

*Archaeology:  
A  
Journey  
Into the  
Past*

*Part of the  
Ponce de Leon Inlet  
Lighthouse  
Preservation Association  
Archaeology Focus Unit*

*Special Elevation A.C.  
Of the 3rd and 4th Light House Engineers, Baltimore, Md. July, 1883.*

*O.P. Babcock  
Major of Engineers U.S.A.  
Engineer of the L.H. District*

Archaeology is a method of studying human life by examining the things that people left behind. The word *archaeology* comes from the Greek word “Archaeo” meaning “old” and “logos” which means “study”. Archaeologists are scientists who research, recover, and study items that were used by past people in order to learn more about the past and how people lived. The historic objects that archaeologists study are called artifacts. Artifacts are physical clues that archaeologists can use to answer many questions about the lives of past people including what they ate, wore, used, and believed.

Archaeologists are often confused with other professions that study the past. Some of the more common examples of mistaken identity include Historians who study the past using mostly written records such as maps and documents, and Paleontologists who learn about the past by studying the fossilized remains of plants and animals (including dinosaurs). As we said before, archaeologists study the past lives of humans by examining the objects they left behind. These objects can include man made objects called artifacts, and the remains of food (such as animal bones, seeds, and other organic material called ecofacts).

Artifacts (which includes ecofacts) are usually discovered during excavations. The term excavation can most easily be defined as the digging up or discovery of an artifact. Although most archaeologist would prefer that a historic site remain undisturbed until an excavation under the guidance of trained archaeologist can be planned, there are three different types of archaeological excavations:

1. Planned: Planned excavations occur when an archaeologist researches the area he is interested in and plans a dig to recover artifacts.
2. Accidental: The unplanned discovery of artifacts by anyone.
3. Rescue: Archaeological excavations that are conducted to quickly collect artifacts that are in danger of being destroyed by the weather, natural decay, or human intervention.

There are many different types of archaeology. History is simply too vast and the world is just too large for one type of archaeology to cover it all. Most archaeologists specialize in one or two fields of study. Some archaeologists, such as Egyptologists, focus only on ancient civilizations while others study events that are far more recent such as WWII, the Industrial Revolution, and the Computer Age. Some of the more common types of archaeology include:

1. Urban Archaeology: The collection of artifacts and study of past urban settings that usually occurs when new buildings are being constructed and old buildings are being torn down. Urban archaeologists are often called in to excavate construction sites to collect and preserve artifacts before the site is destroyed. This type of archaeology is often considered rescue archaeology due to deadlines.
2. Industrial Archaeology: The primary purpose of this type of archaeology is to uncover facts about the activities and events that occurred during the Industrial Revolution that began two hundred years ago.
3. Underwater Archaeology: Archaeological excavations that occur under water and usually require the use of scuba gear and submarines. This type of archaeology often focuses on shipwrecks and submerged ruins.
4. Garbage Archaeology: A modern-day specialty, Garbage Archaeology tries to learn more about today’s society by studying what people throw away.

