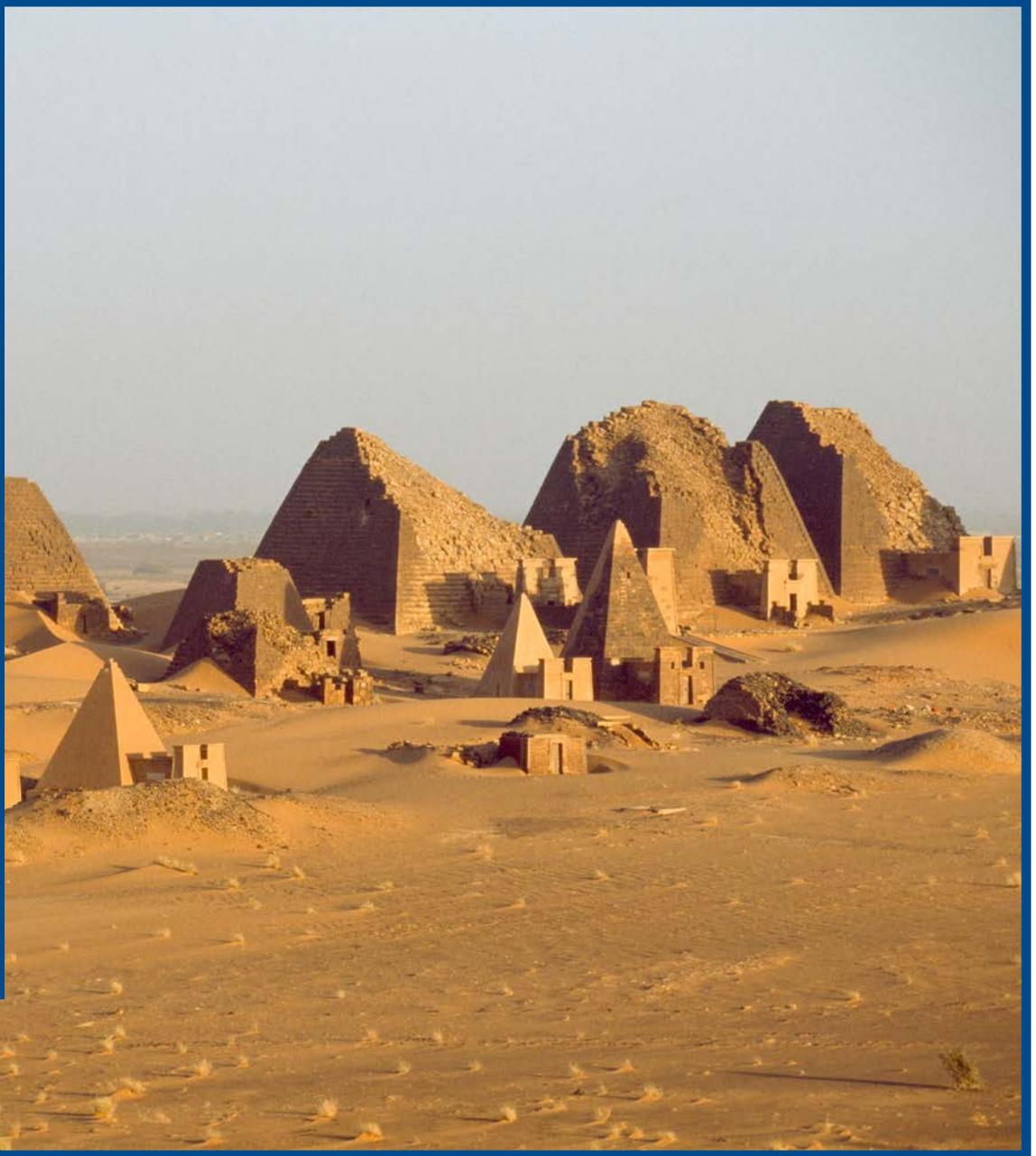


6

History-Social
Science Standards
6.2.6. and 6.2.8.



Egypt and Kush: A Tale of Two Kingdoms

California Education and the Environment Initiative

Approved by the California State Board of Education, 2010

The Education and the Environment Initiative Curriculum is a cooperative endeavor of the following entities:

California Environmental Protection Agency
California Natural Resources Agency
California State Board of Education
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Key Partners:

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Office of Education and the Environment

1001 I Street • Sacramento, California 95814 • (916) 341-6769

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The One With the Water, Wins



