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Keys to Understanding Archaeology in Biblical Lands

For the novice, archaeology can be a mysterious and confusing discipline. However, in reality the entire process of locating and excavating a particular site is very structured and organized down to the very tools that are used and the personnel who are involved.

Understanding the Process of Archaeological Excavation

In order to begin excavating a site one must identify a *director*, who is in charge of leading the investigation and securing any necessary permits. This person ought to be a qualified (academically and experientially) individual trained in understanding the ancient Near East and possess some familiarity with ancient languages (Hebrew, Greek, Aramaic, and so on). In addition, the director will appoint an administrator, who is in charge of volunteer registrations, scheduling, logistics, travel, food, and lodging. Normally a site will have many supervisors at various areas throughout the excavated area to oversee the volunteer labor. It is not unusual for an investigation to include an official photographer and an architectural specialist to sketch and document areas, features, and artifacts of interest.

Bringing together all the various personnel, logistics, and tools necessary to dig can be an expensive endeavor. Since there is little funding available for archaeological excavation, it is primarily supported through private donations or financed by academic institutions. This means there is a heavy reliance on volunteers (many with no previous archaeological experience) to perform the actual excavation itself. It is common that volunteers undergo a day or two of archaeological training and orientation prior to starting.

Part of this training is familiarization with the tools that are used in unearthing the Bible's most precious treasures. The more basic tools include handheld brushes, trowels, wheelbarrows, picks, rubber baskets, twine, buckets, stakes, hoes, tape measures, and manually operated sifting trays. There are also technical tools utilized, such as cameras,

computers, databases, survey transits, ground penetrating radar, and aerial photography, among other things. Usually mechanized equipment such as backhoes, tractors, bulldozers, and the like are forbidden since precious artifacts and building structures that lie just beneath the surface may be damaged or completely destroyed. However, in some rare cases when manual labor is not feasible due to the amount of effort involved, or when the risk to artifacts is greatly reduced, exceptions may be made and heavy equipment used.

In addition to the physical labor involved, time is also allotted for experienced individuals to "read" (interpret) and reassemble pottery and other artifacts to discover their type and date. The corporate review and interpretive process can be lengthy, taking months or years to complete, but is a necessary step to insure the integrity and documentation of the material data. Then various specialists such as epigraphers, architects, anthropologists, scientists, forensic experts, geologists, theologians, and historians should carefully review and examine all (or portions of) the material data to ensure nothing was grossly misinterpreted or omitted.

Once archaeologists are confident they have completed their due diligence in examining the data, their findings are usually published in a scholarly journal and presented at various conferences, where the information can be peer-reviewed and evaluated by the archaeological community at large. Once these important steps have been taken, a body of information is created that usually trickles down for public consumption and evaluation in the form of nontechnical books, much like this one.

Dating Scenarios for Ancient Israel

As the excavation progresses at a given site, it is common to discover several layers (that is, *strata*; singular, *stratum*) of past occupation from various time periods. Usually, the deeper you dig the older the occupation stratum becomes, since more recent settlements are built over older settlements. By collecting and assessing the cumulative data unearthed at various locations around the Near East, archaeologists have developed chronological dating scenarios. These ancient time periods are identified with various civilizations that interacted with ancient Israel (sometimes known as "Palestine") through the centuries. Though not all archaeologists have adopted the same chronological development, there is a general consensus among conservative scholars, with slight variations, about the ages of antiquity and the corresponding civilizations.

