THE AL-HIBA PUBLICATION PROJECT

A new approach to the post-excavation analysis of unpublished excavations

The Al-Hiba Publication Project was set up by Holly Pittman after Donald Hansen's untimely death in 2007 in order to prepare the site's final reports. These reports will be presented in four volumes, one for each of the main areas excavated at the site. The first volume will focus on Area G, where a long sequence of occupation extending back to the earliest levels excavated at the site (Early Dynastic I) provides an opportunity to gain insight into that poorly understood period. The work is being carried out by a team at the University of Pennsylvania based on the records of the six seasons of excavations at al-Hiba. The philosophy of the project is that the final reports will be built from a digital research environment where the archival data is fully integrated and searchable.

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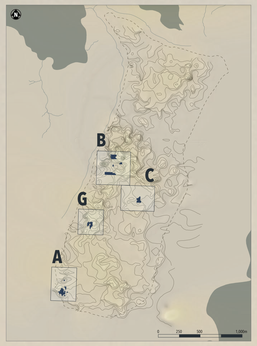
Tell al-Hiba is located in the Dhi Qar Province in southern Iraq, northwest of the junction of the Euphrates and Tigris rivers and east of the ancient site of Uruk. It is one of the largest known archaeological sites in southern Mesopotamia, covering an area of over 360 hectares. The site was briefly excavated by Robert Koldewey in 1887, but its true importance was not fully perceived until 1953, when evidence from survey allowed Thorkild Jacobsen and Fuad Safar to identify the site as the ancient city of Lagash.



One of the oldest cities in Mesopotamia, and capital of the homonymous city-state, Lagash reached its apogee during the second half of the Early Dynastic period (*ca* 2500–2300 BCE) at which time it was quite possibly the world's largest urban centre.

Systematic excavations at the site were conducted for five seasons, between 1968 and 1978, by Donald Hansen on behalf of the Metropolitan Museum of Art and the Institute of Fine Arts of New York University. Apart from a surface survey by Elizabeth Carter in 1984 no new work took place at al-Hiba until 1990 when a sixth season of excavations was carried out with support from the Brooklyn College of the City University of New York and the University of Pennsylvania Museum of Archaeology and Anthropology.

Excavations at al-Hiba exposed four significant architectural complexes (Areas A, B, C, and G) with associated material culture, including inscriptions which have allowed scholars to link, for the first time, excavated buildings to both Early Dynastic rulers and to specific structures mentioned in contemporary texts. Hansen published brief preliminary reports, but died in 2007 after a brief illness, before he could publish the final reports for the site.

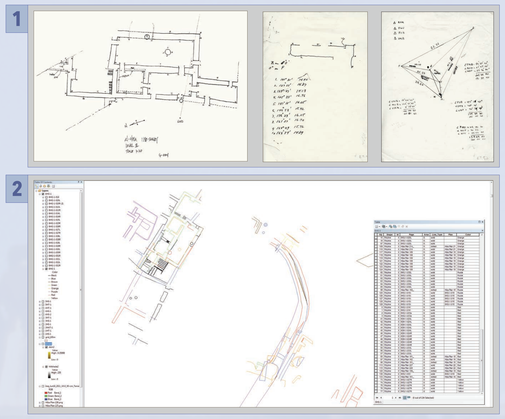
METHODOLOGY

The al-Hiba excavation records consist of almost 10,000 images, over 1,000 object cards, more than 3,000 pottery sheets, 25 field notebooks, 227 plans, and thousands of other documents including object and image catalogues, correspondence, previous publications, drafts, and research notes. The records were moved to Penn in 2007, and the last five years have been spent digitising them and preparing them for research and publication. The basic digitisation of the materials has already been completed.

In order to properly store and manage the digital assets we have imported them into a custom-built research environment powered by a sophisticated database that stores and correlates these data, and offers the tools to manage and process them. Besides storing the digital records, the database correlates the different components of the dataset, following the same complex web of relationships reflected in the data themselves. This offers researchers instantaneous access not only to individual items but also to all other related materials and enables complex, problem-orientated searches. These capacities, coupled with the database's tools for collaboration and data-processing, enormously facilitate research and accelerate publication.