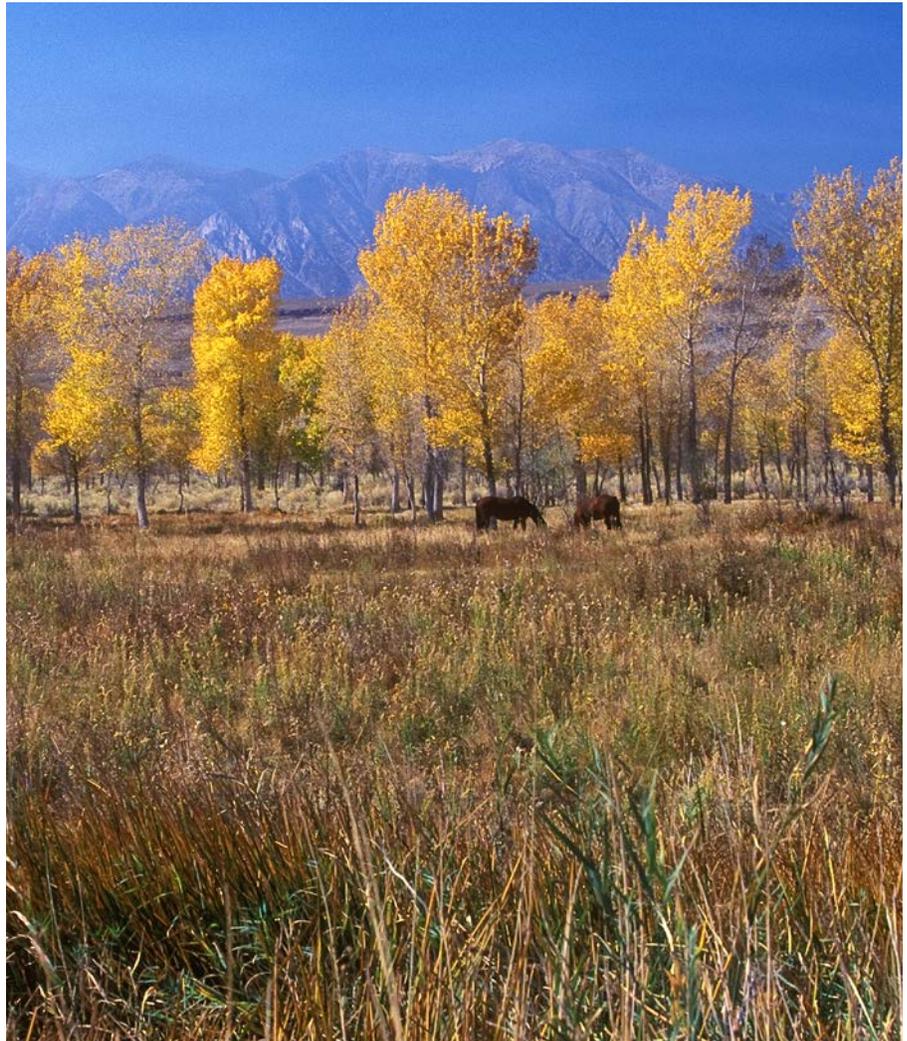
Every morning, Tom Taylor turns a large metal wheel and watches the water from Pine Creek rush through a gate in the Los Angeles Aqueduct. One morning in 2006, however, he arrived to find a lock and chain around the wheel. Thinking it was a trick, he cut the chain and opened the water gate. To his surprise, the next morning there was a bigger chain.

Tom soon found out that the wheel had been locked on purpose. Why? The people of Owens Valley, California, and one of the largest water companies in the world were arguing over the right to use the water—again.

The argument was not a new one. The city of Los Angeles, over 250 miles away, had been taking water from Owens Valley for 94 years. Over time, the argument had turned into a real fight. To find out why, we need to go back in time and learn about the people who settled Owens Valley. We also need to understand why the city of Los Angeles was interested in their water.

The Owens Valley

The Owens Valley is more than 100 miles long. Majestic



Owens Valley, California

mountains surround it. The Owens River once flowed through the center of the valley, filling a large and beautiful lake. Antelope and elk roamed the meadows. Piute Indians were the first to live there. They called the mountains to the east “Inyo,” which means, “dwelling place of the great spirit.”

The settlers who came west to Owens Valley were mostly cattle ranchers and farmers. They lived in the shadow of the Sierra Nevada mountain range. These settlers grew corn and alfalfa with water from the Owens River. Sometimes the river would flood, making the land around it soggy and useless. Life was hard, yet the people were happy. They depended on one another, sharing their rich harvests with neighbors.

The ranchers and farmers worked the land and founded towns that grew. Their towns had names like Independence, Bishop, Lone Pine, and Olancho. When railroads came through Owens Valley, people were grateful. They welcomed railroads because they promised more trade, as well as a connection to the

outside world. Unfortunately, railroad companies laid the tracks far away from the towns, which did not help the people in the valley.

The Owens River also posed problems for the settlers. Depending on the amount of rainfall, the river could be dry one year and overflowing the next. Most farmers knew that they needed irrigation systems to control the flow of water, but they did not have money to build them. Then in 1902, Congress passed the New Lands Reclamation Act. The purpose of the act was to

attract new settlers to the West. The newly formed Reclamation Service would build dams, channels, and irrigation systems so that new settlers could grow crops and raise cattle, even on the driest land. Settlers could borrow money for land and supplies and repay the loans when they had earned enough money.

Congress assigned a man named Joseph Lippincott to work in California. He knew that many communities in his state needed help. One of the first surveys he ordered was for an irrigation project



Owens River, California

in Owens Valley. When the residents heard this news, they were excited! It seemed their dream of expanding their small community was about to come true.

The City of Los Angeles

Meanwhile, in Los Angeles, the population was doubling every year. Everyone seemed to be planting orange groves. New towns sprang up. Land prices rose. The men in charge of the Department of Water and Power were worried. They did not know if the city would have enough water to sustain its growth.

William Mulholland was the head of the Department of Water and Power. It was his job to find more water for the city of Los Angeles. An old friend, Fred Eaton, came to see him. He had an idea. Mulholland and Eaton would engineer a 238-mile aqueduct to bring water to the Los Angeles basin. The water would come from the Owens River.

Soon after, Mulholland and Eaton went camping with their families. They invited their friend, Joseph Lippincott. At the time, Lippincott was still doing land and water surveys



Orange grove

in Owens Valley. He was very excited about using the water from the Owens River to irrigate the land in the valley.

No one really knows what happened on that camping trip. In the end, Eaton and Mulholland convinced Lippincott to stop plans for water projects in Owens Valley. The next week, Eaton went to see President Roosevelt to make the aqueduct project official. Meanwhile, the residents, farmers, and

ranchers of Owens Valley did not know that their chances for rich fields, orchards, and population growth were fading.