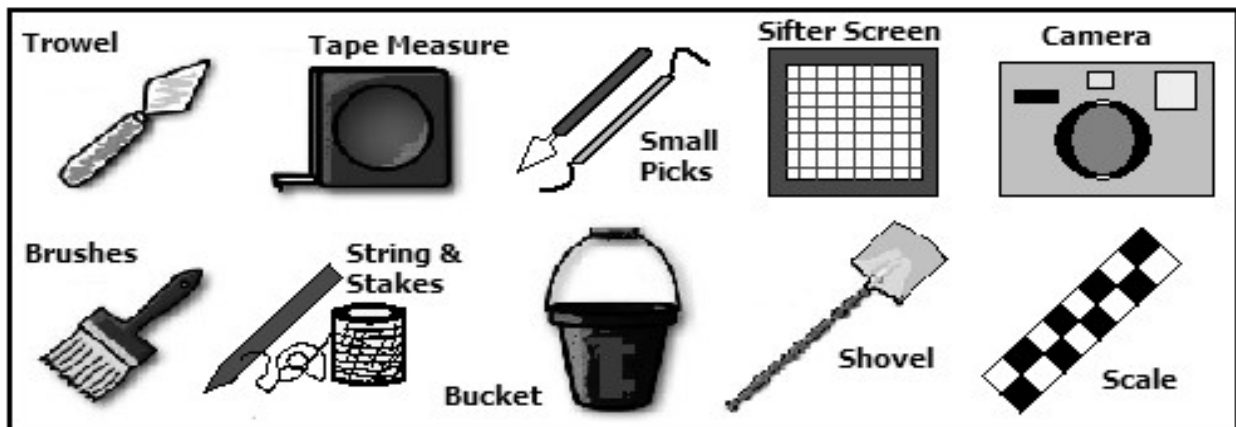
5. **Experimental Archaeology:** A sub-specialty of archaeology, Experimental Archaeologists try to make intelligent guesses about artifacts by comparing them to similar items used by other cultures or by recreating them to see how they work. This form of archaeology relies heavily on experimentation and the scientific method when formulating theories and conclusions.

### Archaeological Site:

An Archaeological site is most often defined as any location that contains a cluster of artifacts. It is important to note, however, that not all places containing artifacts are considered archaeological sites. For example, a location in the woods where a lone arrow head was discovered would not be considered an archaeological site while a location where materials were gathered and arrow heads were made over an extended period of time would be. Although both locations provided material evidence regarding past human habitation, the site containing multiple artifacts would provide much more information about past human activity where the location with the one arrowhead would not.

### Archaeological Tools:

Archaeologists use specialized tools to uncover and examine artifacts. The type of tool used is determined by both the archaeological site and the type of artifact being examined. The most common archaeological tools include:



1. **Flat-End Shovel-** A flat-end shovel may be used to remove layers of dirt from an excavation site. The flat end allows archaeologists to remove large quantities of dirt away in layers and to square off the excavation pit. Pointed shovels are rarely used because of the damage the sharp tip can do to an artifact.
2. **Trowel-** This small, flat, pointed metal tool is used to carefully remove dirt from around an artifact.
3. **Brushes-** Brushes (including tooth brushes, fox-tail brushes, and finishing brushes) are often used to remove any loose dirt from around an artifact.
4. **Dental Picks-** Dental picks are commonly used to carefully clean artifacts and remove any dirt or debris that may be stuck to them.
5. **Sifters-** Archaeologists use screens to carefully sift dirt for artifacts.
6. **Buckets -** Used to transport small quantities of dirt away from the site for sifting.
7. **Tape Measure -** Used to accurately measure distance and depth.

8. **Cameras-** Used to photograph the archaeological site and artifacts.
9. **Scale:** This measuring tool is placed next to an artifact prior to photographing it so its exact size can be determined later on in the photograph.
10. **String & Survey Stakes-** Used to create a grid system at the archaeological site for mapping

### **The Five-Step Method Used by Archaeologists:**

Many people picture such fictional characters as Indiana Jones and Lora Croft when they try to envision what the life of an archaeologist must be like. The truth, however, is somewhat different than what is normally portrayed on the Silver Screen. True archaeologists never engage in the “snatch and grab” behaviors that make big screen archaeologists so exciting to watch. Most archaeology is highly researched, well planned, and carefully executed. In many cases, the real work begins after the artifacts have been dug up and taken to the lab for further study. There is a basic five-step process that most archaeologists follow when collecting and studying artifacts.

