Managing the Data: The Tell Ziyadeh Archaeological Project

Yukiko Tonoike
Yale University, Dept. of Anthropology, yukiko.tonoike@yale.edu

Dawn Brown
Yale University, Dept. of Anthropology, Associate, dawn.brown@aya.yale.edu

Frank Hole
Yale University, Dept. of Anthropology, frank.hole@yale.edu

Follow this and additional works at: http://elischolar.library.yale.edu/dayofdata

Part of the Archaeological Anthropology Commons

Managing the Data: The Tell Ziyadeh Archaeological Project

Yukiko Tonoike[1], Dawn Brown[2], and Frank Hole[3]   Department of Anthropology, Yale University

[1]Postdoctoral Associate   [2]Associate   [3] Senior Research Scientist
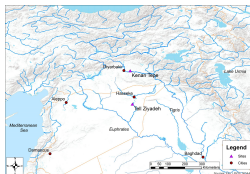
Archaeological Process

Archaeology uses data to reconstruct past lifeways. This poster uses the Tell Ziyadeh Project as an example to illustrate this point.

Goals of project: To document the early prehistory of the region and to better understand the relationship between environmental changes and human responses in an agriculturally marginal settlement.

Research design and methodology: Regional survey augmented by excavation and analyses.

Tell Ziyadeh Archaeological Project

- Located in northeastern Syria along the Khabur River
- Occupied mainly in the 5th and 3rd millennium BC
- Excavated as part of the larger Khabur Basin Survey Project by a Yale University team directed by Dr. Frank Hole

Data Collection

The first step in an archaeological project is the collection of data. This can be achieved through satellite imagery analysis, a vehicular or walking survey, and excavations.

Washing artifacts is a critical start to the processing stage to make artifact details more discernable.

Processing of Data

After the data is collected it is processed. The first stage of processing starts in the field. It is continued in the field laboratory and then in the archaeological laboratories. This stage involves washing, sorting, initial identification, recording, and photography.

Sorting bones from midden deposits provides information such as the species present, whether they were domesticated, and the diet of the people.

Flotation separates light fraction from heavy fraction enabling the study of seeds and microartifacts.

Initial sorting of sherds in the field provides information about the occupation sequence and cultural affinities.

Data Analysis

Once the project returns to the institution, analysis is continued in the archaeological laboratories. After further sorting and identification, some artifacts are studied by specialists to answer specific research questions.
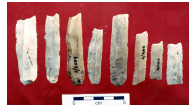
Lithic analysis provides information on interaction spheres, technology, and agricultural practices. These chert blades from Tell Ziyadeh were used for the reaping and threshing of grains.

Ceramics are the most abundant types of artifacts in most sites. The style of ceramics from Tell Ziyadeh reveals that people moved into this site from somewhere in southern Mesopotamia.

Data from analyses are carefully entered into a database for later use in the interpretation process. With the development of digital technology, the amount of data that can be incorporated into each archaeological project has grown exponentially. The Tell Ziyadeh Project uses ArcheoLink, a digital database for organization and sophisticated analyses.

The botanical remains collected by flotation are studied under a microscope. This data is useful for understanding diet, domestication and seasons of occupation.

Powder x-ray diffraction was used to better understand the clays that were used to make the ceramics.

Portable x-ray fluorescence was used to statistically group obsidian artifacts based on chemical compositions. By understanding the sources of the raw material, this research suggests ancient interaction patterns.

Osteology informs us about the health and lifestyles of the occupants of the site, as well as providing insights into their belief systems through burial practices. In addition, by carrying out isotopic analyses, it can even provide more details about their life histories.

Cross polarized view of a thin section of a ceramic sherd under the petrographic microscope.
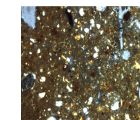
Technical analyses can provide more detailed data. For example, petrographic analysis of sherds has been used to better understand the manufacturing technology as well as provide insight into the movement of people and pottery.

Portable XRF analysis of obsidian artifacts

Interpretation and Synthesis

Analyses of the material data are synthesized using contextual data. Stratigraphy, cross-correlation among data sets, and historical and ethnographic comparisons are examples of such contextual data.

Ethnographic use of an oven

Archaeological recovery of an oven

Historical and ethnographic comparisons are useful when interpreting the functions or uses of archaeological features or artifacts.
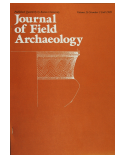
Stratigraphy reveals the series of events that took place. A site specific chronology is developed with older occupation levels at the bottom and newer occupation levels at the top. The stratigraphy of Tell Ziyadeh revealed that the 5th millennium settlement was the earliest occupation.

A final interpretation of the site of Tell Ziyadeh is that the first occupants moved in from somewhere in southern Mesopotamia in the 5th millennium. Taking advantage of the climatic situation that allowed them to engage in agriculture in this marginal zone, they lived at this site for approximately 500 years until the area was no longer sustainable for agriculture due to a change in the climate. After an absence of almost 1500 years, a different group founded a new settlement at Tell Ziyadeh. This pattern has repeated itself throughout history in this region.

Dissemination and Archive

Results are traditionally presented at conferences and published as articles in journals or as monographs. Now, digital archives have become invaluable in making archaeological data more accessible to other researchers and the public, as well as allowing for better preservation of data.

Most artifacts are eventually donated to museums for curation. Researchers often use these collections for comparative or further technical analyses. Online inventories are useful tools for research.

Hole, Frank 1999
Economic Implications of Possible Storage Structures at Tell Ziyadeh, NE Syria

The anthropology collection storage area at West Campus, Peabody Museum of Natural History, Yale University

Museums have more artifacts in storage than on exhibit. The artifacts are curated at controlled climates and are carefully inventoried for future accessibility.

tDAR is a commonly used digital archive for archaeological data, such as notes, photos, and site locations.

The Egypt exhibit at the Peabody Museum of Natural History, Yale University

A small percentage of artifacts will be part of a museum exhibit where data will be displayed for public education and interpretation.

The proper recording and archiving of archaeological data is crucial since archaeology is a destructive process.