A Water “Project”

Fred Eaton came to Owens Valley. He began to buy land and water rights for the Los Angeles water project. The people knew he was Lippincott’s friend and so thought he was working for the Reclamation Service to help the settlers of Owens



Snow-capped mountain in Sierra Nevada, California

Valley with their land. He said nothing to change their minds. They sold him their rights without knowing that Los Angeles would soon be getting all of their water.

Mulholland drew up plans for the Los Angeles Aqueduct. He hired 2000 workers to build the 238-mile project. Eight years later, water from Owens Valley finally reached a reservoir in the San Fernando Valley. It was November 5, 1913. Mulholland

looked out at the water rushing into the irrigation ditches. He waved at the residents of Los Angeles and said, “There it is. Take it.”

The farmers and ranchers of Owens Valley were furious. They had been tricked into thinking that the Reclamation Service would help them develop their land! Instead, they lost their rights to any of the water that flowed from the snow-capped Sierras nearby into their fertile valley.

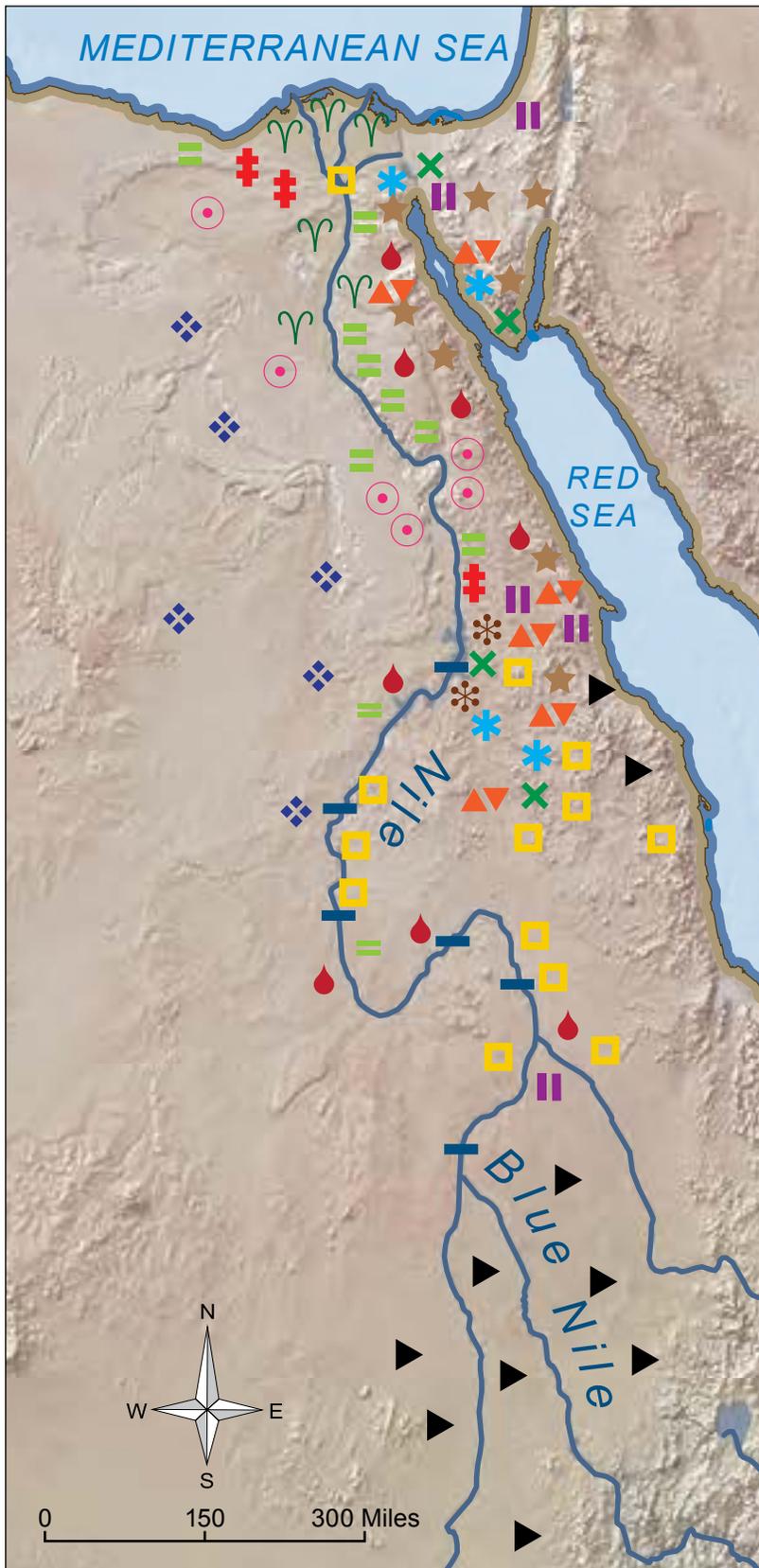
And the Winner Is...

By 1928, the Los Angeles Aqueduct had drained the once beautiful Owens Lake. It became a dry, salty dust bowl. The elk and antelope disappeared, along with the willows, cottonwoods, and bunch grasses. The winds blew off the Sierras, and the air filled with clouds of white dust. Many stores closed, and small towns all but disappeared in the Owens Valley. Fields and orchards dried up. Families had to sell everything and move in order to survive. Two-hundred miles away, the industries and farms of Los Angeles grew to become some of the richest and most powerful in the world.

In December of 2006, Tom Taylor was in the Owens Valley audience to hear the mayor of Los Angeles speak. On this day, Los Angeles would “return” some of the water they had “taken” from Owens Valley so long ago. The crowd cheered as they saw and heard water rush into the dry, thirsty bed of the Owens River. David Nahai, then-president of the Department of Water and Power, said to the happy residents, “There it is... It’s yours!”

