

Pueblo Agriculture

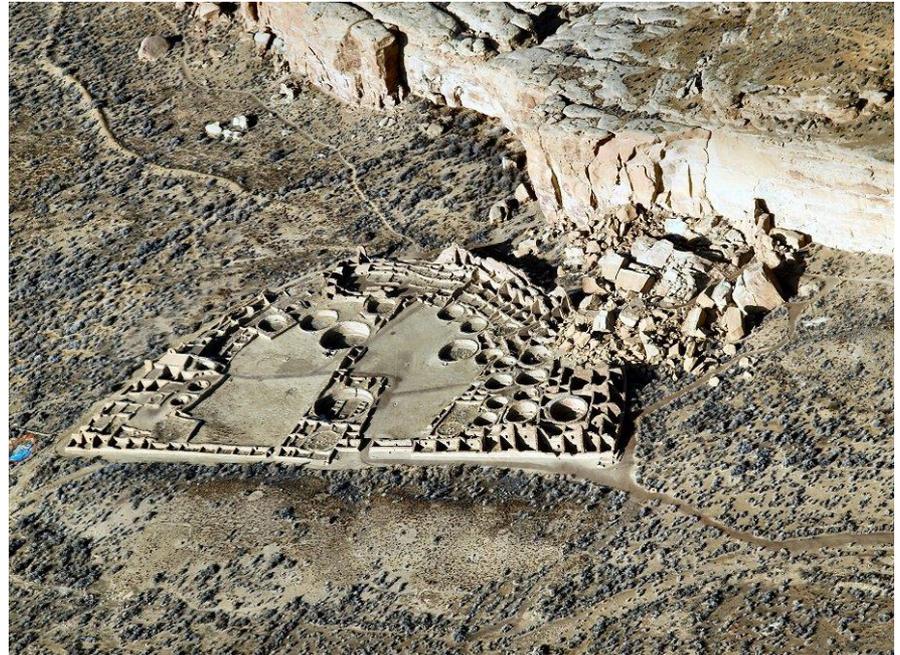
MUSEUM LESSONS



The Ancestral Puebloans



The Ancestral Puebloans were one of several cultures in the American Southwest that lived in large cities and practiced settled agriculture with water supplied by complex irrigation systems.



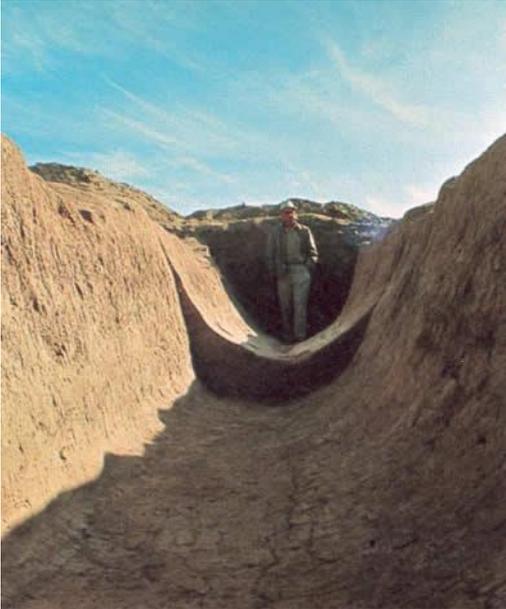
Pueblo Bonito in Chaco Canyon in northwestern New Mexico is one of the largest and best preserved ruins of an Ancestral Puebloan city, but others are spread throughout the Four Corners region.

Ancestral Puebloan Agriculture

- Agriculture in the area that is now the American Southwest began with the Ancestral Puebloan people around sometime between 2000 and 1200 BCE.
- By the first millennium CE the Hohokam people in present day Arizona were building complex irrigation systems to water their fields. Some of their canals were over a mile long and parts of this system still supply water to Phoenix, AZ with minimal modifications.
- The Hohokam, the Mogollon, and the Chacoans all practiced settled agriculture, built complex irrigation systems, and lived in large cities hundreds of years before Europeans came to the Southwest.



Hohokam in Arizona



This is one of many canals the Hohokam built to irrigate their fields and supply water to their cities. Part of their canal network is still used today to supply water to Phoenix.



Casa Grande is the largest Hohokam city found to date. Like the Chacoans climate change forced them to abandon their cities.