**Step 1: Finding the Site:** Archeologists find archaeology sites in three different ways;

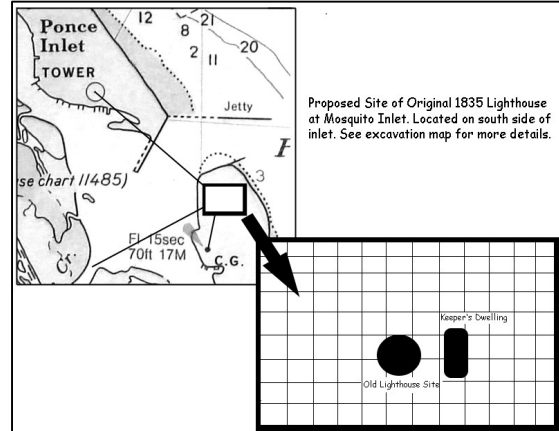
1) **Accidental Site:** An archaeological site that is discovered by accident. In most cases, these sites are discovered by people who stumble upon an artifact while hiking, working, or participating in some other sort of outdoor activity. The discovery of a Native American shell midden could occur while hiking in the woods.



2) **Rescue Site:** A known or suspected site that is believed to hold artifacts and is in danger of being destroyed by the weather, decay, or human interference. In the picture to the right, archaeologists excavate the site of a mid-1800s American military outpost that was discovered during the construction of a new highway. The archaeologists had to work quickly before the site was covered over by the new road.



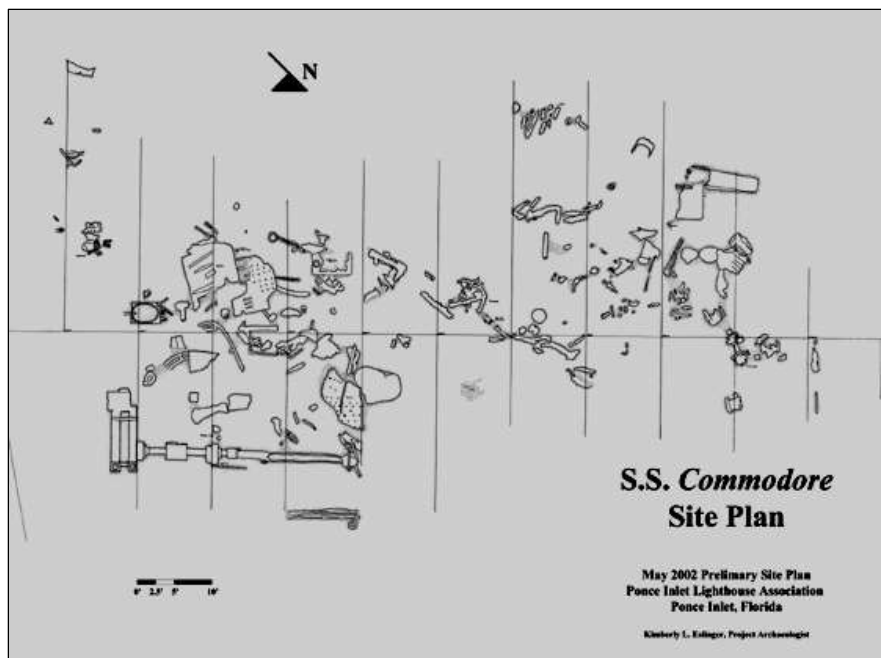
**3) Planned Site:** Archaeological site that is chosen after careful research and the study of maps, historical documents, radar, photographs, or by some other means. The site of the original lighthouse at Mosquito Inlet is believed to be located on the south side of the inlet based on research and the careful study of area maps. Future excavations could confirm this belief.