Nile Valley Resources Map

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Natural Resource Key

- ★ Copper
- ❖ Date palms
- ▶ Ebony
- Gold
- Granite
- Flax
- ▬ Iron
- ▬ Limestone
- ✕ Malachite
- ⊕ Natron
- ♣ Papyrus
- ✱ Sandstone
- ▲ Tin
- ✧ Turquoise

★ Copper

Copper is a metal; when mixed with tin it creates bronze, which was very valuable in the ancient world. Jewelry and decorations were made from copper, while bronze was more often used as a material for weapons (on the tips of arrows, for example), tools, and statues because of its strength.

❖ Date Palm

The date palm produces dates, which are a fruit. Dates were a main source of food in Egypt and Kush and could be made into many dishes. Dates were mixed with grain and used as animal feed. No part of the date palm was wasted! The leaves were used for making huts, baskets, fans, mats, brooms, and even rope. The wood was used for building. Finally, people used dates and their seeds to treat various health problems, such as colds, fevers, and toothaches.

▶ Ebony

Ebony wood comes from the black, dense ebony tree. People of the ancient world created beautiful, decorative pieces for buildings and tombs, as well as furniture, from ebony wood. It was considered a luxury item.

■ Gold

Gold is probably the most valuable metal in history. Kush had more sources of gold than Egypt. Both kingdoms used gold to make jewelry and to decorate buildings, tombs, and even the masks of mummies. Gold was also used as a form of money.

🔥 Granite

Granite is an igneous rock and very hard. It was mainly used as a material for building pyramids, columns, and other large structures. Granite can be polished to look like marble.

⦿ Flax

Flax grew wild in the sandy soil of Upper Egypt. The fibers of the flax plant were soaked, dried, and spun to make linen thread. Linen is made from these fibers and is a very strong and cool fabric. Egyptians used linen for clothing and many other things. Many artifacts made of linen fabric are still intact, thousands of years later.

▬ Iron

Both kingdoms had access to iron, but the largest iron deposits were found in Kush. Iron is a very strong metal that can be heated and shaped. The Kushites used iron to construct powerful weapons and useful tools, such as the plow. To heat and shape (smelt) iron takes a lot of energy (heat), and the Kush used the wood from their forests for this purpose.

■ Limestone

Limestone is a sedimentary rock which can be shaped easily and yet still stay strong. Huge, square pieces of limestone were used for building projects, mainly in Egypt.

✕ Malachite

This green-colored stone is a form of copper ore. It was shaped into beads for jewelry and powdered so that it could be used as eye shadow. Malachite was thought to have the power to protect the wearer from sickness.

‡ Natron

Natron is a salt which removes moisture from things. It was used in the Egyptian process of burial (mummification).

Ÿ Papyrus

Egypt was the main producer of papyrus, a reed-like plant that grew along the Nile River. Papyrus can be dried and thinned out and was used to make paper.

✿ Sandstone

This sedimentary rock was the most popular building stone in both Kush and Egypt. Most temples, pyramids, and tombs were made of sandstone blocks. Slabs and bricks of sandstone were carved into shapes. The sandstone from the Nile River Valley was known all over the world for its red colors (because of the iron in it) and its strength.

▲▼ Tin

Tin is a metal. When mixed with copper it makes bronze, a metal used to create weapons, tools, and statues.

* Turquoise

Turquoise is a bright green-blue gemstone used for decoration and jewelry. It was the most popular gemstone in Egypt. It was carved into shapes and also powdered and used to color clay. Some of the oldest known mines in the Nile Valley are turquoise mines.

Capitals of Egypt and Kush

Lesson 4

Memphis (2600–2100 BCE [Before Common Era])

Memphis was the ancient capital of Egypt during the Old Kingdom. It also served as the capital during periods of the New Kingdom and while the Kush ruled Egypt. The Great Pyramids of Giza are nearby.

Kerma (2500–1520 BCE)

Kerma may be the oldest city in Africa. Kushite kings built it around 5000 BCE. It served as the first capital of Kush. People here made a unique style of pottery. They also buried their dead in pits covered by a mound of earth. They believed in an afterlife, so they buried things with the dead that they might need in the next life. They buried kings with their servants and often with hundreds of cows.

Thebes (1550–1150 BCE)