In order to illustrate our methodological approach we have taken a case study below (Locus 53) to show how the different strands of evidence are pulled together with the help of our database to produce spatial, chronological, and functional interpretations of the data relevant to that context.

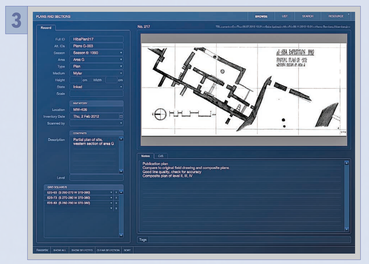
PLANS



The dataset consists of inked plans prepared for publications, draft and working plans, notebook sketches, lists of coordinates as measured in the field, and survey triangulations included in the field notes. [1] The latter two are of particular concern since not all measurements taken were actually drawn on the existing plans.

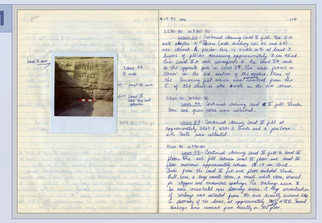
All of the available original plans were scanned and digitally cleaned, the lists of coordinates were transcribed, and the survey triangulations were digitally reconstructed from the field notes. All these data have been compiled into a Geographic Information System (GIS) for the site and linked to the spatial references in the notebooks and other materials. A reconstruction of the site's grid and topography, based on survey records and a series of high resolution QuickBird satellite images, has been used to create a fully rectified and universally referenced spatial framework for the GIS, allowing us to produce accurate spatial representations of the archaeological remains excavated there. [2]

Due to discrepancies between different versions of plans and other records, our approach has been to identify the best data for each excavation area by determining which plans show the most detailed and accurate documentation at the smallest scale and combine them during vectorisation. Priority has also been given to the original field drafts of plans and to state plans that include stone-by-stone drawings to increase the reliability of the data. [3]



NOTEBOOKS

Hand-written field notebooks were kept for each area under excavation during each season. At the end of each morning and evening session, observations recorded in the field were collected and synthesised into a single entry describing the deposits encountered. These entries primarily provide quantitative and qualitative descriptions about the architecture, features, and stratigraphy exposed by the excavators, as well as more cursory documentation on the presence or absence of ceramics and other small finds. [1]

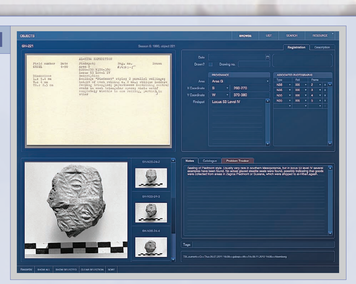


These textual descriptions are occasionally accompanied by sketches of architectural configurations, locus assignations, and artefacts, as well as annotated photographs.

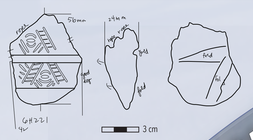
Since the notebooks contain primarily architectural and stratigraphic information, any attempt to reconstruct what occurred on a specific day requires the use of the object catalogue, photo log, and pottery day-sheets. There is some overlap of information amongst the multiple sources, but consulting all of them is a necessity.

Each notebook page has been individually scanned as well as transcribed and annotated. Additionally, each sketch or photo has been saved individually. All of these have been imported into the database and tagged appropriately depending on the relevant associations. [2]

OBJECT CARDS



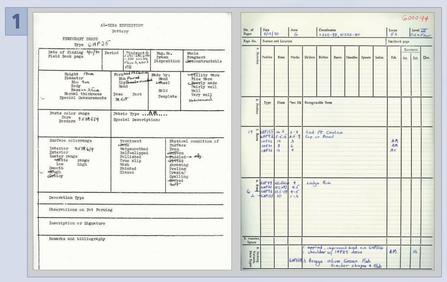
Objects, comprised of artefacts other than sherds, were recorded on object cards and photographed. Object cards contain all the basic information relating to archaeological context (based on the locus where it was found), date of recovery, description, and a reference to the photograph number.