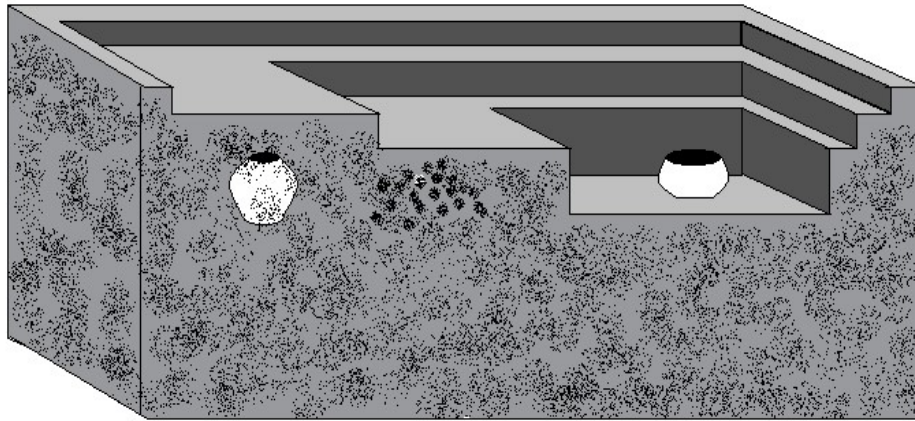
**Step 2: Surveying the Site:** Surveying a site is a critical step in the excavation process. Archaeologists survey a site in order to identify where they need to dig. During this step, archaeologists will study the area where they suspect artifacts are located. They carefully map out the location using a grid system which allows them to accurately measure distance, depth, and topography. Archaeologists often use specialists to help them survey a site including anthropologists, engineers, aerial photographers, pilots, biologists, botanists, ecologists, and local residents who are familiar with the area. Surveys must be completed before digging begins.

**Archaeological Survey:**

Detailed underwater survey of the wreck site of the S.S. Commodore completed by the Ponce Inlet Lighthouse Preservation Association. Note the grid lines, scale, and compass heading. Artifacts from the historic wreck are now on display at the museum.

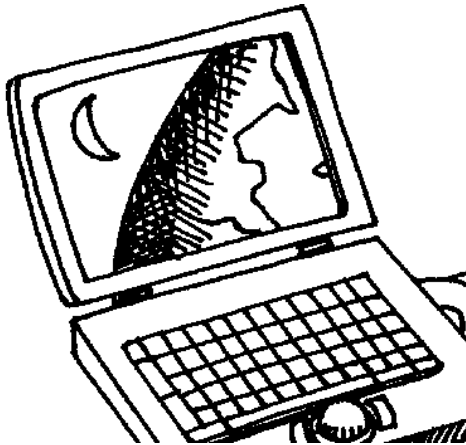


**Step 3: Digging:** Digging is the most precise step of the archaeological process. Archaeologists carefully excavate the dig site using special tools that remove dirt a little at a time. Specialists are often used to help in the process including surveyors, and other scientists. Many photographs are taken throughout the excavation process to create a photographic record of the dig site and



recovered artifacts. Before an artifact is removed from the earth, photographs, detailed drawings, and notes describing where an artifact was found are taken to provide archaeologists with detailed information for later study.

**Step 4: Lab Work:** Lab work is the fourth step in the archaeological process. Many activities occur during this step including:



1. **Classification:** Artifacts are classified as either Ecofacts or artifacts.
2. **Material Analysis:** Determining what an artifact was made of.
3. **Environmental Analysis:** Determining how the artifact relates to the environment and whether or not the artifact was produced locally.
4. **Dating:** Determining the age of the artifact in either relative or absolute terms.

**Step 5: Historical Interpretation:** After collecting all of the artifacts from a specific site, archaeologists return to the lab to begin one of the most important steps in the archeological process. After a careful cleaning, the artifacts are studied, researched, and examined by many experts. Archaeologists take new photographs and carefully review any notes, images, or drawings that were completed in the field during the excavation.

All this information is organized and the archaeological clues are assembled to help the archaeologists develop as clear and accurate a picture about what life was like for the people who originally owned the artifacts as possible. The information learned from these artifacts will find its way into future books, articles, or museum exhibits that will help us develop an even more accurate picture of our past.

