



# Virtual World Project

## About Archaeology

### Task of Archaeology

Archaeology is the scientific study of the material remains of past human life and activities. The material remains are discovered through excavations and surveys, and include both unwritten and written discoveries. Among the unwritten discoveries are architectural features such as temples, palaces, fortifications, public buildings, and houses; industrial features such as oil presses, wine presses, silos, ovens, and pottery kilns; artifacts such as pottery, tools, jewelry, weapons, and statues and figurines. The written material, usually discovered during the process of excavation, is ordinarily studied by epigraphists and paleographers and includes literary documents (such as the Dead Sea Scrolls), inscriptions on stone or clay tablets, seals and bullae, and ostraca (broken pieces of pottery with words inscribed on them).

The beginnings of the scientific study of the archaeology of the Levant (the archaeology of Israel, Jordan, and western Syria) can be dated to 1890, when W. M. Flinders Petrie conducted the first systematic excavation in Palestine at Tell el Hesi in the northern Negev. The Arabic word tell (tel, in Hebrew) is used to designate the artificial mounds in the shape of truncated cones that dominate the landscape of Palestine. They are sites of ancient settlements, built up by successive levels of human occupation and destruction over the centuries. The oldest inhabitation, of course, is at the bottom of the mound, and the most recent at the top. At Tell el Hesi, Petrie laid the foundations of stratigraphy and ceramic typology, which are the basic interpretative principles of archaeological field method. Stratigraphy is the technique of excavating a mound (tell) layer by layer, and at the same time isolating the contents of each occupational layer (stratum). Typology is the study and classification of groups of objects (artifacts) on the basis of shared characteristics (shape, material, decoration). By correlating stratigraphy and typology archaeologists can construct a relative chronology. Using distinctive types of pottery as his dating tool, Petrie constructed a chronological framework for Palestine.

Except for a few excavations, like George Reisner's at Samaria (Sebaste) in 1909-1910, archaeological excavations in Palestine before World War I resembled treasure hunts. Between World Wars I and II there was a significant advance in field techniques, due in large measure to William F. Albright, distinguished American archaeologist and biblical scholar. He refined pottery chronology through excavation and survey; he identified several mounds as biblical sites; and he related many of the biblical episodes to archaeological contexts. Archaeological field methods advanced rapidly after World War II. Three archaeologists contributed meaningfully to this development: the British Kathleen Kenyon, the Israeli

Yigael Yadin, and the American G. Ernest Wright. At Jericho, Kenyon used precise stratigraphic method to clarify the chronology of the fortification walls that had been dated incorrectly to the Late Bronze Age (1550-1200 BCE). Yadin directed the first large scale dig in modern Israel at Hazor in Upper Galilee, the largest biblical city in Palestine. In keeping with the Israeli method, Yadin concentrated on broad exposure of the monumental architecture of the site. G. Ernest Wright excavated Shechem in the central hill country, the first capital of the kingdom of Israel. Wright gave special attention to the pottery of the site as one of the most accurate indicators of ancient chronology; also, he trained a new generation of archaeologists at Shechem.

Since 1970 there has been a striking change in field method as archaeologists borrow from both the natural and the social sciences. In the first place, almost all excavation staffs are interdisciplinary: such specialists as paleobotanists, zooarchaeologists, geologists, ecologists, and, especially, physical and cultural anthropologists collaborate with archaeologists in the field. Also, the technologies of modern science, such as carbon 14 (for dating organic material), thermoluminescence (for dating pottery), magnetometry (for detecting the presence of metal objects), potassium argon (for dating geological samples), and neutron activation analysis (for tracing the origin of clay), are being used to analyze the data with greater precision. The purpose of this comprehensive approach, at least in theory, is to reconstruct the daily life of the people, whose remains are being excavated, including their social structure and economic development, as well as their religious practices. Archaeologists' earlier interest in digging isolated tells is now also combined with regional surveys as a way of studying a tell's relationship with the surrounding landscape and settlements. Regional study is indispensable in determining town planning, settlement patterns, and population expansion, to mention some of the concerns of modern archaeologists.

### **The Methods of Archaeology**

Archaeology in the Levant today involves excavation of tells, large and small one period sites, and regional surveys. Traditional archaeology in the region, however, primarily involved the excavation of tells. Tells, which are artificial mounds, are essentially large human artifacts. They represent the human remains of several, and sometimes numerous, periods of human occupation of a site. They are the most complicated areas to excavate, and thus will be the focus of this discussion.

#### *The Tell*

Tells are the result of the peculiar environmental features of Palestine. Every permanent settlement requires foremost a permanent source of water – a spring, river, or well. In Palestine, such permanent water sources are limited. Moreover, a permanent settlement requires terrain that is easily exploitable by the populace, and preferably also defensible. Finally, the site needs to be economically exploitable for the populace to thrive. As a result of these factors, which are limited in Palestine, people tended to settle in previously occupied sites, and their occupational remains contributed to the build up of the tell.

The primary building material in Palestine prior to the Hellenistic period was field-stone and mudbrick (the limited timber of the region was used to support the roofs of buildings, for the construction of furniture and implements, and for fuel). Although such material made for well-constructed and comfortable dwellings, such structures also required human attention for preservation.

Typically, buildings were made from mudbrick with a stone foundation. Mudbrick tends to break down (melt) in the rain, and thus mudbrick walls were usually plastered in order to prolong their life. However, when a city was abandoned (through either war or some other cause), the buildings and structures, exposed to the elements, would erode in a natural leveling process. New settlers, choosing the site for the same reasons as the previous occupants, would further level the remains of the mound before building their own buildings and structures on top.