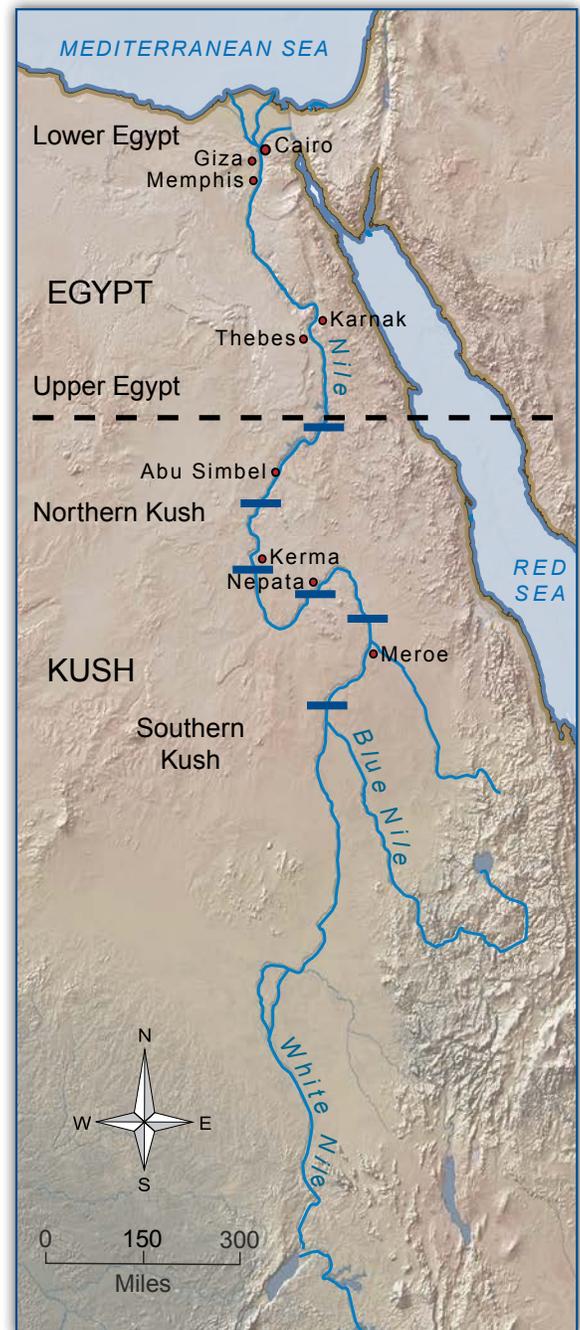
Thebes is another ancient Egyptian city. It served as a capital briefly during the Middle Kingdom. It was the capital throughout most of the New Kingdom. The great temple complex at Karnak is nearby. Across the Nile are the Valley of the Kings and the Valley of the Queens.

Nepata (1450–300 BCE)

Nepata was the second capital of Kush. The Egyptians built Nepata to govern Kush. They built many temples near it to worship their gods. Kushite kings invaded Egypt and united the country. They took the title of “pharaoh.” Some of the Kushite pharaohs ruled from Memphis and Thebes. All of them built their burial pyramids near Nepata.

Meroe (800 BCE–350 CE [Common Era])

Meroe was the third and final capital of Kush. The capital moved here from Nepata. Leaders of Kush may have been separating themselves from Greek or Roman armies. Large deposits of iron ore were nearby. Meroe became the largest iron-smelting center in Africa. It sold tools and weapons to people of the south, east, and west. The culture of Meroe combined African and Egyptian traditions. It is here that the people of Kush developed their own written language. No one has yet translated it.



I am a fisherman. Everyday I gather my nets and walk three miles to the Nile to catch fish. We keep enough fish to feed ourselves and then salt the rest. We sell the salted fish at the local market. I am worried because there is a new policy that says I must pay a tribute in order to fish in the reservoir. As tribute, I have to give ten out of every hundred fish to Pharaoh. Pharaoh cannot eat all that fish. He may give some of them to the temples.

I am a cloth merchant from the city of Tyre. I am bringing a fine cargo of woolen cloth and lapis lazuli to trade in the markets of Egypt. Pharaoh's tax collectors stopped me at the harbor in Memphis and said that I have to pay them a "duty" before I can enter Egypt. Can you imagine? They made me give them one donkey and all the goods that were packed on the animal as payment to enter the country! That was one-tenth of my merchandise! I do not think I will ever return to deal with these thieves. Let the Egyptians get these things for themselves!

I am a weaver. The linens I make from flax are of very fine quality. I can trade them at the local market for everything I need. Merchants have taken them to Syria and to Greece! Yesterday, I was told that I must begin weaving linen for Pharaoh's new temple. It will take me months to weave the amount of linen they need! The temple will only pay for my service with grain, and my family will have to help weave the linen. First, we have to grow the flax. After harvest, the temple will also crush the flax seeds and make linseed oil.

I am a temple laborer. I work on a temple estate. All of the land from the temple grounds to the banks of the Nile belongs to the temple. I cannot own it. We use water from the river to irrigate the fields. The priests manage the land and they collect the crops we harvest to store in Pharaoh's granaries. I am proud of the work I do. I know that when we have a drought, or the crops fail, then pharaoh will open his granaries and feed the starving people with the food I helped to grow. The priests tell me that Pharaoh uses some of this grain to trade for iron tools.

I am a soldier in the Egyptian army but I am from the kingdom of Kush. When Pharaoh's army came to our village, they told our families that all of the men had to join the army, or else. We all knew what that meant. Now we are marching farther south, up the Nile. We carry weapons made of iron, bronze, and wood. I heard our captain say that we are going to collect gold and fine ostrich feathers. We will take them back to Egypt, to Pharaoh.

I am a viceroy in charge of the Egyptian army in Kush. Pharaoh gave me this job because he knows I can also control all the trade up and down the Nile, as well as what comes from central Africa. This allows Pharaoh to get all the ebony, gold, ivory, and exotic animals that he wants. He may keep these resources in Egypt to use in the royal palaces or he may trade these resources to other countries for different riches.

I am a tax collector for Pharaoh. One of my jobs is to measure the lands of our farmers and to determine how much their harvest will be. All of Egypt's farmers must pay 10% of their grain crop to Pharaoh. I will collect these taxes (crops) and send them to pharaoh to be stored. Pharaoh will use the grain to feed our people if the crops do not grow. We also use the grain to trade with other nations to get other things Pharaoh wants, like olive oil and glass from Rome.

I am a cattle herder, and it is a hard job. There is not a lot of grazing land for my cattle. Believe it or not, Pharaoh's armies just brought in 1,000 more head of cattle that they took from Kush. I do not know where I am going to put all of those cows! The good news is that the scribes just told me I would be able to get grain from Pharaoh's supply to feed the new cattle. That's a relief!