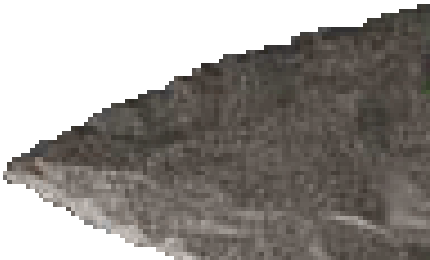
## Types of Artifacts:

Archaeologists collect artifacts to help them learn about the past. An **artifact** is object or material that was used or made by humans. Artifacts can be made out of anything from stone to paper and even include such things as buildings, pottery, and human remains. Clues such as seeds, pollen, and animal remains are called **ecofacts**. Ecofacts help archaeologists determine what people grew, hunted, and ate. These clues are very important in determining the diet, climate, and environment experienced by people in the past. The most common types of artifacts and ecofacts found by archaeologists are:

1. **Pottery-** Dating from approximately 10,000 years ago to the present, pottery is a material that is made from clay. Although pottery rarely disintegrates it is very brittle and be easily broken if handled improperly. Archaeologists can often date pottery by its color, composition, and decorations.



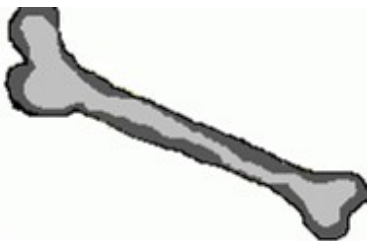
2. **Stone Artifacts-** Careful analysis of stone artifacts can tell archaeologists where the stone came from, how it was made, and when it was used. Experimental archaeologists often recreate these durable artifacts in order to learn more about the technological sophistication and manufacturing techniques of past people.



3. **Metal Artifacts-** The study of metal artifacts can provide an archaeologist with valuable information regarding past peoples' technological ability and culture. Metal objects are not as durable as pottery or stone due to their susceptibility to corrosion and rust (oxidation).



4. **Human Remains-** The examination of human remains can provide valuable insight into the lives of past people. Human remains provide archaeologists with a wide range of information regarding the lives of past people. Information gathered from human remains can reveal evidence related to diet, life style, weapons, disease, life expectancy, medicine, and even religion.



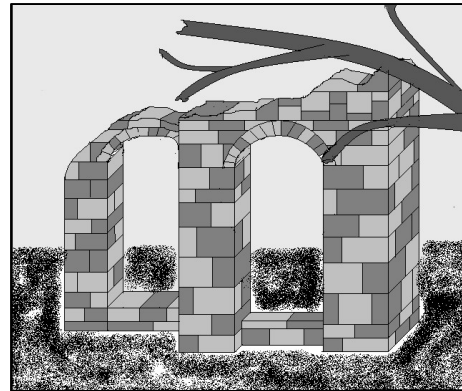
**5. Animal Remains-** Also called ecofacts, animal remains provide archaeologists with valuable information related to a past peoples' diet, the use of domesticated animals, and the natural environment during the time being studied.



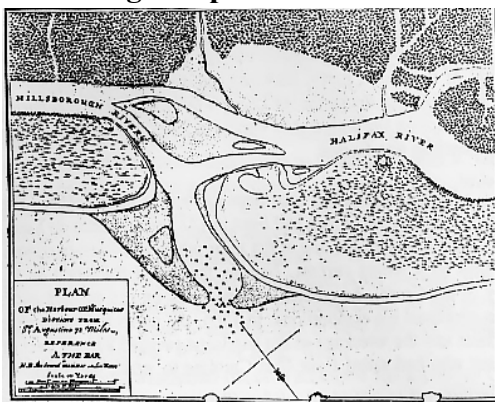
**6. Plant Remains-** These ecofacts provide archaeologists with information related to what people ate, what plants they cultivated, and what plants were used in a utilitarian sense for clothing, tools, and shelter.



**7. Buildings/Ruins-** Buildings and ruins help archaeologists understand the technological abilities of people in the past and provide valuable insight into a civilization's social, cultural, and economic systems.