Archaeological Ages and Israel[1]		
Neolithic Age	8500–4600 BC	Domestication of plants, animals, and introduction of metals. First evidence of religion (fertility worship) discovered in Israel.
Chalcolithic Age	4600–3600 BC	"Chalcolithic" literally means *copper* and *stone* due to the advances in creating objects made of stone and metal. Denser population with unfortified settlements in Israel. Near the end of the Chalcolithic Age, earliest writing discovered in southern Iraq (Sumer), known as the protoliterate age of logographic writing (in which pictures stand for words).
Early Bronze Age	3600–2350 BC	Increased settlement and urbanization in Israel, which included fortification of outer walls (up to 25 feet across). Cuneiform (*cuneus* = wedge) language emerges in the Near East as the written script produced by wedge impressions in soft clay. However, Egyptian writing used consonantal (no vowels) hieroglyphics in which pictures stood for words and syllables. Written-language illiteracy is high.
EB I	3600–2900 BC	Early Dynastic Period of ancient Egypt.
EB II	2900–2700 BC	Earliest Canaanite high place (Hebrew: *bamah*) discovered at Megiddo. Time of Early Dynastic Period in ancient Mesopotamia.
EB III	2700–2500 BC	Beginning of the Old Kingdom in ancient Egypt.
EB IV	2500–2350 BC	Population decreased, towns destroyed and uninhabited in Israel. End of the Old Kingdom in Egypt.
Intermediate Bronze Age	2350–2000	Urban centers had declined and nomadic lifestyle begins. Natural factors (rain, weather, farming, and so on) lead to highly transient culture.
Middle Bronze Age	2000–1550 BC	Patriarchal period of Abraham, Isaac, Jacob, and his 12 sons. Joseph and the Israelites in Egypt.
MB I	2000–1800 BC	Time of tribal transition and chaos with a declining population living as nomads. Beginning of the Middle Kingdom in Egypt.
MB II	1800–1550 BC	Period of Abraham, Lot, and the destruction of Sodom. (See new evidence emerging from Tall el-Hammam in Jordan.) End of the Middle Kingdom in Egypt.
Late Bronze Age	1550–1200 BC	Period of the Israelite Exodus from Egypt and conquest of Canaan by Joshua. Beginning of New Kingdom in Egypt.

LB I	1550–1400 BC	Time of Moses, Aaron, Joshua, Israelites, and the Exodus.
LB II	1400–1200 BC	Time of the conquest, Judges, and beginning of Hebrew settlement in the Promised Land. (See Bryant Wood's analysis of Jericho and the Merneptah Stele.)
Iron Age	1200–586 BC	Reign of the Judean and Israelite kings from Saul to Zedekiah. This period is ended with the destruction of Solomon's temple by the Babylonian (Nebuchadnezzar II) conquest of Jerusalem in 586 BC.
Iron I	1200–1000 BC	Period of the Judges, King Saul, and beginning of the Davidic dynasty. End of New Kingdom in Egypt.
Iron II	1000–586 BC	Period of the Davidic dynasty and the split of Israel into the Northern and Southern Kingdoms. The Assyrian and Babylonian sieges of Israel and Judah.
Persian Period	586–332 BC	Decline and fall of the Babylonian Empire and the reign of the Persians. Jews freed from Babylonian captivity and Jerusalem rebuilt. Alexander the Great conquers the world, and Hellenistic culture introduced.
Hellenistic Period	332–63 BC	Greek philosophy under Plato and Aristotle (who was the tutor of Alexander the Great) influenced the world's academic and popular thinking on reality, religion, politics, morals, cosmogony (origin of the universe), cosmology (operation of the universe), and the soul. The Septuagint (LXX) was translated for Greek-speaking Jews in Egypt (c. 250 BC). The Jewish revolt (c. 164 BC) under the Maccabees seizes the Jewish temple from the Seleucid King Antiochus IV Epiphanes. By AD 63 Rome ruled Israel as part of the Syria-Israel province.
Roman Period	63 BC–AD 324	Though Roman rule in Israel began in 63 BC when Pompey entered Jerusalem, the Roman Period was inaugurated by Rome's first emperor, Julius Caesar. This period offers biblical archaeologists a glimpse into the rise and spread of early Christianity in addition to the dispersion of the Jews in AD 70.

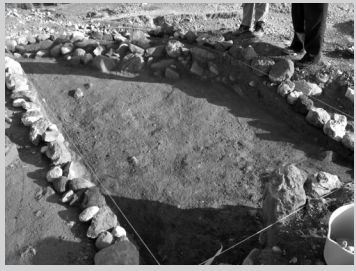
Basic Archaeological Vocabulary

When archaeologists conduct their excavations and unearth various kinds of material remains, they use special words to communicate about the process and the artifacts themselves. An understanding of this vocabulary (or what we call "archaeologese") is helpful to understanding the archaeological process. The following chart includes a summary of the basic vocabulary (see also the glossary at the end of this book):

Understanding Archaeological Terms
See also "Glossary of Key Terms" following chapter 26.