For processing the object cards we developed a hybrid method using Optical Character Recognition (OCR) and manual data entry. Zones were pre-defined within the unstructured object card to guide the OCR process, and the results were then imported into the database where a special template allowed the input of the data, copying and pasting directly from the documents when possible—and correcting the text as necessary—or typing the information manually when the OCR process had failed to produce acceptable results.

The object card information on the database allows us to quickly retrieve all objects from any specific locus. The database automatically links the objects to their associated photographs and to other records where relevant, such as pottery type-sheets. [1]

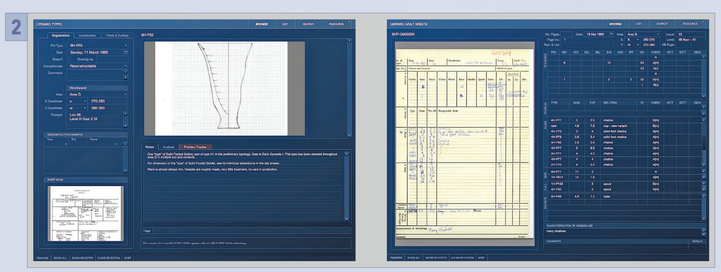
CERAMICS



The pottery from al-Hiba was recorded in four separate types of records: type-sheets, day-sheets, drawings, and photographs. [1] Throughout the excavations Edward L. Ochsenschlager, in charge of ceramics, recorded variations of pottery. Every example that was ostensibly different in shape from previously recorded ones was defined as a separate "type". The best preserved specimen of such a "type" was stored on a shelf for comparative purposes, while descriptions and information about fabric and ware were recorded on type-sheets. Trench supervisors were responsible for filling out day-sheets on which they recorded the amount of specimens of each "type" that they had retrieved from each locus by comparing sherds to the reference collection. However, only the specimens which were used to define those "types" were described, drawn, and photographed. In this way approximately two thousand "types" were recorded which can now be grouped together to form a true ceramic typology based on shapes and dimensions.

Using the database we can quickly assemble the necessary data to characterise the ceramics of any given context. Day-sheets show which "types" of pottery were retrieved, including information about the sherds' dimensions and ware, while the type-sheets contain the details about the "types" themselves, and are in turn linked to the relevant drawings and photographs. Thus, ceramics can be efficiently referenced to address issues of chronology and function. [2]

Given the lack of secure archaeological contexts dating to the Early Dynastic period and the problems with methodology and recording at most excavations of southern Mesopotamian sites, the pottery sequence of al-Hiba offers crucial new data for the construction of ceramic typologies and the resolution of issues of chronology in Mesopotamian archaeology. While not without its own problems, the pottery record from al-Hiba has the potential to set a new standard for the ceramic sequence of third millennium southern Mesopotamia.



CASE STUDY: LOCUS 53

Locus 53 is part of a structure located approximately forty metres west of the curving wall in Area G, excavated in the third and fourth seasons. The external limits of the building were not uncovered, but five architectural phases were identified and designated, from top to bottom, Levels I, IIA, IIB, III, and IV.

Levels I and IIA were poorly-preserved and only found in isolated instances. However, Levels IIB, III, and IV constitute three major building phases of the same structure. As excavated, this structure consists of a suite of three linked rooms extending roughly northeast-southwest with one courtyard to the north and another to the east. In this arrangement Locus 53 is synonymous with the northernmost room of the three-room suite.

SPATIAL

The layout of Locus 53 remained fairly consistent from Level IV to Level IIB, unlike some of the loci around it, which underwent changes to both division of space and points of access. In Locus 53, there was always a doorway in the northern end of the eastern wall and another in the centre of the southern wall. Although wall repairs reduced the size of the locus in Level III, the space was returned to its original layout in the subsequent Level IIB. Additionally, the recovery of a burned beam in Level III suggests that the locus was roofed, at least during this period of occupation.