**8. Writings/Maps-** Artifacts that contain writing provide archaeologists with valuable information regarding past cultures and civilizations. Historical documents, once translated, can tell archaeologists and historians about almost anything related to the daily lives of past people.



*Plan of the Harbour of Musquitos by James Montarief, 1765.*

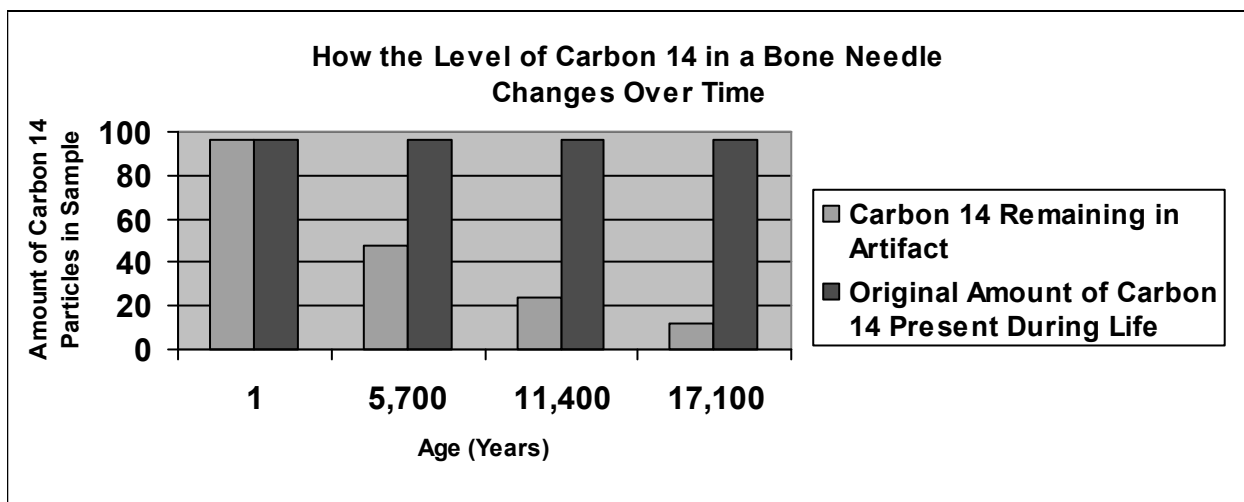
### Dating Artifacts:

Archaeologists date artifacts in a variety of ways. The dating of artifacts is called **archaeometry**. The age of an artifact is determined using either a relative or absolute dating system.



**Absolute Dating** provides the archaeologist with the exact date that an artifact was used. One of the most common methods of determining the age of an artifact is through examination and research. Many objects such as coins, bottles, pottery, and textiles are often marked with either the date of manufacture or possess specific characteristics or markings that can be dated with a little research. This is the most common method of dating artifacts found at the lighthouse.

Another common method for determining the absolute date of an artifact is Radiocarbon Dating. All living things absorb carbon while they are alive by breathing and eating. A small amount of the carbon that is absorbed by both plants and animals is a radioactive particle called Carbon 14. Unlike other forms of carbon, Carbon 14 will decay (or disappear) over time. Scientists have discovered that Carbon 14 atoms decay at a rate of  $\frac{1}{2}$  every 5,700 years. The age of an artifact can be determined by comparing how much Carbon 14 was present to begin with and how much Carbon 14 is left. This ratio allows scientists to measure the age of any artifact that is made from organic material from 0 to 60,000 years old (most Carbon 14 will have disappeared after 60,000 years).