A critical component in the construction of a tell is a city wall, often including a rampart or glacis. These structures provide the shape of the tell, and prevent the erosion of the occupational debris into the adjoining valley or plain. Thus, generation after generation, the tell was created from the build up of debris from successive occupations of a site.

### *Digging the Tell*

By necessity, excavation of a tell proceeds in the reverse order of its buildup. That is, excavators remove the most recent deposits first. Later deposits should be removed before proceeding to excavate earlier deposits. This general rule is followed for two reasons:

1. Later deposits might contaminate earlier deposits. Because deposits are dated by the latest artifact in them, the latest deposits are removed in their entirety, lest an artifact from those deposits should mix with earlier deposits and thus distort the dating of the earlier deposit.
2. Common sense dictates that it is easier to take apart a puzzle in the reverse order by which it was put together. Therefore, the last deposit should be excavated first, then the next to the last, etc.

Generally, this means that higher levels will be excavated before lower levels, and of course, this is always true of sequential deposits in which one is directly on top of another. Pits, trenches, and other cuts into lower levels of the tell can distort the sequential order of the deposits, for they are intrusive into earlier deposits. In such cases, the contents of the pits, trenches, or other cuts must be thoroughly excavated first before earlier surrounding layers are excavated. Otherwise, the later contents of the cut would be mixed with and distort the earlier layers.

Following this general rule, tells are excavated following either one of two approaches, or a combination of the two:

1. Excavating according to architectural units: This approach emphasizes the horizontal exposure of the site. Its goal is to uncover a broad horizon to develop the fullest understanding of any one period. This approach tends to be weak on stratigraphy.
2. The Wheeler-Kenyon approach: This approach emphasizes the vertical exposure of the occupation of the site. Its goal is to uncover the occupational history of the site. This approach tends to be weak on understanding any one period of occupation.

Most excavations today follow some combination of these two approaches.

A sufficiently large area of the site is marked off in a grid of squares, varying in size (5 by 5 meter or 10 by 10 meter squares are common) depending on the particular preferences of the excavator. These squares are then excavated with attention to the stratigraphy preserved

in the four balks of each square. When significant architectural features are reached across several squares, and after the balks have been drawn (and sometimes photographed), the balks are removed to reveal fully the structures which lie beneath them.

### *Recording the Excavation*

Archaeology involves destruction! By its very nature, an excavation destroys an ancient site. All that remains from an excavation are the artifacts that are preserved, the record of the excavation, and often a large hole. (This is less true for Hellenistic and later sites because the buildings were constructed often from cut stone and thus were better preserved. In either case, the architectural remains that can be seen in the Virtual World Project generally have been intentionally preserved by the excavators). And with regard to the artifacts, if they are preserved without their provenance, then they are of little value. The value of archaeology, therefore, rests with the recording process. Through the recording process, a researcher should be able to reconstruct the tell as it was dug.

Every excavation, therefore, needs some means of referencing and recording every feature, layer, and artifact that is dug up. Most excavations in Palestine refer to every significant feature and layer uncovered in the excavation as a locus, and each locus is assigned a unique number.

All necessary information about each locus will be recorded on a locus sheet. This sheet will record a description of the locus, the measurements of the locus (horizontally and vertically), its relationship to other loci, and possibly a scaled drawing of the locus in its context. Accompanying the locus sheet, or even included on the locus sheet, the excavator will provide a narrative description of the process of excavating the locus. In this context, the excavator will raise questions and provide preliminary interpretations about the meaning and relationship of the locus to its context. The locus sheets will also record all the baskets of pottery and other material culture that are associated with the locus.

In addition to locus sheets, recording of the excavation takes on many supplementary forms. The excavator will often draw a scaled top plan of all the features and layers in the excavation trench. As features and layers are removed and new ones uncovered, a new top plan will be drawn. Every locus, therefore, will be recorded on some top plan. Photographs will be taken of all significant artifacts in the field and in the studio. Photographs and architectural drawings will be made of all significant features and layers. Scaled drawings of the balks and major sections are made, with all the features and layers in the section labeled.

At the end of each season of excavation, final summary reports for each excavation trench are made. These reports will include a description of what was excavated and the relationship of the all the features and layers, and preliminary interpretation of what was excavated. These reports are incorporated are often incorporated into published preliminary reports that are intended to keep the rest of the scholarly world updated on the progress of the excavation.

### *Typology*

The careful excavation of a site will establish a relative history of the occupation and material life of the site. Every artifact and phase of occupation will be related relatively to each other (i.e., earlier, contemporaneous, or later). An absolute chronology of the site is often impossible, except where artifacts link the site to firm dates in Egypt or Mesopotamia.

The archaeologist will also want to relate his/her site with other sites in Palestine, regionally and more distant. To do this, the archaeologist employs typology. The relative sequence of one site is compared to the relative sequence of another site by placing the material of both sites within typological sequences that are established by comparing the excavation materials from across Palestine.

The basis of typology is that human culture changes gradually and within limits. When a broad range of features and artifacts are compared, a typology can be established into which new features and artifacts can be placed. As a result, typology is the primary means of dating the features and artifacts of an excavation.

The major artifact used in typological dating is pottery. Because pottery sherds are virtually indestructible, and pottery is found at every site for every period since the Neolithic, a large database of pottery exists to establish a typological sequence. Moreover, the short life of whole pottery vessels led to rapid change in the repertoire. As a result, pottery enables excavators to date layers of human occupation rather precisely, sometimes within a range of a few decades.