The Mogollon People in Southern New Mexico

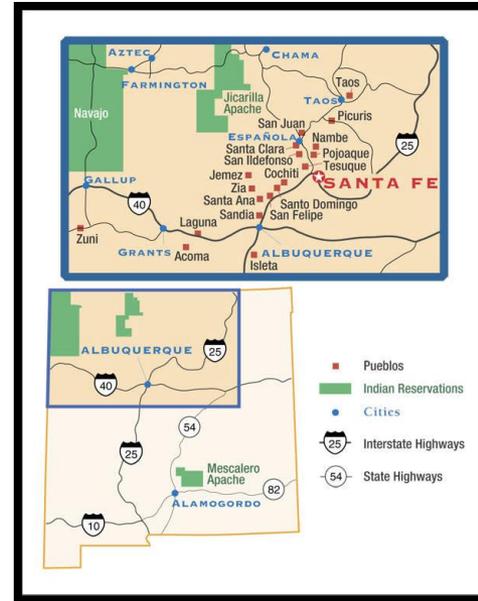


- The Mogollon were lived in what is now southwestern New Mexico, Arizona, and northern Mexico.
- This is a picture of the ruins of Gran Quivira. It was an important urban and trading hub for the Mogollon. They were forced to abandon this settlement and others due to climate change in the 15th or early 16th centuries.
- The Acoma, Zuni, and Hopi pueblos are the Mogollon's probable descendants.

The Pueblos Today



Taos Pueblo



- Climatic changes in the 12th and 13th centuries caused them to abandon these large cities in favor of smaller pueblos, but the Ancestral Puebloans are the ancestors of today's Pueblo peoples who continue their agricultural traditions and still build and maintain complex irrigation systems.
- The Ancestral Puebloans' migrated to the Rio Grande valley and founded smaller pueblos in areas with more consistent sources of water.
- Juan de Onate recorded some 278 pueblos, mostly along the Rio Grande Valley, in what is now New Mexico in 1598.
- Today, 19 pueblos remain.

- The Ancestral Puebloans began cultivating the beans, squash, and corn, the Three Sisters, as staple food crops. They also began cultivating cotton to make clothing.



Corn



Squash



Beans



Cotton

A Three Sisters Garden



Corn, beans , and squash can be planted separately, of course, but the Ancestral Puebloans found that they thrive with they're planted close to each other in the same field as seen in this photo.

The Teamwork of the Three Sisters



Beans are a good source of nutrients and they release nitrogen from the soil, which other plants need to grow, but...



Beans plants do best when they have some sort of tall pole to grow on, like a cornstalk, and the corn desperately needs the nitrogen the beans unlock.

Finally, the broad leaves of the squash provide shade and groundcover for the other plants. They choke out weeds and slow the evaporation of water out of the soil.



- Puebloan peoples use many different methods to conserve water.
- Here we see a modern grid garden that is designed to catch rainwater on the low walls and direct it into the garden.
- The low walls concentrate the available water on the soil where the plants are.
- This method of water management was first used by the Ancestral Puebloans.
- Remnants of their ancient grid gardens can be seen to this day.

Waffle Gardens



- Waffle gardens are similar to grid gardens, but on a smaller scale.
- Waffle gardens use short earthen walls to hold and concentrate the water where the plants are.
- In both waffle and grid gardens the soil is mixed with pumice, or other light stones, to slow the evaporation of water from the soil.

The Acequias and Puebloan Farming



Cruz Perez Irrigating Field, Cochiti Pueblo, 1937

Courtesy Maxwell Museum of Anthropology, University of New Mexico

Photograph by Soil Conservation Service, 87.45.537

Photo provided by Rosalee Lucero of Isleta Pueblo

- The acequias are canals or ditches that carry water from a river to fields.
- These provide a more dependable source of water than the rain.
- The Ancestral Puebloans built complex irrigations systems using acequias hundreds of years before the Spanish arrived. Modern Puebloan people continue these traditions.
- Cleaning and maintaining the acequias is huge task that requires the whole community.
- Traditionally, men do most of the cleaning and maintenance.
- The yearly cleaning also involves a ceremonial component.