(Photo courtesy of the Tall el-Hammam Excavation Project [TeHeP].)

Tell (or **tel, tall)**—A *tell* is a mound of earthen debris that consists of layers of buried cities built one on top of the other over time. When a city was destroyed or abandoned, the new inhabitants would construct their own city on top of the previous ruins. Each layer of occupation is called a *stratum*. The study of these layers (*strata*) is known as *stratigraphy*. The analysis of the strata offers a timeline/history of successive cities as well as uncovering precious archaeological artifacts such as buildings, inscriptions, roads, tools, weapons, bones, altars, idols, bricks, and destruction remnants like ash. Archaeologists dig at a tell to slowly expose each successive layer in order to reconstruct the architecture and social aspects of a community. It is also important to note that not all biblical sites are located on or in tells.



Locus—A *locus* refers to a specific area of investigation. Usually archaeologists will mark out their locus as a *square* to be excavated. Often string or rocks can be arranged to mark the dimension of the locus (for example, 5m x 5m square). By marking a boundary the excavators can precisely contain and document all artifacts and information gained from this location, as well as prevent foreign material from being introduced into the area.

Balk—*Balks* refer to unexcavated vertical wall areas within a square. These are necessary in order to observe the soil layers of the area being excavated. These walls (typically 3 feet across) at Megiddo contain an exposed face (pictured left), which is known as a *section*. These sections give the archaeologist a short history of the area being excavated. That is to say, it is a chronological side-view of the area being unearthed. If there are no balks with sections, there can be no history of the square as the archaeologist removes soil and descends deeper and deeper into the square.

Artifacts—When excavators unearth portable items that were made by humans, they call them *artifacts*. These include but are not limited to pottery, jewelry, tools, weapons, knives, artwork, jars, coins, grinding stones, mortar and pestle, and clothing. After these artifacts are washed and examined, some of them are placed on display at museums. Artifacts are important since they tell us about the community, habits, and ambient life.

In situ—As archaeologists unearth artifacts at their dig site that are in their natural setting undisturbed by handling, movement, or transportation, they identify those artifacts as *in situ*. This is unlike some artifacts that surface on the antiquities market or in museums, which have no documented history of discovery in their natural setting or prior location. Although these kinds of objects may be authentic, they are nevertheless without official documentation, which raises concerns about their history and origin. In some cases these sorts of objects turn out to be forgeries.

Features—Unlike artifacts, *features* are nonportable man-made architectural structures such as fireplaces, kilns, walls, hearths, gates, foundations, bricks, amphitheaters, and other permanent items. *Features* convey information about the habits, values, boundaries, and customs of community inhabitants. This large amphitheater (pictured left) was discovered at the biblical city of Beth Shan in northern Israel, the city where bodies of King Saul and his son Jonathan were hung by the Philistines (2 Samuel 21:12).

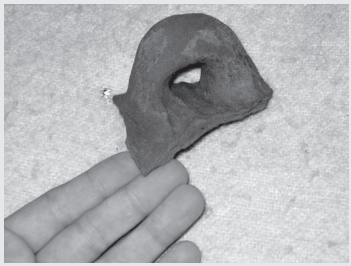
Mud Brick—In addition to wood and stone, ancient structures were built with clay. *Mud bricks* have been discovered throughout the ancient Near East, like these discovered at Tell el-Hammam (Sodom) in western Jordan. If a community chose to use mud brick, they would begin manufacturing them with local soil, which was poured into a mold (usually 18 inches long by 7 inches wide and 5 inches thick) and left to dry in the sun.

Ecofacts—Those things that are used by the community but not made by humans, including bone, seeds, wood, leather, clay, stone, and other sorts of naturally occurring materials. *Ecofacts* may indicate the availability of materials and the value placed on particular resources. This porous grinding stone (left) found at Sodom was used to grind grain into flour to make bread.

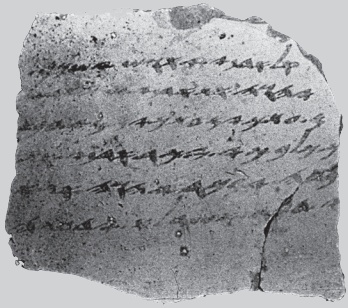
Ossuary—Throughout Israel archaeologists have discovered small (about 18 inch x 12 inch) stone bone boxes, known as *ossuaries*. After the deceased had been in the tomb for some time, family members would collect now uncovered bones and place them into an ossuary with the deceased's name written on it. This was primarily done to make room for more bodies in the tomb. The Israelites were the only culture to use such a burial practice.

