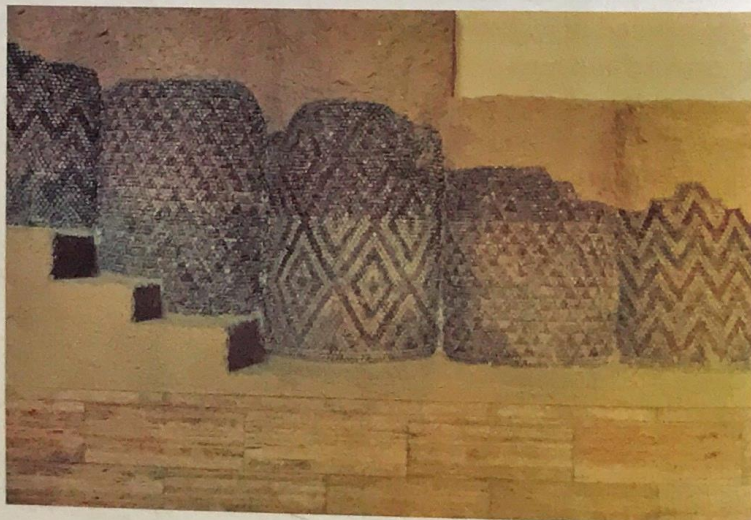
3500 BCECities develop in
Mesopotamia; pottery
wheel first used; plow,
cylinder seal, and
bronze technology
invented**3100 BCE**Wheel and wagon
invented;
Mesopotamians
establish first colonies
in history

which was near Eridu in modern-day Iraq, had grown to a population of more than 10,000 people—twice as big as any other Mesopotamian city that we know of at the time. Uruk’s streets were full of people, donkeys, and wagons, and lined with brick houses jammed together on both sides. A vast temple complex dominated the town center. In fact, the remains found at Uruk are so impressive, archaeologists call this period of Mesopotamian history the “Uruk period.”

Uruk’s citizens must have shared certain duties, such as cleaning out the canals that brought water to the fields around the city and building places to worship together. Someone must have organized the people in order to get the work done. These men may have been the religious leaders who appear in the artwork of the Uruk period wearing beards, round hats, and thick belts.

The fact that some houses were bigger than others and some tombs were more elaborate suggests the development of a class system—including rich people who owned much of the property, a middle class of artisans and merchants, poor people who worked as small farmers, servants, and hired laborers, and perhaps even slaves. With the fertile fields producing more food than people needed to eat, those families with more land than others became rich.

The rich people wanted to trade for beautiful things:



Each of the round tiles in this wall from a temple at Uruk is made of painted clay. Although they look flat, they are actually cone shaped. The point of the cone sticks into the mortar. Together, these small tiles create a colorful pattern called a mosaic.

objects made of gold, silver, ivory, fine wood, and stone. To obtain these goods, some Mesopotamian traders in these early times traveled all the way to Egypt—a journey of about 1,500 miles. We know this because archaeologists have found Mesopotamian cylinder seals there and because Mesopotamian boats appear in some Egyptian art from the time.

Mesopotamia also sent out **colonists** to other parts of the Near East. Archaeologists have excavated cities in Syria that were almost identical to Mesopotamian cities built in the same period. The style of the houses and even the pottery used there were the same. Why did the Mesopotamians build these new cities? Was Mesopotamia becoming too crowded? Probably not. More likely, the Mesopotamians wanted greater control over trade. Setting up colonies in other places made it easier for them to get the luxury goods that they wanted.

Historians sometimes disagree on exactly what a community has to have or do in order to be called a “civilization.” But most would agree that by the Uruk period, around 3500 BCE, the Mesopotamians had all the puzzle pieces in place. In fact, they were the first known people on Earth to “put it all together.” They had cities that were organized under some kind of government. The remnants of their towering temples prove that they had organized religious practices. Within the community, some workers had begun to specialize—including priests, builders, potters, metalworkers and the stone-carvers who made cylinder seals. They sponsored long distance trade, and within the community there was a difference between rich and poor. Some scholars say that a culture must have a system of writing in order to be called a civilization, and that too was on its way in Mesopotamia.

Colonists leave home as an organized group to create a new community elsewhere, carrying their traditions with them. The ancient Greeks formed colonies throughout the Mediterranean and the Near East. In the 1600s and 1700s, European colonists settled in the Americas.

HOW ABOUT A DATE?

Just after World War II, chemist Willard F. Libby came up with carbon dating, a way of figuring out exactly how old is “old.” He based his method on the fact that all living things have carbon in them. When a plant or animal dies, the radioactive part of its carbon—the part that produces energy in some form—begins to disappear, very slowly and always at the same rate. If a bone fragment is found in an ancient pot, carbon dating can tell us how long the animal has been dead by measuring the amount of radioactive carbon that is still left. Libby’s method works on ancient animal remains up to 70,000 years old.