The Acequias and the Mayordumo



Men Cleaning Ditch, Jemez Pueblo, 1937

Courtesy Maxwell Museum of Anthropology, University of New Mexico

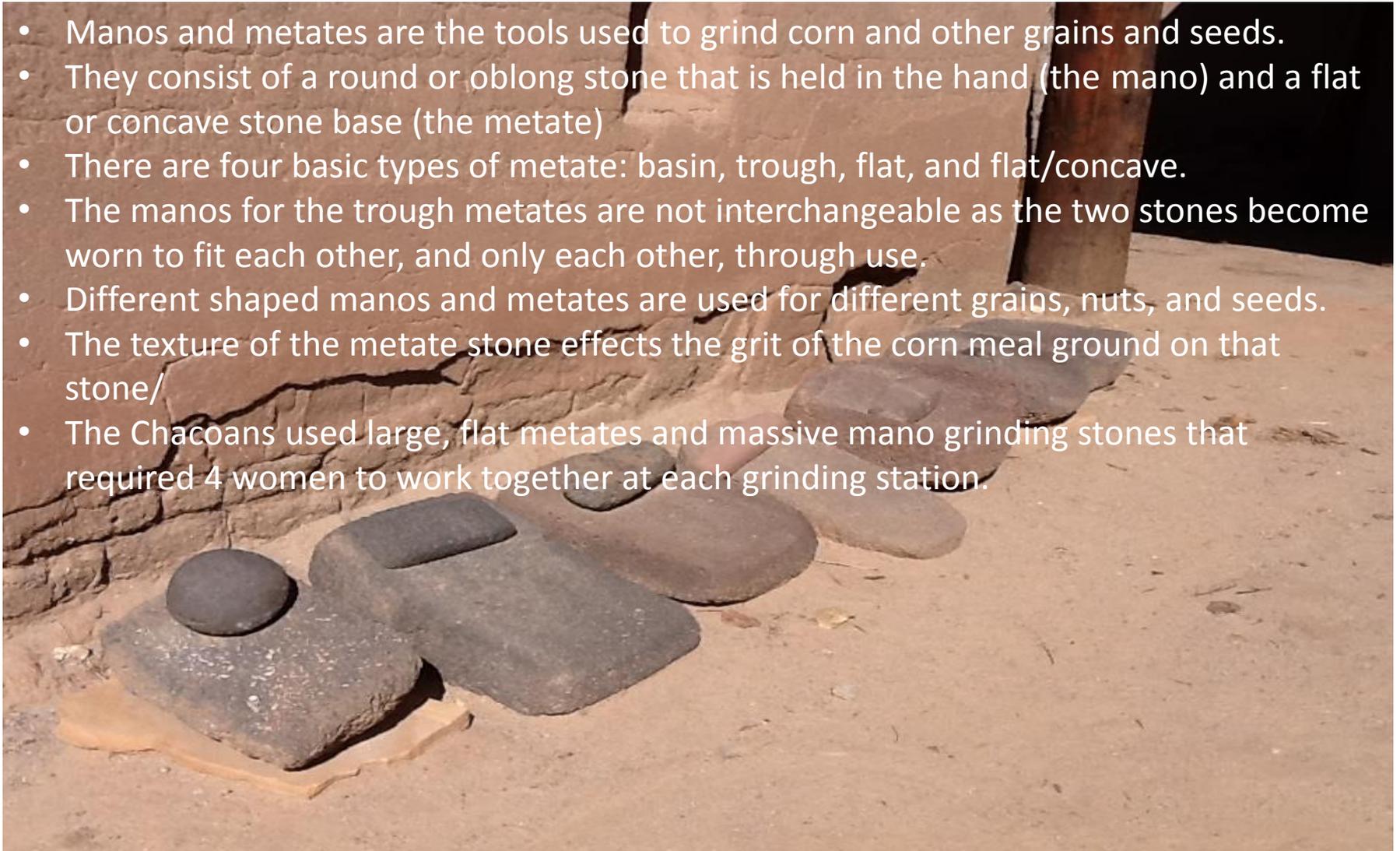
Photograph by Soil Conservation Service

Photo provided by Rosalee Lucero of Isleta Pueblo

- The mayordomo is in charge of maintaining the acequias and deciding who gets water to irrigate their fields, how much water they get, and when they get it.
- They have immense power in the pueblo to requisition equipment and people to fix and maintain the acequias.
- The men who participate in the yearly cleaning of the acequias elect a new Mayordomo at that time.
- The position is one of great responsibility and power, so it is considered a great honor to be elected.

Manos and Metates

- Manos and metates are the tools used to grind corn and other grains and seeds.
- They consist of a round or oblong stone that is held in the hand (the mano) and a flat or concave stone base (the metate)
- There are four basic types of metate: basin, trough, flat, and flat/concave.
- The manos for the trough metates are not interchangeable as the two stones become worn to fit each other, and only each other, through use.
- Different shaped manos and metates are used for different grains, nuts, and seeds.
- The texture of the metate stone effects the grit of the corn meal ground on that stone/
- The Chacoans used large, flat metates and massive mano grinding stones that required 4 women to work together at each grinding station.



Spanish Influences



- The Spanish settled in New Mexico in 1598
- They expanded the existing irrigation systems .
- They brought many new crops with them including fruit trees and wheat from Spain and chilies from Mexico.
- They also brought wheeled carts, plows, and draft animals which greatly expanded the amount of land that could be cultivated and required further expansions of the acequias and other irrigation systems.

Pueblo Agriculture Today



- Agriculture is still vibrant in Pueblo communities today.
- The mechanization of farm labor is on the rise and the acequias are now lined with concrete, but the traditions of Pueblo agriculture continues.





Interviews conducted with Rosalee Lucero of Isleta Pueblo took place in 8/20 and 9/20.