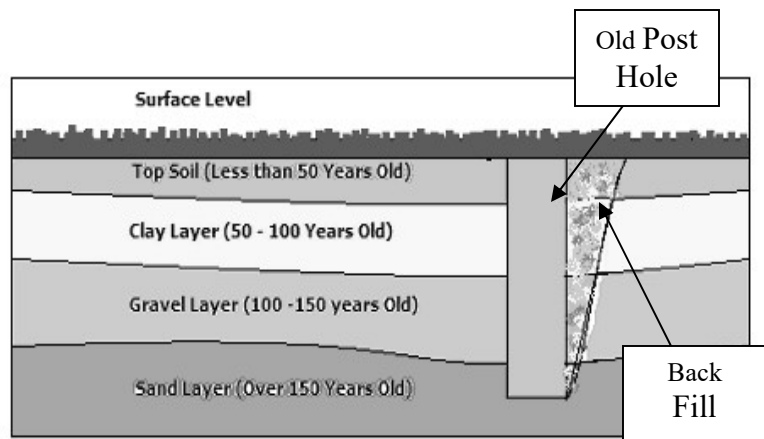


**Relative Dating** is a method that dates an artifact in relation to the age of another object that was located nearby or according to the chemical composition of the object itself. Many organic objects absorb specific types of chemicals at a predictable rate. A general age can be assigned to an artifact by measuring the amount of a specific chemical that it contains. Buried bones, for example, will absorb fluorine from ground water over an extended period of time. By measuring the fluorine level in bones, archaeologists can determine the relative age of the bones (the higher the fluorine levels the older the bones).

**Stratigraphy** is a scientific method used by archaeologists to determine the approximate age of artifacts that are discovered below the surface of the ground based upon the layer of earth in which they were discovered and the age of other artifacts found at the site. This process is based on the concept that earth is deposited in layers (also called strata) over a period of time. One may assume that the bottom layer will be older than any layer above it, just as the top layer is newer than any other layer below it. Unless something has happened to disturb its location, (such as roots, animals, or human activity), archaeologists who are excavating a site can expect the age of an artifact to increase the deeper it is found. Stratigraphy is founded in four laws:

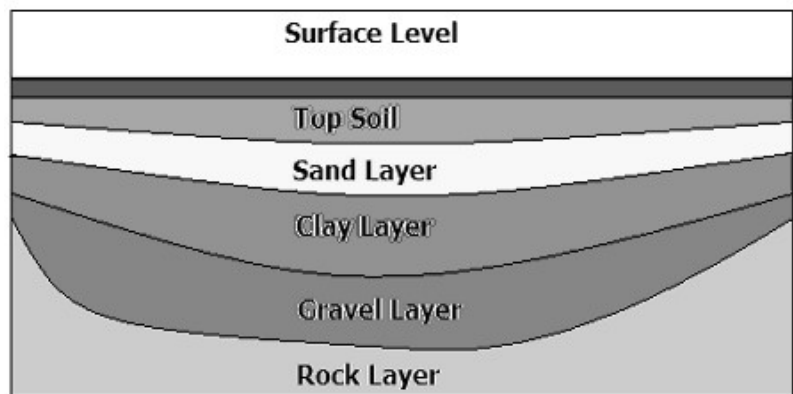
1. **The Law of Superposition:**

In a series of naturally occurring layers of earth, the upper layers will be newer than the layers below them, for each layer (or strata) must have been deposited atop the one below it. This law can be negated by disturbances to the layers by such forces as roots, animals, and human activity.