I am a baker and I make the finest bread in Egypt. In fact, I make the finest bread anywhere in the world! Officials trade my breads locally. They seem especially popular on the island of Cyprus, which gives us copper and fine pottery in exchange. I could bring home a lot more grain for my work, though, if I didn't have to pay so much to Pharaoh. I have to give nearly 10% of all the bread I make to Pharaoh's scribes as "taxes." Can you believe that?

I am a potter. I make different kinds of pots from clay. An official told me I must move my family from Egypt to the city of Nepata, in Kush. Pharaoh wants as many of us to move there as possible. Pharaoh has said that if people from Egypt move to Nepata, that will protect our kingdom. That is important! The official promised me a new studio and tools, just for moving. He also said the people of Kush would want my pottery, because their pottery is not as good.

I am a papyrus maker in the service of the great Pharaoh. Papyrus is an amazing type of strong paper made from the papyrus plant that grows near the Nile. We write all of our records on it. All of the neighboring kingdoms want our papyrus. They have even sent spies to discover how we make it. Pharaoh has ordered us never to tell. Right now, everyone who needs papyrus for paper must get it from us. We are getting rich from exporting papyrus to the rest of the world!

I am an Egyptian trade negotiator. I work for Pharaoh and report directly to the grand Vizier. My job is to work with the Phoenicians to trade for the amazing cedar wood they grow in their kingdom. Their cedar wood is the finest in the world. Pharaoh desires it for his palaces, ships, furniture, and royal coffins. Pharaoh wants only the best! I must go to the Phoenicians and offer them our gold, grain, textiles, and ebony in return for their timber. They are usually grateful to trade because they never seem to have enough food! I have an important job—keeping a good relationship with the Phoenicians.

I am a slave. Egyptian soldiers stole me from my village in Kush and sent me to work in the gold mines. The work here is terribly hard. We have to set fires on the rock to make it hard and brittle. Then we smash the rock and grind it into small pieces. If we are lucky, we find a few grains of gold. A few years ago, there was so much gold here, you could just pick it up off the ground. I heard some men talking about a new site north of here where there is a lot more gold. They said the soldiers are taking us there next. After the Egyptians take all the resources from a place, they just move to another place and start over again.

I am a farmer, but I am in jail. Pharaoh's soldiers arrested me because I put a few rocks in a canal by my house. I thought that if I could create a little dam, I would be able to direct some of the water to my nearby field. When they arrested me, one of the soldiers said building dams was against the law, and the other one said something about the penalty being death. Now I am scared. Are they going to sentence me to death just for building a little dam?

The World Demanded Purple

Clothing in ancient Egypt was just as important as it is today. For Pharaoh, his or her family, and all of the nobles, clothes mattered. Whether it was the finest in locally produced linen, or woolen fabric from Mesopotamia, the Egyptian upper class demanded nothing but the best. For their clothing, Egyptians desired fine quality linen more than any other fabric.

While Egyptians preferred white linen, people in other parts of the Mediterranean preferred colored cloth. While the average Egyptian was walking about town in drab tans and browns, wealthier people bartered for famous hand-dyed fabrics from Phoenicia (area of present-day Lebanon). Pink, lavender, red, blue—the Phoenicians really knew how to add some color to a person’s life!

Of all the colors the Phoenicians produced, none was more valuable than the color known as “Tyrian purple.” It took its name from Tyre, the capital city of Phoenicia, where the dye was made. The dye itself came from snails—yes, snails! The sea snail, known as *Murex trunculus*, lived in the waters of the Mediterranean Sea off the coast of Tyre.

Legend says that Hercules was walking his dog along the



Clothing in the ancient world

The World Demanded Purple

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beach one day, and the dog attacked a Murex in a nearby tide pool, killing it. When the dog returned to Hercules, his mouth was an extraordinary color of purple! In this way, the world discovered that when a Murex died, it discharged a small amount of purple liquid. From these few drops of liquid, the color purple was born.

No matter how the secret of purple was discovered, the fact remains that purple was the new “in” color. Everyone of importance had to have it. Royal families throughout the ancient world, and anyone with enough money, would pay for Tyrian purple. Demand grew and grew, so the Phoenicians

intensified their snail harvesting and dye making. The challenging part was getting enough snails to make the dye. It took more than 8,000 pounds of crushed snails to make just 500 pounds of dye. That is a lot of dead snails.

When the Phoenicians first began harvesting the Murex for making dye, there were millions of snails. They were so close to shore you could hardly walk out into the ocean without encountering one. They were big, too! As the dye-making industry grew to meet the demand for purple garments throughout the ancient market, the dye makers harvested more

and more snails. Soon, all the big ones were gone, so they started harvesting the medium-sized snails. Those snails disappeared, too, leaving only the babies. Because the world demanded purple, the Phoenicians harvested even the baby snails to make dye.

You can imagine what happened. Over time, the supply of snails could not keep up with the demand for dye. The snails completely disappeared from that part of the world. Tyrian purple became just another legend of the ancients, and the Egyptian nobles had to find a new favorite color.



Murex snail shell

The Fabled Cedars of Lebanon

Imagine a forest so dense, so tall, and so large that you might never find your way out. Imagine trees with trunks so thick you cannot reach your arms around them. Such images call to mind the giant sequoias of California or the deep forests of Europe. It might seem like a fairy tale, but we are talking about the fabled cedars of Lebanon.

Not sure where Lebanon is? Well, it's just north of present-day Israel. If you have seen any recent pictures of that part of the world, you know that there are not many forests there.

Only a few stands of the famous trees still exist where once there were many. Big and strong, these trees stood taller than a five-story building. Ancient scrolls describe the great cedar forests, and Egyptian records tell of large shipments of cedar wood, imported from Lebanon, for use in pharaohs' temples, palaces, and pyramids.