FUNCTIONAL

The very heavy concentration of sealings on the floor and in the fill of Level IV suggests that Locus 53 served as a storeroom and/or a space for processing sealed goods. Additionally, the recovery of sealings on the floor and in the fill of Level III indicates a continuity of use in this space that persisted through more than one architectural phase. The excavation of sealings on the floor and in the fill of Level III in the loci around Locus 53 further reinforces the conclusion that this suite of rooms had an administrative function.

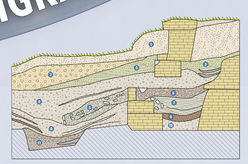
CHRONOLOGICAL

Ceramics and sealings from the suite of rooms that includes Locus 53 suggest that the structure dates to the ED I period. Solid-footed goblets, a standard ED I diagnostic form, as well as other characteristic ED I ceramics were recovered from each level of the structure. Furthermore, the seal styles represented on the sealings are analogous to those from the Seal Impression Strata at Ur as well as Level IXB from the Inanna Temple at Nippur, both of which date to ED I. In addition to the relative dating, the recovery of a burned beam from Locus 53, Level III provides the opportunity to assign an absolute date range to part of the complex.

SAMPLES

Forty samples taken from all of the excavations areas at al-Hiba were submitted for radiocarbon dating to the Weizmann Laboratory in Israel in November 2011. The analysis is being supervised by Elisabetta Boaretto, director of the radiocarbon lab at that institute. These specimens are of utmost importance because they are the only radiocarbon samples from Early Dynastic contexts from southern Mesopotamia. They will go a long way toward resolving the long debate about the reliability of current chronological models.

STRATIGRAPHY

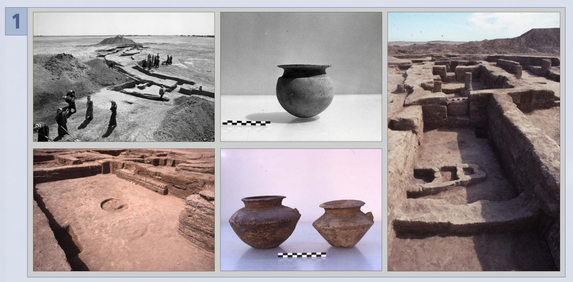


Sections were not drawn for each baulk of each excavation square. In some cases, the location of walls within baulks and the desire to clear entire rooms resulted in the removal of baulks that artificially divided what were originally single spaces; however, the lack of section drawings for most of those that remained standing indicates a practice of very selective documentation. As a result, the sections from al-Hiba provide a corpus of stratigraphic data that may be available during the study of specific squares, but that cannot be used to reconstruct the stratigraphy for an entire area. Discussions of stratigraphy must therefore rely on the descriptions given in the field notebooks.

The sections drawn by the excavators can be supplemented by the elevations taken during the survey of exposed architecture. The plans contain documentation on the heights of walls, benches, floors, and other features. These data, combined with the observations recorded in the field notebooks, facilitate some rudimentary stratigraphic reconstruction.

The section drawings that are preserved have been scanned, digitally cleaned, imported into the database, and tagged with as much information as can be discerned about them.

PHOTOGRAPHS



The dataset consists of almost 10,000 analogue photographs in the form of 35 and 120 mm negatives, and colour slides. [1] All the images have been scanned and imported into the database, but in order for them to be searchable and linkable to other elements of the dataset, information about their contents also had to be entered. This information resides in separate documents—a photo catalogue, and running field lists. [2] These sources contain overlapping information, but also unique data about the images. When information overlaps, these sources do not always agree with each other (or with the images themselves), thus creating the need to reconcile them and resolve any inconsistencies in the data that they contain. Some of these problems can be solved automatically by using smart algorithms that use contextual information to correct simple errors (such as typos or swapped characters). In the case of more complex issues, a human being will ultimately have to go over the data to solve them, but automated algorithms can help the process by highlighting possible sources of inconsistencies. [3]