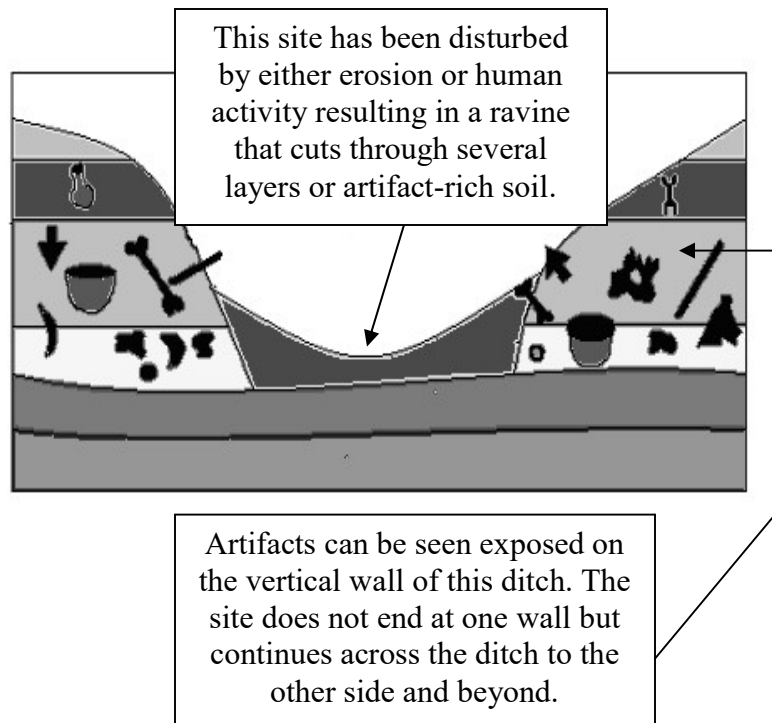
2. **Law of Original Horizontal:**

Loose layers of earth such as sand, mud, dirt, or gravel tend to form a flat horizontal layer unless deposited on a contoured surface such as hills, dunes, river banks, or mountain sides.

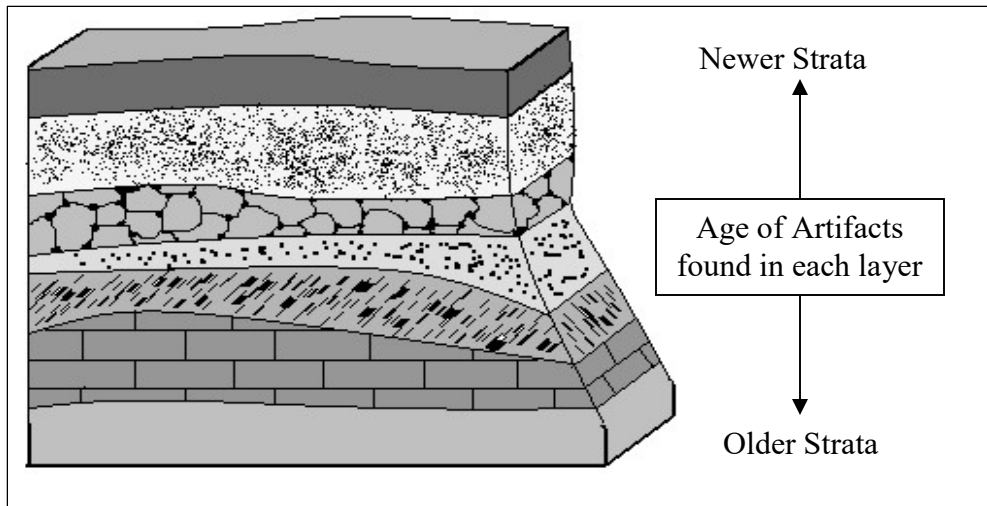


3. **Law of Original Continuity:**

All archaeological sites have outside perimeter. This “edge” may be sharp with definite edges, or tapered. If the edge of an archaeological deposit can be seen in a vertical surface it must be assumed that part of the deposit was removed by excavation or erosion. In cases such as this, an archaeologist must attempt to find out where the deposit continues or explain why the rest of the deposit is missing.



4. **Law of Stratigraphic Succession:** Layers of undisturbed earth in contact with each other (also called strata) within an archaeological site are formed in succession. A layer is older than the layer above it and younger than any layers below it.



**In Summary:**

Archaeology is firmly rooted in both science and history. Through the careful study, excavation, and research, archaeologists unlock the secrets of the past by examining the items that civilizations and people have left behind. Archaeology allows us to paint a picture of the past that tells us not only what people used but how they lived as well.