Egyptians, of course, did not call this part of the world "Lebanon." In ancient times, people called this area "Phoenicia." The people who lived there, the Phoenicians, were excellent sailors. They built fine ships from the cedars and explored the Mediterranean Sea. The Phoenicians built trading



Lebanon cedars

colonies in North Africa, Spain, and possibly England. They traded wherever they went.

So, what happened to those huge cedars? Well, the ancient world was a giant marketplace. Any time a quality product hit the market, it was instantly in high demand. There was no finer timber in the entire ancient world than the mighty cedars offered for trade by the Phoenicians. Egypt, in particular, wanted this timber.

Egyptians believed in building, and building BIG. They built pyramids, palaces, estates, and ships. All that building required a lot of supplies. Although it may seem like all Egyptian buildings were made of stone, those buildings originally used a lot of lumber. In fact, almost all of the ceilings were built entirely of wood or reinforced with wood. The only trees in Egypt that were even close



Ancient ritual by Lebanon cedar

to being big enough to use were the giant palm trees. However, the wood of the palm tree was not strong. Because it bent too easily, it was useless for reinforcing the stone structures the Egyptian architects liked to make. Wood was available from southern Kush, and for a long time, the Egyptians used it, but nothing beat the great cedars for size, strength, and durability. So, what did the Egyptians do? They imported the cedars, of course! In fact, the Egyptians were some of the Phoenician's best customers.

The Phoenicians were eager to trade. The natural systems in Phoenicia were

not as good for supplying food as they were in Egypt. As a result, the Phoenicians needed grain, and the Egyptians had a surplus of grain to trade. It was a win-win situation, or so everyone thought.

What the ancient Phoenicians failed to realize was that the giant cedars took a long time to grow. In fact, those special trees took hundreds of years to fully mature, especially in the dry climate of ancient Phoenicia. While the Phoenicians were busy cutting down the trees, they did not think about replanting any. The forest was huge, and the

supply was so great that the Phoenicians did not imagine that they would ever run out of trees.

Unfortunately, that is exactly what happened. After they chopped down the trees, the dry, fragile soil lost its protection. The Sun baked the ground hard and sucked the moisture out of it. Without the trees to help create and retain moisture in the air, it rained less and less. The land was soon covered with scrub brush instead of forests. The Phoenicians had to travel to higher elevations to find more trees, but wherever they chopped down trees, the same thing happened. The trees did not grow back, and the climate changed.

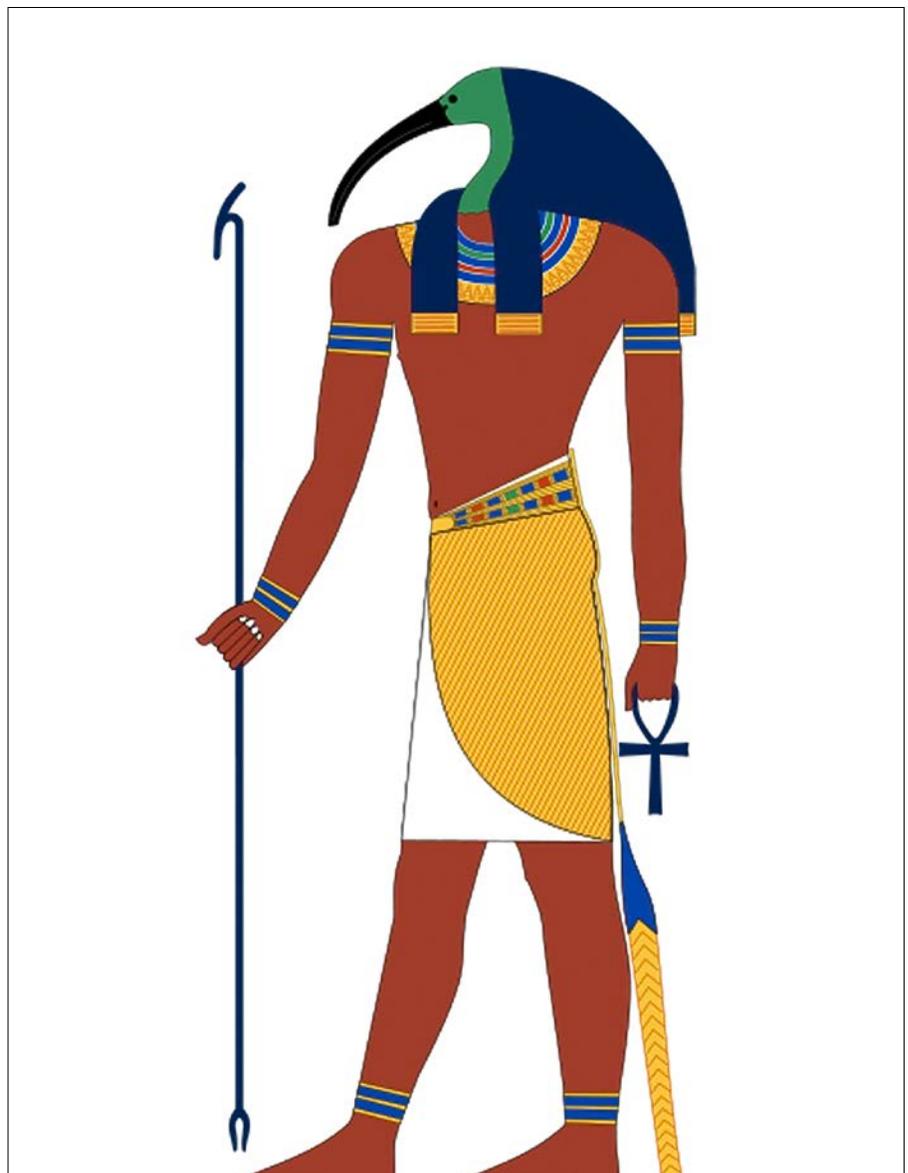
Soon, few cedars remained in Lebanon. The ones that grow there today exist only at high elevations, and the trees are not nearly as big as in ancient times. In fact, if ancient people had not described them in their writings, we might not have known they existed there in such great numbers and at such a great size. But they did...once upon a time.