(Photo by Zev Radovan.)

Bullae—Ancient *bullae* (singular, *bulla*) are small (nickel-size) clay seal impressions that contain the name, title, or both of the one sealing a particular document or package. Usually kings and persons in authority wore metal rings they could press into a small lump of moist clay, leaving their signature as an authenticating mark. Hundreds of these clay impressions have been discovered, some of which belong to biblical figures.



Potsherd—A *potsherd* is a piece of broken pottery (top). Potsherds are very abundant in Israel as you glance down when walking through a tell. These pieces of pottery are useful to archaeologists because they can provide information on chronology and dating of a community. In other words, designs, shapes, styles, colors, and thickness all change over time and thus can assist the examiner in discovering what particular time this kind of pottery flourished. People groups can also be deciphered based on design. Philistine pottery can be distinguished from Hebrew pottery by discovering the design, shape, and location in which it was found. Certain pieces of pottery (known as *diagnostic sherds*) are set aside for examination, such as handles, rims, and bases, because they offer clearer glimpses into the vessel's style and date (bottom). Pottery reading is the most common and reliable approach to discover chronology.

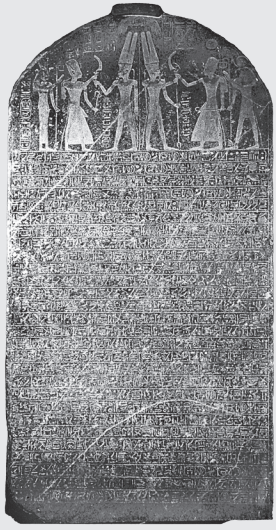


(Photo by Zev Radovan.)

Ostracon—*Ostracon* (plural, *ostraca*) is a Greek word meaning "potsherd." For the archaeologist, it is a piece of pottery or other hard surface material that contains writing on its surface. Though ostraca are rare, they offer insight into the written language and values of the community, and in some cases may provide a crucial link for understanding history. Ostraca typically contain portions of written receipts, directions, letters, names, descriptions of deities, or anything else that can be communicated in writing.

Glacis—A *glacis* (plural, *glacis*) is a man-made sloping fortification mound of debris that runs from ground level below the tell to the base of a defensive fortification wall on top of the tell. The glacis was used to support the perimeter of the tell and became a crucial aid in defending the community from invasion. The steep slopes, often covered with loose gravel or smooth river rock, would make it difficult for advancing armies to climb up and penetrate the city walls.

Topography, geography—Considering the natural surroundings of a community can aid the archaeologist in locating various cities and events mentioned in the Bible. These natural surroundings include mountains, valleys, caves, rivers, lakes, oceans, and streams. For example, the biblical town of Aroer (bottom), originally built by the Moabites and later captured by Moses, was located on the bank above the River Arnon (above, Deuteronomy 2:36) as shown in this photograph. Aroer is located near other biblical cities in modern Jordan such as Madaba and Dibon (modern Dhibon). The ancient trade route known by its biblical description as the "King's Highway" (Numbers 20:17-21) can also be seen from the town of Aroer.



(Photo by Zev Radovan.)

Stela or **stele / Stelae** or **steles** (plural)—Governments and rulers in the ancient Near East would commemorate important events by erecting stone monuments known as *steles.* Sometimes they are called *monumental inscriptions* and can include dedications, victory, or funerary inscriptions. Notable steles are the Mesha Stele (aka Moabite Stone), the Tel Dan Stele, and the Egyptian Merneptah Stele (pictured left).

(Photo by Zev Radovan.)

Manuscript / codex—A biblical *manuscript* (literally, "manual script") is a handwritten copy of a text written on *papyrus* (plant material), *vellum* (animal skin), or some other paperlike material. A *codex* (plural, *codices*) is a collection of manuscripts *bound* as a book. The *Aleppo Codex* (pictured left) is one of the Masoretic texts from the tenth century AD.