The Sacred Ibis of Egypt

The ancient Egyptian people believed that the gods controlled the living world and the afterlife. In addition, Egyptians believed that their gods had the characteristics of animals. Sometimes pictures and statues show their gods as half-human and half-animal.

Thoth was the god of wisdom and writing. Pictures of Thoth usually show him as half-man, half-ibis. An ibis is a type of waterbird related to cranes and herons. Egyptians revered the ibis for its relationship to the god Thoth. They sacrificed ibises at the temples of Thoth to honor him. They usually kept a live bird at the temple, too. The priests believed that this animal was the living symbol of the god Thoth. Whenever the living ibis died, the priests would replace it with another bird.

As more people began to worship Thoth, they sacrificed more ibises in the temples. In time, selling ibises for worship became a booming business. Peddlers caught wild ibises to sell. They set up stands along temple roads where they sold the ibises to people on their way to worship Thoth.



Egyptian god, Thoth

The Sacred Ibis of Egypt

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Mummified ibises (and other animals) were produced by the priests at the temples.

The demand for the ibis grew. The mummified ibises were often used as temple offerings. Soon, people began to raise ibises to sell for sacrificial mummifications. Wealthy families began to pay to have hundreds, even thousands, of ibises mummified. Archaeologists have found more than four million mummified ibises in Egypt! That huge number does not include the millions sacrificed in the temples to Thoth. No records remain of how many ibises were killed as temple offerings.

The supply of ibises could not keep up with the demand. Hunters trapped both young birds and adult birds. The young birds could not grow up to make more birds. In addition, snakes and crocodiles raided the ibises' nests for eggs. Over time, the ibis population grew smaller, and ibises became harder to find.

Today, the ibis survives only in Syria and Morocco. The ibis has completely disappeared from Egypt.



Bronzed ibis



Ibis in flight

The Iron Ore of Meroe

The kingdoms of Egypt and Kush had strong ties. In fact, the kings of Kush once ruled all of the Nile Valley as a single kingdom. During most of their history, the two kingdoms shared or traded many resources.

After Alexander the Great conquered Egypt, the Kingdom of Kush rose to its greatest power. It moved its capital to Meroe, south of Nepata. The distance between Meroe and Alexandria, the capital of Egypt under the Greeks and later the Romans, helped protect it from those two empires. The Kushites constructed Meroe on a bend in the Nile River. Near the city were large forests and plenty of grass.

Another important resource at Meroe was iron ore. The ancient world valued iron because it was stronger than copper, tin, or bronze. It was a perfect metal for making tools and weapons. Iron tools made work easier. Armies won many battles using weapons made of iron. Ironically, the Assyrians introduced iron weapons to the Nile Valley when they drove the Kushite kings out of Egypt and back to Nepata in 671 BCE.

Iron was a valuable trade item on the ancient market. Every kingdom wanted iron and was willing to pay a lot to get it because iron was not a common resource. In other words, the supply of iron was scarce.

The kings of Kush quickly took advantage of the iron deposits on their doorstep.

Instead of selling the iron ore to their neighbors, however, they began to manufacture iron tools and weapons. Meroe became an important ironworking center. The people of Meroe traded iron weapons with the Greek rulers of Egypt and then the Romans. They also traded with people to the east and



City of Meroe



Desert land in Meroe

west of Meroe. The people of Kush grew wealthy, and Meroe became a major city.

Making iron was not easy. First, workers separated the iron ore from the rock containing it. This “smelting” required an incredibly hot fire. Then workers used an even hotter fire to make the iron soft enough to form it into tools or weapons. Wood alone cannot burn that hot, but charcoal can. To make just a little bit of charcoal requires a lot of wood. The workers cut down many trees to make the charcoal needed for smelting the iron.

The ironworkers of Meroe were very busy. Archeologists know this because of the waste they left behind.

Smelting iron ore leaves behind a gray, slimy mass called “slag.” Because the slag is useless, the ironworkers pushed it into huge piles around Meroe.

Slag does not go away. It just sits there, century after century. The slag left behind from the Meroe ironworks is still there today. By studying the slag, archaeologists have discovered that the ironworkers at Meroe produced at least 5,000 tons of iron every year! To smelt all that iron required many trees for charcoal. Over time, the forests around Meroe disappeared.

When the forest disappeared, so did much of the good soil. Without the

trees to protect the ground, the soil eroded away during the rainy season. That made it impossible for the trees to grow back, and it made it harder to grow anything at all. Soon, there were no more trees to burn to smelt the iron, nor was there any good soil in which to grow crops. Eventually, the people living in Meroe did not have enough food as a result of the loss of the soils and raids by nomads. The people who lived in Meroe began to move away. They moved further south, where forest and fertile soil still existed.

Without trees to fuel the smelters, iron production in Meroe stopped. With the nearby farmers already gone, the ironworkers had to leave, too. Meroe ceased to be a city. Instead, the blowing sands of the desert covered it. An army from the Axumite Empire to the east conquered Kush in 350 CE. When it did, little was left in Meroe. If it were not for the giant heaps of slag, we might never have known of the huge iron industry that once thrived there. We also would not know that Meroe once had a nearby forest that fueled the iron age of Egypt.



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